



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co.**

250 N. Water Ste. 300
Wichita KS 67202

ATTN: Keith Reavis

Ken #1-17

17-1s-35w Rawlins,KS

Start Date: 2014.06.10 @ 02:10:00

End Date: 2014.06.10 @ 09:32:00

Job Ticket #: 58192 DST #: 1

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

Printed: 2014.06.13 @ 10:00:19



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling Co.
250 N. Water Ste. 300
Wichita KS 67202
ATTN: Keith Reavis

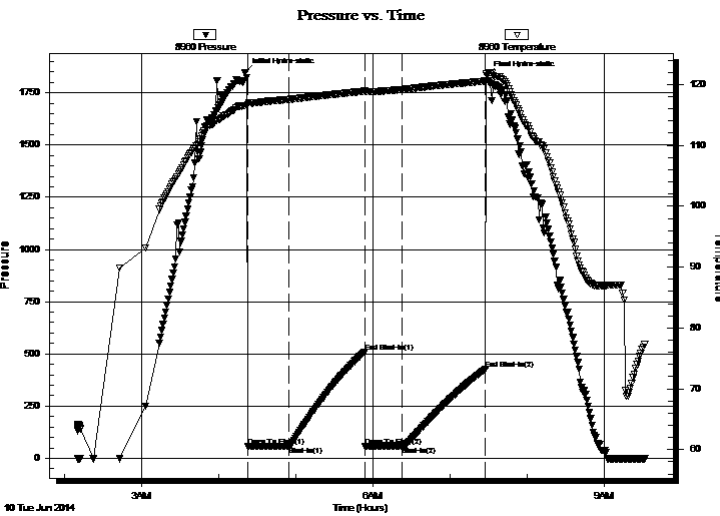
17-1s-35w Rawlins,KS
Ken #1-17
Job Ticket: 58192 **DST#: 1**
Test Start: 2014.06.10 @ 02:10:00

GENERAL INFORMATION:

Formation: **Stotler - Tarkio**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 04:22:30
Time Test Ended: 09:32:00
Interval: **3810.00 ft (KB) To 3928.00 ft (KB) (TVD)**
Total Depth: 3928.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good
Reference Elevations: 3179.00 ft (KB)
3174.00 ft (CF)
KB to GR/CF: 5.00 ft
Test Type: Conventional Bottom Hole (Initial)
Tester: Chuck Kreuzer Jr.
Unit No: 61

Serial #: 8960 Inside
Press@RunDepth: 60.00 psig @ 3811.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2014.06.10 End Date: 2014.06.10 Last Calib.: 2014.06.10
Start Time: 02:10:01 End Time: 09:32:00 Time On Btm: 2014.06.10 @ 04:20:30
Time Off Btm: 2014.06.10 @ 07:28:30

TEST COMMENT: IF: Weak Surface blow , Died in 15 mins. {Slid 10 ft. tool opened on slide bled off blow }
IS: No blow back
FF: No blow
FS: No blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1847.31	116.53	Initial Hydro-static
2	57.16	116.68	Open To Flow (1)
34	58.19	117.53	Shut-In(1)
93	510.21	118.89	End Shut-In(1)
94	58.12	118.80	Open To Flow (2)
122	60.00	119.16	Shut-In(2)
187	427.27	120.55	End Shut-In(2)
188	1831.62	121.76	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
90.00	mud w ith oil specs	0.70

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling Co.
250 N. Water Ste. 300
Wichita KS 67202
ATTN: Keith Reavis

17-1s-35w Rawlins,KS
Ken #1-17
Job Ticket: 58192 **DST#: 1**
Test Start: 2014.06.10 @ 02:10:00

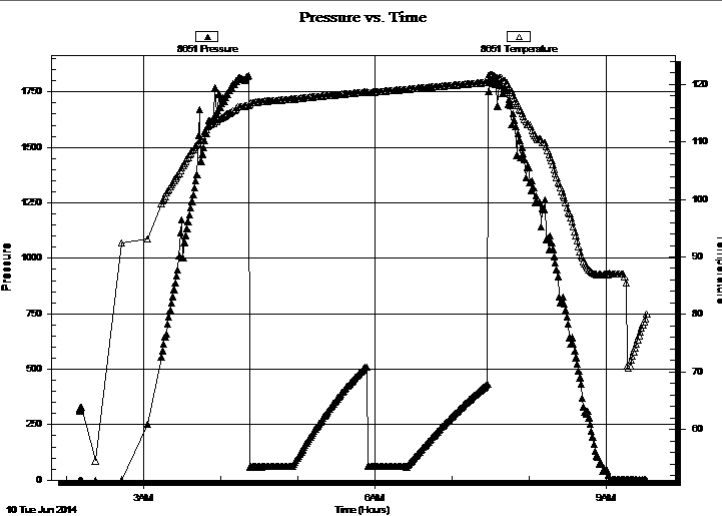
GENERAL INFORMATION:

Formation: **Stotler - Tarkio**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 04:22:30
 Time Test Ended: 09:32:00
 Interval: **3810.00 ft (KB) To 3928.00 ft (KB) (TVD)**
 Total Depth: 3928.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Chuck Kreutzer Jr.
 Unit No: 61
 Reference Elevations: 3179.00 ft (KB)
 3174.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8651 Outside

Press@RunDepth: psig @ 3811.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.06.10 End Date: 2014.06.10 Last Calib.: 2014.06.10
 Start Time: 02:10:01 End Time: 09:32:00 Time On Btm:
 Time Off Btm:

TEST COMMENT: IF: Weak Surface blow , Died in 15 mins. {Slid 10 ft. tool opened on slide bled off blow }
 IS: No blow back
 FF: No blow
 FS: No blow back



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
90.00	mud w ith oil specs	0.70

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co.

17-1s-35w Rawlins,KS

250 N. Water Ste. 300
Wichita KS 67202

Ken #1-17

Job Ticket: 58192

DST#: 1

ATTN: Keith Reavis

Test Start: 2014.06.10 @ 02:10:00

Tool Information

Drill Pipe:	Length: 3740.00 ft	Diameter: 3.80 inches	Volume: 52.46 bbl	Tool Weight: 2400.00 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: 62.00 ft	Diameter: 2.25 inches	Volume: 0.30 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 52.76 bbl</u>	Tool Chased 10.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial 62000.00 lb
Depth to Top Packer:	3810.00 ft			Final 62000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	118.00 ft			
Tool Length:	146.00 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
Shut In Tool	5.00			3787.00	
Hydraulic tool	5.00			3792.00	
Jars	5.00			3797.00	
Safety Joint	3.00			3800.00	
Packer	5.00			3805.00	28.00 Bottom Of Top Packer
Packer	5.00			3810.00	
Packer - Shale	0.00			3810.00	
Stubb	1.00			3811.00	
Recorder	0.00	8960	Inside	3811.00	
Recorder	0.00	8651	Outside	3811.00	
Perforations	17.00			3828.00	
change Over Sub	1.00			3829.00	
Drill Pipe	95.00			3924.00	
Change Over Sub	1.00			3925.00	
Bullnose	3.00			3928.00	118.00 Bottom Packers & Anchor

Total Tool Length: 146.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co.

17-1s-35w Rawlins,KS

250 N. Water Ste. 300
Wichita KS 67202

Ken #1-17

Job Ticket: 58192

DST#: 1

ATTN: Keith Reavis

Test Start: 2014.06.10 @ 02:10:00

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: 40.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.19 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 900.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
90.00	mud w ith oil specs	0.698

Total Length: 90.00 ft Total Volume: 0.698 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

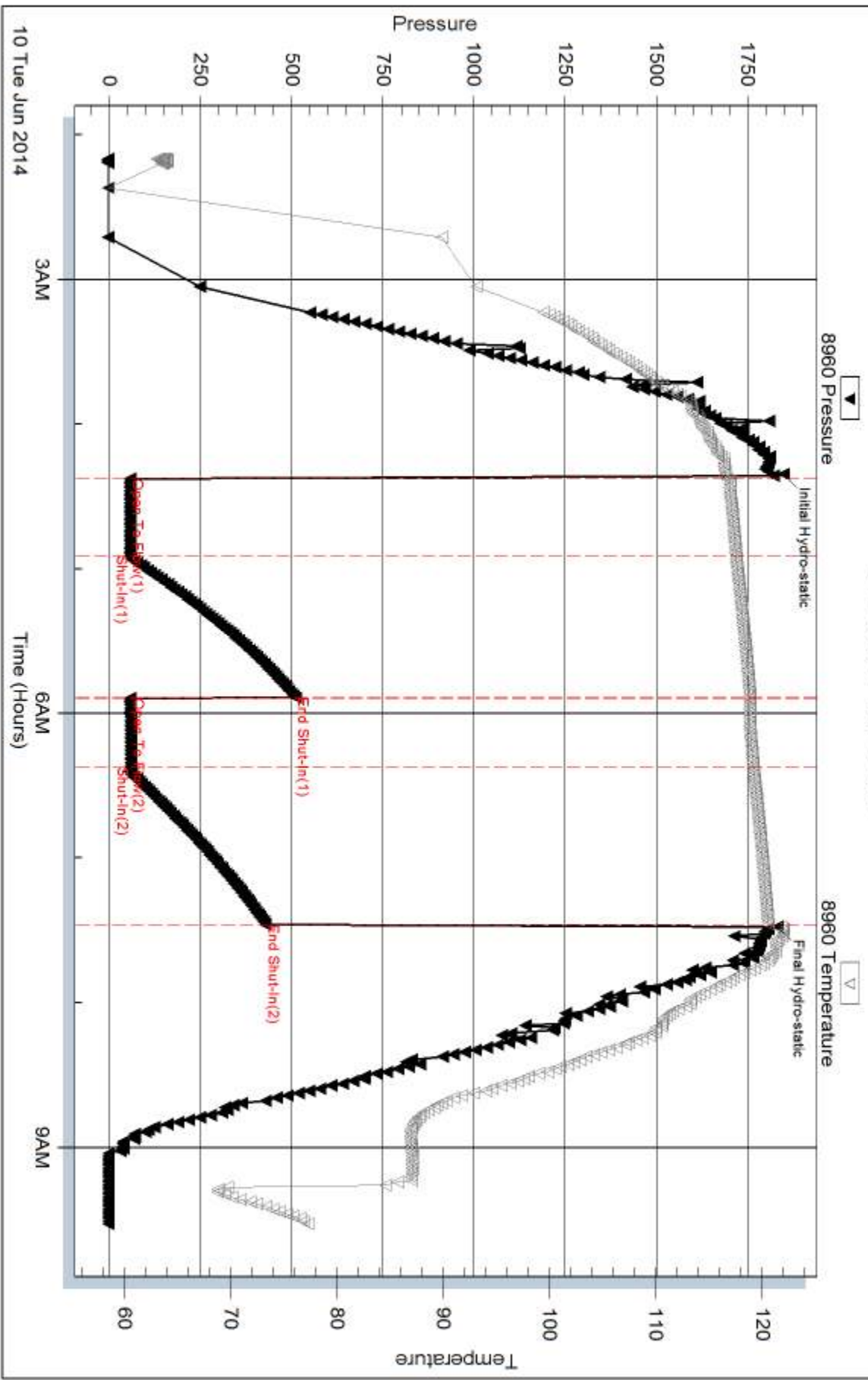
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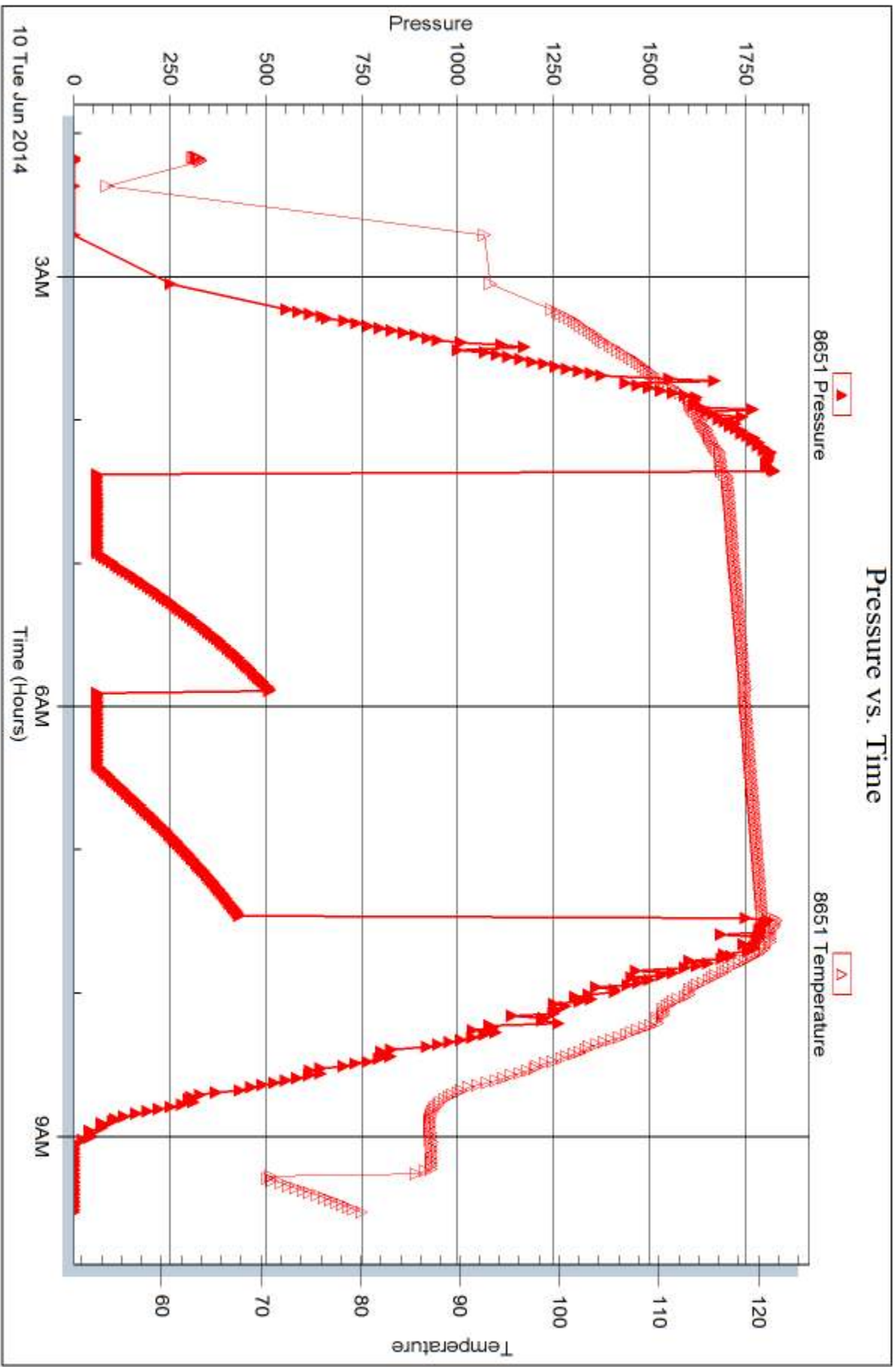
Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time







DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co.**

250 N. Water Ste. 300
Wichita KS 67202

ATTN: Keith Reavis

Ken #1-17

17-1s-35w Rawlins,KS

Start Date: 2014.06.11 @ 13:05:00

End Date: 2014.06.11 @ 20:22:00

Job Ticket #: 58193 DST #: 2

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

Printed: 2014.06.13 @ 09:59:51

Murfin Drilling Co. 17-1s-35w Rawlins,KS Ken #1-17 DST # 2 Toronto - LKC D 2014.06.11



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Murfin Drilling Co.
 250 N. Water Ste. 300
 Wichita KS 67202
 ATTN: Keith Reavis

17-1s-35w Rawlins,KS
Ken #1-17
 Job Ticket: 58193 **DST#: 2**
 Test Start: 2014.06.11 @ 13:05:00

GENERAL INFORMATION:

Formation: **Toronto - LKC D**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 15:12:30
 Time Test Ended: 20:22:00
 Interval: **4050.00 ft (KB) To 4190.00 ft (KB) (TVD)**
 Total Depth: 4190.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Chuck Kreuzer Jr.
 Unit No: 61
 Reference Elevations: 3179.00 ft (KB)
 3174.00 ft (CF)
 KB to GR/CF: 5.00 ft

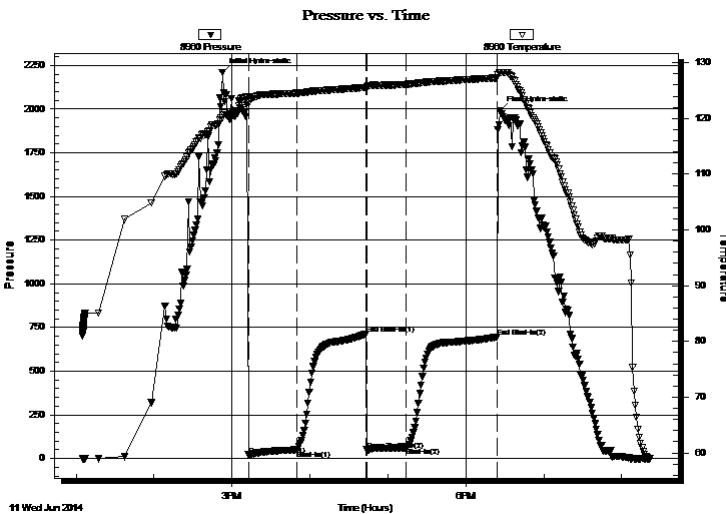
Serial #: 8960

Inside

Press@RunDepth: 61.24 psig @ 4051.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.06.11 End Date: 2014.06.11 Last Calib.: 2014.06.11
 Start Time: 13:05:01 End Time: 20:22:00 Time On Btm: 2014.06.11 @ 14:52:30
 Time Off Btm: 2014.06.11 @ 18:26:30

TEST COMMENT: IF: Weak blow , Weak surface over 30 mins.
 IS: No blow back
 FF: Weak surface blow , Died in 10 mins
 FS: No blow back

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2210.52	120.10	Initial Hydro-static
20	20.70	123.14	Open To Flow (1)
57	49.06	124.53	Shut-In(1)
111	713.28	125.56	End Shut-In(1)
112	45.08	125.71	Open To Flow (2)
142	61.24	126.11	Shut-In(2)
212	695.51	127.27	End Shut-In(2)
214	1989.08	128.26	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
62.00	Vsocrn-8%o92%	0.30
38.00	ocrn-30%o70%m	0.53

* 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.

17-1s-35w Rawlins,KS

250 N. Water Ste. 300
Wichita KS 67202

Ken #1-17

Job Ticket: 58193

DST#: 2

ATTN: Keith Reavis

Test Start: 2014.06.11 @ 13:05:00

Tool Information

Drill Pipe:	Length: 3992.00 ft	Diameter: 3.80 inches	Volume: 56.00 bbl	Tool Weight:	2400.00 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: 62.00 ft	Diameter: 2.25 inches	Volume: 0.30 bbl	Weight to Pull Loose:	70000.00 lb
			<u>Total Volume: 56.30 bbl</u>	Tool Chased	2.00 ft
Drill Pipe Above KB:	32.00 ft			String Weight: Initial	62000.00 lb
Depth to Top Packer:	4050.00 ft			Final	62000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	140.00 ft				
Tool Length:	168.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			4027.00	
Hydraulic tool	5.00			4032.00	
Jars	5.00			4037.00	
Safety Joint	3.00			4040.00	
Packer	5.00			4045.00	28.00 Bottom Of Top Packer
Packer	5.00			4050.00	
Packer - Shale	0.00			4050.00	
Stubb	1.00			4051.00	
Recorder	0.00	8960	Inside	4051.00	
Recorder	0.00	8651	Outside	4051.00	
Perforations	7.00			4058.00	
change Over Sub	1.00			4059.00	
Drill Pipe	127.00			4186.00	
Change Over Sub	1.00			4187.00	
Bullnose	3.00			4190.00	140.00 Bottom Packers & Anchor

Total Tool Length: 168.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co.

17-1s-35w Rawlins,KS

250 N. Water Ste. 300
Wichita KS 67202

Ken #1-17

Job Ticket: 58193

DST#: 2

ATTN: Keith Reavis

Test Start: 2014.06.11 @ 13:05:00

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: 40.00 sec/qt

Cushion Volume:

bbf

Water Loss: 7.18 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 900.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbf
62.00	Vsocm-8%o92%	0.305
38.00	ocm-30%o70%m	0.533

Total Length: 100.00 ft Total Volume: 0.838 bbf

Num Fluid Samples: 0

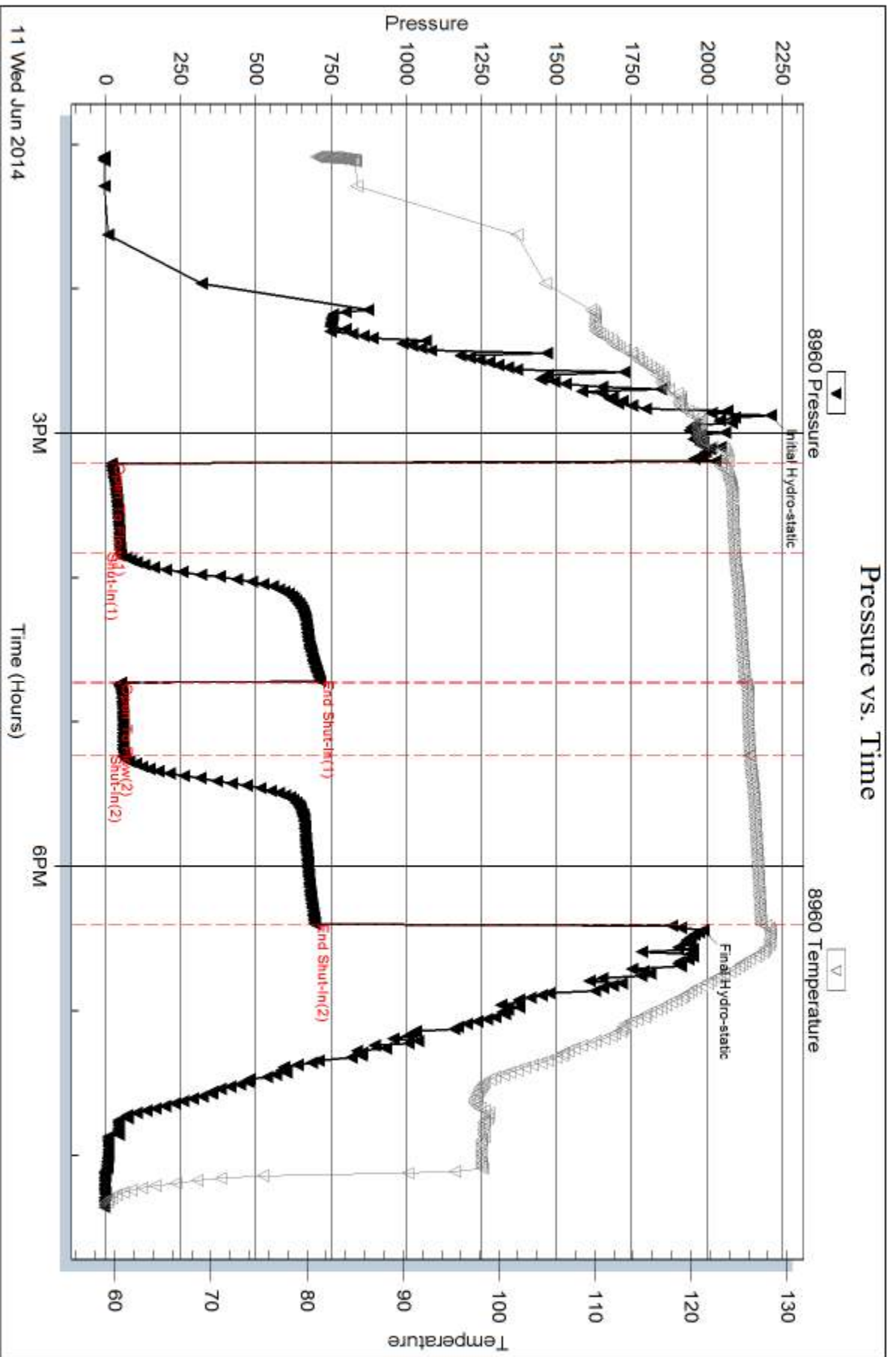
Num Gas Bombs: 0

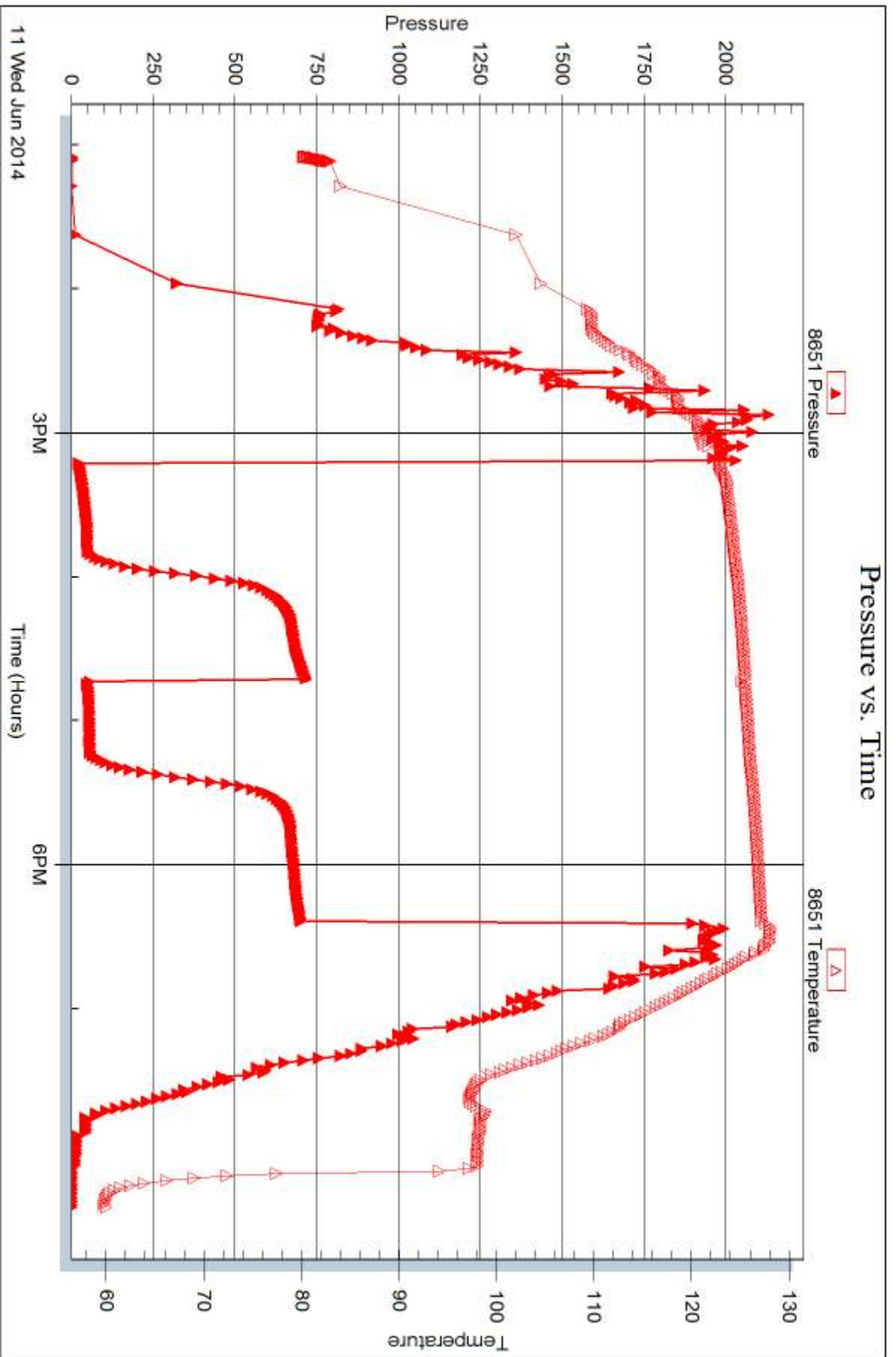
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co.**

250 N. Water Ste. 300
Wichita KS 67202

ATTN: Keith Reavis

Ken #1-17

17-1s-35w Rawlins,KS

Start Date: 2014.06.12 @ 08:10:00

End Date: 2014.06.12 @ 21:51:30

Job Ticket #: 58194 DST #: 3

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

Printed: 2014.06.13 @ 09:59:04



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Murfin Drilling Co.
250 N. Water Ste. 300
Wichita KS 67202
ATTN: Keith Reavis

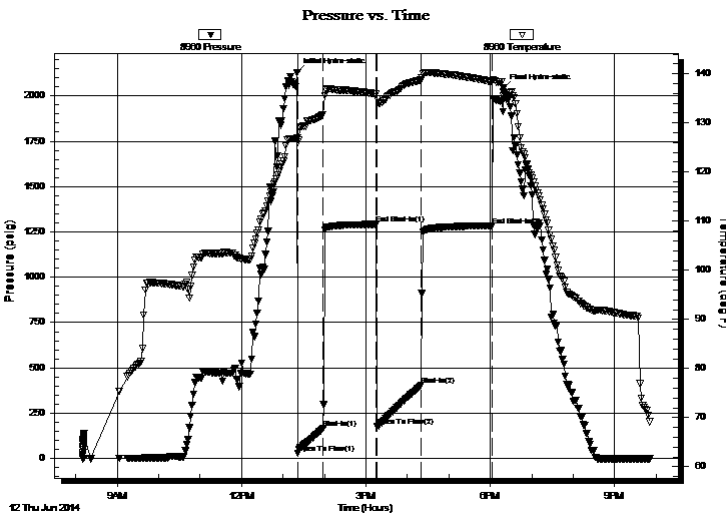
17-1s-35w Rawlins,KS
Ken #1-17
Job Ticket: 58194 **DST#: 3**
Test Start: 2014.06.12 @ 08:10:00

GENERAL INFORMATION:

Formation: **LKC G**
Deviated: No Whipstock: ft (KB) Test Type: Conventional Bottom Hole (Reset)
Time Tool Opened: 13:21:30 Tester: Chuck Kreuzer Jr.
Time Test Ended: 21:51:30 Unit No: 61
Interval: 4178.00 ft (KB) To 4240.00 ft (KB) (TVD) Reference Elevations: 3179.00 ft (KB)
Total Depth: 4240.00 ft (KB) (TVD) 3174.00 ft (CF)
Hole Diameter: 7.88 inches Hole Condition: Good KB to GR/CF: 5.00 ft

Serial #: 8960 Inside
Press@RunDepth: 403.11 psig @ 4179.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2014.06.12 End Date: 2014.06.12 Last Calib.: 2014.06.12
Start Time: 08:10:01 End Time: 21:51:30 Time On Btm: 2014.06.12 @ 13:20:30
Time Off Btm: 2014.06.12 @ 18:19:00

TEST COMMENT: IF: Strong blow , Built to B.O.B in 5 mins
IS: Blow back after 2 mins. Built to 4 in. over 75 mins.
FF: Strong blow , Built to B.O.B in 6 mins.
FSI: Blow back, Built to B.O.B in 30 mins. Started to die, Died to surface over 100 mins.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2129.54	126.88	Initial Hydro-static
1	30.09	126.03	Open To Flow (1)
38	165.69	131.70	Shut-In(1)
114	1291.88	135.85	End Shut-In(1)
116	176.66	134.89	Open To Flow (2)
180	403.11	138.80	Shut-In(2)
282	1284.93	138.36	End Shut-In(2)
299	2042.36	135.44	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
189.00	sgocm-5%g20%o75%m	2.09
189.00	go-70%g30%o	2.65
189.00	go-50%g50%o	2.65
504.00	go-30%g70%o	7.07
0.00	2000 ft.of gas	0.00

* 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.

17-1s-35w Rawlins,KS

250 N. Water Ste. 300
Wichita KS 67202

Ken #1-17

Job Ticket: 58194

DST#: 3

ATTN: Keith Reavis

Test Start: 2014.06.12 @ 08:10:00

Tool Information

Drill Pipe:	Length: 4120.00 ft	Diameter: 3.80 inches	Volume: 57.79 bbl	Tool Weight: 2400.00 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: 62.00 ft	Diameter: 2.25 inches	Volume: 0.30 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 58.09 bbl</u>	Tool Chased 2.00 ft
Drill Pipe Above KB:	32.00 ft			String Weight: Initial 62000.00 lb
Depth to Top Packer:	4178.00 ft			Final 66000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	62.00 ft			
Tool Length:	90.00 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			4155.00	
Hydraulic tool	5.00			4160.00	
Jars	5.00			4165.00	
Safety Joint	3.00			4168.00	
Packer	5.00			4173.00	28.00 Bottom Of Top Packer
Packer	5.00			4178.00	
Packer - Shale	0.00			4178.00	
Stubb	1.00			4179.00	
Recorder	0.00	8960	Inside	4179.00	
Recorder	0.00	8651	Outside	4179.00	
Perforations	4.00			4183.00	
change Over Sub	1.00			4184.00	
Drill Pipe	32.00			4216.00	
Change Over Sub	1.00			4217.00	
Perforations	20.00			4237.00	
Bullnose	3.00			4240.00	62.00 Bottom Packers & Anchor
Total Tool Length:	90.00				



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co.

17-1s-35w Rawlins,KS

250 N. Water Ste. 300
Wichita KS 67202

Ken #1-17

Job Ticket: 58194

DST#: 3

ATTN: Keith Reavis

Test Start: 2014.06.12 @ 08:10:00

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: 5.59 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1100.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
189.00	sgocm-5%g20%o75%m	2.086
189.00	go-70%g30%o	2.651
189.00	go-50%g50%o	2.651
504.00	go-30%g70%o	7.070
0.00	2000 ft.of gas	0.000

Total Length: 1071.00 ft

Total Volume: 14.458 bbl

Num Fluid Samples: 0

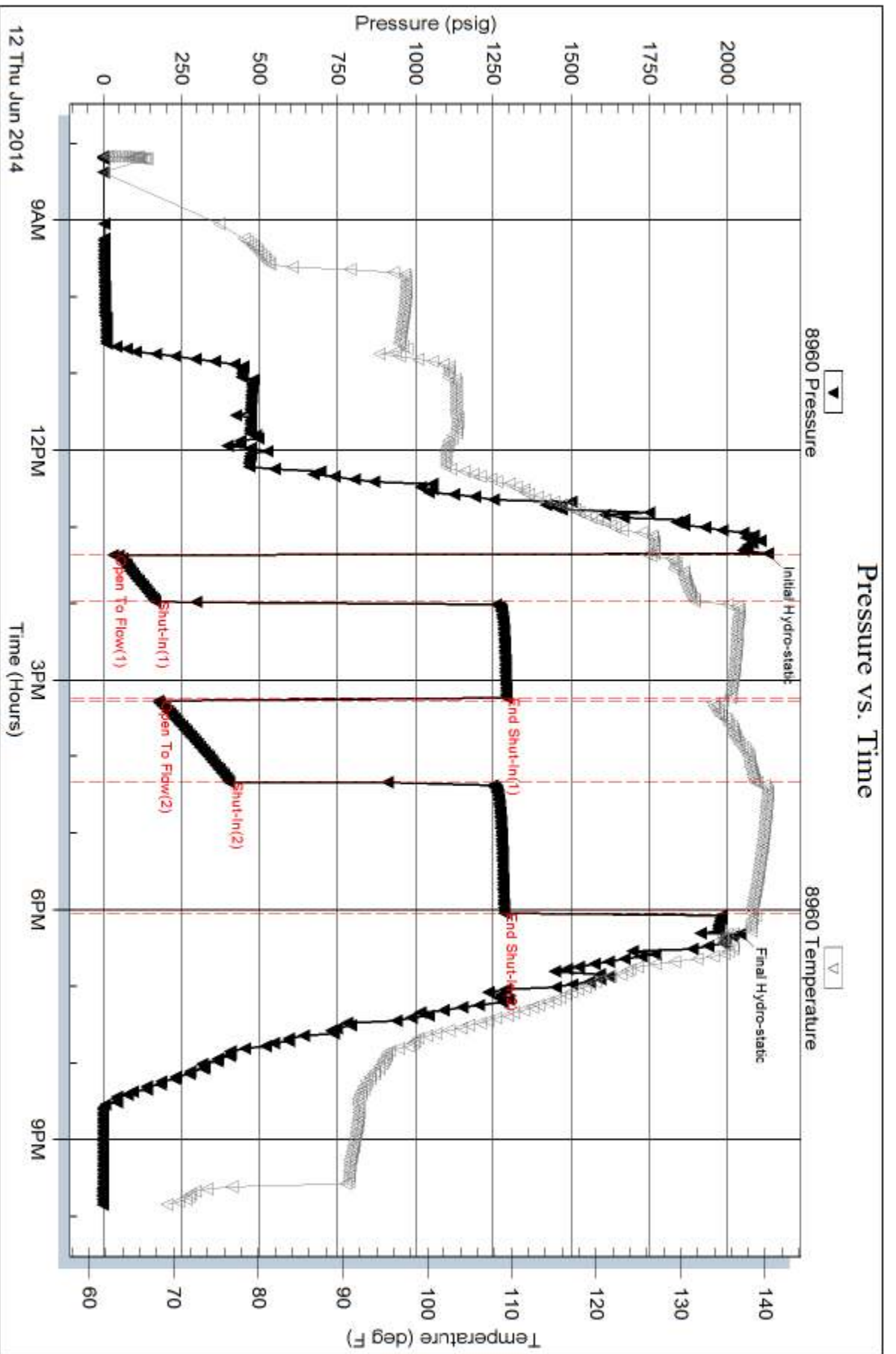
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

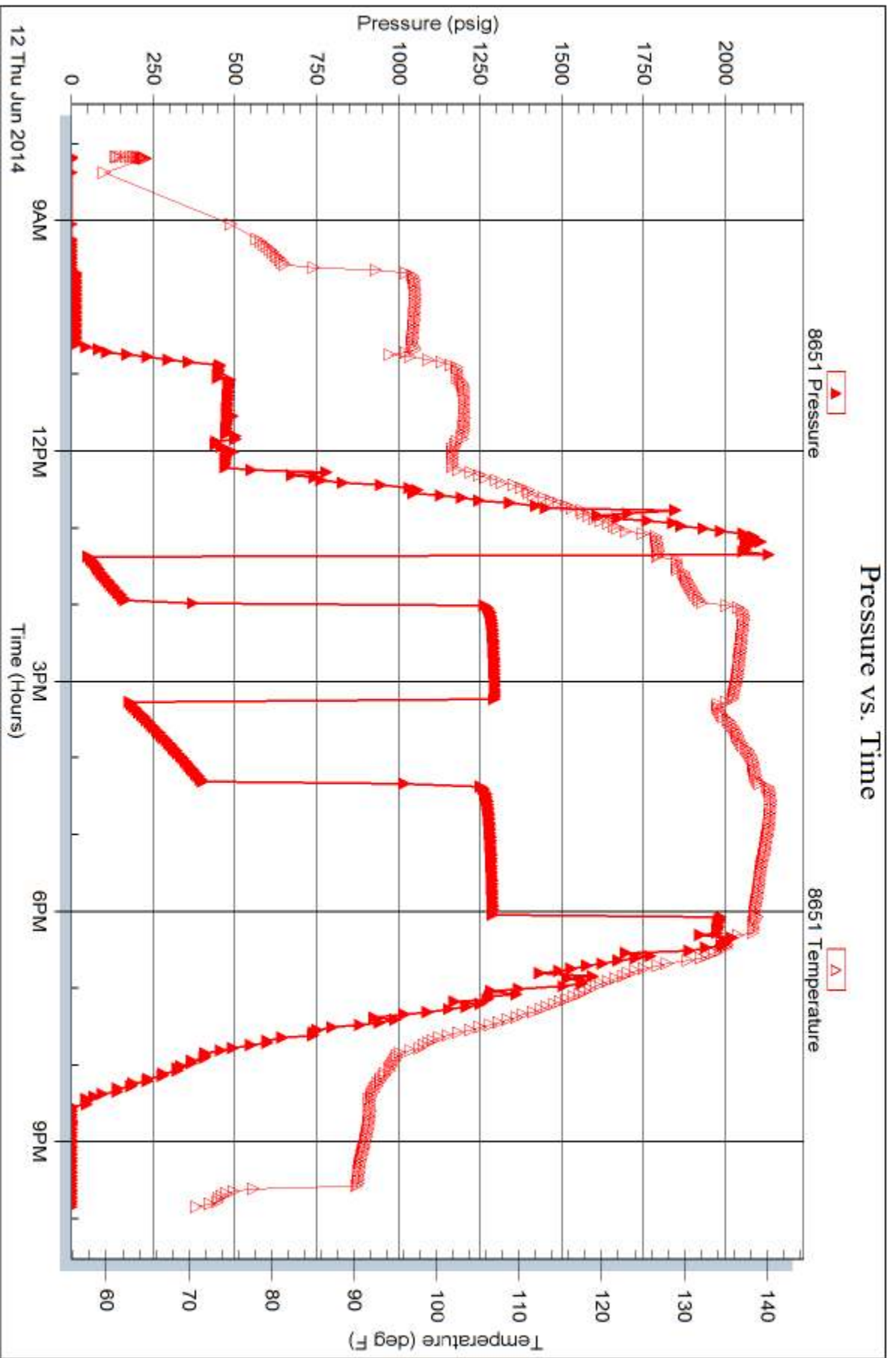


Serial #: 8651

Outside Murfin Drilling Co.

Ken #1-17

DST Test Number: 3





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co.**

250 N. Water Ste. 300
Wichita KS 67202

ATTN: Keith Reavis

Ken #1-17

17-1s-35w Rawlins,KS

Start Date: 2014.06.13 @ 11:51:00

End Date: 2014.06.13 @ 21:55:00

Job Ticket #: 58147 DST #: 4

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

Printed: 2014.06.16 @ 13:01:33



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling Co.
250 N. Water Ste. 300
Wichita KS 67202
ATTN: Keith Reavis

17-1s-35w Rawlins,KS
Ken #1-17
Job Ticket: 58147 **DST#: 4**
Test Start: 2014.06.13 @ 11:51:00

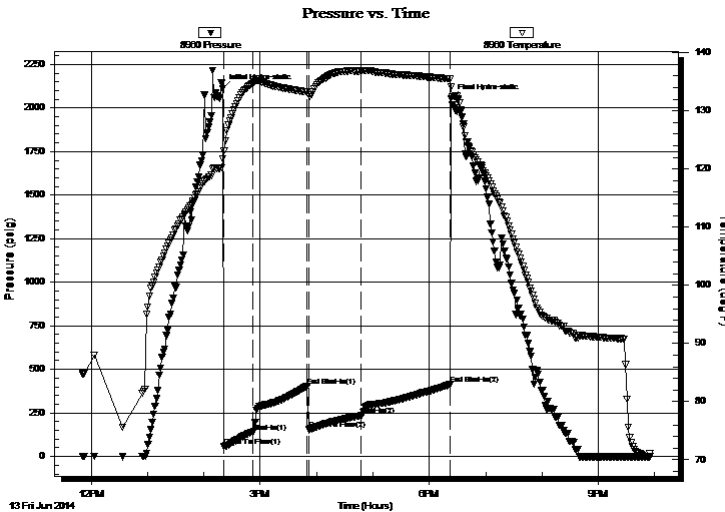
GENERAL INFORMATION:

Formation: **LKC "HJ"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 14:21:30
Time Test Ended: 21:55:00
Interval: **4234.00 ft (KB) To 4330.00 ft (KB) (TVD)**
Total Depth: 4330.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Bottom Hole (Initial)
Tester: Brandon Quintana
Unit No: 61
Reference Elevations: 3179.00 ft (KB)
3174.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8960 Inside
Press@RunDepth: 234.66 psig @ 4235.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2014.06.13 End Date: 2014.06.13 Last Calib.: 2014.06.13
Start Time: 11:51:01 End Time: 21:55:00 Time On Btm: 2014.06.13 @ 14:20:00
Time Off Btm: 2014.06.13 @ 18:23:00

TEST COMMENT: 30 - IF - Opened w/ surface blow , built to BOB in 5 min.
60 - ISI - Return built to 2 1/2", died back to no return
60 - FF - Opened w/ surface blow , built to 1 3/4" died back to 1"
90 - FSI- Return built to BOB in 70 min.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2110.54	121.82	Initial Hydro-static
2	57.74	123.20	Open To Flow (1)
32	140.50	134.74	Shut-In(1)
90	404.98	133.24	End Shut-In(1)
92	153.80	132.82	Open To Flow (2)
147	234.66	136.85	Shut-In(2)
242	412.58	135.49	End Shut-In(2)
243	2053.07	134.09	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
125.00	GOCM 15%g, 40%o, 45%m	1.19
315.00	GO 22%g, 78%o	4.42
146.00	Oil 100%o	2.05

Gas Rates

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



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Murfin Drilling Co.
 250 N. Water Ste. 300
 Wichita KS 67202
 ATTN: Keith Reavis

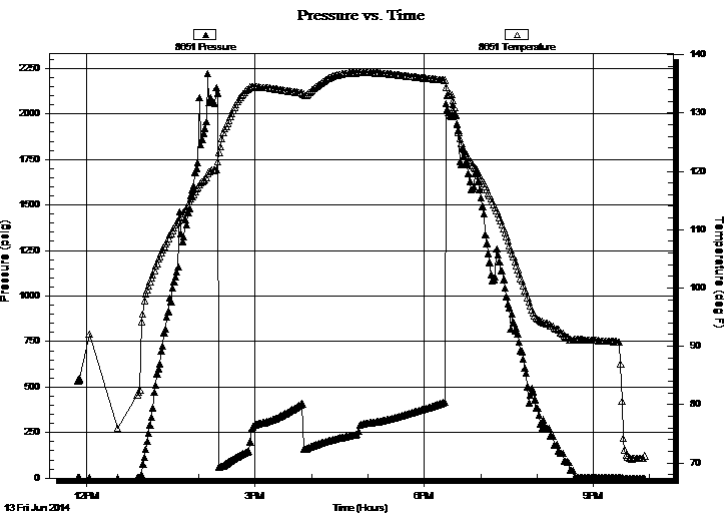
17-1s-35w Rawlins, KS
Ken #1-17
 Job Ticket: 58147 **DST#: 4**
 Test Start: 2014.06.13 @ 11:51:00

GENERAL INFORMATION:

Formation: **LKC "HJ"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 14:21:30
 Time Test Ended: 21:55:00
 Interval: **4234.00 ft (KB) To 4330.00 ft (KB) (TVD)**
 Total Depth: 4330.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Brandon Quintana
 Unit No: 61
 Reference Elevations: 3179.00 ft (KB)
 3174.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8651 Outside
 Press@RunDepth: psig @ 4235.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.06.13 End Date: 2014.06.13 Last Calib.: 2014.06.13
 Start Time: 11:51:01 End Time: 21:55:00 Time On Btm:
 Time Off Btm:

TEST COMMENT: 30 - IF - Opened w/ surface blow , built to BOB in 5 min.
 60 - ISI - Return built to 2 1/2", died back to no return
 60 - FF - Opened w/ surface blow , built to 1 3/4" died back to 1"
 90 - FS- Return built to BOB in 70 min.



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
125.00	GOCM 15%g, 40%o, 45%m	1.19
315.00	GO 22%g, 78%o	4.42
146.00	Oil 100%o	2.05

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co.

17-1s-35w Rawlins,KS

250 N. Water Ste. 300
Wichita KS 67202

Ken #1-17

Job Ticket: 58147

DST#: 4

ATTN: Keith Reavis

Test Start: 2014.06.13 @ 11:51:00

Tool Information

Drill Pipe:	Length: 4153.00 ft	Diameter: 3.80 inches	Volume: 58.26 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: inches	Volume: 0.00 bbl	Weight set on Packer: 30000.00 lb
Drill Collar:	Length: 62.00 ft	Diameter: 2.25 inches	Volume: 0.30 bbl	Weight to Pull Loose: 82000.00 lb
			<u>Total Volume: 58.56 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	9.00 ft			String Weight: Initial 64000.00 lb
Depth to Top Packer:	4234.00 ft			Final 74000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	96.00 ft			
Tool Length:	124.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			4211.00	
Hydraulic tool	5.00			4216.00	
Jars	5.00			4221.00	
Safety Joint	3.00			4224.00	
Packer	5.00			4229.00	28.00 Bottom Of Top Packer
Packer	5.00			4234.00	
Packer - Shale	0.00			4234.00	
Stubb	1.00			4235.00	
Recorder	0.00	8960	Inside	4235.00	
Recorder	0.00	8651	Outside	4235.00	
Perforations	27.00			4262.00	
change Over Sub	1.00			4263.00	
Drill Pipe	63.00			4326.00	
Change Over Sub	1.00			4327.00	
Bullnose	3.00			4330.00	96.00 Bottom Packers & Anchor

Total Tool Length: 124.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co.

17-1s-35w Rawlins,KS

250 N. Water Ste. 300
Wichita KS 67202

Ken #1-17

Job Ticket: 58147

DST#: 4

ATTN: Keith Reavis

Test Start: 2014.06.13 @ 11:51:00

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: 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
125.00	GOCM 15%g, 40%o, 45%m	1.189
315.00	GO 22%g, 78%o	4.419
146.00	Oil 100%o	2.048

Total Length: 586.00 ft Total Volume: 7.656 bbl

Num Fluid Samples: 0

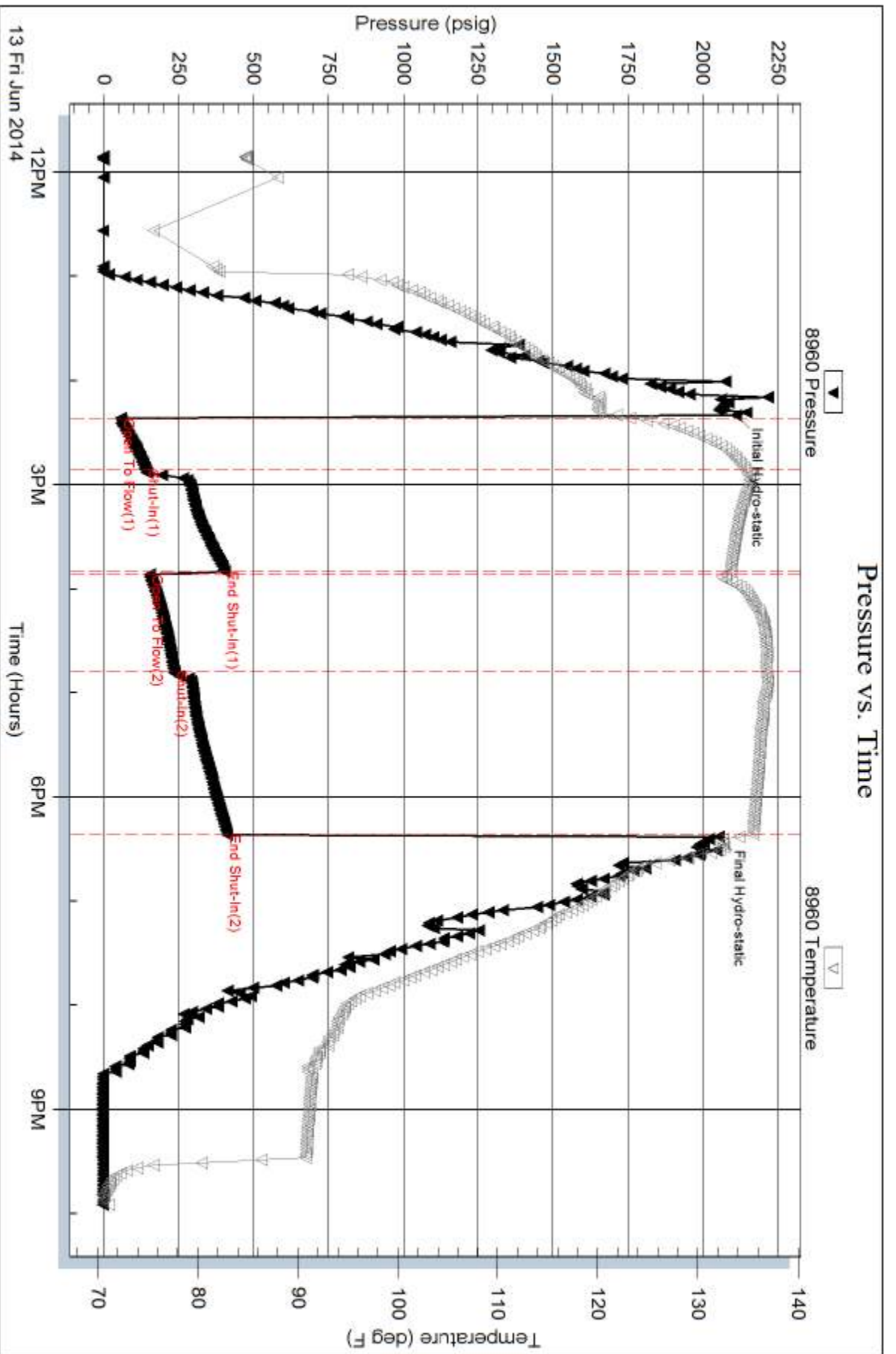
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Gravity 31 @ 80 Corrected = 33

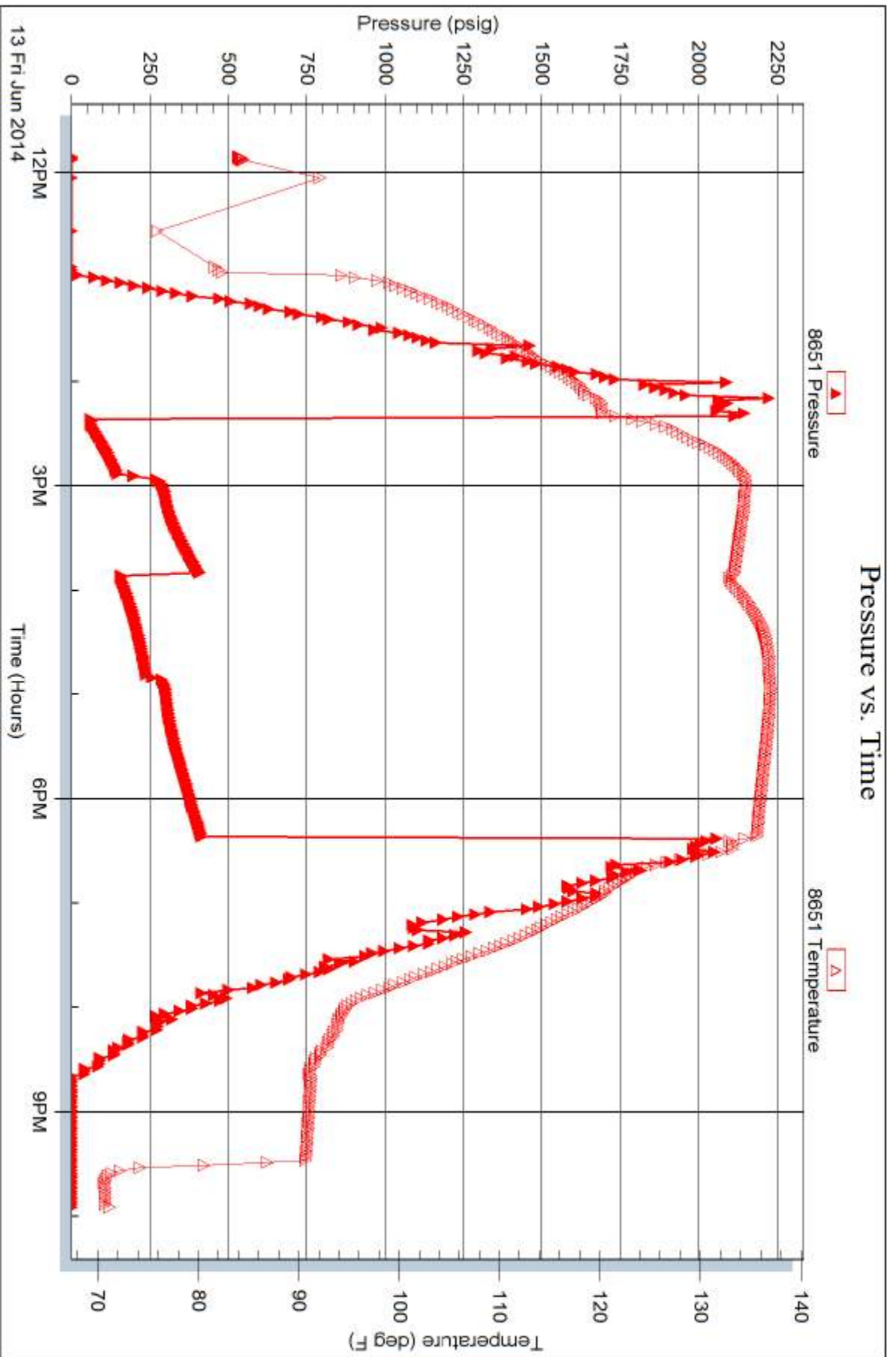


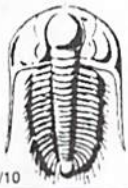
Serial #: 8651

Outside Murfin Drilling Co.

Ken #1-17

DST Test Number: 4





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 58192

4/10

Well Name & No. ~~Murphy Drilling Co. Ren #1-17~~ Test No. 1 Date 6-09-14
 Company Murphy Drilling Co. Elevation 3179 KB 3174 GL
 Address 250 N. Water St. 300-wichita KS 67202
 Co. Rep / Geo. _____ Rig Murphy #7
 Location: Sec. 17 Twp. 15 Rge. 35w Co. Rawlins State KS

Interval Tested 3810 3928 Zone Tested STOTIER / TARKIO
 Anchor Length _____ 118 Drill Pipe Run 3740 Mud Wt. 8.9
 Top Packer Depth _____ 3805 Drill Collars Run 62 Vis 40
 Bottom Packer Depth _____ 3810 Wt. Pipe Run -0- WL 7.2
 Total Depth _____ 3928 Chlorides 900 ppm System LCM 3#

Blow Description (IF:) 10 ft of feed, tool open on slide, lost mud, Refilled Hole. Tool held. Weak surface blow died in 15 mins. (ISI:) No blow back.

(FFI) No blow

(FST:) No blow back

Rec	Feet of	%gas	%oil	%water	%mud
<u>90</u>	<u>mud with oil specs</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 90 BHT 119 Gravity _____ API RW _____ @ _____ ° F Chlorides _____ ppm

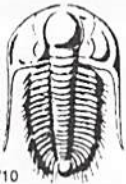
(A) Initial Hydrostatic _____ <u>1847</u>	<input checked="" type="checkbox"/> Test _____ 1150	T-On Location <u>06-09-14 23:30</u>
(B) First Initial Flow _____ <u>57</u>	<input checked="" type="checkbox"/> Jars _____ 250	T-Started <u>6-10-14 2:10</u>
(C) First Final Flow _____ <u>58</u>	<input checked="" type="checkbox"/> Safety Joint _____ 75	T-Open _____ <u>4:22</u>
(D) Initial Shut-In _____ <u>510</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled _____ <u>7:25</u>
(E) Second Initial Flow _____ <u>58</u>	<input type="checkbox"/> Hourly Standby _____ .5h 50	T-Out _____ <u>9:32</u>
(F) Second Final Flow _____ <u>60</u>	<input checked="" type="checkbox"/> Mileage <u>60x2 = 120x1.55</u> 186	Comments <u>Took on bank at 12 midnight</u>
(G) Final Shut-In _____ <u>427</u>	<input type="checkbox"/> Sampler _____	<u>Not out till 2:10AM</u>
(H) Final Hydrostatic _____ <u>1832</u>	<input type="checkbox"/> Straddle _____	

Initial Open _____ <u>30</u>	<input checked="" type="checkbox"/> Shale Packer _____ 250	<input checked="" type="checkbox"/> Ruined Shale Packer _____ 350
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 _____	Extra Copies _____
Final Shut-In _____ <u>60</u>	<input type="checkbox"/> Day Standby _____	Sub Total _____ <u>0</u>
	<input type="checkbox"/> Accessibility _____	Total _____ <u>2311</u>
	Sub Total _____ <u>1961</u>	MP/DST Disc't _____

Approved By _____ Our Representative Chuck Kuntz

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785-259-3188



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **58193**

4/10

Well Name & No. Ken # 1-17 Test No. 2 Date 6-11-14
 Company MurFin Drilling Co. Elevation 3179 KB 3179 GL
 Address 250 N. Water Ste. 300 Wichita KS 67202
 Co. Rep / Geo. _____ Rig MurFin #7
 Location: Sec. 17 Twp. 1S Rge. 35W Co. Rawlins State KS

Interval Tested 4050 4190 Zone Tested Toronto, LKC A&D
 Anchor Length _____ 140 Drill Pipe Run 3992 Mud Wt. 8.9
 Top Packer Depth _____ 4045 Drill Collars Run 62 Vis 40
 Bottom Packer Depth _____ 4050 Wt. Pipe Run - 0' WL 7.2
 Total Depth _____ 4190 Chlorides 900 ppm System LCM 3#

Blow Description IF: Weak blow weak surface over 30 mins.
ISI: No blow back
FF: Weak surface for 10 mins Died
FSD: No blow back

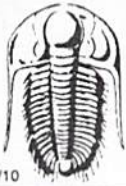
Rec	Feet of	%gas	%oil	%water	%mud
<u>38</u>	<u>OCM</u>		<u>30</u>		<u>70</u>
<u>62</u>	<u>OCM</u>		<u>8</u>		<u>92</u>
_____	_____				
_____	_____				
_____	_____				

Rec Total 100 BHT 127 Gravity _____ API RW _____ @ _____ ° F Chlorides _____ ppm

(A) Initial Hydrostatic _____ <u>2211</u>	<input checked="" type="checkbox"/> Test _____ <u>1250</u>	T-On Location _____ <u>12:50</u>
(B) First Initial Flow _____ <u>21</u>	<input checked="" type="checkbox"/> Jars _____ <u>250</u>	T-Started _____ <u>13:05</u>
(C) First Final Flow _____ <u>49</u>	<input checked="" type="checkbox"/> Safety Joint _____ <u>75</u>	T-Open _____ <u>15:12</u>
(D) Initial Shut-In _____ <u>713</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled _____ <u>18:15</u>
(E) Second Initial Flow _____ <u>45</u>	<input type="checkbox"/> Hourly Standby _____	T-Out _____ <u>20:22</u>
(F) Second Final Flow _____ <u>61</u>	<input checked="" type="checkbox"/> Mileage <u>60x2 = 120x1.55 = 186</u>	Comments _____
(G) Final Shut-In _____ <u>696</u>	<input type="checkbox"/> Sampler _____	
(H) Final Hydrostatic _____ <u>1489</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>30</u>	<input type="checkbox"/> Extra Recorder _____	Sub Total _____ <u>0</u>
Final Shut-In _____ <u>60</u>	<input type="checkbox"/> Day Standby _____	Total _____ <u>1761</u>
	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total _____ <u>1761</u>	

Approved By _____ Our Representative Chad Myers

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **58194**

4/10

Well Name & No. Ken # 1-17 Test No. 3 Date 6-12-74
 Company Murfin Drilling Co. Elevation 3179 KB 3174 GL
 Address 250 N. Water Ste. 300 Wichita Ks. 67202
 Co. Rep / Geo. _____ Rig MURFIN #7
 Location: Sec. 17 Twp. 15 Rge. 3SW Co. Rawlins State Ks

Interval Tested 4178 4240 Zone Tested LKC-G
 Anchor Length 62 Drill Pipe Run 4120 Mud Wt. 9.3
 Top Packer Depth 4173 Drill Collars Run 62 Vis 54
 Bottom Packer Depth 4178 Wt. Pipe Run _____ WL 5.6
 Total Depth 4240 Chlorides 1100 ppm System LCM 5A

Blow Description IF: strong blow, Built to B.O.B in 5 mins.
ISS: Blow back after 2 mins. Built to 4in. over 25 mins.
FF: strong blow built to B.O.B in 6 mins.
FST: Blow back built to B.O.B in 30 mins. started to die, died to surface over 900 mins.

Rec	Feet of	%gas	%oil	%water	%mud
<u>0</u>	<u>2000 ft. of gas</u>				
<u>504</u>	<u>90 -</u>	<u>30</u>	<u>70</u>		
<u>184</u>	<u>90 -</u>	<u>50</u>	<u>50</u>		
<u>184</u>	<u>90 -</u>	<u>70</u>	<u>30</u>		
<u>184</u>	<u>590cm</u>	<u>5</u>	<u>20</u>		<u>75</u>

Rec Total 1071 BHT 138 Gravity 76 API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic <u>2130</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>6:25</u>
(B) First Initial Flow <u>30</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>8:10</u>
(C) First Final Flow <u>166</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>13:21</u>
(D) Initial Shut-In <u>1292</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>18:15</u>
(E) Second Initial Flow <u>177</u>	<input checked="" type="checkbox"/> Hourly Standby <u>Rig standby 3.5h 350</u>	T-Out <u>21:51</u>
(F) Second Final Flow <u>403</u>	<input checked="" type="checkbox"/> Mileage <u>60x2=120x1.55=186</u>	Comments <u>The Rig was Having Problems</u>
(G) Final Shut-In <u>1285</u>	<input type="checkbox"/> Sampler _____	<u>machine working on it all day.</u>
(H) Final Hydrostatic <u>2042</u>	<input type="checkbox"/> Straddle _____	<u>Flow and shut-in off due to not being able</u>
Initial Open <u>45</u>	<input checked="" type="checkbox"/> Shale Packer <u>250</u>	<u>to run down works while working on it.</u>
Initial Shut-In <u>75</u>	<input type="checkbox"/> Extra Packer _____	<u>They were to be on bank by 7:00 AM</u>
Final Flow <u>75</u>	<input type="checkbox"/> Extra Recorder _____	<input type="checkbox"/> Ruined Shale Packer _____
Final Shut-In <u>100</u>	<input type="checkbox"/> Day Standby _____	<input type="checkbox"/> Ruined Packer _____
	<input type="checkbox"/> Accessibility _____	Sub Total <u>0</u>
	Sub Total <u>2361</u>	Total <u>2361</u>
		MP/DST Disc't _____

Approved By _____ Our Representative Chuck Ryan

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