



DRILL STEM TEST REPORT

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

250 North Water Suite 300
Wichita, KS 67202

ATTN: Ken Wallace

Youngmeyer A #1-14

14-29S-8E Elk,KS

Start Date: 2017.07.11 @ 23:23:00

End Date: 2017.07.12 @ 06:34:39

Job Ticket #: 63581 DST #: 1

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

Printed: 2017.07.17 @ 10:33:44

Murfin Drilling Co, Inc. 14-29S-8E Elk,KS Youngmeyer A #1-14 DST # 1 Hertha 2017.07.11



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co, Inc.
 250 North Water Suite 300
 Wichita, KS 67202
 ATTN: Ken Wallace

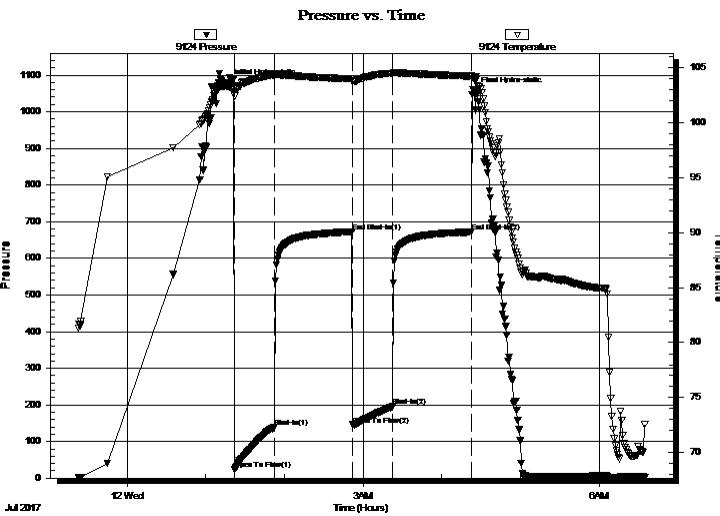
14-29S-8E EIk, KS
Youngmeyer A #1-14
 Job Ticket: 63581 **DST#: 1**
 Test Start: 2017.07.11 @ 23:23:00

GENERAL INFORMATION:

Formation: **Hertha**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Initial)
 Time Tool Opened: 01:22:10 Tester: Jimmy Ricketts
 Time Test Ended: 06:34:39 Unit No: 80
 Interval: **2220.00 ft (KB) To 2250.00 ft (KB) (TVD)** Reference Elevations: 1604.00 ft (KB)
 Total Depth: 2250.00 ft (KB) (TVD) 1598.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 6.00 ft

Serial #: 9124 Inside
 Press@RunDepth: 195.06 psig @ 2221.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2017.07.11 End Date: 2017.07.12 Last Calib.: 2017.07.11
 Start Time: 23:23:05 End Time: 06:34:40 Time On Btm: 2017.07.12 @ 01:16:10
 Time Off Btm: 2017.07.12 @ 04:24:50

TEST COMMENT: IF - BOB in 11 minutes
 FF - BOB in 16 minutes



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1075.79	103.26	Initial Hydro-static
6	24.29	102.39	Open To Flow (1)
36	138.14	104.31	Shut-In(1)
96	672.53	103.96	End Shut-In(1)
96	145.34	103.71	Open To Flow (2)
126	195.06	104.46	Shut-In(2)
186	671.37	104.21	End Shut-In(2)
189	1055.44	103.95	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
240.00	Mud cut w ater 83% W & 17% M	1.20
135.00	Heavy mud cut w ater 67% W & 33% M	1.46

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co, Inc.
 250 North Water Suite 300
 Wichita, KS 67202
 ATTN: Ken Wallace

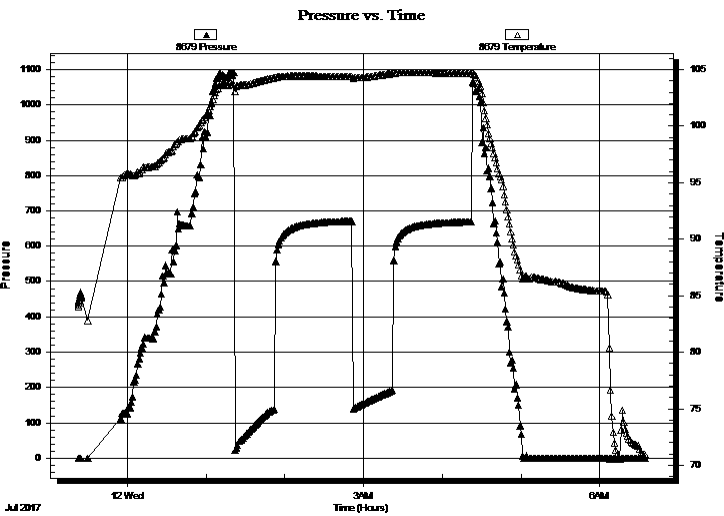
14-29S-8E EIk, KS
Youngmeyer A #1-14
 Job Ticket: 63581 **DST#: 1**
 Test Start: 2017.07.11 @ 23:23:00

GENERAL INFORMATION:

Formation: **Hertha**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Initial)
 Time Tool Opened: 01:22:10 Tester: Jimmy Ricketts
 Time Test Ended: 06:34:39 Unit No: 80
 Interval: **2220.00 ft (KB) To 2250.00 ft (KB) (TVD)** Reference Elevations: 1604.00 ft (KB)
 Total Depth: 2250.00 ft (KB) (TVD) 1598.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 6.00 ft

Serial #: 8679 Outside
 Press@RunDepth: psig @ 2221.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2017.07.11 End Date: 2017.07.12 Last Calib.: 1899.12.30
 Start Time: 23:23:01 End Time: 06:34:40 Time On Btm:
 Time Off Btm:

TEST COMMENT: IF - BOB in 11 minutes
 FF - BOB in 16 minutes



PRESSURE SUMMARY

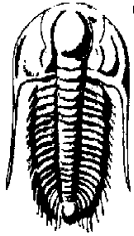
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

Recovery

Length (ft)	Description	Volume (bbl)
240.00	Mud cut water 83% W & 17% M	1.20
135.00	Heavy mud cut water 67% W & 33% M	1.46

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co, Inc.

14-29S-8E EIk, KS

250 North Water Suite 300
Wichita, KS 67202

Youngmeyer A #1-14

Job Ticket: 63581

DST#: 1

ATTN: Ken Wallace

Test Start: 2017.07.11 @ 23:23:00

Tool Information

Drill Pipe:	Length: 1959.00 ft	Diameter: 3.34 inches	Volume: 21.23 bbl	Tool Weight: 2300.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: inches	Volume: 0.00 bbl	Weight set on Packer: 21000.00 lb
Drill Collar:	Length: 237.00 ft	Diameter: 2.25 inches	Volume: 1.17 bbl	Weight to Pull Loose: 46000.00 lb
			<u>Total Volume: 22.40 bbl</u>	Tool Chased 2.00 ft
Drill Pipe Above KB:	4.00 ft			String Weight: Initial 44000.00 lb
Depth to Top Packer:	2220.00 ft			Final 45000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	30.00 ft			
Tool Length:	58.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			2193.00	
Shut In Tool	5.00			2198.00	
Hydraulic tool	5.00			2203.00	
Jars	5.00			2208.00	
Safety Joint	3.00			2211.00	
Packer	4.00			2215.00	28.00 Bottom Of Top Packer
Packer	5.00			2220.00	
Stubb	1.00			2221.00	
Recorder	0.00	8679	Outside	2221.00	
Recorder	0.00	9124	Inside	2221.00	
Perforations	24.00			2245.00	
Bullnose	5.00			2250.00	30.00 Bottom Packers & Anchor

Total Tool Length: 58.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co, Inc.

14-29S-8E EIk,KS

250 North Water Suite 300
Wichita, KS 67202

Youngmeyer A #1-14

Job Ticket: 63581

DST#: 1

ATTN: Ken Wallace

Test Start: 2017.07.11 @ 23:23:00

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:

135000 ppm

Viscosity: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 12.26 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 680.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
240.00	Mud cut w ater 83% W & 17% M	1.198
135.00	Heavy mud cut w ater 67% W & 33% M	1.463

Total Length: 375.00 ft

Total Volume: 2.661 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

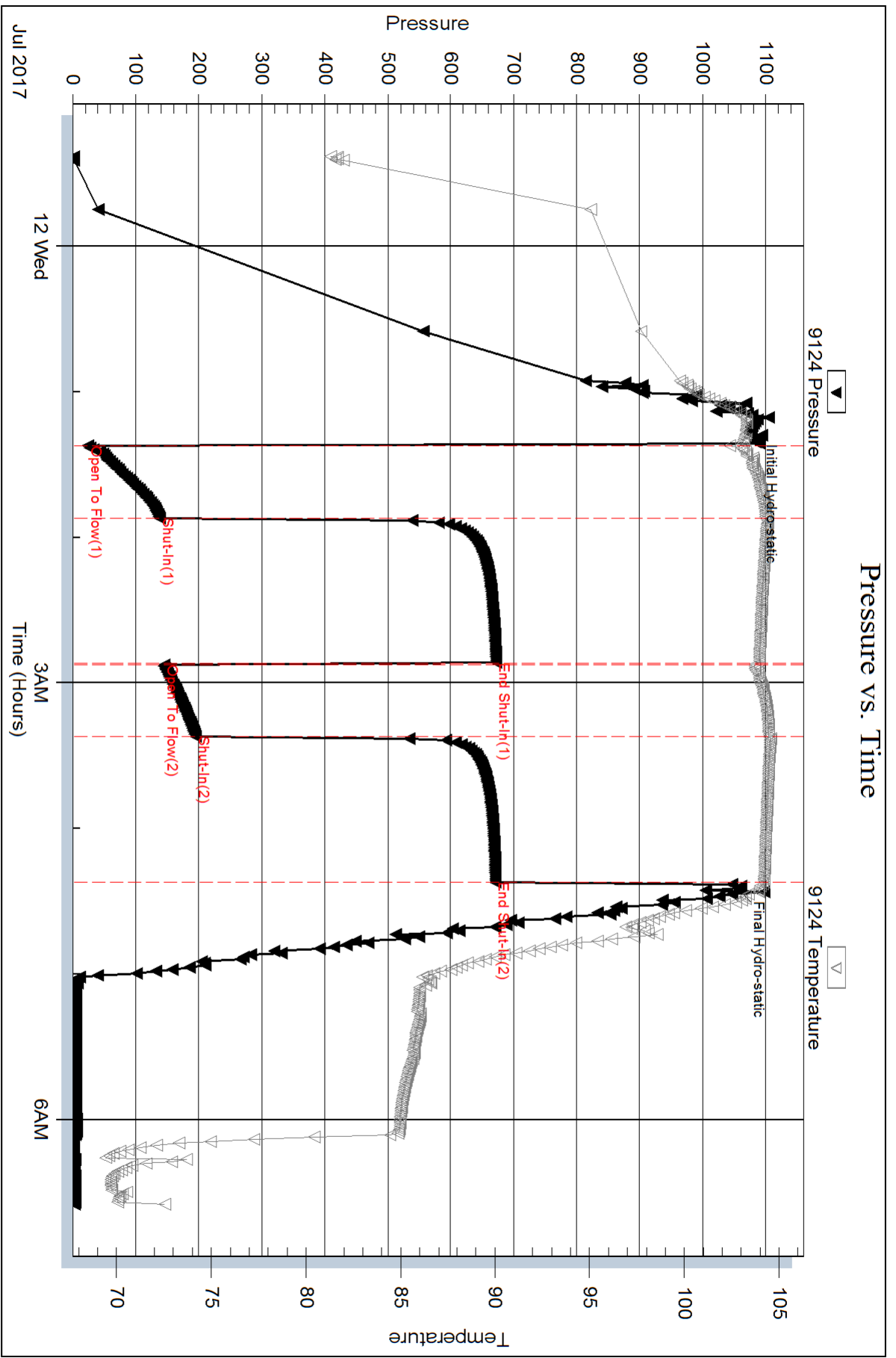
Serial #: 9124

Inside

Murfin Drilling Co, Inc.

Youngmeyer A #1-14

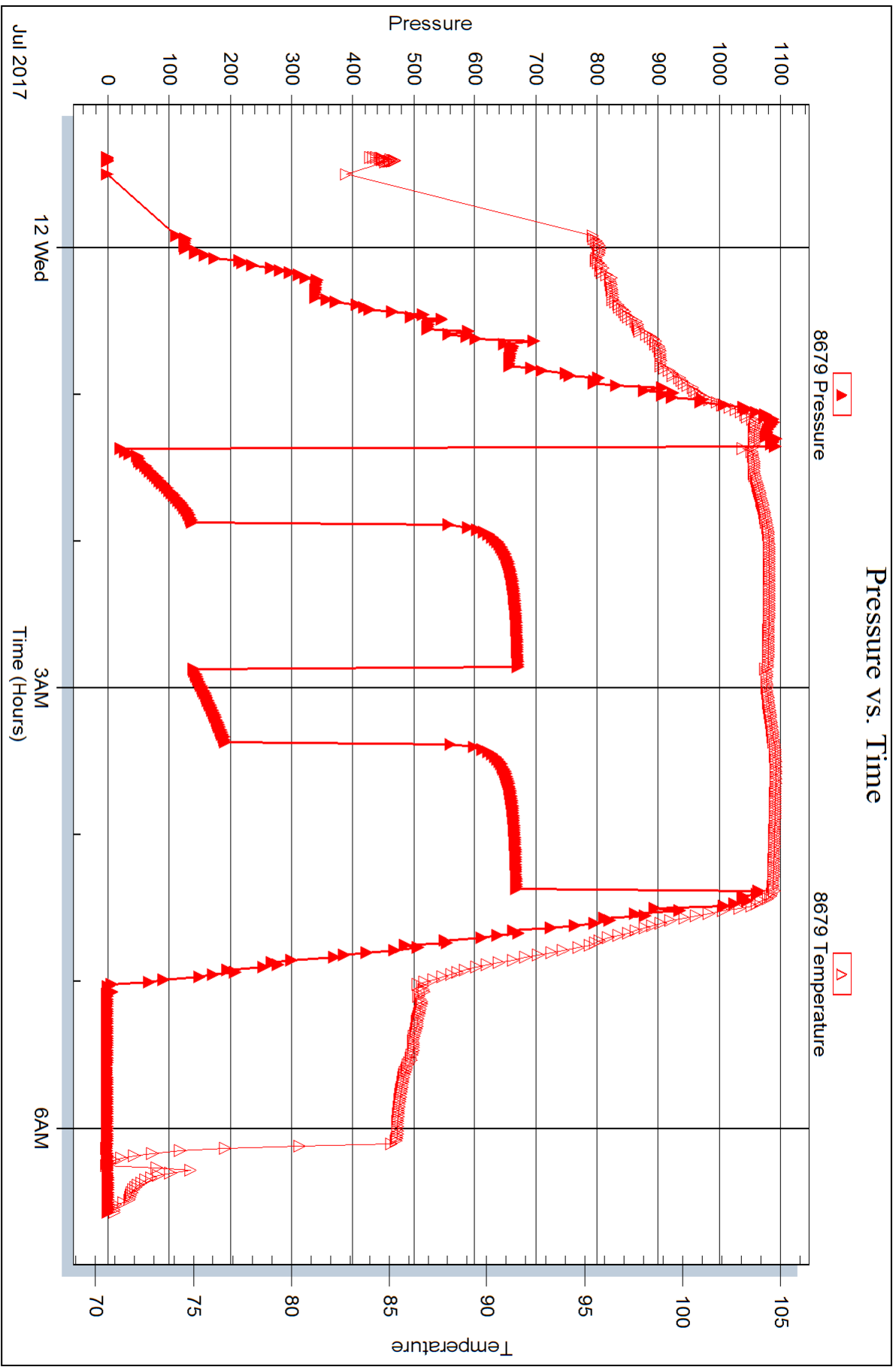
DST Test Number: 1



Triobite Testing, Inc

Ref. No: 63581

Printed: 2017.07.17 @ 10:33:45





DRILL STEM TEST REPORT

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

250 North Water Suite 300
Wichita, KS 67202

ATTN: Ken Wallace

Youngmeyer A #1-14

14-29S-8E Elk,KS

Start Date: 2017.07.13 @ 16:40:00

End Date: 2017.07.14 @ 00:42:20

Job Ticket #: 63582 DST #: 2

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

Printed: 2017.07.17 @ 10:33:20



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co, Inc.
250 North Water Suite 300
Wichita, KS 67202
ATTN: Ken Wallace

14-29S-8E EIk, KS
Youngmeyer A #1-14
Job Ticket: 63582 **DST#: 2**
Test Start: 2017.07.13 @ 16:40:00

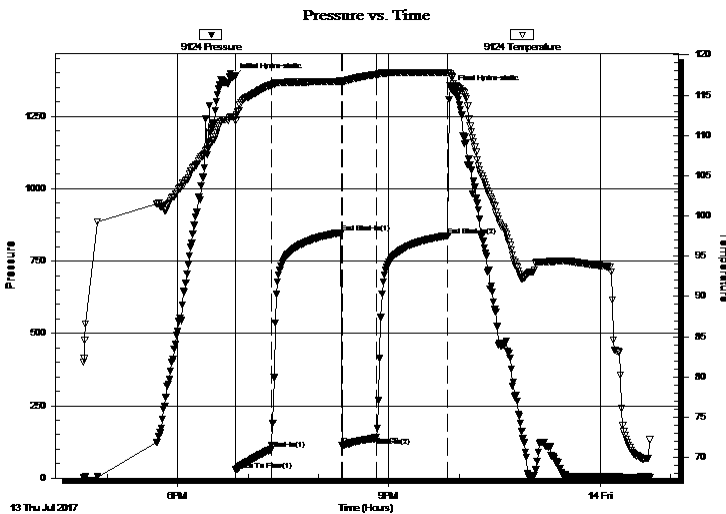
GENERAL INFORMATION:

Formation: **Mississippian**
Deviated: No Whipstock: ft (KB) Test Type: Conventional Bottom Hole (Initial)
Time Tool Opened: 18:49:40 Tester: Jimmy Ricketts
Time Test Ended: 00:42:20 Unit No: 80
Interval: 2837.00 ft (KB) To 2852.00 ft (KB) (TVD) Reference Elevations: 1604.00 ft (KB)
Total Depth: 2852.00 ft (KB) (TVD) 1598.00 ft (CF)
Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 6.00 ft

Serial #: 9124 Inside
Press@RunDepth: 140.42 psig @ 2838.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2017.07.13 End Date: 2017.07.14 Last Calib.: 2017.07.13
Start Time: 16:40:05 End Time: 00:42:20 Time On Btm: 2017.07.13 @ 18:47:20
Time Off Btm: 2017.07.13 @ 21:53:39

TEST COMMENT: IF - BOB in 15 minutes
IS - 3" blow back
FF - BOB in 10 minutes
FS - 9" blow back

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1384.97	112.31	Initial Hydro-static
3	28.87	111.87	Open To Flow (1)
33	99.40	116.28	Shut-In(1)
92	848.32	116.75	End Shut-In(1)
93	112.02	116.59	Open To Flow (2)
123	140.42	117.58	Shut-In(2)
183	837.78	117.83	End Shut-In(2)
187	1342.05	117.30	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
95.00	Oil & mud cut w ater 1%O 89%W 10%M	0.47
155.00	Gassy oil and cut mud 8%G 8%O 32%W	0.84 M
40.00	Clean oil 100%O	0.43
0.00	325' GIP 100%G	0.00

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co, Inc.
250 North Water Suite 300
Wichita, KS 67202
ATTN: Ken Wallace

14-29S-8E EIk,KS
Youngmeyer A #1-14
Job Ticket: 63582 **DST#: 2**
Test Start: 2017.07.13 @ 16:40:00

Tool Information

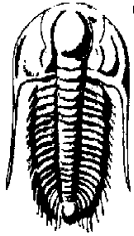
Drill Pipe:	Length: 2578.00 ft	Diameter: 3.34 inches	Volume: 27.94 bbl	Tool Weight: 2300.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 237.00 ft	Diameter: 2.25 inches	Volume: 1.17 bbl	Weight to Pull Loose: 51000.00 lb
			<u>Total Volume: 29.11 bbl</u>	Tool Chased 2.00 ft
Drill Pipe Above KB:	6.00 ft			String Weight: Initial 48000.00 lb
Depth to Top Packer:	2837.00 ft			Final 50000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	15.00 ft			
Tool Length:	43.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			2810.00	
Shut In Tool	5.00			2815.00	
Hydraulic tool	5.00			2820.00	
Jars	5.00			2825.00	
Safety Joint	3.00			2828.00	
Packer	4.00			2832.00	28.00 Bottom Of Top Packer
Packer	5.00			2837.00	
Stubb	1.00			2838.00	
Recorder	0.00	8679	Outside	2838.00	
Recorder	0.00	9124	Inside	2838.00	
Perforations	9.00			2847.00	
Bullnose	5.00			2852.00	15.00 Bottom Packers & Anchor

Total Tool Length: 43.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co, Inc.

14-29S-8E EIk,KS

250 North Water Suite 300
Wichita, KS 67202

Youngmeyer A #1-14

Job Ticket: 63582

DST#: 2

ATTN: Ken Wallace

Test Start: 2017.07.13 @ 16:40:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

39 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

57000 ppm

Viscosity: 49.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 10.07 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 780.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
95.00	Oil & mud cut w ater 1%O 89%W 10%M	0.467
155.00	Gassy oil and cut mud 8%G 8%O 32%W 52%	0.839
40.00	Clean oil 100%O	0.433
0.00	325' GIP 100%G	0.000

Total Length: 290.00 ft

Total Volume: 1.739 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

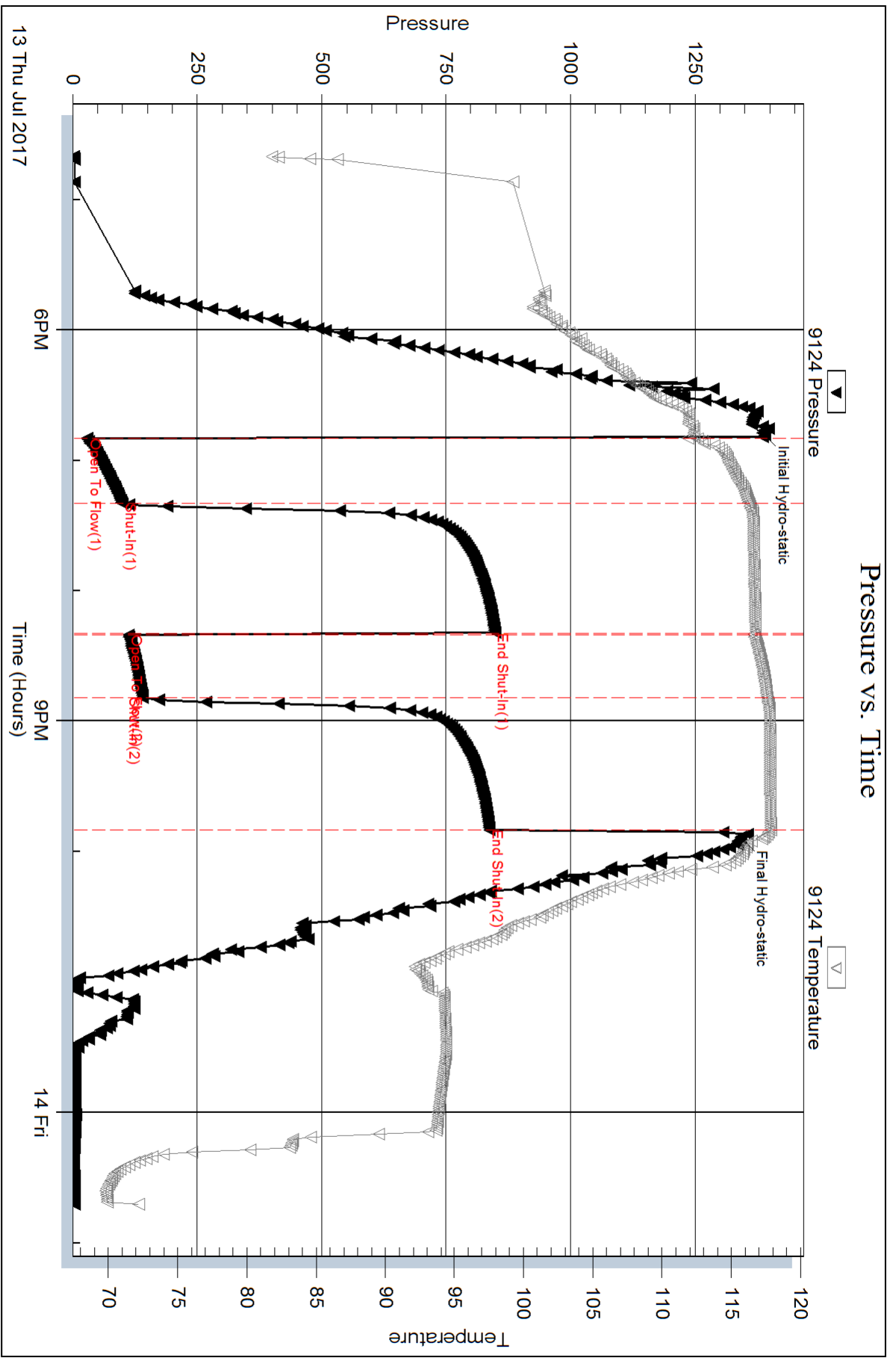
Serial #: 9124

Inside

Murfin Drilling Co, Inc.

Youngmeyer A #1-14

DST Test Number: 2



Triobite Testing, Inc

Ref. No: 63582

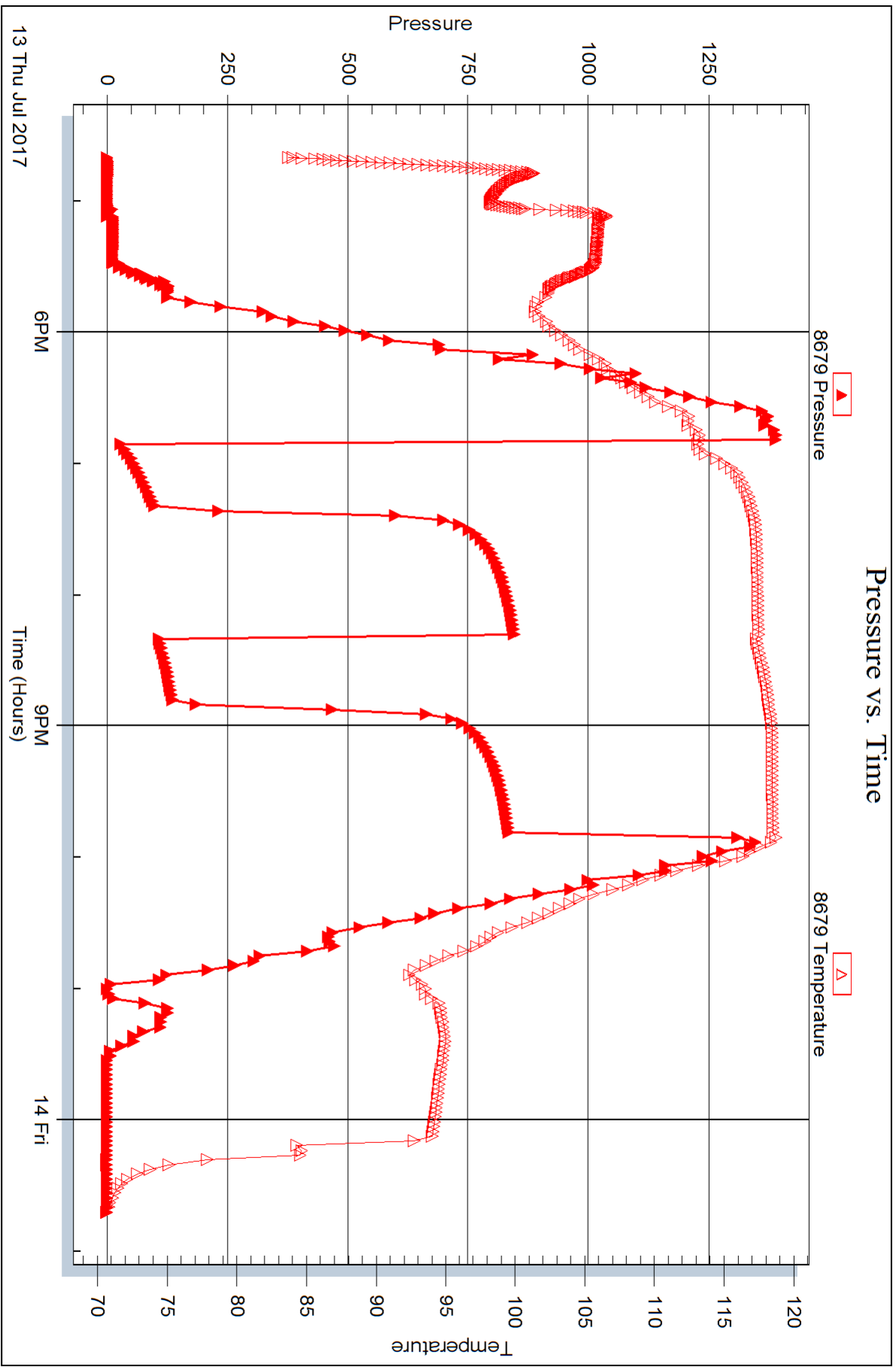
Printed: 2017.07.17 @ 10:33:21

Serial #: 8679

Outside Murfin Drilling Co, Inc.

Youngmeyer A #1-14

DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 63582

Printed: 2017.07.17 @ 10:33:21



DRILL STEM TEST REPORT

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

250 North Water Suite 300
Wichita, KS 67202

ATTN: Ken Wallace

Youngmeyer A #1-14

14-29S-8E Elk,KS

Start Date: 2017.07.14 @ 20:02:00

End Date: 2017.07.15 @ 04:00:30

Job Ticket #: 63583 DST #: 3

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

Printed: 2017.07.17 @ 10:32:53

Murfin Drilling Co, Inc.

14-29S-8E Elk,KS

Youngmeyer A #1-14

DST # 3

Lower Mississippian

2017.07.14



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Murfin Drilling Co, Inc.
250 North Water Suite 300
Wichita, KS 67202
ATTN: Ken Wallace

14-29S-8E EIk, KS
Youngmeyer A #1-14
Job Ticket: 63583 **DST#: 3**
Test Start: 2017.07.14 @ 20:02:00

GENERAL INFORMATION:

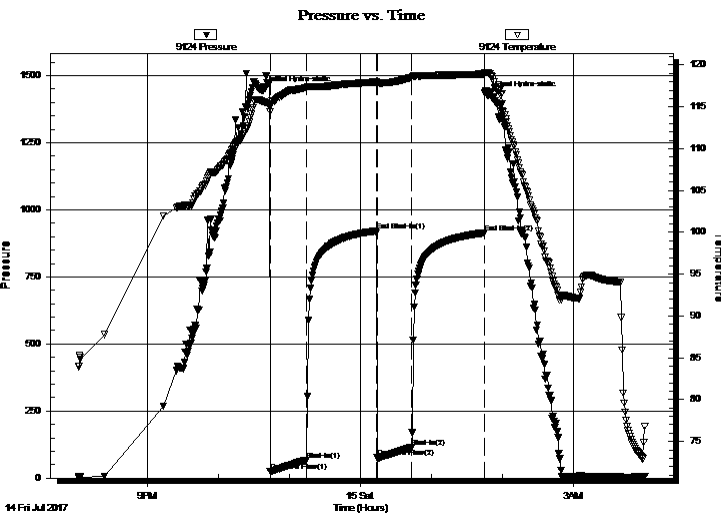
Formation: **Lower Mississippian**
Deviated: No Whipstock: ft (KB) Test Type: Conventional Bottom Hole (Initial)
Time Tool Opened: 22:43:50 Tester: Jimmy Ricketts
Time Test Ended: 04:00:30 Unit No: 80
Interval: **3002.00 ft (KB) To 3030.00 ft (KB) (TVD)** Reference Elevations: 1604.00 ft (KB)
Total Depth: 3030.00 ft (KB) (TVD) 1598.00 ft (CF)
Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 6.00 ft

Serial #: 9124

Inside

Press@RunDepth: 114.34 psig @ 3003.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2017.07.14 End Date: 2017.07.15 Last Calib.: 2017.07.14
Start Time: 20:02:05 End Time: 04:00:29 Time On Btm: 2017.07.14 @ 22:37:30
Time Off Btm: 2017.07.15 @ 01:48:09

TEST COMMENT: IF - Weak blow built to 6"
FF - No blow built to 4"



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1445.34	115.64	Initial Hydro-static
7	25.17	114.40	Open To Flow (1)
38	67.82	117.32	Shut-In(1)
96	921.21	117.97	End Shut-In(1)
97	75.94	117.75	Open To Flow (2)
126	114.34	118.51	Shut-In(2)
188	914.15	118.92	End Shut-In(2)
191	1425.30	119.05	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
85.00	Oil specked w ater cut mud TrO 31%W	690.42
120.00	Oil specked mud TrO 100%M	0.59

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co, Inc.
250 North Water Suite 300
Wichita, KS 67202
ATTN: Ken Wallace

14-29S-8E EIk,KS
Youngmeyer A #1-14
Job Ticket: 63583 **DST#: 3**
Test Start: 2017.07.14 @ 20:02:00

Tool Information

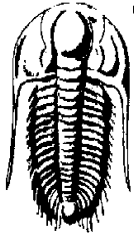
Drill Pipe:	Length: 2764.00 ft	Diameter: 3.34 inches	Volume: 29.95 bbl	Tool Weight: 2300.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 237.00 ft	Diameter: 2.25 inches	Volume: 1.17 bbl	Weight to Pull Loose: 54000.00 lb
			<u>Total Volume: 31.12 bbl</u>	Tool Chased 1.00 ft
Drill Pipe Above KB:	27.00 ft			String Weight: Initial 50000.00 lb
Depth to Top Packer:	3002.00 ft			Final 51000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	28.00 ft			
Tool Length:	56.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			2975.00	
Shut In Tool	5.00			2980.00	
Hydraulic tool	5.00			2985.00	
Jars	5.00			2990.00	
Safety Joint	3.00			2993.00	
Packer	4.00			2997.00	28.00 Bottom Of Top Packer
Packer	5.00			3002.00	
Stubb	1.00			3003.00	
Recorder	0.00	8679	Outside	3003.00	
Recorder	0.00	9124	Inside	3003.00	
Perforations	22.00			3025.00	
Bullnose	5.00			3030.00	28.00 Bottom Packers & Anchor

Total Tool Length: 56.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co, Inc.

14-29S-8E EIk,KS

250 North Water Suite 300
Wichita, KS 67202

Youngmeyer A #1-14

Job Ticket: 63583

DST#: 3

ATTN: Ken Wallace

Test Start: 2017.07.14 @ 20:02:00

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:

18000 ppm

Viscosity: 51.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 9.18 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 700.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
85.00	Oil specked w ater cut mud TrO 31%W 69%M	0.418
120.00	Oil specked mud TrO 100%M	0.590

Total Length: 205.00 ft

Total Volume: 1.008 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

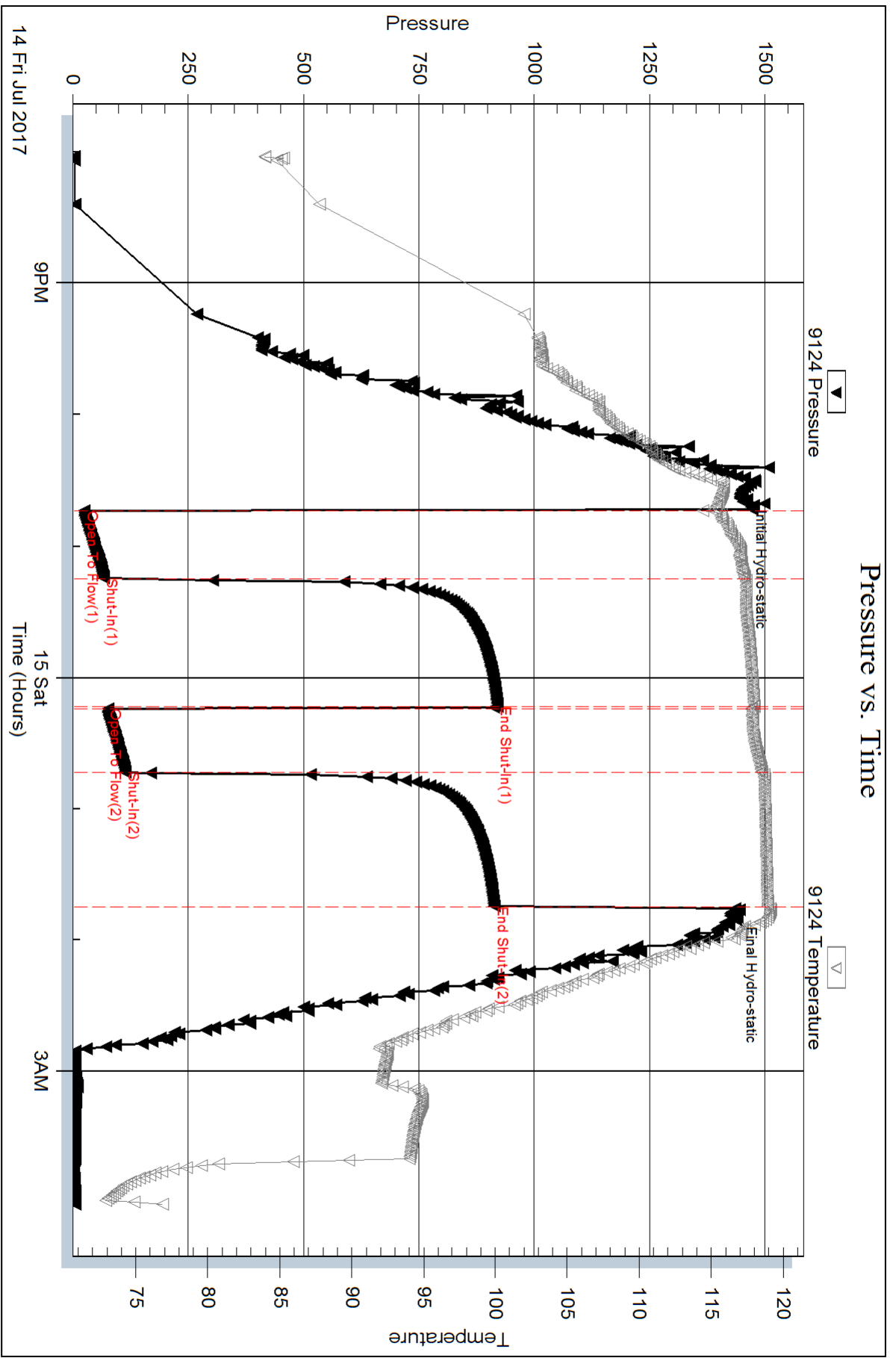
Serial #: 9124

Inside

Murfin Drilling Co, Inc.

Youngmeyer A #1-14

DST Test Number: 3



Triobite Testing, Inc

Ref. No: 63583

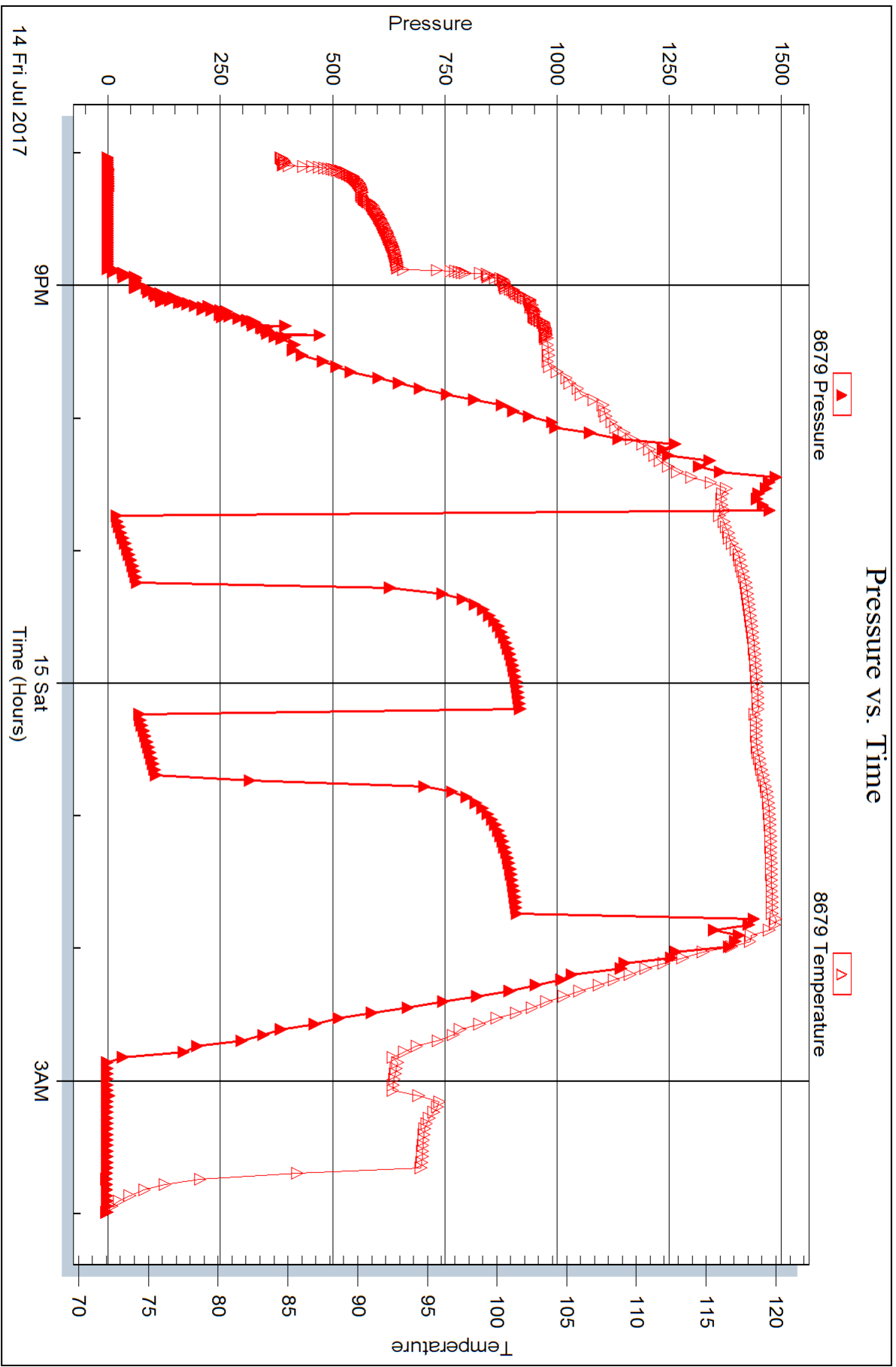
Printed: 2017.07.17 @ 10:32:54

Serial #: 8679

Outside Murfin Drilling Co, Inc.

Youngmeyer A #1-14

DST Test Number: 3





DRILL STEM TEST REPORT

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

250 North Water Suite 300
Wichita, KS 67202

ATTN: Ken Wallace

Youngmeyer A #1-14

14-29S-8E Elk,KS

Start Date: 2017.07.15 @ 22:38:00

End Date: 2017.07.16 @ 07:16:10

Job Ticket #: 63584 DST #: 4

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

Printed: 2017.07.17 @ 10:32:31

Murfin Drilling Co, Inc. 14-29S-8E Elk,KS Youngmeyer A #1-14 DST # 4 Arbuckle 2017.07.15



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Murfin Drilling Co, Inc.
 250 North Water Suite 300
 Wichita, KS 67202
 ATTN: Ken Wallace

14-29S-8E EIk, KS
Youngmeyer A #1-14
 Job Ticket: 63584 **DST#: 4**
 Test Start: 2017.07.15 @ 22:38:00

GENERAL INFORMATION:

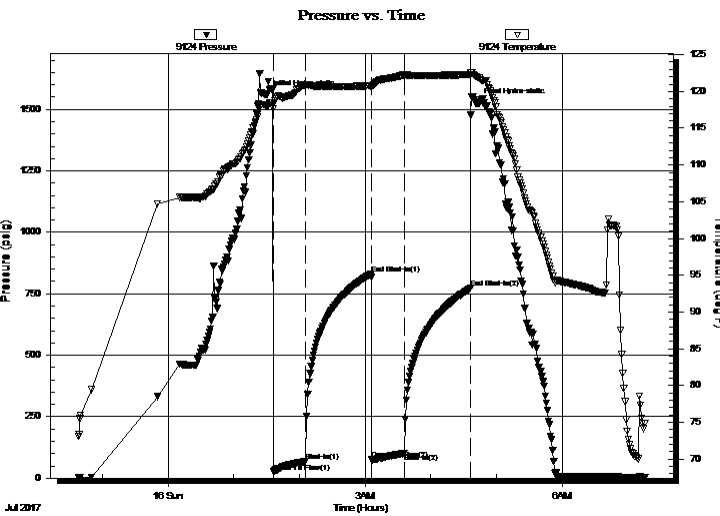
Formation: **Arbuckle**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 01:36:00
 Time Test Ended: 07:16:10
 Interval: **3174.00 ft (KB) To 3202.00 ft (KB) (TVD)**
 Total Depth: 3202.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Jimmy Ricketts
 Unit No: 80
 Reference Elevations: 1604.00 ft (KB)
 1598.00 ft (CF)
 KB to GR/CF: 6.00 ft

Serial #: 9124

Inside

Press@RunDepth: 101.51 psig @ 3175.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2017.07.15 End Date: 2017.07.16 Last Calib.: 2017.07.15
 Start Time: 22:38:05 End Time: 07:16:09 Time On Btm: 2017.07.16 @ 01:29:30
 Time Off Btm: 2017.07.16 @ 04:42:30

TEST COMMENT: IF - Weak blow built to 6"
 FF - Weak blow built to 2"



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1560.19	118.14	Initial Hydro-static
7	25.39	117.69	Open To Flow (1)
37	67.81	120.90	Shut-In(1)
96	830.46	120.78	End Shut-In(1)
97	74.94	120.48	Open To Flow (2)
127	101.51	122.27	Shut-In(2)
187	771.87	122.28	End Shut-In(2)
193	1525.06	121.93	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
115.00	Water cut mud 8% W & 92% M	0.57
60.00	Drilling mud 100% M	0.30

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Murfin Drilling Co, Inc.
250 North Water Suite 300
Wichita, KS 67202
ATTN: Ken Wallace

14-29S-8E E1k,KS
Youngmeyer A #1-14
Job Ticket: 63584 **DST#: 4**
Test Start: 2017.07.15 @ 22:38:00

Tool Information

Drill Pipe:	Length: 2918.00 ft	Diameter: 3.34 inches	Volume: 31.62 bbl	Tool Weight: 2400.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: inches	Volume: 0.00 bbl	Weight set on Packer: 22000.00 lb
Drill Collar:	Length: 237.00 ft	Diameter: 2.25 inches	Volume: 1.17 bbl	Weight to Pull Loose: 56000.00 lb
			<u>Total Volume: 32.79 bbl</u>	Tool Chased 1.00 ft
Drill Pipe Above KB:	9.00 ft			String Weight: Initial 50000.00 lb
Depth to Top Packer:	3174.00 ft			Final 51000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	28.00 ft			
Tool Length:	56.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			3147.00	
Shut In Tool	5.00			3152.00	
Hydraulic tool	5.00			3157.00	
Jars	5.00			3162.00	
Safety Joint	3.00			3165.00	
Packer	4.00			3169.00	28.00 Bottom Of Top Packer
Packer	5.00			3174.00	
Stubb	1.00			3175.00	
Recorder	0.00	8679	Outside	3175.00	
Recorder	0.00	9124	Inside	3175.00	
Perforations	22.00			3197.00	
Bullnose	5.00			3202.00	28.00 Bottom Packers & Anchor

Total Tool Length: 56.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Murfin Drilling Co, Inc.

14-29S-8E EIk,KS

250 North Water Suite 300
Wichita, KS 67202

Youngmeyer A #1-14

Job Ticket: 63584

DST#: 4

ATTN: Ken Wallace

Test Start: 2017.07.15 @ 22:38:00

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:

25000 ppm

Viscosity: 55.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 9.38 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 880.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
115.00	Water cut mud 8% W & 92% M	0.566
60.00	Drilling mud 100% M	0.295

Total Length: 175.00 ft

Total Volume: 0.861 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

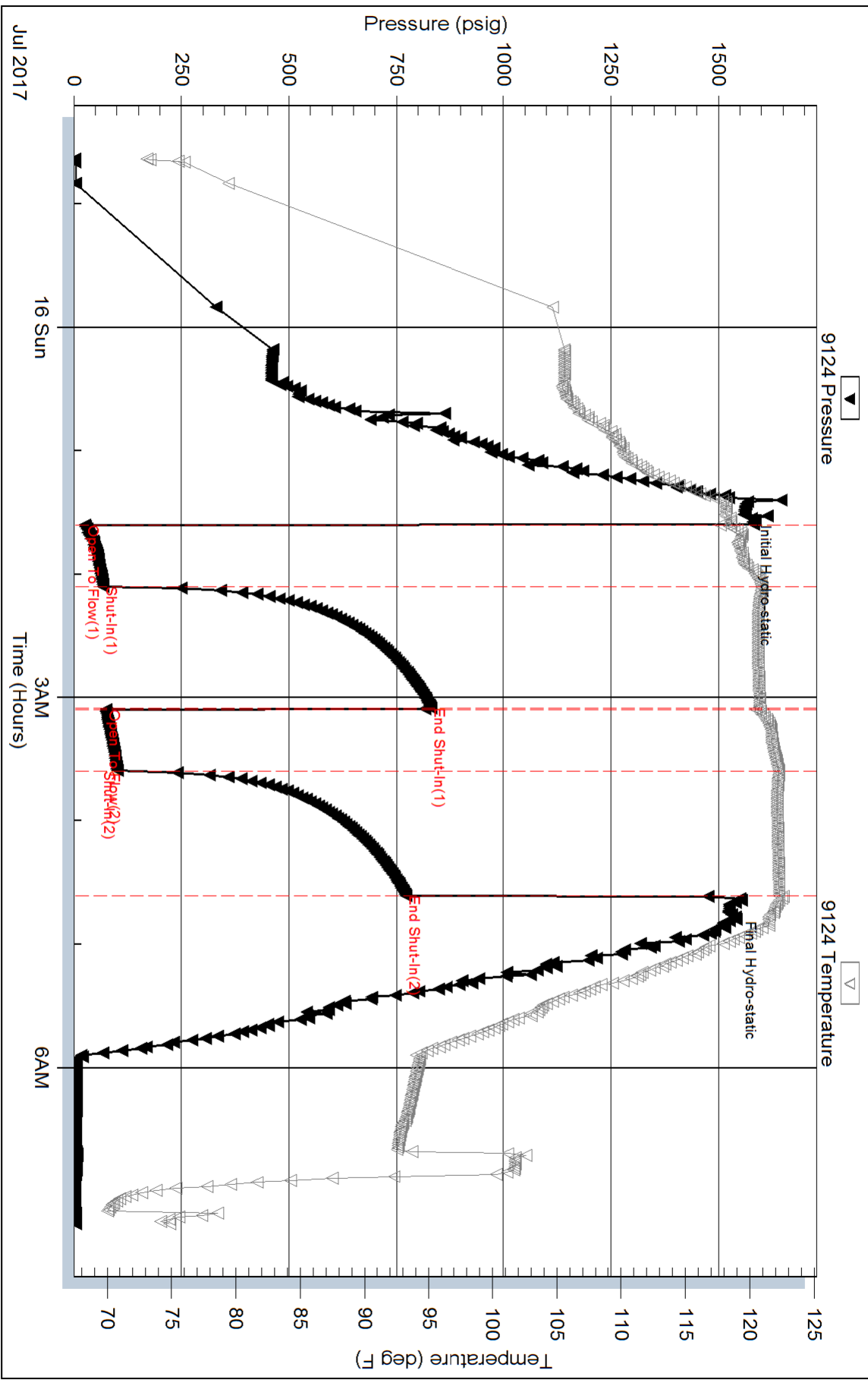
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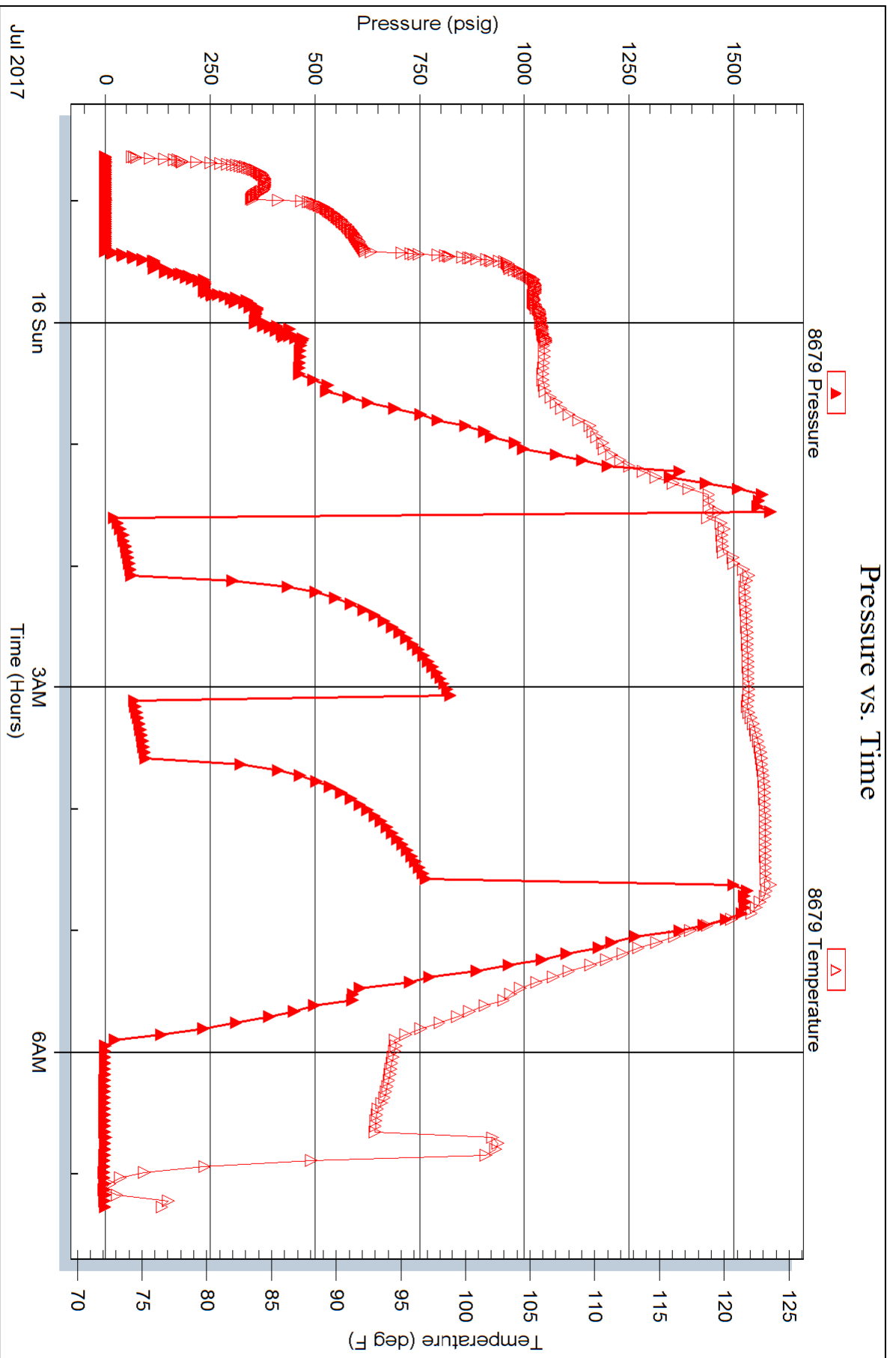
Laboratory Name:

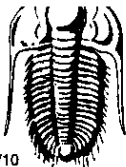
Laboratory Location:

Recovery Comments:

Pressure vs. Time







TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63581

Well Name & No. Youngmeyer "A" 1-14 Test No. 1 Date 7-12-17
 Company Murfin Drilling Co. Inc Elevation 1604 KB 1598 GL
 Address 250 N Water Suite 300 Wichita KS 67202
 Co. Rep / Geo. Ken Wallace / Shauna Gunzelman Rig C+G #1
 Location: Sec. 14 Twp. 29 S Rge. 8 E Co. Elk State KS

Interval Tested 2220 - 2250 Zone Tested Hertza
 Anchor Length 30' Drill Pipe Run 1959 Mud Wt. 9.3
 Top Packer Depth 2215 Drill Collars Run 237 Vis 50
 Bottom Packer Depth 2220 Wt. Pipe Run 0 WL 12.3
 Total Depth 2250 Chlorides 680 ppm System LCM
 Blow Description IF - weak blow building to strong blow 11 mins. into
FF - weak blow building to strong blow 16 mins. into FFP

Rec	Feet of	%gas	%oil	%water	%mud
<u>240</u>	<u>Mud cut water</u>		<u>83</u>	<u>17</u>	
<u>135</u>	<u>Heavy mud cut water</u>		<u>67</u>	<u>33</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

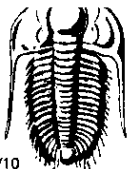
Rec Total 375 BHT 104 Gravity API RW .072 @ 77 ° F Chlorides 135000 ppm
 (A) Initial Hydrostatic 1076 Test 1050 T-On Location 2300
 (B) First Initial Flow 24 Jars 250 T-Started 2323
 (C) First Final Flow 138 Safety Joint 75 T-Open 0122
 (D) Initial Shut-In 673 Circ Sub _____ T-Pulled 0422
 (E) Second Initial Flow 145 Hourly Standby _____ T-Out _____
 (F) Second Final Flow 195 Mileage 280rt 210 RT 122 Comments _____
 (G) Final Shut-In 671 Sampler _____
 (H) Final Hydrostatic 1055 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____

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

Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Sub Total 0
 Total 1585
 MP/DST Disc't _____

Approved By Ken Wallace for Murfin Our Representative Jimmy Dicketh
 Sub Total 1585

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63582

Well Name & No. Young meyer "A" 1-14 Test No. 2 Date 7-13-17
 Company Martin Drilling Co, Inc. Elevation 1604 KB 1598 GL
 Address 250 North Water, Suite 300 Wichita, KS 67202
 Co. Rep / Geo. Shanna Gunzelman / Ken Wallace Rig C+G #1
 Location: Sec. 14 Twp. 29 S Rge. 8 E Co. EIK State KS

Interval Tested 2837-2852 Zone Tested Mississippian
 Anchor Length 15' Drill Pipe Run 2578 Mud Wt. 9.3
 Top Packer Depth 2832 Drill Collars Run 237 Vis 49
 Bottom Packer Depth 2837 Wt. Pipe Run 0 WL 10.1
 Total Depth 2852 Chlorides 780 ppm System LCM

Blow Description IF- weak blow building to strong blow 15 mins into I
3-3 inch blow back during ISP
FF- weak blow building to strong blow 10 mins into FFP
FS- 9 inch blow back during FSP

Rec	Feet of	%gas	%oil	%water	%mud
<u>95</u>	<u>at mud cut water</u>	<u>1</u>	<u>89</u>	<u>10</u>	<u></u>
<u>155</u>	<u>Gassy oil + water cut mud</u>	<u>8</u>	<u>32</u>	<u>52</u>	<u></u>
<u>40</u>	<u>clean oil</u>	<u>100</u>	<u></u>	<u></u>	<u></u>
<u>325</u>	<u>Gas in pipe</u>	<u>100</u>	<u></u>	<u></u>	<u></u>

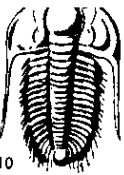
Rec Total 290 BHT 118 Gravity 39 API RW 135 @ 71 °F Chlorides 57,000 ppm

(A) Initial Hydrostatic 1385 Test 1050 T-On Location 1600
 (B) First Initial Flow 29 Jars 250 T-Started 1640
 (C) First Final Flow 99 Safety Joint 75 T-Open 1850
 (D) Initial Shut-In 848 Circ Sub T-Pulled 2150
 (E) Second Initial Flow 112 Hourly Standby T-Out 0015
 (F) Second Final Flow 140 Mileage 91.50 RT 122 Comments
 (G) Final Shut-In 838 Sampler
 (H) Final Hydrostatic 1342 Straddle Ruined Shale Packer
 Shale Packer Ruined Packer
 Extra Packer Extra Copies

Initial Open 30
 Initial Shut-In 60
 Final Flow 30
 Final Shut-In 60
 Sub Total 0
 Total 1466.50
 MP/DST Disc't

Approved By [Signature] Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63583

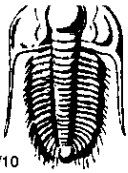
Well Name & No. Youngmeyer "A" 1-14 Test No. 3 Date 7-14-17
 Company Martin Drilling Co., Inc. Elevation 1604 KB 1598 GL
 Address 250 North Water Suite 300 Wichita, KS. 67202
 Co. Rep / Geo. Shauna Gunzelman / Ken Wallace Rig C+G #1
 Location: Sec. 14 Twp. 29 S Rge. 8 E Co. EIK State KS

Interval Tested 3002 - 3030 Zone Tested Lower Mississippian
 Anchor Length 28' Drill Pipe Run 2764 Mud Wt. 9.2
 Top Packer Depth 2997 Drill Collars Run 237 Vis 51
 Bottom Packer Depth 3002 Wt. Pipe Run 0 WL 9.2
 Total Depth 3030 Chlorides 700 ppm System LCM
 Blow Description IF - weak blow building to 6 inches IFP
FF - No blow building to 4 inch blow FFP

Rec	Feet of	%gas	%oil	%water	%mud
<u>85</u>	<u>oil specked water cut mud</u>	<u>Tr</u>	<u>31</u>	<u>69</u>	<u></u>
<u>120</u>	<u>oil specked mud</u>	<u>Tr</u>	<u></u>	<u>100</u>	<u></u>

Rec Total 205 BHT 119 Gravity API RW .34 @ 76° F Chlorides 18000 ppm
 (A) Initial Hydrostatic 1445 Test 1050 T-On Location 1830
 (B) First Initial Flow 25 Jars 250 T-Started 2002
 (C) First Final Flow 68 Safety Joint 75 T-Open 2244
 (D) Initial Shut-In 921 Circ Sub _____ T-Pulled 0144
 (E) Second Initial Flow 76 Hourly Standby _____ T-Out 0400
 (F) Second Final Flow 114 Mileage 91.50 RT122 Comments _____
 (G) Final Shut-In 914 Sampler _____
 (H) Final Hydrostatic 1425 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 1466.50
 Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Sub Total 0
 Total 1466.50
 MP/DST Disc't _____

Initial Open 30
 Initial Shut-In 60
 Final Flow 30
 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

NO. 63584

Well Name & No. Youngmeyer "A" 1-14 Test No. 4 Date 7-16-17
 Company Martin Drilling Co, Inc. Elevation 1604 KB 1598 GL
 Address 250 North Water Suite 300 Wichita, KS. 67202
 Co. Rep / Geo. Shauna Gunzelman / Ken Wallace Rig C+G #1
 Location: Sec. 14 Twp. 29S Rge. 8E Co. E1K State KS

Interval Tested 3174 - 3202 Zone Tested Arbuckle
 Anchor Length 28' Drill Pipe Run 2918 Mud Wt. 9.4
 Top Packer Depth 3169 Drill Collars Run 237 Vis 55
 Bottom Packer Depth 3174 Wt. Pipe Run _____ WL 9.4
 Total Depth 3202 Chlorides 880 ppm System LCM
 Blow Description FF-weak blow building to 6 inches IFP
FF-weak blow building to 2 inches FFP

Rec	Feet of	%gas	%oil	%water	%mud
<u>115</u>	<u>Water cut mud</u>		<u>8</u>	<u>92</u>	
<u>60</u>	<u>Drilling mud</u>			<u>100</u>	
_____	_____				
_____	_____				
_____	_____				

Rec Total 175 BHT 122 Gravity _____ API RW 251 @ 76 °F Chlorides 25000 ppm
 (A) Initial Hydrostatic 1560 Test 1050 T-On Location 1930
 (B) First Initial Flow 25 Jars 250 T-Started 2238
 (C) First Final Flow 68 Safety Joint 75 T-Open 0136
 (D) Initial Shut-In 830 Circ Sub _____ T-Pulled 0436
 (E) Second Initial Flow 75 Hourly Standby _____ T-Out 0700
 (F) Second Final Flow 102 Mileage 91.50 RT 122
 (G) Final Shut-In 772 Sampler _____
 (H) Final Hydrostatic 1525 Straddle _____
 Shale Packer 250 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 1716.50
 Final Flow 30 Sub Total 1716.50 MP/DST Disc't _____
 Final Shut-In 60

Approved By Ken Wallace Our Representative Jimmy Roberts

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