

Confidentiality Requested:

Yes No

KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

Form ACO-1

January 2018

Form must be Typed

Form must be Signed

All blanks must be Filled

WELL COMPLETION FORM
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # _____

Name: _____

Address 1: _____

Address 2: _____

City: _____ State: _____ Zip: _____ + _____

Contact Person: _____

Phone: (_____) _____

CONTRACTOR: License # _____

Name: _____

Wellsite Geologist: _____

Purchaser: _____

Designate Type of Completion:

New Well Re-Entry Workover

Oil WSW SWD

Gas DH EOR

OG GSW

CM (Coal Bed Methane)

Cathodic Other (Core, Expl., etc.): _____

If Workover/Re-entry: Old Well Info as follows:

Operator: _____

Well Name: _____

Original Comp. Date: _____ Original Total Depth: _____

Deepening Re-perf. Conv. to EOR Conv. to SWD

Plug Back Liner Conv. to GSW Conv. to Producer

Commingled Permit #: _____

Dual Completion Permit #: _____

SWD Permit #: _____

EOR Permit #: _____

GSW Permit #: _____

Spud Date or Date Reached TD Completion Date or Recompletion Date

API No.: _____

Spot Description: _____

_____ - _____ - _____ Sec. _____ Twp. _____ S. R. _____ East West

_____ Feet from North / South Line of Section

_____ Feet from East / West Line of Section

Footages Calculated from Nearest Outside Section Corner:

NE NW SE SW

GPS Location: Lat: _____, Long: _____
(e.g. xx.xxxxx) (e.g. -xxx.xxxxx)

Datum: NAD27 NAD83 WGS84

County: _____

Lease Name: _____ Well #: _____

Field Name: _____

Producing Formation: _____

Elevation: Ground: _____ Kelly Bushing: _____

Total Vertical Depth: _____ Plug Back Total Depth: _____

Amount of Surface Pipe Set and Cemented at: _____ Feet

Multiple Stage Cementing Collar Used? Yes No

If yes, show depth set: _____ Feet

If Alternate II completion, cement circulated from: _____

feet depth to: _____ w/ _____ sx cmt.

Drilling Fluid Management Plan

(Data must be collected from the Reserve Pit)

Chloride content: _____ ppm Fluid volume: _____ bbls

Dewatering method used: _____

Location of fluid disposal if hauled offsite:

Operator Name: _____

Lease Name: _____ License #: _____

Quarter _____ Sec. _____ Twp. _____ S. R. _____ East West

County: _____ Permit #: _____

AFFIDAVIT

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

KCC Office Use ONLY

Confidentiality Requested

Date: _____

Confidential Release Date: _____

Wireline Log Received Drill Stem Tests Received

Geologist Report / Mud Logs Received

UIC Distribution

ALT I II III Approved by: _____ Date: _____

Operator Name: _____ Lease Name: _____ Well #: _____

Sec. _____ Twp. _____ S. R. _____ East West County: _____

INSTRUCTIONS: Show important tops of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed.

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to kcc-well-logs@kcc.ks.gov. Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

Drill Stem Tests Taken <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(Attach Additional Sheets)</i> Samples Sent to Geological Survey <input type="checkbox"/> Yes <input type="checkbox"/> No Cores Taken <input type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Run <input type="checkbox"/> Yes <input type="checkbox"/> No Geologist Report / Mud Logs <input type="checkbox"/> Yes <input type="checkbox"/> No List All E. Logs Run: _____	<input type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample Name Top Datum
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CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> Used							
Report all strings set-conductor, surface, intermediate, production, etc.							
Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives

ADDITIONAL CEMENTING / SQUEEZE RECORD				
Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
<input type="checkbox"/> Perforate <input type="checkbox"/> Protect Casing <input type="checkbox"/> Plug Back TD <input type="checkbox"/> Plug Off Zone				

1. Did you perform a hydraulic fracturing treatment on this well? Yes No *(If No, skip questions 2 and 3)*
2. Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons? Yes No *(If No, skip question 3)*
3. Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry? Yes No *(If No, fill out Page Three of the ACO-1)*

Date of first Production/Injection or Resumed Production/Injection:	Producing Method: <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other <i>(Explain)</i> _____				
Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <i>(Submit ACO-4)</i>	PRODUCTION INTERVAL: Top Bottom
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Shots Per Foot	Perforation Top	Perforation Bottom	Bridge Plug Type	Bridge Plug Set At	Acid, Fracture, Shot, Cementing Squeeze Record <i>(Amount and Kind of Material Used)</i>

TUBING RECORD:	Size:	Set At:	Packer At:	
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Form	ACO1 - Well Completion
Operator	Murfin Drilling Co., Inc.
Well Name	ABELL RANCH 'B' 4-31
Doc ID	1419922

All Electric Logs Run

DIL
DUCP
MEL
BHCS



GEOLOGIST'S REPORT

OPERATOR **MURFIN DRILLING COMPANY, INC.**
LEASE **ABELL RANCH 'B' # 4-31**

ELEVATIONS
KB **2877 Ft.**

LOCATION **1980 FNL & 2077 FWL**

SEC. **31** TWPSP **12S** RGE **30W**

COUNTY **GOVE** STATE **KANSAS**

FIELD **GAILAND WEST**

CONTRACTOR **Murfin Drilling Co.** RIG NO. **7**

COMMENCED **19 July 2018** COMPLETED **28 July 2018**

WLD DISPLACED **3224'** MUD TYPE **Chemical**

DRILLING TIME KEPT FROM **3570** TO **4620**

SAMPLES SAVED FROM **3570** TO **4620**

SAMPLES EXAMINED FROM **3570** TO **4620**

GEOLOGICAL SUPERVISION FROM **3500** TO **4620**

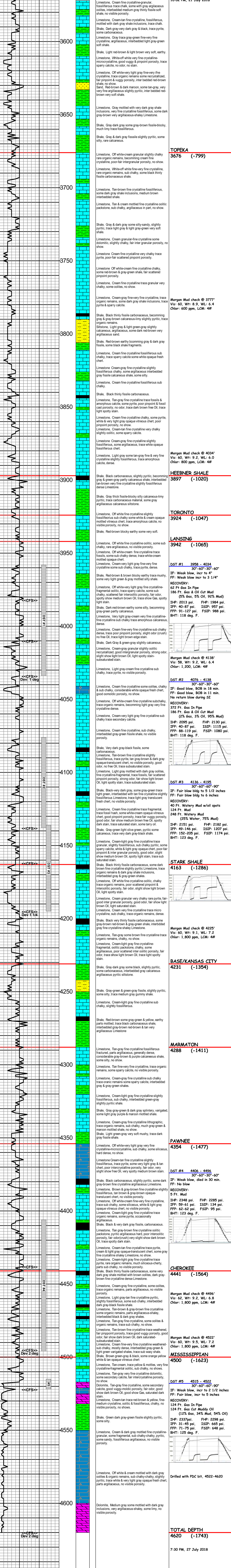
GEOLOGIST ON WELL **Paul Guizelman**

FORMATION

LOG

FORMATION	LOG	TOP DATUM	SAMPLE	DATE
Stone Corral	2360	+517	2360	+517
Base/Anhydrite	2386	+491	2386	+491
Topoka	3676	-799	3680	-803
Heebner Shale	3897	-1019	3897	-1020
Lansing	3942	-1065	3932	-1055
Base/Kansas City	4231	-1354	4227	-1350
Marmaton	4286	-1409	4288	-1411
Cherokee	4441	-1564	4441	-1564
Mississippian	4500	-1623	4504	-1627
Total Depth	4618	-1741	4620	-1743

DRILL TIME (MIN/FT)	DEPTH	LITHOLOGY	REMARKS
			8:09 PM, 20 July 2018
			STONE CORRAL 2360 (+517)
			BASE/ANHYDRITE 2386 (+491)
			10:02 PM, 21 July 2018
			TOPEKA 3676 (-799)
			HEEBNER SHALE 3897 (-1020)
			TORONTO 3924 (-1047)
			LANSING 3942 (-1065)
			DST #1 3958 - 4034 30"-60"-30"-60" IF: Weak blow, incr to 4" FF: Weak blow incr to 3 1/4" RECOVERY: 62 Ft Gas In Pipe 186 Ft. Gas & Oil Cut Mud (5% Gas, 5% Oil, 92% Mud) IHP: 2013 psi. FHP: 1984 psi. IFP: 40-87 psi. ISIP: 957 psi. FFP: 91-127 psi. FSIP: 988 psi. BHT: 118 deg. F.
			Morgan Mud check @ 3777' Vis: 60, Wt: 8.9, WL: 6.0 Chlor: 600 ppm, LCM: 4#
			Morgan Mud check @ 4034' Vis: 58, Wt: 9.2, WL: 6.4 Chlor: 800 ppm, LCM: 4#
			HEEBNER SHALE 3897 (-1020)
			DST #2 4076 - 4138 30"-60"-30"-60" IF: Good blow, BOB in 18 min. FF: Good blow, BOB in 11 min. No return blow during ST RECOVERY: 372 Ft. Gas In Pipe 186 Ft. Gas & Oil Cut Mud (2% Gas, 3% Oil, 95% Mud) IHP: 2013 psi. FHP: 2130 psi. IFP: 40-87 psi. ISIP: 1115 psi. FFP: 88-119 psi. FSIP: 1080 psi. BHT: 118 deg. F.
			Morgan Mud check @ 4138' Vis: 58, Wt: 9.2, WL: 6.4 Chlor: 1,200, LCM: 4#
			DST #3 4136 - 4195 30"-60"-60"-90" IF: Fair blow bldg to 5 1/2 inches FF: Fair blow bldg to 6 inches RECOVERY: 40 Ft. Watery Mud w/oil spots 124 Ft. Watery Mud 248 Ft. Watery Mud (2% Gas, 75% Mud) IHP: 2151 psi. FHP: 2182 psi. IFP: 49-146 psi. ISIP: 1207 psi. FFP: 152-205 psi. FSIP: 1174 psi. BHT: 123 deg. F.
			STARKE SHALE 4163 (-1286)
			Morgan Mud check @ 4225' Vis: 60, Wt: 9.1, WL: 7.2 Chlor: 1,800 ppm, LCM: 4#
			BASE/KANSAS CITY 4231 (-1354)
			MARMATON 4288 (-1411)
			PAWNEE 4354 (-1477)
			DST #4 4406 - 4496 30"-60"-30"-60" IF: Weak blow, died in 30 min. FF: No blow RECOVERY: 5 Ft. Mud IHP: 2348 psi. FHP: 2285 psi. IFP: 59-61 psi. ISIP: 134 psi. FFP: 62-62 psi. FSIP: 95 psi. BHT: 123 deg. F.
			Morgan Mud check @ 4496' Vis: 62, Wt: 9.2, WL: 6.8 Chlor: 1,800 ppm, LCM: 4#
			Morgan Mud check @ 4522' Vis: 60, Wt: 9.5, WL: 7.2 Chlor: 1,800 ppm, LCM: 4#
			MISSISSIPPIAN 4500 (-1623)
			DST #5 4515 - 4522 30"-60"-60"-90" IF: Weak blow, incr to 2 1/2 inches FF: Fair blow, incr to 5 inches RECOVERY: 124 Ft. Gas In Pipe 124 Ft. Gas Cut Muddy Oil (12% Gas, 34% Mud, 54% Oil) IHP: 2337psi. FHP: 2298 psi. IFP: 31-45 psi. ISIP: 665 psi. FFP: 71-75 psi. FSIP: 648 psi. BHT: 125 deg. F.
			Morgan Mud check @ 4496' Vis: 62, Wt: 9.2, WL: 6.8 Chlor: 1,800 ppm, LCM: 4#
			Drilled with PDC bit, 4522-4620
			TOTAL DEPTH 4620 (-1743)
			7:30 PM, 27 July 2018



Operator: **MURFIN DRILLING COMPANY, INC.**
 Lease: **ABELL RANCH 'B' # 4-31**
 Location: **1980 FNL & 2077 FWL** SEC. **31** TWPSP **12S** RGE **30W**
 County: **GOVE** State: **KANSAS**



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company Inc**

250 N Water St STE 300
Wichita KS 67202

ATTN: Paul Gunzelman

Abell Ranch B #4-31

31-12s-30w Gove,KS

Start Date: 2018.07.23 @ 08:30:15

End Date: 2018.07.23 @ 15:29:00

Job Ticket #: 64329 DST #: 1

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

Printed: 2018.07.30 @ 09:56:39



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Company Inc
 250 N Water St STE 300
 Wichita KS 67202
 ATTN: Paul Gunzelman

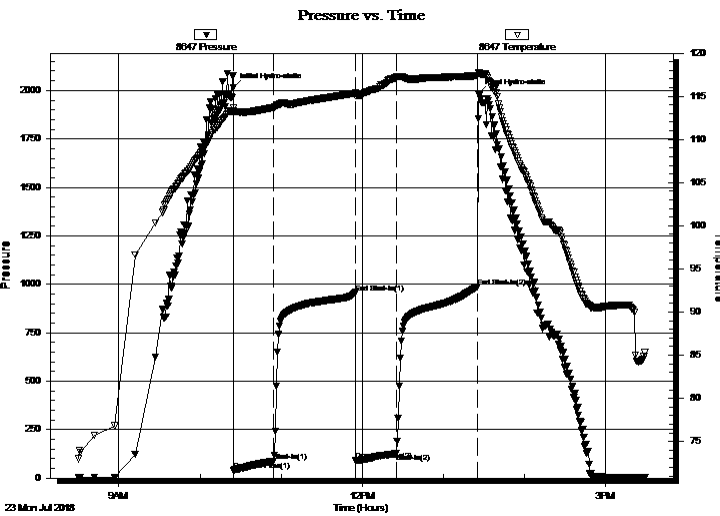
31-12s-30w Gove,KS
Abell Ranch B #4-31
 Job Ticket: 64329 **DST#: 1**
 Test Start: 2018.07.23 @ 08:30:15

GENERAL INFORMATION:

Formation: **LKC B-F**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 10:25:00
 Time Test Ended: 15:29:00
 Interval: **3958.00 ft (KB) To 4034.00 ft (KB) (TVD)**
 Total Depth: 4034.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Mike Roberts
 Unit No: 81
 Reference Elevations: 2877.00 ft (KB)
 2872.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8647 **Inside**
 Press@RunDepth: 127.34 psig @ 3994.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2018.07.23 End Date: 2018.07.23 Last Calib.: 2018.07.24
 Start Time: 08:30:15 End Time: 15:29:00 Time On Btm: 2018.07.23 @ 10:24:45
 Time Off Btm: 2018.07.23 @ 13:26:00

TEST COMMENT: IF: Built to 4" blow
 FF: No return blow
 FF: Built to 3 1/4" blow
 FS: No return blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2013.61	113.61	Initial Hydro-static
1	40.84	113.07	Open To Flow (1)
30	87.37	113.71	Shut-In(1)
91	957.60	115.35	End Shut-In(1)
91	91.83	115.06	Open To Flow (2)
121	127.34	117.17	Shut-In(2)
181	988.64	117.38	End Shut-In(2)
182	1984.35	117.75	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
0.00	GIP= 62 ft	0.00
186.00	gcom 5%g 5%o 90%m	0.91

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Company Inc

31-12s-30w Gove, KS

250 N Water St STE 300
Wichita KS 67202

Abell Ranch B #4-31

Job Ticket: 64329

DST#: 1

ATTN: Paul Gunzelman

Test Start: 2018.07.23 @ 08:30:15

Tool Information

Drill Pipe:	Length: 3705.00 ft	Diameter: 3.80 inches	Volume: 51.97 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 247.00 ft	Diameter: 2.25 inches	Volume: 1.21 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 53.18 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	22.00 ft			String Weight: Initial 70000.00 lb
Depth to Top Packer:	3958.00 ft			Final 71000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	76.00 ft			
Tool Length:	104.00 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			3931.00	
Shut In Tool	5.00			3936.00	
Hydraulic tool	5.00			3941.00	
Jars	5.00			3946.00	
Safety Joint	3.00			3949.00	
Packer	5.00			3954.00	28.00 Bottom Of Top Packer
Packer	4.00			3958.00	
Stubb	1.00			3959.00	
Perforations	1.00			3960.00	
Change Over Sub	1.00			3961.00	
Drill Pipe	32.00			3993.00	
Change Over Sub	1.00			3994.00	
Recorder	0.00	8647	Inside	3994.00	
Recorder	0.00	8374	Outside	3994.00	
Perforations	35.00			4029.00	
Bullnose	5.00			4034.00	76.00 Bottom Packers & Anchor
Total Tool Length:	104.00				



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Company Inc
250 N Water St STE 300
Wichita KS 67202
ATTN: Paul Gunzelman

31-12s-30w Gove,KS
Abell Ranch B #4-31
Job Ticket: 64329 **DST#: 1**
Test Start: 2018.07.23 @ 08:30:15

Mud and Cushion Information

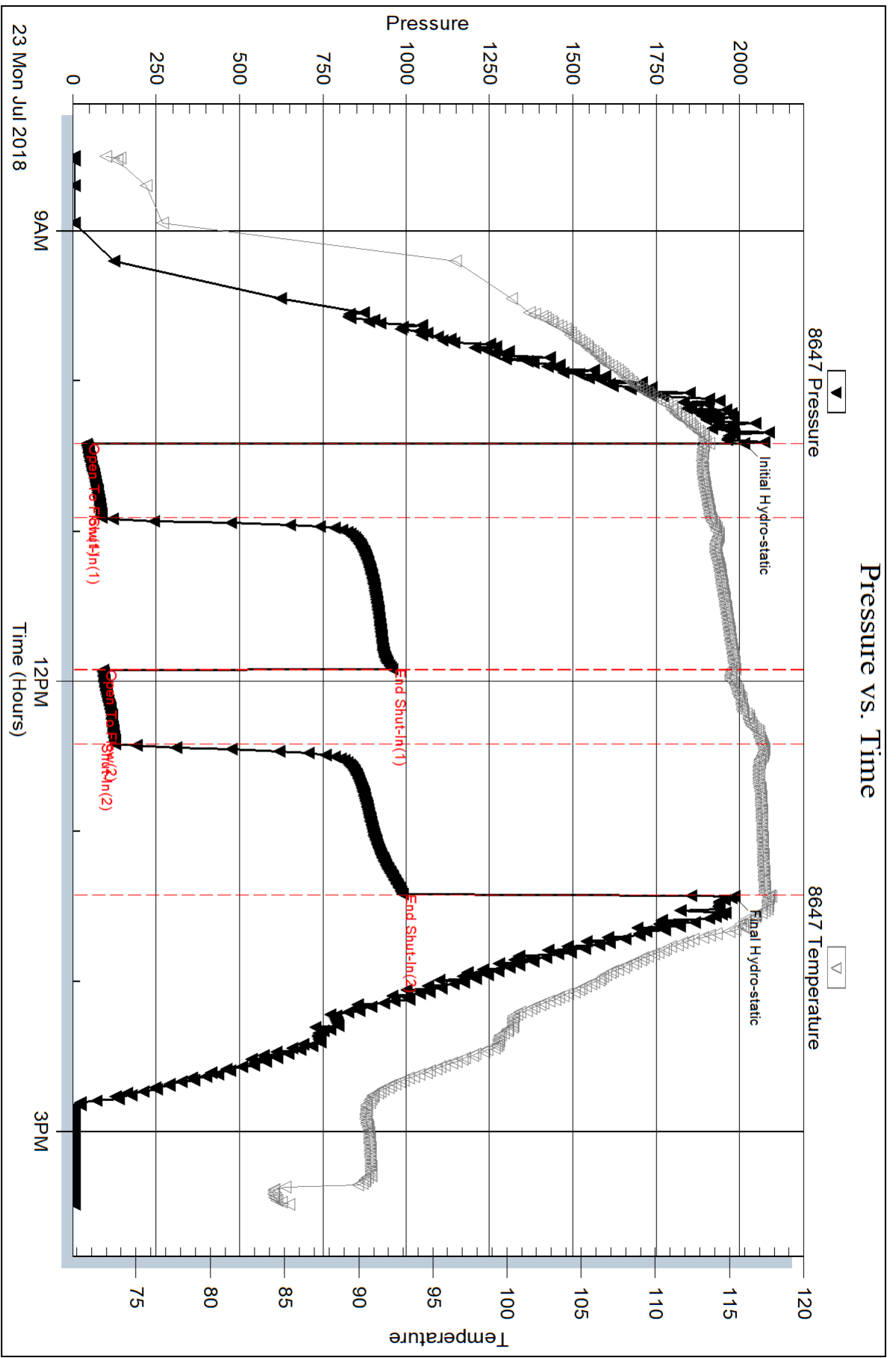
Mud Type: Gel Chem	Cushion Type:	Oil API:	0 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	0 ppm
Viscosity: 60.00 sec/qt	Cushion Volume: bbl		
Water Loss: 6.32 in ³	Gas Cushion Type:		
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig		
Salinity: 800.00 ppm			
Filter Cake: 2.00 inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
0.00	GIP= 62 ft	0.000
186.00	gcom 5%g 5%o 90%m	0.915

Total Length: 186.00 ft Total Volume: 0.915 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments:

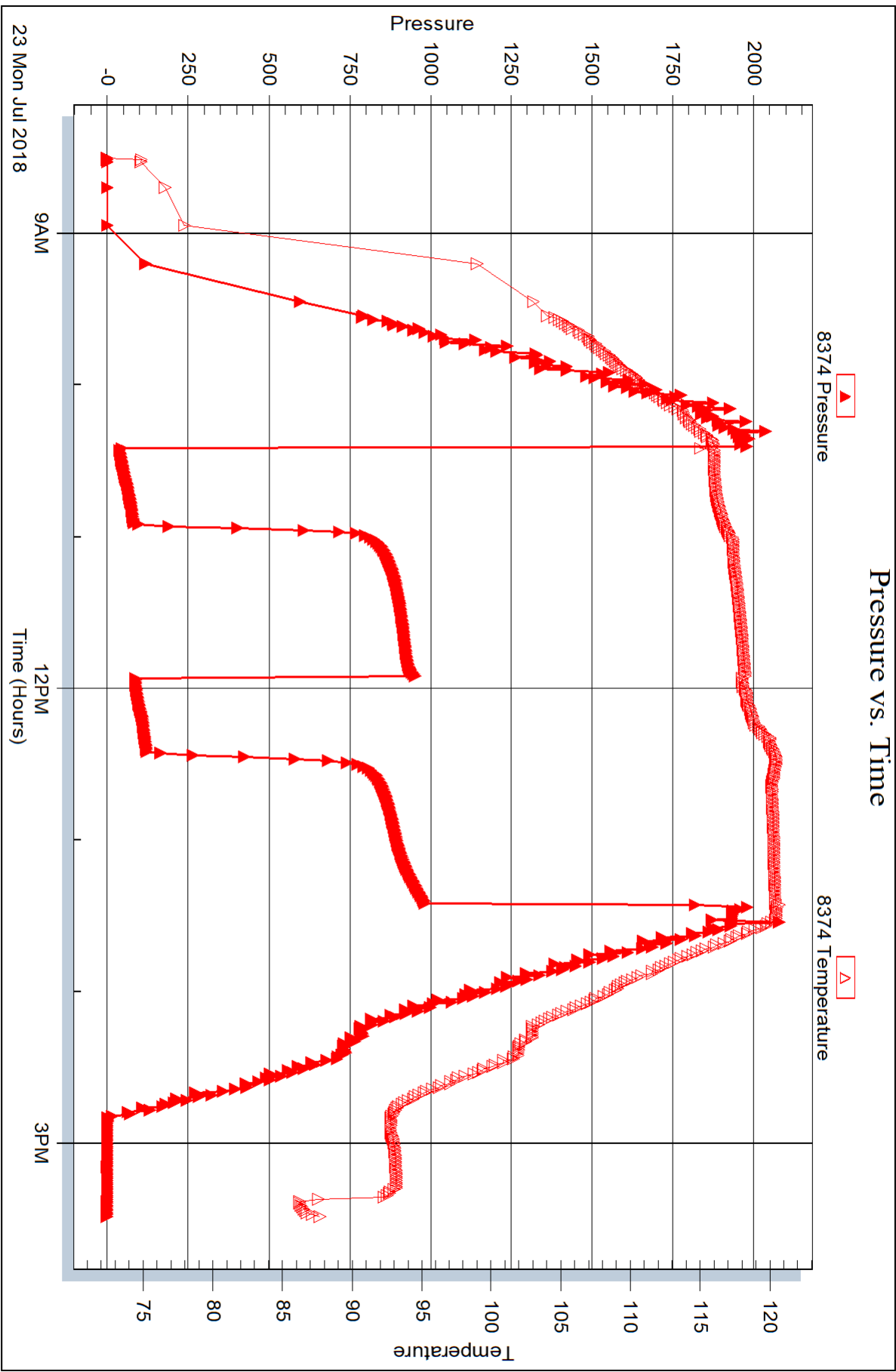


Serial #: 8374

Outside Murfin Drilling Company Inc

Abell Ranch B #4-31

DST Test Number: 1





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company Inc**

250 N Water St STE 300
Wichita KS 67202

ATTN: Paul Gunzelman

Abell Ranch B #4-31

31-12s-30w Gove,KS

Start Date: 2018.07.24 @ 04:47:15

End Date: 2018.07.24 @ 11:48:15

Job Ticket #: 64330 DST #: 2

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

Printed: 2018.07.30 @ 09:56:12



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Company Inc

31-12s-30w Gove,KS

250 N Water St STE 300
Wichita KS 67202

Abell Ranch B #4-31

ATTN: Paul Gunzelman

Job Ticket: 64330

DST#: 2

Test Start: 2018.07.24 @ 04:47:15

GENERAL INFORMATION:

Formation: **LKC H-I**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 06:48:45

Time Test Ended: 11:48:15

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 81

Interval: 4076.00 ft (KB) To 4138.00 ft (KB) (TVD)

Reference Elevations: 2877.00 ft (KB)

Total Depth: 4138.00 ft (KB) (TVD)

2872.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8647

Inside

Press@RunDepth: 119.21 psig @ 4113.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2018.07.24

End Date:

2018.07.24

Last Calib.:

2018.07.24

Start Time: 04:47:15

End Time:

11:48:15

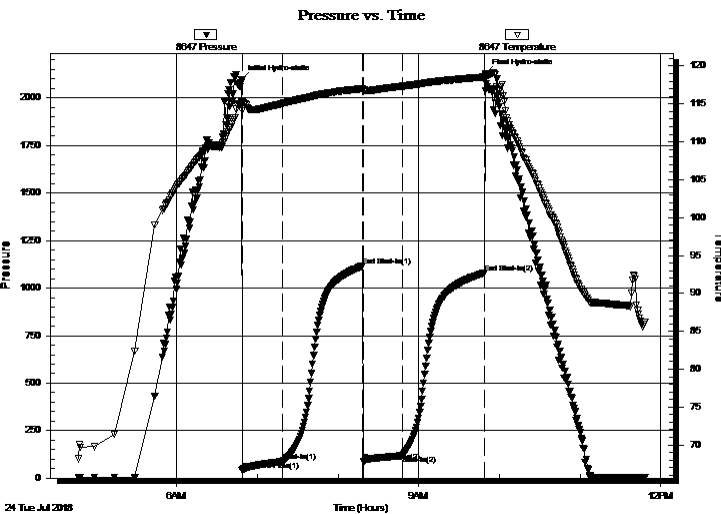
Time On Btm:

2018.07.24 @ 06:48:30

Time Off Btm:

2018.07.24 @ 09:49:45

TEST COMMENT: IF:BOB in 18 min
IS:No return blow
FF:BOB in 11 min.
FS:No return blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2095.76	115.28	Initial Hydro-static
1	40.56	114.14	Open To Flow (1)
31	87.72	115.07	Shut-In(1)
90	1115.86	117.01	End Shut-In(1)
91	88.10	116.88	Open To Flow (2)
120	119.21	117.35	Shut-In(2)
181	1080.94	118.55	End Shut-In(2)
182	2130.16	118.90	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
0.00	GIP= 372 ft.	0.00
186.00	gcom 2%g 3%o 95%m	0.91

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 Company Inc

31-12s-30w Gove,KS

250 N Water St STE 300
Wichita KS 67202

Abell Ranch B #4-31

Job Ticket: 64330

DST#: 2

ATTN: Paul Gunzelman

Test Start: 2018.07.24 @ 04:47:15

Tool Information

Drill Pipe:	Length: 3832.00 ft	Diameter: 3.80 inches	Volume: 53.75 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 247.00 ft	Diameter: 2.25 inches	Volume: 1.21 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 54.96 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	31.00 ft			String Weight: Initial 70000.00 lb
Depth to Top Packer:	4076.00 ft			Final 71000.00 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

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4049.00	
Shut In Tool	5.00			4054.00	
Hydraulic tool	5.00			4059.00	
Jars	5.00			4064.00	
Safety Joint	3.00			4067.00	
Packer	5.00			4072.00	28.00 Bottom Of Top Packer
Packer	4.00			4076.00	
Stubb	1.00			4077.00	
Perforations	2.00			4079.00	
Change Over Sub	1.00			4080.00	
Drill Pipe	32.00			4112.00	
Change Over Sub	1.00			4113.00	
Recorder	0.00	8647	Inside	4113.00	
Recorder	0.00	8374	Outside	4113.00	
Perforations	20.00			4133.00	
Bullnose	5.00			4138.00	62.00 Bottom Packers & Anchor
Total Tool Length:	90.00				



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Company Inc

31-12s-30w Gove,KS

250 N Water St STE 300
Wichita KS 67202

Abell Ranch B #4-31

Job Ticket: 64330

DST#: 2

ATTN: Paul Gunzelman

Test Start: 2018.07.24 @ 04:47:15

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 60.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.92 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 800.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
0.00	GIP= 372 ft.	0.000
186.00	gcom 2%g 3%o 95%m	0.915

Total Length: 186.00 ft

Total Volume: 0.915 bbl

Num Fluid Samples: 0

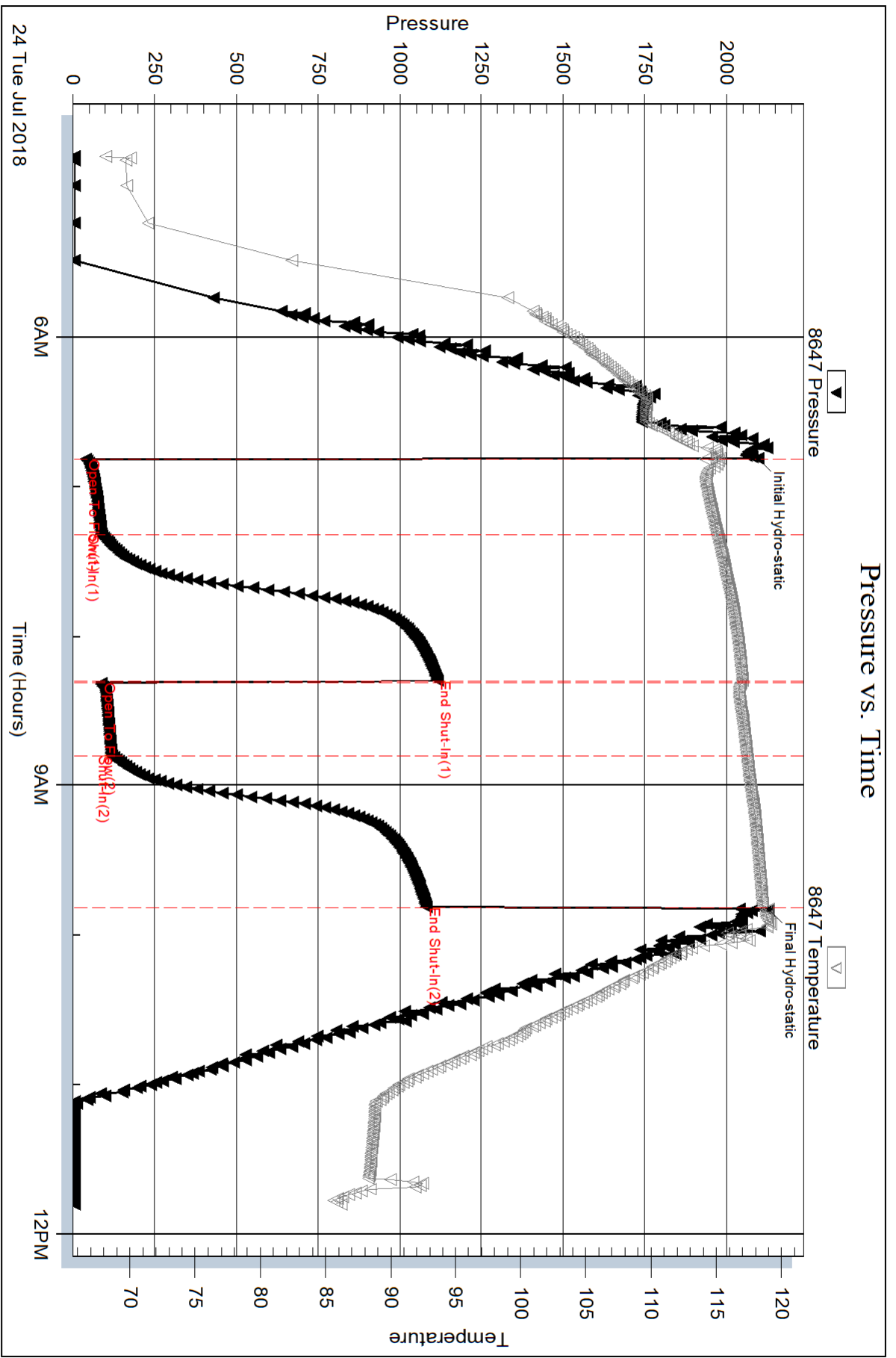
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

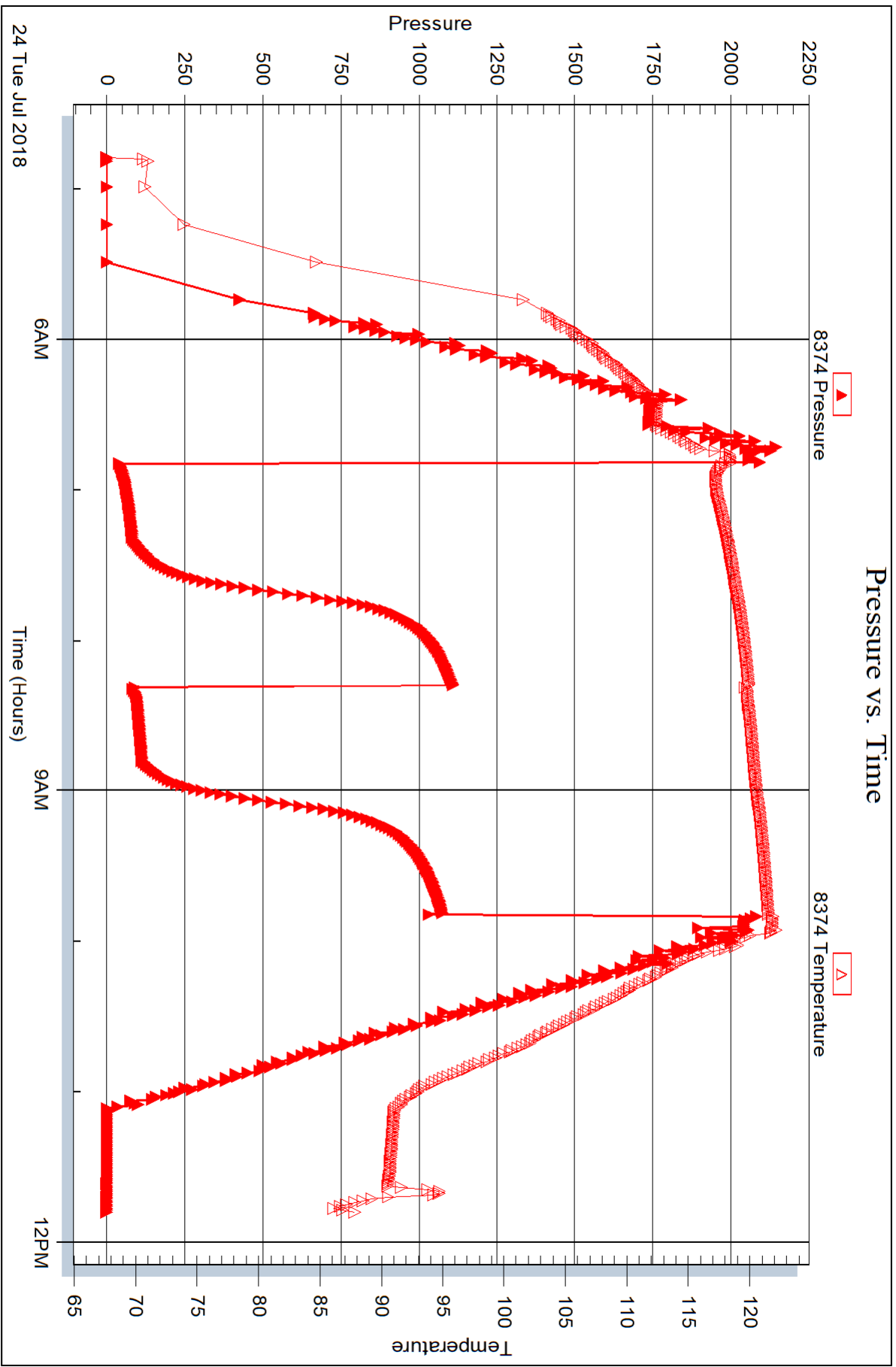


Serial #: 8374

Outside Murfin Drilling Company Inc

Abell Ranch B #4-31

DST Test Number: 2





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company Inc**

250 N Water St STE 300
Wichita KS 67202

ATTN: Paul Gunzelman

Abell Ranch B #4-31

31-12s-30w Gove,KS

Start Date: 2018.07.24 @ 21:38:15

End Date: 2018.07.25 @ 06:07:15

Job Ticket #: 64331 DST #: 3

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

Printed: 2018.07.30 @ 09:54:13



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Company Inc
 250 N Water St STE 300
 Wichita KS 67202
 ATTN: Paul Gunzelman

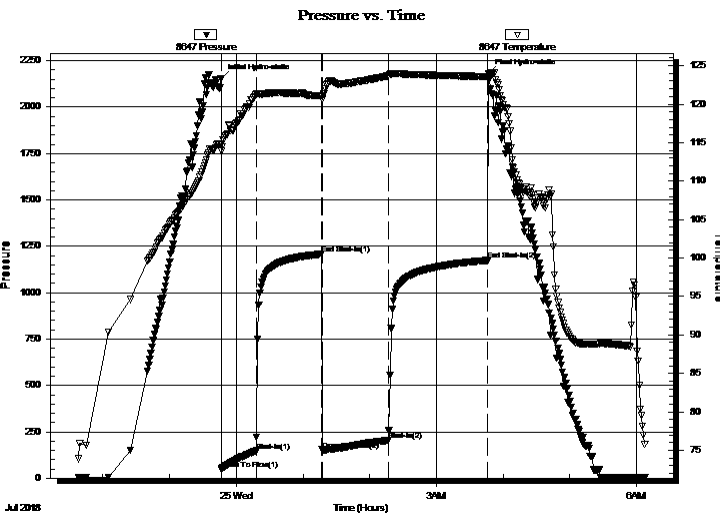
31-12s-30w Gove,KS
Abell Ranch B #4-31
 Job Ticket: 64331 **DST#: 3**
 Test Start: 2018.07.24 @ 21:38:15

GENERAL INFORMATION:

Formation: **LKC J-K**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 23:46:45
 Time Test Ended: 06:07:15
 Interval: **4136.00 ft (KB) To 4195.00 ft (KB) (TVD)**
 Total Depth: 4195.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Mike Roberts
 Unit No: 81
 Reference Elevations: 2877.00 ft (KB)
 2872.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8647 **Inside**
 Press@RunDepth: 205.94 psig @ 4175.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2018.07.24 End Date: 2018.07.25 Last Calib.: 2018.07.25
 Start Time: 21:38:15 End Time: 06:07:15 Time On Btm: 2018.07.24 @ 23:46:30
 Time Off Btm: 2018.07.25 @ 03:47:00

TEST COMMENT: IF: Built to 5 1/2" blow
 IS: No return blow
 FF: Built to 6" blow
 FS: No return blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2151.88	114.75	Initial Hydro-static
1	49.35	113.89	Open To Flow (1)
32	146.60	121.31	Shut-In(1)
91	1207.70	121.10	End Shut-In(1)
91	152.70	120.65	Open To Flow (2)
151	205.94	123.68	Shut-In(2)
240	1174.16	123.60	End Shut-In(2)
241	2182.20	123.89	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
40.00	w cm with oil spots 10%w 90%m	0.20
124.00	mud 100%m	0.61
124.00	w cm 30%w 70%m	0.98
124.00	w cm 15%w 85%m	1.74

* 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 Company Inc

31-12s-30w Gove, KS

250 N Water St STE 300
Wichita KS 67202

Abell Ranch B #4-31

Job Ticket: 64331

DST#: 3

ATTN: Paul Gunzelman

Test Start: 2018.07.24 @ 21:38:15

Tool Information

Drill Pipe:	Length: 3896.00 ft	Diameter: 3.80 inches	Volume: 54.65 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 247.00 ft	Diameter: 2.25 inches	Volume: 1.21 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 55.86 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	35.00 ft			String Weight: Initial 70000.00 lb
Depth to Top Packer:	4136.00 ft			Final 72000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	59.00 ft			
Tool Length:	87.00 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			4109.00	
Shut In Tool	5.00			4114.00	
Hydraulic tool	5.00			4119.00	
Jars	5.00			4124.00	
Safety Joint	3.00			4127.00	
Packer	5.00			4132.00	28.00 Bottom Of Top Packer
Packer	4.00			4136.00	
Stubb	1.00			4137.00	
Perforations	4.00			4141.00	
Change Over Sub	1.00			4142.00	
Drill Pipe	32.00			4174.00	
Change Over Sub	1.00			4175.00	
Recorder	0.00	8647	Inside	4175.00	
Recorder	0.00	8374	Outside	4175.00	
Perforations	15.00			4190.00	
Bullnose	5.00			4195.00	59.00 Bottom Packers & Anchor
Total Tool Length:	87.00				



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Company Inc

31-12s-30w Gove,KS

250 N Water St STE 300
Wichita KS 67202

Abell Ranch B #4-31

Job Ticket: 64331

DST#: 3

ATTN: Paul Gunzelman

Test Start: 2018.07.24 @ 21:38:15

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

23000 ppm

Viscosity: 58.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.36 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 1200.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
40.00	w cm with oil spots 10%w 90%m	0.197
124.00	mud 100%m	0.610
124.00	w cm 30%w 70%m	0.983
124.00	w cm 15%w 85%m	1.739

Total Length: 412.00 ft

Total Volume: 3.529 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

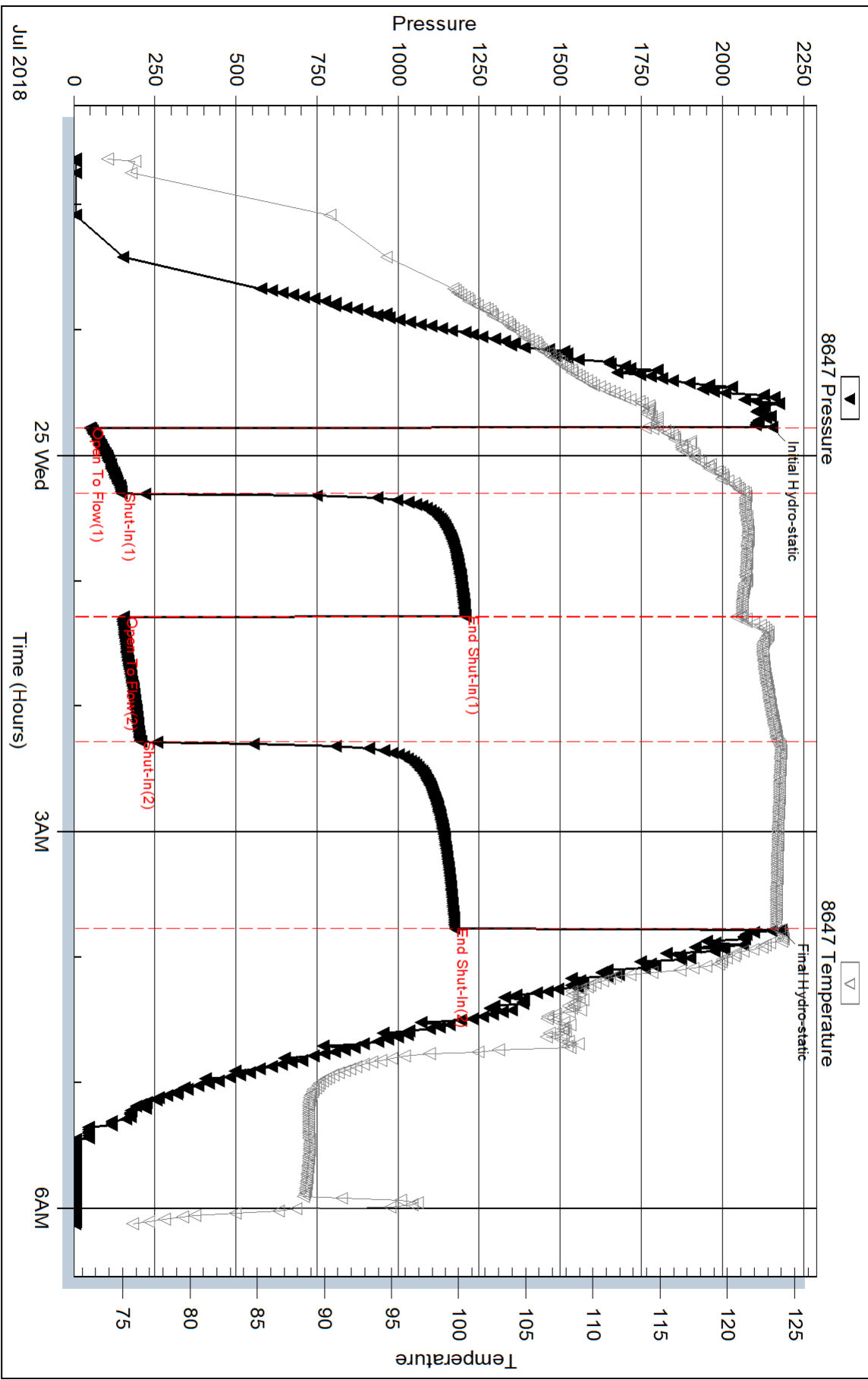
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW= .423@ 64.9= 23,000 ppm

Pressure vs. Time

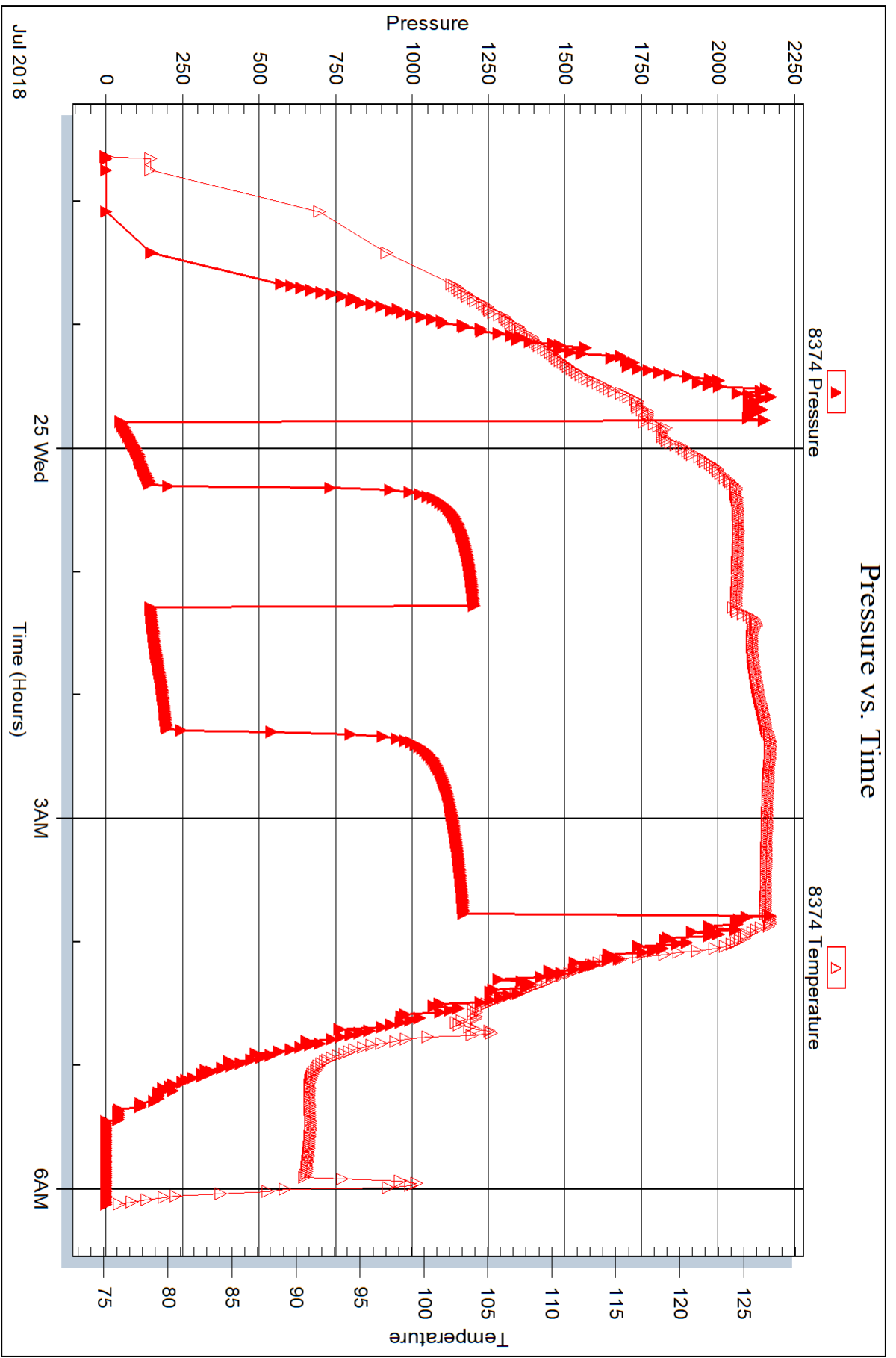


Serial #: 8374

Outside Murfin Drilling Company Inc

Abell Ranch B #4-31

DST Test Number: 3





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company Inc**

250 N Water St STE 300
Wichita KS 67202

ATTN: Paul Gunzelman

Abell Ranch B #4-31

31-12s-30w Gove,KS

Start Date: 2018.07.26 @ 13:40:15

End Date: 2018.07.26 @ 21:03:45

Job Ticket #: 64332 DST #: 4

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

Printed: 2018.07.30 @ 08:58:57



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Company Inc

250 N Water St STE 300
Wichita KS 67202

ATTN: Paul Gunzelman

31-12s-30w Gove,KS

Abell Ranch B #4-31

Job Ticket: 64332

DST#: 4

Test Start: 2018.07.26 @ 13:40:15

GENERAL INFORMATION:

Formation: **Ft.Scott - Johnson**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:41:15

Time Test Ended: 21:03:45

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 81

Interval: 4406.00 ft (KB) To 4496.00 ft (KB) (TVD)

Reference Elevations: 2877.00 ft (KB)

Total Depth: 4496.00 ft (KB) (TVD)

2872.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8647

Inside

Press@RunDepth: 62.67 psig @ 4476.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2018.07.26

End Date:

2018.07.26

Last Calib.:

2018.07.26

Start Time: 13:40:15

End Time:

21:03:45

Time On Btm:

2018.07.26 @ 15:40:30

Time Off Btm:

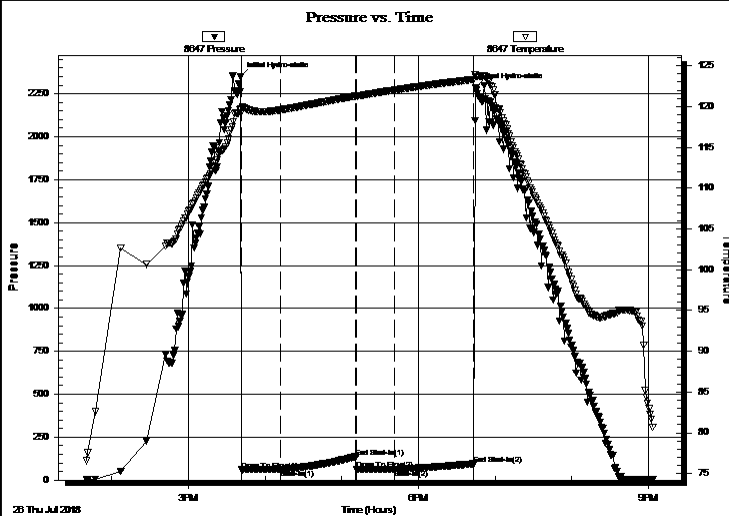
2018.07.26 @ 18:44:45

TEST COMMENT: IF:Built to 1/2" blow and died

IS:No return blow

FF:No blow

FS:No return blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2348.06	119.71	Initial Hydro-static
1	59.38	119.22	Open To Flow (1)
32	61.32	119.56	Shut-In(1)
91	134.73	121.27	End Shut-In(1)
91	62.17	121.25	Open To Flow (2)
121	62.67	122.00	Shut-In(2)
183	95.22	123.30	End Shut-In(2)
185	2285.31	123.66	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	mud 100%m	0.02

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 Company Inc

31-12s-30w Gove,KS

250 N Water St STE 300
Wichita KS 67202

Abell Ranch B #4-31

Job Ticket: 64332

DST#: 4

ATTN: Paul Gunzelman

Test Start: 2018.07.26 @ 13:40:15

Tool Information

Drill Pipe:	Length: 4145.00 ft	Diameter: 3.80 inches	Volume: 58.14 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 247.00 ft	Diameter: 2.25 inches	Volume: 1.21 bbl	Weight to Pull Loose: 100000.0 lb
			<u>Total Volume: 59.35 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	14.00 ft			String Weight: Initial 72000.00 lb
Depth to Top Packer:	4406.00 ft			Final 72000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	90.00 ft			
Tool Length:	118.00 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			4379.00	
Shut In Tool	5.00			4384.00	
Hydraulic tool	5.00			4389.00	
Jars	5.00			4394.00	
Safety Joint	3.00			4397.00	
Packer	5.00			4402.00	28.00 Bottom Of Top Packer
Packer	4.00			4406.00	
Stubb	1.00			4407.00	
Perforations	4.00			4411.00	
Change Over Sub	1.00			4412.00	
Drill Pipe	63.00			4475.00	
Change Over Sub	1.00			4476.00	
Recorder	0.00	8647	Inside	4476.00	
Recorder	0.00	8374	Outside	4476.00	
Perforations	15.00			4491.00	
Bullnose	5.00			4496.00	90.00 Bottom Packers & Anchor
Total Tool Length:	118.00				



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Company Inc

31-12s-30w Gove,KS

250 N Water St STE 300
Wichita KS 67202

Abell Ranch B #4-31

Job Ticket: 64332

DST#: 4

ATTN: Paul Gunzelman

Test Start: 2018.07.26 @ 13:40:15

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 62.00 sec/qt

Cushion Volume:

bbl

Water Loss: 6.77 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 1800.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	mud 100%m	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

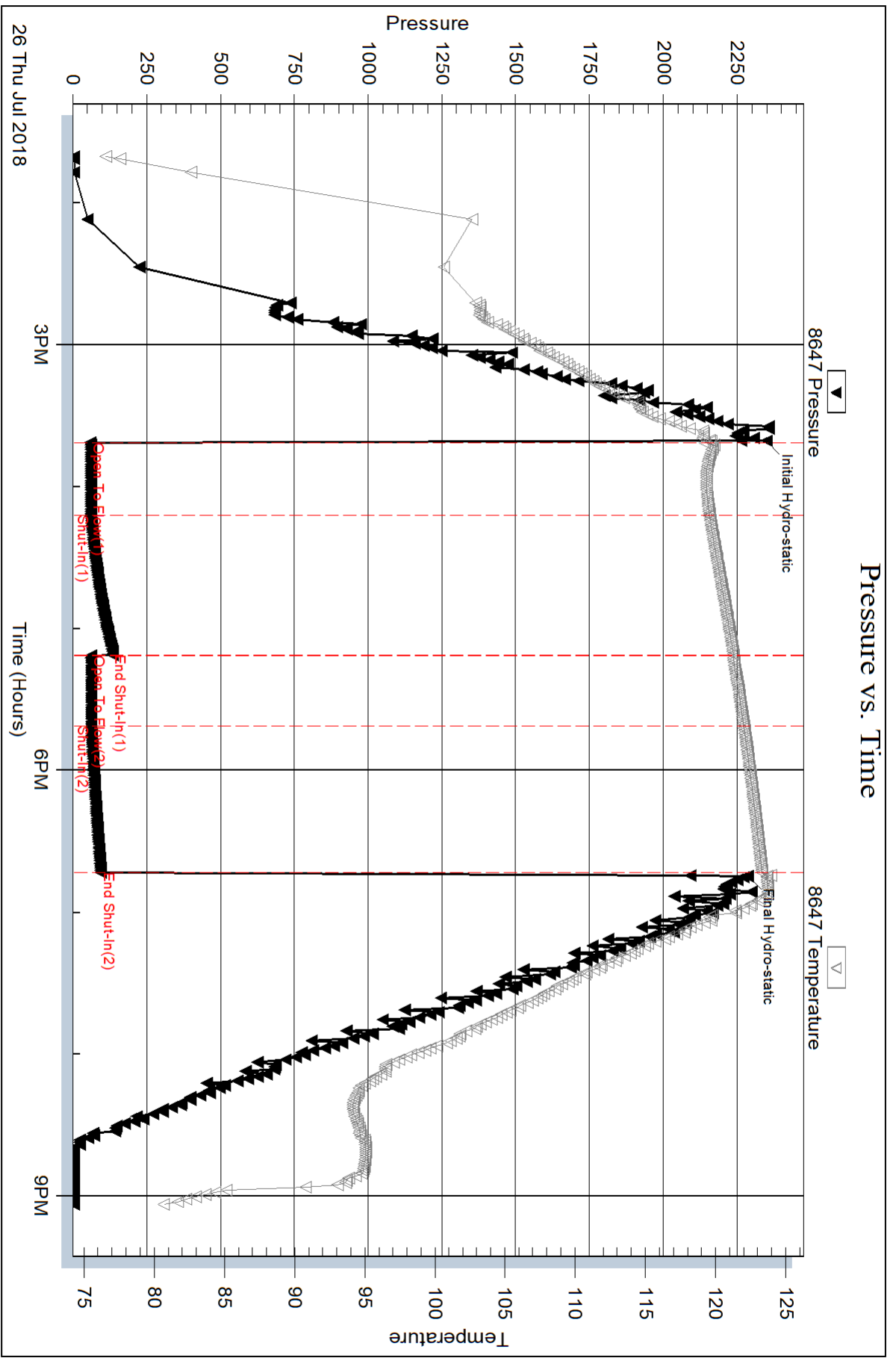
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

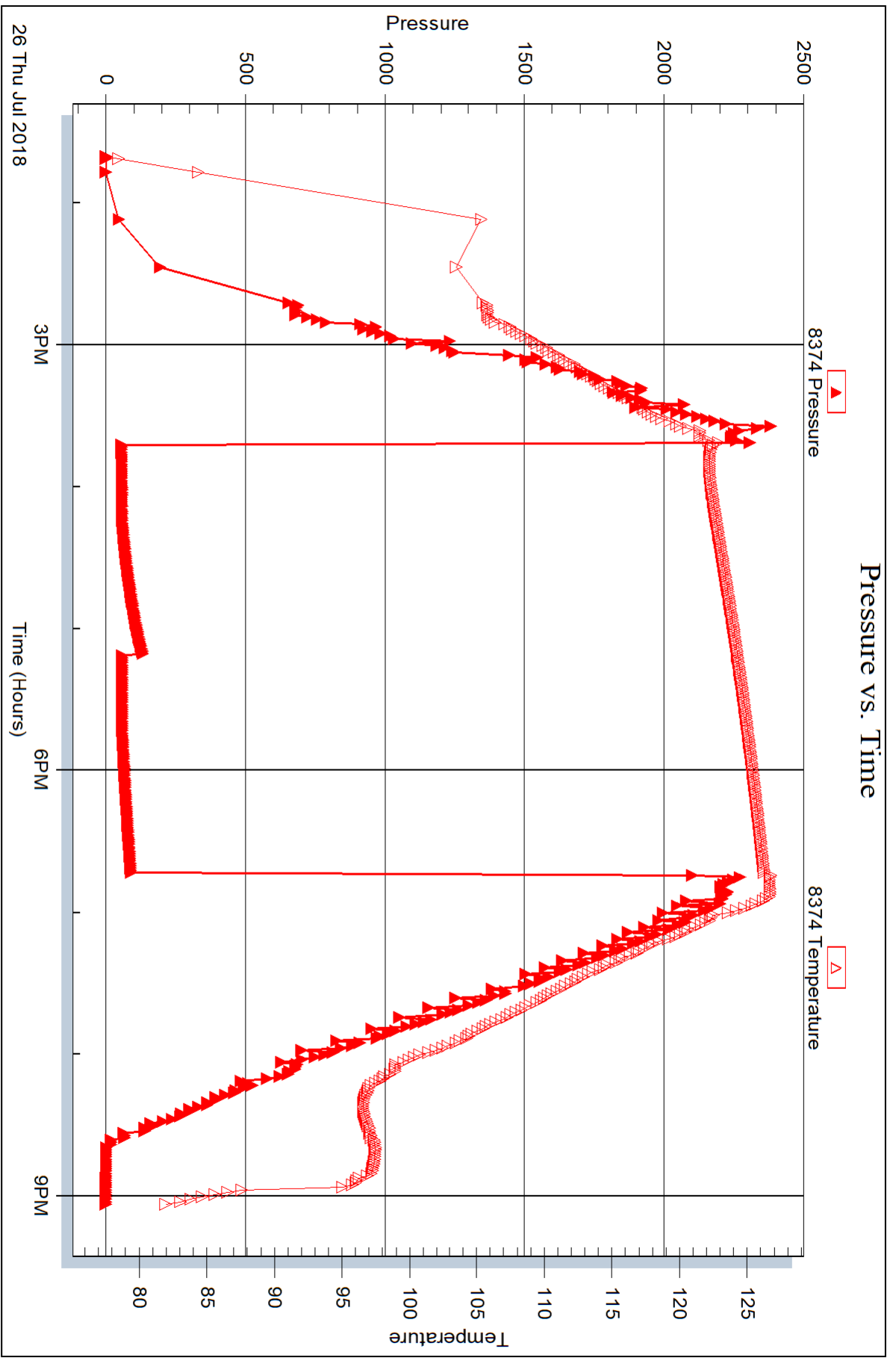


Serial #: 8374

Outside Murfin Drilling Company Inc

Abell Ranch B #4-31

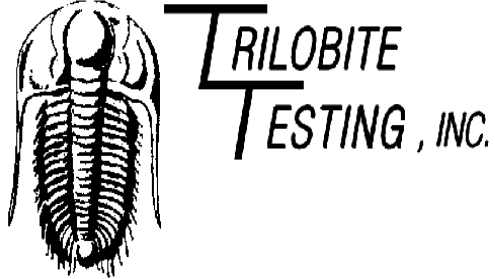
DST Test Number: 4



Trilobite Testing, Inc

Ref. No: 64332

Printed: 2018.07.30 @ 08:58:58



DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Company Inc**

250 N Water St STE 300
Wichita KS 67202

ATTN: Paul Gunzelman

Abell Ranch B #4-31

31-12s-30w Gove,KS

Start Date: 2018.07.27 @ 05:53:15

End Date: 2018.07.27 @ 14:19:00

Job Ticket #: 64333 DST #: 5

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

Printed: 2018.07.30 @ 08:49:55



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Company Inc
 250 N Water St STE 300
 Wichita KS 67202
 ATTN: Paul Gunzelman

31-12s-30w Gove,KS

Abell Ranch B #4-31

Job Ticket: 64333

DST#: 5

Test Start: 2018.07.27 @ 05:53:15

GENERAL INFORMATION:

Formation: **Miss**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 07:55:00
 Time Test Ended: 14:19:00
 Interval: **4515.00 ft (KB) To 4522.00 ft (KB) (TVD)**
 Total Depth: 4255.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Mike Roberts
 Unit No: 81
 Reference Elevations: 2877.00 ft (KB)
 2872.00 ft (CF)
 KB to GR/CF: 5.00 ft

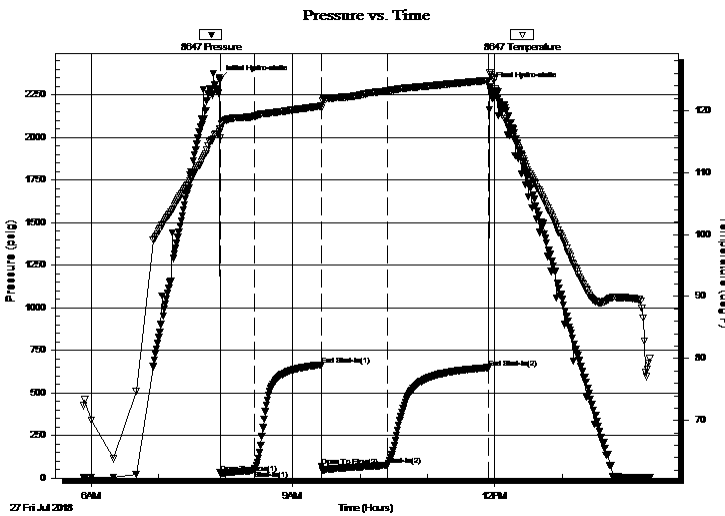
Serial #: 8647

Inside

Press@RunDepth: 75.47 psig @ 4516.00 ft (KB)
 Start Date: 2018.07.27 End Date: 2018.07.27
 Start Time: 05:53:15 End Time: 14:19:00
 Capacity: 8000.00 psig
 Last Calib.: 2018.07.27
 Time On Btm: 2018.07.27 @ 07:54:45
 Time Off Btm: 2018.07.27 @ 11:55:30

TEST COMMENT: IF: Built to 2 1/2" blow
 IS: No return blow
 FF: Built to 5" blow
 FS: No return blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2337.70	117.05	Initial Hydro-static
1	31.00	115.66	Open To Flow (1)
31	45.71	119.02	Shut-In(1)
91	665.39	120.74	End Shut-In(1)
91	71.29	120.38	Open To Flow (2)
150	75.47	123.15	Shut-In(2)
240	648.75	124.87	End Shut-In(2)
241	2298.06	126.14	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
0.00	GIP= 124 ft	0.00
124.00	gcmo 12%g 34%m 54%o	0.61

* 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 Company Inc

31-12s-30w Gove, KS

250 N Water St STE 300
Wichita KS 67202

Abell Ranch B #4-31

Job Ticket: 64333

DST#: 5

ATTN: Paul Gunzelman

Test Start: 2018.07.27 @ 05:53:15

Tool Information

Drill Pipe:	Length: 4245.00 ft	Diameter: 3.80 inches	Volume: 59.55 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 247.00 ft	Diameter: 2.25 inches	Volume: 1.21 bbl	Weight to Pull Loose: 100000.0 lb
			<u>Total Volume: 60.76 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial 72000.00 lb
Depth to Top Packer:	4515.00 ft			Final 76000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	7.00 ft			
Tool Length:	35.00 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			4488.00	
Shut In Tool	5.00			4493.00	
Hydraulic tool	5.00			4498.00	
Jars	5.00			4503.00	
Safety Joint	3.00			4506.00	
Packer	5.00			4511.00	28.00 Bottom Of Top Packer
Packer	4.00			4515.00	
Stubb	1.00			4516.00	
Recorder	0.00	8647	Inside	4516.00	
Recorder	0.00	8374	Outside	4516.00	
Perforations	1.00			4517.00	
Bullnose	5.00			4522.00	7.00 Bottom Packers & Anchor

Total Tool Length: 35.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Company Inc

31-12s-30w Gove,KS

250 N Water St STE 300
Wichita KS 67202

Abell Ranch B #4-31

Job Ticket: 64333

DST#: 5

ATTN: Paul Gunzelman

Test Start: 2018.07.27 @ 05:53:15

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 62.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.78 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 1800.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
0.00	GIP= 124 ft	0.000
124.00	gcmo 12%g 34%m 54%o	0.610

Total Length: 124.00 ft

Total Volume: 0.610 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

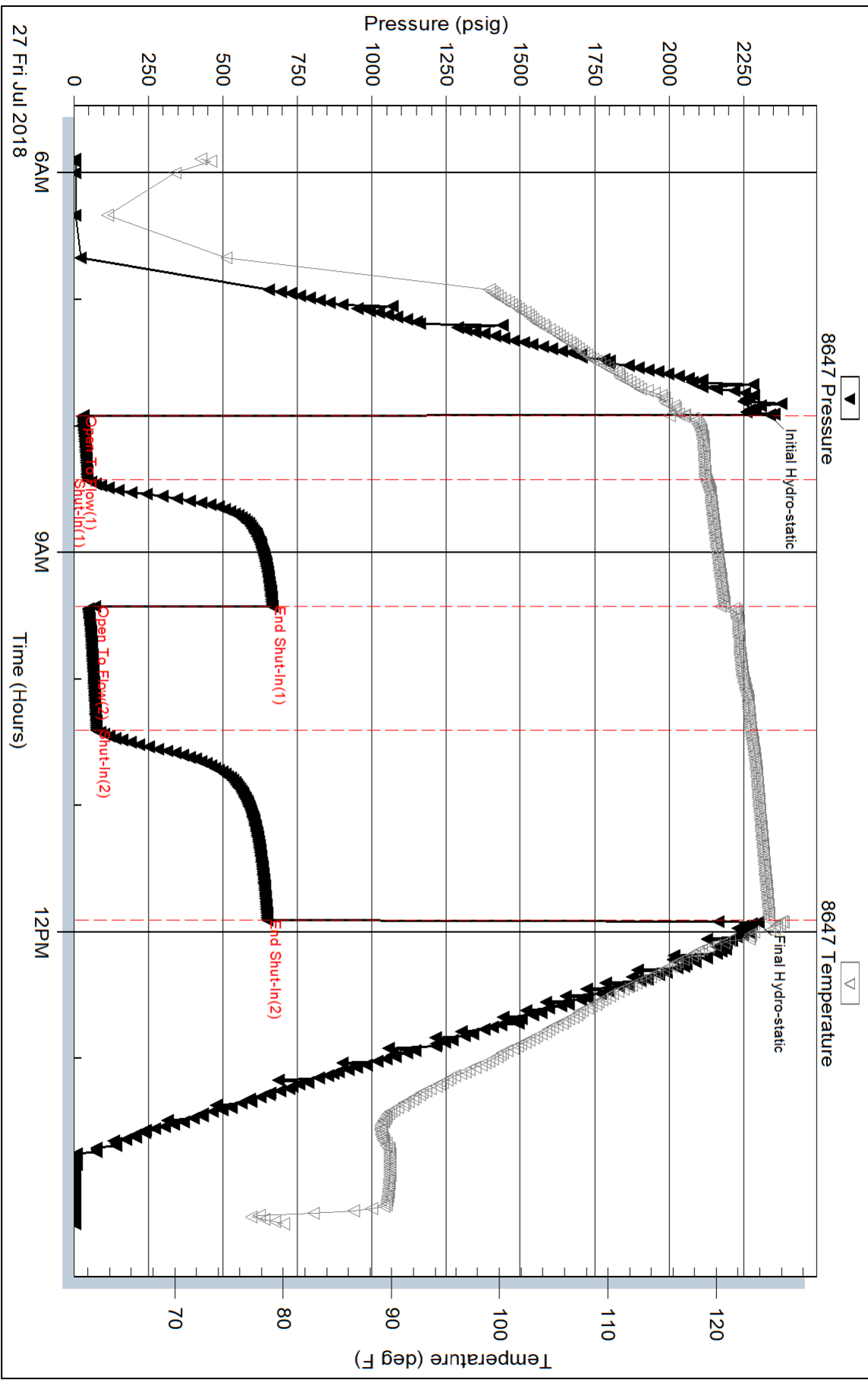
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time

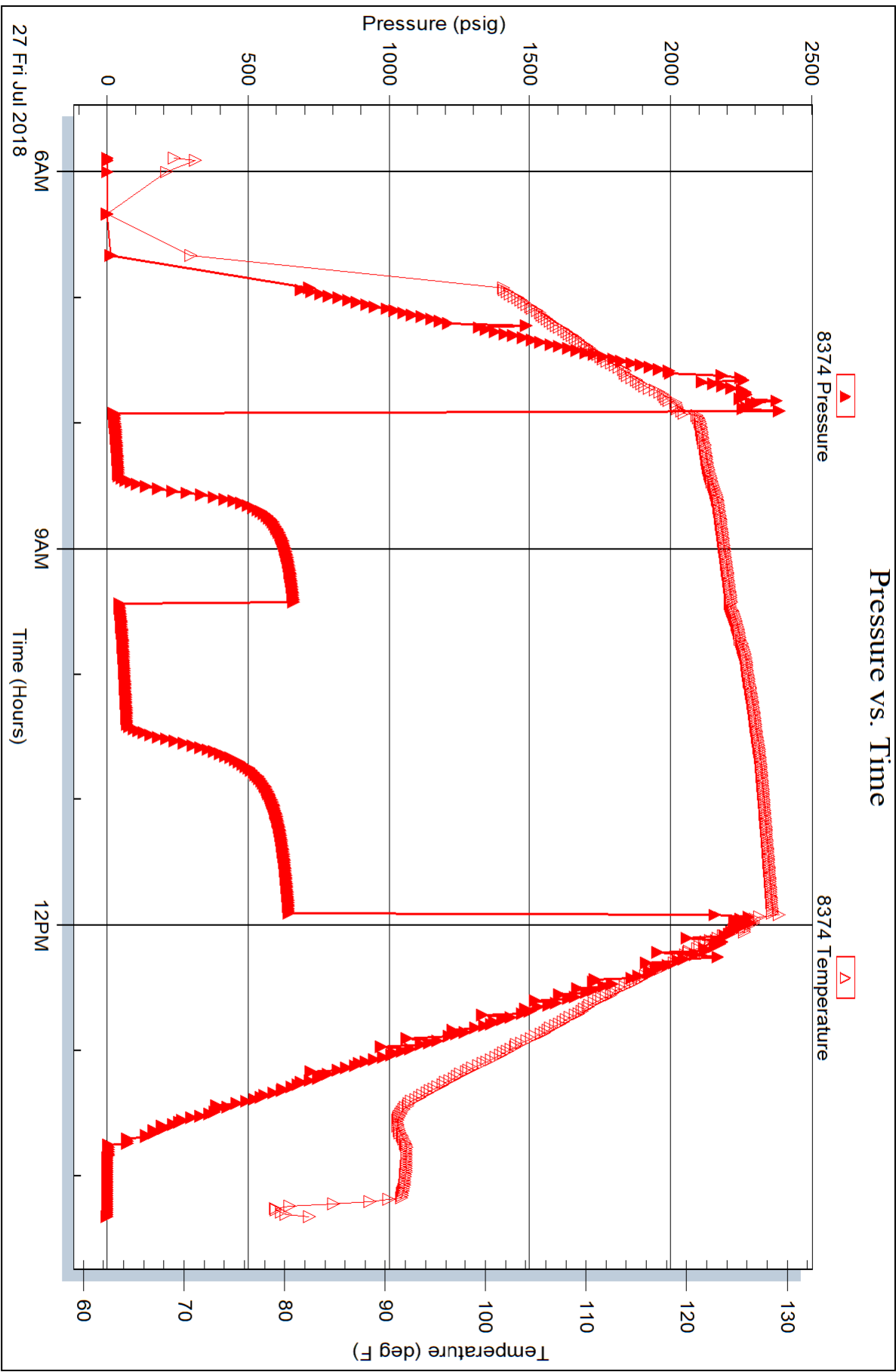


Serial #: 8374

Outside Murfin Drilling Company Inc

Abell Ranch B #4-31

DST Test Number: 5





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **64329** 24595

Well Name & No. Abell Ranch "B" 4-31 Test No. 1 Date 7-23-18
 Company Martin Drilling Company Inc Elevation 2877 KB 2872 GL
 Address 250 N WATER ST. STE 300 WICHITA KS 67202
 Co. Rep / Geo. Paul Gunzelman Rig Martin 7
 Location: Sec. 31 Twp 12S Rge. 30W Co. Grove State KS

Interval Tested 3958-4034 Zone Tested B-F
 Anchor Length 76 Drill Pipe Run 3705 Mud Wt. 8.9
 Top Packer Depth 3953 Drill Collars Run 247 Vis 60
 Bottom Packer Depth 3958 Wt. Pipe Run Ø WL 6.4
 Total Depth 4037 Chlorides 800 ppm System LCM 4

Blow Description IF: Built to 4" Blow
IS: No Return Blow
FF: Built to 3 1/4" Blow
FS: No Return Blow

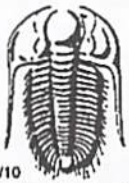
Rec	Feet of	%gas	%oil	%water	%mud
<u>186</u>	<u>GIP = 62 ft</u>	<u>100</u>			
	<u>9 com</u>	<u>5</u>	<u>5</u>		<u>90</u>

Rec Total 186 BHT 118 Gravity 1150 API RW @ F Chlorides 800 ppm
 (A) Initial Hydrostatic 2013 Test 1150 T-On Location 06:40
 (B) First Initial Flow 40 Jars 250 T-Started 08:30
 (C) First Final Flow 87 Safety Joint 75 T-Open 10:24
 (D) Initial Shut-In 957 Circ Sub NC T-Pulled 13:25
 (E) Second Initial Flow 91 Hourly Standby _____ T-Out 15:29
 (F) Second Final Flow 127 Mileage 100 RT 100 Comments _____
 (G) Final Shut-In 988 Sampler _____
 (H) Final Hydrostatic 1984 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____

Initial Open 30
 Initial Shut-In 60
 Final Flow 30
 Final Shut-In 60
 Sub Total 0
 Total 1575
 MP/DST Disc't _____
 Sub Total 1575

Approved By _____ Our Representative M. Roberts

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



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 64330

Well Name & No. Abell Ranch "B" 4-31 Test No. 2 Date 7-24-18
 Company Murfin Drilling Company Inc. Elevation 2877 KB 2872 GL
 Address 250 N Water St. STE 300 Wichita KS 67202
 Co. Rep / Geo. Paul Gunzelman Rig Murfin 7
 Location: Sec. 31 Twp 12S Rge. 30W Co. Grove State KS

Interval Tested 4076-4138 Zone Tested H-I
 Anchor Length 62 Drill Pipe Run 3832 Mud Wt. 9.2
 Top Packer Depth 4071 Drill Collars Run 247 Vis 60
 Bottom Packer Depth 4076 Wt. Pipe Run Ø WL 8.0
 Total Depth 4138 Chlorides 800 ppm System LCM 4
 Blow Description IF: Boil to 18 Min
IS: No Return
FF: Boil to 11 Min
FS: No Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>Ø</u>	<u>Feet of GIP = 372'</u>	<u>100</u>			
<u>186</u>	<u>Feet of gcom</u>	<u>2</u>	<u>3</u>	<u>95</u>	

Rec Total 186 BHT 118 Gravity 1150 API RW 250 @ 75 ° F Chlorides 800 ppm

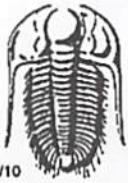
(A) Initial Hydrostatic 2095 Test 1150 T-On Location 03:55
 (B) First Initial Flow 40 Jars 250 T-Started 04:47
 (C) First Final Flow 87 Safety Joint 75 T-Open 06:49
 (D) Initial Shut-In 1115 Circ Sub NC T-Pulled 09:49
 (E) Second Initial Flow 88 Hourly Standby _____ T-Out 11:48
 (F) Second Final Flow 119 Mileage 100RT Comments _____
 (G) Final Shut-In 1080 Sampler _____
 (H) Final Hydrostatic 2130 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____

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

Sub Total 1575 Total 1575 MP/DST Disc't _____

Approved By _____ Our Representative Mike Roberts

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 64331

Well Name & No. Abell Ranch "B" 4-31 Test No. 3 Date 7-24-18
 Company Murfin Drilling Company Inc Elevation 2877 KB 2872 GL
 Address 250 N Water St STE 300 Wichita KS 67202
 Co. Rep / Geo. Paul Gunzelman Rig Murfin 7
 Location: Sec. 31 Twp 12S Rge. 30W Co. Grove State KS

Interval Tested 4136-4195 Zone Tested J-K
 Anchor Length 59 Drill Pipe Run 3896 Mud Wt. 9.2
 Top Packer Depth 4131 Drill Collars Run 247 Vis 58
 Bottom Packer Depth 4136 Wt. Pipe Run 0 WL 6.4
 Total Depth 4195 Chlorides 1200 ppm System LCM 4

Blow Description IF! Built to 5 1/2" Blow
IS! No Return Blow
FF! Built to 6" Blow
FS! No Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>40</u>	<u>WCM with Oil spots</u>		<u>10</u>	<u>90</u>	
<u>124</u>	<u>MUO</u>			<u>100</u>	
<u>124</u>	<u>WCM</u>		<u>30</u>	<u>70</u>	
<u>124</u>	<u>WCM</u>		<u>15</u>	<u>85</u>	

Rec Total 412 BHT 123 Gravity 1150 API RW 423 @ 64.9° F Chlorides 23000 ppm

(A) Initial Hydrostatic 2151 Test 1150 T-On Location 21:00
 (B) First Initial Flow 49 Jars 250 T-Started 21:38
 (C) First Final Flow 146 Safety Joint 75 T-Open 23:47
 (D) Initial Shut-In 1207 Circ Sub NC T-Pulled 03:47
 (E) Second Initial Flow 152 Hourly Standby _____ T-Out 06:07
 (F) Second Final Flow 205 Mileage 100RT 100 Comments _____
 (G) Final Shut-In 1174 Sampler _____
 (H) Final Hydrostatic 2182 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____

Initial Open 30
 Initial Shut-In 60
 Final Flow 60
 Final Shut-In 90
 Sub Total 1575
 Total 1575
 MP/DST Disc't _____

Approved By _____ Our Representative Mike Roberts

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 64332

Well Name & No. Abell Ranch "B" 4-31 Test No. 4 Date 7-26-18
 Company Martin Drilling Company Inc. Elevation 2877 KB 2872 GL
 Address 250 N. WATER ST. STE 300 WICHITA KS 67202
 Co. Rep / Geo. Paul Gunzelman Rig Murfin 7
 Location: Sec. 31 Twp 12S Rge. 30W Co. ~~Logan~~ Grove State KS

Interval Tested 4406-4496 Zone Tested Ft. Scott-Johnson
 Anchor Length 90 Drill Pipe Run 4145 Mud Wt. 9.2
 Top Packer Depth 4401 Drill Collars Run 247 Vis 62
 Bottom Packer Depth 4406 Wt. Pipe Run 0 WL 6.8
 Total Depth 4496 Chlorides 1800 ppm System LCM 4

Blow Description IF: Built to 1/2" Blow & Dired
IS: No Return Blow
FF: No Blow
FS: No Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</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 5 BHT 123 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2348 Test 1150 T-On Location 12:40
 (B) First Initial Flow 59 Jars 250 T-Started ~~10:00~~ 13:40
 (C) First Final Flow 61 Safety Joint 75 T-Open ~~18:41~~ 15:41
 (D) Initial Shut-In 134 Circ Sub NC T-Pulled 18:41
 (E) Second Initial Flow 62 Hourly Standby _____ T-Out 21:03
 (F) Second Final Flow 62 Mileage 100RT 100 Comments _____
 (G) Final Shut-In 95 Sampler _____
 (H) Final Hydrostatic 2285 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____

Initial Open 30
 Initial Shut-In 60
 Final Flow 30
 Final Shut-In 60
 Sub Total 1575
 Total 1575
 MP/DST Disc't _____

Approved By _____ Our Representative Mike Roberts

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 64333

Well Name & No. Abell Ranch "B" 4-31 Test No. 5 Date 7-27-18
 Company Murfin Drilling Company Inc. Elevation 2877 KB 2872 GL
 Address 250 N. Water St. STE 300 Wichita KS 67202
 Co. Rep / Geo. Paul Gunzelman Rig Murfin 7
 Location: Sec. 31 Twp 12S Rge. 30W Co. Grove State KS

Interval Tested 4515-4522 Zone Tested Miss
 Anchor Length 7 Drill Pipe Run 4245 Mud Wt. 9.2
 Top Packer Depth 4510 Drill Collars Run 247 Vis 62
 Bottom Packer Depth 4515 Wt. Pipe Run Ø WL 68
 Total Depth 4522 Chlorides 1800 ppm System LCM 4
 Blow Description IF: Built to 2 1/2"
IS: No Return Blow
FF: Built to 5"
FS: No Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
124	<u>GIP=124</u>				
<u>124</u>	<u>gcmo</u>	<u>12</u>	<u>54</u>	<u>34</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 124 BHT 125 Gravity 1150 API RW 100RT @ 100 °F Chlorides 1800 ppm

(A) Initial Hydrostatic <u>2337</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>04:50</u>
(B) First Initial Flow <u>31</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started 04:50 <u>05:53</u>
(C) First Final Flow <u>45</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open 05:53 <u>07:54</u>
(D) Initial Shut-In <u>665</u>	<input checked="" type="checkbox"/> Circ Sub <u>NC</u>	T-Pulled <u>11:54</u>
(E) Second Initial Flow <u>71</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>14:19</u>
(F) Second Final Flow <u>75</u>	<input checked="" type="checkbox"/> Mileage <u>100RT</u> 100	Comments
(G) Final Shut-In <u>648</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2298</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>1575</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1575</u>	

Approved By _____ Our Representative Mike Roberts

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MDCI
Abell Ranch 'B' #4-31
1980 FNL 2077' FWL
Sec. 31-T12S-R30W
2877' KB

Formation	Sample tops	Datum	Ref	Log Tops	Datum	Ref
Anhydrite	2360	+517	+4	2359	+518	+5
B/Anhydrite	2386	+491	+4	2384	+493	+6
Topeka	3680	-803	-4	3677	-800	-1
Heebner	3897	-1020	-3	3895	-1018	-1
Lansing	3932	-1055	+5	3941	-1064	-3
Stark	4163	-1286	-3	4162	-1285	-2
Marmaton	4288	-1411	-4	4282	-1405	+2
Fort Scott	4414	-1537	-6	4414	-1537	-6
Cherokee	4441	-1564	-7	4442	-1565	-8
Mississippi	4504	-1627	-5	4510	-1633	-11
RTD	4620	-1743				
LTD				4618	-1741	

TREATMENT REPORT



HURRICANE SERVICES INC

Customer: Murfin Drilling Co Inc	Date: 7/28/2018	Ticket #: ICT1247
Field Rep: Shawn		
Address:		
City, State:		
County, Zip:		

Field Order No.:	Open Hole: Shos 23.85	<table border="1"> <thead> <tr> <th>Port Depths (ft)</th> <th>Ports</th> </tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr> <td>Total Ports</td> <td>0</td> </tr> </tbody> </table>	Port Depths (ft)	Ports																							Total Ports	0
Port Depths (ft)	Ports																											
Total Ports	0																											
Well Name: Abell Ranch B 4-31	Casing Depth: 4820.72																											
Location: Gove Ka	Casing Size: 8 1/2																											
Formation:	Tubing Depth:																											
Type of Service: Cement	Tubing Size:																											
Well Type: oil	Liner Depth:																											
Age of Well: New	Liner Size:																											
Packer Type:	Liner Top:																											
Packer Depth:	Liner Bottom:																											
Treatment Via: Cement	Total Depth: 4820																											

TIME	INJECTION RATE		PRESSURE		REMARKS	PROP (lbs)	HCL (gls)	FLUID (bbls)
	FLUID	NZ/CO2	STP	ANNULUS				
3:00 PM					Arrive on location			
3:15 PM					Safety meeting			
3:20 PM					Rig up			
5:20 PM					Run Casing 109 Joints			
6:22 PM					Circulate on joint 61 for 30 mins			
6:52 PM					Resume running casing			
7:51 PM					Casing on bottom.			
8:18 PM					Drop ball. Circulate 1 hr			
8:18 PM	3.5		220.0		Mix 500 gal of mudflush			
8:21 PM	2.6		60.0		Plug Mouse and Rat hole 30 sks rat 20 sks mouse			13.00
8:30 PM	5.5		240.0		Mix 178 sks of H Long 1.48 yield			13.00
8:46 PM					Release plug and wash up to pl			46.40
8:58 PM	6.0		300.0		Start displacement First 20 bbls KCL			
10:12 PM					End Displacement 900 lift 1600 land plug			109.00
10:14 PM					Plug held			
10:22 PM					Rig Down			
10:48 PM					Depart location			
TOTAL:								181.40

SUMMARY			
Max Fl. Rate	Avg Fl. Rate	Max PSI	Avg PSI
6.0	4.4	300.0	202.5

PRODUCTS USED

225 Sks of H Long 500 gal mudflush KCL

Treater: Dave Rotloff

Customer: Shawn

TREATMENT REPORT



HURRICANE SERVICES INC

Customer:	Murfin Drilling INC	Date:	8/8/2018	Ticket #:	ICT1266
Field Rep:	Shawn Brown				
Address:	PO box 130				
City, State:	Hill City, KS				
County, Zip:	67642				

Field Order No.:		Open Hole:		Perf Depth (ft)	Perfs
Well Name:		Casing Depth:	4600'		
Location:	Abell ranch B 4-31	Casing Size:	6.5"		
Formation:		Tubing Depth:	2394'		
Type of Service:	Cement	Tubing Size:	2 3/8"		
Well Type:		Liner Depth:			
Age of Well:		Liner Size:			
Packer Type:		Liner Top:			
Port collar Depth:	2394'	Liner Bottom:			
Treatment Visc:		Total Depth:			
				Total Perfs:	0

TIME	INJECTION RATE		PRESSURE		REMARKS	PROP (lbs)	HCl (gls)	FLUID (bbls)
	FLUID	H ₂ O/CO ₂	STP	ANNULUS				
10:30 AM					Arrive on location			
10:45 AM					safety meeting			
11:00 AM					Rig up equipment			
12:22 PM			1,200.0		Test port collar			
12:25 PM					open port collar			
12:30 PM	2.0		350.0		break circulation			
12:33 PM	2.0		250.0		water ahead			7.00
12:58 PM	4.0		670.0		mix and pump 220 sacks at 12ppg (2.57 yield)			160.70
1:01 PM	4.0		600.0		Start displacement			
1:04 PM			350.0		end displacement			8.24
1:10 PM					shut port collar, 40 sacks returned to surface			
1:18 PM					Run in hole to 2100'			
1:23 PM	4.0		200.0		reverse out			18.00
					rig down equipment			
					depart location			
TOTAL:						-	-	140.96

SUMMARY			
Max Fl Rate	Avg Fl Rate	Max PSI	Avg PSI
4.0	3.2	1,200.0	631.4

PRODUCTS USED:

Pumped 220 sacks of H-con, 2% meteo, 3% CC, 2% cal set

Treater: Glen Fisher

Customer: Shawn Brown