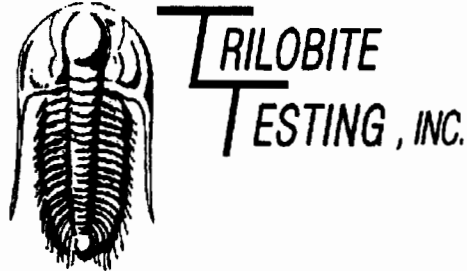


15-063-21786

20-13s-3lw



## DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration Inc**

P.O. Box 783188  
Wichita, Ks 67278

ATTN: Steve Carl

**20-13-31 Gove Ks**

**Phillips-Hess #1**

Start Date: 2009.07.08 @ 07:05:32

End Date: 2009.07.08 @ 12:38:11

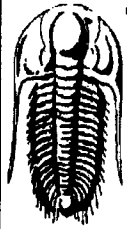
Job Ticket #: 34431                      DST #: 1

**KCC**  
**SEP 29 2009**  
**CONFIDENTIAL**

Trilobite Testing, Inc

PO Box 1733 Hays, KS 67601

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Ritchie Exploration Inc

**Phillips-Hess #1**

P.O. Box 783188  
Wichita, Ks 67278

**20-13-31 Gove Ks**

ATTN: Steve Carl

Job Ticket: 34431

**DST#: 1**

Test Start: 2009.07.08 @ 07:05:32

## GENERAL INFORMATION:

Formation: **Lansing C**  
 Deviated: **No Whipstock:** ft (KB)  
 Time Tool Opened: 08:56:42  
 Time Test Ended: 12:38:11

Test Type: **Conventional Bottom Hole**  
 Tester: **Brandon Turley**  
 Unit No: **35**

Interval: **3969.00 ft (KB) To 4000.00 ft (KB) (TVD)**  
 Total Depth: **4000.00 ft (KB) (TVD)**  
 Hole Diameter: **7.88 inches** Hole Condition: **Good**

Reference Elevations: **2925.00 ft (KB)**  
**2915.00 ft (CF)**  
 KB to GR/CF: **10.00 ft**

**Serial #: 8373**

**Inside**

Press@RunDepth: **82.12 psig @ 3970.00 ft (KB)**

Capacity: **7000.00 psig**

Start Date: **2009.07.08**

End Date:

**2009.07.08**

Last Calib.: **2009.07.08**

Start Time: **07:05:32**

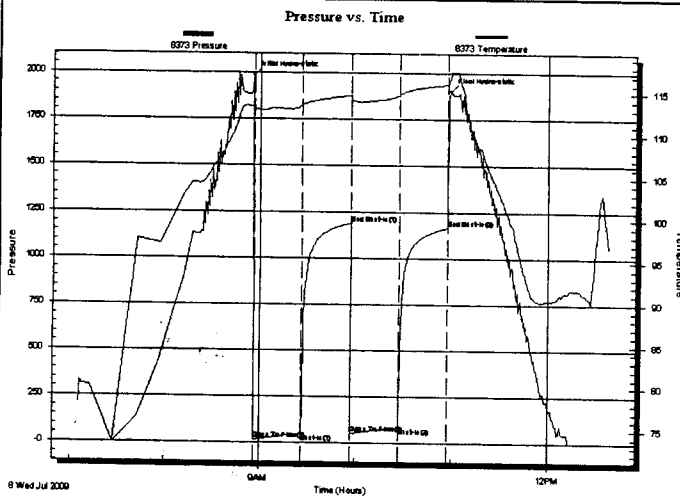
End Time:

**12:38:11**

Time On Btm: **2009.07.08 @ 08:55:57**

Time Off Btm: **2009.07.08 @ 10:58:42**

TEST COMMENT: IF: 1/4 blow built to 1 in 30 min.  
 IS: No return.  
 FF: Surface blow built to 1 in 30 min.  
 FS: No return.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1984.28	113.59	Initial Hydro-static
1	14.40	113.10	Open To Flow (1)
31	49.25	113.53	Shut-in(1)
61	1189.14	114.75	End Shut-in(1)
62	54.72	114.21	Open To Flow(2)
91	82.12	114.69	Shut-in(2)
122	1166.50	116.07	End Shut-in(2)
123	1901.03	116.71	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
93.00	mcw 70%w 30% m	0.46
20.00	wcm 5%w 95% m	0.10
1.00	free oil 100% o	0.00

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Ritchie Exploration Inc

**Phillips-Hess #1**

P.O. Box 783188  
Wichita, Ks 67278

**20-13-31 Gove Ks**

ATTN: Steve Carl

Job Ticket: 34431

**DST#: 1**

Test Start: 2009.07.08 @ 07:05:32

### Tool Information

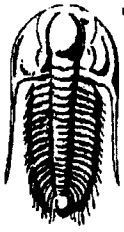
Drill Pipe:	Length: 3426.00 ft	Diameter: 3.80 inches	Volume: 48.06 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 546.00 ft	Diameter: 2.25 inches	Volume: 2.69 bbl	Weight to Pull Loose: 100000.0 lb
		<b>Total Volume:</b>	<b>50.75 bbl</b>	Tool Chased 0.00 ft
Drill Pipe Above KB:	25.00 ft			String Weight: Initial 70000.00 lb
Depth to Top Packer:	3969.00 ft			Final 70000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	31.00 ft			
Tool Length:	53.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

### Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Stubb	1.00			3948.00	
Shut In Tool	5.00			3953.00	
Hydraulic tool	5.00			3958.00	
Safety Joint	2.00			3960.00	
Packer	5.00			3965.00	22.00 Bottom Of Top Packer
Packer	4.00			3969.00	
Stubb	1.00			3970.00	
Recorder	0.00	6772	Inside	3970.00	
Recorder	0.00	8373	Inside	3970.00	
Perforations	25.00			3995.00	
Bullnose	5.00			4000.00	31.00 Bottom Packers & Anchor

**Total Tool Length: 53.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Ritchie Exploration Inc

**Phillips-Hess #1**

P.O. Box 783188  
Wichita, Ks 67278

**20-13-31 Gove Ks**

Job Ticket: 34431

**DST#: 1**

ATTN: Steve Carl

Test Start: 2009.07.08 @ 07:05:32

### Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 46.00 sec/qt

Water Loss: 8.74 in<sup>3</sup>

Resistivity: 0.00 ohm.m

Salinity: 2200.00 ppm

Filter Cake: 1.00 inches

Cushion Type:

Cushion Length:

Cushion Volume:

Gas Cushion Type:

Gas Cushion Pressure:

Oil API:

0 deg API

Water Salinity:

39000 ppm

ft  
bbl

psig

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
93.00	mcw 70%w 30%m	0.457
20.00	w cm 5%w 95%m	0.098
1.00	free oil 100%o	0.005

Total Length: 114.00 ft      Total Volume: 0.560 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

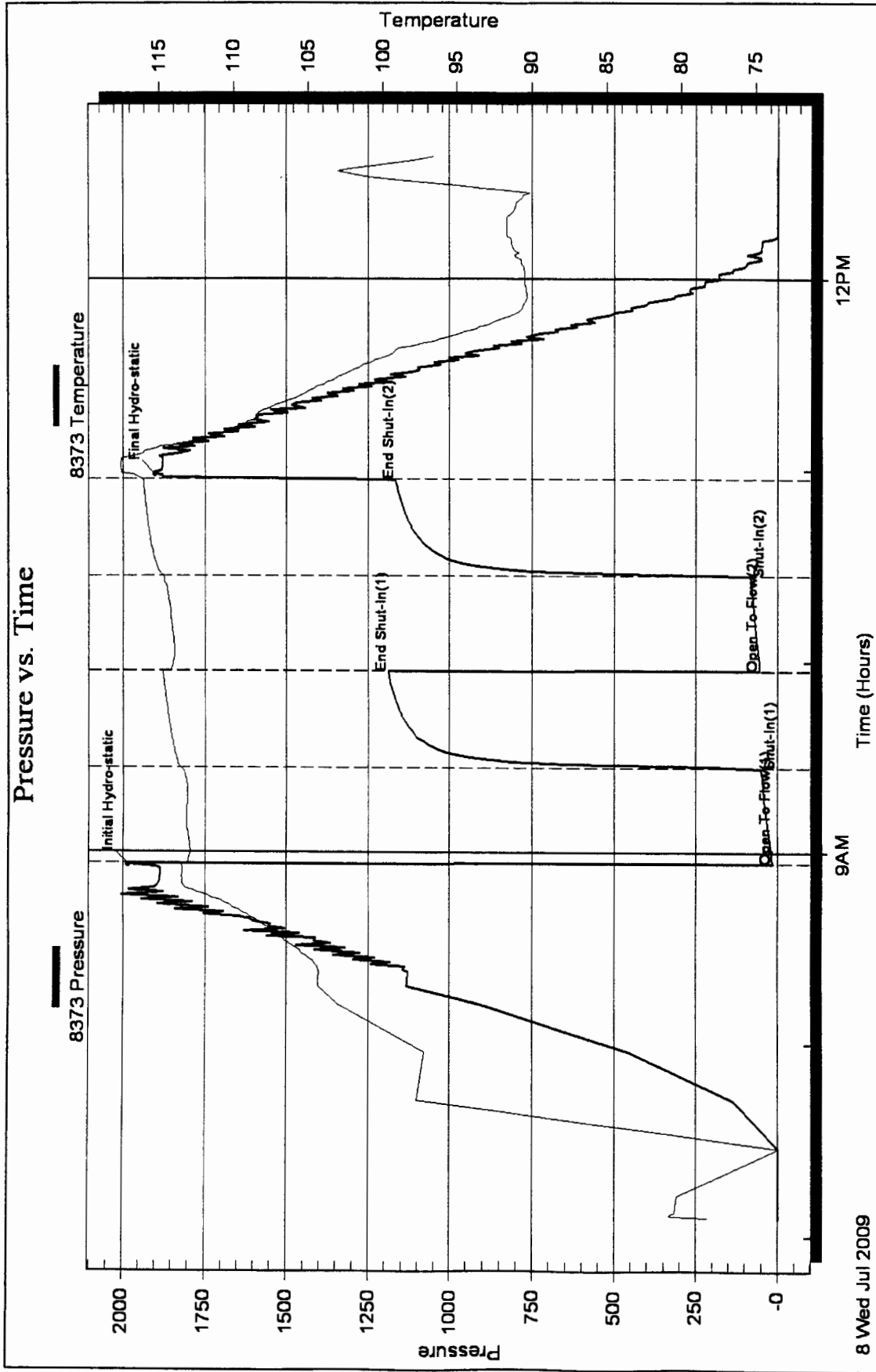
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: .14@92=39000

# Pressure vs. Time

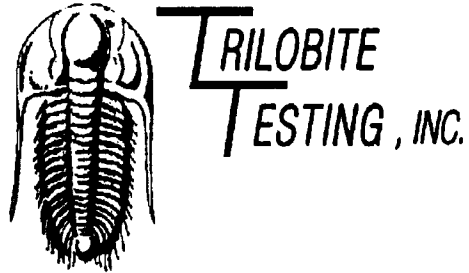


8 Wed Jul 2009

9AM

Time (Hours)

12PM



## DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration Inc**

P.O. Box 783188  
Wichita, Ks 67278

ATTN: Steve Carl

**20-13-31 Gove Ks**

**Phillips-Hess #1**

Start Date: 2009.07.09 @ 04:40:51

End Date: 2009.07.09 @ 11:48:15

Job Ticket #: 34432                      DST #: 2

Trilobite Testing, Inc

PO Box 1733 Hays, KS 67601

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

Ritchie Exploration Inc

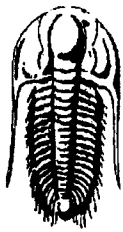
Phillips-Hess #1

20-13-31 Gove Ks

DST # 2

Lansing H

2009.07.09



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Ritchie Exploration Inc

P.O. Box 783188  
Wichita, Ks 67278

ATTN: Steve Carl

**Phillips-Hess #1**

**20-13-31 Gove Ks**

Job Ticket: 34432

DST#: 2

Test Start: 2009.07.09 @ 04:40:51

## GENERAL INFORMATION:

Formation: **Lansing H**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 06:33:01

Time Test Ended: 11:48:15

Test Type: Conventional Bottom Hole

Tester: Brandon Turley

Unit No: 35

Interval: **4098.00 ft (KB) To 4130.00 ft (KB) (TVD)**

Total Depth: 4130.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2925.00 ft (KB)

2915.00 ft (CF)

KB to GR/CF: 10.00 ft

**Serial #: 8373 Inside**

Press@RunDepth: 858.36 psig @ 4099.00 ft (KB)

Start Date: 2009.07.09

End Date: 2009.07.09

Start Time: 04:40:51

End Time: 11:48:15

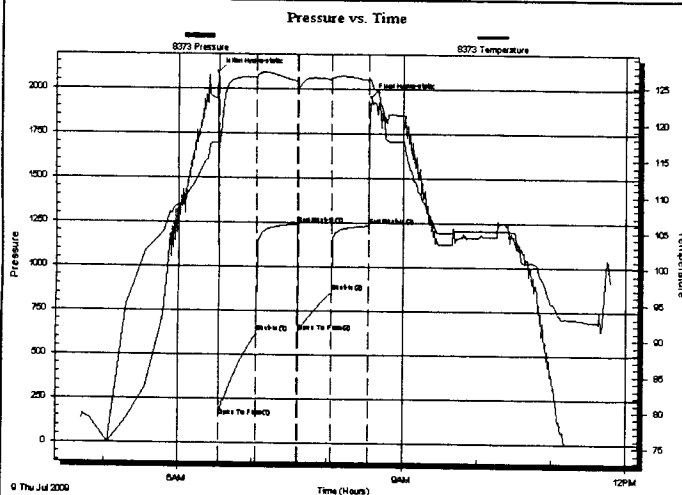
Capacity: 7000.00 psig

Last Calib.: 2009.07.09

Time On Btm: 2009.07.09 @ 06:32:16

Time Off Btm: 2009.07.09 @ 08:34:16

TEST COMMENT: IF: BOB in 1 min.  
IS: BOB in 3 min.  
FF: BOB in 2 min. Gas to surface in 9 min.  
FS: BOB in 6 min.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2092.45	117.29	Initial Hydro-static
1	145.85	116.96	Open To Flow (1)
32	623.18	126.39	Shut-In (1)
64	1240.90	125.80	End Shut-In (1)
64	631.46	125.58	Open To Flow (2)
91	858.36	126.15	Shut-In (2)
121	1232.06	125.99	End Shut-In (2)
122	1955.25	125.80	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
94.00	mcgo 10%g 50%o 40%m	0.46
2350.00	go 15%g 85%o	28.85
0.00	1108 GIP	0.00

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Ritchie Exploration Inc

**Phillips-Hess #1**

P.O. Box 783188  
Wichita, Ks 67278

**20-13-31 Gove Ks**

Job Ticket: 34432

**DST#: 2**

ATTN: Steve Carl

Test Start: 2009.07.09 @ 04:40:51

## Tool Information

Drill Pipe:	Length: 3552.00 ft	Diameter: 3.80 inches	Volume: 49.83 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 546.00 ft	Diameter: 2.25 inches	Volume: 2.69 bbl	Weight to Pull Loose: 90000.00 lb
			<u>Total Volume: 52.52 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	22.00 ft			String Weight: Initial 72000.00 lb
Depth to Top Packer:	4098.00 ft			Final 76000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	32.00 ft			
Tool Length:	54.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Stubb	1.00			4077.00	
Shut In Tool	5.00			4082.00	
Hydraulic tool	5.00			4087.00	
Safety Joint	2.00			4089.00	
Packer	5.00			4094.00	22.00 Bottom Of Top Packer
Packer	4.00			4098.00	
Stubb	1.00			4099.00	
Recorder	0.00	6772	Inside	4099.00	
Recorder	0.00	8373	Inside	4099.00	
Perforations	26.00			4125.00	
Bullnose	5.00			4130.00	32.00 Bottom Packers & Anchor

**Total Tool Length: 54.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Ritchie Exploration Inc

**Phillips-Hess #1**

P.O. Box 783188  
Wichita, Ks 67278

**20-13-31 Gove Ks**

Job Ticket: 34432

**DST#: 2**

ATTN: Steve Carl

Test Start: 2009.07.09 @ 04:40:51

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

38 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 45.00 sec/qt

Cushion Volume:

bbf

Water Loss: 8.75 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 4800.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbf
94.00	mcgo 10%g 50%o 40%o	0.462
2350.00	go 15%g 85%o	28.847
0.00	1108 GIP	0.000

Total Length: 2444.00 ft

Total Volume: 29.309 bbf

Num Fluid Samples: 0

Num Gas Bombs: 0

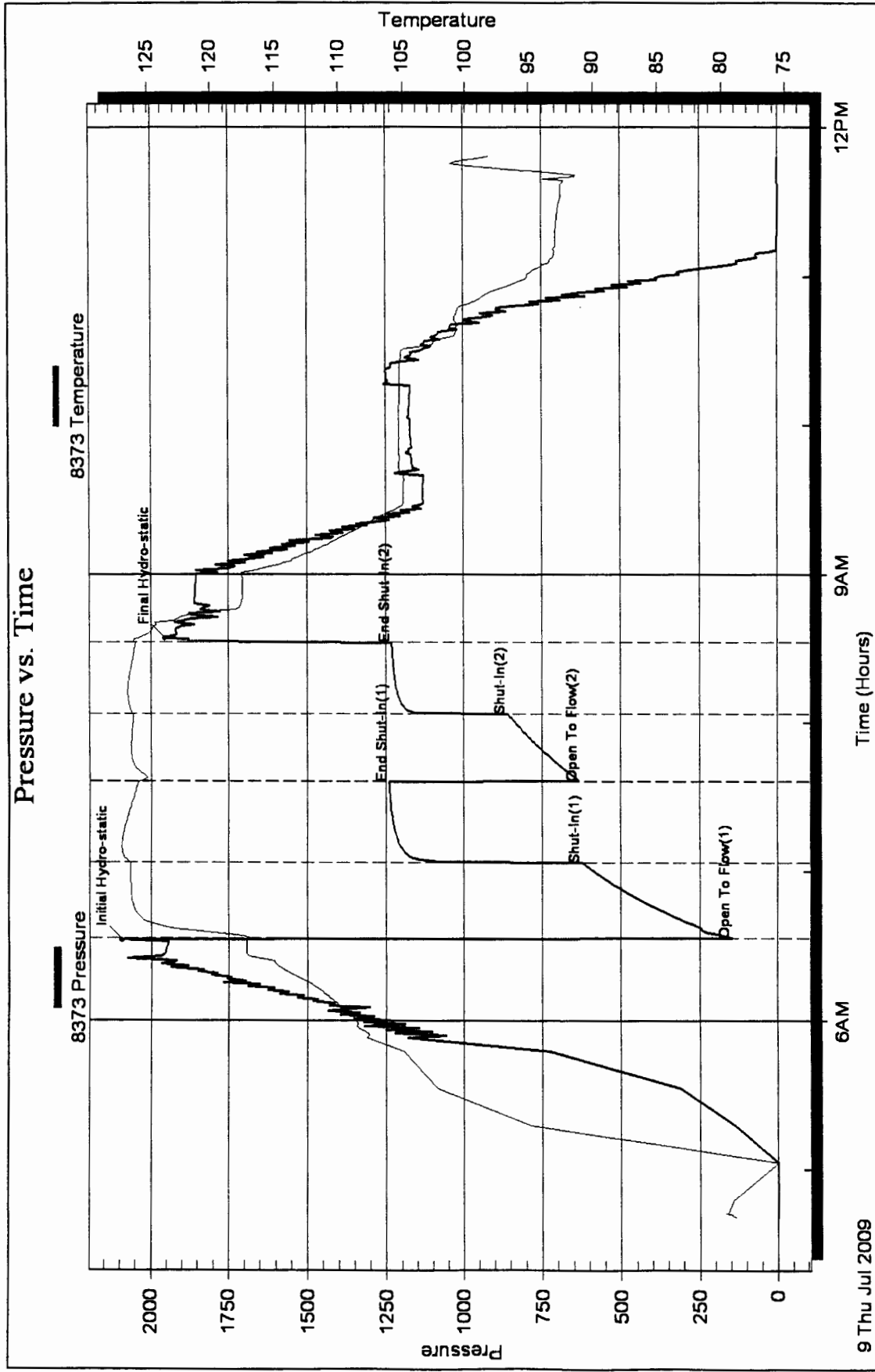
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 40@80=38

### Pressure vs. Time



9 Thu Jul 2009

6AM

9AM

12PM



**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration Inc**

P.O. Box 783188  
Wichita, Ks 67278

ATTN: Steve Carl

**20-13-31 Gove Ks**

**Phillips-Hess #1**

Start Date: 2009.07.09 @ 17:41:16

End Date: 2009.07.10 @ 00:18:10

Job Ticket #: 34433                      DST #: 3

Trilobite Testing, Inc

PO Box 1733 Hays, KS 67601

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

Ritchie Exploration Inc

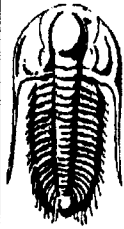
Phillips-Hess #1

20-13-31 Gove Ks

DST # 3

Lansing I

2009.07.09



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Ritchie Exploration Inc

**Phillips-Hess #1**

P.O. Box 783188  
Wichita, Ks 67278

**20-13-31 Gove Ks**

Job Ticket: 34433

**DST#: 3**

ATTN: Steve Carl

Test Start: 2009.07.09 @ 17:41:16

## GENERAL INFORMATION:

Formation: **Lansing I**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 19:36:41

Time Test Ended: 00:18:10

Test Type: Conventional Bottom Hole

Tester: Brandon Turley

Unit No: 35

Interval: **4133.00 ft (KB) To 4162.00 ft (KB) (TVD)**

Total Depth: 4162.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2925.00 ft (KB)

2915.00 ft (CF)

KB to GR/CF: 10.00 ft

**Serial #: 8373** Inside

Press@RunDepth: 271.48 psig @ 4134.00 ft (KB)

Start Date: 2009.07.09

End Date:

2009.07.10

Start Time: 17:41:16

End Time:

00:18:10

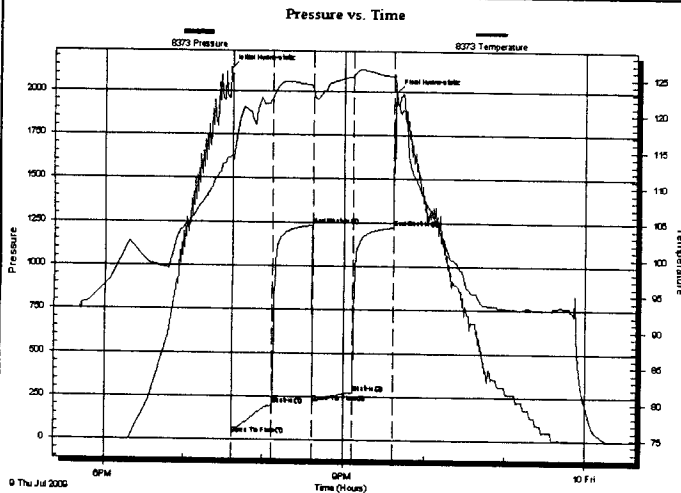
Capacity: 7000.00 psig

Last Calib.: 2009.07.10

Time On Btm: 2009.07.09 @ 19:35:26

Time Off Btm: 2009.07.09 @ 21:38:11

**TEST COMMENT:** IF: 1/4 blow BOB in 5 min.  
IS: Surface blow BOB in 23 min.  
FF: BOB in 8 min.  
FS: Surface blow BOB in 15 min



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2127.28	114.08	Initial Hydro-static
2	29.76	113.35	Open To Flow (1)
32	199.78	122.34	Shut-In (1)
62	1232.93	124.06	End Shut-In (1)
62	218.00	123.55	Open To Flow (2)
91	271.48	125.25	Shut-In (2)
122	1222.04	125.30	End Shut-In (2)
123	1994.43	122.41	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
95.00	mw cgo 30%g 50%o 10%w 10%m	0.47
380.00	mcgo 30%g 60%o 10%m	1.87
317.00	mcgo 10%g 85%o 5%m	3.80
0.00	1034 GIP	0.00

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Ritchie Exploration Inc

**Phillips-Hess #1**

P.O. Box 783188  
Wichita, Ks 67278

**20-13-31 Gove Ks**

Job Ticket: 34433

**DST#: 3**

ATTN: Steve Carl

Test Start: 2009.07.09 @ 17:41:16

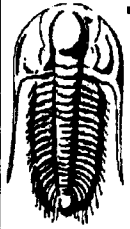
### Tool Information

Drill Pipe:	Length: 3587.00 ft	Diameter: 3.80 inches	Volume: 50.32 bbl	Tool Weight: 1500.00 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: 546.00 ft	Diameter: 2.25 inches	Volume: 2.69 bbl	Weight to Pull Loose: 90000.00 lb
		Total Volume: 53.01 bbl		Tool Chased 0.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial 72000.00 lb
Depth to Top Packer:	4133.00 ft			Final 74000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	29.00 ft			
Tool Length:	49.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

### Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Stubb	1.00			4114.00	
Shut In Tool	5.00			4119.00	
Hydraulic tool	5.00			4124.00	
Packer	5.00			4129.00	20.00 Bottom Of Top Packer
Packer	4.00			4133.00	
Stubb	1.00			4134.00	
Recorder	0.00	6772	Inside	4134.00	
Recorder	0.00	8373	Inside	4134.00	
Perforations	23.00			4157.00	
Bullnose	5.00			4162.00	29.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>49.00</b>				



**TRILOBITE  
TESTING, INC**

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

Ritchie Exploration Inc

**Phillips-Hess #1**

P.O. Box 783188  
Wichita, Ks 67278

**20-13-31 Gove Ks**

Job Ticket: 34433

**DST#: 3**

ATTN: Steve Carl

Test Start: 2009.07.09 @ 17:41:16

**Mud and Cushion Information**

Mud Type: Gel Chem

Cushion Type:

Oil API:

38 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 55.00 sec/qt

Cushion Volume:

bbl

Water Loss: 7.57 in<sup>3</sup>

Gas Cushion Type:

Gas Cushion Pressure:

psig

Resistivity: 0.00 ohm.m

Salinity: 4900.00 ppm

Filter Cake: 1.00 inches

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
95.00	mw cgo 30%g 50%o 10%w 10%m	0.467
380.00	mcgo 30%g 60%o 10%m	1.869
317.00	mcgo 10%g 85%o 5%m	3.800
0.00	1034 GIP	0.000

Total Length: 792.00 ft

Total Volume: 6.136 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

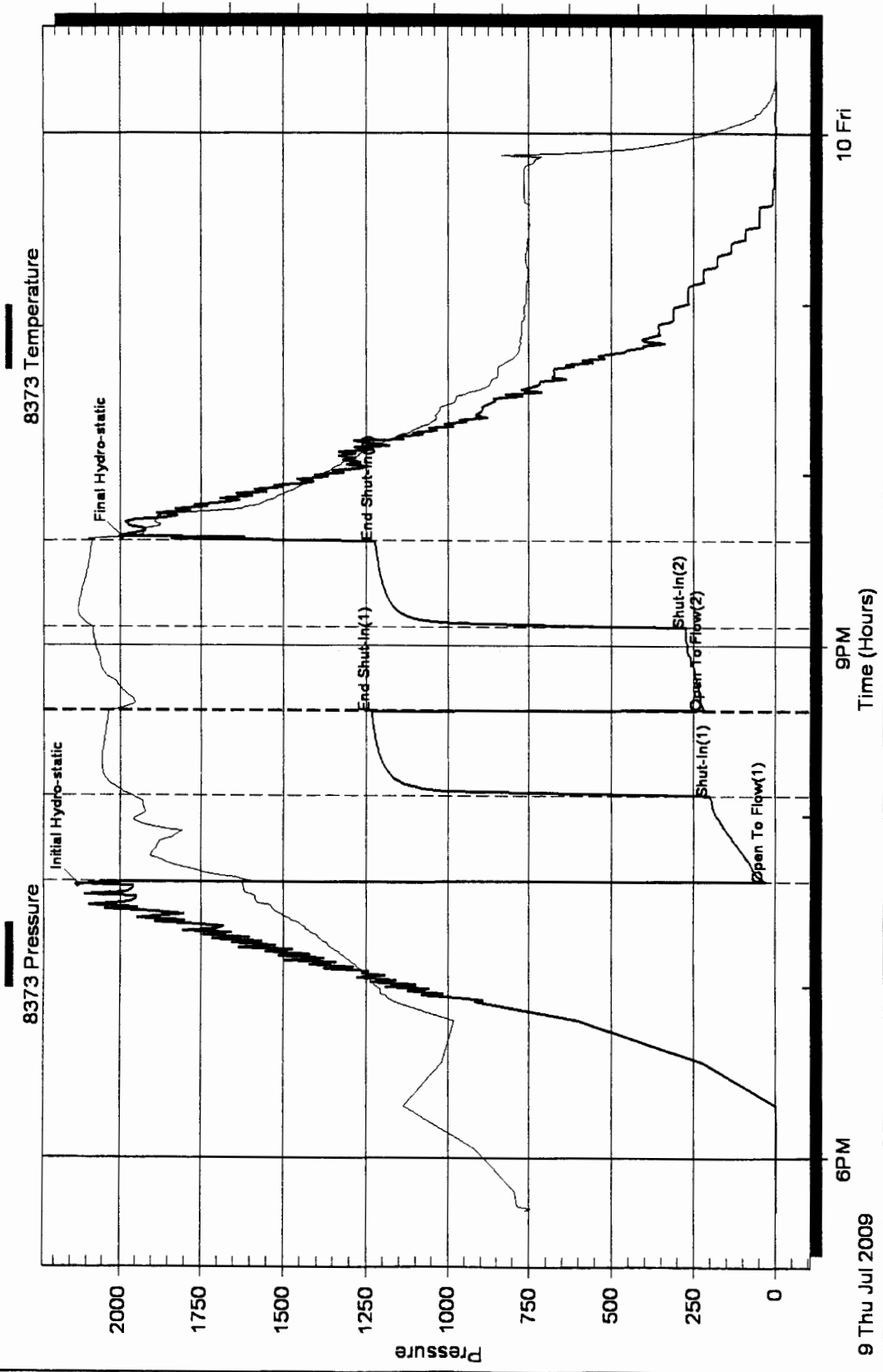
Serial #:

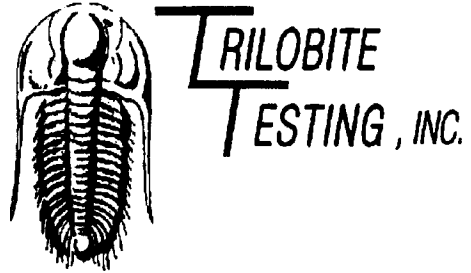
Laboratory Name:

Laboratory Location:

Recovery Comments: 39@70=38

# Pressure vs. Time





## DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration Inc**

P.O. Box 783188  
Wichita, Ks 67278

ATTN: Steve Carl

**20-13-31 Gove Ks**

**Phillips-Hess #1**

Start Date: 2009.07.10 @ 06:20:23

End Date: 2009.07.10 @ 12:15:02

Job Ticket #: 34434                      DST #: 4

Trilobite Testing, Inc  
PO Box 1733 Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Ritchie Exploration Inc

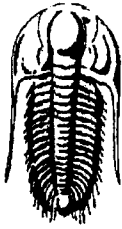
Phillips-Hess #1

20-13-31 Gove Ks

DST # 4

Lansing J

2009.07.10



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Ritchie Exploration Inc

**Phillips-Hess #1**

P.O. Box 783188  
Wichita, Ks 67278

**20-13-31 Gove Ks**

ATTN: Steve Carl

Job Ticket: 34434

**DST#: 4**

Test Start: 2009.07.10 @ 06:20:23

## GENERAL INFORMATION:

Formation: **Lansing J**  
 Deviated: **No Whipstock:** ft (KB)  
 Time Tool Opened: 08:21:03  
 Time Test Ended: 12:15:02

Test Type: **Conventional Bottom Hole**  
 Tester: **Brandon Turley**  
 Unit No: **35**

Interval: **4169.00 ft (KB) To 4186.00 ft (KB) (TVD)**  
 Total Depth: **4186.00 ft (KB) (TVD)**  
 Hole Diameter: **7.88 inches** Hole Condition: **Good**

Reference Elevations: **2925.00 ft (KB)**  
**2915.00 ft (CF)**  
 KB to GR/CF: **10.00 ft**

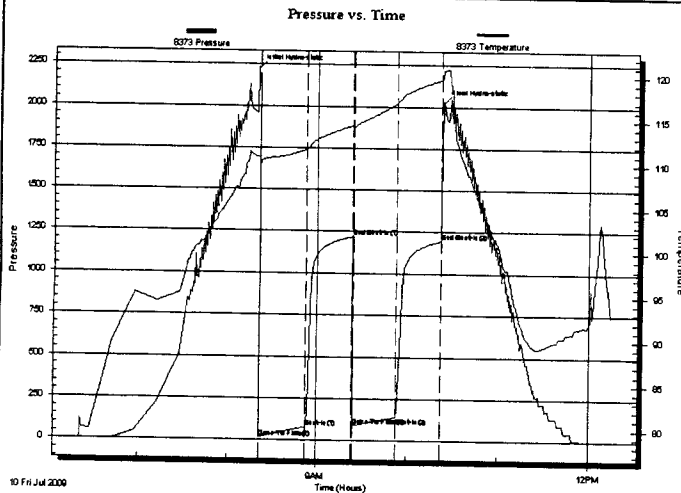
## Serial #: 8373

**Inside**

Press@RunDepth: **140.24 psig @ 4170.00 ft (KB)**  
 Start Date: **2009.07.10** End Date: **2009.07.10**  
 Start Time: **06:20:23** End Time: **12:15:02**

Capacity: **7000.00 psig**  
 Last Calib.: **2009.07.10**  
 Time On Btm: **2009.07.10 @ 08:20:03**  
 Time Off Btm: **2009.07.10 @ 10:24:03**

TEST COMMENT: IF: 1/4 blow BOB in 10 min.  
 IS: Surface blow built to 3 in 30 min.  
 FF: 1/4 blow BOB in 28 min.  
 FS: Surface blow built to 2 in 30 min.



## PRESSURE SUMMARY

Time (Mn.)	Pressure (psig)	Temp (deg F)	Annotation
0	2223.08	110.89	Initial Hydro-static
1	15.76	109.85	Open To Flow (1)
33	79.27	111.66	Shut-In(1)
64	1216.66	114.39	End Shut-In(1)
65	89.20	113.98	Open To Flow (2)
93	140.24	116.90	Shut-In(2)
123	1194.94	119.59	End Shut-In(2)
124	2022.61	120.65	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
188.00	gocm 20%g 30%o 50%m	0.92
188.00	go 30%g 70%o	0.92
0.00	564 GIP	0.00

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

## DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Ritchie Exploration Inc

**Phillips-Hess #1**

P.O. Box 783188  
Wichita, Ks 67278

**20-13-31 Gove Ks**

Job Ticket: 34434

**DST#: 4**

ATTN: Steve Carl

Test Start: 2009.07.10 @ 06:20:23

### Tool Information

Drill Pipe:	Length: 3614.00 ft	Diameter: 3.80 inches	Volume: 50.69 bbl	Tool Weight: 1500.00 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: 546.00 ft	Diameter: 2.25 inches	Volume: 2.69 bbl	Weight to Pull Loose: 80000.00 lb
		<b>Total Volume:</b>	<b>53.38 bbl</b>	Tool Chased 0.00 ft
Drill Pipe Above KB:	11.00 ft			String Weight: Initial 72000.00 lb
Depth to Top Packer:	4169.00 ft			Final 74000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	17.00 ft			
Tool Length:	37.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Stubb	1.00			4150.00	
Shut In Tool	5.00			4155.00	
Hydraulic tool	5.00			4160.00	
Packer	5.00			4165.00	20.00 Bottom Of Top Packer
Packer	4.00			4169.00	
Stubb	1.00			4170.00	
Recorder	0.00	6772	Inside	4170.00	
Recorder	0.00	8373	Inside	4170.00	
Perforations	11.00			4181.00	
Bullnose	5.00			4186.00	17.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>37.00</b>				



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Ritchie Exploration Inc

**Phillips-Hess #1**

P.O. Box 783188  
Wichita, Ks 67278

**20-13-31 Gove Ks**

Job Ticket: 34434

**DST#: 4**

ATTN: Steve Carl

Test Start: 2009.07.10 @ 06:20:23

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

33 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 55.00 sec/qt

Cushion Volume:

bbl

Water Loss: 7.58 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 4900.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
188.00	gocm 20%g 30%o 50%m	0.925
188.00	go 30%g 70%o	0.925
0.00	564 GIP	0.000

Total Length: 376.00 ft

Total Volume: 1.850 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

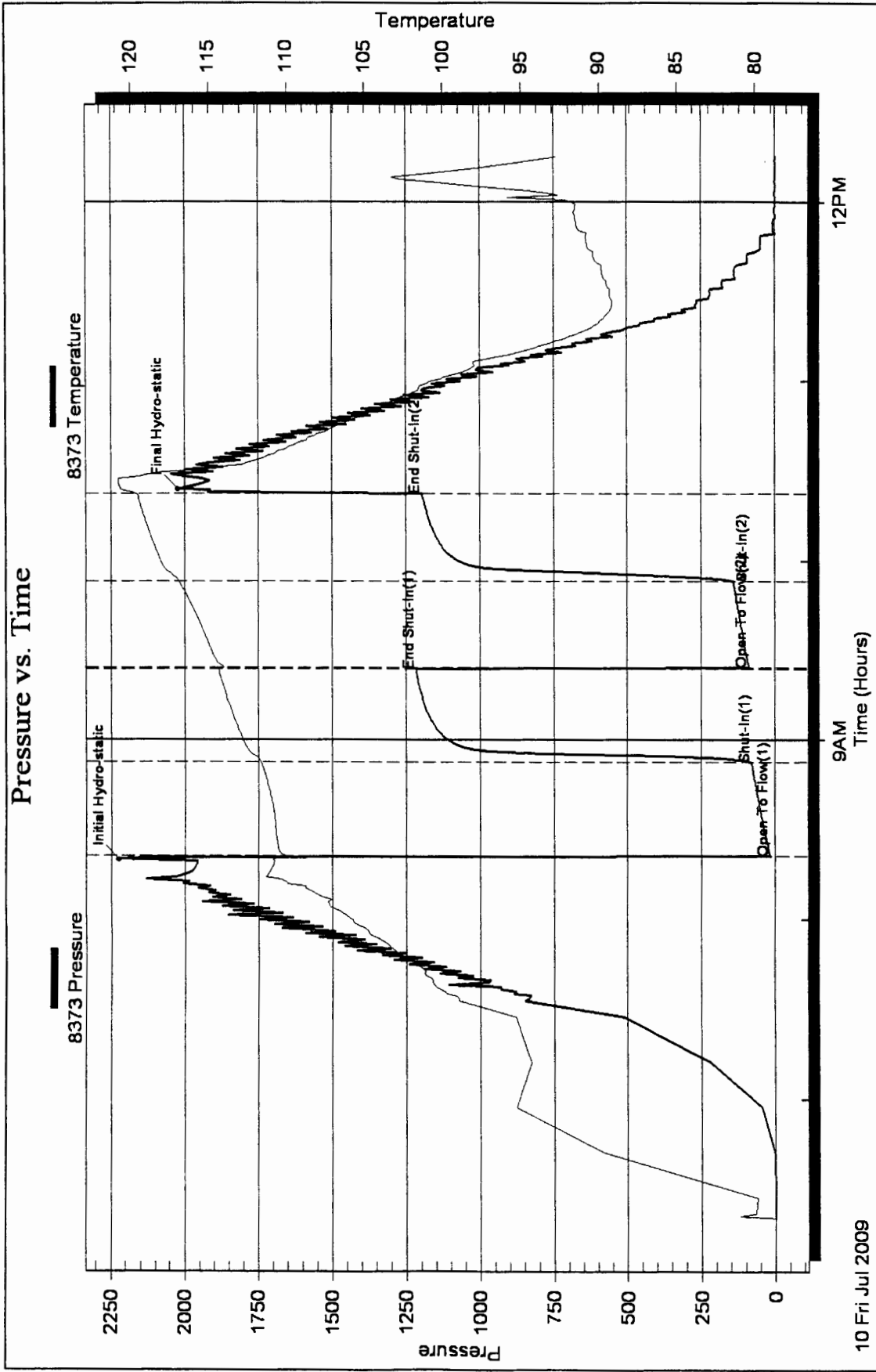
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 36@90=33

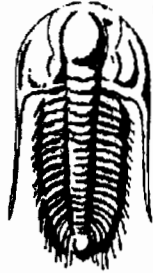
### Pressure vs. Time



10 Fri Jul 2009

12PM

9AM  
Time (Hours)



**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration Inc**

P.O. Box 783188  
Wichita, Ks 67278

ATTN: Steve Carl

**20-13-31 Gove Ks**

**Phillips-Hess #1**

Start Date: 2009.07.11 @ 18:08:59

End Date: 2009.07.12 @ 02:14:53

Job Ticket #: 34435                      DST #: 5

Trilobite Testing, Inc

PO Box 1733 Hays, KS 67601

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

Ritchie Exploration Inc

Phillips-Hess #1

20-13-31 Gove Ks

DST # 5

Johnson

2009.07.11



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Ritchie Exploration Inc

**Phillips-Hess #1**

P.O. Box 783188  
Wichita, Ks 67278

**20-13-31 Gove Ks**

Job Ticket: 34435

**DST#: 5**

ATTN: Steve Carl

Test Start: 2009.07.11 @ 18:08:59

## GENERAL INFORMATION:

Formation: **Johnson**

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

Time Tool Opened: 20:02:54

Time Test Ended: 02:14:53

Test Type: **Conventional Bottom Hole**

Tester: **Brandon Turley**

Unit No: **35**

Interval: **4505.00 ft (KB) To 4523.00 ft (KB) (TVD)**

Total Depth: **4523.00 ft (KB) (TVD)**

Hole Diameter: **7.88 inches** Hole Condition: **Good**

Reference Elevations: **2925.00 ft (KB)**

**2915.00 ft (CF)**

KB to GR/CF: **10.00 ft**

**Serial #: 8373**

**Inside**

Press@RunDepth: **620.73 psig @ 4506.00 ft (KB)**

Start Date: **2009.07.11**

End Date:

**2009.07.12**

Capacity:

**7000.00 psig**

Start Time: **18:08:59**

End Time:

**02:14:53**

Last Calib.:

**2009.07.12**

Time On Btm:

**2009.07.11 @ 20:02:24**

Time Off Btm:

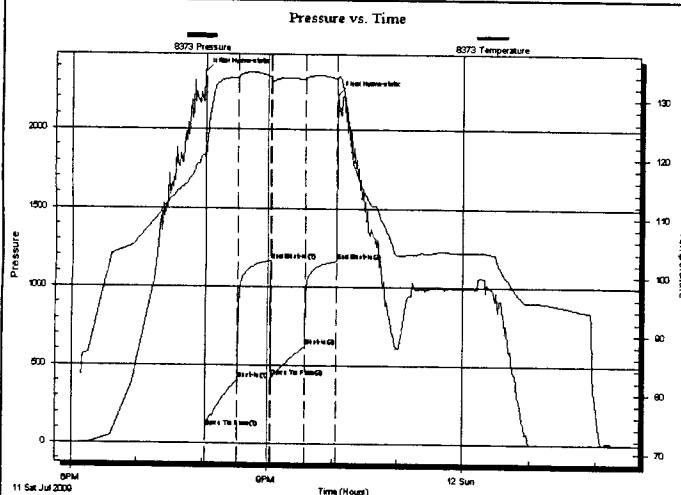
**2009.07.11 @ 22:03:54**

TEST COMMENT: IF: BOB in 1 min.

IS: Surface blow built to 7 in 30 min.

FF: BOB in 3 min.

FS: Surface blow BOB in 14 min.



## PRESSURE SUMMARY

Time (Mn.)	Pressure (psig)	Temp (deg F)	Annotation
0	2362.92	120.63	Initial Hydro-static
1	98.02	119.73	Open To Flow (1)
30	406.50	133.67	Shut-In(1)
60	1168.14	133.93	End Shut-In(1)
61	422.65	133.57	Open To Flow (2)
92	620.73	133.51	Shut-In(2)
121	1164.13	133.58	End Shut-In(2)
122	2218.97	133.64	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
94.00	ocm 20%o 80%m	0.46
1942.00	go 40%g 60%o	23.12
0.00	1316 GIP	0.00

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

## DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Ritchie Exploration Inc

**Phillips-Hess #1**

P.O. Box 783188  
Wichita, Ks 67278

**20-13-31 Gove Ks**

Job Ticket: 34435

**DST#: 5**

ATTN: Steve Carl

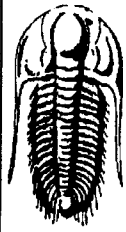
Test Start: 2009.07.11 @ 18:08:59

### Tool Information

Drill Pipe:	Length: 3963.00 ft	Diameter: 3.80 inches	Volume: 55.59 bbl	Tool Weight:	1500.00 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: 546.00 ft	Diameter: 2.25 inches	Volume: 2.69 bbl	Weight to Pull Loose:	100000.0 lb
			<u>Total Volume: 58.28 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	24.00 ft			String Weight: Initial	72000.00 lb
Depth to Top Packer:	4505.00 ft			Final	78000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	18.00 ft				
Tool Length:	38.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Stubb	1.00			4486.00	
Shut In Tool	5.00			4491.00	
Hydraulic tool	5.00			4496.00	
Packer	5.00			4501.00	20.00 Bottom Of Top Packer
Packer	4.00			4505.00	
Stubb	1.00			4506.00	
Recorder	0.00	6772	Inside	4506.00	
Recorder	0.00	8373	Inside	4506.00	
Perforations	12.00			4518.00	
Bullnose	5.00			4523.00	18.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>38.00</b>				



**TRILOBITE  
TESTING, INC**

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

Ritchie Exploration Inc

**Phillips-Hess #1**

P.O. Box 783188  
Wichita, Ks 67278

**20-13-31 Gove Ks**

ATTN: Steve Carl

Job Ticket: 34435

**DST#: 5**

Test Start: 2009.07.11 @ 18:08:59

**Mud and Cushion Information**

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 61.00 sec/qt

Water Loss: 8.77 in<sup>3</sup>

Resistivity: 0.00 ohm.m

Salinity: 6100.00 ppm

Filter Cake: 1.00 inches

Cushion Type:

Cushion Length: ft

Cushion Volume: bbl

Gas Cushion Type:

Gas Cushion Pressure: psig

Oil API: 27 deg API

Water Salinity: 0 ppm

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
94.00	ocm 20%o 80%m	0.462
1942.00	go 40%g 60%o	23.124
0.00	1316 GIP	0.000

Total Length: 2036.00 ft      Total Volume: 23.586 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 29@80=27

Serial #: 8373

Inside

Ritchie Exploration Inc

20-13-31 Gove Ks

DST Test Number: 5

### Pressure vs. Time

