

**TRILOBITE**  
**TESTING, INC.**

## DRILL STEM TEST REPORT

Prepared For: **Raymond Oil Co.Inc.**

P.O.Box 48788  
Wichita Ks. 67201

ATTN: Clarke Sandberg

**20-31s-13w Barber Ks**

**Hartley A#1**

Start Date: 2005.01.27 @ 16:59:58

End Date: 2005.01.27 @ 22:22:28

Job Ticket #: 19923                      DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Raymond Oil Co.Inc.

Hartley A#1

20-31s-13w Barber Ks

DST # 1

Indian Cave

2005.01.27



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Raymond Oil Co. Inc.

**Hartley A#1**

P.O.Box 48788  
Wichita Ks. 67201

**20-31s-13w Barber Ks**

Job Ticket: 19923

**DST#: 1**

ATTN: Clarke Sandberg

Test Start: 2005.01.27 @ 16:59:58

## GENERAL INFORMATION:

Formation: **Indian Cave**

Deviated: **No** Whipstock: **ft (KB)**

Time Tool Opened: 18:11:28

Time Test Ended: 22:22:28

Test Type: **Conventional Bottom Hole**

Tester: **Gary Pevoteaux**

Unit No: **23**

Interval: **2598.00 ft (KB) To 2665.00 ft (KB) (TVD)**

Reference Elevations: **1600.00 ft (KB)**

Total Depth: **2665.00 ft (KB) (TVD)**

**1589.00 ft (CF)**

Hole Diameter: **7.88 inches** Hole Condition: **Poor**

KB to GR/CF: **11.00 ft**

**Serial #: 6755** **Inside**

Press@RunDepth: **434.54 psig @ 2599.00 ft (KB)**

Capacity: **7000.00 psig**

Start Date: **2005.01.27**

End Date: **2005.01.27**

Last Calib.: **2005.01.27**

Start Time: **17:00:03**

End Time: **22:22:27**

Time On Btm: **2005.01.27 @ 18:09:43**

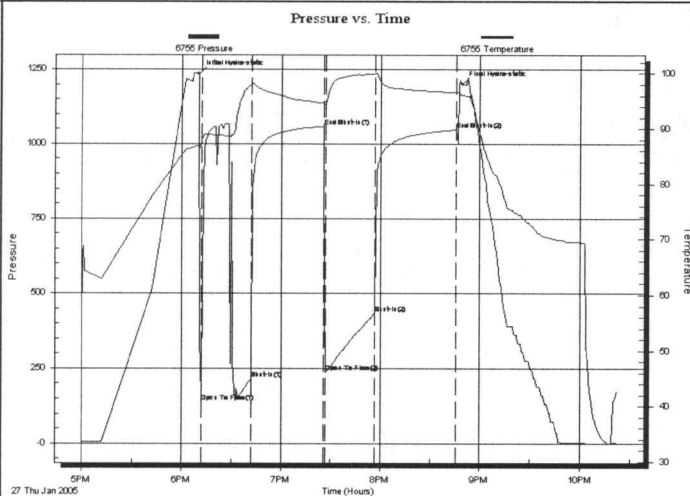
Time Off Btm: **2005.01.27 @ 20:48:58**

TEST COMMENT: **IF: Fair to strong blow . B.O.B. in 19 mins.**

**IS: No blow .**

**FF: Weak blow . 1 - 4" decrasing back to 1/2".**

**FS: No blow .**



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1235.93	86.93	Initial Hydro-static
2	137.03	87.48	Open To Flow (1)
33	216.07	97.97	Shut-In(1)
77	1059.23	94.58	End Shut-In(1)
77	237.83	94.28	Open To Flow (2)
107	434.54	100.01	Shut-In(2)
156	1047.86	96.59	End Shut-In(2)
160	1200.74	96.12	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
260.00	WM 33%w 67% m	3.65
580.00	SW Rw .11 ohms @ 47 deg.	8.14

## Gas Rates

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



**TRILOBITE  
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## DRILL STEM TEST REPORT

TOOL DIAGRAM

Raymond Oil Co. Inc.

**Hartley A#1**

P.O.Box 48788  
Wichita Ks. 67201

**20-31s-13w Barber Ks**

Job Ticket: 19923

DST#: 1

ATTN: Clarke Sandberg

Test Start: 2005.01.27 @ 16:59:58

### Tool Information

Drill Pipe:	Length: 2588.00 ft	Diameter: 3.80 inches	Volume: 36.30 bbl	Tool Weight: 2100.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 61000.00 lb
			<u>Total Volume: 36.30 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	17.00 ft			String Weight: Initial 37000.00 lb
Depth to Top Packer:	2598.00 ft			Final 40000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	67.00 ft			
Tool Length:	94.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

### Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			2572.00	
Shut In Tool	5.00			2577.00	
Hydraulic tool	5.00			2582.00	
Jars	5.00			2587.00	
Safety Joint	2.00			2589.00	
Packer	4.00			2593.00	27.00 Bottom Of Top Packer
Packer	5.00			2598.00	
Stubb	1.00			2599.00	
Recorder	0.00	6755	Inside	2599.00	
Perforations	5.00			2604.00	
Change Over Sub	1.00			2605.00	
Blank Spacing	31.00			2636.00	
Change Over Sub	1.00			2637.00	
Perforations	23.00			2660.00	
Recorder	0.00	13222	Outside	2660.00	
Bullnose	5.00			2665.00	67.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>94.00</b>				



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# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Raymond Oil Co. Inc.

**Hartley A#1**

P.O.Box 48788  
Wichita Ks. 67201

**20-31s-13w Barber Ks**

Job Ticket: 19923

**DST#: 1**

ATTN: Clarke Sandberg

Test Start: 2005.01.27 @ 16:59:58

## 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:

120000 ppm

Viscosity: 44.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 10.38 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 3000.00 ppm

Filter Cake: 0.20 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
260.00	WM 33%w 67%m	3.647
580.00	SW Rw .11 ohms @ 47 deg.	8.136

Total Length: 840.00 ft

Total Volume: 11.783 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

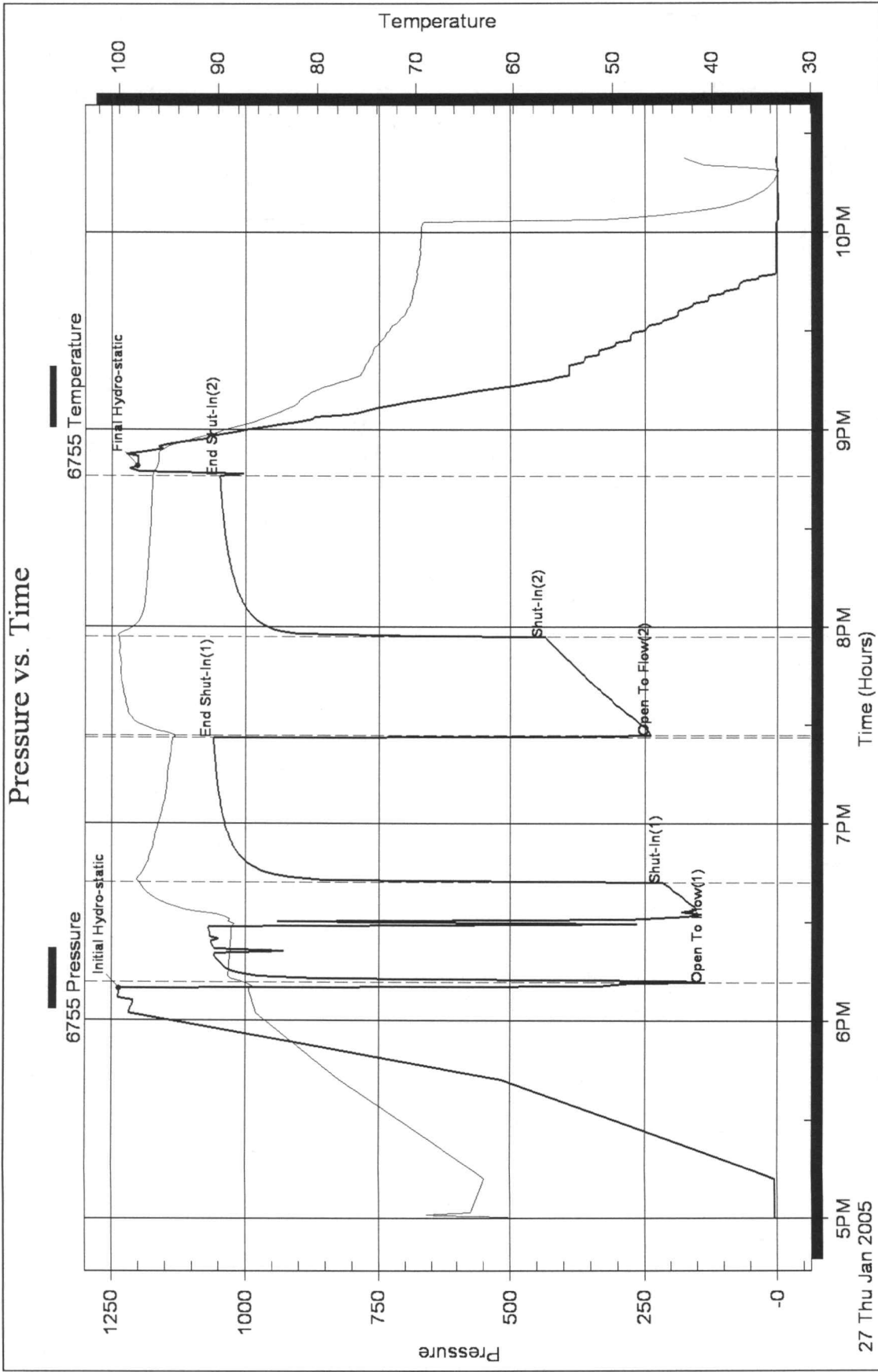
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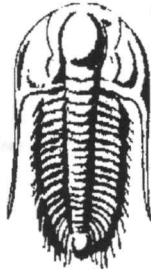
Laboratory Name:

Laboratory Location:

Recovery Comments:

### Pressure vs. Time





**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

Prepared For: **Raymond Oil Co.Inc.**

P.O.Box 48788  
Wichita Ks. 67201

ATTN: Clarke Sandberg

**20-31s-13w Barber Ks**

**Hartley A#1**

Start Date: 2005.01.29 @ 17:28:22

End Date: 2005.01.30 @ 00:59:22

Job Ticket #: 19924                      DST #: 2

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 Co. Inc.

**Hartley A#1**

P.O.Box 48788  
Wichita Ks. 67201

**20-31s-13w Barber Ks**

Job Ticket: 19924

**DST#: 2**

ATTN: Clarke Sandberg

Test Start: 2005.01.29 @ 17:28:22

## GENERAL INFORMATION:

Formation: **Lwr. Douglas Sd.**

Deviated: **No Whipstock:** ft (KB)

Time Tool Opened: 19:06:22

Time Test Ended: 00:59:22

Test Type: **Conventional Bottom Hole**

Tester: **Gary Pevoteaux**

Unit No: **23**

Interval: **3643.00 ft (KB) To 3698.00 ft (KB) (TVD)**

Total Depth: **3698.00 ft (KB) (TVD)**

Hole Diameter: **7.88 inches** Hole Condition: **Poor**

Reference Elevations: **1600.00 ft (KB)**

**1589.00 ft (CF)**

KB to GR/CF: **11.00 ft**

## Serial #: 6755

**Inside**

Press@RunDepth: **401.85 psig @ 3644.00 ft (KB)**

Start Date: **2005.01.29**

End Date:

**2005.01.30**

Capacity: **7000.00 psig**

Last Calib.: **2005.01.30**

Start Time: **17:28:27**

End Time:

**00:59:21**

Time On Btm: **2005.01.29 @ 19:02:52**

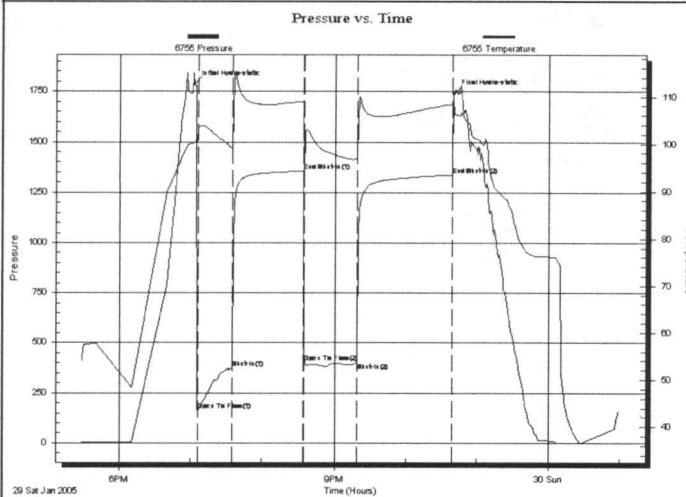
Time Off Btm: **2005.01.29 @ 22:40:37**

TEST COMMENT: **IF: Strong blow . GTS in 3.5 mins. (see gas volume report)**

**IS: No blow .**

**FF: Strong blow . (see gas volume report)**

**FS: Weak blow . 1/2 - 3/4".**



## PRESSURE SUMMARY

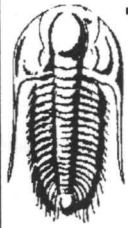
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1787.79	100.40	Initial Hydro-static
4	160.87	103.22	Open To Flow (1)
33	373.08	98.99	Shut-In(1)
91	1354.03	109.00	End Shut-In(1)
92	400.34	94.32	Open To Flow (2)
136	401.85	96.82	Shut-In(2)
217	1336.20	108.46	End Shut-In(2)
218	1741.97	106.25	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
130.00	WM 44%w 56% m Rw .48 @ 42 deg	1.82

## Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
First Gas Rate	0.75	60.00	1162.12
Last Gas Rate	0.75	110.00	1943.11
Max. Gas Rate	0.75	119.00	2083.69



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## DRILL STEM TEST REPORT

TOOL DIAGRAM

Raymond Oil Co. Inc.

Hartley A#1

P.O.Box 48788  
Wichita Ks. 67201

20-31s-13w Barber Ks

Job Ticket: 19924

DST#: 2

ATTN: Clarke Sandberg

Test Start: 2005.01.29 @ 17:28:22

### Tool Information

Drill Pipe:	Length: 3634.00 ft	Diameter: 3.80 inches	Volume: 50.98 bbl	Tool Weight: 2100.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 52000.00 lb
			<u>Total Volume: 50.98 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	13.00 ft			String Weight: Initial 45000.00 lb
Depth to Top Packer:	3643.00 ft			Final 46500.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	55.00 ft			
Tool Length:	77.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		
Tool Comments:				

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3622.00	
Shut In Tool	5.00			3627.00	
Hydraulic tool	5.00			3632.00	
Safety Joint	2.00			3634.00	
Packer	4.00			3638.00	22.00 Bottom Of Top Packer
Packer	5.00			3643.00	
Stubb	1.00			3644.00	
Recorder	0.00	6755	Inside	3644.00	
Perforations	5.00			3649.00	
Change Over Sub	1.00			3650.00	
Blank Spacing	32.00			3682.00	
Change Over Sub	1.00			3683.00	
Perforations	10.00			3693.00	
Recorder	0.00	13222	Outside	3693.00	
Bullnose	5.00			3698.00	55.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>		<b>77.00</b>			



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**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

Raymond Oil Co. Inc.

**Hartley A#1**

P.O.Box 48788  
Wichita Ks. 67201

**20-31s-13w Barber Ks**

Job Ticket: 19924

**DST#: 2**

ATTN: Clarke Sandberg

Test Start: 2005.01.29 @ 17:28:22

**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: 44.00 sec/qt	Cushion Volume: bbl		
Water Loss: 11.98 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig		
Salinity: 8000.00 ppm			
Filter Cake: 0.20 inches			

**Recovery Information**

Recovery Table

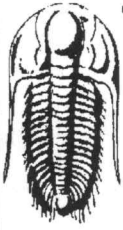
Length ft	Description	Volume bbl
130.00	WM 44%w 56%m Rw .48 @ 42 deg	1.824

Total Length: 130.00 ft      Total Volume: 1.824 bbl

Num Fluid Samples: 0      Num Gas Bombs: 1      Serial #: gp-2

Laboratory Name: Caraway      Laboratory Location: Liberal, KS

Recovery Comments:



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## DRILL STEM TEST REPORT

**GAS RATES**

Raymond Oil Co.Inc.

**Hartley A#1**

P.O.Box 48788  
Wichita Ks. 67201

**20-31s-13w Barber Ks**

Job Ticket: 19924

**DST#: 2**

ATTN: Clarke Sandberg

Test Start: 2005.01.29 @ 17:28:22

### Gas Rates Information

Temperature: 59 deg C  
Relative Density: 0.65  
Z Factor: 0.8

Gas Rates Table

Flow Period	Elapsed Time	Choke (mm)	Pressure (kPaa)	Gas Rate (m <sup>3</sup> /d)
1	10	0.75	60.00	1162.12
1	20	0.75	72.00	1349.56
1	30	0.75	91.00	1646.33
2	10	0.75	110.00	1943.11
2	20	0.75	106.00	1880.63
2	30	0.75	119.00	2083.69
2	45	0.75	110.00	1943.11

Serial #: 6755

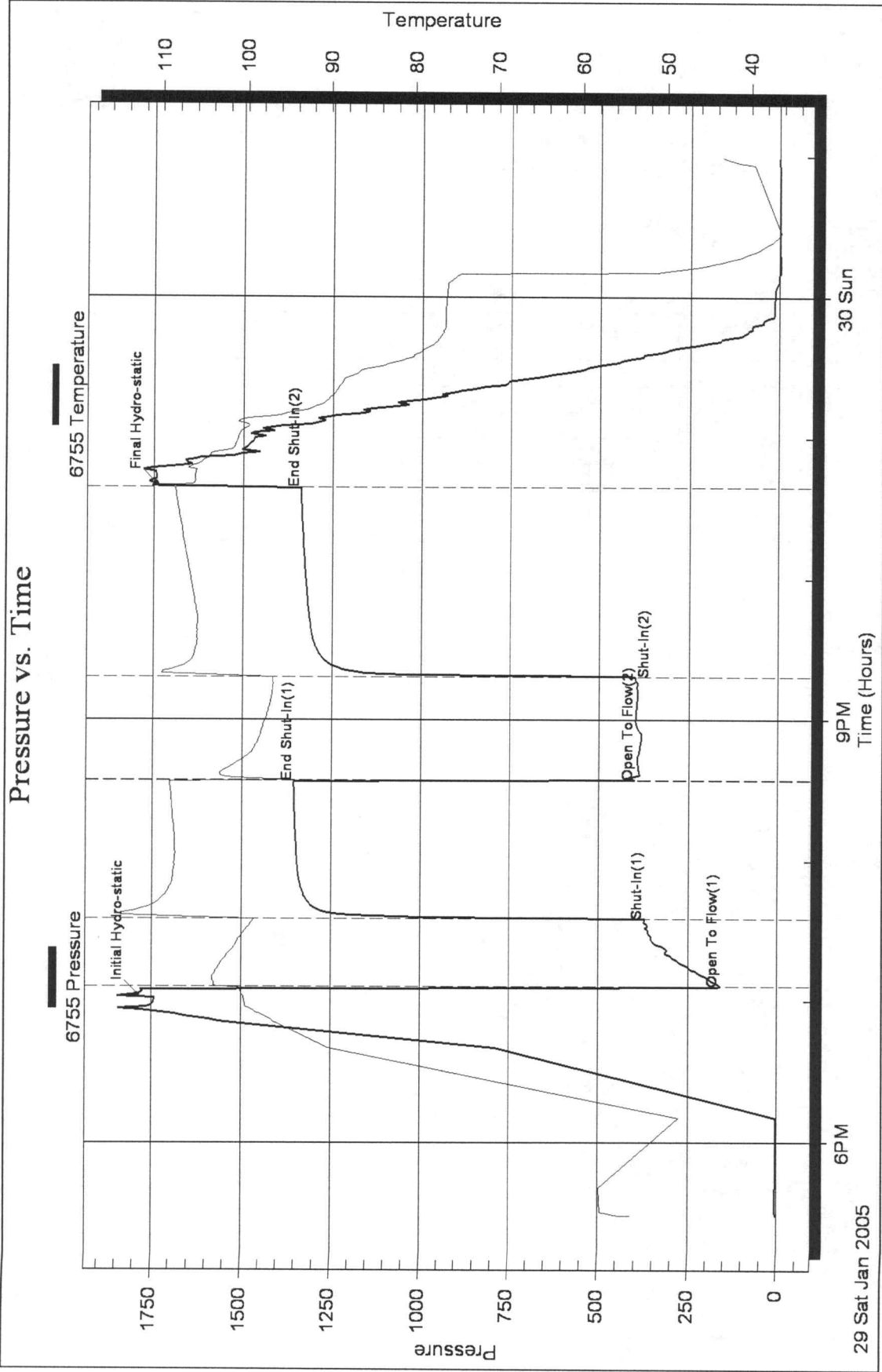
Inside

Raymond Oil Co. Inc.

20-31s-13w Barber Ks

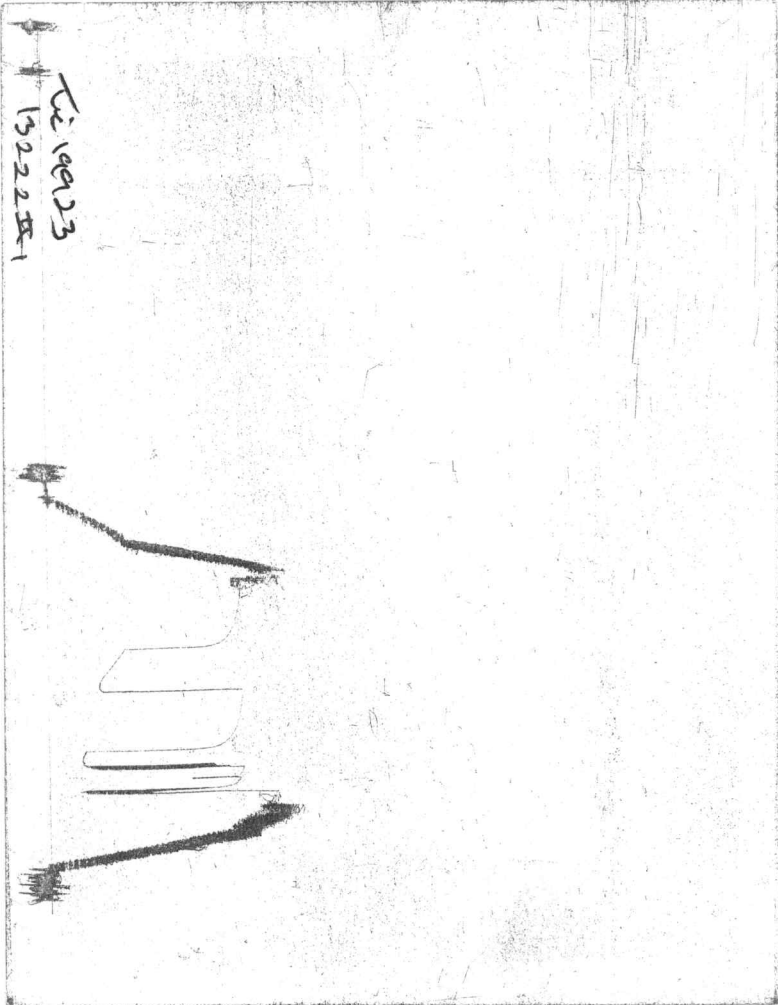
DST Test Number: 2

### Pressure vs. Time



**CHART PAGE**

This is a photocopy of the actual AK-1 recorder chart.



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This is a photocopy of the actual AK-1 recorder chart.

