



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co.**

250 N Water STE #300
Wichita, KS 67202

ATTN: Rocky Milford

Solko #1-33

33-2s-36w Rawlins,KS

Start Date: 2013.08.11 @ 19:30:00

End Date: 2013.08.12 @ 04:49:30

Job Ticket #: 53356 DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.08.15 @ 14:27:07

Murfin Drilling Co. 33-2s-36w Rawlins,KS Solko #1-33 DST # 1 Leavenworth - LKC "A" 2013.08.11



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co.
250 N Water STE #300
Wichita, KS 67202
ATTN: Rocky Milford

33-2s-36w Rawlins,KS

Solko #1-33

Job Ticket: 53356

DST#: 1

Test Start: 2013.08.11 @ 19:30:00

GENERAL INFORMATION:

Formation: **Leavenworth - LKC "A"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 22:15:30

Time Test Ended: 04:49:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Kevin Mack

Unit No: 66

Interval: 4120.00 ft (KB) To 4220.00 ft (KB) (TVD)

Reference Elevations: 3261.00 ft (KB)

Total Depth: 4220.00 ft (KB) (TVD)

3256.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

Serial #: 8874 Outside

Press @ Run Depth: 106.22 psig @ 4121.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.08.11

End Date: 2013.08.12

Last Calib.: 2013.08.12

Start Time: 19:31:00

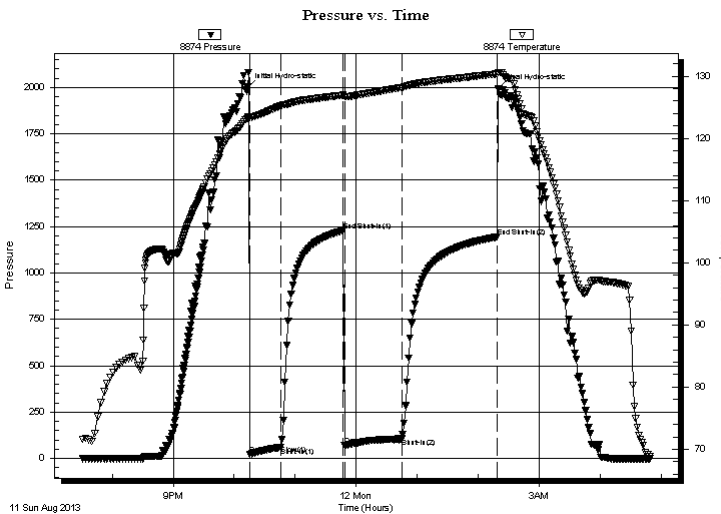
End Time: 04:49:30

Time On Btm: 2013.08.11 @ 22:13:30

Time Off Btm: 2013.08.12 @ 02:20:00

TEST COMMENT: 30 - IF- 1/2" Blow built to 4"
60 - IS- No Return
60 - FF- Weak Surface Blow started at 7 min. Built to 5"
90 - FS- No Return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2002.06	123.26	Initial Hydro-static
2	20.92	123.35	Open To Flow (1)
32	59.91	125.18	Shut-In(1)
94	1227.46	126.93	End Shut-In(1)
95	68.82	126.72	Open To Flow (2)
151	106.22	128.18	Shut-In(2)
245	1193.87	130.32	End Shut-In(2)
247	1991.95	130.59	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	OCWM 20o 30W 50M	0.30
130.00	OCM 30o 70M	0.69
5.00	Free Oil	0.07

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co.

33-2s-36w Rawlins,KS

250 N Water STE #300
Wichita, KS 67202

Solko #1-33

Job Ticket: 53356

DST#: 1

ATTN: Rocky Milford

Test Start: 2013.08.11 @ 19:30:00

Tool Information

Drill Pipe:	Length: 3912.00 ft	Diameter: 3.80 inches	Volume: 54.88 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: 184.00 ft	Diameter: 2.25 inches	Volume: 0.90 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 55.78 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	3.00 ft			String Weight: Initial 55000.00 lb
Depth to Top Packer:	4120.00 ft			Final 57000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	100.00 ft			
Tool Length:	127.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Shut In Tool	5.00			4098.00	
Hydraulic tool	5.00			4103.00	
Jars	5.00			4108.00	
Safety Joint	3.00			4111.00	
Packer	5.00			4116.00	27.00 Bottom Of Top Packer
Packer	4.00			4120.00	
Stubb	1.00			4121.00	
Recorder	0.00	8653	Inside	4121.00	
Recorder	0.00	8874	Outside	4121.00	
Perforations	28.00			4149.00	
Change Over Sub	1.00			4150.00	
Drill Pipe	64.00			4214.00	
Change Over Sub	1.00			4215.00	
Bullnose	5.00			4220.00	100.00 Bottom Packers & Anchor

Total Tool Length: 127.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co.

33-2s-36w Rawlins,KS

250 N Water STE #300
Wichita, KS 67202

Solko #1-33

Job Ticket: 53356

DST#: 1

ATTN: Rocky Milford

Test Start: 2013.08.11 @ 19:30:00

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:

28000 ppm

Viscosity: 62.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.38 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 600.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
60.00	OCWM 20o 30W 50M	0.295
130.00	OCM 30o 70M	0.694
5.00	Free Oil	0.070

Total Length: 195.00 ft Total Volume: 1.059 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

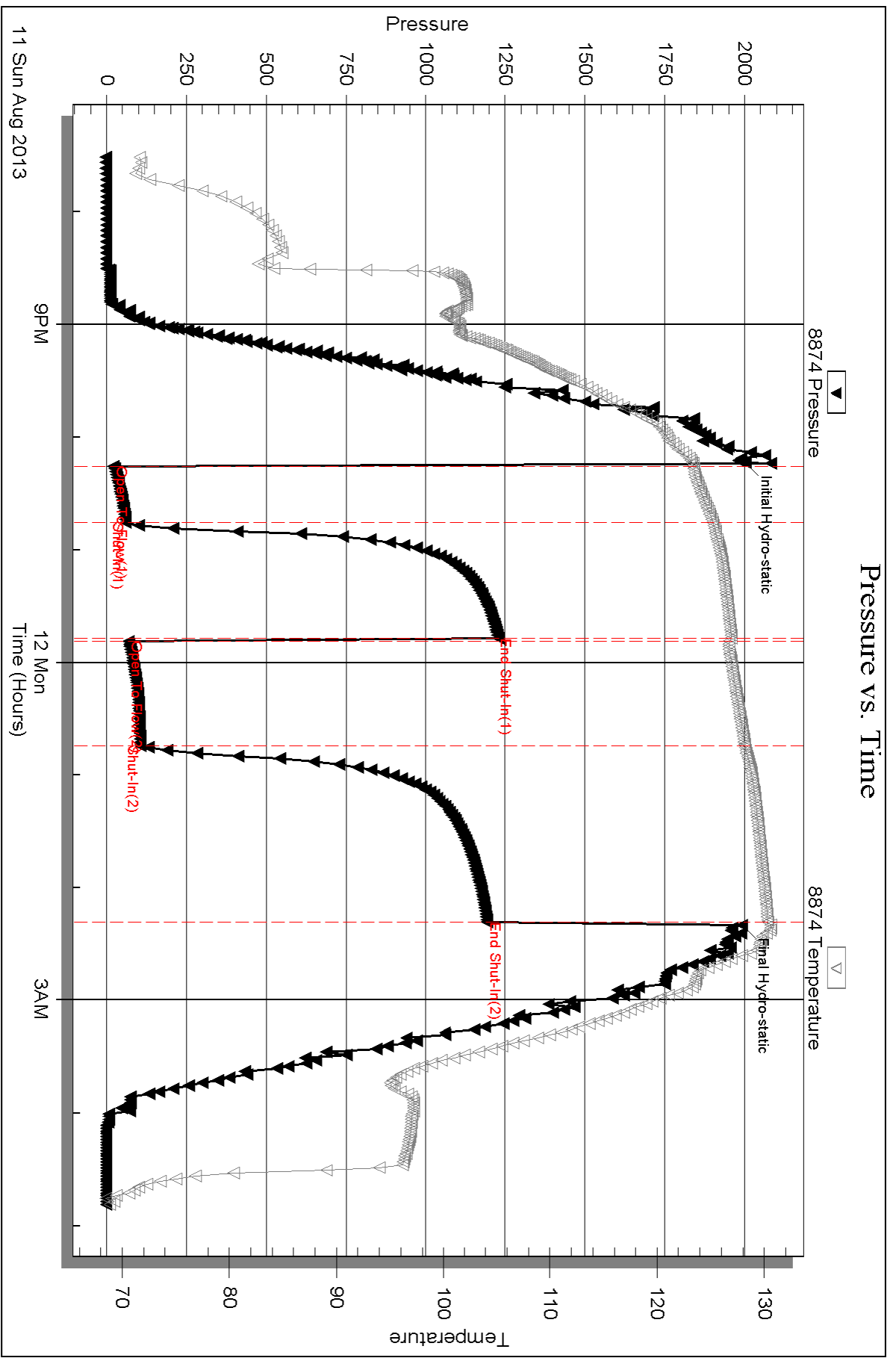
Recovery Comments: RW = .28 @ 66 deg = 28000ppm

Serial #: 8874

Outside Murfin Drilling Co.

Solko #1-33

DST Test Number: 1



Triobite Testing, Inc

Ref. No: 53356

Printed: 2013.08.15 @ 14:27:10

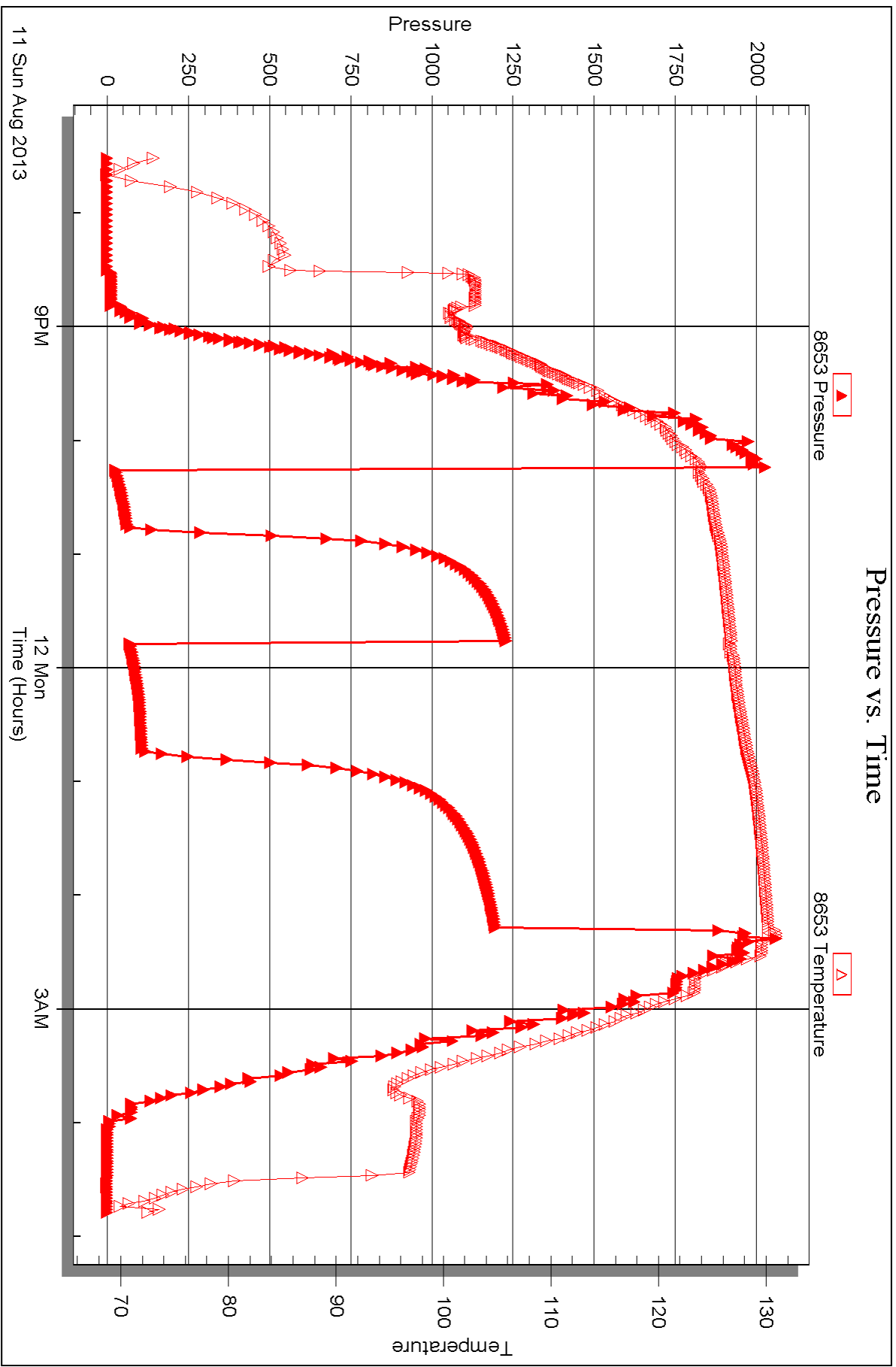
Serial #: 8653

Inside

Murfin Drilling Co.

Solko #1-33

DST Test Number: 1





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co.**

250 N Water STE #300
Wichita, KS 67202

ATTN: Rocky Milford

Solko #1-33

33-2s-36w Rawlins,KS

Start Date: 2013.08.12 @ 12:21:00

End Date: 2013.08.12 @ 21:54:30

Job Ticket #: 53357 DST #: 2

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

Printed: 2013.08.15 @ 14:26:28

Murfin Drilling Co. 33-2s-36w Rawlins,KS Solko #1-33 DST # 2 LKC "D" 2013.08.12



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co.
250 N Water STE #300
Wichita, KS 67202
ATTN: Rocky Milford

33-2s-36w Rawlins,KS
Solko #1-33
Job Ticket: 53357 **DST#: 2**
Test Start: 2013.08.12 @ 12:21:00

GENERAL INFORMATION:

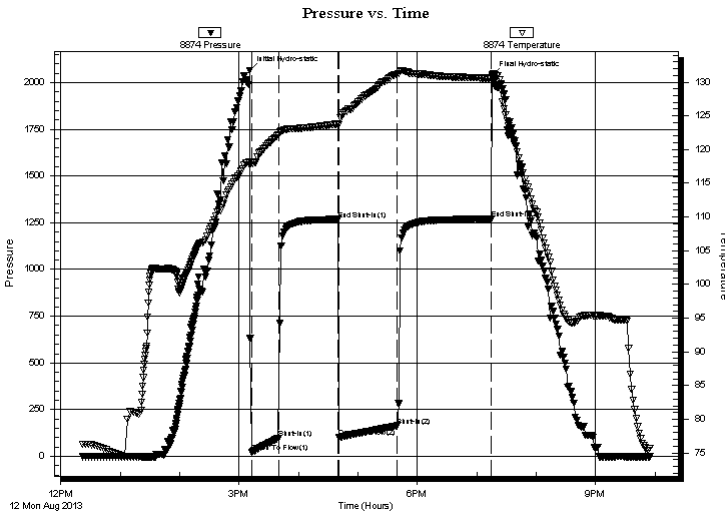
Formation: **LKC "D"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 15:12:30
Time Test Ended: 21:54:30
Interval: **4195.00 ft (KB) To 4260.00 ft (KB) (TVD)**
Total Depth: 4260.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good
Test Type: Conventional Bottom Hole (Initial)
Tester: Kevin Mack
Unit No: 66
Reference Elevations: 3261.00 ft (KB)
3256.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8874 Outside

Press @ Run Depth: 163.54 psig @ 4196.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2013.08.12 End Date: 2013.08.12 Last Calib.: 2013.08.12
Start Time: 12:22:00 End Time: 21:54:30 Time On Btm: 2013.08.12 @ 15:10:30
Time Off Btm: 2013.08.12 @ 19:15:30

TEST COMMENT: 30 - IF- 1/4" Blow built to 6 1/2"
60 - IS- No Return
60 - FF- Surface Blow built to BoB in 58 min.
90 - FS- No Return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2064.50	118.21	Initial Hydro-static
2	22.26	118.06	Open To Flow (1)
29	98.17	122.17	Shut-In(1)
89	1268.10	123.80	End Shut-In(1)
91	103.09	123.70	Open To Flow (2)
149	163.54	131.15	Shut-In(2)
244	1268.74	130.53	End Shut-In(2)
245	2035.21	131.07	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
319.00	OSM 100M (oil spots)	2.80

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co.

33-2s-36w Rawlins,KS

250 N Water STE #300
Wichita, KS 67202

Solko #1-33

Job Ticket: 53357

DST#: 2

ATTN: Rocky Milford

Test Start: 2013.08.12 @ 12:21:00

Tool Information

Drill Pipe:	Length: 4008.00 ft	Diameter: 3.80 inches	Volume: 56.22 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: 184.00 ft	Diameter: 2.25 inches	Volume: 0.90 bbl	Weight to Pull Loose: 62000.00 lb
			<u>Total Volume: 57.12 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	24.00 ft			String Weight: Initial 55000.00 lb
Depth to Top Packer:	4195.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	65.00 ft			
Tool Length:	92.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Shut In Tool	5.00			4173.00	
Hydraulic tool	5.00			4178.00	
Jars	5.00			4183.00	
Safety Joint	3.00			4186.00	
Packer	5.00			4191.00	27.00 Bottom Of Top Packer
Packer	4.00			4195.00	
Stubb	1.00			4196.00	
Recorder	0.00	8653	Inside	4196.00	
Recorder	0.00	8874	Outside	4196.00	
Perforations	25.00			4221.00	
Change Over Sub	1.00			4222.00	
Drill Pipe	32.00			4254.00	
Change Over Sub	1.00			4255.00	
Bullnose	5.00			4260.00	65.00 Bottom Packers & Anchor

Total Tool Length: 92.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co.

33-2s-36w Rawlins,KS

250 N Water STE #300
Wichita, KS 67202

Solko #1-33

Job Ticket: 53357

DST#: 2

ATTN: Rocky Milford

Test Start: 2013.08.12 @ 12:21:00

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: 56.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.78 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 700.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
319.00	OSM 100M (oil spots)	2.799

Total Length: 319.00 ft Total Volume: 2.799 bbl

Num Fluid Samples: 0

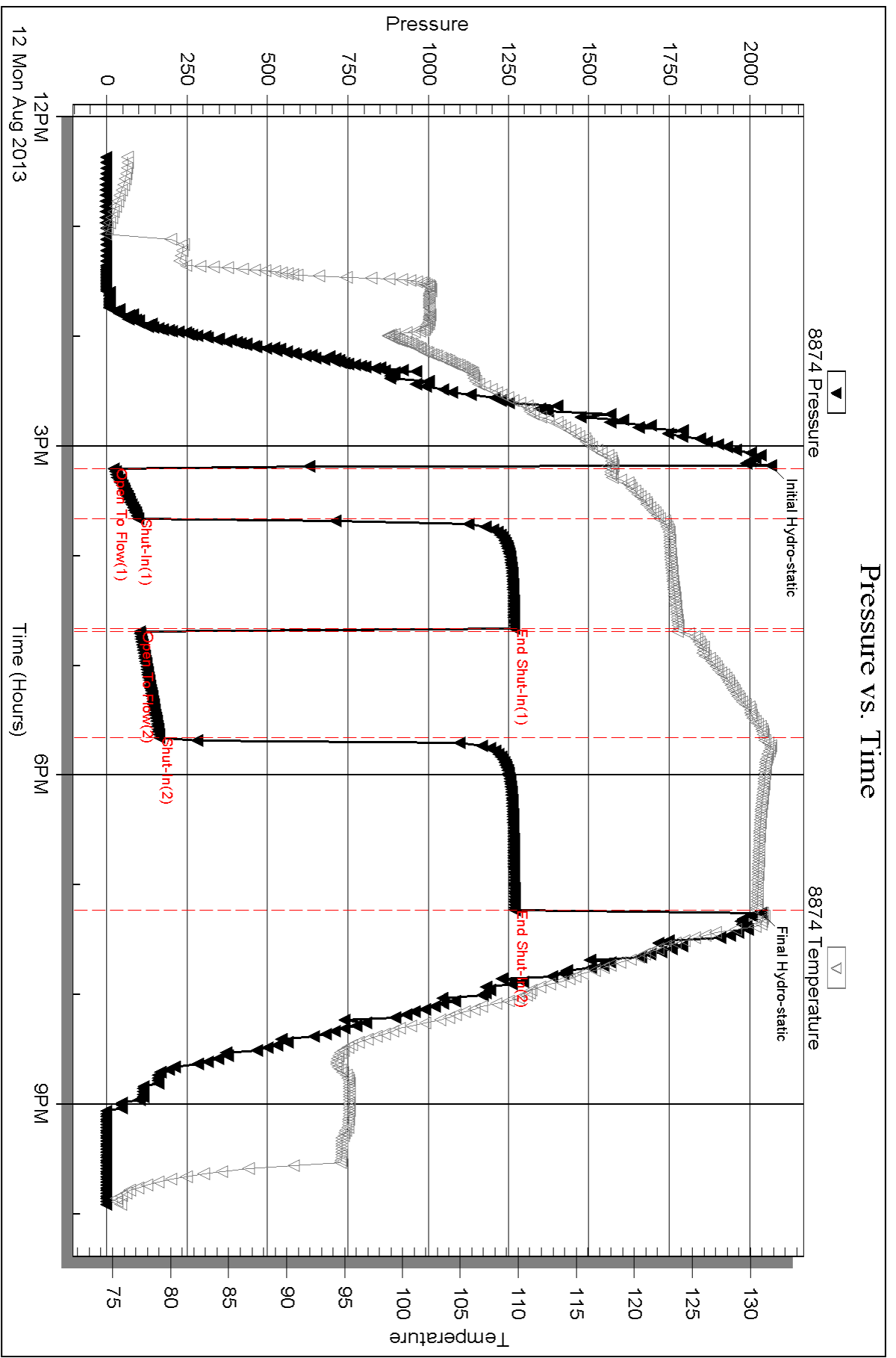
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



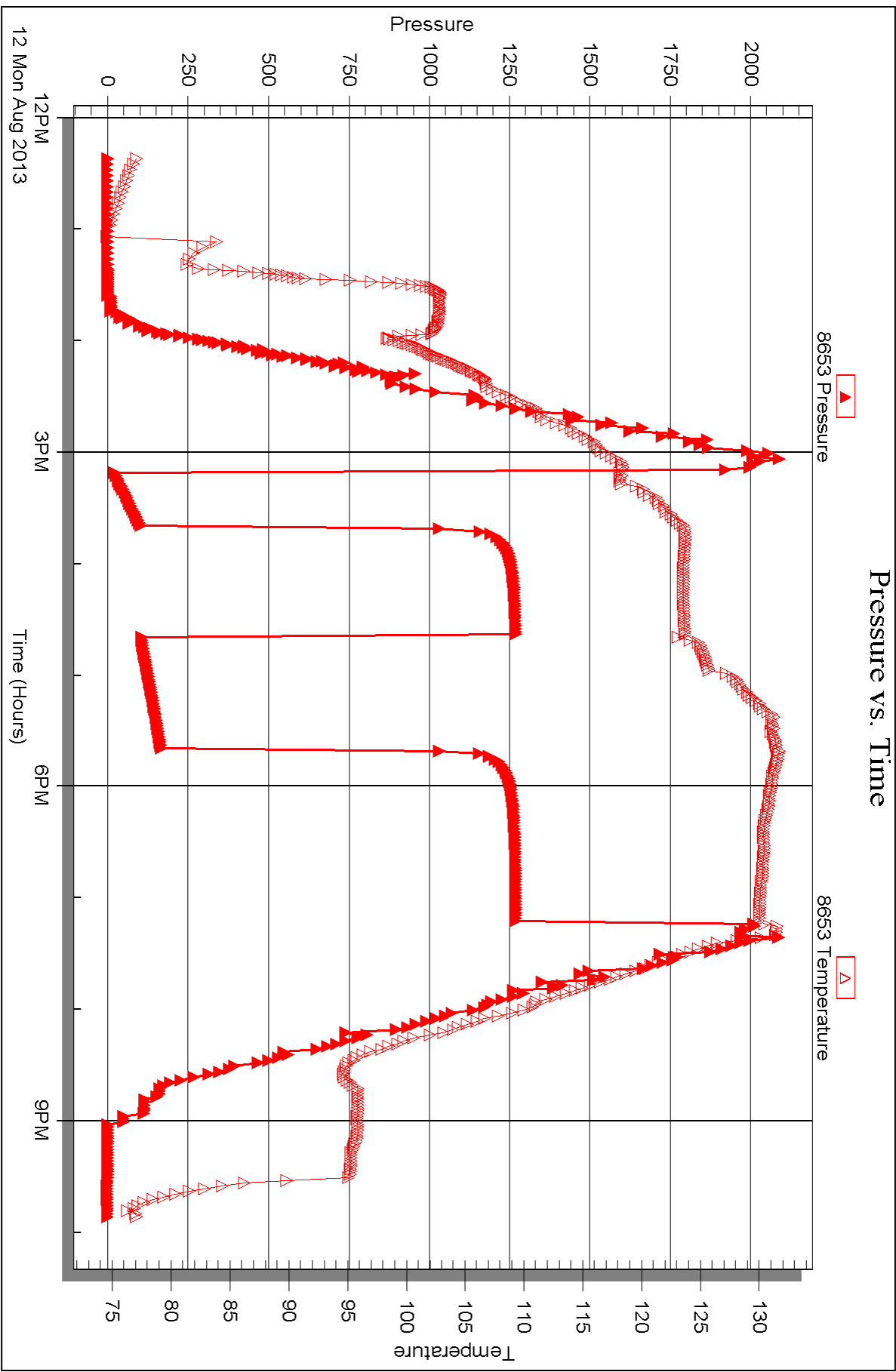
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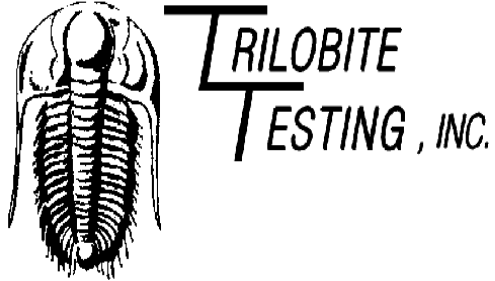
Inside

Murfin Drilling Co.

Solko #1-33

DST Test Number: 2





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co.**

250 N Water STE #300
Wichita, KS 67202

ATTN: Rocky Milford

Solko #1-33

33-2s-36w Rawlins,KS

Start Date: 2013.08.13 @ 09:50:00

End Date: 2013.08.13 @ 18:41:00

Job Ticket #: 53358 DST #: 3

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.08.15 @ 14:25:24



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co.
250 N Water STE #300
Wichita, KS 67202
ATTN: Rocky Milford

33-2s-36w Rawlins,KS

Solko #1-33

Job Ticket: 53358

DST#: 3

Test Start: 2013.08.13 @ 09:50:00

GENERAL INFORMATION:

Formation: **LKC "G-I"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 12:16:00
 Time Test Ended: 18:41:00
 Interval: **4259.00 ft (KB) To 4365.00 ft (KB) (TVD)**
 Total Depth: 4369.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Kevin Mack
 Unit No: 66
 Reference Elevations: 3261.00 ft (KB)
 3256.00 ft (CF)
 KB to GR/CF: 5.00 ft

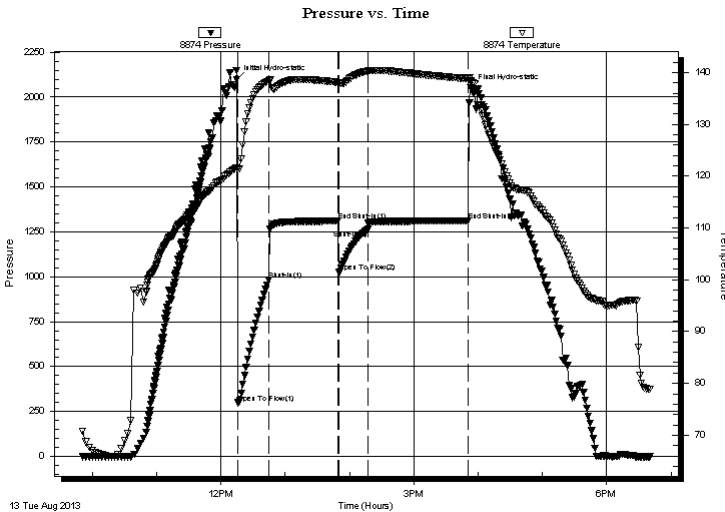
Serial #: 8874

Inside

Press @ Run Depth: 1263.71 psig @ 4260.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2013.08.13 End Date: 2013.08.13 Last Calib.: 2013.08.13
 Start Time: 09:51:00 End Time: 18:41:00 Time On Btm: 2013.08.13 @ 12:15:00
 Time Off Btm: 2013.08.13 @ 15:53:00

TEST COMMENT: 30 - IF- BoB in 1 min.
 60 - IS- No Return
 30 - FF- BoB in 2 min.
 90 - FS- No Return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2098.48	121.66	Initial Hydro-static
1	298.71	121.21	Open To Flow (1)
30	980.21	138.38	Shut-In(1)
94	1309.93	138.12	End Shut-In(1)
96	1024.20	137.95	Open To Flow (2)
122	1263.71	140.29	Shut-In(2)
216	1310.73	138.82	End Shut-In(2)
218	2049.45	138.35	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud (Heavy) 100M	0.02
1855.00	MW 5M 95W	24.39
372.00	MW 10M 90W	5.22
186.00	MW 40M 60W	2.61
397.00	WM 80M 20W	5.57

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co.

33-2s-36w Rawlins,KS

250 N Water STE #300
Wichita, KS 67202

Solko #1-33

Job Ticket: 53358

DST#: 3

ATTN: Rocky Milford

Test Start: 2013.08.13 @ 09:50:00

Tool Information

Drill Pipe:	Length: 4073.00 ft	Diameter: 3.80 inches	Volume: 57.13 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: 184.00 ft	Diameter: 2.25 inches	Volume: 0.90 bbl	Weight to Pull Loose: 72000.00 lb
			<u>Total Volume: 58.03 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	25.00 ft			String Weight: Initial 58000.00 lb
Depth to Top Packer:	4259.00 ft			Final 70000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	106.00 ft			
Tool Length:	133.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Shut In Tool	5.00			4237.00	
Hydraulic tool	5.00			4242.00	
Jars	5.00			4247.00	
Safety Joint	3.00			4250.00	
Packer	5.00			4255.00	27.00 Bottom Of Top Packer
Packer	4.00			4259.00	
Stubb	1.00			4260.00	
Recorder	0.00	8653	Outside	4260.00	
Recorder	0.00	8874	Inside	4260.00	
Perforations	5.00			4265.00	
Change Over Sub	1.00			4266.00	
Drill Pipe	93.00			4359.00	
Change Over Sub	1.00			4360.00	
Bullnose	5.00			4365.00	106.00 Bottom Packers & Anchor

Total Tool Length: 133.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co.

33-2s-36w Rawlins,KS

250 N Water STE #300
Wichita, KS 67202

Solko #1-33

Job Ticket: 53358

DST#: 3

ATTN: Rocky Milford

Test Start: 2013.08.13 @ 09:50:00

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:

30000 ppm

Viscosity: 54.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.39 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 600.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	Mud (Heavy) 100M	0.025
1855.00	MW 5M 95W	24.390
372.00	MW 10M 90W	5.218
186.00	MW 40M 60W	2.609
397.00	WM 80M 20W	5.569

Total Length: 2815.00 ft Total Volume: 37.811 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: rw = .21 @ 80 DEG = 30,000PPM

Serial #: 8874

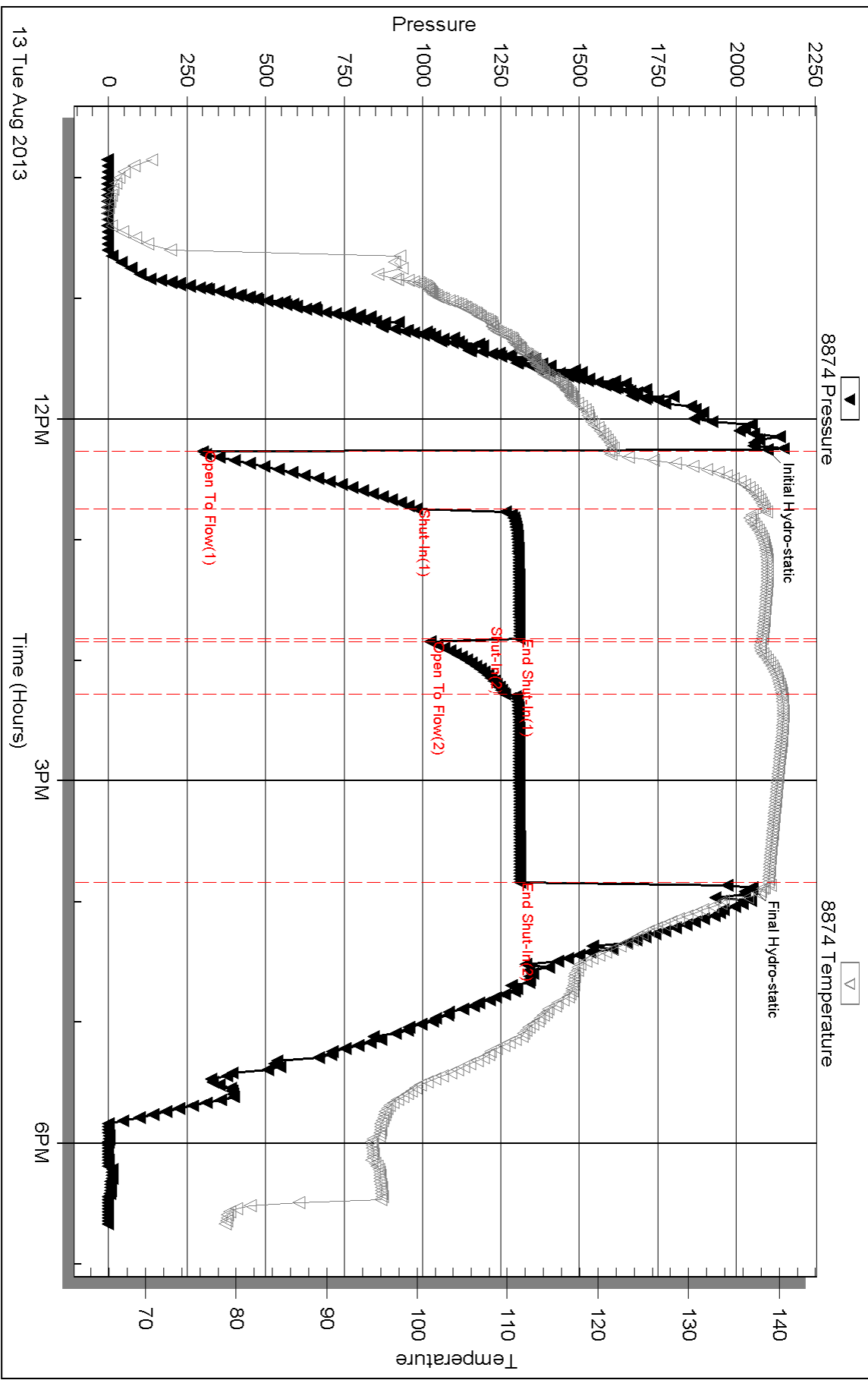
Inside

Murfin Drilling Co.

Solko #1-33

DST Test Number: 3

Pressure vs. Time

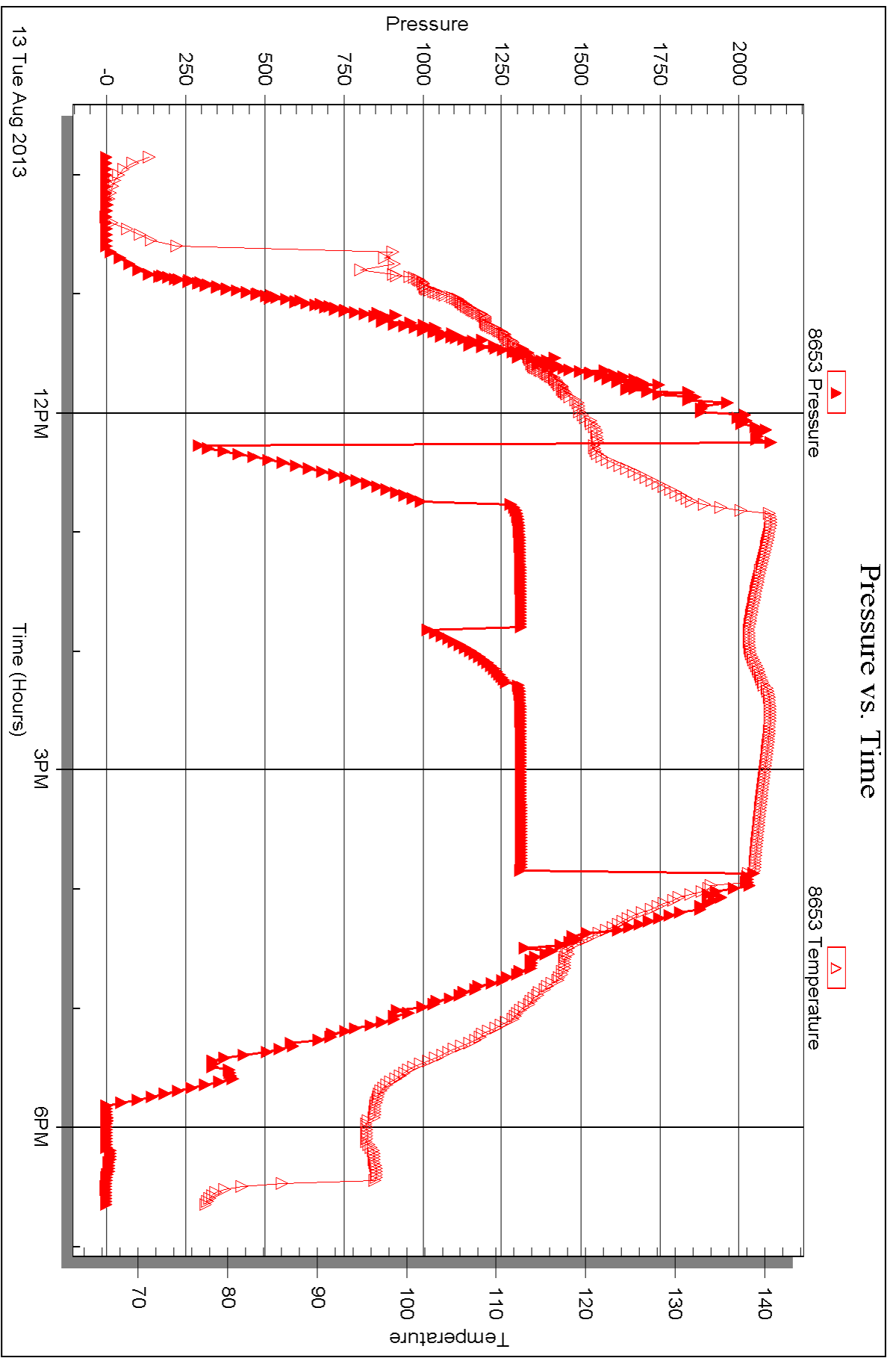


Serial #: 8653

Outside Murfin Drilling Co.

Solko #1-33

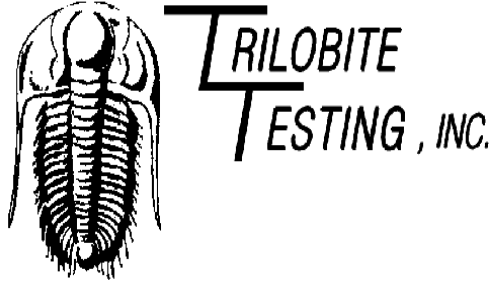
DST Test Number: 3



Triobite Testing, Inc

Ref. No: 53358

Printed: 2013.08.15 @ 14:25:27



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co.**

250 N Water STE #300
Wichita, KS 67202

ATTN: Rocky Milford

Solko #1-33

33-2s-36w Rawlins,KS

Start Date: 2013.08.14 @ 02:20:00

End Date: 2013.08.14 @ 10:24:30

Job Ticket #: 53359 DST #: 4

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.08.15 @ 14:24:47



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co.
250 N Water STE #300
Wichita, KS 67202
ATTN: Rocky Milford

33-2s-36w Rawlins,KS

Solko #1-33

Job Ticket: 53359

DST#: 4

Test Start: 2013.08.14 @ 02:20:00

GENERAL INFORMATION:

Formation: **LKC "J"**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Initial)
 Time Tool Opened: 04:53:30
 Tester: Kevin Mack
 Time Test Ended: 10:24:30
 Unit No: 66
 Interval: **4355.00 ft (KB) To 4404.00 ft (KB) (TVD)**
 Reference Elevations: 3261.00 ft (KB)
 Total Depth: 4404.00 ft (KB) (TVD)
 3256.00 ft (CF)
 Hole Diameter: 7.88 inches
 Hole Condition: Good
 KB to GR/CF: 5.00 ft

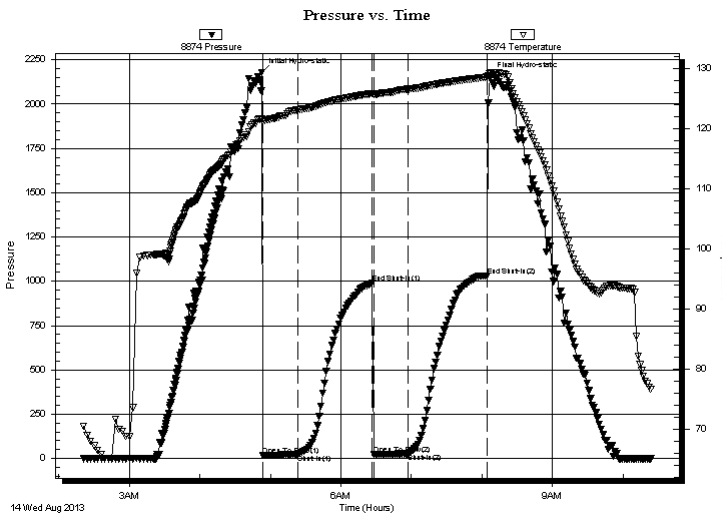
Serial #: 8874

Inside

Press @ Run Depth: 27.09 psig @ 4356.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2013.08.14 End Date: 2013.08.14 Last Calib.: 2013.08.14
 Start Time: 02:21:00 End Time: 10:24:30 Time On Btm: 2013.08.14 @ 04:52:30
 Time Off Btm: 2013.08.14 @ 08:06:30

TEST COMMENT: 30 - IF- 1/8" Blow built to 1/2"
 60 - IS- No Return
 30 - FF- No Blow
 60 - FS- No Return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2179.04	121.73	Initial Hydro-static
1	16.93	121.19	Open To Flow (1)
31	22.57	123.10	Shut-In(1)
94	988.42	125.87	End Shut-In(1)
96	22.89	125.70	Open To Flow (2)
125	27.09	126.60	Shut-In(2)
192	1031.73	128.59	End Shut-In(2)
194	2154.08	129.19	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	OSM 100M	0.02

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co.

33-2s-36w Rawlins,KS

250 N Water STE #300
Wichita, KS 67202

Solko #1-33

Job Ticket: 53359

DST#: 4

ATTN: Rocky Milford

Test Start: 2013.08.14 @ 02:20:00

Tool Information

Drill Pipe:	Length: 4171.00 ft	Diameter: 3.80 inches	Volume: 58.51 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: 184.00 ft	Diameter: 2.25 inches	Volume: 0.90 bbl	Weight to Pull Loose: 64000.00 lb
			Total Volume: 59.41 bbl	Tool Chased ft
Drill Pipe Above KB:	27.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4355.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	49.00 ft			
Tool Length:	76.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Shut In Tool	5.00			4333.00	
Hydraulic tool	5.00			4338.00	
Jars	5.00			4343.00	
Safety Joint	3.00			4346.00	
Packer	5.00			4351.00	27.00 Bottom Of Top Packer
Packer	4.00			4355.00	
Stubb	1.00			4356.00	
Packer - Shale	0.00			4356.00	
Recorder	0.00	8653	Outside	4356.00	
Recorder	0.00	8874	Inside	4356.00	
Perforations	10.00			4366.00	
Change Over Sub	1.00			4367.00	
Drill Pipe	31.00			4398.00	
Change Over Sub	1.00			4399.00	
Bullnose	5.00			4404.00	49.00 Bottom Packers & Anchor

Total Tool Length: 76.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co.

33-2s-36w Rawlins,KS

250 N Water STE #300
Wichita, KS 67202

Solko #1-33

Job Ticket: 53359

DST#: 4

ATTN: Rocky Milford

Test Start: 2013.08.14 @ 02:20:00

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: 54.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.39 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 600.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	OSM 100M	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:

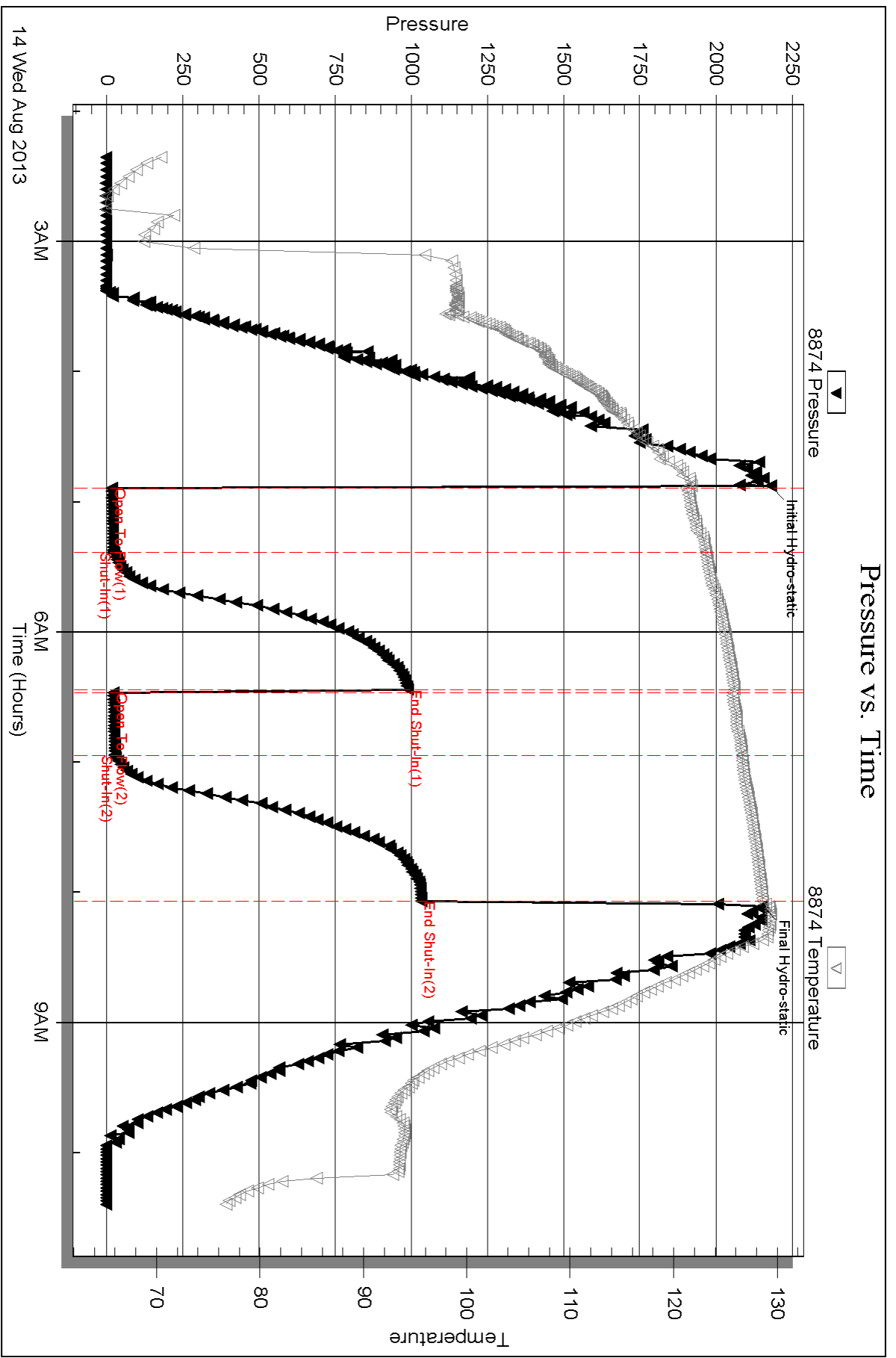
Serial #: 8874

Inside

Murfin Drilling Co.

Solko #1-33

DST Test Number: 4



Triobite Testing, Inc

Ref. No: 53359

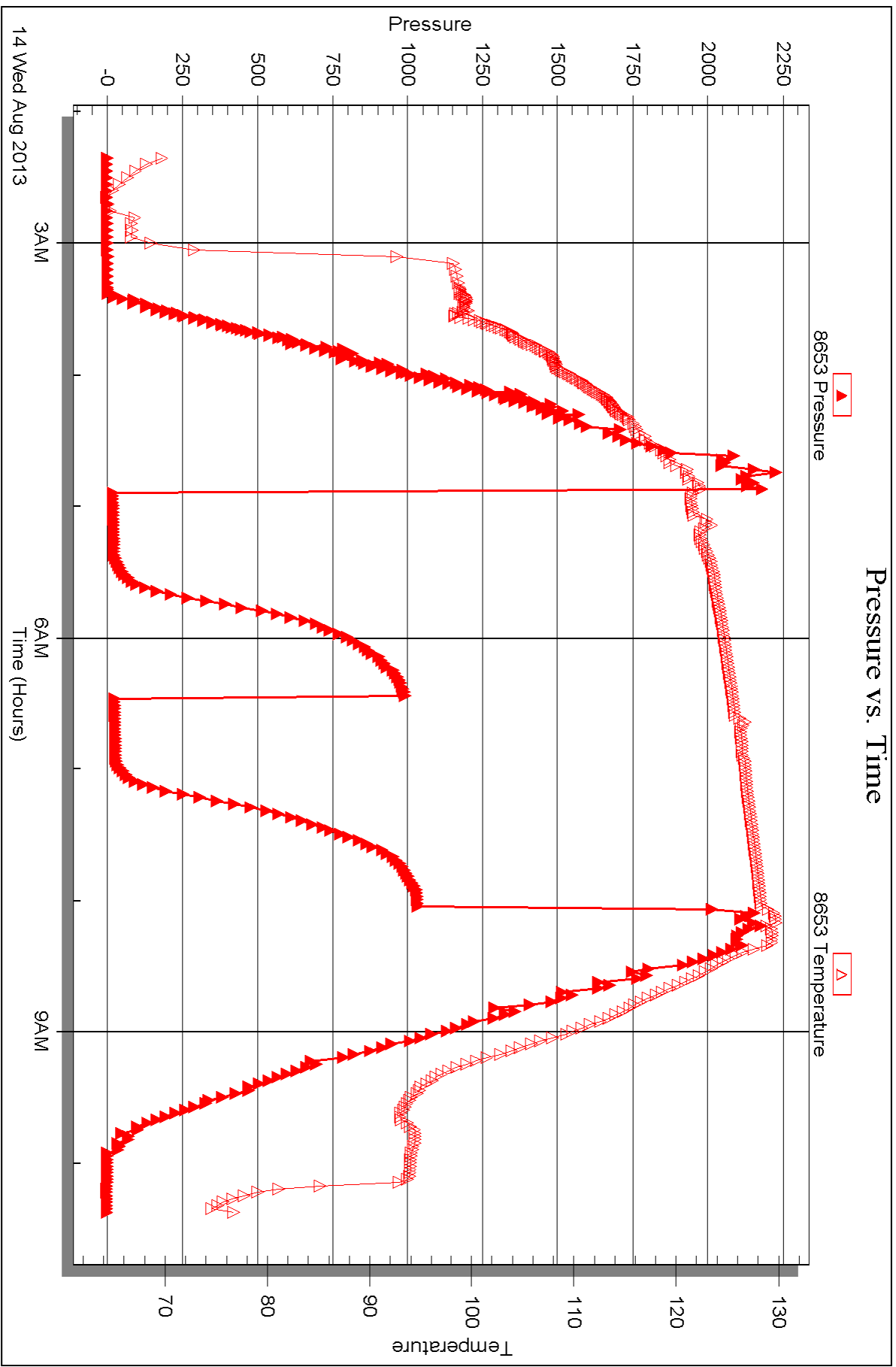
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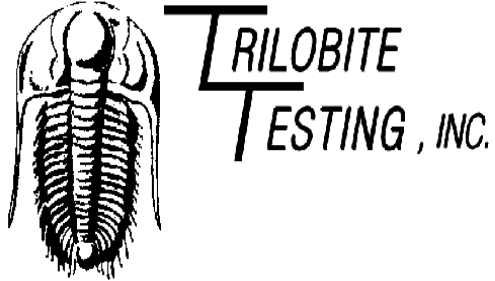
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Outside Murfin Drilling Co.

Solko #1-33

DST Test Number: 4





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co.**

250 N Water STE #300
Wichita, KS 67202

ATTN: Rocky Milford

Solko #1-33

33-2s-36w Rawlins,KS

Start Date: 2013.08.15 @ 03:20:00

End Date: 2013.08.15 @ 11:25:00

Job Ticket #: 53360 DST #: 5

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.08.15 @ 14:24:08



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co.
250 N Water STE #300
Wichita, KS 67202
ATTN: Rocky Milford

33-2s-36w Rawlins,KS

Solko #1-33

Job Ticket: 53360

DST#: 5

Test Start: 2013.08.15 @ 03:20:00

GENERAL INFORMATION:

Formation: **Pawnee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 05:34:00

Time Test Ended: 11:25:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Kevin Mack

Unit No: 66

Interval: 4544.00 ft (KB) To 4600.00 ft (KB) (TVD)

Reference Elevations: 3261.00 ft (KB)

Total Depth: 4600.00 ft (KB) (TVD)

3256.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

Serial #: 8874 Inside

Press @ Run Depth: 23.48 psig @ 4555.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.08.15

End Date:

2013.08.15

Last Calib.: 2013.08.15

Start Time: 03:21:00

End Time:

11:25:00

Time On Btm: 2013.08.15 @ 05:32:00

Time Off Btm: 2013.08.15 @ 08:40:30

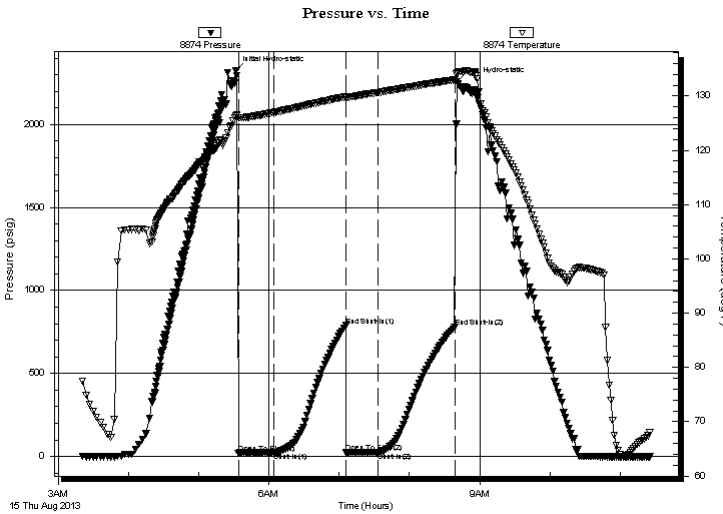
TEST COMMENT: 30 - IF- 1/4" Blow built to 1", then died back to 1/4"

60 - IS- No Return

30 - FF- No Blow

60 - FS- No Return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2325.99	126.27	Initial Hydro-static
2	19.85	126.02	Open To Flow (1)
33	21.60	126.99	Shut-In(1)
94	788.56	129.87	End Shut-In(1)
94	22.27	129.61	Open To Flow (2)
122	23.48	130.68	Shut-In(2)
187	780.87	132.98	End Shut-In(2)
189	2257.07	134.32	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	OSM 100M (Oil Spots)	0.02

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co.

33-2s-36w Rawlins,KS

250 N Water STE #300
Wichita, KS 67202

Solko #1-33

Job Ticket: 53360

DST#: 5

ATTN: Rocky Milford

Test Start: 2013.08.15 @ 03:20:00

Tool Information

Drill Pipe:	Length: 4353.00 ft	Diameter: 3.80 inches	Volume: 61.06 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: 184.00 ft	Diameter: 2.25 inches	Volume: 0.90 bbl	Weight to Pull Loose: 85000.00 lb
			<u>Total Volume: 61.96 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	10.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4554.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	46.00 ft			
Tool Length:	73.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Shut In Tool	5.00			4532.00	
Hydraulic tool	5.00			4537.00	
Jars	5.00			4542.00	
Safety Joint	3.00			4545.00	
Packer	5.00			4550.00	27.00 Bottom Of Top Packer
Packer	4.00			4554.00	
Stubb	1.00			4555.00	
Recorder	0.00	8653	Outside	4555.00	
Recorder	0.00	8874	Inside	4555.00	
Perforations	6.00			4561.00	
Change Over Sub	1.00			4562.00	
Drill Pipe	32.00			4594.00	
Change Over Sub	1.00			4595.00	
Bullnose	5.00			4600.00	46.00 Bottom Packers & Anchor

Total Tool Length: 73.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co.

33-2s-36w Rawlins,KS

250 N Water STE #300
Wichita, KS 67202

Solko #1-33

Job Ticket: 53360

DST#: 5

ATTN: Rocky Milford

Test Start: 2013.08.15 @ 03:20:00

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: 52.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.39 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 1000.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	OSM 100M (Oil Spots)	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

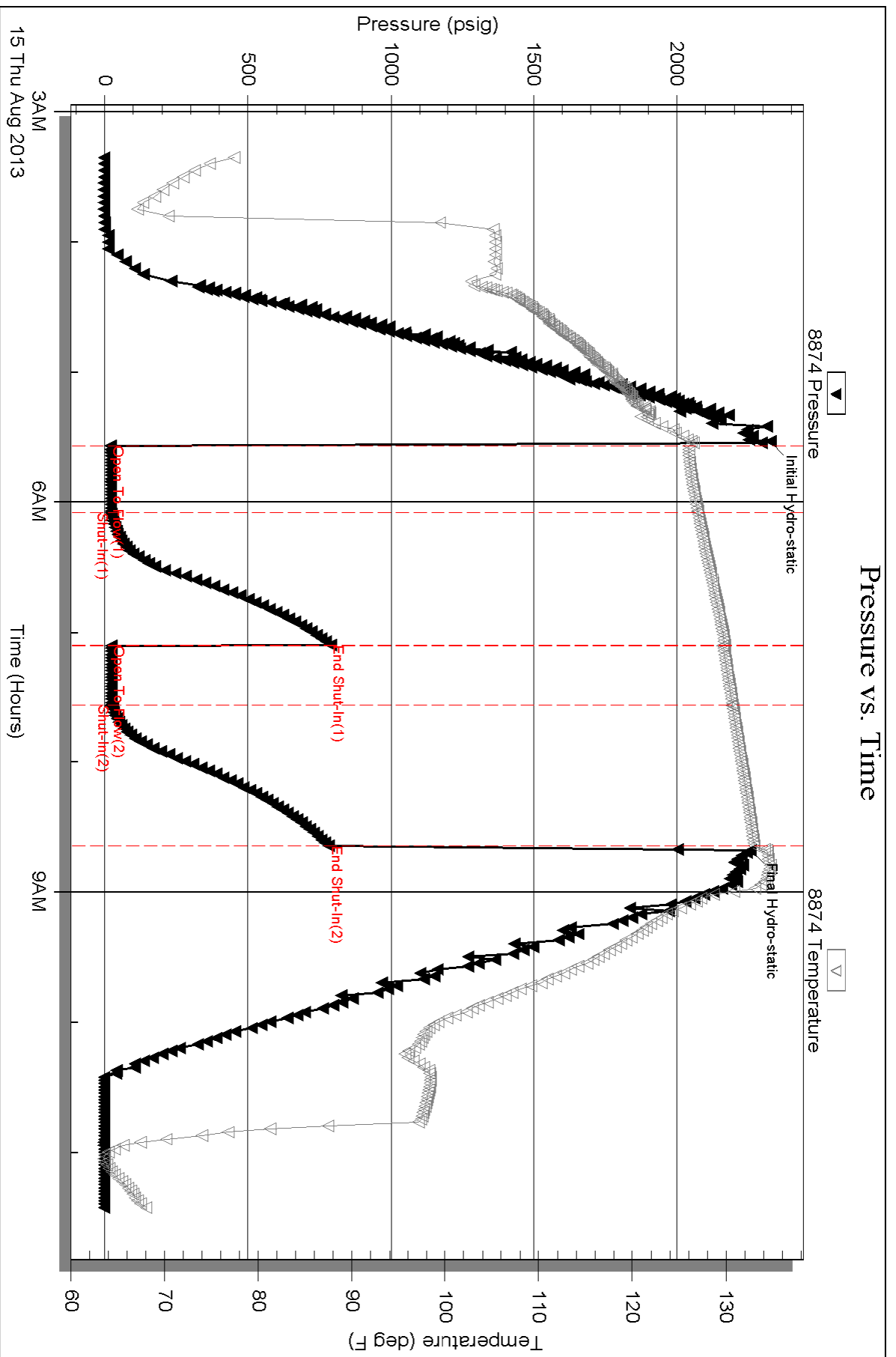
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

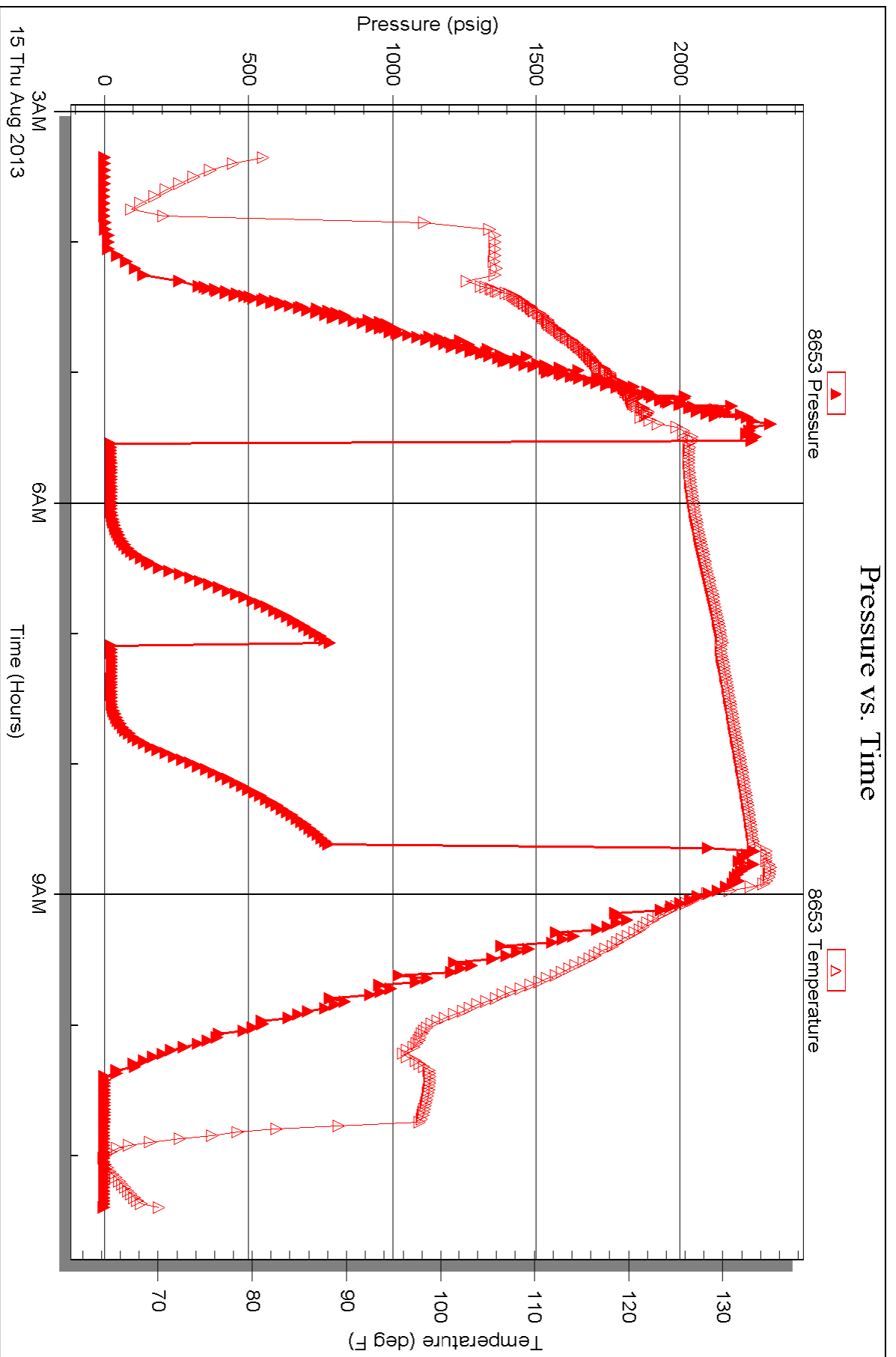


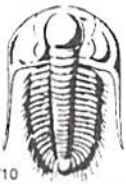
Serial #: 8653

Outside Murfin Drilling Co.

Solko #1-33

DST Test Number: 5





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 53356

Well Name & No. SOLKO #1-33 Test No. 1 Date 8-11-13
 Company Muffin Drilling Co. Elevation 3261 KB 3256 GL
 Address 250 N Water STE #300 Wichita, KS 67202
 Co. Rep / Geo. Rocky Milford Rig Muffin #8
 Location: Sec. 33 Twp. 2S Rge. 36W Co. Rawlins State KS

Interval Tested 4120-4220 Zone Tested Leavenworth - LKC "A"
 Anchor Length 100 Drill Pipe Run 3912' Mud Wt. 8.9
 Top Packer Depth 4116 Drill Collars Run 184' Vis 62
 Bottom Packer Depth 4120 Wt. Pipe Run 0 WL 6.4
 Total Depth 4220 Chlorides 6000 ppm System LCM 1#

Blow Description IF-1/2" Blow built to 4"
ISI - No Return
FF - Weak Surface Blow started at 7 min. Built to 5"
FSI - No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>Free Oil</u>	<u>1000</u>			
<u>130</u>	<u>OCM</u>	<u>30</u>		<u>70</u>	
<u>60</u>	<u>OCWM</u>	<u>20</u>	<u>30</u>	<u>50</u>	

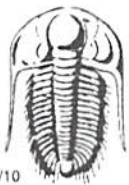
Rec Total 195 BHT 130 Gravity → API RW .28 @ 66 °F Chlorides 28,000 ppm

(A) Initial Hydrostatic 2000 Test 1250 T-On Location 6:10 PM
 (B) First Initial Flow 20 Jars 250 T-Started 7:30 PM
 (C) First Final Flow 59 Safety Joint 75 T-Open 10:15 PM
 (D) Initial Shut-In 1227 Circ Sub NIC T-Pulled 2:15 AM
 (E) Second Initial Flow 68 Hourly Standby T-Out 5:00 AM
 (F) Second Final Flow 106 Mileage 102 RT 158.10 Comments
 (G) Final Shut-In 1193 Sampler
 (H) Final Hydrostatic 1991 Straddle Ruined Shale Packer

Initial Open 30 Shale Packer Ruined Packer
 Initial Shut-In 60 Extra Packer Extra Copies
 Final Flow 60 Extra Recorder Sub Total 0
 Final Shut-In 90 Day Standby Total 1733.10
 Accessibility MP/DST Disc't
 Sub Total 1733.10

Approved By _____ Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 53357

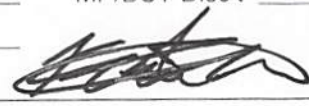
Well Name & No. Solko #1-33 Test No. 2 Date 8-12-13
 Company Murrin Drilling Co. Elevation 3261 KB 3256 GL
 Address 2508 N Water STE #3008 Wichita, KS 67202
 Co. Rep / Geo. Rocky Milford Rig Murrin #8
 Location: Sec. 33 Twp. 25 Rge. 36W Co. Rawlins State KS

Interval Tested 4195-4260 Zone Tested LKC "D"
 Anchor Length 65' Drill Pipe Run 4008' Mud Wt. 9.1
 Top Packer Depth 4191 Drill Collars Run 184' Vis 56
 Bottom Packer Depth 4195 Wt. Pipe Run 0 WL 6.8
 Total Depth 4260 Chlorides 700 ppm System LCM 0.5#
 Blow Description IF- 1/4" Blow built to 6 1/2"
ISE- NO Return
FF- Surface Blow built to BusB in 58 min.
FSI-

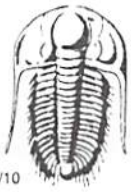
Rec	Feet of	%gas	%oil	%water	%mud
<u>319</u>	<u>OSM</u>	<u>SPOTS</u>		<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 319 BHT 131 Gravity - API RW - @ - °F Chlorides - ppm

(A) Initial Hydrostatic <u>1984 2064</u>	<input checked="" type="checkbox"/> Test 1250	T-On Location <u>11:50 AM</u>
(B) First Initial Flow <u>22</u>	<input checked="" type="checkbox"/> Jars 250	T-Started <u>12:21 PM</u>
(C) First Final Flow <u>98</u>	<input checked="" type="checkbox"/> Safety Joint 75	T-Open <u>3:11 PM</u>
(D) Initial Shut-In <u>1268</u>	<input checked="" type="checkbox"/> Circ Sub <u>N/C</u>	T-Pulled <u>7:11 PM</u>
(E) Second Initial Flow <u>103</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>10:00 PM</u>
(F) Second Final Flow <u>163</u>	<input checked="" type="checkbox"/> Mileage <u>102 RT</u> 158.10	Comments
(G) Final Shut-In <u>1268</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2035</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>60</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>1733.10</u>
	Sub Total <u>1733.10</u>	MP/DST Disc't

Approved By _____ Our Representative 

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 53358

Well Name & No. Solko # 1-33 Test No. 3 Date 8-13-13
 Company Murfin Drilling Co. Elevation 3261 KB 3256 GL
 Address 250 N Water STE # 3000 Wichita, KS 67202
 Co. Rep / Geo. Rocky Milford Rig Murfin #8
 Location: Sec. 33 Twp. 2S Rge. 36W Co. Rawlins State KS

Interval Tested 4259-4365 Zone Tested LKC "6-1"
 Anchor Length 106' Drill Pipe Run 4073 Mud Wt. 9.0
 Top Packer Depth 4255 Drill Collars Run 184' Vis 54
 Bottom Packer Depth 4259 Wt. Pipe Run 0 WL 6.4
 Total Depth 4365 Chlorides 6000 ppm System LCM .5#

Blow Description IF - BoB in 1 min.
ISI - No Return
FF - BoB in 2 min
FSI - No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>397</u>	<u>GM</u>		<u>20</u>	<u>80</u>	
<u>186</u>	<u>MW</u>		<u>60</u>	<u>40</u>	
<u>372</u>	<u>MW</u>		<u>90</u>	<u>10</u>	
<u>1855</u>	<u>MW</u>		<u>95</u>	<u>5</u>	
<u>5</u>	<u>Mud (heavy)</u>			<u>100</u>	

Rec Total 2815 BHT 139 Gravity - API RW .21 @ 80 ° F Chlorides 30,000 ppm

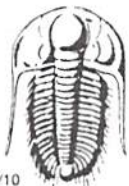
(A) Initial Hydrostatic 2078 Test 1250 T-On Location 8:50 AM
 (B) First Initial Flow 298 Jars 250 T-Started 9:50 AM
 (C) First Final Flow 980 Safety Joint 75 T-Open 12:15 PM
 (D) Initial Shut-In 1309 Circ Sub N/C T-Pulled 3:45 PM
 (E) Second Initial Flow 1024 Hourly Standby _____ T-Out 6:50 PM
 (F) Second Final Flow 1263 Mileage 102 RT 158.10
 (G) Final Shut-In 1310 Sampler _____
 (H) Final Hydrostatic 2049 Straddle _____
 Shale Packer _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____

Initial Open 30
 Initial Shut-In 60
 Final Flow 30
 Final Shut-In 9.0

Sub Total 0
 Total 1733.10
 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. 53359

4/10

Well Name & No. Solko # 1-33 Test No. 4 Date 8-14-13
 Company Muffin Drilling Co. Elevation 3261 KB 3256 GL
 Address 250 N Water STE # 300 Wichita, KS 67202
 Co. Rep / Geo. Rocky Milford Rig Muffin #8
 Location: Sec. 33 Twp. 2S Rge. 36W Co. Rawlins State KS

Interval Tested 4355-4404 Zone Tested LRC "J"
 Anchor Length 49' Drill Pipe Run 4171 Mud Wt. 9.0
 Top Packer Depth 4351 Drill Collars Run 184' Vis 54
 Bottom Packer Depth 4355 Wt. Pipe Run 8 WL 6.4
 Total Depth 4404 Chlorides 600 ppm System LCM 2#

Blow Description IF-1/8" Built to 1/2"
IST - No Return
FF - No Blow

FSI - No Return

Rec	Feet of	%gas	Spots	%oil	%water	%mud
<u>5</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 5 BHT 129 Gravity - API RW - @ - °F Chlorides - ppm

(A) Initial Hydrostatic 2179 Test 1250 T-On Location 1:45 AM
 (B) First Initial Flow 16 Jars 250 T-Started 2:20 AM
 (C) First Final Flow 22 Safety Joint 75 T-Open 4:55 AM
 (D) Initial Shut-In 988 Circ Sub N/C T-Pulled 7:55 AM
 (E) Second Initial Flow 22 Hourly Standby T-Out 10:30 AM
 (F) Second Final Flow 27 Mileage 1082 RT 158.10 Comments
 (G) Final Shut-In 1031 Sampler
 (H) Final Hydrostatic 2154 Straddle Ruined Shale Packer

Initial Open 30 Shale Packer 250 Ruined Packer
 Initial Shut-In 60 Extra Packer Extra Copies
 Final Flow 30 Extra Recorder Sub Total 0
 Final Shut-In 60 Day Standby Total 1983.10
 Accessibility MP/DST Disc't
 Sub Total 1983.10

Approved By _____ Our Representative

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 53360

Well Name & No. Solko # 1-33 Test No. ~~150~~ 5 Date 8-15-13
 Company Murfin Drilling Co. Elevation 3261 KB 3256 GL
 Address 2505 N Water STE #300 Wichita, KS 67202
 Co. Rep / Geo. Rocky Milford Rig Murfin #8
 Location: Sec. 33 Twp. 2S Rge. 36W Co. Rawlins State KS

Interval Tested 4554-4600 Zone Tested Pawnee
 Anchor Length 46' Drill Pipe Run 4353 Mud Wt. 9.1
 Top Packer Depth 4550 Drill Collars Run 184 Vis 52
 Bottom Packer Depth 4554 Wt. Pipe Run Ø WL 6.4
 Total Depth 4600 Chlorides 1,000 ppm System LCM tr

Blow Description IF-1/4" Blow built to 1", then died back to 1/4"
ISI- NO Return
FF- NO Blow
FSI- NO Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>OSM</u>	<u>SPOTS</u>		<u>1000</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 133 Gravity — API RW — @ — °F Chlorides — ppm

- (A) Initial Hydrostatic 2325
- (B) First Initial Flow 19
- (C) First Final Flow 21
- (D) Initial Shut-In 788
- (E) Second Initial Flow 22
- (F) Second Final Flow 23
- (G) Final Shut-In 780
- (H) Final Hydrostatic 2257

- Test 1250
- Jars 250
- Safety Joint 75
- Circ Sub NIC
- Hourly Standby
- Mileage 102 RT 158.10
- Sampler
- Straddle
- Shale Packer
- Extra Packer
- Extra Recorder
- Day Standby
- Accessibility
- Sub Total 1733.10

- T-On Location 3:00 AM
- T-Started 3:20 AM
- T-Open 5:35 AM
- T-Pulled 8:35 AM
- T-Out 11:30 AM

- Comments
- Ruined Shale Packer
- Ruined Packer
- Extra Copies
- Sub Total 0
- Total 1733.10
- MP/DST Disc't

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

Approved By _____ Our Representative

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