

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) (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	CULWELL 'J' 1-19
Doc ID	1456477

All Electric Logs Run

DIL
DUCP
MEL
BHCS

MDCI
 Culwell 'J' #1-19
 2310FNL 495FEL
 Sec. 19-T2S-R37W
 3389' KB

Formation	Sample top	Datum	Ref	Log Top	Datum	Ref
Anhydrite	3272	+117	-7	3270	+119	-5
B/Anhydrite	3304	+85	-4	3303	+86	-3
Topeka	4083	-694	-6	4077	-688	Flat
Oread	4231	-842	-6	4228	-839	-3
Lansing	4307	-918	-6	4306	-917	-5
Stark	4536	-1147	-9	4531	-1142	-4
Mound City	4582	-1193	-6	4582	-1193	-6
Ft Scott	4721	-1372	-9	4712	-1323	Flat
Oakley	4793	-1404	-10	4787	-1398	-4
RTD	4910					
LTD				4912		

Jeff Christian

PETROLEUM GEOLOGIST

Wichita, Kansas

GEOLOGISTS' REPORT
 DRILLING TIME AND SAMPLE LOG

OPERATOR **MURKIN DRILLING COMPANY**
 LEASE **CULWELL 'J' # 1-19**
 LOCATION **2310 FNL & 495' FEL**

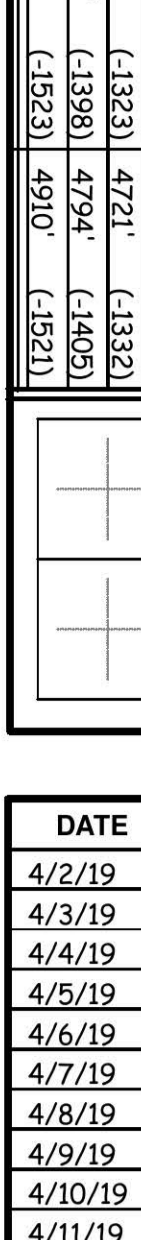
SEC. **19** TWPSP **2 S** RANG **37 W**
 COUNTY **CHEYENNE** STATE **KANSAS**

API **15-023-21482-00-00**
 CONTRACTOR **COMPANY TOOLS** RIG NO. **3**
 DRILLING STARTED **04/07/2019** COMPLETED **04/11/2019**
 MUD DISPLACED **3636'** MUD TYPE **CHEMICAL**
 DRILLING TIME KEPT FROM **3990'** TO RTD
 SAMPLES SAVED FROM **3990'** TO RTD
 SAMPLES EXAMINED FROM **3990'** TO RTD
 GEOLOGICAL SUPERVISION FROM **3897'** TO RTD

MEASUREMENTS FROM U.S. CASING RECORD
 Conductor **NONE**
 Surface **8.5 ft @ 330'**
 WI 295 SX
 Production **1 1/2" @ 4908'**
 WI 520 SX

ELEVATIONS
 RB **3389'**
 TEL **3384'**

FORMATION LOG SAMPLE DATE
 ANHYDRITE 3270' (-119) 3272' (-117)
 BASE ANHYDRITE 3302' (-87) 3404' (-45)
 TOPEKA 4077' (-68) 4083' (-64)
 OREAD 4228' (-83) 4231' (-84)
 LANSING 4306' (-97) 4307' (-98)
 STARK 4531' (-142) 4536' (-147)
 MOUND CITY 4582' (-193) 4582' (-193)
 FT SCOTT 4712' (-132) 4721' (-133)
 OAKLEY 4787' (-198) 4794' (-192)
 TOTAL DEPTH 4912' (-152) 4910' (-151)

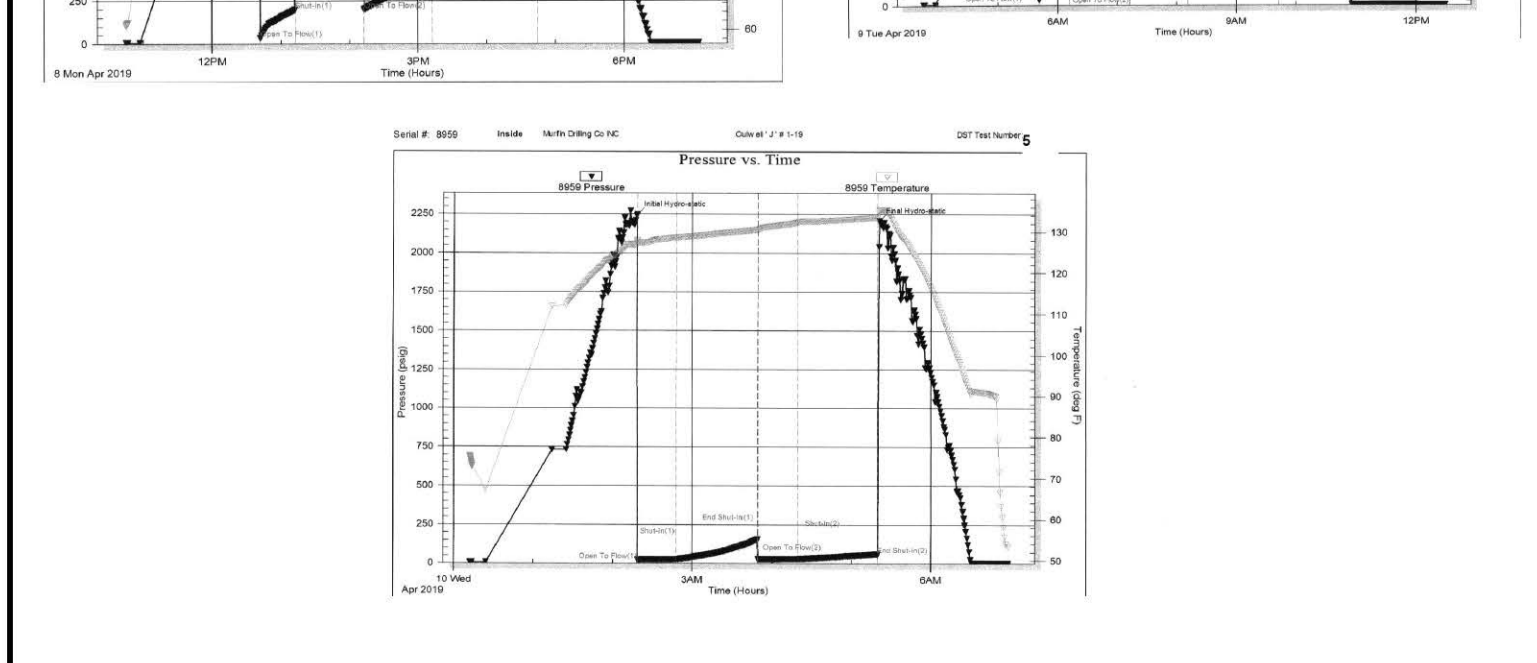
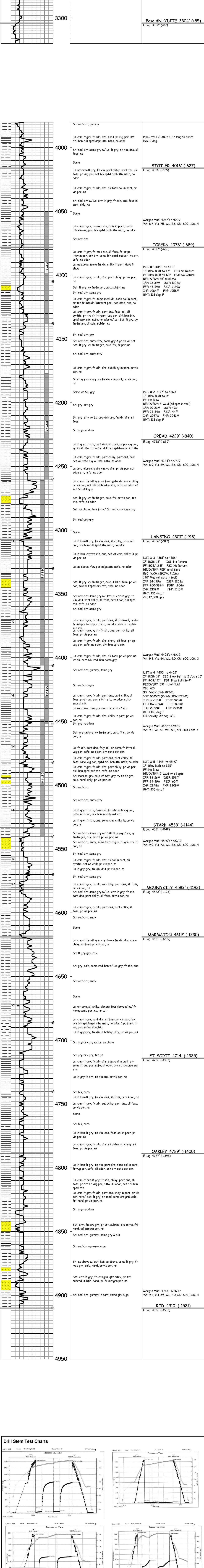


DATE	7:00 AM DEPTH	REMARKS
4/2/19	MIRT	SPUD @ 6:15 pm
4/3/19	330'	WOC dev. 1/2 deg.
4/4/19	1750'	DRLG.
4/5/19	3210'	DRLG.
4/6/19	4040'	DRLG dev. 2 deg @ 3897'
4/7/19	4230'	DRLG.
4/8/19	4390'	DRLG dev. 1.25 deg @ 4260'
4/9/19	4452'	OB w/ DST # 4
4/10/19	4540'	TOH w/ DST # 5
4/11/19	4865'	RTD 4910' @ 9:15 am dev. 1.25 deg. Finished logging @ 6:30 pm

Remarks
 5 1/2" production casing set to further test the Lansing / Kansas Cty, Marmaton and Cherokee formations.
 Electric log measurements correlate about 2' high compared to rotary measurements.
 Sample tops corrected to the electric log.
 Samples delivered to the Kansas Geological Survey in Wichita.

Respectfully Submitted,

 Jeff Christian





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co Inc**

250 N. Water STE 300
Wichita, KS 67202

ATTN: Jeff Christian

Culwell ' J ' # 1-19

19-2S-37W Cheyenne,KS

Start Date: 2019.04.06 @ 16:20:00

End Date: 2019.04.06 @ 22:55:39

Job Ticket #: 63279 DST #: 1

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

Printed: 2019.04.11 @ 14:33:01



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

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

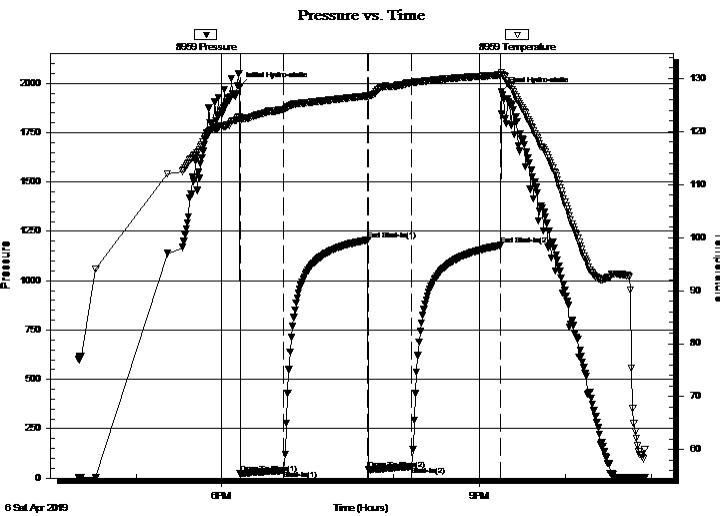
19-2S-37W Cheyenne,KS
Culwell ' J ' # 1-19
 Job Ticket: 63279 **DST#: 1**
 Test Start: 2019.04.06 @ 16:20:00

GENERAL INFORMATION:

Formation: **"Topeka - Deer Creek**
 Deviated: No Whipstock: ft (KB) Test Type: Conventional Bottom Hole (Initial)
 Time Tool Opened: 18:12:40 Tester: Martine Salinas
 Time Test Ended: 22:55:39 Unit No: 82
 Interval: **4050.00 ft (KB) To 4138.00 ft (KB) (TVD)** Reference Elevations: 3389.00 ft (KB)
 Total Depth: 4138.00 ft (KB) (TVD) 3384.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Good KB to GR/CF: 5.00 ft

Serial #: 8959 Inside
 Press@RunDepth: 58.98 psig @ 4051.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.04.06 End Date: 2019.04.06 Last Calib.: 2019.04.06
 Start Time: 16:20:01 End Time: 22:55:40 Time On Btm: 2019.04.06 @ 18:12:30
 Time Off Btm: 2019.04.06 @ 21:15:20

TEST COMMENT: 30-IF-Surface blow built to 1 1/2"
 60-ISI-No blow
 30-FF-Weak surface bubbles @ 3 mins built to 1/4"
 60-FSI-No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1983.51	122.67	Initial Hydro-static
1	22.49	121.94	Open To Flow (1)
31	39.07	124.10	Shut-In(1)
90	1206.11	126.71	End Shut-In(1)
90	42.63	126.37	Open To Flow (2)
120	58.98	129.16	Shut-In(2)
182	1179.02	130.63	End Shut-In(2)
183	1957.77	131.14	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
75.00	100% Mud	0.37

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

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

19-2S-37W Cheyenne,KS
Culwell ' J ' # 1-19
Job Ticket: 63279 **DST#: 1**
Test Start: 2019.04.06 @ 16:20:00

Tool Information

Drill Pipe:	Length: 3855.00 ft	Diameter: 3.80 inches	Volume: 54.08 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 177.00 ft	Diameter: 2.25 inches	Volume: 0.87 bbl	Weight to Pull Loose: 75000.00 lb
			<u>Total Volume: 54.95 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	10.00 ft			String Weight: Initial 62000.00 lb
Depth to Top Packer:	4050.00 ft			Final 62000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	88.00 ft			
Tool Length:	116.00 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			4027.00	
Hydraulic tool	5.00	1113		4032.00	
Jars	5.00	01-07		4037.00	
Safety Joint	3.00	-001		4040.00	
Packer	5.00			4045.00	28.00 Bottom Of Top Packer
Packer	5.00			4050.00	
Stubb	1.00			4051.00	
Recorder	0.00	8959	Inside	4051.00	
Recorder	0.00	8734	Outside	4051.00	
Perforations	17.00			4068.00	
Change Over Sub	1.00			4069.00	
Drill Pipe	63.00			4132.00	
Change Over Sub	1.00			4133.00	
Bullnose	5.00			4138.00	88.00 Bottom Packers & Anchor

Total Tool Length: 116.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co Inc

19-2S-37W Cheyenne,KS

250 N. Water STE 300
Wichita, KS 67202

Culwell ' J ' # 1-19

Job Ticket: 63279

DST#: 1

ATTN: Jeff Christian

Test Start: 2019.04.06 @ 16:20:00

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: 68.00 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
75.00	100% Mud	0.369

Total Length: 75.00 ft Total Volume: 0.369 bbl

Num Fluid Samples: 0

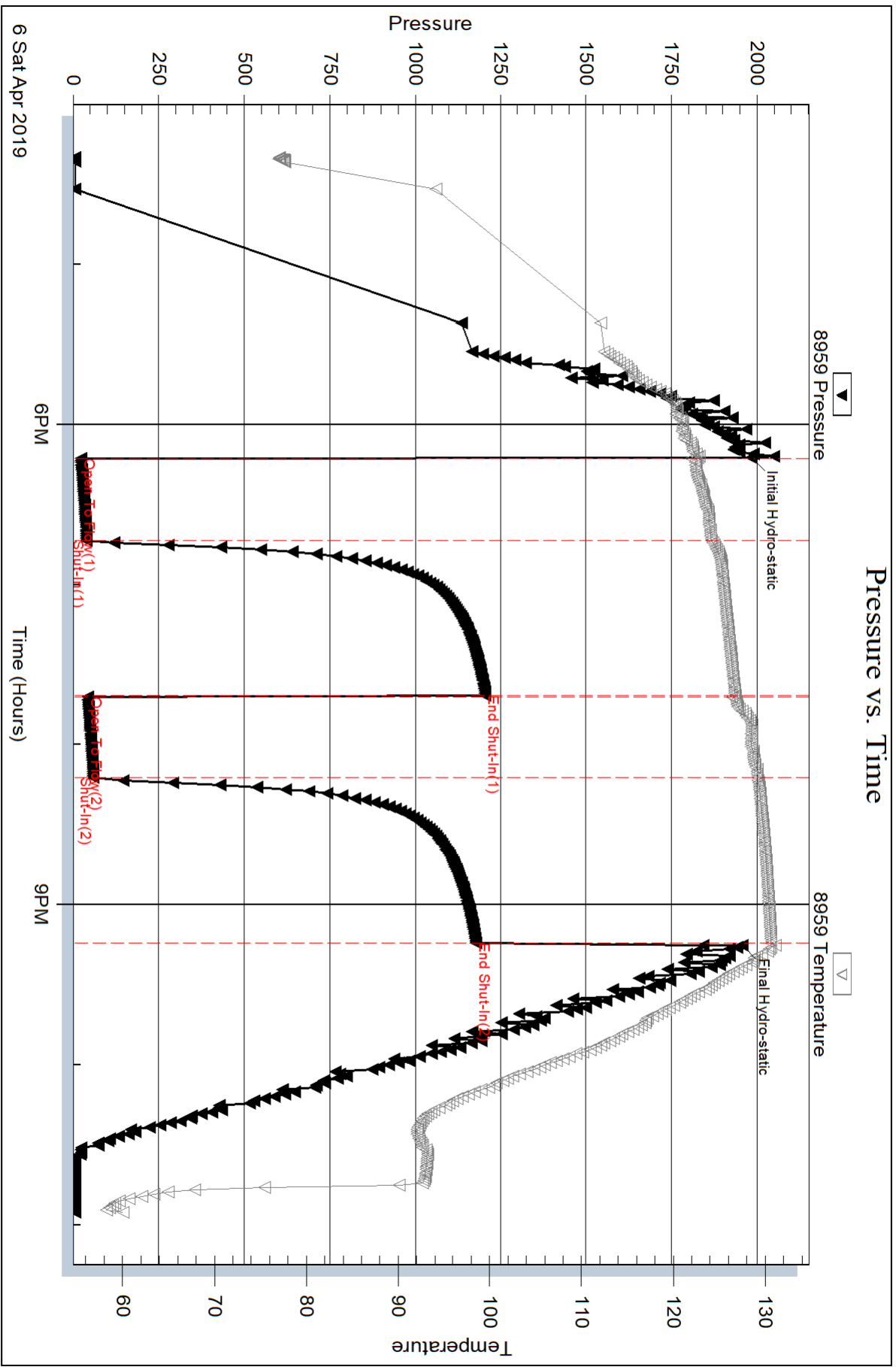
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

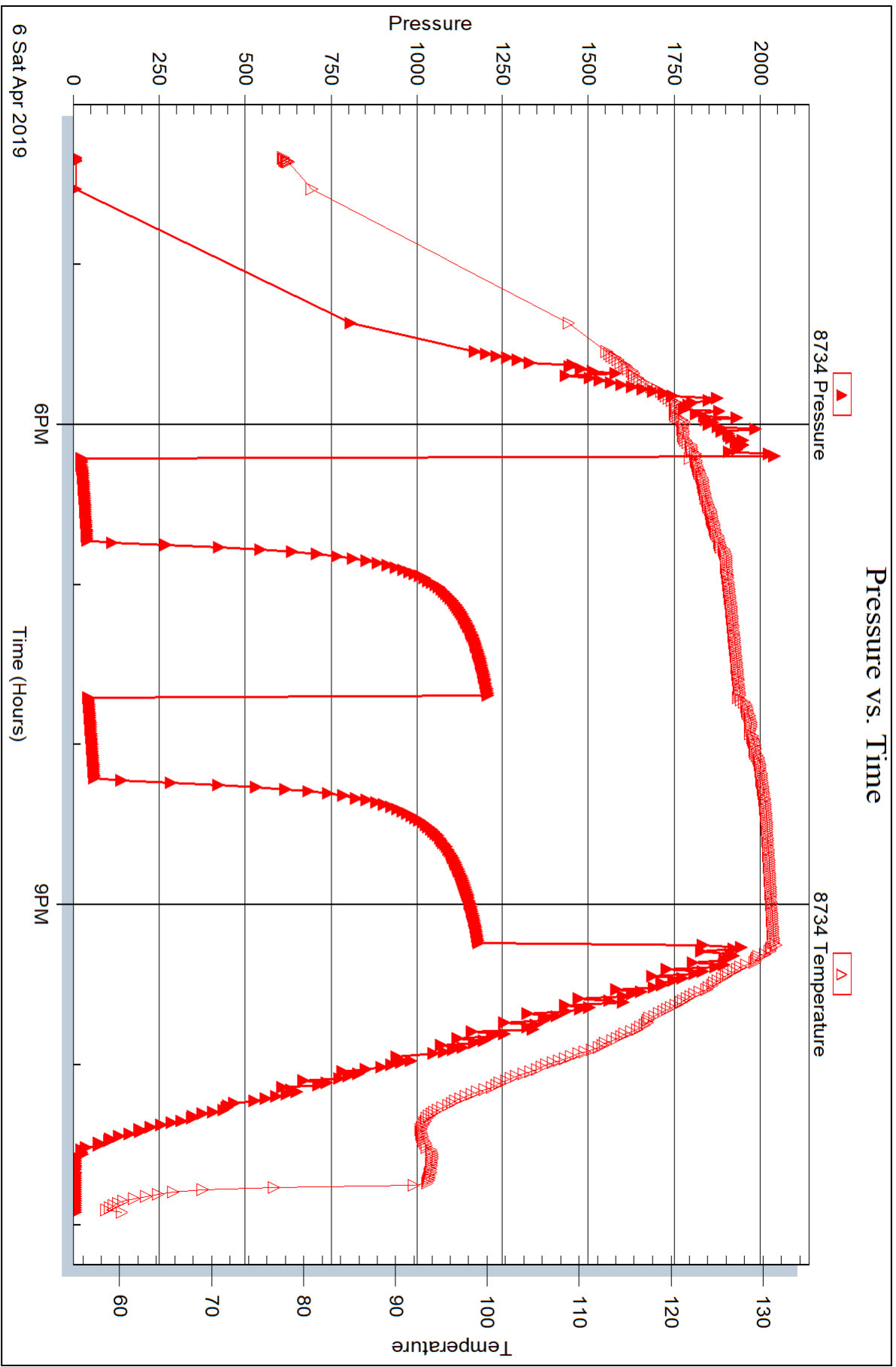


Serial #: 8734

Outside Murfin Drilling Co Inc

Culwell 'J' # 1-19

DST Test Number: 1





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co Inc**

250 N. Water STE 300
Wichita, KS 67202

ATTN: Jeff Christian

Culwell ' J ' # 1-19

19-2S-37W Cheyenne,KS

Start Date: 2019.04.07 @ 11:50:00

End Date: 2019.04.07 @ 18:53:00

Job Ticket #: 63280 DST #: 2

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

Printed: 2019.04.11 @ 14:32:09



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

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

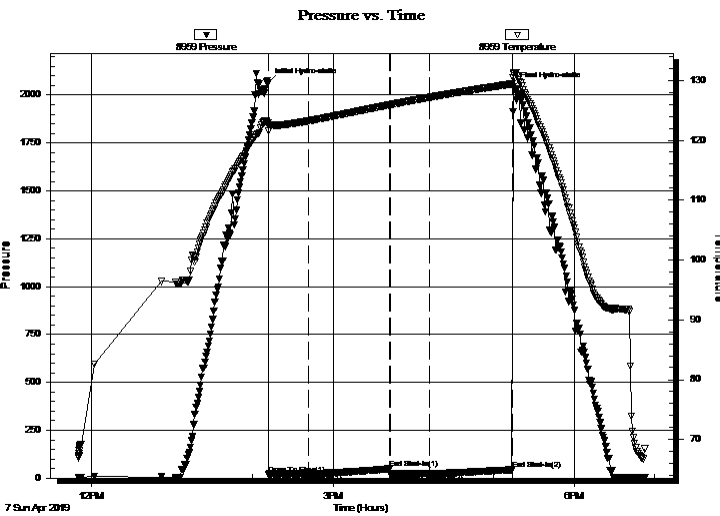
19-2S-37W Cheyenne,KS
Culwell ' J ' # 1-19
 Job Ticket: 63280 **DST#: 2**
 Test Start: 2019.04.07 @ 11:50:00

GENERAL INFORMATION:

Formation: **Oread**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 14:11:40
 Time Test Ended: 18:53:00
 Interval: **4177.00 ft (KB) To 4260.00 ft (KB) (TVD)**
 Total Depth: 4260.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Martine Salinas
 Unit No: 82
 Reference Elevations: 3389.00 ft (KB)
 3384.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8959 Inside
 Press@RunDepth: 23.50 psig @ 4178.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.04.07 End Date: 2019.04.07 Last Calib.: 2019.04.07
 Start Time: 11:50:01 End Time: 18:53:00 Time On Btm: 2019.04.07 @ 14:11:30
 Time Off Btm: 2019.04.07 @ 17:14:39

TEST COMMENT: 30-IF-Surface blow built to 1/2" @ 10 mins & maintained blow
 60-ISI-No blow
 30-FF-No blow
 60-FSI-No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2066.69	122.93	Initial Hydro-static
1	20.49	121.53	Open To Flow (1)
31	23.14	123.23	Shut-In(1)
91	48.58	125.91	End Shut-In(1)
91	22.18	125.91	Open To Flow (2)
121	23.50	127.15	Shut-In(2)
183	44.26	129.41	End Shut-In(2)
184	2043.20	131.08	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	100% Mud	0.02
0.00	Oil spots in tool	0.00

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

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

19-2S-37W Cheyenne,KS
Culwell ' J ' # 1-19
Job Ticket: 63280 **DST#: 2**
Test Start: 2019.04.07 @ 11:50:00

Tool Information

Drill Pipe:	Length: 3979.00 ft	Diameter: 3.80 inches	Volume: 55.81 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 177.00 ft	Diameter: 2.25 inches	Volume: 0.87 bbl	Weight to Pull Loose: 72000.00 lb
			<u>Total Volume: 56.68 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	7.00 ft			String Weight: Initial 64000.00 lb
Depth to Top Packer:	4177.00 ft			Final 64000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	83.00 ft			
Tool Length:	111.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

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

Shut In Tool	5.00			4154.00	
Hydraulic tool	5.00	1113		4159.00	
Jars	5.00	01-07		4164.00	
Safety Joint	3.00	-001		4167.00	
Packer	5.00			4172.00	28.00 Bottom Of Top Packer
Packer	5.00			4177.00	
Stubb	1.00			4178.00	
Recorder	0.00	8959	Inside	4178.00	
Recorder	0.00	8734	Outside	4178.00	
Perforations	12.00			4190.00	
Change Over Sub	1.00			4191.00	
Drill Pipe	63.00			4254.00	
Change Over Sub	1.00			4255.00	
Bullnose	5.00			4260.00	83.00 Bottom Packers & Anchor

Total Tool Length: 111.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co Inc

19-2S-37W Cheyenne,KS

250 N. Water STE 300
Wichita, KS 67202

Culwell ' J ' # 1-19

Job Ticket: 63280

DST#: 2

ATTN: Jeff Christian

Test Start: 2019.04.07 @ 11:50:00

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: 69.00 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 bbbl
5.00	100% Mud	0.025
0.00	Oil spots in tool	0.000

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

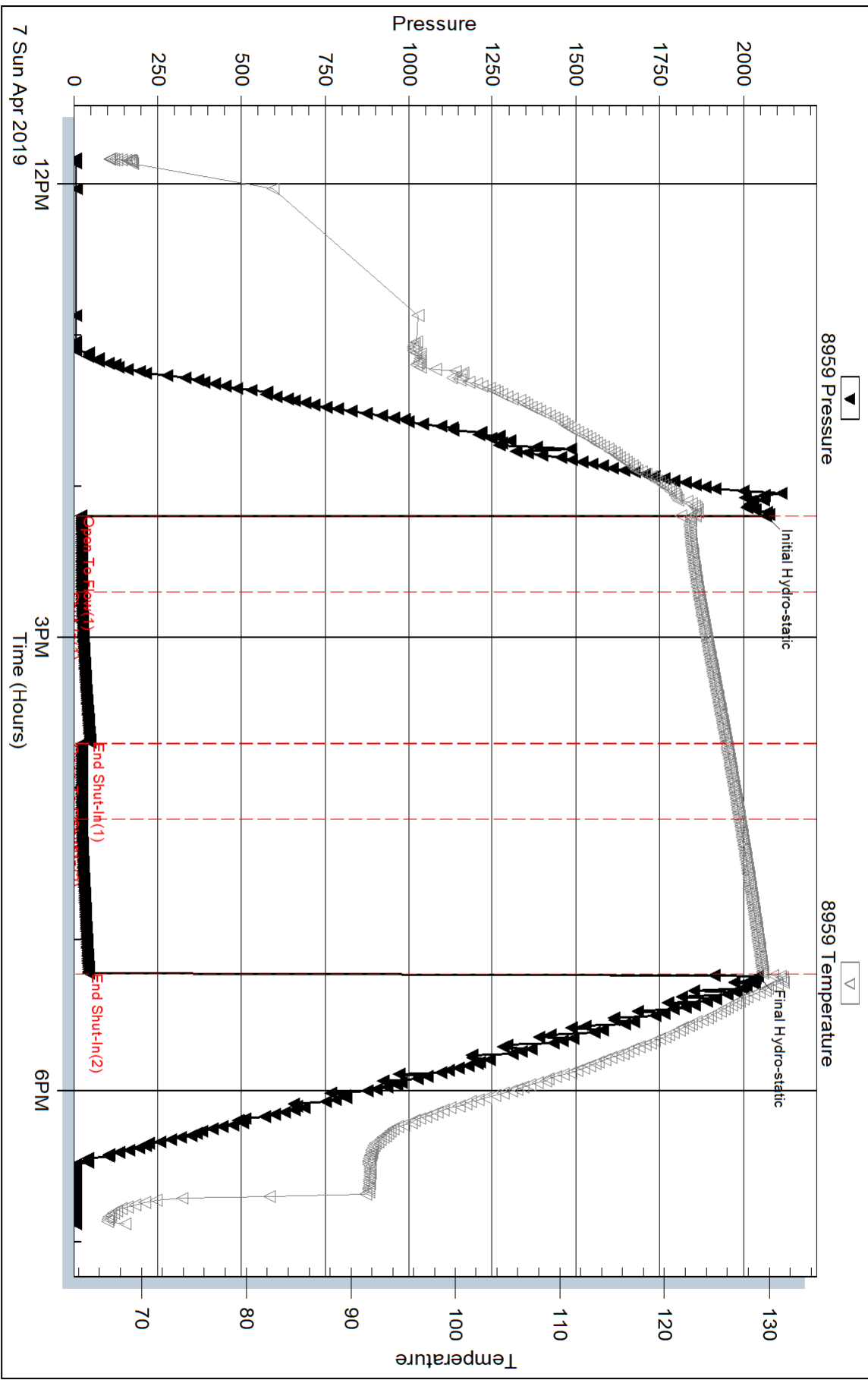
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time

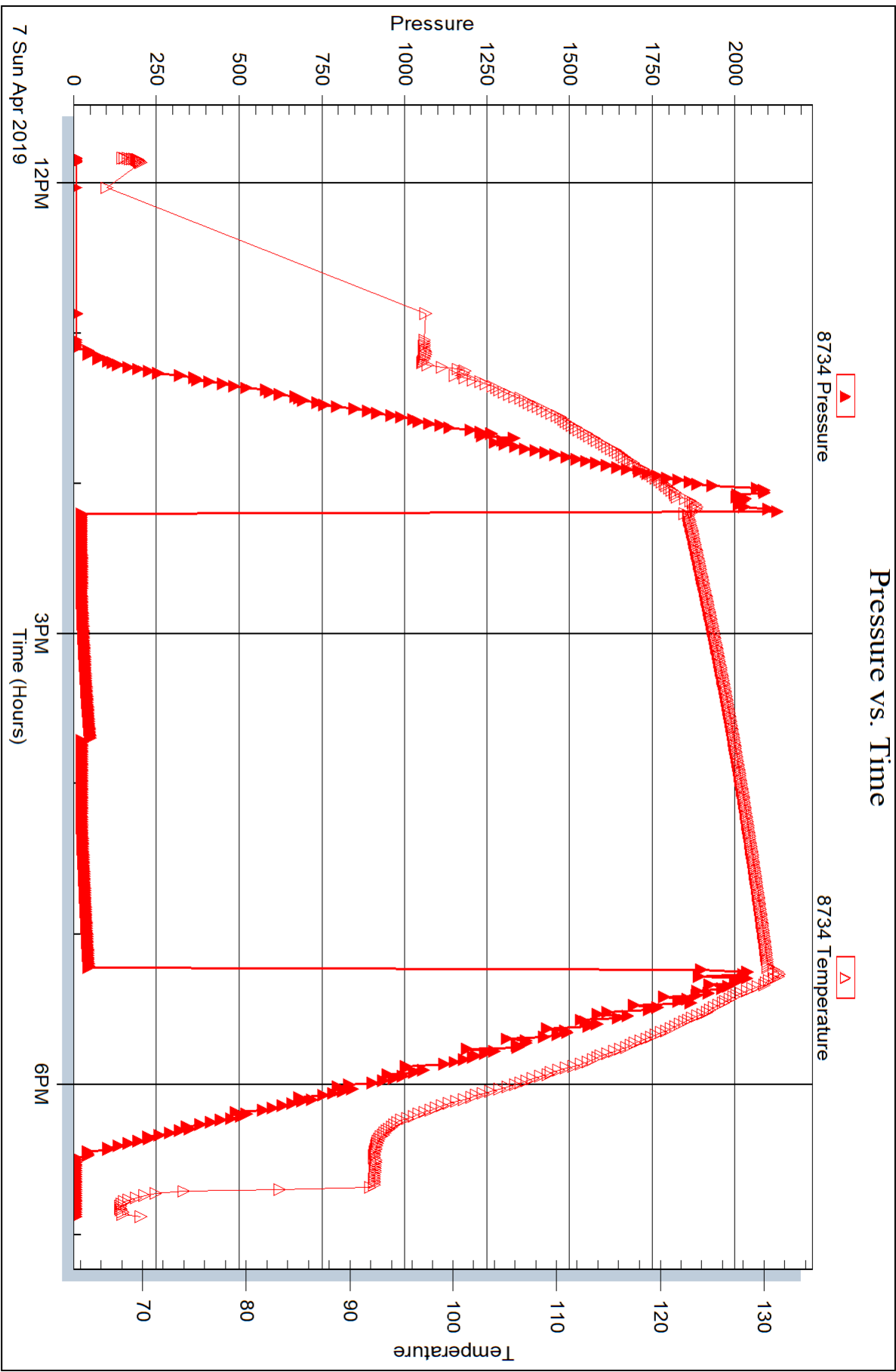


Serial #: 8734

Outside Murfin Drilling Co Inc

Culwell 'J' # 1-19

DST Test Number: 2





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co Inc**

250 N. Water STE 300
Wichita, KS 67202

ATTN: Jeff Christian

Culwell ' J ' # 1-19

19-2S-37W Cheyenne,KS

Start Date: 2019.04.08 @ 10:45:00

End Date: 2019.04.08 @ 19:05:50

Job Ticket #: 63281 DST #: 3

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

Printed: 2019.04.11 @ 14:30:52



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

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

19-2S-37W Cheyenne,KS
Culwell ' J ' # 1-19
Job Ticket: 63281 **DST#: 3**
Test Start: 2019.04.08 @ 10:45:00

GENERAL INFORMATION:

Formation: **LKC " A - D "**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 12:42:10
Time Test Ended: 19:05:50
Interval: **4261.00 ft (KB) To 4406.00 ft (KB) (TVD)**
Total Depth: 4406.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good
Test Type: Conventional Bottom Hole (Reset)
Tester: Martine Salinas
Unit No: 82
Reference Elevations: 3389.00 ft (KB)
3384.00 ft (CF)
KB to GR/CF: 5.00 ft

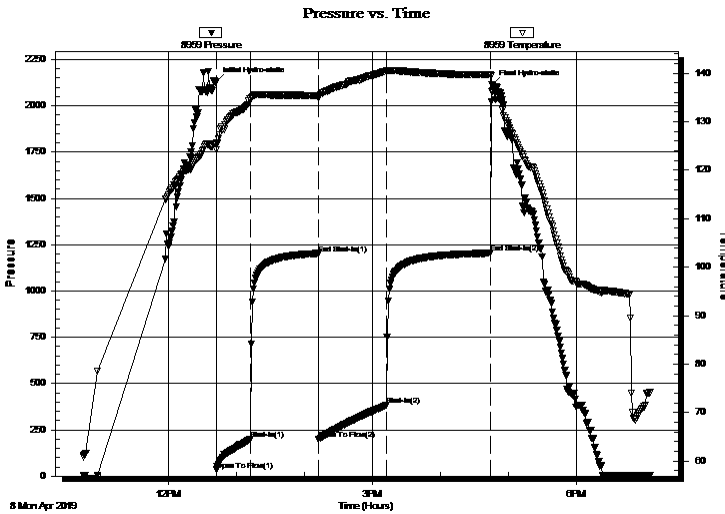
Serial #: 8959

Inside

Press@RunDepth: 382.05 psig @ 4262.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2019.04.08 End Date: 2019.04.08 Last Calib.: 2019.04.08
Start Time: 10:45:01 End Time: 19:05:50 Time On Btm: 2019.04.08 @ 12:42:00
Time Off Btm: 2019.04.08 @ 16:45:50

TEST COMMENT: 30-IF-BOB (11 inches) @ 13 mins (blow increased to 22 1/4"
60-ISI-No blow
60-FF-BOB (11 inches) @ 16 1/2 mins (blow increased to 35")
90-FSI-No blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2131.71	125.51	Initial Hydro-static
1	34.18	124.23	Open To Flow (1)
31	198.58	134.74	Shut-In(1)
91	1202.79	135.43	End Shut-In(1)
91	199.94	134.98	Open To Flow (2)
151	382.05	140.41	Shut-In(2)
243	1204.27	139.73	End Shut-In(2)
244	2114.60	136.15	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
565.00	HWCM 29%W, 71%M	6.31
190.00	100% Mud	2.67
0.00	Oil spots in tool	0.00

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

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

19-2S-37W Cheyenne,KS
Culwell ' J ' # 1-19
Job Ticket: 63281 **DST#: 3**
Test Start: 2019.04.08 @ 10:45:00

Tool Information

Drill Pipe:	Length: 4071.00 ft	Diameter: 3.80 inches	Volume: 57.11 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 177.00 ft	Diameter: 2.25 inches	Volume: 0.87 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 57.98 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial 65000.00 lb
Depth to Top Packer:	4261.00 ft			Final 67000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	145.00 ft			
Tool Length:	173.00 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			4238.00	
Hydraulic tool	5.00	1113		4243.00	
Jars	5.00	01-07		4248.00	
Safety Joint	3.00	-001		4251.00	
Packer	5.00			4256.00	28.00 Bottom Of Top Packer
Packer	5.00			4261.00	
Stubb	1.00			4262.00	
Recorder	0.00	8959	Inside	4262.00	
Recorder	0.00	8734	Outside	4262.00	
Perforations	10.00			4272.00	
Change Over Sub	1.00			4273.00	
Drill Pipe	127.00			4400.00	
Change Over Sub	1.00			4401.00	
Bullnose	5.00			4406.00	145.00 Bottom Packers & Anchor

Total Tool Length: 173.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

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

19-2S-37W Cheyenne,KS
Culwell ' J ' # 1-19
Job Ticket: 63281 **DST#: 3**
Test Start: 2019.04.08 @ 10:45:00

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:	17000 ppm
Viscosity: 64.00 sec/qt	Cushion Volume: bbl		
Water Loss: 5.99 in ³	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
565.00	HWCM 29%W, 71%M	6.313
190.00	100% Mud	2.665
0.00	Oil spots in tool	0.000

Total Length: 755.00 ft Total Volume: 8.978 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:

Laboratory Name: Laboratory Location:

Recovery Comments: RW = .375 @ 76 degs = 17,000PPM

Serial #: 8959

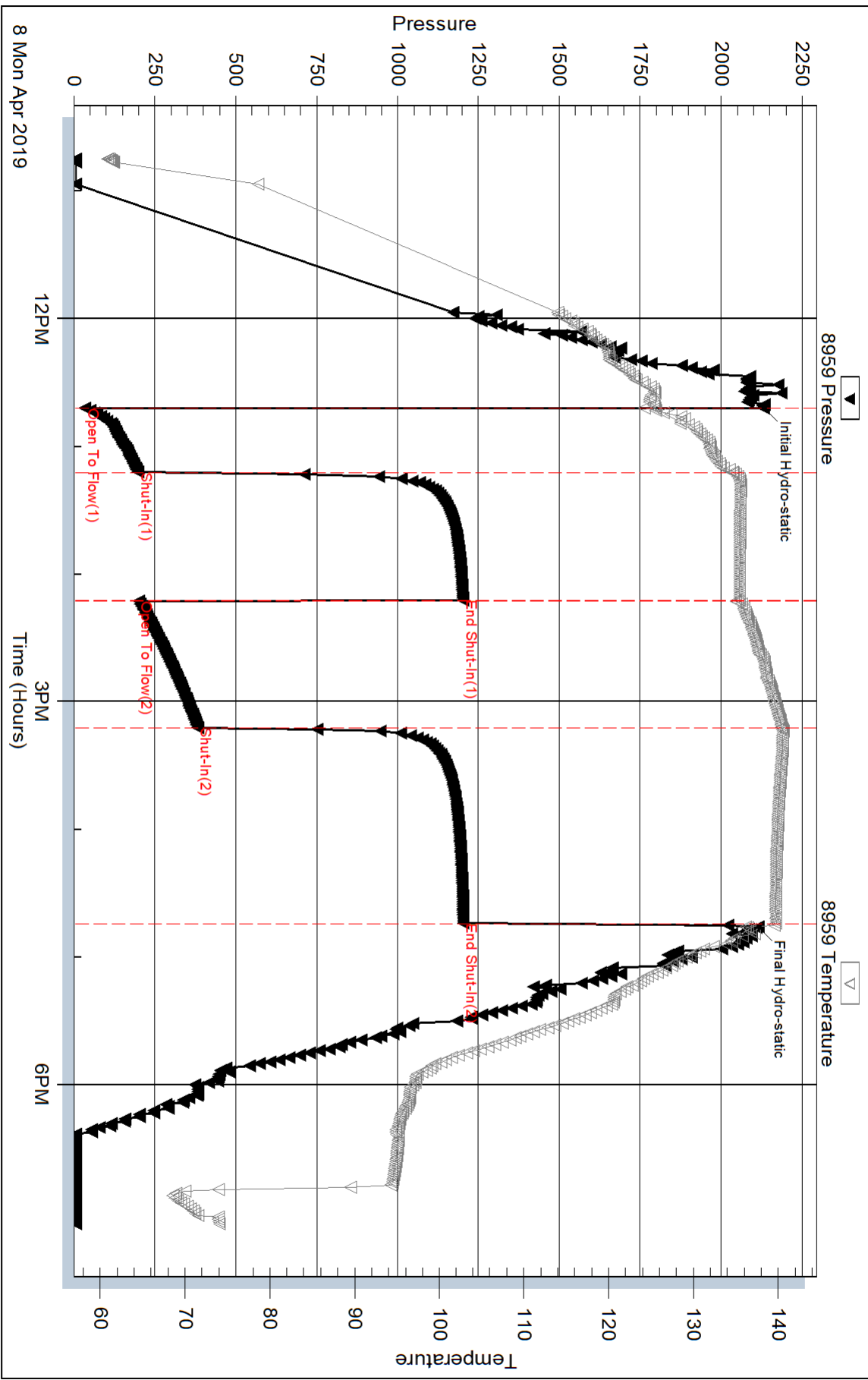
Inside

Murfin Drilling Co Inc

Culwell 'J' # 1-19

DST Test Number: 3

Pressure vs. Time



Trilobite Testing, Inc

Ref. No: 63281

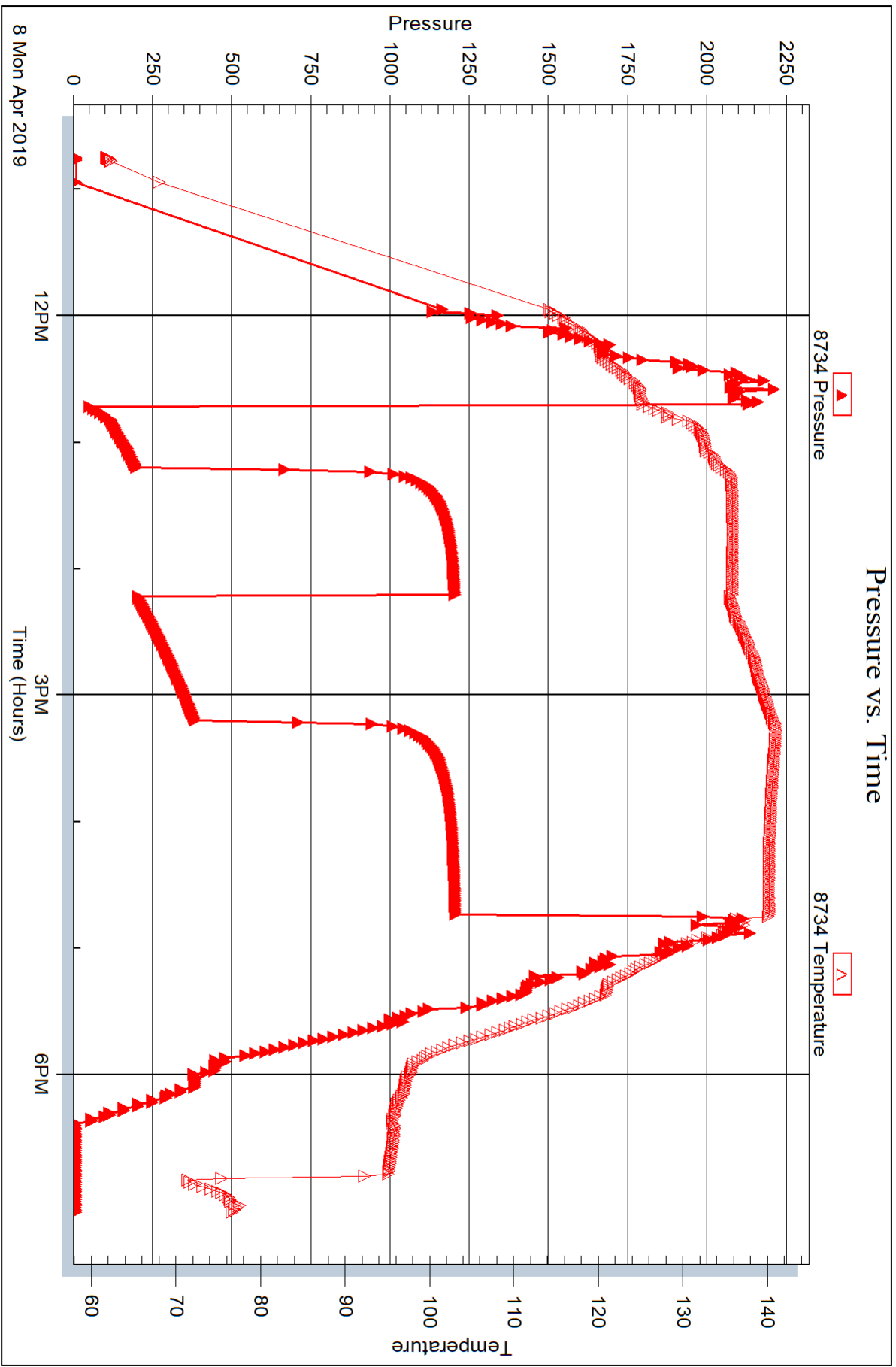
Printed: 2019.04.11 @ 14:30:53

Serial #: 8734

Outside Murfin Drilling Co Inc

Culwell 'J' # 1-19

DST Test Number: 3





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co INC**

250 N. Water STE 300
Wichita, KS 67202

ATTN: Jeff Christian

Culwell ' J ' # 1-19

19-2S-37W Cheyenne,KS

Start Date: 2019.04.09 @ 03:45:00

End Date: 2019.04.09 @ 12:29:10

Job Ticket #: 63282 DST #: 4

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

Printed: 2019.04.11 @ 14:26:48

Murfin Drilling Co INC

19-2S-37W Cheyenne,KS

Culwell ' J ' # 1-19

DST # 4

LKC " G "

2019.04.09



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co INC
 250 N. Water STE 300
 Wichita, KS 67202
 ATTN: Jeff Christian

19-2S-37W Cheyenne,KS
Culwell ' J ' # 1-19
 Job Ticket: 63282 **DST#: 4**
 Test Start: 2019.04.09 @ 03:45:00

GENERAL INFORMATION:

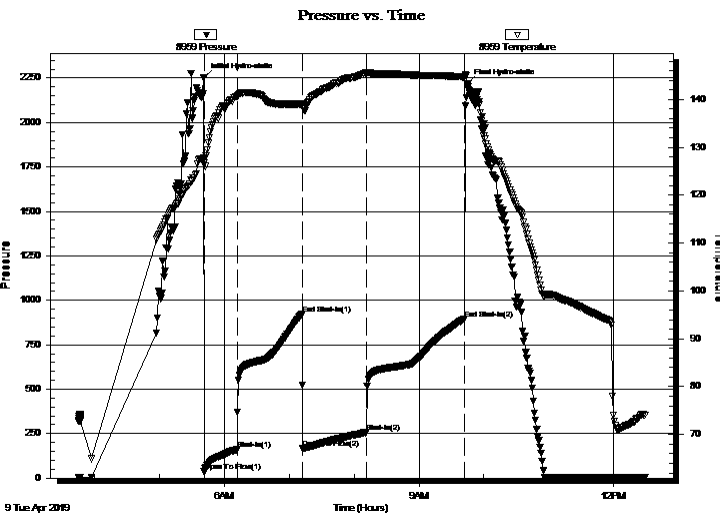
Formation: **LKC " G "**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 05:41:10
 Time Test Ended: 12:29:10
 Interval: **4400.00 ft (KB) To 4452.00 ft (KB) (TVD)**
 Total Depth: 4452.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Martine Salinas Shaw
 Unit No: 82
 Reference Elevations: 3389.00 ft (KB)
 3384.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8959

Inside

Press@RunDepth: 256.49 psig @ 4401.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.04.09 End Date: 2019.04.09 Last Calib.: 2019.04.09
 Start Time: 03:45:01 End Time: 12:29:10 Time On Btm: 2019.04.09 @ 05:41:00
 Time Off Btm: 2019.04.09 @ 09:45:20

TEST COMMENT: 30-IF-BOB (11 inches) @ 12 mins (blow increased to 25 1/2")
 60-ISI-Surface blow back @ 1 1/2mins built to 2" @ 34 mins & decreased to 1 1/2"
 60-FF-BOB(11 inches) @ 21 mins (blow increased to 32 1/2")
 90-FSI-Surface blow back @ 1 min built to 4"



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2251.99	127.75	Initial Hydro-static
1	36.10	126.78	Open To Flow (1)
31	160.97	140.54	Shut-In(1)
91	922.55	139.04	End Shut-In(1)
92	166.74	138.60	Open To Flow (2)
151	256.49	145.52	Shut-In(2)
242	896.86	144.65	End Shut-In(2)
245	2216.48	142.57	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
501.00	GMCO 29%G, 21%M, 50%O	5.42
90.00	CGO 18%G, 82%O	1.26
0.00	280' GIP	0.00

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co INC
250 N. Water STE 300
Wichita, KS 67202
ATTN: Jeff Christian

19-2S-37W Cheyenne,KS
Culwell ' J ' # 1-19
Job Ticket: 63282 **DST#: 4**
Test Start: 2019.04.09 @ 03:45:00

Tool Information

Drill Pipe:	Length: 4229.00 ft	Diameter: 3.80 inches	Volume: 59.32 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 177.00 ft	Diameter: 2.25 inches	Volume: 0.87 bbl	Weight to Pull Loose: 90000.00 lb
			<u>Total Volume: 60.19 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	34.00 ft			String Weight: Initial 65000.00 lb
Depth to Top Packer:	4400.00 ft			Final 67000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	52.00 ft			
Tool Length:	80.00 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			4377.00	
Hydraulic tool	5.00	1113		4382.00	
Jars	5.00	01-07		4387.00	
Safety Joint	3.00	-001		4390.00	
Packer	5.00			4395.00	28.00 Bottom Of Top Packer
Packer	5.00			4400.00	
Stubb	1.00			4401.00	
Recorder	0.00	8959	Inside	4401.00	
Recorder	0.00	8734	Outside	4401.00	
Perforations	13.00			4414.00	
Change Over Sub	1.00			4415.00	
Drill Pipe	31.00			4446.00	
Change Over Sub	1.00			4447.00	
Bullnose	5.00			4452.00	52.00 Bottom Packers & Anchor

Total Tool Length: 80.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co INC

19-2S-37W Cheyenne,KS

250 N. Water STE 300
Wichita, KS 67202

Culwell ' J ' # 1-19

Job Ticket: 63282

DST#: 4

ATTN: Jeff Christian

Test Start: 2019.04.09 @ 03:45:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

29 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 70.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.99 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 600.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
501.00	GMCO 29%G, 21%M, 50%O	5.415
90.00	CGO 18%G, 82%O	1.262
0.00	280' GIP	0.000

Total Length: 591.00 ft Total Volume: 6.677 bbl

Num Fluid Samples: 0

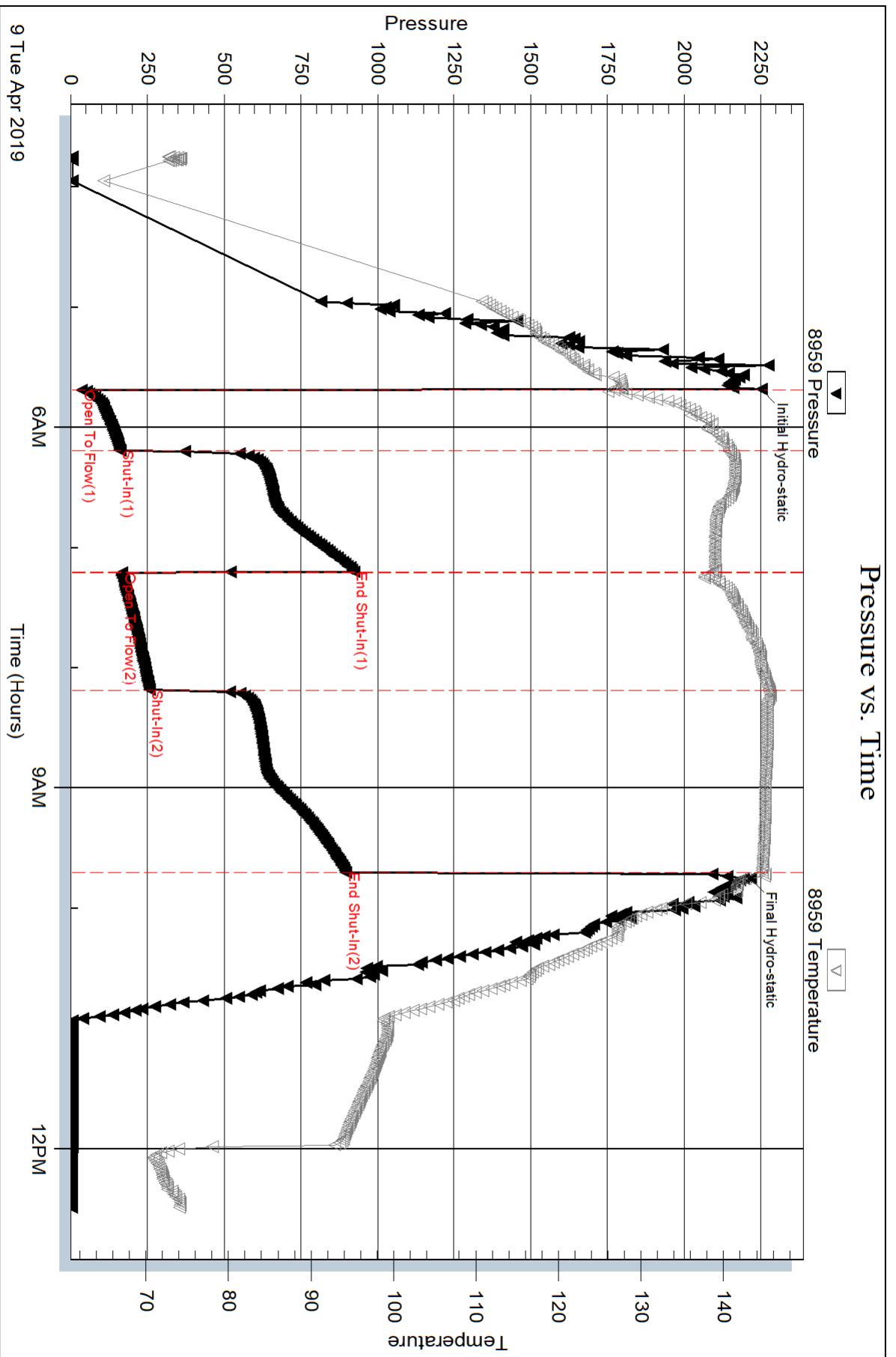
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Gravity of oil = 30.5 @ 75deg
Gravity corrected to 29 @ 60deg
Pulled 35k over string w eight coming off bottom

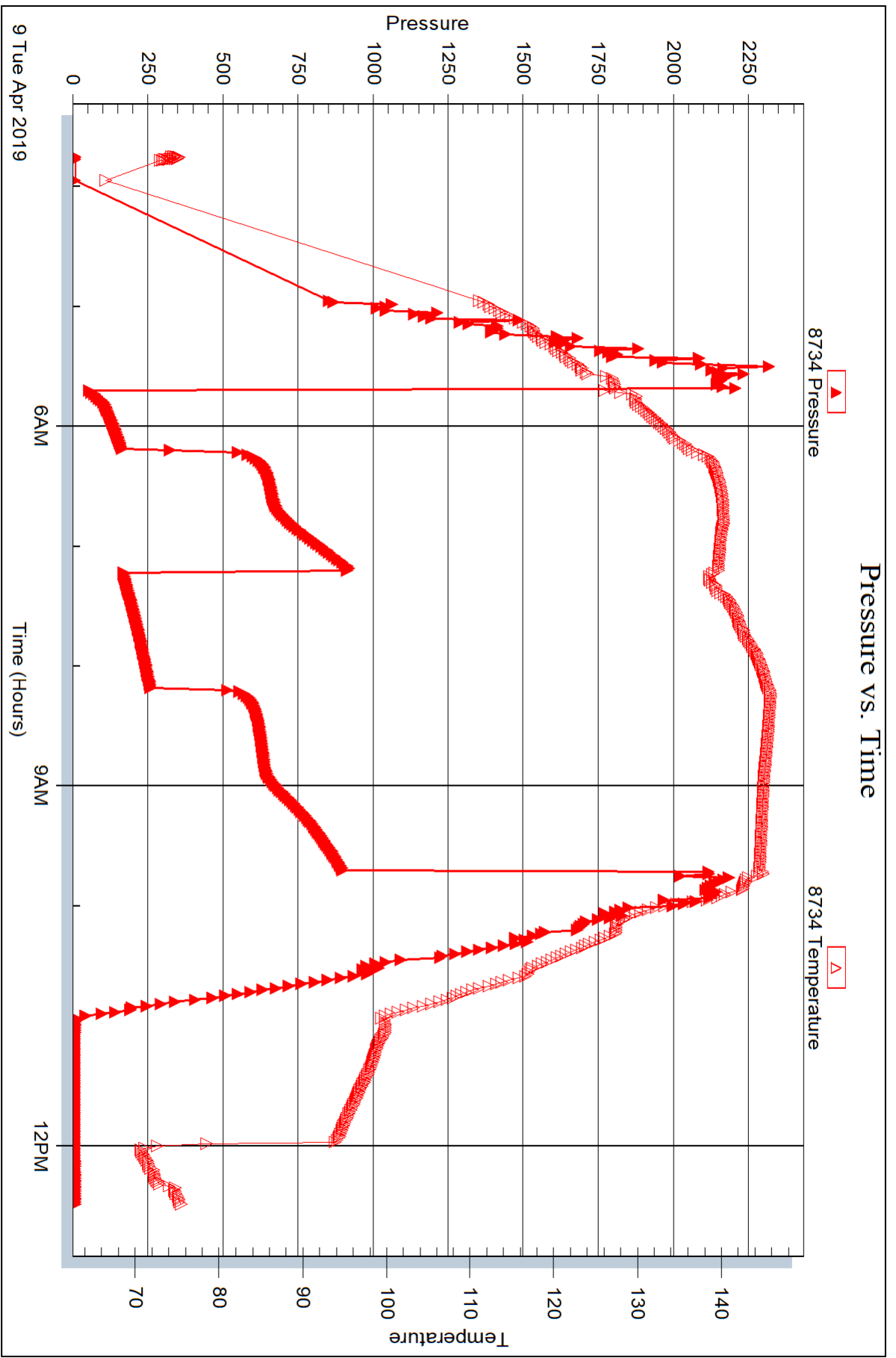


Serial #: 8734

Outside Murfin Drilling Co INC

Culwell 'J' # 1-19

DST Test Number: 4





DRILL STEM TEST REPORT

Prepared For: **Murfin Drilling Co INC**

250 N. Water STE 300
Wichita, KS 67202

ATTN: Jeff Christian

Culwell ' J ' # 1-19

19-2S-37W Cheyenne,KS

Start Date: 2019.04.10 @ 00:12:00

End Date: 2019.04.10 @ 06:58:30

Job Ticket #: 63283 DST #: 5

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

Printed: 2019.04.11 @ 14:24:50



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co INC
250 N. Water STE 300
Wichita, KS 67202
ATTN: Jeff Christian

19-2S-37W Cheyenne,KS
Culwell ' J ' # 1-19
Job Ticket: 63283 **DST#: 5**
Test Start: 2019.04.10 @ 00:12:00

GENERAL INFORMATION:

Formation: **LKC "H - J"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 02:18:30
Time Test Ended: 06:58:30
Interval: **4448.00 ft (KB) To 4540.00 ft (KB) (TVD)**
Total Depth: 4540.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Bottom Hole (Reset)
Tester: Martine Salinas Shaw
Unit No: 82
Reference Elevations: 3389.00 ft (KB)
3384.00 ft (CF)
KB to GR/CF: 5.00 ft

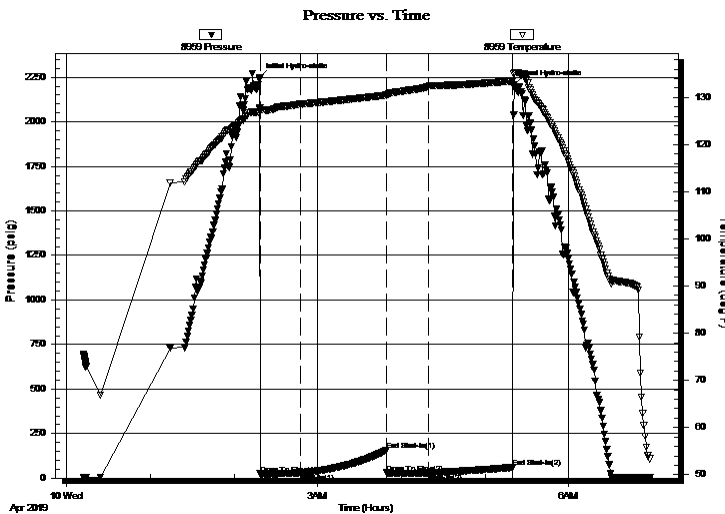
Serial #: 8959

Inside

Press@RunDepth: 28.52 psig @ 4449.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2019.04.10 End Date: 2019.04.10 Last Calib.: 2019.04.10
Start Time: 00:12:01 End Time: 06:58:30 Time On Btm: 2019.04.10 @ 02:18:20
Time Off Btm: 2019.04.10 @ 05:20:50

TEST COMMENT: 30-IF-Surface blow built to 1 1/4'
60-ISI-No blow back
30-FF-No blow
60-FSI-No blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2248.15	127.86	Initial Hydro-static
1	22.97	127.01	Open To Flow (1)
30	25.65	128.57	Shut-In(1)
91	155.51	130.47	End Shut-In(1)
91	28.74	130.40	Open To Flow (2)
121	28.52	132.34	Shut-In(2)
182	59.91	133.46	End Shut-In(2)
183	2207.65	135.29	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	OSM 5%O, 95%M	0.02
0.00	Heavy oil spots in tool	0.00

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co INC
250 N. Water STE 300
Wichita, KS 67202
ATTN: Jeff Christian

19-2S-37W Cheyenne,KS
Culwell ' J ' # 1-19
Job Ticket: 63283 **DST#: 5**
Test Start: 2019.04.10 @ 00:12:00

Tool Information

Drill Pipe:	Length: 4259.00 ft	Diameter: 3.80 inches	Volume: 59.74 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 177.00 ft	Diameter: 2.25 inches	Volume: 0.87 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 60.61 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	16.00 ft			String Weight: Initial 65000.00 lb
Depth to Top Packer:	4448.00 ft			Final 65000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	92.00 ft			
Tool Length:	120.00 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			4425.00	
Hydraulic tool	5.00	1113		4430.00	
Jars	5.00	01-07		4435.00	
Safety Joint	3.00	-001		4438.00	
Packer	5.00			4443.00	28.00 Bottom Of Top Packer
Packer	5.00			4448.00	
Stubb	1.00			4449.00	
Recorder	0.00	8959	Inside	4449.00	
Recorder	0.00	8734	Outside	4449.00	
Perforations	21.00			4470.00	
Change Over Sub	1.00			4471.00	
Drill Pipe	63.00			4534.00	
Change Over Sub	1.00			4535.00	
Bullnose	5.00			4540.00	92.00 Bottom Packers & Anchor

Total Tool Length: 120.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co INC
250 N. Water STE 300
Wichita, KS 67202
ATTN: Jeff Christian

19-2S-37W Cheyenne,KS
Culwell ' J ' # 1-19
Job Ticket: 63283 **DST#: 5**
Test Start: 2019.04.10 @ 00:12:00

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: bbl		
Water Loss: 5.59 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 600.00 ppm			
Filter Cake: 2.00 inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	OSM 5%O, 95%M	0.025
0.00	Heavy oil spots in tool	0.000

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:

Laboratory Name: Laboratory Location:

Recovery Comments:

Serial #: 8959

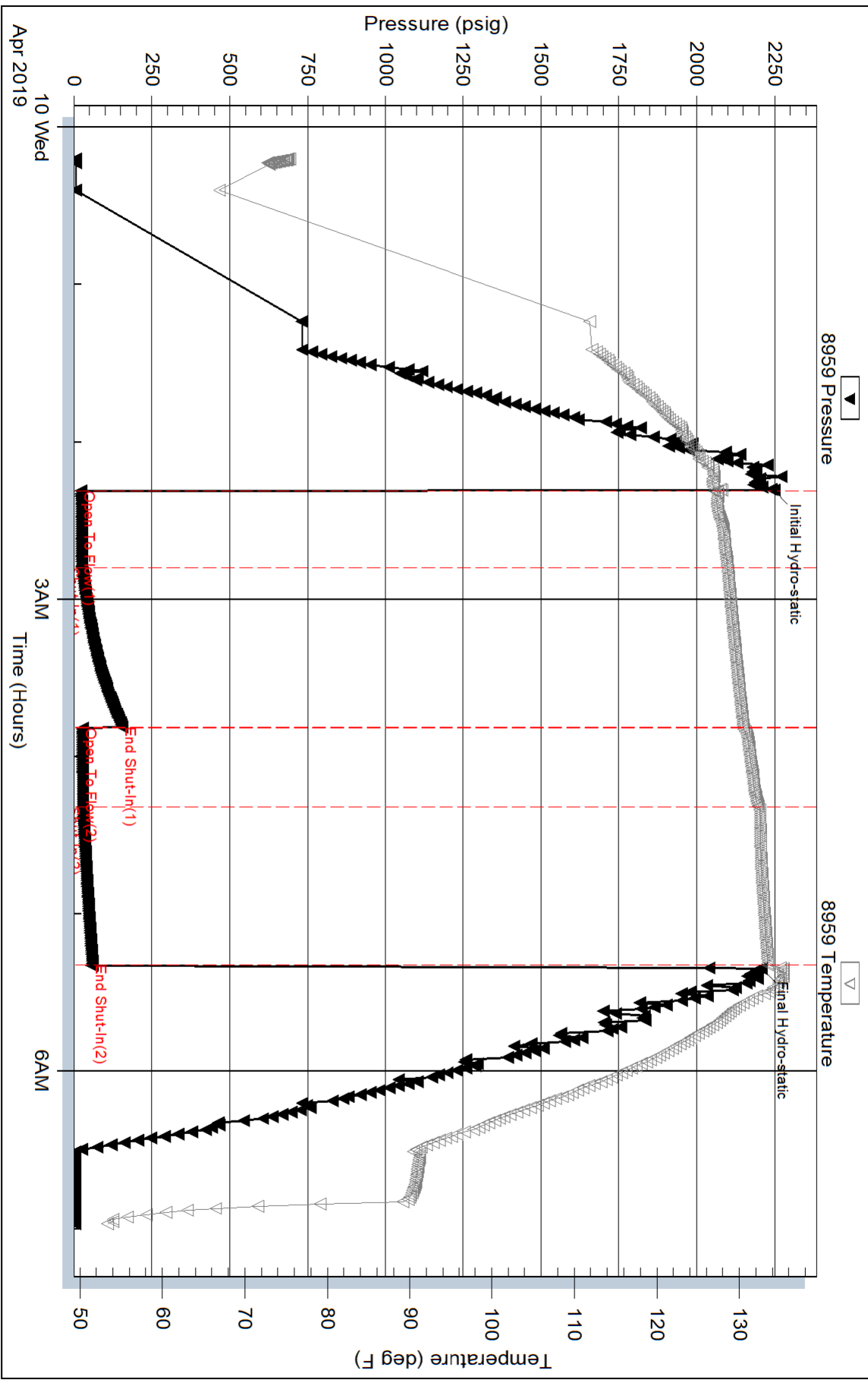
Inside

Murfin Drilling Co INC

Culwell 'J' # 1-19

DST Test Number: 5

Pressure vs. Time

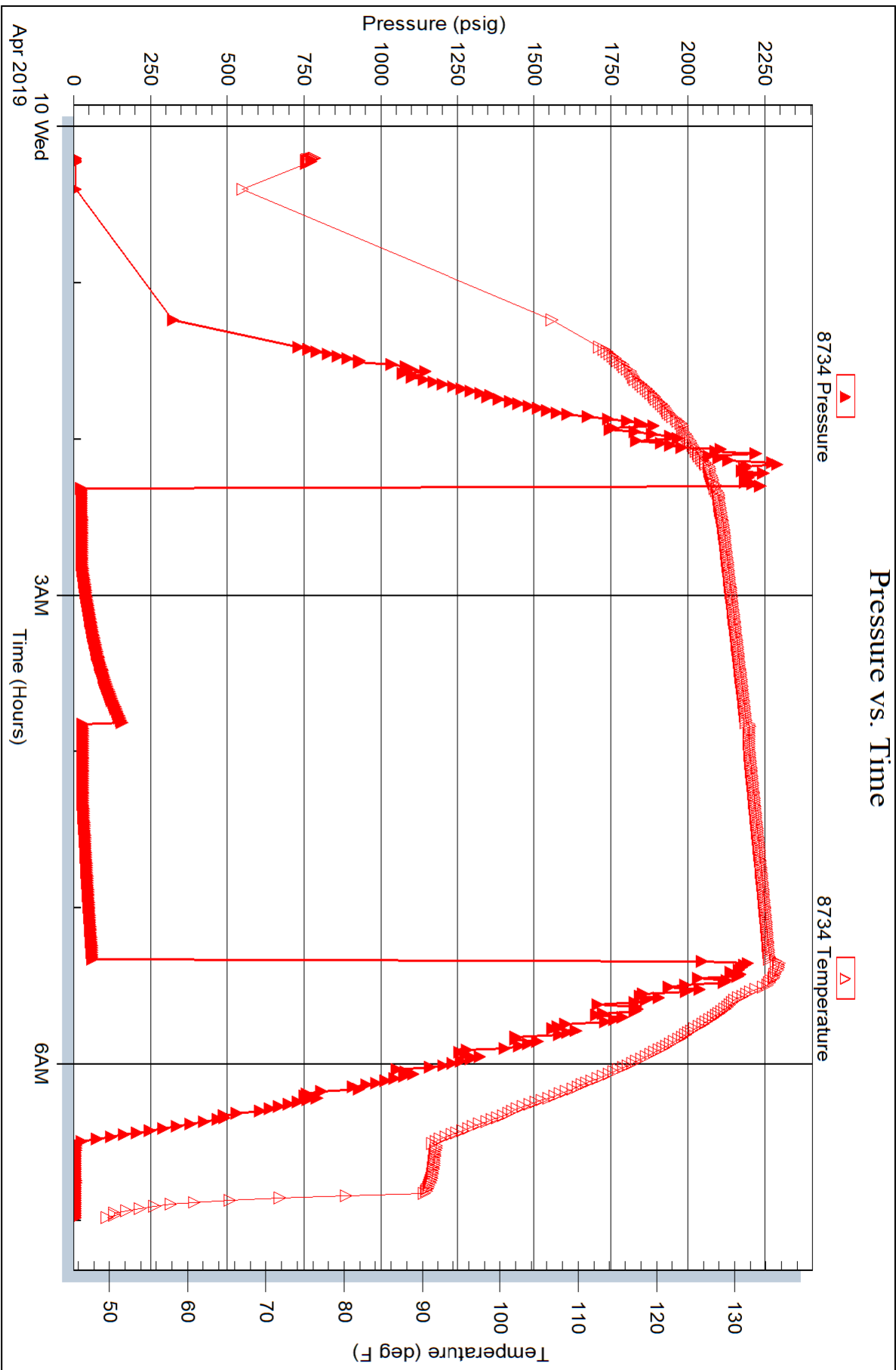


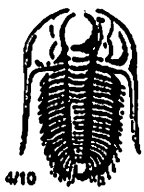
Serial #: 8734

Outside Murfin Drilling Co INC

Culwell 'J' # 1-19

DST Test Number: 5





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63279

Well Name & No. Culwell 'J' #1-19 Test No. 1 Date 04-06-19
 Company Murfin Drilling Co INC Elevation 3389 KB 3384 GL
 Address 250 N. Water, STE 300, Wichita, KS 67202
 Co. Rep / Geo. Jeff Christian Rig Murfin #3
 Location: Sec. 19 Twp 2S. Rge. 37W. Co. Cherokee State KS

Interval Tested 4050 - 4138 Zone Tested Topeka - Deer Creek
 Anchor Length 88' Drill Pipe Run 3855 Mud Wt. 8.8
 Top Packer Depth 4045 Drill Collars Run 177 Vls 68
 Bottom Packer Depth 4050 Wt. Pipe Run — WL 5.6
 Total Depth 4138 Chlorides 600 ppm System LCM 5H
 Blow Description IF - S. blow built to 1 1/2"
ISI - No blow
FF - Weak surface bubbles @ 3 mins built to 1/4"
FSI - No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>75</u>	<u>Mud</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 75 BHT 131 Gravity — API RW — @ — F Chlorides — ppm

(A) Initial Hydrostatic <u>1984</u>	<input checked="" type="checkbox"/> Test <u>1300</u>	T-On Location <u>15:10</u>
(B) First Initial Flow <u>22</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>16:20</u>
(C) First Final Flow <u>39</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>18:13</u>
(D) Initial Shut-In <u>1206</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>21:13</u>
(E) Second Initial Flow <u>43</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>22:56</u>
(F) Second Final Flow <u>59</u>	<input checked="" type="checkbox"/> Mileage <u>132 RT.</u> 132	Comments
(G) Final Shut-In <u>1179</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1958</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Packer
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby	Total <u>1757</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1757</u>	

Approved By

Jeff Christian

Our Representative

Matt Johnson

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 of opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.



TRIOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63280

Well Name & No. Culwell 'J' #1-19 Test No. 2 Date 04-07-19
 Company Murfin Drilling Co INC Elevation 3389 KB 3384 GL
 Address 250 N. Water, STE. 300, Wichita, KS 67202
 Co. Rep / Geo. JEFF Christian Rig Murfin #3
 Location: Sec. 19 Twp 2S. Rge. 37W. Co. Cheyenne State KS

Interval Tested 4177-4260 Zone Tested Oread
 Anchor Length 83' Drill Pipe Run 3979 Mud Wt. 8.9
 Top Packer Depth 4172 Drill Collars Run 177 Vis 69
 Bottom Packer Depth 4177 Wt. Pipe Run — WL 5.6
 Total Depth 4260 Chlorides 600 ppm System LCM 4#

Blow Description IF - S. blow built to 1/2" @ 10 mins & maintained blow
ISI - No blow
FF - No blow
FSI - No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>Mud</u>			<u>100</u>	
<u>0</u>	<u>Oil spots in tool</u>				

Rec Total 5 BHT 131 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic 2067
 (B) First Initial Flow 20
 (C) First Final Flow 23
 (D) Initial Shut-In 49
 (E) Second Initial Flow 22
 (F) Second Final Flow 24
 (G) Final Shut-In 44
 (H) Final Hydrostatic 2043

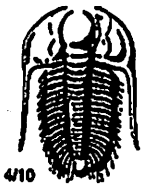
Test 1300
 Jars 250
 Safety Joint 75
 Circ Sub _____
 Hourly Standby _____
 Mileage 132RT 132
 Sampler _____
 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 1757

T-On Location 11:30
 T-Started 11:50
 T-Open 14:12
 T-Pulled 17:12
 T-Out 18:53
 Comments _____
 Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Sub Total 0
 Total 1757
 MP/DST Disc't _____

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

Approved By [Signature] Our Representative [Signature]

Triobite Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63281

Well Name & No. Culwell 'S' #1-19 Test No. 3 Date 04-08-19
 Company Murfin Drilling Co Inc Elevation 3389 KB 3384 GL
 Address 250 N. Water, STE. 300, Wichita, KS 67202
 Co. Rep / Geo. Jeff Christian Rig Murfin #3
 Location: Sec. 19 Twp 2S. Rge. 37W. Co. Cheyenne State KS.

Interval Tested 4261 - 4406 Zone Tested LKC "A-D"
 Anchor Length 145' Drill Pipe Run 4071 Mud Wt. 9.2
 Top Packer Depth 4256 Drill Collars Run 177 Vls 64
 Bottom Packer Depth 4261 Wt. Pipe Run --- WL 6.0
 Total Depth 4406 Chlorides 600 ppm System LCM 3#
 Blow Description IF - 1/4" blow built to B.O.B (11 inches) @ 13 mins (blow increased to 22' 1/4")
ISE - No blow
FF - S. blow built to B.O.B (11 inches) @ 16 1/2 mins (blow increased to 35")
EST - No blow

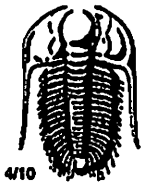
Rec	Feet of	%gas	%oil	%water	%mud
<u>565</u>	<u>HWCM</u>		<u>29</u>	<u>71</u>	
<u>190</u>	<u>Mud</u>			<u>100</u>	
<u>0</u>	<u>Oil spots in tool</u>				

Rec Total 755 BHT 136 Gravity --- API RW 375 @ 76 °F Chlorides 17,000 ppm

(A) Initial Hydrostatic <u>2132</u>	<input checked="" type="checkbox"/> Test <u>1300</u>	T-On Location <u>10:30</u>
(B) First Initial Flow <u>34</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>10:45</u>
(C) First Final Flow <u>199</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>12:43</u>
(D) Initial Shut-In <u>1203</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>16:43</u>
(E) Second Initial Flow <u>200</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>19:06</u>
(F) Second Final Flow <u>382</u>	<input checked="" type="checkbox"/> Mileage <u>132 RT</u> 132	Comments <u>ISE - Bled off floor</u>
(G) Final Shut-In <u>1204</u>	<input type="checkbox"/> Sampler	<u>Mainifold 2 mins FSI - bled</u>
(H) Final Hydrostatic <u>2115</u>	<input type="checkbox"/> Straddle	<u>off manifold 2 mins</u>
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>1757</u>
	Sub Total <u>1757</u>	MP/DST Disc't

Approved By Jeff Christian Our Representative Matthew Adams

Triobite Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63282

Well Name & No. Culwell 'J' #1-19 Test No. 4 Date 4-9-19
 Company Martin Drilling Co Inc Elevation 3389 KB 3389 GL
 Address 250 N Water STE 300 Wichita KS 67202
 Co. Rep / Geo. Jeff Christian Rig Martin #3
 Location: Sec. 19 Twp 25 Rge. 37W Co. Leyenne State KS

Interval Tested 4400-4452 Zone Tested LKC 6
 Anchor Length 52 Drill Pipe Run 4229 Mud Wt. 9.0
 Top Packer Depth 4395 Drill Collars Run 177 Vis 70
 Bottom Packer Depth 4400 Wt. Pipe Run - WL 6.0
 Total Depth 4452 Chlorides 600 ppm System LCM 4#

Blow Description IF - 3/4" blow built to B.O.B (11 inches) @ 12 mins (blow increased to 25 1/2")
ISI - S. blow back @ 1 1/2 mins built to 2" @ 34 min + decreased to 1 1/2"
FF - S. blow built to B.O.B (11 inches) @ 21 mins (blow increased to 32 1/2")
FSI - S. blowback @ 1 min built to 4"

Rec	Feet of		%gas	%oil	%water	%mud
<u>501</u>	<u>GMCO</u>	<u>29</u>	<u>50</u>		<u>21</u>	
<u>.90</u>	<u>CGO</u>	<u>18</u>	<u>82</u>			
<u>0</u>	<u>280' GIP</u>	<u>100</u>				

Rec Total 591 BHT 143 Gravity 29 API RW - @ - °F Chlorides - ppm

(A) Initial Hydrostatic 2252 Test 1300 T-On Location 03:15
 (B) First Initial Flow 36 Jars 250 T-Started 03:45
 (C) First Final Flow 161 Safety Joint 75 T-Open 05:42
 (D) Initial Shut-In 923 Circ Sub _____ T-Pulled 09:42
 (E) Second Initial Flow 167 Hourly Standby _____ T-Out 12:30
 (F) Second Final Flow 256 Mileage 132 RT 132 Comments ISI - bled off manifold 2 mins
 (G) Final Shut-In 897 Sampler _____ FSI - bled off manifold 2 mins
 (H) Final Hydrostatic 2216 Straddle _____ Pulled 35K over STWT off bottom.
 Ruined Shale Packer _____
 Ruined Packer _____

Initial Open 30 Extra Packer _____ Extra Copies _____
 Initial Shut-In 60 Extra Recorder _____ Sub Total 0
 Final Flow 60 Day Standby _____ Total 1757
 Final Shut-In 90 Accessibility _____ MP/DST Disc't _____
 Sub Total 1757

Approved By [Signature] 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.



TRIOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63283

Well Name & No. Culwell 'J' #1-19 Test No. 5 Date 04-09-19
 Company Murfin Drilling Co Inc Elevation 3389 KB 3384 GL
 Address 250 N Water STE 300 Wichita
 Co. Rep / Geo. Jeff Christian Rig Murfin #3
 Location: Sec. 19 Twp 25 Rge. 37 W Co. Cheyenne State KS

Interval Tested 4448-4540 Zone Tested LKC H-1
 Anchor Length 92 Drill Pipe Run 4259 Mud Wt. 9.1
 Top Packer Depth 4443 Drill Collars Run 177 Vis 70
 Bottom Packer Depth 4448 Wt. Pipe Run - WL 5.6
 Total Depth 4540 Chlorides 600 ppm System LCM 4
 Blow Description IF Surface Blow built to 1' 1/4
ISI No Blow back
FF No Blow
FSI No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>OSM</u>	<u>5</u>	<u>1</u>	<u>9.5</u>	
<u>0</u>	<u>Heavy oil Spots in tool</u>				

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

(A) Initial Hydrostatic <u>2248</u>	<input checked="" type="checkbox"/> Test <u>1300</u>	T-On Location <u>23:45</u>
(B) First Initial Flow <u>23</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>00:12</u>
(C) First Final Flow <u>26</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>2:19</u>
(D) Initial Shut-In <u>156</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>5:19</u>
(E) Second Initial Flow <u>29</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>7:01</u>
(F) Second Final Flow <u>29</u>	<input checked="" type="checkbox"/> Mileage <u>132 RT X 2</u> 264	Comments <u>Released @ 16:00</u>
(G) Final Shut-In <u>60</u>	<input type="checkbox"/> Sampler	<u>4-10-19</u>
(H) Final Hydrostatic <u>2208</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Packer
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Final Flow <u>60 30</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Shut-In <u>90 60</u>	<input type="checkbox"/> Day Standby	Total <u>1889</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1889</u>	

Approved By [Signature]

Our Representative [Signature]

Triobite 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.