



DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration**

8100 E 22nd St N #700
Wichita KS 67278

ATTN: Bob Peterson

Schumacher #1

25-15s-36w Logan,KS

Start Date: 2015.04.13 @ 21:08:15

End Date: 2015.04.14 @ 03:31:00

Job Ticket #: 61416 DST #: 1

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2015.04.22 @ 10:10:17



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration

8100 E 22nd St N #700
Wichita KS 67278

ATTN: Bob Peterson

25-15s-36w Logan, KS

Schumacher #1

Job Ticket: 61416

DST#: 1

Test Start: 2015.04.13 @ 21:08:15

GENERAL INFORMATION:

Formation: **Toronto**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 22:59:15

Time Test Ended: 03:31:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Mike Roberts

Unit No: 65

Interval: 3884.00 ft (KB) To 3944.00 ft (KB) (TVD)

Total Depth: 3944.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3226.00 ft (KB)

3221.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8846 Inside

Press@RunDepth: 197.51 psig @ 3886.00 ft (KB)

Start Date: 2015.04.13

End Date:

2015.04.14

Start Time: 21:08:15

End Time:

03:31:00

Capacity: 8000.00 psig

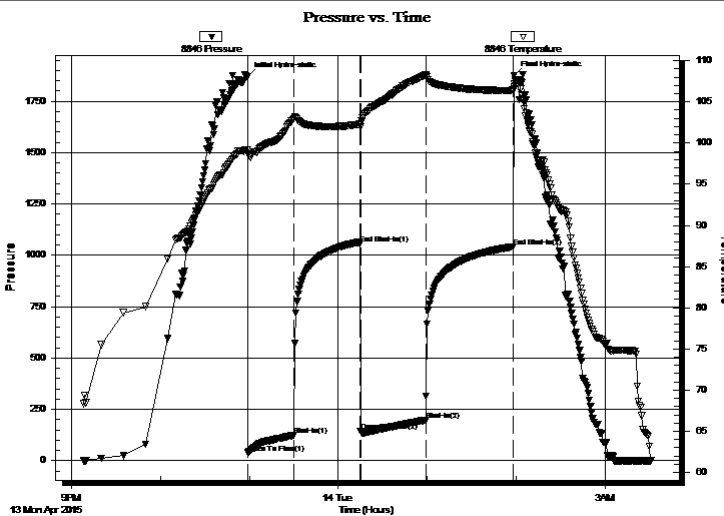
Last Calib.: 2015.04.14

Time On Btm: 2015.04.13 @ 22:59:00

Time Off Btm: 2015.04.14 @ 01:58:45

TEST COMMENT: IF:BOB in 22 min
IS:No return blow
FF:BOB in 24 min.
FS:No return blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1871.77	99.19	Initial Hydro-static
1	38.59	98.70	Open To Flow (1)
31	123.05	102.95	Shut-In(1)
76	1057.19	102.31	End Shut-In(1)
76	143.52	101.99	Open To Flow (2)
120	197.51	108.25	Shut-In(2)
179	1040.11	106.41	End Shut-In(2)
180	1874.57	107.17	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
122.00	mcw 10% m 90% w	0.60
186.00	w cm 30% w 70% m	2.61
62.00	w cm 10% w 90% m	0.87

Gas Rates

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



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration

8100 E 22nd St N #700
Wichita KS 67278

ATTN: Bob Peterson

25-15s-36w Logan, KS

Schumacher #1

Job Ticket: 61416

DST#: 1

Test Start: 2015.04.13 @ 21:08:15

GENERAL INFORMATION:

Formation: **Toronto**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 22:59:15

Time Test Ended: 03:31:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Mike Roberts

Unit No: 65

Interval: 3884.00 ft (KB) To 3944.00 ft (KB) (TVD)

Total Depth: 3944.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3226.00 ft (KB)

3221.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8737 Outside

Press@RunDepth: psig @ 3886.00 ft (KB)

Start Date: 2015.04.13

End Date:

2015.04.14

Start Time: 21:08:15

End Time:

03:31:00

Capacity: 8000.00 psig

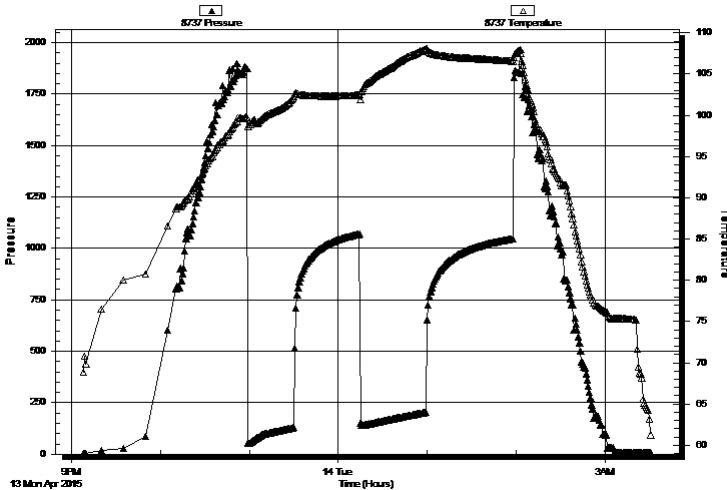
Last Calib.: 2015.04.14

Time On Btm:

Time Off Btm:

TEST COMMENT: IF:BOB in 22 min
IS:No return blow
FF:BOB in 24 min.
FS:No return blow

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
122.00	mcw 10%m 90%w	0.60
186.00	w cm 30%w 70%m	2.61
62.00	w cm 10%w 90%m	0.87

Gas Rates

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



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

TOOL DIAGRAM

Ritchie Exploration

25-15s-36w Logan,KS

8100 E 22nd St N #700
Wichita KS 67278

Schumacher #1

Job Ticket: 61416

DST#: 1

ATTN: Bob Peterson

Test Start: 2015.04.13 @ 21:08:15

Tool Information

Drill Pipe:	Length:	3752.00 ft	Diameter:	3.80 inches	Volume:	52.63 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:	122.00 ft	Diameter:	2.25 inches	Volume:	0.60 bbl	Weight to Pull Loose:	80000.00 lb
					Total Volume:	53.23 bbl	Tool Chased	0.00 ft
Drill Pipe Above KB:		18.00 ft					String Weight: Initial	60000.00 lb
Depth to Top Packer:		3884.00 ft					Final	62000.00 lb
Depth to Bottom Packer:		ft						
Interval between Packers:		60.00 ft						
Tool Length:		88.00 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		3857.00	
Shut In Tool	5.00		3862.00	
Hydraulic tool	5.00		3867.00	
Jars	5.00		3872.00	
Safety Joint	3.00		3875.00	
Packer	5.00		3880.00	28.00 Bottom Of Top Packer
Packer	4.00		3884.00	
Stubb	1.00		3885.00	
Perforations	1.00		3886.00	
Recorder	0.00	8846 Inside	3886.00	
Recorder	0.00	8737 Outside	3886.00	
Change Over Sub	1.00		3887.00	
Drill Pipe	31.00		3918.00	
Change Over Sub	1.00		3919.00	
Perforations	20.00		3939.00	
Bullnose	5.00		3944.00	60.00 Bottom Packers & Anchor
Total Tool Length:	88.00			



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration

25-15s-36w Logan,KS

8100 E 22nd St N #700
Wichita KS 67278

Schumacher #1

Job Ticket: 61416

DST#: 1

ATTN: Bob Peterson

Test Start: 2015.04.13 @ 21:08:15

Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 7.00 lb/gal

Viscosity: 85.00 sec/qt

Water Loss: 7.10 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:

0 deg API

Water Salinity:

19000 ppm

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
122.00	mcw 10%m 90%w	0.600
186.00	w cm 30%w 70%m	2.609
62.00	w cm 10%w 90%m	0.870

Total Length: 370.00 ft

Total Volume: 4.079 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW= .67@ 36.9*= 19,000 ppm

Serial #: 8846

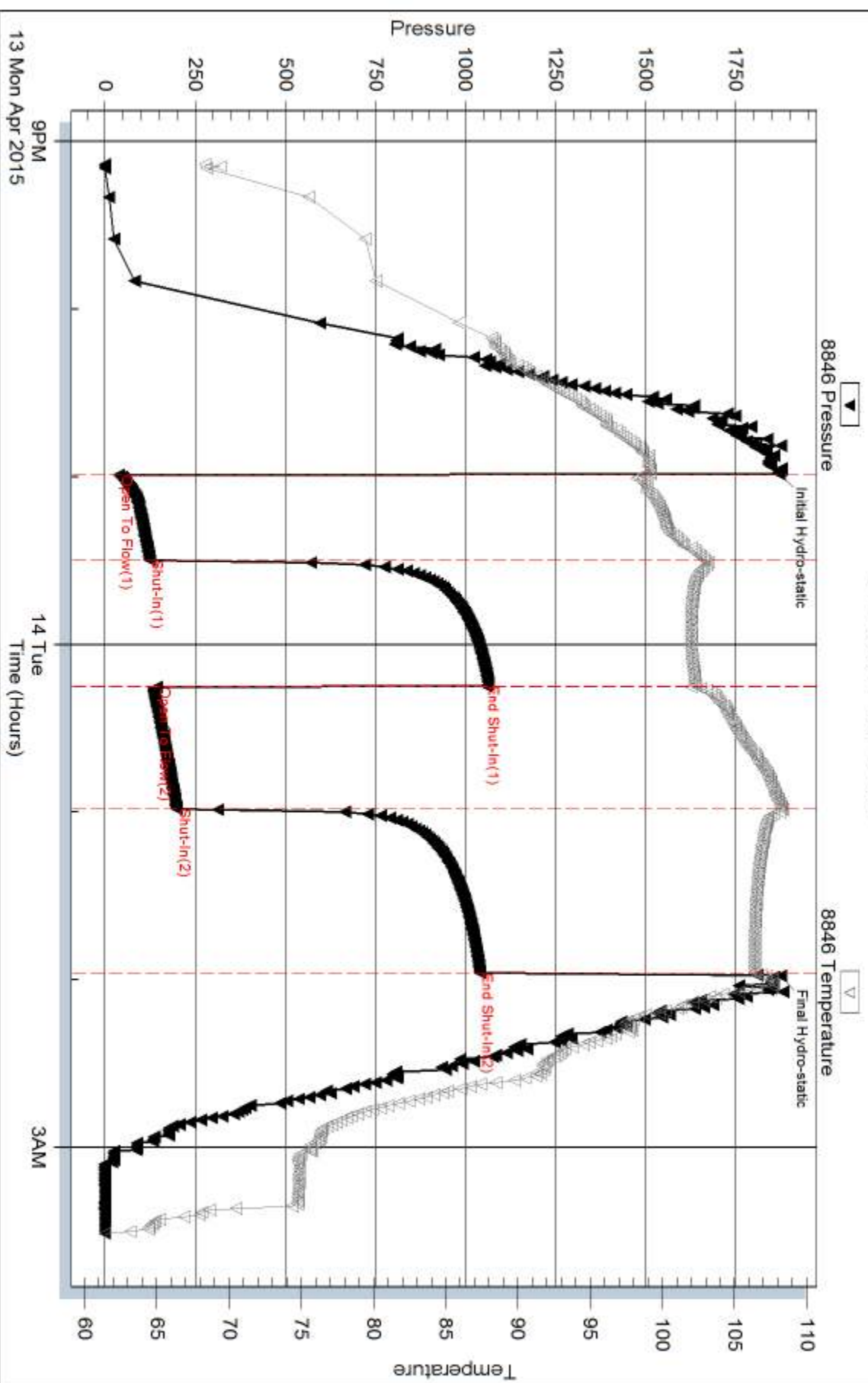
Inside

Ritchie Exploration

Schumacher #1

DST Test Number: 1

Pressure vs. Time

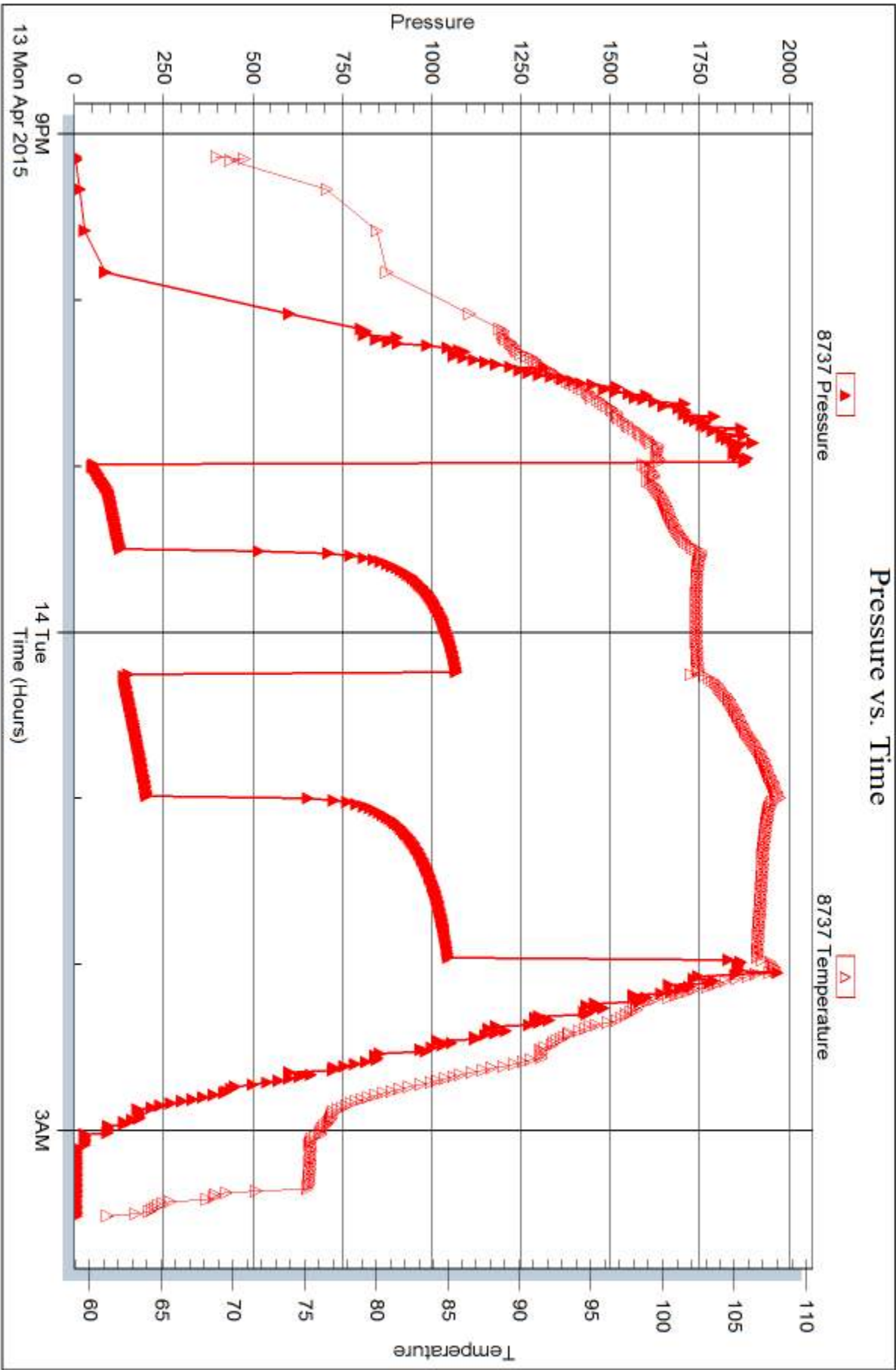


Serial #: 8737

Outside Ritchie Exploration

Schumacher #1

DST Test Number: 1





DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration**

8100 E 22nd St N #700
Wichita KS 67278

ATTN: Bob Peterson

Schumacher #1

25-15s-36w Logan,KS

Start Date: 2015.04.14 @ 13:31:15

End Date: 2015.04.14 @ 19:59:00

Job Ticket #: 61417 DST #: 2

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2015.04.22 @ 10:09:53



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration

8100 E 22nd St N #700
Wichita KS 67278

ATTN: Bob Peterson

25-15s-36w Logan, KS

Schumacher #1

Job Ticket: 61417

DST#: 2

Test Start: 2015.04.14 @ 13:31:15

GENERAL INFORMATION:

Formation: **LKC C**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:06:30

Time Test Ended: 19:59:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 65

Interval: 3985.00 ft (KB) To 4015.00 ft (KB) (TVD)

Total Depth: 4015.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3226.00 ft (KB)

3221.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8846 Inside

Press@RunDepth: 90.71 psig @ 4010.00 ft (KB)

Start Date: 2015.04.14

End Date:

2015.04.14

Start Time: 13:31:15

End Time:

19:59:00

Capacity: 8000.00 psig

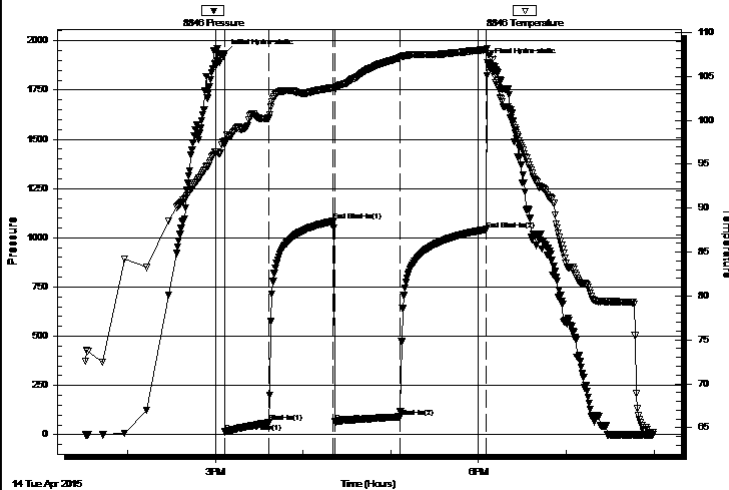
Last Calib.: 2015.04.14

Time On Btm: 2015.04.14 @ 15:06:15

Time Off Btm: 2015.04.14 @ 18:06:15

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

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1936.41	97.60	Initial Hydro-static
1	14.26	97.25	Open To Flow (1)
31	60.62	100.23	Shut-In(1)
75	1083.93	103.70	End Shut-In(1)
76	64.93	103.59	Open To Flow (2)
120	90.71	107.11	Shut-In(2)
179	1041.93	108.03	End Shut-In(2)
180	1888.08	107.60	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
122.00	mcw 50% m 50% w	0.60
30.00	mud w ith oil spots	0.42

Gas Rates

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

* Recovery from multiple tests



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration

25-15s-36w Logan, KS

8100 E 22nd St N #700
Wichita KS 67278

Schumacher #1

Job Ticket: 61417

DST#: 2

ATTN: Bob Peterson

Test Start: 2015.04.14 @ 13:31:15

GENERAL INFORMATION:

Formation: **LKC C**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:06:30

Time Test Ended: 19:59:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 65

Interval: 3985.00 ft (KB) To 4015.00 ft (KB) (TVD)

Total Depth: 4015.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3226.00 ft (KB)

3221.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8737 Outside

Press@RunDepth: psig @ 4010.00 ft (KB)

Start Date: 2015.04.14

End Date:

2015.04.14

Start Time: 13:31:15

End Time:

19:58:45

Capacity: 8000.00 psig

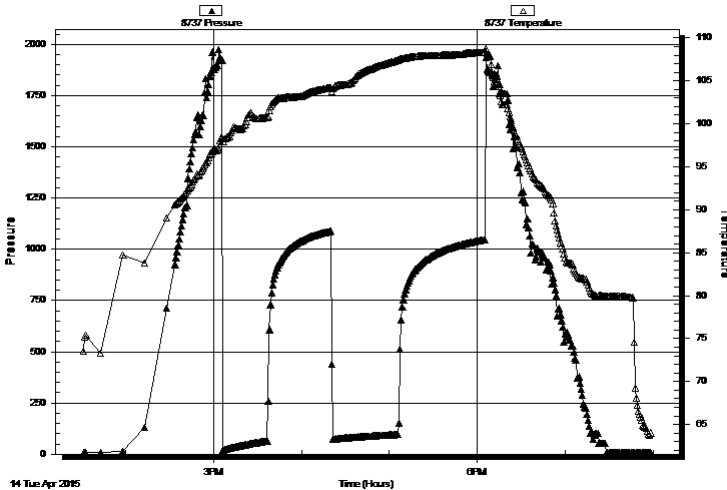
Last Calib.: 2015.04.14

Time On Btm:

Time Off Btm:

TEST COMMENT: IF: Built to 4" blow
IS: No return blow
FF: Built to 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)
122.00	mcw 50% m 50% w	0.60
30.00	mud w ith oil spots	0.42

Gas Rates

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

* Recovery from multiple tests



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

TOOL DIAGRAM

Ritchie Exploration

25-15s-36w Logan,KS

8100 E 22nd St N #700
Wichita KS 67278

Schumacher #1

Job Ticket: 61417

DST#: 2

ATTN: Bob Peterson

Test Start: 2015.04.14 @ 13:31:15

Tool Information

Drill Pipe:	Length:	3845.00 ft	Diameter:	3.80 inches	Volume:	53.94 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:	122.00 ft	Diameter:	2.25 inches	Volume:	0.60 bbl	Weight to Pull Loose:	80000.00 lb
					Total Volume:	54.54 bbl	Tool Chased	0.00 ft
Drill Pipe Above KB:		5.00 ft					String Weight: Initial	60000.00 lb
Depth to Top Packer:		3985.00 ft					Final	61000.00 lb
Depth to Bottom Packer:		ft						
Interval between Packers:		30.00 ft						
Tool Length:		53.00 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			3963.00	
Shut In Tool	5.00			3968.00	
Hydraulic tool	5.00			3973.00	
Safety Joint	3.00			3976.00	
Packer	5.00			3981.00	23.00 Bottom Of Top Packer
Packer	4.00			3985.00	
Stubb	1.00			3986.00	
Perforations	24.00			4010.00	
Recorder	0.00	8846	Inside	4010.00	
Recorder	0.00	8737	Outside	4010.00	
Bullnose	5.00			4015.00	30.00 Bottom Packers & Anchor

Total Tool Length: 53.00



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration

25-15s-36w Logan,KS

8100 E 22nd St N #700
Wichita KS 67278

Schumacher #1

Job Ticket: 61417

DST#: 2

ATTN: Bob Peterson

Test Start: 2015.04.14 @ 13:31:15

Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 58.00 sec/qt

Water Loss: 7.89 in³

Resistivity: 0.00 ohm.m

Salinity: 9000.00 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: 13000 ppm

0 deg API

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
122.00	mcw 50%m 50%w	0.600
30.00	mud with oil spots	0.421

Total Length: 152.00 ft Total Volume: 1.021 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW= .62@66.5*= 13,000 ppm

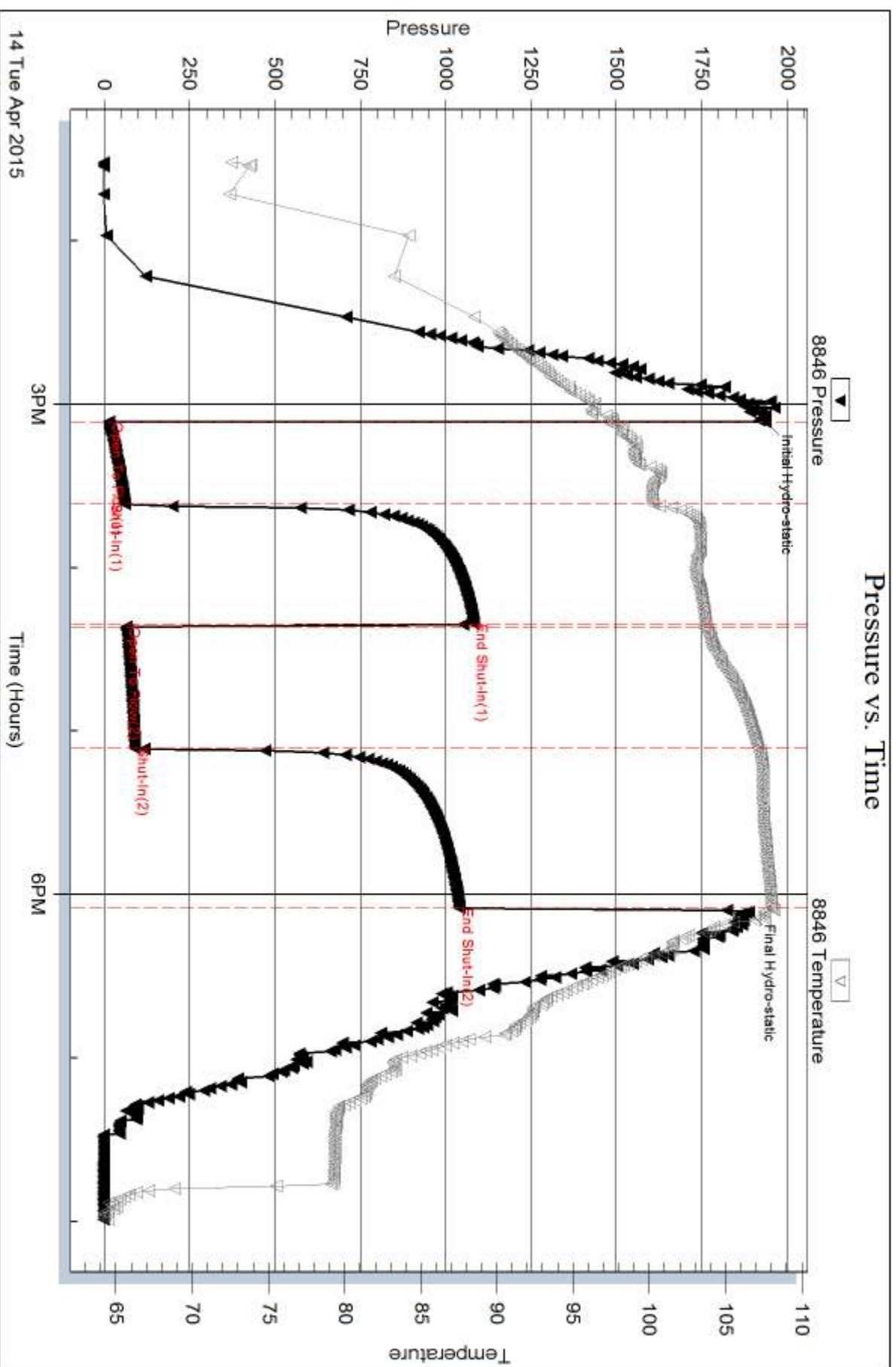
Serial #: 8846

Inside

Ritchie Exploration

Schumacher #1

DST Test Number: 2

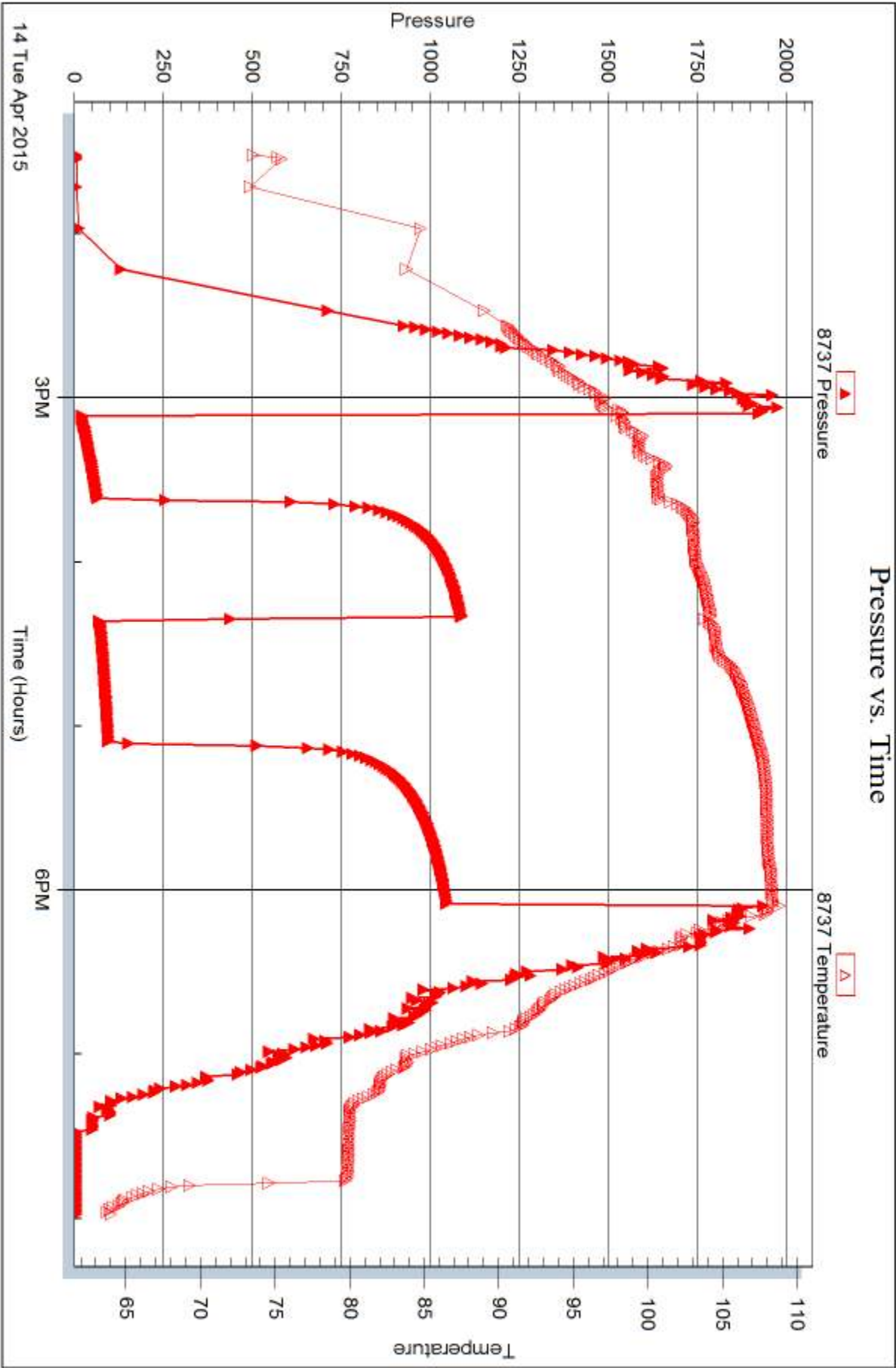


Serial #: 8737

Outside Ritchie Exploration

Schumacher #1

DST Test Number: 2





DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration**

8100 E 22nd St N #700
Wichita KS 67278

ATTN: Bob Peterson

Schumacher #1

25-15s-36w Logan,KS

Start Date: 2015.04.15 @ 05:23:15

End Date: 2015.04.15 @ 11:38:30

Job Ticket #: 61418 DST #: 3

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2015.04.22 @ 10:09:27



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration

8100 E 22nd St N #700
Wichita KS 67278

ATTN: Bob Peterson

25-15s-36w Logan, KS

Schumacher #1

Job Ticket: 61418

DST#: 3

Test Start: 2015.04.15 @ 05:23:15

GENERAL INFORMATION:

Formation: **LKC D-F**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 06:53:30

Time Test Ended: 11:38:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 65

Interval: 4013.00 ft (KB) To 4079.00 ft (KB) (TVD)

Total Depth: 4079.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3226.00 ft (KB)

3221.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8846 Inside

Press@RunDepth: 200.94 psig @ 4016.00 ft (KB)

Start Date: 2015.04.15

End Date:

2015.04.15

Start Time: 05:23:15

End Time:

11:38:30

Capacity: 8000.00 psig

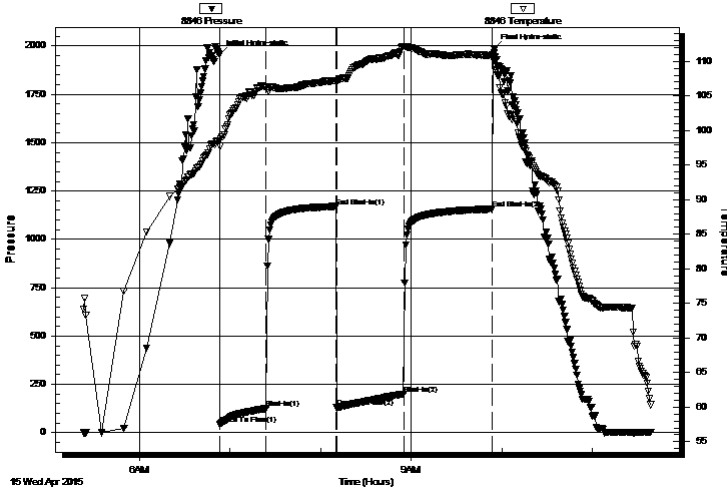
Last Calib.: 2015.04.15

Time On Btm: 2015.04.15 @ 06:53:15

Time Off Btm: 2015.04.15 @ 09:55:00

TEST COMMENT: IF:BOB in 21 min.
IS:No return blow
FF:BOB in 23 min.
FS:No return blow

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1954.68	98.54	Initial Hydro-static
1	43.86	97.74	Open To Flow (1)
31	125.23	106.16	Shut-In(1)
77	1170.08	107.15	End Shut-In(1)
78	129.30	106.95	Open To Flow (2)
122	200.94	112.07	Shut-In(2)
180	1157.37	110.89	End Shut-In(2)
182	1986.02	110.24	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
122.00	w cm 30%w 70%m	0.60
124.00	w cm 20%w 80%m	1.74
124.00	mud w ith oil spots 100%m	1.74

Gas Rates

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

* Recovery from multiple tests



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration

25-15s-36w Logan, KS

8100 E 22nd St N #700
Wichita KS 67278

Schumacher #1

Job Ticket: 61418

DST#: 3

ATTN: Bob Peterson

Test Start: 2015.04.15 @ 05:23:15

GENERAL INFORMATION:

Formation: **LKC D-F**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 06:53:30

Time Test Ended: 11:38:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 65

Interval: 4013.00 ft (KB) To 4079.00 ft (KB) (TVD)

Total Depth: 4079.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3226.00 ft (KB)

3221.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8737 Outside

Press@RunDepth: psig @ 4016.00 ft (KB)

Start Date: 2015.04.15

End Date:

2015.04.15

Start Time: 05:23:15

End Time:

11:38:15

Capacity: 8000.00 psig

Last Calib.:

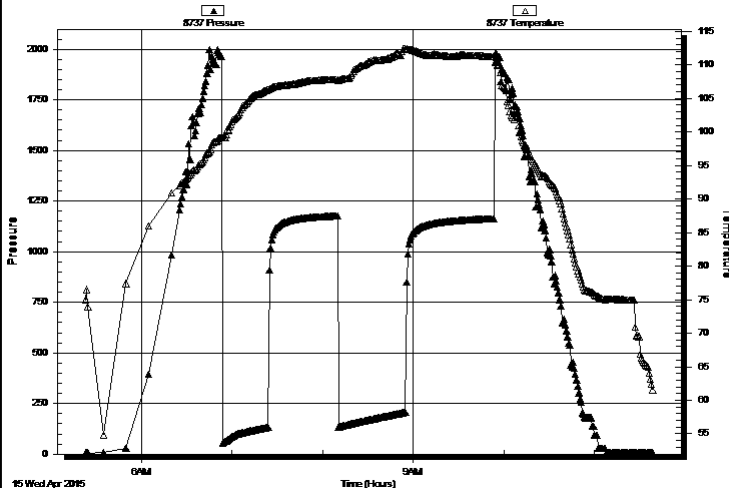
2015.04.15

Time On Btm:

Time Off Btm:

TEST COMMENT: IF:BOB in 21 min.
IS:No return blow
FF:BOB in 23 min.
FS:No return blow

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
122.00	w cm 30%w 70%m	0.60
124.00	w cm 20%w 80%m	1.74
124.00	mud w ith oil spots 100%m	1.74

Gas Rates

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

* Recovery from multiple tests



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

TOOL DIAGRAM

Ritchie Exploration

25-15s-36w Logan,KS

8100 E 22nd St N #700
Wichita KS 67278

Schumacher #1

Job Ticket: 61418

DST#: 3

ATTN: Bob Peterson

Test Start: 2015.04.15 @ 05:23:15

Tool Information

Drill Pipe:	Length:	3878.00 ft	Diameter:	3.80 inches	Volume:	54.40 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:	122.00 ft	Diameter:	2.25 inches	Volume:	0.60 bbl	Weight to Pull Loose:	80000.00 lb
					Total Volume:	55.00 bbl	Tool Chased	0.00 ft
Drill Pipe Above KB:		10.00 ft					String Weight: Initial	60000.00 lb
Depth to Top Packer:		4013.00 ft					Final	62000.00 lb
Depth to Bottom Packer:		ft						
Interval between Packers:		66.00 ft						
Tool Length:		89.00 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			3991.00	
Shut In Tool	5.00			3996.00	
Hydraulic tool	5.00			4001.00	
Safety Joint	3.00			4004.00	
Packer	5.00			4009.00	23.00 Bottom Of Top Packer
Packer	4.00			4013.00	
Stubb	1.00			4014.00	
Perforations	2.00			4016.00	
Recorder	0.00	8846	Inside	4016.00	
Recorder	0.00	8737	Outside	4016.00	
Change Over Sub	1.00			4017.00	
Drill Pipe	32.00			4049.00	
Change Over Sub	1.00			4050.00	
Perforations	24.00			4074.00	
Bullnose	5.00			4079.00	66.00 Bottom Packers & Anchor

Total Tool Length: 89.00



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration

25-15s-36w Logan,KS

8100 E 22nd St N #700
Wichita KS 67278

Schumacher #1

Job Ticket: 61418

DST#: 3

ATTN: Bob Peterson

Test Start: 2015.04.15 @ 05:23:15

Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 58.00 sec/qt

Water Loss: 7.91 in³

Resistivity: 0.00 ohm.m

Salinity: 9000.00 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: 13000 ppm

0 deg API

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
122.00	w cm 30%w 70%m	0.600
124.00	w cm 20%w 80%m	1.739
124.00	mud w ith oil spots 100%m	1.739

Total Length: 370.00 ft Total Volume: 4.078 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW= .69@ 53.6* = 13,000 ppm

Serial #: 8846

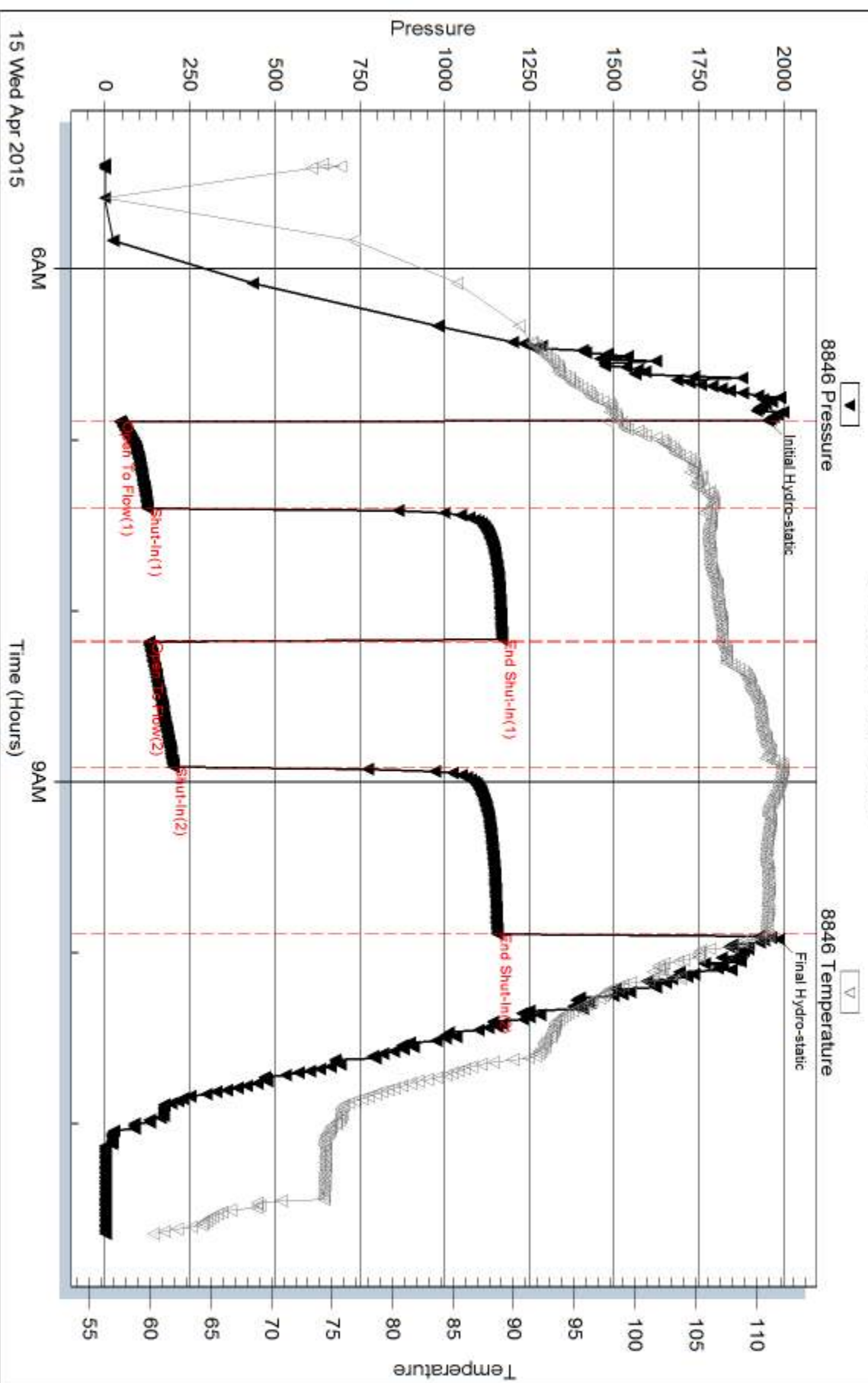
Inside

Ritchie Exploration

Schumacher #1

DST Test Number: 3

Pressure vs. Time

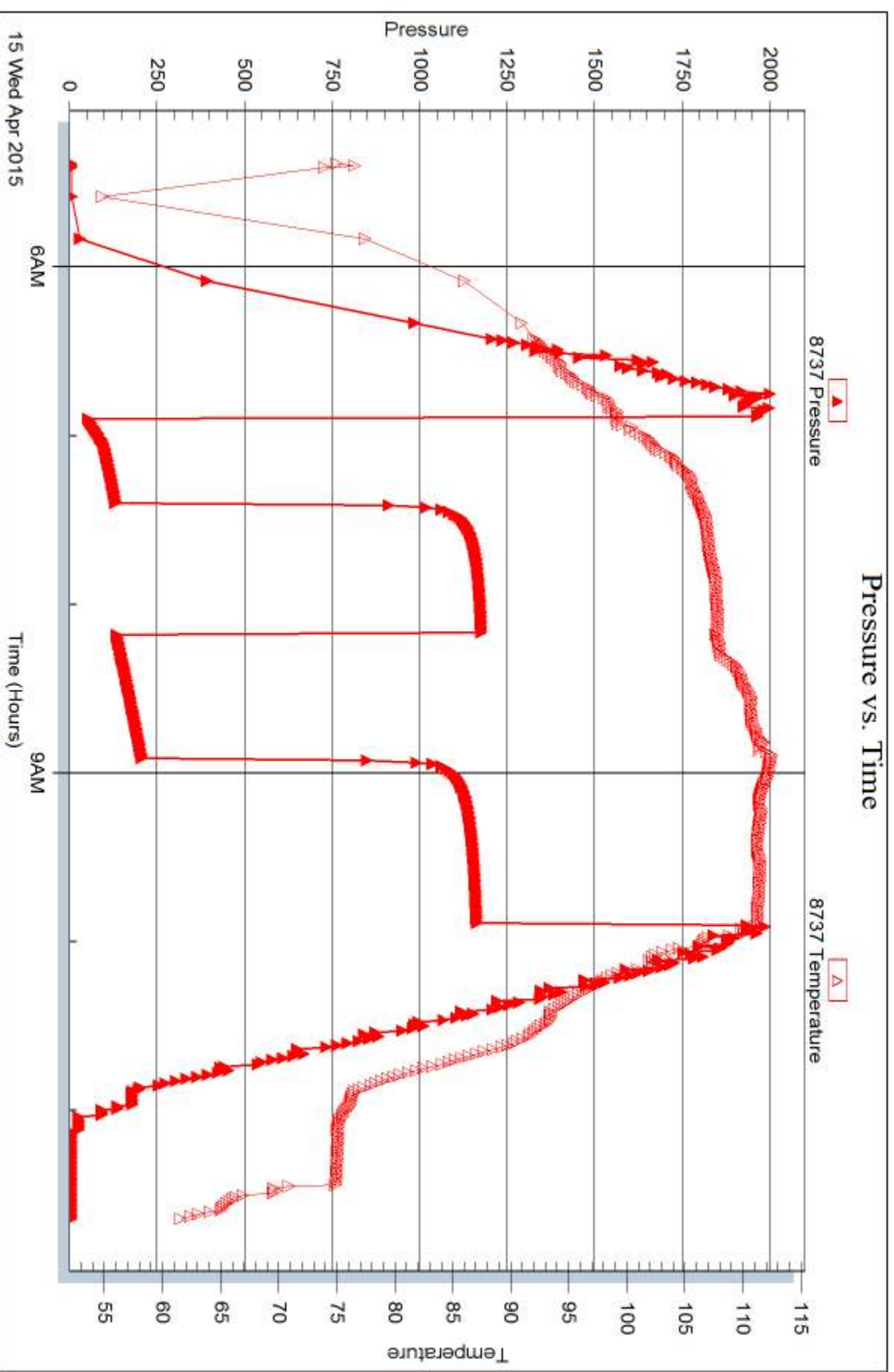


Serial #: 8737

Outside Ritchie Exploration

Schumacher #1

DST Test Number: 3





DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration**

8100 E 22nd St N #700
Wichita KS 67278

ATTN: Bob Peterson

Schumacher #1

25-15s-36w Logan,KS

Start Date: 2015.04.15 @ 21:24:15

End Date: 2015.04.16 @ 03:47:45

Job Ticket #: 61419 DST #: 4

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2015.04.22 @ 10:08:55



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration

8100 E 22nd St N #700
Wichita KS 67278

ATTN: Bob Peterson

25-15s-36w Logan, KS

Schumacher #1

Job Ticket: 61419

DST#: 4

Test Start: 2015.04.15 @ 21:24:15

GENERAL INFORMATION:

Formation: **LKC H**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 23:13:15

Time Test Ended: 03:47:45

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 65

Interval: 4125.00 ft (KB) To 4150.00 ft (KB) (TVD)

Total Depth: 4150.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3226.00 ft (KB)

3221.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8846 Inside

Press@RunDepth: 178.28 psig @ 4145.00 ft (KB)

Start Date: 2015.04.15

End Date:

2015.04.16

Start Time: 21:24:15

End Time:

03:47:45

Capacity: 8000.00 psig

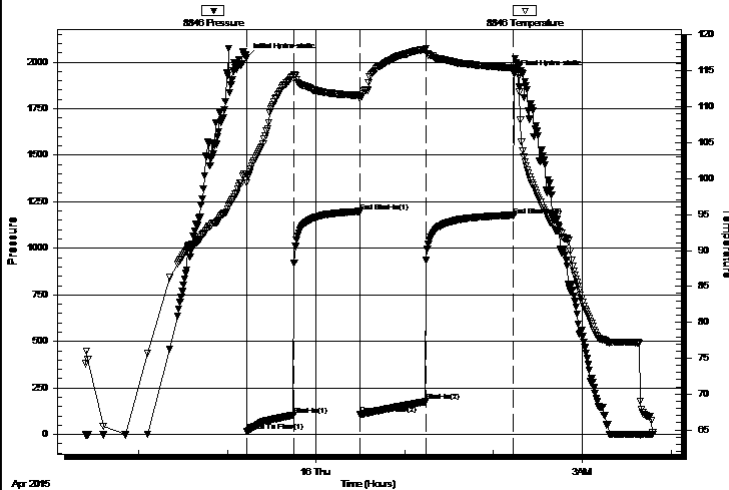
Last Calib.: 2015.04.16

Time On Btm: 2015.04.15 @ 23:13:00

Time Off Btm: 2015.04.16 @ 02:13:45

TEST COMMENT: IF:BOB in 25 min.
IS:No return blow
FF:BOB in 33 min.
FS:No return blow

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2023.01	100.65	Initial Hydro-static
1	18.49	99.42	Open To Flow (1)
32	103.63	114.06	Shut-In(1)
77	1197.91	111.56	End Shut-In(1)
77	107.19	111.13	Open To Flow (2)
121	178.28	118.02	Shut-In(2)
181	1174.85	115.46	End Shut-In(2)
181	1935.14	115.65	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
122.00	ocmw 2%o 10%m 88%w	0.60
62.00	ocmw 2%o 20%m 78%w	0.87
62.00	mcw with oil spots 50%m 50%w	0.87

Gas Rates

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

* Recovery from multiple tests



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration

25-15s-36w Logan, KS

8100 E 22nd St N #700
Wichita KS 67278

Schumacher #1

Job Ticket: 61419

DST#: 4

ATTN: Bob Peterson

Test Start: 2015.04.15 @ 21:24:15

GENERAL INFORMATION:

Formation: **LKC H**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 23:13:15

Time Test Ended: 03:47:45

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 65

Interval: 4125.00 ft (KB) To 4150.00 ft (KB) (TVD)

Total Depth: 4150.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3226.00 ft (KB)

3221.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8737 Outside

Press@RunDepth: psig @ 4145.00 ft (KB)

Start Date: 2015.04.15

End Date:

2015.04.16

Start Time: 21:24:15

End Time:

03:47:30

Capacity: 8000.00 psig

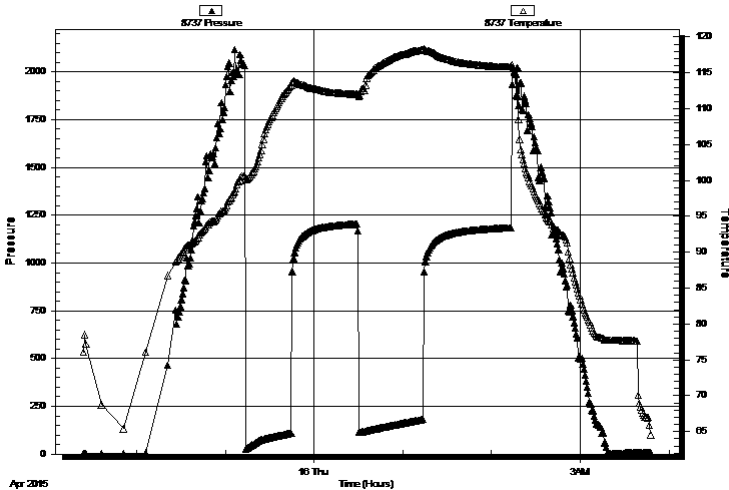
Last Calib.: 1899.12.30

Time On Btm:

Time Off Btm:

TEST COMMENT: IF:BOB in 25 min.
IS:No return blow
FF:BOB in 33 min.
FS:No return blow

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
122.00	ocmw 2%o 10% m 88%w	0.60
62.00	ocmw 2%o 20% m 78%w	0.87
62.00	mcw w ith oil spots 50% m 50%w	0.87

Gas Rates

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

* Recovery from multiple tests



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

TOOL DIAGRAM

Ritchie Exploration

25-15s-36w Logan,KS

8100 E 22nd St N #700
Wichita KS 67278

Schumacher #1

Job Ticket: 61419

DST#: 4

ATTN: Bob Peterson

Test Start: 2015.04.15 @ 21:24:15

Tool Information

Drill Pipe:	Length:	4003.00 ft	Diameter:	3.80 inches	Volume:	56.15 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:	122.00 ft	Diameter:	2.25 inches	Volume:	0.60 bbl	Weight to Pull Loose:	80000.00 lb
					Total Volume:	56.75 bbl	Tool Chased	0.00 ft
Drill Pipe Above KB:		23.00 ft					String Weight: Initial	60000.00 lb
Depth to Top Packer:		4125.00 ft					Final	62000.00 lb
Depth to Bottom Packer:		ft						
Interval between Packers:		25.00 ft						
Tool Length:		48.00 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			4103.00	
Shut In Tool	5.00			4108.00	
Hydraulic tool	5.00			4113.00	
Safety Joint	3.00			4116.00	
Packer	5.00			4121.00	23.00 Bottom Of Top Packer
Packer	4.00			4125.00	
Stubb	1.00			4126.00	
Perforations	19.00			4145.00	
Recorder	0.00	8846	Inside	4145.00	
Recorder	0.00	8737	Outside	4145.00	
Bullnose	5.00			4150.00	25.00 Bottom Packers & Anchor

Total Tool Length: 48.00



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration

25-15s-36w Logan,KS

8100 E 22nd St N #700
Wichita KS 67278

Schumacher #1

Job Ticket: 61419

DST#: 4

ATTN: Bob Peterson

Test Start: 2015.04.15 @ 21:24:15

Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 54.00 sec/qt

Water Loss: 8.71 in³

Resistivity: 0.00 ohm.m

Salinity: 12000.00 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

16000 ppm

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
122.00	ocmw 2%o 10%m 88%w	0.600
62.00	ocmw 2%o 20%m 78%w	0.870
62.00	mcw with oil spots 50%m 50%w	0.870

Total Length: 246.00 ft

Total Volume: 2.340 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW= .60@50.2*= 16,000 ppm

Serial #: 8846

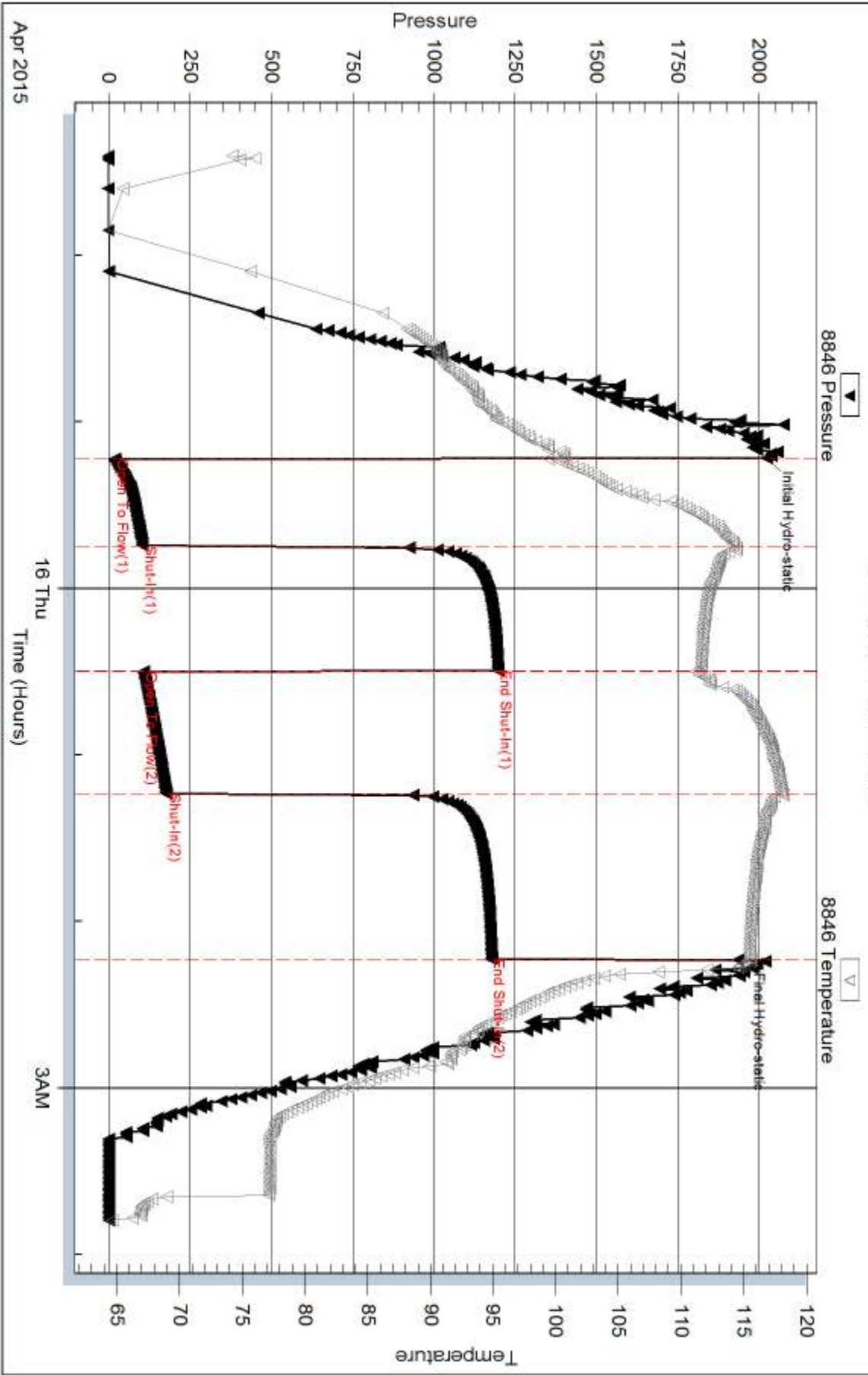
Inside

Ritchie Exploration

Schumacher #1

DST Test Number: 4

Pressure vs. Time

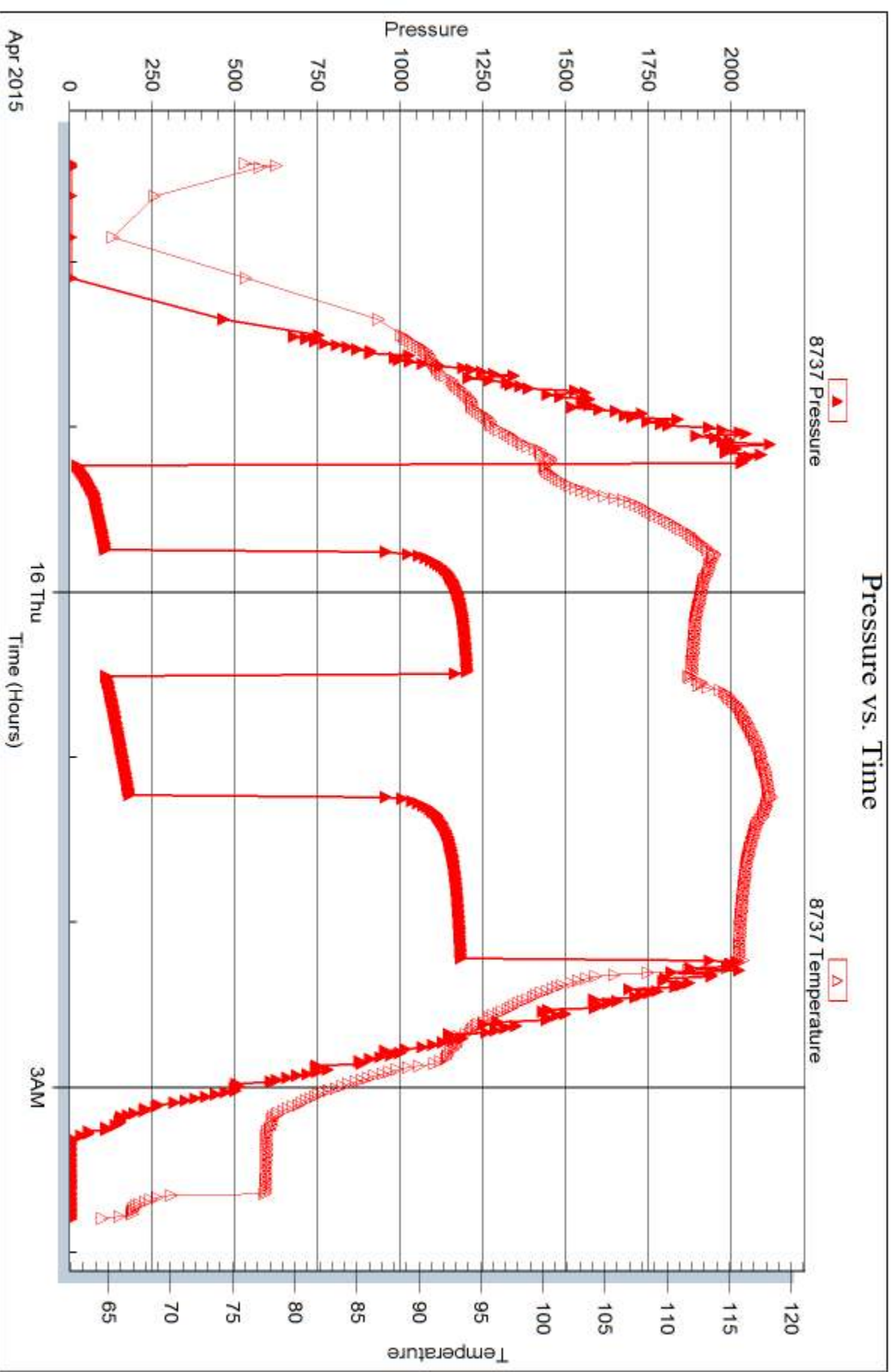


Serial #: 8737

Outside Ritchie Exploration

Schumacher #1

DST Test Number: 4





DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration**

8100 E 22nd St N #700
Wichita KS 67278

ATTN: Bob Peterson

Schumacher #1

25-15s-36w Logan,KS

Start Date: 2015.04.16 @ 10:30:15

End Date: 2015.04.16 @ 16:01:00

Job Ticket #: 61420 DST #: 5

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2015.04.22 @ 10:06:37



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration

8100 E 22nd St N #700
Wichita KS 67278

ATTN: Bob Peterson

25-15s-36w Logan, KS

Schumacher #1

Job Ticket: 61420

DST#: 5

Test Start: 2015.04.16 @ 10:30:15

GENERAL INFORMATION:

Formation: **LKC J**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 12:16:00

Time Test Ended: 16:01:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 65

Interval: 4156.00 ft (KB) To 4180.00 ft (KB) (TVD)

Total Depth: 4180.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3226.00 ft (KB)

3221.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8846 Inside

Press@RunDepth: 29.86 psig @ 4175.00 ft (KB)

Start Date: 2015.04.16

End Date:

2015.04.16

Start Time: 10:30:15

End Time:

16:01:00

Capacity: 8000.00 psig

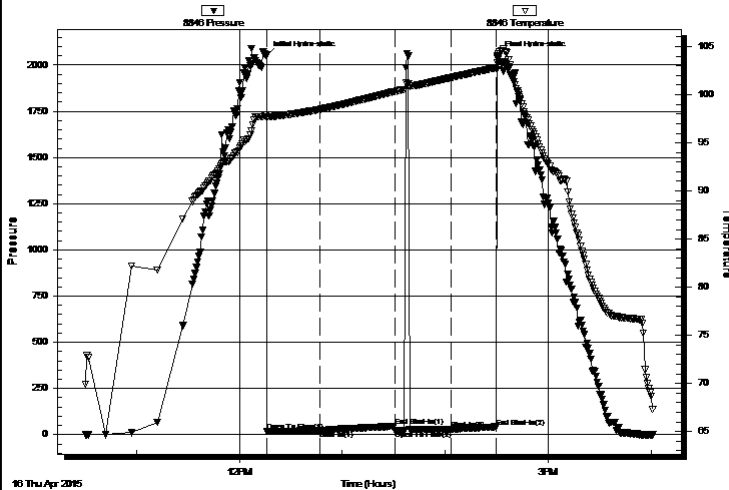
Last Calib.: 2015.04.16

Time On Btm: 2015.04.16 @ 12:15:45

Time Off Btm: 2015.04.16 @ 14:30:30

TEST COMMENT: IF: Built to 1" blow
IS: No return blow
FF: No blow ---- flushed tool ---- No blow
FS: No return blow

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2053.68	97.96	Initial Hydro-static
1	16.40	97.56	Open To Flow (1)
31	21.41	98.48	Shut-In(1)
75	44.72	100.34	End Shut-In(1)
75	24.60	100.33	Open To Flow (2)
108	29.86	101.78	Shut-In(2)
134	42.07	102.80	End Shut-In(2)
135	2052.63	103.88	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	mud with oil spots	0.02

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Ritchie Exploration

8100 E 22nd St N #700
Wichita KS 67278

ATTN: Bob Peterson

25-15s-36w Logan,KS

Schumacher #1

Job Ticket: 61420

DST#: 5

Test Start: 2015.04.16 @ 10:30:15

GENERAL INFORMATION:

Formation: **LKC J**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 12:16:00

Time Test Ended: 16:01:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 65

Interval: 4156.00 ft (KB) To 4180.00 ft (KB) (TVD)

Total Depth: 4180.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3226.00 ft (KB)

3221.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8737 Outside

Press@RunDepth: psig @ 4175.00 ft (KB)

Start Date: 2015.04.16

End Date:

2015.04.16

Start Time: 10:30:15

End Time:

16:00:45

Capacity: 8000.00 psig

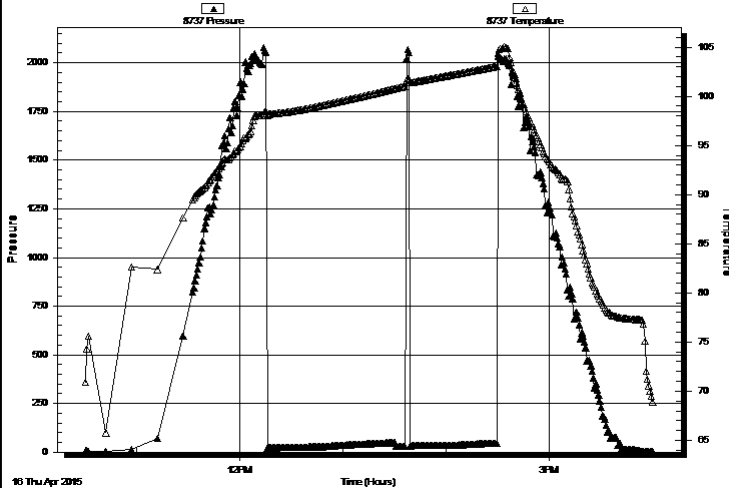
Last Calib.: 2015.04.16

Time On Btm:

Time Off Btm:

TEST COMMENT: IF: Built to 1" blow
IS: No return blow
FF: No blow ----flushed tool----No blow
FS: No return blow

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
5.00	mud with oil spots	0.02

Gas Rates

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

* Recovery from multiple tests



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

TOOL DIAGRAM

Ritchie Exploration

25-15s-36w Logan,KS

8100 E 22nd St N #700
Wichita KS 67278

Schumacher #1

Job Ticket: 61420

DST#: 5

ATTN: Bob Peterson

Test Start: 2015.04.16 @ 10:30:15

Tool Information

Drill Pipe:	Length:	4033.00 ft	Diameter:	3.80 inches	Volume:	56.57 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:	122.00 ft	Diameter:	2.25 inches	Volume:	0.60 bbl	Weight to Pull Loose:	80000.00 lb
					Total Volume:	57.17 bbl	Tool Chased	0.00 ft
Drill Pipe Above KB:		22.00 ft					String Weight: Initial	60000.00 lb
Depth to Top Packer:		4156.00 ft					Final	60000.00 lb
Depth to Bottom Packer:		ft						
Interval between Packers:		24.00 ft						
Tool Length:		47.00 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			4134.00	
Shut In Tool	5.00			4139.00	
Hydraulic tool	5.00			4144.00	
Safety Joint	3.00			4147.00	
Packer	5.00			4152.00	23.00 Bottom Of Top Packer
Packer	4.00			4156.00	
Stubb	1.00			4157.00	
Perforations	18.00			4175.00	
Recorder	0.00	8846	Inside	4175.00	
Recorder	0.00	8737	Outside	4175.00	
Bullnose	5.00			4180.00	24.00 Bottom Packers & Anchor

Total Tool Length: 47.00



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration

25-15s-36w Logan,KS

8100 E 22nd St N #700
Wichita KS 67278

Schumacher #1

Job Ticket: 61420

DST#: 5

ATTN: Bob Peterson

Test Start: 2015.04.16 @ 10:30:15

Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 54.00 sec/qt

Water Loss: 8.72 in³

Resistivity: 0.00 ohm.m

Salinity: 12000.00 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
5.00	mud w ith oil spots	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:

Serial #: 8846

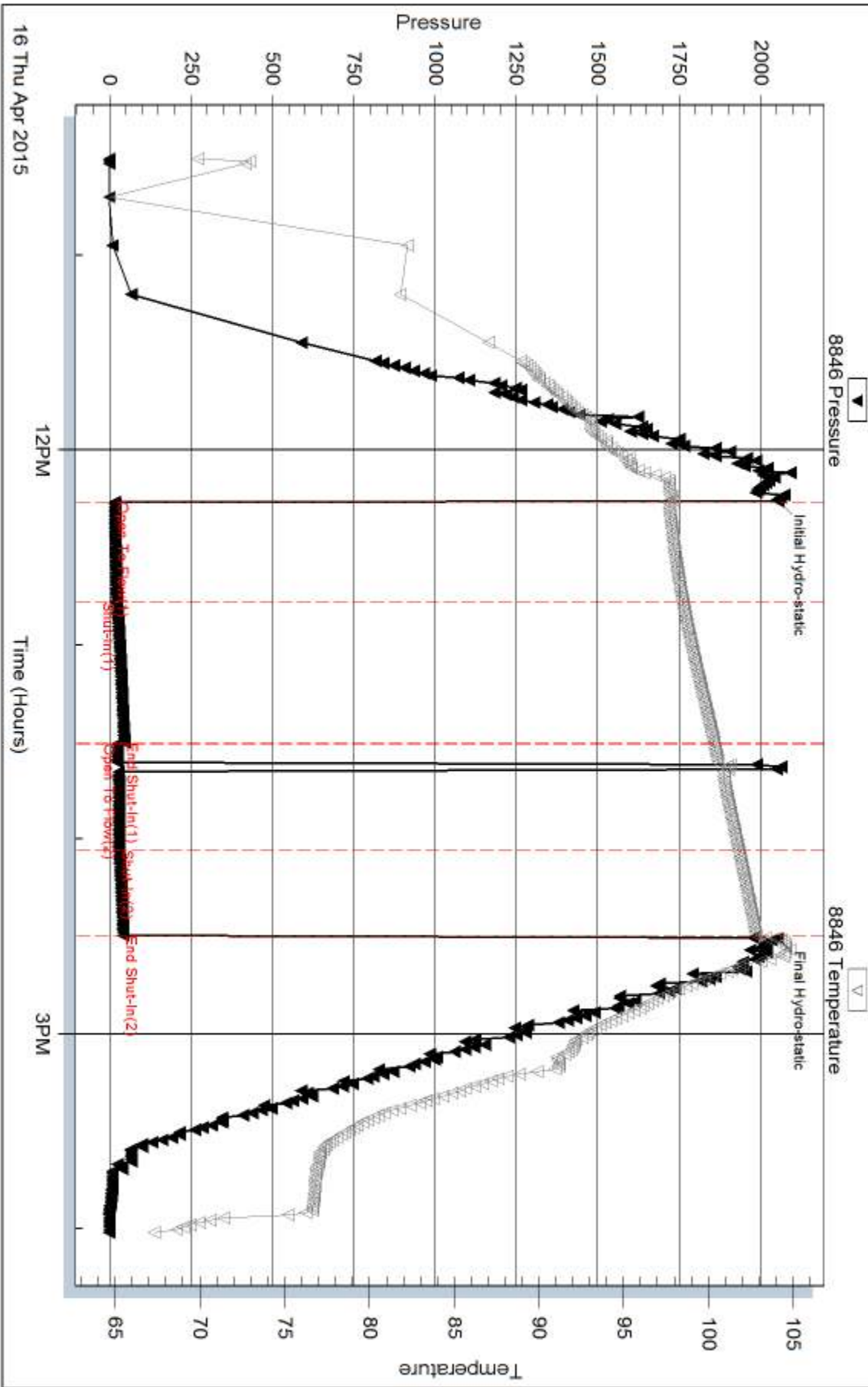
Inside

Ritchie Exploration

Schumacher #1

DST Test Number: 5

Pressure vs. Time

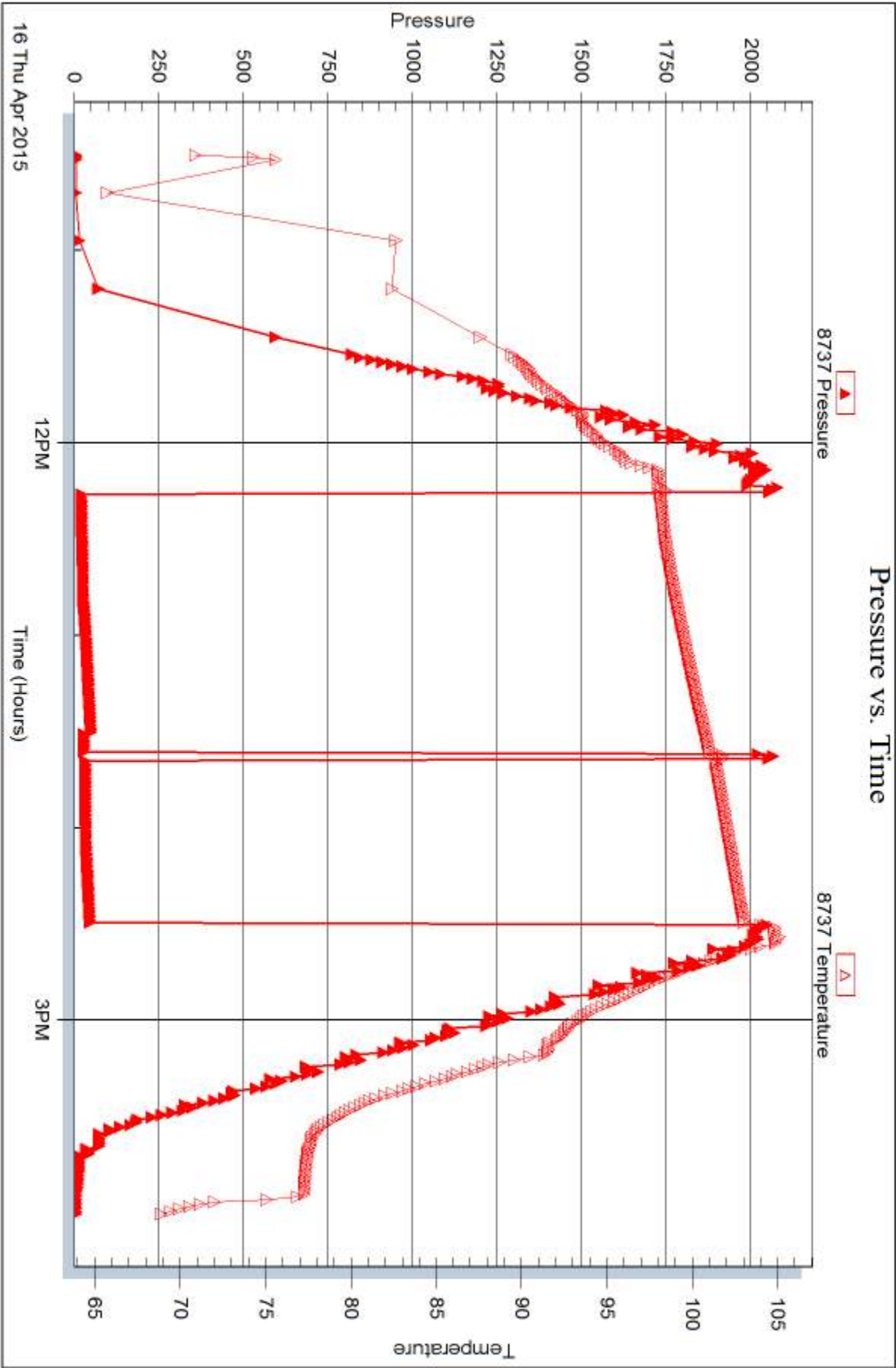


Serial #: 8737

Outside Ritchie Exploration

Schumacher #1

DST Test Number: 5





DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration**

8100 E 22nd St N #700
Wichita KS 67278

ATTN: Bob Peterson

Schumacher #1

25-15s-36w Logan,KS

Start Date: 2015.04.16 @ 23:42:15

End Date: 2015.04.17 @ 06:11:15

Job Ticket #: 61421 DST #: 6

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2015.04.22 @ 10:05:04



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration

8100 E 22nd St N #700
Wichita KS 67278

ATTN: Bob Peterson

25-15s-36w Logan, KS

Schumacher #1

Job Ticket: 61421

DST#: 6

Test Start: 2015.04.16 @ 23:42:15

GENERAL INFORMATION:

Formation: **LKC J**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 01:32:30

Time Test Ended: 06:11:15

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 65

Interval: 4192.00 ft (KB) To 4208.00 ft (KB) (TVD)

Total Depth: 4208.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3226.00 ft (KB)

3221.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8846 Inside

Press@RunDepth: 947.47 psig @ 4203.00 ft (KB)

Start Date: 2015.04.16

End Date:

2015.04.17

Start Time: 23:42:15

End Time:

06:11:15

Capacity: 8000.00 psig

Last Calib.: 2015.04.17

Time On Btm: 2015.04.17 @ 01:29:30

Time Off Btm: 2015.04.17 @ 04:17:15

TEST COMMENT: IF:BOB in 2 min.
IS:No return blow
FF:BOB in 2 min.
FS:No return blow

PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2142.52	100.29	Initial Hydro-static
3	116.95	99.37	Open To Flow (1)
33	646.28	120.16	Shut-In(1)
77	1227.41	119.17	End Shut-In(1)
77	664.22	118.99	Open To Flow (2)
107	947.47	119.98	Shut-In(2)
167	1234.13	119.48	End Shut-In(2)
168	2064.01	119.50	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
1674.00	mcs w 5% m 95%sw	22.37
248.00	w cm 10%w 90%sw	3.48

Gas Rates

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

* Recovery from multiple tests



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration

8100 E 22nd St N #700
Wichita KS 67278

ATTN: Bob Peterson

25-15s-36w Logan, KS

Schumacher #1

Job Ticket: 61421

DST#: 6

Test Start: 2015.04.16 @ 23:42:15

GENERAL INFORMATION:

Formation: **LKC J**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 01:32:30

Time Test Ended: 06:11:15

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 65

Interval: 4192.00 ft (KB) To 4208.00 ft (KB) (TVD)

Total Depth: 4208.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3226.00 ft (KB)

3221.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8737 Outside

Press@RunDepth: psig @ 4203.00 ft (KB)

Start Date: 2015.04.16

End Date:

2015.04.17

Start Time: 23:42:15

End Time:

06:11:30

Capacity: 8000.00 psig

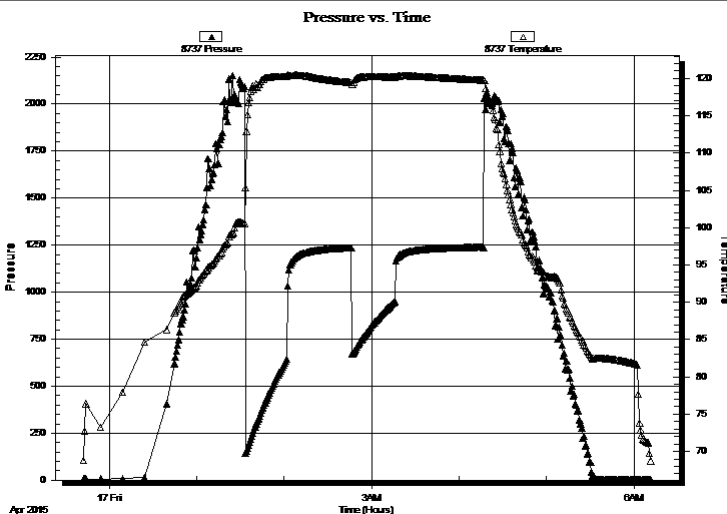
Last Calib.: 1899.12.30

Time On Btm:

Time Off Btm:

TEST COMMENT: IF:BOB in 2 min.
IS:No return blow
FF:BOB in 2 min.
FS:No return blow

PRESSURE SUMMARY



Time
(Min.)

Pressure
(psig)

Temp
(deg F)

Annotation

Recovery

Length (ft)	Description	Volume (bbl)
1674.00	mcs w 5% m 95%sw	22.37
248.00	w cm 10%w 90%sw	3.48

Gas Rates

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

* Recovery from multiple tests



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

TOOL DIAGRAM

Ritchie Exploration

25-15s-36w Logan,KS

8100 E 22nd St N #700
Wichita KS 67278

Schumacher #1

Job Ticket: 61421

DST#: 6

ATTN: Bob Peterson

Test Start: 2015.04.16 @ 23:42:15

Tool Information

Drill Pipe:	Length:	4067.00 ft	Diameter:	3.80 inches	Volume:	57.05 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:	122.00 ft	Diameter:	2.25 inches	Volume:	0.60 bbl	Weight to Pull Loose:	80000.00 lb
					Total Volume:	57.65 bbl	Tool Chased	0.00 ft
Drill Pipe Above KB:		25.00 ft					String Weight: Initial	60000.00 lb
Depth to Top Packer:		4192.00 ft					Final	70000.00 lb
Depth to Bottom Packer:		ft						
Interval between Packers:		16.00 ft						
Tool Length:		44.00 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			4165.00	
Shut In Tool	5.00			4170.00	
Hydraulic tool	5.00			4175.00	
Jars	5.00			4180.00	
Safety Joint	3.00			4183.00	
Packer	5.00			4188.00	28.00 Bottom Of Top Packer
Packer	4.00			4192.00	
Stubb	1.00			4193.00	
Perforations	10.00			4203.00	
Recorder	0.00	8846	Inside	4203.00	
Recorder	0.00	8737	Outside	4203.00	
Bullnose	5.00			4208.00	16.00 Bottom Packers & Anchor

Total Tool Length: 44.00



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration

25-15s-36w Logan,KS

8100 E 22nd St N #700
Wichita KS 67278

Schumacher #1

Job Ticket: 61421

DST#: 6

ATTN: Bob Peterson

Test Start: 2015.04.16 @ 23:42:15

Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 54.00 sec/qt

Water Loss: 9.53 in³

Resistivity: 0.00 ohm.m

Salinity: 10000.00 ppm

Filter Cake: 1.00 inches

Cushion Type:

Cushion Length:

Cushion Volume:

Gas Cushion Type:

Gas Cushion Pressure:

ft

bbl

psig

Oil API:

0 deg API

Water Salinity:

23000 ppm

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
1674.00	mcs w 5% m 95%sw	22.370
248.00	w cm 10%w 90%sw	3.479

Total Length: 1922.00 ft Total Volume: 25.849 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW= .43 @ 54.3*= 23,000 ppm

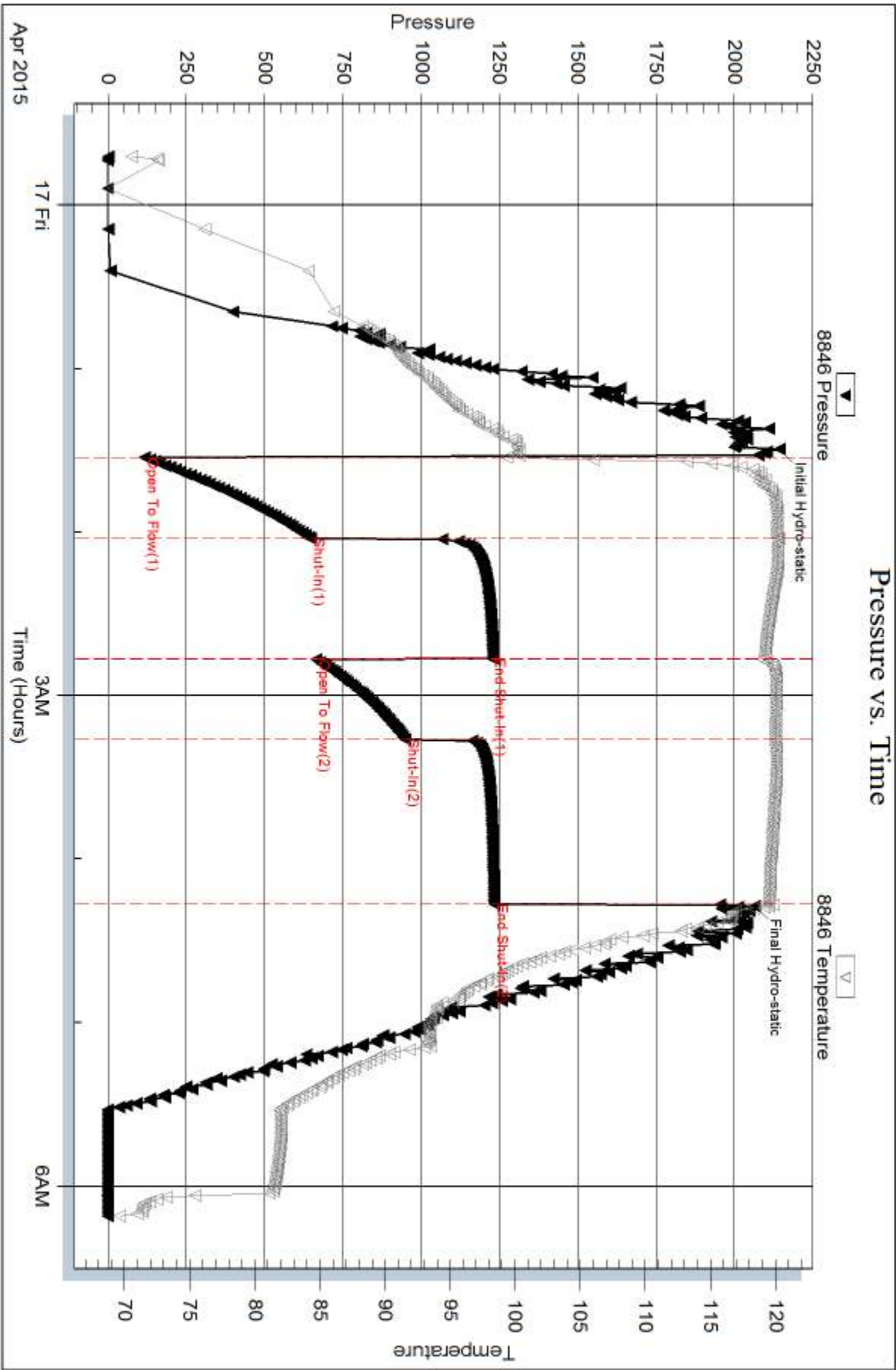
Serial #: 8846

Inside

Ritchie Exploration

Schumacher #1

DST Test Number: 6

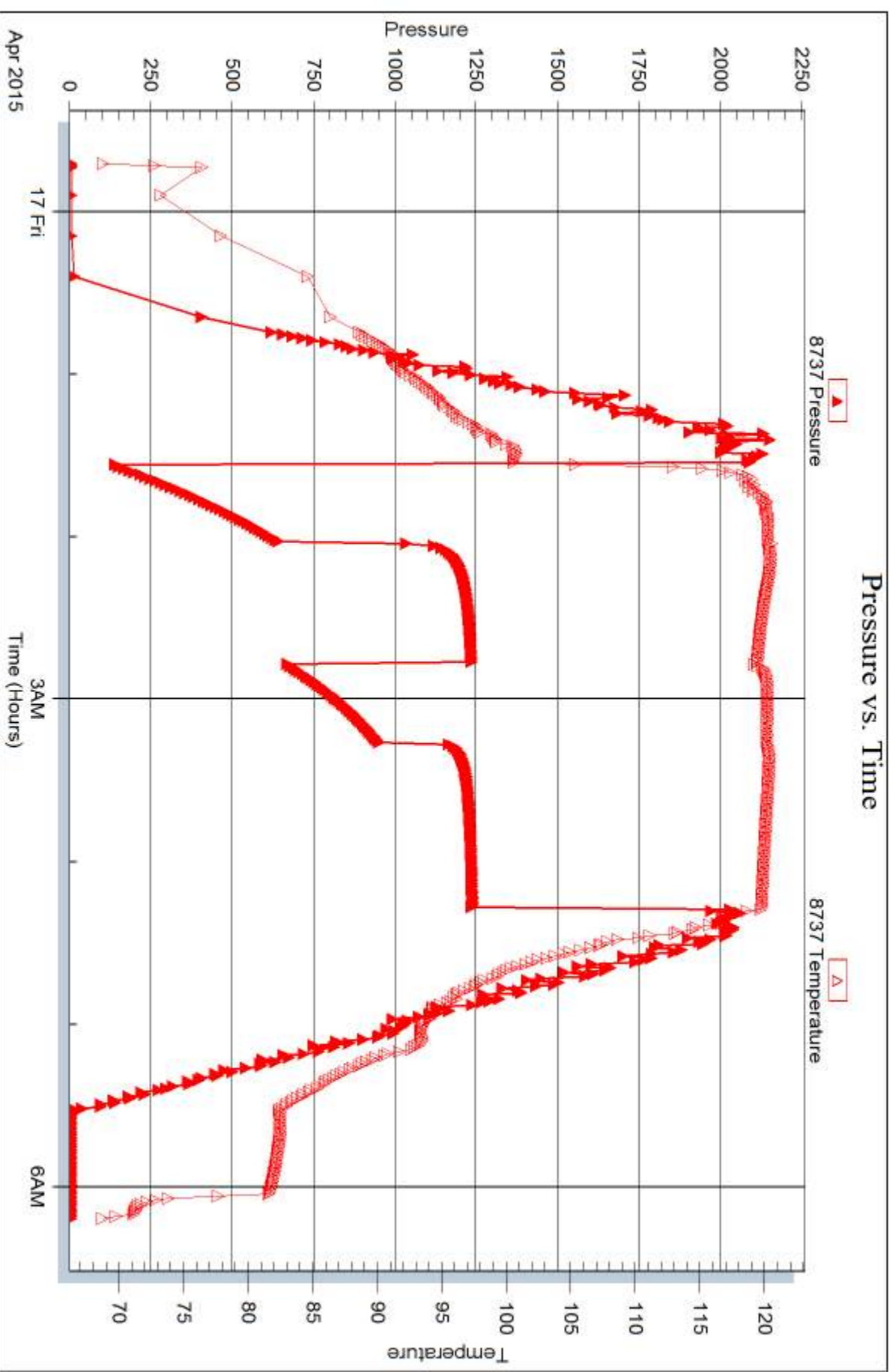


Serial #: 8737

Outside Ritchie Exploration

Schumacher #1

DST Test Number: 6





DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration**

8100 E 22nd St N #700
Wichita KS 67278

ATTN: Bob Peterson

Schumacher #1

25-15s-36w Logan,KS

Start Date: 2015.04.17 @ 18:00:15

End Date: 2015.04.18 @ 00:42:30

Job Ticket #: 61422 DST #: 7

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2015.04.22 @ 10:04:13



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration

8100 E 22nd St N #700
Wichita KS 67278

ATTN: Bob Peterson

25-15s-36w Logan, KS

Schumacher #1

Job Ticket: 61422

DST#: 7

Test Start: 2015.04.17 @ 18:00:15

GENERAL INFORMATION:

Formation: **LKC K-L**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 19:52:00

Time Test Ended: 00:42:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 65

Interval: 4217.00 ft (KB) To 4299.00 ft (KB) (TVD)

Total Depth: 4299.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3226.00 ft (KB)

3221.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8846 Inside

Press@RunDepth: 772.79 psig @ 4223.00 ft (KB)

Start Date: 2015.04.17

End Date:

2015.04.18

Start Time: 18:00:15

End Time:

00:42:30

Capacity: 8000.00 psig

Last Calib.: 2015.04.18

Time On Btm: 2015.04.17 @ 19:47:45

Time Off Btm: 2015.04.17 @ 22:25:15

TEST COMMENT: IF:BOB in 2 1/2 min.

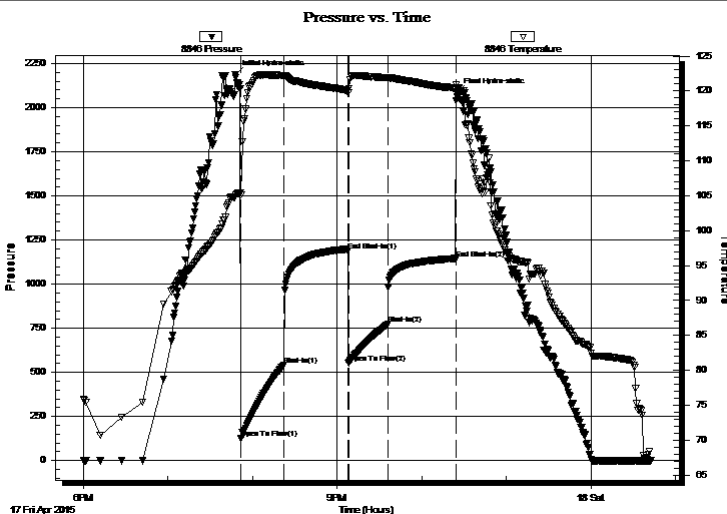
IS:No return blow

FF:BOB in 3 min.

FS:No return blow

PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2188.36	104.82	Initial Hydro-static
5	124.96	105.14	Open To Flow (1)
35	541.07	122.17	Shut-In(1)
80	1188.98	120.07	End Shut-In(1)
81	554.06	119.82	Open To Flow (2)
109	772.79	121.88	Shut-In(2)
157	1145.74	120.36	End Shut-In(2)
158	2086.21	120.27	Final Hydro-static



Recovery

Length (ft)	Description	Volume (bbl)
1052.00	mcs w 5% m 95% sw	13.65
620.00	w cm 40% w 60% m	8.70

Gas Rates

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

* Recovery from multiple tests



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration

25-15s-36w Logan, KS

8100 E 22nd St N #700
Wichita KS 67278

Schumacher #1

Job Ticket: 61422

DST#: 7

ATTN: Bob Peterson

Test Start: 2015.04.17 @ 18:00:15

GENERAL INFORMATION:

Formation: **LKC K-L**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 19:52:00

Time Test Ended: 00:42:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 65

Interval: 4217.00 ft (KB) To 4299.00 ft (KB) (TVD)

Total Depth: 4299.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3226.00 ft (KB)

3221.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8737 Outside

Press@RunDepth: psig @ 4223.00 ft (KB)

Start Date: 2015.04.17

End Date:

2015.04.18

Start Time: 18:00:15

End Time:

00:42:45

Capacity: 8000.00 psig

Last Calib.:

2015.04.18

Time On Btm:

Time Off Btm:

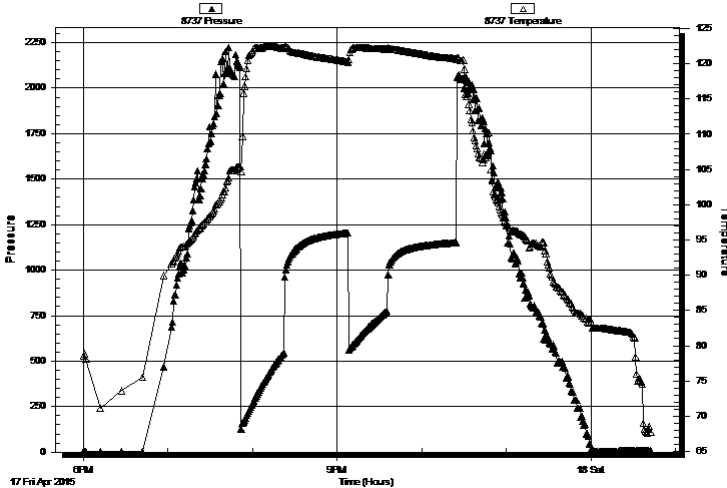
TEST COMMENT: IF:BOB in 2 1/2 min.

IS:No return blow

FF:BOB in 3 min.

FS:No return blow

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
1052.00	mcs w 5% m 95% sw	13.65
620.00	w cm 40% w 60% m	8.70

Gas Rates

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

* Recovery from multiple tests



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

TOOL DIAGRAM

Ritchie Exploration

25-15s-36w Logan,KS

8100 E 22nd St N #700
Wichita KS 67278

Schumacher #1

Job Ticket: 61422

DST#: 7

ATTN: Bob Peterson

Test Start: 2015.04.17 @ 18:00:15

Tool Information

Drill Pipe:	Length:	4094.00 ft	Diameter:	3.80 inches	Volume:	57.43 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:	122.00 ft	Diameter:	2.25 inches	Volume:	0.60 bbl	Weight to Pull Loose:	80000.00 lb
					Total Volume:	58.03 bbl	Tool Chased	0.00 ft
Drill Pipe Above KB:		22.00 ft					String Weight: Initial	64000.00 lb
Depth to Top Packer:		4217.00 ft					Final	70000.00 lb
Depth to Bottom Packer:		ft						
Interval between Packers:		82.00 ft						
Tool Length:		105.00 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			4195.00	
Shut In Tool	5.00			4200.00	
Hydraulic tool	5.00			4205.00	
Safety Joint	3.00			4208.00	
Packer	5.00			4213.00	23.00 Bottom Of Top Packer
Packer	4.00			4217.00	
Stubb	1.00			4218.00	
Perforations	5.00			4223.00	
Recorder	0.00	8846	Inside	4223.00	
Recorder	0.00	8737	Outside	4223.00	
Change Over Sub	1.00			4224.00	
Drill Pipe	64.00			4288.00	
Change Over Sub	1.00			4289.00	
Perforations	5.00			4294.00	
Bullnose	5.00			4299.00	82.00 Bottom Packers & Anchor

Total Tool Length: 105.00



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration

25-15s-36w Logan,KS

8100 E 22nd St N #700
Wichita KS 67278

Schumacher #1

Job Ticket: 61422

DST#: 7

ATTN: Bob Peterson

Test Start: 2015.04.17 @ 18:00:15

Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 60.00 sec/qt

Water Loss: 9.55 in³

Resistivity: 0.00 ohm.m

Salinity: 11000.00 ppm

Filter Cake: 1.00 inches

Cushion Type:

Cushion Length:

Cushion Volume:

Gas Cushion Type:

Gas Cushion Pressure:

ft

bbl

psig

Oil API:

0 deg API

Water Salinity:

17000 ppm

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
1052.00	mcs w 5% m 95% sw	13.645
620.00	w cm 40% w 60% m	8.697

Total Length: 1672.00 ft Total Volume: 22.342 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW= .65 @ 52.3= 17,000 ppm

Serial #: 8846

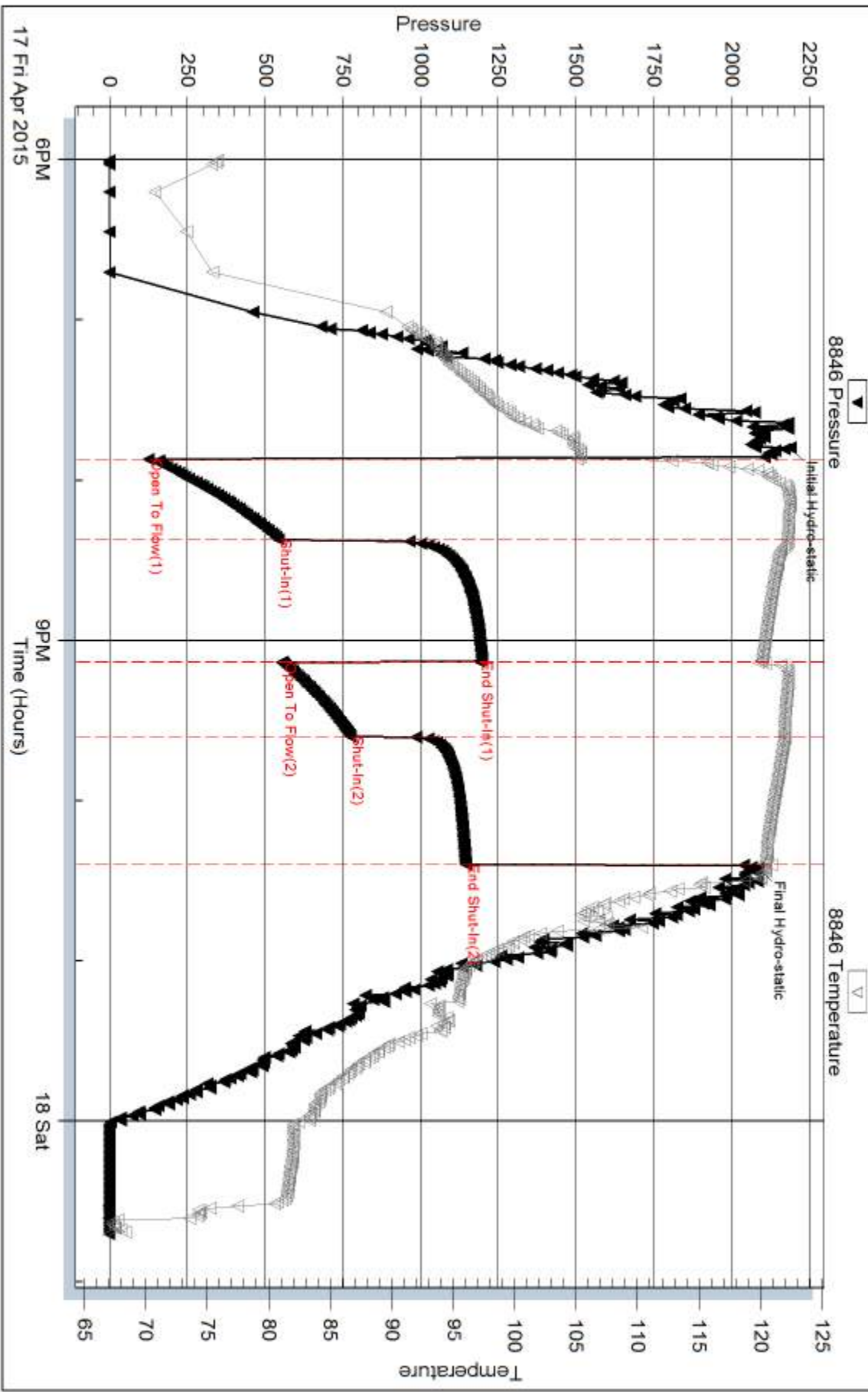
Inside

Ritchie Exploration

Schumacher #1

DST Test Number: 7

Pressure vs. Time

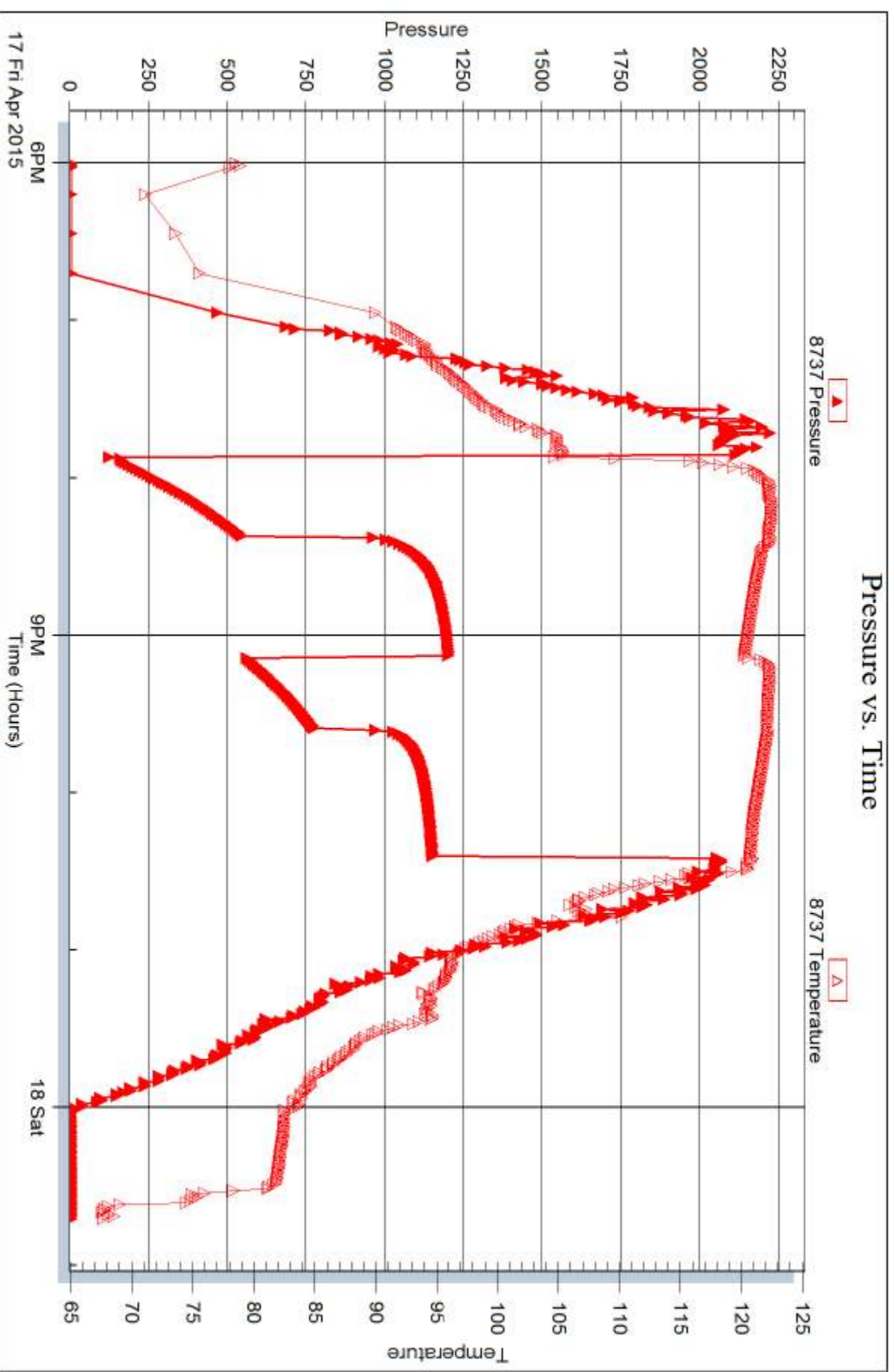


Serial #: 8737

Outside Ritchie Exploration

Schumacher #1

DST Test Number: 7





DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration**

8100 E 22nd St N #700
Wichita KS 67278

ATTN: Bob Peterson

Schumacher #1

25-15s-36w Logan,KS

Start Date: 2015.04.18 @ 16:16:15

End Date: 2015.04.18 @ 21:53:30

Job Ticket #: 61423 DST #: 8

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2015.04.22 @ 10:03:48



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration

8100 E 22nd St N #700
Wichita KS 67278

ATTN: Bob Peterson

25-15s-36w Logan, KS

Schumacher #1

Job Ticket: 61423

DST#: 8

Test Start: 2015.04.18 @ 16:16:15

GENERAL INFORMATION:

Formation: **Altamont A-B**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 17:59:15

Time Test Ended: 21:53:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 65

Interval: 4350.00 ft (KB) To 4395.00 ft (KB) (TVD)

Total Depth: 4395.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3226.00 ft (KB)

3221.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8846 Inside

Press@RunDepth: 23.84 psig @ 4390.00 ft (KB)

Start Date: 2015.04.18

End Date:

2015.04.18

Start Time: 16:16:15

End Time:

21:53:30

Capacity: 8000.00 psig

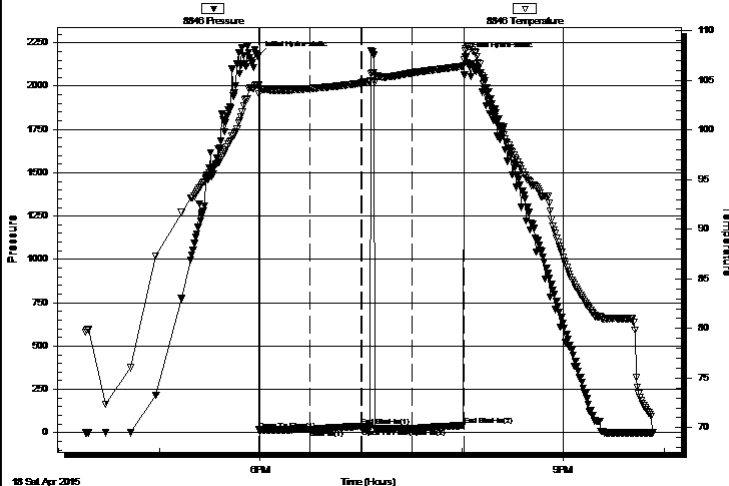
Last Calib.: 2015.04.18

Time On Btm: 2015.04.18 @ 17:59:00

Time Off Btm: 2015.04.18 @ 20:01:45

TEST COMMENT: IF:Weak surface blow died in 2 min.
IS:No return blow
FF:No blow ----Flushed tool---No blow
FS:No return blow

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2175.23	104.52	Initial Hydro-static
1	16.24	103.68	Open To Flow (1)
31	17.90	104.18	Shut-In(1)
61	36.69	104.71	End Shut-In(1)
61	25.38	104.71	Open To Flow (2)
91	23.84	105.75	Shut-In(2)
122	41.23	106.45	End Shut-In(2)
123	2170.93	108.03	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	ocm 1%o 99% Thick mud 1" free oil	0.02

Gas Rates

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

* Recovery from multiple tests



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration

8100 E 22nd St N #700
Wichita KS 67278

ATTN: Bob Peterson

25-15s-36w Logan,KS

Schumacher #1

Job Ticket: 61423

DST#: 8

Test Start: 2015.04.18 @ 16:16:15

GENERAL INFORMATION:

Formation: **Altamont A-B**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 17:59:15

Time Test Ended: 21:53:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 65

Interval: 4350.00 ft (KB) To 4395.00 ft (KB) (TVD)

Total Depth: 4395.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3226.00 ft (KB)

3221.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8737 Outside

Press@RunDepth: psig @ 4390.00 ft (KB)

Start Date: 2015.04.18

End Date:

2015.04.18

Start Time: 16:16:15

End Time:

21:53:30

Capacity: 8000.00 psig

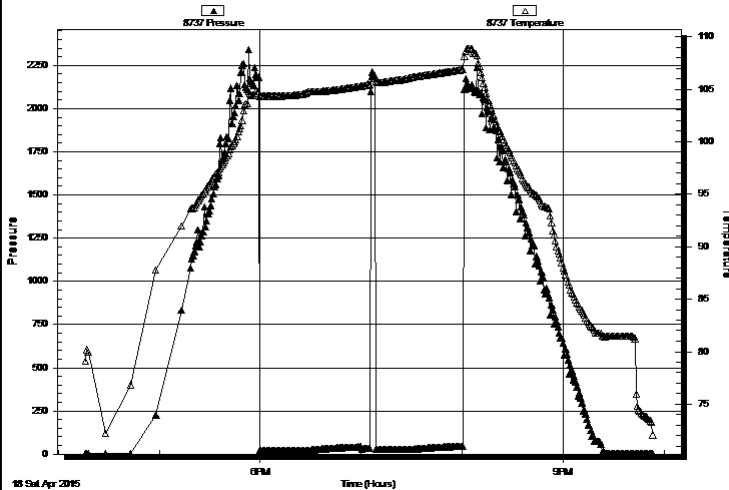
Last Calib.: 2015.04.18

Time On Btm:

Time Off Btm:

TEST COMMENT: IF:Weak surface blow died in 2 min.
IS:No return blow
FF:No blow ----Flushed tool---No blow
FS:No return blow

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
5.00	ocm 1%o 99%m Thick mud 1" free oil	0.02

Gas Rates

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

* Recovery from multiple tests



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

TOOL DIAGRAM

Ritchie Exploration

25-15s-36w Logan,KS

8100 E 22nd St N #700
Wichita KS 67278

Schumacher #1

Job Ticket: 61423

DST#: 8

ATTN: Bob Peterson

Test Start: 2015.04.18 @ 16:16:15

Tool Information

Drill Pipe:	Length:	4222.00 ft	Diameter:	3.80 inches	Volume:	59.22 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:	122.00 ft	Diameter:	2.25 inches	Volume:	0.60 bbl	Weight to Pull Loose:	80000.00 lb
					Total Volume:	59.82 bbl	Tool Chased	0.00 ft
Drill Pipe Above KB:		17.00 ft					String Weight: Initial	62000.00 lb
Depth to Top Packer:		4350.00 ft					Final	62000.00 lb
Depth to Bottom Packer:		ft						
Interval between Packers:		45.00 ft						
Tool Length:		68.00 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			4328.00	
Shut In Tool	5.00			4333.00	
Hydraulic tool	5.00			4338.00	
Safety Joint	3.00			4341.00	
Packer	5.00			4346.00	23.00 Bottom Of Top Packer
Packer	4.00			4350.00	
Stubb	1.00			4351.00	
Perforations	39.00			4390.00	
Recorder	0.00	8846	Inside	4390.00	
Recorder	0.00	8737	Outside	4390.00	
Bullnose	5.00			4395.00	45.00 Bottom Packers & Anchor

Total Tool Length: 68.00



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration

25-15s-36w Logan,KS

8100 E 22nd St N #700
Wichita KS 67278

Schumacher #1

Job Ticket: 61423

DST#: 8

ATTN: Bob Peterson

Test Start: 2015.04.18 @ 16:16:15

Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 7.00 lb/gal

Viscosity: 85.00 sec/qt

Water Loss: 7.08 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:

Oil API:

Water Salinity:

0 deg API

0 ppm

ft

bbl

psig

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	ocm 1%o 99%m Thick mud 1" free oil	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:

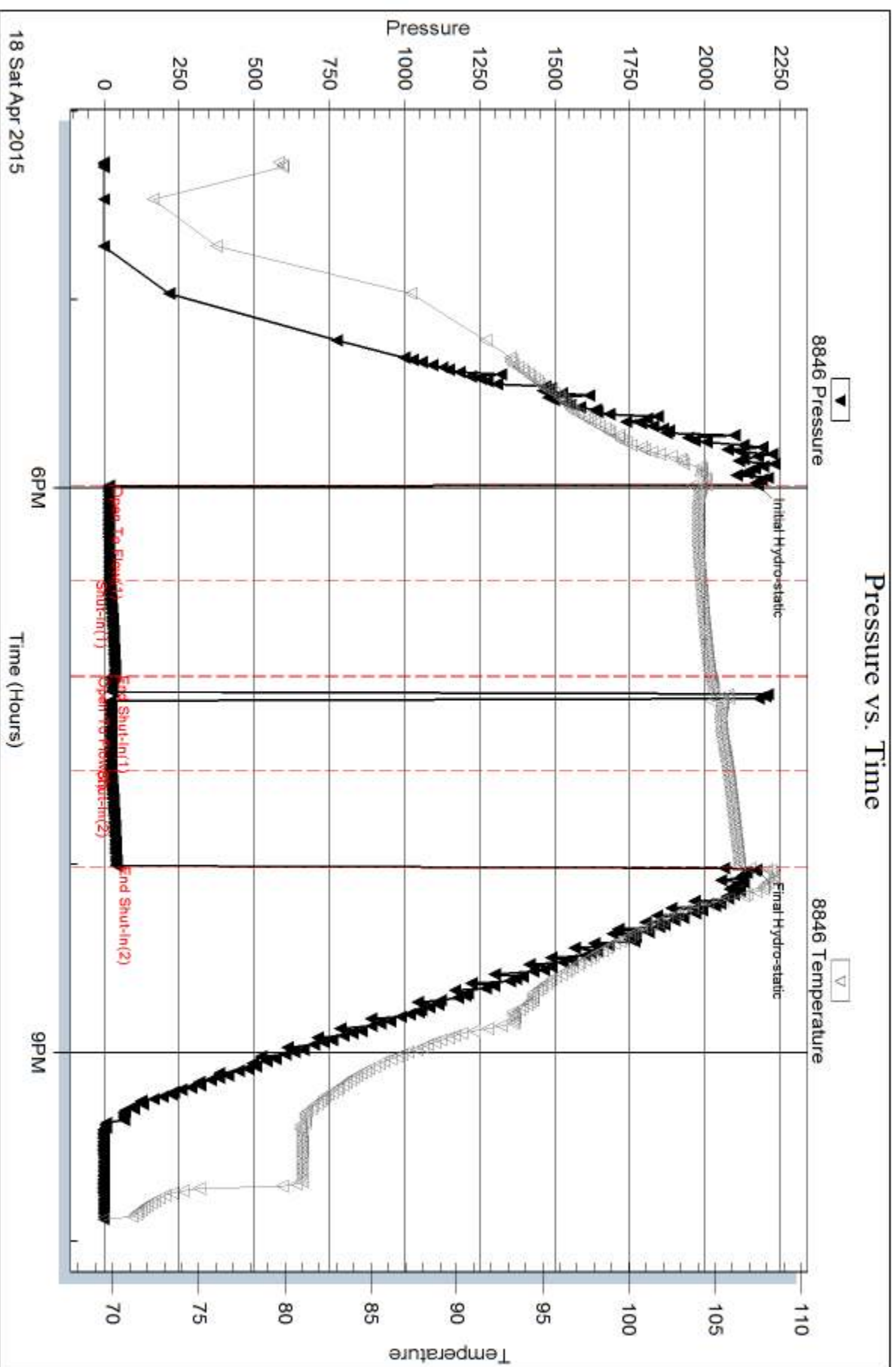
Serial #: 8846

Inside

Ritchie Exploration

Schumacher #1

DST Test Number: 8

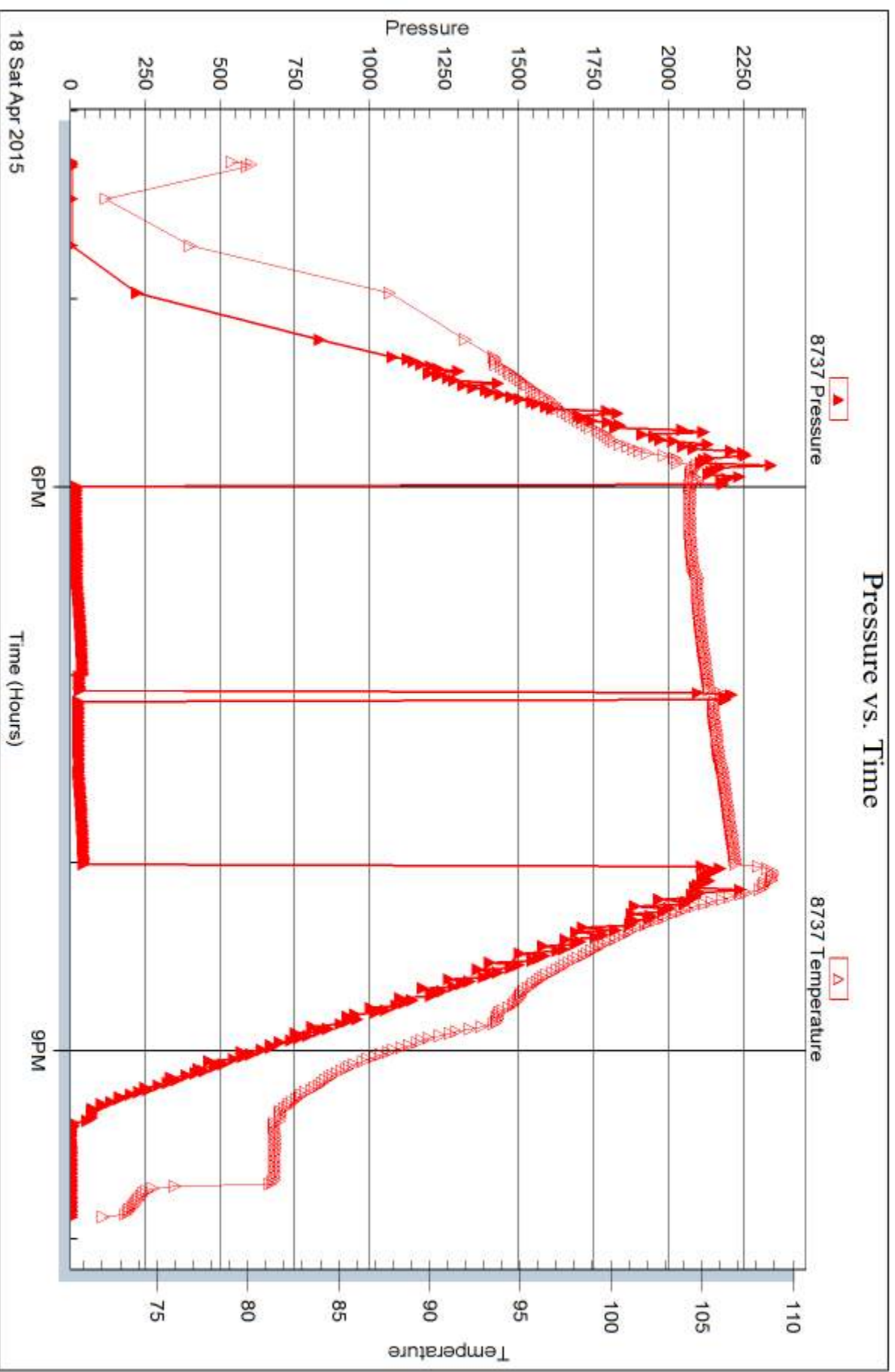


Serial #: 8737

Outside Ritchie Exploration

Schumacher #1

DST Test Number: 8





DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration**

8100 E 22nd St N #700
Wichita KS 67278

ATTN: Bob Peterson

Schumacher #1

25-15s-36w Logan,KS

Start Date: 2015.04.19 @ 09:50:15

End Date: 2015.04.19 @ 16:02:45

Job Ticket #: 61424 DST #: 9

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2015.04.22 @ 10:02:17



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration

8100 E 22nd St N #700
Wichita KS 67278

ATTN: Bob Peterson

25-15s-36w Logan, KS

Schumacher #1

Job Ticket: 61424

DST#: 9

Test Start: 2015.04.19 @ 09:50:15

GENERAL INFORMATION:

Formation: **Alt C- Pawnee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 11:46:15

Time Test Ended: 16:02:45

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 65

Interval: 4388.00 ft (KB) To 4458.00 ft (KB) (TVD)

Total Depth: 4458.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3226.00 ft (KB)

3221.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8846 Inside

Press@RunDepth: 77.32 psig @ 4394.00 ft (KB)

Start Date: 2015.04.19

End Date:

2015.04.19

Start Time: 09:50:15

End Time:

16:02:45

Capacity: 8000.00 psig

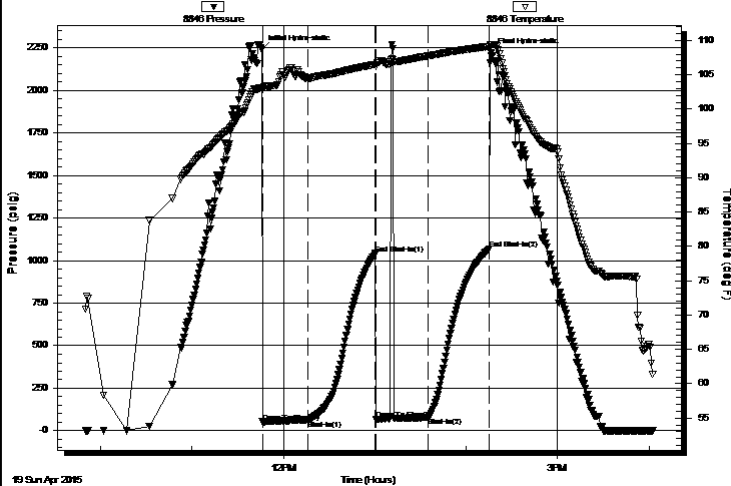
Last Calib.: 2015.04.19

Time On Btm: 2015.04.19 @ 11:45:45

Time Off Btm: 2015.04.19 @ 14:16:15

TEST COMMENT: IF: Built to 1" blow
IS: No return blow
FF: No blow --flushed tool--weak surface blow after 10 min.
FS: No return blow

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2239.20	103.11	Initial Hydro-static
1	51.91	102.89	Open To Flow (1)
31	63.28	104.52	Shut-In(1)
75	1041.64	106.51	End Shut-In(1)
75	67.26	106.26	Open To Flow (2)
110	77.32	107.74	Shut-In(2)
150	1070.15	109.13	End Shut-In(2)
151	2220.60	109.39	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
64.00	mud w with skim of oil in tool	0.31

Gas Rates

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

* Recovery from multiple tests



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration

8100 E 22nd St N #700
Wichita KS 67278

ATTN: Bob Peterson

25-15s-36w Logan, KS

Schumacher #1

Job Ticket: 61424

DST#: 9

Test Start: 2015.04.19 @ 09:50:15

GENERAL INFORMATION:

Formation: **Alt C- Pawnee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 11:46:15

Time Test Ended: 16:02:45

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 65

Interval: 4388.00 ft (KB) To 4458.00 ft (KB) (TVD)

Total Depth: 4458.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3226.00 ft (KB)

3221.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8737 Outside

Press@RunDepth: psig @ 4394.00 ft (KB)

Start Date: 2015.04.19

End Date:

2015.04.19

Start Time: 09:50:15

End Time:

16:02:30

Capacity: 8000.00 psig

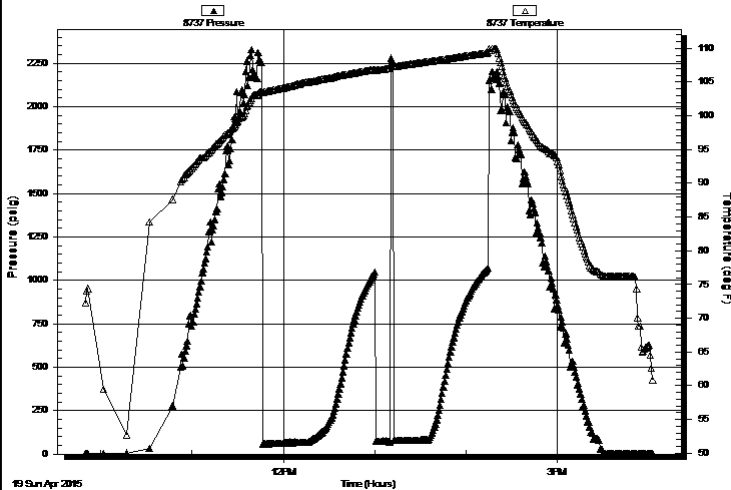
Last Calib.: 2015.04.19

Time On Btm:

Time Off Btm:

TEST COMMENT: IF: Built to 1" blow
IS: No return blow
FF: No blow --flushed tool--weak surface blow after 10 min.
FS: No return blow

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
64.00	mud w with skim of oil in tool	0.31

Gas Rates

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

* Recovery from multiple tests



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

TOOL DIAGRAM

Ritchie Exploration

25-15s-36w Logan,KS

8100 E 22nd St N #700
Wichita KS 67278

Schumacher #1

Job Ticket: 61424

DST#: 9

ATTN: Bob Peterson

Test Start: 2015.04.19 @ 09:50:15

Tool Information

Drill Pipe:	Length:	4250.00 ft	Diameter:	3.80 inches	Volume:	59.62 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:	122.00 ft	Diameter:	2.25 inches	Volume:	0.60 bbl	Weight to Pull Loose:	80000.00 lb
					Total Volume:	60.22 bbl	Tool Chased	0.00 ft
Drill Pipe Above KB:		12.00 ft					String Weight: Initial	62000.00 lb
Depth to Top Packer:		4388.00 ft					Final	62000.00 lb
Depth to Bottom Packer:		ft						
Interval between Packers:		70.00 ft						
Tool Length:		98.00 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		4361.00	
Shut In Tool	5.00		4366.00	
Hydraulic tool	5.00		4371.00	
Jars	5.00		4376.00	
Safety Joint	3.00		4379.00	
Packer	5.00		4384.00	28.00 Bottom Of Top Packer
Packer	4.00		4388.00	
Stubb	1.00		4389.00	
Perforations	5.00		4394.00	
Recorder	0.00	8846 Inside	4394.00	
Recorder	0.00	8737 Outside	4394.00	
Change Over Sub	1.00		4395.00	
Drill Pipe	32.00		4427.00	
Change Over Sub	1.00		4428.00	
Perforations	25.00		4453.00	
Bullnose	5.00		4458.00	70.00 Bottom Packers & Anchor
Total Tool Length:	98.00			



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration

25-15s-36w Logan,KS

8100 E 22nd St N #700
Wichita KS 67278

Schumacher #1

Job Ticket: 61424

DST#: 9

ATTN: Bob Peterson

Test Start: 2015.04.19 @ 09:50:15

Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 57.00 sec/qt

Water Loss: 11.18 in³

Resistivity: 0.00 ohm.m

Salinity: 15000.00 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
64.00	mud w ith skim of oil in tool	0.315

Total Length: 64.00 ft

Total Volume: 0.315 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Serial #: 8846

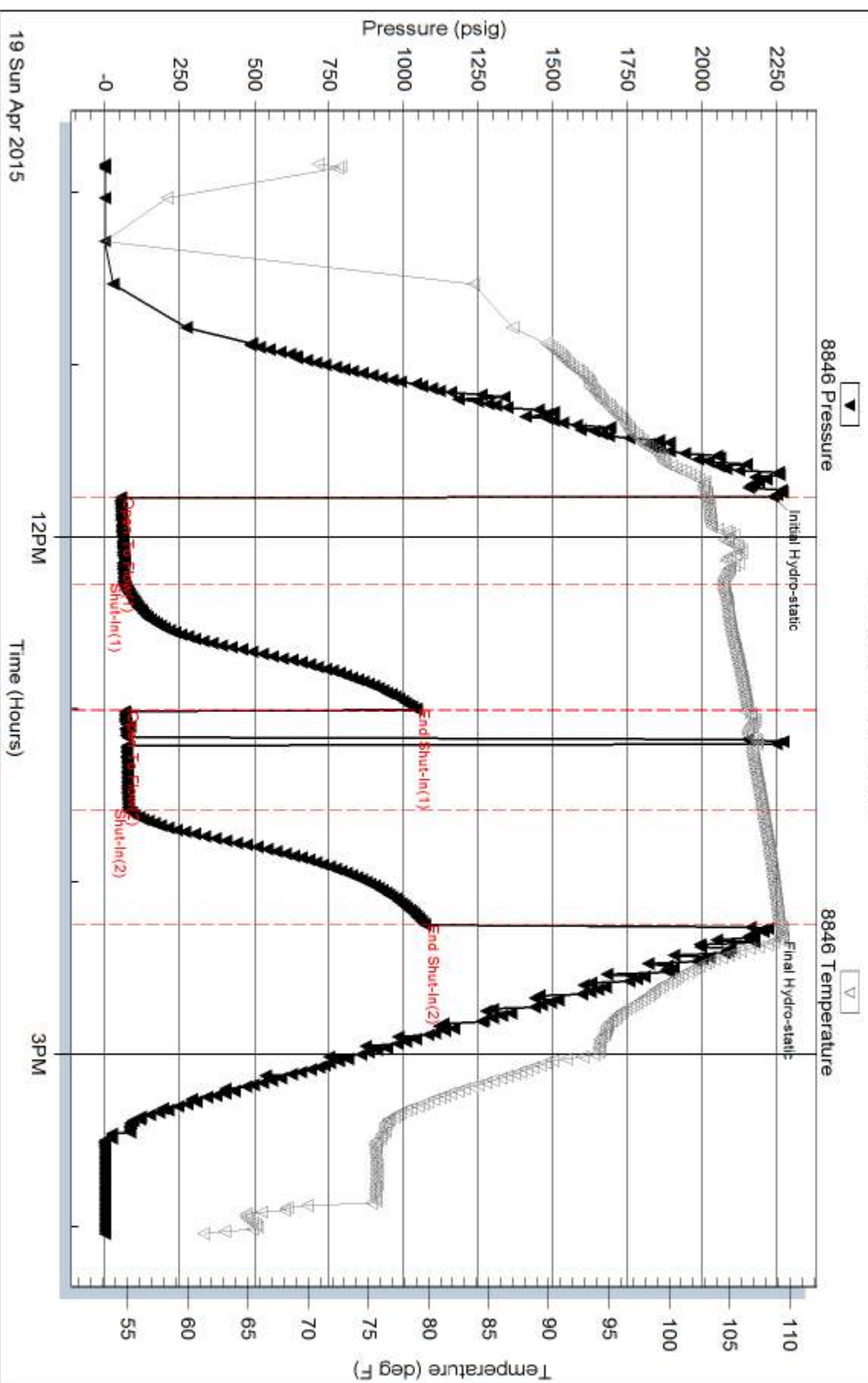
Inside

Ritchie Exploration

Schumacher #1

DST Test Number: 9

Pressure vs. Time

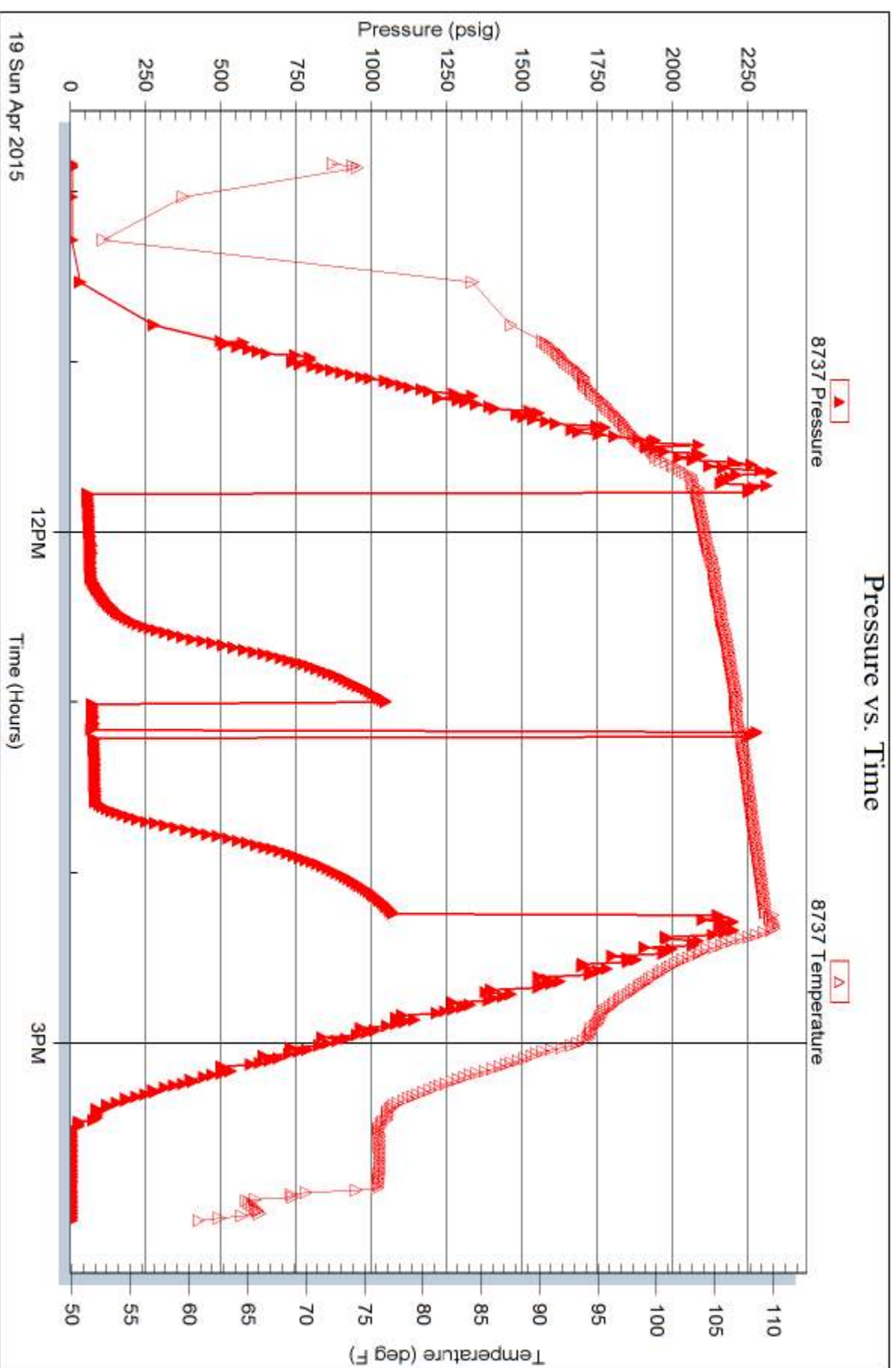


Serial #: 8737

Outside Ritchie Exploration

Schumacher #1

DST Test Number: 9





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 61416

Well Name & No. Schumacher #1 Test No. 1 Date 4-13-15
 Company Ritchie Exploration Elevation 3226 KB 3221 GL
 Address 8100 E 22nd ST. N#700 ~~Wichita~~ KS 67278
 Co. Rep / Geo. Bob Peterson Rig WW2
 Location: Sec. 25 Twp. 15 Rge. 36 Co. Logan State KS

Interval Tested 3884-3944 Zone Tested Toronto
 Anchor Length 60 Drill Pipe Run 3752 Mud Wt. 2.4
 Top Packer Depth 3879 Drill Collars Run 122 Vis 85
 Bottom Packer Depth 3884 Wt. Pipe Run 0 WL 7.2
 Total Depth 3944 Chlorides 4000 ppm System LCM 1

Blow Description IF: BOB IN 22 Min
FS: NO Return Blow
FF: BOB IN 24 Min
FS: NO Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>62</u>	<u>WCM</u>		<u>10</u>	<u>90</u>	
<u>186</u>	<u>WCM</u>		<u>30</u>	<u>70</u>	
<u>122</u>	<u>MCW</u>		<u>90</u>	<u>10</u>	

Rec Total 370 BHT 106 Gravity 1.07 API RW 36.9 °F Chlorides 19000 ppm
 (A) Initial Hydrostatic 1871 ☒ Test 1150.00 1050 T-On Location 18:00
 (B) First Initial Flow 38 ☒ Jars 250.00 T-Started 21:08
 (C) First Final Flow 123 ☒ Safety Joint 75.00 T-Open 22:58
 (D) Initial Shut-In 1057 ☒ Circ Sub NC T-Pulled 01:58
 (E) Second Initial Flow 143 ☐ Hourly Standby T-Out 03:31
 (F) Second Final Flow 197 ☒ Mileage 80 RT 80.00 76 Comments
 (G) Final Shut-In 1040 ☐ Sampler
 (H) Final Hydrostatic 1874 ☐ Straddle
☐ Shale Packer
☐ Extra Packer
☐ Extra Recorder
☐ Day Standby
☐ Accessibility

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

☐ Ruined Shale Packer
☐ Ruined Packer
☐ Extra Copies
 Sub Total 0
 Total 1451
 MP/DST Disc't

Approved By [Signature]

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. 61417

Well Name & No. Schumacher #1 Test No. 2 Date 4-14-15
 Company Ritchie Exploration Elevation 3226 KB 3221 GL
 Address 8100 E 22nd ST. N. 700 Wichita KS 67278
 Co. Rep / Geo. Bob Peterson Rig WW2
 Location: Sec. 25 Twp. 15 Rge. 36 Co. Logan State KS

Interval Tested 3985-4015 Zone Tested LKC C
 Anchor Length 30 Drill Pipe Run 3845 Mud Wt. 8.6
 Top Packer Depth 3980 Drill Collars Run 122 Vis 58
 Bottom Packer Depth 3985 Wt. Pipe Run Ø WL 8.0
 Total Depth 4015 Chlorides 9000 ppm System LCM 2

Blow Description IF: Built to 4th
IS: No Return Blow
FF: Built to 2nd Blow
FS: No Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>30</u>	<u>MUD with oil spots</u>			<u>100</u>	
<u>122</u>			<u>50</u>	<u>50</u>	

Rec Total 152 BHT 108 Gravity 1150 API RW 162 @ 140°F Chlorides 13000 ppm
 (A) Initial Hydrostatic 1936 ☒ Test 1250.00 T-On Location 13:00
 (B) First Initial Flow 14 ☐ Jars 75.00 T-Started 13:31
 (C) First Final Flow 60 ☒ Safety Joint NC T-Open 15:06
 (D) Initial Shut-In 1083 ☒ Circ Sub 76 T-Pulled 18:06
 (E) Second Initial Flow 64 ☐ Hourly Standby 19:59 T-Out
 (F) Second Final Flow 90 ☒ Mileage 80 RT 80.00 Comments
 (G) Final Shut-In 1041 ☐ Sampler
 (H) Final Hydrostatic 1888 ☐ Straddle
☐ Shale Packer
☐ Extra Packer
☐ Extra Recorder
☐ Day Standby
☐ Accessibility

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

Sub Total 1301
\$1405.00/-

☐ Ruined Shale Packer
☐ Ruined Packer
☐ Extra Copies
 Sub Total 0
 Total 1301
 MP/DST Disc't

Approved By [Signature]

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. 61418

Well Name & No. Schumacher #1 Test No. 3 Date 4-15-15
 Company Ritchie Exploration Elevation 3226 KB 3221 GL
 Address 8100 E 22nd ST N #700 Wichita 67278
 Co. Rep / Geo. Bob Peterson Rig WW2
 Location: Sec. 25 Twp. 15 Rge. 36 Co. Logan State KS

Interval Tested 4013-4079 Zone Tested E
 Anchor Length 66 Drill Pipe Run 3878 Mud Wt. 8.6
 Top Packer Depth 4008 Drill Collars Run 122 Vis 58
 Bottom Packer Depth 4013 Wt. Pipe Run Ø WL 8.0
 Total Depth 4079 Chlorides 9000 ppm System LCM 2

Blow Description IF: BOB IN 21 Min
ISI No Return Blow
FFI BOB IN 23 Min
FSI No Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>124</u>	<u>MUD with oil spots</u>			<u>100</u>	
<u>124</u>	<u>WCM</u>		<u>20</u>	<u>80</u>	
<u>122</u>	<u>WCM</u>		<u>30</u>	<u>70</u>	

Rec Total 370 BHT 110 Gravity Ø API RW 1.69 @ 53°F Chlorides 3000 ppm
 (A) Initial Hydrostatic 1954 ☒ Test 1150 1250.00 T-On Location 04:45
 (B) First Initial Flow 43 ☐ Jars T-Started 05:23
 (C) First Final Flow 125 ☒ Safety Joint 75.00 T-Open 06:53
 (D) Initial Shut-In 1170 ☒ Circ Sub NC T-Pulled 09:53
 (E) Second Initial Flow 129 ☐ Hourly Standby T-Out 11:38
 (F) Second Final Flow 200 ☒ Mileage 80 RT 80.00 76 Comments
 (G) Final Shut-In 1157 ☐ Sampler
 (H) Final Hydrostatic 1986 ☐ Straddle
☐ Shale Packer
☐ Extra Packer
☐ Extra Recorder
☐ Day Standby
☐ Accessibility 1301
 Sub Total \$1405.00

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

☐ Ruined Shale Packer
☐ Ruined Packer
☐ Extra Copies
 Sub Total 0
 Total 1301
 MP/DST Disc't

Approved By [Signature]

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. 61419

Well Name & No. Schumacher #1 Test No. 4 Date 4-15-15
 Company Ritchie Exploration Elevation 3226 KB 3221 GL
 Address 8100 E 22nd St. N #700 Wichita KS 67278
 Co. Rep / Geo. Bob Peterson Rig WW2
 Location: Sec. 25 Twp. 15 Rge. 36 Co. Logan State KS

Interval Tested 4125-4150 Zone Tested H
 Anchor Length 25 Drill Pipe Run 4003 Mud Wt. 8.7
 Top Packer Depth 4120 Drill Collars Run 122 Vis 54
 Bottom Packer Depth 4125 Wt. Pipe Run 0 WL 8.8
 Total Depth 4150 Chlorides 12000 ppm System LCM 2

Blow Description IF: BOB in 25 min
IS: No Return Blow
EF: BOB in 33 min
FS: No Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>62</u>	<u>mcw with oil spots</u>		<u>50</u>	<u>50</u>	
<u>62</u>	<u>OCMW</u>	<u>2</u>	<u>78</u>	<u>20</u>	
<u>122</u>	<u>OCMW</u>	<u>2</u>	<u>88</u>	<u>10</u>	

Rec Total 246 BHT 115 Gravity 1150 API RW 160 @ 50.7°F Chlorides 16000 ppm
 (A) Initial Hydrostatic 2023 ☒ Test 1150 \$1250.00 T-On Location 20:30
 (B) First Initial Flow 18 ☐ Jars 7 T-Started 21:24
 (C) First Final Flow 103 ☒ Safety Joint 75.0% T-Open 22:14
 (D) Initial Shut-In 1197 ☒ Circ Sub NC T-Pulled 02:14
 (E) Second Initial Flow 107 ☐ Hourly Standby 76 T-Out 03:47
 (F) Second Final Flow 178 ☒ Mileage 80 RT \$80.00 Comments
 (G) Final Shut-In 1174 ☐ Sampler
 (H) Final Hydrostatic 1935 ☐ Straddle
☐ Shale Packer
☐ Extra Packer
☐ Extra Recorder
☐ Day Standby
☐ Accessibility 1301
 Sub Total 1405.00/-

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

☐ Ruined Shale Packer
☐ Ruined Packer
☐ Extra Copies
 Sub Total 0
 Total 1301
 MP/DST Disc't

Approved By [Signature]

Our Representative

Mike Roberts

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. 61420

Well Name & No. Schumacher #1 Test No. 5 Date 4-16-15
 Company Ritchie Exploration Elevation 3226 KB 3221 GL
 Address 8100 E 22nd ST. N. #700 Wichita KS 67278
 Co. Rep / Geo. Bob Peterson Rig WW 2
 Location: Sec. 25 Twp. 15 Rge. 36 Co. Logan State KS

Interval Tested 4156-4180 Zone Tested J
 Anchor Length 24 Drill Pipe Run 4033 Mud Wt. 8.7
 Top Packer Depth 4151 Drill Collars Run 122 Vis 54
 Bottom Packer Depth 4156 Wt. Pipe Run 0 WL 8.8
 Total Depth 4180 Chlorides 12000 ppm System LCM 2

Blow Description IF: Built to 1" Blow
IS: No Return Blow
FF: No Blow - Flushed tool - No Blow
FS: No Return Blow

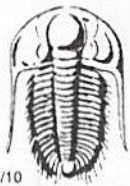
Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>Mud with oil spots</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 5 BHT 104 Gravity 1150 API RW 1250.00 @ 76 °F Chlorides 12000 ppm
 (A) Initial Hydrostatic 2053 ☒ Test 1150 1250.00 T-On Location 10:00
 (B) First Initial Flow 16 ☐ Jars T-Started 10:30
 (C) First Final Flow 21 ☒ Safety Joint 75.00 T-Open 12:15
 (D) Initial Shut-In 44 ☐ Circ Sub NL T-Pulled 14:30
 (E) Second Initial Flow 24 ☐ Hourly Standby T-Out 16:01
 (F) Second Final Flow 29 ☒ Mileage 80RT 80.00 76 Comments
 (G) Final Shut-In 42 ☐ Sampler
 (H) Final Hydrostatic 2052 ☐ 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 0
 Total 1301
 MP/DST Disc't
 Sub Total 1301
 Our Representative Mike Roberts

Approved By [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. 61421

Well Name & No. Schumacher #1 Test No. 6 Date 4-16-15
 Company Ritchie Exploration Elevation 3226 KB 3221 GL
 Address 8100 E 28th St. N #700 Wichita KS 67278
 Co. Rep / Geo. Bob Peterson Rig WW2
 Location: Sec. 25 Twp. 15 Rge. 36 Co. Logan State KS

Interval Tested 4192-4208 Zone Tested 5
 Anchor Length 4187 16 Drill Pipe Run 4067 Mud Wt. 8.8
 Top Packer Depth 4187 Drill Collars Run 122 Vis 54
 Bottom Packer Depth 4192 4192 Wt. Pipe Run 0 WL 9.6
 Total Depth 4208 Chlorides 10000 ppm System LCM 2

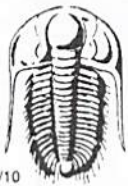
Blow Description IF: BOB IN 2 MIN
IS: NO Return Blow
FF: BOB IN 2 MIN
FS: NO Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>248</u>	<u>100m</u>		<u>10</u>	<u>90</u>	
<u>1674</u>	<u>500 mcsw</u>		<u>95</u>	<u>5</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 1922 BHT 119 Gravity 1150 API RW 43 @ 54.3° F Chlorides 23000 ppm
 (A) Initial Hydrostatic 2142 ☒ Test 1250.00 T-On Location 22:00
 (B) First Initial Flow 116 ☐ Jars T-Started 23:42
 (C) First Final Flow 646 ☒ Safety Joint 75.00 T-Open 01:32
 (D) Initial Shut-In 1227 ☒ Circ Sub NC T-Pulled 04:17
 (E) Second Initial Flow 664 ☐ Hourly Standby T-Out 06:11
 (F) Second Final Flow 947 ☒ Mileage 80 RT 80.00 76 Comments
 (G) Final Shut-In 1234 ☐ Sampler
 (H) Final Hydrostatic 2064 ☐ Straddle
☐ Shale Packer
☐ Extra Packer
☐ Extra Recorder
☐ Day Standby
☐ Accessibility 1301 MP/DST Disc't

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

Approved By [Signature] 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. 61422

Well Name & No. Schumacher #1 Test No. 7 Date 4-17-15
 Company Ritchie Exploration Elevation 3226 KB 3221 GL
 Address 8100 E 2nd St. N. #700 Wichita KS 67278
 Co. Rep / Geo. Bob Peterson Rig WW 2
 Location: Sec. 25 Twp. 15 Rge. 36 Co. Logan State KS

Interval Tested 4217-4299 Zone Tested K+L
 Anchor Length 82 Drill Pipe Run 4094 Mud Wt. 8.6
 Top Packer Depth 4212 Drill Collars Run 122 Vis 60
 Bottom Packer Depth 4217 Wt. Pipe Run Ø WL 9.6
 Total Depth 4299 Chlorides 11000 ppm System LCM 2

Blow Description IF: BOB in 2 1/2 Min
IS: No Return Blow
FF: BOB in 3 Min
FS: No Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>620</u>	<u>WCM</u>		<u>40</u>	<u>60</u>	
<u>1052</u>	<u>MCSW</u>		<u>95</u>	<u>5</u>	

Rec Total 1672 BHT 120 Gravity — API RW 165 @ 52.3 °F Chlorides 17000 ppm
 (A) Initial Hydrostatic 2188 ☒ Test 1150 1250.00 T-On Location 16:51
 (B) First Initial Flow 124 ☐ Jars T-Started ~~18:00~~
 (C) First Final Flow 541 ☒ Safety Joint 75.00 T-Open 19:52
 (D) Initial Shut-In 1188 ☐ Circ Sub NC T-Pulled 22:22
 (E) Second Initial Flow 554 ☐ Hourly Standby T-Out 00:42
 (F) Second Final Flow 772 ☒ Mileage 80RT 80.00 76 Comments
 (G) Final Shut-In 1145 ☐ Sampler
 (H) Final Hydrostatic 2086 ☐ Straddle
☐ Shale Packer
☐ Extra Packer
☐ Extra Recorder
☐ Day Standby
☐ Accessibility

Initial Open 30
 Initial Shut-In 45
 Final Flow 30
 Final Shut-In 45
 Sub Total 0
 Total 1301
 MP/DST Disc't
 Sub Total 1405.00

Approved By RJ Our Representative Mike Roberts

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. 61423

Well Name & No. Schumacher #1 Test No. 8 Date 4-18-15
 Company Ritchie Exploration Elevation 3226 KB 3221 GL
 Address 8100 E 25th St. #700 Wichita KS 67278
 Co. Rep / Geo. Bob Peterson Rig WW2
 Location: Sec. 25 Twp. 15 Rge. 36 Co. Logan State KS

Interval Tested 4350-4395 Zone Tested Altamont A-B
 Anchor Length 45 Drill Pipe Run 4222 Mud Wt. 8.7
 Top Packer Depth 4345 Drill Collars Run 122 Vis 58
 Bottom Packer Depth 4350 Wt. Pipe Run Ø WL 11.2
 Total Depth 4395 Chlorides 15000 ppm System LCM 2

Blow Description IF: Weak Blow Died in 2 min
IS: No Return Blow
FF: No Blow - Flushed Tool - No Blow
FS: No Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>0.2m (Thick mud)</u>	<u>1</u>	<u>Free oil</u>	<u>99</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 107 Gravity 1150 API RW 4250.00 @ 76 °F Chlorides 1542 ppm
 (A) Initial Hydrostatic 2175 ☒ Test 1150
 (B) First Initial Flow 16 ☒ Jars 75.00
 (C) First Final Flow 17 ☒ Safety Joint NC
 (D) Initial Shut-In 36 ☒ Circ Sub NC
 (E) Second Initial Flow 25 ☐ Hourly Standby
 (F) Second Final Flow 23 ☒ Mileage 80 RT \$80.00
 (G) Final Shut-In 41 ☐ Sampler
 (H) Final Hydrostatic 2170 ☐ Straddle
☐ Shale Packer
☐ Extra Packer
☐ Extra Recorder
☐ Day Standby
☐ Accessibility

T-On Location 15:42
 T-Started 16:16
 T-Open 18:00
 T-Pulled 20:00
 T-Out 21:53

Comments

☐ Ruined Shale Packer
☐ Ruined Packer
☐ Extra Copies
 Sub Total 0
 Total 1301

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

Approved By [Signature]

Our Representative Mike Roberts

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. 61424

Well Name & No. Schumacher #1 Test No. 9 Date 4-19-15
 Company Ritchie Exploration Elevation 3226 KB 3221 GL
 Address 8100 E 22nd St. N. #700 Wichita KS 67278
 Co. Rep / Geo. Bob Peterson Rig
 Location: Sec. 25 Twp. 15 Rge. 36 Co. Logan State KS

Interval Tested 4388-4458 Zone Tested Ait. C - Pawnee
 Anchor Length 70 Drill Pipe Run 4250 Mud Wt. 8.7
 Top Packer Depth 4383 Drill Collars Run 122 Vis 58
 Bottom Packer Depth 4388 Wt. Pipe Run Ø WL 11.2
 Total Depth 4458 Chlorides 15000 ppm System LCM 2

Blow Description IF: Built to 1" Blow
FF: NO Blow -- Flushed tool -- Built to weak surface Blow After 10 Min
IS: NO Return Blow
FS: No Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>64</u>	<u>MUD (SKM oil on top of tool)</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 64 BHT 110 Gravity — API RW — @ — ° F Chlorides — ppm

(A) Initial Hydrostatic <u>2239</u>	☒ Test <u>1150</u> <u>\$1250.00</u>	T-On Location <u>09:05</u>
(B) First Initial Flow <u>51</u>	☐ Jars	T-Started <u>09:50</u>
(C) First Final Flow <u>63</u>	☒ Safety Joint <u>\$75.00/-</u>	T-Open <u>11:46</u>
(D) Initial Shut-In <u>1041</u>	☒ Circ Sub <u>NC</u>	T-Pulled <u>14:16</u>
(E) Second Initial Flow <u>67</u>	☐ Hourly Standby	T-Out <u>16:02</u>
(F) Second Final Flow <u>77</u>	☒ Mileage <u>80 RT \$80.00</u>	Comments <u>Load tools</u>
(G) Final Shut-In <u>1070</u>	☐ Sampler <u>Load tools</u>	<u>22:00 4-20</u>
(H) Final Hydrostatic <u>2260</u>	☐ Straddle	☐ Ruined Shale Packer

Initial Open <u>30</u>	☐ Shale Packer	☐ Ruined Packer
Initial Shut-In <u>45</u>	☐ Extra Packer	☐ Extra Copies
Final Flow <u>30</u>	☐ Extra Recorder	Sub Total <u>0</u>
Final Shut-In <u>45</u>	☐ Day Standby	Total <u>1377</u>
	☐ Accessibility <u>1377</u>	MP/DST Disc't

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.