

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	BANISTER 'A' 1-22
Doc ID	1414260

All Electric Logs Run

DIL
DUCP
MEL
BHCS

TREATMENT REPORT



HURRICANE SERVICES INC

Customer:	Murfin Drilling Co, Inc,	Date:	4/5/2018	Ticket No.:	100900
Field Rep:	Greg Condren				
Address:					
City, State:					
County, Zip:					

Field Order No.:	100900	Open Hole:		Perf Depths (ft)	Perfs
Well Name:	Banister A 1-22	Casing Depth:	385'		
Location:	Bird City	Casing Size:	8 5/8 23 LB		
Formation:		Tubing Depth:			
Type of Service:	Surface	Tubing Size:			
Well Type:	Oil	Liner Depth:			
Age of Well:	New	Liner Size:			
Packer Type:		Liner Top:			
Packer Depth:		Liner Bottom:			
Treatment Via:	Casing	Total Depth:	384'		
				Total Perfs	0

TIME	INJECTION RATE		PRESSURE		REMARKS	PROP (lbs)	HCL (gls)	FLUID (bbls)
	FLUID	N2/CO2	STP	ANNULUS				
11:00 PM					Called Out			
12:00 AM					On Location W/Trucks Hold safety meeting			
6:00 AM					Spot & Set Up Trucks			
					TD=385' TP=384' SJ= 25'			
					Run 9 JI's 8 5/8 23Lb Csg. Cent 1/2 #1 Top of #4			
6:20 AM					Start Casing			
7:25 AM					Casing On Bottom			
7:30 AM					Hook Up To Casing			
					Break Circulation W/Rlg			
7:50 AM	4.8		150.0		Start Pumping H2O			20.00
	4.5		140.0		Start Mix & Pump 300 Sacks Common 2% Gel 3% CC			75.34
8:14 AM	4.0		150.0		Start Displacement H2O			
			200.0		Shut Down			23.00
8:20 AM			200.0		Close Valve On Casing			
					Good Circulation Thru Job Circ 12 BBL'S To PK			
					Wash Up Truck & Rack Up Trucks			
9:00 AM					Off Location			
					Thank You Please Call Again Todd Cody Ferris			
TOTAL:								118.34

SUMMARY

Max Fl. Rate	Avg Fl. Rate	Max PSI	Avg PSI
4.8	4.4	200.0	168.0

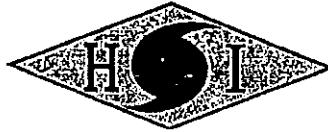
PRODUCTS USED

300 Sacks Common 2% Gel 3% CC

Treater: Todd Seba

Customer: Greg Condren

TREATMENT REPORT



HURRICANE SERVICES INC

Customer:	Murfin Drilling Co. Inc,	Date:	4/16/2018	Ticket No.:	100904
Field Rep:	Nathan Witt				
Address:					
City, State:					
County, Zip:					

Field Order No.:	100904	Open Hole:		Perf Depths (ft)	Perfs
Well Name:	Banister A 1-22	Casing Depth:	5100		
Location:	Mcdonald Kansas	Casing Size:	5 1/2 15.5 LB		
Formation:		Tubing Depth:			
Type of Service:	Longstring	Tubing Size:			
Well Type:	Oil	Liner Depth:			
Age of Well:	New	Liner Size:			
Packer Type:		Liner Top:			
Packer Depth:		Liner Bottom:			
Treatment Via:	Casing	Total Depth:	5101	Total Perfs	0

TIME	INJECTION RATE		PRESSURE		REMARKS	PROP (lbs)	HCL (gls)	FLUID (bbls)
	FLUID	N2/CO2	STP	ANNULUS				
1:00 PM					Called Out			
7:00 PM					On Location W/FE			
2:15 PM					On Location W/Trucks hold Safety Meeting Spot & Set Up			
					TU=5101' TP= 5100' SJ= 21.78' 122 Jt's 15.5 LB Csg.			
					AFU Float Shoe & LD Baffle 1 St Jt= 21.78' Baffle @ 6078.92			
					Turbolizers On Jt's 1-2-3-4-5-6-8-9-10-11-12-13-34-44			
					Cement Baskets On Jt's 11-35-45			
8:00 PM					Start Casing			
10:05 PM					Casing On Bottom & Drop Ball			
10:20 PM					Hook Up To Casing & Break Circulation W/Rig 1 Hour			
11:01 PM	4.0		170.0		Start Pumping H2O			3.00
11:03 PM	4.0		180.0		Start Pumping Mud Flush			12.00
11:08 PM	4.0		180.0		Start Pumping H2O			3.00
11:15 PM	3.0		100.0		Start Plug Rat & Mouse Holes			9.00
11:28 PM	5.0		300.0		Start Mix Lead			118.00
11:54 PM	5.0		150.0		Start Mix Tail			54.00
12:04 AM					Shut Down Release LD Plug			
12:08 AM					Wash Up Truck & Clear Pump & Lines			
TOTAL:						-	-	476.90

SUMMARY

Max Fl. Rate	Avg Fl. Rate	Max PSI	Avg PSI
6.0	3.9	1,380.0	551.7

PRODUCTS USED

Treater: Fennis Gardano

Customer: Nathan Witt

TREATMENT REPORT



HURRICANE SERVICES INC

TIME	INJECTION RATE		PRESSURE		REMARKS	PROP (lbs)	HCL (gls)	FLUID (bbls)
	FLUID	N2/CO2	STP	ANNULUS				
12:24 AM	6.0		100.0		Start Displacement 2% KCL			
12:37 AM	6.0		430.0		Lift Pressure			65.00
12:48 AM	3.0		980.0		Slow Rate			100.00
12:55 AM	3.0		1,300.0		Didn't see Plug Land			111.60
12:56 AM	2.0		1,380.0		Pump 2% over displacement per customer request			2.40
12:58 AM	2.0		1,350.0		Pumped 1 more bbl per customer request			1.00
1:00 AM					Checked floats - floats did not hold - 2.6 bbls back			
1:02 AM					Pumped 2.6 bbls back into well Shut in, left head on			
					124 bbls total displacement pumped			
2:00 AM					Off Location			
					Thank You			
					Please Call Again			
					Fennis Cody Devin Daryl			
					Lead 300 Sacks H-Con 3% CG 1/2 Lb/Sk Pheno-Seal			
					2% gel 2% calaset 2% metso			
					Tail 200 Sacks H-Long 1% Gel 10% Salt 6 Lb/Sk Koseal			
					.6% CFL-160 .25% CAF-38 6% calaset			

MDCI
 Banister 'A' #1-22
 2310' FSL 2310'FWL
 Sec. 22-2S-37W
 3414' KB

Formation	Sample top	Datum	Ref	Log tops	Datum	Ref
Anhydrite	3294	+120	+3	3292	+122	+5
B/Anhydrite	3326	+88	+5	3323	+91	+8
Topeka	4117	-703	+6	4112	-698	+11
Oread	4254	-840	+9	4253	-839	+10
Lansing	4329	-915	+12	4327	-913	+14
Stark	4552	-1138	+12	4555	-1141	+9
Mound City	4606	-1192	+11	4605	-1191	+12
Ft Scott	4740	-1326	+11	4731	-1317	+20
Oakley	4808	-1394	+16	4807	-1393	+17
Mississippian	5028	-1614	+15	5027	-1613	+16
RTD	5101	-1687				
LTD				5102	-1688	

Saman Sharifaie

Petroleum Geologist

GEOLOGIST'S REPORT

DRILLING TIME AND SAMPLE LOG

COMPANY: **Martin Drilling Co., Inc.**
LEASE: **Widewater**
WELL: **B&B "A" #1-22**

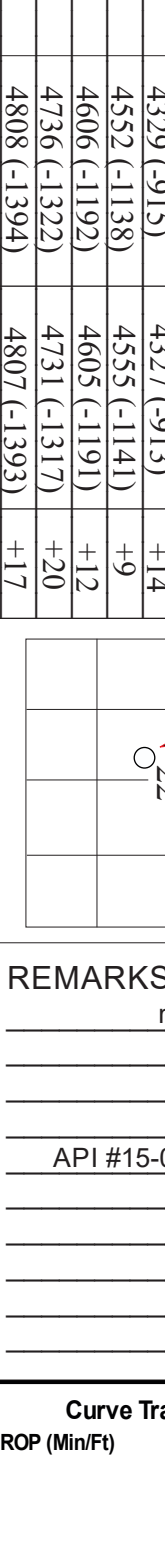
FIELD: **Widewater**
LOCATION: **2110 FSL & 2110 FWL**
SEC: **22 TWSP 2S RGE 3TW**
COUNTY: **Cheyenne STATE Kansas**
CONTRACTOR: **Martin Drilling #3**
RUD: **5/01/18 COMP 5/01/18**
RTD: **5/10/18 LTLD 5/12/18**
MUD UP: **3595 TYPE MUD Chemical**

SAMPLES SAVED FROM: **4020' TO RTD**
DRILLING TIME KEPT FROM: **4020' TO RTD**
SAMPLES EXAMINED FROM: **4020' TO RTD**

CONDUCTOR: **8-5/8" at 345' SURFACE 5-1/2" at 500'**
CASING: **CONDUCTOR**
ELECTRICAL SURVEYS: **CND, DIL, MEL, Smitc**
GEOLOGICAL SUPERVISION FROM: **3720' REFERENCE WELL McCoy - B&B "A" #1-22**

FORMATION: **Frontier**

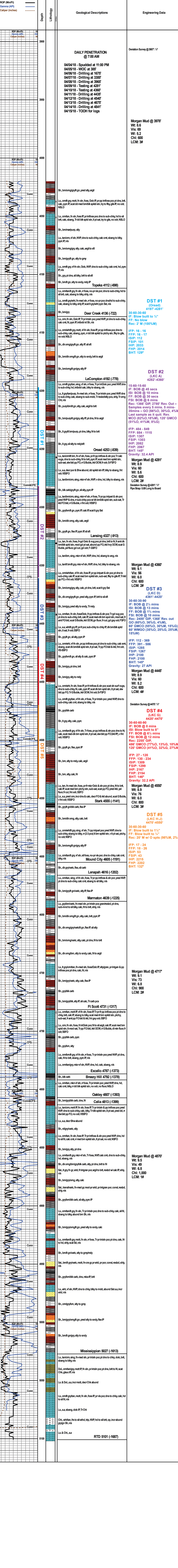
Formation	Sample Tops	E-log Tops	Strat Pos.
Anhydrite	3394 (+120)	3292 (+122)	-5
Base Anhydrite	3326 (+88)	3323 (+91)	-8
Trilobite	417 (-203)	412 (-698)	+10
Trilobite	4254 (-830)	4253 (-830)	+10
Trilobite	4329 (-915)	4327 (-913)	+14
Stark	4352 (-1158)	4355 (-1141)	+9
Mound City	4606 (-1522)	4605 (-1511)	+12
FT Scott	4736 (-1522)	4731 (-1517)	-20
OKREV	4808 (-1394)	4807 (-1393)	+7



REMARKS: Due to fair to good shows of oil in multiple potential pay zones and positive DST results, it is recommended and agreed upon by all parties that production casing be set to further evaluate this well.

Respectfully Submitted,
API #15-023-21479
Saman Sharifaie
Petroleum Geologist

*Tops have been adjusted to electric logs





DRILL STEM TEST REPORT

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

250 N. Water STE 300
Wichita, KS 67202

ATTN: Saman Sharifaie

Banister 'A' #1-22

22-2s-37w Cheyenne,KS

Start Date: 2018.04.09 @ 06:15:00

End Date: 2018.04.09 @ 13:40:15

Job Ticket #: 63257 DST #: 1

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

Printed: 2018.04.13 @ 13:04:21



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

22-2s-37w Cheyenne, KS

250 N. Water STE 300
Wichita, KS 67202

Banister 'A' #1-22

Job Ticket: 63257

DST#: 1

ATTN: Saman Sharifaie

Test Start: 2018.04.09 @ 06:15:00

GENERAL INFORMATION:

Formation: **Oread**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 08:47:45

Time Test Ended: 13:40:15

Test Type: Conventional Bottom Hole (Initial)

Tester: James Winder

Unit No: 83

Interval: 4197.00 ft (KB) To 4281.00 ft (KB) (TVD)

Reference Elevations: 3414.00 ft (KB)

Total Depth: 4281.00 ft (KB) (TVD)

3409.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8017 Outside

Press@RunDepth: 16.83 psig @ 4198.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2018.04.09

End Date:

2018.04.09

Last Calib.:

2018.04.09

Start Time: 06:15:05

End Time:

13:40:14

Time On Btm:

2018.04.09 @ 08:47:30

Time Off Btm:

2018.04.09 @ 11:51:00

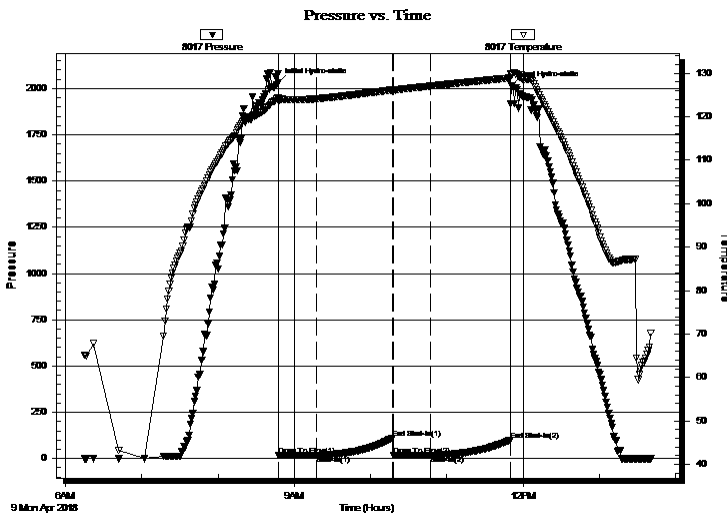
TEST COMMENT: 30 - IF: 1/4" Blow at open, built to 1/2", died back, dead at 27 min.

60 - IS: No blow

30 - FF: No blow

60 - FS: No blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2032.76	124.34	Initial Hydro-static
1	15.58	123.56	Open To Flow (1)
30	16.34	124.12	Shut-In(1)
90	111.98	126.16	End Shut-In(1)
91	15.87	126.09	Open To Flow (2)
120	16.83	127.06	Shut-In(2)
183	100.58	128.91	End Shut-In(2)
184	2014.22	129.62	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
2.00	Mud 100%	0.01

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

22-2s-37w Cheyenne,KS

250 N. Water STE 300
Wichita, KS 67202

Banister 'A' #1-22

Job Ticket: 63257

DST#: 1

ATTN: Saman Sharifaie

Test Start: 2018.04.09 @ 06:15:00

Tool Information

Drill Pipe:	Length: 3993.00 ft	Diameter: 3.80 inches	Volume: 56.01 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: 56.90 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4197.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	84.00 ft			
Tool Length:	113.00 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			4169.00	
Shut In Tool	5.00			4174.00	
Hydraulic tool	5.00			4179.00	
Jars	5.00			4184.00	
Safety Joint	3.00			4187.00	
Packer	5.00			4192.00	29.00 Bottom Of Top Packer
Packer	5.00			4197.00	
Stubb	1.00			4198.00	
Recorder	0.00	6625	Inside	4198.00	
Recorder	0.00	8017	Outside	4198.00	
Perforations	15.00			4213.00	
Blank Spacing	64.00			4277.00	
Perforations	1.00			4278.00	
Bullnose	3.00			4281.00	84.00 Bottom Packers & Anchor

Total Tool Length: 113.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

22-2s-37w Cheyenne,KS

250 N. Water STE 300
Wichita, KS 67202

Banister 'A' #1-22

Job Ticket: 63257

DST#: 1

ATTN: Saman Sharifaie

Test Start: 2018.04.09 @ 06:15:00

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: 60.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.57 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
2.00	Mud 100%	0.010

Total Length: 2.00 ft Total Volume: 0.010 bbl

Num Fluid Samples: 0

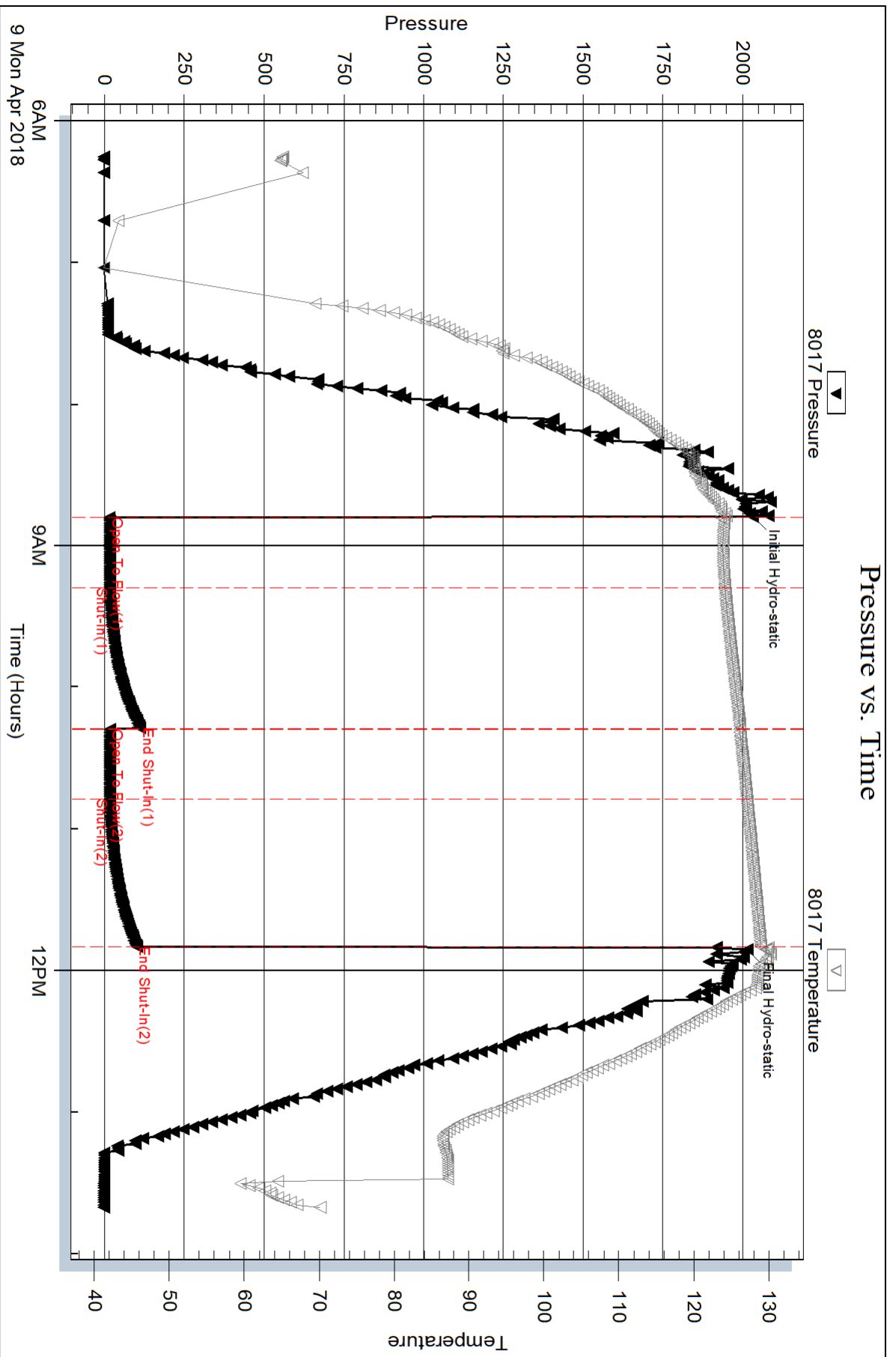
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



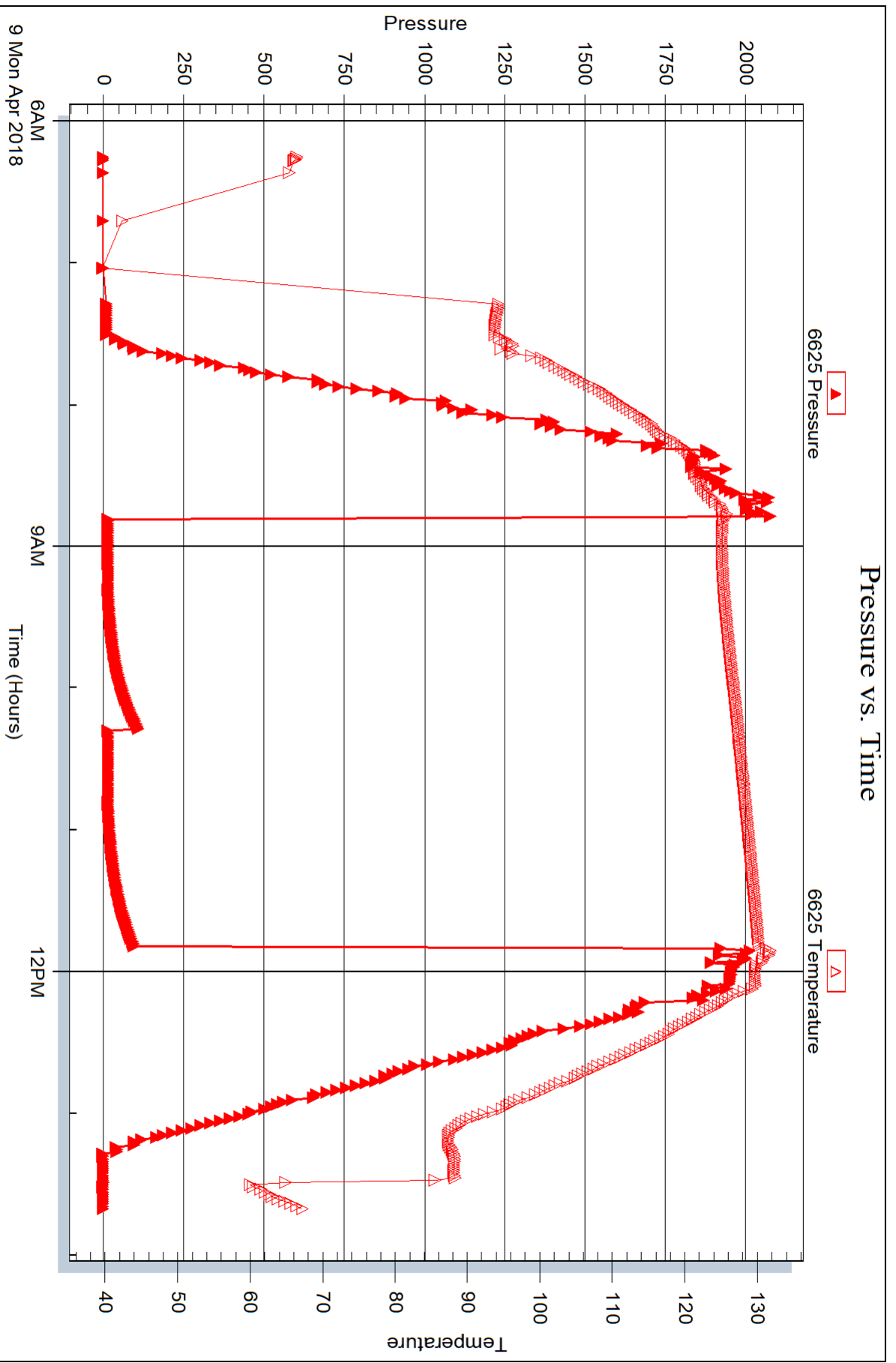
Serial #: 6625

Inside

Murfin Drilling Co., Inc.

Banister 'A' #1-22

DST Test Number: 1



Triobite Testing, Inc

Ref. No: 63257

Printed: 2018.04.13 @ 13:04:22



DRILL STEM TEST REPORT

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

250 N. Water STE 300
Wichita, KS 67202

ATTN: Saman Sharifaie

Banister 'A' #1-22

22-2s-37w Cheyenne,KS

Start Date: 2018.04.09 @ 23:45:00

End Date: 2018.04.10 @ 08:36:00

Job Ticket #: 63258 DST #: 2

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

Printed: 2018.04.13 @ 13:03:59



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

22-2s-37w Cheyenne, KS

250 N. Water STE 300
Wichita, KS 67202

Banister 'A' #1-22

Job Ticket: 63258

DST#: 2

ATTN: Saman Sharifaie

Test Start: 2018.04.09 @ 23:45:00

GENERAL INFORMATION:

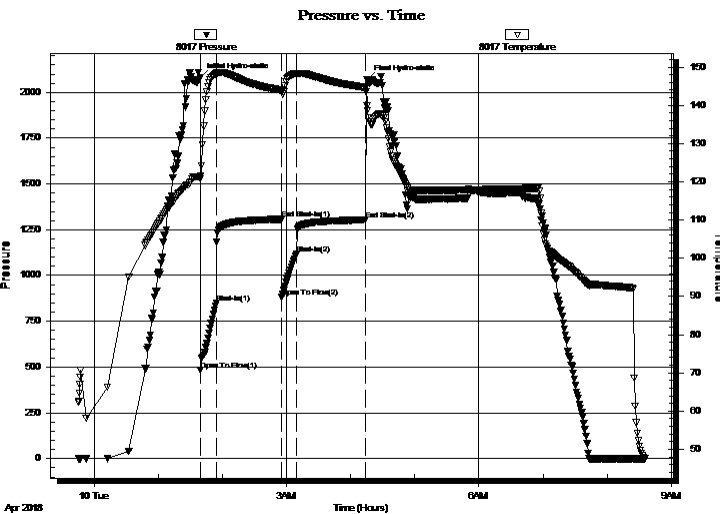
Formation: **LKC "A"**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Reset)
 Time Tool Opened: 01:39:15 Tester: James Winder
 Time Test Ended: 08:36:00 Unit No: 83
 Interval: **4282.00 ft (KB) To 4360.00 ft (KB) (TVD)** Reference Elevations: 3414.00 ft (KB)
 Total Depth: 4360.00 ft (KB) (TVD) 3409.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 5.00 ft

Serial #: 8017

Outside

Press@RunDepth: 1114.96 psig @ 4283.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2018.04.09 End Date: 2018.04.10 Last Calib.: 2018.04.10
 Start Time: 23:45:05 End Time: 08:36:00 Time On Btm: 2018.04.10 @ 01:39:00
 Time Off Btm: 2018.04.10 @ 04:15:30

TEST COMMENT: 15 - IF: Blow built to BOB (11") at 45 sec.
 60 - IS: Blow back built to BOB at 10 min.
 15 - FF: Blow built to BOB at 30 sec.
 60 - FS: Blow back built to BOB at 6 min.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2082.24	121.39	Initial Hydro-static
1	484.43	120.86	Open To Flow (1)
15	848.65	148.28	Shut-In(1)
76	1307.49	143.93	End Shut-In(1)
77	884.18	143.64	Open To Flow (2)
91	1114.96	148.26	Shut-In(2)
155	1303.49	144.68	End Shut-In(2)
157	2067.47	138.63	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
120.00	Muddy Oil 51%o, 41%m, 8%g	0.59
2780.00	Rev Out - Samples every 5 min.	38.45
0.00	5 min. - 35 min. - GO 66% o, 30%g, 4% m	0.00
0.00	Last smpl as it quit Rev. MCO 82%o, 18%g	0.00
0.00	GIP = 1366'	0.00

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

22-2s-37w Cheyenne, KS

250 N. Water STE 300
Wichita, KS 67202

Banister 'A' #1-22

Job Ticket: 63258

DST#: 2

ATTN: Saman Sharifaie

Test Start: 2018.04.09 @ 23:45:00

GENERAL INFORMATION:

Formation: **LKC "A"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 01:39:15

Time Test Ended: 08:36:00

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 83

Interval: 4282.00 ft (KB) To 4360.00 ft (KB) (TVD)

Reference Elevations: 3414.00 ft (KB)

Total Depth: 4360.00 ft (KB) (TVD)

3409.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 6625 Inside

Press@RunDepth: psig @ 4283.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2018.04.09

End Date:

2018.04.10

Last Calib.:

2018.04.10

Start Time: 23:45:05

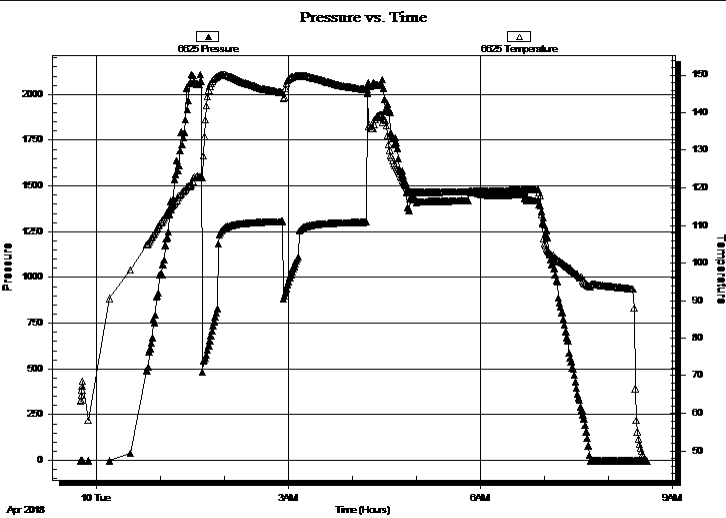
End Time:

08:36:15

Time On Btm:

Time Off Btm:

TEST COMMENT: 15 - IF: Blow built to BOB (11") at 45 sec.
60 - IS: Blow back built to BOB at 10 min.
15 - FF: Blow built to BOB at 30 sec.
60 - FS: Blow back built to BOB at 6 min.



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
120.00	Muddy Oil 51%o, 41%m, 8%g	0.59
2780.00	Rev Out - Samples every 5 min.	38.45
0.00	5 min. - 35 min. - GO 66% o, 30%g, 4%m	0.00
0.00	Last smpl as it quit Rev. MCO 82%o, 18%g	0.00
0.00	GIP = 1366'	0.00

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

22-2s-37w Cheyenne,KS

250 N. Water STE 300
Wichita, KS 67202

Banister 'A' #1-22

Job Ticket: 63258

DST#: 2

ATTN: Saman Sharifaie

Test Start: 2018.04.09 @ 23:45:00

Tool Information

Drill Pipe:	Length: 4086.00 ft	Diameter: 3.80 inches	Volume: 57.32 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: 58.21 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	13.00 ft			String Weight: Initial 62000.00 lb
Depth to Top Packer:	4282.00 ft			Final 72000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	78.00 ft			
Tool Length:	107.00 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			4254.00	
Shut In Tool	5.00			4259.00	
Hydraulic tool	5.00			4264.00	
Jars	5.00			4269.00	
Safety Joint	3.00			4272.00	
Packer	5.00			4277.00	29.00 Bottom Of Top Packer
Packer	5.00			4282.00	
Stubb	1.00			4283.00	
Recorder	0.00	6625	Inside	4283.00	
Recorder	0.00	8017	Outside	4283.00	
Perforations	10.00			4293.00	
Blank Spacing	64.00			4357.00	
Bullnose	3.00			4360.00	78.00 Bottom Packers & Anchor

Total Tool Length: 107.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

22-2s-37w Cheyenne,KS

250 N. Water STE 300
Wichita, KS 67202

Banister 'A' #1-22

Job Ticket: 63258

DST#: 2

ATTN: Saman Sharifaie

Test Start: 2018.04.09 @ 23:45:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

32.4 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 54.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.98 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
120.00	Muddy Oil 51%o, 41%m, 8%g	0.590
2780.00	Rev Out - Samples every 5 min.	38.450
0.00	5 min. - 35 min. - GO 66% o, 30%g, 4%m	0.000
0.00	Last smpl as it quit Rev. MCO 82%o, 18%m	0.000
0.00	GIP = 1366'	0.000

Total Length: 2900.00 ft Total Volume: 39.040 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

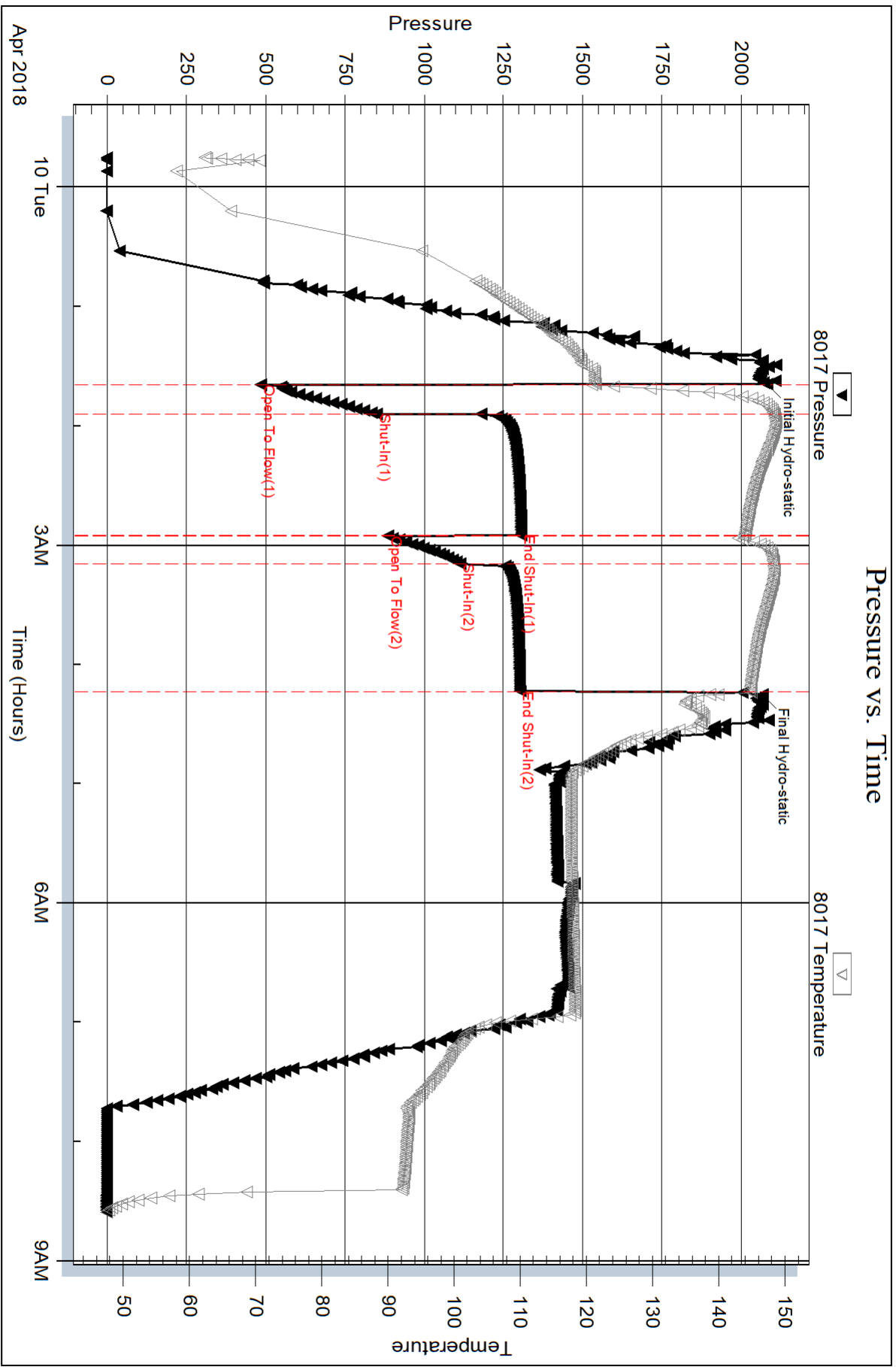
Laboratory Name:

Laboratory Location:

Recovery Comments: Gas to Surface at end of Final Flow

Gravity = 30.4 api @ 40 deg F

Corrected Gravity = 32.4 api



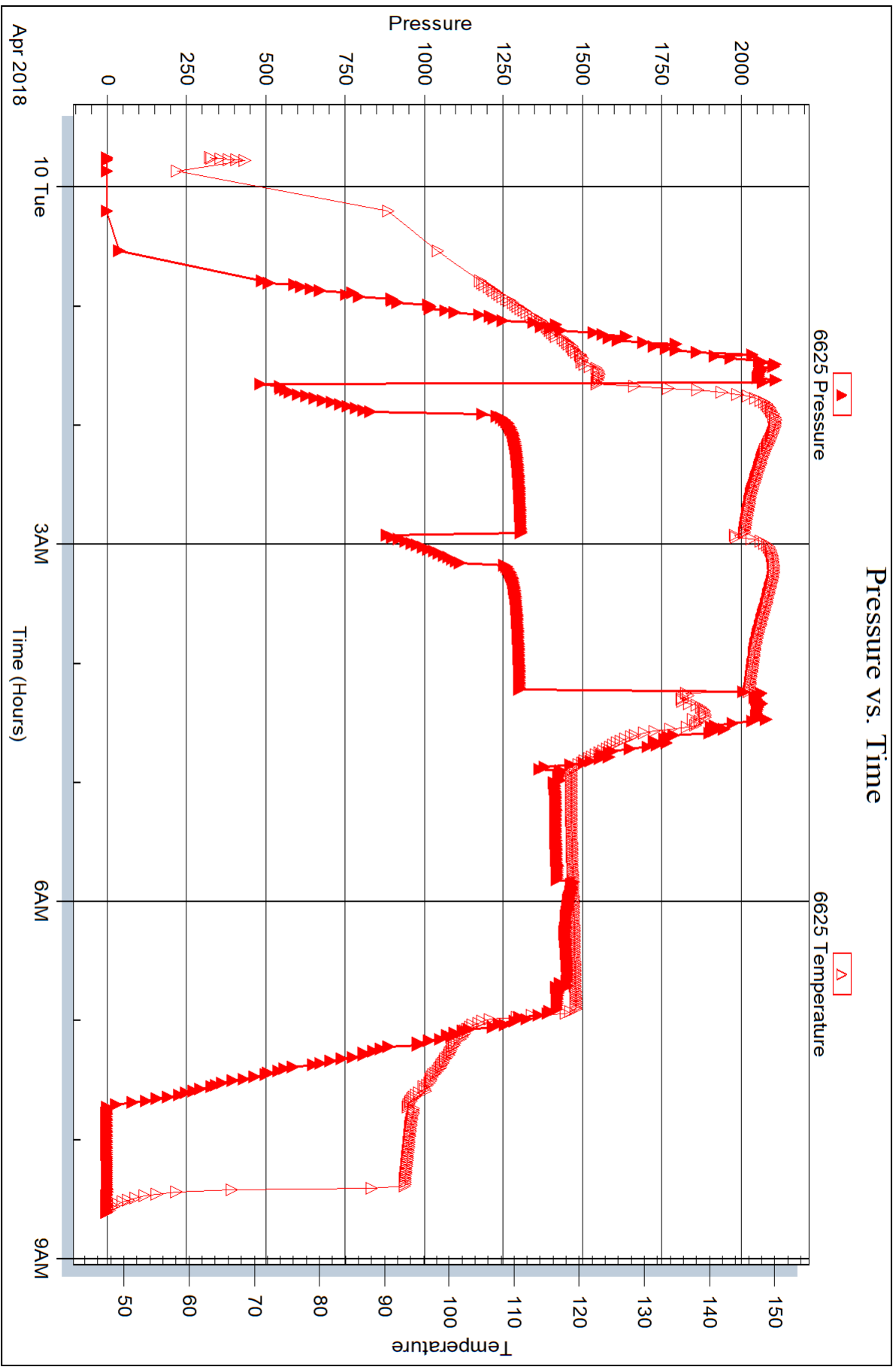
Serial #: 6625

Inside

Murfin Drilling Co., Inc.

Barister 'A' #1-22

DST Test Number: 2





DRILL STEM TEST REPORT

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

250 N. Water STE 300
Wichita, KS 67202

ATTN: Saman Sharifaie

Banister 'A' #1-22

22-2s-37w Cheyenne,KS

Start Date: 2018.04.10 @ 18:14:00

End Date: 2018.04.11 @ 03:33:00

Job Ticket #: 63259 DST #: 3

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

Printed: 2018.04.13 @ 13:03:35

Murfin Drilling Co., Inc.

22-2s-37w Cheyenne,KS

Banister 'A' #1-22

DST # 3

LKC "D"

2018.04.10



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

22-2s-37w Cheyenne, KS

250 N. Water STE 300
Wichita, KS 67202

Banister 'A' #1-22

Job Ticket: 63259

DST#: 3

ATTN: Saman Sharifaie

Test Start: 2018.04.10 @ 18:14:00

GENERAL INFORMATION:

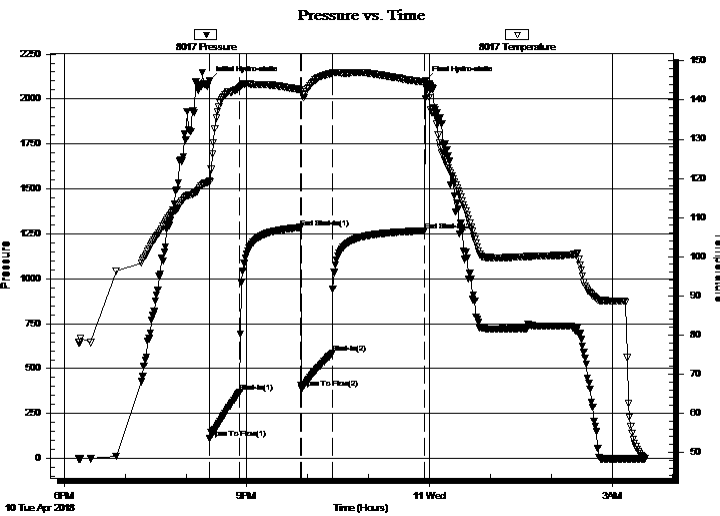
Formation: **LKC "D"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 20:23:30
 Time Test Ended: 03:33:00
 Interval: **4361.00 ft (KB) To 4420.00 ft (KB) (TVD)**
 Total Depth: 4420.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: James Winder
 Unit No: 83
 Reference Elevations: 3414.00 ft (KB)
 3409.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8017

Outside

Press@RunDepth: 585.84 psig @ 4362.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2018.04.10 End Date: 2018.04.11 Last Calib.: 2018.04.11
 Start Time: 18:14:05 End Time: 03:33:00 Time On Btm: 2018.04.10 @ 20:23:00
 Time Off Btm: 2018.04.10 @ 23:56:15

TEST COMMENT: 30 - IF: Blow built to BOB (11") at 2 1/2 min.
 60 - IS: Blow back built to BOB at 13 min.
 30 - FF: Blow built to BOB at 1 3/4 min.
 90 - FS: Blow back built to BOB at 10 min.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2100.04	119.45	Initial Hydro-static
1	111.50	119.14	Open To Flow (1)
30	368.87	143.10	Shut-In(1)
90	1284.73	142.59	End Shut-In(1)
91	390.82	142.17	Open To Flow (2)
122	585.84	146.87	Shut-In(2)
212	1267.16	144.58	End Shut-In(2)
214	2100.10	144.56	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	WMGO 35%o, 25%g, 25%m, 15%w	0.30
60.00	GMCO 55%o, 30%m, 15%g	0.30
1368.00	REV Out GO 60%o, 36%g, 4%m	18.64
0.00	GIP = 2400'	0.00

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

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

22-2s-37w Cheyenne,KS
Banister 'A' #1-22
 Job Ticket: 63259 **DST#: 3**
 Test Start: 2018.04.10 @ 18:14:00

GENERAL INFORMATION:

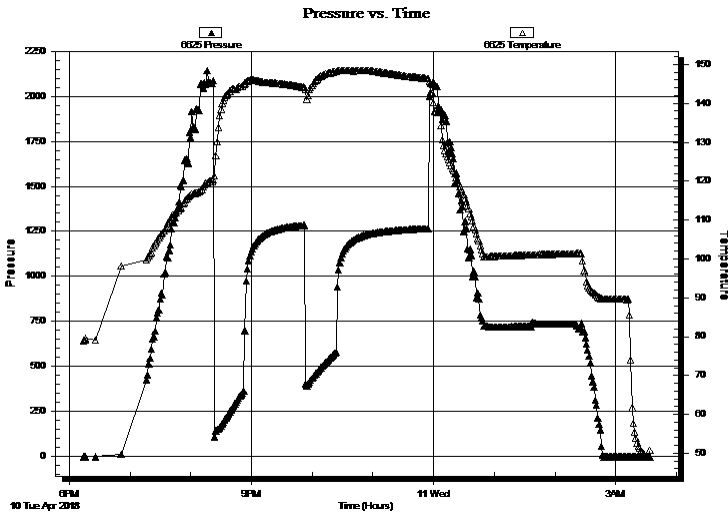
Formation: **LKC "D"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 20:23:30
 Time Test Ended: 03:33:00
 Interval: **4361.00 ft (KB) To 4420.00 ft (KB) (TVD)**
 Total Depth: 4420.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: James Winder
 Unit No: 83
 Reference Elevations: 3414.00 ft (KB)
 3409.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 6625 Inside

Press@RunDepth: psig @ 4362.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2018.04.10 End Date: 2018.04.11 Last Calib.: 2018.04.11
 Start Time: 18:14:05 End Time: 03:33:30 Time On Btm:
 Time Off Btm:

TEST COMMENT: 30 - IF: Blow built to BOB (11") at 2 1/2 min.
 60 - IS: Blow back built to BOB at 13 min.
 30 - FF: Blow built to BOB at 1 3/4 min.
 90 - FS: Blow back built to BOB at 10 min.

PRESSURE SUMMARY



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

Recovery

Length (ft)	Description	Volume (bbl)
60.00	WMGO 35%o, 25%g, 25%m, 15%w	0.30
60.00	GMCO 55%o, 30%m, 15%g	0.30
1368.00	REV Out GO 60%o, 36%g, 4%m	18.64
0.00	GIP = 2400'	0.00

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

22-2s-37w Cheyenne,KS

250 N. Water STE 300
Wichita, KS 67202

Banister 'A' #1-22

Job Ticket: 63259

DST#: 3

ATTN: Saman Sharifaie

Test Start: 2018.04.10 @ 18:14:00

Tool Information

Drill Pipe:	Length: 4179.00 ft	Diameter: 3.80 inches	Volume: 58.62 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: 74000.00 lb
			<u>Total Volume: 59.51 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	27.00 ft			String Weight: Initial 62000.00 lb
Depth to Top Packer:	4361.00 ft			Final 68000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	59.00 ft			
Tool Length:	88.00 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			4333.00	
Shut In Tool	5.00			4338.00	
Hydraulic tool	5.00			4343.00	
Jars	5.00			4348.00	
Safety Joint	3.00			4351.00	
Packer	5.00			4356.00	29.00 Bottom Of Top Packer
Packer	5.00			4361.00	
Stubb	1.00			4362.00	
Recorder	0.00	6625	Inside	4362.00	
Recorder	0.00	8017	Outside	4362.00	
Perforations	22.00			4384.00	
Blank Spacing	33.00			4417.00	
Bullnose	3.00			4420.00	59.00 Bottom Packers & Anchor

Total Tool Length: 88.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

22-2s-37w Cheyenne,KS

250 N. Water STE 300
Wichita, KS 67202

Banister 'A' #1-22

Job Ticket: 63259

DST#: 3

ATTN: Saman Sharifaie

Test Start: 2018.04.10 @ 18:14:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

27 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 56.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.98 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
60.00	WMGO 35%o, 25%g, 25%m, 15%w	0.295
60.00	GMCO 55%o, 30%m, 15%g	0.295
1368.00	REV Out GO 60%o, 36%g, 4%m	18.643
0.00	GIP = 2400'	0.000

Total Length: 1488.00 ft Total Volume: 19.233 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

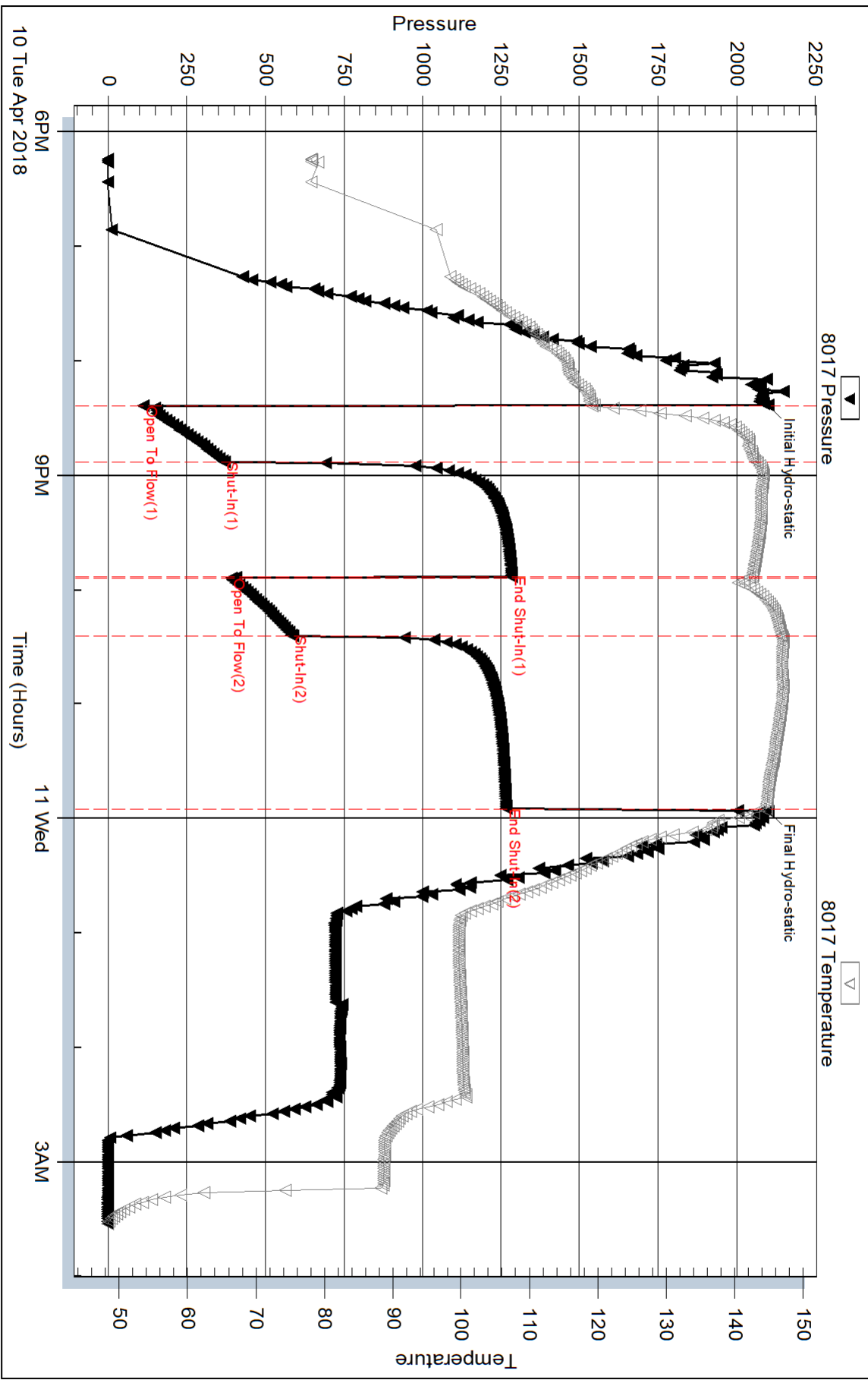
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Gravity = 26 api @ 50 deg F
Corrected Gravity = 27 api

Pressure vs. Time



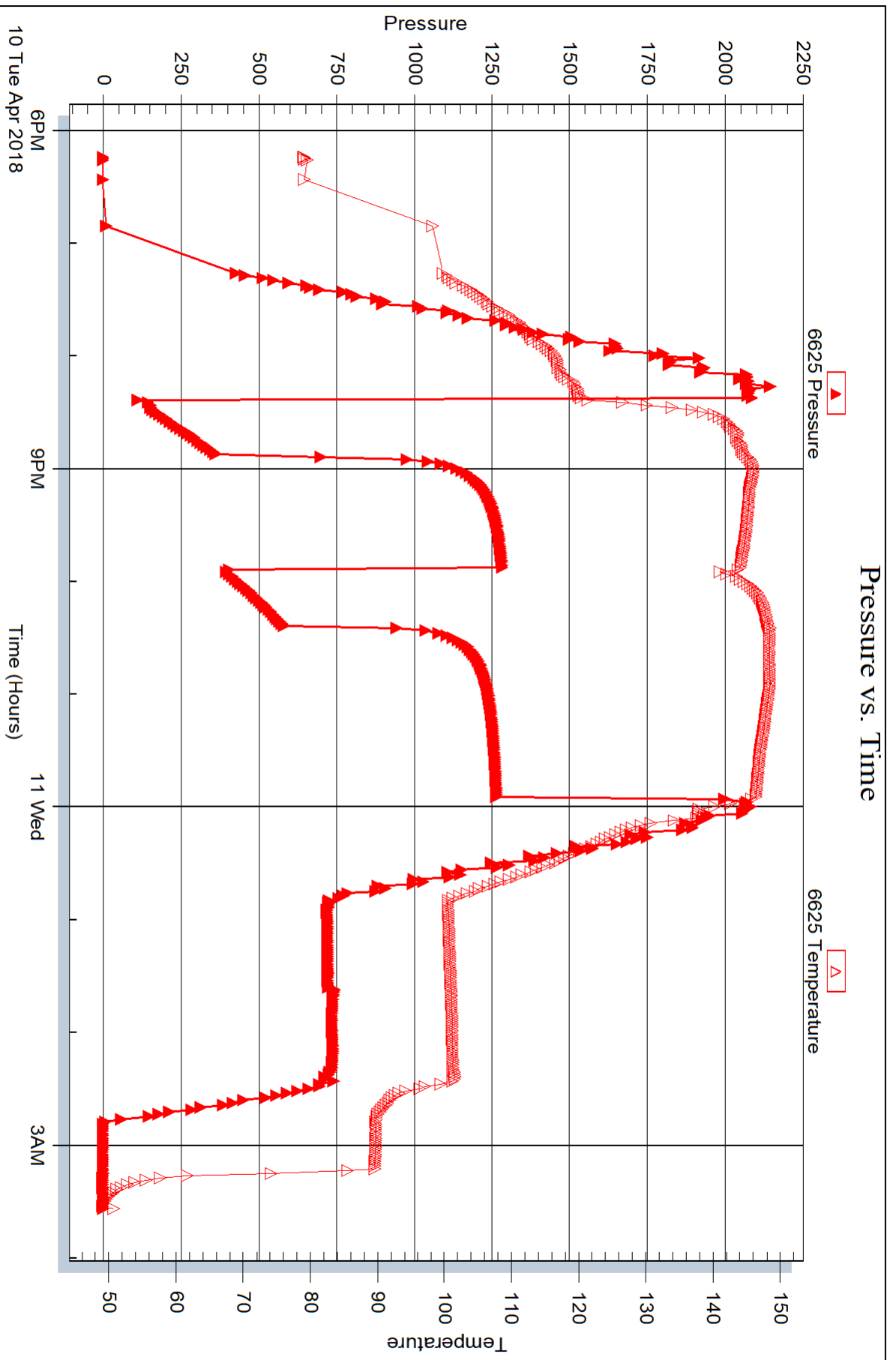
Serial #: 6625

Inside

Murfin Drilling Co., Inc.

Banister 'A' #1-22

DST Test Number: 3





DRILL STEM TEST REPORT

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

250 N. Water STE 300
Wichita, KS 67202

ATTN: Saman Sharifaie

Banister 'A' #1-22

22-2s-37w Cheyenne,KS

Start Date: 2018.04.11 @ 12:55:00

End Date: 2018.04.11 @ 23:07:45

Job Ticket #: 63260 DST #: 4

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

Printed: 2018.04.13 @ 13:03:08

Murfin Drilling Co., Inc.
22-2s-37w Cheyenne,KS
Banister 'A' #1-22
DST # 4
LKC "G"
2018.04.11



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

22-2s-37w Cheyenne, KS

250 N. Water STE 300
Wichita, KS 67202

Banister 'A' #1-22

Job Ticket: 63260

DST#: 4

ATTN: Saman Sharifaie

Test Start: 2018.04.11 @ 12:55:00

GENERAL INFORMATION:

Formation: **LKC "G"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 14:45:30

Time Test Ended: 23:07:45

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 83

Interval: 4420.00 ft (KB) To 4470.00 ft (KB) (TVD)

Reference Elevations: 3414.00 ft (KB)

Total Depth: 4470.00 ft (KB) (TVD)

3409.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8017

Outside

Press@RunDepth: 233.96 psig @ 4421.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2018.04.11

End Date:

2018.04.11

Last Calib.:

2018.04.11

Start Time: 12:55:05

End Time:

23:07:45

Time On Btm:

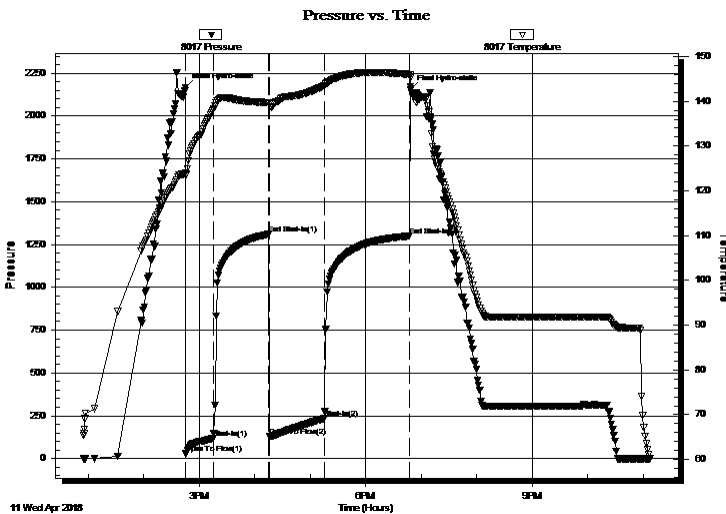
2018.04.11 @ 14:45:00

Time Off Btm:

2018.04.11 @ 18:48:30

TEST COMMENT: 30 - IF: Blow built to BOB (11") at 8 min.
60 - IS: Blow back built to 8"
60 - FF: Blow built to BOB at 6 1/2 min.
90 - FS: Blow back built to BOB at 12 min.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2166.70	123.98	Initial Hydro-static
1	27.47	123.53	Open To Flow (1)
31	119.65	138.18	Shut-In(1)
90	1308.93	139.73	End Shut-In(1)
91	129.59	139.37	Open To Flow (2)
151	233.96	143.54	Shut-In(2)
243	1298.91	145.99	End Shut-In(2)
244	2154.28	145.18	Final Hydro-static

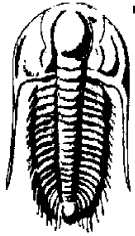
Recovery

Length (ft)	Description	Volume (bbl)
120.00	GMCO 41%o, 32%g, 27%m	0.59
486.00	REV OUT GMCO 77%o, 13%g, 10%m	6.27
0.00	GIP = 2255'	0.00

* Recovery from multiple tests

Gas Rates

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



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

22-2s-37w Cheyenne, KS

250 N. Water STE 300
Wichita, KS 67202

Banister 'A' #1-22

Job Ticket: 63260

DST#: 4

ATTN: Saman Sharifaie

Test Start: 2018.04.11 @ 12:55:00

GENERAL INFORMATION:

Formation: **LKC "G"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 14:45:30

Time Test Ended: 23:07:45

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 83

Interval: 4420.00 ft (KB) To 4470.00 ft (KB) (TVD)

Reference Elevations: 3414.00 ft (KB)

Total Depth: 4470.00 ft (KB) (TVD)

3409.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 6625 Inside

Press@RunDepth: psig @ 4421.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2018.04.11

End Date:

2018.04.11

Last Calib.:

2018.04.11

Start Time:

12:55:05

End Time:

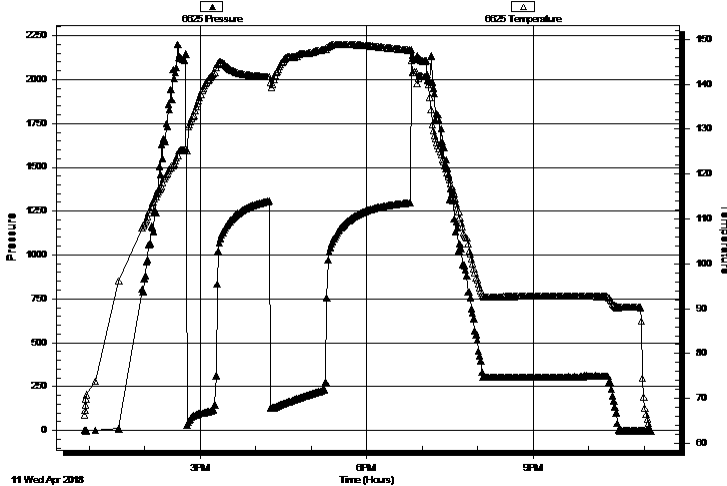
23:08:00

Time On Btm:

Time Off Btm:

TEST COMMENT: 30 - IF: Blow built to BOB (11") at 8 min.
60 - IS: Blow back built to 8"
60 - FF: Blow built to BOB at 6 1/2 min.
90 - FS: Blow back built to BOB at 12 min.

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
120.00	GMCO 41%o, 32%g, 27%m	0.59
486.00	REV OUT GMCO 77%o, 13%g, 10%m	6.27
0.00	GIP = 2255'	0.00

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 Co., Inc.

22-2s-37w Cheyenne,KS

250 N. Water STE 300
Wichita, KS 67202

Banister 'A' #1-22

Job Ticket: 63260

DST#: 4

ATTN: Saman Sharifaie

Test Start: 2018.04.11 @ 12:55:00

Tool Information

Drill Pipe:	Length: 4241.00 ft	Diameter: 3.80 inches	Volume: 59.49 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: 74000.00 lb
			<u>Total Volume: 60.38 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial 64000.00 lb
Depth to Top Packer:	4420.00 ft			Final 65000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	50.00 ft			
Tool Length:	79.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments: Vac Truck was 1 1/2 hr late getting to rig to reverse out

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			4392.00	
Shut In Tool	5.00			4397.00	
Hydraulic tool	5.00			4402.00	
Jars	5.00			4407.00	
Safety Joint	3.00			4410.00	
Packer	5.00			4415.00	29.00 Bottom Of Top Packer
Packer	5.00			4420.00	
Stubb	1.00			4421.00	
Recorder	0.00	6625	Inside	4421.00	
Recorder	0.00	8017	Outside	4421.00	
Perforations	13.00			4434.00	
Blank Spacing	33.00			4467.00	
Bullnose	3.00			4470.00	50.00 Bottom Packers & Anchor

Total Tool Length: 79.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

22-2s-37w Cheyenne,KS

250 N. Water STE 300
Wichita, KS 67202

Banister 'A' #1-22

Job Ticket: 63260

DST#: 4

ATTN: Saman Sharifaie

Test Start: 2018.04.11 @ 12:55:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

32.2 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 60.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.18 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 bbbl
120.00	GMCO 41%o, 32%g, 27%m	0.590
486.00	REV OUT GMCO 77%o, 13%g, 10%m	6.271
0.00	GIP = 2255'	0.000

Total Length: 606.00 ft Total Volume: 6.861 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

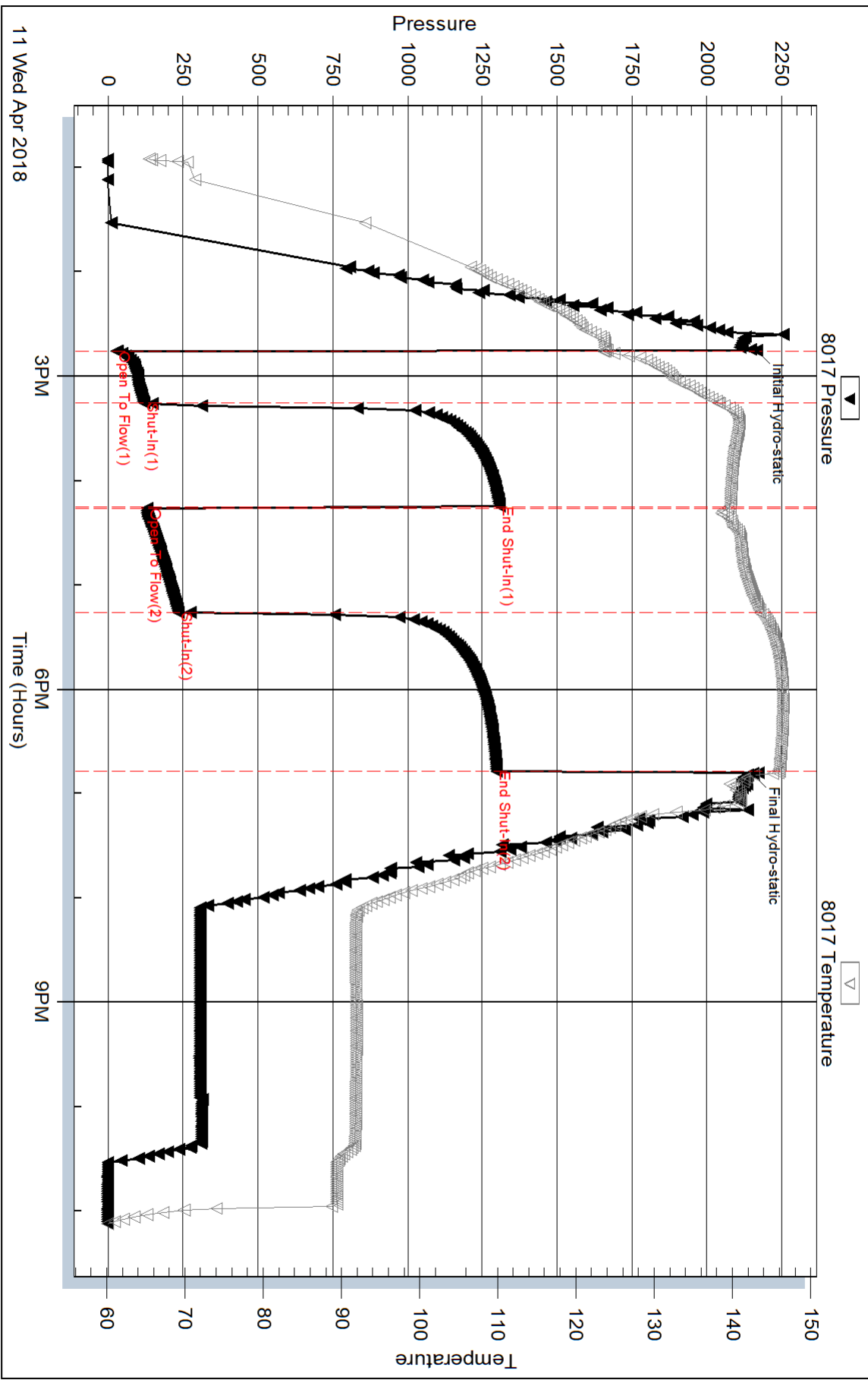
Laboratory Name:

Laboratory Location:

Recovery Comments: Gravity = 33 api @ 68 deg F

Corrected Gravity = 32.2 api

Pressure vs. Time



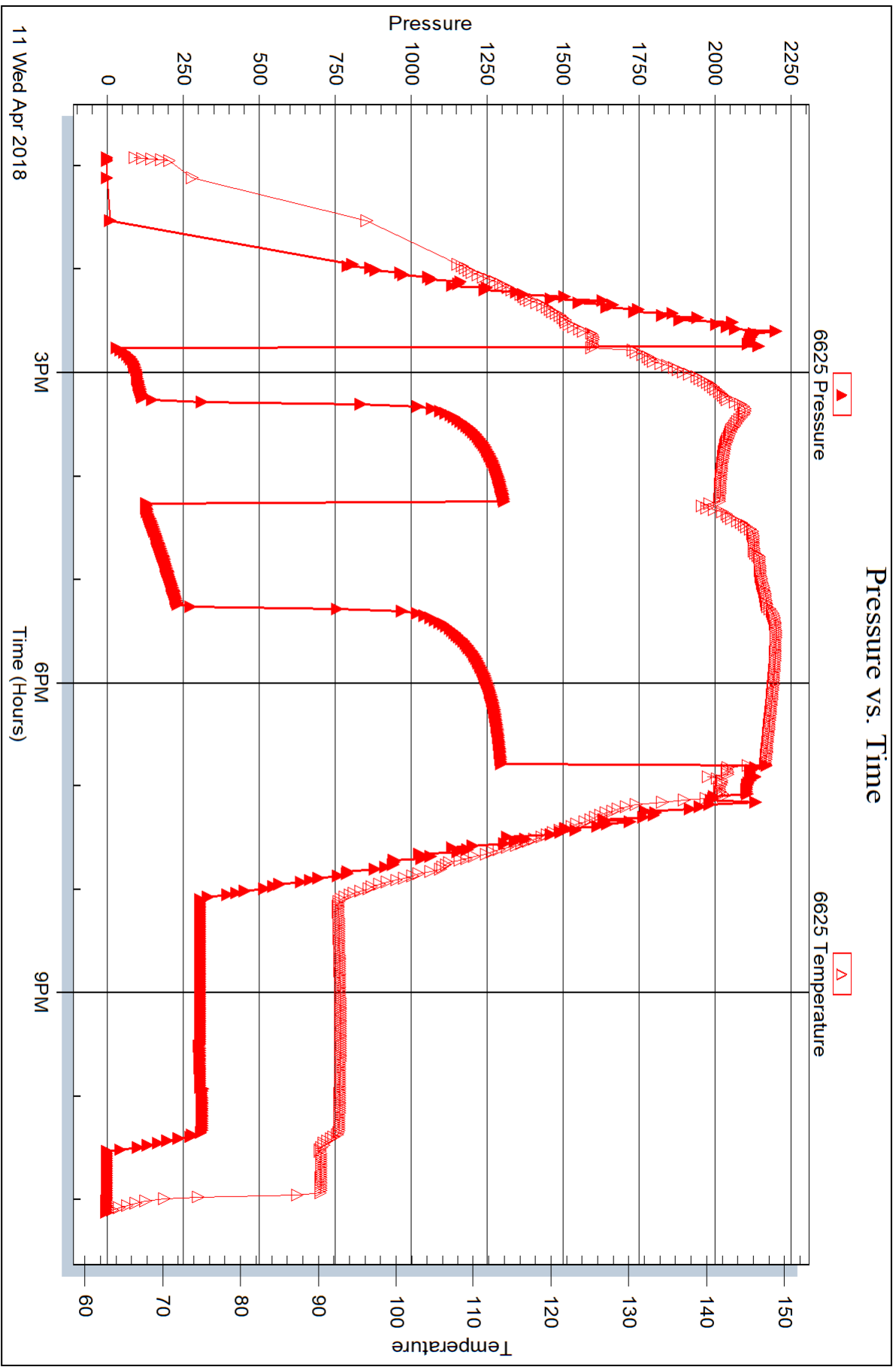
Serial #: 6625

Inside

Murfin Drilling Co., Inc.

Banister 'A' #1-22

DST Test Number: 4





DRILL STEM TEST REPORT

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

250 N. Water STE 300
Wichita, KS 67202

ATTN: Saman Sharifaie

Banister 'A' #1-22

22-2s-37w Cheyenne,KS

Start Date: 2018.04.12 @ 10:25:00

End Date: 2018.04.12 @ 17:06:30

Job Ticket #: 63261 DST #: 5

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

Printed: 2018.04.13 @ 11:43:03



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

22-2s-37w Cheyenne, KS

250 N. Water STE 300
Wichita, KS 67202

Banister 'A' #1-22

Job Ticket: 63261

DST#: 5

ATTN: Saman Sharifaie

Test Start: 2018.04.12 @ 10:25:00

GENERAL INFORMATION:

Formation: **LKC "H - J"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 12:08:45
 Time Test Ended: 17:06:30
 Interval: **4470.00 ft (KB) To 4550.00 ft (KB) (TVD)**
 Total Depth: 4550.00 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: 3414.00 ft (KB)
 3409.00 ft (CF)
 KB to GR/CF: 5.00 ft

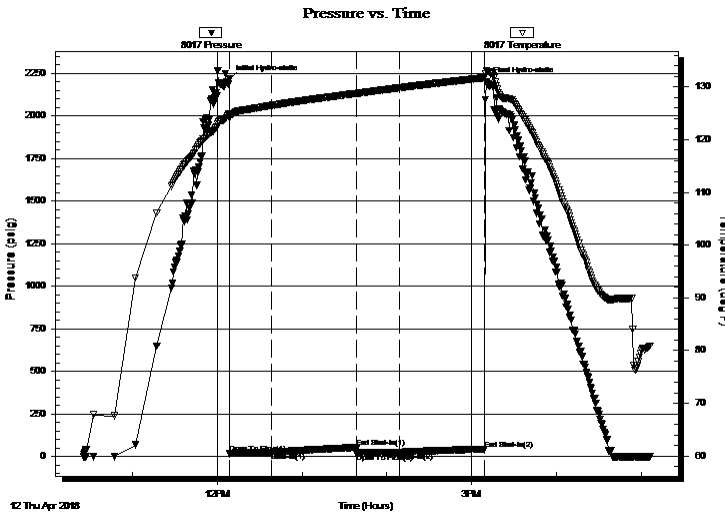
Serial #: 8017

Outside

Press@RunDepth: 25.59 psig @ 4471.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2018.04.12 End Date: 2018.04.12 Last Calib.: 2018.04.12
 Start Time: 10:25:05 End Time: 17:06:29 Time On Btm: 2018.04.12 @ 12:08:30
 Time Off Btm: 2018.04.12 @ 15:10:30

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

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2215.33	124.94	Initial Hydro-static
1	16.60	124.14	Open To Flow (1)
30	24.21	126.49	Shut-In(1)
90	53.39	128.78	End Shut-In(1)
91	17.68	128.76	Open To Flow (2)
121	25.59	129.84	Shut-In(2)
181	43.46	131.76	End Shut-In(2)
182	2202.39	133.13	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
20.00	Mud w /Oil spots 98%m, 2%o	0.10

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

22-2s-37w Cheyenne,KS

250 N. Water STE 300
Wichita, KS 67202

Banister 'A' #1-22

Job Ticket: 63261

DST#: 5

ATTN: Saman Sharifaie

Test Start: 2018.04.12 @ 10:25:00

GENERAL INFORMATION:

Formation: **LKC "H - J"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 12:08:45

Time Test Ended: 17:06:30

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 83

Interval: 4470.00 ft (KB) To 4550.00 ft (KB) (TVD)

Total Depth: 4550.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 3414.00 ft (KB)

3409.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 6625

Inside

Press@RunDepth: psig @ 4471.00 ft (KB)

Start Date: 2018.04.12

End Date:

2018.04.12

Start Time: 10:25:05

End Time:

17:06:59

Capacity: 8000.00 psig

Last Calib.:

2018.04.12

Time On Btm:

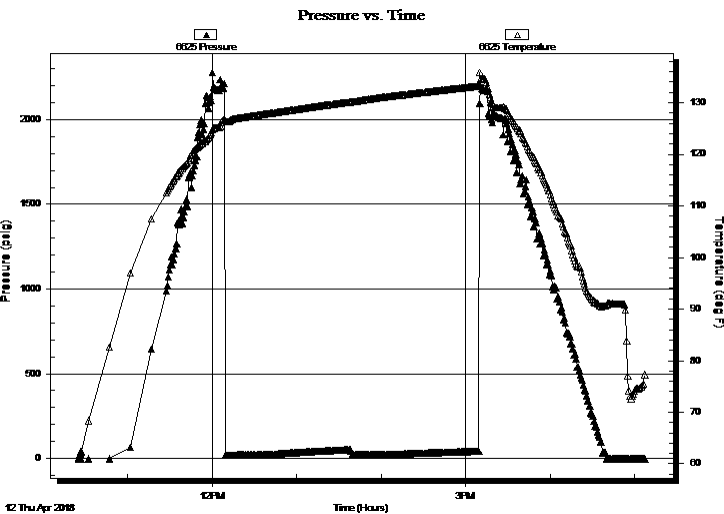
Time Off Btm:

TEST COMMENT: 30 - IF: Blow built to 1 1/2"

60 - IS: No blow back

30 - FF: Blow built to 1/4"

60 - FS: No blow back



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
20.00	Mud w /Oil spots 98%m, 2%o	0.10

* 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.

22-2s-37w Cheyenne,KS

250 N. Water STE 300
Wichita, KS 67202

Banister 'A' #1-22

Job Ticket: 63261

DST#: 5

ATTN: Saman Sharifaie

Test Start: 2018.04.12 @ 10:25:00

Tool Information

Drill Pipe:	Length: 4271.00 ft	Diameter: 3.80 inches	Volume: 59.91 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: 66000.00 lb
			<u>Total Volume: 60.80 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	10.00 ft			String Weight: Initial 65000.00 lb
Depth to Top Packer:	4470.00 ft			Final 65000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	80.00 ft			
Tool Length:	109.00 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			4442.00	
Shut In Tool	5.00			4447.00	
Hydraulic tool	5.00			4452.00	
Jars	5.00			4457.00	
Safety Joint	3.00			4460.00	
Packer	5.00			4465.00	29.00 Bottom Of Top Packer
Packer	5.00			4470.00	
Stubb	1.00			4471.00	
Recorder	0.00	6625	Inside	4471.00	
Recorder	0.00	8017	Outside	4471.00	
Perforations	12.00			4483.00	
Blank Spacing	64.00			4547.00	
Bullnose	3.00			4550.00	80.00 Bottom Packers & Anchor

Total Tool Length: 109.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

22-2s-37w Cheyenne,KS

250 N. Water STE 300
Wichita, KS 67202

Banister 'A' #1-22

Job Ticket: 63261

DST#: 5

ATTN: Saman Sharifaie

Test Start: 2018.04.12 @ 10:25:00

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: 76.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.99 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
20.00	Mud w /Oil spots 98%m, 2%o	0.098

Total Length: 20.00 ft Total Volume: 0.098 bbl

Num Fluid Samples: 0

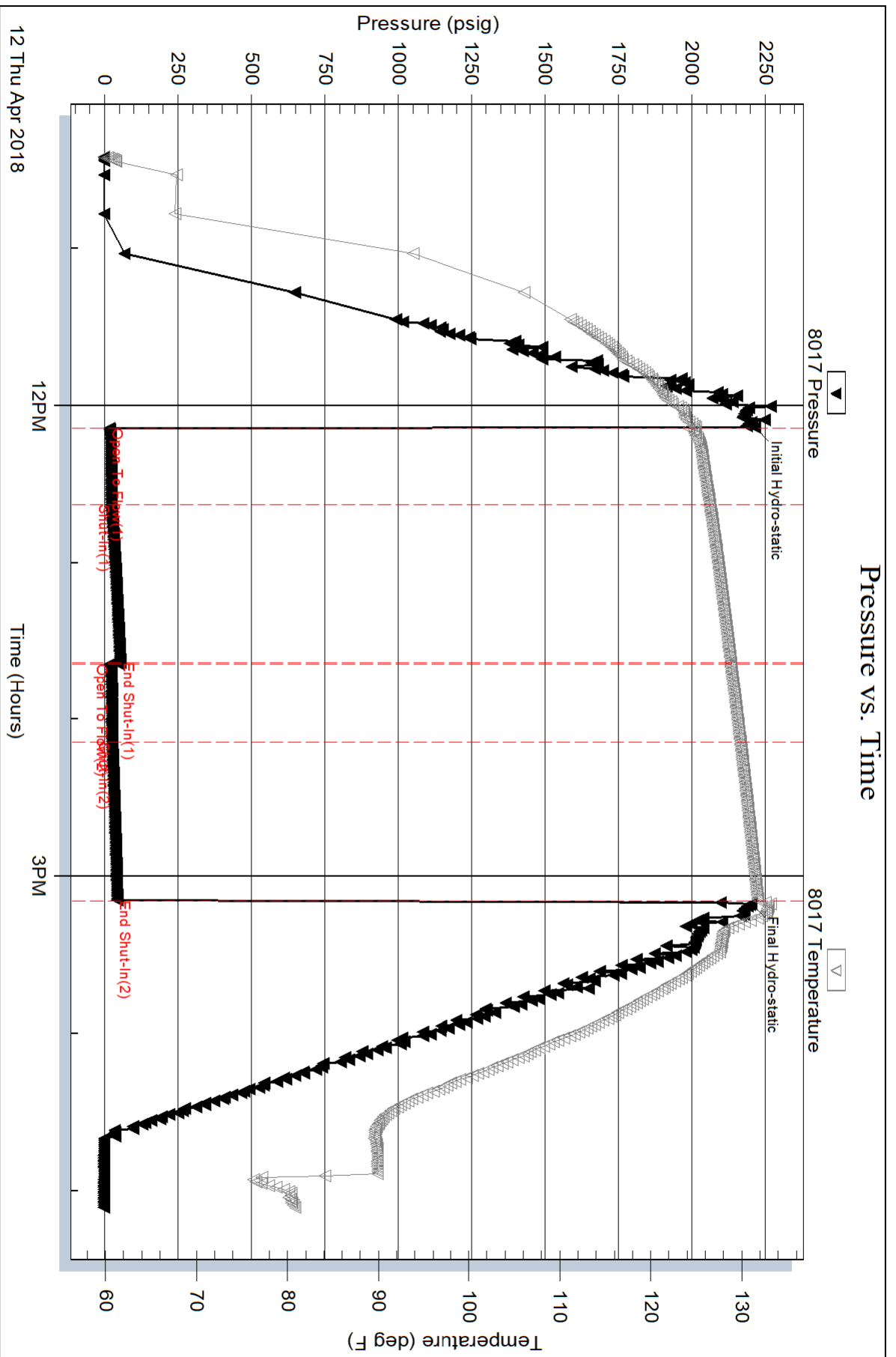
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



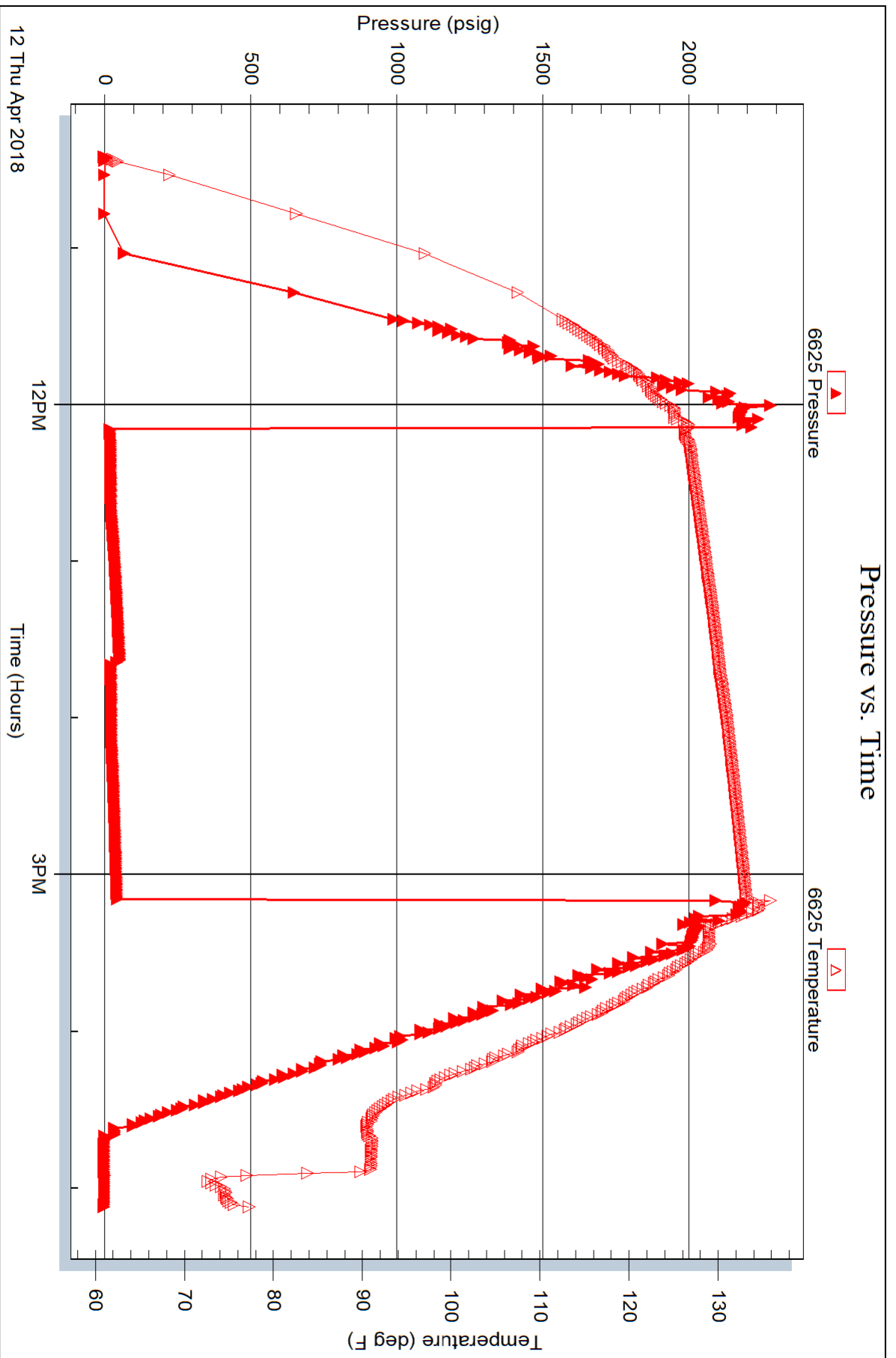
Serial #: 6625

Inside

Murfin Drilling Co., Inc.

Banister 'A' #1-22

DST Test Number: 5





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63257

Well Name & No. Banister 'A' #1-22 Test No. 1 Date 4-9-18
 Company Murfin Drilling Co. Inc Elevation 3414 KB 3409 GL
 Address 250 N. Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Saman Sharifaie Rig Murfin #3
 Location: Sec. 22 Twp 2s Rge. 37w Co. Cheyenne State KS

Interval Tested 4197 - 4281 Zone Tested Oread
 Anchor Length 84 Drill Pipe Run 3997 Mud Wt. 8.9
 Top Packer Depth 4192 Drill Collars Run 180 Vis 60
 Bottom Packer Depth 4197 Wt. Pipe Run - WL 5.6
 Total Depth 4281 Chlorides 600 ppm System LCM 2

Blow Description IF: 1/4" Blow built to 1/2", died back, dead at 27 min.
ISI! No blow
FF: No blow
FSI: No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>2</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 2 BHT 129 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2033
 (B) First Initial Flow 16
 (C) First Final Flow 16
 (D) Initial Shut-In 112
 (E) Second Initial Flow 16
 (F) Second Final Flow 17
 (G) Final Shut-In 101
 (H) Final Hydrostatic 2014

Test 1150
 Jars 250
 Safety Joint 75
 Circ Sub _____
 Hourly Standby _____
 Mileage 122RT 122
 Sampler _____
 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 1597

T-On Location 5:15
 T-Started 6:15
 T-Open 8:47
 T-Pulled 11:50
 T-Out 13:35
 Comments _____
 Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Sub Total 0
 Total 1597
 MP/DST Disc't _____

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

Approved By _____ Our Representative James Winder
 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. 63258

Well Name & No. Banister 'A' #1-22 Test No. 2 Date 4-9-18
 Company Murfin Drilling Co. Inc. Elevation 3414 KB 3409 GL
 Address 250 N. Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Saman Sharifaie Rig Murfin #3
 Location: Sec. 22 Twp 2s Rge. 37w Co. Cheyenne State KS

Interval Tested 4282 - 4360 Zone Tested LKC "A"
 Anchor Length 78 Drill Pipe Run 4086 Mud Wt. 9.1
 Top Packer Depth 4277 Drill Collars Run 180 Vis 54
 Bottom Packer Depth 4282 Wt. Pipe Run - WL 6.0
 Total Depth 4360 Chlorides 600 ppm System LCM 2

Blow Description IF: Blow built to BOB (11") at 45 sec.
ISI: Blowback built to BOB at 10 min.
FF: Blow built to BOB at 30 sec. Gas to surface at end of open.
FSI: Blowback built to BOB at 6 min.

Rec	Feet of	%gas	%oil	%water	%mud
<u>Revout 2780</u>	<u>60</u>	<u>30</u>	<u>66</u>	<u>-</u>	<u>4</u>
<u>Samples every 5 minutes</u>	<u>last sample just before it quit</u>	<u>-</u>	<u>82</u>	<u>-</u>	<u>18</u>
<u>120</u>	<u>Muddy Oil</u>	<u>8</u>	<u>51</u>	<u>-</u>	<u>41</u>
	<u>GIP = 1366'</u>				

Rec Total 2900 BHT 145 Gravity 32.4 API RW @ °F Chlorides ppm
 (A) Initial Hydrostatic 2082 Test 1150 T-On Location 22:30 4/9
 (B) First Initial Flow 484 Jars 250 T-Started 23:45
 (C) First Final Flow 849 Safety Joint 75 T-Open 1:39
 (D) Initial Shut-In 1307 Circ Sub drop bar 50 T-Pulled 4:13
 (E) Second Initial Flow 884 Hourly Standby _____ T-Out 8:35 4/10
 (F) Second Final Flow 1115 Mileage 122RT 122 Comments _____
 (G) Final Shut-In 1303 Sampler _____
 (H) Final Hydrostatic 2067 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____

Initial Open 15
 Initial Shut-In 60
 Final Flow 15
 Final Shut-In 60
 Sub Total 0
 Total 1647
 MP/DST Disc't _____
 Sub Total 1647

Approved By _____ Our Representative James Winder
 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.



TRIOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63259

Well Name & No. Banister 'A' #1-22 Test No. 3 Date 4-10-18
 Company Murfin Drilling Co. Inc. Elevation 3414 KB 3409 GL
 Address 250 N. Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Saman Sharifaie Rig Murfin #3
 Location: Sec. 22 Twp 2s Rge. 37w Co. Cheyenne State KS

Interval Tested 4361 - 4420 Zone Tested LKC "D"
 Anchor Length 59 Drill Pipe Run 4179 Mud Wt. 9.1
 Top Packer Depth 4356 Drill Collars Run 180 Vis 56
 Bottom Packer Depth 4361 Wt. Pipe Run - WL 6.0
 Total Depth 4420 Chlorides 600 ppm System LCM 2

Blow Description IF: Blow built to BOB (11") at 2 1/2 min.
ISI: Blowback built to BOB at 13 min.
FF: Blow built to BOB at 134 min.
FSI: Blowback built to BOB at 10 min.

Rec	Feet of	%gas	%oil	%water	%mud
Rec <u>Rev Act 1368</u>	Feet of <u>60</u>	<u>36</u>	<u>60</u>	<u>-</u>	<u>4</u>
Below Circ Rec <u>sub 60</u>	Feet of <u>GMCO</u>	<u>15</u>	<u>55</u>	<u>-</u>	<u>30</u>
Rec <u>60</u>	Feet of <u>WMGO</u>	<u>25</u>	<u>35</u>	<u>15</u>	<u>25</u>
Rec _____	Feet of <u>GIP=2400'</u>	<u>%gas</u>	<u>%oil</u>	<u>%water</u>	<u>%mud</u>
Rec _____	Feet of _____	<u>%gas</u>	<u>%oil</u>	<u>%water</u>	<u>%mud</u>

Rec Total 1488 BHT 145 Gravity 27 API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2100
 (B) First Initial Flow 112
 (C) First Final Flow 369
 (D) Initial Shut-In 1295
 (E) Second Initial Flow 391
 (F) Second Final Flow 586
 (G) Final Shut-In 1267
 (H) Final Hydrostatic 2100

Test 1150
 Jars 250
 Safety Joint 75
 Circ Sub step bar 50
 Hourly Standby _____
 Mileage 122 RT 122
 Sampler _____
 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 1647

T-On Location 16:15 4/10
 T-Started 18:14
 T-Open 20:23
 T-Pulled 23:55
 T-Out 3:25 4/11

Comments Rig was finishing
unloading casing when I
got to rig / should of been OB
by @ 17:45
 Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Sub Total 0
 Total 1647
 MP/DST Disc't _____

Initial Open 30
 Initial Shut-In 60
 Final Flow 30
 Final Shut-In 90

Approved By _____

Our Representative James Winder

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63260

Well Name & No. Banister 'A' #1-22 Test No. 4 Date 4-11-18
 Company Murfin Drilling Co. Inc Elevation 3414 KB 3409 GL
 Address 250 N. Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Saman Sharifaie Rig Murfin #3
 Location: Sec. 22 Twp 2s Rge. 37w Co. Cheyenne State KS

Interval Tested 4420 - 4470 Zone Tested LKC "G"
 Anchor Length 50 Drill Pipe Run 4241 Mud Wt. 8.9
 Top Packer Depth 4415 Drill Collars Run 180 Vis 60
 Bottom Packer Depth 4420 Wt. Pipe Run - WL 5.2
 Total Depth 4470 Chlorides 600 ppm System LCM 4

Blow Description IF: Blow built to BOB (11") in 8 min.
ISI: Blowback built to 8"
FF: Blow built to BOB in 6 1/2 min.
FSI: Blowback built to BOB at 12 min.

Rec	Feet of	%gas	%oil	%water	%mud
Rev Out 486'	GMCO	13	77	10	
Below sub 120	GMCO	32	41	27	
Rec	Feet of GIP: 2255'				
Rec	Feet of				
Rec	Feet of				

Rec Total 606 BHT 146 Gravity 32.2 API RW @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2167 Test 1150 T-On Location 11:30
 (B) First Initial Flow 27 Jars 250 T-Started 12:55
 (C) First Final Flow 120 Safety Joint 75 T-Open 14:45
 (D) Initial Shut-In 1309 Circ Sub Deep bar 50 T-Pulled 18:47
 (E) Second Initial Flow 130 Hourly Standby _____ T-Out 23:00

(F) Second Final Flow 234 Mileage 122RT 122
 (G) Final Shut-In 1299 Sampler _____
 (H) Final Hydrostatic 2154 Straddle _____

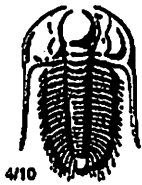
Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____

Initial Open 30
 Initial Shut-In 60
 Final Flow 60
 Final Shut-In 90

Sub Total 1647
 Total 1647
 MP/DST Disc't _____

Approved By _____ Our Representative James Winder

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63261

Well Name & No. Banister 'A' #1-22 Test No. 5 Date 4-12-18
 Company Murfin Drilling Co. Inc Elevation 3414 KB 3409 GL
 Address 250 N. Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Saman Sharifaie Rig Murfin #3
 Location: Sec. 22 Twp 2s Rge. 37w Co. Cheyenne State KS

Interval Tested 4470 - 4550 Zone Tested LKC "H-J"
 Anchor Length 80 Drill Pipe Run 4271 Mud Wt. 8.9
 Top Packer Depth 4465 Drill Collars Run 180 Vis 76
 Bottom Packer Depth 4470 Wt. Pipe Run - WL 6.0
 Total Depth 4550 Chlorides 800 ppm System LCM 3

Blow Description IF: Blow built to 1 1/2"
TSI: No blowback
FF: Blow built to 1/4"
FSI: No blowback

Rec	Feet of	%gas	%oil	%water	%mud
<u>20</u>	<u>Mud w/oil spots</u>	<u>2</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 20 BHT 132 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

- (A) Initial Hydrostatic 2215
- (B) First Initial Flow 17
- (C) First Final Flow 24
- (D) Initial Shut-In 53
- (E) Second Initial Flow 18
- (F) Second Final Flow 26
- (G) Final Shut-In 43
- (H) Final Hydrostatic 2202

- Test 1150
- Jars 250
- Safety Joint 75
- Circ Sub _____
- Hourly Standby _____
- Mileage 122RTx2 244
- Sampler _____
- Straddle _____
- Shale Packer _____
- Extra Packer _____
- Extra Recorder _____
- Day Standby _____
- Accessibility _____
- Sub Total 1719

T-On Location 9:05
 T-Started 10:25
 T-Open 12:08
 T-Pulled 15:09
 T-Out 17:00

Comments _____
loaded tools 4/13 9:15
 Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Sub Total 0
 Total 1719
 MP/DST Disc't _____

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

Approved By _____

Our Representative James Winder

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