

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	SMITH 'A' 1-21
Doc ID	1419920

All Electric Logs Run

DIL
DUCP
MEL
BHCS

Robert L. Milford

PETROLEUM GEOLOGIST
Wichita, Kansas

GEOLOGISTS' REPORT

DRILLING TIME AND SAMPLE LOG

OPERATOR **Murfin Drilling Company, Inc.**

LEASE **Smith 'A' #1-21**

LOC SPOT **100 S of N2 N2 SE**

LOC FOOTAGE **2,210' FSL 1,320' EEL**

SEC. **21** TWP **25** RANG **37W**

COUNTY **Cheyenne** STATE **Kansas**

API **15-023-21489-00-00**

CONTRACTOR **Murfin Drilling Co., Inc.** REG NO. **3**

DRILLING STARTED **6-28-2018** COMPLETED **7-8-2018**

MUD DISPLAYED **3.923** MUD TYPE **Chemical**

DRILLING TIME KEPT FROM **4:010'** TO **RTD**

SAMPLES SAVED FROM **4:010'** TO **RTD**

SAMPLES EXAMINED FROM **4:010'** TO **RTD**

GEOLOGICAL SUPERVISION FROM **4:010'** TO **RTD**

MEASUREMENTS FROM **B**

MEASUREMENTS FROM **B**

MEASUREMENTS FROM **B**

MEASUREMENTS FROM **B**

MEASUREMENTS FROM **B**

MEASUREMENTS FROM **B**

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DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co., Inc.**

250 N. Water STE 300
Wichita, KS 67202

ATTN: Rocky Milford

Smith 'A' #1-21

21-2s-37w Cheyenne,KS

Start Date: 2018.07.03 @ 03:40:00

End Date: 2018.07.03 @ 11:41:00

Job Ticket #: 63725 DST #: 1

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

Printed: 2018.07.11 @ 09:42:21



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

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

21-2s-37w Cheyenne,KS

Smith 'A' #1-21

Job Ticket: 63725

DST#: 1

Test Start: 2018.07.03 @ 03:40:00

GENERAL INFORMATION:

Formation: **Topeka**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 06:15:15
 Time Test Ended: 11:41:00
 Interval: **4087.00 ft (KB) To 4140.00 ft (KB) (TVD)**
 Total Depth: 4140.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: James Winder
 Unit No: 83
 Reference Elevations: 3418.00 ft (KB)
 3413.00 ft (CF)
 KB to GR/CF: 5.00 ft

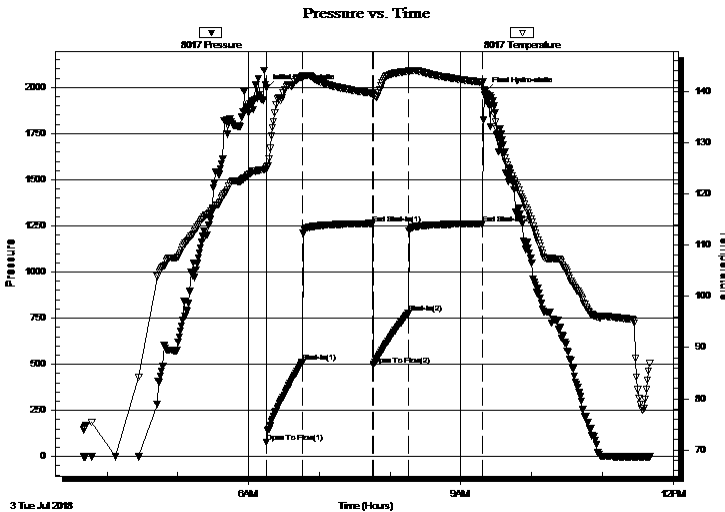
Serial #: 8017

Outside

Press@RunDepth: 777.17 psig @ 4088.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2018.07.03 End Date: 2018.07.03 Last Calib.: 2018.07.03
 Start Time: 03:40:05 End Time: 11:40:59 Time On Btm: 2018.07.03 @ 06:15:00
 Time Off Btm: 2018.07.03 @ 09:20:30

TEST COMMENT: 30 - IF: Blow built to BOB (11") at 3 1/2 min., built to 96 1/2"
 60 - IS: No blow back
 30 - FF: Blow built to BOB at 4 min., built to 90"
 60 - FS: No blow back

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1996.54	125.15	Initial Hydro-static
1	76.04	124.67	Open To Flow (1)
31	508.91	142.76	Shut-In(1)
91	1262.73	139.57	End Shut-In(1)
91	495.40	139.32	Open To Flow (2)
121	777.17	143.83	Shut-In(2)
184	1262.64	141.72	End Shut-In(2)
186	1975.35	140.00	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
1200.00	SMCW 94%w, 6%m	15.19
480.00	MCW w/oil spots 61%w, 36%m, 2%g, 1%b	6.73

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

21-2s-37w Cheyenne,KS

250 N. Water STE 300
Wichita, KS 67202

Smith 'A' #1-21

Job Ticket: 63725

DST#: 1

ATTN: Rocky Milford

Test Start: 2018.07.03 @ 03:40:00

Tool Information

Drill Pipe:	Length: 3882.00 ft	Diameter: 3.80 inches	Volume: 54.45 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 180.00 ft	Diameter: 2.25 inches	Volume: 0.89 bbl	Weight to Pull Loose: 68000.00 lb
			<u>Total Volume: 55.34 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	4.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4087.00 ft			Final 68000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	53.00 ft			
Tool Length:	82.00 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			4059.00	
Shut In Tool	5.00			4064.00	
Hydraulic tool	5.00			4069.00	
Jars	5.00			4074.00	
Safety Joint	3.00			4077.00	
Packer	5.00			4082.00	29.00 Bottom Of Top Packer
Packer	5.00			4087.00	
Packer - Shale	0.00			4087.00	
Stubb	1.00			4088.00	
Recorder	0.00	6625	Inside	4088.00	
Recorder	0.00	8017	Outside	4088.00	
Perforations	15.00			4103.00	
Blank Spacing	33.00			4136.00	
Perforations	1.00			4137.00	
Bullnose	3.00			4140.00	53.00 Bottom Packers & Anchor

Total Tool Length: 82.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

21-2s-37w Cheyenne,KS

250 N. Water STE 300
Wichita, KS 67202

Smith 'A' #1-21

Job Ticket: 63725

DST#: 1

ATTN: Rocky Milford

Test Start: 2018.07.03 @ 03:40:00

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:

41000 ppm

Viscosity: 85.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.36 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 800.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
1200.00	SMCW 94%w , 6%m	15.193
480.00	MCW w/oil spots 61%w , 36%m, 2%g, 1%o	6.733

Total Length: 1680.00 ft Total Volume: 21.926 bbl

Num Fluid Samples: 0

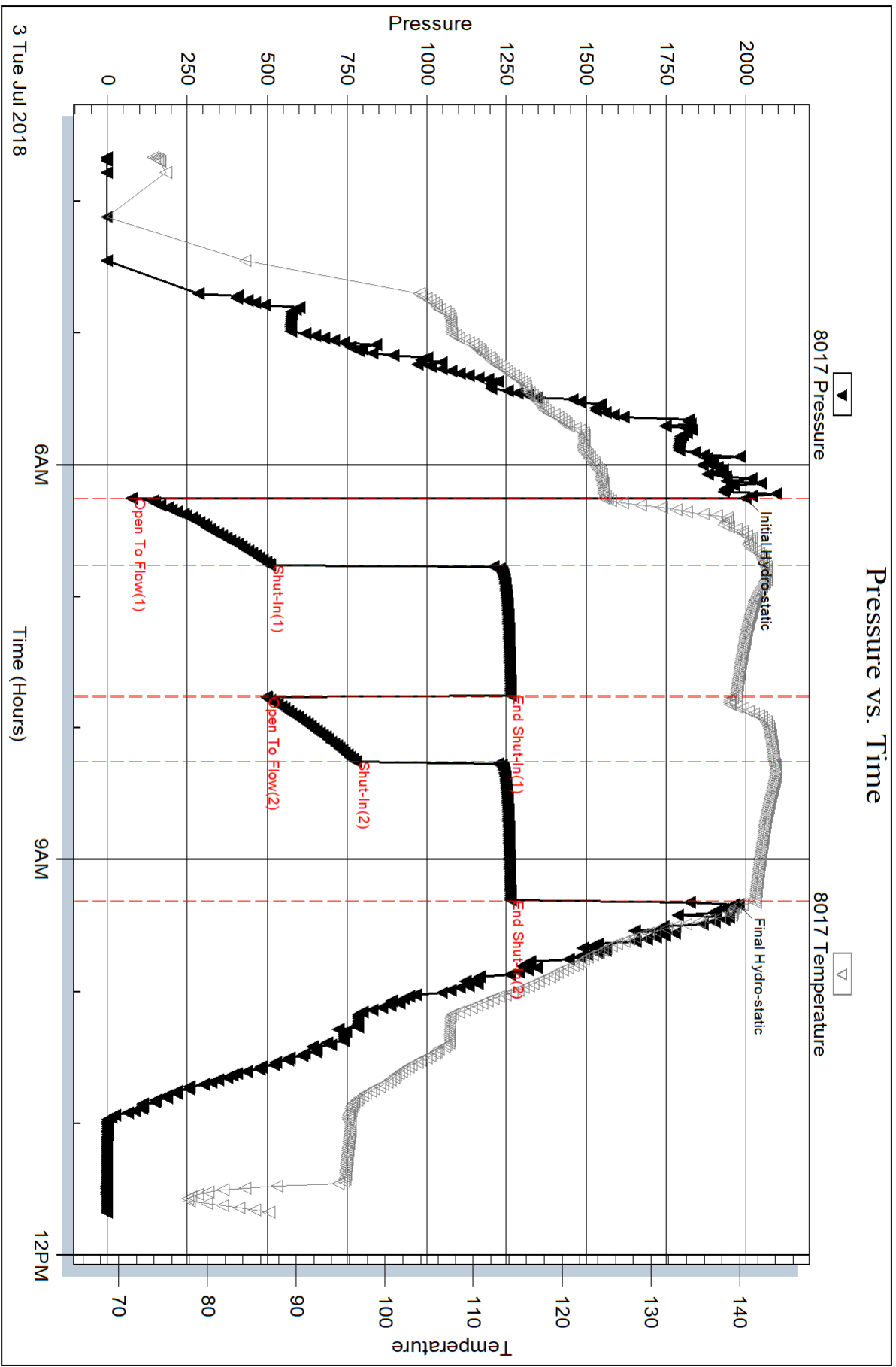
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW = .150 ohms @ 84.4 deg F Chlorides = 41,000 ppm



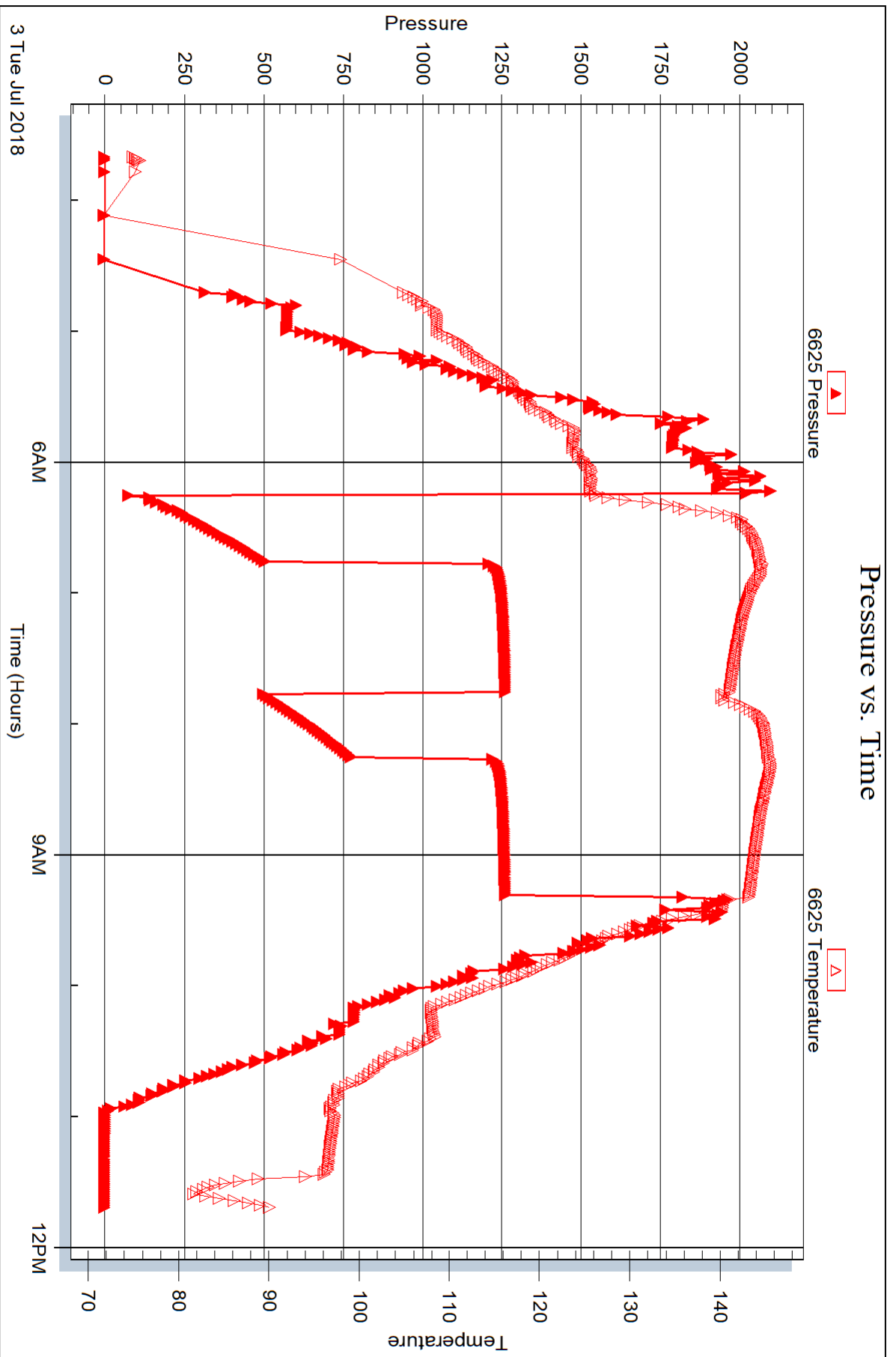
Serial #: 6625

Inside

Murfin Drilling Co., Inc.

Smith 'A' #1-21

DST Test Number: 1





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co., Inc.**

250 N. Water STE 300
Wichita, KS 67202

ATTN: Rocky Milford

Smith 'A' #1-21

21-2s-37w Cheyenne,KS

Start Date: 2018.07.04 @ 10:30:00

End Date: 2018.07.04 @ 17:16:30

Job Ticket #: 64201 DST #: 2

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

Printed: 2018.07.11 @ 09:42:00



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

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

21-2s-37w Cheyenne, KS

Smith 'A' #1-21

Job Ticket: 64201

DST#: 2

Test Start: 2018.07.04 @ 10:30:00

GENERAL INFORMATION:

Formation: **LKC "A"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 12:27:15
 Time Test Ended: 17:16:30
 Interval: **4293.00 ft (KB) To 4362.00 ft (KB) (TVD)**
 Total Depth: 4362.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: James Winder
 Unit No: 83
 Reference Elevations: 3418.00 ft (KB)
 3413.00 ft (CF)
 KB to GR/CF: 5.00 ft

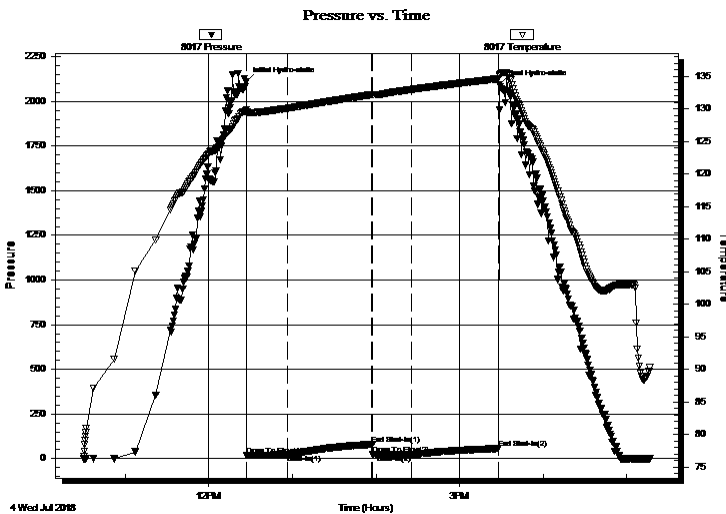
Serial #: 8017

Outside

Press@RunDepth: 23.46 psig @ 4294.00 ft (KB)
 Start Date: 2018.07.04 End Date: 2018.07.04
 Start Time: 10:30:05 End Time: 17:16:29
 Capacity: 8000.00 psig
 Last Calib.: 2018.07.04
 Time On Btm: 2018.07.04 @ 12:27:00
 Time Off Btm: 2018.07.04 @ 15:28:45

TEST COMMENT: 30 - IF: 1/4" Blow at open, died back to surface blow at close
 60 - IS: No blow back
 30 - FF: No blow
 60 - FS: No blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2109.37	129.88	Initial Hydro-static
1	19.34	129.33	Open To Flow (1)
30	21.36	130.11	Shut-In(1)
90	79.62	132.18	End Shut-In(1)
91	23.09	132.19	Open To Flow (2)
119	23.46	133.00	Shut-In(2)
181	56.90	134.64	End Shut-In(2)
182	2093.64	135.24	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	OM 53% m, 47% o	0.02

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

21-2s-37w Cheyenne,KS

250 N. Water STE 300
Wichita, KS 67202

Smith 'A' #1-21

Job Ticket: 64201

DST#: 2

ATTN: Rocky Milford

Test Start: 2018.07.04 @ 10:30:00

Tool Information

Drill Pipe:	Length: 4100.00 ft	Diameter: 3.80 inches	Volume: 57.51 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 180.00 ft	Diameter: 2.25 inches	Volume: 0.89 bbl	Weight to Pull Loose: 76000.00 lb
			<u>Total Volume: 58.40 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	16.00 ft			String Weight: Initial 63000.00 lb
Depth to Top Packer:	4293.00 ft			Final 63000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	69.00 ft			
Tool Length:	98.00 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			4265.00	
Shut In Tool	5.00			4270.00	
Hydraulic tool	5.00			4275.00	
Jars	5.00			4280.00	
Safety Joint	3.00			4283.00	
Packer	5.00			4288.00	29.00 Bottom Of Top Packer
Packer	5.00			4293.00	
Stubb	1.00			4294.00	
Recorder	0.00	6625	Inside	4294.00	
Recorder	0.00	8017	Outside	4294.00	
Perforations	29.00			4323.00	
Blank Spacing	33.00			4356.00	
Perforations	3.00			4359.00	
Bullnose	3.00			4362.00	69.00 Bottom Packers & Anchor

Total Tool Length: 98.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

21-2s-37w Cheyenne,KS

250 N. Water STE 300
Wichita, KS 67202

Smith 'A' #1-21

Job Ticket: 64201

DST#: 2

ATTN: Rocky Milford

Test Start: 2018.07.04 @ 10:30:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 59.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.57 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 700.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	OM 53% _m , 47% _o	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

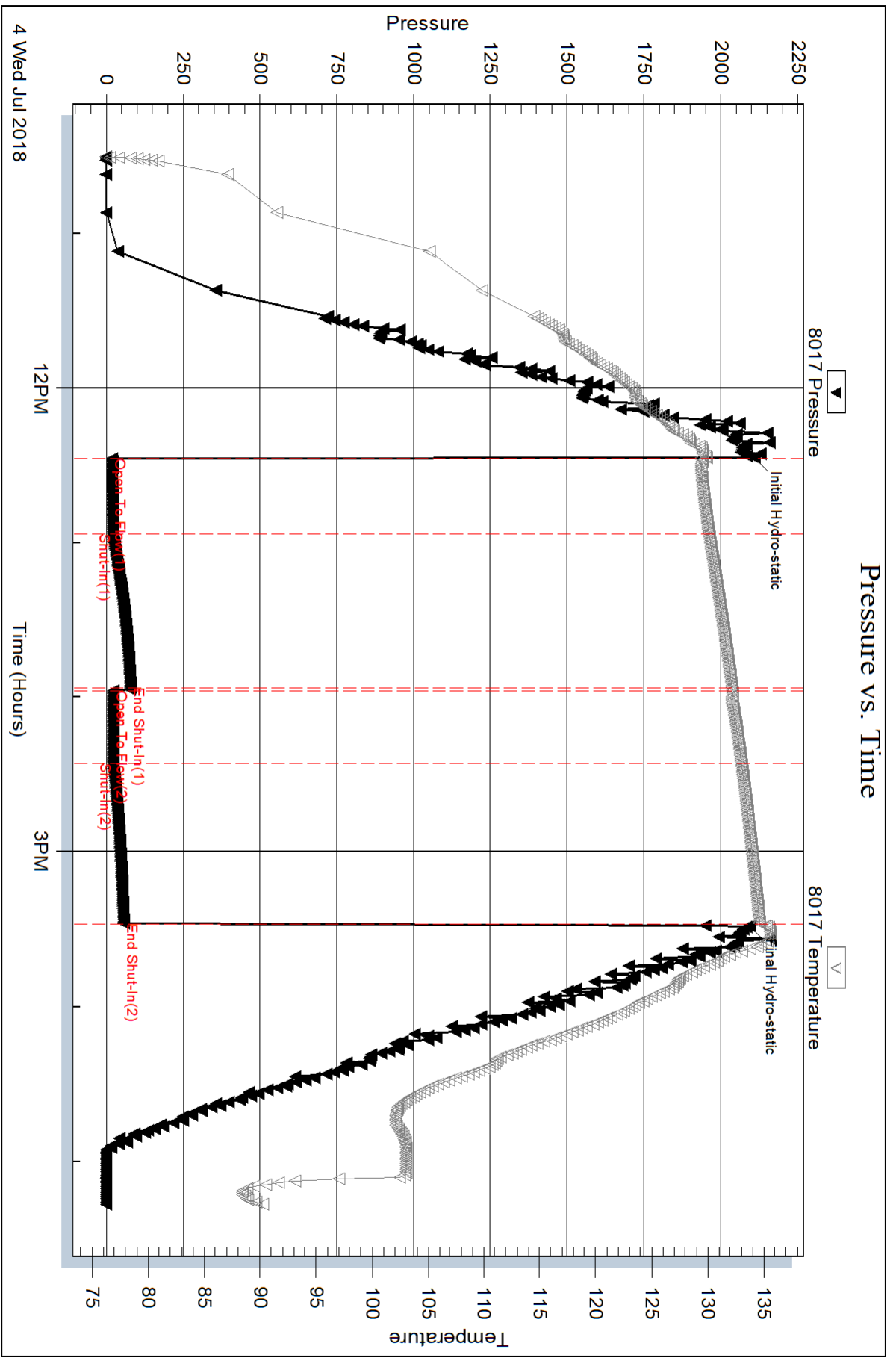
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



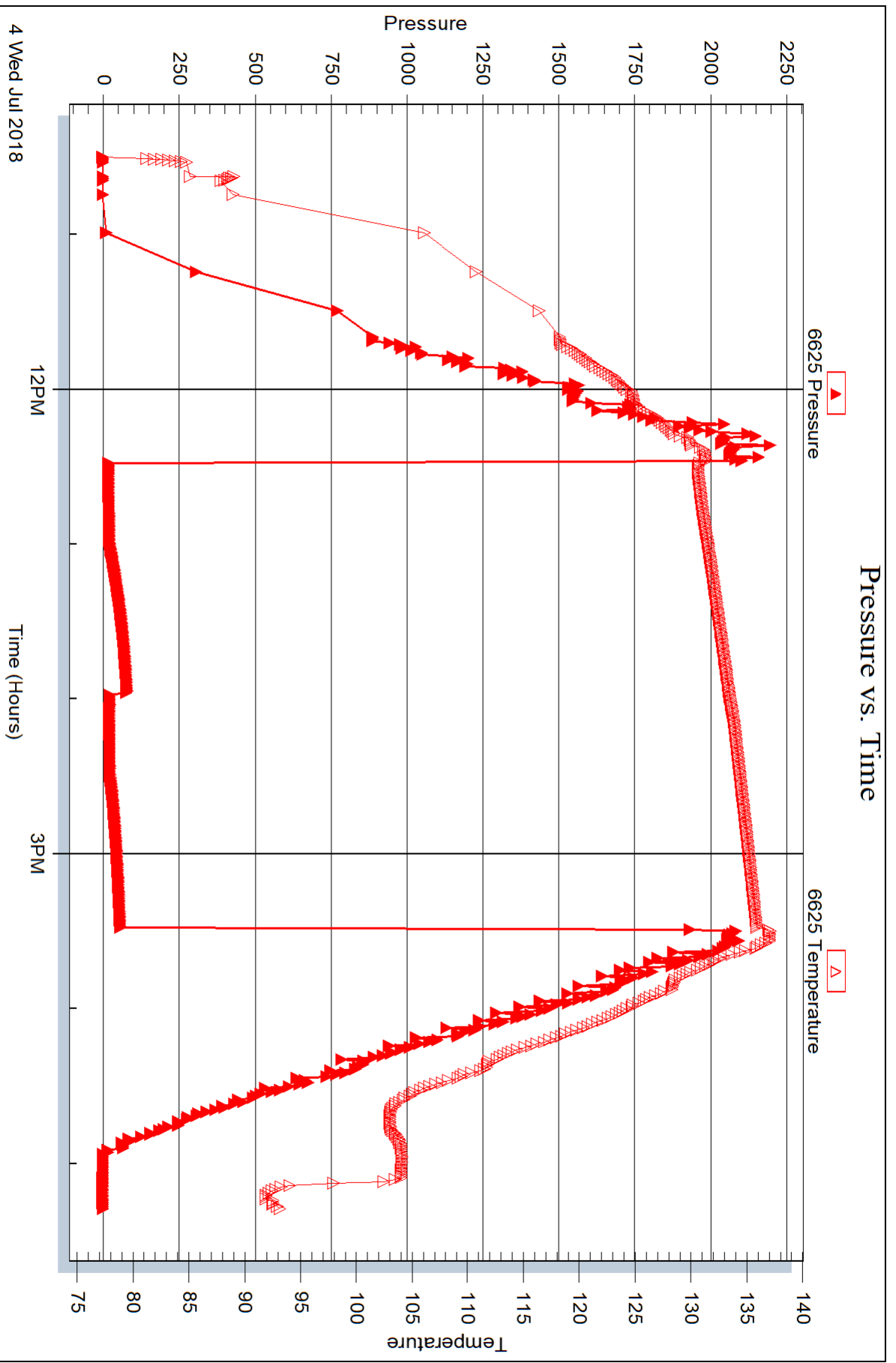
Serial #: 6625

Inside

Murfin Drilling Co., Inc.

Smith 'A' #1-21

DST Test Number: 2





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co., Inc.**

250 N. Water STE 300
Wichita, KS 67202

ATTN: Rocky Milford

Smith 'A' #1-21

21-2s-37w Cheyenne,KS

Start Date: 2018.07.05 @ 08:35:00

End Date: 2018.07.05 @ 16:55:15

Job Ticket #: 64202 DST #: 3

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

Printed: 2018.07.11 @ 09:41:37



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

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

21-2s-37w Cheyenne, KS

Smith 'A' #1-21

Job Ticket: 64202

DST#: 3

Test Start: 2018.07.05 @ 08:35:00

GENERAL INFORMATION:

Formation: **LKC "G"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 10:30:30
 Time Test Ended: 16:55:15
 Interval: **4433.00 ft (KB) To 4484.00 ft (KB) (TVD)**
 Total Depth: 4484.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: James Winder
 Unit No: 83
 Reference Elevations: 3418.00 ft (KB)
 3413.00 ft (CF)
 KB to GR/CF: 5.00 ft

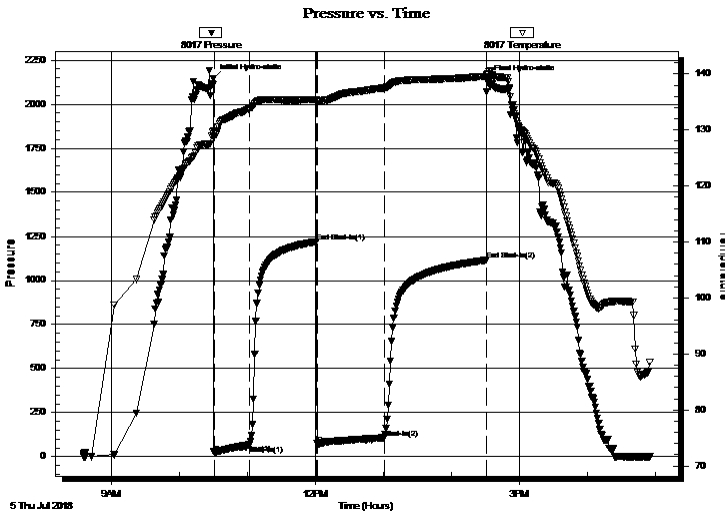
Serial #: 8017

Outside

Press@RunDepth: 107.28 psig @ 4434.00 ft (KB)
 Start Date: 2018.07.05 End Date: 2018.07.05
 Start Time: 08:35:05 End Time: 16:55:14
 Capacity: 8000.00 psig
 Last Calib.: 2018.07.05
 Time On Btm: 2018.07.05 @ 10:30:00
 Time Off Btm: 2018.07.05 @ 14:32:00

TEST COMMENT: 30 - IF: Blow built to 6"
 60 - IS: Blow back built about 1/2"
 60 - FF: Blow built to 10 1/4"
 90 - FS: Blow back built about 1/2"

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2144.62	129.85	Initial Hydro-static
1	22.05	129.49	Open To Flow (1)
32	67.16	133.91	Shut-In(1)
91	1220.10	135.49	End Shut-In(1)
92	72.27	135.27	Open To Flow (2)
151	107.28	137.52	Shut-In(2)
241	1115.19	139.56	End Shut-In(2)
242	2141.20	139.97	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
180.00	GMCO 50%o, 33%m, 17%g	0.89
55.00	MO 50%o, 45%m, 5%g	0.77

* 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., Inc.

21-2s-37w Cheyenne,KS

250 N. Water STE 300
Wichita, KS 67202

Smith 'A' #1-21

Job Ticket: 64202

DST#: 3

ATTN: Rocky Milford

Test Start: 2018.07.05 @ 08:35:00

Tool Information

Drill Pipe:	Length: 4256.00 ft	Diameter: 3.80 inches	Volume: 59.70 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 180.00 ft	Diameter: 2.25 inches	Volume: 0.89 bbl	Weight to Pull Loose: 78000.00 lb
			<u>Total Volume: 60.59 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	32.00 ft			String Weight: Initial 64000.00 lb
Depth to Top Packer:	4433.00 ft			Final 66000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	51.00 ft			
Tool Length:	80.00 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			4405.00	
Shut In Tool	5.00			4410.00	
Hydraulic tool	5.00			4415.00	
Jars	5.00			4420.00	
Safety Joint	3.00			4423.00	
Packer	5.00			4428.00	29.00 Bottom Of Top Packer
Packer	5.00			4433.00	
Packer - Shale	0.00			4433.00	
Stubb	1.00			4434.00	
Recorder	0.00	6625	Inside	4434.00	
Recorder	0.00	8017	Outside	4434.00	
Perforations	14.00			4448.00	
Blank Spacing	33.00			4481.00	
Bullnose	3.00			4484.00	51.00 Bottom Packers & Anchor

Total Tool Length: 80.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

21-2s-37w Cheyenne,KS

250 N. Water STE 300
Wichita, KS 67202

Smith 'A' #1-21

Job Ticket: 64202

DST#: 3

ATTN: Rocky Milford

Test Start: 2018.07.05 @ 08:35:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 53.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.58 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 bbbl
180.00	GMCO 50%o, 33%m, 17%g	0.885
55.00	MO 50%o, 45%m, 5%g	0.772

Total Length: 235.00 ft Total Volume: 1.657 bbl

Num Fluid Samples: 0

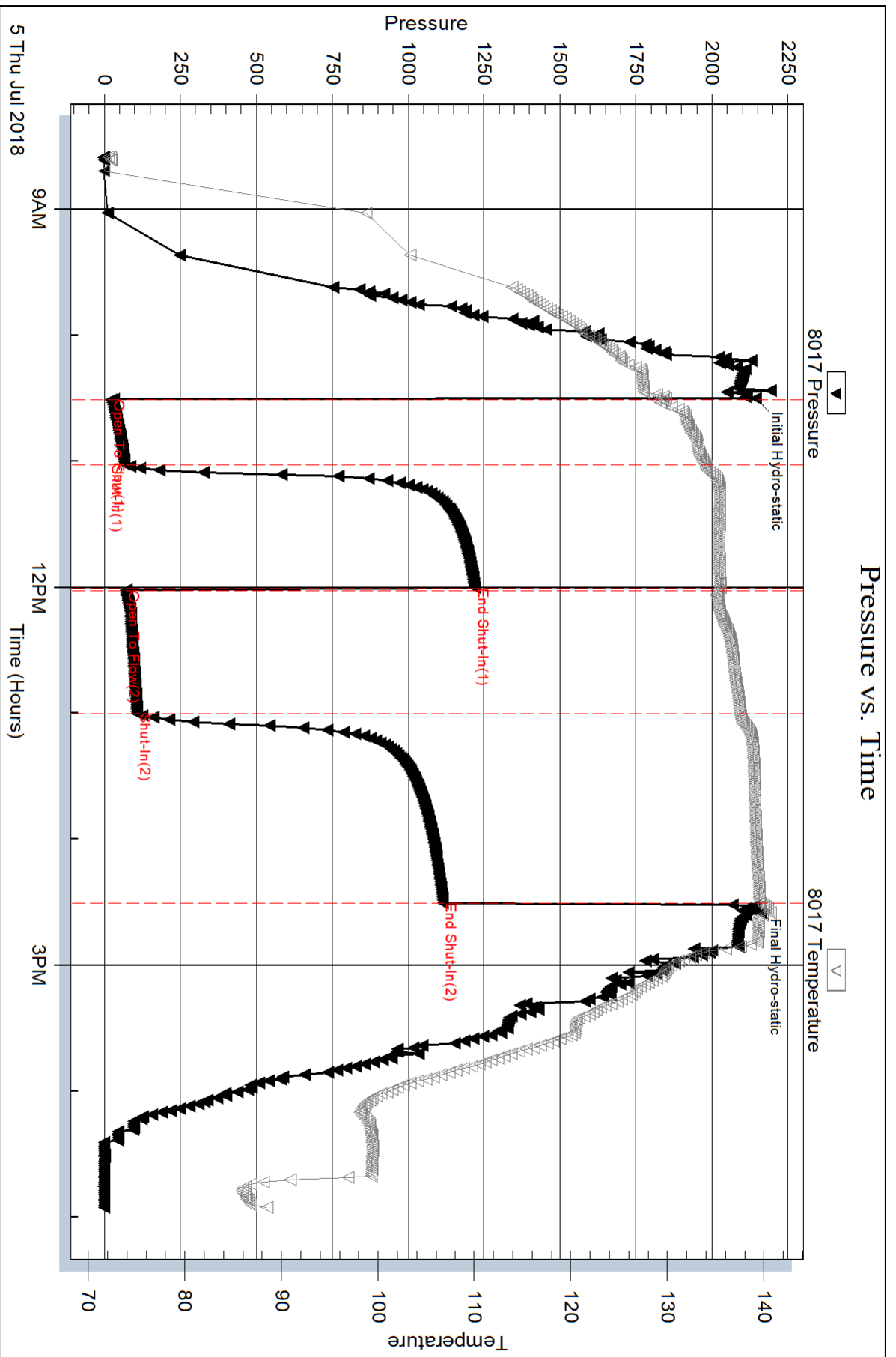
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Couldn't get a clean enough sample for gravity



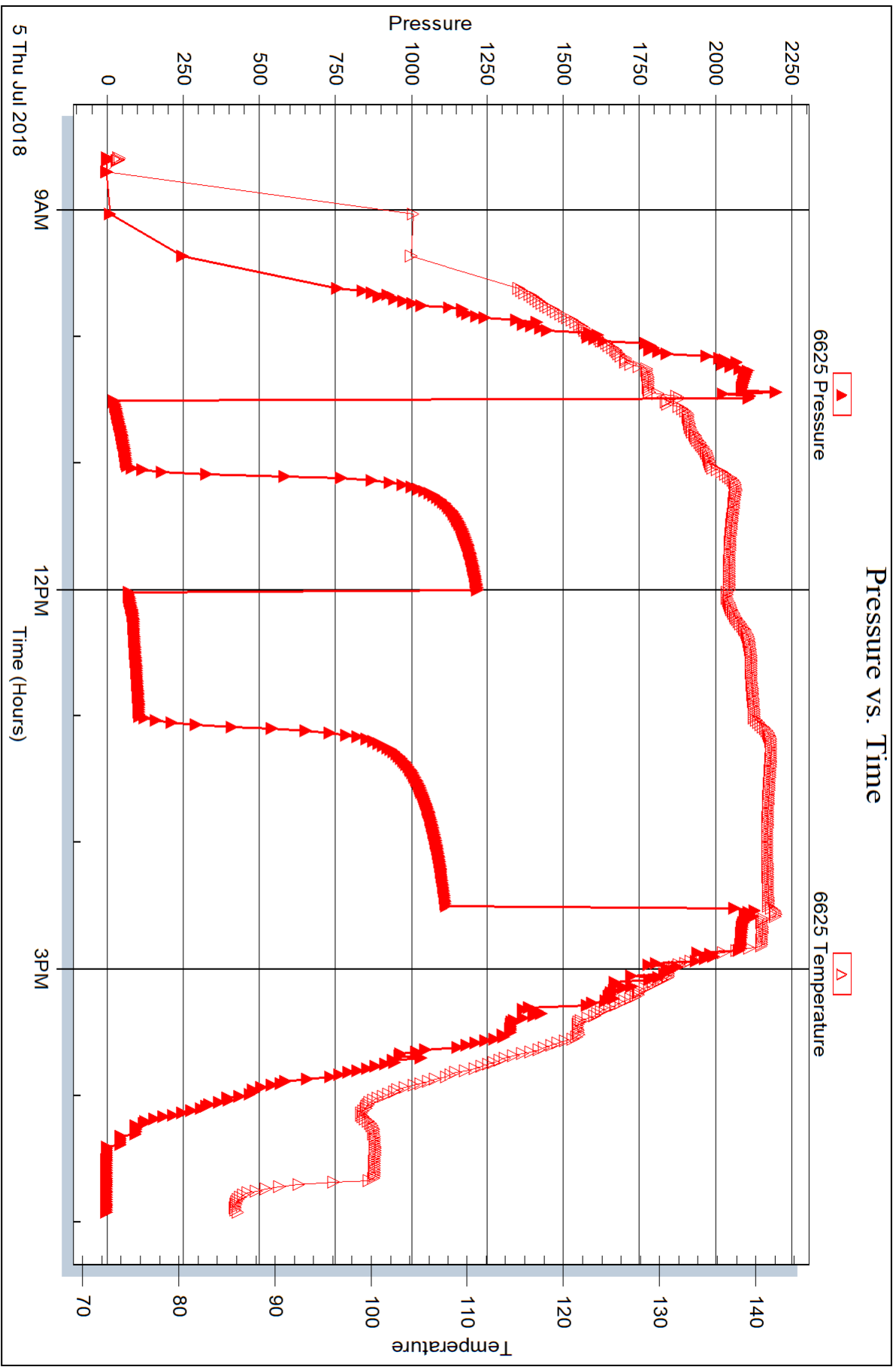
Serial #: 6625

Inside

Murfin Drilling Co., Inc.

Smith 'A' #1-21

DST Test Number: 3





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co., Inc.**

250 N. Water STE 300
Wichita, KS 67202

ATTN: Rocky Milford

Smith 'A' #1-21

21-2s-37w Cheyenne,KS

Start Date: 2018.07.06 @ 05:00:00

End Date: 2018.07.06 @ 12:03:00

Job Ticket #: 64203 DST #: 4

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

Printed: 2018.07.11 @ 09:41:06



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

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

21-2s-37w Cheyenne, KS

Smith 'A' #1-21

Job Ticket: 64203

DST#: 4

Test Start: 2018.07.06 @ 05:00:00

GENERAL INFORMATION:

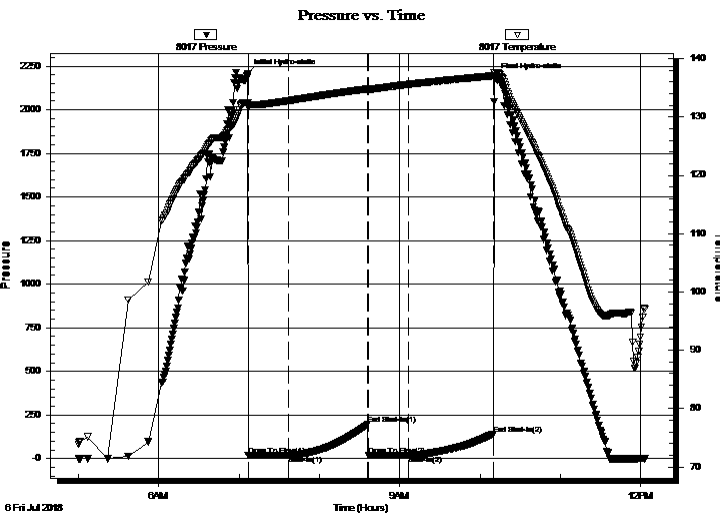
Formation: **LKC "H - J"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 07:06:45
 Time Test Ended: 12:03:00
 Interval: **4482.00 ft (KB) To 4570.00 ft (KB) (TVD)**
 Total Depth: 4570.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: James Winder
 Unit No: 83
 Reference Elevations: 3418.00 ft (KB)
 3413.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8017

Outside

Press@RunDepth: 21.17 psig @ 4483.00 ft (KB)
 Start Date: 2018.07.06 End Date: 2018.07.06
 Start Time: 05:00:05 End Time: 12:02:59
 Capacity: 8000.00 psig
 Last Calib.: 2018.07.06
 Time On Btm: 2018.07.06 @ 07:06:30
 Time Off Btm: 2018.07.06 @ 10:11:00

TEST COMMENT: 30 - IF: 1/4" Blow at open, built to 1/2"
 60 - IS: No blow back
 30 - FF: No blow
 60 - FS: No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2204.35	132.48	Initial Hydro-static
1	17.75	131.67	Open To Flow (1)
30	19.69	132.79	Shut-In(1)
90	196.02	134.82	End Shut-In(1)
90	20.51	134.72	Open To Flow (2)
121	21.17	135.60	Shut-In(2)
184	141.81	137.08	End Shut-In(2)
185	2186.56	137.64	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
2.00	Mud w /oil spots 98%m, 2%o	0.01

* 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., Inc.

21-2s-37w Cheyenne,KS

250 N. Water STE 300
Wichita, KS 67202

Smith 'A' #1-21

Job Ticket: 64203

DST#: 4

ATTN: Rocky Milford

Test Start: 2018.07.06 @ 05:00:00

Tool Information

Drill Pipe:	Length: 4287.00 ft	Diameter: 3.80 inches	Volume: 60.14 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 180.00 ft	Diameter: 2.25 inches	Volume: 0.89 bbl	Weight to Pull Loose: 68000.00 lb
			<u>Total Volume: 61.03 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	14.00 ft			String Weight: Initial 64000.00 lb
Depth to Top Packer:	4482.00 ft			Final 64000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	88.00 ft			
Tool Length:	117.00 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			4454.00	
Shut In Tool	5.00			4459.00	
Hydraulic tool	5.00			4464.00	
Jars	5.00			4469.00	
Safety Joint	3.00			4472.00	
Packer	5.00			4477.00	29.00 Bottom Of Top Packer
Packer	5.00			4482.00	
Stubb	1.00			4483.00	
Recorder	0.00	6625	Inside	4483.00	
Recorder	0.00	8017	Outside	4483.00	
Perforations	19.00			4502.00	
Blank Spacing	65.00			4567.00	
Bullnose	3.00			4570.00	88.00 Bottom Packers & Anchor

Total Tool Length: 117.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

21-2s-37w Cheyenne,KS

250 N. Water STE 300
Wichita, KS 67202

Smith 'A' #1-21

Job Ticket: 64203

DST#: 4

ATTN: Rocky Milford

Test Start: 2018.07.06 @ 05:00:00

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: 53.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.58 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
2.00	Mud w /oil spots 98% _m , 2% _o	0.010

Total Length: 2.00 ft Total Volume: 0.010 bbl

Num Fluid Samples: 0

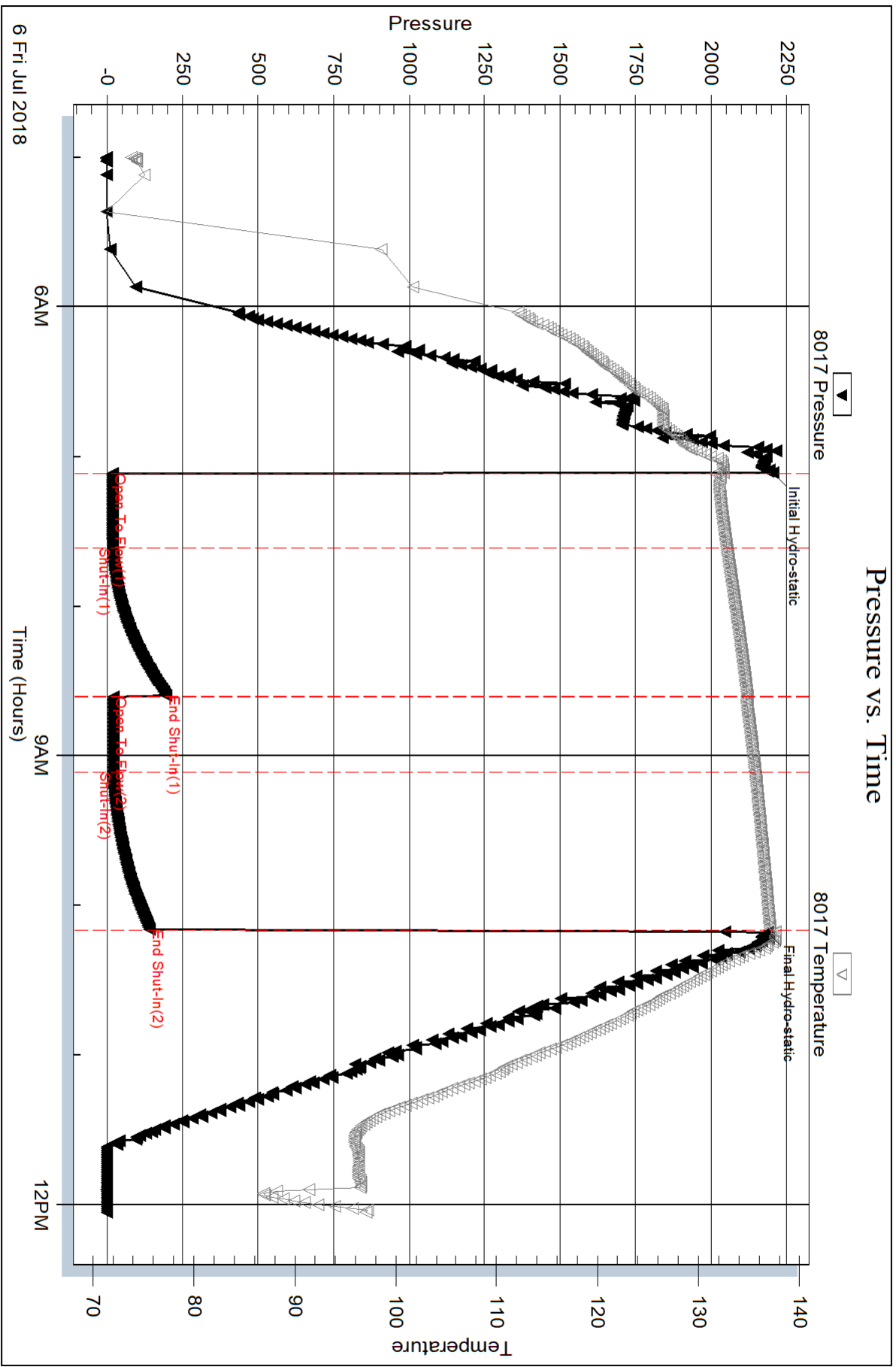
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



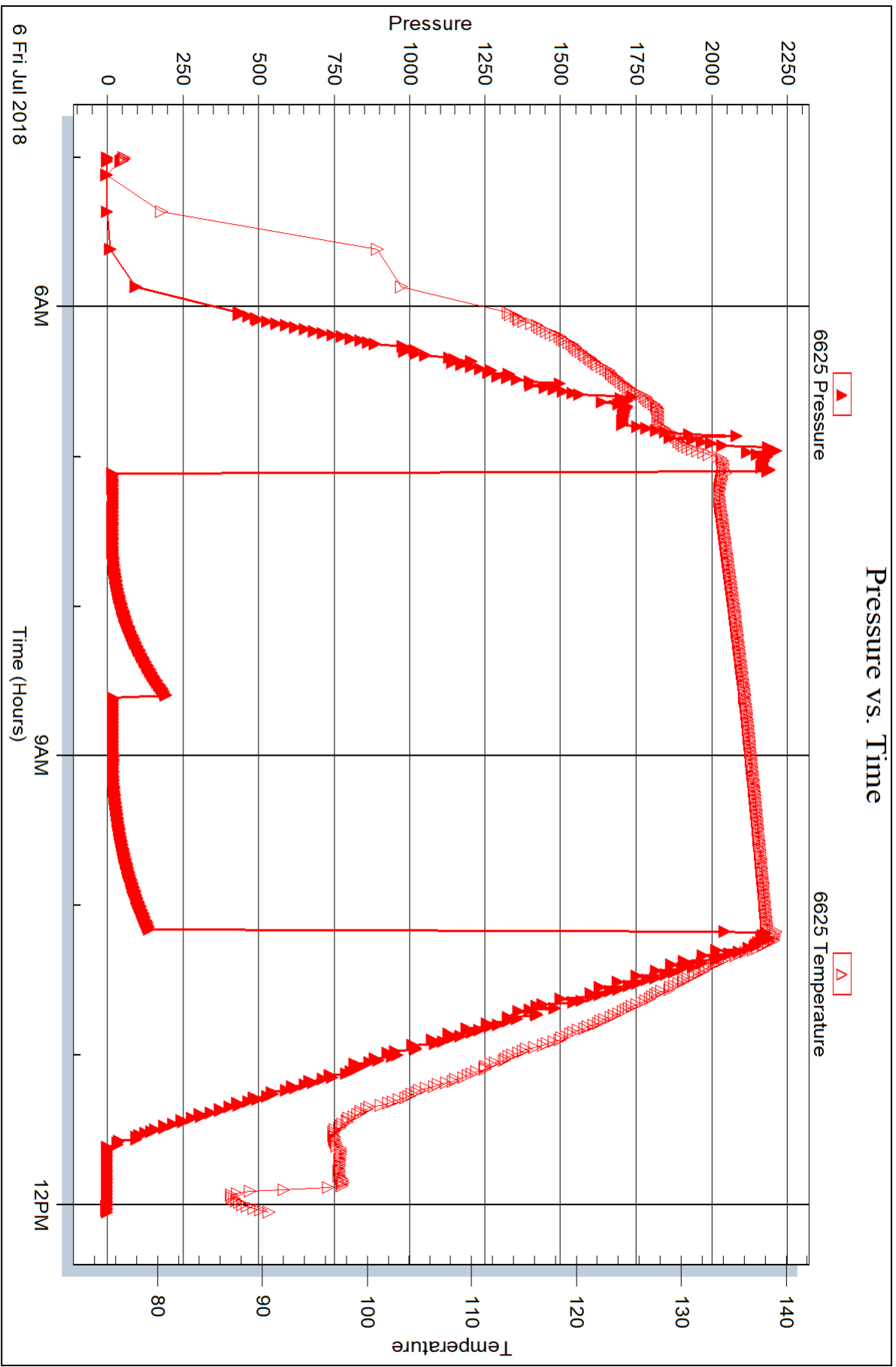
Serial #: 6625

Inside

Murfin Drilling Co., Inc.

Smith 'A' #1-21

DST Test Number: 4





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co., Inc.**

250 N. Water STE 300
Wichita, KS 67202

ATTN: Rocky Milford

Smith 'A' #1-21

21-2s-37w Cheyenne,KS

Start Date: 2018.07.07 @ 18:37:05

End Date: 2018.07.08 @ 02:10:59

Job Ticket #: 64204 DST #: 5

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

Printed: 2018.07.11 @ 09:40:13



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

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

21-2s-37w Cheyenne, KS

Smith 'A' #1-21

Job Ticket: 64204

DST#: 5

Test Start: 2018.07.07 @ 18:37:05

GENERAL INFORMATION:

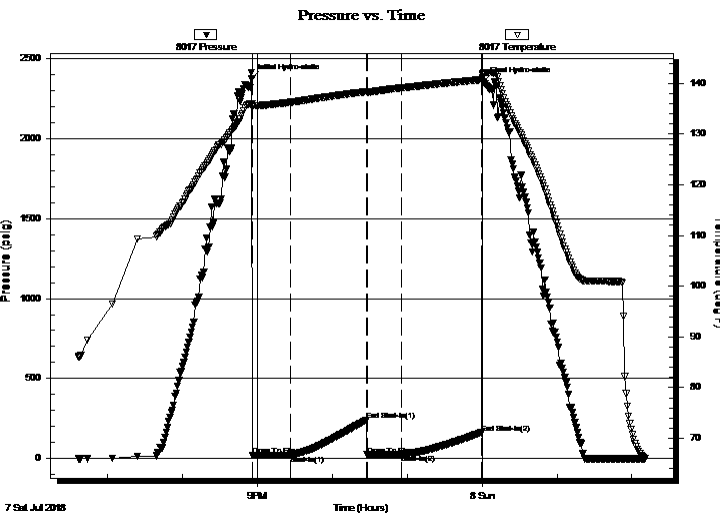
Formation: **Ft. Scott - Celia**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 20:56:15
 Time Test Ended: 02:10:59
 Interval: **4721.00 ft (KB) To 4860.00 ft (KB) (TVD)**
 Total Depth: 4860.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: James Winder
 Unit No: 83
 Reference Elevations: 3418.00 ft (KB)
 3413.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8017

Outside

Press@RunDepth: 24.26 psig @ 4722.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2018.07.07 End Date: 2018.07.08 Last Calib.: 2018.07.08
 Start Time: 18:37:05 End Time: 02:10:59 Time On Btm: 2018.07.07 @ 20:55:45
 Time Off Btm: 2018.07.08 @ 00:00:44

TEST COMMENT: 30 - IF: 1/4" Blow at open, built to 1/2", died back to 1/4" at close
 60 - IS: No blow back
 30 - FF: No blow
 60 - FS: No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2372.75	136.07	Initial Hydro-static
1	21.00	135.44	Open To Flow (1)
31	21.56	136.26	Shut-In(1)
92	240.53	138.38	End Shut-In(1)
93	23.32	138.26	Open To Flow (2)
120	24.26	139.11	Shut-In(2)
184	160.13	140.72	End Shut-In(2)
185	2357.41	141.89	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud w /trace of oil 100% m	0.02

* 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., Inc.

21-2s-37w Cheyenne,KS

250 N. Water STE 300
Wichita, KS 67202

Smith 'A' #1-21

Job Ticket: 64204

DST#: 5

ATTN: Rocky Milford

Test Start: 2018.07.07 @ 18:37:05

Tool Information

Drill Pipe:	Length: 4536.00 ft	Diameter: 3.80 inches	Volume: 63.63 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 180.00 ft	Diameter: 2.25 inches	Volume: 0.89 bbl	Weight to Pull Loose: 84000.00 lb
			<u>Total Volume: 64.52 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	24.00 ft			String Weight: Initial 68000.00 lb
Depth to Top Packer:	4721.00 ft			Final 68000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	139.00 ft			
Tool Length:	168.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

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

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4693.00	
Shut In Tool	5.00			4698.00	
Hydraulic tool	5.00			4703.00	
Jars	5.00			4708.00	
Safety Joint	3.00			4711.00	
Packer	5.00			4716.00	29.00 Bottom Of Top Packer
Packer	5.00			4721.00	
Packer - Shale	0.00			4721.00	
Stubb	1.00			4722.00	
Recorder	0.00	6625	Inside	4722.00	
Recorder	0.00	8017	Outside	4722.00	
Perforations	33.00			4755.00	
Blank Spacing	97.00			4852.00	
Perforations	5.00			4857.00	
Bullnose	3.00			4860.00	139.00 Bottom Packers & Anchor

Total Tool Length: 168.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

21-2s-37w Cheyenne,KS

250 N. Water STE 300
Wichita, KS 67202

Smith 'A' #1-21

Job Ticket: 64204

DST#: 5

ATTN: Rocky Milford

Test Start: 2018.07.07 @ 18:37:05

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: 63.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.99 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 600.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	Mud w /trace of oil 100%m	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

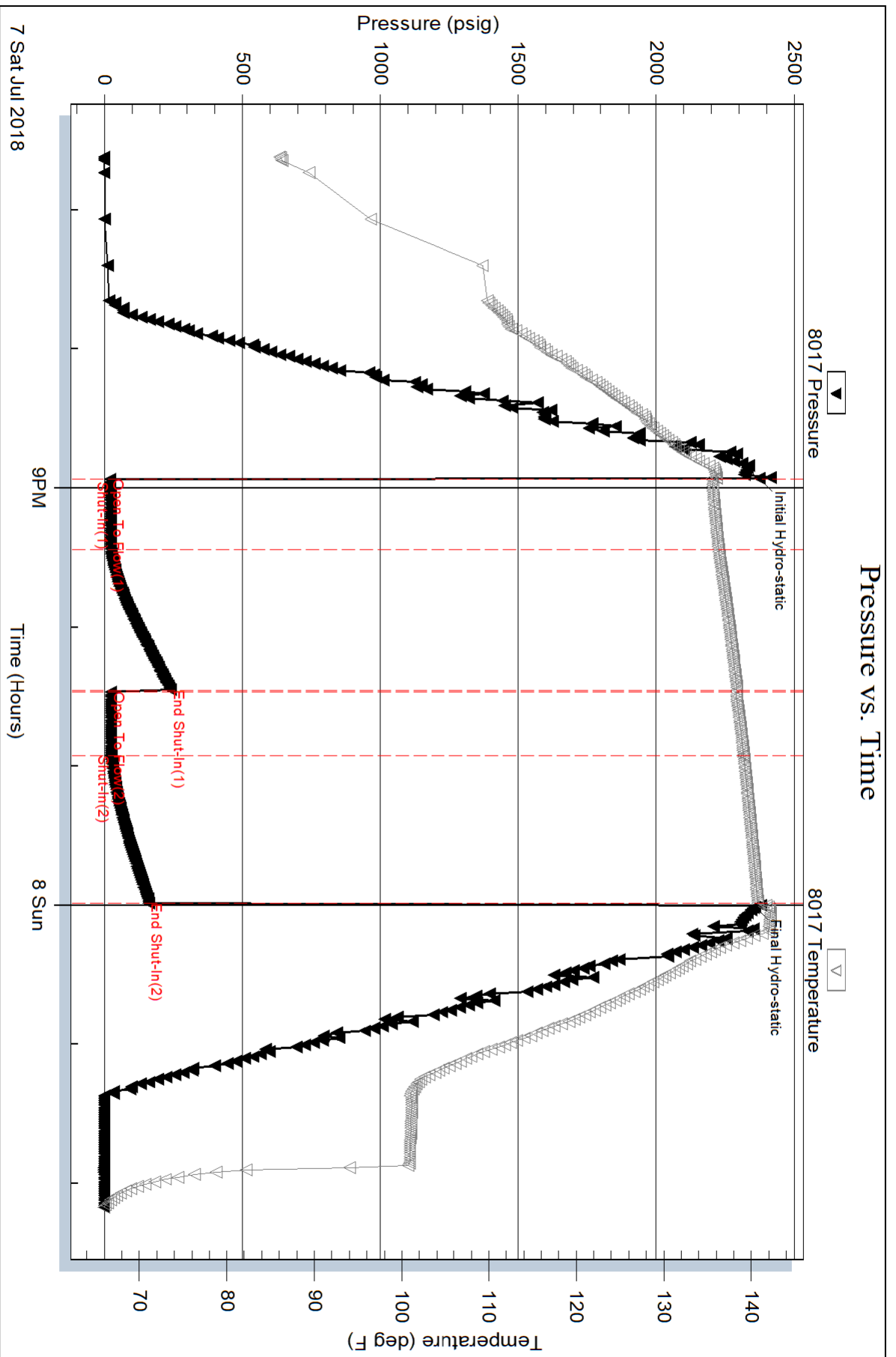
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



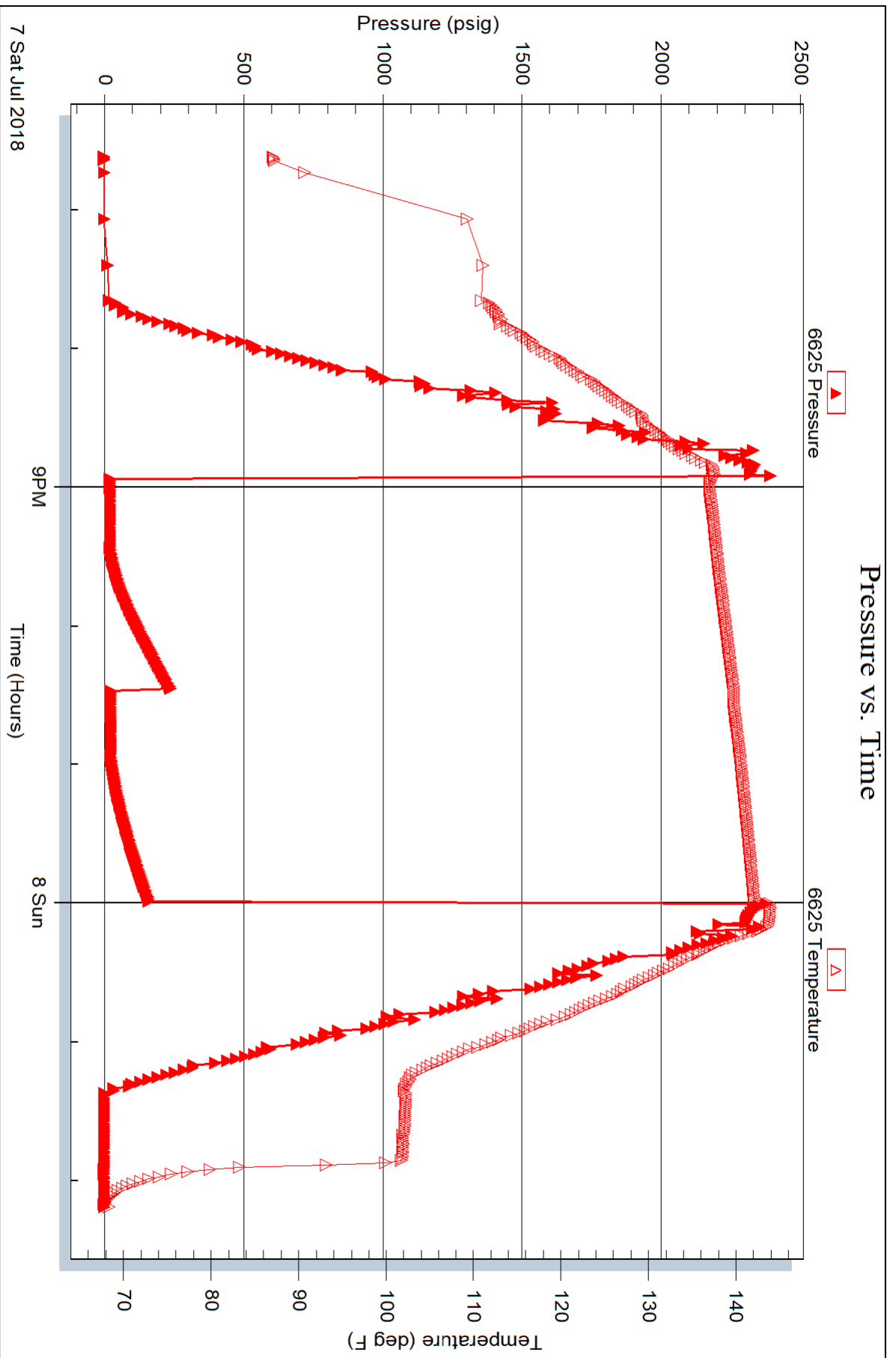
Serial #: 6625

Inside

Murfin Drilling Co., Inc.

Smith 'A' #1-21

DST Test Number: 5





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63725

Well Name & No. Smith 'A' #1-21 Test No. 1 Date 7-3-18
 Company Murfin Drilling Co. Inc Elevation 348 KB 3413 GL
 Address 250 N Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Rocky Milford Rig Murfin #3
 Location: Sec. 21 Twp 2S Rge. 37W Co. Cheyenne State KS

Interval Tested 4082-4140 Zone Tested Topeka
 Anchor Length 53 Drill Pipe Run 3882 Mud Wt. 8.7
 Top Packer Depth 4082 Drill Collars Run 180 Vis 85
 Bottom Packer Depth 4087 (shale) Wt. Pipe Run - WL 6.4
 Total Depth 4140 Chlorides 800 ppm System LCM 2
 Blow Description IF: Blow built to BOB (11") at 3 1/2 min. - built to 96 1/2"
ISI: No blowback
FF: Blow built to BOB at 4 min. - built to 90"
FSI No blowback

Rec	Feet of	%gas	%oil	%water	%mud
<u>480</u>	<u>Feet of MCW MCW w/oil spots</u>	<u>2</u>	<u>1</u>	<u>61</u>	<u>36</u>
<u>1200</u>	<u>Feet of <u>SMCW</u></u>		<u>94</u>	<u>6</u>	

Rec Total 1680 BHT 142 Gravity _____ API RW 150 @ 84.4 °F Chlorides 41,000 ppm

(A) Initial Hydrostatic 1997 Test 1150 T-On Location 22:30 7/2
 (B) First Initial Flow 76 Jars 250 T-Started 3:40 7/3
 (C) First Final Flow 509 Safety Joint 75 T-Open 6:15
 (D) Initial Shut-In 1263 Circ Sub _____ T-Pulled 9:18
 (E) Second Initial Flow 495 Hourly Standby 2hrs 160 T-Out 11:35
 (F) Second Final Flow 777 Mileage 116RT 116 Comments Rig had to short trip
 (G) Final Shut-In 1263 Sampler _____ again after I got there
 (H) Final Hydrostatic 1975 Straddle _____
 Shale Packer 250 Ruined Shale Packer _____
 Extra Packer _____ Ruined Packer _____
 Extra Recorder _____ Extra Copies _____
 Day Standby _____ Sub Total 0
 Accessibility _____ Total 2001
 Sub Total 2001 MP/DST Disc't _____

Approved By Rocky Milford Our Representative James W. Linder
 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. 64201

Well Name & No. Smith 'A' #1-21 Test No. 2 Date 7-4-18
 Company Murfin Drilling Co. Inc Elevation 3418 KB 3413 GL
 Address 250 N. Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Rocky Milford Rig Murfin #3
 Location: Sec. 21 Twp 2s Rge. 37w Co. Cheyenne State KS

Interval Tested 4293-4362 Zone Tested LKC "A"
 Anchor Length 69 Drill Pipe Run 4100 Mud Wt. 9.0
 Top Packer Depth 4288 Drill Collars Run 180 Vis 59
 Bottom Packer Depth 4293 Wt. Pipe Run - WL 5.6
 Total Depth 4362 Chlorides 700 ppm System LCM 4

Blow Description IF: 1/4" Blow at open, died back to surface blow at close
ISI: No blowback
FF: No blow
FSI: No blow

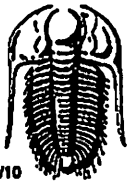
Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>0m</u>		<u>47</u>	<u>53</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 5 BHT 135 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2109 Test 1150 T-On Location 9:15
 (B) First Initial Flow 19 Jars 250 T-Started 10:30
 (C) First Final Flow 21 Safety Joint 75 T-Open 12:27
 (D) Initial Shut-In 80 Circ Sub _____ T-Pulled 15:28
 (E) Second Initial Flow 23 Hourly Standby _____ T-Out 17:15
 (F) Second Final Flow 23 Mileage 116 RT 116 Comments _____
 (G) Final Shut-In 57 Sampler _____
 (H) Final Hydrostatic 2094 Straddle _____

Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Initial Open 30
 Initial Shut-In 60
 Final Flow 30
 Final Shut-In 60
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 1591
 Sub Total _____
 Total 1591.00
 MP/DST Disc't _____

Approved By Rocky Milford Our Representative James Winder
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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 64202

Well Name & No. Smith 'A' # 1-21 Test No. 3 Date 7-5-18
 Company Murfin Drilling Co. Inc Elevation 3418 KB 3413 GL
 Address 250 N. Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Rocky Milford Rig Murfin #3
 Location: Sec. 21 Twp 2s Rge. 37w co. Cheyenne State KS

Interval Tested 4433 - 4484 Zone Tested LKC "6"
 Anchor Length 51 Drill Pipe Run 4256 Mud Wt. 9.0
 Top Packer Depth 4428 Drill Collars Run 180 Vis 53
 Bottom Packer Depth 4433 (shale) Wt. Pipe Run - WL 5.6
 Total Depth 4484 Chlorides 900 ppm System LCM 3

Blow Description IF: Blow built to 6"
ISI: Blowback built about 1/2"
FF: Blow built to 10 1/4"
FSI: Blowback built about 1/2"

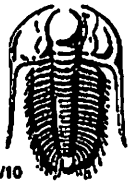
Rec	Feet of	%gas	%oil	%water	%mud
<u>55</u>	<u>MO</u>	<u>5</u>	<u>50</u>	<u>45</u>	
<u>180</u>	<u>GMCO</u>	<u>17</u>	<u>50</u>	<u>33</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 235 BHT 140 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2145 Test 1150 T-On Location 7:25
 (B) First Initial Flow 22 Jars 250 T-Started 8:35
 (C) First Final Flow 67 Safety Joint 75 T-Open 10:30
 (D) Initial Shut-In 1220 Circ Sub _____ T-Pulled 14:30
 (E) Second Initial Flow 72 Hourly Standby _____ T-Out 16:50
 (F) Second Final Flow 107 Mileage 116 RT 116
 (G) Final Shut-In 1115 Sampler _____
 (H) Final Hydrostatic 2141 Straddle _____
 Shale Packer 250 Ruined Shale Packer _____

Initial Open 30 Extra Packer _____ Ruined Packer _____
 Initial Shut-In 60 Extra Recorder _____ Extra Copies _____
 Final Flow 60 Day Standby _____ Sub Total 0
 Final Shut-In 90 Accessibility _____ Total 1841.00
 Sub Total 1841 MP/DST Disc't _____

Approved By Rocky Milford Our Representative James Winder
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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 64203

Well Name & No. Smith 'A' #1-21 Test No. 4 Date 7-6-18
 Company Murfin Drilling Co. Inc Elevation 3418 KB 3413 GL
 Address 250 N Water STE 300 Wichita KS 67202
 Co. Rep / Geo. Rocky Milford Rig Murfin #3
 Location: Sec. 21 Twp 2s Rge. 37w Co. Cheyenne State KS

Interval Tested 4482 - 4570 Zone Tested LKC "H-J"
 Anchor Length 88 Drill Pipe Run 4287 Mud Wt. 9.0
 Top Packer Depth 4477 Drill Collars Run 180 Vis 53
 Bottom Packer Depth 4482 Wt. Pipe Run - WL 5.6
 Total Depth 4570 Chlorides 900 ppm System LCM 3

Blow Description IF: 1/4" Blow at open, built to 1/2"
ISI: No blowback
FF: No blow
FSI: No blow

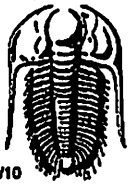
Rec	Feet of	%gas	%oil	%water	%mud
<u>2</u>	<u>mud w/oil spots</u>	<u>-</u>	<u>2</u>	<u>-</u>	<u>98</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 2 BHT 137 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2204 Test 1150 T-On Location 4:05
 (B) First Initial Flow 18 Jars 250 T-Started 5:00
 (C) First Final Flow 20 Safety Joint 75 T-Open 7:06
 (D) Initial Shut-In 196 Circ Sub _____ T-Pulled 10:10
 (E) Second Initial Flow 21 Hourly Standby _____ T-Out 12:00
 (F) Second Final Flow 21 Mileage 116 RT 116 Comments _____
 (G) Final Shut-In 142 Sampler _____
 (H) Final Hydrostatic 2187 Straddle _____

Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Initial Open 30
 Initial Shut-In 60
 Final Flow 30
 Final Shut-In 60
 Sub Total 0
 Total 1591.00
 MP/DST Disc't _____
 Sub Total 1591

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 64204

Well Name & No. Smith 'A' #1-21 Test No. 5 Date 7-7-18
 Company Murfin Drilling Co. Inc Elevation 3418 KB 3413 GL
 Address 250 N. Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Rocky Milford Rig Murfin #3
 Location: Sec. 21 Twp 2s Rge. 37w Co. Cheyenne State KS

Interval Tested 4721-4860 Zone Tested Ft. Scott - Celia
 Anchor Length 139 Drill Pipe Run 4536 Mud Wt. 9.1
 Top Packer Depth 4716 Drill Collars Run 180 Vls 63
 Bottom Packer Depth 4721 (shale) Wt. Pipe Run - WL 6.0
 Total Depth 4860 Chlorides 600 ppm System LCM 5
 Blow Description IF: 1/4" Blow at open, built to 1/2", died back to 1/4" at close
ISI: No blowback
FF: No blow
FSI: No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>Mud w/trace oil</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 141 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2373 Test 1150 T-On Location 17:30 7/8
 (B) First Initial Flow 21 Jars 250 T-Started 18:37
 (C) First Final Flow 22 Safety Joint 75 T-Open 20:56
 (D) Initial Shut-In 241 Circ Sub _____ T-Pulled 23:59
 (E) Second Initial Flow 23 Hourly Standby _____ T-Out 2:10 7/8
 (F) Second Final Flow 24 Mileage 116 RT 116 Comments _____
 (G) Final Shut-In 162 Sampler _____
 (H) Final Hydrostatic 2376 Straddle _____ Ruined Shale Packer _____
 Shale Packer 250 Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1841.00
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1841

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TREATMENT REPORT



HURRICANE SERVICES INC

Customer:	Murfing Drilling Co Inc	Date:	6/28/2018	Ticket #:	ICT1143
Field Rep:	Greg Condren				
Address:	250 N Water Ste				
City, State:	Wichita	Kansas			
County, Zip:	Sedgwick	67202			

Field Order No.:		Open Hole:		Perf Depths (ft)	Perfs
Well Name:	Smith A 1-21	Casing Depth:	386		
Location:	Cheyenne KS	Casing Size:	8 5/8		
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:	386	Total Perfs	0

TIME	INJECTION RATE		PRESSURE		REMARKS	PROP (lbs)	HCL (gls)	FLUID (bbls)
	FLUID	N2/CO2	STP	ANNULUS				
7:38 PM					Arrive on Location			
7:40 PM					Safety Meeting			
7:45 PM					Rig up Equipment			
9:30 PM					Rig runs casing			
11:15 PM					Rig on bottom break circulation			
11:30 PM	4.0		100.0		Mix 300 sbs of Class A cement 3% cc 2% gel 1/4 flo			49.00
11:48 PM	4.0		80.0		Start Displacement			23.50
12:00 AM					End Displacement			
12:10 AM					Wash Up			
12:20 AM					Rig Down			
					10 bbls of cement to pit			
12:30 AM					Depart Location			
					Thanks Dane and Crew			
TOTAL:								72.60

SUMMARY			
Max Fl. Rate	Avg Fl. Rate	Max PSI	Avg PSI
4.0	4.0	100.0	90.0

PRODUCTS USED

Treater: Dane Retzlaff

Customer: Greg Condren

MDCI
 Smith 'A' #1-21
 2210' FSL 1320'FEL
 Sec. 21-2S-37W
 3418' KB

Formation	Sample top	Datum	Ref	Log tops	Datum	Ref
Anhydrite	3302	+116	-6	3300	+118	-4
B/Anhydrite	3337	+81	-9	3336	+82	-8
Topeka	4123	-705	-8	4117	-699	-2
Oread	4266	-848	-9	4264	-846	-7
Lansing	4341	-923	-10	4339	-921	-8
Stark	4570	-1152	-11	4571	-1153	-12
Mound City	4620	-1202	-11	4618	-1200	-9
Ft Scott	4748	-1330	-13	4745	-1327	-10
Oakley	4824	-1406	-14	4821	-1403	-11
Mississippian	5037	-1619	-6	5028	-1610	+3
RTD	5100					
LTD				5100		