



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co.**

250 N Water Ste 300
Wichita, KS 67202

ATTN: Bob Stolzle

Beckman #1-18

18-7s-29w Sheridan,KS

Start Date: 2014.04.01 @ 02:45:00

End Date: 2014.04.01 @ 12:54:00

Job Ticket #: 56965 DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2014.04.04 @ 10:20:51



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Murfin Drilling Co.
250 N Water Ste 300
Wichita, KS 67202
ATTN: Bob Stolzle

18-7s-29w Sheridan,KS
Beckman #1-18
Job Ticket: 56965 **DST#: 1**
Test Start: 2014.04.01 @ 02:45:00

GENERAL INFORMATION:

Formation: **LKC "A&B"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 06:32:30
Time Test Ended: 12:54:00
Interval: **3933.00 ft (KB) To 4015.00 ft (KB) (TVD)**
Total Depth: 4015.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Bottom Hole (Initial)
Tester: Kevin Mack/Brandon Q
Unit No: 66
Reference Elevations: 2886.00 ft (KB)
2881.00 ft (CF)
KB to GR/CF: 5.00 ft

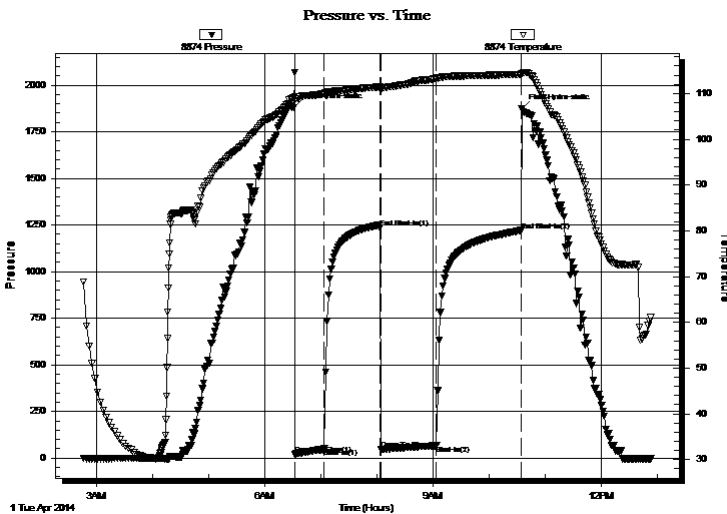
Serial #: 8874

Inside

Press@RunDepth: 69.50 psig @ 3934.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2014.04.01 End Date: 2014.04.01 Last Calib.: 2014.04.01
Start Time: 02:46:00 End Time: 12:54:00 Time On Btm: 2014.04.01 @ 06:30:30
Time Off Btm: 2014.04.01 @ 10:35:00

TEST COMMENT: 30 - IF - Opened @ 1" built to 4"
60 - ISI - No Return
60 - FF - Surface blow built to 4"
90 - FSI - No Return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1878.47	108.96	Initial Hydro-static
2	21.11	108.78	Open To Flow (1)
33	51.76	109.99	Shut-In(1)
93	1233.15	111.43	End Shut-In(1)
94	47.08	111.15	Open To Flow (2)
153	69.50	113.26	Shut-In(2)
244	1221.18	114.19	End Shut-In(2)
245	1873.48	114.42	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
109.00	Mud	0.97

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: Bob Stolzle

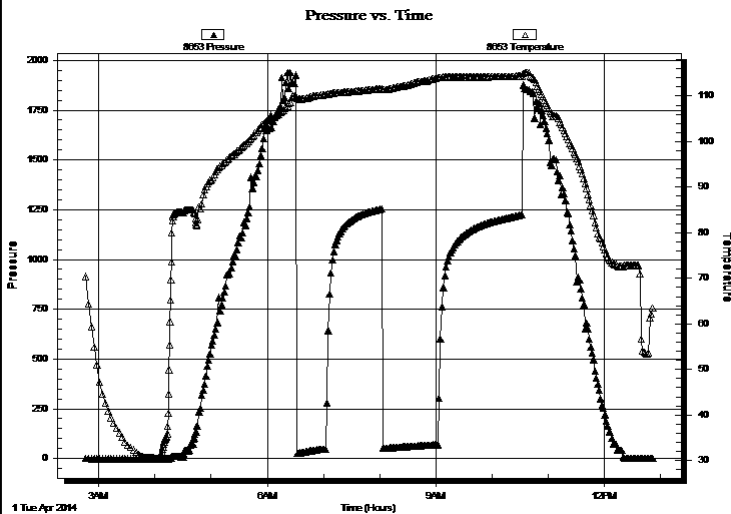
18-7s-29w Sheridan, KS
Beckman #1-18
Job Ticket: 56965 **DST#: 1**
Test Start: 2014.04.01 @ 02:45:00

GENERAL INFORMATION:

Formation: **LKC "A&B"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 06:32:30
Time Test Ended: 12:54:00
Interval: **3933.00 ft (KB) To 4015.00 ft (KB) (TVD)**
Total Depth: 4015.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Bottom Hole (Initial)
Tester: Kevin Mack/Brandon Q
Unit No: 66
Reference Elevations: 2886.00 ft (KB)
2881.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8653 Outside
Press@RunDepth: psig @ 3934.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2014.04.01 End Date: 2014.04.01 Last Calib.: 2014.04.01
Start Time: 02:46:00 End Time: 12:52:00 Time On Btm:
Time Off Btm:

TEST COMMENT: 30 - IF - Opened @ 1" built to 4"
60 - ISI - No Return
60 - FF - Surface blow built to 4"
90 - FSI - No Return



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
109.00	Mud	0.97

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co.

18-7s-29w Sheridan,KS

250 N Water Ste 300
Wichita, KS 67202

Beckman #1-18

Job Ticket: 56965

DST#: 1

ATTN: Bob Stolzle

Test Start: 2014.04.01 @ 02:45:00

Tool Information

Drill Pipe:	Length: 3859.00 ft	Diameter: 3.80 inches	Volume: 54.13 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: 61.00 ft	Diameter: 2.25 inches	Volume: 0.30 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 54.43 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	3933.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	82.00 ft			
Tool Length:	110.00 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			3906.00	
Shut In Tool	5.00			3911.00	
Hydraulic tool	5.00			3916.00	
Jars	5.00			3921.00	
Safety Joint	3.00			3924.00	
Packer	5.00			3929.00	28.00 Bottom Of Top Packer
Packer	4.00			3933.00	
Stubb	1.00			3934.00	
Recorder	0.00	8653	Outside	3934.00	
Recorder	0.00	8874	Inside	3934.00	
Perforations	11.00			3945.00	
Change Over Sub	1.00			3946.00	
Drill Pipe	63.00			4009.00	
Change Over Sub	1.00			4010.00	
Bullnose	5.00			4015.00	82.00 Bottom Packers & Anchor

Total Tool Length: 110.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co.

18-7s-29w Sheridan,KS

250 N Water Ste 300
Wichita, KS 67202

Beckman #1-18

Job Ticket: 56965

DST#: 1

ATTN: Bob Stolzle

Test Start: 2014.04.01 @ 02:45:00

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: 55.00 sec/qt

Cushion Volume:

bbf

Water Loss: 5.97 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 1500.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbf
109.00	Mud	0.973

Total Length: 109.00 ft

Total Volume: 0.973 bbl

Num Fluid Samples: 0

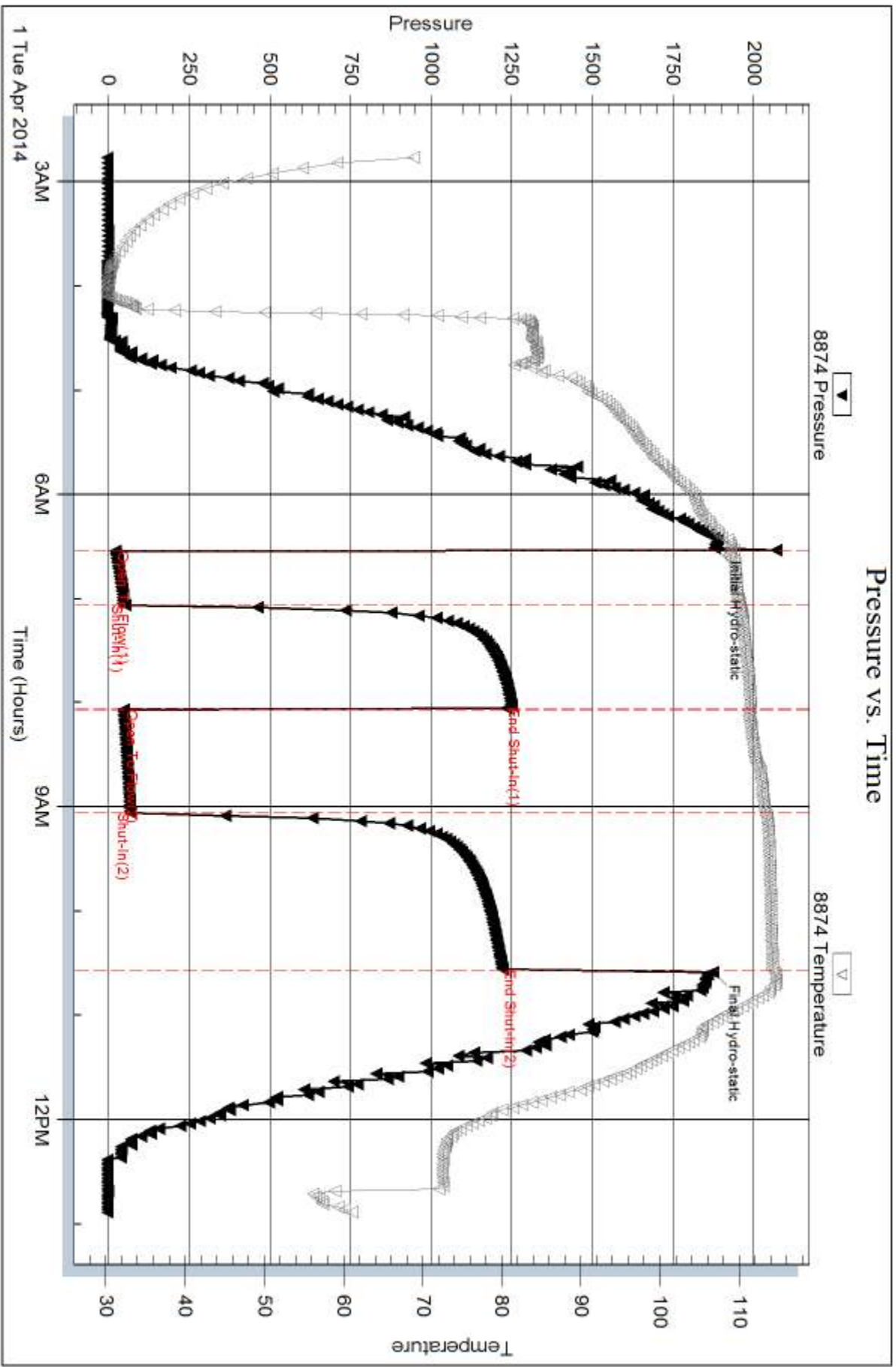
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

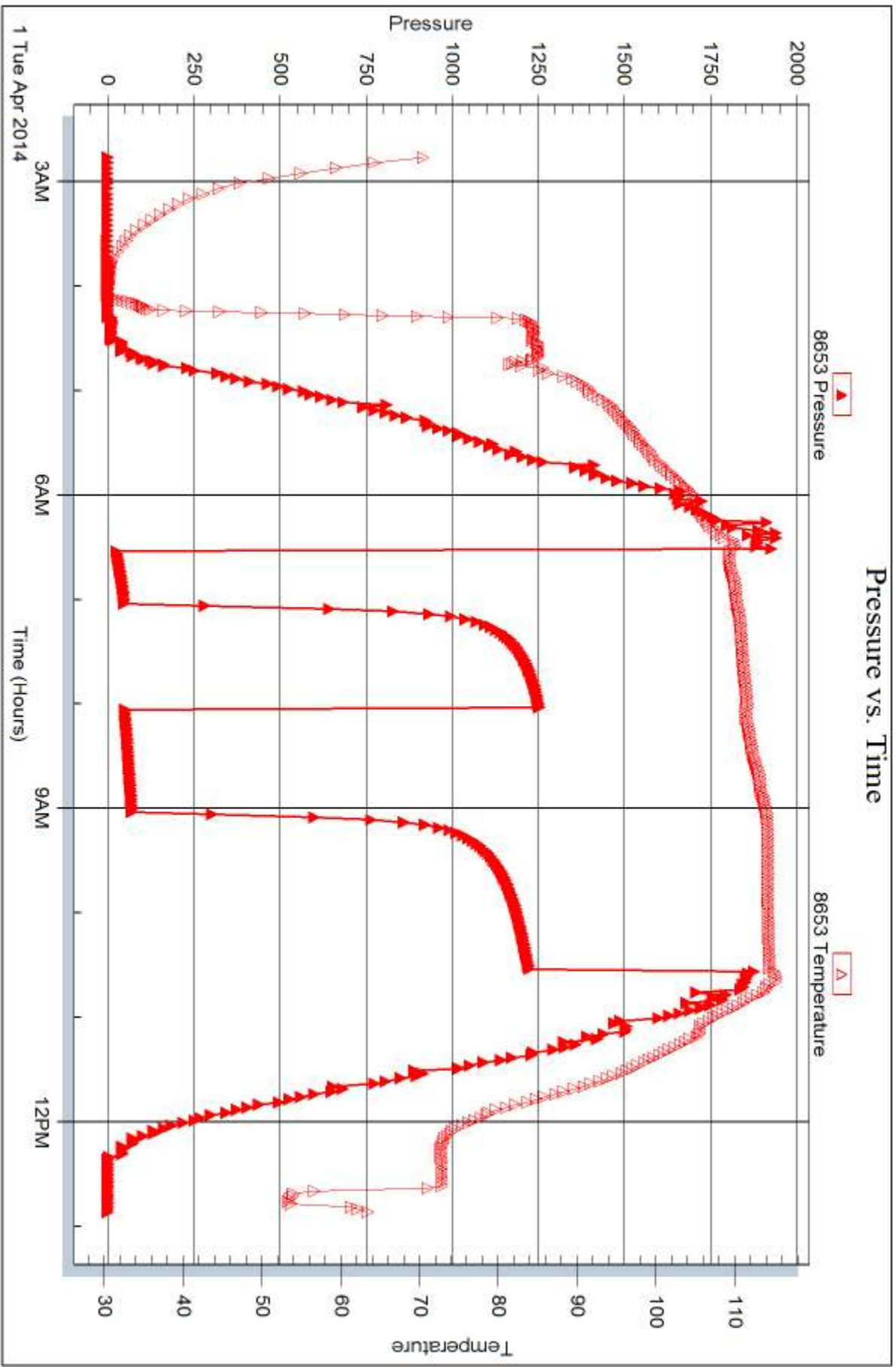


Serial #: 8653

Outside Murfin Drilling Co.

Beckman #1-18

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 56965

Printed: 2014.04.04 @ 10:20:53



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co.**

250 N Water Ste 300
Wichita, KS 67202

ATTN: Bob Stolze

Beckman #1-18

18-7s-29w Sheridan,KS

Start Date: 2014.04.02 @ 08:20:00

End Date: 2014.04.02 @ 17:55:30

Job Ticket #: 56966 DST #: 2

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

Printed: 2014.04.04 @ 10:20:18



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Murfin Drilling Co.
 250 N Water Ste 300
 Wichita, KS 67202
 ATTN: Bob Stolzle

18-7s-29w Sheridan,KS
Beckman #1-18
 Job Ticket: 56966 **DST#: 2**
 Test Start: 2014.04.02 @ 08:20:00

GENERAL INFORMATION:

Formation: **LKC "H J & K"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 11:13:00
 Time Test Ended: 17:55:30
 Interval: **4117.00 ft (KB) To 4178.00 ft (KB) (TVD)**
 Total Depth: 4178.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Kevin Mack/Brandon Q
 Unit No: 66
 Reference Elevations: 2886.00 ft (KB)
 2881.00 ft (CF)
 KB to GR/CF: 5.00 ft

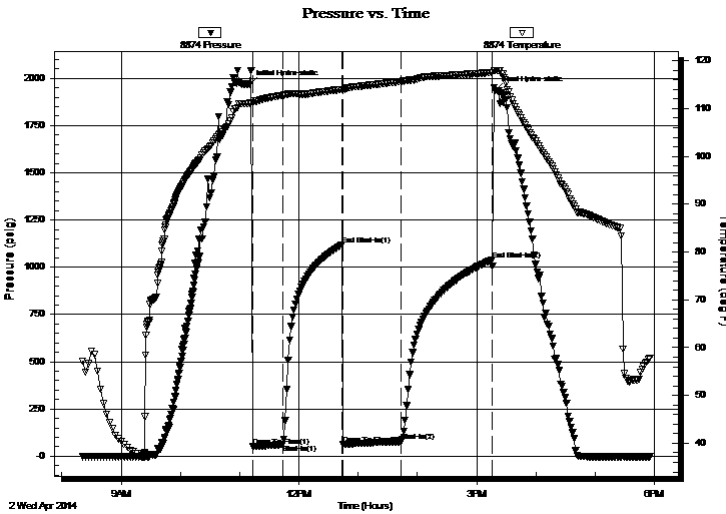
Serial #: 8874

Inside

Press@RunDepth: 76.79 psig @ 4118.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.04.02 End Date: 2014.04.02 Last Calib.: 2014.04.02
 Start Time: 08:21:00 End Time: 17:55:30 Time On Btm: 2014.04.02 @ 11:10:30
 Time Off Btm: 2014.04.02 @ 15:18:30

TEST COMMENT: 30 - IF - Surface blow built to 3 1/4"
 60 - ISI - No Return
 60 - FF - Surface blow started in 2 minutes and built to 4 3/4"
 90 - FSI - No Return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1968.00	111.11	Initial Hydro-static
3	50.50	111.20	Open To Flow (1)
33	61.23	112.75	Shut-In(1)
93	1119.23	114.02	End Shut-In(1)
94	63.36	113.82	Open To Flow (2)
153	76.79	115.67	Shut-In(2)
245	1039.05	117.52	End Shut-In(2)
248	1936.83	117.97	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
61.00	WOCM 15%O 5%W 80%M	
68.00	OCM 20%O 80%M	

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co.

18-7s-29w Sheridan,KS

250 N Water Ste 300
Wichita, KS 67202

Beckman #1-18

Job Ticket: 56966

DST#: 2

ATTN: Bob Stolzle

Test Start: 2014.04.02 @ 08:20:00

Tool Information

Drill Pipe:	Length: 4056.00 ft	Diameter:	inches	Volume: 3940090 bbl	Tool Weight:	2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter:	inches	Volume: 0.00 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 61.00 ft	Diameter:	inches	Volume: 5925678 bbl	Weight to Pull Loose:	70000.00 lb
				<u>Total Volume: 3999347 bbl</u>	Tool Chased	15.00 ft
Drill Pipe Above KB:	28.00 ft				String Weight: Initial	60000.00 lb
Depth to Top Packer:	4117.00 ft				Final	60000.00 lb
Depth to Bottom Packer:	ft					
Interval between Packers:	61.00 ft					
Tool Length:	89.00 ft					
Number of Packers:	2	Diameter:	6.75 inches			

Tool Comments: Tool slid 15', chased tool another 5', 20' total slide
Bull nose came out completely plugged.

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4090.00	
Shut In Tool	5.00			4095.00	
Hydraulic tool	5.00			4100.00	
Jars	5.00			4105.00	
Safety Joint	3.00			4108.00	
Packer	5.00			4113.00	28.00 Bottom Of Top Packer
Packer	4.00			4117.00	
Stubb	1.00			4118.00	
Recorder	0.00	8653	Outside	4118.00	
Recorder	0.00	8874	Inside	4118.00	
Perforations	21.00			4139.00	
Change Over Sub	1.00			4140.00	
Drill Pipe	32.00			4172.00	
Change Over Sub	1.00			4173.00	
Bullnose	5.00			4178.00	61.00 Bottom Packers & Anchor

Total Tool Length: 89.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co.

18-7s-29w Sheridan,KS

250 N Water Ste 300
Wichita, KS 67202

Beckman #1-18

Job Ticket: 56966

DST#: 2

ATTN: Bob Stolzle

Test Start: 2014.04.02 @ 08:20:00

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: 69.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.98 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2400.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
61.00	WOCM 15%O 5%W 80%M	
68.00	OCM 20%O 80%M	

Total Length: 129.00 ft

Total Volume: bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

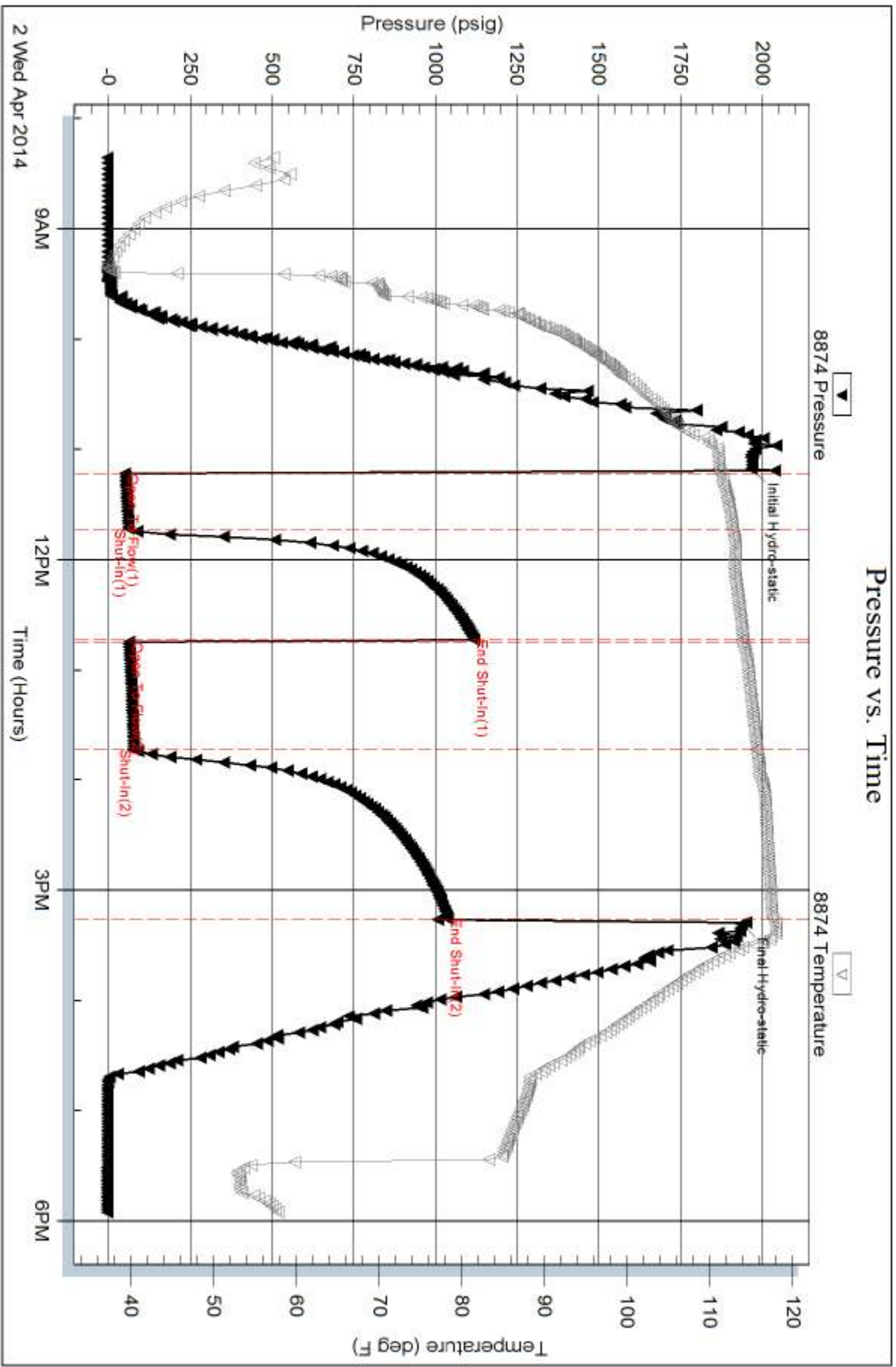
Serial #: 8874

Inside

Murfin Drilling Co.

Beckman #1-18

DST Test Number: 2

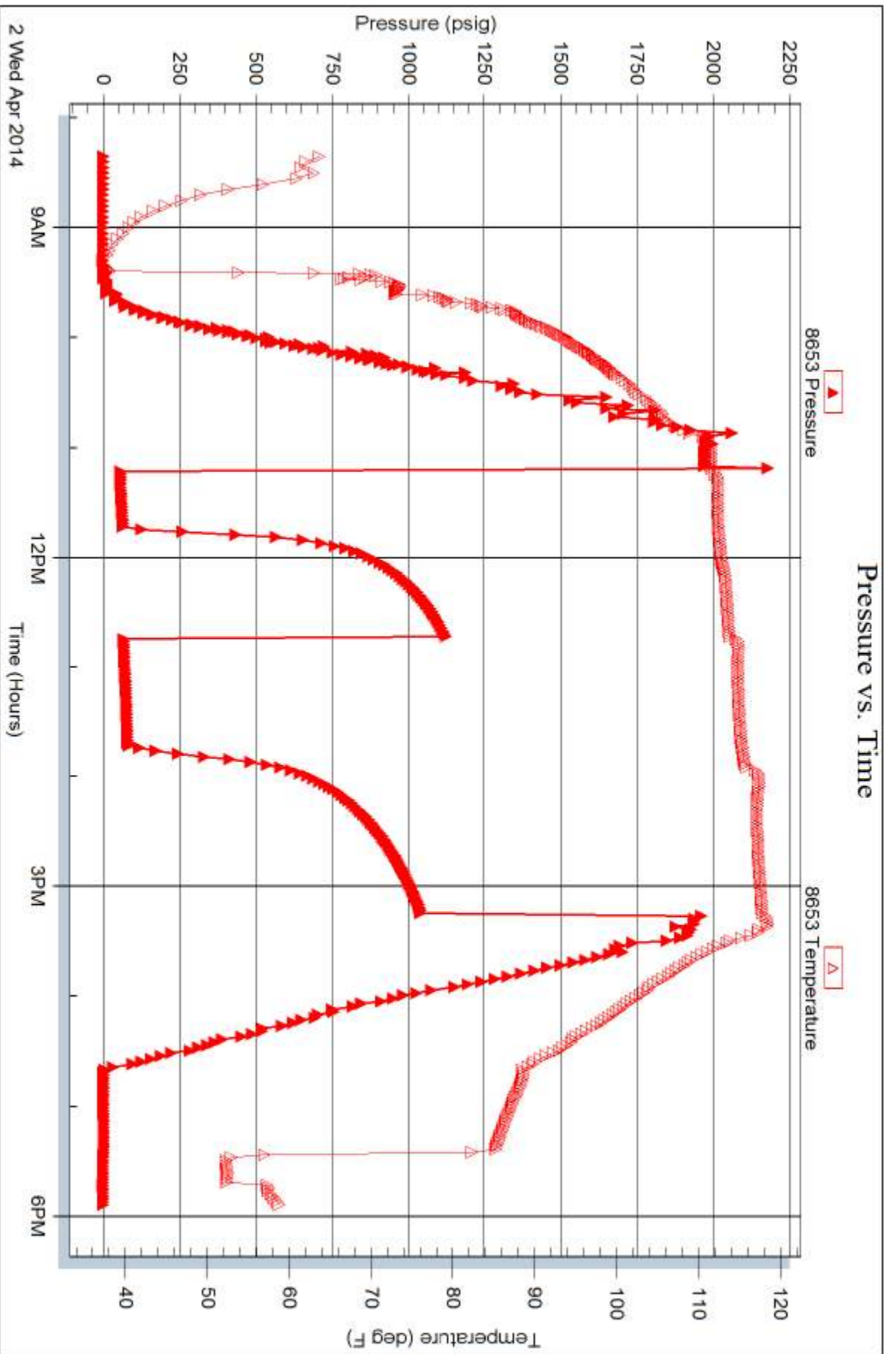


Serial #: 8653

Outside Murfin Drilling Co.

Beckman #1-18

DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 56966

Printed: 2014.04.04 @ 10:20:20



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **56965**

Well Name & No. Beckman #1-18 Test No. 1 Date 03-31-2014
 Company Murfin Drilling Co. Elevation 2886 KB 2881 GL
 Address 250 N Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Bob Stolzle Rig Murfin #7
 Location: Sec. 18 Twp. 7s Rge. 29w Co. Sheridan State KS

Interval Tested 3933-4015 Zone Tested LKC "A+B"
 Anchor Length 82' Drill Pipe Run 3859 Mud Wt. 9
 Top Packer Depth 3929 Drill Collars Run 61' Vis 55
 Bottom Packer Depth 3933 Wt. Pipe Run — WL 6
 Total Depth 4015 Chlorides 1500 ppm System LCM 2
 Blow Description IF-Opened @ 1" built to 4"
ISI- No Return
FF- Surface blow built to 4"
FSI- No Return

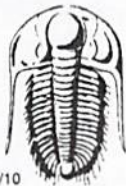
Rec	Feet of	%gas	%oil	%water	%mud
<u>109</u>	<u>Mud</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 109 BHT 114 Gravity — API RW — @ — ° F Chlorides — ppm

(A) Initial Hydrostatic <u>1878</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>11:30 P.M.</u>
(B) First Initial Flow <u>21</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>2:45 AM</u>
(C) First Final Flow <u>51</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>6:35 AM</u>
(D) Initial Shut-In <u>1233</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>10:35 AM</u>
(E) Second Initial Flow <u>47</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>1:00 PM</u>
(F) Second Final Flow <u>69</u>	<input checked="" type="checkbox"/> Mileage <u>60 R.T.</u> 93	Comments
(G) Final Shut-In <u>1221</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1873</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>1668</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1668</u>	

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. 56966

Well Name & No. Murfin Drilling Co. Beckman H-8 Test No. 2 Date 04-02-2014
 Company Murfin Drilling Co. Elevation 2886 KB 2881 GL
 Address 250 N Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Bob Stolzle Rig Murfin #7
 Location: Sec. 18 Twp. 7S Rge. 29W Co. Sheridan State KS

Interval Tested 4117-4178 Zone Tested LKC HJ+K
 Anchor Length 61' Drill Pipe Run 4056 Mud Wt. 9
 Top Packer Depth 4113 Drill Collars Run 61' Vis 69
 Bottom Packer Depth 4117 Wt. Pipe Run — WL 6
 Total Depth 4178 Chlorides 2400 ppm System LCM 4
 Blow Description IF - Surface blow built to 3 1/4"
ISI - No Return
FF - Surface blow started in 2 minutes & built to 4 3/4"
FSI - No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>68</u>	<u>OCM</u>		<u>20</u>		<u>80</u>
<u>61</u>	<u>WOCM</u>		<u>15</u>	<u>5</u>	<u>80</u>

Rec Total 129' BHT 118 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic <u>1968</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>7:30 AM</u>
(B) First Initial Flow <u>50</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>8:20 AM</u>
(C) First Final Flow <u>61</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>11:15 AM</u>
(D) Initial Shut-In <u>1119</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>3:15 PM</u>
(E) Second Initial Flow <u>63</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>6:00 PM</u>
(F) Second Final Flow <u>77</u>	<input checked="" type="checkbox"/> Mileage <u>60 R.T. 42</u> 186	Comments <u>Tool slid 5'</u>
(G) Final Shut-In <u>1039</u>	<input type="checkbox"/> Sampler	<u>chased tool another</u>
(H) Final Hydrostatic <u>1937</u>	<input type="checkbox"/> Straddle	<u>15; 20' total slide</u>
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer	<u>But nose came out plugged</u>
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer	<u>loaded tools 8:00 PM</u>
Final Flow <u>60</u>	<input type="checkbox"/> Extra Recorder	<input type="checkbox"/> Ruined Shale Packer
Final Shut-In <u>90</u>	<input checked="" type="checkbox"/> Day Standby <u>1d 2h</u>	<input type="checkbox"/> Ruined Packer <u>43-14</u>
	<input type="checkbox"/> Accessibility	<input type="checkbox"/> Extra Copies
	Sub Total <u>1761</u>	Sub Total <u>800</u>
		Total <u>2561</u>
		MP/DST Disc't

Approved By _____ Our Representative [Signature] [Signature]

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