

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
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------

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
-------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------

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:	
----------------	-------	---------	------------	--

Form	ACO1 - Well Completion
Operator	Murfin Drilling Co., Inc.
Well Name	RATHBUN 19-2
Doc ID	1488187

All Electric Logs Run

DIL
DUCP
MEL
BHCS



CEMENT TREATMENT REPORT

Customer: Murfin Drilling Co	Well: Rathbun #19-2	Ticket: ICT2703
City, State: Wichita, KS	County: Ellis, KS	Date: 11/2/2019
Field Rep: Craig Hutchison	S-T-R: Sec 19 - T11S - R19W	Service: Cement - Prod Csg

Downhole Information	
Hole Size:	7.875 In
Hole Depth:	3660 ft
Casing Size:	5.5 In
Casing Depth:	3652 ft
Drill Pipe	In
Depth:	ft
Tool / Packer:	Port Collar
Depth:	1400 ft
Displacement:	86.4 bbls

Calculated Lead Slurry	
Weight:	12.00 # / sx
Water / Sx:	15.46 gal / sx
Yield:	2.56 ft ³ / sx
Bbls / Ft.:	0.0309
Depth:	ft
Annular Volume:	bbls
Excess:	
Total Slurry:	18.2 bbls
Total Sacks:	40 sx

Product	% / #	#
Class A	100.00	8460
Poz		
Gol		
CaCl	3.00	254
Gypsum	2.00	169
Metso	2.00	169
PhenoSeal	0.25	23
Flo Seal		
Salt (bww)		
Total		9,075

Calculated Tail Slurry	
Weight:	14.8 # / sx
Water / Sx:	6.61 gal / sx
Yield:	1.50 ft ³ / sx
Bbls / Ft.:	0.0309
Depth:	ft
Annular Volume:	bbls
Excess:	
Total Slurry:	17.4 bbls
Total Sacks:	65 sx

Product	% / #	#
Class A	100.00	6110
Poz		
Gol	1.00	61
CaCl		
Gypsum	5.00	306
CAF-38	0.25	15
CAL-160	0.60	37
Flo Seal	5.00	325
Salt (bww)	10.00	358
Total		7,212

TIME	RATE	PSI	BBLs	REMARKS
9:30				Call out
13:30				Depart yard
15:30				Arrive on locn. Rig L/D drillpipe
15:35				JSA, discuss moving on, spotting & rig-up of equipment
15:40				Move on, spot & rig-up equipment
16:00				Rig-up complete
17:15				Rig-up casing crew
18:15				Rig RIH w/ 5.5" casing.
19:20				Make-up port collar
19:50				Casing @ setting depth. Rig down csg crew
20:00		200.0		Make-up cement head. Rig circulate & condition hole
21:18	2.5	150.0	5.0	Pump water spacer ahead
21:21		2,500.0		Pressure test
21:24	2.5	150.0	10.0	Pump mudflush spacer
21:28	2.5	150.0	5.0	Pump water spacer ahead
21:33	2.5	15.0	13.0	Plug RIH w/ 30sx cement mixed @ 12.0ppg
21:40			9.0	Plug MH w/ 20sx cement mixed @ 12.0ppg
21:45	4.5	200.0	18.2	Mix & pump 40sx lead slurry @ 12.0ppg. Y - 2.56cuft/sk; MR - 15.46g/sk.
21:53	5.5	250.0	17.4	Mix & pump 65sx tail slurry @ 14.8ppg. Y - 1.5cuft/sk; MR - 6.61g/sk.



21:57				Shutdown. Wash-up pumps & lines. Release L/D dart																														
22:08	6.0	170.0		Displace w/ H2O																														
22:23	2.0	320.0	75.0	Slow rate																														
22:26		1,250.0	86.5	Bump plug. Final circulating pressure - 450psi																														
22:28				B/O. 1/2bbl bled back, plug latched																														
22:30				End Job. Wash-up pumps & lines																														
22:35				JSA, discuss rigging down & racking up of equipment																														
22:40				Rig down & rack-up																														
22:55				JSA, discuss journey management																														
23:00				Depart loch																														
				Thanks for calling Hurricane Svcs Inc.																														
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="background-color: black; color: white;">CREW</th> <th style="background-color: black; color: white;">UNIT</th> <th colspan="3" style="background-color: black; color: white;">SUMMARY</th> </tr> </thead> <tbody> <tr> <td style="background-color: black; color: white;">Cementer:</td> <td style="background-color: black; color: white;">Scott Green</td> <td style="background-color: black; color: white;">74</td> <td style="background-color: black; color: white;">Average Rate</td> <td style="background-color: black; color: white;">Average Pressure</td> <td style="background-color: black; color: white;">Total Fluid</td> </tr> <tr> <td style="background-color: black; color: white;">Pump Operator:</td> <td style="background-color: black; color: white;">Josh Mosler</td> <td style="background-color: black; color: white;">230</td> <td style="background-color: black; color: white;">3.5 bpm</td> <td style="background-color: black; color: white;">487 psi</td> <td style="background-color: black; color: white;">239 bbls</td> </tr> <tr> <td style="background-color: black; color: white;">Bulk #1:</td> <td style="background-color: black; color: white;">John Polley</td> <td style="background-color: black; color: white;">194 / 254</td> <td colspan="3"></td> </tr> <tr> <td style="background-color: black; color: white;">Bulk #2:</td> <td></td> <td></td> <td colspan="3"></td> </tr> </tbody> </table>					CREW		UNIT	SUMMARY			Cementer:	Scott Green	74	Average Rate	Average Pressure	Total Fluid	Pump Operator:	Josh Mosler	230	3.5 bpm	487 psi	239 bbls	Bulk #1:	John Polley	194 / 254				Bulk #2:					
CREW		UNIT	SUMMARY																															
Cementer:	Scott Green	74	Average Rate	Average Pressure	Total Fluid																													
Pump Operator:	Josh Mosler	230	3.5 bpm	487 psi	239 bbls																													
Bulk #1:	John Polley	194 / 254																																
Bulk #2:																																		



CEMENT TREATMENT REPORT

Customer: Murfin Drilling Co	Well: Rathbun #19-2	Ticket: ICT2727
City, State: Wichita, KS	County: Ellis, KS	Date: 11/6/2019
Field Rep: Mark Robben	S-T-R: Sec 19 - T11S - R19W	Service: Cement - Port Collar

Downhole Information	
Hole Size:	7.875 in
Hole Depth:	3660 ft
Casing Size:	5.5 in
Casing Depth:	3652 ft
Tbg:	2.875 in
Depth:	1393 ft
Tool / Packer:	Port Collar
Depth:	1400 ft
Displacement:	8.1 bbls

Calculated Lead Slurry	
Weight:	12.00 # / sx
Water / Sx:	15.46 gal / sx
Yield:	2.56 ft ³ / sx
Bbls / Ft.:	0.0309
Depth:	1400 ft
Annular Volume:	43.26 bbls
Excess:	
Total Slurry:	91.2 bbls
Total Sacks:	200 sx

Product	% / #	#
Class A	100.00	18800
Poz		
Gel		
CaCl	3.00	564
Gypsum	2.00	378
Metso	2.00	378
PhenoSeal	0.25	50
Flo Seal		
Salt (bww)		
Total		20,166

TIME	RATE	PSI	BBLs	REMARKS
15:00				Call out - 11/06/19
8:00				Depart yard
11:00				Arrive on locn. JSA, discuss moving on, spotting & rig-up of equipment
11:10				Move on, spot & rig-up equipment
11:35				Rig-up complete
11:40		1,000.0		Pressure up on backside
11:42		200.0		Bleed pressure down & monitor
11:43		0		Open port collar
11:45				Tie into tbg
11:47	2.5	120.0		Start pumping H2O & confirm circulation at plt
11:51			5.0	Stop pumping
11:53	4.2	80.0		Mix & pump 200sx cement @ 12.0ppg. Y - 2.56cuft/sk; MR - 15.46g/sk.
12:10			91.2	Stop pumping, no cement returns
12:16	3.5	330.0		Displace w/ H2O
12:18			7.5	End displacement, trace cement to surface.
12:20				Close port collar
12:23		1,000.0		Pressure up on backside & confirm port collar is closed
12:25				Rig RIH w/ 5jts of tbg
12:30				Tbg @ 1570'. Tie into same
12:35	3.5	120.0		Reverse circulate to plt
12:43			25.0	Shutdown. End Job.
12:45				JSA, discuss rigging down & racking up of equipment
12:50				Rig down & rack-up
13:00				Wash-up pumps & lines & pickle same.
13:25				JSA, discuss journey management
13:30				Depart locn

Cementer:	Scott Green	74	Average Rate	Average Pressure	Total Fluid
Pump Operator:	Josh Mosler	230	#REF! bpm	403 psi	129 bbls
Bulk #1:	John Polley	194 / 254			
Bulk #2:					

Rathbun #19-2
 1850' FNL 1100' FWL
 Sec. 19-T11S-R19W
 1975' KB

Formation	Sample tops	Datum	Ref	Log Tops	Datum	Ref
Anhydrite	1334	+641	+4	1340	+635	-2
B/Anhydrite	1384	+591	-2	1382	+593	Flat
Topeka	2991	-1016	+1	2990	-1015	+2
Heebner	3212	-1237	+1	3210	-1235	+3
Lansing	3250	-1275	+2	3250	-1275	+2
BKC	3477	-1502	+1	3475	-1500	+3
Arbuckle	3562	-1587	+1	3557	-1582	+6
RTD	3660					
LTD				3659		

Robert D. Hendrix

Petroleum Geologist

GEOLOGIST'S REPORT DRILLING TIME AND SAMPLE LOG

COMPANY **Murfin Drilling Co., Inc.**

LEASE **Rathbun #19-2**

FIELD **Wildcat**

LOCATION **1850'nl & 1100'fwl**

SEC **19** TWP **11S** RGE **19W**

COUNTY **Ellis** STATE **Kansas**

CONTRACTOR **Murfin Drilling Co. Inc. Rig #16**

SPUD **10/25/2019** COMP **11/2/2019**

RTD **3660'** LTD **3559'**

MUD UP **2670'** TYPE MUD **Chemical**

SAMPLES SAVED FROM **2890'** TO **3660'**

DRILLING TIME KEPT FROM **2890'** TO **3660'**

SAMPLES EXAMINED FROM **2890'** TO **3660'**

GEOLOGICAL SUPERVISION FROM **2900'**

GEOLOGIST ON WELL **Robert D. Hendrix**

FORMATION TOPS

Anhydrite 1339 (+636)

Topeka 2990 (-1015)

Heebner Shale 3210 (-1237)

Lansing 3250 (-1275)

Stark Shale 3433 (-1458)

Mound City 3477 (-1502)

Arbuckle 3555 (-1580)

AP# 15-051-26976

ELEVATIONS

KB **1975'**

DF _____

GL **1970'**

Measurements Are All From **Kelly Bushing**

CASING

CONDUCTOR

SURFACE **8-5/8" at 265'**

PRODUCTION **5-1/2" @ 3655'**

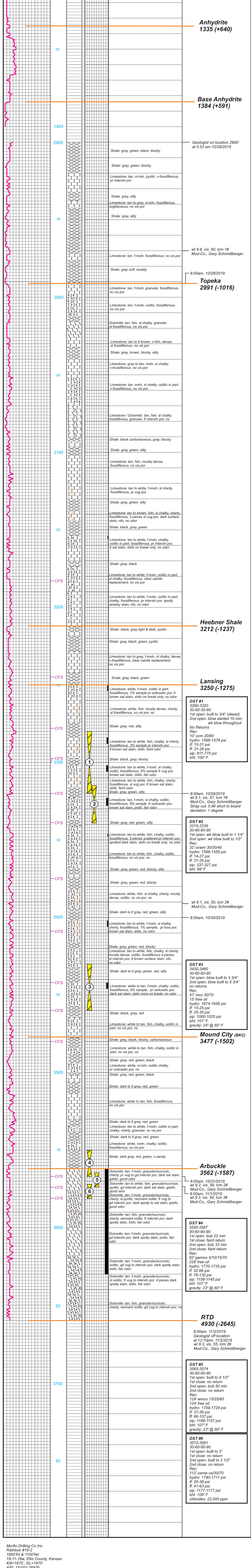
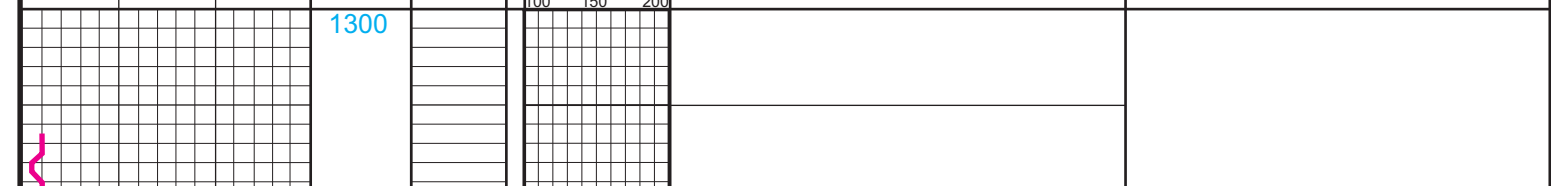
Camt. Priority/ Dual Induction

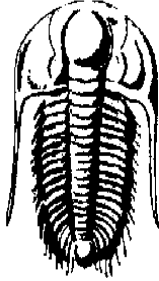
Mudlog/ Snel/ Pnover Wellbore Services

ELECTRICAL SURVEYS

REMARKS:

LEGEND





TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

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

250 N Water STE 300
Wichita KS 67202

ATTN: Robert Hendrix

Rathbun #19-2

19-11S-19W Ellis,KS

Start Date: 2019.10.29 @ 05:33:00

End Date: 2019.10.29 @ 12:48:30

Job Ticket #: 66322 DST #: 1

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

Printed: 2019.11.04 @ 15:53:50



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

19-11S-19W Ellis,KS

250 N Water STE 300
Wichita KS 67202

Rathbun #19-2

Job Ticket: 66322

DST#: 1

ATTN: Robert Hendrix

Test Start: 2019.10.29 @ 05:33:00

GENERAL INFORMATION:

Formation: **LKC B-D**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 07:25:30

Time Test Ended: 12:48:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Royal Fisher

Unit No: 77

Interval: 3280.00 ft (KB) To 3320.00 ft (KB) (TVD)

Reference Elevations: 1975.00 ft (KB)

Total Depth: 3320.00 ft (KB) (TVD)

1970.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8671 Outside

Press@RunDepth: 25.64 psig @ 3281.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.10.29

End Date: 2019.10.29

Last Calib.: 2019.10.29

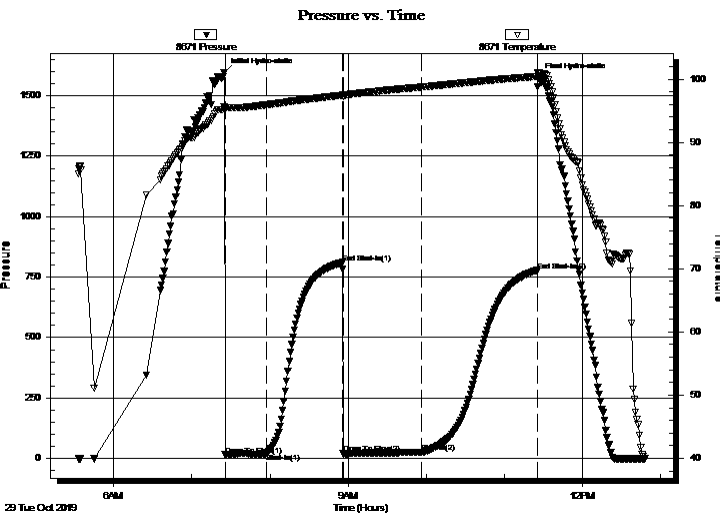
Start Time: 05:33:05

End Time: 12:48:29

Time On Btm: 2019.10.29 @ 07:25:00

Time Off Btm: 2019.10.29 @ 11:26:15

TEST COMMENT: 30 - IFP - Surface blow built up to 3/4"
60 - ISI - No Return
60 - FFP - Faint surface blow started in 10 mins and built up to weak blow
90 - FSI - No Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1596.39	95.60	Initial Hydro-static
1	15.14	95.29	Open To Flow (1)
33	21.04	95.93	Shut-In(1)
91	810.77	97.45	End Shut-In(1)
91	20.52	97.19	Open To Flow (2)
152	25.64	98.74	Shut-In(2)
240	774.93	100.41	End Shut-In(2)
242	1575.65	101.05	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
10.00	OCM - 20%o - 80%m	0.05

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

19-11S-19W Ellis, KS

250 N Water STE 300
Wichita KS 67202

Rathbun #19-2

Job Ticket: 66322

DST#: 1

ATTN: Robert Hendrix

Test Start: 2019.10.29 @ 05:33:00

Tool Information

Drill Pipe:	Length: 3231.38 ft	Diameter: 3.25 inches	Volume: 33.16 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 28.99 ft	Diameter: 2.25 inches	Volume: 0.14 bbl	Weight to Pull Loose: 50000.00 lb
			<u>Total Volume: 33.30 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	8.37 ft			String Weight: Initial 42000.00 lb
Depth to Top Packer:	3280.00 ft			Final 42000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	40.00 ft			
Tool Length:	68.00 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			3257.00	
Hydraulic tool	5.00			3262.00	
Jars	5.00			3267.00	
Safety Joint	3.00			3270.00	
Packer	5.00			3275.00	28.00 Bottom Of Top Packer
Packer	5.00			3280.00	
Stubb	1.00			3281.00	
Recorder	0.00	8360	Inside	3281.00	
Recorder	0.00	8671	Outside	3281.00	
Perforations	36.00			3317.00	
Bullnose	3.00			3320.00	40.00 Bottom Packers & Anchor

Total Tool Length: 68.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

19-11S-19W Ellis,KS

250 N Water STE 300
Wichita KS 67202

Rathbun #19-2

Job Ticket: 66322

DST#: 1

ATTN: Robert Hendrix

Test Start: 2019.10.29 @ 05:33:00

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: 7.58 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3300.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	OCM - 20%o - 80%m	0.049

Total Length: 10.00 ft Total Volume: 0.049 bbl

Num Fluid Samples: 0

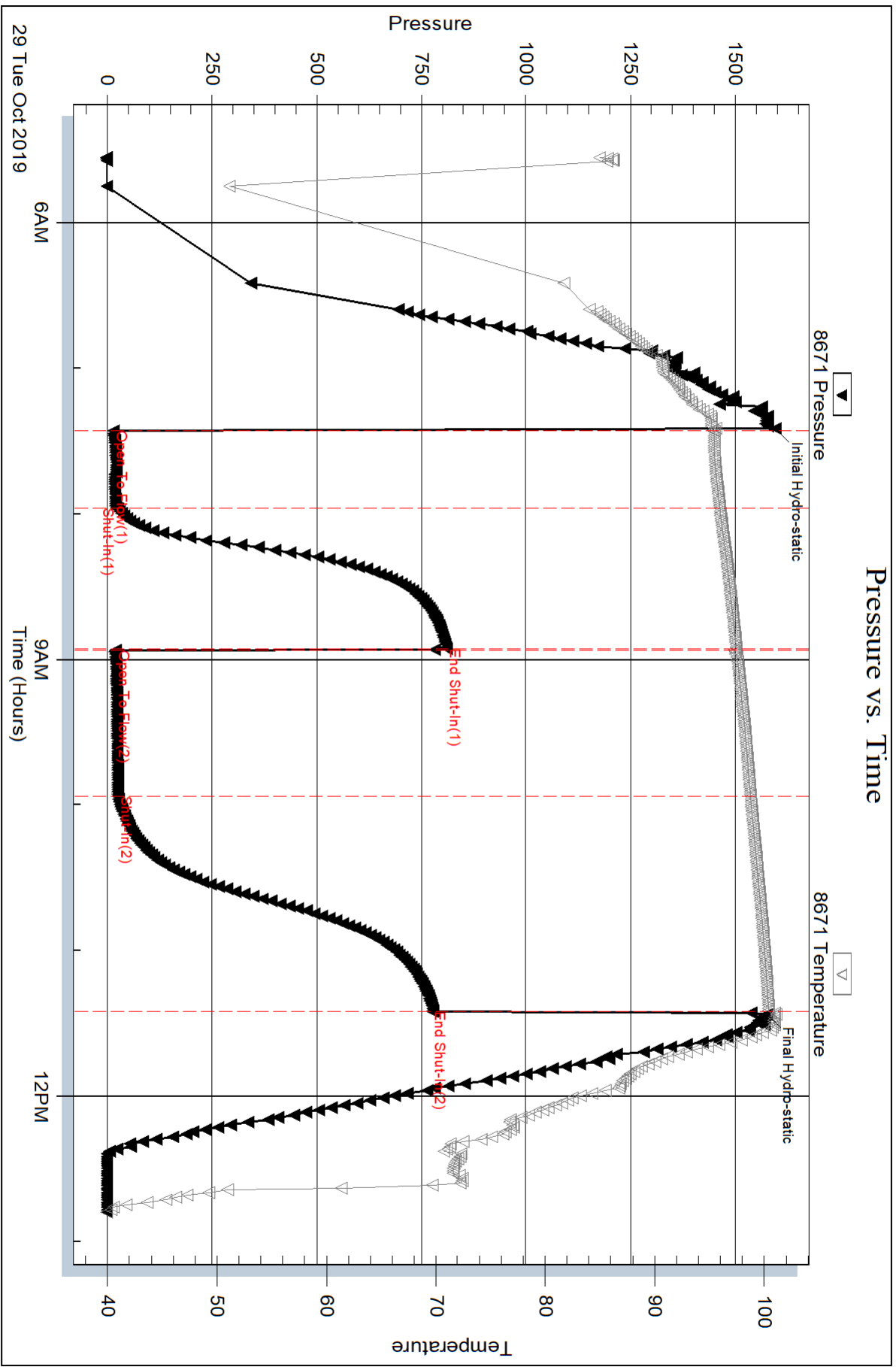
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



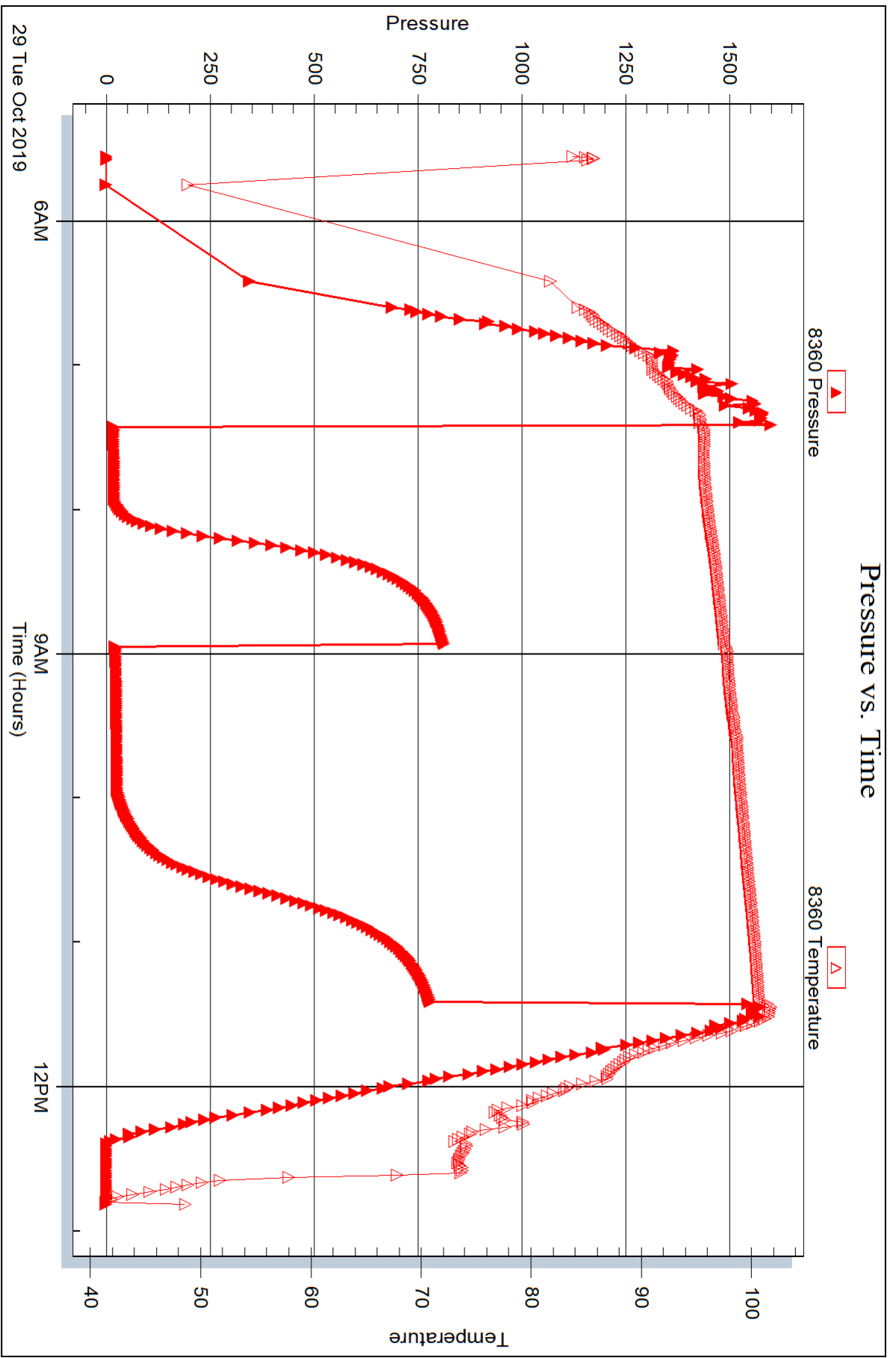
Serial #: 8360

Inside

Murfin Drilling Co., Inc.

Rathbun #19-2

DST Test Number: 1



Triobite Testing, Inc

Ref. No: 66322

Printed: 2019-11-04 @ 15:53:51



DRILL STEM TEST REPORT

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

250 N Water STE 300
Wichita KS 67202

ATTN: Robert Hendrix

Rathbun #19-2

19-11S-19W Ellis,KS

Start Date: 2019.10.29 @ 18:20:00

End Date: 2019.10.30 @ 01:16:45

Job Ticket #: 66323 DST #: 2

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

Printed: 2019.11.04 @ 15:49:33



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

19-11S-19W Ellis, KS

250 N Water STE 300
Wichita KS 67202

Rathbun #19-2

Job Ticket: 66323

DST#: 2

ATTN: Robert Hendrix

Test Start: 2019.10.29 @ 18:20:00

GENERAL INFORMATION:

Formation: **LKC E & F**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 19:40:30

Time Test Ended: 01:16:45

Test Type: Conventional Bottom Hole (Initial)

Tester: Royal Fisher

Unit No: 77

Interval: 3315.00 ft (KB) To 3339.00 ft (KB) (TVD)

Reference Elevations: 1975.00 ft (KB)

Total Depth: 3339.00 ft (KB) (TVD)

1970.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8671 Outside

Press@RunDepth: 35.18 psig @ 3316.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.10.29

End Date:

2019.10.30

Last Calib.:

2019.10.30

Start Time:

18:20:05

End Time:

01:16:44

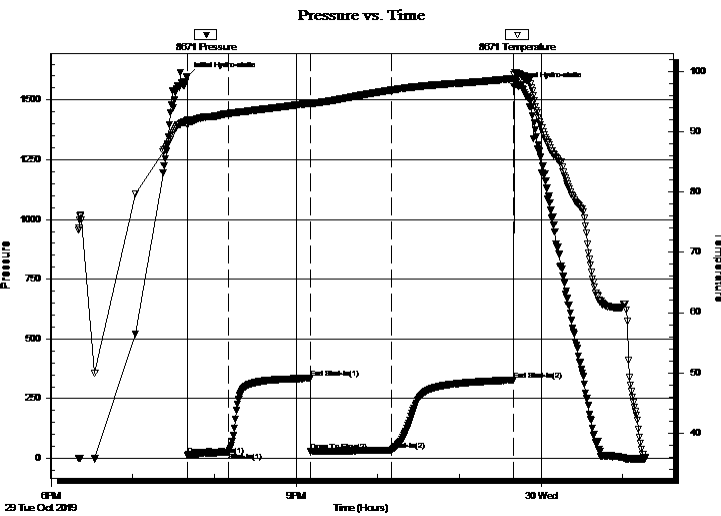
Time On Btm:

2019.10.29 @ 19:40:15

Time Off Btm:

2019.10.29 @ 23:40:15

TEST COMMENT: 30 - IFP - Surface blow built up to 1 1/4"
60 - ISI - No Return
60 - FFP - Faint blow started 10 mins in and built to 1/2"
90 - FSI - No Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1598.37	91.90	Initial Hydro-static
1	13.86	91.13	Open To Flow (1)
30	26.89	93.00	Shut-In(1)
91	335.31	94.67	End Shut-In(1)
91	30.77	94.52	Open To Flow (2)
150	35.18	96.88	Shut-In(2)
240	327.45	98.78	End Shut-In(2)
240	1555.23	99.46	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
32.00	OCWM 30%o - 30%w - 40%m	0.17

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

19-11S-19W Ellis, KS

250 N Water STE 300
Wichita KS 67202

Rathbun #19-2

Job Ticket: 66323

DST#: 2

ATTN: Robert Hendrix

Test Start: 2019.10.29 @ 18:20:00

Tool Information

Drill Pipe:	Length: 3262.32 ft	Diameter: 3.25 inches	Volume: 33.47 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 28.99 ft	Diameter: 2.25 inches	Volume: 0.14 bbl	Weight to Pull Loose: 48000.00 lb
			<u>Total Volume: 33.61 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	4.31 ft			String Weight: Initial 44000.00 lb
Depth to Top Packer:	3315.00 ft			Final 44000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	24.00 ft			
Tool Length:	52.00 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			3292.00	
Hydraulic tool	5.00			3297.00	
Jars	5.00			3302.00	
Safety Joint	3.00			3305.00	
Packer	5.00			3310.00	28.00 Bottom Of Top Packer
Packer	5.00			3315.00	
Stubb	1.00			3316.00	
Recorder	0.00	8360	Inside	3316.00	
Recorder	0.00	8671	Outside	3316.00	
Perforations	20.00			3336.00	
Bullnose	3.00			3339.00	24.00 Bottom Packers & Anchor

Total Tool Length: 52.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

19-11S-19W Ellis,KS

250 N Water STE 300
Wichita KS 67202

Rathbun #19-2

Job Ticket: 66323

DST#: 2

ATTN: Robert Hendrix

Test Start: 2019.10.29 @ 18:20:00

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: 57.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.98 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3900.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
32.00	OCWM 30%o - 30%w - 40%m	0.173

Total Length: 32.00 ft Total Volume: 0.173 bbl

Num Fluid Samples: 0

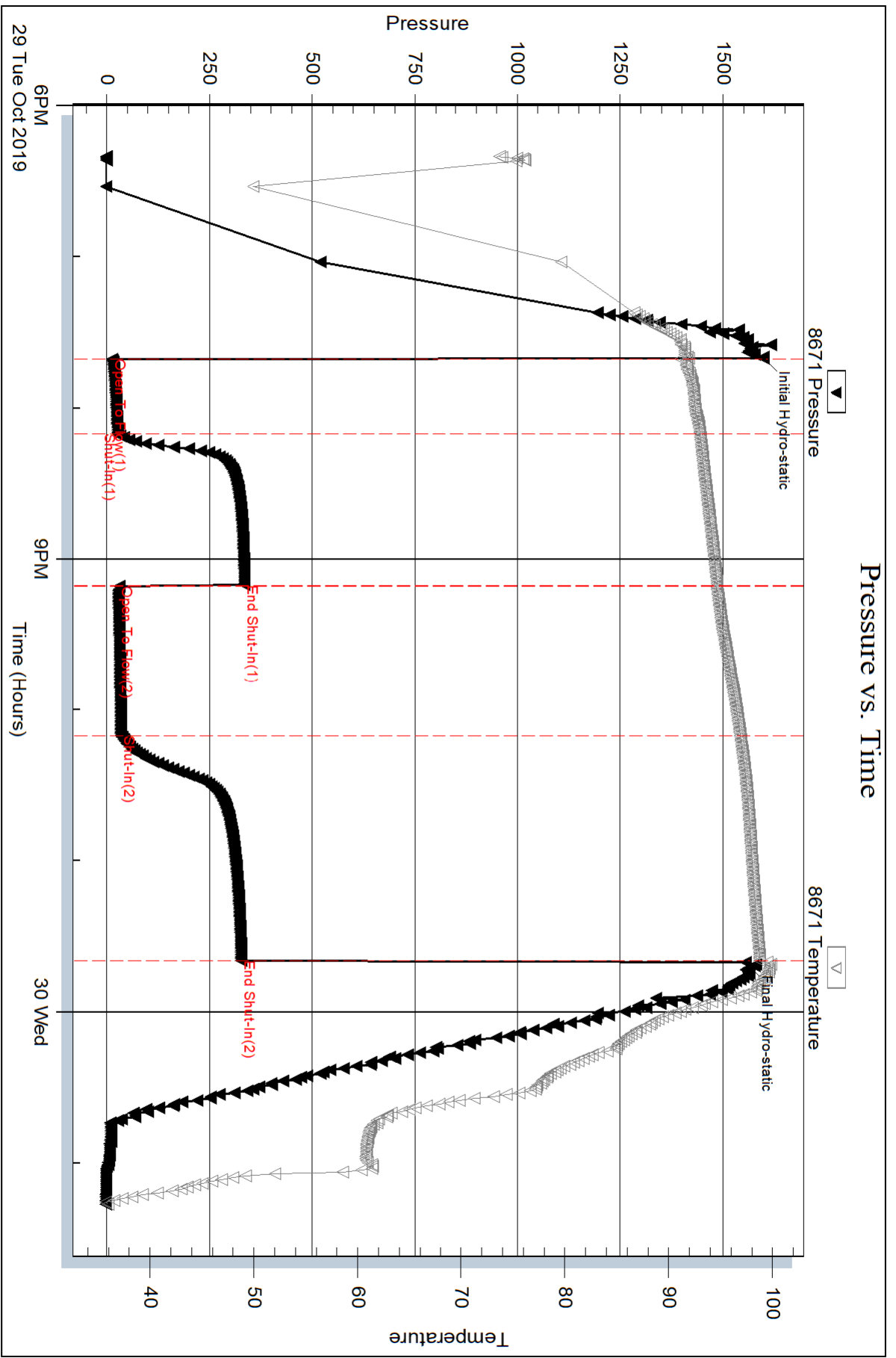
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



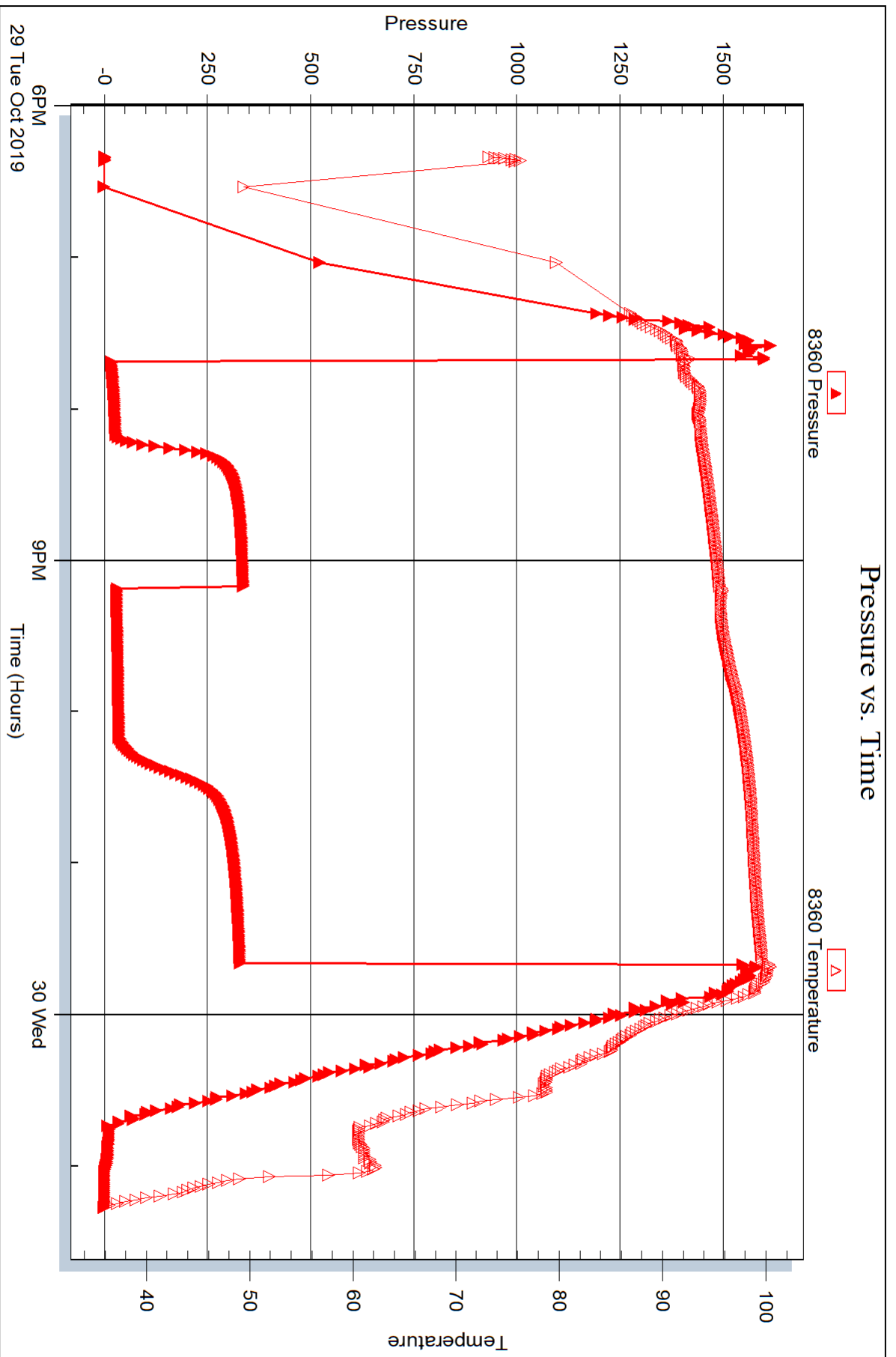
Serial #: 8360

Inside

Murfin Drilling Co., Inc.

Rathbun #19-2

DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 66323

Printed: 2019.11.04 @ 15:49:35



DRILL STEM TEST REPORT

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

250 N Water STE 300
Wichita KS 67202

ATTN: Robert Hendrix

Rathbun #19-2

19-11S-19W Ellis,KS

Start Date: 2019.10.30 @ 15:27:00

End Date: 2019.10.30 @ 22:48:00

Job Ticket #: 66324 DST #: 3

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

Printed: 2019.11.04 @ 15:48:04



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

19-11S-19W Ellis,KS

250 N Water STE 300
Wichita KS 67202

Rathbun #19-2

Job Ticket: 66324

DST#: 3

ATTN: Robert Hendrix

Test Start: 2019.10.30 @ 15:27:00

GENERAL INFORMATION:

Formation: **LKC K**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 17:06:15

Time Test Ended: 22:48:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Royal Fisher

Unit No: 77

Interval: 3430.00 ft (KB) To 3460.00 ft (KB) (TVD)

Reference Elevations: 1975.00 ft (KB)

Total Depth: 3460.00 ft (KB) (TVD)

1970.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8671 Outside

Press@RunDepth: 34.69 psig @ 3431.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.10.30

End Date: 2019.10.30

Last Calib.: 2019.10.30

Start Time: 15:27:05

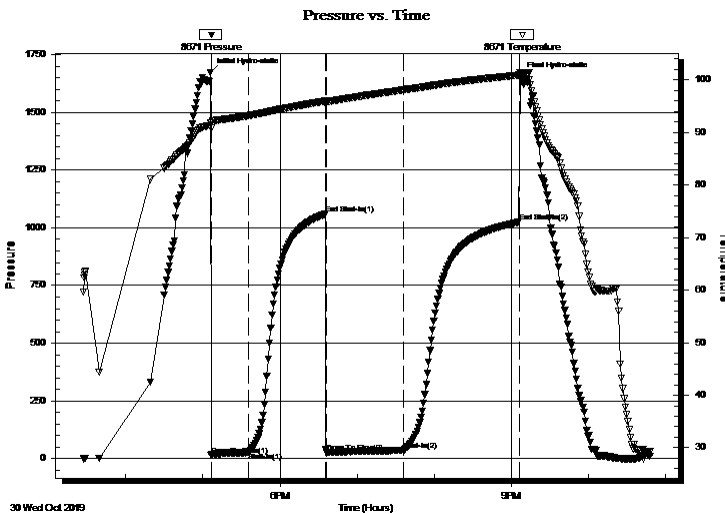
End Time: 22:47:59

Time On Btm: 2019.10.30 @ 17:06:00

Time Off Btm: 2019.10.30 @ 21:07:00

TEST COMMENT: 30 - IFP - Surface blow built up to 3 1/4' in diesel
60 - ISI - No Return
60 - FFP - Surface blow started right away and built to 5 3/4" in diesel
90 - FSI - No Return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1674.22	91.91	Initial Hydro-static
1	14.80	90.82	Open To Flow (1)
29	25.34	93.19	Shut-In(1)
90	1059.66	96.00	End Shut-In(1)
91	25.10	95.85	Open To Flow (2)
150	34.69	98.10	Shut-In(2)
240	1024.57	100.90	End Shut-In(2)
241	1655.77	101.43	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
47.00	MCO - 30% m - 70% o	0.33
15.00	Free Oil - 100% o	0.15

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

19-11S-19W Ellis, KS

250 N Water STE 300
Wichita KS 67202

Rathbun #19-2

Job Ticket: 66324

DST#: 3

ATTN: Robert Hendrix

Test Start: 2019.10.30 @ 15:27:00

Tool Information

Drill Pipe:	Length: 3388.85 ft	Diameter: 3.25 inches	Volume: 34.77 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 28.99 ft	Diameter: 2.25 inches	Volume: 0.14 bbl	Weight to Pull Loose: 50000.00 lb
			<u>Total Volume: 34.91 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	15.84 ft			String Weight: Initial 45000.00 lb
Depth to Top Packer:	3430.00 ft			Final 45000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	30.00 ft			
Tool Length:	58.00 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			3407.00	
Hydraulic tool	5.00			3412.00	
Jars	5.00			3417.00	
Safety Joint	3.00			3420.00	
Packer	5.00			3425.00	28.00 Bottom Of Top Packer
Packer	5.00			3430.00	
Stubb	1.00			3431.00	
Recorder	0.00	8360	Inside	3431.00	
Recorder	0.00	8671	Outside	3431.00	
Perforations	26.00			3457.00	
Bullnose	3.00			3460.00	30.00 Bottom Packers & Anchor

Total Tool Length: 58.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

19-11S-19W Ellis, KS

250 N Water STE 300
Wichita KS 67202

Rathbun #19-2

Job Ticket: 66324

DST#: 3

ATTN: Robert Hendrix

Test Start: 2019.10.30 @ 15:27:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

24 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.78 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3800.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
47.00	MCO - 30%m - 70%o	0.327
15.00	Free Oil - 100%o	0.154

Total Length: 62.00 ft Total Volume: 0.481 bbl

Num Fluid Samples: 0

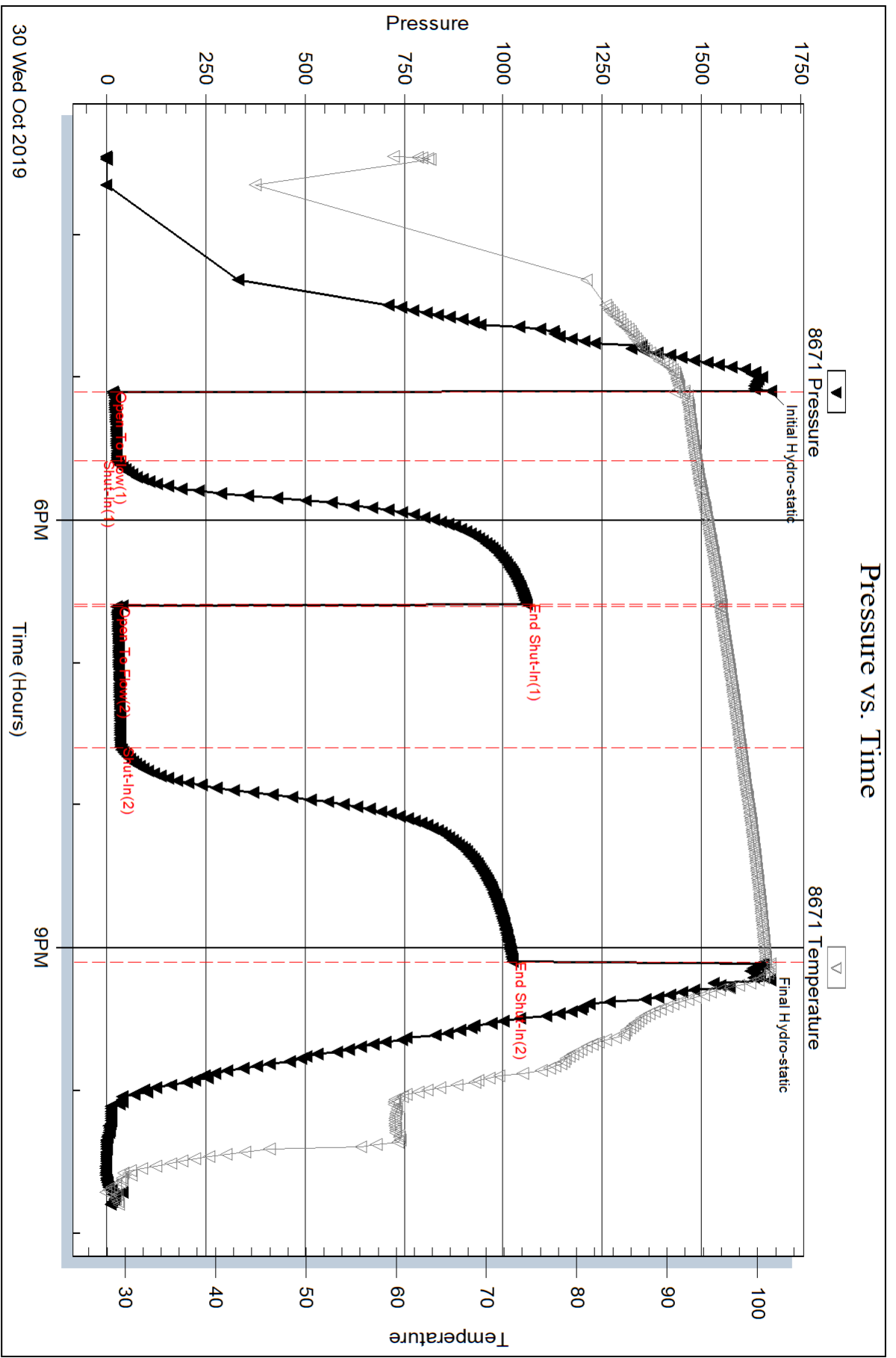
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Gravity - 24 @ 60 deg.



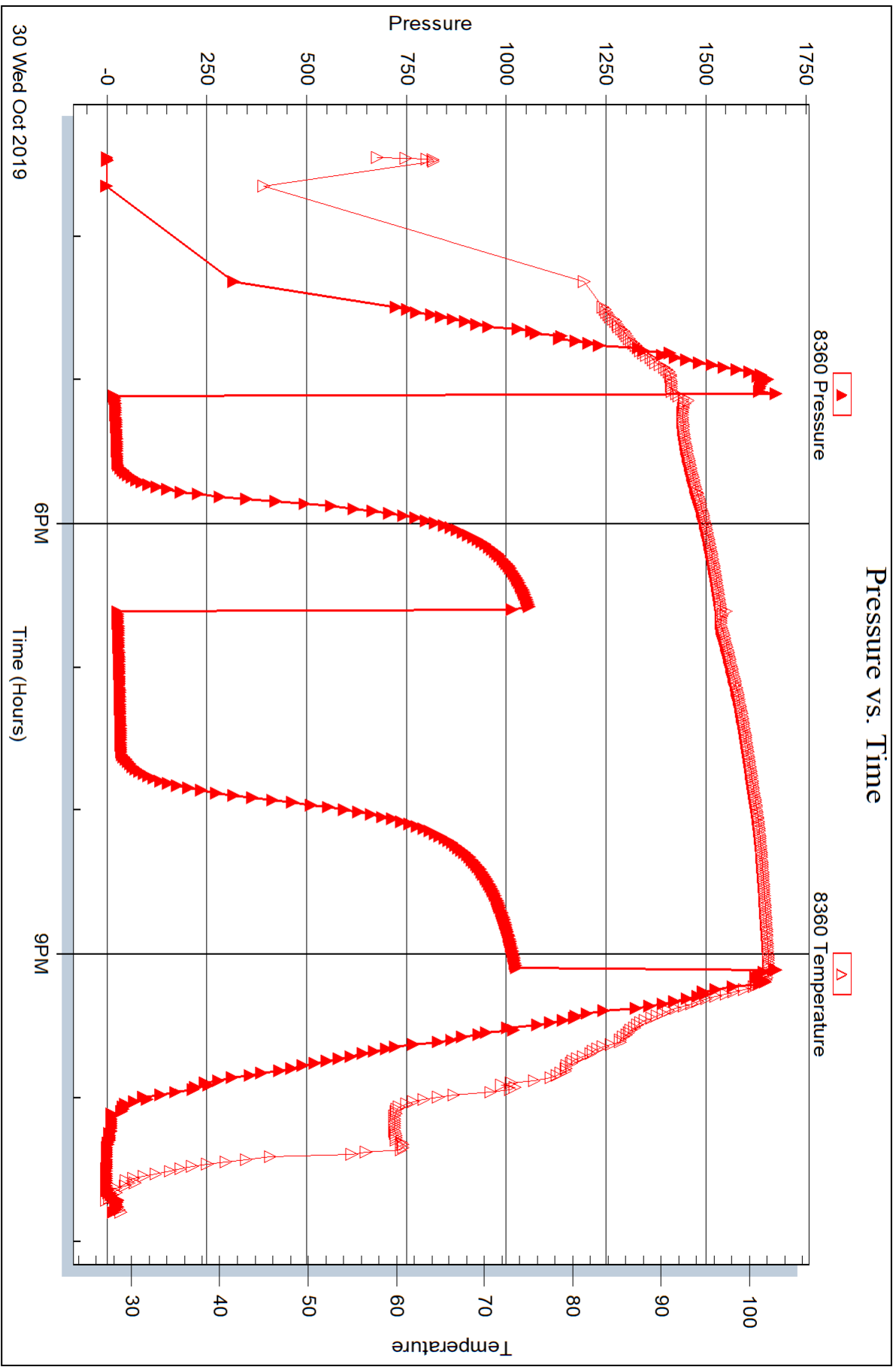
Serial #: 8360

Inside

Murfin Drilling Co., Inc.

Rathbun #19-2

DST Test Number: 3



Trilobite Testing, Inc

Ref. No: 66324

Printed: 2019.11.04 @ 15:48:05



DRILL STEM TEST REPORT

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

250 N Water STE 300
Wichita KS 67202

ATTN: Robert Hendrix

Rathbun #19-2

19-11S-19W Ellis,KS

Start Date: 2019.10.31 @ 09:49:00

End Date: 2019.10.31 @ 17:28:00

Job Ticket #: 66325 DST #: 4

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

Printed: 2019.11.04 @ 15:27:24



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

19-11S-19W Ellis, KS

250 N Water STE 300
Wichita KS 67202

Rathbun #19-2

Job Ticket: 66325

DST#: 4

ATTN: Robert Hendrix

Test Start: 2019.10.31 @ 09:49:00

GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 11:28:00

Time Test Ended: 17:28:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Royal Fisher

Unit No: 77

Interval: 3550.00 ft (KB) To 3567.00 ft (KB) (TVD)

Reference Elevations: 1975.00 ft (KB)

Total Depth: 3567.00 ft (KB) (TVD)

1970.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8671 Outside

Press@RunDepth: 129.50 psig @ 3551.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.10.31

End Date: 2019.10.31

Last Calib.: 2019.10.31

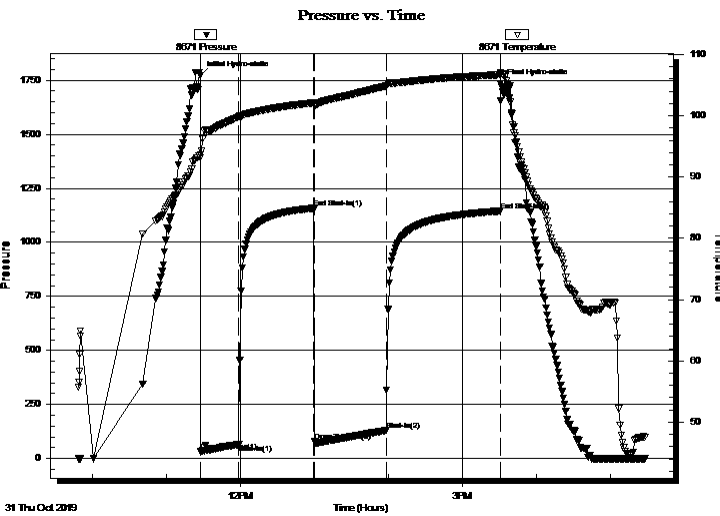
Start Time: 09:49:05

End Time: 17:27:59

Time On Btm: 2019.10.31 @ 11:27:45

Time Off Btm: 2019.10.31 @ 15:31:00

TEST COMMENT: 30 - IFP - Surface blow built to B.o.B. in 22 mins
60 - ISI - Faint return started 15 mins in and stayed at a faint blow
60 - FFP - Surface blow built to B.o.B. in 35 mins
90 - FSI - Faint return started 10 mins in and stayed at a faint blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1770.12	93.69	Initial Hydro-static
1	31.77	93.15	Open To Flow (1)
31	65.70	99.79	Shut-In(1)
92	1158.19	102.09	End Shut-In(1)
93	77.91	101.73	Open To Flow (2)
151	129.50	104.85	Shut-In(2)
243	1145.03	106.68	End Shut-In(2)
244	1735.49	107.06	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
82.00	GWMCO - 10%g - 5%w - 15%m - 70%o	0.69
228.00	Free Oil - 100%o	2.34

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

19-11S-19W Ellis, KS

250 N Water STE 300
Wichita KS 67202

Rathbun #19-2

Job Ticket: 66325

DST#: 4

ATTN: Robert Hendrix

Test Start: 2019.10.31 @ 09:49:00

Tool Information

Drill Pipe:	Length: 3515.78 ft	Diameter: 3.25 inches	Volume: 36.07 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 28.99 ft	Diameter: 2.25 inches	Volume: 0.14 bbl	Weight to Pull Loose: 50000.00 lb
			<u>Total Volume: 36.21 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	22.77 ft			String Weight: Initial 45000.00 lb
Depth to Top Packer:	3550.00 ft			Final 45000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	17.00 ft			
Tool Length:	45.00 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			3527.00	
Hydraulic tool	5.00			3532.00	
Jars	5.00			3537.00	
Safety Joint	3.00			3540.00	
Packer	5.00			3545.00	28.00 Bottom Of Top Packer
Packer	5.00			3550.00	
Stubb	1.00			3551.00	
Recorder	0.00	8360	Inside	3551.00	
Recorder	0.00	8671	Outside	3551.00	
Perforations	13.00			3564.00	
Bullnose	3.00			3567.00	17.00 Bottom Packers & Anchor

Total Tool Length: 45.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

19-11S-19W Ellis, KS

250 N Water STE 300
Wichita KS 67202

Rathbun #19-2

Job Ticket: 66325

DST#: 4

ATTN: Robert Hendrix

Test Start: 2019.10.31 @ 09:49:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

23 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 59.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.98 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 4700.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
82.00	GWMCO - 10%g - 5%w - 15%m - 70%o	0.686
228.00	Free Oil - 100%o	2.339

Total Length: 310.00 ft Total Volume: 3.025 bbl

Num Fluid Samples: 0

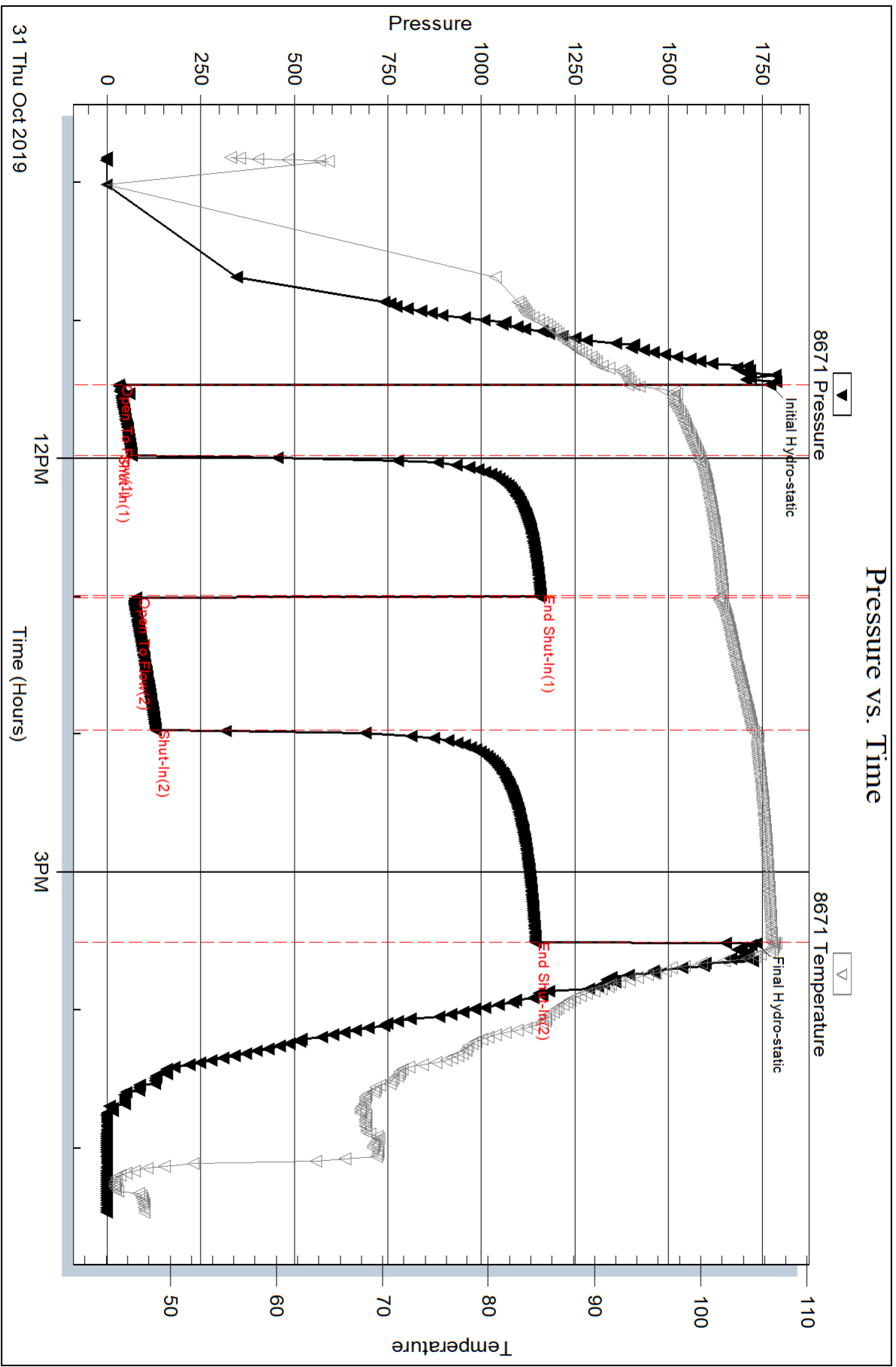
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Gravity - 23 @ 60 deg.



Serial #: 8360

Inside

Murfin Drilling Co., Inc.

Rathbun #19-2

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

Rathbun #19-2

19-11S-19W Ellis,KS

Start Date: 2019.10.31 @ 23:20:00

End Date: 2019.11.01 @ 07:05:15

Job Ticket #: 66326 DST #: 5

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

Printed: 2019.11.04 @ 15:24:18



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

19-11S-19W Ellis,KS

250 N Water STE 300
Wichita KS 67202

Rathbun #19-2

Job Ticket: 66326

DST#: 5

ATTN: Robert Hendrix

Test Start: 2019.10.31 @ 23:20:00

GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 01:21:15

Time Test Ended: 07:05:15

Test Type: Conventional Bottom Hole (Initial)

Tester: Royal Fisher

Unit No: 77

Interval: 3565.00 ft (KB) To 3574.00 ft (KB) (TVD)

Reference Elevations: 1975.00 ft (KB)

Total Depth: 3574.00 ft (KB) (TVD)

1970.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

Serial #: 8671 Outside

Press@RunDepth: 106.50 psig @ 3566.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.10.31

End Date:

2019.11.01

Last Calib.: 2019.11.01

Start Time: 23:20:05

End Time:

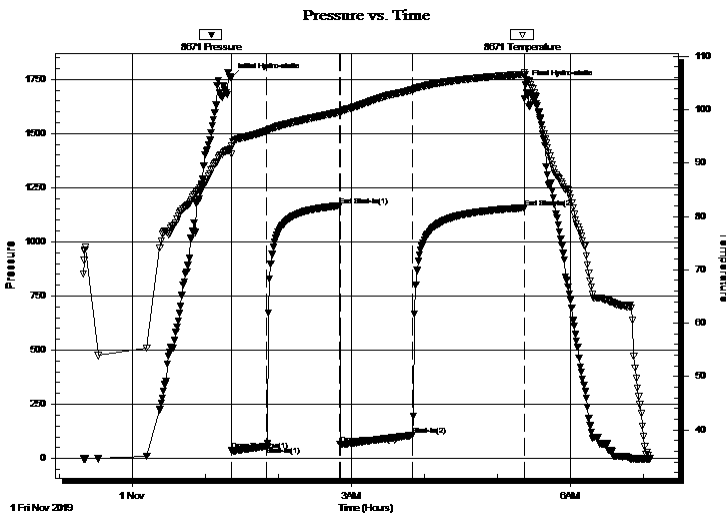
07:05:14

Time On Btm: 2019.11.01 @ 01:21:00

Time Off Btm: 2019.11.01 @ 05:22:45

TEST COMMENT: 30 - IFP - Surface blow slowly built to 9 1/2"
60 - ISI - No Return
60 - FFP - Surface blow built to B.o.B. in 50 mins
90 - FSI - No Return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1758.63	92.63	Initial Hydro-static
1	37.00	91.66	Open To Flow (1)
30	56.43	96.04	Shut-In(1)
89	1166.31	99.51	End Shut-In(1)
90	66.06	99.22	Open To Flow (2)
150	106.50	103.71	Shut-In(2)
241	1157.07	106.62	End Shut-In(2)
242	1723.92	106.61	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
124.00	WMCO - 15%w - 25%m - 60%o	1.12
124.00	Free Oil - 100%o	1.27

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

19-11S-19W Ellis, KS

250 N Water STE 300
Wichita KS 67202

Rathbun #19-2

Job Ticket: 66326

DST#: 5

ATTN: Robert Hendrix

Test Start: 2019.10.31 @ 23:20:00

Tool Information

Drill Pipe:	Length: 3515.78 ft	Diameter: 3.25 inches	Volume: 36.07 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 28.99 ft	Diameter: 2.25 inches	Volume: 0.14 bbl	Weight to Pull Loose: 50000.00 lb
			<u>Total Volume: 36.21 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	7.77 ft			String Weight: Initial 45000.00 lb
Depth to Top Packer:	3565.00 ft			Final 45000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	9.00 ft			
Tool Length:	37.00 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			3542.00	
Hydraulic tool	5.00			3547.00	
Jars	5.00			3552.00	
Safety Joint	3.00			3555.00	
Packer	5.00			3560.00	28.00 Bottom Of Top Packer
Packer	5.00			3565.00	
Stubb	1.00			3566.00	
Recorder	0.00	8360	Inside	3566.00	
Recorder	0.00	8671	Outside	3566.00	
Perforations	5.00			3571.00	
Bullnose	3.00			3574.00	9.00 Bottom Packers & Anchor

Total Tool Length: 37.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

19-11S-19W Ellis, KS

250 N Water STE 300
Wichita KS 67202

Rathbun #19-2

Job Ticket: 66326

DST#: 5

ATTN: Robert Hendrix

Test Start: 2019.10.31 @ 23:20:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

23 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 59.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.99 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 4700.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
124.00	WMCO - 15%w - 25%m - 60%o	1.117
124.00	Free Oil - 100%o	1.272

Total Length: 248.00 ft Total Volume: 2.389 bbl

Num Fluid Samples: 0

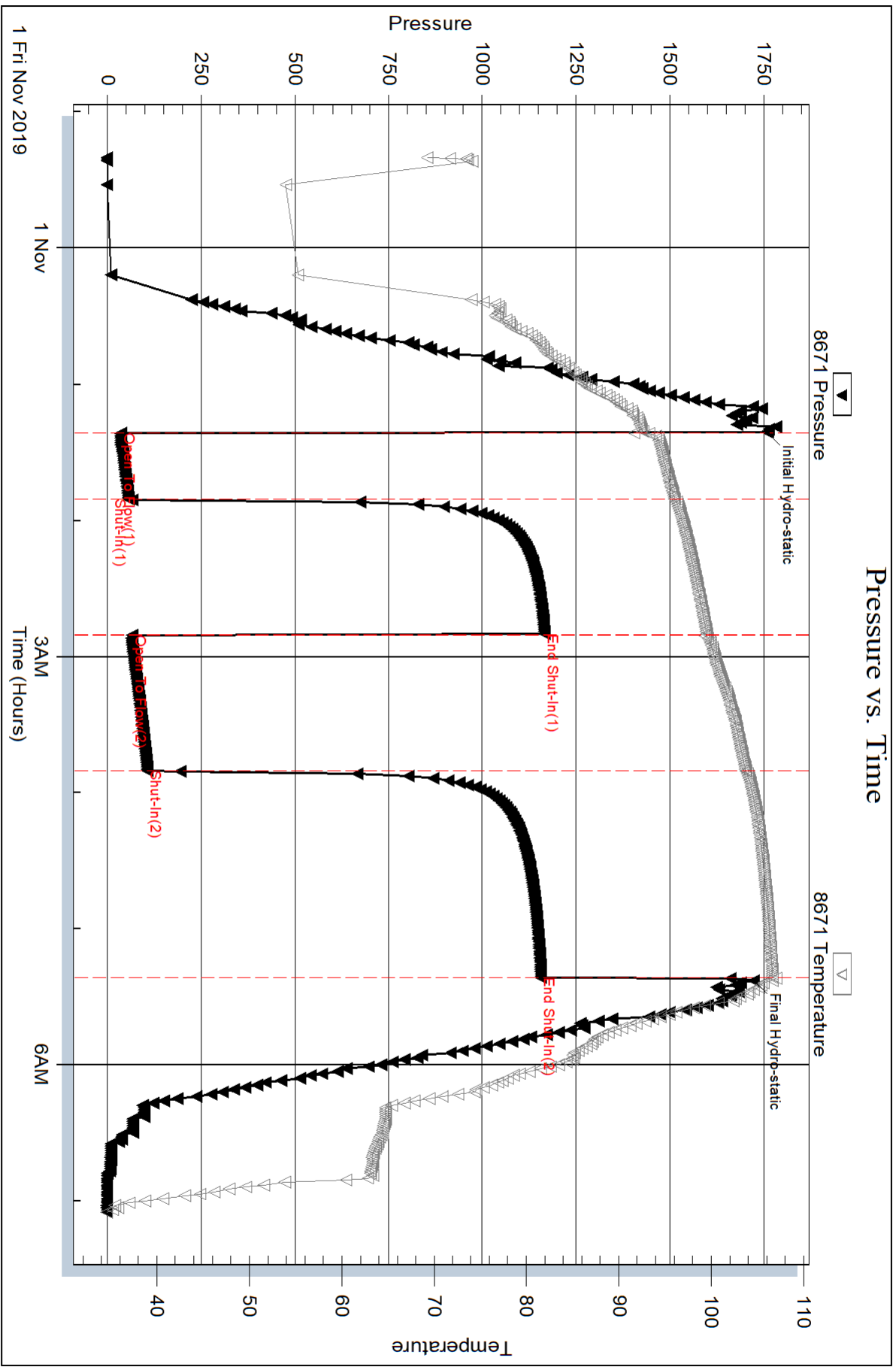
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Gravity - 23 @ 60 deg.



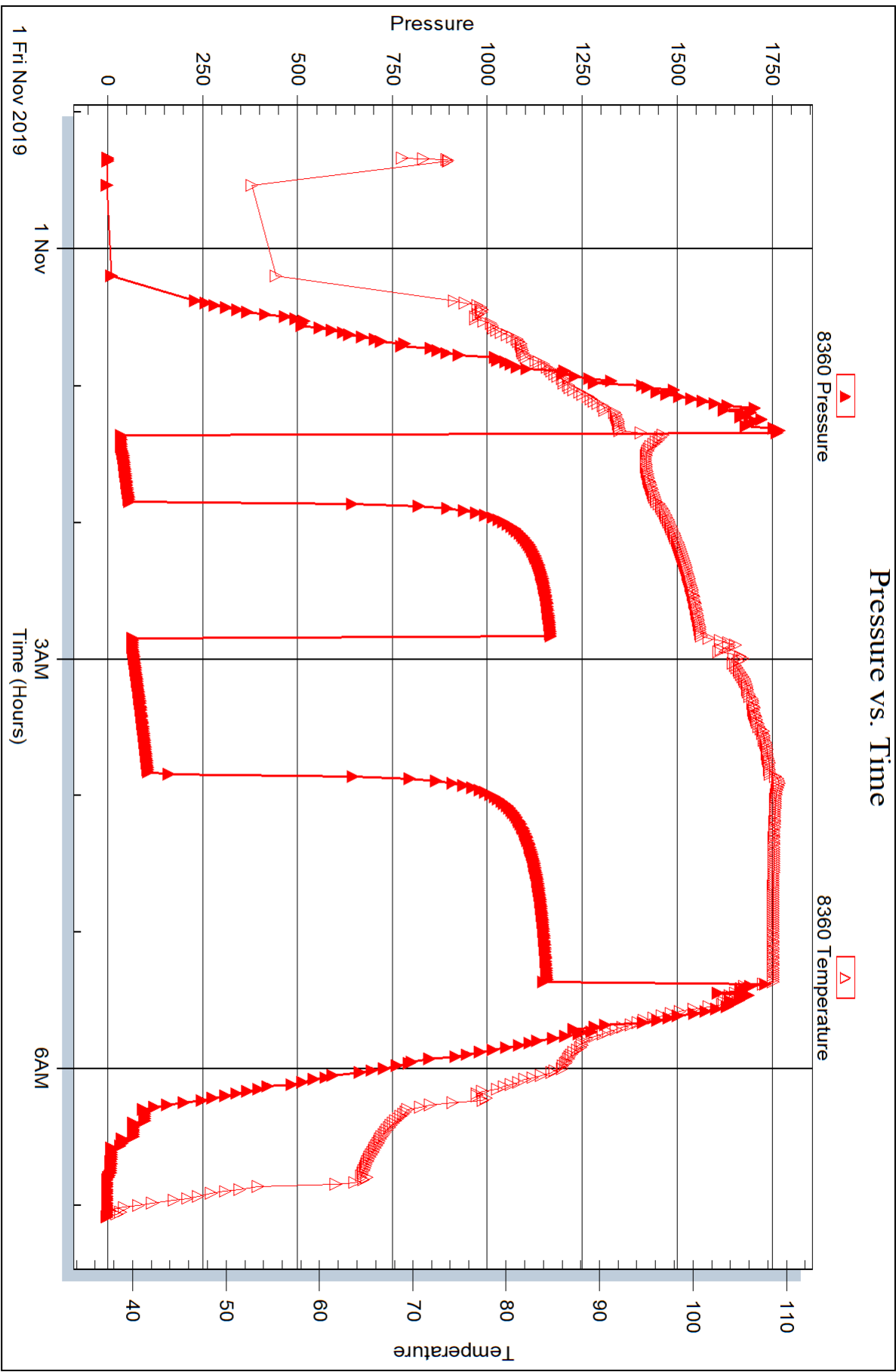
Serial #: 8360

Inside

Murfin Drilling Co., Inc.

Rathbun #19-2

DST Test Number: 5





DRILL STEM TEST REPORT

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

250 N Water STE 300
Wichita KS 67202

ATTN: Robert Hendrix

Rathbun #19-2

19-11S-19W Ellis,KS

Start Date: 2019.11.01 @ 13:46:00

End Date: 2019.11.01 @ 20:57:45

Job Ticket #: 66327 DST #: 6

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

Printed: 2019.11.04 @ 15:21:55



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

19-11S-19W Ellis,KS

250 N Water STE 300
Wichita KS 67202

Rathbun #19-2

Job Ticket: 66327

DST#: 6

ATTN: Robert Hendrix

Test Start: 2019.11.01 @ 13:46:00

GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:07:15

Time Test Ended: 20:57:45

Test Type: Conventional Bottom Hole (Initial)

Tester: Royal Fisher

Unit No: 77

Interval: 3572.00 ft (KB) To 3581.00 ft (KB) (TVD)

Reference Elevations: 1975.00 ft (KB)

Total Depth: 3581.00 ft (KB) (TVD)

1970.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

Serial #: 8671 Outside

Press@RunDepth: 63.21 psig @ 3573.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.11.01 End Date: 2019.11.01

Last Calib.: 2019.11.01

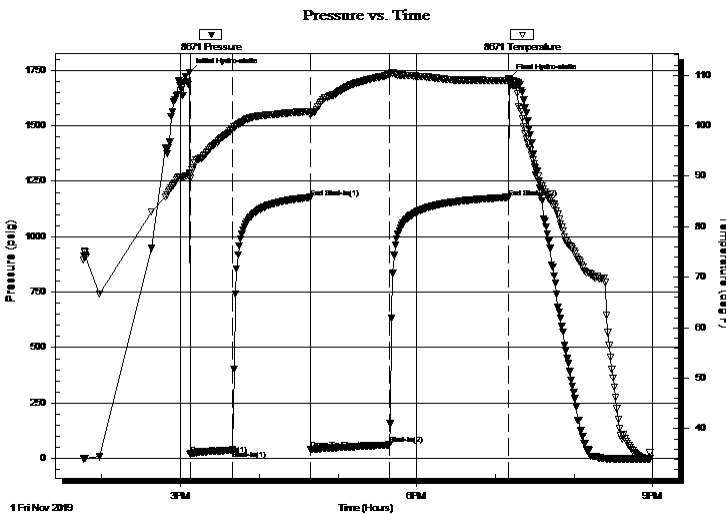
Start Time: 13:46:05 End Time: 20:57:44

Time On Btm: 2019.11.01 @ 15:07:00

Time Off Btm: 2019.11.01 @ 19:10:30

TEST COMMENT: 30 - IFP - Surface blow built up to 3"
60 - ISI - No Return
60 - FFP - Surface blow built up to 2 1/2"
90 - FSI - No Return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1740.47	90.60	Initial Hydro-static
1	20.11	89.58	Open To Flow (1)
33	37.61	99.31	Shut-In(1)
92	1177.14	102.74	End Shut-In(1)
92	41.10	102.06	Open To Flow (2)
152	63.21	110.24	Shut-In(2)
243	1177.36	108.93	End Shut-In(2)
244	1711.01	109.10	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
112.00	OSMW - Oil Spots - 30%w - 70%w	0.99

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

19-11S-19W Ellis, KS

250 N Water STE 300
Wichita KS 67202

Rathbun #19-2

Job Ticket: 66327

DST#: 6

ATTN: Robert Hendrix

Test Start: 2019.11.01 @ 13:46:00

Tool Information

Drill Pipe:	Length: 3547.45 ft	Diameter: 3.25 inches	Volume: 36.40 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 28.99 ft	Diameter: 2.25 inches	Volume: 0.14 bbl	Weight to Pull Loose: 50000.00 lb
			<u>Total Volume: 36.54 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	32.44 ft			String Weight: Initial 45000.00 lb
Depth to Top Packer:	3572.00 ft			Final 45000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	9.00 ft			
Tool Length:	37.00 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			3549.00	
Hydraulic tool	5.00			3554.00	
Jars	5.00			3559.00	
Safety Joint	3.00			3562.00	
Packer	5.00			3567.00	28.00 Bottom Of Top Packer
Packer	5.00			3572.00	
Stubb	1.00			3573.00	
Recorder	0.00	8360	Inside	3573.00	
Recorder	0.00	8671	Outside	3573.00	
Perforations	5.00			3578.00	
Bullnose	3.00			3581.00	9.00 Bottom Packers & Anchor

Total Tool Length: 37.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

19-11S-19W Ellis,KS

250 N Water STE 300
Wichita KS 67202

Rathbun #19-2

Job Ticket: 66327

DST#: 6

ATTN: Robert Hendrix

Test Start: 2019.11.01 @ 13:46:00

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:

22000 ppm

Viscosity: 54.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.99 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5600.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
112.00	OSMW - Oil Spots - 30%m - 70%w	0.994

Total Length: 112.00 ft Total Volume: 0.994 bbl

Num Fluid Samples: 0

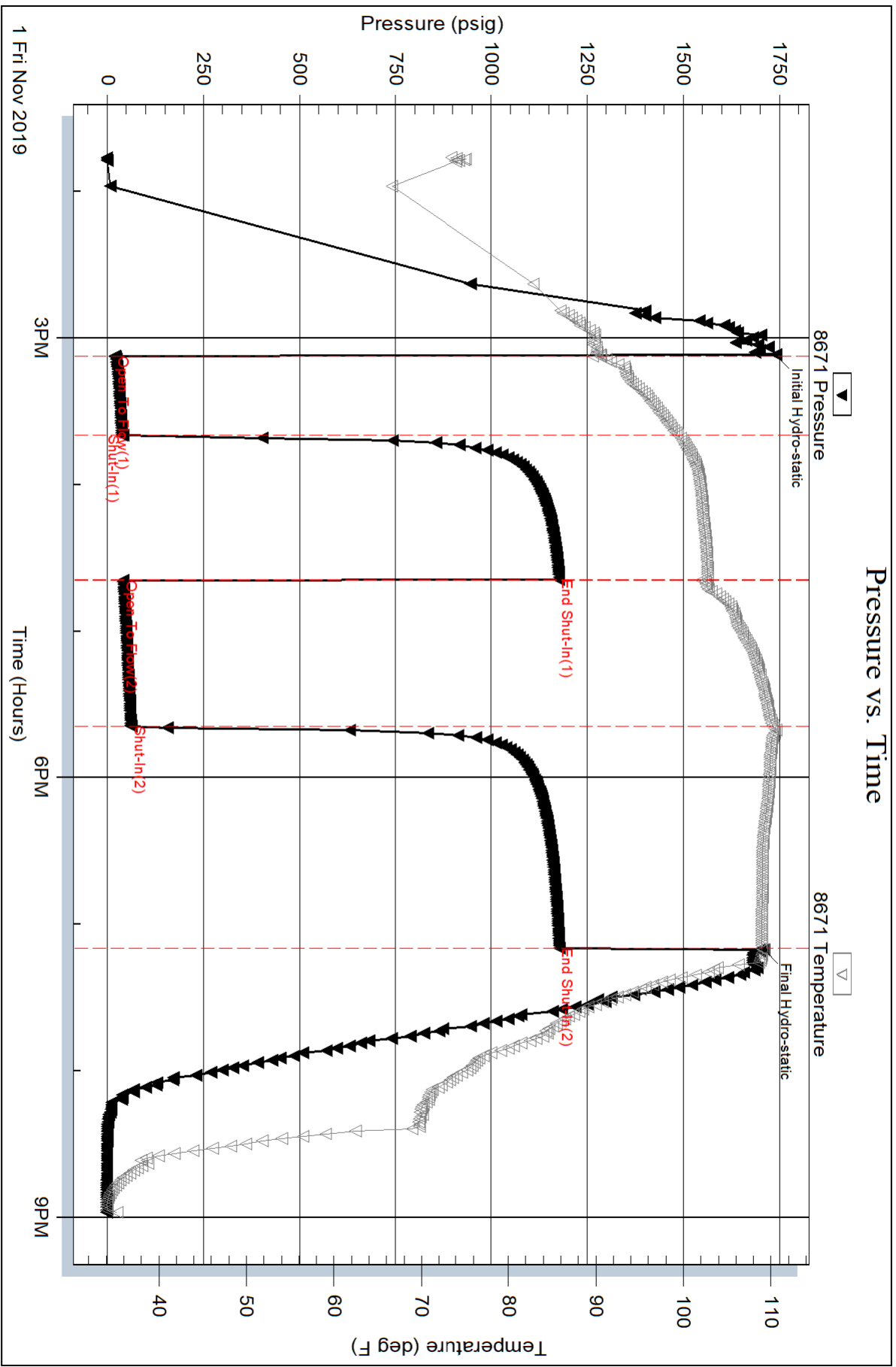
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Salinity - .486 @ 43 deg.



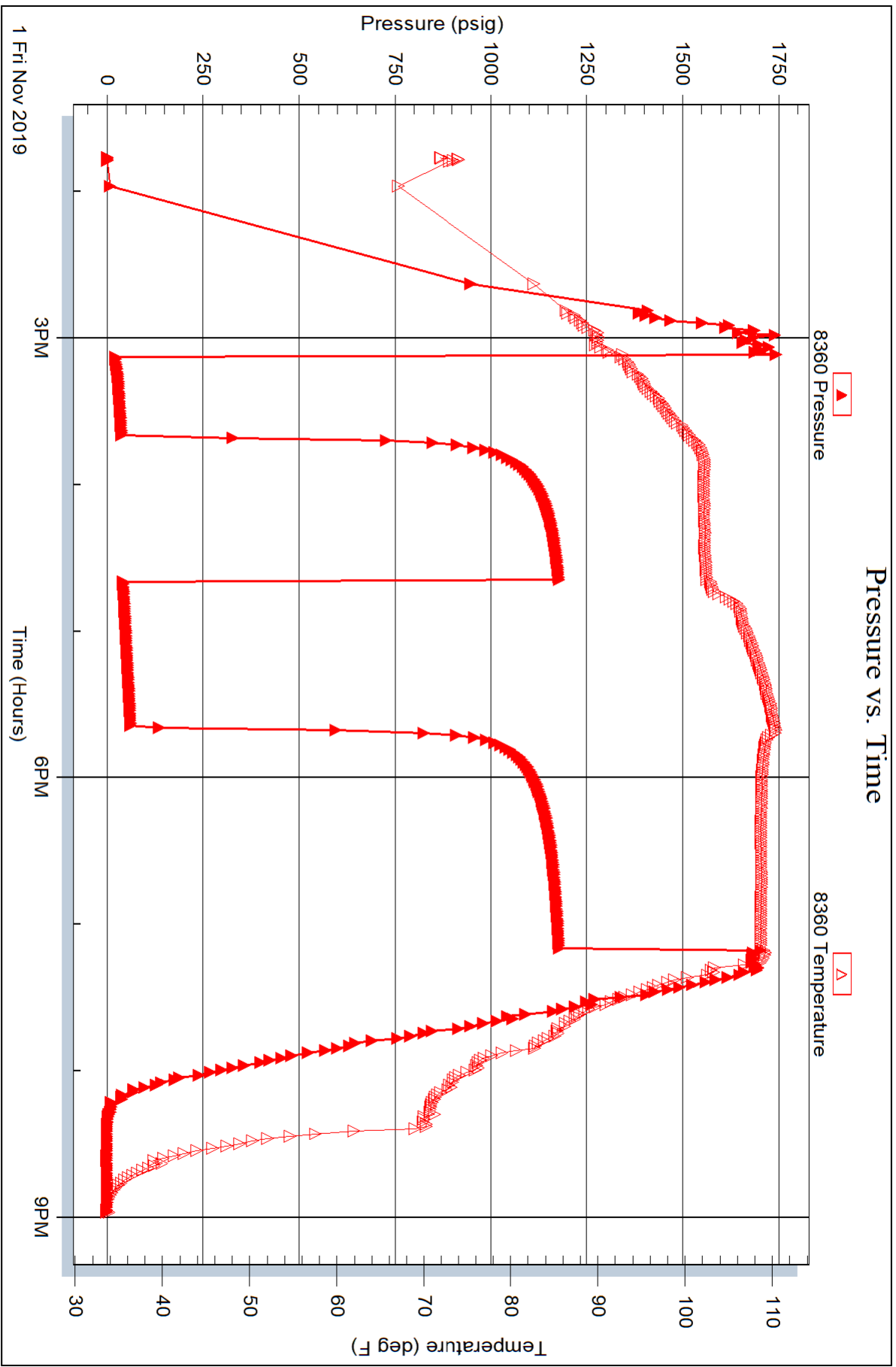
Serial #: 8360

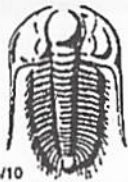
Inside

Murfin Drilling Co., Inc.

Rathbun #19-2

DST Test Number: 6





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket 66322

NO.

Well Name & No. Bathbun #19-2 Test No. 1 Date 10-29-19
 Company Murfin Drilling Co. Inc. Elevation 1975 KB 1970 GL
 Address 250 N. Water Ste 300 Wichita ks 67202
 Co. Rep / Geo. Robert Hendrix Rig Murfin #16
 Location: Sec. 19 Twp 11 Rge. 19W Co. Ellis State Ks

Interval Tested 3280'-3320' Zone Tested Lans B-D
 Anchor Length 40' Drill Pipe Run 3231.38 Mud Wt. 8.8
 Top Packer Depth 3275' Drill Collars Run 28.99' Vis 60
 Bottom Packer Depth 3280' Wt. Pipe Run 0 WL 7.6
 Total Depth 3320' Chlorides 3300 ppm System LCM 1#

Blow Description IFP - Surface blow built to 3/4"
ISI - No Return
FFP - Faint surface blow started in 10 mins & built up to weak blow
FSI - No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>10'</u>	<u>OCM</u>	<u>20</u>		<u>80</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 10' BHT 100°F Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

- (A) Initial Hydrostatic 1596
- (B) First Initial Flow 15
- (C) First Final Flow 21
- (D) Initial Shut-In 811
- (E) Second Initial Flow 21
- (F) Second Final Flow 26
- (G) Final Shut-In 775
- (H) Final Hydrostatic 1576

- Test 1200
- Jars 250
- Safety Joint 75
- Circ Sub _____
- Hourly Standby _____
- Mileage 50 BIT 50
- Sampler _____
- Straddle _____
- Shale Packer _____
- Extra Packer _____
- Extra Recorder _____
- Day Standby _____
- Accessibility _____
- Sub Total 1575

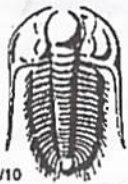
T-On Location 4:00am
 T-Started 5:33am
 T-Open 7:26am
 T-Pulled 11:26am
 T-Out 12:50pm

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

Comments _____
 EM Tool _____
 Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Sub Total 0
 Total 1575
 MP/DST Disc't _____

Approved By _____ Our Representative Royal Fisher

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 66323

NO.

Well Name & No. Bathbun #19-2 Test No. 2 Date 10-29-19
 Company Murfin Drilling Co. Inc. Elevation 1975 KB 1970 GL
 Address 250 N Water STE 300 Wichita Ks 67202
 Co. Rep / Geo. Robert Hendrix Rig Murfin #16
 Location: Sec. 19 Twp 11S Rge. 19W Co. Ellis State Ks

Interval Tested 3315' - 3339' Zone Tested Lans - E&F
 Anchor Length 24' Drill Pipe Run 3262.32 Mud Wt. 9.1
 Top Packer Depth 3310' Drill Collars Run 28.99' Vis 57
 Bottom Packer Depth 3315' Wt. Pipe Run Ø WL 8.0
 Total Depth 3339' Chlorides 3900 ppm System LCM 1#

Blow Description IFP - Surface blow built up to 1 1/4"
ISI - No Return
FFP - Faint surface started 10 mins in and built to 1/2"
FST - No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>32'</u>	<u>OCWM</u>	<u>30</u>	<u>30</u>	<u>40</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

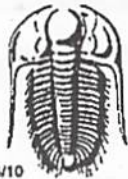
Rec Total 32' BHT 990 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 1598 Test 1200 T-On Location 5:30 pm
 (B) First Initial Flow 14 Jars 250 T-Started 6:20 pm
 (C) First Final Flow 27 Safety Joint 75 T-Open 7:40 pm
 (D) Initial Shut-In 335 Circ Sub _____ T-Pulled 11:40 pm
 (E) Second Initial Flow 31 Hourly Standby _____ T-Out 1:17 am
 (F) Second Final Flow 35 Mileage 50 RT 50 Comments _____
 (G) Final Shut-In 327 Sampler _____
 (H) Final Hydrostatic 1555 Straddle _____ EM Tool _____

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

Approved By _____ Our Representative [Signature]

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 66324

NO.

Well Name & No. Bathbun #19-2 Test No. 3 Date 10-30-19
 Company Murkin Drilling Co. Inc. Elevation 1975 KB 1970 GL
 Address 250 N Water Ste 300 Wichita Ks 67202
 Co. Rep / Geo. Robert Hendrix Rig Murkin #16
 Location: Sec. 19 Twp 11S Rge. 19W Co. Ellis State Ks

Interval Tested 3430' - 3460' Zone Tested Lansing - h
 Anchor Length 30' Drill Pipe Run 3388.85' Mud Wt. 9.1
 Top Packer Depth 3425' Drill Collars Run 28.99' Vis 50
 Bottom Packer Depth 3430' Wt. Pipe Run Ø WL 7.8
 Total Depth 3460' Chlorides 3803 ppm System LCM 2#

Blow Description FFP - Surface blow built up to 3 1/4" in diesel
~~FFP - Surface blow started right away and built to 5 3/4" in diesel~~
FFP - Surface blow started right away and built to 5 3/4" in diesel
ESI - No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>47'</u>	<u>MCO</u>	<u>70</u>		<u>30</u>	
<u>15'</u>	<u>Free Oil</u>	<u>100</u>			
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 62' BHT 101°F Gravity 24 @ 60° API RW _____ @ _____ °F Chlorides _____ ppm

- (A) Initial Hydrostatic 11674
- (B) First Initial Flow 15
- (C) First Final Flow 25
- (D) Initial Shut-In 1060
- (E) Second Initial Flow 25
- (F) Second Final Flow 35
- (G) Final Shut-In 1025
- (H) Final Hydrostatic 16570

- Test 1200
- Jars 250
- Safety Joint 75
- Circ Sub _____
- Hourly Standby _____
- Mileage 50 R/T 50
- Sampler _____
- Straddle _____
- Shale Packer _____
- Extra Packer _____
- Extra Recorder _____
- Day Standby _____
- Accessibility _____
- Sub Total 1575

- T-On Location 3:02pm
- T-Started 3:27pm
- T-Open 5:05pm
- T-Pulled 9:05pm
- T-Out 10:48pm

- Comments _____
- EM Tool _____
- Ruined Shale Packer _____
- Ruined Packer _____
- Extra Copies _____
- Sub Total 0
- Total 1575
- MP/DST Disc't _____

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

Approved By _____ Our Representative [Signature]

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 66325

NO.

Well Name & No. Bathbun #19-2 Test No. 4 Date 10-31-19
 Company Murfin Drilling Co. Inc. Elevation 1975 KB 1970 GL
 Address 250 N Water Ste 300 Wichita Ks 67202
 Co. Rep / Geo. Robert Hendrix Rig Murfin #16
 Location: Sec. 19 Twp 11S Rge. 19W Co. Ellis State Ks

Interval Tested 3550' - 3567' Zone Tested Arbuckle
 Anchor Length 17' Drill Pipe Run 3515.78' Mud Wt. 9.2
 Top Packer Depth 3545' Drill Collars Run 28.99' Vis 59
 Bottom Packer Depth 3550' Wt. Pipe Run 0 WL 8.0
 Total Depth 3567' Chlorides 4700 ppm System LCM 2#

Blow Description TFP-Surface blow built to B.O.B in 22 mins
ISI-Faint return started 15 mins in and stayed at a faint blow
FFP-Surface blow built to B.O.B in 35 mins
FSL-Faint return started 10 mins in and stayed at a faint blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>82'</u>	<u>Feet of GWMCO</u>	<u>10</u>	<u>70</u>	<u>5</u>	<u>15</u>
<u>228'</u>	<u>Feet of Free Oil</u>	<u>100</u>			
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

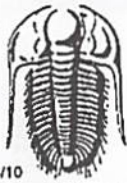
Rec Total 310' BHT 107°F Gravity 23@60 API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic <u>1770</u>	<input checked="" type="checkbox"/> Test <u>1200</u>	T-On Location <u>9:00am</u>
(B) First Initial Flow <u>32</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>9:49am</u>
(C) First Final Flow <u>146</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>11:28am</u>
(D) Initial Shut-In <u>1158</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>3:28pm</u>
(E) Second Initial Flow <u>78</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>5:28pm</u>
(F) Second Final Flow <u>130</u>	<input checked="" type="checkbox"/> Mileage <u>50 R/T 50</u>	Comments _____
(G) Final Shut-In <u>1145</u>	<input type="checkbox"/> Sampler _____	
(H) Final Hydrostatic <u>1735</u>	<input type="checkbox"/> Straddle _____	

Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer _____	<input type="checkbox"/> EM Tool _____
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Ruined Shale Packer _____
Final Flow <u>60</u>	<input type="checkbox"/> Extra Recorder _____	<input type="checkbox"/> Ruined Packer _____
Final Shut-In <u>90</u>	<input type="checkbox"/> Day Standby _____	<input type="checkbox"/> Extra Copies _____
	<input type="checkbox"/> Accessibility _____	Sub Total <u>0</u>
	Sub Total <u>1575</u>	Total <u>1575</u>

Approved By _____ Our Representative Royal Foster MP/DST Disc't _____

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 66326

NO.

Well Name & No. Bathbun #19-2 Test No. 5 Date 10-31-19
 Company Murfin Drilling Co, Inc. Elevation 1975 KB 1970 GL
 Address 250 N Water St 300 Wichita ks 67202
 Co. Rep / Geo. Robert Hendrix Rig Murfin #16
 Location: Sec. 19 Twp 11S Rge. 19W Co. Ellis State ks

Interval Tested 3565'-3574' Zone Tested Arbuckle
 Anchor Length 9' Drill Pipe Run 3515.78' Mud Wt. 9.2
 Top Packer Depth 3560' Drill Collars Run 28.99' Vis 59
 Bottom Packer Depth 3565' Wt. Pipe Run 0 WL 8.0
 Total Depth 3574' Chlorides 4700 ppm System LCM 2#

Blow Description IFP-Surface blow slowly built up to 9 1/2"
ISI - No return
FFP-Surface blow built to B.O.B. in 50 mins.
FSI - No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>124'</u>	<u>WMCO</u>	<u>60</u>	<u>15</u>	<u>25</u>	
<u>124'</u>	<u>Free Oil</u>	<u>100</u>			
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 248' BHT 107°F Gravity 23@60 API RW @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic <u>1759</u>	<input checked="" type="checkbox"/> Test <u>1200</u>	T-On Location <u>10:05pm</u>
(B) First Initial Flow <u>37</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>11:20pm</u>
(C) First Final Flow <u>56</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>1:20am</u>
(D) Initial Shut-In <u>1166</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>5:20am</u>
(E) Second Initial Flow <u>666</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>7:05am</u>
(F) Second Final Flow <u>107</u>	<input checked="" type="checkbox"/> Mileage <u>50 R/T</u> 50	Comments _____
(G) Final Shut-In <u>1157</u>	<input type="checkbox"/> Sampler _____	_____
(H) Final Hydrostatic <u>1724</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>1575</u>
	Sub Total <u>1575</u>	MP/DST Disc't _____

Approved By _____ Our Representative [Signature]

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 66327

NO.

Well Name & No. Bathbun #19-2 Test No. 6 Date 11-1-19
 Company Murfin Drilling Co, Inc. Elevation 1975 KB 1970 GL
 Address 250 N Water Ste 300 Wichita ks 67202
 Co. Rep / Geo. Robert Hendrix Rig Murfin #16
 Location: Sec. 19 Twp 11S Rge. 19 W Co. Ellis State ks

Interval Tested 3572' - 3581' Zone Tested Arbuckle
 Anchor Length 9' Drill Pipe Run 3547.45 Mud Wt. 9.3
 Top Packer Depth 3567' Drill Collars Run 28.99' Vis 54
 Bottom Packer Depth 3572' Wt. Pipe Run 0 WL 8.0
 Total Depth 3581' Chlorides 5600 ppm System LCM 3#

Blow Description JFP - Surface blow built up to 3"
IST - No return
EFP - Surface blow built up to 2 1/2"
FSL - No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>112</u>	<u>asmw</u>	<u>spots</u>	<u>70</u>	<u>30</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 112' BHT 109°F Gravity _____ API RW 486 @ 4.3 °F Chlorides 22,000 ppm
 (A) Initial Hydrostatic 1740 Test 1200 T-On Location 1:00 pm
 (B) First Initial Flow 20 Jars 250 T-Started 1:46 pm
 (C) First Final Flow 38 Safety Joint 75 T-Open 3:08 pm
 (D) Initial Shut-In 1177 Circ Sub _____ T-Pulled 7:08 pm
 (E) Second Initial Flow 41 Hourly Standby _____ T-Out 8:58 pm
 (F) Second Final Flow 63 Mileage 50 R/T 50 Comments _____
 (G) Final Shut-In 1177 Sampler _____
 (H) Final Hydrostatic 1711 Straddle _____ EM Tool _____
 Shale Packer _____ Ruined Shale Packer _____
 Extra Packer _____ Ruined Packer _____
 Extra Recorder _____ Extra Copies _____
 Day Standby _____ Sub Total 0
 Accessibility _____ Total 1575
 Sub Total 1575 MP/DST Disc' _____

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

Approved By _____ Our Representative Royal Foster

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.