



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co.**

250 N Water STE 300
Wichita KS 67202

ATTN: Jeff Christian

Erickson 'RM' #1-11

11-5s-31w Rawlins,KS

Start Date: 2013.03.21 @ 10:35:00

End Date: 2013.03.21 @ 17:18:30

Job Ticket #: 50634 DST #: 1

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

Printed: 2013.03.26 @ 09:16:38



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co.

11-5s-31w Rawlins, KS

250 N Water STE 300
Wichita KS 67202

Erickson 'RM' #1-11

ATTN: Jeff Christian

Job Ticket: 50634

DST#: 1

Test Start: 2013.03.21 @ 10:35:00

GENERAL INFORMATION:

Formation: **Toronto-LKC A-B**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 12:40:15

Time Test Ended: 17:18:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Wilbur Steinbeck

Unit No: 39

Interval: 3795.00 ft (KB) To 3880.00 ft (KB) (TVD)

Reference Elevations: 2820.00 ft (KB)

Total Depth: 3880.00 ft (KB) (TVD)

2810.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 10.00 ft

Serial #: 8353 Outside

Press @ Run Depth: 85.85 psig @ 3796.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.03.21

End Date:

2013.03.21

Last Calib.:

2013.03.21

Start Time: 10:35:15

End Time:

17:18:30

Time On Btm:

2013.03.21 @ 12:39:45

Time Off Btm:

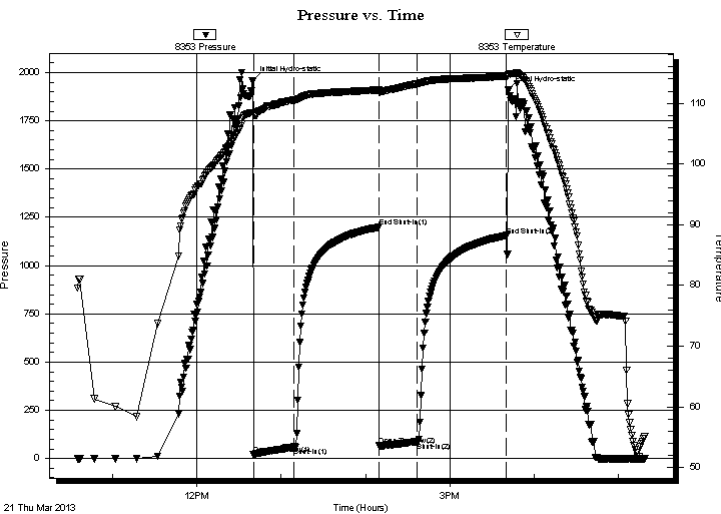
2013.03.21 @ 15:41:45

TEST COMMENT: 30 IF; Built to 1 1/2"

60 IS; No Blow

30 FF; Built to 1/2"

60 FS; No Blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1957.74	108.50	Initial Hydro-static
1	19.91	108.13	Open To Flow (1)
29	57.44	110.50	Shut-In(1)
90	1198.70	112.19	End Shut-In(1)
90	66.48	111.90	Open To Flow (2)
117	85.85	113.21	Shut-In(2)
181	1155.97	114.48	End Shut-In(2)
182	1908.93	114.75	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
120.00	OSM	0.59

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co.

11-5s-31w Rawlins, KS

250 N Water STE 300
Wichita KS 67202

Erickson 'RM' #1-11

Job Ticket: 50634

DST#: 1

ATTN: Jeff Christian

Test Start: 2013.03.21 @ 10:35:00

Tool Information

Drill Pipe:	Length: 3265.00 ft	Diameter: 3.80 inches	Volume: 45.80 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: 25000.00 lb
Drill Collar:	Length: 534.00 ft	Diameter: 2.25 inches	Volume: 2.63 bbl	Weight to Pull Loose: 75000.00 lb
			<u>Total Volume: 48.43 bbl</u>	Tool Chased 2.00 ft
Drill Pipe Above KB:	31.00 ft			String Weight: Initial 63000.00 lb
Depth to Top Packer:	3795.00 ft			Final 63000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	85.00 ft			
Tool Length:	112.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Length (ft) Serial No. Position Depth (ft) Accum. Lengths

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3769.00	
Shut In Tool	5.00			3774.00	
Hydraulic tool	5.00			3779.00	
Jars	5.00			3784.00	
Safety Joint	2.00			3786.00	
Packer	5.00			3791.00	27.00 Bottom Of Top Packer
Packer	4.00			3795.00	
Stubb	1.00			3796.00	
Recorder	0.00	8652	Inside	3796.00	
Recorder	0.00	8353	Outside	3796.00	
Perforations	15.00			3811.00	
Change Over Sub	1.00			3812.00	
Drill Pipe	64.00			3876.00	
Change Over Sub	1.00			3877.00	
Bullnose	3.00			3880.00	85.00 Bottom Packers & Anchor

Total Tool Length: 112.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co.

11-5s-31w Rawlins,KS

250 N Water STE 300
Wichita KS 67202

Erickson 'RM' #1-11

Job Ticket: 50634

DST#: 1

ATTN: Jeff Christian

Test Start: 2013.03.21 @ 10:35:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 69.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.19 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 800.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
120.00	OSM	0.590

Total Length: 120.00 ft Total Volume: 0.590 bbl

Num Fluid Samples: 0

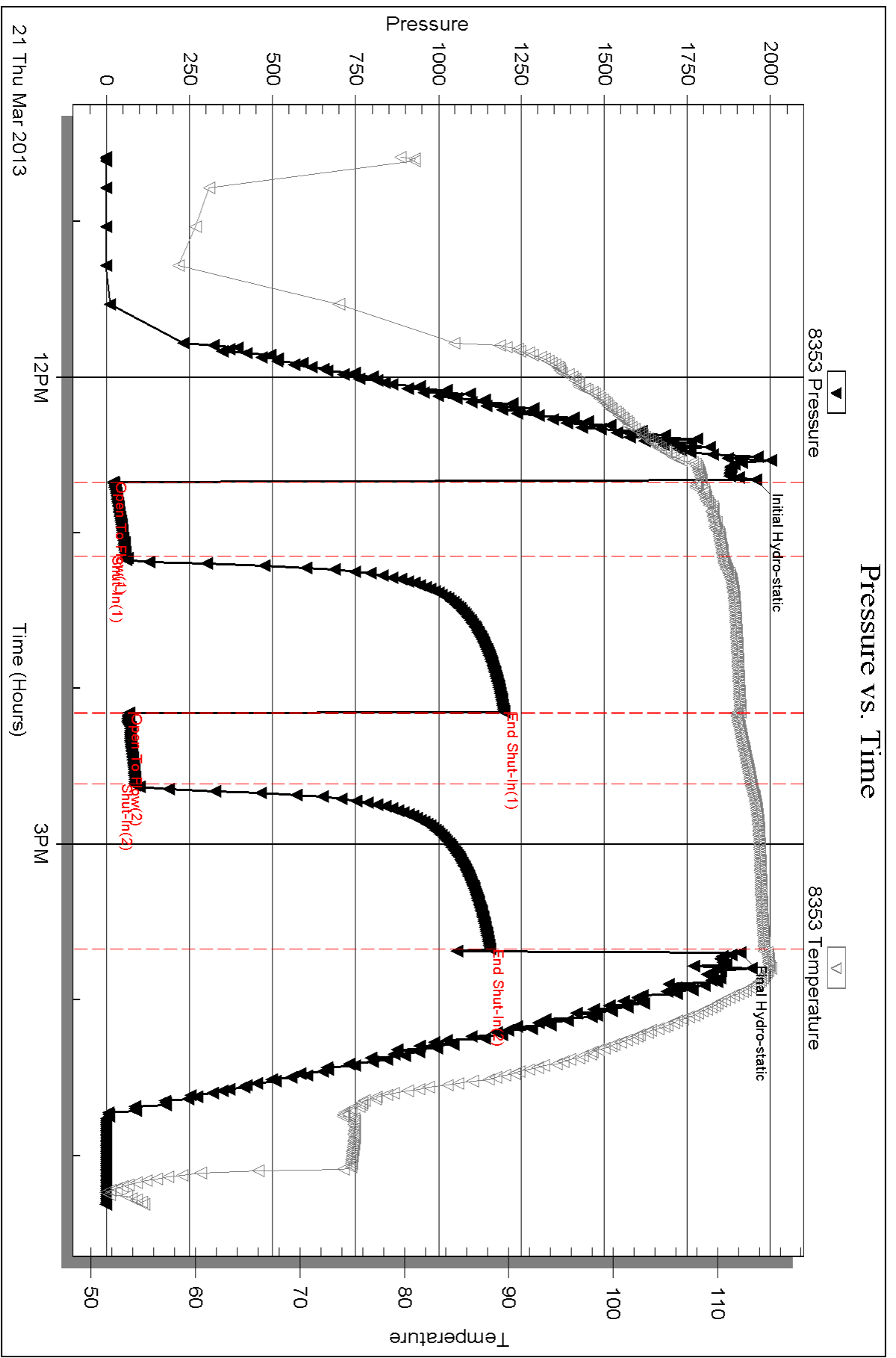
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co.**

250 N Water STE 300
Wichita KS 67202

ATTN: Jeff Christian

Erickson 'RM' #1-11

11-5s-31w Rawlins,KS

Start Date: 2013.03.22 @ 00:45:00

End Date: 2013.03.22 @ 08:49:30

Job Ticket #: 50635 DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.03.26 @ 09:15:21



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co.

11-5s-31w Rawlins, KS

250 N Water STE 300
Wichita KS 67202

Erickson 'RM' #1-11

ATTN: Jeff Christian

Job Ticket: 50635

DST#: 2

Test Start: 2013.03.22 @ 00:45:00

GENERAL INFORMATION:

Formation: **LKC D-F**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 02:54:30

Time Test Ended: 08:49:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Wilbur Steinbeck

Unit No: 39

Interval: 3890.00 ft (KB) To 3925.00 ft (KB) (TVD)

Reference Elevations: 2820.00 ft (KB)

Total Depth: 3880.00 ft (KB) (TVD)

2810.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 10.00 ft

Serial #: 8360

Inside

Press @ Run Depth: 471.07 psig @ 3891.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.03.22

End Date:

2013.03.22

Last Calib.:

2013.03.22

Start Time: 00:45:05

End Time:

08:49:29

Time On Btm:

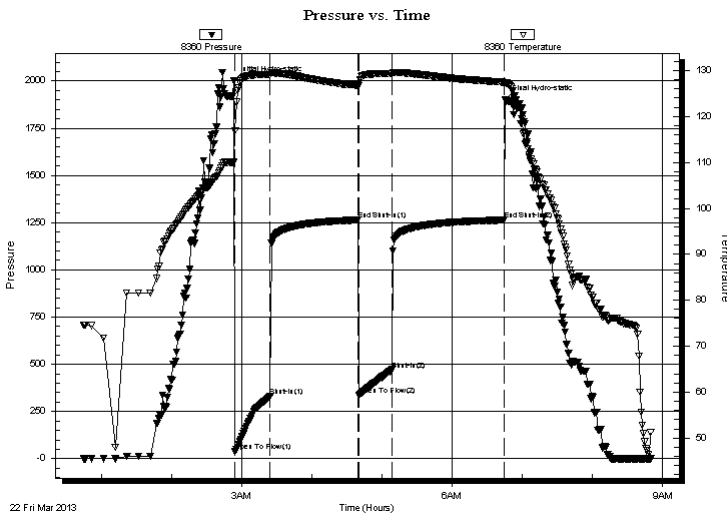
2013.03.22 @ 02:53:30

Time Off Btm:

2013.03.22 @ 06:45:30

TEST COMMENT: 30 IF; BOB in 8 min
60 IS; No Blow
30 FF; BOB in 18 min
90 FS; No Blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2003.07	110.04	Initial Hydro-static
1	40.65	116.84	Open To Flow (1)
31	330.15	129.20	Shut-In(1)
106	1264.62	126.72	End Shut-In(1)
107	335.44	126.70	Open To Flow (2)
135	471.07	129.31	Shut-In(2)
231	1264.16	127.43	End Shut-In(2)
232	1900.52	127.45	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
1115.00	MCW	10.78

* Recovery from multiple tests

Gas Rates

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



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DRILL STEM TEST REPORT

Murfin Drilling Co.

11-5s-31w Rawlins,KS

250 N Water STE 300
Wichita KS 67202

Erickson 'RM' #1-11

Job Ticket: 50635

DST#: 2

ATTN: Jeff Christian

Test Start: 2013.03.22 @ 00:45:00

GENERAL INFORMATION:

Formation: **LKC D-F**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 02:54:30

Time Test Ended: 08:49:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Wilbur Steinbeck

Unit No: 39

Interval: 3890.00 ft (KB) To 3925.00 ft (KB) (TVD)

Reference Elevations: 2820.00 ft (KB)

Total Depth: 3880.00 ft (KB) (TVD)

2810.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 10.00 ft

Serial #: 8353 Outside

Press @ Run Depth: psig @ 3891.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.03.22

End Date: 2013.03.22

Last Calib.: 2013.03.22

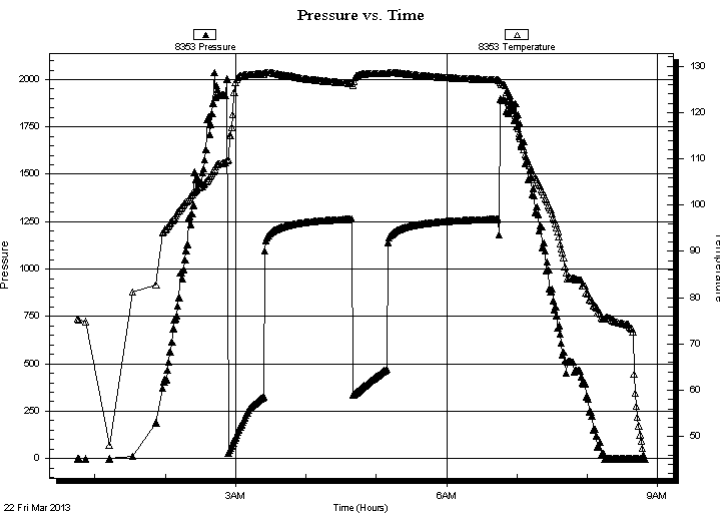
Start Time: 00:45:15

End Time: 08:49:15

Time On Btm:

Time Off Btm:

TEST COMMENT: 30 IF; BOB in 8 min
60 ISl; No Blow
30 FF; BOB in 18 min
90 FS!; No Blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
1115.00	MCW	10.78

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co.

11-5s-31w Rawlins,KS

250 N Water STE 300
Wichita KS 67202

Erickson 'RM' #1-11

Job Ticket: 50635

DST#: 2

ATTN: Jeff Christian

Test Start: 2013.03.22 @ 00:45:00

Tool Information

Drill Pipe:	Length: 3360.00 ft	Diameter: 3.80 inches	Volume: 47.13 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:	25000.00 lb
Drill Collar:	Length: 534.00 ft	Diameter: 2.25 inches	Volume: 2.63 bbl	Weight to Pull Loose:	80000.00 lb
			<u>Total Volume: 49.76 bbl</u>	Tool Chased	3.00 ft
Drill Pipe Above KB:	31.00 ft			String Weight: Initial	68000.00 lb
Depth to Top Packer:	3890.00 ft			Final	70000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	35.00 ft				
Tool Length:	62.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3864.00	
Shut In Tool	5.00			3869.00	
Hydraulic tool	5.00			3874.00	
Jars	5.00			3879.00	
Safety Joint	2.00			3881.00	
Packer	5.00			3886.00	27.00 Bottom Of Top Packer
Packer	4.00			3890.00	
Stubb	1.00			3891.00	
Recorder	0.00	8360	Inside	3891.00	
Recorder	0.00	8353	Outside	3891.00	
Perforations	31.00			3922.00	
Bullnose	3.00			3925.00	35.00 Bottom Packers & Anchor

Total Tool Length: 62.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co.

11-5s-31w Rawlins,KS

250 N Water STE 300
Wichita KS 67202

Erickson 'RM' #1-11

Job Ticket: 50635

DST#: 2

ATTN: Jeff Christian

Test Start: 2013.03.22 @ 00:45:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 69.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.19 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 800.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
1115.00	MCW	10.776

Total Length: 1115.00 ft Total Volume: 10.776 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

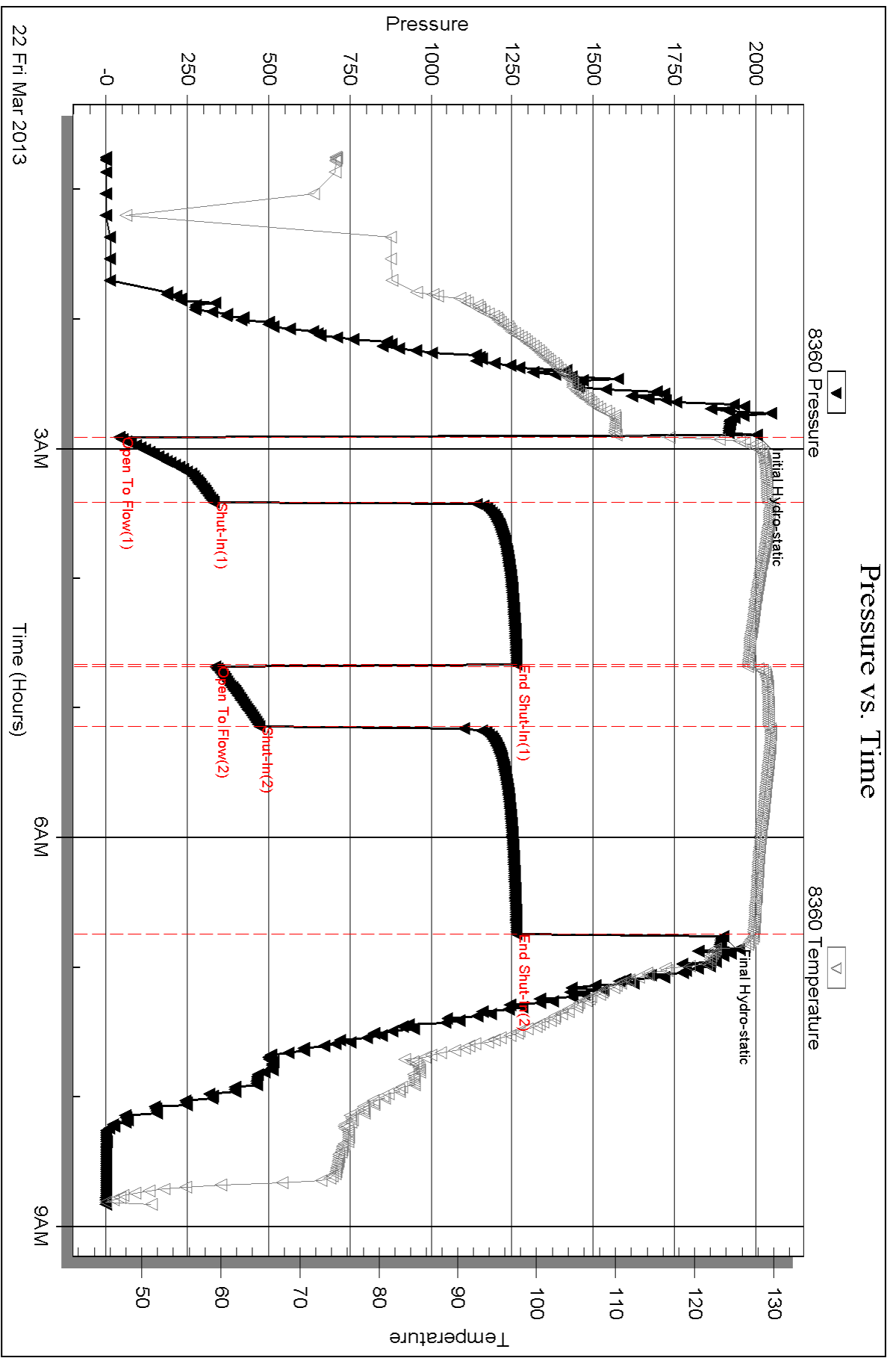
Serial #: 8360

Inside

Murfin Drilling Co.

Erickson RM #1-11

DST Test Number: 2



Triobite Testing, Inc

Ref. No: 50635

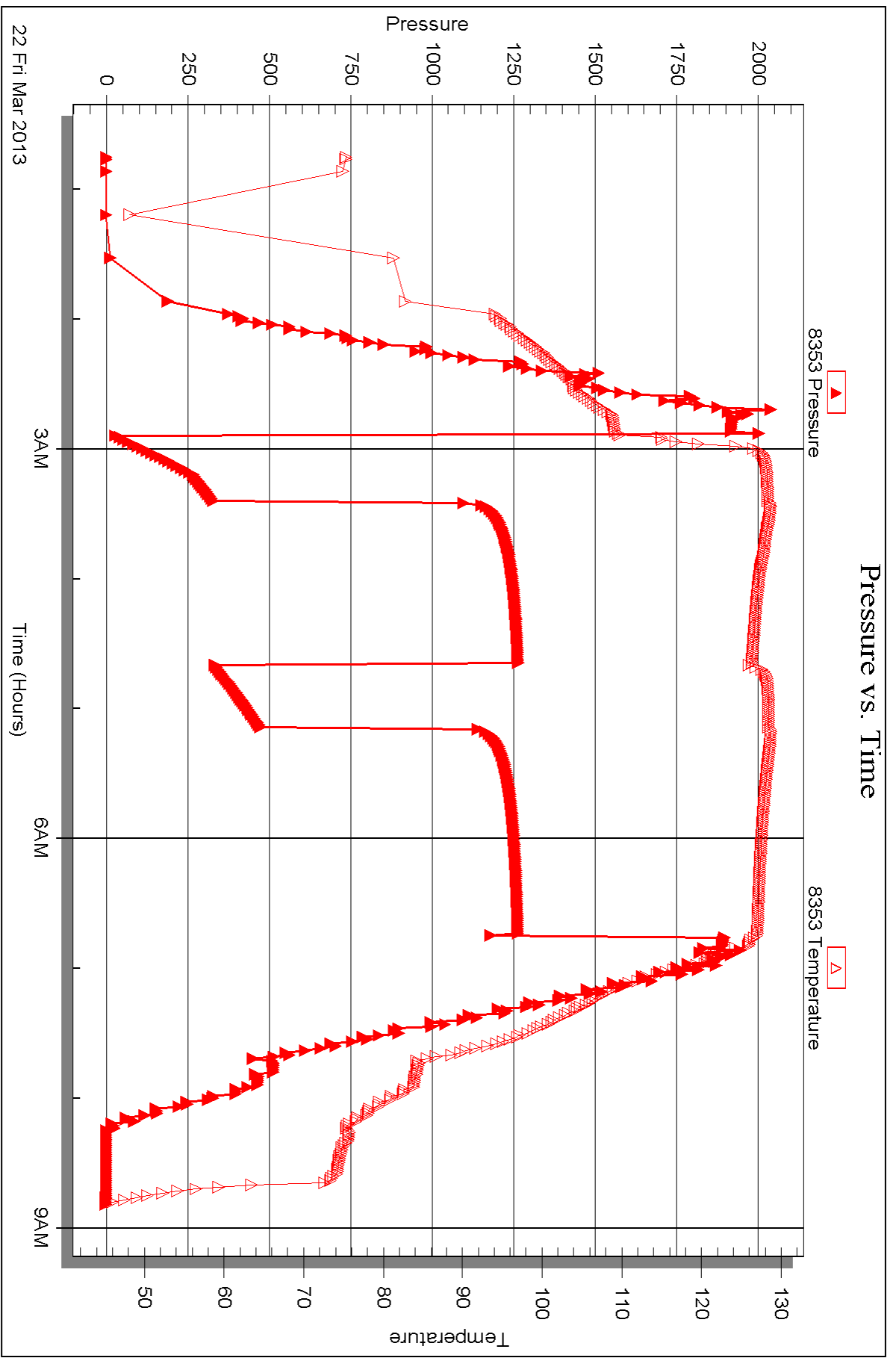
Printed: 2013.03.26 @ 09:15:24

Serial #: 8353

Outside Murfin Drilling Co.

Erickson RM #1-11

DST Test Number: 2



Triobite Testing, Inc

Ref. No: 50635

Printed: 2013.03.26 @ 09:15:25



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co.**

250 N Water STE 300
Wichita KS 67202

ATTN: Jeff Christian

Erickson 'RM' #1-11

11-5s-31w Rawlins,KS

Start Date: 2013.03.22 @ 20:55:00

End Date: 2013.03.23 @ 03:54:00

Job Ticket #: 50636 DST #: 3

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

Printed: 2013.03.26 @ 09:09:25



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co.

11-5s-31w Rawlins, KS

250 N Water STE 300
Wichita KS 67202

Erickson 'RM' #1-11

ATTN: Jeff Christian

Job Ticket: 50636

DST#: 3

Test Start: 2013.03.22 @ 20:55:00

GENERAL INFORMATION:

Formation: **LKC H-K**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 23:13:30

Time Test Ended: 03:54:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Wilbur Steinbeck

Unit No: 39

Interval: 3947.00 ft (KB) To 4042.00 ft (KB) (TVD)

Total Depth: 4042.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2820.00 ft (KB)

2810.00 ft (CF)

KB to GR/CF: 10.00 ft

Serial #: 8360

Inside

Press @ Run Depth: 27.84 psig @ 3948.00 ft (KB)

Start Date: 2013.03.22

End Date:

2013.03.23

Start Time: 20:55:05

End Time:

03:53:59

Capacity: 8000.00 psig

Last Calib.: 2013.03.23

Time On Btm: 2013.03.22 @ 23:12:30

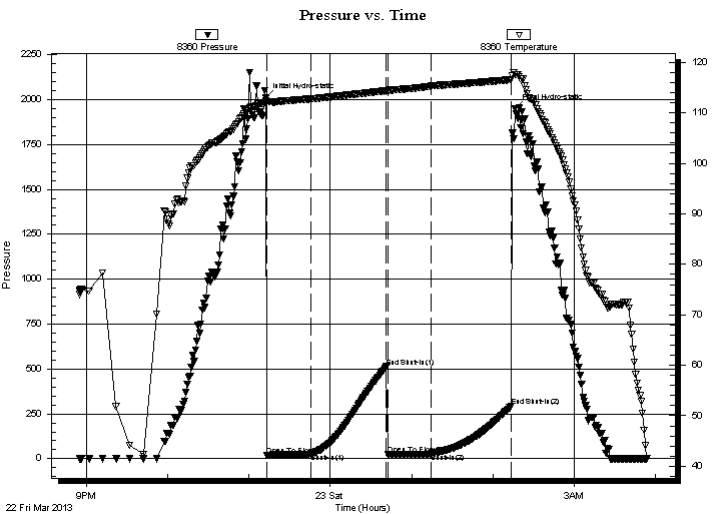
Time Off Btm: 2013.03.23 @ 02:16:30

TEST COMMENT: 30 IF; Built to 1/4" died in 25

60 IS; No Blow

30 FF; No Blow

60 FS; No Blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2008.54	112.33	Initial Hydro-static
1	19.86	112.24	Open To Flow (1)
33	27.94	112.76	Shut-In(1)
89	512.61	114.38	End Shut-In(1)
90	23.38	114.07	Open To Flow (2)
122	27.84	115.31	Shut-In(2)
181	291.85	116.56	End Shut-In(2)
184	1951.07	117.63	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
3.00	OSM	0.01

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING , INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co.
250 N Water STE 300
Wichita KS 67202
ATTN: Jeff Christian

11-5s-31w Rawlins,KS

Erickson 'RM' #1-11

Job Ticket: 50636

DST#: 3

Test Start: 2013.03.22 @ 20:55:00

GENERAL INFORMATION:

Formation: **LKC H-K**

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

Time Tool Opened: **23:13:30**

Time Test Ended: **03:54:00**

Test Type: **Conventional Bottom Hole (Reset)**

Tester: **Wilbur Steinbeck**

Unit No: **39**

Interval: 3947.00 ft (KB) To 4042.00 ft (KB) (TVD)

Total Depth: **4042.00 ft (KB) (TVD)**

Hole Diameter: **7.88 inches** Hole Condition: **Fair**

Reference Elevations: **2820.00 ft (KB)**

2810.00 ft (CF)

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

Serial #: 8353

Outside

Press @ RunDepth: psig @ **3948.00 ft (KB)**

Start Date: **2013.03.22**

End Date:

2013.03.23

Start Time: **20:55:15**

End Time:

03:54:00

Capacity: **8000.00 psig**

Last Calib.:

2013.03.23

Time On Btm:

Time Off Btm:

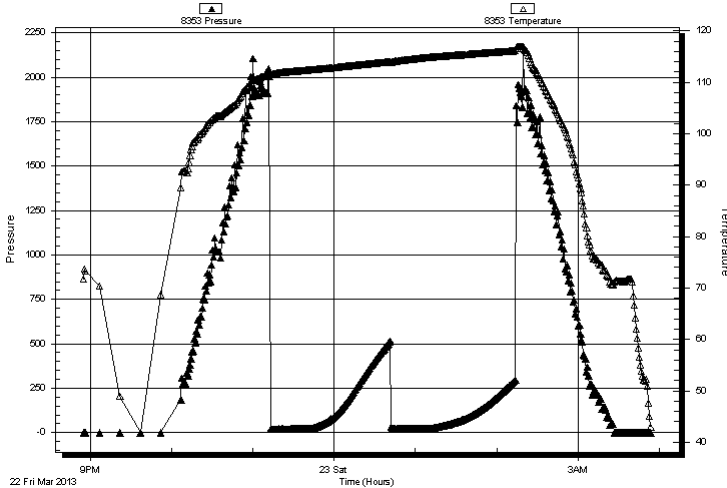
TEST COMMENT: **30 IF; Built to 1/4" died in 25**

60 ISI; No Blow

30 FF; No Blow

60 FSI; No Blow

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
3.00	OSM	0.01

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co.

11-5s-31w Rawlins,KS

250 N Water STE 300
Wichita KS 67202

Erickson 'RM' #1-11

Job Ticket: 50636

DST#: 3

ATTN: Jeff Christian

Test Start: 2013.03.22 @ 20:55:00

Tool Information

Drill Pipe:	Length: 3393.00 ft	Diameter: 3.80 inches	Volume: 47.59 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: 25000.00 lb
Drill Collar:	Length: 534.00 ft	Diameter: 2.25 inches	Volume: 2.63 bbl	Weight to Pull Loose: 75000.00 lb
			<u>Total Volume: 50.22 bbl</u>	Tool Chased 2.00 ft
Drill Pipe Above KB:	7.00 ft			String Weight: Initial 68000.00 lb
Depth to Top Packer:	3947.00 ft			Final 68000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	95.00 ft			
Tool Length:	122.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Length (ft) Serial No. Position Depth (ft) Accum. Lengths

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3921.00	
Shut In Tool	5.00			3926.00	
Hydraulic tool	5.00			3931.00	
Jars	5.00			3936.00	
Safety Joint	2.00			3938.00	
Packer	5.00			3943.00	27.00 Bottom Of Top Packer
Packer	4.00			3947.00	
Stubb	1.00			3948.00	
Recorder	0.00	8360	Inside	3948.00	
Recorder	0.00	8353	Outside	3948.00	
Perforations	25.00			3973.00	
Change Over Sub	1.00			3974.00	
Drill Pipe	64.00			4038.00	
Change Over Sub	1.00			4039.00	
Bullnose	3.00			4042.00	95.00 Bottom Packers & Anchor

Total Tool Length: 122.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co.

11-5s-31w Rawlins,KS

250 N Water STE 300
Wichita KS 67202

Erickson 'RM' #1-11

Job Ticket: 50636

DST#: 3

ATTN: Jeff Christian

Test Start: 2013.03.22 @ 20:55:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 69.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.59 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1600.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
3.00	OSM	0.015

Total Length: 3.00 ft Total Volume: 0.015 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

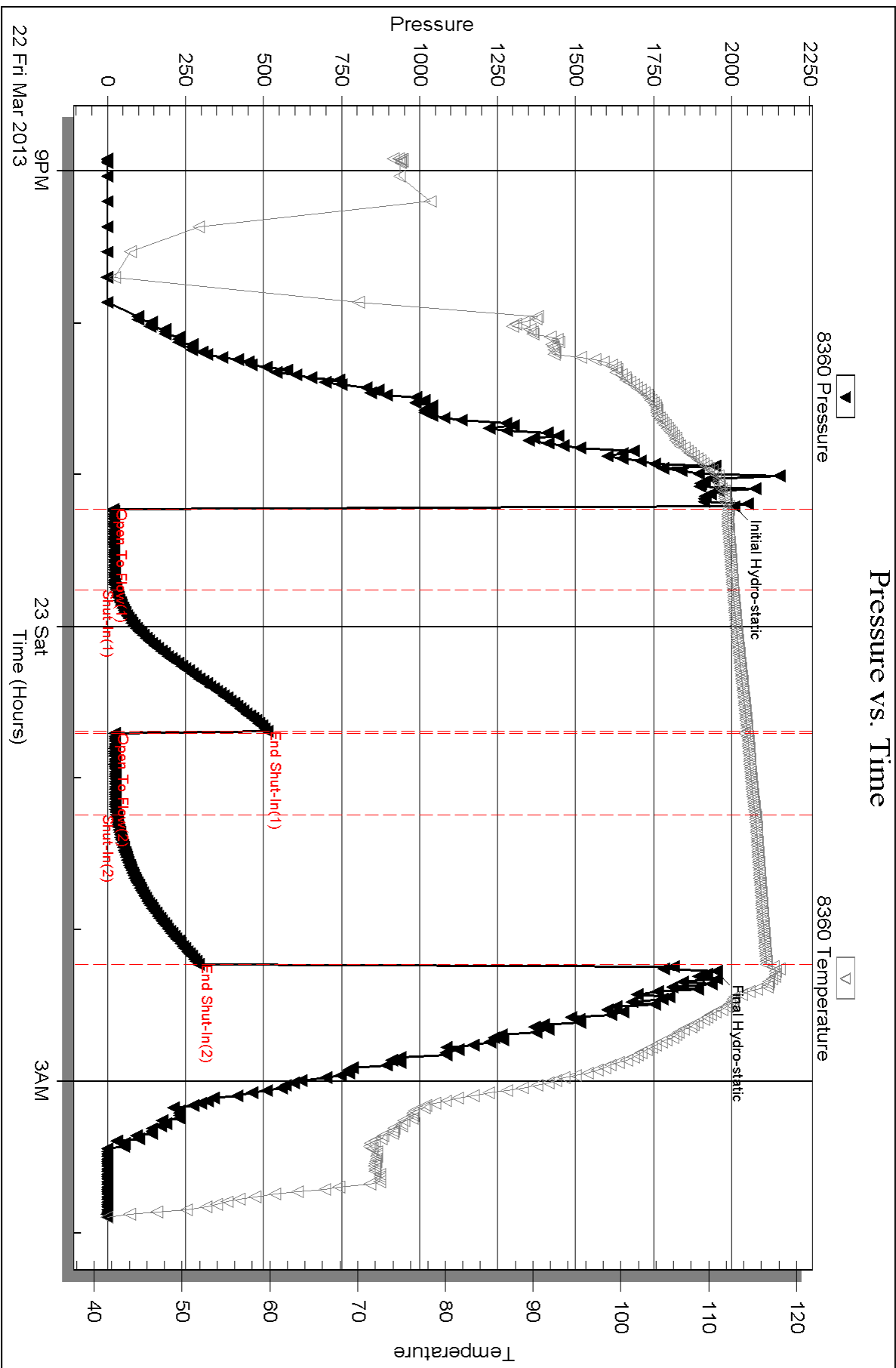
Serial #: 8360

Inside

Murfin Drilling Co.

Erickson RM #1-11

DST Test Number: 3



Triobite Testing, Inc

Ref. No: 50636

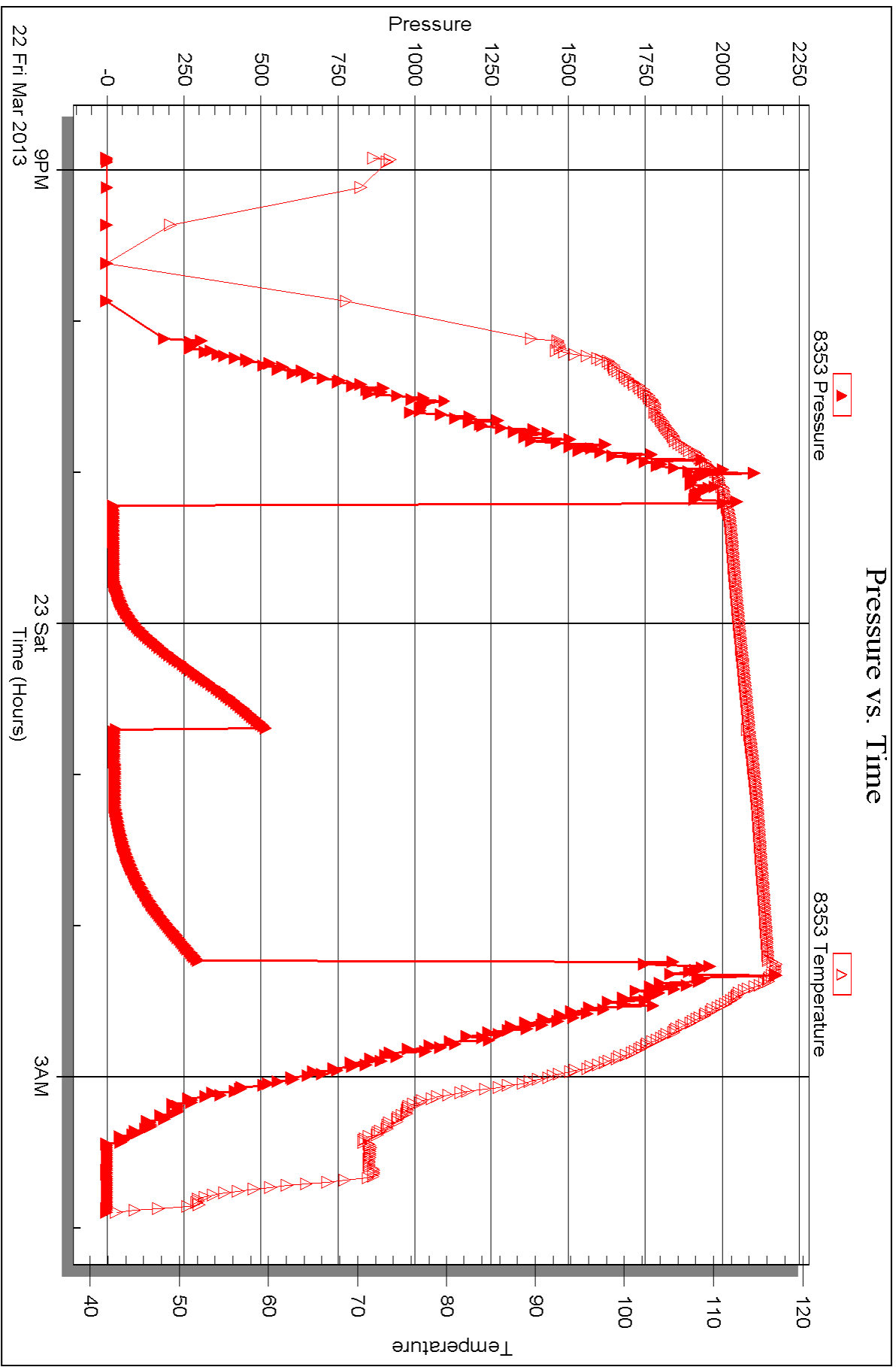
Printed: 2013.03.26 @ 09:09:28

Serial #: 8353

Outside Murfin Drilling Co.

Erickson RM #1-11

DST Test Number: 3



Triobite Testing, Inc

Ref. No: 50636

Printed: 2013.03.26 @ 09:09:28



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co.**

250 N Water STE 300
Wichita KS 67202

ATTN: Jeff Christian

Erickson 'RM' #1-11

11-5s-31w Rawlins,KS

Start Date: 2013.03.23 @ 21:05:00

End Date: 2013.03.24 @ 06:22:00

Job Ticket #: 50637 DST #: 4

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

Printed: 2013.03.26 @ 09:08:12

Murfin Drilling Co. 11-5s-31w Rawlins,KS Erickson 'RM' #1-11 DST # 4 Cherokee 2013.03.23



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co.

11-5s-31w Rawlins, KS

250 N Water STE 300
Wichita KS 67202

Erickson 'RM' #1-11

ATTN: Jeff Christian

Job Ticket: 50637

DST#: 4

Test Start: 2013.03.23 @ 21:05:00

GENERAL INFORMATION:

Formation: **Cherokee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:15:00

Time Test Ended: 06:22:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Wilbur Steinbeck

Unit No: 39

Interval: 4254.00 ft (KB) To 4268.00 ft (KB) (TVD)

Reference Elevations: 2820.00 ft (KB)

Total Depth: 4268.00 ft (KB) (TVD)

2810.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 10.00 ft

Serial #: 8360

Inside

Press @ Run Depth: 128.78 psig @ 4255.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.03.23

End Date:

2013.03.24

Last Calib.: 2013.03.24

Start Time: 21:05:05

End Time:

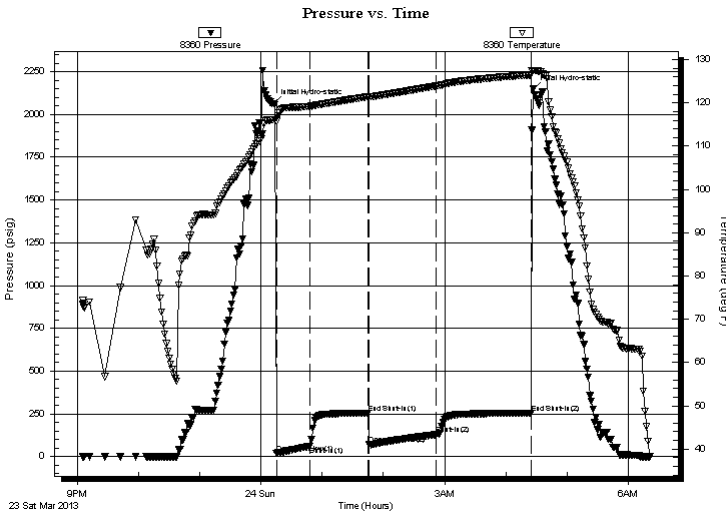
06:22:00

Time On Btm: 2013.03.24 @ 00:12:00

Time Off Btm: 2013.03.24 @ 04:27:00

TEST COMMENT: 30 IF; Built to 9"
60 IS; Surface Blow
60 FF; Built to 10"
90 FS; Built to 1 1/2"

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2062.30	116.11	Initial Hydro-static
3	20.67	115.81	Open To Flow (1)
36	61.89	119.23	Shut-In(1)
93	255.24	121.44	End Shut-In(1)
94	70.62	121.51	Open To Flow (2)
160	128.78	123.94	Shut-In(2)
253	253.95	126.50	End Shut-In(2)
255	2148.16	127.53	Final Hydro-static

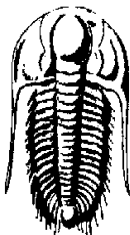
Recovery

Length (ft)	Description	Volume (bbl)
96.00	MGCO 20%M 20%G 60%O	0.47
288.00	GO 40%G 60%O	1.42

Gas Rates

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

* Recovery from multiple tests



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co.

11-5s-31w Rawlins,KS

250 N Water STE 300
Wichita KS 67202

Erickson 'RM' #1-11

ATTN: Jeff Christian

Job Ticket: 50637

DST#: 4

Test Start: 2013.03.23 @ 21:05:00

GENERAL INFORMATION:

Formation: **Cherokee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:15:00

Time Test Ended: 06:22:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Wilbur Steinbeck

Unit No: 39

Interval: 4254.00 ft (KB) To 4268.00 ft (KB) (TVD)

Total Depth: 4268.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2820.00 ft (KB)

2810.00 ft (CF)

KB to GR/CF: 10.00 ft

Serial #: 8353 Outside

Press @ Run Depth: psig @ 4255.00 ft (KB)

Start Date: 2013.03.23 End Date: 2013.03.24

Start Time: 21:05:15 End Time: 06:22:00

Capacity: 8000.00 psig

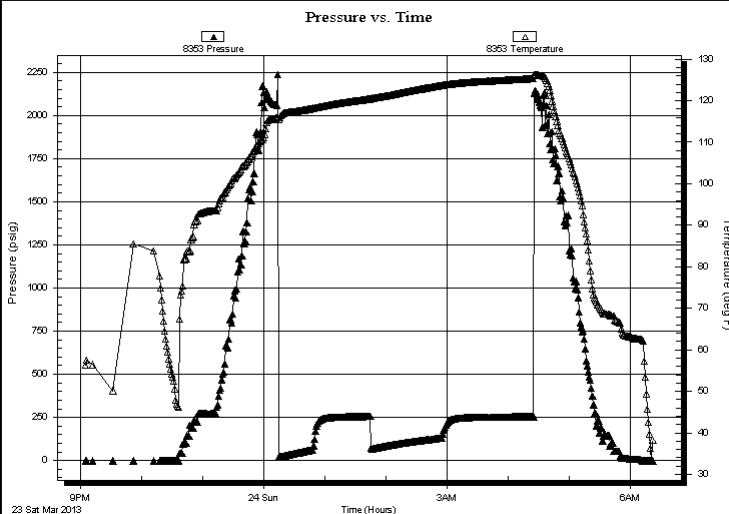
Last Calib.: 2013.03.24

Time On Btm:

Time Off Btm:

TEST COMMENT: 30 IF; Built to 9"
60 IS; Surface Blow
60 FF; Built to 10"
90 FS; Built to 1 1/2"

PRESSURE SUMMARY



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

Recovery

Length (ft)	Description	Volume (bbl)
96.00	MGCO 20%M 20%G 60%O	0.47
288.00	GO 40%G 60%O	1.42

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co.

11-5s-31w Rawlins,KS

250 N Water STE 300
Wichita KS 67202

Erickson 'RM' #1-11

Job Ticket: 50637

DST#: 4

ATTN: Jeff Christian

Test Start: 2013.03.23 @ 21:05:00

Tool Information

Drill Pipe:	Length: 3712.00 ft	Diameter: 3.80 inches	Volume: 52.07 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: 25000.00 lb
Drill Collar:	Length: 534.00 ft	Diameter: 2.25 inches	Volume: 2.63 bbl	Weight to Pull Loose: 75000.00 lb
			<u>Total Volume: 54.70 bbl</u>	Tool Chased 2.00 ft
Drill Pipe Above KB:	19.00 ft			String Weight: Initial 68000.00 lb
Depth to Top Packer:	4254.00 ft			Final 70000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	14.00 ft			
Tool Length:	41.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4228.00	
Shut In Tool	5.00			4233.00	
Hydraulic tool	5.00			4238.00	
Jars	5.00			4243.00	
Safety Joint	2.00			4245.00	
Packer	5.00			4250.00	27.00 Bottom Of Top Packer
Packer	4.00			4254.00	
Stubb	1.00			4255.00	
Recorder	0.00	8360	Inside	4255.00	
Recorder	0.00	8353	Outside	4255.00	
perforations	10.00			4265.00	
bullnose	3.00			4268.00	14.00 Bottom Packers & Anchor

Total Tool Length: 41.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co.

11-5s-31w Rawlins,KS

250 N Water STE 300
Wichita KS 67202

Erickson 'RM' #1-11

Job Ticket: 50637

DST#: 4

ATTN: Jeff Christian

Test Start: 2013.03.23 @ 21:05:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 69.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.59 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1600.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
96.00	MGCO 20%M 20%G 60%O	0.472
288.00	GO 40%G 60%O	1.416

Total Length: 384.00 ft

Total Volume: 1.888 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

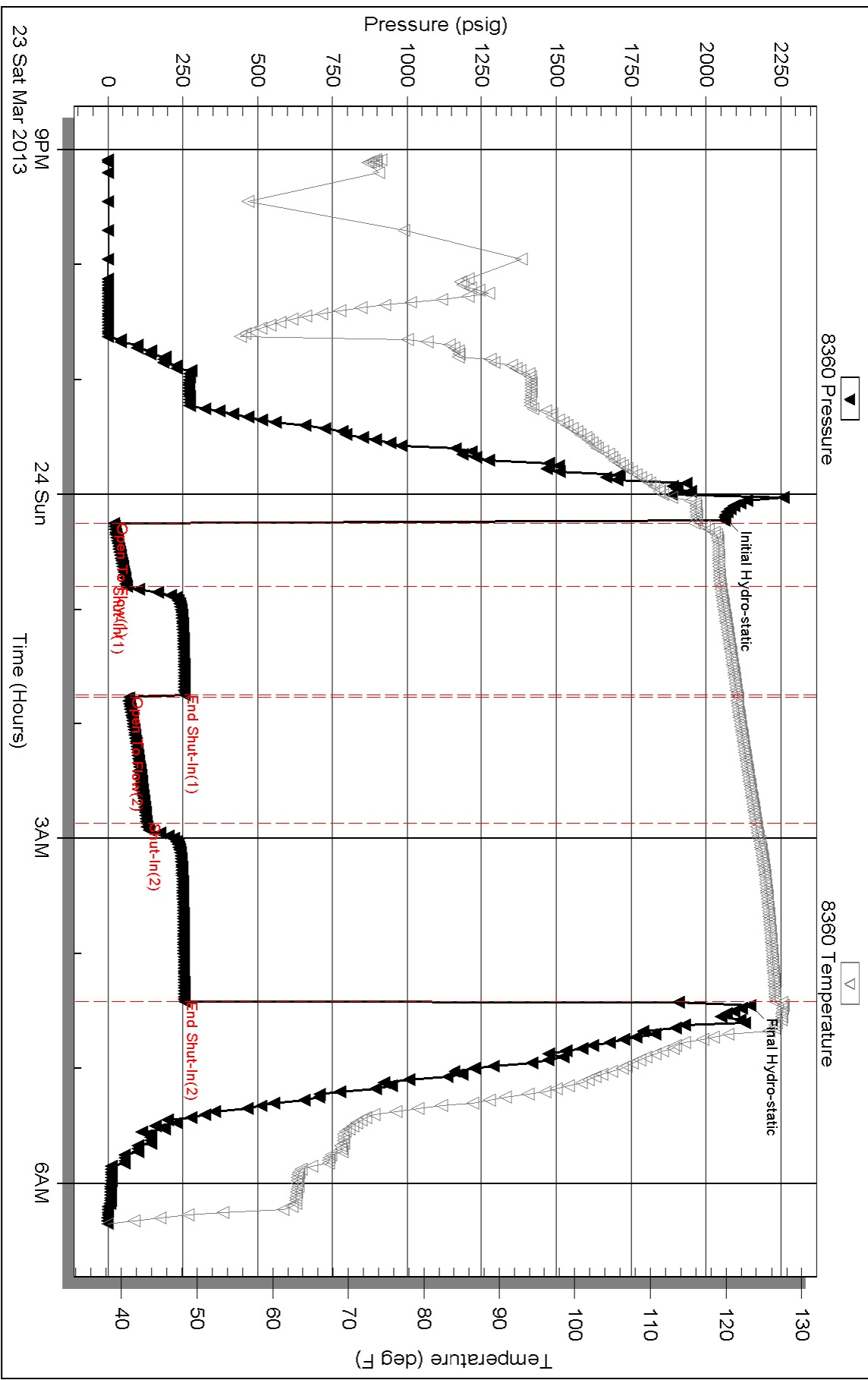
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time

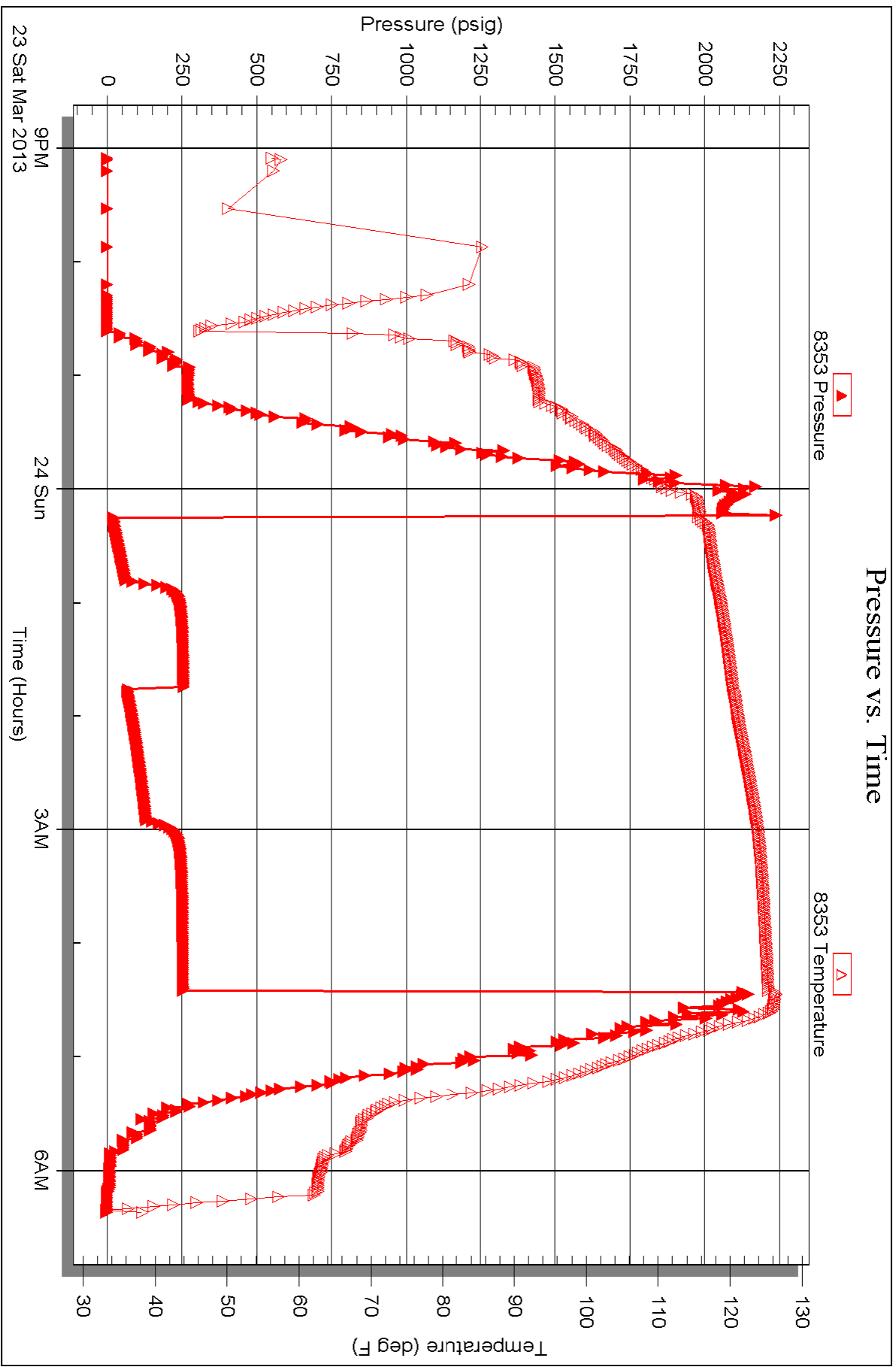


Serial #: 8353

Outside Murfin Drilling Co.

Erickson RM #1-11

DST Test Number: 4



Triobite Testing, Inc

Ref. No: 50637

Printed: 2013.03.26 @ 09:08:15



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 50634

Well Name & No. Erickson 'RM' #1-11 Test No. 1 Date 3-21-13
 Company Murfin Drilling #2 Elevation 2820 KB 2810 GL
 Address 250 N Water Stc 300 Wichita Ks 67202
 Co. Rep / Geo. Jeff Christman Rig Murfin 14
 Location: Sec. 11 Twp. 5s Rge. 31w Co. Rawlins State Ks

Interval Tested 3795 3880 Zone Tested Toronto - LRC A-B
 Anchor Length 85' Drill Pipe Run 3265 Mud Wt. 9.1
 Top Packer Depth 3790 Drill Collars Run 534 Vis 69
 Bottom Packer Depth 3795 Wt. Pipe Run 0 WL 5.2
 Total Depth 3880 Chlorides 800 ppm System LCM 4

Blow Description IF; Built to 1 1/2"
ISL; No Blow
FF; Built to 1/2"
PSL; No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>120</u>	<u>OSM</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

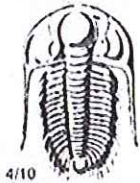
Rec Total 120 BHT 1150 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 1958 Test 1150 T-On Location 8:50
 (B) First Initial Flow 20 Jars 250 T-Started 10:35
 (C) First Final Flow 57 Safety Joint 75 T-Open 12:40
 (D) Initial Shut-In 1199 Circ Sub NA T-Pulled 15:40
 (E) Second Initial Flow 66 Hourly Standby _____ T-Out 17:20
 (F) Second Final Flow 86 Mileage 65 RT 100.75
 (G) Final Shut-In 1156 Sampler _____
 (H) Final Hydrostatic 1909 Straddle _____

Initial Open 30 Shale Packer _____
 Initial Shut-In 60 Extra Packer _____
 Final Flow 30 Extra Recorder _____
 Final Shut-In 60 Day Standby _____
 Accessibility _____
 Sub Total 1575.75

Comments _____
 Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Sub Total 0
 Total 1575.75
 MP/DST Disc't _____

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



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 50635

Well Name & No. Erickson 'RM' 1-11 Test No. 2 Date 3-22-13
 Company Murfin Drilling Elevation 2820 KB 2810 GL
 Address 250 N Walnut STE 300 Wichita KS 67202
 Co. Rep / Geo. Jett Christian Rig Murfin 14
 Location: Sec. 11 Twp. S5 Rge. 31w Co. Rawlrs State KS

Interval Tested 3890 3925 Zone Tested LKC D-F
 Anchor Length 35 Drill Pipe Run 3360 Mud Wt. 9.1
 Top Packer Depth 3885 Drill Collars Run 534 Vis 69
 Bottom Packer Depth 3890 Wt. Pipe Run 0 WL 5.2
 Total Depth 3925 Chlorides 800 ppm System LCM 4
 Blow Description FF BOB in 8 min
FSI No Blow
FF BOB in 18 min
FSI No Blow

Rec	Feet of	%gas	%oil	%water	%mud
1115	MLW		70	30	

Rec Total 1115 BHT 127° Gravity _____ API RW 400 @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic <u>2003</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>12:30</u>
(B) First Initial Flow <u>41</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>12:45</u>
(C) First Final Flow <u>330</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>2:53</u>
(D) Initial Shut-In <u>1265</u>	<input checked="" type="checkbox"/> Circ Sub <u>NA</u>	T-Pulled <u>6:38</u>
(E) Second Initial Flow <u>335</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>8:45</u>
(F) Second Final Flow <u>471</u>	<input checked="" type="checkbox"/> Mileage <u>65 RT</u> 100.75	Comments _____
(G) Final Shut-In <u>1264</u>	<input type="checkbox"/> Sampler _____	
(H) Final Hydrostatic <u>1901</u>	<input type="checkbox"/> Straddle _____	
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer _____	<input type="checkbox"/> Ruined Shale Packer _____
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Ruined Packer _____
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder _____	<input type="checkbox"/> Extra Copies _____
Final Shut-In <u>90</u>	<input type="checkbox"/> Day Standby _____	Sub Total <u>0</u>
	<input type="checkbox"/> Accessibility _____	Total <u>1575.75</u>
	Sub Total <u>1575.75</u>	MP/DST Disc't _____

Approved By _____ Our Representative [Signature]
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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 50636

Well Name & No. Ericksen RM 1-11 Test No. 3 Date 3-22-13
 Company Murfin Drilling Elevation 2820 KB 2810 GL
 Address 250 N WATER ST E Wichita Ks 67202
 Co. Rep / Geo. Jeff Christian Rig Murfin 14
 Location: Sec. 11 Twp. S5 Rge. 31w Co. Routins State Ks

Interval Tested 3947 4042 Zone Tested LKC H-K
 Anchor Length 95 Drill Pipe Run 3393 Mud Wt. 9.2
 Top Packer Depth 3942 Drill Collars Run 534 Vis 69
 Bottom Packer Depth 3947 Wt. Pipe Run 0 WL 5.6
 Total Depth 4042 Chlorides 1600 ppm System LCM 5

Blow Description IF; Built to 1/4" died in 25min
ISI; No Blow
FFI; No Blow
BSI; No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>3</u>	<u>OSM</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 3 BHT 118° Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic <u>2009</u>	<input checked="" type="checkbox"/> Test 1250	T-On Location <u>20:45</u>
(B) First Initial Flow <u>20</u>	<input checked="" type="checkbox"/> Jars 250	T-Started <u>20:55</u>
(C) First Final Flow <u>28</u>	<input checked="" type="checkbox"/> Safety Joint 75	T-Open <u>23:10</u>
(D) Initial Shut-In <u>513</u>	<input checked="" type="checkbox"/> Circ Sub <u>NA</u>	T-Pulled <u>2:10</u>
(E) Second Initial Flow <u>23</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>3:50</u>
(F) Second Final Flow <u>28</u>	<input checked="" type="checkbox"/> Mileage <u>65 RT</u> 100.75	Comments _____
(G) Final Shut-In <u>292</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1,951</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer

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

Shale Packer
 Extra Packer
 Extra Recorder
 Day Standby
 Accessibility

Sub Total 1675.75

Sub Total 1675.75

Approved By _____ Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 50637

Well Name & No. Ericksen 'RMP' 1-11 Test No. 4 Date 3-23-15
 Company Murphy Drilling Elevation 2820 KB 2810 GL
 Address 250 N Water St 300 Colichite KS 67202
 Co. Rep / Goo. Jeff Christen Rig Murphy 14
 Location: Sec. 11 Twp. 5S Rge. 31W Co. Rawlins State KS

Interval Tested 4254 4268 Zone Tested Cherokee
 Anchor Length 14 Drill Pipe Run 3712 Mud Wt. 9.2
 Top Packer Depth 4249 Drill Collars Run 534 Vis 0.7
 Bottom Packer Depth 4254 Wt. Pipe Run 0 WL 5.6
 Total Depth 4268 Chlorides 4600 ppm System LCM 5
 Blow Description JF Built to 9in
ISI surface Blow
FF Built to 10in
ISI Built to 1 1/2

Rec	Feet of	%gas	%oil	%water	%mud
<u>288</u>	<u>GO</u>	<u>40</u>	<u>60</u>		
<u>96</u>	<u>M40</u>	<u>20</u>	<u>60</u>	<u>20</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 384 BHT 128° Gravity 39.6068° = 388 API RW @ °F Chlorides ppm

(A) Initial Hydrostatic <u>2062</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>8:45 pm</u>
(B) First Initial Flow <u>21</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>9:05 pm</u>
(C) First Final Flow <u>62</u>	<input type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>12:15</u>
(D) Initial Shut-In <u>255</u>	<input checked="" type="checkbox"/> Circ Sub <u>NA</u>	T-Pulled <u>4:15</u>
(E) Second Initial Flow <u>71</u>	<input checked="" type="checkbox"/> Hourly Standby <u>22:00 on 3-24-13</u>	T-Out <u>6:15</u>
(F) Second Final Flow <u>129</u>	<input checked="" type="checkbox"/> Mileage <u>65 RT</u> 100.75	Comments <u>Relayed @ 22:00</u>
(G) Final Shut-In <u>254</u>	<input type="checkbox"/> Sampler	<u>on 3-24-13</u>
(H) Final Hydrostatic <u>2148</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer

Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Packer
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Final Flow <u>60</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Shut-In <u>90</u>	<input type="checkbox"/> Day Standby	Total <u>1675.75</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't <u> </u>
	Sub Total <u>1675.75</u>	

Approved By _____ Our Representative [Signature]

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