

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	ANTHOLZ 'B' 1-22
Doc ID	1456472

All Electric Logs Run

DIL
DUCP
MEL
BHCS

MDCI
 Antholz 'B' #1-22
 2310' FNL 2310' FEL
 Sec. 22-2S-37W
 3415' KB

Formation	Sample top	Datum	Ref	Log tops	Datum	Ref
Anhydrite	3288	+127	+5	3293	+122	Flat
B/Anhydrite	3322	+93	+3	3329	+86	-4
Topeka	4116	-701	-4	4119	-704	-7
Oread	4256	-841	-2	4260	-845	-6
Lansing	4330	-915	-2	4338	-923	-10
Stark	4556	-1141	Flat	4566	-1151	-10
Mound City	4613	-1198	-7	4614	-1199	-8
Ft Scott	4739	-1324	-7	4744	-1329	-12
Oakley	4818	-1403	-11	4814	-1399	-7
RTD	4950					
LTD				4948		



CEMENT TREATMENT REPORT			
Customer:	Murfin Drilling INC	Well:	Antholz B 1-22
City, State:	McDonald,KS	County:	Cheyenne,KS
Field Rep:	Jay	S.T.R.:	22-2S-37W
		Tickets:	ICT1709
		Date:	1/7/2019
		Service:	Cement

Downhole Information	
Hole Size:	12.25
Hole Depth:	302
Casing Size:	8.625
Casing Depth:	302
Tubing / Liner:	In
Depth:	ft
Tool / Packer:	
Depth:	302
Displacement:	18BBL

Slurry	
Weight:	14.8 # / sx
Water / Sx:	6.88
Yield:	1.41
Bbls / Ft.:	0.064
Depth:	ft
Volume:	bbls
Excess:	125
Total Slurry:	71.6
Total Sacks:	285 sx

Cement Blend		
Product	%	#
Class A	100.0	26790
Gel	2.0	536
CaCl	3.0	804
Matsc		
KolSeal		
PhenoSeal	0.3	72
Salt		
Total		28,202

TIME	RATE	PSI	BBLs	REMARKS	TIME	RATE	PSI	BBLs	REMARKS
7:15 PM				Arrive on location					
7:30 PM				Hold Safety meeting					
7:45 PM				Rig up equipment					
8:30 PM				Start running casing					
9:00 PM				Casing on bottom					
9:10 PM				Rig circulates					
9:20 PM	3.0	100.0	15.0	Water ahead					
9:30 PM	4.4	300.0	71.6	Mix 285 sacks at 14.8ppg, 1.41 yield					
9:46 PM	4.0	200.0		Displace					
9:46 PM		100.0	18.0	Shut in well					
10:00 PM				Wash up equipment					
10:30 PM				Depart location					
				10 bbls cement to surface					
				Centralizers on joints 1-4-6					

CREW		UNIT	SUMMARY		
Cementer:	Miles Shaw	73.0	Average Rate	Average Pressure	Total Fluid
Pump Operator:	Paul Williams	267.6	3.8 bpm	175.00 psi	104.80 bbls
Bulk #1:	Alan Ryan				
Bulk #2:	John Polly				

Hurricane Services, Inc.
250 N. Water
Wichita, KS 67202



CEMENT TREATMENT REPORT

Customer:	Murfin Drilling INC	Well:	Antholz B 1-22	Ticket:	ICT1726
City, State:	McDonald,KS	County:	Cheyenne,KS	Date:	1/17/2019
Field Rep:	Nathan Witt	S-T-R:	22-2S-37W	Service:	Cementing

Downhole Information	
Hole Size:	7.875
Hole Depth:	4950
Casing Size:	5.5
Casing Depth:	4944
Tubing / Liner:	
Depth:	
Tool / Packer:	
Depth:	
Displacement:	117

Slurry		
Weight:	12/14.5	# / sx
Water / Sk:	15.46/7.41	gal / sx
Yield:	2.56/1.63	ft ³ / sx
Bbls / Ft.:	0.0238	
Depth:		ft
Volume:		bbls
Excess:		%
Total Slurry:		206
Total Sacks:		525

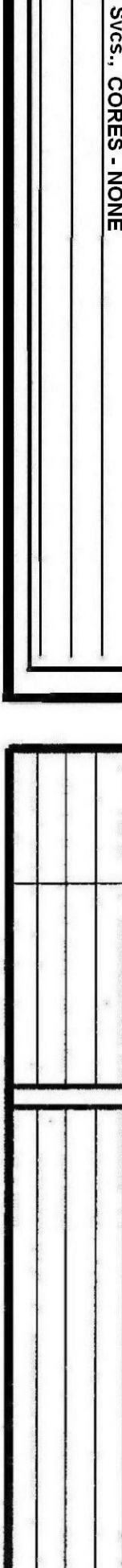
Cement Blend		
Product	%	#
Class A	100.0	49350
Gel		
CaCl	3.0	917
Metso	2.0	611
KoSeal	5#/SX	1000
PhenoSeal	.25#/SX	130
Salt	10.0	1234

TIME	RATE	PSI	BBLs	REMARKS	TIME	RATE	PSI	BBLs	REMARKS
9PM				ARRIVED					
9:10 PM				SAFETY MEET					
9:16 PM				RIG UP					
10:20 PM				RUN CASING					
				TURBOLIZERS ON JNTS 1-13,34, 44					
				BASKETS JNTS 11, 35, 45					
				SHOE JOINT INSERT @ 4922					
12:30 AM				RIG UP HEAD & MANIFOLD					
2:10AM	5.0	400.0	148.0	MIX 323SX H CON YIELD 2.56					
2:40 AM	5.0	400.0	58.0	MIX 200SX H BOND YIELD 1.83					
3:20AM	6.5	600.0		DISPLACE					
3:50AM		1,100.0		END DISPLACE					
3:50AM		2,300.0		FINAL PRESSURES					
4:15AM				RIG DOWN					
4:45AM				DEPART					
				EMENT TO SURFACE 4 BARRELS TO P					

Total 53,242

CREW	UNIT
Cementer: MILES SHAW/TRAVIS WILLIAMS	73/282
Pump Operator: JOSH MOSIER	267
Bulk #1: ALAN RYAN	181/254
Bulk #2: JOHN POLLY	182/256

SUMMARY		
Average Rate	Average Pressure	Total Fluid
5.5 bpm	960.00 psi	206.00 bbls



LeBlanc
Petroleum Geologist

2349 North Stonebrook Court
Wichita, Kansas 67228-3804
(316) 450-0195
API: 15-023-21504-0000

GEOLOGICAL REPORT

2349 North Stonebrook Court
Wichita, Kansas 67228-3804
(316) 450-0195
API: 15-023-21504-0000

SECTION 22 TOWNSHIP 2S RANGE 37W

COUNTY Cheyenne STATE Kansas

CONTRACTOR Murfin Drilling, Inc.

COMMENCED DRILLING Monday, January 8, 2019

COMPLETED DRILLING Thursday, January 17, 2019

RTD 4950 FEET LTO 4848 FEET

MUD UP AT 3600 FEET MUD TYPE Chemical

SAMLES SAVED FROM 4000 FEET TO 4850 FEET

DRILLING TIME FROM 3290 FEET TO 4850 FEET

GENERAL EXAMINATION FROM 4000 FEET TO 4850 FEET

GEOLOGICAL SUPERVISION FROM 3150 FEET TO 4950 FEET

NOTES Mud System - Morgan Mud, Surface Casing Cement - Hurricane Stone, Water - Hardened, Fuel - Baiting Fuel, Drill Stem Traps - Titanium TSIG, Gas Detector - NONE, Logging - Pioneer Well Svc., Road Casing Cement - Hurricane Stone, CORES - NONE

FIELD KEN SE

LEASE Antholz B 1-22

COMPANY Murfin Drilling Co., Inc. (30860)

ELEVATIONS

KB 3415 FEET

DF 3415 FEET

GL 3410 FEET

MEASUREMENTS

CASING

8.58" at 302'

5.27" at 484'

5-1/2" at 484'

5-1/2" at 484'

Remarks: The Murfin Drilling Antholz B 1-22 was filled as a development well to the recently discovered NEN STV Pool. The NEN STV Pool produces from multiple pay zones in the Lansing-Kansas City Group. The MDC Antholz B 1-22 ran low on offsetting production but centered slowness on and gas in all the equipment pay intervals as defined in the offset.

SEVEN (7) DSTS, two of which were MDC-SUNs contained ALL SIGNIFICANT SHOWS OF OIL. Varying results stemmed from DSTS with NO WATER INDICATED in any of the recovered formation fluids.

Ken LeBlanc

Daily Penetration

Date	Depth	Number	Size	Make	Type	Depth	Feet	Hours
1-07-19	WMT 1/4" by 3/4" Stud	1	12-1/4"	HTC	Open	302	23/4	
1-08-19	ROD 5/8" x 2-5/8"	2	2-7/8"	SMITH	ROD	388	38/4	
1-08-19	ROD 5/8" x 2-5/8"	3	2-7/8"	SMITH	ROD	426	37/4	
1-08-19	ROD 5/8" x 2-5/8"	3	2-7/8"	SMITH	ROD	460	37/4	
1-08-19	ROD 5/8" x 2-5/8"	3	2-7/8"	SMITH	ROD	490	37/4	

Bit Record

Formation	Sample top	Datum	Top tons	Datum
Anhydrite	3288	+ 127	3294	+ 121
B/Anhydrite	3322	+ 93	3328	+ 87
Topekka	4116	- 701	4120	- 705
Oread	4254	- 839	4261	- 846
Lansing	4330	- 915	4338	- 923
Stark	4556	- 1141	4566	- 1151
Mound City	4613	- 1198	4614	- 1199
FT Scott	4739	- 1324	4744	- 1329
Oakley	4818	- 1403	4817	- 1402
Mississippian	NDE			
RTD	4950	- 1535		
LTD	4948	- 1533		

Formation Tops

Sample	Corrected	Electric	Sulphur
Base Surface Casing	302	306	
For Anhydrite	3288	3293	+122
Base Anhydrite	3322	3329	-86
Base Topekka	4116	4120	-704
Oread LS	4256	4261	-845
Lansing	4338	4338	-923
Stark Shale	4556	4566	-1199
Mound City	4613	4614	-1329
Oakley	4744	4744	-1399
Mississippian	4814	4814	-1533
LTD	4950	4950	-1533



LeBlanc Petroleum Geologist
API: 15-023-21504-0000
Murfin Drilling Company, Inc.
Antholz B 1-22
2310 FNL & 2310 FEL
Sec. 22-T2S-R37W
Cheyenne County, Kansas
KB 3415

FIELD REPORT

Lithology Legend

- shales (grey)
- chert (blue)
- maroon (red)
- green (green)
- limestone (light blue)
- dolomite (yellow)
- sandstone (orange)
- black shales (black)

MDCI Antholz B-1-22 2310 FNL & 2310 FEL Sec. 22-T2S-R37W 3415 KB

Formation	Sample top	Datum	Top tons	Datum
Anhydrite	3288	+ 127	3294	+ 121
B/Anhydrite	3322	+ 93	3328	+ 87
Topekka	4116	- 701	4120	- 705
Oread	4254	- 839	4261	- 846
Lansing	4330	- 915	4338	- 923
Stark	4556	- 1141	4566	- 1151
Mound City	4613	- 1198	4614	- 1199
FT Scott	4739	- 1324	4744	- 1329
Oakley	4818	- 1403	4817	- 1402
Mississippian	NDE			
RTD	4950	- 1535		
LTD	4948	- 1533		

Morgan Mud at 302'
WT: -. VIS: -
WL: -. CHL: -
LCM: #0

Morgan Mud at 2450'
WT: 8.0, VIS: 36
WL: NC, CHL: NC
LCM: 4.0#

Morgan Mud at 3888'
WT: 8.7, VIS: 422
WL: 6.0, CHL: 600
LCM: #4

Morgan Mud at 4220'
WT: 8.0, VIS: 52
WL: NC, CHL: 600
LCM: #4

Morgan Mud at 4420'
WT: 9.2, VIS: 60
WL: 5.5, CHL: 600
LCM: #4

Morgan Report at 4387'
WT: 9.0, VIS: 62
WL: 5.5, CHL: 600
LCM: #4
Short Trip 20 stands at 4387'
Pipe Strip at 4387'
149' long to board
SHT at 4387' - 14 deg

Morgan Report at 4420'
WT: 9.2, VIS: 60
WL: 5.5, CHL: 600
LCM: #4

Morgan Report at 4480'
WT: 8.0, VIS: 57
WL: 5.6, CHL: 600
LCM: #4

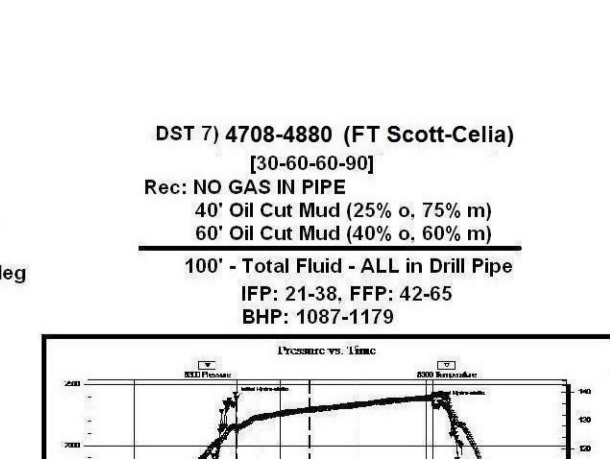
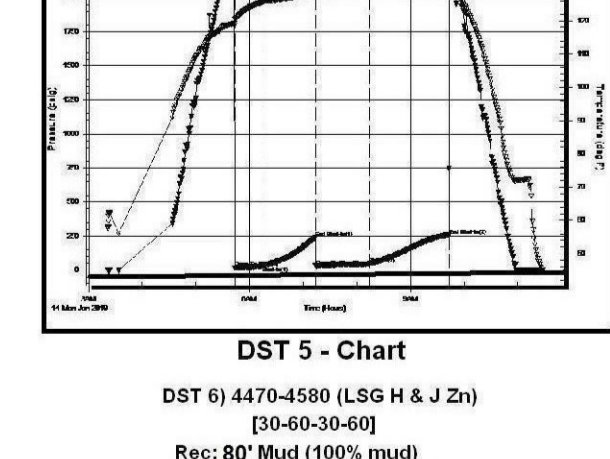
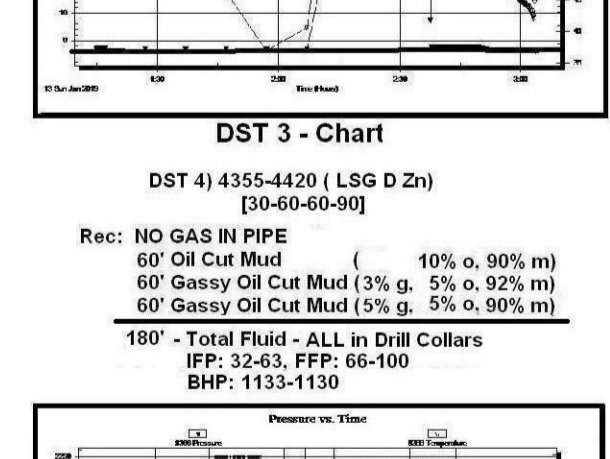
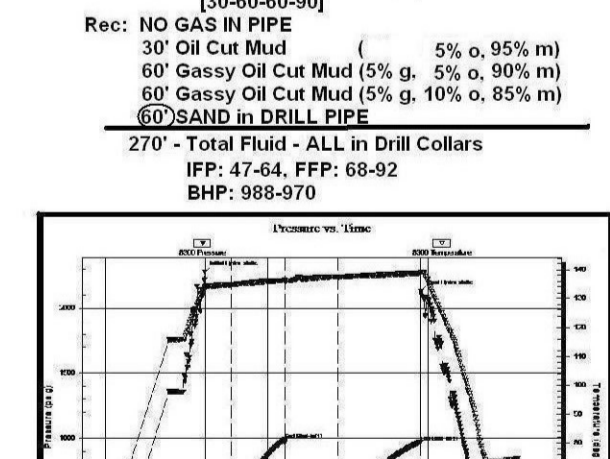
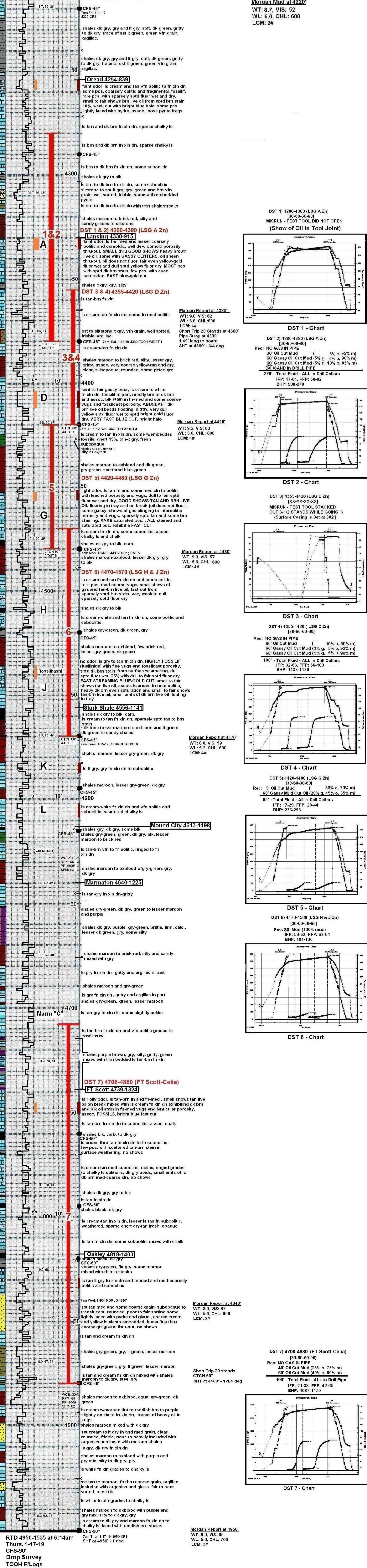
Morgan Report at 4570'
WT: 8.8, VIS: 59
WL: 5.2, CHL: 600
LCM: #4

Morgan Report at 4888'
WT: 8.0, VIS: 55
WL: 5.6, CHL: 600
LCM: #4
Short Trip 30 stands
CTCH 60'
SHT at 4880' - 1-1/4 deg

Morgan Report at 4950'
WT: 8.8, VIS: 700
WL: 5.6, CHL: 700
LCM: #4

Drop Surveys
TOOH F/Logs
Pioneer Well Svc. logging off bottom at 9:45am to 4944' for further evaluation

Run 5-1/2" - 155# prod. csg. to 4944' for further evaluation





DRILL STEM TEST REPORT

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

250 N. Water STE 300
Wichita KS 67202

ATTN: Ken LeBlanc

Antholz B #1-22

22-2S-37W

Start Date: 2019.01.12 @ 00:20:00

End Date: 2019.01.12 @ 07:48:50

Job Ticket #: 63574 DST #: 1

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

Printed: 2019.01.17 @ 14:30:04

Murfin Drilling Co. Inc
22-2S-37W
Antholz B #1-22
DST # 1
LKC " A "
2019.01.12



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co. Inc
 250 N. Water STE 300
 Wichita KS 67202
 ATTN: Ken LeBlanc

22-2S-37W

Antholz B #1-22

Job Ticket: 63574 **DST#: 1**
 Test Start: 2019.01.12 @ 00:20:00

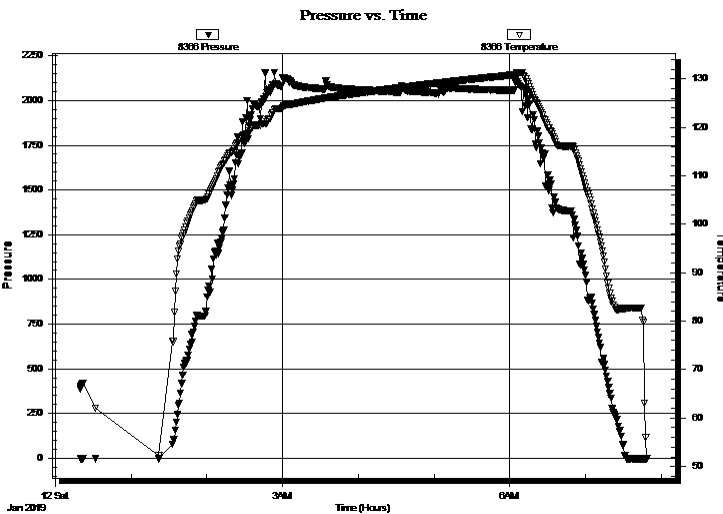
GENERAL INFORMATION:

Formation: LKC " A "	Test Type: Conventional Bottom Hole (Initial)
Deviated: No Whipstock: ft (KB)	Tester: Ryan Nichols
Time Tool Opened:	Unit No: 71
Time Test Ended: 07:48:50	Reference Elevations: 3415.00 ft (KB)
Interval: 4280.00 ft (KB) To 4380.00 ft (KB) (TVD)	3410.00 ft (CF)
Total Depth: 4380.00 ft (KB) (TVD)	KB to GR/CF: 5.00 ft
Hole Diameter: 7.88 inches	Hole Condition: Fair

Serial #: 8366	Outside	Capacity: 8000.00 psig
Press@RunDepth: psig @ 4281.00 ft (KB)	Start Date: 2019.01.12	End Date: 2019.01.12
Start Time: 00:20:01	End Time: 07:48:50	Last Calib.: 2019.01.12
		Time On Btm:
		Time Off Btm:

TEST COMMENT: 30 IF - Weak surface blow
 60 ISI - No return
 30 FF - No blow
 60 FSI - No return

MISSRUN TOOL NEVER OPENED



PRESSURE SUMMARY

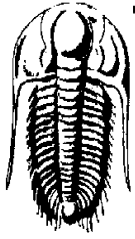
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

Recovery

Length (ft)	Description	Volume (bbl)
0.00	Oil in tool	0.00

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: Ken LeBlanc

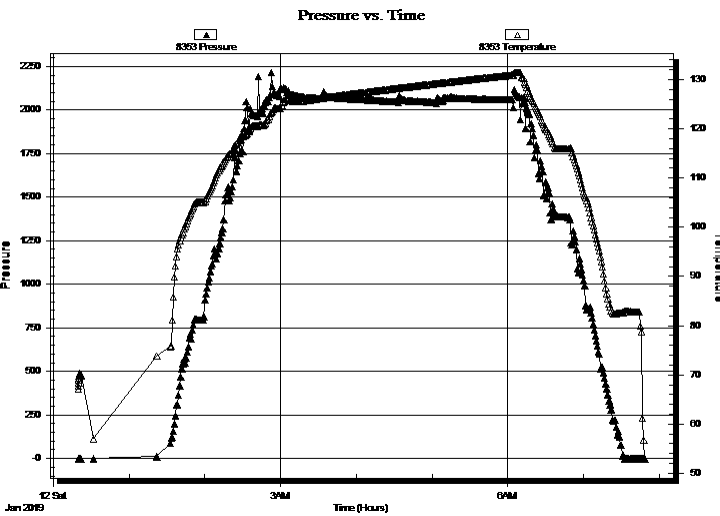
22-2S-37W
Antholz B #1-22
Job Ticket: 63574 **DST#: 1**
Test Start: 2019.01.12 @ 00:20:00

GENERAL INFORMATION:

Formation: **LKC " A "**
 Deviated: No Whipstock: ft (KB) Test Type: Conventional Bottom Hole (Initial)
 Time Tool Opened: Tester: Ryan Nichols
 Time Test Ended: 07:48:50 Unit No: 71
 Interval: **4280.00 ft (KB) To 4380.00 ft (KB) (TVD)** Reference Elevations: 3415.00 ft (KB)
 Total Depth: 4380.00 ft (KB) (TVD) 3410.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 5.00 ft

Serial #: 8353 Inside
 Press@RunDepth: psig @ 4281.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.01.12 End Date: 2019.01.12 Last Calib.: 2019.01.12
 Start Time: 00:20:01 End Time: 07:48:40 Time On Btm:
 Time Off Btm:

TEST COMMENT: 30 IF - Weak surface blow
 60 ISI - No return
 30 FF - No blow
 60 FSI - No return
MISSRUN TOOL NEVER OPENED



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
0.00	Oil in tool	0.00

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

250 N. Water STE 300
Wichita KS 67202

Antholz B #1-22

Job Ticket: 63574

DST#: 1

ATTN: Ken LeBlanc

Test Start: 2019.01.12 @ 00:20:00

Tool Information

Drill Pipe:	Length: 4071.00 ft	Diameter: 3.80 inches	Volume: 57.11 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 206.00 ft	Diameter: 2.25 inches	Volume: 1.01 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 58.12 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	25.00 ft			String Weight: Initial 64000.00 lb
Depth to Top Packer:	4280.00 ft			Final 64000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	100.00 ft			
Tool Length:	128.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

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

Shut In Tool	5.00			4257.00	
Hydraulic tool	5.00			4262.00	
Jars	5.00			4267.00	
Safety Joint	3.00			4270.00	
Packer	5.00			4275.00	28.00 Bottom Of Top Packer
Packer	5.00			4280.00	
Stubb	1.00			4281.00	
Recorder	0.00	8353	Inside	4281.00	
Recorder	0.00	8366	Outside	4281.00	
Perforations	30.00			4311.00	
Blank Spacing	66.00			4377.00	
Bullnose	3.00			4380.00	100.00 Bottom Packers & Anchor

Total Tool Length: 128.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co. Inc

22-2S-37W

250 N. Water STE 300
Wichita KS 67202

Antholz B #1-22

Job Ticket: 63574

DST#: 1

ATTN: Ken LeBlanc

Test Start: 2019.01.12 @ 00:20:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 52.00 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
0.00	Oil in tool	0.000

Total Length:

ft

Total Volume:

bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

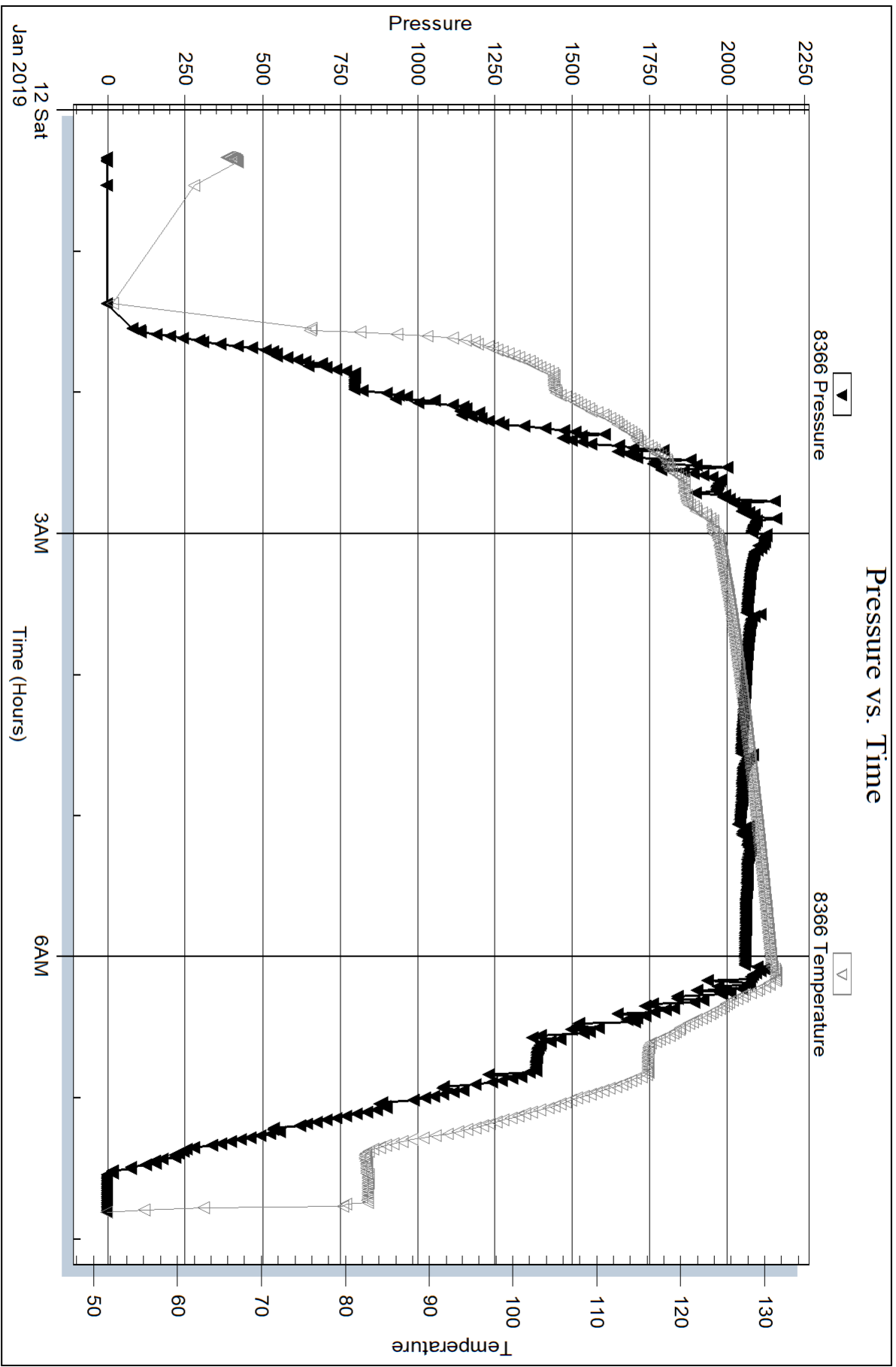
Recovery Comments:

Serial #: 8366

Outside Murfin Drilling Co. Inc

Antholz B #1-22

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 63574

Printed: 2019.01.17 @ 14:30:05

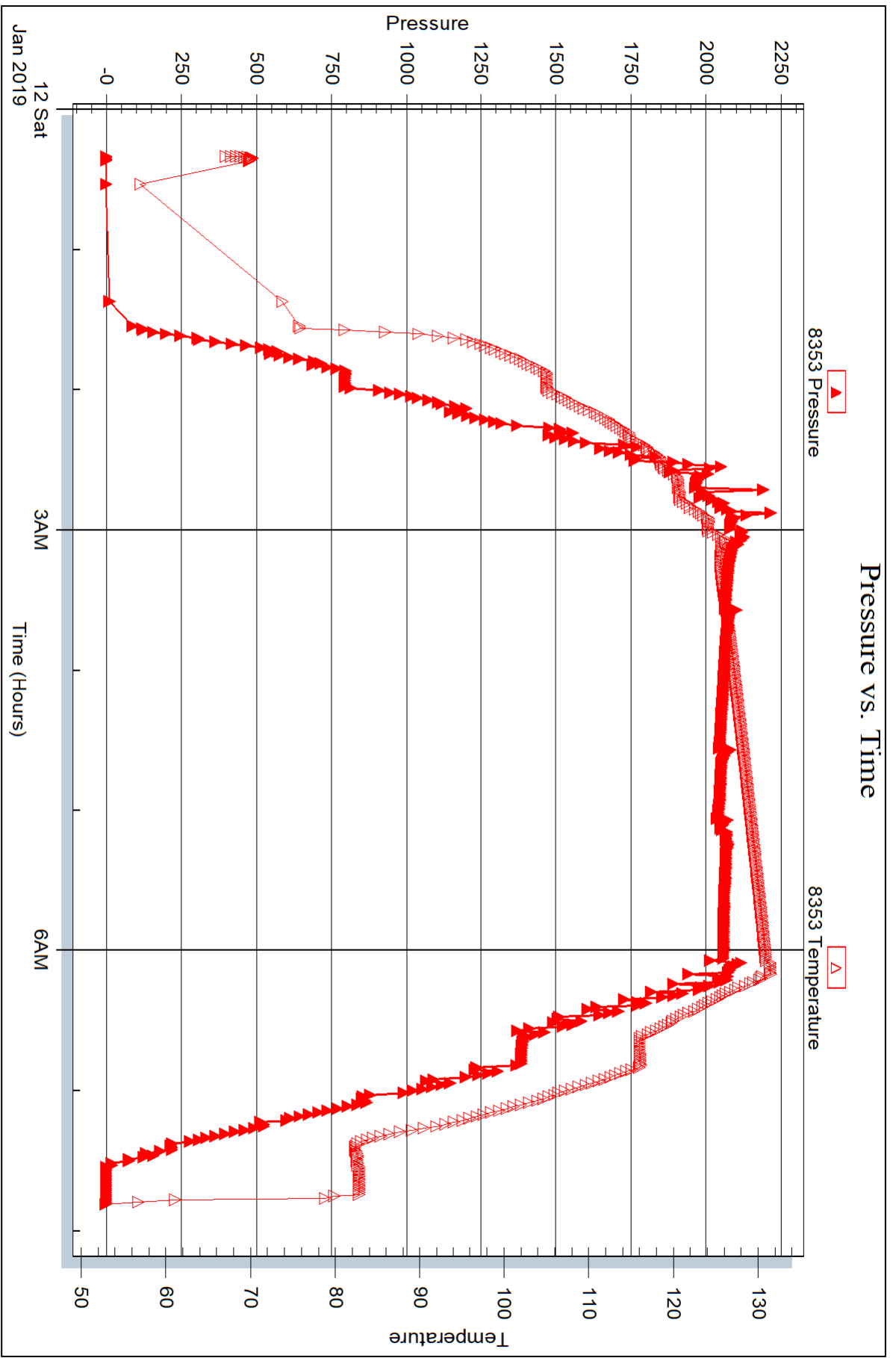
Serial #: 8353

Inside

Murfin Drilling Co. Inc

Antholz B #1-22

DST Test Number: 1





DRILL STEM TEST REPORT

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

250 N. Water STE 300
Wichita KS 67202

ATTN: Ken LeBlanc

Antholz B #1-22

22-2S-37W

Start Date: 2019.01.12 @ 08:58:00

End Date: 2019.01.12 @ 17:05:20

Job Ticket #: 63575 DST #: 2

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

Printed: 2019.01.17 @ 14:29:42

Murfin Drilling Co. Inc
22-2S-37W
Antholz B #1-22
DST # 2
LKC " A "
2019.01.12



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co. Inc
 250 N. Water STE 300
 Wichita KS 67202
 ATTN: Ken LeBlanc

22-2S-37W

Antholz B #1-22

Job Ticket: 63575

DST#: 2

Test Start: 2019.01.12 @ 08:58:00

GENERAL INFORMATION:

Formation: **LKC " A "**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 10:50:30
 Time Test Ended: 17:05:20
 Interval: **4280.00 ft (KB) To 4380.00 ft (KB) (TVD)**
 Total Depth: 4380.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Ryan Nichols
 Unit No: 71
 Reference Elevations: 3415.00 ft (KB)
 3410.00 ft (CF)
 KB to GR/CF: 5.00 ft

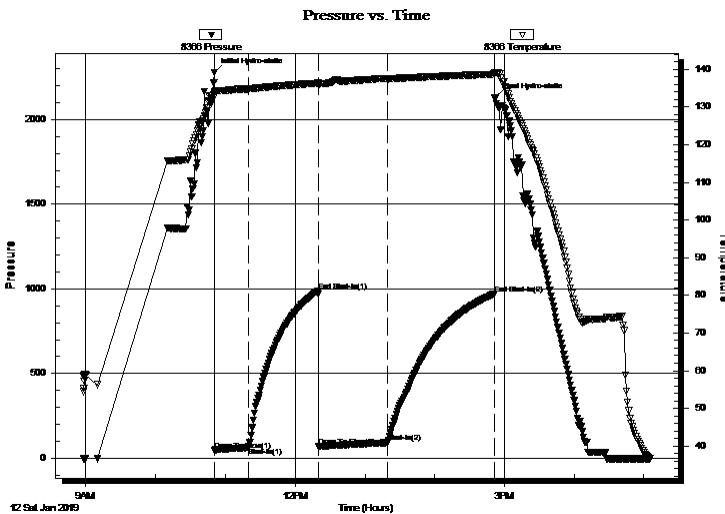
Serial #: 8366

Outside

Press@RunDepth: 91.81 psig @ 4281.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.01.12 End Date: 2019.01.12 Last Calib.: 2019.01.12
 Start Time: 08:58:01 End Time: 17:05:20 Time On Btm: 2019.01.12 @ 10:50:20
 Time Off Btm: 2019.01.12 @ 14:51:50

TEST COMMENT: 30 IF - Slid 3' to bottom 2 1/4" surge built to 5"
 60 ISI - No return
 60 FF - Blow built to 1 1/2"
 90 FSI - No return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2277.49	133.82	Initial Hydro-static
1	47.17	132.89	Open To Flow (1)
30	63.51	134.74	Shut-In(1)
90	988.44	136.30	End Shut-In(1)
90	68.33	135.77	Open To Flow (2)
150	91.81	137.42	Shut-In(2)
241	970.00	138.69	End Shut-In(2)
242	2129.08	139.17	Final Hydro-static

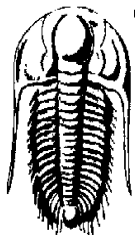
Recovery

Length (ft)	Description	Volume (bbl)
60.00	GOCM - 5%G - 10%o - 85%M	0.30
60.00	GOCM - 5%G - 5%o - 90%M	0.30
30.00	OCM - 5%o - 95%M	0.15

* 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

250 N. Water STE 300
Wichita KS 67202

Antholz B #1-22

Job Ticket: 63575

DST#: 2

ATTN: Ken LeBlanc

Test Start: 2019.01.12 @ 08:58:00

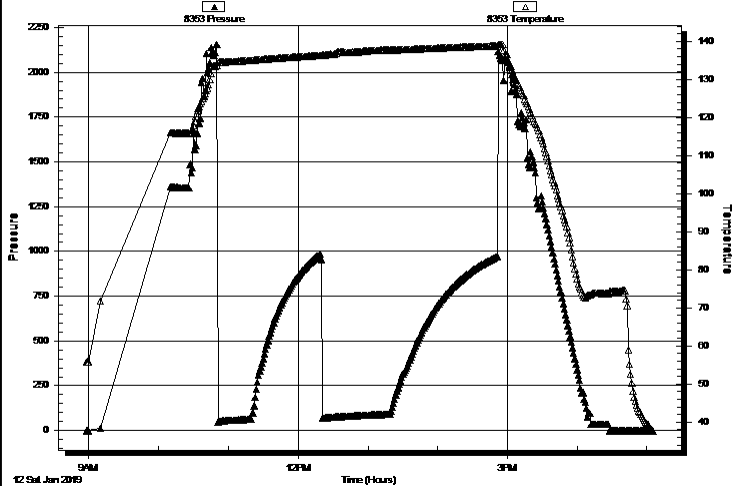
GENERAL INFORMATION:

Formation: **LKC " A "**
Deviated: No Whipstock: ft (KB) Test Type: Conventional Bottom Hole (Reset)
Time Tool Opened: 10:50:30 Tester: Ryan Nichols
Time Test Ended: 17:05:20 Unit No: 71
Interval: **4280.00 ft (KB) To 4380.00 ft (KB) (TVD)** Reference Elevations: 3415.00 ft (KB)
Total Depth: 4380.00 ft (KB) (TVD) 3410.00 ft (CF)
Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 5.00 ft

Serial #: 8353 Inside
Press@RunDepth: psig @ 4281.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2019.01.12 End Date: 2019.01.12 Last Calib.: 2019.01.12
Start Time: 08:58:01 End Time: 17:05:10 Time On Btm:
Time Off Btm:

TEST COMMENT: 30 IF - Slid 3' to bottom 2 1/4" surge built to 5"
60 ISI - No return
60 FF - Blow built to 1 1/2"
90 FSI - No return

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
60.00	GOCM - 5%G - 10%O - 85%M	0.30
60.00	GOCM - 5%G - 5%O - 90%M	0.30
30.00	OCM - 5%O - 95%M	0.15

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

250 N. Water STE 300
Wichita KS 67202

Antholz B #1-22

Job Ticket: 63575

DST#: 2

ATTN: Ken LeBlanc

Test Start: 2019.01.12 @ 08:58:00

Tool Information

Drill Pipe:	Length: 4071.00 ft	Diameter: 3.80 inches	Volume: 57.11 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 206.00 ft	Diameter: 2.25 inches	Volume: 1.01 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 58.12 bbl</u>	Tool Chased 3.00 ft
Drill Pipe Above KB:	25.00 ft			String Weight: Initial 54000.00 lb
Depth to Top Packer:	4280.00 ft			Final 56000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	100.00 ft			
Tool Length:	128.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

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

Shut In Tool	5.00			4257.00	
Hydraulic tool	5.00			4262.00	
Jars	5.00			4267.00	
Safety Joint	3.00			4270.00	
Packer	5.00			4275.00	28.00 Bottom Of Top Packer
Packer	5.00			4280.00	
Stubb	1.00			4281.00	
Recorder	0.00	8353	Inside	4281.00	
Recorder	0.00	8366	Outside	4281.00	
Perforations	30.00			4311.00	
Blank Spacing	66.00			4377.00	
Bullnose	3.00			4380.00	100.00 Bottom Packers & Anchor

Total Tool Length: 128.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co. Inc

22-2S-37W

250 N. Water STE 300
Wichita KS 67202

Antholz B #1-22

Job Ticket: 63575

DST#: 2

ATTN: Ken LeBlanc

Test Start: 2019.01.12 @ 08:58:00

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: 5.58 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
60.00	GOCM - 5%G - 10%o - 85%M	0.295
60.00	GOCM - 5%G - 5%o - 90%M	0.295
30.00	OCM - 5%o - 95%M	0.148

Total Length: 150.00 ft Total Volume: 0.738 bbl

Num Fluid Samples: 0

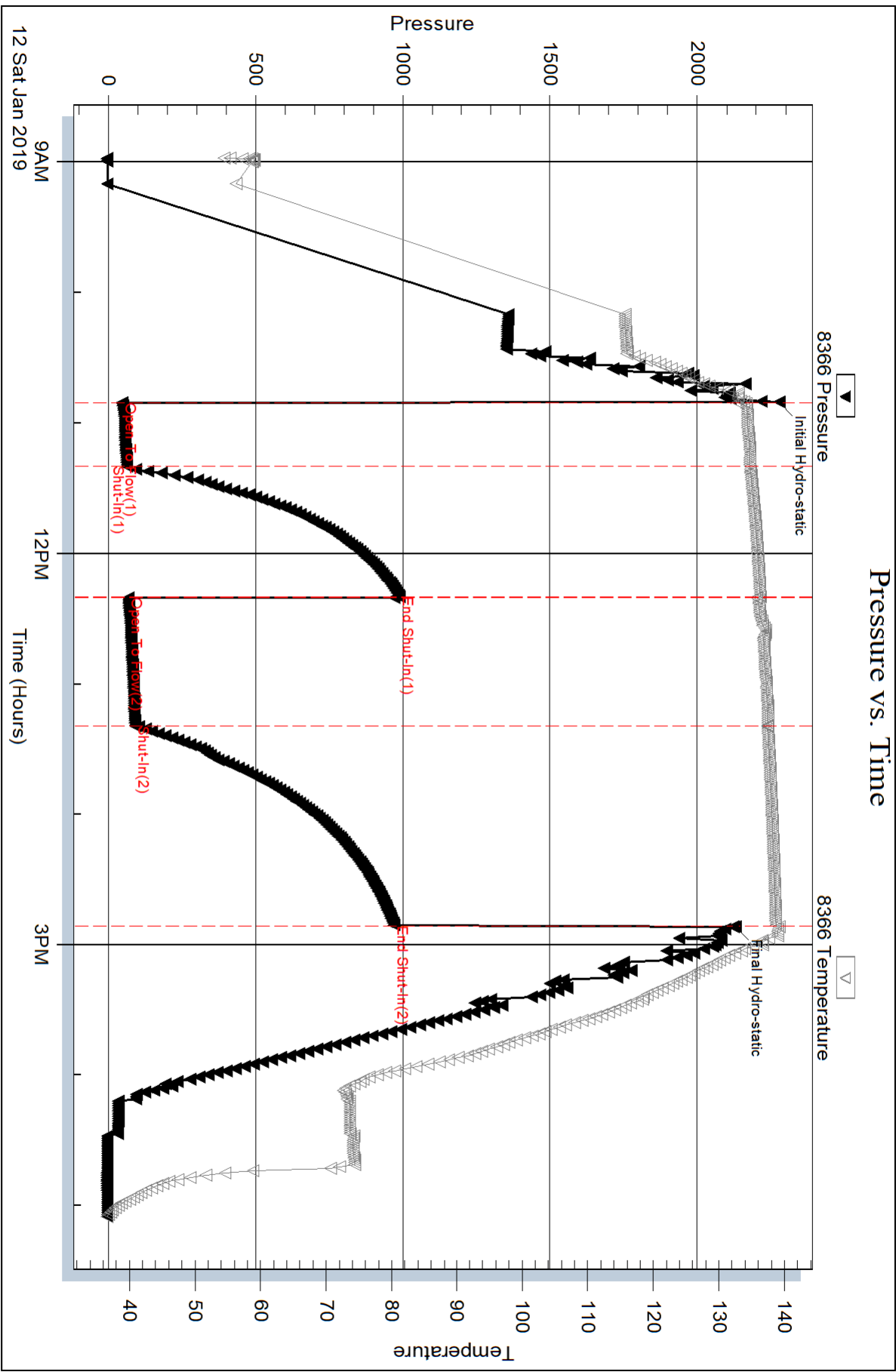
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Bullnose and stand above b.n. full of sand



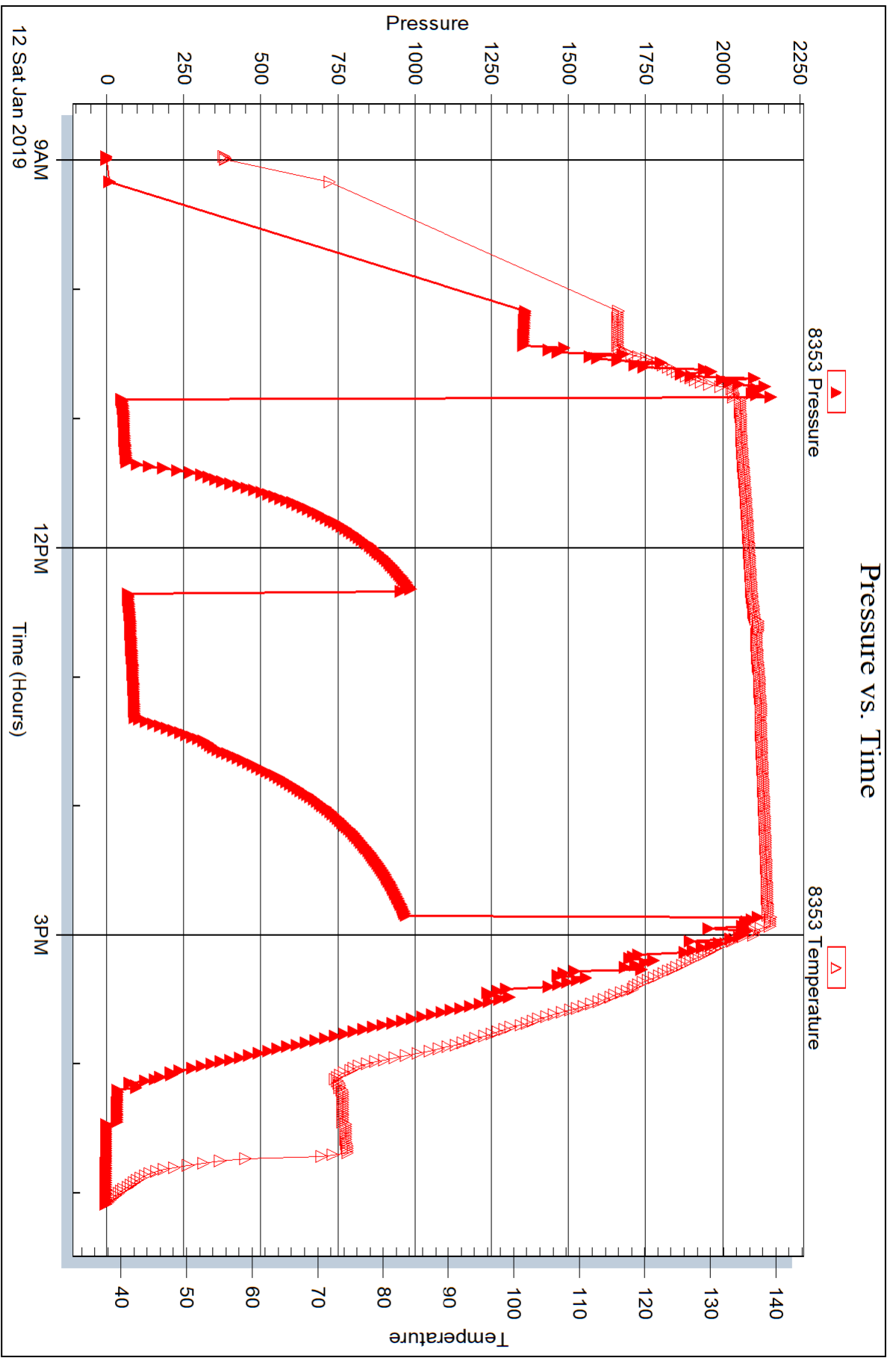
Serial #: 8353

Inside

Murfin Drilling Co. Inc

Antholz B #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: Ken LeBlanc

Antholz B #1-22

22-2S-37W

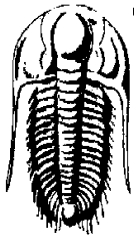
Start Date: 2019.01.13 @ 01:15:00

End Date: 2019.01.13 @ 03:04:20

Job Ticket #: 65276 DST #: 3

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

Printed: 2019.01.17 @ 14:29:23



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co. Inc
250 N. Water STE 300
Wichita KS 67202
ATTN: Ken LeBlanc

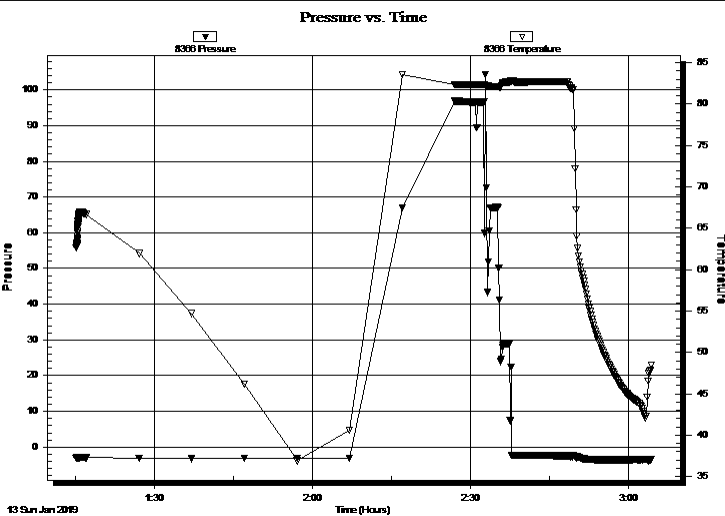
22-2S-37W
Antholz B #1-22
Job Ticket: 65276 **DST#: 3**
Test Start: 2019.01.13 @ 01:15:00

GENERAL INFORMATION:

Formation: **LKC " D "**
 Deviated: No Whipstock: ft (KB) Test Type: Conventional Bottom Hole (Reset)
 Time Tool Opened: Tester: Ryan Nichols
 Time Test Ended: 03:04:20 Unit No: 71
Interval: 4355.00 ft (KB) To 4420.00 ft (KB) (TVD) Reference Elevations: 3415.00 ft (KB)
 Total Depth: 4420.00 ft (KB) (TVD) 3410.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 5.00 ft

Serial #: 8366 Outside
 Press@RunDepth: psig @ 4356.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.01.13 End Date: 2019.01.13 Last Calib.: 2019.01.13
 Start Time: 01:15:01 End Time: 03:04:20 Time On Btm:
 Time Off Btm:

TEST COMMENT: Miss Run Stacked out 3 1/2 stands going in with tool



PRESSURE SUMMARY

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

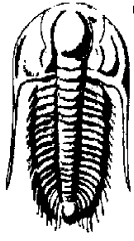
Recovery

Length (ft)	Description	Volume (bbl)

* 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: Ken LeBlanc

22-2S-37W

Antholz B #1-22

Job Ticket: 65276

DST#: 3

Test Start: 2019.01.13 @ 01:15:00

GENERAL INFORMATION:

Formation: **LKC " D "**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Reset)
 Time Tool Opened:
 Tester: Ryan Nichols
 Time Test Ended: 03:04:20
 Unit No: 71
 Interval: **4355.00 ft (KB) To 4420.00 ft (KB) (TVD)**
 Reference Elevations: 3415.00 ft (KB)
 Total Depth: 4420.00 ft (KB) (TVD)
 3410.00 ft (CF)
 Hole Diameter: 7.88 inches
 Hole Condition: Fair
 KB to GR/CF: 5.00 ft

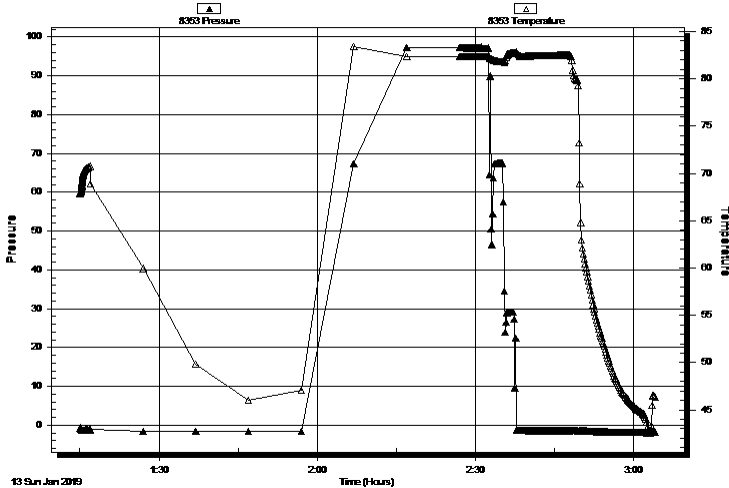
Serial #: 8353

Inside

Press@RunDepth: psig @ 4356.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.01.13 End Date: 2019.01.13 Last Calib.: 2019.01.13
 Start Time: 01:15:01 End Time: 03:04:10 Time On Btm:
 Time Off Btm:

TEST COMMENT: Miss Run Stacked out 3 1/2 stands going in with tool

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)

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

250 N. Water STE 300
Wichita KS 67202

Antholz B #1-22

Job Ticket: 65276

DST#: 3

ATTN: Ken LeBlanc

Test Start: 2019.01.13 @ 01:15:00

Tool Information

Drill Pipe:	Length: 4134.00 ft	Diameter: 3.80 inches	Volume: 57.99 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	lb
Drill Collar:	Length: 206.00 ft	Diameter: 2.25 inches	Volume: 1.01 bbl	Weight to Pull Loose:	lb
			<u>Total Volume: 59.00 bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	13.00 ft			String Weight: Initial	lb
Depth to Top Packer:	4355.00 ft			Final	lb
Depth to Bottom Packer:	ft				
Interval between Packers:	65.00 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
Shut In Tool	5.00			4332.00	
Hydraulic tool	5.00			4337.00	
Jars	5.00			4342.00	
Safety Joint	3.00			4345.00	
Packer	5.00			4350.00	28.00 Bottom Of Top Packer
Packer	5.00			4355.00	
Stubb	1.00			4356.00	
Recorder	0.00	8353	Inside	4356.00	
Recorder	0.00	8366	Outside	4356.00	
Perforations	28.00			4384.00	
Blank Spacing	33.00			4417.00	
Bullnose	3.00			4420.00	65.00 Bottom Packers & Anchor

Total Tool Length: 93.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co. Inc

22-2S-37W

250 N. Water STE 300
Wichita KS 67202

Antholz B #1-22

Job Ticket: 65276

DST#: 3

ATTN: Ken LeBlanc

Test Start: 2019.01.13 @ 01:15:00

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: 70.00 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

Total Length: ft

Total Volume: bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

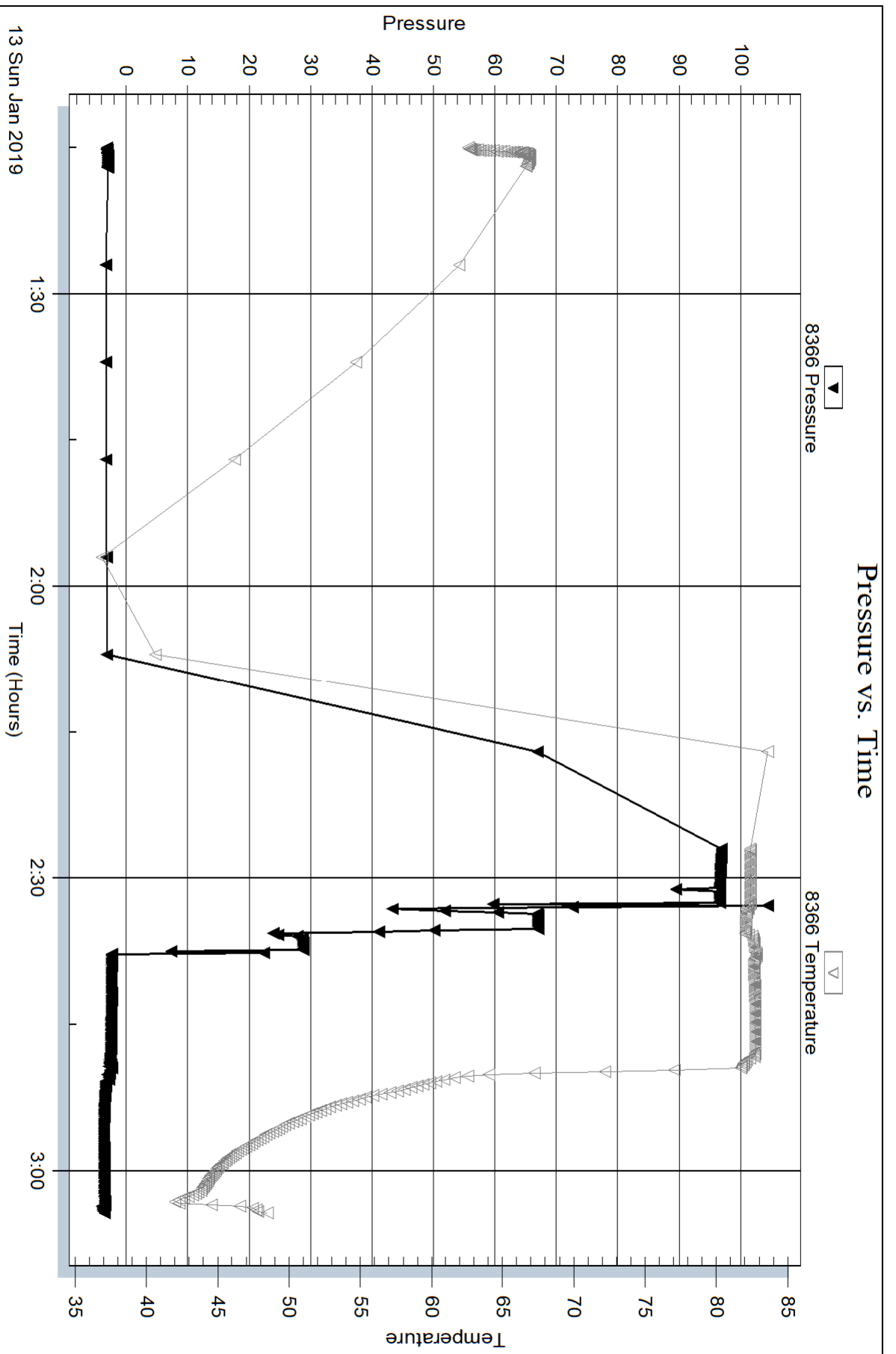
Recovery Comments:

Serial #: 8366

Outside Murfin Drilling Co. Inc

Antholz B #1-22

DST Test Number: 3



13 Sun Jan 2019

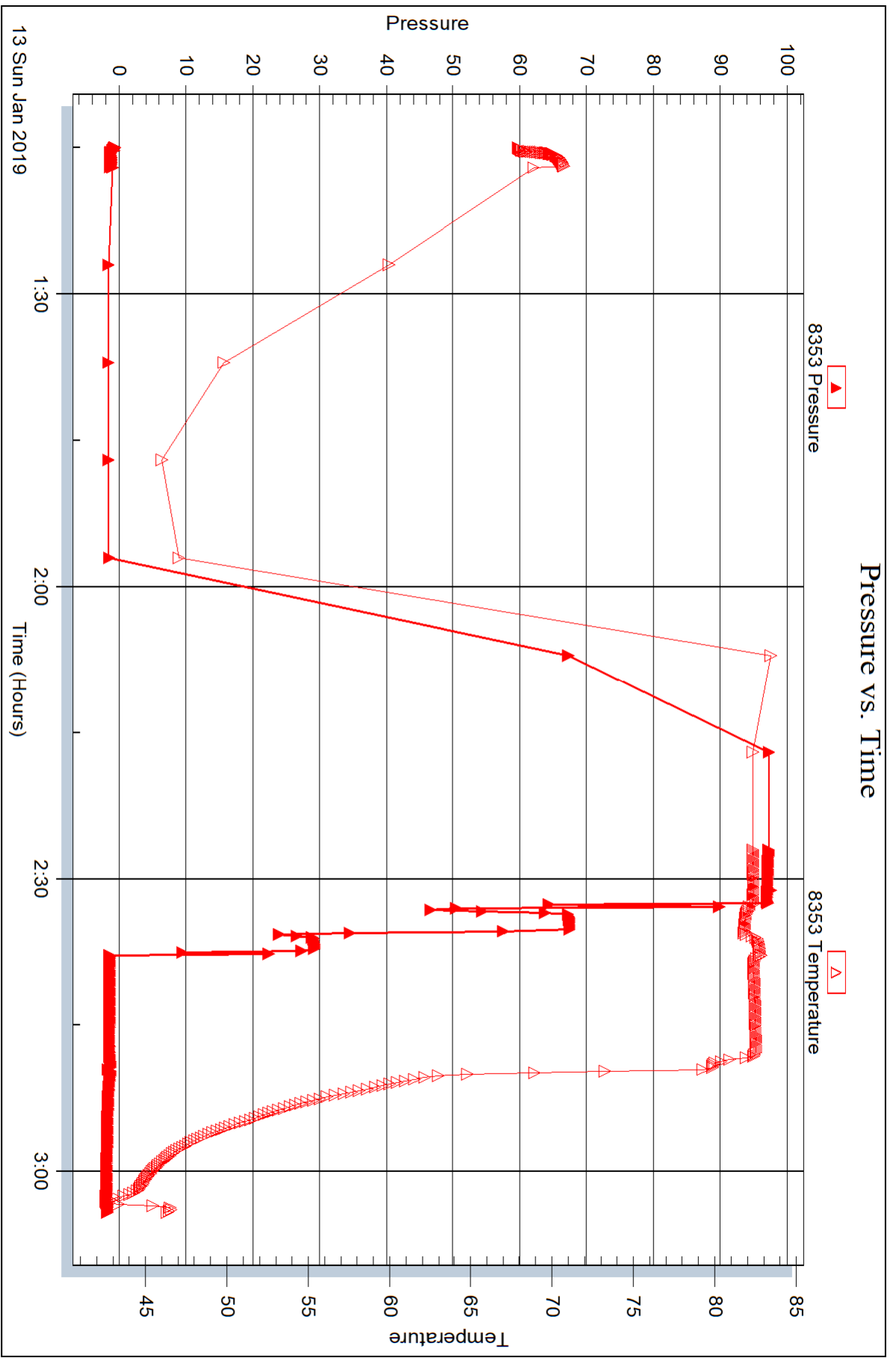
Serial #: 8353

Inside

Murfin Drilling Co. Inc

Antholz B #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: Ken LeBlanc

Antholz B #1-22

22-2S-37W

Start Date: 2019.01.13 @ 07:54:00

End Date: 2019.01.13 @ 16:35:19

Job Ticket #: 65277 DST #: 4

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

Printed: 2019.01.17 @ 14:29:00

Murfin Drilling Co. Inc
22-2S-37W
Antholz B #1-22
DST # 4
LKC " D "
2019.01.13



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co. Inc
 250 N. Water STE 300
 Wichita KS 67202
 ATTN: Ken LeBlanc

22-2S-37W

Antholz B #1-22

Job Ticket: 65277

DST#: 4

Test Start: 2019.01.13 @ 07:54:00

GENERAL INFORMATION:

Formation: **LKC " D "**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 10:04:30
 Time Test Ended: 16:35:19
 Interval: **4355.00 ft (KB) To 4430.00 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: Ryan Nichols
 Unit No: 71
 Reference Elevations: 3415.00 ft (KB)
 3410.00 ft (CF)
 KB to GR/CF: 5.00 ft

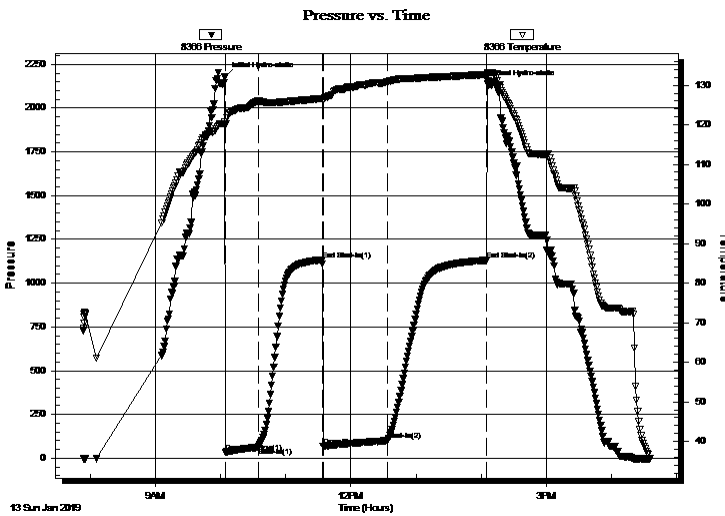
Serial #: 8366

Outside

Press@RunDepth: 100.43 psig @ 4356.00 ft (KB)
 Start Date: 2019.01.13 End Date: 2019.01.13
 Start Time: 07:54:01 End Time: 16:35:19
 Capacity: 8000.00 psig
 Last Calib.: 2019.01.14
 Time On Btm: 2019.01.13 @ 10:04:10
 Time Off Btm: 2019.01.13 @ 14:05:50

TEST COMMENT: 30 IF - Slid 3' 2" surge built to 5 1/2"
 60 ISI - No return
 60 FF - Blow built to 3"
 90 FSI - Surface blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2176.99	120.67	Initial Hydro-static
1	32.38	119.98	Open To Flow (1)
31	62.76	125.95	Shut-In(1)
90	1133.31	126.64	End Shut-In(1)
91	66.48	126.25	Open To Flow (2)
150	100.43	130.90	Shut-In(2)
241	1130.55	132.67	End Shut-In(2)
242	2136.76	133.08	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	GOCM - 5%G - 5%o - 90%M	0.30
60.00	GOCM - 3%G - 5%o - 92%M	0.30
60.00	OCM - 10%o - 90%M	0.30

* 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: Ken LeBlanc

22-2S-37W
Antholz B #1-22
 Job Ticket: 65277 **DST#: 4**
 Test Start: 2019.01.13 @ 07:54:00

GENERAL INFORMATION:

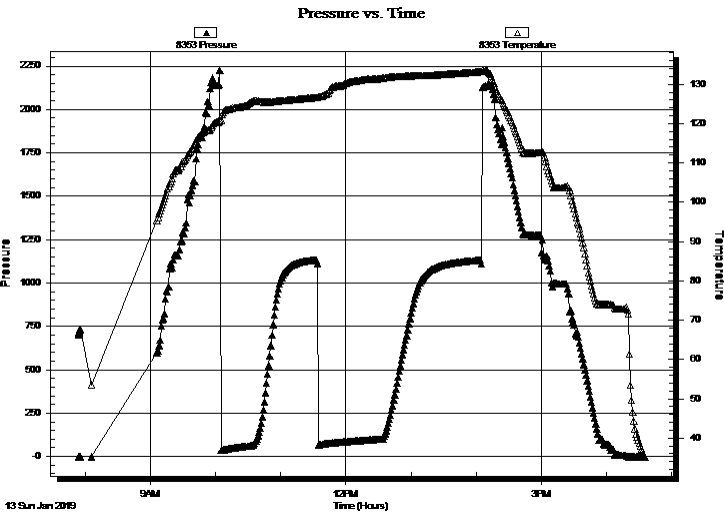
Formation: **LKC " D "**
 Deviated: No Whipstock: ft (KB) Test Type: Conventional Bottom Hole (Reset)
 Time Tool Opened: 10:04:30 Tester: Ryan Nichols
 Time Test Ended: 16:35:19 Unit No: 71
Interval: 4355.00 ft (KB) To 4430.00 ft (KB) (TVD) Reference Elevations: 3415.00 ft (KB)
 Total Depth: 4420.00 ft (KB) (TVD) 3410.00 ft (CF)
 Hole Diameter: 7.88 inchesHole Condition: Fair KB to GR/CF: 5.00 ft

Serial #: 8353

Inside

Press@RunDepth: psig @ 4356.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.01.13 End Date: 2019.01.13 Last Calib.: 2019.01.14
 Start Time: 07:54:01 End Time: 16:35:10 Time On Btm:
 Time Off Btm:

TEST COMMENT: 30 IF - Slid 3' 2" surge built to 5 1/2"
 60 ISI - No return
 60 FF - Blow built to 3"
 90 FSI - Surface blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
60.00	GOCM - 5%G - 5%o - 90%M	0.30
60.00	GOCM - 3%G - 5%o - 92%M	0.30
60.00	OCM - 10%o - 90%M	0.30

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
250 N. Water STE 300
Wichita KS 67202
ATTN: Ken LeBlanc

22-2S-37W
Antholz B #1-22
Job Ticket: 65277 **DST#: 4**
Test Start: 2019.01.13 @ 07:54:00

Tool Information

Drill Pipe:	Length: 4134.00 ft	Diameter: 3.80 inches	Volume: 57.99 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 206.00 ft	Diameter: 2.25 inches	Volume: 1.01 bbl	Weight to Pull Loose: 100000.0 lb
			<u>Total Volume: 59.00 bbl</u>	Tool Chased 3.00 ft
Drill Pipe Above KB:	13.00 ft			String Weight: Initial 64000.00 lb
Depth to Top Packer:	4355.00 ft			Final 65000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	65.00 ft			
Tool Length:	93.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

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

Shut In Tool	5.00			4332.00	
Hydraulic tool	5.00			4337.00	
Jars	5.00			4342.00	
Safety Joint	3.00			4345.00	
Packer	5.00			4350.00	28.00 Bottom Of Top Packer
Packer	5.00			4355.00	
Stubb	1.00			4356.00	
Recorder	0.00	8353	Inside	4356.00	
Recorder	0.00	8366	Outside	4356.00	
Perforations	28.00			4384.00	
Blank Spacing	33.00			4417.00	
Bullnose	3.00			4420.00	65.00 Bottom Packers & Anchor

Total Tool Length: 93.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co. Inc

22-2S-37W

250 N. Water STE 300
Wichita KS 67202

Antholz B #1-22

Job Ticket: 65277

DST#: 4

ATTN: Ken LeBlanc

Test Start: 2019.01.13 @ 07:54:00

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: 5.59 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	GOCM - 5%G - 5%o - 90%M	0.295
60.00	GOCM - 3%G - 5%o - 92%M	0.295
60.00	OCM - 10%o - 90%M	0.295

Total Length: 180.00 ft

Total Volume: 0.885 bbl

Num Fluid Samples: 0

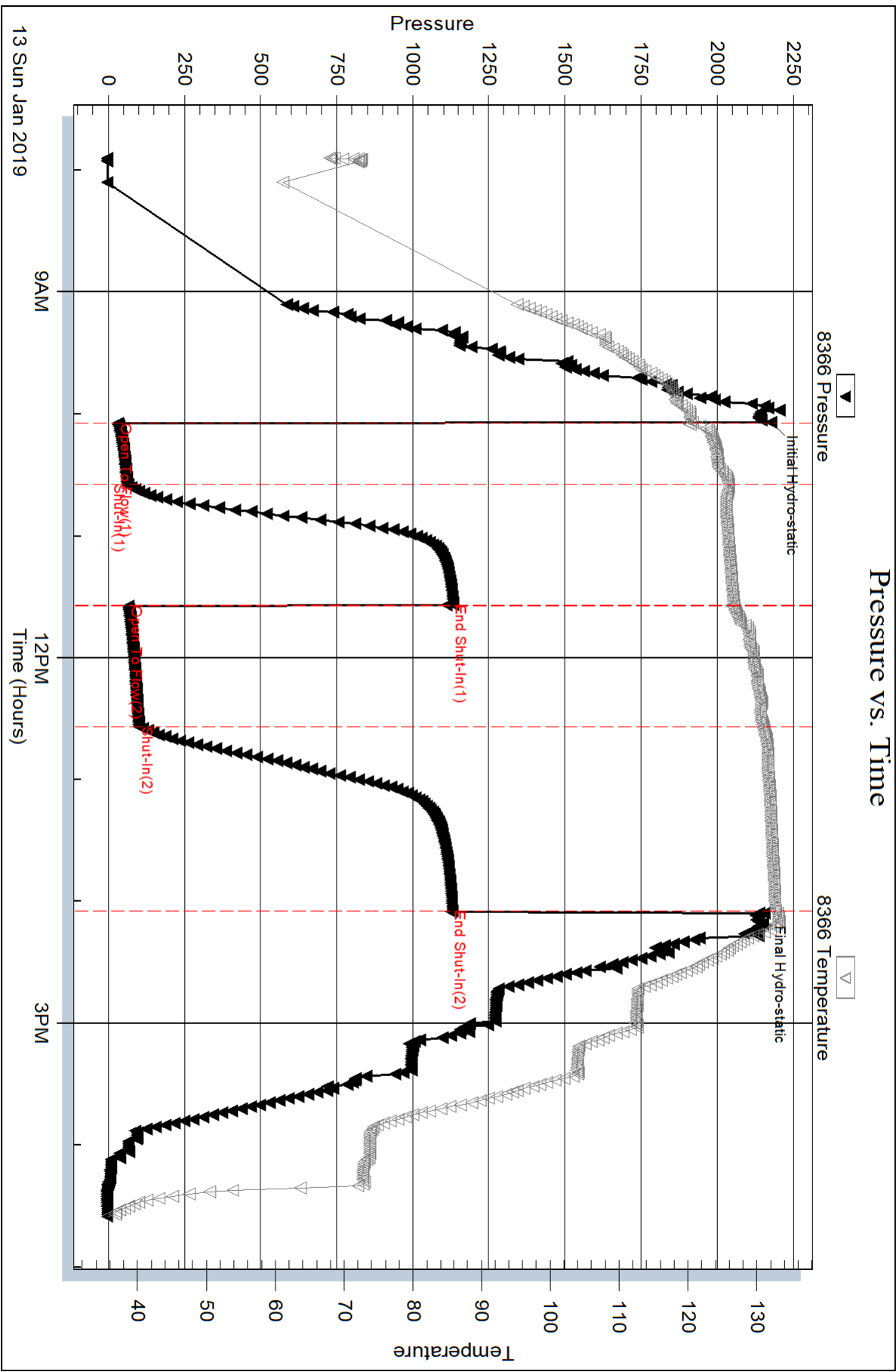
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



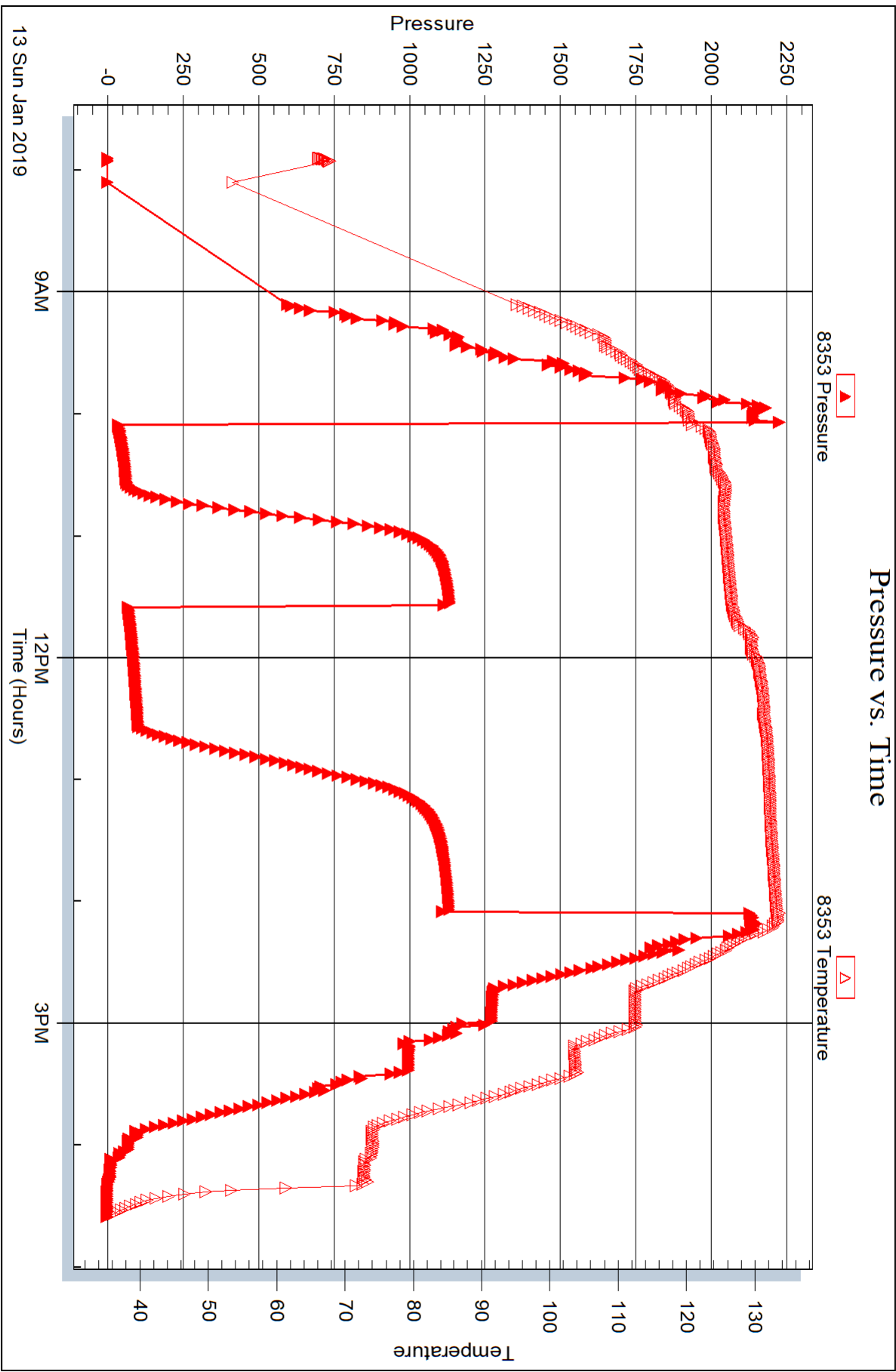
Serial #: 8353

Inside

Murfin Drilling Co. Inc

Antholz B #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: Ken LeBlanc

Antholz B #1-22

22-2S-37W

Start Date: 2019.01.14 @ 03:22:00

End Date: 2019.01.14 @ 11:28:20

Job Ticket #: 65278 DST #: 5

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

Printed: 2019.01.17 @ 14:28:35



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co. Inc
 250 N. Water STE 300
 Wichita KS 67202
 ATTN: Ken LeBlanc

22-2S-37W

Antholz B #1-22

Job Ticket: 65278

DST#: 5

Test Start: 2019.01.14 @ 03:22:00

GENERAL INFORMATION:

Formation: **LKC " G "**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 05:43:20
 Time Test Ended: 11:28:20
 Interval: **4420.00 ft (KB) To 4480.00 ft (KB) (TVD)**
 Total Depth: 4480.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Ryan Nichols
 Unit No: 71
 Reference Elevations: 3415.00 ft (KB)
 3410.00 ft (CF)
 KB to GR/CF: 5.00 ft

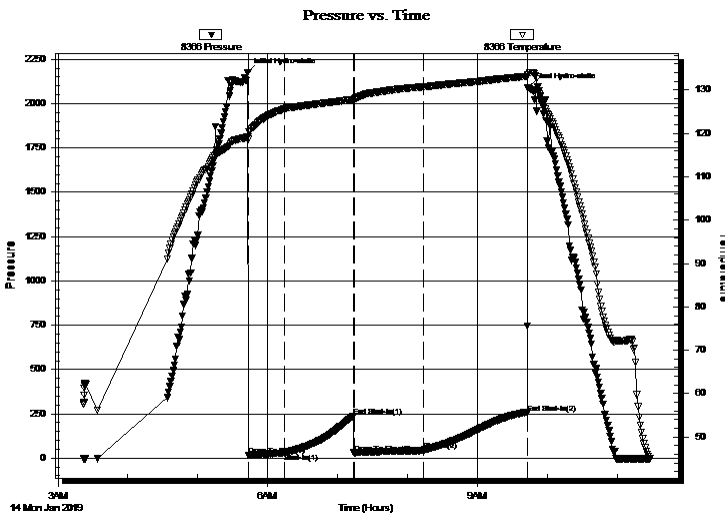
Serial #: 8366

Outside

Press@RunDepth: 43.61 psig @ 4421.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.01.14 End Date: 2019.01.14 Last Calib.: 2019.01.14
 Start Time: 03:22:01 End Time: 11:28:20 Time On Btm: 2019.01.14 @ 05:43:00
 Time Off Btm: 2019.01.14 @ 09:43:30

TEST COMMENT: 30 IF - Blow built to 2 1/4"
 60 ISI - No return
 60 FF - Blow built to 5"
 90 FSI - No return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2176.27	119.27	Initial Hydro-static
1	16.62	118.62	Open To Flow (1)
32	29.49	125.61	Shut-In(1)
91	235.82	127.83	End Shut-In(1)
92	28.31	127.81	Open To Flow (2)
151	43.61	130.71	Shut-In(2)
240	255.70	133.16	End Shut-In(2)
241	2091.06	133.55	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	GMCO - 20%G - 45%o - 35%M	0.30
5.00	OCM - 30%o - 70%M	0.02

* 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: Ken LeBlanc

22-2S-37W

Antholz B #1-22

Job Ticket: 65278

DST#: 5

Test Start: 2019.01.14 @ 03:22:00

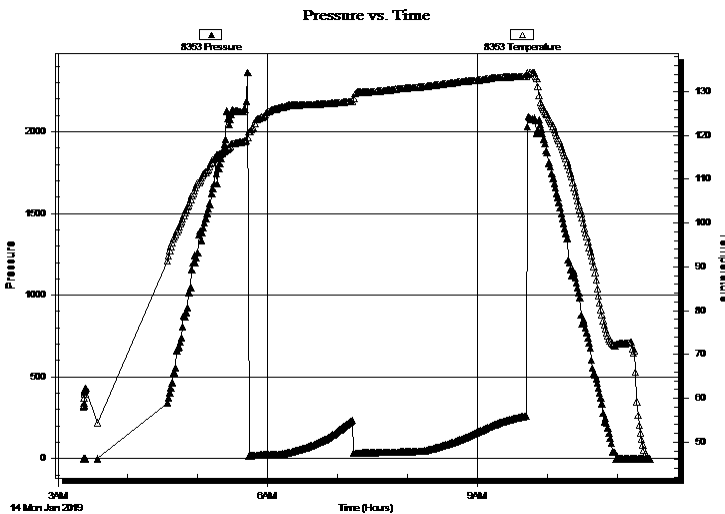
GENERAL INFORMATION:

Formation: **LKC " G "**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Reset)
 Time Tool Opened: 05:43:20 Tester: Ryan Nichols
 Time Test Ended: 11:28:20 Unit No: 71
 Interval: **4420.00 ft (KB) To 4480.00 ft (KB) (TVD)** Reference Elevations: 3415.00 ft (KB)
 Total Depth: 4480.00 ft (KB) (TVD) 3410.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 5.00 ft

Serial #: 8353 Inside
 Press@RunDepth: psig @ 4421.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.01.14 End Date: 2019.01.14 Last Calib.: 2019.01.14
 Start Time: 03:22:01 End Time: 11:28:20 Time On Btm:
 Time Off Btm:

TEST COMMENT: 30 IF - Blow built to 2 1/4"
 60 ISI - No return
 60 FF - Blow built to 5"
 90 FSI - No return

PRESSURE SUMMARY



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

Recovery

Length (ft)	Description	Volume (bbl)
60.00	GMCO - 20%G - 45%o - 35%M	0.30
5.00	OCM - 30%o - 70%M	0.02

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co. Inc

22-2S-37W

250 N. Water STE 300
Wichita KS 67202

Antholz B #1-22

Job Ticket: 65278

DST#: 5

ATTN: Ken LeBlanc

Test Start: 2019.01.14 @ 03:22:00

Tool Information

Drill Pipe:	Length: 4196.00 ft	Diameter: 3.80 inches	Volume: 58.86 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 206.00 ft	Diameter: 2.25 inches	Volume: 1.01 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 59.87 bbl</u>	Tool Chased 6.00 ft
Drill Pipe Above KB:	10.00 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:	60.00 ft			
Tool Length:	88.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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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	28.00 Bottom Of Top Packer
Packer	5.00			4420.00	
Stubb	1.00			4421.00	
Recorder	0.00	8353	Inside	4421.00	
Recorder	0.00	8366	Outside	4421.00	
Perforations	23.00			4444.00	
Blank Spacing	33.00			4477.00	
Bullnose	3.00			4480.00	60.00 Bottom Packers & Anchor

Total Tool Length: 88.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co. Inc

22-2S-37W

250 N. Water STE 300
Wichita KS 67202

Antholz B #1-22

Job Ticket: 65278

DST#: 5

ATTN: Ken LeBlanc

Test Start: 2019.01.14 @ 03:22:00

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: 57.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.59 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	GMCO - 20%G - 45%o - 35%M	0.295
5.00	OCM - 30%o - 70%M	0.025

Total Length: 65.00 ft Total Volume: 0.320 bbl

Num Fluid Samples: 0

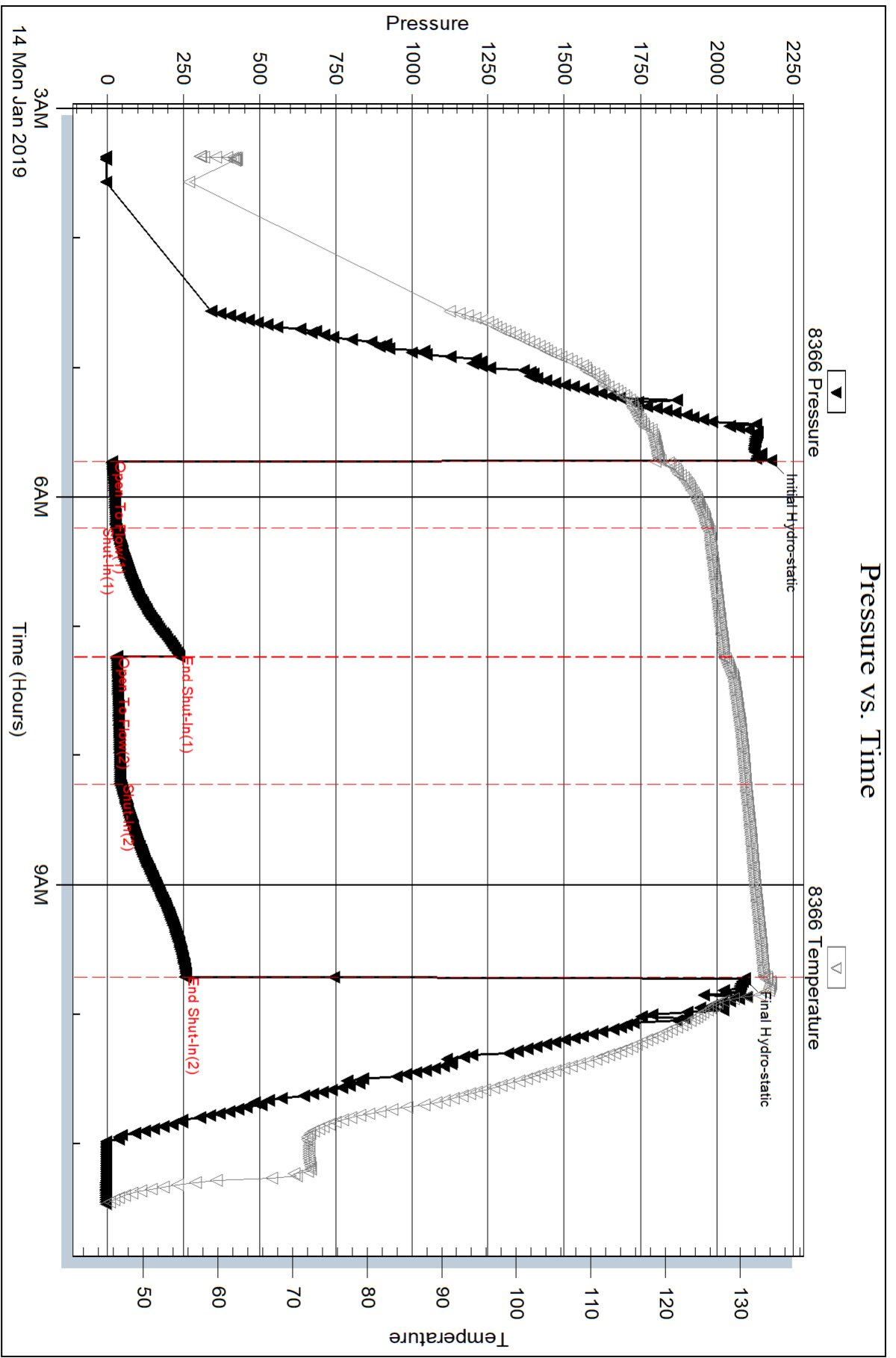
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



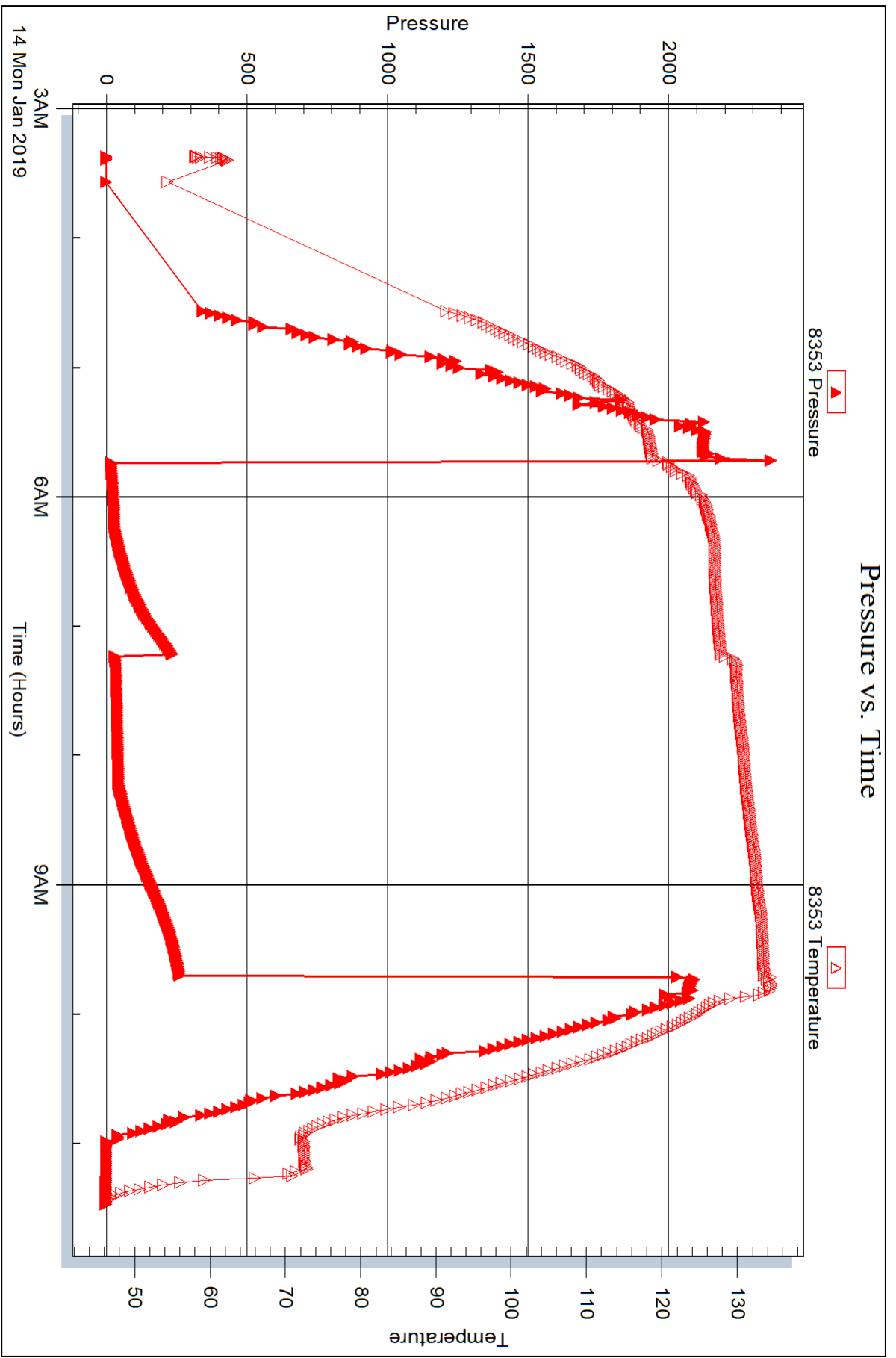
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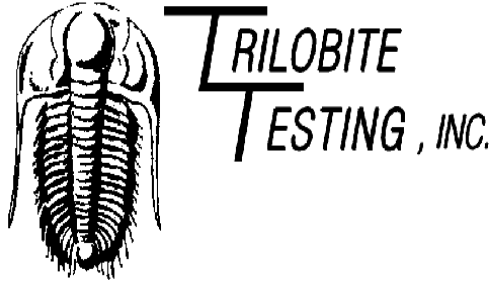
Inside

Murfin Drilling Co. Inc

Antholz B #1-22

DST Test Number: 5





DRILL STEM TEST REPORT

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

250 N. Water STE 300
Wichita KS 67202

ATTN: Ken LeBlanc

Antholz B #1-22

22-2S-37W

Start Date: 2019.01.14 @ 23:50:00

End Date: 2019.01.15 @ 07:00:09

Job Ticket #: 65279 DST #: 6

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

Printed: 2019.01.17 @ 14:28:11



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co. Inc
 250 N. Water STE 300
 Wichita KS 67202
 ATTN: Ken LeBlanc

22-2S-37W

Antholz B #1-22

Job Ticket: 65279

DST#: 6

Test Start: 2019.01.14 @ 23:50:00

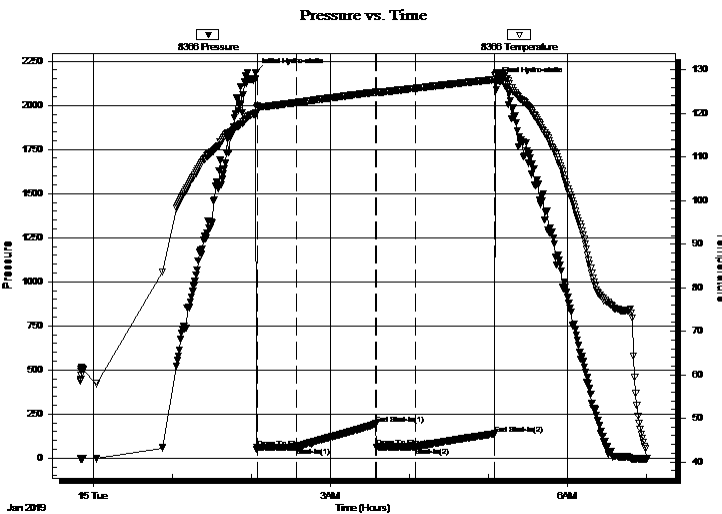
GENERAL INFORMATION:

Formation: **LKC "H - J"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 02:04:10
 Time Test Ended: 07:00:09
 Interval: **4470.00 ft (KB) To 4570.00 ft (KB) (TVD)**
 Total Depth: 4570.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Ryan Nichols
 Unit No: 71
 Reference Elevations: 3415.00 ft (KB)
 3410.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8366 Outside

Press@RunDepth: 63.57 psig @ 4471.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.01.14 End Date: 2019.01.15 Last Calib.: 2019.01.15
 Start Time: 23:50:01 End Time: 07:00:10 Time On Btm: 2019.01.15 @ 02:03:10
 Time Off Btm: 2019.01.15 @ 05:05:00

TEST COMMENT: 30 IF - Open tool slid 10', picked up tool, reset tool surface blow built to 3/4" died back to surface
 60 ISI - No return
 30 FF - No blow
 60 FSI - No return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2186.53	120.23	Initial Hydro-static
1	58.56	121.22	Open To Flow (1)
31	63.02	122.50	Shut-In(1)
92	194.47	124.89	End Shut-In(1)
92	62.97	124.85	Open To Flow (2)
122	63.57	125.79	Shut-In(2)
182	135.57	127.79	End Shut-In(2)
182	2134.97	128.69	Final Hydro-static

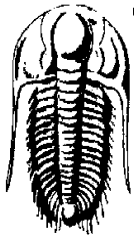
Recovery

Length (ft)	Description	Volume (bbl)
80.00	Mud 100%M	0.39

Gas Rates

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

* Recovery from multiple tests



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co. Inc
250 N. Water STE 300
Wichita KS 67202
ATTN: Ken LeBlanc

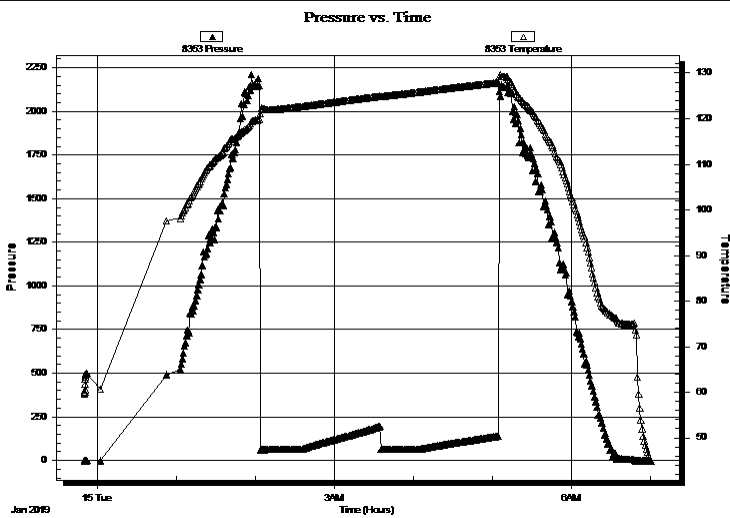
22-2S-37W
Antholz B #1-22
Job Ticket: 65279 **DST#: 6**
Test Start: 2019.01.14 @ 23:50:00

GENERAL INFORMATION:

Formation: **LKC " H - J "**
Deviated: No Whipstock: ft (KB) Test Type: Conventional Bottom Hole (Reset)
Time Tool Opened: 02:04:10 Tester: Ryan Nichols
Time Test Ended: 07:00:09 Unit No: 71
Interval: 4470.00 ft (KB) To 4570.00 ft (KB) (TVD) Reference Elevations: 3415.00 ft (KB)
Total Depth: 4570.00 ft (KB) (TVD) 3410.00 ft (CF)
Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 5.00 ft

Serial #: 8353 Inside
Press@RunDepth: psig @ 4471.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2019.01.14 End Date: 2019.01.15 Last Calib.: 2019.01.15
Start Time: 23:50:01 End Time: 07:00:10 Time On Btm:
Time Off Btm:

TEST COMMENT: 30 IF - Open tool slid 10', picked up tool, reset tool surface blow built to 3/4" died back to surface
60 ISI - No return
30 FF - No blow
60 FSI - No return



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
80.00	Mud 100%M	0.39

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

250 N. Water STE 300
Wichita KS 67202

Antholz B #1-22

Job Ticket: 65279

DST#: 6

ATTN: Ken LeBlanc

Test Start: 2019.01.14 @ 23:50:00

Tool Information

Drill Pipe:	Length: 4256.00 ft	Diameter: 3.80 inches	Volume: 59.70 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 206.00 ft	Diameter: 2.25 inches	Volume: 1.01 bbl	Weight to Pull Loose: 75000.00 lb
			<u>Total Volume: 60.71 bbl</u>	Tool Chased 10.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial 64000.00 lb
Depth to Top Packer:	4470.00 ft			Final 67000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	100.00 ft			
Tool Length:	128.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

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

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	28.00 Bottom Of Top Packer
Packer	5.00			4470.00	
Stubb	1.00			4471.00	
Recorder	0.00	8353	Inside	4471.00	
Recorder	0.00	8366	Outside	4471.00	
Perforations	30.00			4501.00	
Blank Spacing	66.00			4567.00	
Bullnose	3.00			4570.00	100.00 Bottom Packers & Anchor

Total Tool Length: 128.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co. Inc

22-2S-37W

250 N. Water STE 300
Wichita KS 67202

Antholz B #1-22

Job Ticket: 65279

DST#: 6

ATTN: Ken LeBlanc

Test Start: 2019.01.14 @ 23:50:00

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: 5.59 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
80.00	Mud 100%M	0.393

Total Length: 80.00 ft Total Volume: 0.393 bbl

Num Fluid Samples: 0

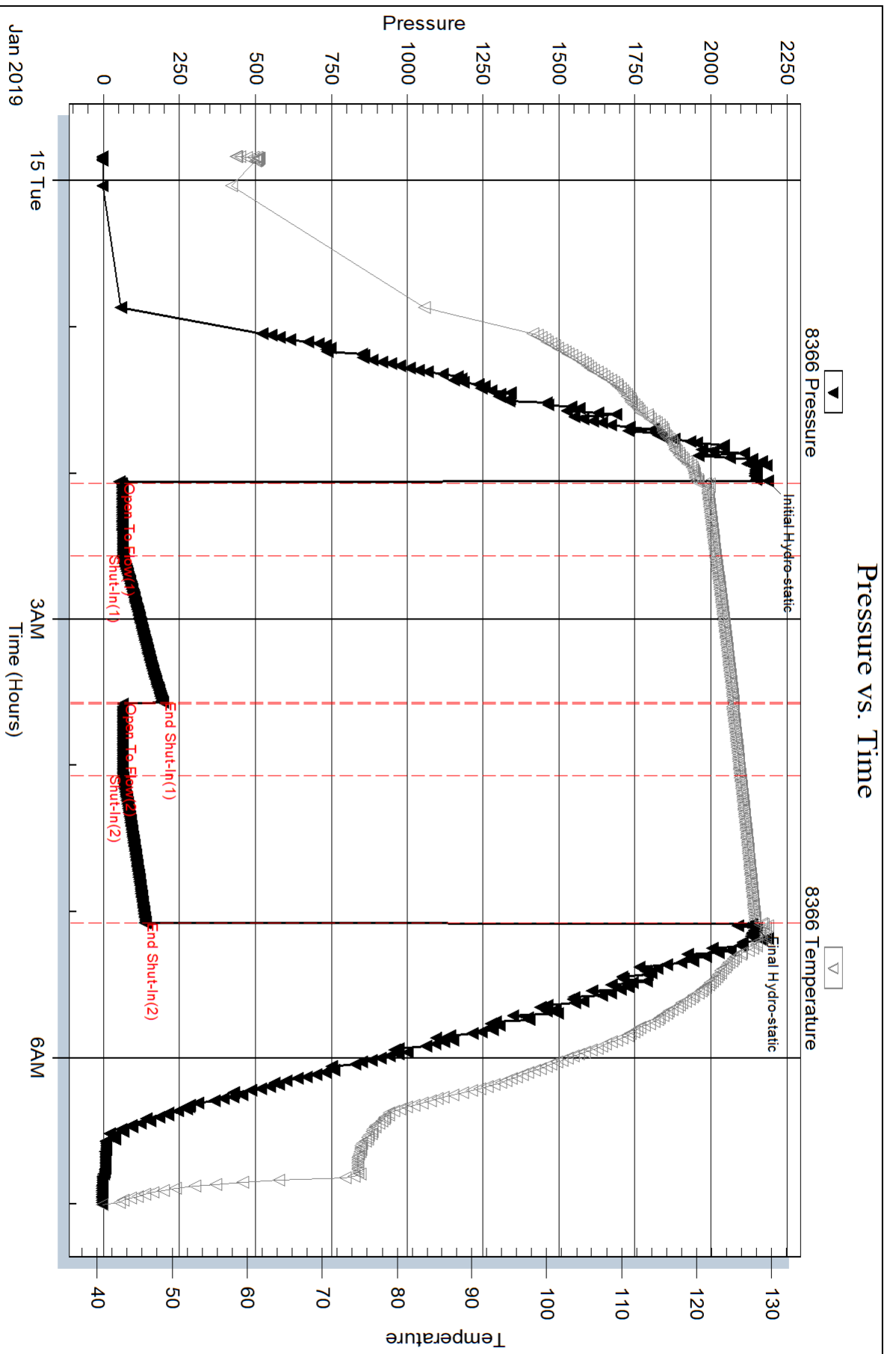
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



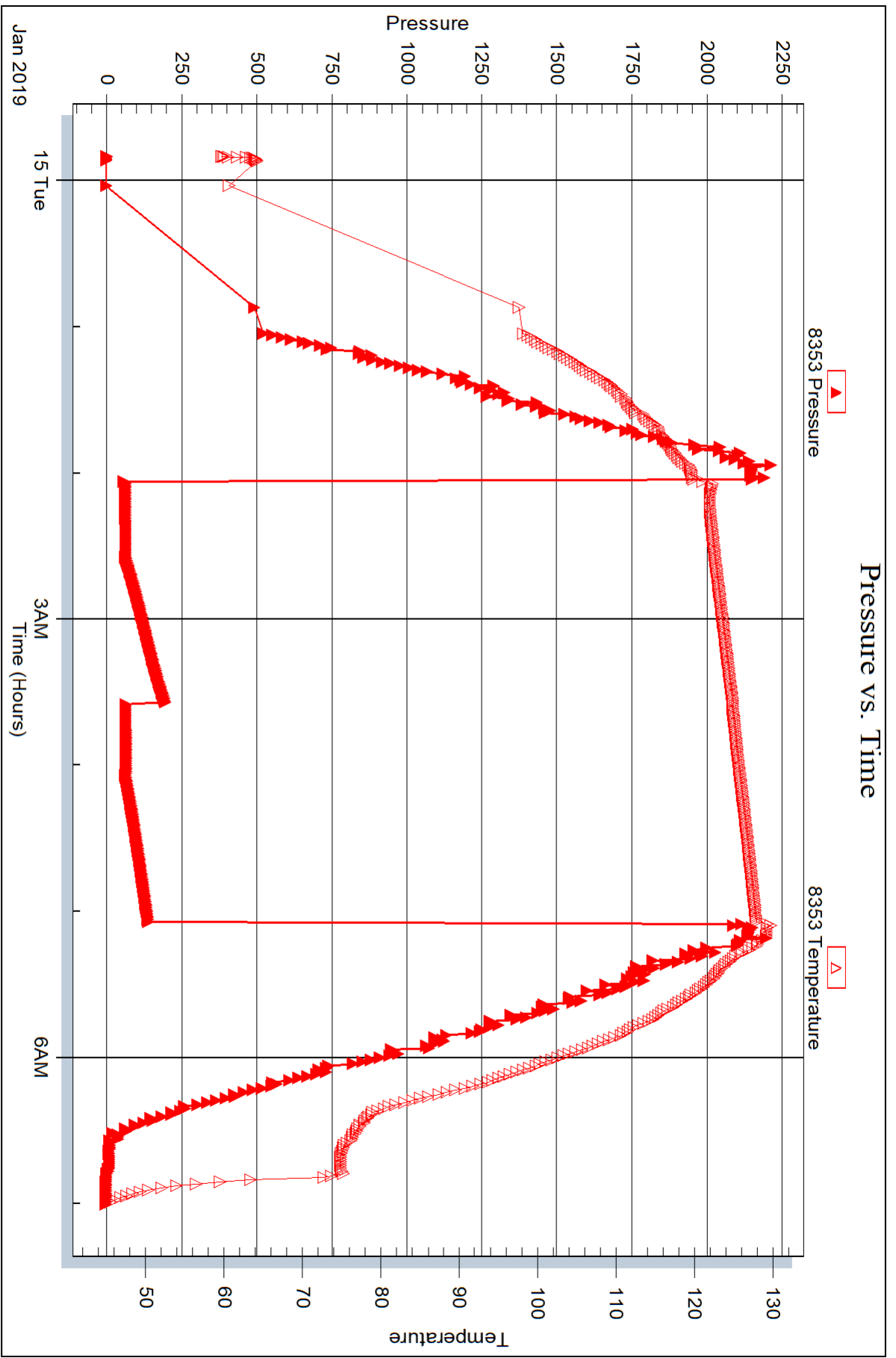
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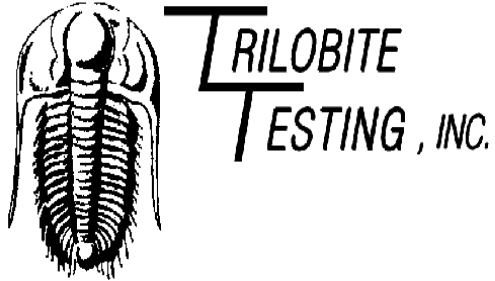
Inside

Murfin Drilling Co. Inc

Antholz B #1-22

DST Test Number: 6





DRILL STEM TEST REPORT

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

250 N. Water STE 300
Wichita KS 67202

ATTN: Ken LeBlanc

Antholz B #1-22

22-2S-37W

Start Date: 2019.01.16 @ 14:29:00

End Date: 2019.01.16 @ 23:27:10

Job Ticket #: 65280 DST #: 7

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

Printed: 2019.01.17 @ 14:27:47



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co. Inc
 250 N. Water STE 300
 Wichita KS 67202
 ATTN: Ken LeBlanc

22-2S-37W

Antholz B #1-22

Job Ticket: 65280

DST#: 7

Test Start: 2019.01.16 @ 14:29:00

GENERAL INFORMATION:

Formation: **Fort Scott - Cherokee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 17:06:20

Time Test Ended: 23:27:10

Test Type: Conventional Bottom Hole (Reset)

Tester: Ryan Nichols

Unit No: 71

Interval: 4706.00 ft (KB) To 4880.00 ft (KB) (TVD)

Reference Elevations: 3415.00 ft (KB)

Total Depth: 4880.00 ft (KB) (TVD)

3410.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8366

Outside

Press@RunDepth: 64.66 psig @ 4707.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.01.16

End Date:

2019.01.16

Last Calib.:

2019.01.16

Start Time: 14:29:01

End Time:

23:27:10

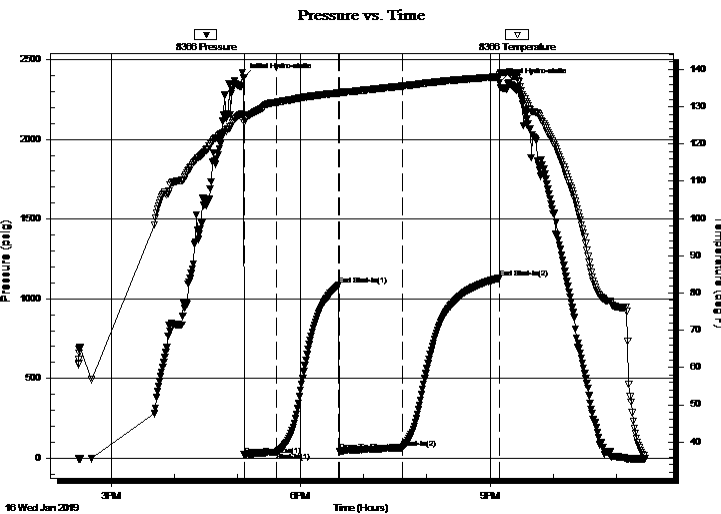
Time On Btm:

2019.01.16 @ 17:06:00

Time Off Btm:

2019.01.16 @ 21:09:00

TEST COMMENT: 30 IF - Blow built to 3 1/2"
 60 ISI - No return
 60 FF - Blow built to 6 1/2"
 90 FSI - No return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2388.48	127.10	Initial Hydro-static
1	20.91	125.68	Open To Flow (1)
31	38.49	131.18	Shut-In(1)
90	1086.55	133.67	End Shut-In(1)
91	42.10	133.55	Open To Flow (2)
151	64.66	135.51	Shut-In(2)
243	1128.76	138.04	End Shut-In(2)
243	2355.96	138.66	Final Hydro-static

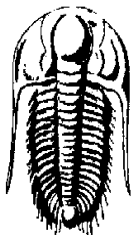
Recovery

Length (ft)	Description	Volume (bbl)
60.00	OCM - 40%o - 60%M	0.30
40.00	OCM - 25%o - 75%M	0.20

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co. Inc
250 N. Water STE 300
Wichita KS 67202
ATTN: Ken LeBlanc

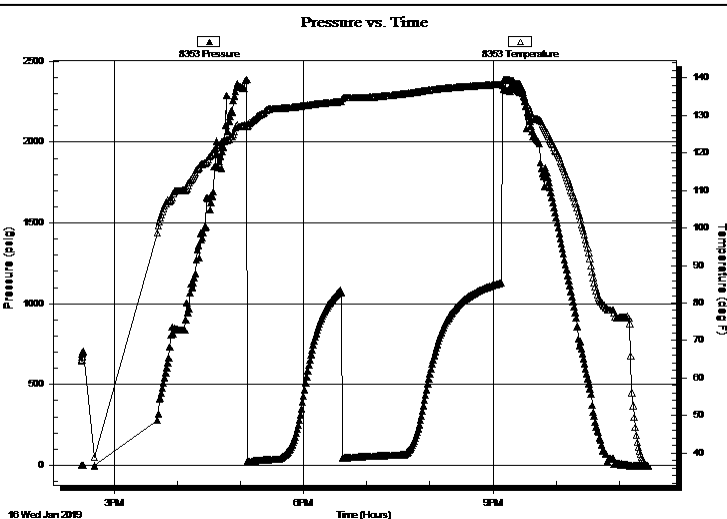
22-2S-37W
Antholz B #1-22
Job Ticket: 65280 **DST#: 7**
Test Start: 2019.01.16 @ 14:29:00

GENERAL INFORMATION:

Formation: **Fort Scott - Cherokee**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 17:06:20
Time Test Ended: 23:27:10
Interval: **4706.00 ft (KB) To 4880.00 ft (KB) (TVD)**
Total Depth: 4880.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Bottom Hole (Reset)
Tester: Ryan Nichols
Unit No: 71
Reference Elevations: 3415.00 ft (KB)
3410.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8353 Inside
Press@RunDepth: psig @ 4707.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2019.01.16 End Date: 2019.01.16 Last Calib.: 2019.01.16
Start Time: 14:29:01 End Time: 23:27:10 Time On Btm:
Time Off Btm:

TEST COMMENT: 30 IF - Blow built to 3 1/2"
60 ISI - No return
60 FF - Blow built to 6 1/2"
90 FSI - No return



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
60.00	OCM - 40%o - 60%M	0.30
40.00	OCM - 25%o - 75%M	0.20

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

250 N. Water STE 300
Wichita KS 67202

Antholz B #1-22

Job Ticket: 65280

DST#: 7

ATTN: Ken LeBlanc

Test Start: 2019.01.16 @ 14:29:00

Tool Information

Drill Pipe:	Length: 4505.00 ft	Diameter: 3.80 inches	Volume: 63.19 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 206.00 ft	Diameter: 2.25 inches	Volume: 1.01 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 64.20 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	33.00 ft			String Weight: Initial 70000.00 lb
Depth to Top Packer:	4706.00 ft			Final 70000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	174.00 ft			
Tool Length:	202.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Shut In Tool	5.00			4683.00	
Hydraulic tool	5.00			4688.00	
Jars	5.00			4693.00	
Safety Joint	3.00			4696.00	
Packer	5.00			4701.00	28.00 Bottom Of Top Packer
Packer	5.00			4706.00	
Packer - Shale	0.00			4706.00	
Stubb	1.00			4707.00	
Recorder	0.00	8353	Inside	4707.00	
Recorder	0.00	8366	Outside	4707.00	
Perforations	10.00			4717.00	
Blank Spacing	160.00			4877.00	
Bullnose	3.00			4880.00	174.00 Bottom Packers & Anchor

Total Tool Length: 202.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co. Inc

22-2S-37W

250 N. Water STE 300
Wichita KS 67202

Antholz B #1-22

Job Ticket: 65280

DST#: 7

ATTN: Ken LeBlanc

Test Start: 2019.01.16 @ 14:29:00

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: 67.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.59 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	OCM - 40%o - 60%M	0.295
40.00	OCM - 25%o - 75%M	0.197

Total Length: 100.00 ft Total Volume: 0.492 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

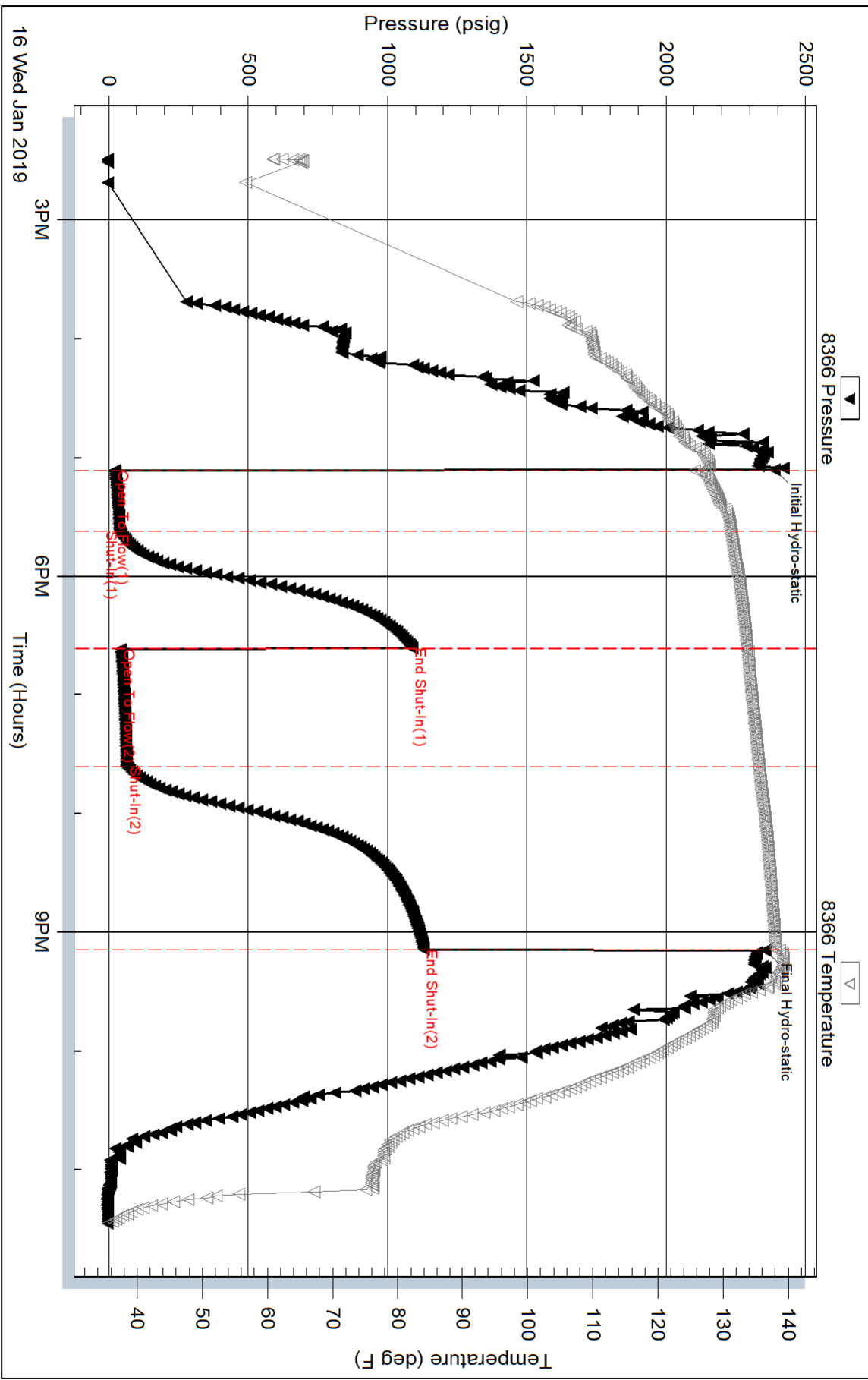
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time



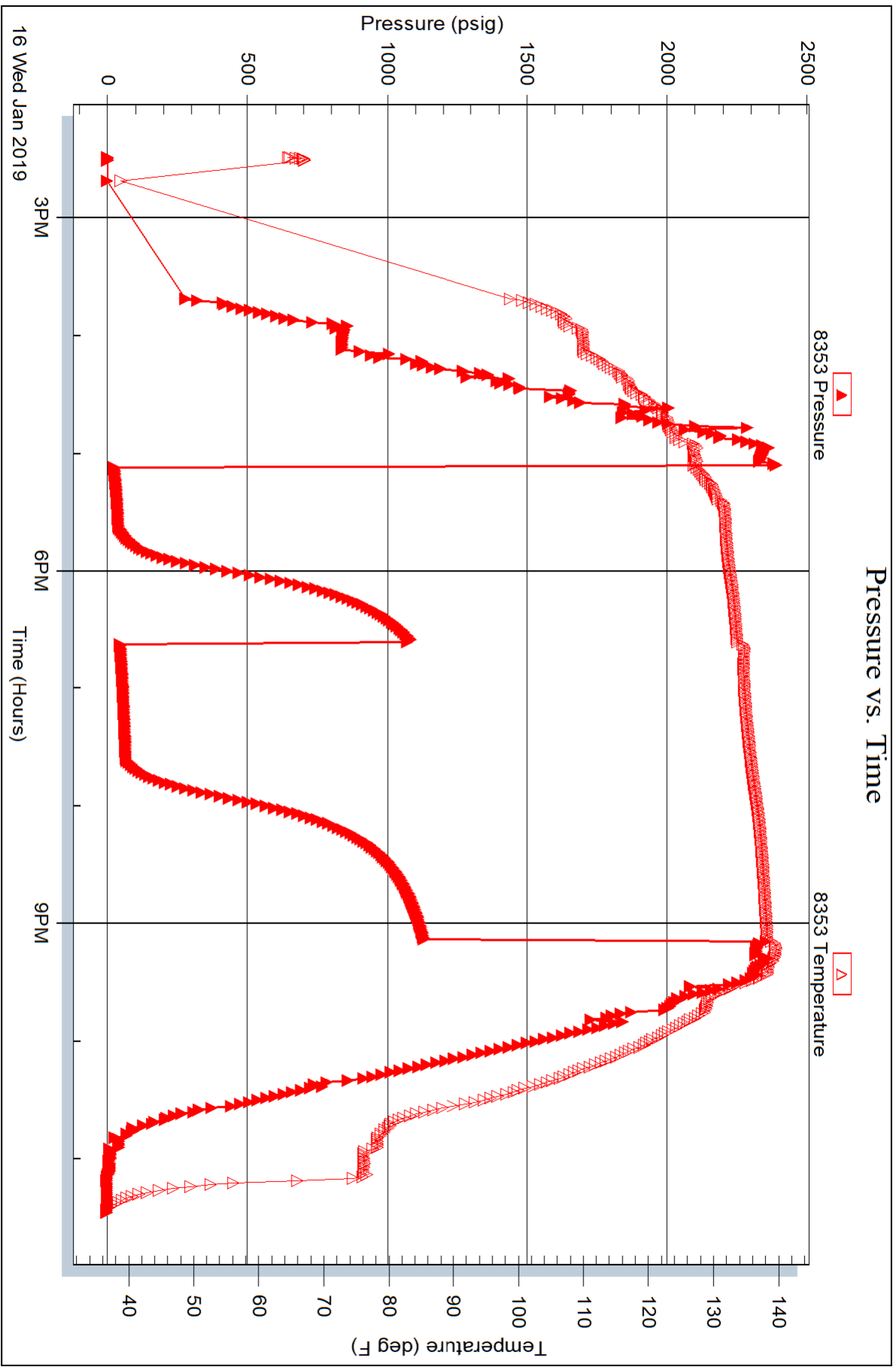
Serial #: 8353

Inside

Murfin Drilling Co. Inc

Antholz B #1-22

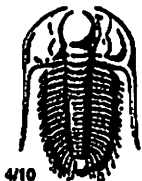
DST Test Number: 7



Triobite Testing, Inc

Ref. No: 65280

Printed: 2019.01.17 @ 14:27:48



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63574

Well Name & No. Antholz B # 1-22 Test No. 1 Date 1/11/19
 Company Murfin Drilling Co. Inc. Elevation 3415 KB 3410 GL
 Address 250 N. Water STE 300 Wichita KS 67202
 Co. Rep / Geo. Ken LeBlanc Rig Murfin # 3
 Location: Sec. 22 Twp 29 Rge. 37W Co. Cheyenne State KS

Interval Tested 4280 - 4380 Zone Tested 2KC "A"
 Anchor Length 100' Drill Pipe Run 4071' Mud Wt. 8.7
 Top Packer Depth 4275 Drill Collars Run 206' Vis 52
 Bottom Packer Depth 4280 Wt. Pipe Run 0' WL 6.0
 Total Depth 4380 Chlorides 600 ppm System LCM 2

Blow Description 30 IF - Weak Surface blow
60 FSI - No return
30 FF - No blow
60 FSI - No return

MISS RUN
Tool Didn't Open

Rec	Feet of	%gas	%oil	%water	%mud

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

(A) Initial Hydrostatic _____ Test 950 _____ T-On Location 23:15
 (B) First Initial Flow _____ Jars 250 _____ T-Started 00:20
 (C) First Final Flow _____ Safety Joint 75 _____ T-Open _____
 (D) Initial Shut-In _____ Circ Sub _____ T-Pulled _____
 (E) Second Initial Flow _____ Hourly Standby _____ T-Out 07:45
 (F) Second Final Flow _____ Mileage 120 RT 120 _____ Comments _____
 (G) Final Shut-In _____ Sampler _____
 (H) Final Hydrostatic _____ Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____

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

Sub Total 0
 Total 0
 MP/DST Disc't _____

Approved By _____ Our Representative Ken LeBlanc

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TRIOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63575

Well Name & No. Antholz B# 1-22 Test No. 2 Date 1/12/19
 Company Murfin Drilling Co. Inc. Elevation 3415 KB 3410 GL
 Address 250 N. Water STE 300 Wichita KS 67202
 Co. Rep / Geo. Ken LeBlanc Rig Murfin #3
 Location: Sec. 22 Twp 25 Rge. 37W Co. Cheyenne State KS

Interval Tested 4280 - 4380 Zone Tested LKC "A"
 Anchor Length 100' Drill Pipe Run 4071' Mud Wt. 9.0
 Top Packer Depth 4275 Drill Collars Run 206' Vis 62
 Bottom Packer Depth 4280 Wt. Pipe Run 0' WL 5.6
 Total Depth 4380 Chlorides 600 ppm System LCM 4
 Blow Description 30 IF - Slide 3' to bottom 2 1/4" surge built to 5"
60 ISI - No return
60 FF - Blow built to 1 1/2"
90 FSI - No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>30</u>	<u>OCM</u>	<u>5</u>	<u>5</u>	<u>9.5</u>	<u>9.5</u>
<u>60</u>	<u>GOCM</u>	<u>5</u>	<u>5</u>	<u>90</u>	<u>90</u>
<u>60</u>	<u>GOCM</u>	<u>5</u>	<u>10</u>	<u>85</u>	<u>85</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>

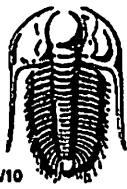
Rec Total 150' BHT 139° Gravity API RW @ °F Chlorides ppm

(A) Initial Hydrostatic 2277 Test 1150 T-On Location
 (B) First Initial Flow 47 Jars 250 T-Started 08:58
 (C) First Final Flow 64 Safety Joint 75 T-Open 10:50
 (D) Initial Shut-In 988 Circ Sub T-Pulled 14:51
 (E) Second Initial Flow 68 Hourly Standby T-Out 17:00
 (F) Second Final Flow 92 Mileage Comments bullnose &
 (G) Final Shut-In 970 Sampler 2 joints above full of
 (H) Final Hydrostatic 2129 Straddle sand
 Ruined Shale Packer
 Ruined Packer
 Extra Copies
 Initial Open 30 Extra Packer Sub Total 0
 Initial Shut-In 60 Extra Recorder Total 1475
 Final Flow 60 Day Standby MP/DST Disc't
 Final Shut-In 90 Accessibility
 Sub Total 1475

Approved By _____

Our Representative Ryan J. Nichols

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 65276

Well Name & No. Antholz B #1-22 Test No. 3 Date 1/13/19
 Company Murfin Drilling Co Inc. Elevation 3415 KB 3410 GL
 Address 250 N. Water STE 300 Wichita KS 67202
 Co. Rep / Geo. Ken LeBlanc Rig Murfin # 3
 Location: Sec. 22 Twp 2S Rge. 37W Co. Cheyenne State KS

Interval Tested 4355 - 4420 Zone Tested LKC "D"
 Anchor Length 65' Drill Pipe Run _____ Mud Wt. 8.6
 Top Packer Depth 4350 Drill Collars Run 206' Vis 70
 Bottom Packer Depth 4355 Wt. Pipe Run 0' WL 6.0
 Total Depth 4420 Chlorides 600 ppm System LCM 6
 Blow Description Missrun Stacked out 3 1/2 stands going in with tool

Rec	Feet of	%gas	%oil	%water	%mud

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

(A) Initial Hydrostatic _____ Test 850 T-On Location 01:00
 (B) First Initial Flow _____ Jars _____ T-Started 01:15
 (C) First Final Flow _____ Safety Joint _____ T-Open _____
 (D) Initial Shut-In _____ Circ Sub _____ T-Pulled _____
 (E) Second Initial Flow _____ Hourly Standby _____ T-Out 03:00
 (F) Second Final Flow _____ Mileage 120 RT 120 Comments _____
 (G) Final Shut-In _____ Sampler _____
 (H) Final Hydrostatic _____ Straddle _____
 Initial Open _____ Shale Packer _____
 Initial Shut-In _____ Extra Packer _____
 Final Flow _____ Extra Recorder _____
 Final Shut-In _____ Day Standby _____
 Sub Total 850 Total 850
 Sub Total 850 MP/DST Disc't _____

Approved By _____ Our Representative Ken LeBlanc

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 65277

Well Name & No. Antholz B #1-22 Test No. 4 Date 1/13/19
 Company Murfin Drilling Co. Inc. Elevation 3415 KB 3410 GL
 Address 250 N. Water STE 300 Wichita KS 67202
 Co. Rep / Geo. Ken LeBlanc Rig Murfin # 3
 Location: Sec. 22 Twp 25 Rge. 37 W Co. Cheyenne State KS

Interval Tested 4355 - 4420 Zone Tested LKC "D"
 Anchor Length 65' Drill Pipe Run 4134' Mud Wt. 9.2
 Top Packer Depth 4350 Drill Collars Run 206' Vis 60
 Bottom Packer Depth 4355 Wt. Pipe Run 0' WL 5.6
 Total Depth 4420 Chlorides 600 ppm System LCM 4
 Blow Description 30 IF - 2" surge built to 5 1/2"
60 ISI - No return
60 FF - Blow built to 3"
90 FSI - Surface blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>60'</u>	<u>OCM</u>	<u>10</u>		<u>90</u>	
<u>20'</u>	<u>GOCM</u>	<u>3</u>	<u>5</u>	<u>92</u>	
<u>60'</u>	<u>GOCM</u>	<u>5</u>	<u>5</u>	<u>90</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

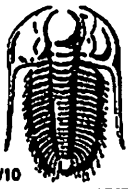
Rec Total 180' BHT 133° Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2177 Test 1150 T-On Location 07:30
 (B) First Initial Flow 32 Jars 250 T-Started 07:54
 (C) First Final Flow 63 Safety Joint 75 T-Open 10:04
 (D) Initial Shut-In 1133 Circ Sub _____ T-Pulled 14:04
 (E) Second Initial Flow 66 Hourly Standby _____ T-Out 16:30
 (F) Second Final Flow 100 Mileage 120 RT 120 Comments slide 3'
 (G) Final Shut-In 1130 Sampler _____
 (H) Final Hydrostatic 2137 Straddle _____ EM Tool _____
 Shale Packer _____ Ruined Shale Packer _____
 Extra Packer _____ Ruined Packer _____
 Extra Recorder _____ Extra Copies _____
 Day Standby _____ Sub Total 0
 Accessibility _____ Total 1595
 Sub Total 1595 MP/DST Disc't _____

Approved By _____

Our Representative Ken LeBlanc

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 65278

Well Name & No. Antholz B # 1-22 Test No. 5 Date 1/14/19
 Company Martin Drilling Co. Inc. Elevation 3415 KB 3410 GL
 Address 250 N. Water STE 300 Wichita KS 67202
 Co. Rep / Geo. Ken LeBlanc Rig Martin # 3
 Location: Sec. 22 Twp 25 Rge. 37W Co. Zhayaan State KS

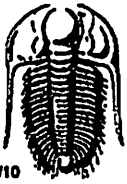
Interval Tested 4420 - 4480 Zone Tested LKC "G"
 Anchor Length 60' Drill Pipe Run 4196' Mud Wt. 9.0
 Top Packer Depth 4415 Drill Collars Run 206' Vis 57
 Bottom Packer Depth 4420 Wt. Pipe Run 0' WL 5.6
 Total Depth 4480 Chlorides 600 ppm System LCM 4
 Blow Description 30 IF - Blow built to 2 1/4"
60 ISI - No return
60 FF - Blow built to 5"
90 FSI - No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>5'</u>	<u>OCM</u>	<u>30</u>		<u>70</u>	
<u>60'</u>	<u>GMCO</u>	<u>20</u>	<u>45</u>	<u>35</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 65' BHT 133° Gravity — API RW — @ — F Chlorides — ppm

(A) Initial Hydrostatic <u>2176</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>02:45</u>
(B) First Initial Flow <u>17</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>03:22</u>
(C) First Final Flow <u>29</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>05:43</u>
(D) Initial Shut-In <u>236</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>09:43</u>
(E) Second Initial Flow <u>28</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>11:30</u>
(F) Second Final Flow <u>44</u>	<input checked="" type="checkbox"/> Mileage <u>120 RT</u> 120	Comments <u>Slide 6'</u>
(G) Final Shut-In <u>256</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2091</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> EM Tool
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Shale Packer
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Ruined Packer
Final Flow <u>60</u>	<input type="checkbox"/> Extra Recorder	<input type="checkbox"/> Extra Copies
Final Shut-In <u>90</u>	<input type="checkbox"/> Day Standby	Sub Total <u>0</u>
	<input type="checkbox"/> Accessibility	Total <u>1595</u>
	Sub Total <u>1595</u>	MP/DST Disc't

Approved By _____ Our Representative Ken LeBlanc
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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 65279

Well Name & No. Antholz B # 1-22 Test No. 6 Date 1/14/19
 Company Murfin Drilling Co. Inc. Elevation 3415 KB 3410 GL
 Address 250 N. Water STE 300 Wichita KS 67202
 Co. Rep / Geo. Ken LeBlanc Rig Murfin # 3
 Location: Sec. 22 Twp 25 Rge. 37W Co. Cheyenne State KS

Interval Tested 4470 - 4570 Zone Tested LKC "H-J"
 Anchor Length 100' Drill Pipe Run 4256' Mud Wt. 8.7
 Top Packer Depth 4465 Drill Collars Run 206' Vis 60
 Bottom Packer Depth 4470 Wt. Pipe Run 0' WL 5.6
 Total Depth 4570 Chlorides 600 ppm System LCM 4

Blow Description 30 IF - Opened tool slide 10' picked up tool & reset tool surface
blow built to 3/4" died back to surface / 60 ISI - No return
30 FF - No blow
60 FSI - No return

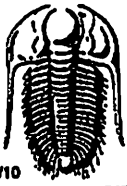
Rec	Feet of	%gas	%oil	%water	%mud
<u>80'</u>	<u>Mud</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 80' BHT 129° Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic <u>2187</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>23:30</u>
(B) First Initial Flow <u>59</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>23:50</u>
(C) First Final Flow <u>63</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>02:04</u>
(D) Initial Shut-In <u>194</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>05:04</u>
(E) Second Initial Flow <u>63</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>07:00</u>
(F) Second Final Flow <u>64</u>	<input checked="" type="checkbox"/> Mileage <u>120 RT</u> 120	Comments
(G) Final Shut-In <u>136</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2135</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> EM Tool
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Shale Packer
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Ruined Packer
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder	<input type="checkbox"/> Extra Copies
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby	Sub Total <u>0</u>
	<input type="checkbox"/> Accessibility	Total <u>1595</u>
	Sub Total <u>1595</u>	MP/DST Disc't

Approved By _____ Our Representative Ken LeBlanc

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TRIBOLITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 65280

Well Name & No. Antholz B # 1-22 Test No. 7 Date 1/16/19
 Company Murfin Drilling Co. Inc. Elevation 3415 KB 3410 GL
 Address 250 N. Water STE 300 Wichita KS 67202
 Co. Rep / Geo. Ken LeBlanc Rig Murfin # 3
 Location: Sec. 22 Twp 25 Rge. 37W Co. Cheyenne State KS

Interval Tested 4706 - 4880 Zone Tested Fort Scott - Cherokee
 Anchor Length 174' Drill Pipe Run 4505 Mud Wt. 8.9
 Top Packer Depth 4701 Drill Collars Run 206' Vis 67
 Bottom Packer Depth 4706 (shale) Wt. Pipe Run 0' WL 5.6
 Total Depth 4880 Chlorides 600 ppm System LCM 3
 Blow Description 30 IF - Blow built to 3 1/2"
60 ISI - No return
60 FF - Blow built to 6 1/2"
90 FSI -

Rec	Feet of	%gas	%oil	%water	%mud
<u>40</u>	<u>OCM</u>		<u>25</u>	<u>75</u>	
<u>60</u>	<u>OCM</u>		<u>40</u>	<u>60</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 100' BHT 138° Gravity _____ API RW _____ @ _____ ° F Chlorides _____ ppm

(A) Initial Hydrostatic <u>2388</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>14:00 15</u>
(B) First Initial Flow <u>21</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>14:29</u>
(C) First Final Flow <u>38</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>17:06</u>
(D) Initial Shut-In <u>1087</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>21:08</u>
(E) Second Initial Flow <u>42</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>23:30</u>
(F) Second Final Flow <u>65</u>	<input checked="" type="checkbox"/> Mileage <u>120 RT</u> ¹²⁰	Comments _____
(G) Final Shut-In <u>1179</u>	<input type="checkbox"/> Sampler _____	_____
(H) Final Hydrostatic <u>2356</u>	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> EM Tool _____
Initial Open <u>30</u>	<input checked="" type="checkbox"/> Shale Packer <u>250</u>	<input type="checkbox"/> Ruined Shale Packer _____
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Ruined Packer _____
Final Flow <u>60</u>	<input type="checkbox"/> Extra Recorder _____	<input type="checkbox"/> Extra Copies _____
Final Shut-In <u>90</u>	<input type="checkbox"/> Day Standby _____	Sub Total <u>0</u>
	<input type="checkbox"/> Accessibility _____	Total <u>1845</u>
	Sub Total <u>1845</u>	MP/DST Disc't _____

Approved By _____ Our Representative Ryan Thompson
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