

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' 3-22
Doc ID	1469498

All Electric Logs Run

MIL
DUCP
MEL
BHCS

MDCI
 Banister 'A' #3-22
 2310' FSL 330'FWL
 Sec. 22-2S-37W
 3416' KB

Formation	Sample top	Datum	Ref	Log tops	Datum	Ref
Anhydrite	3300	+116	-6	3298	+118	-4
B/Anhydrite	3334	+82	-8	3331	+85	-5
Topeka	4114	-698	-4	4126	-710	-16
Oread	4261	-845	-6	4265	-849	-10
Lansing	4338	-922	-8	4341	-925	-11
Stark	4566	-1150	-5	4564	-1148	-3
Mound City	4618	-1202	-6	4615	-1199	-3
Ft Scott	4741	-1329	-10	4744	-1328	-9
Oakley	4814	-1398	-3	4817	-1401	-6
RTD	4950	-1534				
LTD				4950		

Robert D. Hendrix

Petroleum Geologist

GEOLOGIST'S REPORT

DRILLING TIME AND SAMPLE LOG

COMPANY **Murfin Drilling Co. Inc.**

LEASE **Banister 'A' #3-22**

FIELD **Willicat**

LOCATION **2310' fs & 330' fw**

SEC **22 TWP 2s RGE 37W**

COUNTY **Cheyenne STATE KS**

CONTRACTOR **Murfin Drilling Co. Inc. Rig #7**

SPUD **5/18/2019 COMP 5/28/2019**

RTD **4950 LTD 4950**

MUD UP **3599 TYPE MUD Chemical**

SAMPLES SAVED FROM **4010 TO TD**

DRILLING TIME KEPT FROM **4010 TO TD**

SAMPLES EXAMINED FROM **4010 TO TD**

GEOLOGICAL SUPERVISION FROM **3940**

GEOLOGIST ON WELL **Robert D. Hendrix**

FORMATION TOPS

ANHYDRITE **3298 (+118)**

TOPEKA **4126 (-710)**

OREAD **4265 (-849)**

LANSING **4340 (-924)**

STARK SHALE **4564 (-1148)**

MOUND CITY **4615 (-1189)**

FT SCOTT **4741 (-1328)**

OKKEY **4818 (-1402)**

ELEVATIONS

KB **3416**

GL **3411**

Measurements Are All From **Kelly Busting**

CASING

CONDUCTOR

SURFACE **8-5/8" at 373'**

PRODUCTION **5 1/2"**

ELECTRICAL SURVEYS

Dial comp pot/ Dual Induction

Spot/Maxico Premier Wireline Services

SAMPLE

3300 (+116)

4261 (-845)

4338 (-922)

4566 (-1150)

4618 (-1202)

4741 (-1328)

4814 (-1398)

API# 15-023-21515



REMARKS:

The decision was made to set casing for production purposes.

LEGEND



DEPTH	LITHOLOGY	GAS UNIT	SAMPLE DESCRIPTION	REMARKS
3250				
3300				Anhydrite 3300 (+116)
3334				Base Anhydrite 3334 (+82)
4010			Shale: red, gray, sl amt LS mixed in. Limestone: lt gray to tan, m-tn, fossiliferous, pellaoidal, no vis por. Shale: gray, biotite, silty	Geologist on location 3940' at 3:45 pm 5/21/2019 Bit Trip at 3917' to change from PDC to button. Strap out of hole was 0.60' short to board.
4100			Limestone: tan, f-mxn, sl chalky, fossiliferous, no vis por. Shale: gray, red, green, silty Limestone: tan to white, mxln, v-fossiliferous, sl oolitic, fr interxn por, ns Shale: gray, red, green, silty	
4116				Topeka 4116 (-698)
4150			Limestone: tan to white, f-mxn, v-fossiliferous, sl oolitic, pellaoidal, fr interxn por, ns Shale: red, gray, green, silty Limestone: white, f-mxn, sl chalky, oolitic, fossiliferous, no vis por, black spotty stain in the interstices, nfo, no odor Shale: gray, green, red, silty, blocky	
4200			Limestone: tan, f-mxn, chalky, v-fossiliferous, no vis por Shale: gray, green, red, silty, blocky	
4226				Oread 4226 (-845)
4265			Limestone: tan to white, f-mxn, sl chalky, pyritic, v-fossiliferous, sl oolitic, pr interxn por, black spotty stain, slfso on break only, no odor Limestone: gray, v-fxn, dense, no vis por, ns Shale: black, brown, gray, red Limestone: tan, fxn, dense, fossiliferous, pyritic, no vis por Shale: gray, green, red, silty	8:00am, 5/22/2019 wt 9.0, vis, 59, lcm 3# Morgan Mud, Dave Lines
4290				Heebner 4290 (-874)
4338			Limestone: white to tan, fxn, cherty, sl pyritic, dark spotty stain, slfso on break only, no odor Shale: gray, green, red, silty	DST #1 4288-4370 30-60-30-60 1st open: weak blow built to 1/2" then died back to 1/4" 2nd open: no blow Rec: 5' mud hydro: 2193-2101 psi lf: 19-21 psi if: 21-23 psi sfp: 374-354 psi bht: 129° F
4370			Limestone: tan to white, f-mxn, sl chalky, pyritic, v-fossiliferous, 10% sample, sl pp to interxn por, dark spotty stain, slfso on break only, no odor Limestone: gray, v-fxn, dense, no vis por, ns Limestone: tan, fxn, dense, sl fossiliferous, no vis por, ns Limestone: tan, fxn, mostly dense, fossiliferous, 10% sample pr interxn por, dark spotty to sat stain, slfso bleeding, faint odor Sandstone: gray green, fr-gm, sub-md, well sorted, soft, calcareous, no vis por Shale: gray, green, red, silty	8:00am, 5/23/2019 wt 9.3, vis, 52, lcm 4# Morgan Mud, Dave Lines
4400			Limestone: tan to white, fxn, cherty, mostly dense, sl fossiliferous, no vis por, ns Shale: gray, green, red, silty Limestone: white, fxn, pyritic, fossiliferous, 25% sample, gd foss por, light to dark sat stain, gdso, sl show of gas bubbles, gd odor Limestone: white, fxn, partly dense, sl fossiliferous, 10% sample, pr foss to pr vug por, light to dark sat stain, gdso, gd odor Shale: red, gray, green, silty	DST #2 4358-4426 30-60-30-90 1st open: fair blow built to 1 1/4" 1st close: surface return at end of open 2nd open: weak blow 1/4" Rec: 10' mud w oil spots hydro: 2177-2135 psi lf: 20-23 psi if: 24-28 psi sfp: 627-443 psi bht: 127° F
4450			Limestone: tan, fxn, sl chalky, mostly dense, sl fossiliferous, no vis por, ns Limestone: tan to white, fxn, sl chalky, sl fossiliferous, 10% sample fr interxn por, light to sat stain, frsfo with more on break, gd odor Limestone: tan to white, v-fm, cherty, dense, sl fossiliferous, no vis por Shale: lt to dk gray, red, green, silty, sandy in part Shale: gray, red, green, silty	8:00am, 5/24/2019 wt 9.0, vis, 55, lcm 4# Morgan Mud, Dave Lines
4500			Shale: red, gray green, brown	
4526				Oread 4526 (-845)
4564			Limestone: tan to white, f-mxn, oolitic in part, chalky, 5% sample scattered pp por, lt to dark sat stain, prsfo (light) more on break, faint odor Shale: red, gray, soft, silty Limestone: tan to white, fxn, chalky, sl fossiliferous, no vis por Shale: red, gray, green, silty	8:00am, 5/25/2019 wt 9.2, vis, 53, lcm 4# Morgan Mud, Dave Lines
4600			Shale: red, gray, muddy, silty	
4615				Stark Shale 4615 (-1189)
4618			Limestone: tan to white, fxn, sl chalky, sl fossiliferous, 5% sample; scattered sl interxn por, spotty to sat dark stain, slfso on break, faint odor Shale: red, gray, silty, blocky	
4660			Limestone: tan to white, f-mxn, oolitic, chalky, fossiliferous, sl oolitic por, 7 piece lt sat stain, no fo, no odor Shale: gray, red, blocky	8:00am, 5/26/2019 wt 9.0, vis, 52, lcm 4# Morgan Mud, Dave Lines
4700			Shale: red, gray, green, black	
4741				Mound City 4741 (-1328)
4770			Limestone: tan to gray, f-mxn, chalky, oolitic, fossiliferous, no vis por Shale: gray light & dark, red, sandy in part Shale: dark to lt gray, red, green, blocky Shale: gray, red, hard, blocky, silty	
4800			Limestone: tan to tan, fxn, mostly dense, no vis por Shale: red, dark gray, brown, blocky, silty	
4818				Ft Scott 4818 (-1398)
4844			Limestone: white, fxn, granular, v-chalky, sl fossiliferous, no vis por Limestone: gray to brown, fxn, chalky, dense, sl fossiliferous, sl pyritic, no vis por Shale: dark gray, red, blocky, silty	
4884			Limestone: tan to white, f-mxn, sl chalky, granular, fossiliferous, 5% sample, pr pb por, scattered spotty to lt sat stain, slfso mostly on break, faint odor Limestone: tan to white, f-mxn, sl chalky, dense, fossiliferous, no vis por Shale: black, gray, green, blocky	DST #5 4708-4844 30-60-60-90 1st open: built to 6" 1st close: no return 2nd open: bob 56 min 2nd close: built to 1/8", died back Rec: 20' vslgmc 3/5/92 200' gmco 16/27/57 145' gip hydro: 2428-2398 psi lf: 24-75 psi if: 81-106 psi sfp: 274-256 psi bht: 137° F gravity: 26.6
4900			Shale: gray, brown, blocky Limestone: tan, fxn, dense, hard, oolitic, fossiliferous, 3 pieces pr oolitic por, dark sat stain, slfso bleeding, no odor Shale: black, dark to lt gray, red, blocky, silty	
4950			Limestone: tan to gray, fxn, cherty, dense, fossiliferous, sl pyritic, v-sl vug por, ns Shale: dark to lt gray, red Limestone: tan to gray, fxn, dense, sl fossiliferous, no vis por, ns Limestone: tan to brown, fxn, mostly dense, hard, fossiliferous, 4 pieces pr interxn por, dark sat stain, slfso (heavy) on break, no odor Limestone: tan, fxn, mostly dense, hard, fossiliferous, 1% sample pr interxn por, vug por, dark sat stain, slfso some bleeding, faint odor Shale: red, gray, silty Limestone: tan, fxn, chalky, dense, sl fossiliferous, no vis por, no odor Shale: gray, black, blocky, silty Limestone: white to tan, fxn, sl fossiliferous, no vis por Shale: dark gray, black, brown, red Sandstone: clear to white, lt, md-gm, sub-md, well sorted, fr intergrn por, ns Limestone: tan to white, f-mxn, oolitic in part, chalky, sl fossiliferous, no vis por Shale: gray, green, black, brown, red Limestone: tan to white, v-fxn, dense, fossiliferous, no vis por Shale: red, gray, vari-colored, black, brown	8:00am, 5/27/2019 wt 9.4, vis, 54, lcm 4# Morgan Mud, Dave Lines
4950				RTD 4950 (-1534)
5000				8:00am, 5/28/2019 Geologist off location at 3:55pm, 5/28/2019



DRILL STEM TEST REPORT

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

250 N Water STE 300
Wichita, KS 67202

ATTN: Robert Hendrix

Banister 'A' #3-22

22-2s-37w Cheyenne,KS

Start Date: 2019.05.23 @ 05:36:00

End Date: 2019.05.23 @ 12:50:30

Job Ticket #: 65373 DST #: 1

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

Printed: 2019.05.29 @ 10:33:32

Murfin Drilling Co., Inc
22-2s-37w Cheyenne,KS
Banister 'A' #3-22
DST # 1
LKC "A"
2019.05.23



**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' #3-22

Job Ticket: 65373

DST#: 1

ATTN: Robert Hendrix

Test Start: 2019.05.23 @ 05:36:00

GENERAL INFORMATION:

Formation: **LKC "A"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 07:47:30

Time Test Ended: 12:50:30

Test Type: Conventional Bottom Hole (Initial)

Tester: James Winder

Unit No: 83

Interval: 4288.00 ft (KB) To 4370.00 ft (KB) (TVD)

Reference Elevations: 3416.00 ft (KB)

Total Depth: 4370.00 ft (KB) (TVD)

3411.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

Serial #: 8652 Outside

Press@RunDepth: 22.95 psig @ 4289.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.05.23

End Date: 2019.05.23

Last Calib.: 2019.05.23

Start Time: 05:36:05

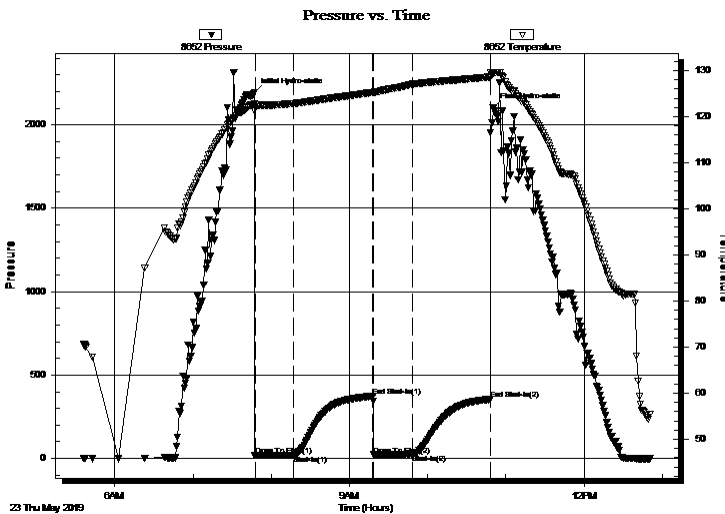
End Time: 12:50:29

Time On Btm: 2019.05.23 @ 07:47:00

Time Off Btm: 2019.05.23 @ 10:50:00

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	2192.68	122.70	Initial Hydro-static
1	18.74	122.20	Open To Flow (1)
30	20.65	122.86	Shut-In(1)
91	374.23	125.25	End Shut-In(1)
92	21.01	125.21	Open To Flow (2)
122	22.95	127.06	Shut-In(2)
181	354.07	128.61	End Shut-In(2)
183	2100.58	129.40	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud 100%	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

22-2s-37w Cheyenne,KS

250 N Water STE 300
Wichita, KS 67202

Banister 'A' #3-22

Job Ticket: 65373

DST#: 1

ATTN: Robert Hendrix

Test Start: 2019.05.23 @ 05:36:00

Tool Information

Drill Pipe:	Length: 4089.00 ft	Diameter: 3.80 inches	Volume: 57.36 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: 80000.00 lb
			<u>Total Volume: 58.25 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	10.00 ft			String Weight: Initial 68000.00 lb
Depth to Top Packer:	4288.00 ft			Final 68000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	82.00 ft			
Tool Length:	111.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Change Over Sub	1.00			4260.00	
Shut In Tool	5.00			4265.00	
Hydraulic tool	5.00			4270.00	
Jars	5.00			4275.00	
Safety Joint	3.00			4278.00	
Packer	5.00			4283.00	29.00 Bottom Of Top Packer
Packer	5.00			4288.00	
Stubb	1.00			4289.00	
Recorder	0.00	6625	Inside	4289.00	
Recorder	0.00	8652	Outside	4289.00	
Perforations	13.00			4302.00	
Blank Spacing	65.00			4367.00	
Bullnose	3.00			4370.00	82.00 Bottom Packers & Anchor

Total Tool Length: 111.00



**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' #3-22

Job Ticket: 65373

DST#: 1

ATTN: Robert Hendrix

Test Start: 2019.05.23 @ 05:36:00

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: 62.00 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
5.00	Mud 100%	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

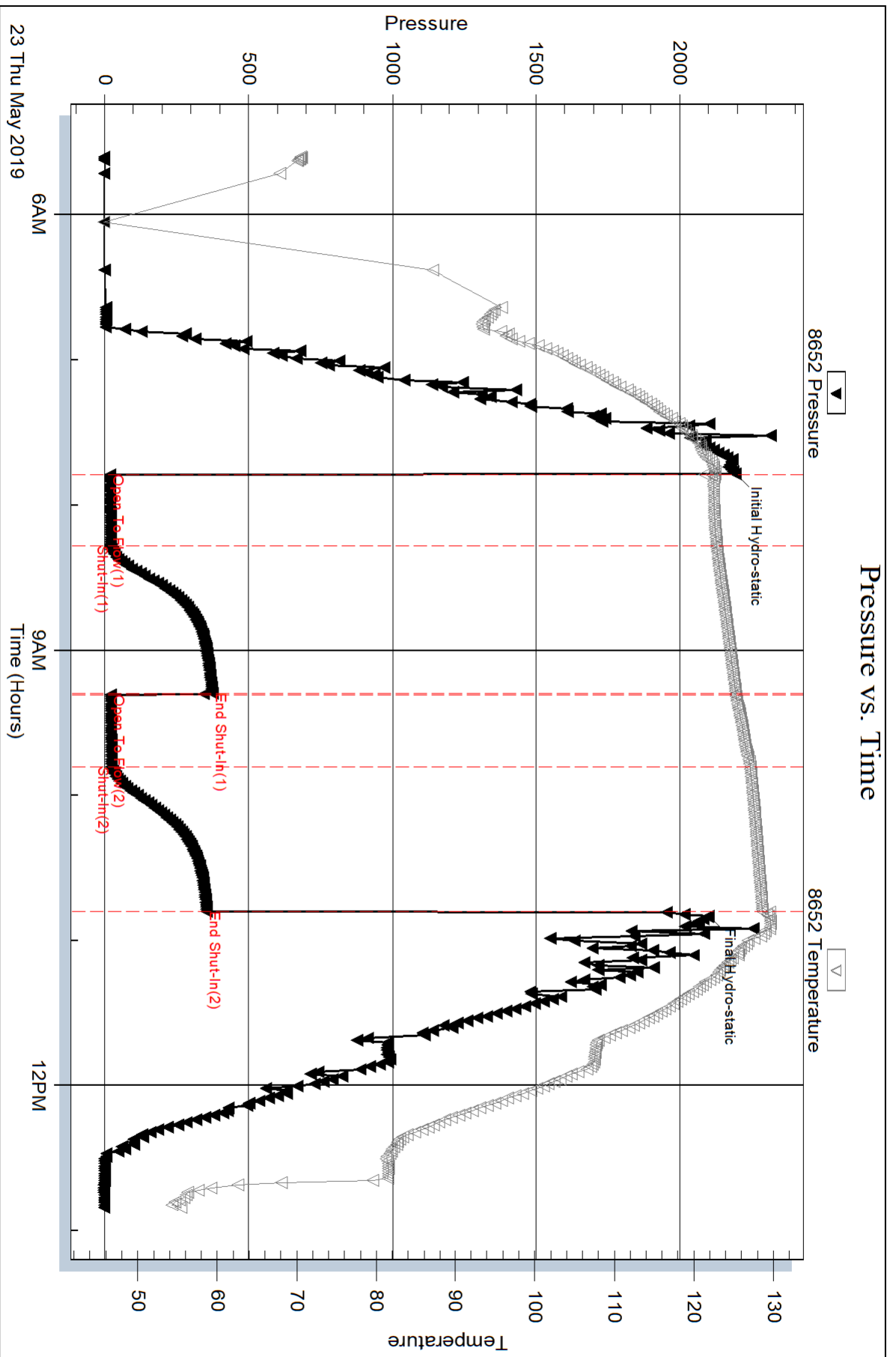
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



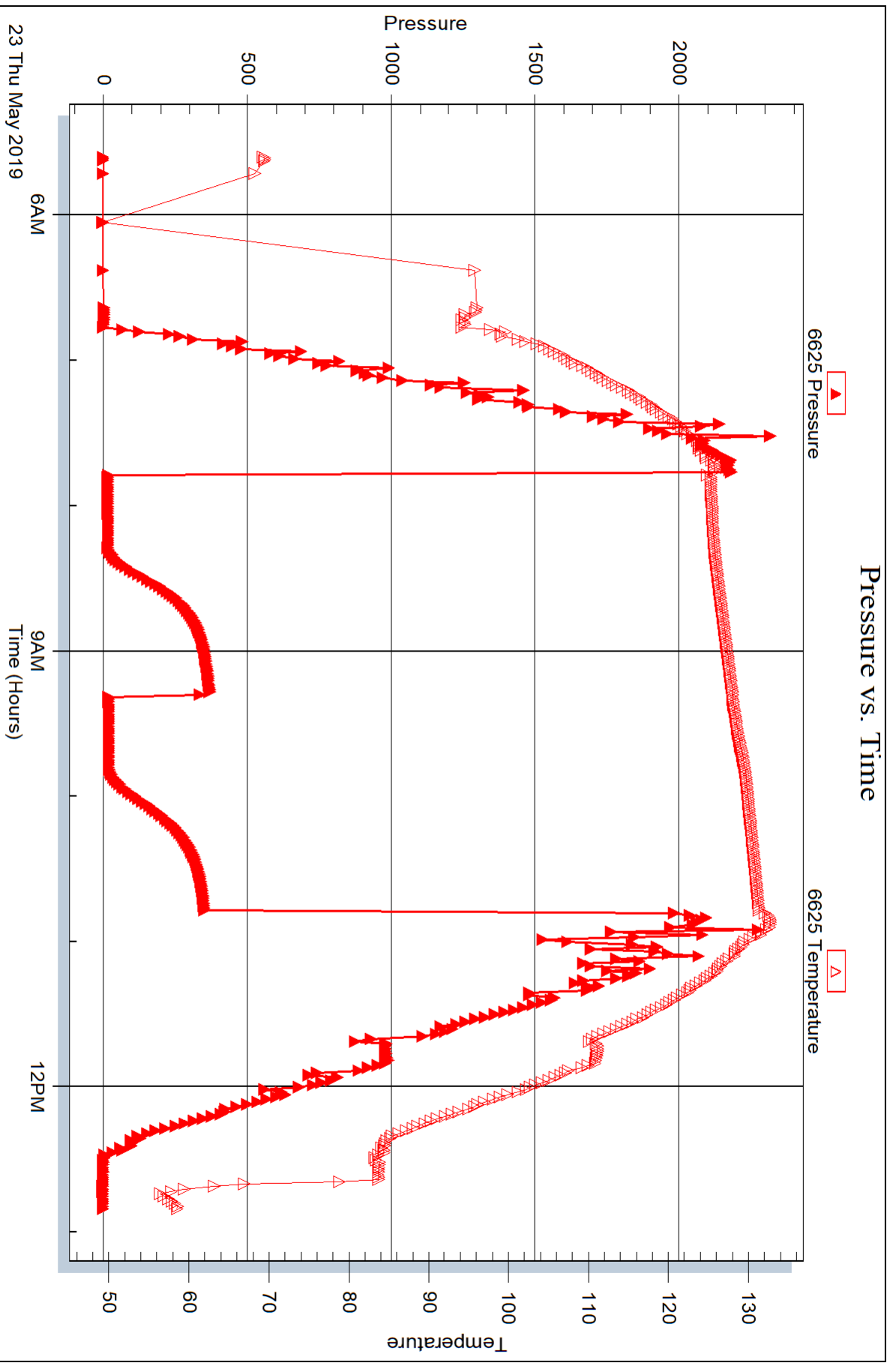
Serial #: 6625

Inside

Murfin Drilling Co., Inc

Banister 'A' #3-22

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 65373

Printed: 2019.05.29 @ 10:33:33



DRILL STEM TEST REPORT

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

250 N Water STE 300
Wichita, KS 67202

ATTN: Robert Hendrix

Banister 'A' #3-22

22-2s-37w Cheyenne,KS

Start Date: 2019.05.23 @ 23:28:00

End Date: 2019.05.24 @ 07:33:00

Job Ticket #: 65374 DST #: 2

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

Printed: 2019.05.29 @ 10:33:08

Murfin Drilling Co., Inc
22-2s-37w Cheyenne,KS
Banister 'A' #3-22
DST # 2
LKC "D"
2019.05.23



**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' #3-22

ATTN: Robert Hendrix

Job Ticket: 65374

DST#: 2

Test Start: 2019.05.23 @ 23:28:00

GENERAL INFORMATION:

Formation: **LKC "D"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 01:17:45

Time Test Ended: 07:33:00

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 83

Interval: 4358.00 ft (KB) To 4426.00 ft (KB) (TVD)

Total Depth: 4426.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 3416.00 ft (KB)

3411.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8652 Outside

Press@RunDepth: 27.60 psig @ 4359.00 ft (KB)

Start Date: 2019.05.23

End Date:

2019.05.24

Start Time: 23:28:05

End Time:

07:32:59

Capacity: 8000.00 psig

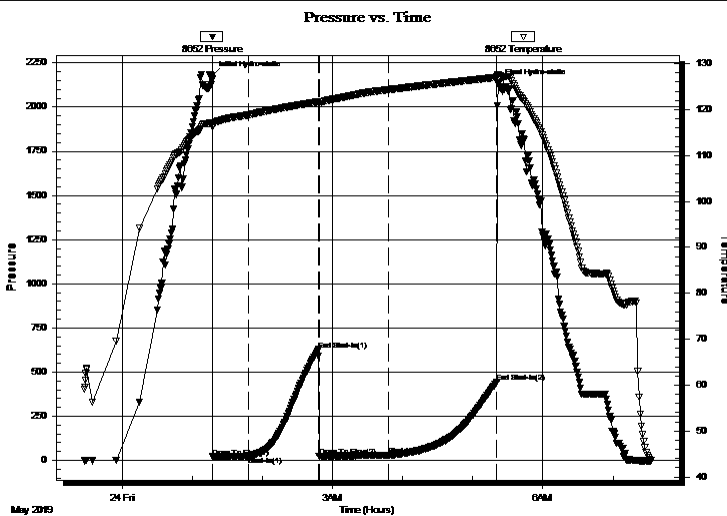
Last Calib.: 2019.05.24

Time On Btm: 2019.05.24 @ 01:17:30

Time Off Btm: 2019.05.24 @ 05:22:00

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

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2176.67	117.02	Initial Hydro-static
1	19.61	116.31	Open To Flow (1)
31	22.68	118.83	Shut-In(1)
91	627.00	121.70	End Shut-In(1)
91	24.41	121.59	Open To Flow (2)
151	27.60	124.33	Shut-In(2)
244	443.45	127.04	End Shut-In(2)
245	2135.36	127.64	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
10.00	Mud w /Oil spots 98%m, 2%o	0.05

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' #3-22

Job Ticket: 65374

DST#: 2

ATTN: Robert Hendrix

Test Start: 2019.05.23 @ 23:28:00

Tool Information

Drill Pipe:	Length: 4154.00 ft	Diameter: 3.80 inches	Volume: 58.27 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: 82000.00 lb
			<u>Total Volume: 59.16 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial 70000.00 lb
Depth to Top Packer:	4358.00 ft			Final 70000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	68.00 ft			
Tool Length:	97.00 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			4330.00	
Shut In Tool	5.00			4335.00	
Hydraulic tool	5.00			4340.00	
Jars	5.00			4345.00	
Safety Joint	3.00			4348.00	
Packer	5.00			4353.00	29.00 Bottom Of Top Packer
Packer	5.00			4358.00	
Stubb	1.00			4359.00	
Recorder	0.00	6625	Inside	4359.00	
Recorder	0.00	8652	Outside	4359.00	
Perforations	30.00			4389.00	
Blank Spacing	34.00			4423.00	
Bullnose	3.00			4426.00	68.00 Bottom Packers & Anchor

Total Tool Length: 97.00



**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' #3-22

Job Ticket: 65374

DST#: 2

ATTN: Robert Hendrix

Test Start: 2019.05.23 @ 23:28:00

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: 5.97 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
10.00	Mud w /Oil spots 98%m, 2%o	0.049

Total Length: 10.00 ft Total Volume: 0.049 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

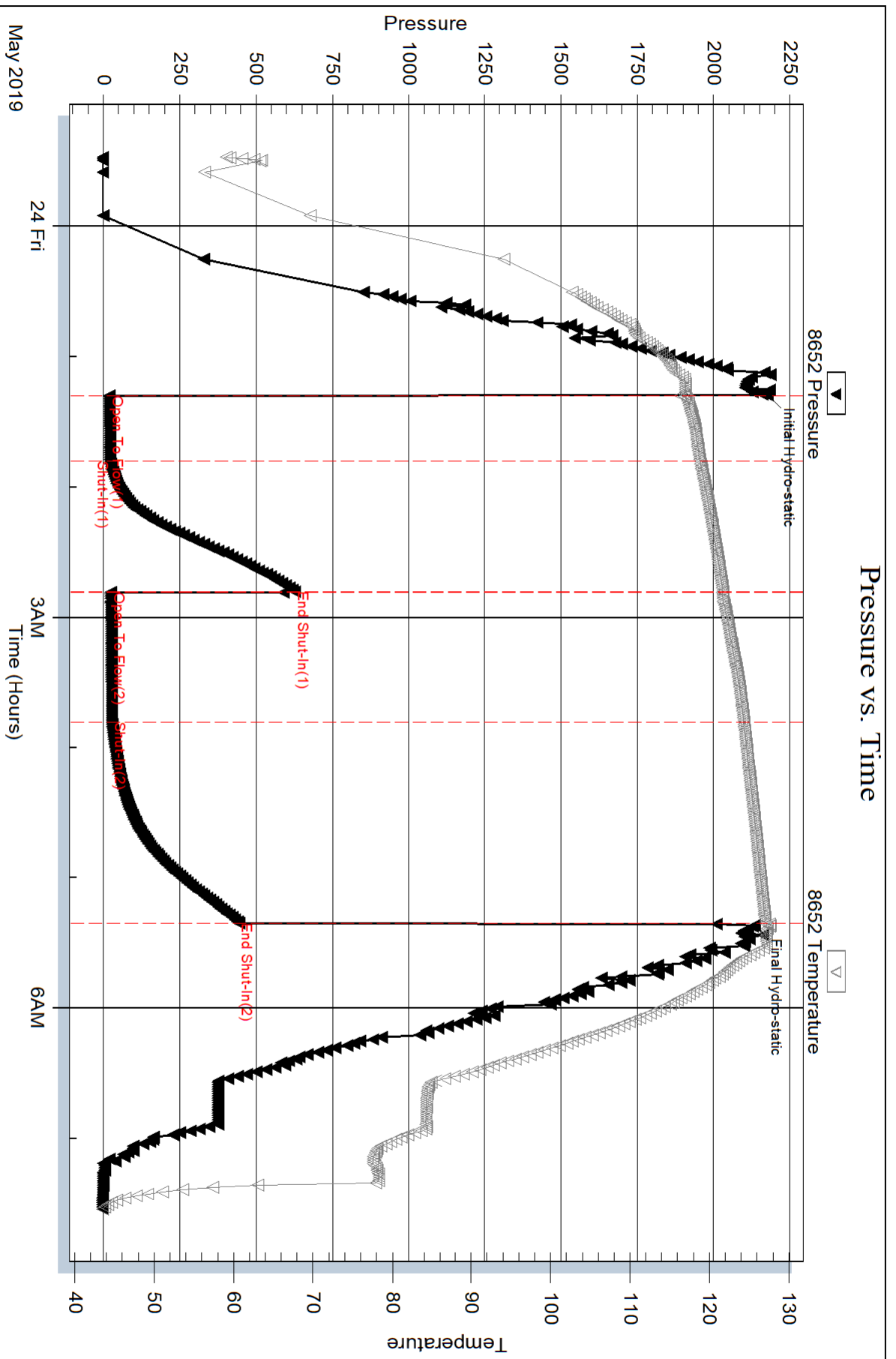
Recovery Comments:

Serial #: 8652

Outside Murfin Drilling Co., Inc

Banister A' #3-22

DST Test Number: 2



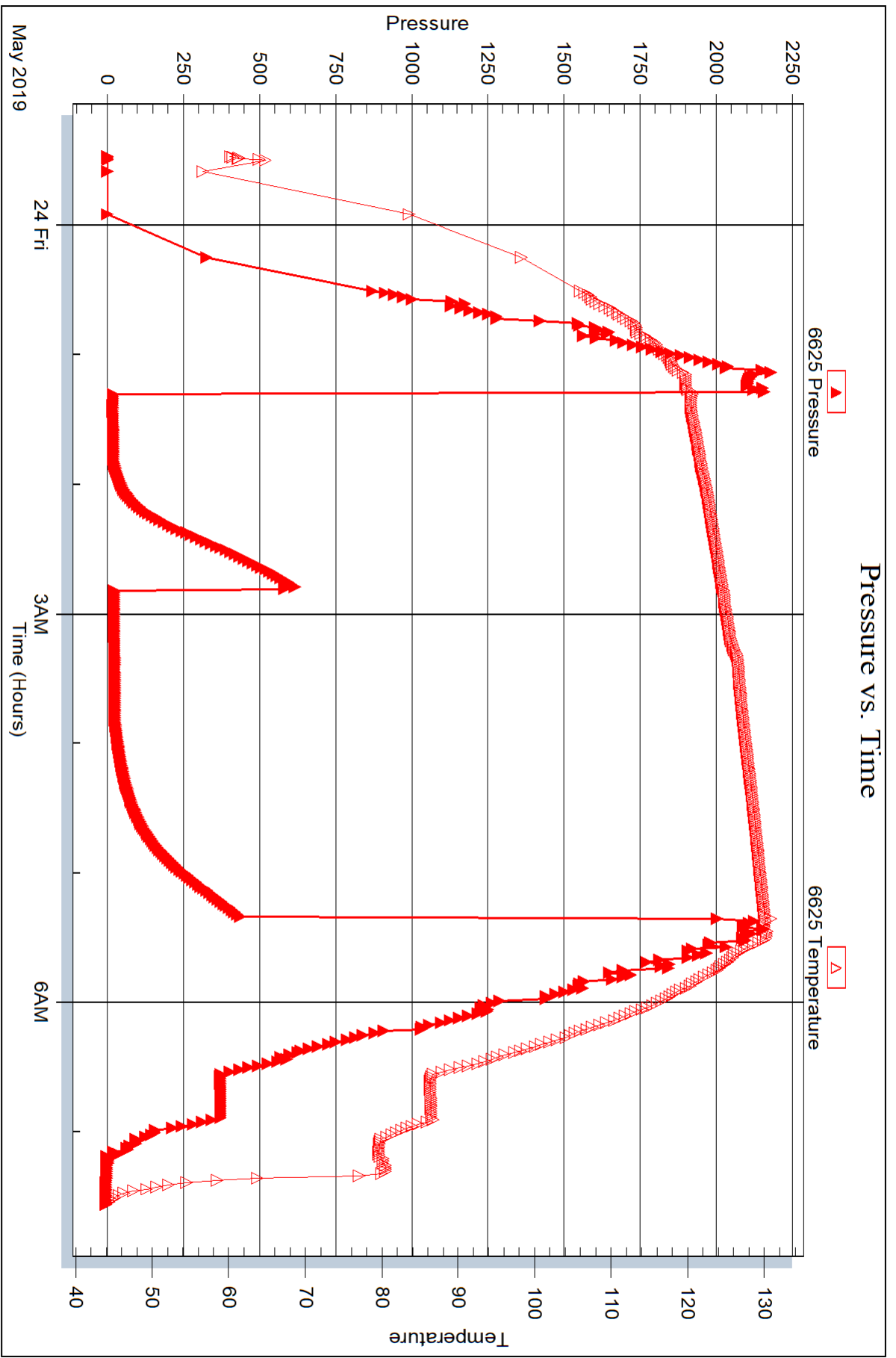
Serial #: 6625

Inside

Murfin Drilling Co., Inc

Banister 'A' #3-22

DST Test Number: 2





DRILL STEM TEST REPORT

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

250 N Water STE 300
Wichita, KS 67202

ATTN: Robert Hendrix

Banister 'A' #3-22

22-2s-37w Cheyenne,KS

Start Date: 2019.05.24 @ 18:31:00

End Date: 2019.05.25 @ 01:58:15

Job Ticket #: 65375 DST #: 3

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

Printed: 2019.05.29 @ 10:32:45



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' #3-22

Job Ticket: 65375

DST#: 3

ATTN: Robert Hendrix

Test Start: 2019.05.24 @ 18:31:00

GENERAL INFORMATION:

Formation: **Lans. "G"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 21:00:00

Time Test Ended: 01:58:15

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 83

Interval: 4412.00 ft (KB) To 4476.00 ft (KB) (TVD)

Reference Elevations: 3416.00 ft (KB)

Total Depth: 4476.00 ft (KB) (TVD)

3411.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

Serial #: 8652 Outside

Press@RunDepth: 29.91 psig @ 4413.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.05.24 End Date: 2019.05.25

Last Calib.: 2019.05.25

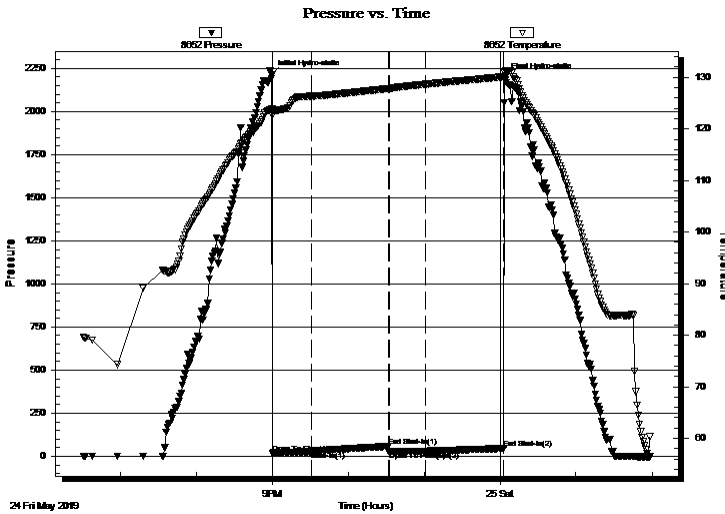
Start Time: 18:31:05 End Time: 01:58:14

Time On Btm: 2019.05.24 @ 20:59:45

Time Off Btm: 2019.05.25 @ 00:03:45

TEST COMMENT: 30 - IF: 1/4" Blow at open, built to 1"
60 - IS: No blow back
30 - FF: Weak surface blow, died back, dead at 20 min.
60 - FS: No blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2212.37	123.81	Initial Hydro-static
1	18.55	122.61	Open To Flow (1)
31	26.94	126.34	Shut-In(1)
92	57.84	127.83	End Shut-In(1)
93	26.68	127.81	Open To Flow (2)
122	29.91	128.67	Shut-In(2)
184	45.61	130.10	End Shut-In(2)
184	2194.08	130.81	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
40.00	SOCM 92% m, 8% o	0.20

* 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' #3-22

Job Ticket: 65375

DST#: 3

ATTN: Robert Hendrix

Test Start: 2019.05.24 @ 18:31:00

Tool Information

Drill Pipe:	Length: 4216.00 ft	Diameter: 3.80 inches	Volume: 59.14 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: 82000.00 lb
			<u>Total Volume: 60.03 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	13.00 ft			String Weight: Initial 72000.00 lb
Depth to Top Packer:	4412.00 ft			Final 72000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	64.00 ft			
Tool Length:	93.00 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			4384.00	
Shut In Tool	5.00			4389.00	
Hydraulic tool	5.00			4394.00	
Jars	5.00			4399.00	
Safety Joint	3.00			4402.00	
Packer	5.00			4407.00	29.00 Bottom Of Top Packer
Packer	5.00			4412.00	
Stubb	1.00			4413.00	
Recorder	0.00	6625	Inside	4413.00	
Recorder	0.00	8652	Outside	4413.00	
Perforations	27.00			4440.00	
Blank Spacing	33.00			4473.00	
Bullnose	3.00			4476.00	64.00 Bottom Packers & Anchor

Total Tool Length: 93.00



**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' #3-22

Job Ticket: 65375

DST#: 3

ATTN: Robert Hendrix

Test Start: 2019.05.24 @ 18:31:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 55.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.58 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
40.00	SOCM 92% _m , 8% _o	0.197

Total Length: 40.00 ft Total Volume: 0.197 bbl

Num Fluid Samples: 0

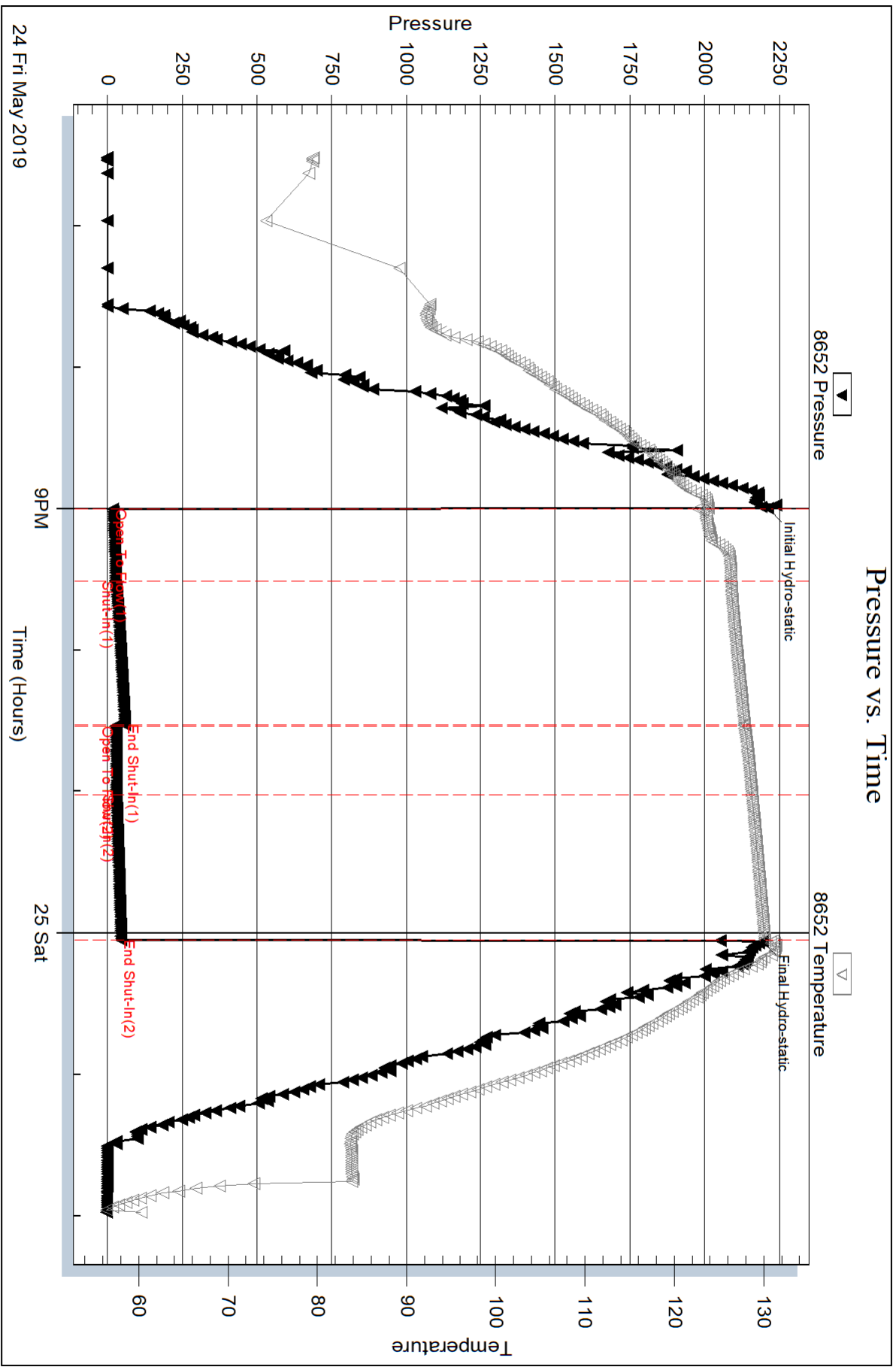
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



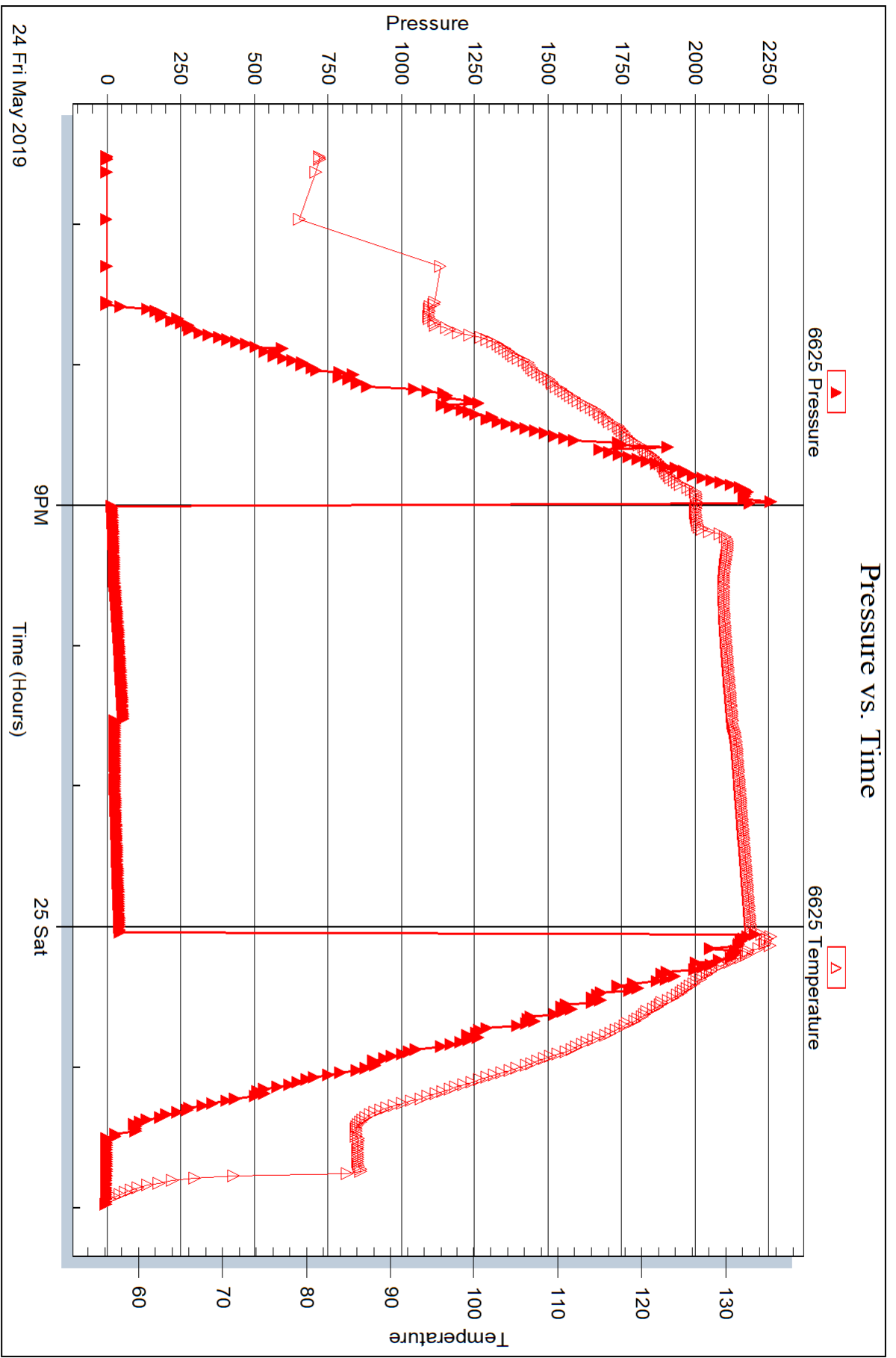
Serial #: 6625

Inside

Murfin Drilling Co., Inc

Banister 'A' #3-22

DST Test Number: 3



Trilobite Testing, Inc

Ref. No: 65375

Printed: 2019.05.29 @ 10:32:46



DRILL STEM TEST REPORT

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

250 N Water STE 300
Wichita, KS 67202

ATTN: Robert Hendrix

Banister 'A' #3-22

22-2s-37w Cheyenne,KS

Start Date: 2019.05.25 @ 17:05:00

End Date: 2019.05.26 @ 01:58:00

Job Ticket #: 64676 DST #: 4

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

Printed: 2019.05.29 @ 10:32:19

Murfin Drilling Co., Inc

22-2s-37w Cheyenne,KS

Banister 'A' #3-22

DST # 4

LKC "H - J"

2019.05.25



**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' #3-22

Job Ticket: 64676

DST#: 4

ATTN: Robert Hendrix

Test Start: 2019.05.25 @ 17:05:00

GENERAL INFORMATION:

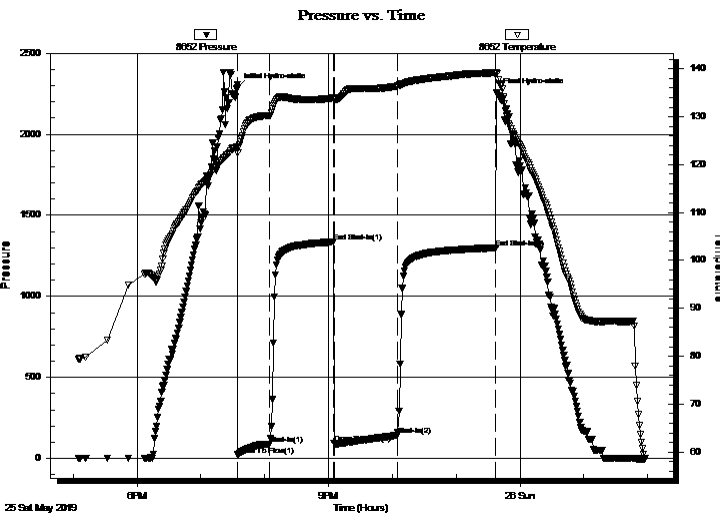
Formation: **LKC "H - J"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 19:34:45
 Time Test Ended: 01:58:00
 Interval: **4478.00 ft (KB) To 4566.00 ft (KB) (TVD)**
 Total Depth: 4566.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Reset)
 Tester: James Winder
 Unit No: 83
 Reference Elevations: 3416.00 ft (KB)
 3411.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8652

Outside

Press@RunDepth: 143.01 psig @ 4479.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.05.25 End Date: 2019.05.26 Last Calib.: 2019.05.26
 Start Time: 17:05:05 End Time: 01:58:00 Time On Btm: 2019.05.25 @ 19:34:30
 Time Off Btm: 2019.05.25 @ 23:38:00

TEST COMMENT: 30 - IF: Blow built to BOB (11") at 17 1/2 min., built to 21"
 60 - IS: No blow back
 60 - FF: Blow built to BOB at 17 3/4 min., built to 58"
 90 - FS: Blow back built to 3" at 12 min., died back to 2 1/2" at end of close



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2285.31	123.84	Initial Hydro-static
1	21.69	122.55	Open To Flow (1)
30	87.20	130.19	Shut-In(1)
91	1334.95	133.92	End Shut-In(1)
91	93.85	133.77	Open To Flow (2)
151	143.01	136.40	Shut-In(2)
243	1299.22	139.19	End Shut-In(2)
244	2257.83	139.26	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
295.00	GMCO 55%o, 29%m, 16%g	2.50
50.00	VSMCGO 91%o, 8%g, 1%m	0.70
0.00	GIP = 970'	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' #3-22

Job Ticket: 64676

DST#: 4

ATTN: Robert Hendrix

Test Start: 2019.05.25 @ 17:05:00

Tool Information

Drill Pipe:	Length: 4276.00 ft	Diameter: 3.80 inches	Volume: 59.98 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: 90000.00 lb
			<u>Total Volume: 60.87 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	7.00 ft			String Weight: Initial 72000.00 lb
Depth to Top Packer:	4478.00 ft			Final 75000.00 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			4450.00	
Shut In Tool	5.00			4455.00	
Hydraulic tool	5.00			4460.00	
Jars	5.00			4465.00	
Safety Joint	3.00			4468.00	
Packer	5.00			4473.00	29.00 Bottom Of Top Packer
Packer	5.00			4478.00	
Stubb	1.00			4479.00	
Recorder	0.00	6625	Inside	4479.00	
Recorder	0.00	8652	Outside	4479.00	
Perforations	18.00			4497.00	
Blank Spacing	65.00			4562.00	
Perforations	1.00			4563.00	
Bullnose	3.00			4566.00	88.00 Bottom Packers & Anchor

Total Tool Length: 117.00



**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' #3-22

Job Ticket: 64676

DST#: 4

ATTN: Robert Hendrix

Test Start: 2019.05.25 @ 17:05:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

35 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 53.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.39 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
295.00	GMCO 55%o, 29%m, 16%g	2.498
50.00	VSMCGO 91%o, 8%g, 1%m	0.701
0.00	GIP = 970'	0.000

Total Length: 345.00 ft Total Volume: 3.199 bbl

Num Fluid Samples: 0

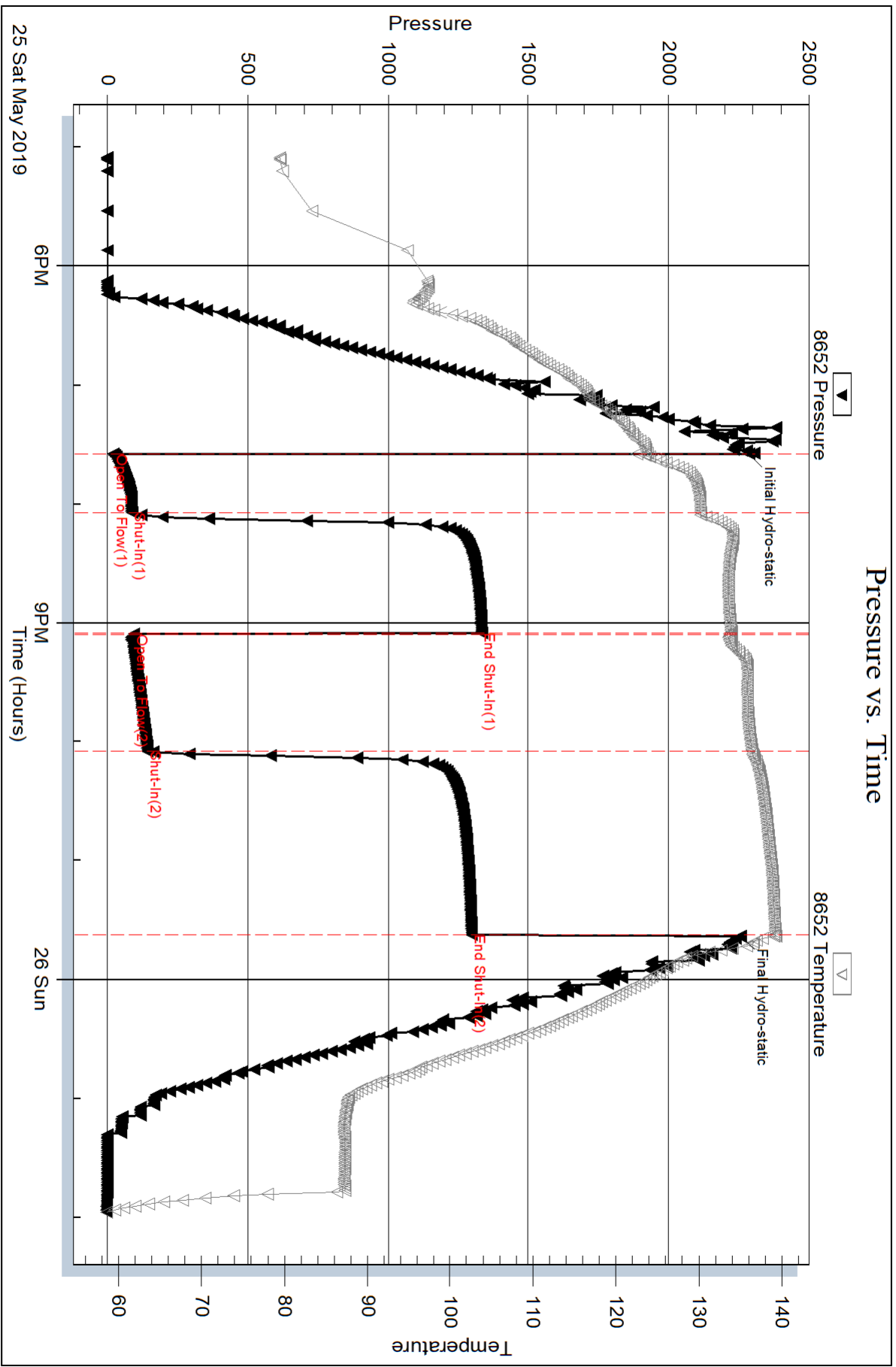
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Gravity = 35 api @ 60 deg F



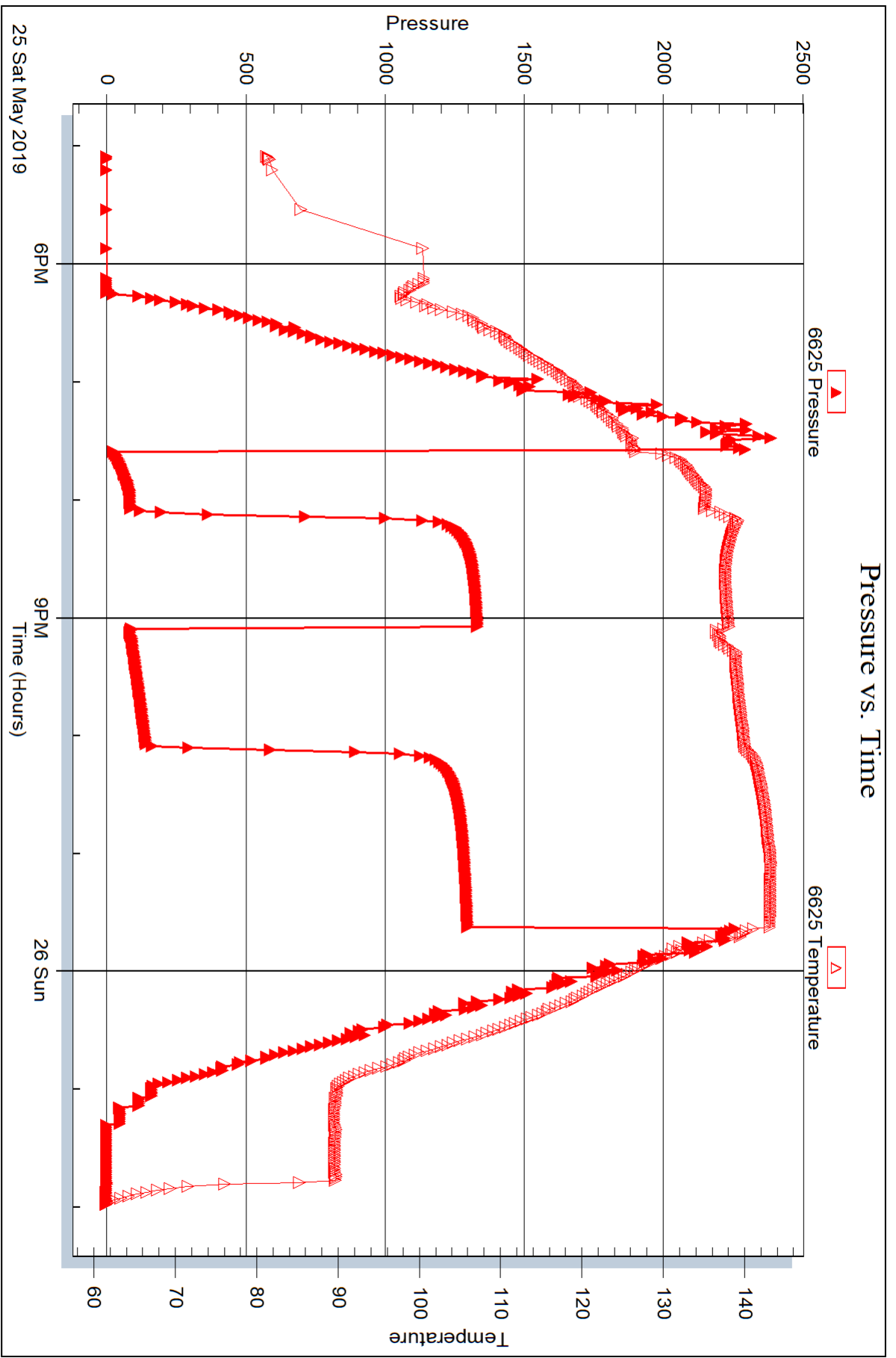
Serial #: 6625

Inside

Murfin Drilling Co., Inc

Banister 'A' #3-22

DST Test Number: 4





DRILL STEM TEST REPORT

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

250 N Water STE 300
Wichita, KS 67202

ATTN: Robert Hendrix

Banister 'A' #3-22

22-2s-37w Cheyenne,KS

Start Date: 2019.05.27 @ 15:03:00

End Date: 2019.05.28 @ 00:13:15

Job Ticket #: 64677 DST #: 5

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

Printed: 2019.05.29 @ 10:31:53



**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' #3-22

ATTN: Robert Hendrix

Job Ticket: 64677

DST#: 5

Test Start: 2019.05.27 @ 15:03:00

GENERAL INFORMATION:

Formation: **Ft. Scott - Celia**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 17:38:30

Time Test Ended: 00:13:15

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 83

Interval: 4708.00 ft (KB) To 4844.00 ft (KB) (TVD)

Reference Elevations: 3416.00 ft (KB)

Total Depth: 4844.00 ft (KB) (TVD)

3411.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8652 Outside

Press@RunDepth: 106.19 psig @ 4709.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.05.27 End Date: 2019.05.28

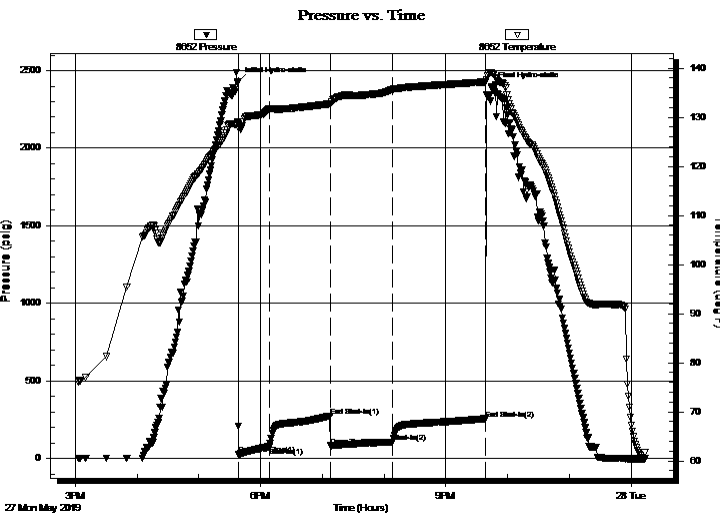
Last Calib.: 2019.05.28

Start Time: 15:03:05 End Time: 00:13:15

Time On Btm: 2019.05.27 @ 17:38:00

Time Off Btm: 2019.05.27 @ 21:44:00

TEST COMMENT: 30 - IF: 1/2" Blow at open, built to 6"
60 - IS: No blow back
60 - FF: Blow built to BOB (11") at 56 min., built to 11 3/4"
90 - FS: Blow back built to 1/8", then died back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2428.31	129.06	Initial Hydro-static
1	24.00	128.52	Open To Flow (1)
31	74.90	131.64	Shut-In(1)
90	273.98	132.71	End Shut-In(1)
90	81.28	132.68	Open To Flow (2)
151	106.19	135.65	Shut-In(2)
241	255.84	137.19	End Shut-In(2)
246	2397.67	139.13	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
200.00	GMCO 57%o, 27%m, 16%g	1.17
20.00	SMCO 92%o, 5%m, 3%g	0.28
0.00	GIP = 145'	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' #3-22

Job Ticket: 64677

DST#: 5

ATTN: Robert Hendrix

Test Start: 2019.05.27 @ 15:03:00

Tool Information

Drill Pipe:	Length: 4503.00 ft	Diameter: 3.80 inches	Volume: 63.17 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: 110000.0 lb
			<u>Total Volume: 64.06 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	4.00 ft			String Weight: Initial 76000.00 lb
Depth to Top Packer:	4708.00 ft			Final 76000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	136.00 ft			
Tool Length:	165.00 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			4680.00	
Shut In Tool	5.00			4685.00	
Hydraulic tool	5.00			4690.00	
Jars	5.00			4695.00	
Safety Joint	3.00			4698.00	
Packer	5.00			4703.00	29.00 Bottom Of Top Packer
Packer	5.00			4708.00	
Stubb	1.00			4709.00	
Recorder	0.00	6625	Inside	4709.00	
Recorder	0.00	8652	Outside	4709.00	
Perforations	34.00			4743.00	
Blank Spacing	97.00			4840.00	
Perforations	1.00			4841.00	
Bullnose	3.00			4844.00	136.00 Bottom Packers & Anchor

Total Tool Length: 165.00



**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' #3-22

Job Ticket: 64677

DST#: 5

ATTN: Robert Hendrix

Test Start: 2019.05.27 @ 15:03:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

36.6 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 54.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.39 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
200.00	GMCO 57%o, 27%m, 16%g	1.166
20.00	SMCO 92%o, 5%m, 3%g	0.281
0.00	GIP = 145'	0.000

Total Length: 220.00 ft Total Volume: 1.447 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

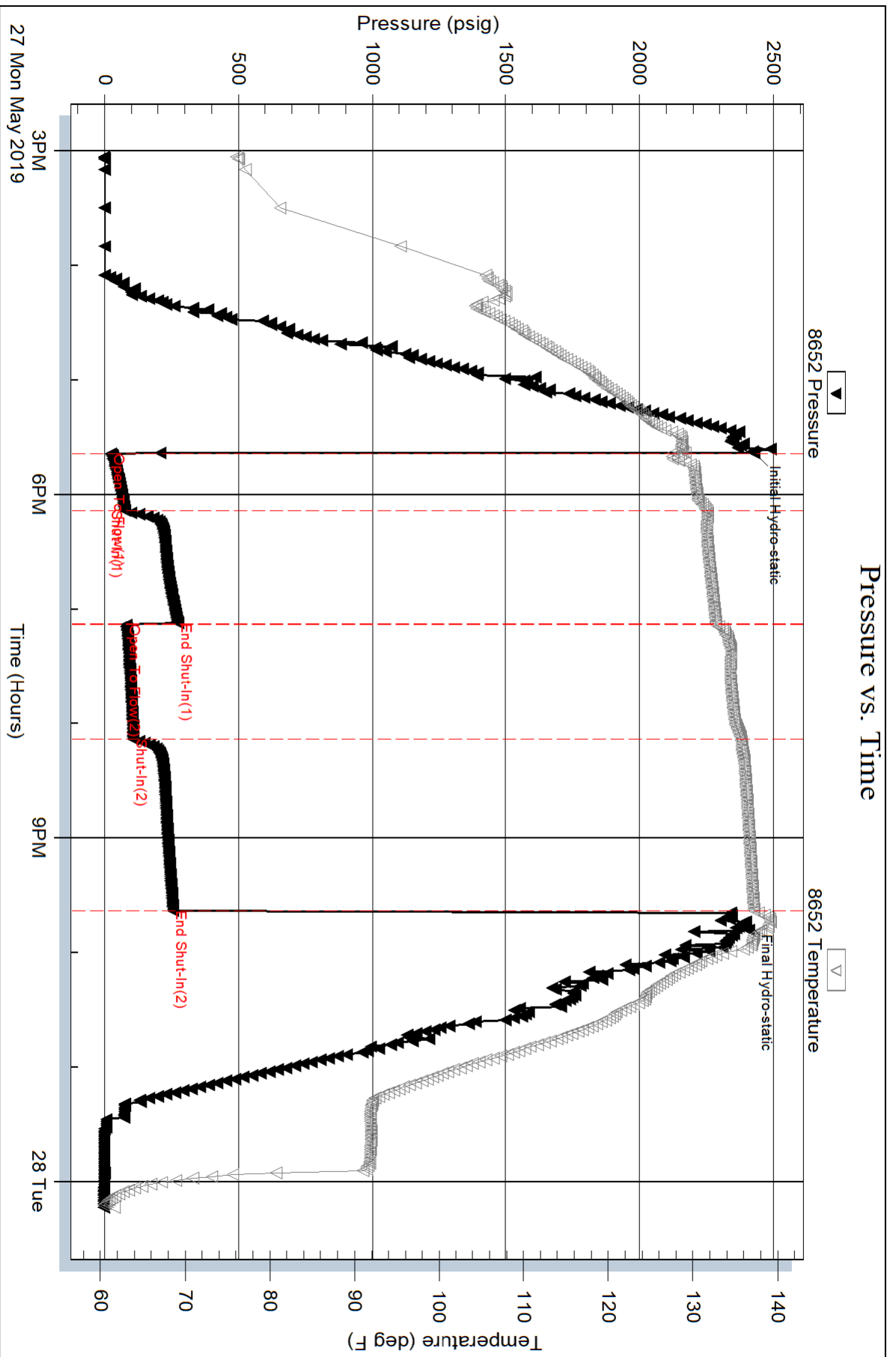
Recovery Comments: Gravity = 37 api @ 64 deg F Corrected Gravity = 36.6 api

Serial #: 8652

Outside Murfin Drilling Co., Inc

Banister A' #3-22

DST Test Number: 5



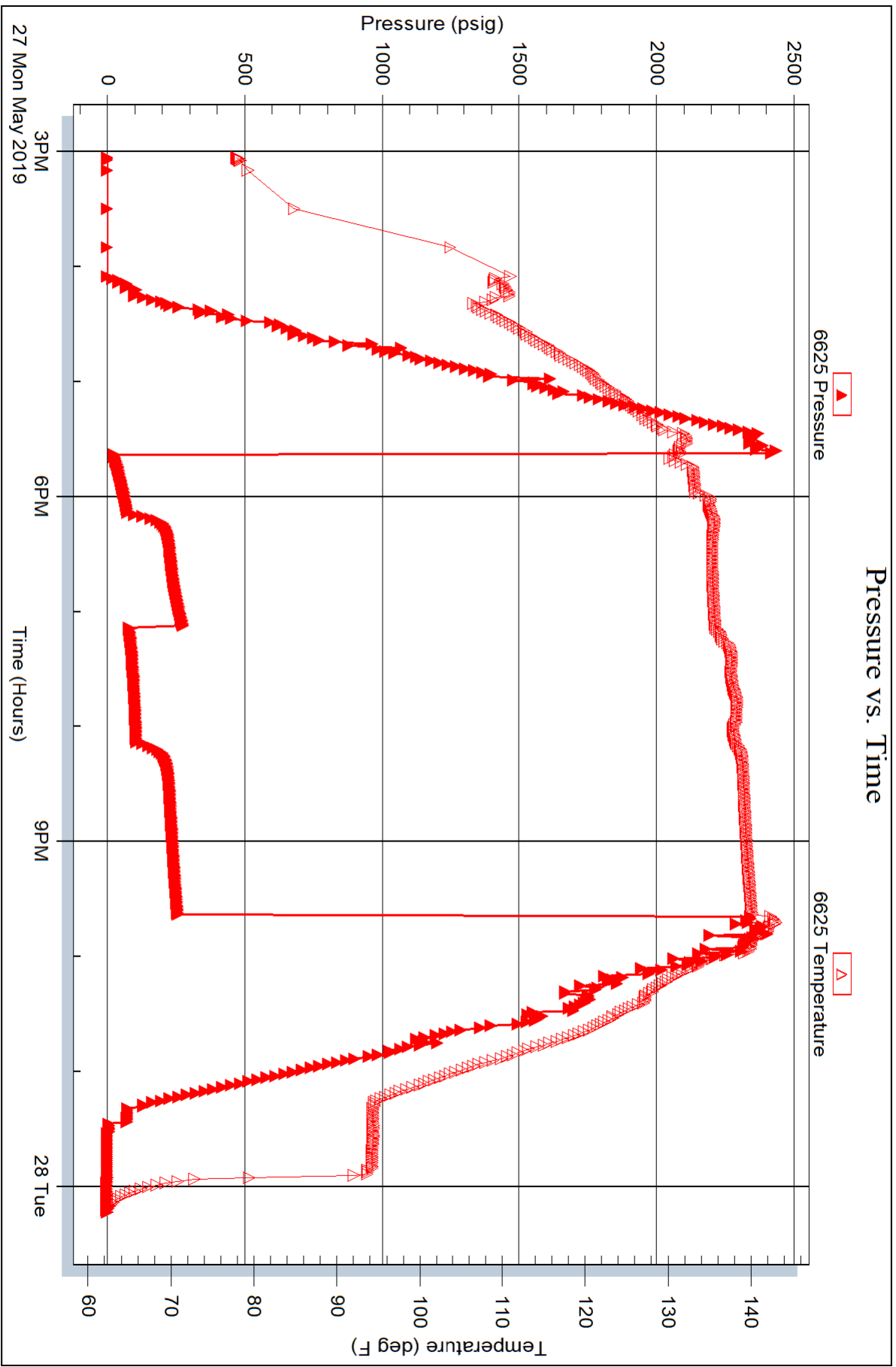
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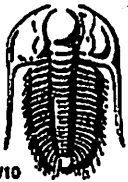
Inside

Murfin Drilling Co., Inc

Banister 'A' #3-22

DST Test Number: 5





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 65373

Well Name & No. Banister 'A' # 3-22 Test No. 1 Date 5-23-19
 Company Murfin Drilling Co. Inc Elevation 3416 KB 3411 GL
 Address 250 N. Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Robert Hendrix Rig Murfin #7
 Location: Sec. 22 Twp 2s Rge. 37w Co. Cheyenne State KS

Interval Tested 4288 - 4370 Zone Tested Lans. "A"
 Anchor Length 82 Drill Pipe Run 4089 Mud Wt. 9.3
 Top Packer Depth 4283 Drill Collars Run 180 Vis 62
 Bottom Packer Depth 4288 Wt. Pipe Run - WL 6.0
 Total Depth 4370 Chlorides 600 ppm System LCM 4
 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

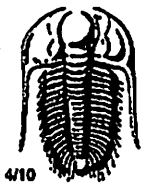
Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>Mud</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 5 BHT 129 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2193 Test 1300 T-On Location 3:30
 (B) First Initial Flow 19 Jars 250 T-Started 5:36
 (C) First Final Flow 21 Safety Joint 75 T-Open 7:47
 (D) Initial Shut-In 374 Circ Sub _____ T-Pulled 10:48
 (E) Second Initial Flow 21 Hourly Standby _____ T-Out 12:45
 (F) Second Final Flow 23 Mileage 118RT 118 Comments _____
 (G) Final Shut-In 354 Sampler _____
 (H) Final Hydrostatic 2101 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 1743 MP/DST Disc't _____

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

Approved By RLS-LLY Our Representative James Winkler
 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. 65374

Well Name & No. Banister 'A' #3-22 Test No. 2 Date 5-24-19
 Company Murfin Drilling Co. Inc Elevation 3416 KB 3411 GL
 Address 250 N. Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Robert Hendrix Rig Murfin #7
 Location: Sec. 22 Twp 2s Rge. 37w Co. Cheyenne State KS

Interval Tested 4358-4426 Zone Tested Lans. "D"
 Anchor Length 68 Drill Pipe Run 4154 Mud Wt. 9.0
 Top Packer Depth 4353 Drill Collars Run 180 Vis 60
 Bottom Packer Depth 4358 Wt. Pipe Run - WL 6.0
 Total Depth 4426 Chlorides 600 ppm System LCM 3

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

Rec	Feet of	%gas	%oil	%water	%mud
<u>10</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 Total 10 BHT 127 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

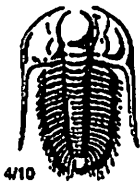
(A) Initial Hydrostatic 2177 Test 1300 T-On Location 23:05 5/23
 (B) First Initial Flow 20 Jars 250 T-Started 23:28
 (C) First Final Flow 23 Safety Joint 75 T-Open 1:17
 (D) Initial Shut-In 627 Circ Sub _____ T-Pulled 5:20
 (E) Second Initial Flow 24 Hourly Standby _____ T-Out 7:30
 (F) Second Final Flow 28 Mileage 118 RT 118 Comments _____
 (G) Final Shut-In 443 Sampler _____
 (H) Final Hydrostatic 2135 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 1743 MP/DST Disc't _____
 Total 1743

Approved By [Signature] Our Representative James Winkler

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 65375

Well Name & No. Banister 'A' #3-22 Test No. 3 Date 5-24-19
 Company Murfin Drilling Co Inc Elevation 3416 KB 3411 GL
 Address 250 N. Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Robert Hendrix Rig Murfin #7
 Location: Sec. 22 Twp 2S Rge. 37W Co. Cheyenne State KS

Interval Tested 4412 - 4476 Zone Tested Lans. "6"
 Anchor Length 64 Drill Pipe Run 4216 Mud Wt. 9.0
 Top Packer Depth 4407 Drill Collars Run 180 Vls 55
 Bottom Packer Depth 4412 Wt. Pipe Run - WL 5.6
 Total Depth 4476 Chlorides 600 ppm System LCM 4
 Blow Description IF: 1/4" Blow at open, built to 1"
ISI: No blowback
FF: Weak surface blow, died back, dead at 20 min.
FSI: No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>40</u>	<u>50cm</u>	<u>8</u>		<u>92</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 40 BHT 130 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2212 Test 1300 T-On Location 16:50 5/24
 (B) First Initial Flow 19 Jars 250 T-Started 18:31
 (C) First Final Flow 27 Safety Joint 75 T-Open 21:00
 (D) Initial Shut-In 58 Circ Sub _____ T-Pulled 00:03
 (E) Second Initial Flow 27 Hourly Standby _____ T-Out 1:55 5/25
 (F) Second Final Flow 30 Mileage 118 RT 118 Comments _____
 (G) Final Shut-In 46 Sampler _____
 (H) Final Hydrostatic 2194 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____

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

Sub Total 1743 MP/DST Disc't _____

Approved By [Signature] Our Representative James Winder
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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 64676

Well Name & No. Banister 'A' #3-22 Test No. 4 Date 5-25-19
 Company Murfin Drilling Co. Inc Elevation 3416 KB 3411 GL
 Address 250 N. Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Robert Hendrix Rig Murfin #7
 Location: Sec. 22 Twp 2s Rge. 37w Co. Cheyenne State KS

Interval Tested 4478-4566 Zone Tested Lans. "H-J"
 Anchor Length 88 Drill Pipe Run 4276 Mud Wt. 9.2
 Top Packer Depth 4473 Drill Collars Run 180 Vis 53
 Bottom Packer Depth 4478 Wt. Pipe Run - WL 6.4
 Total Depth 4566 Chlorides 600 ppm System LCM 4

Blow Description IF: Blow built to BOB (11") at 17 1/2 min., built to 21"
ISI: No blowback

FF: Blow built to BOB at 17 3/4 min., built to 58"

FSI: Blowback built to 3" at 12 min., died back to 2 1/2" at end of close

Rec	Feet of	%gas	%oil	%water	%mud
<u>50</u>	<u>VS MC60</u>	<u>8</u>	<u>91</u>	<u>-</u>	<u>1</u>
<u>295</u>	<u>GMCO</u>	<u>16</u>	<u>55</u>	<u>-</u>	<u>29</u>
<u> </u>	<u>GIP=970'</u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>

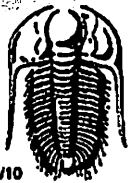
Rec Total 345 BHT 139 Gravity 35 API RW @ °F Chlorides ppm

(A) Initial Hydrostatic 2285 Test 1300 T-On Location 15:40 5/25
 (B) First Initial Flow 22 Jars 250 T-Started 17:05
 (C) First Final Flow 87 Safety Joint 75 T-Open 19:34
 (D) Initial Shut-In 1335 Circ Sub T-Pulled 23:37
 (E) Second Initial Flow 94 Hourly Standby T-Out 1:55 5/26
 (F) Second Final Flow 143 Mileage 118 RT 118 Comments
 (G) Final Shut-In 1299 Sampler
 (H) Final Hydrostatic 2258 Straddle
 Ruined Shale Packer
 Ruined Packer

Initial Open 30 Extra Packer Extra Copies
 Initial Shut-In 60 Extra Recorder Sub Total 0
 Final Flow 60 Day Standby Total 1743
 Final Shut-In 90 Accessibility MP/DST Disc't
 Sub Total 1743

Approved By [Signature] Our Representative James Winder

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 64677

Well Name & No. Banister 'A' #3-22 Test No. 5 Date 5-27-19
 Company Murfin Drilling Co. Inc Elevation 3416 KB 3411 GL
 Address 250 N. Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Robert Hendrix Rig Murfin #7
 Location: Sec. 22 Twp 2S Rge. 37W Co. Cheyenne State KS

Interval Tested 4708-4844 Zone Tested Ft Scott - Celia
 Anchor Length 136 Drill Pipe Run 4503 Mud Wt. 9.4
 Top Packer Depth 4703 Drill Collars Run 180 Vis 54
 Bottom Packer Depth 4708 Wt. Pipe Run - WL 6.4
 Total Depth 4844 Chlorides 600 ppm System LCM 4

Blow Description IF: 1/2" Blow at open, built to 6"
ISI: No blowback

FF: Blow built to BOB (11') at 56 min, built to 11 3/4"

FSI: Blowback built to 1/8" then died back

Rec	Feet of	%gas	%oil	%water	%mud
<u>20</u>	<u>SMCO</u>	<u>3</u>	<u>92</u>	<u>5</u>	<u>5</u>
<u>200</u>	<u>GMCO</u>	<u>16</u>	<u>57</u>	<u>27</u>	<u>27</u>
<u>Rec</u>	<u>Feet of</u>	<u>%gas</u>	<u>%oil</u>	<u>%water</u>	<u>%mud</u>
<u>Rec</u>	<u>Feet of</u>	<u>%gas</u>	<u>%oil</u>	<u>%water</u>	<u>%mud</u>
<u>Rec</u>	<u>Feet of</u>	<u>%gas</u>	<u>%oil</u>	<u>%water</u>	<u>%mud</u>

Rec Total 220 BHT 137 Gravity 26.6 API RW @ °F Chlorides ppm

(A) Initial Hydrostatic 2428 Test 1300 T-On Location 14:05 5/27
 (B) First Initial Flow 24 Jars 250 T-Started 15:03
 (C) First Final Flow 75 Safety Joint 75 T-Open 17:38
 (D) Initial Shut-In 274 Circ Sub _____ T-Pulled 21:38
 (E) Second Initial Flow 81 Hourly Standby _____ T-Out 00:10 5/28
 (F) Second Final Flow 106 Mileage 118 RT 118 Comments _____
 (G) Final Shut-In 256 Sampler _____
 (H) Final Hydrostatic 2398 Straddle _____

Initial Open 30 Shale Packer _____ Ruined Shale Packer _____
 Initial Shut-In 60 Extra Packer _____ Ruined Packer _____
 Final Flow 60 Extra Recorder _____ Extra Copies _____
 Final Shut-In 90 Day Standby _____ Sub Total 0
 Total 1743
 Sub Total 1743 MP/DST Disc't _____

Approved By [Signature] Our Representative [Signature]
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