

Confidentiality Requested:

Yes No

**KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION**

Form ACO-1

January 2018

Form must be Typed

Form must be Signed

All blanks must be Filled

**WELL COMPLETION FORM
WELL HISTORY - DESCRIPTION OF WELL & LEASE**

OPERATOR: License # _____

Name: _____

Address 1: _____

Address 2: _____

City: _____ State: _____ Zip: _____ + _____

Contact Person: _____

Phone: (_____) _____

CONTRACTOR: License # _____

Name: _____

Wellsite Geologist: _____

Purchaser: _____

Designate Type of Completion:

New Well Re-Entry Workover

Oil WSW SWD

Gas DH EOR

OG GSW

CM (Coal Bed Methane)

Cathodic Other (Core, Expl., etc.): _____

If Workover/Re-entry: Old Well Info as follows:

Operator: _____

Well Name: _____

Original Comp. Date: _____ Original Total Depth: _____

Deepening Re-perf. Conv. to EOR Conv. to SWD
 Plug Back Liner Conv. to GSW Conv. to Producer

Commingled Permit #: _____

Dual Completion Permit #: _____

SWD Permit #: _____

EOR Permit #: _____

GSW Permit #: _____

Spud Date or Date Reached TD Completion Date or Recompletion Date

API No.: _____

Spot Description: _____

_____ - _____ - _____ Sec. _____ Twp. _____ S. R. _____ East West

_____ Feet from North / South Line of Section

_____ Feet from East / West Line of Section

Footages Calculated from Nearest Outside Section Corner:

NE NW SE SW

GPS Location: Lat: _____, Long: _____
(e.g. xx.xxxxx) (e.g. -xxx.xxxxx)

Datum: NAD27 NAD83 WGS84

County: _____

Lease Name: _____ Well #: _____

Field Name: _____

Producing Formation: _____

Elevation: Ground: _____ Kelly Bushing: _____

Total Vertical Depth: _____ Plug Back Total Depth: _____

Amount of Surface Pipe Set and Cemented at: _____ Feet

Multiple Stage Cementing Collar Used? Yes No

If yes, show depth set: _____ Feet

If Alternate II completion, cement circulated from: _____

feet depth to: _____ w/ _____ sx cmt.

Drilling Fluid Management Plan

(Data must be collected from the Reserve Pit)

Chloride content: _____ ppm Fluid volume: _____ bbls

Dewatering method used: _____

Location of fluid disposal if hauled offsite: _____

Operator Name: _____

Lease Name: _____ License #: _____

Quarter _____ Sec. _____ Twp. _____ S. R. _____ East West

County: _____ Permit #: _____

AFFIDAVIT

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

KCC Office Use ONLY

Confidentiality Requested

Date: _____

Confidential Release Date: _____

Wireline Log Received Drill Stem Tests Received

Geologist Report / Mud Logs Received

UIC Distribution

ALT I II III Approved by: _____ Date: _____

Operator Name: _____ Lease Name: _____ Well #: _____

Sec. _____ Twp. _____ S. R. _____ East West County: _____

INSTRUCTIONS: Show important tops of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed.

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to kcc-well-logs@kcc.ks.gov. Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

Drill Stem Tests Taken <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(Attach Additional Sheets)</i> Samples Sent to Geological Survey <input type="checkbox"/> Yes <input type="checkbox"/> No Cores Taken <input type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Run <input type="checkbox"/> Yes <input type="checkbox"/> No Geologist Report / Mud Logs <input type="checkbox"/> Yes <input type="checkbox"/> No List All E. Logs Run: _____	<input type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample Name Top Datum
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CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> Used							
Report all strings set-conductor, surface, intermediate, production, etc.							
Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives

ADDITIONAL CEMENTING / SQUEEZE RECORD				
Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
<input type="checkbox"/> Perforate <input type="checkbox"/> Protect Casing <input type="checkbox"/> Plug Back TD <input type="checkbox"/> Plug Off Zone				

1. Did you perform a hydraulic fracturing treatment on this well? Yes No *(If No, skip questions 2 and 3)*
2. Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons? Yes No *(If No, skip question 3)*
3. Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry? Yes No *(If No, fill out Page Three of the ACO-1)*

Date of first Production/Injection or Resumed Production/Injection:	Producing Method: <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other <i>(Explain)</i> _____			
Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio Gravity

DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <i>(Submit ACO-4)</i>	PRODUCTION INTERVAL: Top Bottom
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Shots Per Foot	Perforation Top	Perforation Bottom	Bridge Plug Type	Bridge Plug Set At	Acid, Fracture, Shot, Cementing Squeeze Record <i>(Amount and Kind of Material Used)</i>

TUBING RECORD:	Size:	Set At:	Packer At:	
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Form	ACO1 - Well Completion
Operator	Murfin Drilling Co., Inc.
Well Name	ABBE UNIT 1-24
Doc ID	1519116

All Electric Logs Run

DIL
DUCP
MEL
BHCS

MDCI
 ABBE Unit #1-24
 150' FNL 150'FEL
 Sec. 24-2S-37W
 3386' KB

Formation	Sample top	Datum	Ref	Log tops	Datum	Ref
Anhydrite	3275	+111	+10	3274	+112	+11
B/Anhydrite	3311	+75	+6	3310	+76	+7
Topeka	4088	-702	+6	4101	-715	-7
Oread	4223	-837	+6	4238	-852	-9
Lansing	4322	-936	-8	4323	-937	-9
Stark	4544	-1158	-9	4544	-1158	-9
BKC	4600	-1214	-11	4595	-1209	-6
Ft Scott	4730	-1344	-15	4732	-1346	-17
Excello	4779	-1393	-18	4779	-1393	-18
Celia	4811	-1425	-17	4810	-1424	-16
RTD	5100	-1714				
LTD				5098		

Robert D. Hendrix

Petroleum Geologist

GEOLOGIST'S REPORT DRILLING TIME AND SAMPLE LOG

COMPANY **Murfin Drilling Co. Inc**

LEASE **ABBE Unit #1-24**

FIELD **Wildcat**

LOCATION **150'nl & 150'fel**

SEC **24** TWPSP **2s** RGE **37w**

COUNTY **Cheyenne** STATE **Kansas**

CONTRACTOR **Murfin Drilling Co. Inc. Rig #3**

SPUD **4/23/2020** COMP **4/29/2020**

RTD **5:00p** LTD **5:098'**

MUD UP **3600'** TYPE MUD **Chemical**

SAMPLES SAVED FROM **3990'** TO **5100'**

DRILLING TIME KEPT FROM **3990'** TO **5100'**

SAMPLES EXAMINED FROM **3990'** TO **5100'**

GEOLOGICAL SUPERVISION FROM **3950'**

GEOLOGIST ON WELL **Robert D. Hendrix**

Geologist/Production/Marketing/Sales
Premier Wireline Services

ELEVATIONS
KB 3386'

DF

GL 3381'

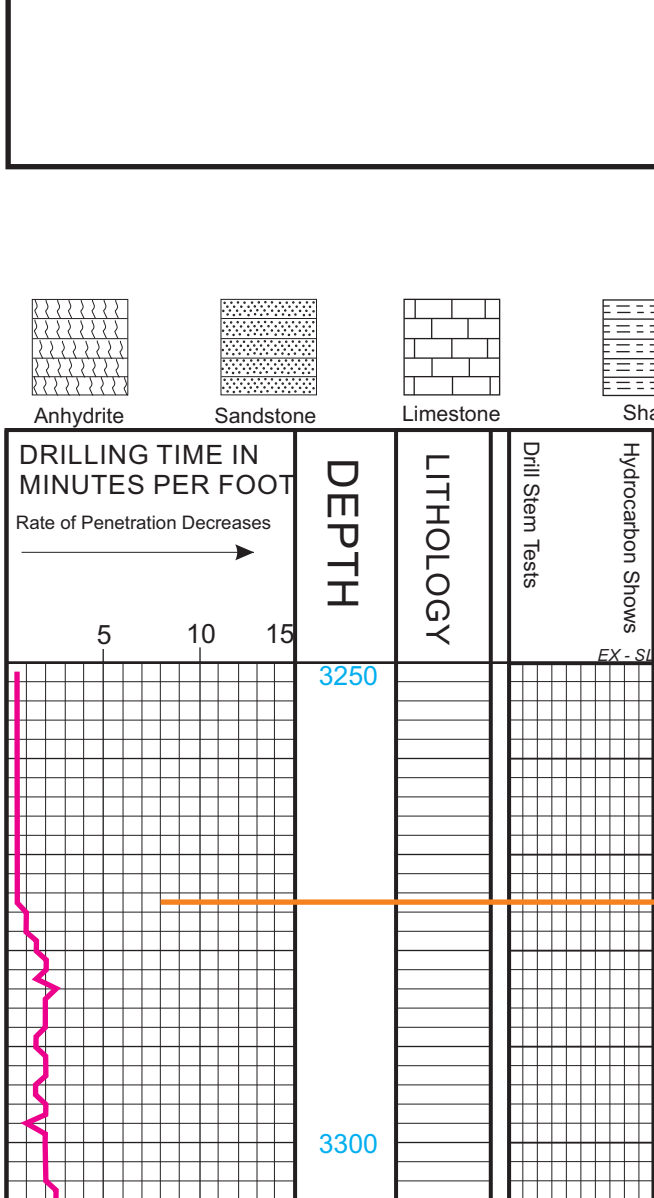
Measurements Are All From Kelly Bushing

CASING
CONDUCTOR
SURFACE 8.5-8' @ 349'

PRODUCTION 112" @ 509.4'

ELECTRICAL SURVEYS

FORMATION TOPS	ELECTRIC LOG	SAMPLE
Anhydrite	4100 (-714)	4088 (-702)
Topeka	4238 (-852)	4223 (-837)
Lansing	4322 (-936)	4322 (-936)
Mound City	4399 (-1213)	4600 (-1214)
Stark	4732 (-1346)	4730 (-1314)
Oakley	4805 (-1418)	4804 (-1418)
Mississippian	5037 (-1652)	5038 (-1652)



REMARKS:

DEPTH	LITHOLOGY	SAMPLE DESCRIPTION	REMARKS
3250			Anhydrite 3275 (+111)
3300			Base Anhydrite 3312 (+74)
3990			Geologist on location 3950' at 3:30 pm 4/23/2020 3908' bit change from PDC to Button Strap at of hole 1.43' long to board.
4000		Shale: red, gray, silty	
4050		Limestone: tan, f-xln, chalky, sl fossiliferous, no vis por	
4088		Shale: red, gray, silty	
4100		Shale: gray, green, red	Stotler 4020 (-634)
4150		Limestone: brown, f-xln, dense, no vis por	
4180		Shale: gray, green, red	
4200		Limestone: tan to gray, f-xln, sl oolitic, dense, no vis por	
4250		Shale: red, gray, silty	
4300		Limestone: tan, f-mxn, chalky, fossiliferous, 3% sample dark sat to spotty stain, slsfo, no odor, no vis por	
4350		Shale: gray, red, silty	
4400		Limestone: white, f-mxn, sl chalky, oolitic, fossiliferous, 1% sample sl interxn por, spotty black stain, nfo, no odor	
4450		Shale: gray, red, nfo	
4500		Limestone: tan, mxln, chalky, oolitic in part, fossiliferous, 1% sample dark sat to spotty stain slsfo, no odor, pr interxn por	
4550		Shale: red, gray, silty	
4600		Limestone: white to tan, f-xln, sl chalky, pyritic, oolitic, fossiliferous, 20% sample pr interxn por, sat streaky stain, gilsonite, nfo, no odor	
4650		Shale: gray, red, black, silty	
4700		Dolomite: white to tan, f-xln, sl chalky, granular, sl fossiliferous, no vis por, ns	
4750		Limestone: white to tan, f-xln, sl chalky, fossiliferous, no vis por	
4800		Shale: gray, green, red, silty	
4850		Shale: gray, green, red, blocky, silty	
4900		Limestone: tan to white, f-xln, chalky, oolitic in part, 1% sample no vis por, black spotty stain, nfo, no odor	
4950		Shale: gray, green, red, blocky, silty	
5000		Shale: black, gray, green, red	
5050		Shale: dark to lt gray	Oread 4223 (-837)
5100		Limestone: tan, f-mxn, chalky, oolitic, 10% sample fr oolastic por, dark sat to spotty stain, frsfo, fair odor, oily sheen on top of sample cup	
5150		Limestone: gray, f-xln, chalky, dense, 5% sample pr interxn por, dark spotty stain, nfo, no odor	
5200		Shale: black, gray, brown, silty	
5250		Limestone: brown to tan, v-f-xln, dense, fossiliferous, no vis por	
5300		Shale: ark to lt gray, green	
5350		Sandstone: white, v-fn gm, well sorted, rmd, tight well cemented, calcareous, sl intergran por, dark sat stain, prsfo, faint odor	
5400		Shale: red, gray, silty, sandy	
5450		Limestone: tan to brown, v-f-xln, sl chalky, mostly dense, sl fossiliferous, no vis por, 6 pieces streaky black stain, nfo, no odor	
5500		Limestone: tan to gray, f-xln, sl chalky, fossiliferous, 3 pieces black spotty stain, no vis por, nfo, no odor	
5550		Sandstone: white to gray, fn gm, mod sorted, sub rmd, calcareous, no vis por, ns	
5600		Shale: red, gray, sandy silty	
5650		Limestone: white, m-xln, sl chalky, oolitic, fossiliferous, 20% sample fr oolastic por, dark sat brown to black stain, fr sfo, gd odor, oily sheen on sample cup	
5700		Shale: red, gray	
5750		Limestone: gray to white, f-xln, sl chalky, sl cherty, mostly dense, no vis por	
5800		Shale: red, gray, silty	
5850		Limestone: tan to white, f-xln, chalky, oolitic, 6 pieces dark spoty to sat stain, fr pp por, nfo, no odor	
5900		Limestone: tan to white, f-mxn, chalky, oolitic, pyritic, pr pp to vug por, ns	
5950		Shale: gray lt to dark, red, blocky	
6000		Limestone: white to tan, f-xln, chalky, fossiliferous, 5% sample or pp to vug por, fr black spotty to sat stain, slsfo on break only, no odor	
6050		Shale: dark to lt gray, green, red	
6100		Limestone: white, f-xln, sl chalky, sl pyritic, sl fossiliferous, pr interxn por, dark spotty to sl sat stain, slsfo, fr odor	
6150		Shale: gray red, brown, silty	
6200		Limestone: tan to white, f-mxn, chalky, fossiliferous, 10% sample pr interxn por, lt to dark sat stain, prsfo, faint odor	
6250		Shale: gray, black, red	
6300		Limestone: white to tan, f-xln, sl chalky, oolitic no vis por, ns	
6350		Shale: lt to dark gray green, red	
6400		Limestone: gray, v-f-xln, dense, sl cherty, fossiliferous, no vis por	
6450		Limestone: gray, f-xln, dense, oolitic, sl cherty, fossiliferous, no vis por	
6500		Shale: red, gray, green, brown	
6550		Limestone: tan to gray, f-xln, oolitic, dense, no vis por	
6600		Shale: red, gray, green silty	
6650		Limestone: white to tan, f-xln, oolitic, v-fossiliferous, fr foss por, sl cherty, 1 piece dark spotty stain, nfo, no odor	
6700		Shale: red, brown, gray, purple, silty, sandy	
6750		Shale: red, silty	
6800		Limestone: tan to brown, m-xln, chalky, v-fossiliferous, gd foss por, ns	
6850		Siltstone: gray/brown, f-xln, dense, hard, no vis por	
6900		Shale: gray, silty, blocky	
6950		Shale: gray dark to light, red, black	
7000		Limestone: white to tan, f-mxn, chalky, oolitic in part, fossiliferous, 5% sample pr interxn por, spotty to sat stain, prsfo, fair odor	
7050		Shale: black carbonaceous	
7100		Limestone: tan to gray, mxln, oolitic, dense, some pyritic, sl chalky, no vis por	
7150		Limestone: tan to white, f-mxn, fossiliferous, granular, cherty, no vis por	
7200		Shale: gray	
7250		Shale: black carbonaceous	
7300		Limestone: tan to brown, f-mxn, sl chalky, oolitic, dense, no vis por	
7350		Shale: gray, red	
7400		Limestone: tan, f-xln, dense, fossiliferous, no vis por	
7450		Shale: black carbonaceous	
7500		Limestone: tan, mxln, chalky, oolitic, fossiliferous, no vis por	
7550		Shale: gray, green, red, silty	
7600		Limestone: tan to white, f-xln, chalky, fossiliferous, no vis por, ns	
7650		Shale: dark to lt gray, green, red	
7700		Limestone: tan to lt gray, v-f-xln, chalky, fossiliferous, no vis por	
7750		Shale: gray, green, red, brown, silty, sandy	
7800		Limestone: tan, f-xln, dense, fossiliferous, no vis por	
7850		Sandstone: sl red, lt, md-gm, sub-ang, mod-sorted, fr intergranular por, ns	
7900		Shale and Limestone: red, gray, green, silty, sandy	
7950		Sandstone: white, opaque, fn to md-gm, sub rmd, poorly-sorted, calcareous, no vis por	
8000		Shale: red, gray, green, silty	
8050		Sandstone: white to red stained, opaque, fn to md-gm, sub md, poorly-sorted, calcareous, no vis por	
8100		Shale: red, brown, gray, silty, sandy	
8150		Shale: dark to lt gray, red, silty	
8200		Limestone: white to lt gray, f-xln, sl chalky, fossiliferous, no vis por	
8250		Shale: gray, green, red, silty	
8300		Sandstone: tan to redd/brown, md-gm, sub-ang, mod-sorted, calcareous, friable, fr intergranular por, ns	
8350		Shale: gray, red	
8400		Chert: white, opaque, fresh spiculitic, no vis por	
8450		Shale: gray, green, red, silty, sandy	
8500		Sandstone: clear, lt, md to lg-gm, sub-rmd, mod-sorted, calcareous, no vis por	
8550		Sandstone: brown, fn-gm, sub-md, mod-sorted, sl calcareous, fr intergranular por	
8600		Shale: gray, green, red, yellow	
8650		Limestone: white to gray, f-xln, sl chalky, oolitic in part, fossiliferous, 5 pieces, pr interxn por, lt sat stain, slsfo on break, no odor	
8700		Dolomite: tan, v-f-xln, sucroitic, no vis por, ns	
8750		Shale: dark gray, green, sl red	
8800		Dolomite: tan to gray, f-xln, granular, sl cherty, pr interxn por, ns	
8850			
8900			
8950			
9000			
9050			
9100			
9150			
9200			
9250			
9300			
9350			
9400			
9450			
9500			
9550			
9600			
9650			
9700			
9750			
9800			
9850			
9900			
9950			
5100			RTD 5100 (-1714)

DST #1
4176-4247
30-60-30-60
1st open: blow built to 1/4" died back to 1/8"
2nd open: no blow no returns
Rec: 5' mud
hydro: 2055-2033 psi
lf: 20-22 psi
ff: 22-23 psi
slp: 654-492 psi
bht: 129' F

DST #2
4339-4414
30-60-30-60
1st open: built to 1 1/4" no returns
2nd open: no blow no returns
Rec:
45' mco
hydro: 2156-2146 psi
lf: 23-29 psi
ff: 32-37 psi
slp: 1291-1255 psi
bht: 135' F

DST #3
4461-4544
30-60-60-90
1st open: bob 7 1/2 min
1st shut in: return built to 4"
2nd shut in: return built to 3"
Rec:
82' cgo 13/87
448' mgco 16/35/49
180' gmco 9/25/66
475' glp
hydro: 2238-2222 psi
lf: 174-286 psi
slp: 1244-1168 psi
bht: 146' F

DST #4
4704-4842
30-60-30-60
1st open: built and stayed at 1/2"
2nd open: no blow no returns
Rec:
45' slg&ocm 2/3/95
hydro: 2378-2374 psi
lf: 25-31 psi
ff: 34-38 psi
slp: 1244-1109 psi
bht: 140' F

DST #5
4804-4884
30-60-30-60
1st open: built and stayed at 1/2"
2nd open: no blow no returns
Rec:
45' slg&ocm 2/3/95
hydro: 2378-2374 psi
lf: 25-31 psi
ff: 34-38 psi
slp: 1244-1109 psi
bht: 140' F



DRILL STEM TEST REPORT

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

250 N. Water STE 300
Wichita, KS 67202

ATTN: Robert Hendrix

ABBE Unit #1-24

24-2s-37w Cheyenne,KS

Start Date: 2020.04.24 @ 15:34:00

End Date: 2020.04.24 @ 22:30:00

Job Ticket #: 66495 DST #: 1

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

Printed: 2020.04.29 @ 08:24:33



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

24-2s-37w Cheyenne, KS

250 N. Water STE 300
Wichita, KS 67202

ABBE Unit #1-24

Job Ticket: 66495

DST#: 1

ATTN: Robert Hendrix

Test Start: 2020.04.24 @ 15:34:00

GENERAL INFORMATION:

Formation: **Oread**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 17:49:15

Time Test Ended: 22:30:00

Test Type: Conventional Bottom Hole (Initial)

Tester: James Winder/Ryan Ni

Unit No: 83

Interval: 4176.00 ft (KB) To 4247.00 ft (KB) (TVD)

Reference Elevations: 3386.00 ft (KB)

Total Depth: 4247.00 ft (KB) (TVD)

3381.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8652 Outside

Press@RunDepth: 23.17 psig @ 4177.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2020.04.24 End Date: 2020.04.24

Last Calib.: 2020.04.24

Start Time: 15:34:05 End Time: 22:29:59

Time On Btm: 2020.04.24 @ 17:49:00

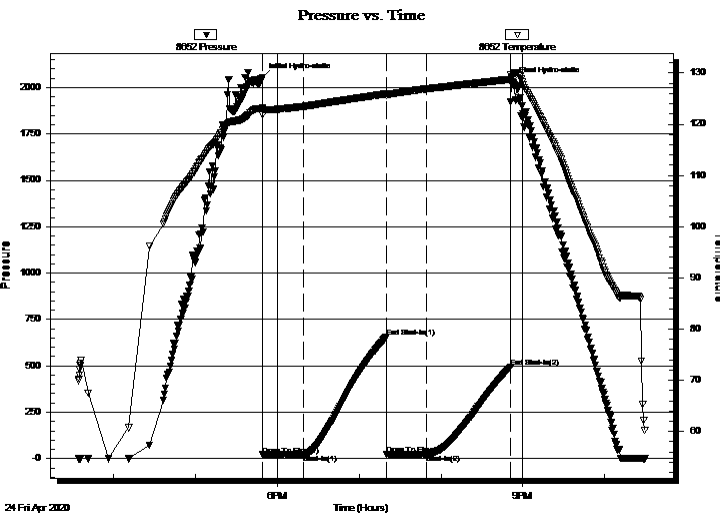
Time Off Btm: 2020.04.24 @ 20:52:15

TEST COMMENT: 30 - IF: 1/8" Blow at open, built to 1/4", died back to 1/8"

60 - IS: No blow back

30 - FF: No blow

60 - FS: No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2054.90	123.12	Initial Hydro-static
1	20.23	121.89	Open To Flow (1)
30	22.17	123.47	Shut-In(1)
91	653.90	125.89	End Shut-In(1)
92	21.78	125.61	Open To Flow (2)
120	23.17	126.88	Shut-In(2)
182	491.66	128.75	End Shut-In(2)
184	2033.18	129.26	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud 100%	0.02

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc.

24-2s-37w Cheyenne,KS

250 N. Water STE 300
Wichita, KS 67202

ABBE Unit #1-24

Job Ticket: 66495

DST#: 1

ATTN: Robert Hendrix

Test Start: 2020.04.24 @ 15:34:00

Tool Information

Drill Pipe:	Length: 4015.00 ft	Diameter: 3.80 inches	Volume: 56.32 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 149.00 ft	Diameter: 2.25 inches	Volume: 0.73 bbl	Weight to Pull Loose: 74000.00 lb
			<u>Total Volume: 57.05 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial 62000.00 lb
Depth to Top Packer:	4176.00 ft			Final 62000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	71.00 ft			
Tool Length:	103.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Length (ft) Serial No. Position Depth (ft) Accum. Lengths

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4145.00	
Shut In Tool	5.00			4150.00	
Hydraulic tool	5.00			4155.00	
Jars	5.00			4160.00	
EM Tool	3.00			4163.00	
Safety Joint	3.00			4166.00	
Packer	5.00			4171.00	32.00 Bottom Of Top Packer
Packer	5.00			4176.00	
Stubb	1.00			4177.00	
Recorder	0.00	6625	Inside	4177.00	
Recorder	0.00	8652	Outside	4177.00	
Perforations	32.00			4209.00	
Blank Spacing	33.00			4242.00	
Perforations	2.00			4244.00	
Bullnose	3.00			4247.00	71.00 Bottom Packers & Anchor

Total Tool Length: 103.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

24-2s-37w Cheyenne,KS

250 N. Water STE 300
Wichita, KS 67202

ABBE Unit #1-24

Job Ticket: 66495

DST#: 1

ATTN: Robert Hendrix

Test Start: 2020.04.24 @ 15:34:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 52.00 sec/qt

Cushion Volume:

bbf

Water Loss: 6.78 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 bbf
5.00	Mud 100%	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbf

Num Fluid Samples: 0

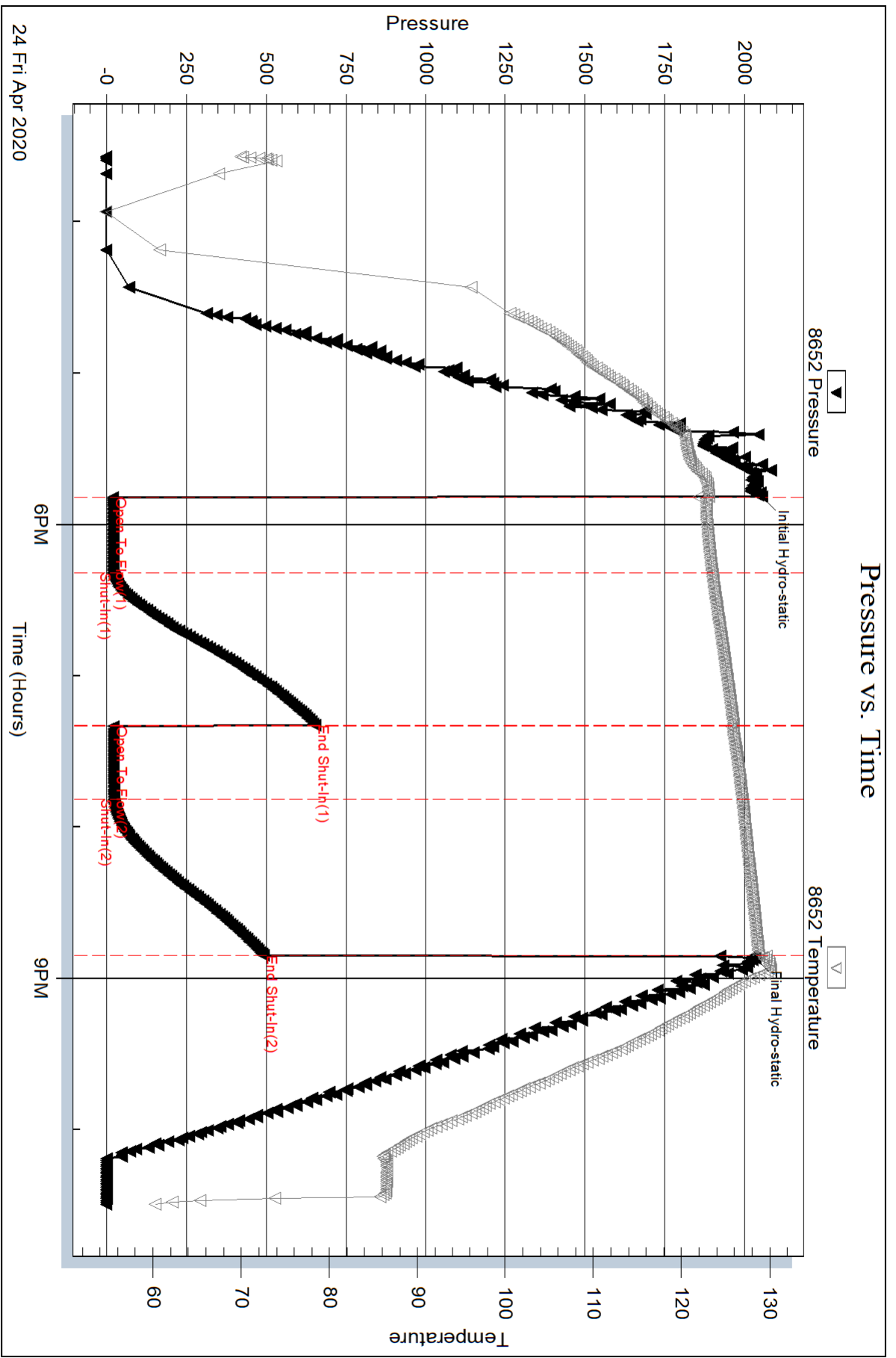
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



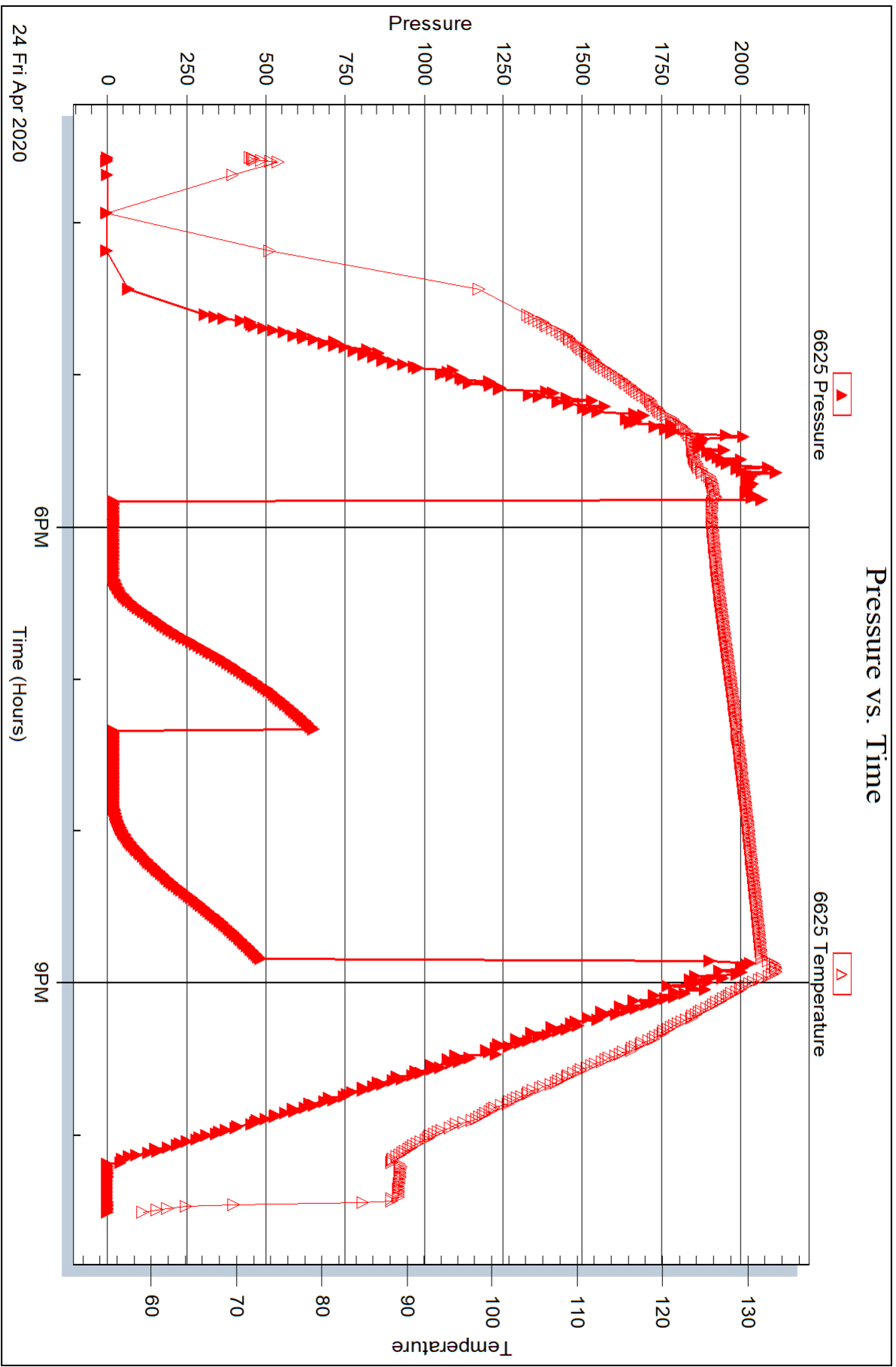
Serial #: 6625

Inside

Murfin Drilling Co., Inc.

ABBE Unit #1-24

DST Test Number: 1





DRILL STEM TEST REPORT

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

250 N. Water STE 300
Wichita, KS 67202

ATTN: Robert Hendrix

ABBE Unit #1-24

24-2s-37w Cheyenne,KS

Start Date: 2020.04.25 @ 18:16:00

End Date: 2020.04.26 @ 00:55:45

Job Ticket #: 66496 DST #: 2

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

Printed: 2020.04.29 @ 08:23:55

Murfin Drilling Co., Inc. 24-2s-37w Cheyenne,KS ABBE Unit #1-24 DST # 2 LKC "D" 2020.04.25



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

24-2s-37w Cheyenne, KS

250 N. Water STE 300
Wichita, KS 67202

ABBE Unit #1-24

Job Ticket: 66496

DST#: 2

ATTN: Robert Hendrix

Test Start: 2020.04.25 @ 18:16:00

GENERAL INFORMATION:

Formation: **LKC "D"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 20:14:15

Time Test Ended: 00:55:45

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder/Ryan Ni

Unit No: 83

Interval: 4339.00 ft (KB) To 4414.00 ft (KB) (TVD)

Reference Elevations: 3386.00 ft (KB)

Total Depth: 4414.00 ft (KB) (TVD)

3381.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8652 Outside

Press@RunDepth: 37.16 psig @ 4340.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2020.04.25

End Date:

2020.04.26

Last Calib.:

2020.04.26

Start Time: 18:16:05

End Time:

00:55:44

Time On Btm:

2020.04.25 @ 20:14:00

Time Off Btm:

2020.04.25 @ 23:16:45

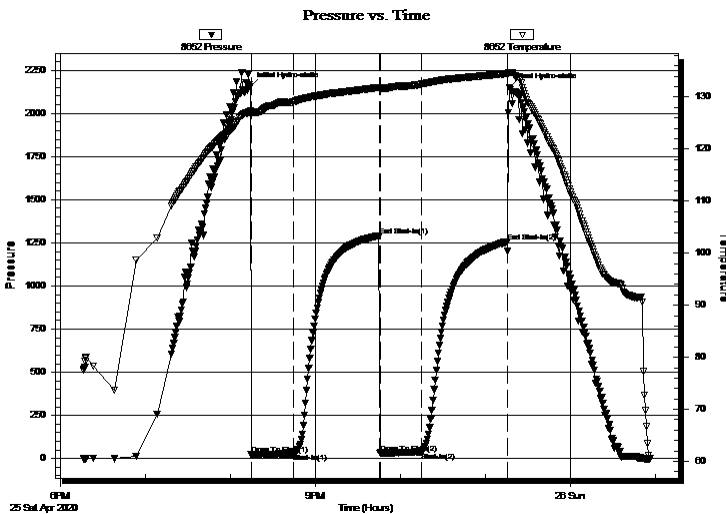
TEST COMMENT: 30 - IF: Blow built to 1 1/4"

60 - IS: No blow back

30 - FF: No blow

60 - FS: No blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2155.66	127.32	Initial Hydro-static
1	22.53	126.71	Open To Flow (1)
31	28.59	129.09	Shut-In(1)
91	1290.93	131.84	End Shut-In(1)
92	32.30	131.55	Open To Flow (2)
121	37.16	132.52	Shut-In(2)
181	1255.25	134.51	End Shut-In(2)
183	2146.15	134.73	Final Hydro-static

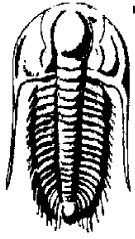
Recovery

Length (ft)	Description	Volume (bbl)
45.00	OCM 90% m, 10% o	0.22

* 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.

24-2s-37w Cheyenne,KS

250 N. Water STE 300
Wichita, KS 67202

ABBE Unit #1-24

Job Ticket: 66496

DST#: 2

ATTN: Robert Hendrix

Test Start: 2020.04.25 @ 18:16:00

Tool Information

Drill Pipe:	Length: 4173.00 ft	Diameter: 3.80 inches	Volume: 58.54 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: 149.00 ft	Diameter: 2.25 inches	Volume: 0.73 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 59.27 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial 62000.00 lb
Depth to Top Packer:	4339.00 ft			Final 62000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	75.00 ft			
Tool Length:	107.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

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

Change Over Sub	1.00			4308.00	
Shut In Tool	5.00			4313.00	
Hydraulic tool	5.00			4318.00	
Jars	5.00			4323.00	
EM Tool	3.00			4326.00	
Safety Joint	3.00			4329.00	
Packer	5.00			4334.00	32.00 Bottom Of Top Packer
Packer	5.00			4339.00	
Stubb	1.00			4340.00	
Recorder	0.00	6625	Inside	4340.00	
Recorder	0.00	8652	Outside	4340.00	
Perforations	36.00			4376.00	
Blank Spacing	33.00			4409.00	
Perforations	2.00			4411.00	
Bullnose	3.00			4414.00	75.00 Bottom Packers & Anchor

Total Tool Length: 107.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

24-2s-37w Cheyenne,KS

250 N. Water STE 300
Wichita, KS 67202

ABBE Unit #1-24

Job Ticket: 66496

DST#: 2

ATTN: Robert Hendrix

Test Start: 2020.04.25 @ 18:16:00

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: 6.38 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
45.00	OCM 90% _m , 10% _o	0.221

Total Length: 45.00 ft Total Volume: 0.221 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

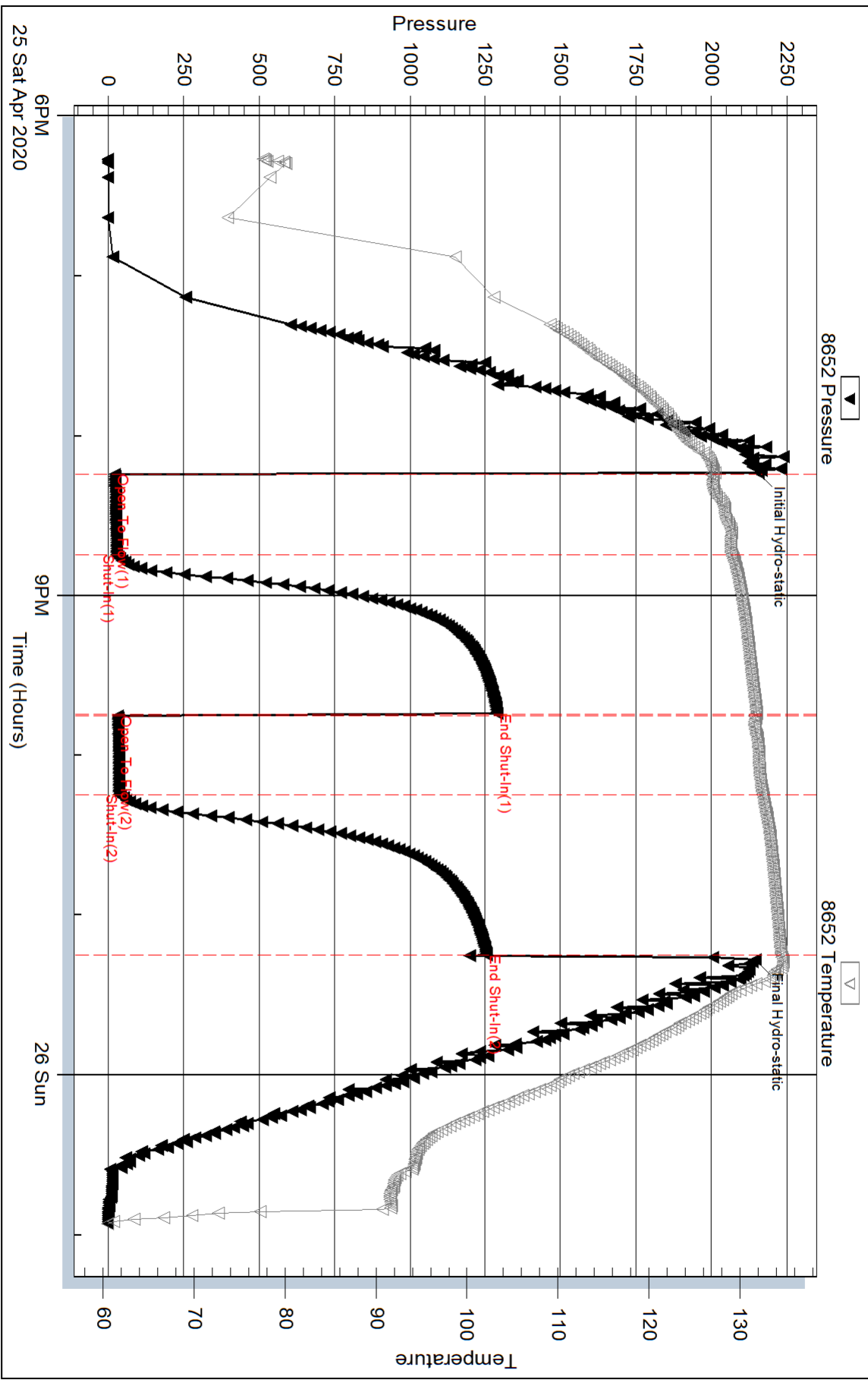
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time



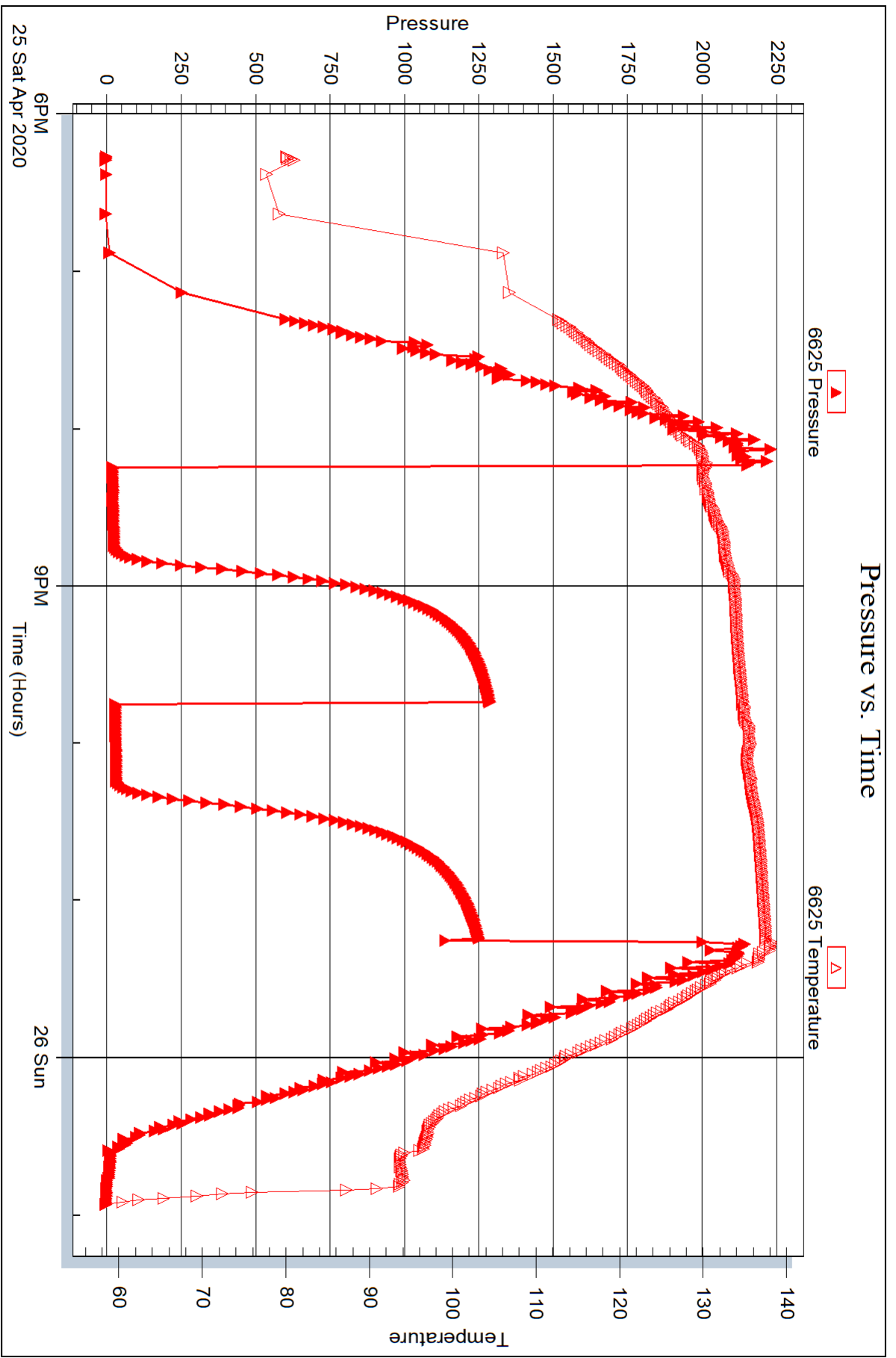
Serial #: 6625

Inside

Murfin Drilling Co., Inc.

ABBE Unit #1-24

DST Test Number: 2





DRILL STEM TEST REPORT

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

250 N. Water STE 300
Wichita, KS 67202

ATTN: Robert Hendrix

ABBE Unit #1-24

24-2s-37w Cheyenne,KS

Start Date: 2020.04.26 @ 18:54:00

End Date: 2020.04.27 @ 03:20:30

Job Ticket #: 66497 DST #: 3

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

Printed: 2020.04.29 @ 08:23:28



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

24-2s-37w Cheyenne, KS

250 N. Water STE 300
Wichita, KS 67202

ABBE Unit #1-24

Job Ticket: 66497

DST#: 3

ATTN: Robert Hendrix

Test Start: 2020.04.26 @ 18:54:00

GENERAL INFORMATION:

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

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 20:58:00

Time Test Ended: 03:20:30

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder/Ryan Ni

Unit No: 83

Interval: 4461.00 ft (KB) To 4544.00 ft (KB) (TVD)

Reference Elevations: 3386.00 ft (KB)

Total Depth: 4544.00 ft (KB) (TVD)

3381.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8652 Outside

Press@RunDepth: 286.18 psig @ 4462.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2020.04.26

End Date:

2020.04.27

Last Calib.:

2020.04.27

Start Time: 18:54:05

End Time:

03:20:29

Time On Btm:

2020.04.26 @ 20:57:45

Time Off Btm:

2020.04.27 @ 01:03:45

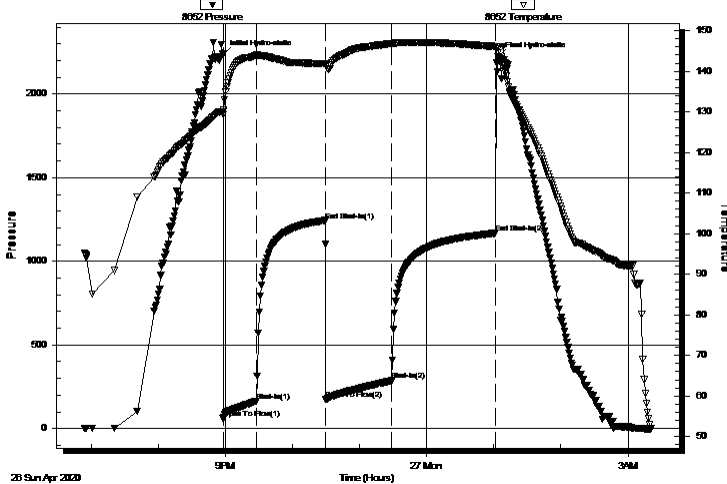
TEST COMMENT: 30 - IF: Blow built to BOB (11") at 7 1/2 min., built to 32"

60 - IS: Blow back built to 4"

60 - FF: Blow built to BOB at 10 min., built to 47"

90 - FS: Blow back built to 3"

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2238.47	130.01	Initial Hydro-static
1	58.27	129.34	Open To Flow (1)
30	164.24	143.88	Shut-In(1)
92	1243.76	141.90	End Shut-In(1)
92	173.92	141.83	Open To Flow (2)
151	286.18	146.82	Shut-In(2)
244	1167.95	146.11	End Shut-In(2)
246	2222.32	145.54	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
180.00	GOCM 66%o, 25%m, 9%g	1.17
448.00	GOCM 49%o, 35%g, 16%m	6.28
82.00	CGO 87%o, 13%g	1.15
0.00	GIP = 475'	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.

24-2s-37w Cheyenne,KS

250 N. Water STE 300
Wichita, KS 67202

ABBE Unit #1-24

Job Ticket: 66497

DST#: 3

ATTN: Robert Hendrix

Test Start: 2020.04.26 @ 18:54:00

Tool Information

Drill Pipe:	Length: 4295.00 ft	Diameter: 3.80 inches	Volume: 60.25 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: 149.00 ft	Diameter: 2.25 inches	Volume: 0.73 bbl	Weight to Pull Loose: 85000.00 lb
			<u>Total Volume: 60.98 bbl</u>	Tool Chased 2.00 ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial 63000.00 lb
Depth to Top Packer:	4461.00 ft			Final 66000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	83.00 ft			
Tool Length:	115.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments: tool chased 2' to bottom at open, lost 5' of mud - 1" surge blow at open

Tool Description

Length (ft) Serial No. Position Depth (ft) Accum. Lengths

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4430.00	
Shut In Tool	5.00			4435.00	
Hydraulic tool	5.00			4440.00	
Jars	5.00			4445.00	
EM Tool	3.00			4448.00	
Safety Joint	3.00			4451.00	
Packer	5.00			4456.00	32.00 Bottom Of Top Packer
Packer	5.00			4461.00	
Stubb	1.00			4462.00	
Recorder	0.00	6625	Inside	4462.00	
Recorder	0.00	8652	Outside	4462.00	
Perforations	13.00			4475.00	
Blank Spacing	65.00			4540.00	
Perforations	1.00			4541.00	
Bullnose	3.00			4544.00	83.00 Bottom Packers & Anchor

Total Tool Length: 115.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

24-2s-37w Cheyenne,KS

250 N. Water STE 300
Wichita, KS 67202

ABBE Unit #1-24

Job Ticket: 66497

DST#: 3

ATTN: Robert Hendrix

Test Start: 2020.04.26 @ 18:54:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

33.6 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 65.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.39 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 600.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
180.00	GOCM 66%o, 25%m, 9%g	1.168
448.00	GOCM 49%o, 35%g, 16%m	6.284
82.00	CGO 87%o, 13%g	1.150
0.00	GIP = 475'	0.000

Total Length: 710.00 ft Total Volume: 8.602 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

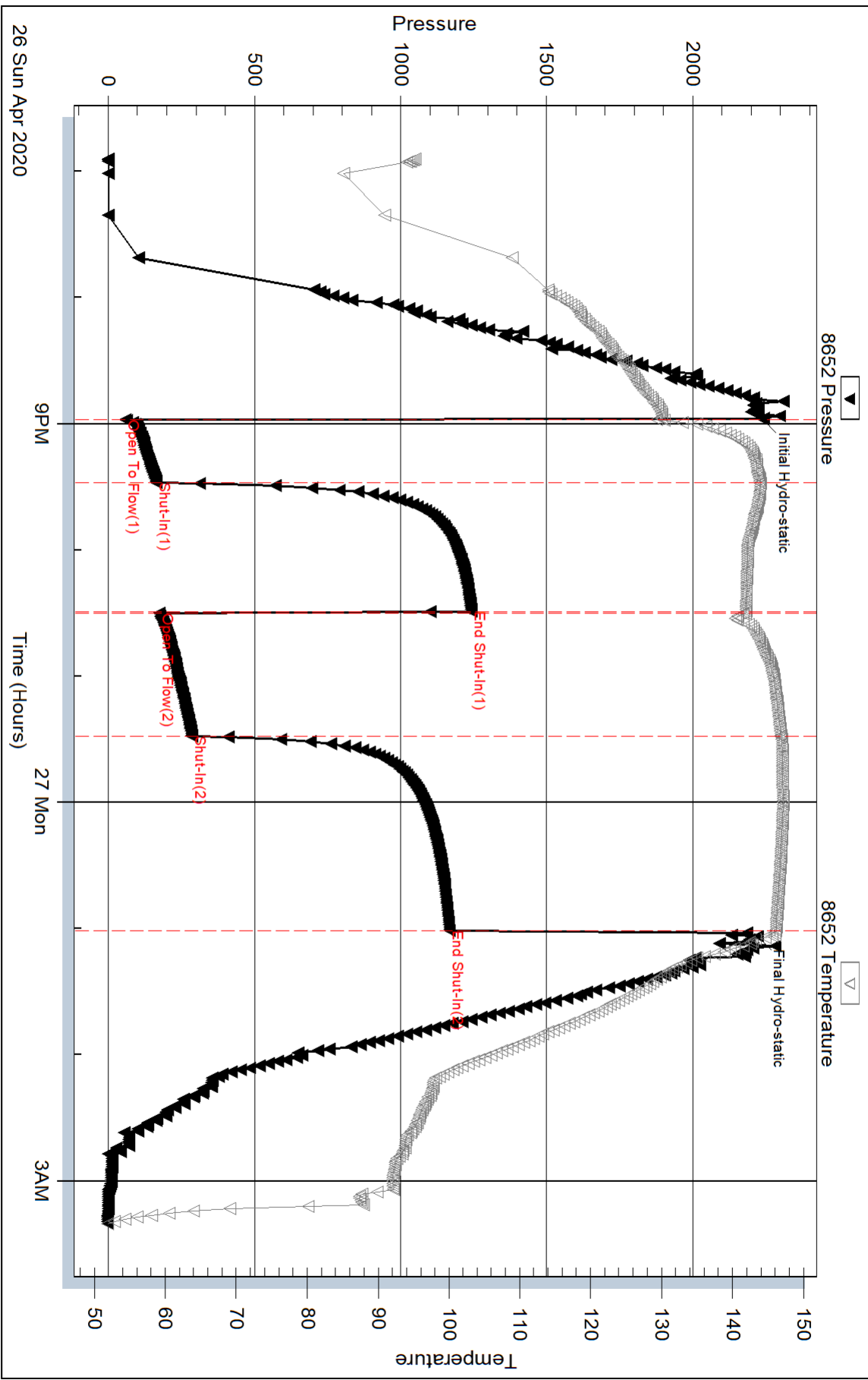
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Gravity = 32.6 api @ 50 deg F Corrected Gravity = 33.6 api

Pressure vs. Time



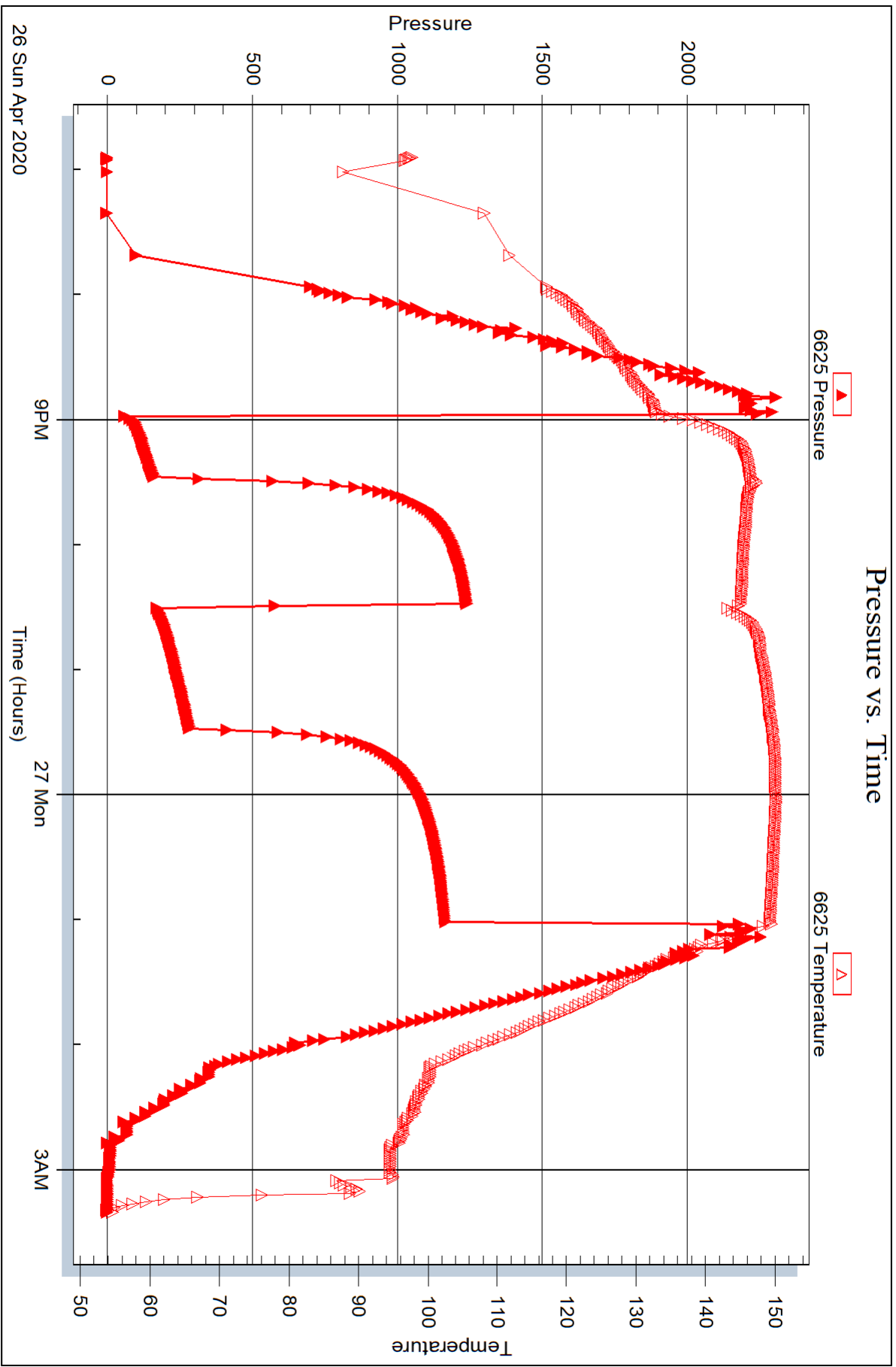
Serial #: 6625

Inside

Murfin Drilling Co., Inc.

ABBE Unit #1-24

DST Test Number: 3





DRILL STEM TEST REPORT

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

250 N. Water STE 300
Wichita, KS 67202

ATTN: Robert Hendrix

ABBE Unit #1-24

24-2s-37w Cheyenne,KS

Start Date: 2020.04.28 @ 13:53:00

End Date: 2020.04.28 @ 21:20:30

Job Ticket #: 66498 DST #: 4

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

Printed: 2020.04.29 @ 08:22:50

Murfin Drilling Co., Inc.

24-2s-37w Cheyenne,KS

ABBE Unit #1-24

DST # 4

Ft. Scott - Celia

2020.04.28



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc.

24-2s-37w Cheyenne, KS

250 N. Water STE 300
Wichita, KS 67202

ABBE Unit #1-24

Job Ticket: 66498

DST#: 4

ATTN: Robert Hendrix

Test Start: 2020.04.28 @ 13:53:00

GENERAL INFORMATION:

Formation: **Ft. Scott - Celia**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 16:16:30
 Time Test Ended: 21:20:30
 Interval: **4704.00 ft (KB) To 4842.00 ft (KB) (TVD)**
 Total Depth: 4842.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: James Winder/Ryan Ni
 Unit No: 83
 Reference Elevations: 3386.00 ft (KB)
 3381.00 ft (CF)
 KB to GR/CF: 5.00 ft

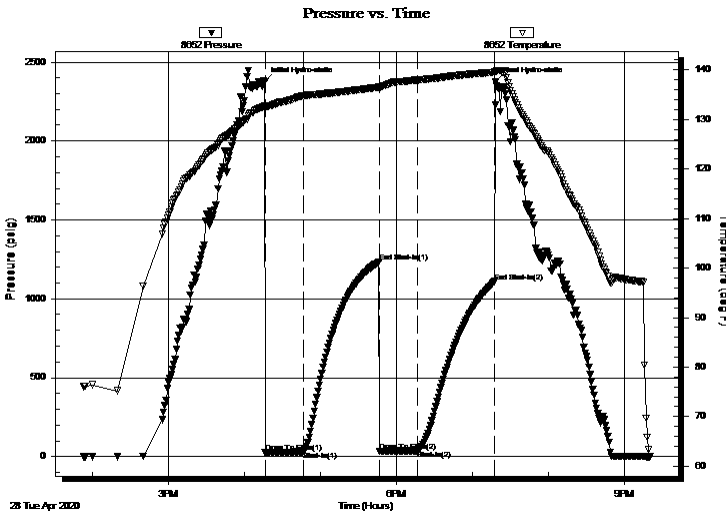
Serial #: 8652

Outside

Press@RunDepth: 37.58 psig @ 4705.00 ft (KB)
 Start Date: 2020.04.28 End Date: 2020.04.28
 Start Time: 13:53:05 End Time: 21:20:29
 Capacity: 8000.00 psig
 Last Calib.: 2020.04.28
 Time On Btm: 2020.04.28 @ 16:16:15
 Time Off Btm: 2020.04.28 @ 19:18:30

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

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2377.74	132.70	Initial Hydro-static
1	25.01	132.12	Open To Flow (1)
31	30.54	134.77	Shut-In(1)
91	1234.63	136.51	End Shut-In(1)
91	34.23	136.30	Open To Flow (2)
121	37.58	137.97	Shut-In(2)
182	1108.60	139.54	End Shut-In(2)
183	2373.53	139.69	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
45.00	Mud w /oil spots 95%m, 3%o, 2%g	0.22

* 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.

24-2s-37w Cheyenne,KS

250 N. Water STE 300
Wichita, KS 67202

ABBE Unit #1-24

Job Ticket: 66498

DST#: 4

ATTN: Robert Hendrix

Test Start: 2020.04.28 @ 13:53:00

Tool Information

Drill Pipe:	Length: 4547.00 ft	Diameter: 3.80 inches	Volume: 63.78 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: 149.00 ft	Diameter: 2.25 inches	Volume: 0.73 bbl	Weight to Pull Loose: 90000.00 lb
			<u>Total Volume: 64.51 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	24.00 ft			String Weight: Initial 660000.0 lb
Depth to Top Packer:	4704.00 ft			Final 66000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	138.00 ft			
Tool Length:	170.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Length (ft) Serial No. Position Depth (ft) Accum. Lengths

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4673.00	
Shut In Tool	5.00			4678.00	
Hydraulic tool	5.00			4683.00	
Jars	5.00			4688.00	
EM Tool	3.00			4691.00	
Safety Joint	3.00			4694.00	
Packer	5.00			4699.00	32.00 Bottom Of Top Packer
Packer	5.00			4704.00	
Stubb	1.00			4705.00	
Recorder	0.00	6625	Inside	4705.00	
Recorder	0.00	8652	Outside	4705.00	
Perforations	35.00			4740.00	
Blank Spacing	96.00			4836.00	
Perforations	3.00			4839.00	
Bullnose	3.00			4842.00	138.00 Bottom Packers & Anchor

Total Tool Length: 170.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc.

24-2s-37w Cheyenne,KS

250 N. Water STE 300
Wichita, KS 67202

ABBE Unit #1-24

Job Ticket: 66498

DST#: 4

ATTN: Robert Hendrix

Test Start: 2020.04.28 @ 13:53:00

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:

bbf

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 bbf
45.00	Mud w /oil spots 95%m, 3%o, 2%g	0.221

Total Length: 45.00 ft Total Volume: 0.221 bbf

Num Fluid Samples: 0

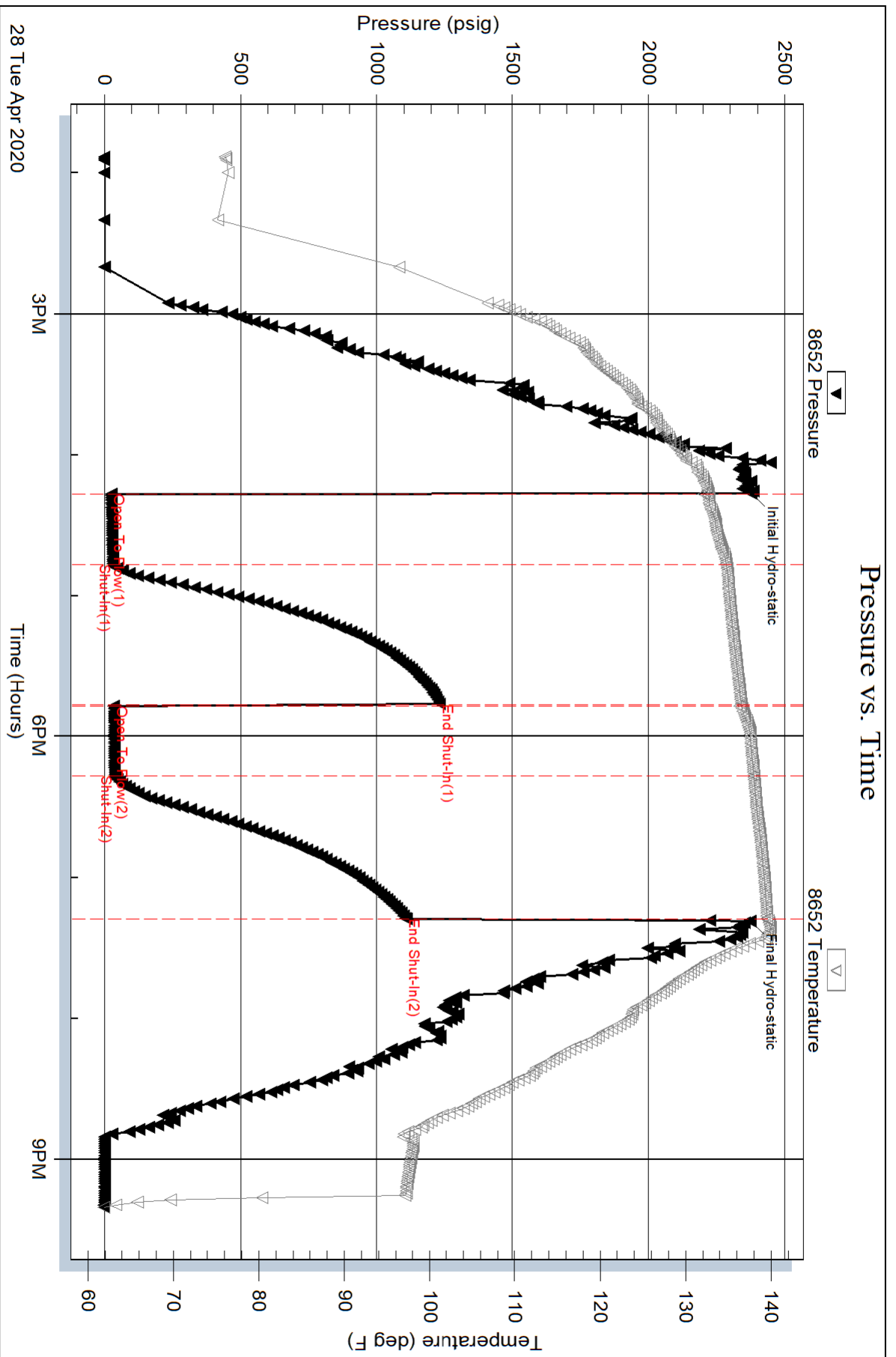
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



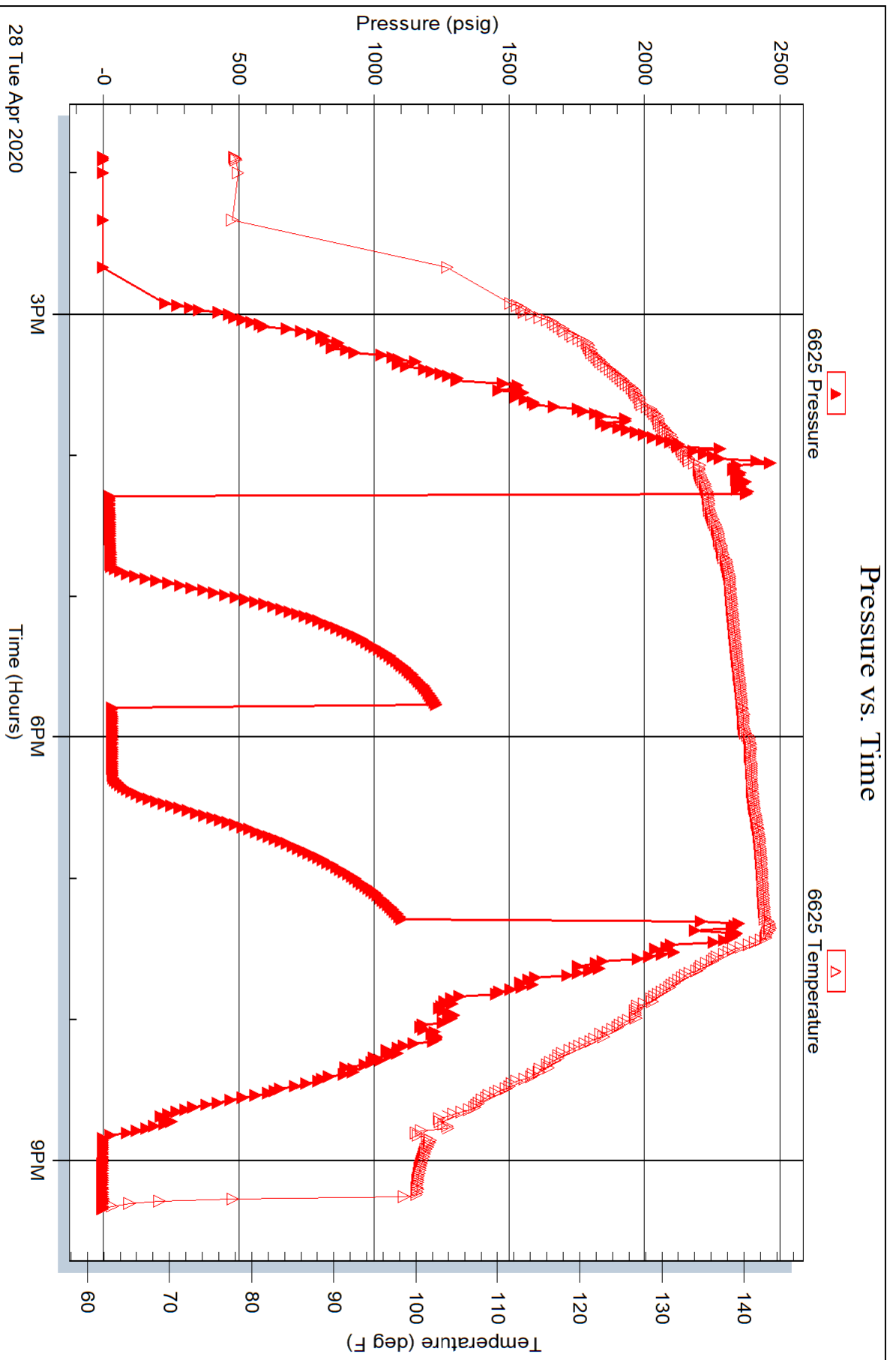
Serial #: 6625

Inside

Murfin Drilling Co., Inc.

ABBE Unit #1-24

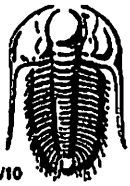
DST Test Number: 4



Trilobite Testing, Inc

Ref. No: 66498

Printed: 2020.04.29 @ 08:22:51



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket 66495

NO.

Well Name & No. ABBE Unit #1-24 Test No. 1 Date 4-24-20
 Company Murfin Drilling Co. Inc Elevation 3386 KB 3381 GL
 Address 250 N. Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Robert Hendrix Rig Murfin #3
 Location: Sec. 24 Twp 2s Rge. 37w Co. Cheyenne State KS

Interval Tested 4176 - 4247 Zone Tested Oread
 Anchor Length 71 Drill Pipe Run 4015 Mud Wt. 9.0
 Top Packer Depth 4171 Drill Collars Run 149 ~~200~~ ~~200~~ Vis 52
 Bottom Packer Depth 4176 Wt. Pipe Run - WL 6.8
 Total Depth 4247 Chlorides 600 ppm System LCM 2
 Blow Description IF: 1/8" Blow at open, built to 1/4", died back 1/8"
ISI: No blowback

FF: No blow
FSI: No blow

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

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

(A) Initial Hydrostatic 2055 Test 1300 T-On Location 13:40
 (B) First Initial Flow 20 Jars 250 T-Started 15:34
 (C) First Final Flow 22 Safety Joint 75 T-Open 17:49
 (D) Initial Shut-In 654 Circ Sub _____ T-Pulled 20:51
 (E) Second Initial Flow 22 Hourly Standby _____ T-Out 22:30
 (F) Second Final Flow 23 Mileage 110 RT 110 Comments _____
 (G) Final Shut-In 492 Sampler _____
 (H) Final Hydrostatic 2033 Straddle _____ EM Tool 350
 Shale Packer _____ Ruined Shale Packer _____
 Extra Packer _____ Ruined Packer _____
 Extra Recorder _____ Extra Copies _____

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

Sub Total 1735 MP/DST Disc't _____

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.



TRILOBITE TESTING INC.

1515 Commerce Parkway - Hays, Kansas 67601

Test Ticket 66496

NO.

Well Name & No. ABBE Unit #1-24 Test No. 2 Date 4-25-80
 Company Murfin Drilling Co. Inc Elevation 3386 KB 3381 GL
 Address 250 N. Water STE 300 Wichita KS 67202
 Co. Rep / Geo. Robert Hendrix Rig Murfin #3
 Location: Sec. 24 Twp 2S Rge. 37W Co. Cheyenne State KS

Interval Tested 4339-4414 Zone Tested Lans. "D"
 Anchor Length 75 Drill Pipe Run 4173 Mud Wt. 9.0
 Top Packer Depth 4334 Drill Collars Run 149 Vis 69
 Bottom Packer Depth 4339 Wt. Pipe Run - WL 6.4
 Total Depth 4414 Chlorides 600 ppm System LCM 4
 Blow Description IF: Blow to 1 1/4"
ISI: No blowback
FF: No blow
FSI: No blow

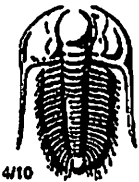
Rec	Feet of	%gas	%oil	%water	%mud
<u>45</u>	<u>0cm</u>	<u>10</u>		<u>90</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 45 BHT 135 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2156 Test 1300 T-On Location 17:00 ⁴²⁵
 (B) First Initial Flow 23 Jars 250 T-Started 18:16 ^{18:36}
 (C) First Final Flow 29 Safety Joint 75 T-Open 20:14
 (D) Initial Shut-In 1291 Circ Sub _____ T-Pulled 23:15
 (E) Second Initial Flow 32 Hourly Standby _____ T-Out 00:55 ⁴²⁶
 (F) Second Final Flow 37 Mileage 110RT 110 Comments _____
 (G) Final Shut-In 1255 Sampler _____
 (H) Final Hydrostatic 2146 Straddle _____ EM Tool 350 NS
 Shale Packer _____ Ruined Shale Packer _____
 Extra Packer _____ Ruined Packer _____
 Extra Recorder _____ Extra Copies _____
 Initial Open 30 Day Standby _____ Sub Total 0
 Initial Shut-In 60 Accessibility _____ Total 1735
 Final Flow 30 Sub Total 1735 MP/DST Disc't _____
 Final Shut-In 60

Approved By [Signature] Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket 66497

NO.

Well Name & No. ABBE Unit #1-24 Test No. 3 Date 4-26-20
 Company Murfin Drilling Co. Inc Elevation 3386 KB 3381 GL
 Address 250 N. Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Robert Hendrix Rig Murfin #3
 Location: Sec. 24 Twp 2S Rge. 37W Co. Cheyenne State KS

Interval Tested 4461 - 4544 Zone Tested Lans. "H-J"
 Anchor Length 83 Drill Pipe Run 4295 Mud Wt. 9.2
 Top Packer Depth 4456 Drill Collars Run 149 Vis 65
 Bottom Packer Depth 4461 Wt. Pipe Run - WL 6.4
 Total Depth 4544 Chlorides 600 ppm System LCM 3

Blow Description IF: Blow built to BOB (11") at 7 1/2 min., built to 32"
ISI: Blowback built to 4"
FF: Blow built to BOB at 10 min., built to 47"
FSI: Blowback built to 3"

Rec	Feet of	%gas	%oil	%water	%mud
<u>82</u>	<u>CGO</u>	<u>13</u>	<u>87</u>	<u>-</u>	<u>-</u>
<u>448</u>	<u>60CM</u>	<u>35</u>	<u>49</u>	<u>-</u>	<u>16</u>
<u>180</u>	<u>60CM</u>	<u>9</u>	<u>66</u>	<u>-</u>	<u>25</u>
<u>6IP=475'</u>					

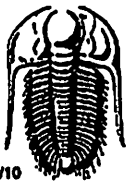
Rec Total 710 BHT 146 Gravity 33.6 API RW @ °F Chlorides ppm

(A) Initial Hydrostatic 2238 Test 1300 T-On Location 18:15 436
 (B) First Initial Flow 58 Jars 250 T-Started 18:54
 (C) First Final Flow 164 Safety Joint 75 T-Open 20:57
 (D) Initial Shut-In 1244 Circ Sub _____ T-Pulled 1:03
 (E) Second Initial Flow 174 Hourly Standby _____ T-Out 3:20 4/27
 (F) Second Final Flow 286 Mileage 110 RT 110 Comments tool chased 2'
 (G) Final Shut-In 1168 Sampler _____ to bottom at open - lost
 (H) Final Hydrostatic 2222 Straddle _____ 5' of mud - 1" Blow at open
 EM Tool 350

Initial Open 30 Ruined Shale Packer _____
 Initial Shut-In 60 Ruined Packer _____
 Final Flow 60 Extra Copies _____
 Final Shut-In 90 Extra Recorder _____ Sub Total 350
 Day Standby _____ Total 1735
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1735

Approved By [Signature] Our Representative James Walker

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket 66498

NO.

Well Name & No. ABBE Unit #1-24 Test No. 4 Date 4-28-20
 Company Murfin Drilling Co, Inc Elevation 3386 KB 3381 GL
 Address 250 N. Water STE 300 Wichita, KS 67202
 Co. Rep / Geo. Robert Hendrix Rig Murfin #3
 Location: Sec. 24 Twp 2S Rge. 37W Co. Chevenne State KS

Interval Tested 4704 - 4842 Zone Tested Ft. Scott - Celia
 Anchor Length 138 Drill Pipe Run 4547 Mud Wt. 9.2
 Top Packer Depth 4699 Drill Collars Run 149 Vis 69
 Bottom Packer Depth 4704 Wt. Pipe Run - WL 6.0
 Total Depth 4842 Chlorides 600 ppm System LCM 3

Blow Description IF: Blow built to and stayed at 1/2"
ISI: No blowback

FF: No blow

FSI: No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>45</u>	<u>Mud w/oil spots</u>	<u>2</u>	<u>3</u>	<u>95</u>	<u></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 45 BHT 140 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

- (A) Initial Hydrostatic 2378
- (B) First Initial Flow 25
- (C) First Final Flow 31
- (D) Initial Shut-In 1244
- (E) Second Initial Flow 34
- (F) Second Final Flow 38
- (G) Final Shut-In 1109
- (H) Final Hydrostatic 2374

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

- Test 1300
- Jars 250
- Safety Joint 75
- Circ Sub
- Hourly Standby
- Mileage 110RT 110
- Sampler
- Straddle
- Shale Packer
- Extra Packer
- Extra Recorder
- Day Standby
- Accessibility
- Sub Total 1735

T-On Location 12:45
 T-Started 13:53
 T-Open 16:16
 T-Pulled 19:17
 T-Out 21:20

Comments _____
 EM Tool 350 NS
 Ruined Shale Packer
 Ruined Packer
 Extra Copies
 Sub Total 0
 Total 1735
 MP/DST Disc't _____

Approved By [Signature] Our Representative [Signature]

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CEMENT TREATMENT REPORT

Customer:	Murfin Drilling Company	Well:	ARBE 1-24	Ticket:	ICT3506
City, State:	Oakley Ks	County:	Cheyenne KS	Date:	4/20/2020
Field Rep:	Jay	S-T-R:	5/3S/37w	Service:	Surface

Downhole Information	
Hole Size:	12.25 in
Hole Depth:	349 ft
Casing Size:	8 5/8 in
Casing Depth:	342 ft
Tubing / Liner:	in
Depth:	ft
Tool / Packer:	
Depth:	ft
Displacement:	12.9 bbbls

Calculated Slurry	
Weights:	14.8 # / sx
Water / SX:	6.88 gal / sx
Yield:	1.41 ft ³ / sx
Bbls / FL:	
Depth:	ft
Annular Volume:	bbbls
Excess:	
Total Slurry:	71.5 bbbls
Total Sacks:	285 sx

Product	% / #	#
Class A	100.00	26505
Poz		
Gel	2.00	530
CaCl	3.00	795
Gypsum		
Metso		
Kol Seal		
Flo Seal	0.50	133
Salt (bwv)		

Total 27,963

TIME	RATE	PSI	DBLS	REMARKS
615P				GOT TO LOCATION
620P				SAFETY MEETING
630P				RIG UP
750P	4.5	250.0	5.0	H2O AHEAD
752P	5.0	350.0	71.5	285 SKS OF H-325 @ 342 FT
807P	3.5	300.0	12.9	DISPLACED WITH H2O
815P				PLUG DOWN
820P				RIG DOWN
835P				OFF LOCATION

CREW			UNIT	SUMMARY		
Cementer:	Josh Mosler		73	Average Rate	Average Pressure	Total Fluid
Pump Operator:	Jesse Jones		230	4.33333 bpm	300 psi	89 bbbls
Bulk #1:	Travis Thrasher		242			
Bulk #2:						



CEMENT TREATMENT REPORT

Customer: Murfin Drilling CO	Well: Abbe #1-24	Ticket: ICT 3525
City, State: Oakley Ks	County: Cheyenne KS	Date: 4/30/2020
Field Rep: Jay Ruzicka	S-T-R: 24-2s-37w	Service: Production

Downhole Information	
Hole Size:	7 7/8 in
Hole Depth:	5100 ft
Casing Size:	5.5 in
Casing Depth:	5094 ft
Tubing / Liner:	In
Depth:	ft
Tool / Packer:	
Depth:	ft
Displacement:	120.7 bbls

Calculated Slurry	
Weight:	12.0/14.8 # / sx
Water / Sol:	15.46/6.38 gal / sx
Yield:	2.58/1.45 ft ³ / sx
Bbls / Ft:	0.0309
Depth:	5098 ft
Annular Volume:	157.5282 bbls
Excess:	
Total Slurry:	222.5 bbls
Total Sacks:	550 sx

Product	% / #	#
Class A		
Poz		
Gel		
CaCl		
Gypsum		
Metso		
Koi Seal		
Flo Seal		
Salt (bww)		
Total		-

TIME	RATE	PSI	BBLs	REMARKS
1100P				Arrive on location
1105P				Safety meeting
1110P				Rig up pump and lines
1115P				Run float equipment Circulated for 30 min @2568 ft
115A				Casing on bottom. Circulate
120A				Ball thru @ 1000 psi
220A	3.5	250.0	11.3	Pump 500 gal of mudflush
224A	3.5	120.0	13.6	Plug RH and MH with 15 sks of H-con
229A	6.5	470.0	136.7	Mix 300 sks of H-Con
250A	4.5	500.0	50.5	Mix 200 sks of H-Long
302A				Shut down
315A				Release Plug
320a	4.0	2,000.0	120.7	Displace with H2O
405A		2,500.0		Plug Down @2000 psi
410A				Open release. Float hold
415A				Final wash up
425A				Rig down pump and lines
445A				Depart

CREW		UNIT	SUMMARY		
Cementer:	Josh Mosier	73	Average Rate	Average Pressure	Total Fluid
Pump Operator:	Cory Davis	73	4.4 bpm	973 psi	333 bbls
Bulk #1:	Jesse Jones	230			
Bulk #2:	Travis Thrasher	230			



CEMENT TREATMENT REPORT

Customer:	MURFIN DRILLING COMPANY	Well:	ABBE UNIT 1-24	Ticket:	ICT3678
City, State:	MCDONALD KS	MC:	CHEYENNE CO KS	Date:	6/15/2020
Field Rep:		S-T-R:		Service:	SQUEEZE

Downhole Information		Calculated Slurry - Lead		Calculated Slurry - Tail	
Hole Size:	In	Blend:	CLASS A	Blend:	
Hole Depth:	ft	Weight:	15.2	Weight:	PPG
Casing Size:	In	Water / Sk:	5.2 gal / sx	Water / Sk:	gal / sx
Casing Depth:	ft	Yield:	1.18 ft ³ / sx	Yield:	ft ³ / sx
Tubing / Liner:	In	Annular Bbls / Ft.:	bbs / ft.	Annular Bbls / Ft.:	bbs / ft.
Depth:	ft	Depth:	ft	Depth:	ft
Tool / Packer:		Annular Volumes:	0.0 bbls	Annular Volumes:	0 bbls
Tool Depth:	ft	Excess:		Excess:	
Displacement:	bbls	Total Slurry:	8.4 bbls	Total Slurry:	0.0 bbls
		Total Sacks:	40 sx	Total Sacks:	#DIV/0! sx

TIME	RATE	PSI	BBLs	STAGE TOTAL BBLs	REMARKS
10:35 AM			-	-	ON LOCATION/SAFETY MEETING
				-	1ST SQUEEZE AT 4470' THROUGH RETAINER
11:05 AM		1,000.0	6.5	6.5	PRESSURE TEST TUBING, HELD 1000PSI
				6.5	SET RETAINER
11:15 AM		500.0	5.0	11.5	INJECTION RATE, TUBING PRESSURED TO 500PSI
11:21 AM		1,000.0	0.5	12.0	PRESSURED TO 1000, HOLDING PRESSURE
11:29 AM	3.0	100.0	42.0	64.0	LOAD BACKSIDE/NEVER LOADED
11:46 AM		1,000.0		64.0	PRESSURE TUBING TO 1000PSI
				64.0	COME OUT AND GO IN WITH PACKER
				64.0	2ND SQUEEZE AT 4320
2:48 PM		500.0	4.2	68.2	500 ON BACKSIDE
3:03 PM	2.0	1,000.0	12.0	70.2	INJECTION RATE 2 AT 1000PSI
3:28 PM	1.5	700.0	4.2	74.4	MIX 20 SKS CLASS A WITH 6 LBS CEMENT FLUIDLOSS 2
3:32 PM	1.5	700.0	4.2	78.6	MIX 20 SKS CLASS A
3:38 PM	3.0	100.0	6.0	84.6	WASH PUMP AND LINE
3:42 PM	2.0	100.0		84.6	START DISPLACEMENT
3:46 PM	1.0	200.0	7.0	91.6	CAUGHT CEMENT
3:55 PM				91.6	14 OUT, SHUT DOWN NO PRESSURE ON VAC
4:05 PM		1,000.0	16.0	107.6	
4:09 PM		1,250.0	16.0	0.2	
4:10 PM				0.2	RELEASED AND HELD
4:11 PM	3.0	800.0	30.0	30.2	REVERSE OUT, WELL CLEAN
				30.2	PULL 2 JOINTS
4:32 PM		500.0		30.2	PRESSURE WELL TO 500 PSI, SHUT IN WELL
				30.2	JOB COMPLETE, THANK YOU! MIKE MATTAL
				30.2	MIKE RYAN MO SCOTTY
				30.2	

CREW		UNIT	SUMMARY		
Cementer:	MATTAL	912	Average Rate	Average Pressure	Total Fluid
Pump Operator:	MCGRAW	526/521	2.1 bpm	641 psi	154 bbls
Bulk #1:	KALE	242			
Bulk #2:	MOSIER	73			