



DRILL STEM TEST REPORT

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

250 N Water STE 300
Wichita, KS 67202

ATTN: Robert Hendrix

Banister 'A' #3-22

22-2s-37w Cheyenne,KS

Start Date: 2019.05.23 @ 05:36:00

End Date: 2019.05.23 @ 12:50:30

Job Ticket #: 65373 DST #: 1

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

Printed: 2019.05.29 @ 10:33:32

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc

22-2s-37w Cheyenne, KS

250 N Water STE 300
Wichita, KS 67202

Banister 'A' #3-22

ATTN: Robert Hendrix

Job Ticket: 65373

DST#: 1

Test Start: 2019.05.23 @ 05:36:00

GENERAL INFORMATION:

Formation: **LKC "A"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 07:47:30

Time Test Ended: 12:50:30

Test Type: Conventional Bottom Hole (Initial)

Tester: James Winder

Unit No: 83

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

Reference Elevations: 3416.00 ft (KB)

Total Depth: 4370.00 ft (KB) (TVD)

3411.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

Serial #: 8652 Outside

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

Capacity: 8000.00 psig

Start Date: 2019.05.23

End Date: 2019.05.23

Last Calib.: 2019.05.23

Start Time: 05:36:05

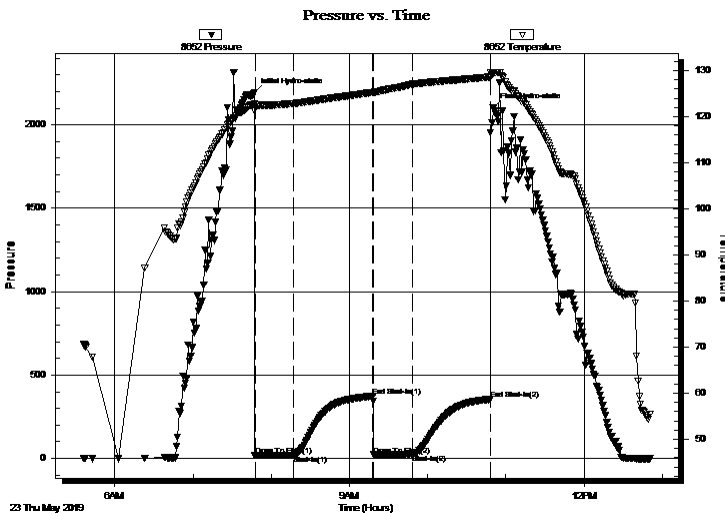
End Time: 12:50:29

Time On Btm: 2019.05.23 @ 07:47:00

Time Off Btm: 2019.05.23 @ 10:50:00

TEST COMMENT: 30 - IF: 1/4" Blow at open, built to 1/2", died back to 1/4" at close
60 - IS: No blow back
30 - FF: No blow
60 - FS: No blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2192.68	122.70	Initial Hydro-static
1	18.74	122.20	Open To Flow (1)
30	20.65	122.86	Shut-In(1)
91	374.23	125.25	End Shut-In(1)
92	21.01	125.21	Open To Flow (2)
122	22.95	127.06	Shut-In(2)
181	354.07	128.61	End Shut-In(2)
183	2100.58	129.40	Final Hydro-static

Recovery

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

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc

22-2s-37w Cheyenne,KS

250 N Water STE 300
Wichita, KS 67202

Banister 'A' #3-22

Job Ticket: 65373

DST#: 1

ATTN: Robert Hendrix

Test Start: 2019.05.23 @ 05:36:00

Tool Information

Drill Pipe:	Length: 4089.00 ft	Diameter: 3.80 inches	Volume: 57.36 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 180.00 ft	Diameter: 2.25 inches	Volume: 0.89 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 58.25 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	10.00 ft			String Weight: Initial 68000.00 lb
Depth to Top Packer:	4288.00 ft			Final 68000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	82.00 ft			
Tool Length:	111.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4260.00	
Shut In Tool	5.00			4265.00	
Hydraulic tool	5.00			4270.00	
Jars	5.00			4275.00	
Safety Joint	3.00			4278.00	
Packer	5.00			4283.00	29.00 Bottom Of Top Packer
Packer	5.00			4288.00	
Stubb	1.00			4289.00	
Recorder	0.00	6625	Inside	4289.00	
Recorder	0.00	8652	Outside	4289.00	
Perforations	13.00			4302.00	
Blank Spacing	65.00			4367.00	
Bullnose	3.00			4370.00	82.00 Bottom Packers & Anchor

Total Tool Length: 111.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc

22-2s-37w Cheyenne,KS

250 N Water STE 300
Wichita, KS 67202

Banister 'A' #3-22

Job Ticket: 65373

DST#: 1

ATTN: Robert Hendrix

Test Start: 2019.05.23 @ 05:36:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 62.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.98 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 600.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	Mud 100%	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

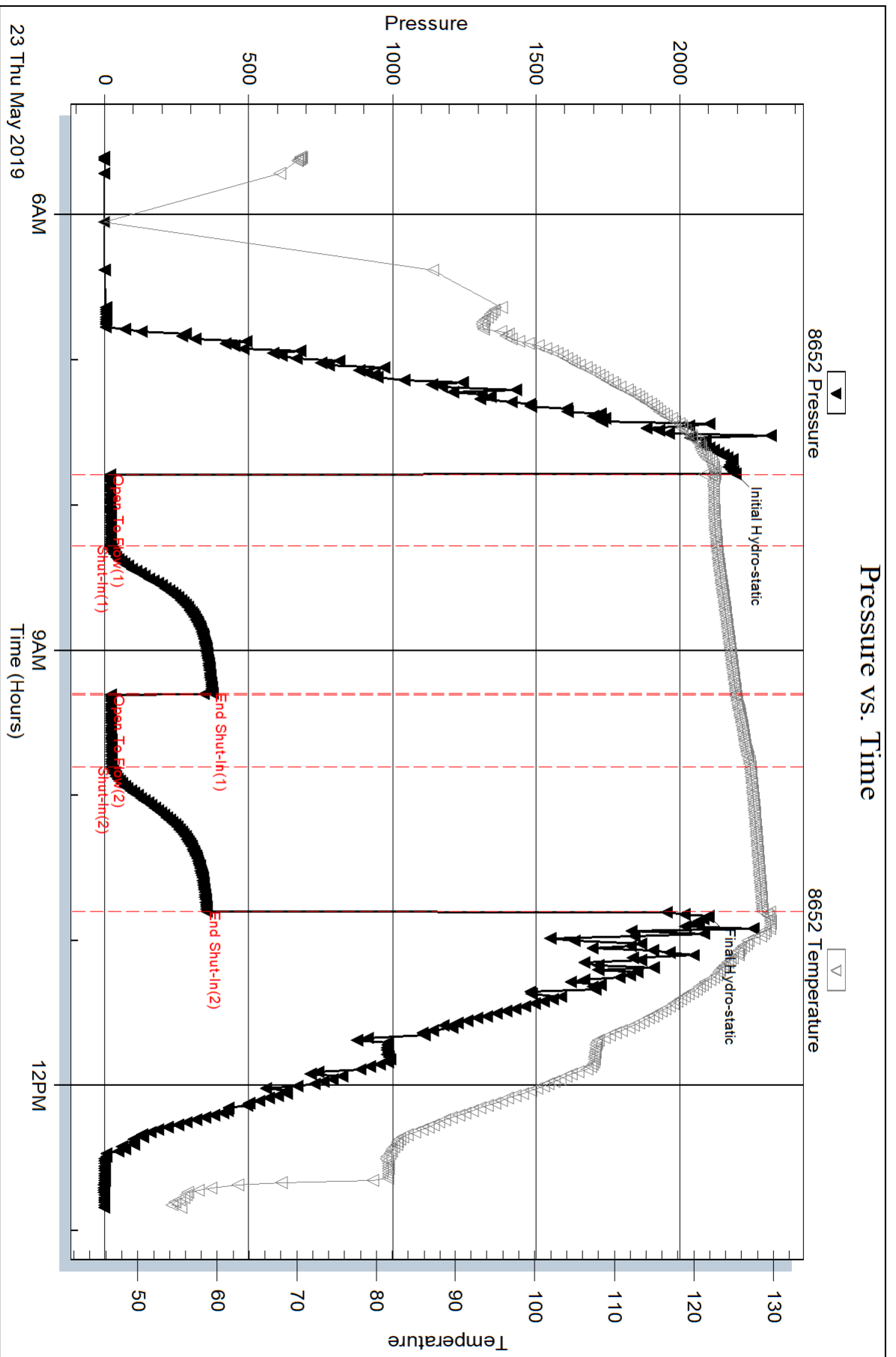
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



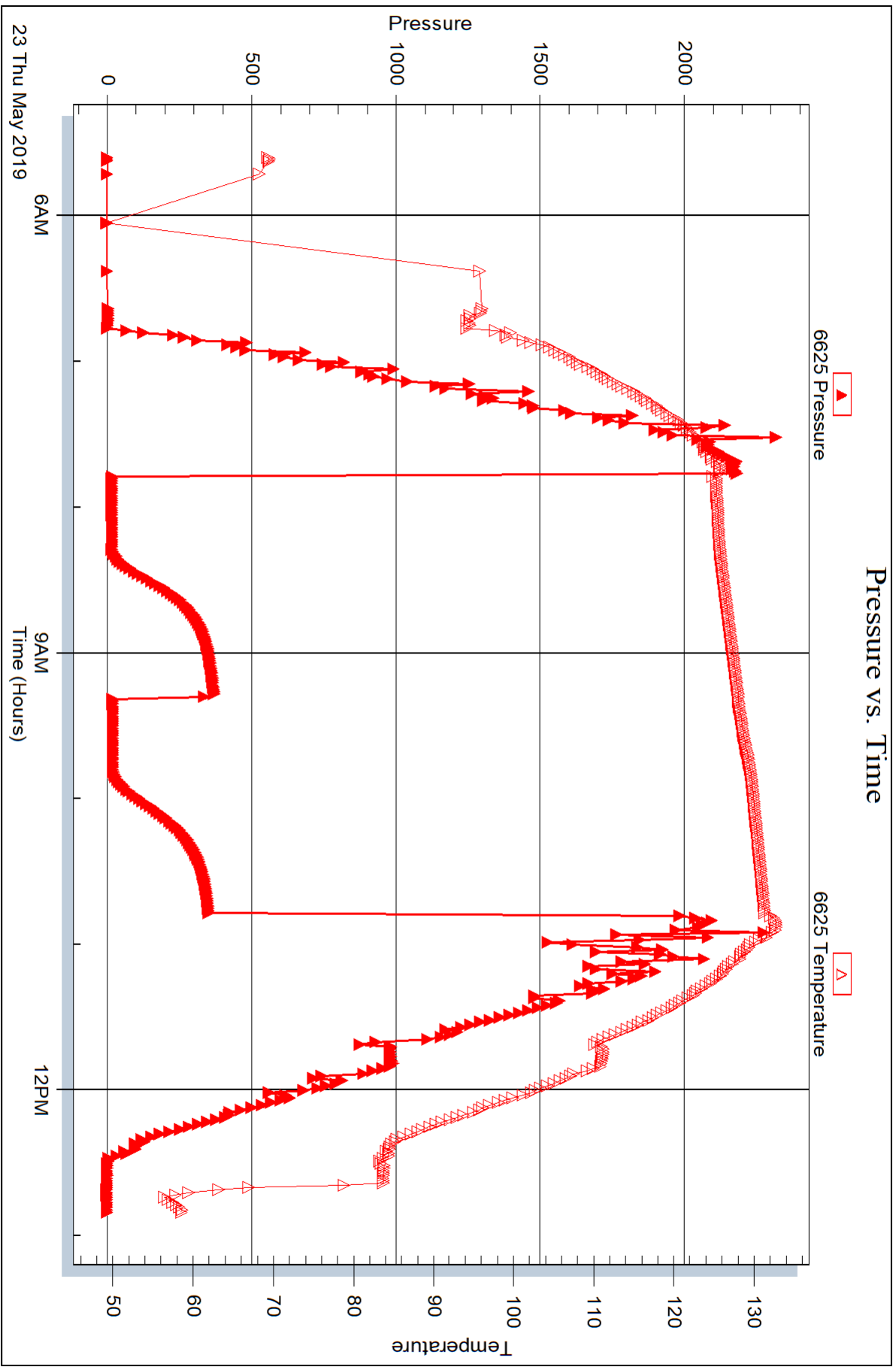
Serial #: 6625

Inside

Murfin Drilling Co., Inc

Banister 'A' #3-22

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 65373

Printed: 2019.05.29 @ 10:33:33



DRILL STEM TEST REPORT

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

250 N Water STE 300
Wichita, KS 67202

ATTN: Robert Hendrix

Banister 'A' #3-22

22-2s-37w Cheyenne,KS

Start Date: 2019.05.23 @ 23:28:00

End Date: 2019.05.24 @ 07:33:00

Job Ticket #: 65374 DST #: 2

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

Printed: 2019.05.29 @ 10:33:08

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc

22-2s-37w Cheyenne, KS

250 N Water STE 300
Wichita, KS 67202

Banister 'A' #3-22

ATTN: Robert Hendrix

Job Ticket: 65374

DST#: 2

Test Start: 2019.05.23 @ 23:28:00

GENERAL INFORMATION:

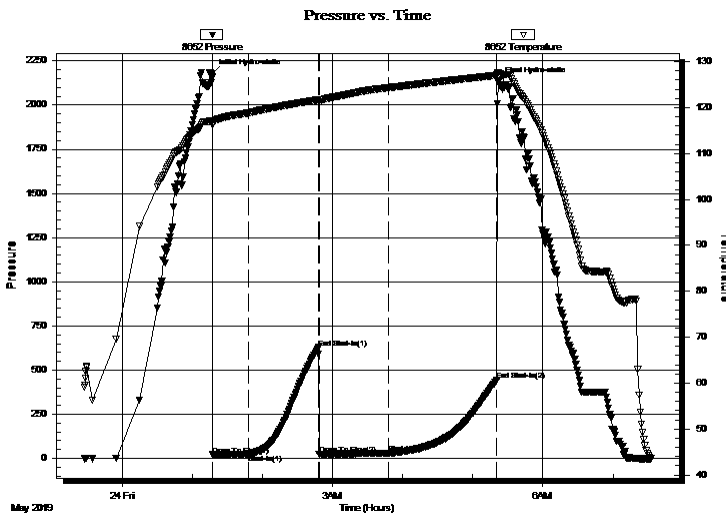
Formation: **LKC "D"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 01:17:45
 Time Test Ended: 07:33:00
 Interval: **4358.00 ft (KB) To 4426.00 ft (KB) (TVD)**
 Total Depth: 4426.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Reset)
 Tester: James Winder
 Unit No: 83
 Reference Elevations: 3416.00 ft (KB)
 3411.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8652

Outside

Press@RunDepth: 27.60 psig @ 4359.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.05.23 End Date: 2019.05.24 Last Calib.: 2019.05.24
 Start Time: 23:28:05 End Time: 07:32:59 Time On Btm: 2019.05.24 @ 01:17:30
 Time Off Btm: 2019.05.24 @ 05:22:00

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



PRESSURE SUMMARY

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

Recovery

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

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc

22-2s-37w Cheyenne,KS

250 N Water STE 300
Wichita, KS 67202

Banister 'A' #3-22

Job Ticket: 65374

DST#: 2

ATTN: Robert Hendrix

Test Start: 2019.05.23 @ 23:28:00

Tool Information

Drill Pipe:	Length: 4154.00 ft	Diameter: 3.80 inches	Volume: 58.27 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 180.00 ft	Diameter: 2.25 inches	Volume: 0.89 bbl	Weight to Pull Loose: 82000.00 lb
			<u>Total Volume: 59.16 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial 70000.00 lb
Depth to Top Packer:	4358.00 ft			Final 70000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	68.00 ft			
Tool Length:	97.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4330.00	
Shut In Tool	5.00			4335.00	
Hydraulic tool	5.00			4340.00	
Jars	5.00			4345.00	
Safety Joint	3.00			4348.00	
Packer	5.00			4353.00	29.00 Bottom Of Top Packer
Packer	5.00			4358.00	
Stubb	1.00			4359.00	
Recorder	0.00	6625	Inside	4359.00	
Recorder	0.00	8652	Outside	4359.00	
Perforations	30.00			4389.00	
Blank Spacing	34.00			4423.00	
Bullnose	3.00			4426.00	68.00 Bottom Packers & Anchor

Total Tool Length: 97.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc

22-2s-37w Cheyenne,KS

250 N Water STE 300
Wichita, KS 67202

Banister 'A' #3-22

Job Ticket: 65374

DST#: 2

ATTN: Robert Hendrix

Test Start: 2019.05.23 @ 23:28:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 60.00 sec/qt

Cushion Volume:

bbf

Water Loss: 5.97 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 600.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbf
10.00	Mud w /Oil spots 98%m, 2%o	0.049

Total Length: 10.00 ft Total Volume: 0.049 bbf

Num Fluid Samples: 0

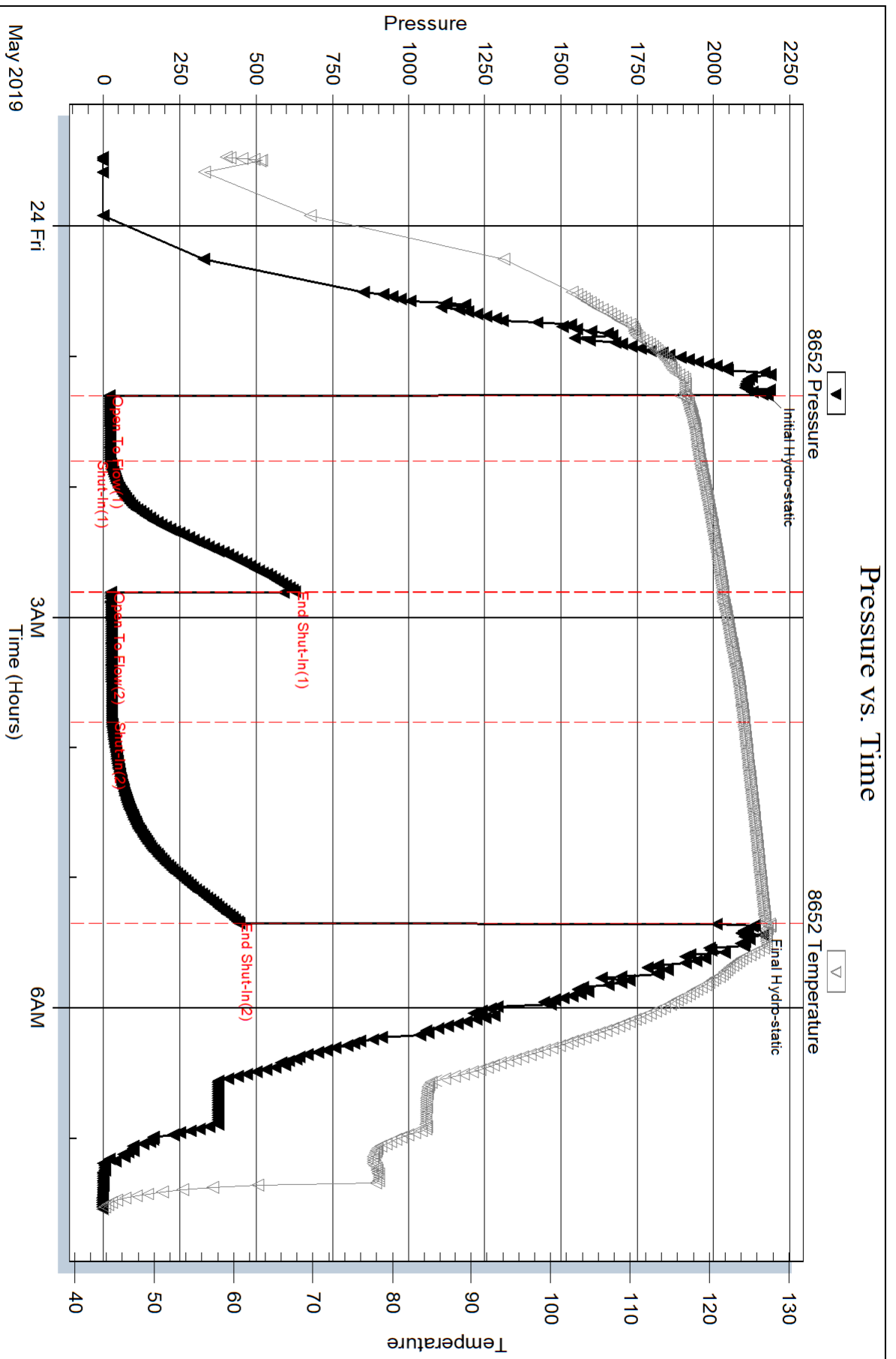
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



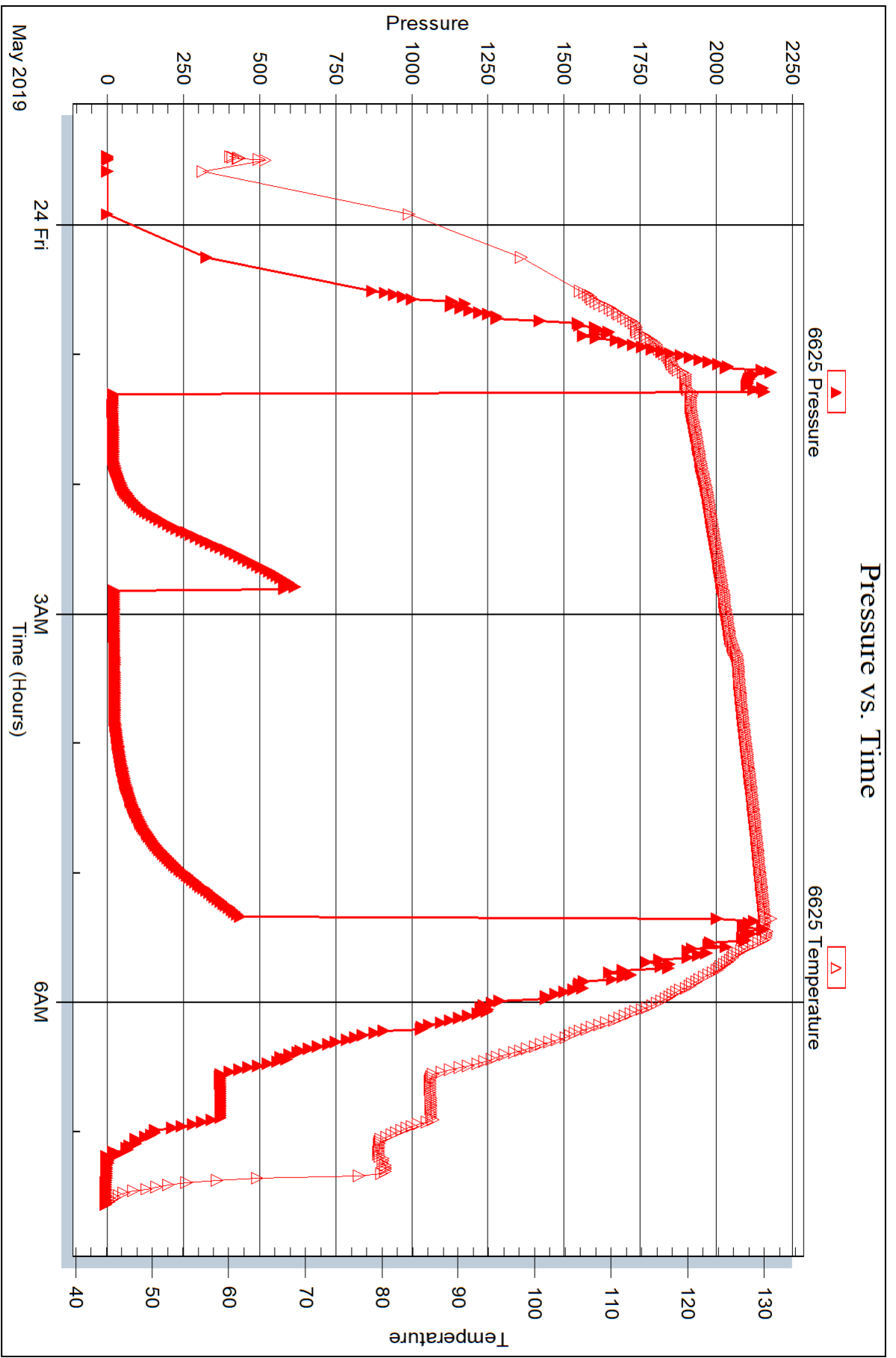
Serial #: 6625

Inside

Murfin Drilling Co., Inc

Banister 'A' #3-22

DST Test Number: 2





DRILL STEM TEST REPORT

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

250 N Water STE 300
Wichita, KS 67202

ATTN: Robert Hendrix

Banister 'A' #3-22

22-2s-37w Cheyenne,KS

Start Date: 2019.05.24 @ 18:31:00

End Date: 2019.05.25 @ 01:58:15

Job Ticket #: 65375 DST #: 3

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

Printed: 2019.05.29 @ 10:32:45



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc

22-2s-37w Cheyenne, KS

250 N Water STE 300
Wichita, KS 67202

Banister 'A' #3-22

Job Ticket: 65375

DST#: 3

ATTN: Robert Hendrix

Test Start: 2019.05.24 @ 18:31:00

GENERAL INFORMATION:

Formation: **Lans. "G"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 21:00:00

Time Test Ended: 01:58:15

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 83

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

Reference Elevations: 3416.00 ft (KB)

Total Depth: 4476.00 ft (KB) (TVD)

3411.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

Serial #: 8652 Outside

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

Capacity: 8000.00 psig

Start Date: 2019.05.24

End Date:

2019.05.25

Last Calib.:

2019.05.25

Start Time: 18:31:05

End Time:

01:58:14

Time On Btm:

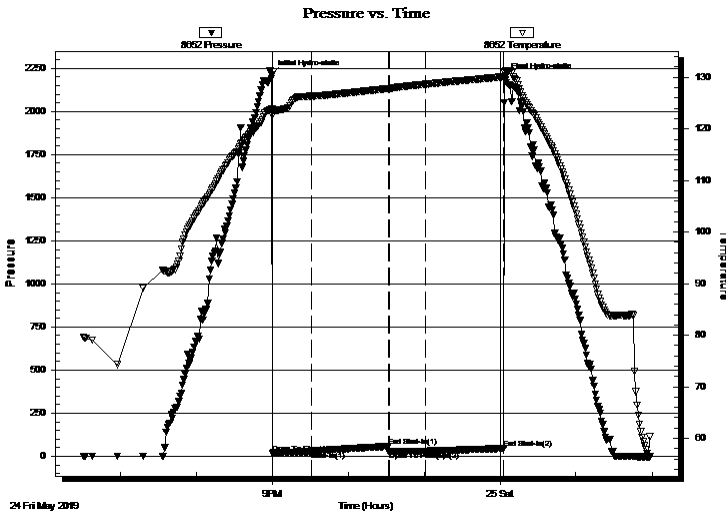
2019.05.24 @ 20:59:45

Time Off Btm:

2019.05.25 @ 00:03:45

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

PRESSURE SUMMARY



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

Recovery

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

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc

22-2s-37w Cheyenne,KS

250 N Water STE 300
Wichita, KS 67202

Banister 'A' #3-22

Job Ticket: 65375

DST#: 3

ATTN: Robert Hendrix

Test Start: 2019.05.24 @ 18:31:00

Tool Information

Drill Pipe:	Length: 4216.00 ft	Diameter: 3.80 inches	Volume: 59.14 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 180.00 ft	Diameter: 2.25 inches	Volume: 0.89 bbl	Weight to Pull Loose: 82000.00 lb
			<u>Total Volume: 60.03 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	13.00 ft			String Weight: Initial 72000.00 lb
Depth to Top Packer:	4412.00 ft			Final 72000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	64.00 ft			
Tool Length:	93.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4384.00	
Shut In Tool	5.00			4389.00	
Hydraulic tool	5.00			4394.00	
Jars	5.00			4399.00	
Safety Joint	3.00			4402.00	
Packer	5.00			4407.00	29.00 Bottom Of Top Packer
Packer	5.00			4412.00	
Stubb	1.00			4413.00	
Recorder	0.00	6625	Inside	4413.00	
Recorder	0.00	8652	Outside	4413.00	
Perforations	27.00			4440.00	
Blank Spacing	33.00			4473.00	
Bullnose	3.00			4476.00	64.00 Bottom Packers & Anchor

Total Tool Length: 93.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc

22-2s-37w Cheyenne,KS

250 N Water STE 300
Wichita, KS 67202

Banister 'A' #3-22

Job Ticket: 65375

DST#: 3

ATTN: Robert Hendrix

Test Start: 2019.05.24 @ 18:31:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 55.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.58 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 600.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
40.00	SOCM 92% _m , 8% _o	0.197

Total Length: 40.00 ft Total Volume: 0.197 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

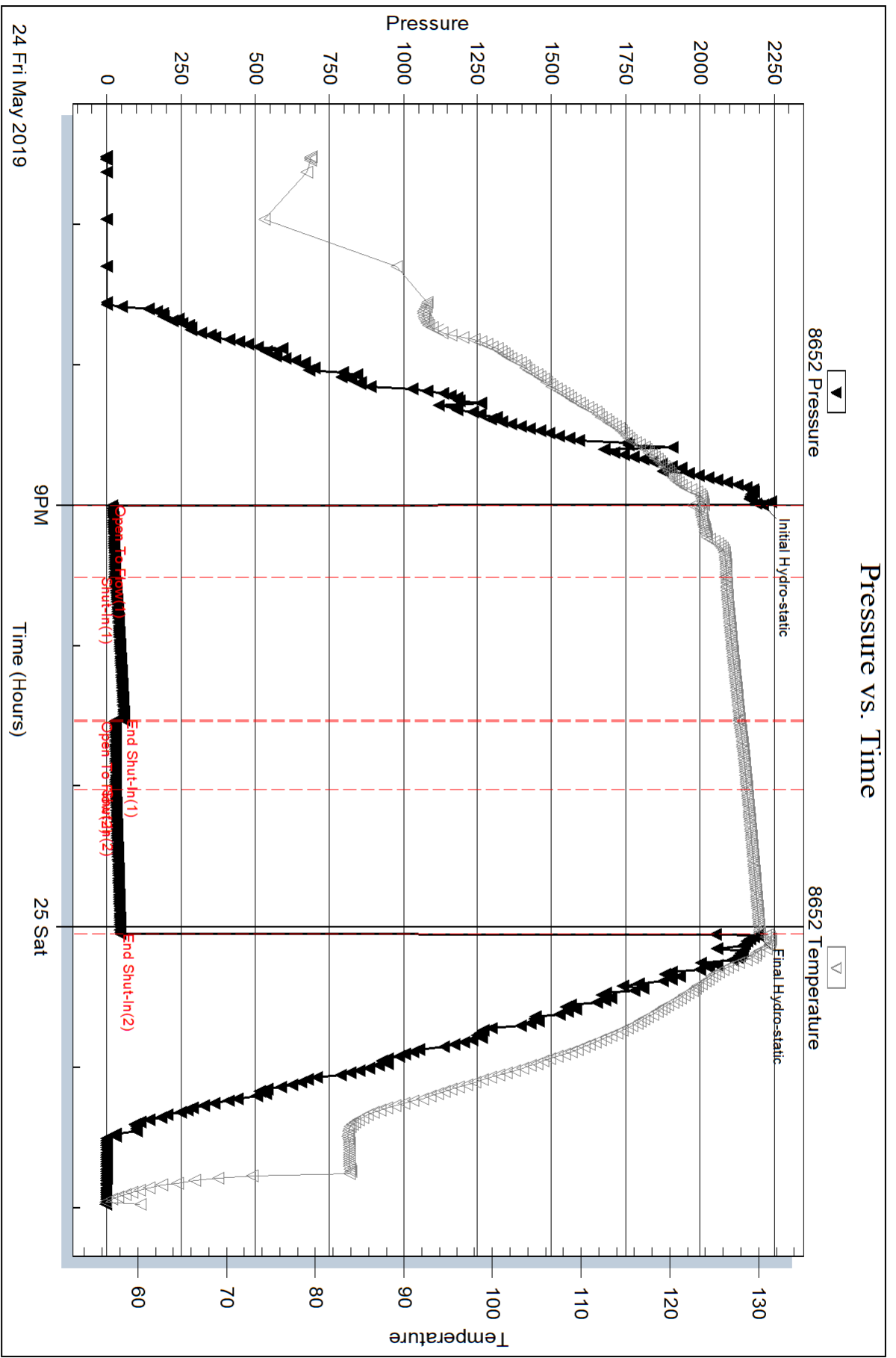
Recovery Comments:

Serial #: 8652

Outside Murfin Drilling Co., Inc

Banister 'A' #3-22

DST Test Number: 3



Trilobite Testing, Inc

Ref. No: 65375

Printed: 2019.05.29 @ 10:32:46

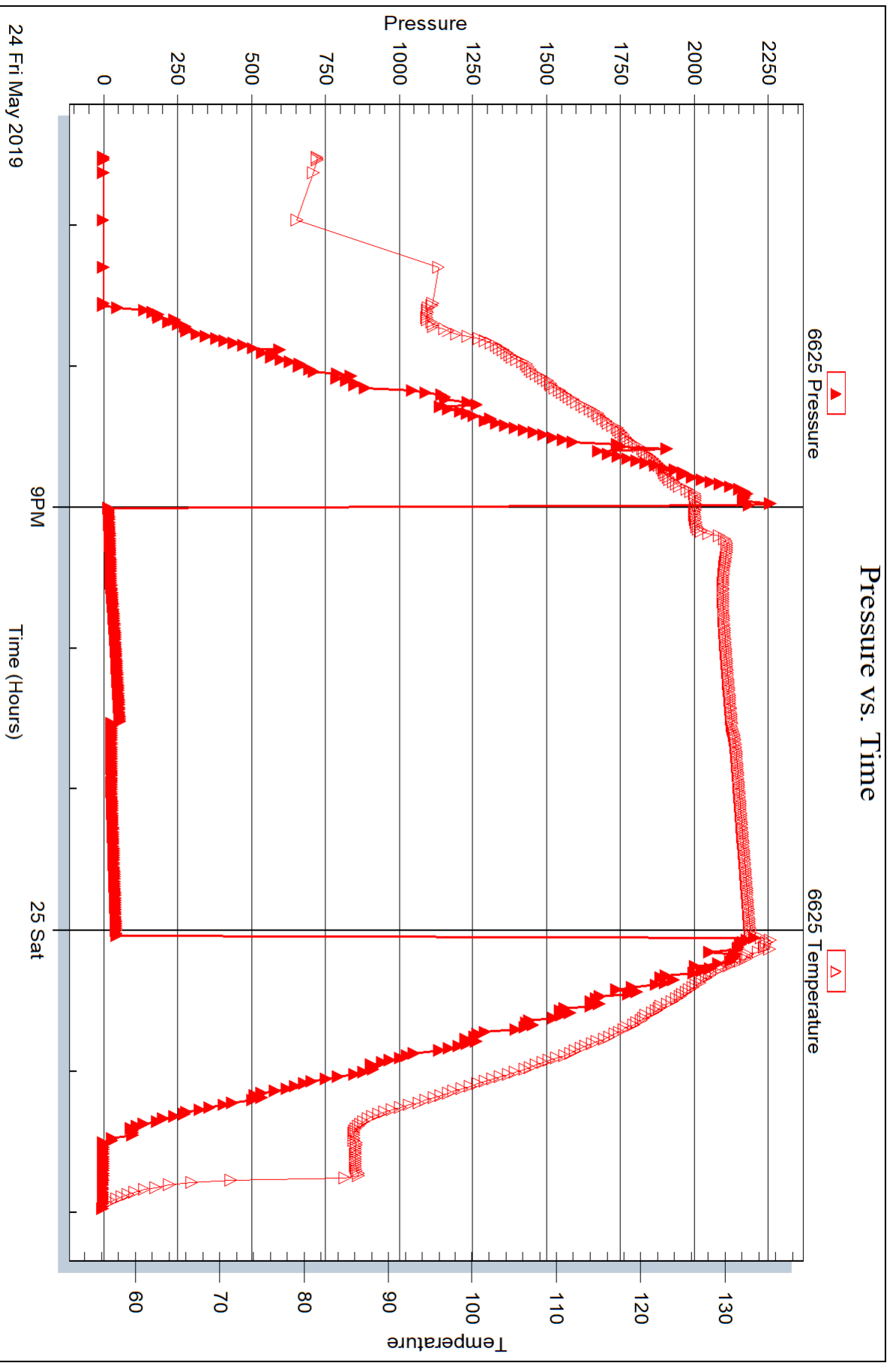
Serial #: 6625

Inside

Murfin Drilling Co., Inc

Banister 'A' #3-22

DST Test Number: 3



Trilobite Testing, Inc

Ref. No: 65375

Printed: 2019.05.29 @ 10:32:46



DRILL STEM TEST REPORT

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

250 N Water STE 300
Wichita, KS 67202

ATTN: Robert Hendrix

Banister 'A' #3-22

22-2s-37w Cheyenne,KS

Start Date: 2019.05.25 @ 17:05:00

End Date: 2019.05.26 @ 01:58:00

Job Ticket #: 64676 DST #: 4

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

Printed: 2019.05.29 @ 10:32:19

Murfin Drilling Co., Inc
22-2s-37w Cheyenne,KS
Banister 'A' #3-22
DST # 4
LKC "H - J"
2019.05.25



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc

22-2s-37w Cheyenne, KS

250 N Water STE 300
Wichita, KS 67202

Banister 'A' #3-22

Job Ticket: 64676

DST#: 4

ATTN: Robert Hendrix

Test Start: 2019.05.25 @ 17:05:00

GENERAL INFORMATION:

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

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 19:34:45

Time Test Ended: 01:58:00

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 83

Interval: 4478.00 ft (KB) To 4566.00 ft (KB) (TVD)

Reference Elevations: 3416.00 ft (KB)

Total Depth: 4566.00 ft (KB) (TVD)

3411.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

Serial #: 8652 Outside

Press@RunDepth: 143.01 psig @ 4479.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.05.25

End Date:

2019.05.26

Last Calib.:

2019.05.26

Start Time: 17:05:05

End Time:

01:58:00

Time On Btm:

2019.05.25 @ 19:34:30

Time Off Btm:

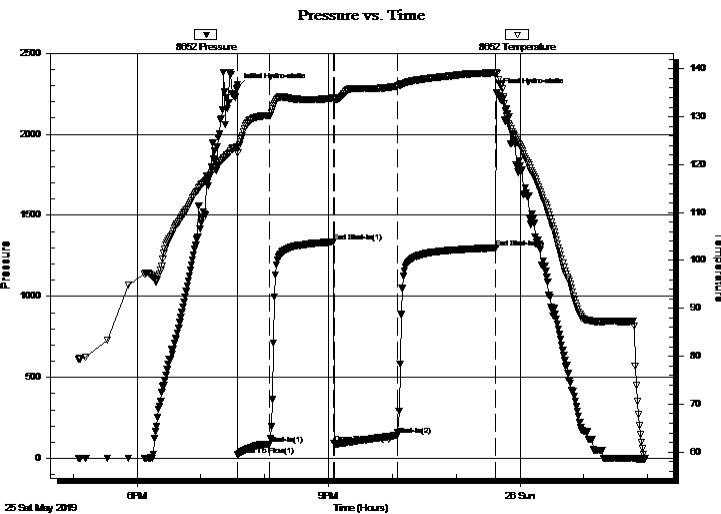
2019.05.25 @ 23:38:00

TEST COMMENT: 30 - IF: Blow built to BOB (11") at 17 1/2 min., built to 21"

60 - IS: No blow back

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

90 - FS: Blow back built to 3" at 12 min., died back to 2 1/2" at end of close



PRESSURE SUMMARY

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

Recovery

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

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc

22-2s-37w Cheyenne,KS

250 N Water STE 300
Wichita, KS 67202

Banister 'A' #3-22

Job Ticket: 64676

DST#: 4

ATTN: Robert Hendrix

Test Start: 2019.05.25 @ 17:05:00

Tool Information

Drill Pipe:	Length: 4276.00 ft	Diameter: 3.80 inches	Volume: 59.98 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 180.00 ft	Diameter: 2.25 inches	Volume: 0.89 bbl	Weight to Pull Loose: 90000.00 lb
			<u>Total Volume: 60.87 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	7.00 ft			String Weight: Initial 72000.00 lb
Depth to Top Packer:	4478.00 ft			Final 75000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	88.00 ft			
Tool Length:	117.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4450.00	
Shut In Tool	5.00			4455.00	
Hydraulic tool	5.00			4460.00	
Jars	5.00			4465.00	
Safety Joint	3.00			4468.00	
Packer	5.00			4473.00	29.00 Bottom Of Top Packer
Packer	5.00			4478.00	
Stubb	1.00			4479.00	
Recorder	0.00	6625	Inside	4479.00	
Recorder	0.00	8652	Outside	4479.00	
Perforations	18.00			4497.00	
Blank Spacing	65.00			4562.00	
Perforations	1.00			4563.00	
Bullnose	3.00			4566.00	88.00 Bottom Packers & Anchor

Total Tool Length: 117.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc

22-2s-37w Cheyenne,KS

250 N Water STE 300
Wichita, KS 67202

Banister 'A' #3-22

Job Ticket: 64676

DST#: 4

ATTN: Robert Hendrix

Test Start: 2019.05.25 @ 17:05:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

35 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 53.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.39 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 600.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
295.00	GMCO 55%o, 29%m, 16%g	2.498
50.00	VSMCGO 91%o, 8%g, 1%m	0.701
0.00	GIP = 970'	0.000

Total Length: 345.00 ft Total Volume: 3.199 bbl

Num Fluid Samples: 0

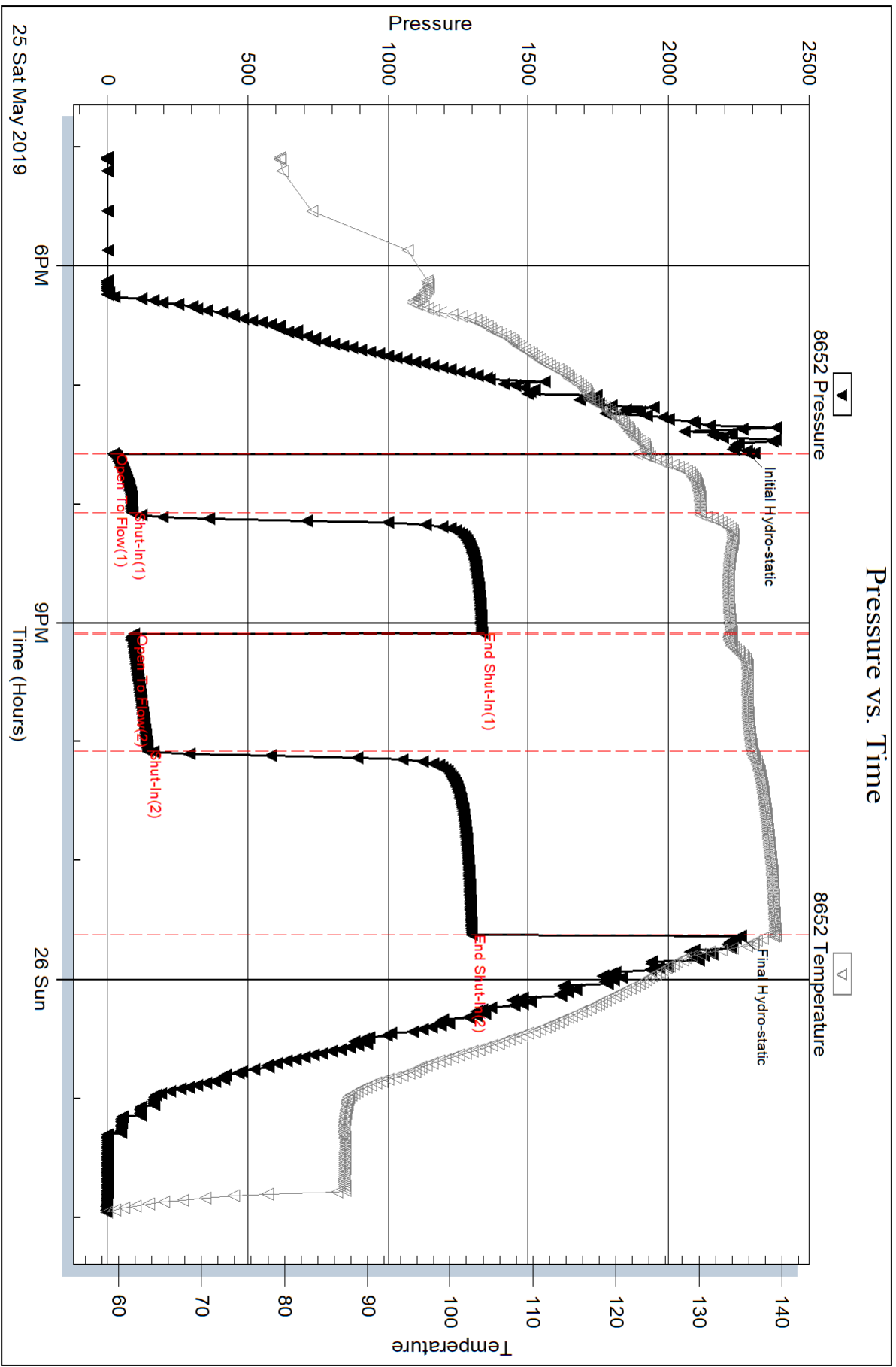
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Gravity = 35 api @ 60 deg F



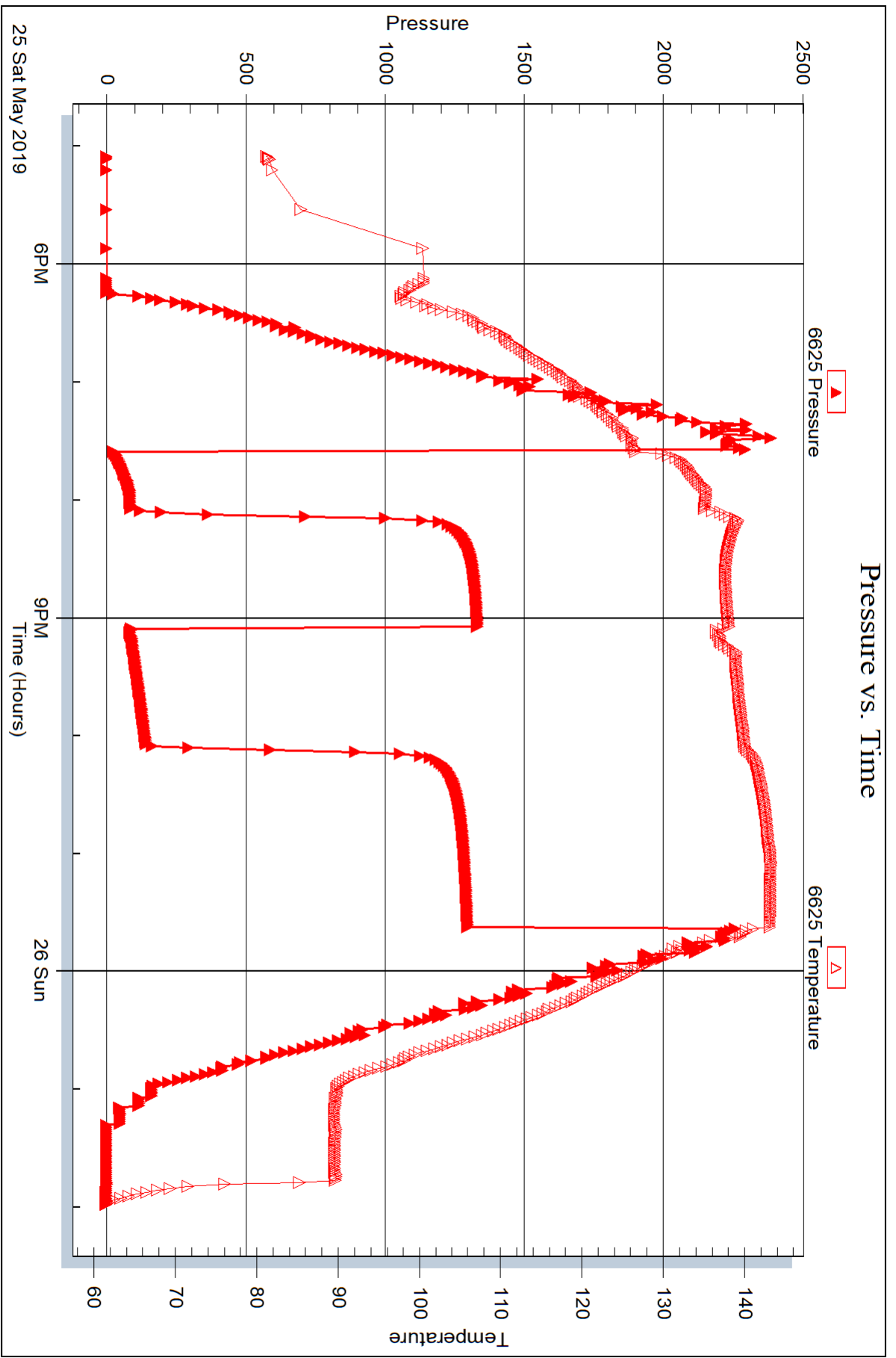
Serial #: 6625

Inside

Murfin Drilling Co., Inc

Banister 'A' #3-22

DST Test Number: 4



Triobite Testing, Inc

Ref. No: 64676

Printed: 2019.05.29 @ 10:32:20



DRILL STEM TEST REPORT

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

250 N Water STE 300
Wichita, KS 67202

ATTN: Robert Hendrix

Banister 'A' #3-22

22-2s-37w Cheyenne,KS

Start Date: 2019.05.27 @ 15:03:00

End Date: 2019.05.28 @ 00:13:15

Job Ticket #: 64677 DST #: 5

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

Printed: 2019.05.29 @ 10:31:53

Murfin Drilling Co., Inc

22-2s-37w Cheyenne,KS

Banister 'A' #3-22

DST # 5

Ft. Scott - Cella

2019.05.27



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co., Inc

22-2s-37w Cheyenne, KS

250 N Water STE 300
Wichita, KS 67202

Banister 'A' #3-22

ATTN: Robert Hendrix

Job Ticket: 64677

DST#: 5

Test Start: 2019.05.27 @ 15:03:00

GENERAL INFORMATION:

Formation: **Ft. Scott - Celia**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 17:38:30

Time Test Ended: 00:13:15

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder

Unit No: 83

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

Reference Elevations: 3416.00 ft (KB)

Total Depth: 4844.00 ft (KB) (TVD)

3411.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8652 Outside

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

Capacity: 8000.00 psig

Start Date: 2019.05.27 End Date: 2019.05.28

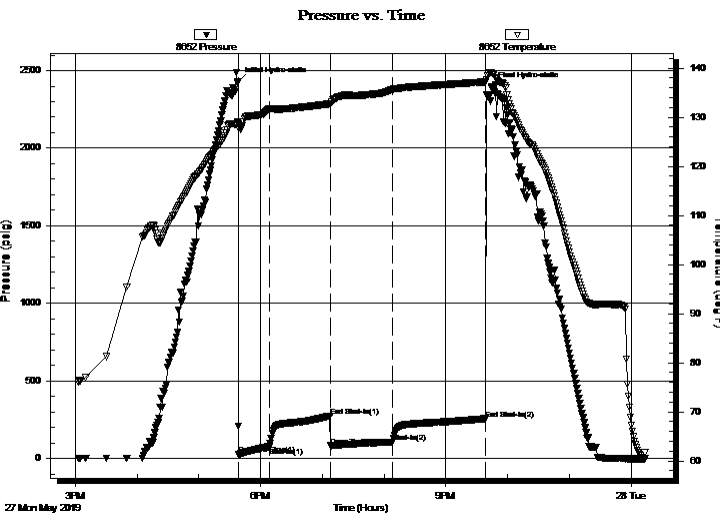
Last Calib.: 2019.05.28

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

Time On Btm: 2019.05.27 @ 17:38:00

Time Off Btm: 2019.05.27 @ 21:44:00

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



PRESSURE SUMMARY

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

Recovery

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

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co., Inc

22-2s-37w Cheyenne,KS

250 N Water STE 300
Wichita, KS 67202

Banister 'A' #3-22

Job Ticket: 64677

DST#: 5

ATTN: Robert Hendrix

Test Start: 2019.05.27 @ 15:03:00

Tool Information

Drill Pipe:	Length: 4503.00 ft	Diameter: 3.80 inches	Volume: 63.17 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 180.00 ft	Diameter: 2.25 inches	Volume: 0.89 bbl	Weight to Pull Loose: 110000.0 lb
			<u>Total Volume: 64.06 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	4.00 ft			String Weight: Initial 76000.00 lb
Depth to Top Packer:	4708.00 ft			Final 76000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	136.00 ft			
Tool Length:	165.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4680.00	
Shut In Tool	5.00			4685.00	
Hydraulic tool	5.00			4690.00	
Jars	5.00			4695.00	
Safety Joint	3.00			4698.00	
Packer	5.00			4703.00	29.00 Bottom Of Top Packer
Packer	5.00			4708.00	
Stubb	1.00			4709.00	
Recorder	0.00	6625	Inside	4709.00	
Recorder	0.00	8652	Outside	4709.00	
Perforations	34.00			4743.00	
Blank Spacing	97.00			4840.00	
Perforations	1.00			4841.00	
Bullnose	3.00			4844.00	136.00 Bottom Packers & Anchor

Total Tool Length: 165.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co., Inc

22-2s-37w Cheyenne,KS

250 N Water STE 300
Wichita, KS 67202

Banister 'A' #3-22

Job Ticket: 64677

DST#: 5

ATTN: Robert Hendrix

Test Start: 2019.05.27 @ 15:03:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

36.6 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 54.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.39 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 600.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
200.00	GMCO 57%o, 27%m, 16%g	1.166
20.00	SMCO 92%o, 5%m, 3%g	0.281
0.00	GIP = 145'	0.000

Total Length: 220.00 ft Total Volume: 1.447 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

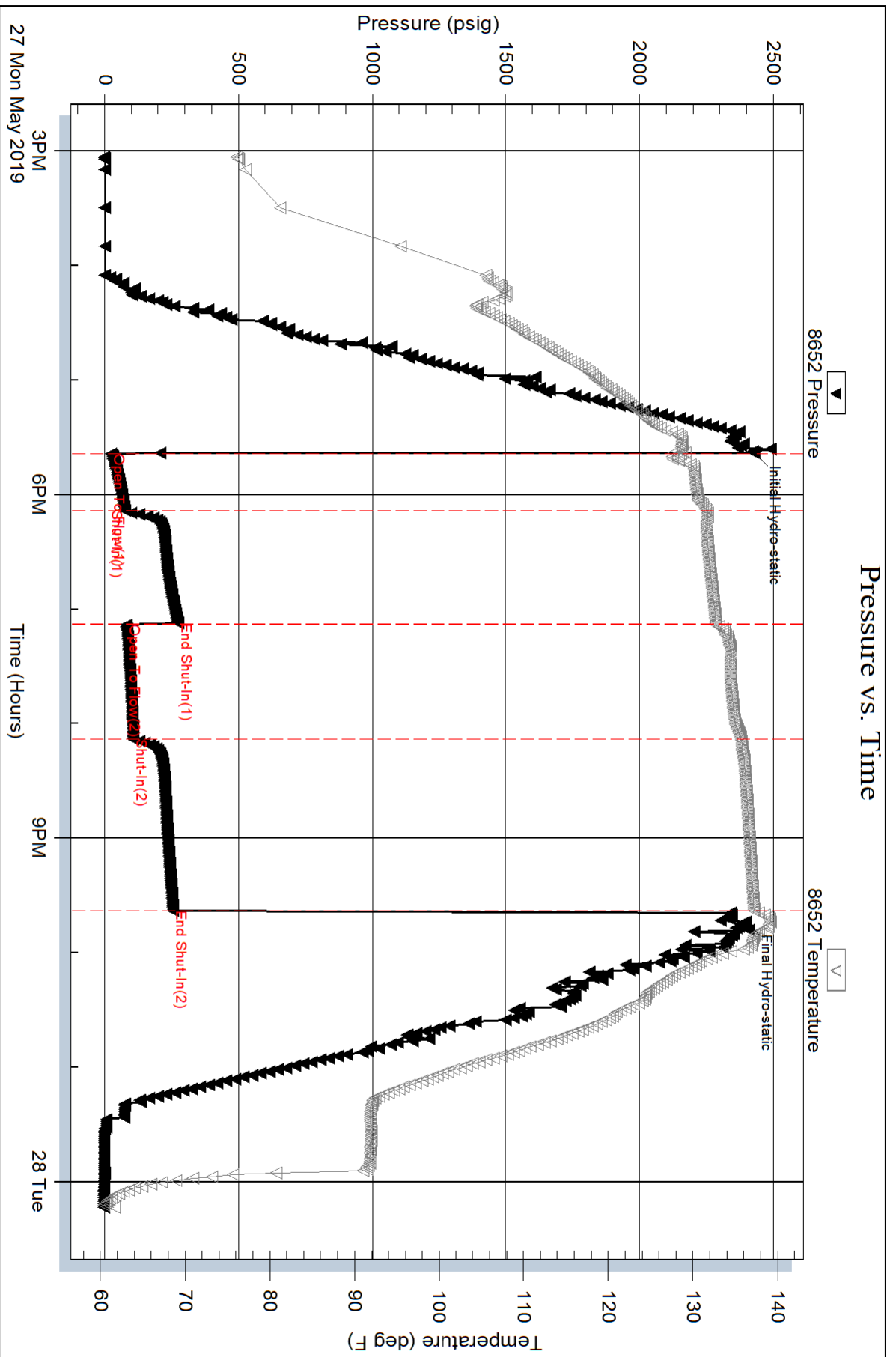
Recovery Comments: Gravity = 37 api @ 64 deg F Corrected Gravity = 36.6 api

Serial #: 8652

Outside Murfin Drilling Co., Inc

Banister A' #3-22

DST Test Number: 5



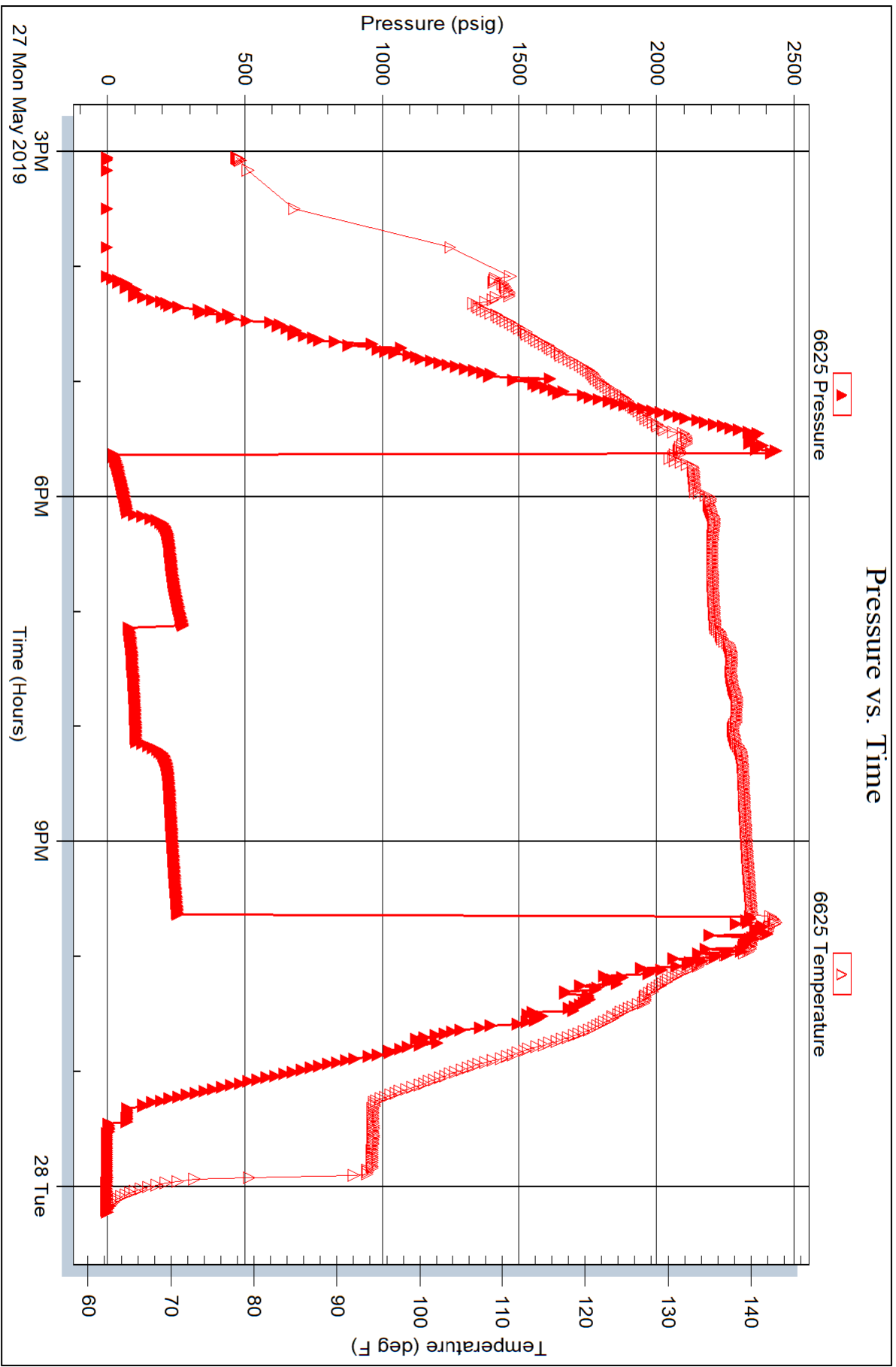
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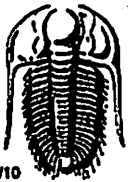
Inside

Murfin Drilling Co., Inc

Banister 'A' #3-22

DST Test Number: 5





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 65373

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

Interval Tested 4288 - 4370 Zone Tested Lans. "A"
 Anchor Length 82 Drill Pipe Run 4089 Mud Wt. 9.3
 Top Packer Depth 4283 Drill Collars Run 180 Vis 62
 Bottom Packer Depth 4288 Wt. Pipe Run - WL 6.0
 Total Depth 4370 Chlorides 600 ppm System LCM 4
 Blow Description IF: 1/4" Blow at open, built to 1/2", died back to 1/4" at close
ISI: No blowback
FF: No blow
FSI: No blow

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

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

(A) Initial Hydrostatic 2193 Test 1300 T-On Location 3:30
 (B) First Initial Flow 19 Jars 250 T-Started 5:36
 (C) First Final Flow 21 Safety Joint 75 T-Open 7:47
 (D) Initial Shut-In 374 Circ Sub _____ T-Pulled 10:48
 (E) Second Initial Flow 21 Hourly Standby _____ T-Out 12:45
 (F) Second Final Flow 23 Mileage 118RT 118 Comments _____
 (G) Final Shut-In 354 Sampler _____
 (H) Final Hydrostatic 2101 Straddle _____
 Initial Open 30 Shale Packer _____
 Initial Shut-In 60 Extra Packer _____
 Final Flow 30 Extra Recorder _____
 Final Shut-In 60 Day Standby _____
 Sub Total 1743 Accessibility _____
 Sub Total 1743 EM Tool _____
 Total 1743 Ruined Shale Packer _____
 MP/DST Disc't _____ Ruined Packer _____
 Sub Total 0 Extra Copies _____

Approved By: RLS-LLY Our Representative: James Winkler

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 65374

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

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

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

Rec	Feet of	%gas	%oil	%water	%mud
<u>10</u>	<u>Mud w/oil spots</u>	<u>2</u>		<u>98</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

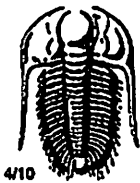
Rec Total 10 BHT 127 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2177 Test 1300 T-On Location 23:05 5/23
 (B) First Initial Flow 20 Jars 250 T-Started 23:28
 (C) First Final Flow 23 Safety Joint 75 T-Open 1:17
 (D) Initial Shut-In 627 Circ Sub _____ T-Pulled 5:20
 (E) Second Initial Flow 24 Hourly Standby _____ T-Out 7:30
 (F) Second Final Flow 28 Mileage 118 RT 118 Comments _____
 (G) Final Shut-In 443 Sampler _____
 (H) Final Hydrostatic 2135 Straddle _____

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

Approved By [Signature] Our Representative James Winkler

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 65375

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

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

Rec	Feet of	%gas	%oil	%water	%mud
<u>40</u>	<u>50cm</u>	<u>8</u>		<u>92</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 40 BHT 130 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

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

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

Sub Total 1743 MP/DST Disc't _____

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

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 64676

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

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

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

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

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

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

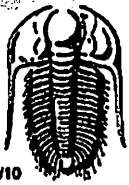
Rec Total 345 BHT 139 Gravity 35 API RW @ °F Chlorides ppm

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

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

Approved By [Signature] Our Representative James Winder

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 64677

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

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

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

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

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

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

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

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

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

Approved By [Signature] Our Representative [Signature]

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