



DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration Inc.**

8100 E.22nd St.
N.#700 Box 783188
Wichita KS 67278

ATTN: Max Lovely

Allen-Radnor #1

2-16s-34w Scott,KS

Start Date: 2014.01.30 @ 00:45:15

End Date: 2014.01.30 @ 07:19:30

Job Ticket #: 56740 DST #: 1

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

Printed: 2014.02.10 @ 16:33:21



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration Inc.

8100 E.22nd St.
N.#700 Box 783188
Wichita KS 67278
ATTN: Max Lovely

2-16s-34w Scott,KS

Allen-Radnor #1

Job Ticket: 56740

DST#: 1

Test Start: 2014.01.30 @ 00:45:15

GENERAL INFORMATION:

Formation: **LKC E-F**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 02:39:15

Time Test Ended: 07:19:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Mike Roberts

Unit No: 65

Interval: 4116.00 ft (KB) To 4145.00 ft (KB) (TVD)

Reference Elevations: 3109.00 ft (KB)

Total Depth: 4145.00 ft (KB) (TVD)

3104.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8846 Outside

Press@RunDepth: 98.19 psig @ 4117.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.01.30

End Date:

2014.01.30

Last Calib.: 2014.01.30

Start Time: 00:45:15

End Time:

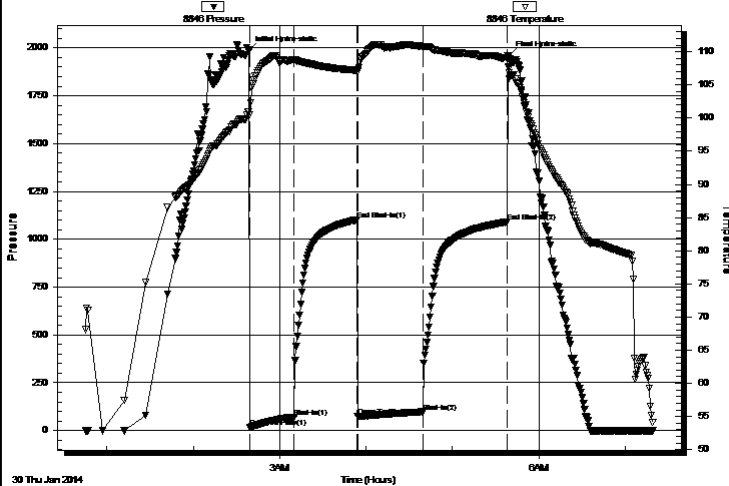
07:19:30

Time On Btm: 2014.01.30 @ 02:38:45

Time Off Btm: 2014.01.30 @ 05:39:30

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

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1987.39	100.96	Initial Hydro-static
1	16.58	100.49	Open To Flow (1)
32	71.29	108.78	Shut-In(1)
75	1101.65	107.23	End Shut-In(1)
76	73.48	107.08	Open To Flow (2)
121	98.19	110.80	Shut-In(2)
180	1090.78	109.12	End Shut-In(2)
181	1959.53	106.87	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
123.00	mcw with oil spots 20% m 80% w	0.60

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
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ATTN: Max Lovely

2-16s-34w Scott,KS

Allen-Radnor #1

Job Ticket: 56740

DST#: 1

Test Start: 2014.01.30 @ 00:45:15

GENERAL INFORMATION:

Formation: **LKC E-F**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 02:39:15

Time Test Ended: 07:19:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Mike Roberts

Unit No: 65

Interval: 4116.00 ft (KB) To 4145.00 ft (KB) (TVD)

Total Depth: 4145.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3109.00 ft (KB)

3104.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8737 Inside

Press@RunDepth: psig @ 4117.00 ft (KB)

Start Date: 2014.01.30

End Date:

2014.01.30

Start Time: 00:45:15

End Time:

07:19:15

Capacity: 8000.00 psig

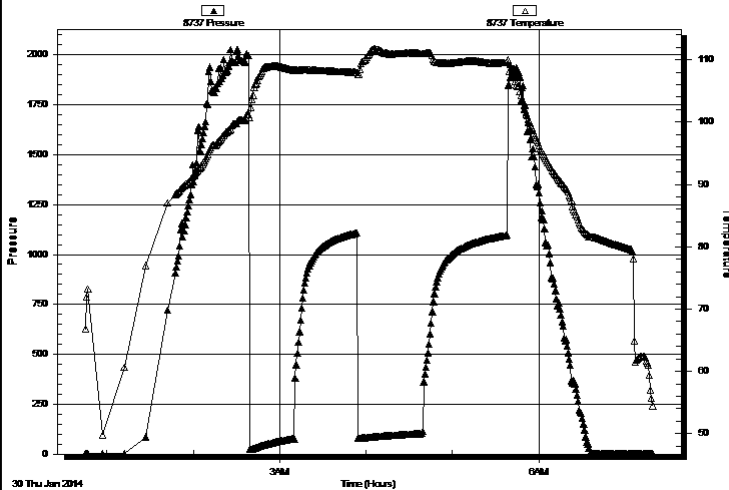
Last Calib.: 2014.01.30

Time On Btm:

Time Off Btm:

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

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
-------------	-----------------	--------------	------------

Recovery

Length (ft)	Description	Volume (bbl)
123.00	mcw with oil spots 20% m 80% w	0.60

Gas Rates

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



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

TOOL DIAGRAM

Ritchie Exploration Inc.

2-16s-34w Scott,KS

8100 E.22nd St.
N.#700 Box 783188
Wichita KS 67278
ATTN: Max Lovely

Allen-Radnor #1

Job Ticket: 56740

DST#: 1

Test Start: 2014.01.30 @ 00:45:15

Tool Information

Drill Pipe:	Length:	3979.00 ft	Diameter:	3.80 inches	Volume:	55.81 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:	123.00 ft	Diameter:	2.25 inches	Volume:	0.60 bbl	Weight to Pull Loose:	80000.00 lb
					Total Volume:	56.41 bbl	Tool Chased	0.00 ft
Drill Pipe Above KB:		14.00 ft					String Weight: Initial	50000.00 lb
Depth to Top Packer:		4116.00 ft					Final	50000.00 lb
Depth to Bottom Packer:		ft						
Interval between Packers:		29.00 ft						
Tool Length:		57.00 ft						
Number of Packers:		2	Diameter:	6.75 inches				
Tool Comments:								

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			4089.00	
Shut In Tool	5.00			4094.00	
Hydraulic tool	5.00			4099.00	
Jars	5.00			4104.00	
Safety Joint	3.00			4107.00	
Packer	5.00			4112.00	28.00 Bottom Of Top Packer
Packer	4.00			4116.00	
Stubb	1.00			4117.00	
Recorder	0.00	8737	Inside	4117.00	
Recorder	0.00	8846	Outside	4117.00	
Perforations	23.00			4140.00	
Bullnose	5.00			4145.00	29.00 Bottom Packers & Anchor

Total Tool Length: 57.00



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DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration Inc.

2-16s-34w Scott,KS

8100 E.22nd St.
N.#700 Box 783188
Wichita KS 67278
ATTN: Max Lovely

Allen-Radnor #1

Job Ticket: 56740

DST#: 1

Test Start: 2014.01.30 @ 00:45:15

Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 54.00 sec/qt

Water Loss: 7.51 in³

Resistivity: 0.00 ohm.m

Salinity: 2800.00 ppm

Filter Cake: 1.00 inches

Cushion Type:

Cushion Length:

Cushion Volume:

Gas Cushion Type:

Gas Cushion Pressure:

ft

bbl

psig

Oil API:

Water Salinity:

0 deg API

23000 ppm

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
123.00	mcw with oil spots 20%m 80%w	0.605

Total Length: 123.00 ft

Total Volume: 0.605 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW= .542 @ 43.3= 23,000 ppm

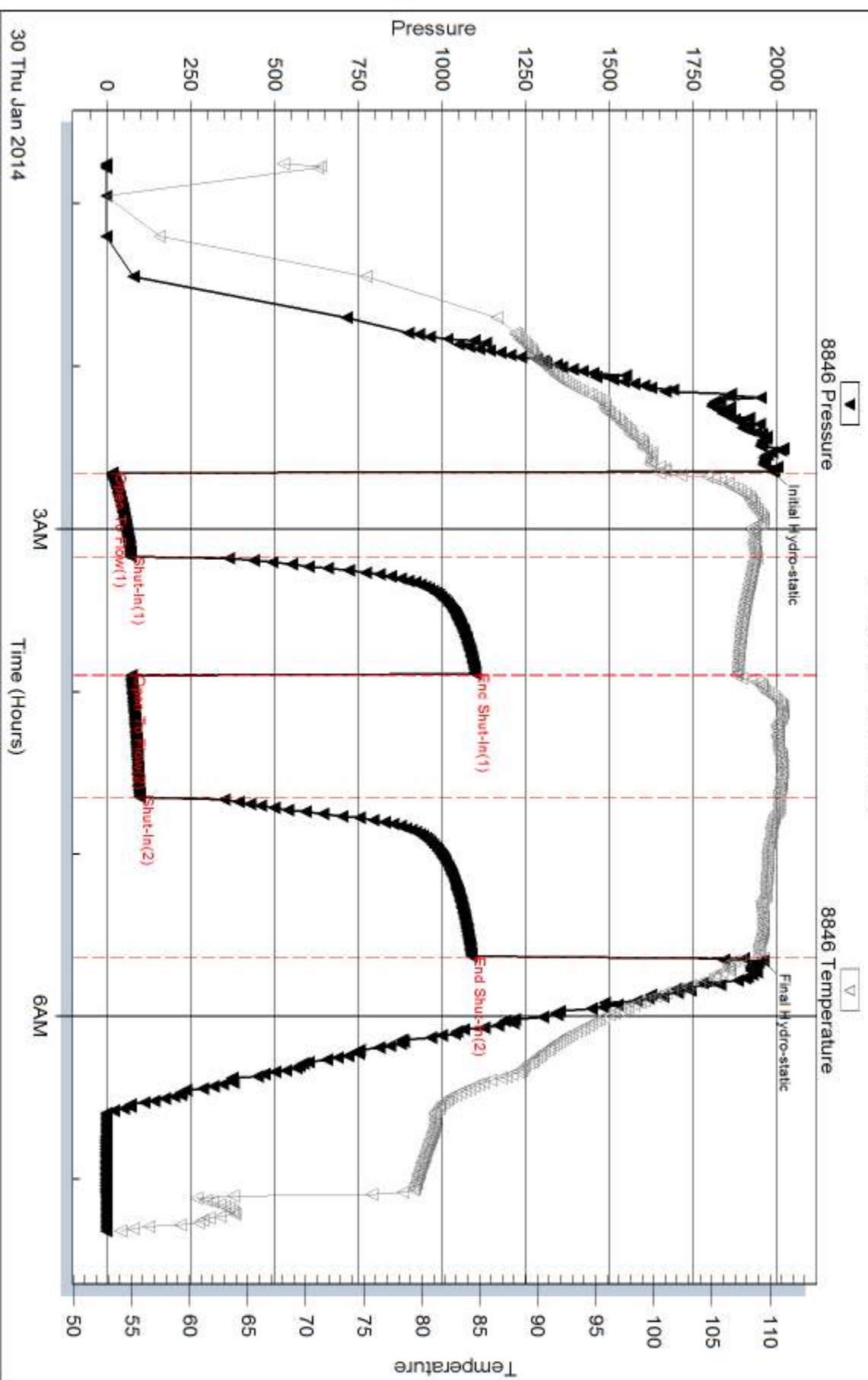
Serial #: 8846

Outside Ritchie Exploration Inc.

Allen-Radnor #1

DST Test Number: 1

Pressure vs. Time



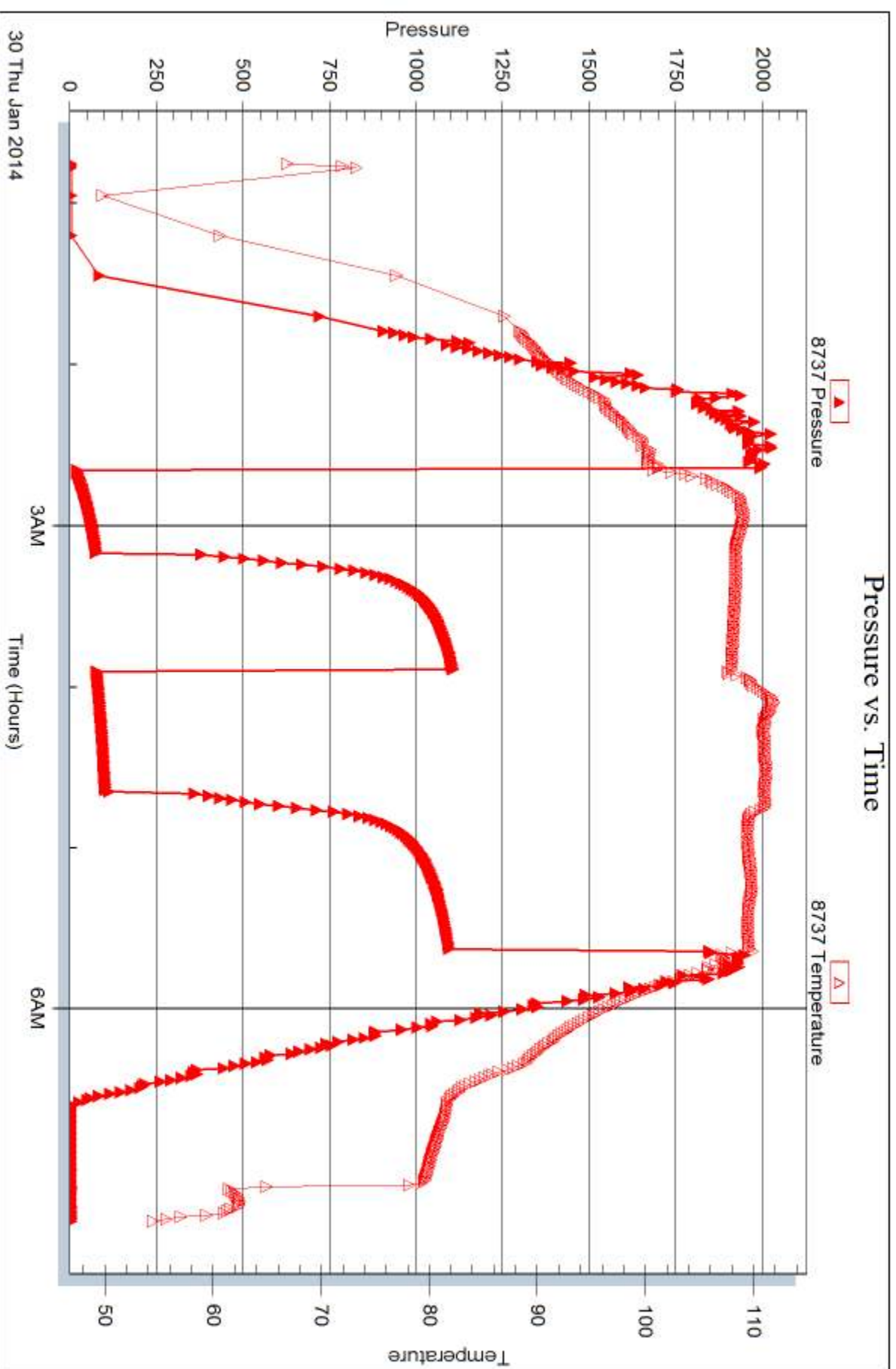
Serial #: 8737

Inside

Ritchie Exploration Inc.

Allen-Radnor #1

DST Test Number: 1





DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration Inc.**

8100 E.22nd St.
N.#700 Box 783188
Wichita KS 67278

ATTN: Max Lovely

Allen-Radnor #1

2-16s-34w Scott,KS

Start Date: 2014.01.30 @ 22:23:00

End Date: 2014.01.31 @ 05:31:30

Job Ticket #: 55704 DST #: 2

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

Printed: 2014.02.10 @ 16:31:51



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration Inc.

8100 E.22nd St.
N.#700 Box 783188
Wichita KS 67278
ATTN: Max Lovely

2-16s-34w Scott,KS

Allen-Radnor #1

Job Ticket: 55704

DST#: 2

Test Start: 2014.01.30 @ 22:23:00

GENERAL INFORMATION:

Formation: **LKC 'H & I'**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:17:30

Time Test Ended: 05:31:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Cornelio Landa III

Unit No: 65

Interval: 4202.00 ft (KB) To 4281.00 ft (KB) (TVD)

Total Depth: 4281.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3109.00 ft (KB)

3104.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8846 Inside

Press@RunDepth: 247.18 psig @ 4203.00 ft (KB)

Start Date: 2014.01.30

End Date:

2014.01.31

Start Time: 22:23:15

End Time:

05:31:30

Capacity: 8000.00 psig

Last Calib.: 2014.01.31

Time On Btm: 2014.01.31 @ 00:17:15

Time Off Btm: 2014.01.31 @ 03:19:15

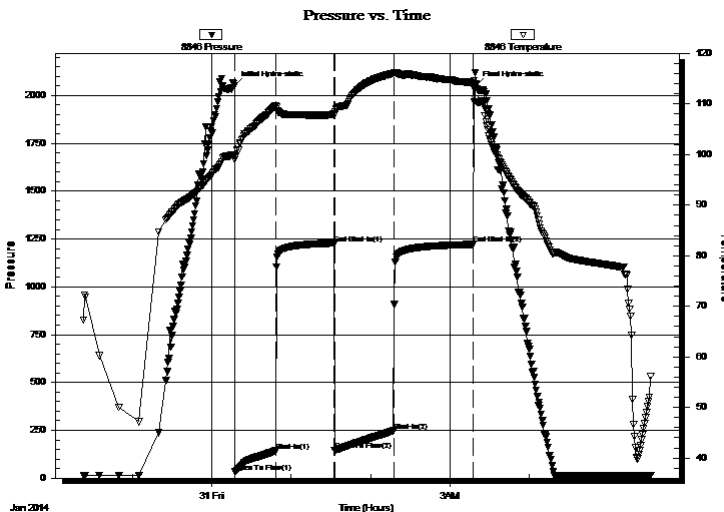
TEST COMMENT: IF: BOB. in 23 min.

IS: Bled off in 2 min.-Weak surface blow back-Died in 5 min.

FF: BOB. in 21 min.

FS: Bled off in 2 min.-Weak surface blow back-Died in 5 min.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2052.69	99.79	Initial Hydro-static
1	33.10	99.02	Open To Flow (1)
31	142.30	109.56	Shut-In(1)
76	1226.70	108.08	End Shut-In(1)
76	145.44	107.85	Open To Flow (2)
121	247.18	116.02	Shut-In(2)
180	1222.36	114.23	End Shut-In(2)
182	2050.35	110.95	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
249.00	Mcs w 10m 90w	2.37
126.00	Mcs w 15m 85w	1.77
126.00	Sw cm 40w 60m	1.77
0.00	1.30@30=10000	0.00

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
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* Recovery from multiple tests



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DRILL STEM TEST REPORT

Ritchie Exploration Inc.

2-16s-34w Scott,KS

8100 E.22nd St.
N.#700 Box 783188
Wichita KS 67278
ATTN: Max Lovely

Allen-Radnor #1

Job Ticket: 55704

DST#: 2

Test Start: 2014.01.30 @ 22:23:00

GENERAL INFORMATION:

Formation: **LKC 'H & I'**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:17:30

Time Test Ended: 05:31:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Cornelio Landa III

Unit No: 65

Interval: 4202.00 ft (KB) To 4281.00 ft (KB) (TVD)

Total Depth: 4281.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3109.00 ft (KB)

3104.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8737 Outside

Press@RunDepth: psig @ 4203.00 ft (KB)

Start Date: 2014.01.30

End Date:

2014.01.31

Start Time: 22:23:15

End Time:

05:31:15

Capacity: 8000.00 psig

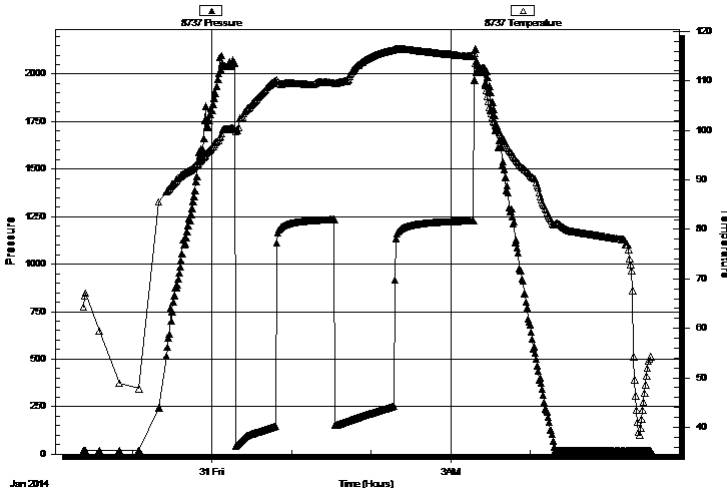
Last Calib.: 2014.01.31

Time On Btm:

Time Off Btm:

TEST COMMENT: IF: BOB. in 23 min.
IS: Bled off in 2 min.-Weak surface blow back-Died in 5 min.
FF: BOB. in 21 min.
FS: Bled off in 2 min.-Weak surface blow back-Died in 5 min.

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
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Recovery

Length (ft)	Description	Volume (bbl)
249.00	Mcsw 10m 90w	2.37
126.00	Mcsw 15m 85w	1.77
126.00	Sw cm 40w 60m	1.77
0.00	1.30@30=10000	0.00

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
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* Recovery from multiple tests



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

TOOL DIAGRAM

Ritchie Exploration Inc.

2-16s-34w Scott,KS

8100 E.22nd St.
N.#700 Box 783188
Wichita KS 67278
ATTN: Max Lovely

Allen-Radnor #1

Job Ticket: 55704

DST#: 2

Test Start: 2014.01.30 @ 22:23:00

Tool Information

Drill Pipe:	Length:	4074.00 ft	Diameter:	3.80 inches	Volume:	57.15 bbl	Tool Weight:	2500.00 lb
Heavy Wt. Pipe:	Length:	0.00 ft	Diameter:	0.00 inches	Volume:	0.00 bbl	Weight set on Packer:	22000.00 lb
Drill Collar:	Length:	123.00 ft	Diameter:	2.25 inches	Volume:	0.60 bbl	Weight to Pull Loose:	10000.00 lb
					Total Volume:	57.75 bbl	Tool Chased	0.00 ft
Drill Pipe Above KB:		22.00 ft					String Weight: Initial	52000.00 lb
Depth to Top Packer:		4202.00 ft					Final	53000.00 lb
Depth to Bottom Packer:		ft						
Interval between Packers:		79.00 ft						
Tool Length:		106.00 ft						
Number of Packers:		2	Diameter:	6.75 inches				
Tool Comments:								

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			4176.00	
Shut In Tool	5.00			4181.00	
Hydraulic tool	5.00			4186.00	
Jars	5.00			4191.00	
Safety Joint	2.00			4193.00	
Packer	5.00			4198.00	27.00 Bottom Of Top Packer
Packer	4.00			4202.00	
Stubb	1.00			4203.00	
Recorder	0.00	8846	Inside	4203.00	
Recorder	0.00	8737	Outside	4203.00	
Perforations	8.00			4211.00	
Change Over Sub	1.00			4212.00	
Drill Pipe	63.00			4275.00	
Change Over Sub	1.00			4276.00	
Bullnose	5.00			4281.00	79.00 Bottom Packers & Anchor

Total Tool Length: 106.00



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DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration Inc.

2-16s-34w Scott,KS

8100 E.22nd St.
N.#700 Box 783188
Wichita KS 67278
ATTN: Max Lovely

Allen-Radnor #1

Job Ticket: 55704

DST#: 2

Test Start: 2014.01.30 @ 22:23:00

Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 57.00 sec/qt

Water Loss: 7.88 in³

Resistivity: 0.00 ohm.m

Salinity: 3500.00 ppm

Filter Cake: 1.00 inches

Cushion Type:

Cushion Length:

Cushion Volume:

Gas Cushion Type:

Gas Cushion Pressure:

Oil API:

ft

bbl

psig

deg API

Water Salinity: 10000 ppm

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
249.00	Mcs w 10m 90w	2.372
126.00	Mcs w 15m 85w	1.767
126.00	Sw cm 40w 60m	1.767
0.00	1.30@30=10000	0.000

Total Length: 501.00 ft

Total Volume: 5.906 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

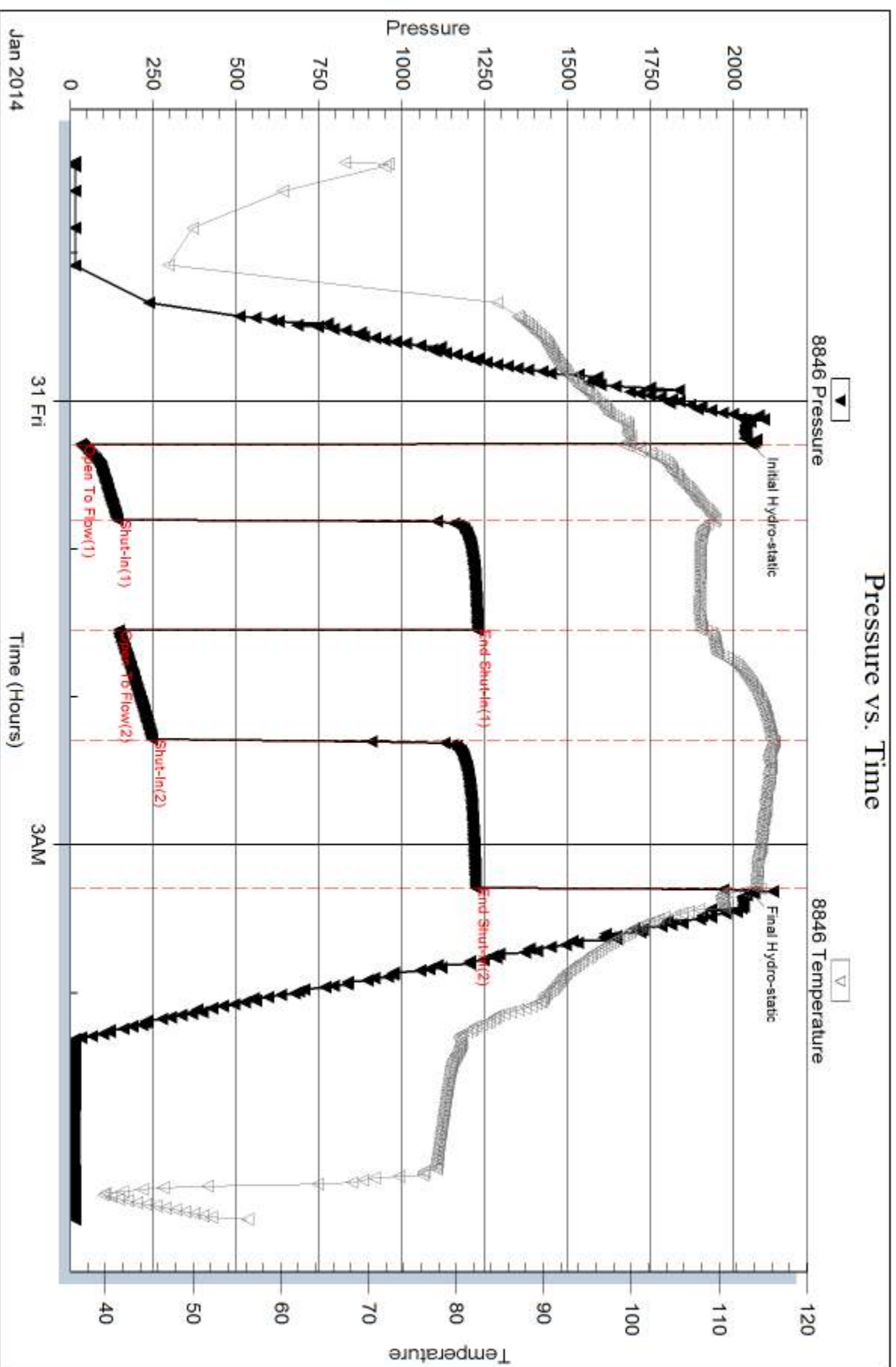
Serial #: 8846

Inside

Ritchie Exploration Inc.

Allen-Radnor #1

DST Test Number: 2

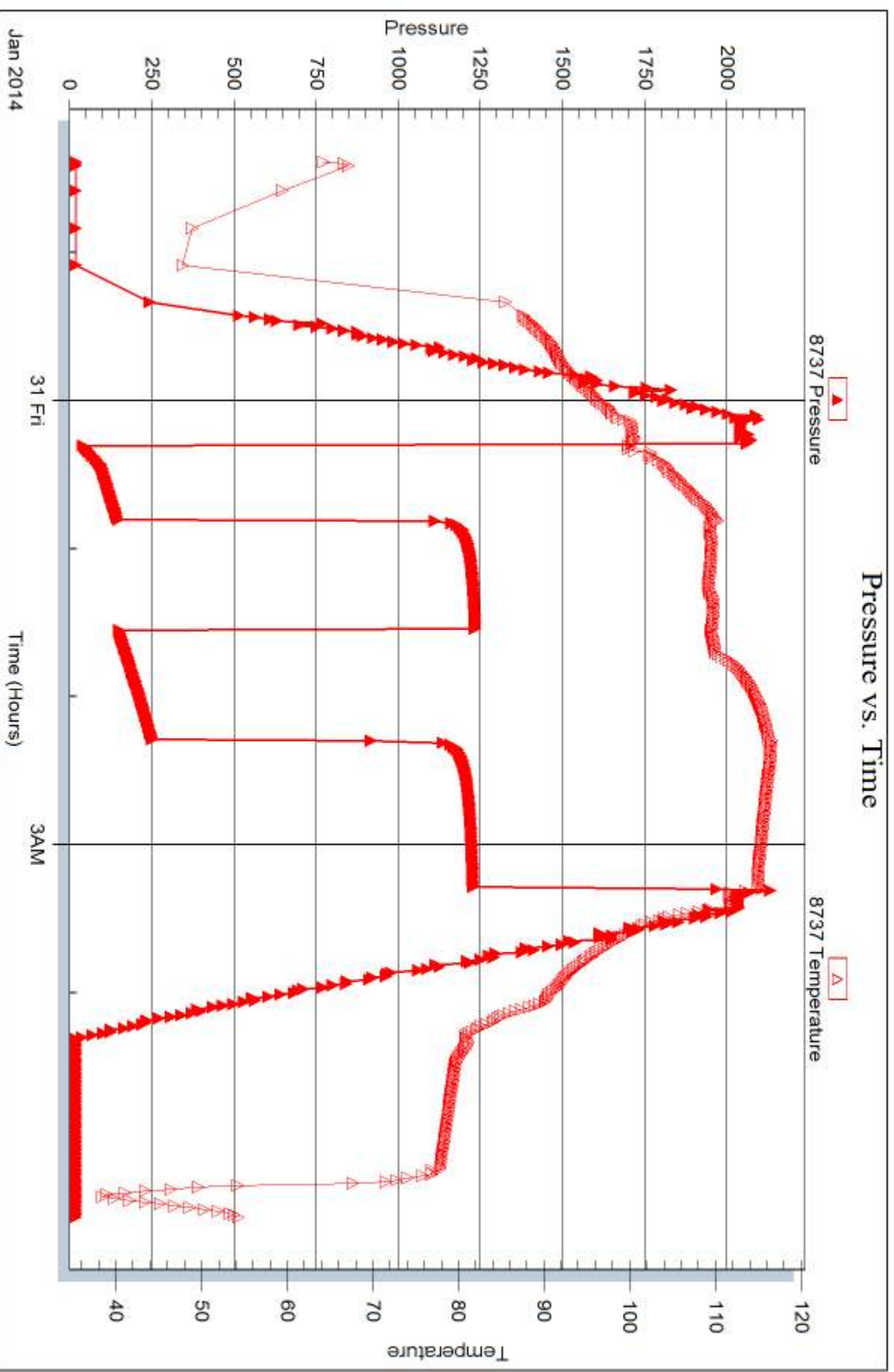


Serial #: 8737

Outside Ritchie Exploration Inc.

Allen-Radnor #1

DST Test Number: 2





DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration Inc.**

8100 E.22nd St.
N.#700 Box 783188
Wichita KS 67278

ATTN: Max Lovely

Allen-Radnor #1

2-16s-34w Scott,KS

Start Date: 2014.02.01 @ 03:15:00

End Date: 2014.02.01 @ 09:48:45

Job Ticket #: 55705 DST #: 3

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2014.02.10 @ 16:31:16

Ritchie Exploration Inc.

2-16s-34w Scott,KS

Allen-Radnor #1

DST # 3

Marmaton & Altamont

2014.02.01



TRILOBITE
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DRILL STEM TEST REPORT

Ritchie Exploration Inc.

2-16s-34w Scott,KS

8100 E.22nd St.
N.#700 Box 783188
Wichita KS 67278
ATTN: Max Lovely

Allen-Radnor #1

Job Ticket: 55705

DST#: 3

Test Start: 2014.02.01 @ 03:15:00

GENERAL INFORMATION:

Formation: **Marmaton & Altamont**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 05:33:15

Time Test Ended: 09:48:45

Test Type: Conventional Bottom Hole (Reset)

Tester: Cornelio Landa III

Unit No: 65

Interval: 4388.00 ft (KB) To 4463.00 ft (KB) (TVD)

Reference Elevations: 3109.00 ft (KB)

Total Depth: 4463.00 ft (KB) (TVD)

3104.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8737 Outside

Press@RunDepth: 60.20 psig @ 4393.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.02.01

End Date:

2014.02.01

Last Calib.: 2014.02.02

Start Time: 03:15:15

End Time:

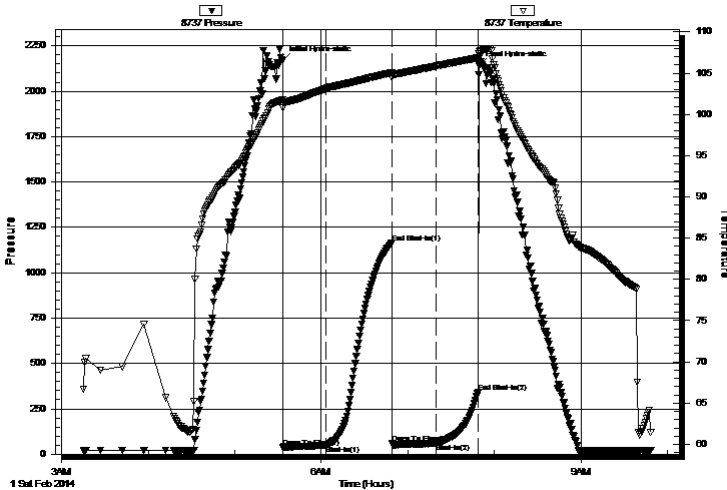
09:48:45

Time On Btm: 2014.02.01 @ 05:33:00

Time Off Btm: 2014.02.01 @ 07:49:15

TEST COMMENT: IF: 1" of Blow
IS: Bled off-No return
FF: No blow -Flushed tool-Good surge
FS: No return

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2168.02	101.80	Initial Hydro-static
1	38.99	100.76	Open To Flow (1)
31	49.07	103.15	Shut-In(1)
76	1165.76	105.05	End Shut-In(1)
76	59.15	104.44	Open To Flow (2)
107	60.20	105.84	Shut-In(2)
136	340.89	106.85	End Shut-In(2)
137	2139.15	107.40	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
30.00	Gocm 5g 35o 60m	0.15

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
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* Recovery from multiple tests



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DRILL STEM TEST REPORT

Ritchie Exploration Inc.

2-16s-34w Scott,KS

8100 E.22nd St.
N.#700 Box 783188
Wichita KS 67278
ATTN: Max Lovely

Allen-Radnor #1

Job Ticket: 55705

DST#: 3

Test Start: 2014.02.01 @ 03:15:00

GENERAL INFORMATION:

Formation: **Marmaton & Altamont**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 05:33:15

Time Test Ended: 09:48:45

Test Type: Conventional Bottom Hole (Reset)

Tester: Cornelio Landa III

Unit No: 65

Interval: 4388.00 ft (KB) To 4463.00 ft (KB) (TVD)

Total Depth: 4463.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3109.00 ft (KB)

3104.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8846 Inside

Press@RunDepth: psig @ 4393.00 ft (KB)

Start Date: 2014.02.01

End Date:

2014.02.01

Start Time: 03:15:15

End Time:

09:48:45

Capacity: 8000.00 psig

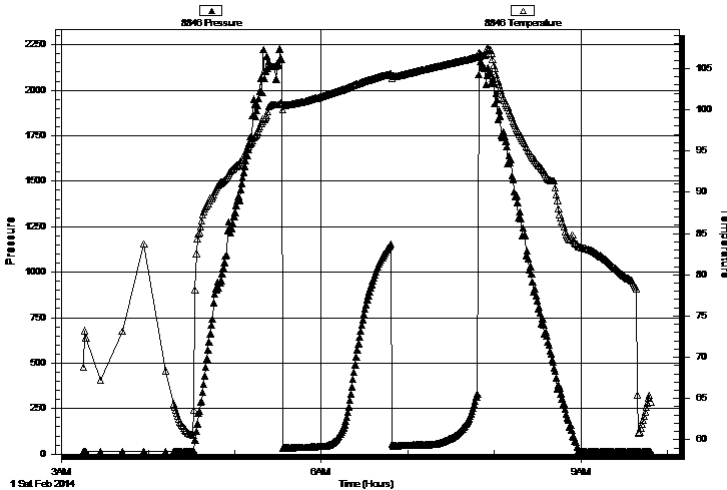
Last Calib.: 2014.02.02

Time On Btm:

Time Off Btm:

TEST COMMENT: IF: 1" of Blow
IS: Bled off-No return
FF: No blow -Flushed tool-Good surge
FS: No return

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
-------------	-----------------	--------------	------------

Recovery

Length (ft)	Description	Volume (bbl)
30.00	Gocm 5g 35o 60m	0.15

Gas Rates

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

* Recovery from multiple tests



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TESTING, INC.

DRILL STEM TEST REPORT

TOOL DIAGRAM

Ritchie Exploration Inc.

2-16s-34w Scott,KS

8100 E.22nd St.
N.#700 Box 783188
Wichita KS 67278
ATTN: Max Lovely

Allen-Radnor #1

Job Ticket: 55705

DST#: 3

Test Start: 2014.02.01 @ 03:15:00

Tool Information

Drill Pipe:	Length:	4261.00 ft	Diameter:	3.80 inches	Volume:	59.77 bbl	Tool Weight:	2500.00 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:	123.00 ft	Diameter:	2.25 inches	Volume:	0.60 bbl	Weight to Pull Loose:	10000.00 lb
					Total Volume:	60.37 bbl	Tool Chased	0.00 ft
Drill Pipe Above KB:		23.00 ft					String Weight: Initial	54000.00 lb
Depth to Top Packer:		4388.00 ft					Final	54000.00 lb
Depth to Bottom Packer:		ft						
Interval between Packers:		75.00 ft						
Tool Length:		102.00 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			4362.00	
Shut In Tool	5.00			4367.00	
Hydraulic tool	5.00			4372.00	
Jars	5.00			4377.00	
Safety Joint	2.00			4379.00	
Packer	5.00			4384.00	27.00 Bottom Of Top Packer
Packer	4.00			4388.00	
Stubb	1.00			4389.00	
Perforations	4.00			4393.00	
Recorder	0.00	8846	Inside	4393.00	
Recorder	0.00	8737	Outside	4393.00	
Change Over Sub	1.00			4394.00	
Drill Pipe	63.00			4457.00	
Change Over Sub	1.00			4458.00	
Bullnose	5.00			4463.00	75.00 Bottom Packers & Anchor

Total Tool Length: 102.00



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration Inc.

2-16s-34w Scott,KS

8100 E.22nd St.
N.#700 Box 783188
Wichita KS 67278
ATTN: Max Lovely

Allen-Radnor #1

Job Ticket: 55705

DST#: 3

Test Start: 2014.02.01 @ 03:15:00

Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: lb/gal

Viscosity: 54.00 sec/qt

Water Loss: 8.73 in³

Resistivity: 0.00 ohm.m

Salinity: 4400.00 ppm

Filter Cake: 1.00 inches

Cushion Type:

Cushion Length: ft

Cushion Volume: bbl

Gas Cushion Type:

Gas Cushion Pressure: psig

Oil API:

Water Salinity: deg API

ppm

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
30.00	Gocm 5g 35o 60m	0.148

Total Length: 30.00 ft Total Volume: 0.148 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

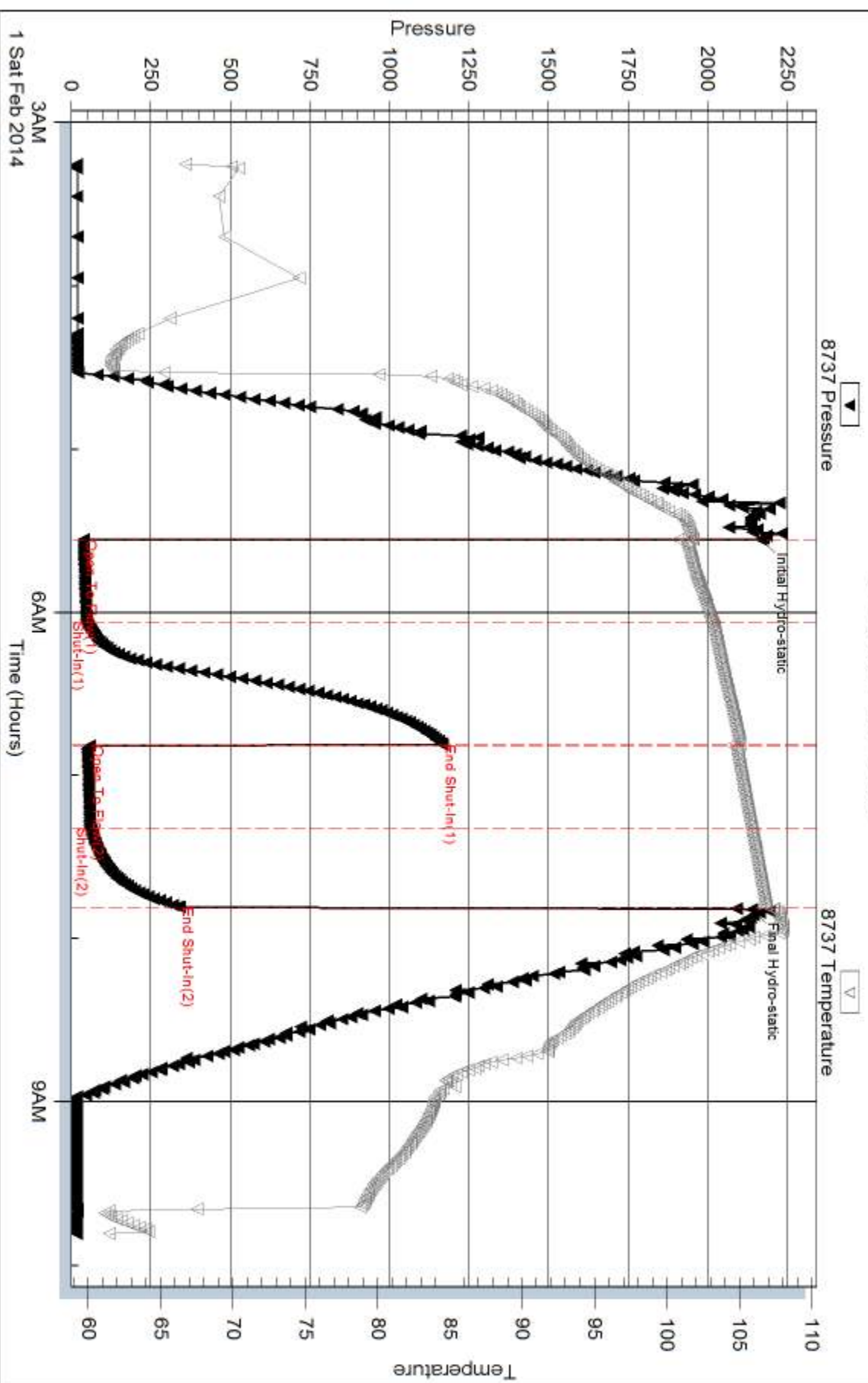
Serial #: 8737

Outside Ritchie Exploration Inc.

Allen-Radnor #1

DST Test Number: 3

Pressure vs. Time



Serial #: 8846

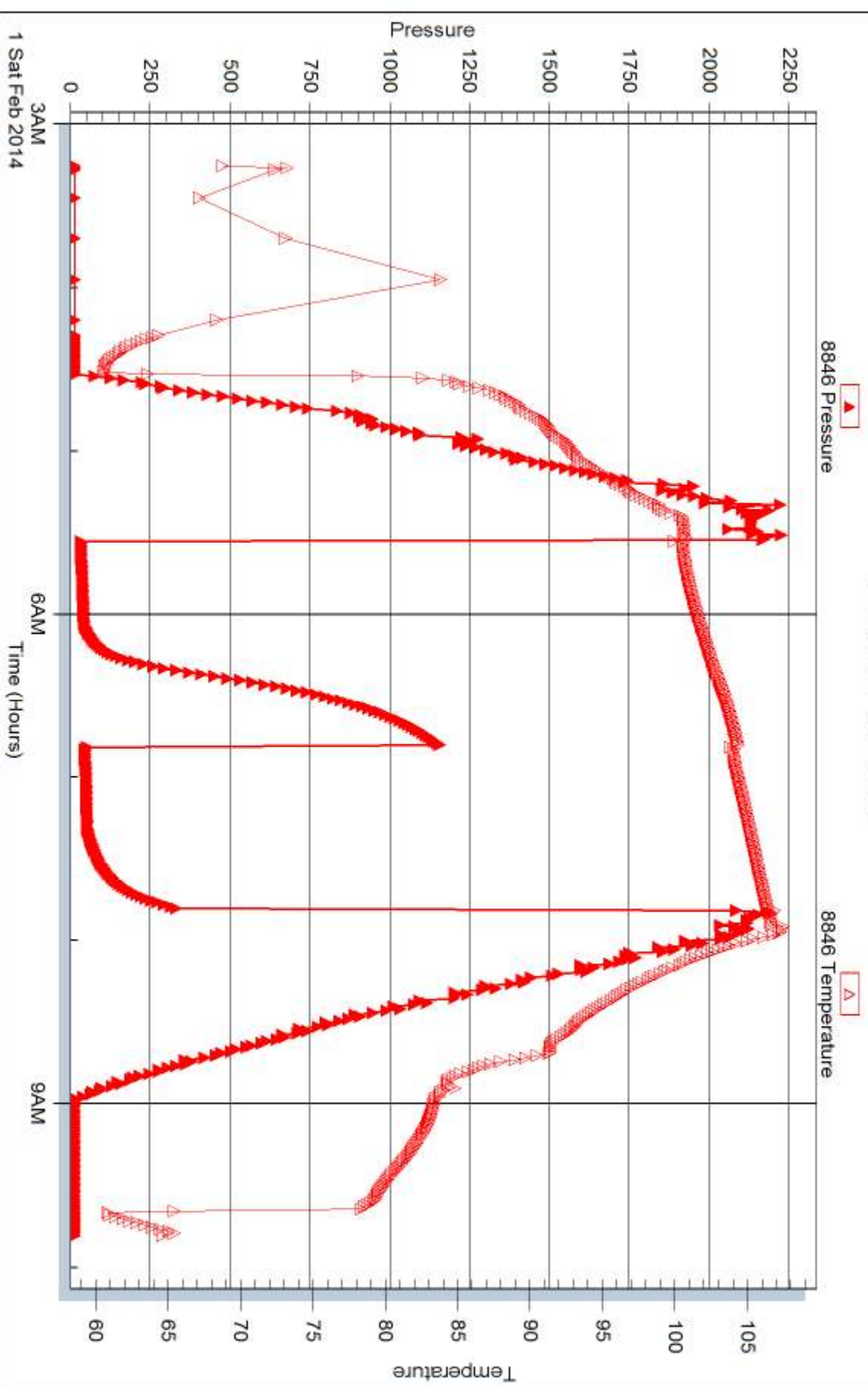
Inside

Ritchie Exploration Inc.

Allen-Radnor #1

DST Test Number: 3

Pressure vs. Time





DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration Inc.**

8100 E.22nd St.
N.#700 Box 783188
Wichita KS 67278

ATTN: Max Lovely

Allen-Radnor #1

2-16s-34w Scott,KS

Start Date: 2014.02.02 @ 07:28:00

End Date: 2014.02.02 @ 14:13:45

Job Ticket #: 55706 DST #: 4

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

Printed: 2014.02.10 @ 16:30:40



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration Inc.

8100 E.22nd St.
N.#700 Box 783188
Wichita KS 67278
ATTN: Max Lovely

2-16s-34w Scott,KS

Allen-Radnor #1

Job Ticket: 55706

DST#: 4

Test Start: 2014.02.02 @ 07:28:00

GENERAL INFORMATION:

Formation: **Myric Station-Ft. Sc**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 09:36:30

Time Test Ended: 14:13:45

Test Type: Conventional Bottom Hole (Reset)

Tester: Cornelio Landa III

Unit No: 65

Interval: 4554.00 ft (KB) To 4596.00 ft (KB) (TVD)

Total Depth: 4596.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3109.00 ft (KB)

3104.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8846 Inside

Press@RunDepth: 56.46 psig @ 4559.00 ft (KB)

Start Date: 2014.02.02

End Date:

2014.02.02

Start Time: 07:28:15

End Time:

14:13:45

Capacity: 8000.00 psig

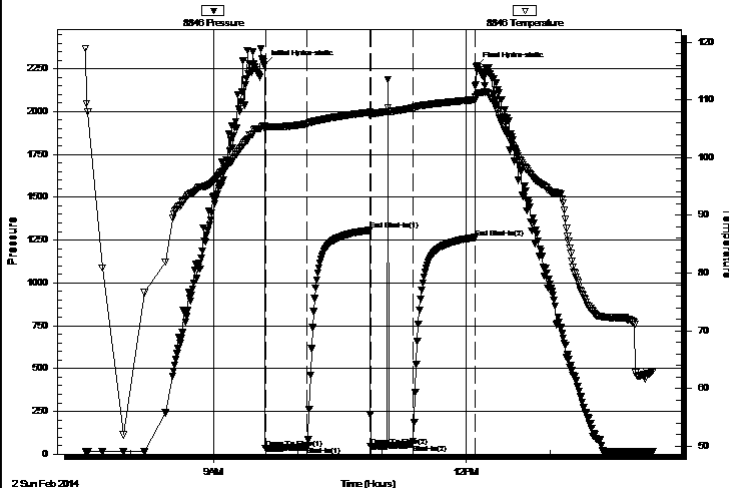
Last Calib.: 2014.02.02

Time On Btm: 2014.02.02 @ 09:36:15

Time Off Btm: 2014.02.02 @ 12:07:00

TEST COMMENT: IF: 1 1/4 Blow
IS: No return
FF: No blow - Flushed tool - Good surge
FS: Weak surface Blow back - Died in 1 min.

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2274.86	105.55	Initial Hydro-static
1	33.73	105.06	Open To Flow (1)
31	42.98	105.88	Shut-In(1)
75	1307.60	107.86	End Shut-In(1)
76	44.34	107.58	Open To Flow (2)
106	56.46	108.59	Shut-In(2)
150	1265.52	110.06	End Shut-In(2)
151	2261.39	110.29	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
30.00	Mud 100m	0.15

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Ritchie Exploration Inc.

2-16s-34w Scott,KS

8100 E.22nd St.
N.#700 Box 783188
Wichita KS 67278
ATTN: Max Lovely

Allen-Radnor #1

Job Ticket: 55706

DST#: 4

Test Start: 2014.02.02 @ 07:28:00

GENERAL INFORMATION:

Formation: **Myric Station-Ft. Sc**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 09:36:30

Time Test Ended: 14:13:45

Test Type: Conventional Bottom Hole (Reset)

Tester: Cornelio Landa III

Unit No: 65

Interval: 4554.00 ft (KB) To 4596.00 ft (KB) (TVD)

Total Depth: 4596.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3109.00 ft (KB)

3104.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8737 Outside

Press@RunDepth: psig @ 4559.00 ft (KB)

Start Date: 2014.02.02

End Date:

2014.02.02

Start Time: 07:28:15

End Time:

14:14:15

Capacity: 8000.00 psig

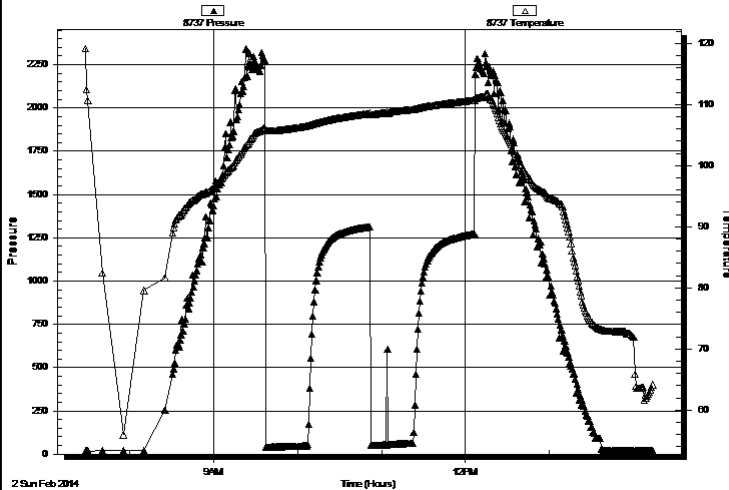
Last Calib.: 2014.02.02

Time On Btm:

Time Off Btm:

TEST COMMENT: IF: 1 1/4 Blow
IS: No return
FF: No blow - Flushed tool - Good surge
FS: Weak surface Blow back - Died in 1 min.

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
-------------	-----------------	--------------	------------

Recovery

Length (ft)	Description	Volume (bbl)
30.00	Mud 100m	0.15

Gas Rates

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

* Recovery from multiple tests



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

TOOL DIAGRAM

Ritchie Exploration Inc.

2-16s-34w Scott,KS

8100 E.22nd St.
N.#700 Box 783188
Wichita KS 67278
ATTN: Max Lovely

Allen-Radnor #1

Job Ticket: 55706

DST#: 4

Test Start: 2014.02.02 @ 07:28:00

Tool Information

Drill Pipe:	Length:	4417.00 ft	Diameter:	3.80 inches	Volume:	61.96 bbl	Tool Weight:	2500.00 lb
Heavy Wt. Pipe:	Length:	0.00 ft	Diameter:	0.00 inches	Volume:	0.00 bbl	Weight set on Packer:	2000.00 lb
Drill Collar:	Length:	123.00 ft	Diameter:	2.25 inches	Volume:	0.60 bbl	Weight to Pull Loose:	10000.00 lb
					Total Volume:	62.56 bbl	Tool Chased	0.00 ft
Drill Pipe Above KB:		13.00 ft					String Weight: Initial	56000.00 lb
Depth to Top Packer:		4554.00 ft					Final	56000.00 lb
Depth to Bottom Packer:		ft						
Interval between Packers:		42.00 ft						
Tool Length:		69.00 ft						
Number of Packers:		2	Diameter:	6.75 inches				

Tool Comments:

Tool Description

Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00		4528.00	
Shut In Tool	5.00		4533.00	
Hydraulic tool	5.00		4538.00	
Jars	5.00		4543.00	
Safety Joint	2.00		4545.00	
Packer	5.00		4550.00	27.00 Bottom Of Top Packer
Packer	4.00		4554.00	
Stubb	1.00		4555.00	
Perforations	4.00		4559.00	
Recorder	0.00	8846 Inside	4559.00	
Recorder	0.00	8737 Outside	4559.00	
Change Over Sub	1.00		4560.00	
Drill Pipe	30.00		4590.00	
Change Over Sub	1.00		4591.00	
Bullnose	5.00		4596.00	42.00 Bottom Packers & Anchor

Total Tool Length: 69.00



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration Inc.

2-16s-34w Scott,KS

8100 E.22nd St.
N.#700 Box 783188
Wichita KS 67278
ATTN: Max Lovely

Allen-Radnor #1

Job Ticket: 55706

DST#: 4

Test Start: 2014.02.02 @ 07:28:00

Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 56.00 sec/qt

Water Loss: 8.74 in³

Resistivity: 0.00 ohm.m

Salinity: 4000.00 ppm

Filter Cake: 1.00 inches

Cushion Type:

Cushion Length:

Cushion Volume:

Gas Cushion Type:

Gas Cushion Pressure:

ft

bbl

psig

Oil API:

Water Salinity:

deg API

ppm

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
30.00	Mud 100m	0.148

Total Length: 30.00 ft

Total Volume: 0.148 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Serial #: 8846

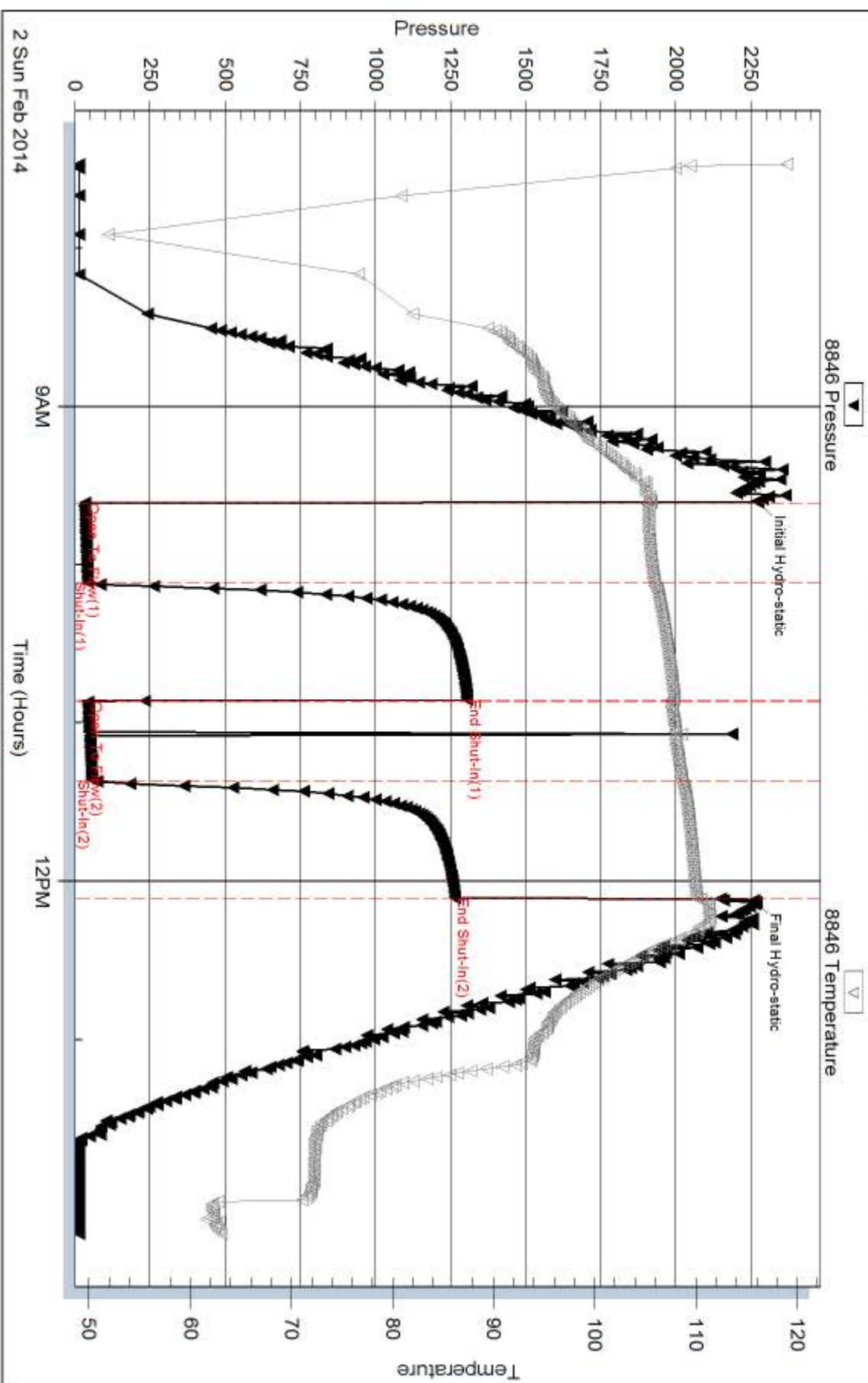
Inside

Ritchie Exploration Inc.

Allen-Radnor #1

DST Test Number: 4

Pressure vs. Time



Trilobite Testing, Inc

Ref. No: 55706

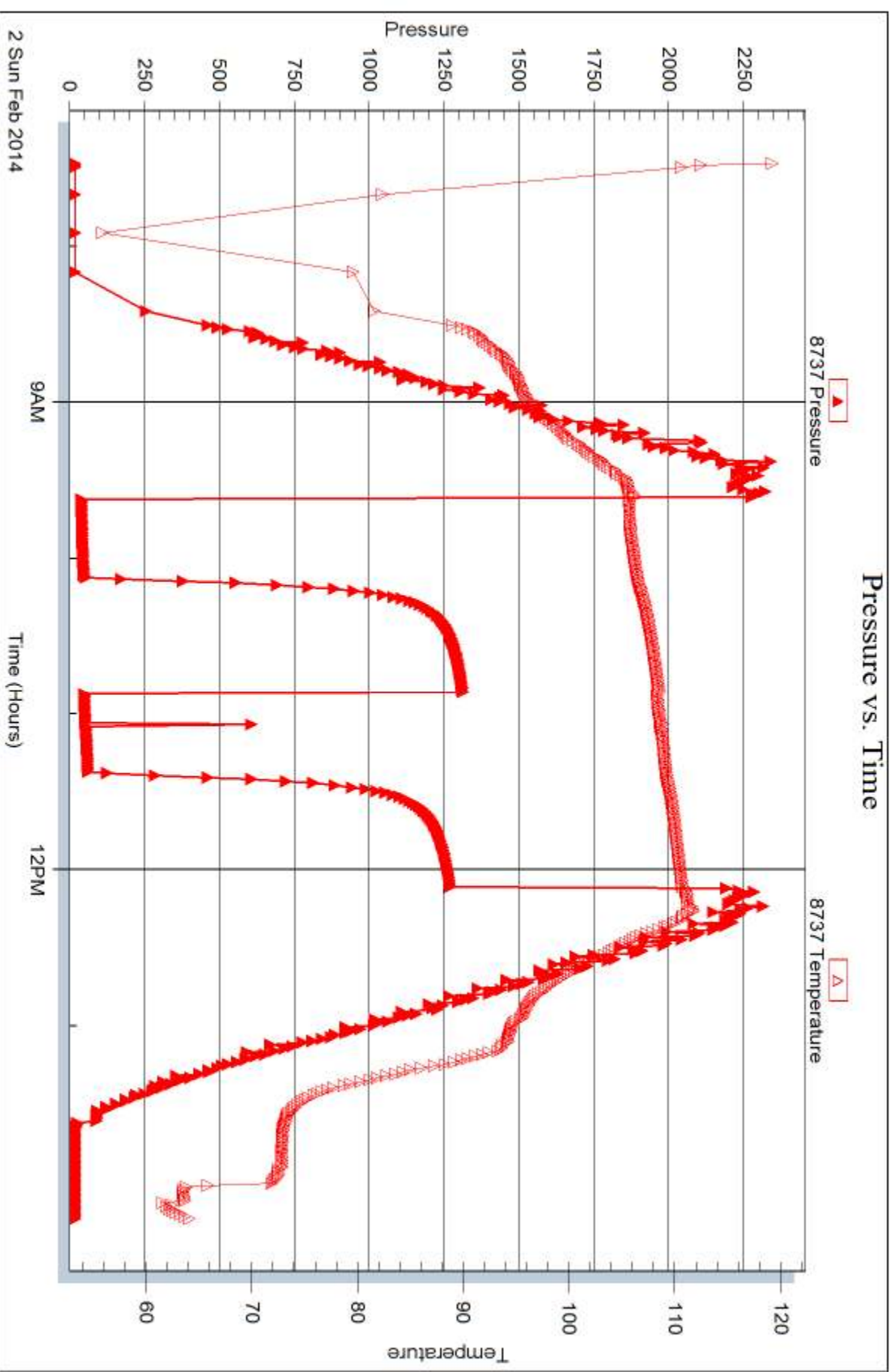
Printed: 2014.02.10 @ 16:30:43

Serial #: 8737

Outside Ritchie Exploration Inc.

Allen-Radnor #1

DST Test Number: 4





DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration Inc.**

8100 E.22nd St.
N.#700 Box 783188
Wichita KS 67278

ATTN: Max Lovely

Allen-Radnor #1

2-16s-34w Scott,KS

Start Date: 2014.02.03 @ 06:05:00

End Date: 2014.02.03 @ 12:42:45

Job Ticket #: 55707 DST #: 5

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

Printed: 2014.02.10 @ 16:29:07



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration Inc.

2-16s-34w Scott,KS

8100 E.22nd St.
N.#700 Box 783188
Wichita KS 67278
ATTN: Max Lovely

Allen-Radnor #1

Job Ticket: 55707

DST#: 5

Test Start: 2014.02.03 @ 06:05:00

GENERAL INFORMATION:

Formation: **Cherokee-Johnson**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 08:22:30

Time Test Ended: 12:42:45

Test Type: Conventional Bottom Hole (Reset)

Tester: Cornelio Landa III

Unit No: 65

Interval: 4628.00 ft (KB) To 4729.00 ft (KB) (TVD)

Reference Elevations: 3109.00 ft (KB)

Total Depth: 4729.00 ft (KB) (TVD)

3104.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8846 Outside

Press@RunDepth: 67.02 psig @ 4695.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.02.03

End Date:

2014.02.03

Last Calib.: 2014.02.03

Start Time: 06:05:15

End Time:

12:42:45

Time On Btm: 2014.02.03 @ 08:22:15

Time Off Btm: 2014.02.03 @ 10:38:30

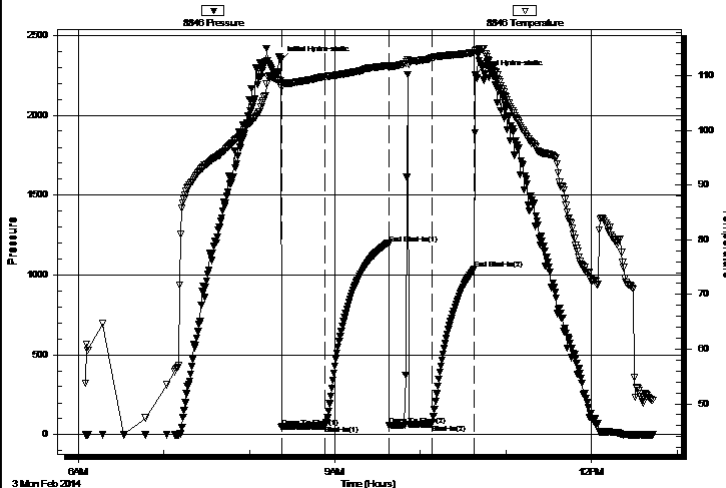
TEST COMMENT: IF: 1 in. of blow -Died to 3/4 in.

IS: No return

FF: No blow -Flushed tool-Weak surface blow -died in 3 min.

FS: No return

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2341.75	109.11	Initial Hydro-static
1	47.63	107.80	Open To Flow (1)
31	56.56	109.82	Shut-In(1)
76	1194.48	111.88	End Shut-In(1)
76	58.33	111.48	Open To Flow (2)
106	67.02	113.31	Shut-In(2)
136	1036.34	114.25	End Shut-In(2)
137	2254.89	114.67	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
20.00	Mud 100m	0.10

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
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* Recovery from multiple tests



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration Inc.

2-16s-34w Scott,KS

8100 E.22nd St.
N.#700 Box 783188
Wichita KS 67278
ATTN: Max Lovely

Allen-Radnor #1

Job Ticket: 55707

DST#: 5

Test Start: 2014.02.03 @ 06:05:00

GENERAL INFORMATION:

Formation: **Cherokee-Johnson**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 08:22:30

Time Test Ended: 12:42:45

Test Type: Conventional Bottom Hole (Reset)

Tester: Cornelio Landa III

Unit No: 65

Interval: 4628.00 ft (KB) To 4729.00 ft (KB) (TVD)

Reference Elevations: 3109.00 ft (KB)

Total Depth: 4729.00 ft (KB) (TVD)

3104.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8737 Inside

Press@RunDepth: psig @ 4695.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.02.03

End Date:

2014.02.03

Last Calib.:

2014.02.03

Start Time: 06:05:15

End Time:

12:42:45

Time On Btm:

Time Off Btm:

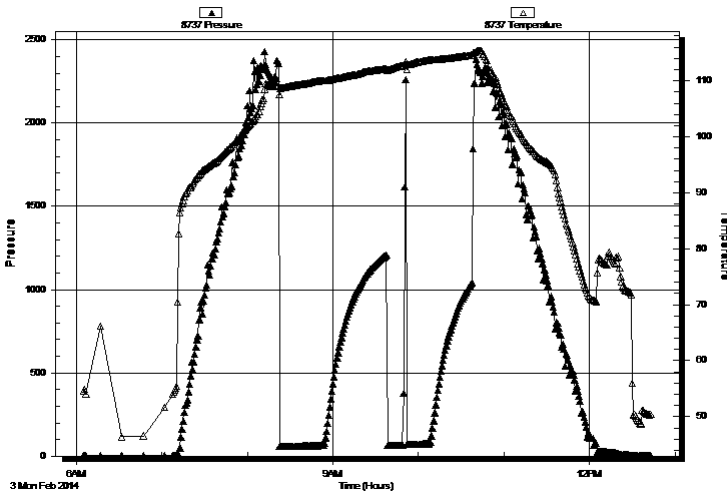
TEST COMMENT: IF: 1 in. of blow -Died to 3/4 in.

IS: No return

FF: No blow -Flushed tool-Weak surface blow -died in 3 min.

FS: No return

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
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Recovery

Length (ft)	Description	Volume (bbl)
20.00	Mud 100m	0.10

Gas Rates

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

* Recovery from multiple tests



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

TOOL DIAGRAM

Ritchie Exploration Inc.

2-16s-34w Scott,KS

8100 E.22nd St.
N.#700 Box 783188
Wichita KS 67278
ATTN: Max Lovely

Allen-Radnor #1

Job Ticket: 55707

DST#: 5

Test Start: 2014.02.03 @ 06:05:00

Tool Information

Drill Pipe:	Length:	4511.00 ft	Diameter:	3.80 inches	Volume:	63.28 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:	123.00 ft	Diameter:	2.25 inches	Volume:	0.60 bbl	Weight to Pull Loose:	10000.00 lb
					Total Volume:	63.88 bbl	Tool Chased	0.00 ft
Drill Pipe Above KB:	26.00 ft					String Weight: Initial	56000.00 lb	
Depth to Top Packer:	4628.00 ft					Final	56000.00 lb	
Depth to Bottom Packer:	ft							
Interval between Packers:	101.00 ft							
Tool Length:	121.00 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			4609.00		
Shut In Tool	5.00			4614.00		
Hydraulic tool	5.00			4619.00		
Packer	5.00			4624.00	20.00	Bottom Of Top Packer
Packer	4.00			4628.00		
Stubb	1.00			4629.00		
Perforations	1.00			4630.00		
Change Over Sub	1.00			4631.00		
Drill Pipe	63.00			4694.00		
Change Over Sub	1.00			4695.00		
Recorder	0.00	8737	Inside	4695.00		
Recorder	0.00	8846	Outside	4695.00		
Perforations	29.00			4724.00		
Bullnose	5.00			4729.00	101.00	Bottom Packers & Anchor

Total Tool Length: 121.00



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration Inc.

2-16s-34w Scott,KS

8100 E.22nd St.
N.#700 Box 783188
Wichita KS 67278
ATTN: Max Lovely

Allen-Radnor #1

Job Ticket: 55707

DST#: 5

Test Start: 2014.02.03 @ 06:05:00

Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 57.00 sec/qt

Water Loss: 10.36 in³

Resistivity: 0.00 ohm.m

Salinity: 4500.00 ppm

Filter Cake: 2.00 inches

Cushion Type:

Cushion Length:

Cushion Volume:

Gas Cushion Type:

Gas Cushion Pressure:

ft

bbl

psig

Oil API:

Water Salinity:

deg API

ppm

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
20.00	Mud 100m	0.098

Total Length: 20.00 ft

Total Volume: 0.098 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

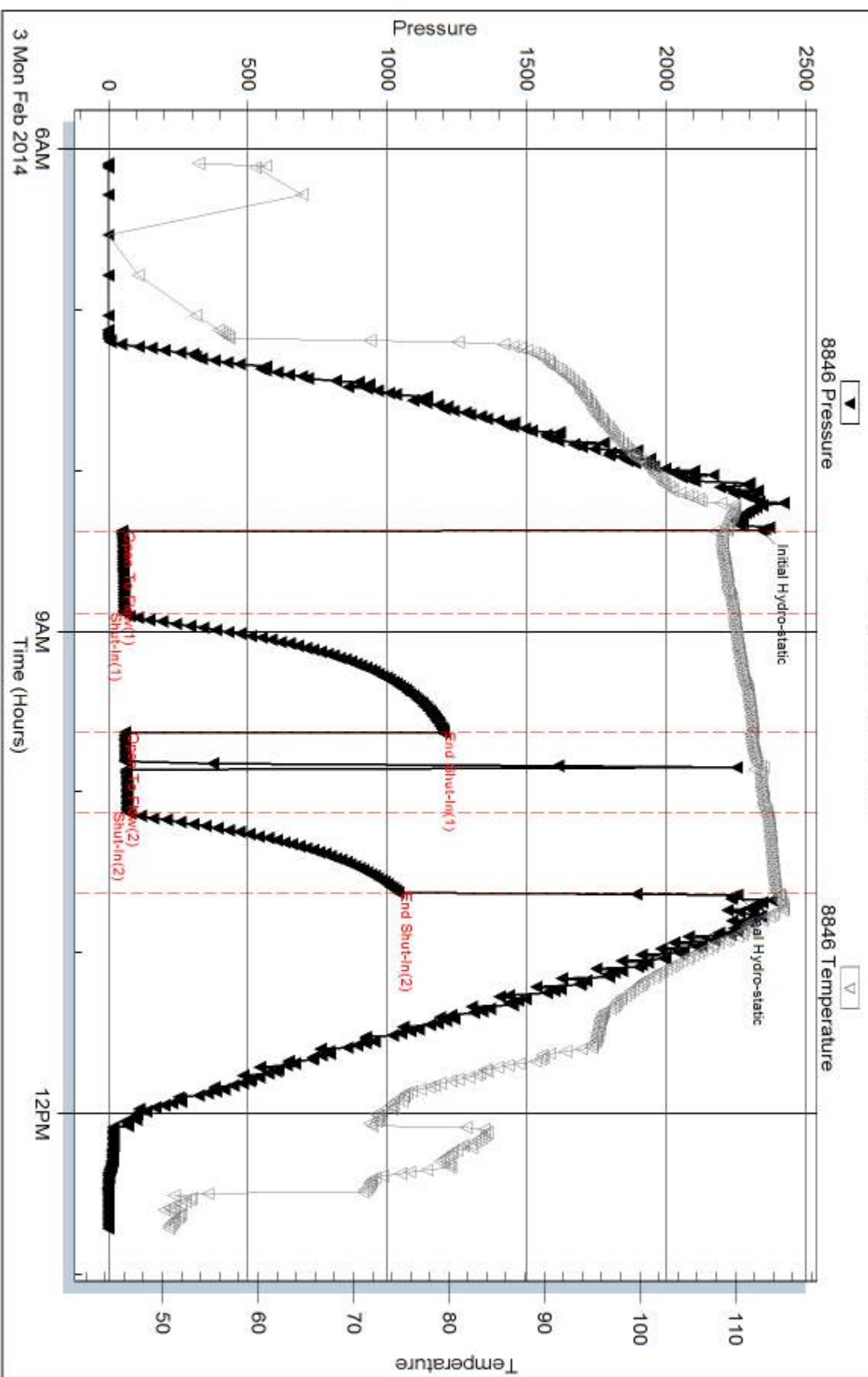
Serial #: 8846

Outside Ritchie Exploration Inc.

Allen-Radnor #1

DST Test Number: 5

Pressure vs. Time



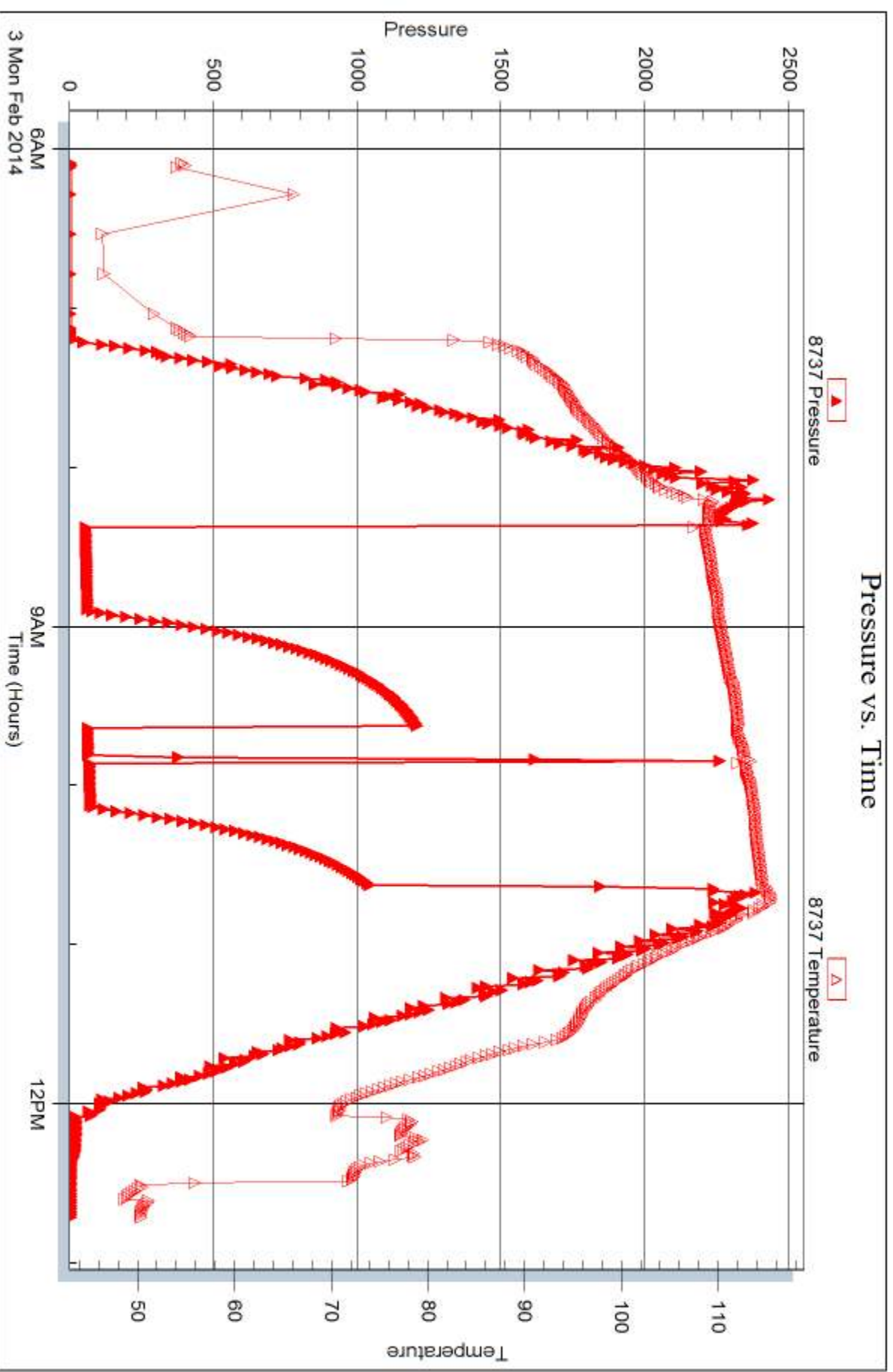
Serial #: 8737

Inside

Ritchie Exploration Inc.

Allen-Radnor #1

DST Test Number: 5





DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration Inc.**

8100 E.22nd St.
N.#700 Box 783188
Wichita KS 67278

ATTN: Max Lovely

Allen-Radnor #1

2-16s-34w Scott,KS

Start Date: 2014.02.07 @ 19:56:15

End Date: 2014.02.08 @ 02:54:00

Job Ticket #: 56741 DST #: 6

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

Printed: 2014.02.10 @ 16:28:13



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration Inc.

8100 E.22nd St.
N.#700 Box 783188
Wichita KS 67278
ATTN: Max Lovely

2-16s-34w Scott,KS

Allen-Radnor #1

Job Ticket: 56741

DST#: 6

Test Start: 2014.02.07 @ 19:56:15

GENERAL INFORMATION:

Formation: **Miss**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 22:35:45

Time Test Ended: 02:54:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 65

Interval: 4877.00 ft (KB) To 4915.00 ft (KB) (TVD)

Reference Elevations: 3109.00 ft (KB)

Total Depth: 4915.00 ft (KB) (TVD)

3104.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8846 Outside

Press@RunDepth: 14.13 psig @ 4880.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.02.07

End Date:

2014.02.08

Last Calib.: 2014.02.08

Start Time: 19:56:15

End Time:

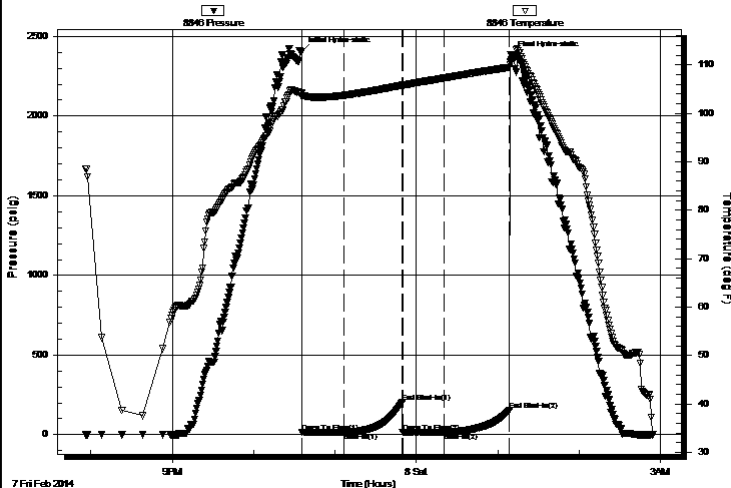
02:54:00

Time On Btm: 2014.02.07 @ 22:35:30

Time Off Btm: 2014.02.08 @ 01:09:30

TEST COMMENT: IF:Built to 1/4" blow
IS:No return blow
FF:Built to 1/8" blow
FS:No return blow

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2404.30	104.22	Initial Hydro-static
1	13.16	103.45	Open To Flow (1)
32	13.90	103.75	Shut-In(1)
74	202.11	105.84	End Shut-In(1)
75	13.86	105.73	Open To Flow (2)
105	14.13	107.30	Shut-In(2)
153	153.22	109.54	End Shut-In(2)
154	2382.78	110.74	Final Hydro-static

Recovery

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

Gas Rates

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

* Recovery from multiple tests



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration Inc.

8100 E.22nd St.
N.#700 Box 783188
Wichita KS 67278
ATTN: Max Lovely

2-16s-34w Scott,KS

Allen-Radnor #1

Job Ticket: 56741

DST#: 6

Test Start: 2014.02.07 @ 19:56:15

GENERAL INFORMATION:

Formation: **Miss**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 22:35:45

Time Test Ended: 02:54:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 65

Interval: 4877.00 ft (KB) To 4915.00 ft (KB) (TVD)

Total Depth: 4915.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3109.00 ft (KB)

3104.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8737 Inside

Press@RunDepth: psig @ 4880.00 ft (KB)

Start Date: 2014.02.07

End Date:

2014.02.08

Start Time: 19:56:15

End Time:

02:54:00

Capacity: 8000.00 psig

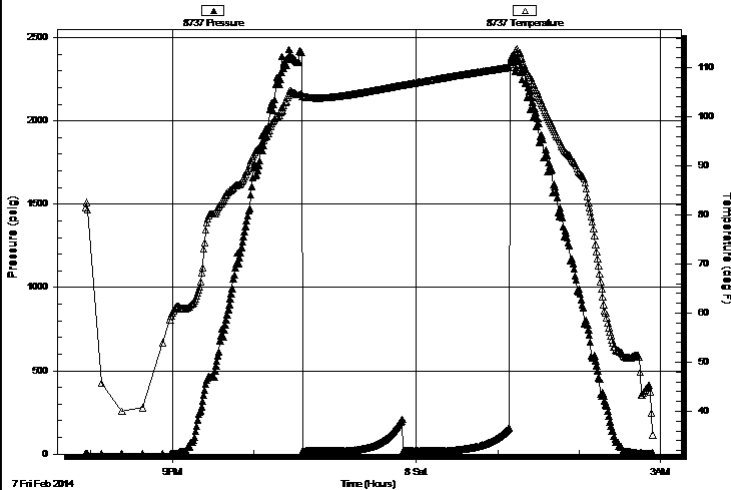
Last Calib.: 2014.02.08

Time On Btm:

Time Off Btm:

TEST COMMENT: IF:Built to 1/4" blow
IS:No return blow
FF:Built to 1/8" blow
FS:No return blow

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
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Recovery

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

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
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* Recovery from multiple tests



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

TOOL DIAGRAM

Ritchie Exploration Inc.

2-16s-34w Scott,KS

8100 E.22nd St.
N.#700 Box 783188
Wichita KS 67278
ATTN: Max Lovely

Allen-Radnor #1

Job Ticket: 56741

DST#: 6

Test Start: 2014.02.07 @ 19:56:15

Tool Information

Drill Pipe:	Length:	4744.00 ft	Diameter:	3.80 inches	Volume:	66.55 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:	123.00 ft	Diameter:	2.25 inches	Volume:	0.60 bbl	Weight to Pull Loose:	80000.00 lb
					Total Volume:	67.15 bbl	Tool Chased	0.00 ft
Drill Pipe Above KB:		10.00 ft					String Weight: Initial	60000.00 lb
Depth to Top Packer:		4877.00 ft					Final	60000.00 lb
Depth to Bottom Packer:		ft						
Interval between Packers:		38.00 ft						
Tool Length:		58.00 ft						
Number of Packers:		2	Diameter:	6.75 inches				
Tool Comments:								

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			4858.00	
Shut In Tool	5.00			4863.00	
Hydraulic tool	5.00			4868.00	
Packer	5.00			4873.00	20.00 Bottom Of Top Packer
Packer	4.00			4877.00	
Stubb	1.00			4878.00	
Perforations	2.00			4880.00	
Recorder	0.00	8737	Inside	4880.00	
Recorder	0.00	8846	Outside	4880.00	
Perforations	30.00			4910.00	
Bullnose	5.00			4915.00	38.00 Bottom Packers & Anchor

Total Tool Length: 58.00



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration Inc.

2-16s-34w Scott,KS

8100 E.22nd St.
N.#700 Box 783188
Wichita KS 67278
ATTN: Max Lovely

Allen-Radnor #1

Job Ticket: 56741

DST#: 6

Test Start: 2014.02.07 @ 19:56:15

Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 54.00 sec/qt

Water Loss: 7.17 in³

Resistivity: 0.00 ohm.m

Salinity: 4600.00 ppm

Filter Cake: 1.00 inches

Cushion Type:

Cushion Length:

Cushion Volume:

Gas Cushion Type:

Gas Cushion Pressure:

ft

bbl

psig

Oil API:

Water Salinity:

0 deg API

0 ppm

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:

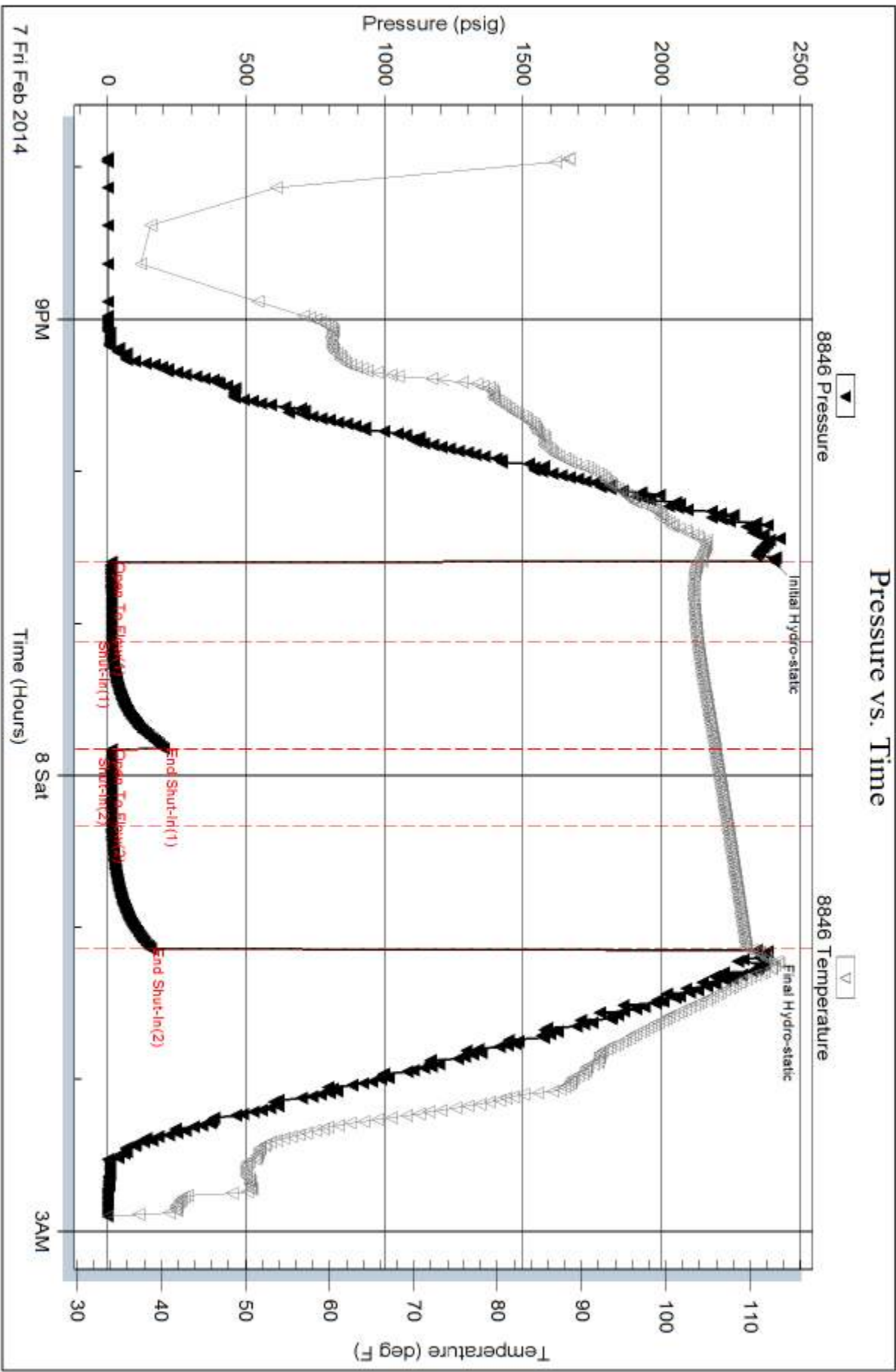
Recovery Comments:

Serial #: 8846

Outside Ritchie Exploration Inc.

Allen-Radnor #1

DST Test Number: 6



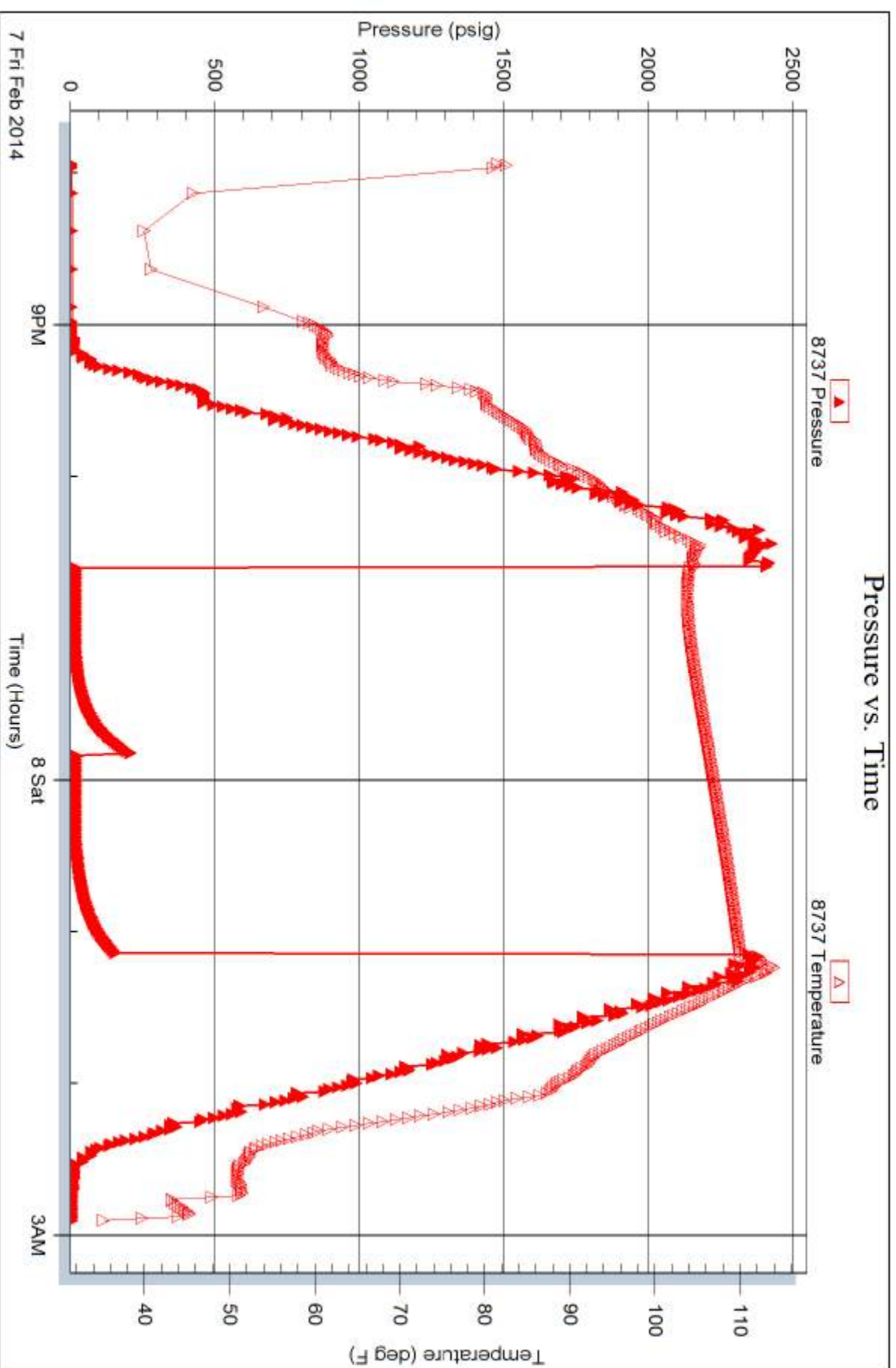
Serial #: 8737

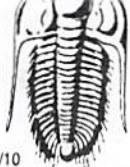
Inside

Ritchie Exploration Inc.

Allen-Radnor #1

DST Test Number: 6





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 56740

Well Name & No. #1 Allen-Radnor Test No. 1 Date 1-30-14
 Company Ritchie Exploration Elevation 3109 KB 3104 G
 Address 8100 E 22nd St N #200 Box 783188 Wichita KS 67278
 Co. Rep / Geo. Max Lovely Rig WW2
 Location: Sec. 2 Twp. 16 Rge. 34 Co. Scott State KS

Interval Tested 4116-4145 Zone Tested E-F
 Anchor Length 29 Drill Pipe Run 3979 Mud Wt. 9.0
 Top Packer Depth 4112 Drill Collars Run 123 Vis 54
 Bottom Packer Depth 4116 Wt. Pipe Run Ø WL 9.6
 Total Depth 4145 Chlorides 2800 ppm System LCM 1

Blow Description IF: Built to 4 1/2" Blow
IS: NO Return Blow
FF: Built to 3 1/2" Return Blow
FS: NO Return Blow

Rec	Feet of	%gas	%oil	%water	%f
<u>123</u>	<u>Feet of MCSW with oil spots</u>		<u>80</u>	<u>20</u>	
Rec	Feet of	%gas	%oil	%water	%f
Rec	Feet of	%gas	%oil	%water	%f
Rec	Feet of	%gas	%oil	%water	%f
Rec	Feet of	%gas	%oil	%water	%f

Rec Total 123 BHT 109 Gravity — API RW 542 @ 43.3 °F Chlorides 23,000
☒ Test 1250
☒ Jars 250
☒ Safety Joint 75 NC
☒ Circ Sub NC
☐ Hourly Standby
☒ Mileage 50 RT 77.50
☐ Sampler
☐ Straddle
☐ Shale Packer
☐ Extra Packer
☐ Extra Recorder
☐ Day Standby
☐ Accessibility
 Sub Total 1652.50

T-On Location 23:45
 T-Started 00:45
 T-Open 02:37
 T-Pulled 05:37
 T-Out 09:19
 Comments

(A) Initial Hydrostatic 1987
 (B) First Initial Flow 16
 (C) First Final Flow 71
 (D) Initial Shut-In 1101
 (E) Second Initial Flow 73
 (F) Second Final Flow 98
 (G) Final Shut-In 1090
 (H) Final Hydrostatic 1959

Initial Open 30
 Initial Shut-In 45
 Final Flow 75
 Final Shut-In 60

Approved By

Our Representative

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. 55704

Well Name & No. #1 Allen-Radnor Test No. 2 Date 1-30-14
 Company Ritchie Exploration Inc. Elevation 3109 KB 3104 GL
 Address 8100 E 22nd St. N #700 - 783188 - Wichita, KS 67278
 Co. Rep / Geo. Max Lovely Rig WMA#2
 Location: Sec. 2 Twp. 16-S Rge. 34-W Co. Scott State KS

Interval Tested 4202-4281 Zone Tested Lensing "H.I."
 Anchor Length 79' Drill Pipe Run 4074 Mud Wt. 9.0
 Top Packer Depth 4198 Drill Collars Run 123 Vis' 57
 Bottom Packer Depth 4202 Wt. Pipe Run 8 WL 8.0
 Total Depth 4281 Chlorides 3500 ppm System LCM #1 1/2

Blow Description IF: B.O.B. in 23 min.
ISI: Bled off in 2 min. - Weak surface blowback - Died in 5 min.
FF: B.O.B. in 2 1/2 min.
FSI: Bled off in 2 min. - Weak surface blowback - Died in 5 min.

Rec	Feet of	%gas	%oil	%water	%mud
249	MCSW			90%	10%
126	MCSW			85%	15%
126	SWdn			40%	60%

Rec Total 501 BHT 111 Gravity — API RW 1.30 @ 30 °F Chlorides 10,000 ppm
 (A) Initial Hydrostatic 2053 ☒ Test 1250 T-On Location 22:00
 (B) First Initial Flow 33 ☒ Jars 250 T-Started 22:23
 (C) First Final Flow 142 ☒ Safety Joint 75 T-Open 0:18
 (D) Initial Shut-In 1227 ☒ Circ Sub MC T-Pulled 03:18
 (E) Second Initial Flow 145 ☐ Hourly Standby — T-Out 05:32
 (F) Second Final Flow 247 ☒ Mileage 77.50 Comments —
 (G) Final Shut-In 1222 ☐ Sampler —
 (H) Final Hydrostatic 2050 ☐ Straddle —
☐ Shale Packer —
☐ Extra Packer —
☐ Extra Recorder —
☐ Day Standby —
☐ Accessibility —

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

Approved By Max Lovely Our Representative CLH

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 55705

Well Name & No. #1 Allen - Radnor Test No. 3 Date 2-1-14
Company Ritchie Exploration Inc. Elevation 3109 KB 3104 GL
Address 8100 E 22nd St. North #700 - Wichita, KS 67278
Co. Rep / Geo. Max Lovely Rig WW #2
Location: Sec. 2 Twp. 16-S Rge. 34-W Co. Scott State KS

Interval Tested 4388-4463 Zone Tested Marmaton & Altmont
Anchor Length 75 Drill Pipe Run 4261 Mud Wt. 9.2+
Top Packer Depth 4384 Drill Collars Run 123 Vis 54
Bottom Packer Depth 4388 Wt. Pipe Run 0 WL 8.8
Total Depth 4463 Chlorides 4400 ppm System LCM #1 1/2

Blow Description IF: 1 in of Blow
ISF: Blowoff - No Return
FF: No Blow - Flushed Tool - Good Surge
FSF: No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>30</u>	<u>60 cm</u>	<u>5</u>	<u>35</u>	<u>60</u>	

Rec Total 30 BHT 107 Gravity — API RW — @ — ° F Chlorides — ppm

(A) Initial Hydrostatic	(B) First Initial Flow	(C) First Final Flow	(D) Initial Shut-In	(E) Second Initial Flow	(F) Second Final Flow	(G) Final Shut-In	(H) Final Hydrostatic
<u>2168</u>	<u>39</u>	<u>49</u>	<u>1166</u>	<u>59</u>	<u>60</u>	<u>341</u>	<u>2139</u>

☒ Test 1250 T-On Location 2:51
☒ Jars 250 T-Started 3:15
☒ Safety Joint 75 T-Open 5:33
☒ Circ Sub N/C T-Pulled 7:48
☐ Hourly Standby T-Out 9:49
☒ Mileage 77.50 Comments
☐ Sampler
☐ Straddle
☐ Shale Packer
☐ Extra Packer
☐ Extra Recorder
☐ Day Standby
☐ Accessibility

Initial Open 30
Initial Shut-In 45
Final Flow 30
Final Shut-In 30
Sub Total 1652.50

Approved By Max Lovely Our Representative Clifford

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **55706**

Well Name & No. #1 Allen-Radnor Test No. 4 Date 2-2-14
Company Ritchie Exploration Inc. Elevation 3109 KB 3104 GL
Address 8100 E. 22nd St. North #700 - Wichita, KS 67278
Co. Rep / Geo. Max Lovely Rig WW#2
Location: Sec. 2 Twp. 16-S Rge. 34-W Co. Scott State KS

Interval Tested 4554-4596 Zone Tested Mynic Station - Ft. Scott
Anchor Length 42' Drill Pipe Run 4417 Mud Wt. 9.2+
Top Packer Depth 4550 Drill Collars Run 123 Vis 56
Bottom Packer Depth 4554 Wt. Pipe Run 0 WL 8.8
Total Depth 4596 Chlorides 4,000 ppm System LCM #12

Blow Description FF: 1 1/4 Blow

ISF: No Return

FF: No Blow - Flushed tool - Good Surge

FSI: ~~10~~ 1000 Wkrs Surface Blowback - Died in 1 min.

Rec <u>30</u>	Feet of <u>Mud</u>	%gas	%oil	%water <u>100</u>	%mud
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 30 BHT 110 Gravity — API RW — @ —° F Chlorides — ppm

(A) Initial Hydrostatic <u>2275</u>	☒ Test <u>1250</u>	T-On Location <u>7:15</u>
(B) First Initial Flow <u>34</u>	☒ Jars <u>250</u>	T-Started <u>7:28</u>
(C) First Final Flow <u>43</u>	☒ Safety Joint <u>75</u>	T-Open <u>9:36</u>
(D) Initial Shut-In <u>1308</u>	☒ Circ Sub <u>NIC</u>	T-Pulled <u>12:06</u>
(E) Second Initial Flow <u>44</u>	☐ Hourly Standby	T-Out <u>14:14</u>
(F) Second Final Flow <u>56</u>	☒ Mileage <u>77.50</u>	Comments <u>Flushed Tool</u>
(G) Final Shut-In <u>1266</u>	☐ Sampler	
(H) Final Hydrostatic <u>2261</u>	☐ Straddle	

Initial Open <u>30</u>	☐ Shale Packer	☐ Ruined Shale Packer
Initial Shut-In <u>45</u>	☐ Extra Packer	☐ Ruined Packer
Final Flow <u>30</u>	☐ Extra Recorder	☐ Extra Copies
Final Shut-In <u>45</u>	☐ Day Standby	Sub Total <u>0</u>
	☐ Accessibility	Total <u>1652.50</u>
	Sub Total <u>1652.50</u>	MP/DST Disc't

Approved By Max Lovely Our Representative Chris Kline

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. 55707

Well Name & No. #1 Allen-Rocher Test No. 5 Date 2-3-14
 Company Rathco Exploration Inc. Elevation 3109 KB 3104 GL
 Address 8100 E. 22nd St. N. #700 - Wichita KS 67278
 Co. Rep / Geo. Max Lovely Rig WW#2
 Location: Sec. 2 Twp. 16-S Rge. 34-W Co. Scott State KS

Interval Tested 4628-4729 Zone Tested Cherokee-Johnson
 Anchor Length 101' Drill Pipe Run 4511 Mud Wt. 9.2
 Top Packer Depth 4624 Drill Collars Run 123 Vis 57
 Bottom Packer Depth 4628 Wt. Pipe Run 6 WL 10.4
 Total Depth 4729 Chlorides 4500 ppm System LCM #2

Blow Description FF. 1 in of Blow - Died to 3/4" Blow

ISF No Return

FF. No Blow - Flushed Tool - Work Surface How Back - Died in 3 min.

FSF No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>20</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 20 BHT 115 Gravity — API RW — @ —° F Chlorides — ppm

(A) Initial Hydrostatic <u>2342</u>	☒ Test <u>1250</u>	T-On Location <u>5:40</u>
(B) First Initial Flow <u>48</u>	☐ Jars <u>—</u>	T-Started <u>6:05</u>
(C) First Final Flow <u>57</u>	☐ Safety Joint <u>—</u>	T-Open <u>8:22</u>
(D) Initial Shut-In <u>1194</u>	☒ Circ Sub <u>NIC</u>	T-Pulled <u>10:37</u>
(E) Second Initial Flow <u>58</u>	☒ Hourly Standby <u>waiting on orders</u>	T-Out <u>12:42</u>
(F) Second Final Flow <u>67</u>	☒ Mileage <u>77.50</u>	Comments <u>Went to load tools</u>
(G) Final Shut-In <u>1036</u>	☐ Sampler <u>—</u>	<u>on location on 2-4-14 @ 6:15</u>
(H) Final Hydrostatic <u>2255</u>	☐ Straddle <u>—</u>	<u>7:15 waiting on orders.</u>

Initial Open <u>30</u>	☐ Shale Packer <u>—</u>	☐ Ruined Shale Packer <u>—</u>
Initial Shut-In <u>45</u>	☐ Extra Packer <u>—</u>	☐ Ruined Packer <u>—</u>
Final Flow <u>30</u>	☐ Extra Recorder <u>—</u>	☐ Extra Copies <u>—</u>
Final Shut-In <u>30</u>	☐ Day Standby <u>—</u>	Sub Total <u>0</u>
	☐ Accessibility <u>—</u>	Total <u>1327.50</u>
	Sub Total <u>1327.50</u>	MP/DST Disc't <u>—</u>

Approved By Max Lovely

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. 56742

07

Well Name & No. #1 Allen - RAPNOR Test No. 6 Date 2-14-14
Company Ritchie Exploration Elevation 3109 KB 3104 GL
Address 8100 E 22nd St. N. #700 783188 Wichita KS 67278
Co. Rep / Geo. Max Lovely Rig WW#2
Location: Sec. 2 Twp. 16 Rge. 34 Co. SCOTT State KS

Interval Tested 4877-4915 Zone Tested MISS
Anchor Length 38 Drill Pipe Run 4744 Mud Wt. 9.2
Top Packer Depth 4873 Drill Collars Run 123 Vis 54
Bottom Packer Depth 4877 Wt. Pipe Run Ø WL 7.2
Total Depth 4915 Chlorides 4600 ppm System LCM 2
Blow Description IF: Boil + to 1/4" Blow
IS: NO Return Blow
FF: Boil + to 1/8" Blow
FS: NO Return Blow

Rec	<u>10</u>	Feet of	<u>MUD</u>	%gas	%oil	%water	<u>100</u>	%mud
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 110 Gravity — API RW — @ — °F Chlorides — ppm
(A) Initial Hydrostatic 2409 ☒ Test 1250 T-On Location 19:00
(B) First Initial Flow 13 ☐ Jars — T-Started ~~19:00~~ 19:56
(C) First Final Flow 13 ☐ Safety Joint — T-Open ~~19:56~~ 22:35
(D) Initial Shut-In 202 ☒ Circ Sub NC T-Pulled 01:05
(E) Second Initial Flow 13 ☐ Hourly Standby — T-Out 02:54
(F) Second Final Flow 14 ☒ Mileage 50RT 155 Comments —
(G) Final Shut-In 153 ☐ Sampler —
(H) Final Hydrostatic 2382 ☐ Straddle —

☐ Ruined Shale Packer —
☐ Ruined Packer —
☐ Extra Copies —
Initial Open 30 ☐ Shale Packer —
Initial Shut-In 45 ☐ Extra Packer —
Final Flow 30 ☐ Extra Recorder —
Final Shut-In 45 ☐ Day Standby —
☐ Accessibility —
Sub Total 1405 Sub Total 0
Total 1405 MP/DST Disc't —

Approved By Max Lovely Our Representative Mike Rohrbach

Trilobite Testing Inc. shall not be liable for damaged or 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.