

DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration Inc**

8100 E 22 Nd St N #700
Wichita, KS 67278

ATTN: Mac Armstrong

Hell Creek 20 D #1

20-16s-31w Scott,KS

Start Date: 2013.10.05 @ 17:48:15

End Date: 2013.10.06 @ 00:48:45

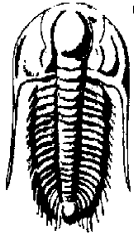
Job Ticket #: 54946 DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.10.10 @ 10:24:43



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration Inc
 8100 E 22 Nd St N #700
 Wichita, KS 67278
 ATTN: Mac Armstrong

20-16s-31w Scott, KS
Hell Creek 20 D #1
 Job Ticket: 54946 **DST#: 1**
 Test Start: 2013.10.05 @ 17:48:15

GENERAL INFORMATION:

Formation: **LKC C**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 19:42:45
 Time Test Ended: 00:48:45
 Interval: **3978.00 ft (KB) To 4006.00 ft (KB) (TVD)**
 Total Depth: 4006.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Brandon Turley
 Unit No: 60
 Reference Elevations: 2938.00 ft (KB)
 2933.00 ft (CF)
 KB to GR/CF: 5.00 ft

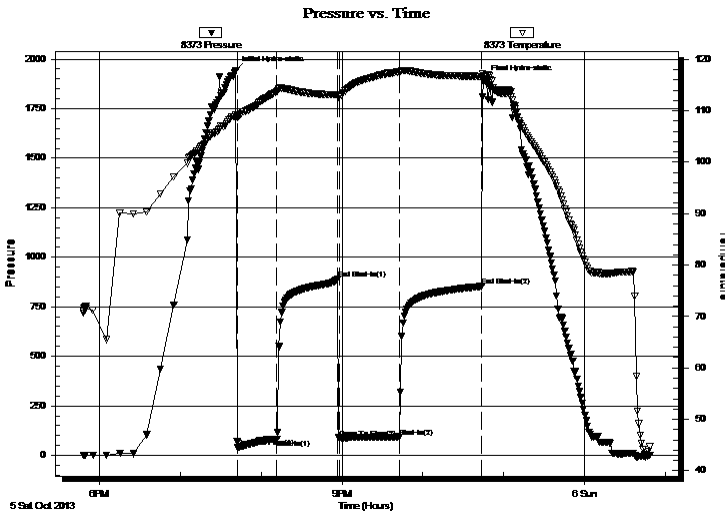
Serial #: 8373

Inside

Press @ Run Depth: 91.44 psig @ 3979.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2013.10.05 End Date: 2013.10.06 Last Calib.: 2013.10.06
 Start Time: 17:48:20 End Time: 00:48:44 Time On Btm: 2013.10.05 @ 19:41:15
 Time Off Btm: 2013.10.05 @ 22:45:45

TEST COMMENT: IF: BOB in 28 min.
 IS: No return.
 FF: BOB in 30 min.
 FS: No return.

PRESSURE SUMMARY



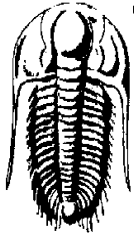
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1943.01	109.19	Initial Hydro-static
2	40.09	109.04	Open To Flow (1)
31	82.26	113.74	Shut-In(1)
76	888.96	113.09	End Shut-In(1)
77	87.26	112.69	Open To Flow (2)
121	91.44	117.48	Shut-In(2)
183	853.41	116.70	End Shut-In(2)
185	1898.74	116.76	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
124.00	mcgo 10%g 50%o 40%m	0.61
102.00	mcgo 10%g 60%o 30%m	1.43
0.00	144 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

20-16s-31w Scott,KS

8100 E 22 Nd St N #700
Wichita, KS 67278

Hell Creek 20 D #1

Job Ticket: 54946

DST#: 1

ATTN: Mac Armstrong

Test Start: 2013.10.05 @ 17:48:15

Tool Information

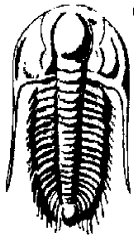
Drill Pipe:	Length: 3846.00 ft	Diameter: 3.80 inches	Volume: 53.95 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 124.00 ft	Diameter: 2.25 inches	Volume: 0.61 bbl	Weight to Pull Loose: 75000.00 lb
			<u>Total Volume: 54.56 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial 58000.00 lb
Depth to Top Packer:	3978.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	28.00 ft			
Tool Length:	56.00 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			3951.00	
Shut In Tool	5.00			3956.00	
Hydraulic tool	5.00			3961.00	
Jars	5.00			3966.00	
Safety Joint	3.00			3969.00	
Packer	5.00			3974.00	28.00 Bottom Of Top Packer
Packer	4.00			3978.00	
Stubb	1.00			3979.00	
Recorder	0.00	8373	Inside	3979.00	
Recorder	0.00	8356	Outside	3979.00	
Perforations	22.00			4001.00	
Bullnose	5.00			4006.00	28.00 Bottom Packers & Anchor

Total Tool Length: 56.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration Inc

20-16s-31w Scott,KS

8100 E 22 Nd St N #700
Wichita, KS 67278

Hell Creek 20 D #1

Job Ticket: 54946

DST#: 1

ATTN: Mac Armstrong

Test Start: 2013.10.05 @ 17:48:15

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 52.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.18 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 1500.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
124.00	mcgo 10%g 50%o 40%m	0.610
102.00	mcgo 10%g 60%o 30%m	1.431
0.00	144 GIP	0.000

Total Length: 226.00 ft

Total Volume: 2.041 bbl

Num Fluid Samples: 0

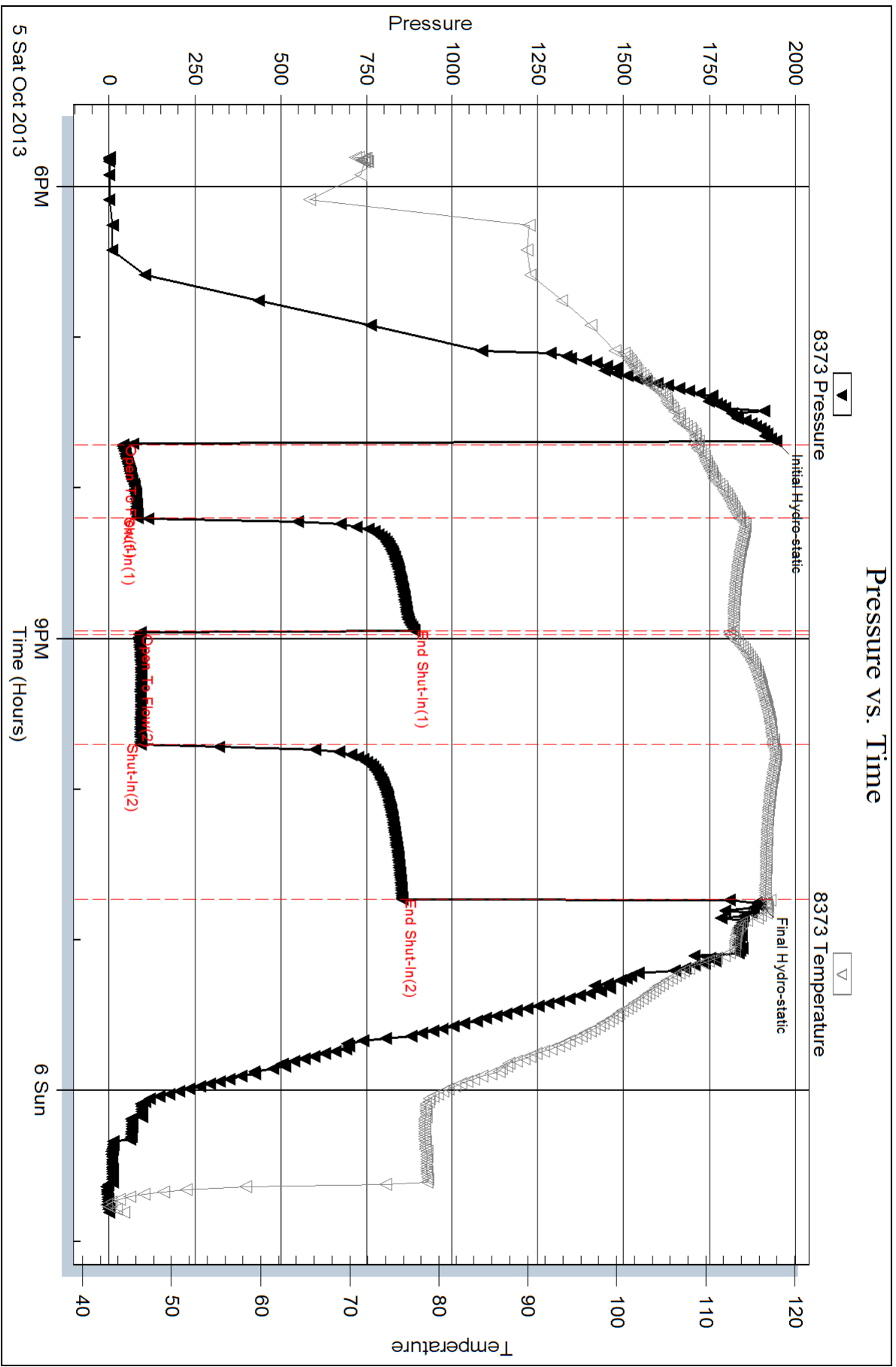
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

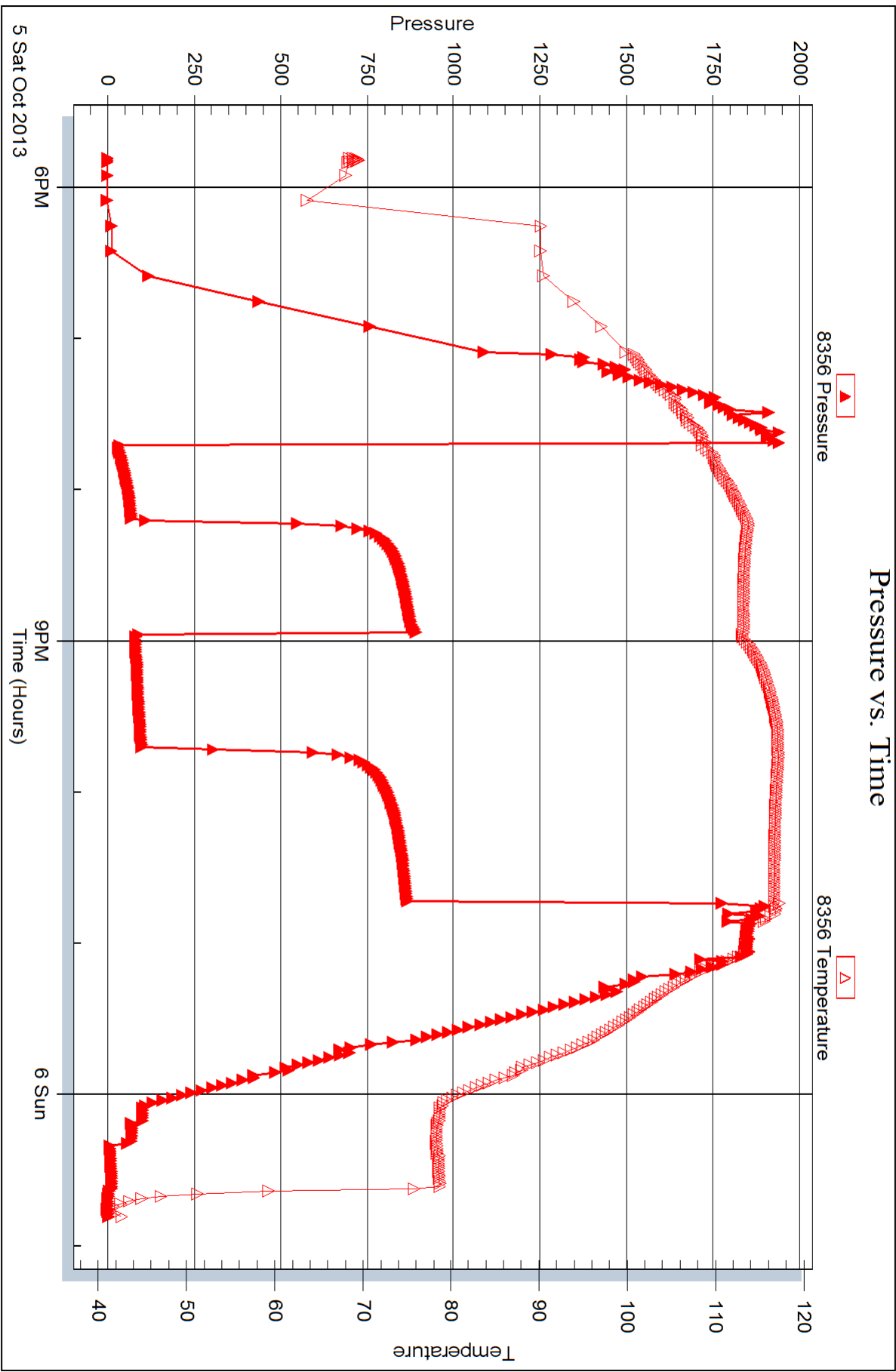


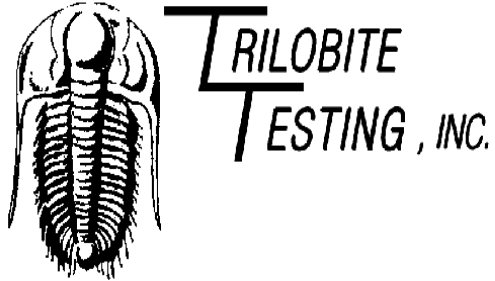
Serial #: 8356

Outside Ritchie Exploration Inc

Hell Creek 20 D #1

DST Test Number: 1





DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration Inc**

8100 E 22 Nd St N #700
Wichita, KS 67278

ATTN: Mac Armstrong

Hell Creek 20 D #1

20-16s-31w Scott,KS

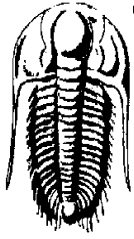
Start Date: 2013.10.06 @ 10:34:10

End Date: 2013.10.06 @ 15:59:40

Job Ticket #: 54947 DST #: 2

Trilobite Testing, Inc
PO Box 362 Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2013.10.10 @ 10:20:34



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration Inc
 8100 E 22 Nd St N #700
 Wichita, KS 67278
 ATTN: Mac Armstrong

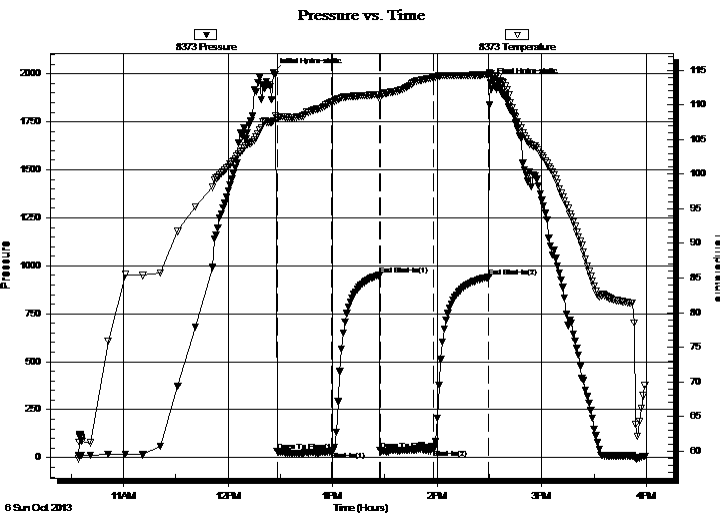
20-16s-31w Scott, KS
Hell Creek 20 D #1
 Job Ticket: 54947 **DST#: 2**
 Test Start: 2013.10.06 @ 10:34:10

GENERAL INFORMATION:

Formation: **LKC E&F**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 12:28:10
 Time Test Ended: 15:59:40
 Interval: **4034.00 ft (KB) To 4058.00 ft (KB) (TVD)**
 Total Depth: 4058.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Brandon Turley
 Unit No: 60
 Reference Elevations: 2938.00 ft (KB)
 2933.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8373 Inside
 Press @ Run Depth: 44.82 psig @ 4035.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2013.10.06 End Date: 2013.10.06 Last Calib.: 2013.10.06
 Start Time: 10:34:15 End Time: 15:59:39 Time On Btm: 2013.10.06 @ 12:26:10
 Time Off Btm: 2013.10.06 @ 14:30:40

TEST COMMENT: IF: Surface blow died in 10 min.
 IS: No return.
 FF: No blow. Flushed tool no blow.
 FS: No return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2007.14	107.69	Initial Hydro-static
2	31.98	108.07	Open To Flow (1)
34	32.18	110.36	Shut-In(1)
61	949.68	111.52	End Shut-In(1)
61	38.60	110.85	Open To Flow (2)
92	44.82	113.91	Shut-In(2)
124	940.60	114.36	End Shut-In(2)
125	1952.72	114.53	Final Hydro-static

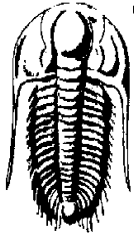
Recovery

Length (ft)	Description	Volume (bbl)
10.00	mud 100% _m	0.05

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Ritchie Exploration Inc

20-16s-31w Scott,KS

8100 E 22 Nd St N #700
Wichita, KS 67278

Hell Creek 20 D #1

Job Ticket: 54947

DST#: 2

ATTN: Mac Armstrong

Test Start: 2013.10.06 @ 10:34:10

Tool Information

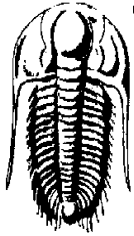
Drill Pipe:	Length: 3908.00 ft	Diameter: 3.80 inches	Volume: 54.82 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 124.00 ft	Diameter: 2.25 inches	Volume: 0.61 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 55.43 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	26.00 ft			String Weight: Initial 58000.00 lb
Depth to Top Packer:	4034.00 ft			Final 58000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	24.00 ft			
Tool Length:	52.00 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			4007.00	
Shut In Tool	5.00			4012.00	
Hydraulic tool	5.00			4017.00	
Jars	5.00			4022.00	
Safety Joint	3.00			4025.00	
Packer	5.00			4030.00	28.00 Bottom Of Top Packer
Packer	4.00			4034.00	
Stubb	1.00			4035.00	
Recorder	0.00	8373	Inside	4035.00	
Recorder	0.00	8356	Outside	4035.00	
Perforations	18.00			4053.00	
Bullnose	5.00			4058.00	24.00 Bottom Packers & Anchor

Total Tool Length: 52.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration Inc

20-16s-31w Scott,KS

8100 E 22 Nd St N #700
Wichita, KS 67278

Hell Creek 20 D #1

Job Ticket: 54947

DST#: 2

ATTN: Mac Armstrong

Test Start: 2013.10.06 @ 10:34:10

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 53.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 10.38 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2800.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	mud 100%m	0.049

Total Length: 10.00 ft Total Volume: 0.049 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

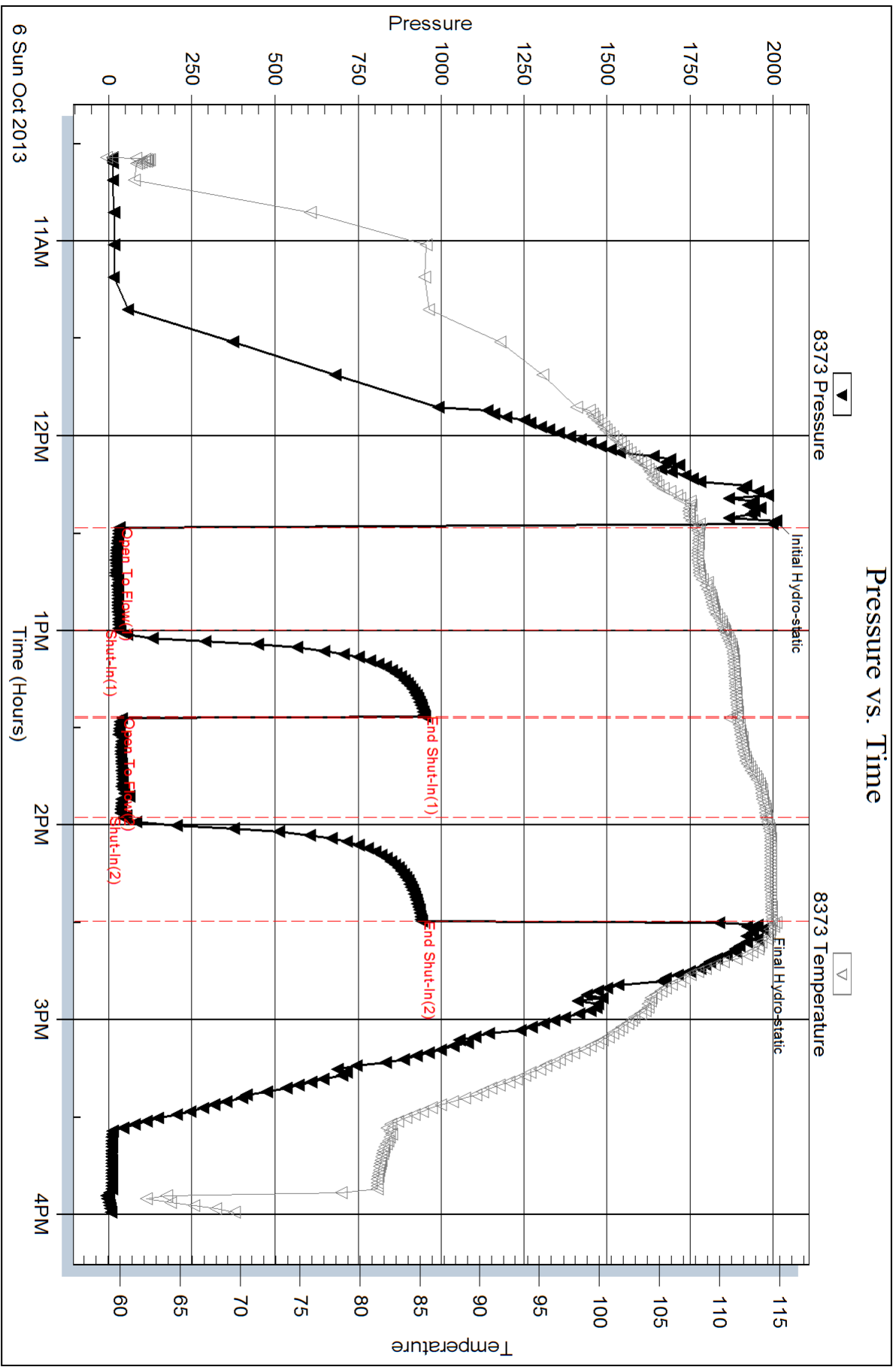
Serial #: 8373

Inside

Ritchie Exploration Inc

Hell Creek 20 D #1

DST Test Number: 2



Triobite Testing, Inc

Ref. No: 54947

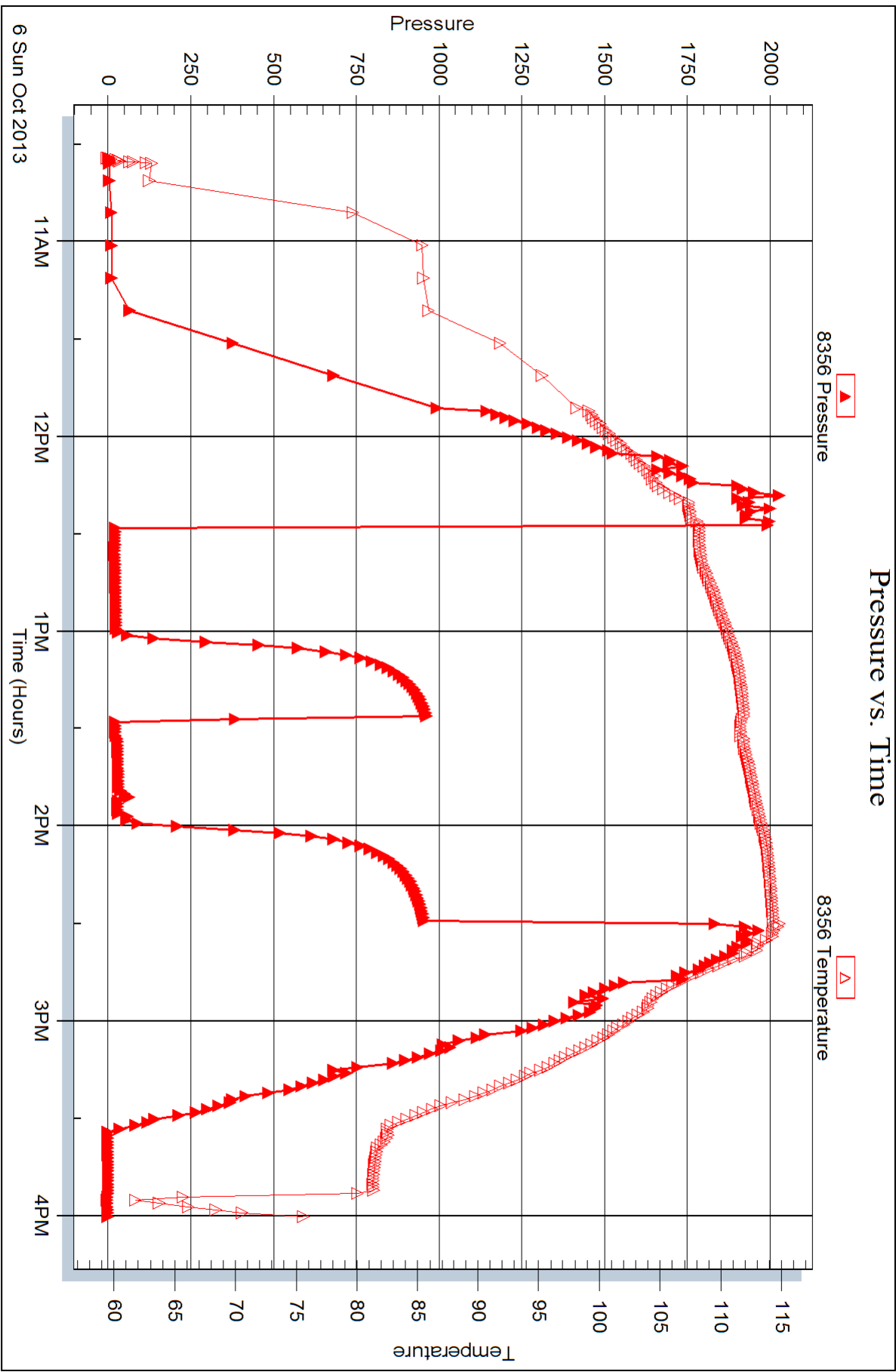
Printed: 2013.10.10 @ 10:20:35

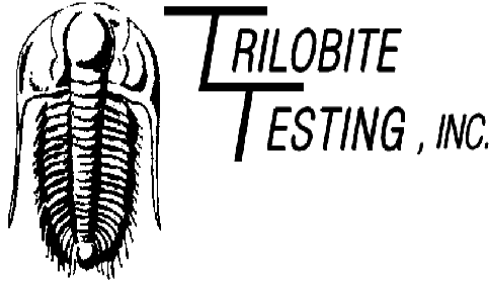
Serial #: 8356

Outside Ritchie Exploration Inc

Hell Creek 20 D #1

DST Test Number: 2





DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration Inc**

8100 E 22 Nd St N #700
Wichita, KS 67278

ATTN: Mac Armstrong

Hell Creek 20 D #1

20-16s-31w Scott,KS

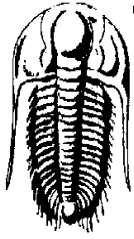
Start Date: 2013.10.08 @ 04:36:15

End Date: 2013.10.08 @ 10:42:15

Job Ticket #: 54948 DST #: 3

Trilobite Testing, Inc
PO Box 362 Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2013.10.10 @ 10:19:54



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Ritchie Exploration Inc
8100 E 22 Nd St N #700
Wichita, KS 67278
ATTN: Mac Armstrong

20-16s-31w Scott,KS

Hell Creek 20 D #1

Job Ticket: 54948

DST#: 3

Test Start: 2013.10.08 @ 04:36:15

GENERAL INFORMATION:

Formation: **Pawnee**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 06:52:45
 Time Test Ended: 10:42:15
 Interval: **4434.00 ft (KB) To 4470.00 ft (KB) (TVD)**
 Total Depth: 4470.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Brandon Turley
 Unit No: 60
 Reference Elevations: 2938.00 ft (KB)
 2933.00 ft (CF)
 KB to GR/CF: 5.00 ft

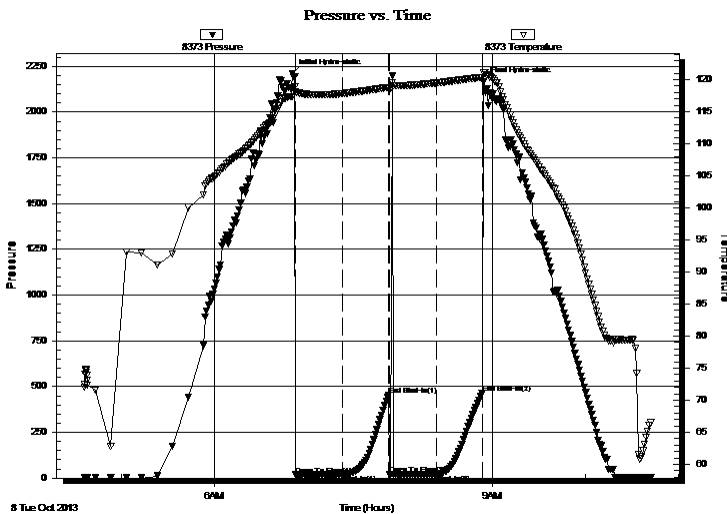
Serial #: 8373

Inside

Press @ Run Depth: 21.38 psig @ 4435.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2013.10.08 End Date: 2013.10.08 Last Calib.: 2013.10.08
 Start Time: 04:36:20 End Time: 10:42:14 Time On Btm: 2013.10.08 @ 06:50:45
 Time Off Btm: 2013.10.08 @ 08:54:15

TEST COMMENT: IF: Surface blow died in 6 min.
 IS: No return.
 FF: No blow flushed tool no blow.
 FS: No return.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2211.91	117.39	Initial Hydro-static
2	17.42	118.14	Open To Flow (1)
32	18.50	117.83	Shut-In(1)
62	454.97	118.81	End Shut-In(1)
63	18.96	118.60	Open To Flow (2)
93	21.38	119.50	Shut-In(2)
123	464.20	120.38	End Shut-In(2)
124	2164.59	121.01	Final Hydro-static

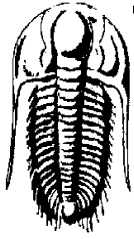
Recovery

Length (ft)	Description	Volume (bbl)
5.00	mud 100% _m	0.02

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Ritchie Exploration Inc

20-16s-31w Scott,KS

8100 E 22 Nd St N #700
Wichita, KS 67278

Hell Creek 20 D #1

Job Ticket: 54948

DST#: 3

ATTN: Mac Armstrong

Test Start: 2013.10.08 @ 04:36:15

Tool Information

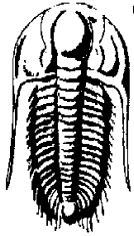
Drill Pipe:	Length: 4287.00 ft	Diameter: 3.80 inches	Volume: 60.14 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 124.00 ft	Diameter: 2.25 inches	Volume: 0.61 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 60.75 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial 62000.00 lb
Depth to Top Packer:	4434.00 ft			Final 62000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	36.00 ft			
Tool Length:	64.00 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			4407.00	
Shut In Tool	5.00			4412.00	
Hydraulic tool	5.00			4417.00	
Jars	5.00			4422.00	
Safety Joint	3.00			4425.00	
Packer	5.00			4430.00	28.00 Bottom Of Top Packer
Packer	4.00			4434.00	
Stubb	1.00			4435.00	
Recorder	0.00	8373	Inside	4435.00	
Recorder	0.00	8356	Outside	4435.00	
Perforations	30.00			4465.00	
Bullnose	5.00			4470.00	36.00 Bottom Packers & Anchor

Total Tool Length: 64.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration Inc

20-16s-31w Scott,KS

8100 E 22 Nd St N #700
Wichita, KS 67278

Hell Creek 20 D #1

Job Ticket: 54948

DST#: 3

ATTN: Mac Armstrong

Test Start: 2013.10.08 @ 04:36:15

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 54.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.78 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 4000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	mud 100%m	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

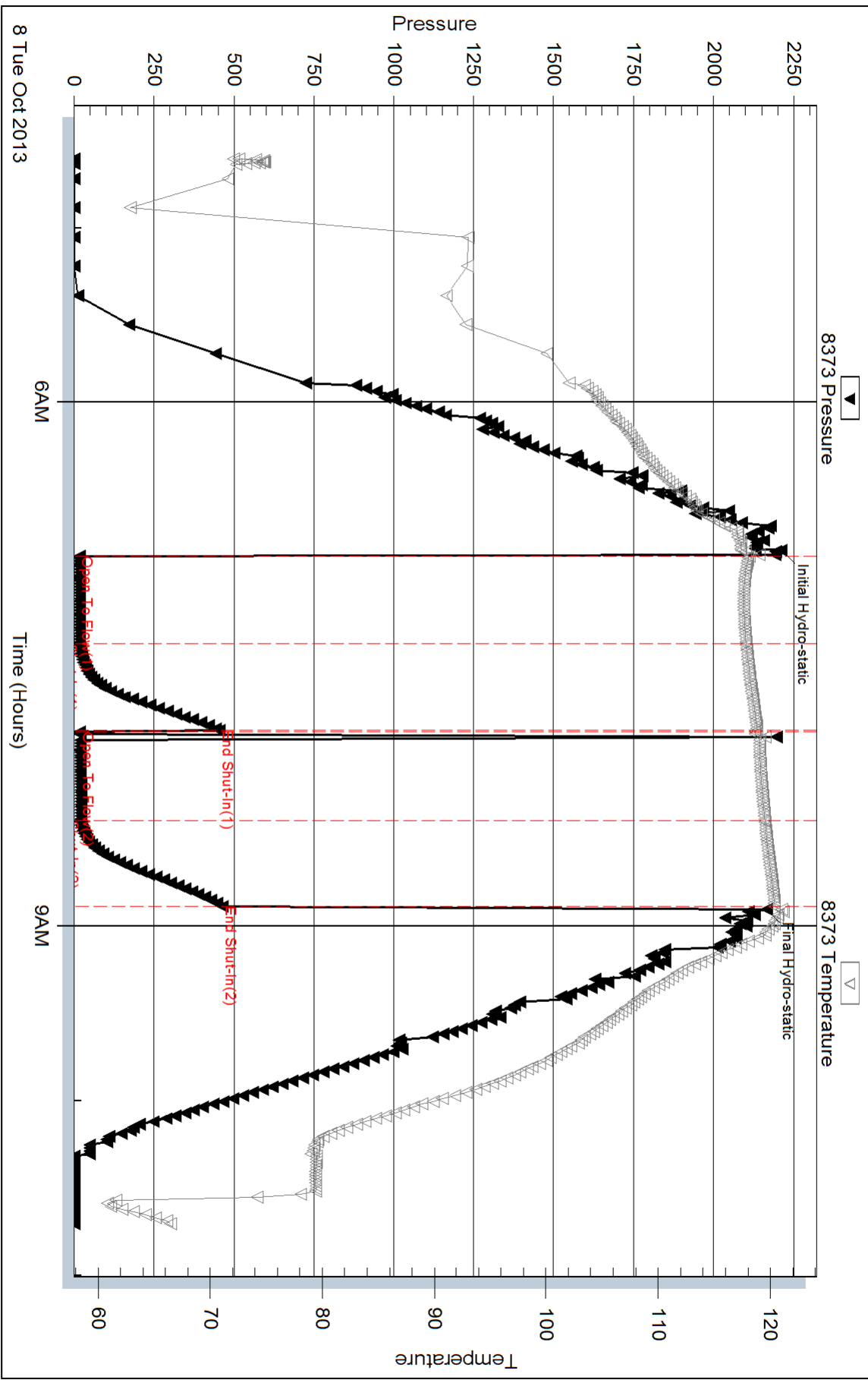
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time

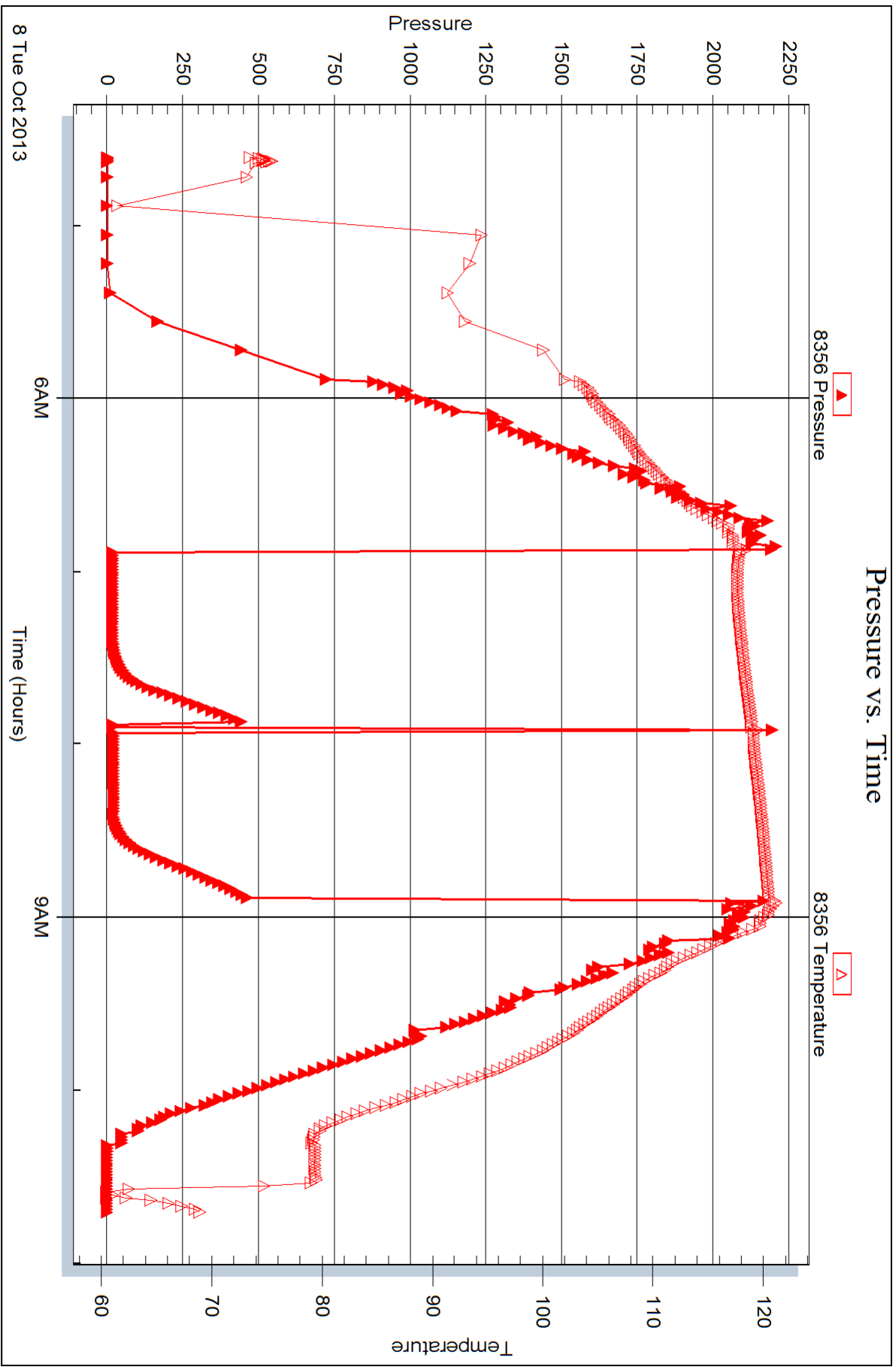


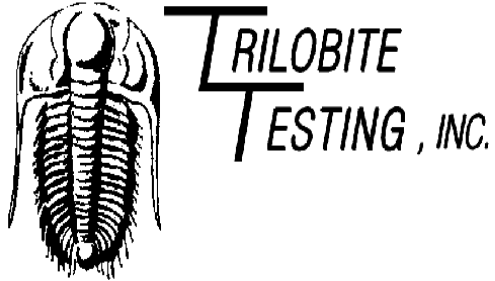
Serial #: 8356

Outside Ritchie Exploration Inc

Hell Creek 20 D #1

DST Test Number: 3





DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration Inc**

8100 E 22 Nd St N #700
Wichita, KS 67278

ATTN: Mac Armstrong

Hell Creek 20 D #1

20-16s-31w Scott,KS

Start Date: 2013.10.09 @ 08:07:15

End Date: 2013.10.09 @ 15:54:15

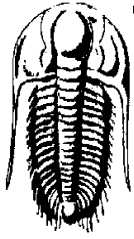
Job Ticket #: 54949 DST #: 4

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.10.10 @ 10:18:57



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration Inc
 8100 E 22 Nd St N #700
 Wichita, KS 67278
 ATTN: Mac Armstrong

20-16s-31w Scott, KS
Hell Creek 20 D #1
 Job Ticket: 54949 **DST#: 4**
 Test Start: 2013.10.09 @ 08:07:15

GENERAL INFORMATION:

Formation: **Johnson**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 10:02:15
 Time Test Ended: 15:54:15
 Interval: **4532.00 ft (KB) To 4588.00 ft (KB) (TVD)**
 Total Depth: 4588.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Brandon Turley
 Unit No: 60
 Reference Elevations: 2938.00 ft (KB)
 2933.00 ft (CF)
 KB to GR/CF: 5.00 ft

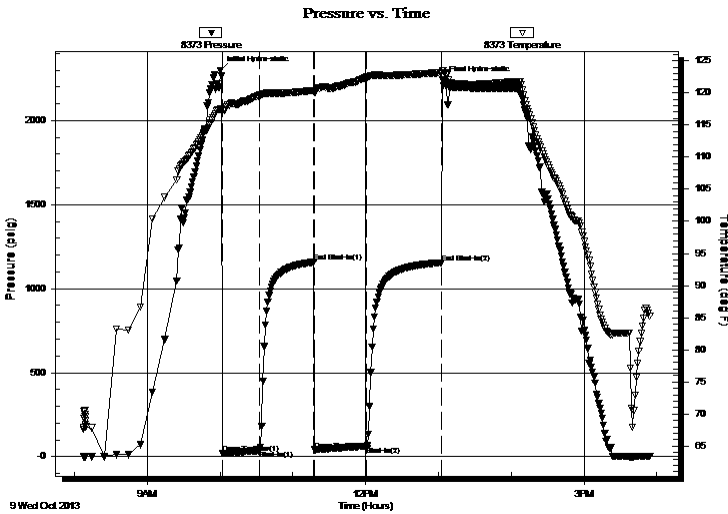
Serial #: 8373

Inside

Press @ Run Depth: 64.02 psig @ 4533.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2013.10.09 End Date: 2013.10.09 Last Calib.: 2013.10.09
 Start Time: 08:07:20 End Time: 15:54:14 Time On Btm: 2013.10.09 @ 10:00:15
 Time Off Btm: 2013.10.09 @ 13:03:15

TEST COMMENT: IF: 1/4" blow built to 1 3/4".
 IS: No return.
 FF: Surface blow built to 1/2".
 FS: No return.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2298.38	117.49	Initial Hydro-static
2	18.88	117.25	Open To Flow (1)
33	37.51	119.65	Shut-In(1)
77	1158.70	120.39	End Shut-In(1)
78	41.48	120.06	Open To Flow (2)
121	64.02	122.44	Shut-In(2)
182	1155.08	123.16	End Shut-In(2)
183	2240.32	123.50	Final Hydro-static

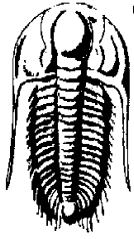
Recovery

Length (ft)	Description	Volume (bbl)
67.00	ocm 10%o 90%m	0.33

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Ritchie Exploration Inc

20-16s-31w Scott,KS

8100 E 22 Nd St N #700
Wichita, KS 67278

Hell Creek 20 D #1

Job Ticket: 54949

DST#: 4

ATTN: Mac Armstrong

Test Start: 2013.10.09 @ 08:07:15

Tool Information

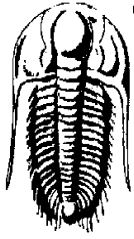
Drill Pipe:	Length: 4385.00 ft	Diameter: 3.80 inches	Volume: 61.51 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 124.00 ft	Diameter: 2.25 inches	Volume: 0.61 bbl	Weight to Pull Loose: 105000.0 lb
			<u>Total Volume: 62.12 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial 62000.00 lb
Depth to Top Packer:	4532.00 ft			Final 62000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	56.00 ft			
Tool Length:	84.00 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			4505.00	
Shut In Tool	5.00			4510.00	
Hydraulic tool	5.00			4515.00	
Jars	5.00			4520.00	
Safety Joint	3.00			4523.00	
Packer	5.00			4528.00	28.00 Bottom Of Top Packer
Packer	4.00			4532.00	
Stubb	1.00			4533.00	
Recorder	0.00	8373	Inside	4533.00	
Recorder	0.00	8356	Outside	4533.00	
Perforations	17.00			4550.00	
Change Over Sub	1.00			4551.00	
Drill Pipe	31.00			4582.00	
Change Over Sub	1.00			4583.00	
Bullnose	5.00			4588.00	56.00 Bottom Packers & Anchor

Total Tool Length: 84.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration Inc

20-16s-31w Scott,KS

8100 E 22 Nd St N #700
Wichita, KS 67278

Hell Creek 20 D #1

Job Ticket: 54949

DST#: 4

ATTN: Mac Armstrong

Test Start: 2013.10.09 @ 08:07:15

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 50.00 sec/qt

Cushion Volume:

bbl

Water Loss: 6.79 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
67.00	ocm 10%o 90%m	0.329

Total Length: 67.00 ft Total Volume: 0.329 bbl

Num Fluid Samples: 0

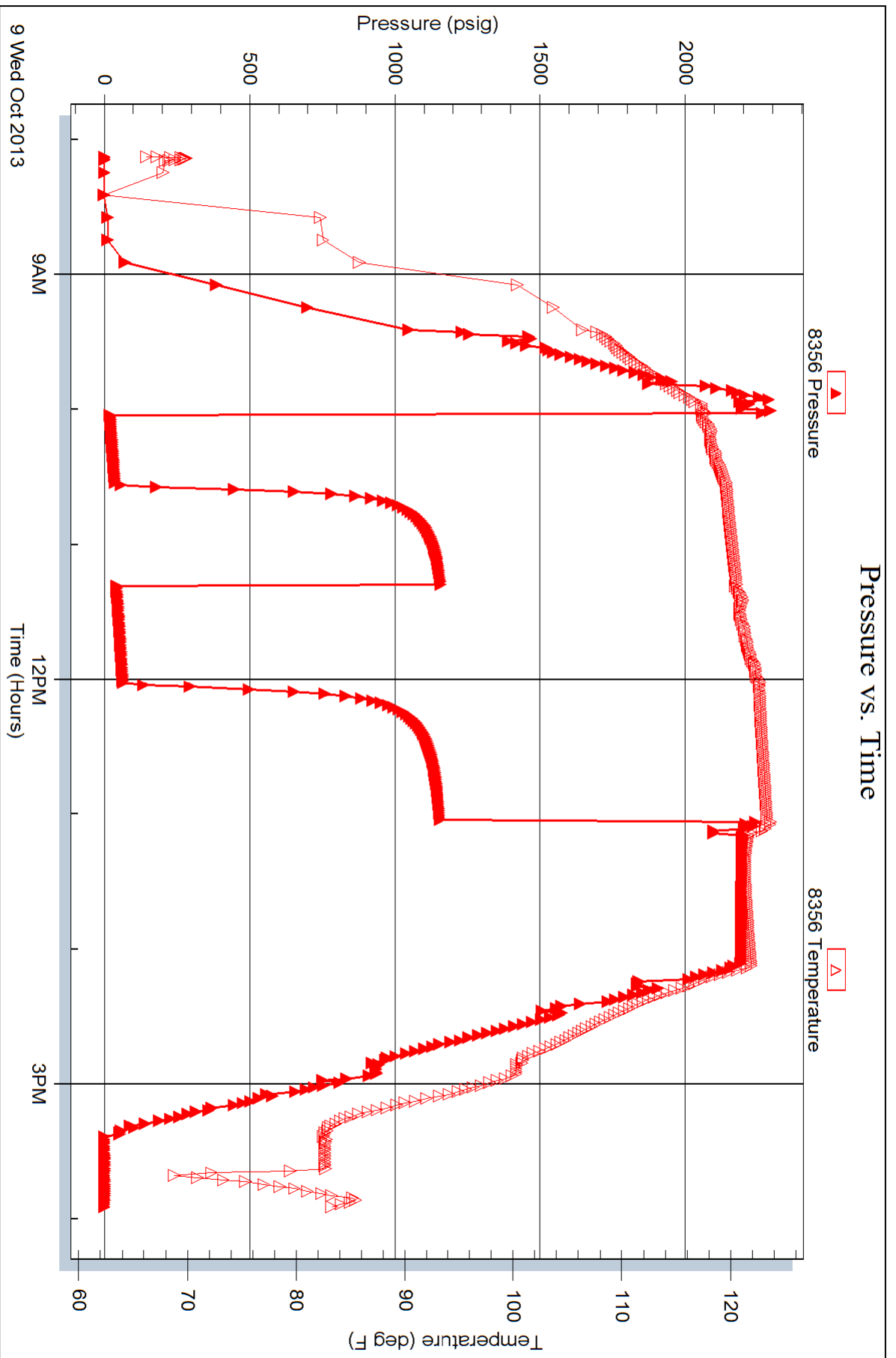
Num Gas Bombs: 0

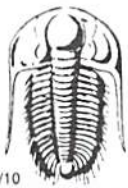
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 54946

Well Name & No. Hell Creek 200 #1 Test No. 1 Date 10-5-13
 Company Ritchie Exploration Inc Elevation 2938 KB 2933 GL
 Address 8100 E 22nd St N #700 Wichita, KS 67278
 Co. Rep / Geo. M & C Armstrong Rig WW #2
 Location: Sec. 20 Twp. 16S Rge. 31W Co. Scott State KS

Interval Tested 3978 4006 Zone Tested Lansing C
 Anchor Length 28 Drill Pipe Run 3846 Mud Wt. 9.2
 Top Packer Depth 3973 Drill Collars Run 124 Vis 52
 Bottom Packer Depth 3978 Wt. Pipe Run WL 7.2
 Total Depth 4006 Chlorides 1500 ppm System LCM 2

Blow Description IF: BoB in 28 min.
FS: No return.
FF: BoB in 30 min.
FS: No return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>102</u>	<u>MC90</u>	<u>10</u>	<u>60</u>		<u>30</u>
<u>124</u>	<u>MC90</u>	<u>10</u>	<u>50</u>		<u>40</u>
	<u>144 GIP</u>				

Rec Total 226 BHT 116 Gravity API RW @ °F Chlorides ppm

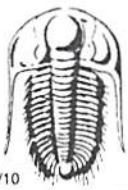
(A) Initial Hydrostatic 1934 Test 1250 T-On Location 16:30
 (B) First Initial Flow 40 Jars 250 T-Started 17:48
 (C) First Final Flow 82 Safety Joint 75 T-Open 19:40
 (D) Initial Shut-In 888 Circ Sub N/C T-Pulled 22:40
 (E) Second Initial Flow 87 Hourly Standby T-Out 00:50
 (F) Second Final Flow 91 Mileage 44 - 68.20 Comments
 (G) Final Shut-In 853 Sampler
 (H) Final Hydrostatic 1898 Straddle
 Shale Packer Ruined Shale Packer
 Extra Packer Ruined Packer
 Extra Recorder Extra Copies

Initial Open 30
 Initial Shut-In 45
 Final Flow 45
 Final Shut-In 60

Sub Total 1643.20

Approved By Maurdin M. Armstrong Our Representative

Trilobite Testing Inc. shall not be liable for damaged of any kind of the property or personal of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 54947

Well Name & No. Hell creek 20D #1 Test No. 2 Date 10-6-13
 Company Ritchie Exploration Inc Elevation 2938 KB 2933 GL
 Address _____
 Co. Rep / Geo. Mrc Armstrong Rig WW #2
 Location: Sec. 20 Twp. 16S Rge. 31W Co. Scott State KS

Interval Tested 4034 4058 Zone Tested Lansing E & F
 Anchor Length _____ Drill Pipe Run 3908 Mud Wt. 9.2
 Top Packer Depth _____ Drill Collars Run 124 Vis 53
 Bottom Packer Depth _____ Wt. Pipe Run _____ WL 10.4
 Total Depth _____ Chlorides 2800 ppm System LCM 2

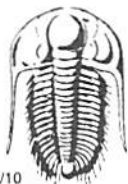
Blow Description IF: Surface blow died in 10 min.
IS: No return.
FF: No blow, Flushed tool, No blow.
FS: No return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>10</u>	<u>mud</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 10 BHT 114 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2007 Test 1250 T-On Location 9:50
 (B) First Initial Flow 31 Jars 250 T-Started 10:34
 (C) First Final Flow 32 Safety Joint 75 T-Open 12:27
 (D) Initial Shut-In 949 Circ Sub N/C T-Pulled 14:29
 (E) Second Initial Flow 38 Hourly Standby _____ T-Out 16:00
 (F) Second Final Flow 44 Mileage 44- 68.20 Comments _____
 (G) Final Shut-In 940 Sampler _____
 (H) Final Hydrostatic 1952 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Initial Open 30 Extra Recorder _____ Sub Total 0
 Initial Shut-In 30 Day Standby _____ Total 1643.20
 Final Flow 30 Accessibility _____ MP/DST Disc't _____
 Final Shut-In 30 Sub Total 1643.20

Approved By _____ Our Representative [Signature]
 Trilobite Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 54948

Well Name & No. Hell creek 26 D #1 Test No. 3 Date 10-8-13
 Company Ritchie Exploration Inc Elevation 2938 KB 2933 GL
 Address _____
 Co. Rep / Geo. M & C Armstrong Rig WW #2
 Location: Sec. 20 Twp. 16^s Rge. 31^w Co. Scott State KS

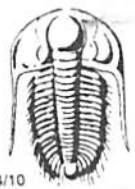
Interval Tested 4434 4470 Zone Tested Pawnee
 Anchor Length 36 Drill Pipe Run 4287 Mud Wt. 9.3
 Top Packer Depth 4429 Drill Collars Run 124 Vis 54
 Bottom Packer Depth 4434 Wt. Pipe Run — WL 8.8
 Total Depth 4470 Chlorides 4000 ppm System LCM 2
 Blow Description IF: Surface blow died in 6 min.
IS: No return.
FF: No blow, Flushed to 0/1 no blow.
FS: No return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>mud</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 5 BHT 120 Gravity — API RW — @ —°F Chlorides — ppm

(A) Initial Hydrostatic <u>2211</u>	<input checked="" type="checkbox"/> Test 1250	T-On Location <u>4:00</u>
(B) First Initial Flow <u>17</u>	<input checked="" type="checkbox"/> Jars 250	T-Started <u>4:36</u>
(C) First Final Flow <u>18</u>	<input checked="" type="checkbox"/> Safety Joint 75	T-Open <u>6:52</u>
(D) Initial Shut-In <u>454</u>	<input checked="" type="checkbox"/> Circ Sub <u>NIC</u>	T-Pulled <u>8:52</u>
(E) Second Initial Flow <u>18</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>10:40</u>
(F) Second Final Flow <u>21</u>	<input checked="" type="checkbox"/> Mileage <u>44-</u> 68.20	Comments _____
(G) Final Shut-In <u>464</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2164</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Packer
Initial Shut-In <u>30</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>400</u>
Final Shut-In <u>30</u>	<input checked="" type="checkbox"/> Day Standby 1d 12h	Total <u>2043.20</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't _____
	Sub Total <u>1643.20</u>	

Approved By _____ Our Representative [Signature]
 Trilobite Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 54949

Well Name & No. Hell Creek 20 D #1 Test No. 4 Date 16-9-13
 Company Ritchie Exploration Inc Elevation 2938 KB 2933 GL
 Address _____
 Co. Rep / Geo. Mac Armstrong Rig WW#2
 Location: Sec. 20 Twp. 16S Rge. 31W Co. Scott State KS

Interval Tested 4532 4588 Zone Tested Johnson
 Anchor Length _____ Drill Pipe Run 4385 Mud Wt. 9.3
 Top Packer Depth _____ Drill Collars Run 124 Vis 50
 Bottom Packer Depth _____ Wt. Pipe Run _____ WL 6.8
 Total Depth _____ Chlorides 2000 ppm System LCM 2
 Blow Description IF: 1/4 blow built to 134.
IS: No return.
FF: surface blow built to 1/2.
FS: No return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>67</u>	<u>ocm</u>	<u>10</u>		<u>90</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 67 BHT 123 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic <u>2298</u>	<input checked="" type="checkbox"/> Test 1250	T-On Location <u>7:06</u>
(B) First Initial Flow <u>18</u>	<input checked="" type="checkbox"/> Jars 250	T-Started <u>8:07</u>
(C) First Final Flow <u>37</u>	<input checked="" type="checkbox"/> Safety Joint 75	T-Open <u>10:00</u>
(D) Initial Shut-In <u>1158</u>	<input checked="" type="checkbox"/> Circ Sub <u>NIC</u>	T-Pulled <u>13:00</u>
(E) Second Initial Flow <u>41</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>15:54</u>
(F) Second Final Flow <u>64</u>	<input checked="" type="checkbox"/> Mileage <u>44-2</u> 136.40	Comments _____
(G) Final Shut-In <u>1155</u>	<input type="checkbox"/> Sampler	<u>loaded tools 10/10 8:15</u>
(H) Final Hydrostatic <u>2240</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer	<input checked="" type="checkbox"/> Ruined Packer 320
Initial Shut-In <u>45</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Final Flow <u>45</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby	Total <u>2031.40</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't _____
	Sub Total <u>1711.40</u>	

Approved By _____ Our Representative [Signature]

Trilobite Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.