



DRILL STEM TEST REPORT

Prepared For: **Mai Oil Operations**

8411 Preston Rd ste 800
Dallas TX 75225+5570

ATTN: Jim Musgrove

Kultgen #18

12-19s-12w Barton,KS

Start Date: 2019.09.06 @ 11:11:11

End Date: 2019.09.06 @ 18:27:20

Job Ticket #: 65812 DST #: 1

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

Printed: 2019.09.11 @ 13:28:43



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Mai Oil Operations
 8411 Preston Rd ste 800
 Dallas TX 75225+5570
 ATTN: Jim Musgrove

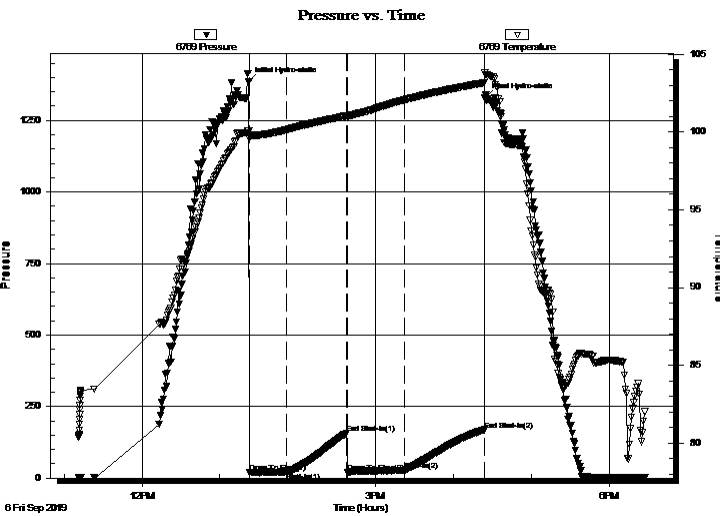
12-19s-12w Barton,KS
Kultgen #18
 Job Ticket: 65812 **DST#: 1**
 Test Start: 2019.09.06 @ 11:11:11

GENERAL INFORMATION:

Formation: **Topeka**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 13:22:41
 Time Test Ended: 18:27:20
 Interval: **2883.00 ft (KB) To 2915.00 ft (KB) (TVD)**
 Total Depth: 2915.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Benny Mulligan
 Unit No: 66
 Reference Elevations: 1809.00 ft (KB)
 1800.00 ft (CF)
 KB to GR/CF: 9.00 ft

Serial #: 6769 Outside
 Press@RunDepth: 26.68 psig @ 2884.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.09.06 End Date: 2019.09.06 Last Calib.: 2019.09.06
 Start Time: 11:11:12 End Time: 18:27:21 Time On Btm: 2019.09.06 @ 13:22:21
 Time Off Btm: 2019.09.06 @ 16:24:11

TEST COMMENT: IF-30- built to 3 1/2"
 IS-45- no blow back
 FF-45- built to 5 1/2"
 FS-60- no blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1386.84	100.06	Initial Hydro-static
1	19.14	99.55	Open To Flow (1)
30	21.35	100.14	Shut-In(1)
76	156.38	101.04	End Shut-In(1)
76	18.63	101.00	Open To Flow (2)
120	26.68	102.07	Shut-In(2)
182	169.01	103.16	End Shut-In(2)
182	1330.11	103.83	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
30.00	socm 5% oil 95% mud	0.42

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Mai Oil Operations

12-19s-12w Barton,KS

8411 Preston Rd ste 800
Dallas TX 75225+5570

Kultgen #18

Job Ticket: 65812

DST#: 1

ATTN: Jim Musgrove

Test Start: 2019.09.06 @ 11:11:11

Tool Information

Drill Pipe:	Length: 2878.00 ft	Diameter: 3.80 inches	Volume: 40.37 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 32000.00 lb
			<u>Total Volume: 40.37 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	19.00 ft			String Weight: Initial 30000.00 lb
Depth to Top Packer:	2883.00 ft			Final 30000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	32.00 ft			
Tool Length:	56.00 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			2860.00	
Shut In Tool	5.00			2865.00	
Hydraulic tool	5.00			2870.00	
E.M. tool	4.00			2874.00	
Packer	5.00			2879.00	24.00 Bottom Of Top Packer
Packer	4.00			2883.00	
Stubb	1.00			2884.00	
Recorder	0.00	6772	Inside	2884.00	
Recorder	0.00	6769	Outside	2884.00	
Perforations	28.00			2912.00	
Bullnose	3.00			2915.00	32.00 Bottom Packers & Anchor

Total Tool Length: 56.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Mai Oil Operations

12-19s-12w Barton,KS

8411 Preston Rd ste 800
Dallas TX 75225+5570

Kultgen #18

Job Ticket: 65812

DST#: 1

ATTN: Jim Musgrove

Test Start: 2019.09.06 @ 11:11:11

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 68.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.97 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 4000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
30.00	socm 5% oil 95% mud	0.421

Total Length: 30.00 ft Total Volume: 0.421 bbl

Num Fluid Samples: 0

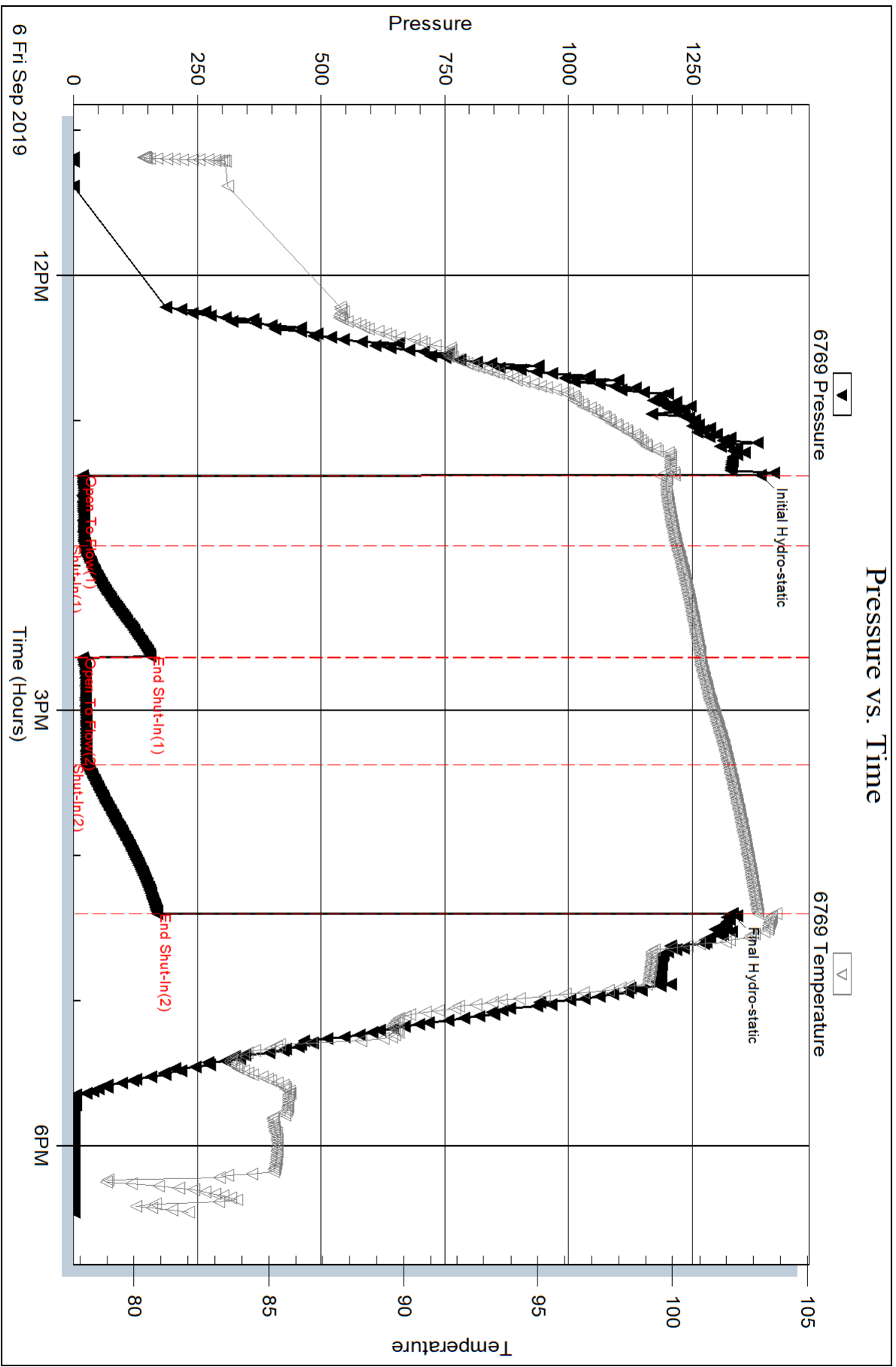
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



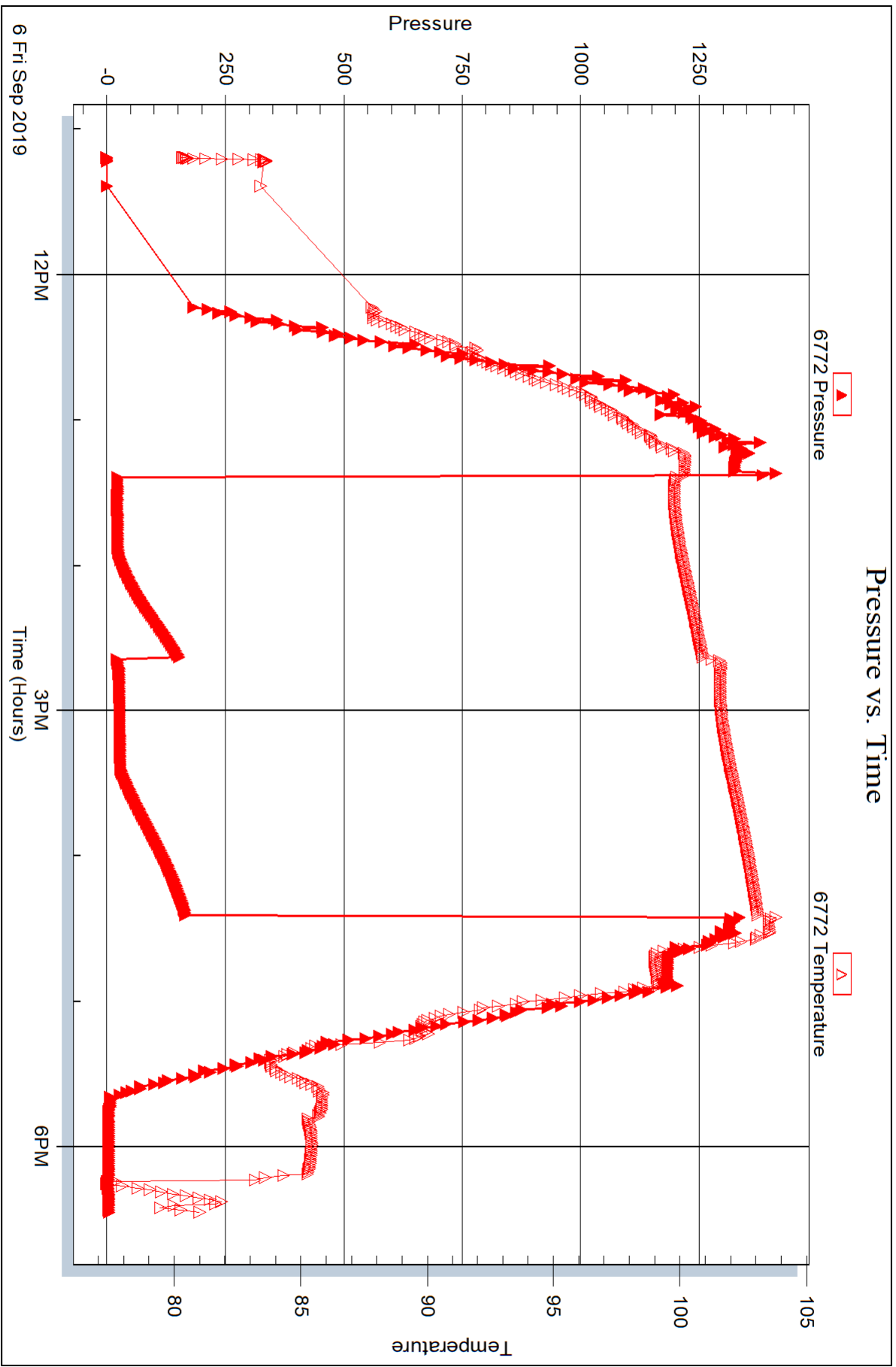
Serial #: 6772

Inside

Mai Oil Operations

Kulgen #18

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 65812

Printed: 2019.09.11 @ 13:28:44



DRILL STEM TEST REPORT

Prepared For: **Mai Oil Operations**

8411 Preston Rd ste 800
Dallas TX 75225+5570

ATTN: Jim Musgrove

Kultgen #18

12-19s-12w Barton,KS

Start Date: 2019.09.07 @ 08:41:00

End Date: 2019.09.07 @ 13:07:09

Job Ticket #: 65813 DST #: 2

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

Printed: 2019.09.11 @ 13:24:06



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Mai Oil Operations
8411 Preston Rd ste 800
Dallas TX 75225+5570
ATTN: Jim Musgrove

12-19s-12w Barton,KS
Kultgen #18
Job Ticket: 65813 **DST#: 2**
Test Start: 2019.09.07 @ 08:41:00

Tool Information

Drill Pipe:	Length: 3100.00 ft	Diameter: 3.80 inches	Volume: 43.48 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 2500.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 32000.00 lb
			<u>Total Volume: 43.48 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	28.00 ft			String Weight: Initial 29000.00 lb
Depth to Top Packer:	3092.00 ft			Final 29000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	62.00 ft			
Tool Length:	82.00 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			3073.00	
Shut In Tool	5.00			3078.00	
Hydraulic tool	5.00			3083.00	
Packer	5.00			3088.00	20.00 Bottom Of Top Packer
Packer	4.00			3092.00	
Stubb	1.00			3093.00	
Recorder	0.00	6772	Inside	3093.00	
Recorder	0.00	6769	Outside	3093.00	
Perforations	24.00			3117.00	
Change Over Sub	1.00			3118.00	
Drill Pipe	32.00			3150.00	
Change Over Sub	1.00			3151.00	
Bullnose	3.00			3154.00	62.00 Bottom Packers & Anchor

Total Tool Length: 82.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Mai Oil Operations

12-19s-12w Barton,KS

8411 Preston Rd ste 800
Dallas TX 75225+5570

Kultgen #18

Job Ticket: 65813

DST#: 2

ATTN: Jim Musgrove

Test Start: 2019.09.07 @ 08:41:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 68.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.98 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 4000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	Mud 100%M	0.070

Total Length: 5.00 ft Total Volume: 0.070 bbl

Num Fluid Samples: 0

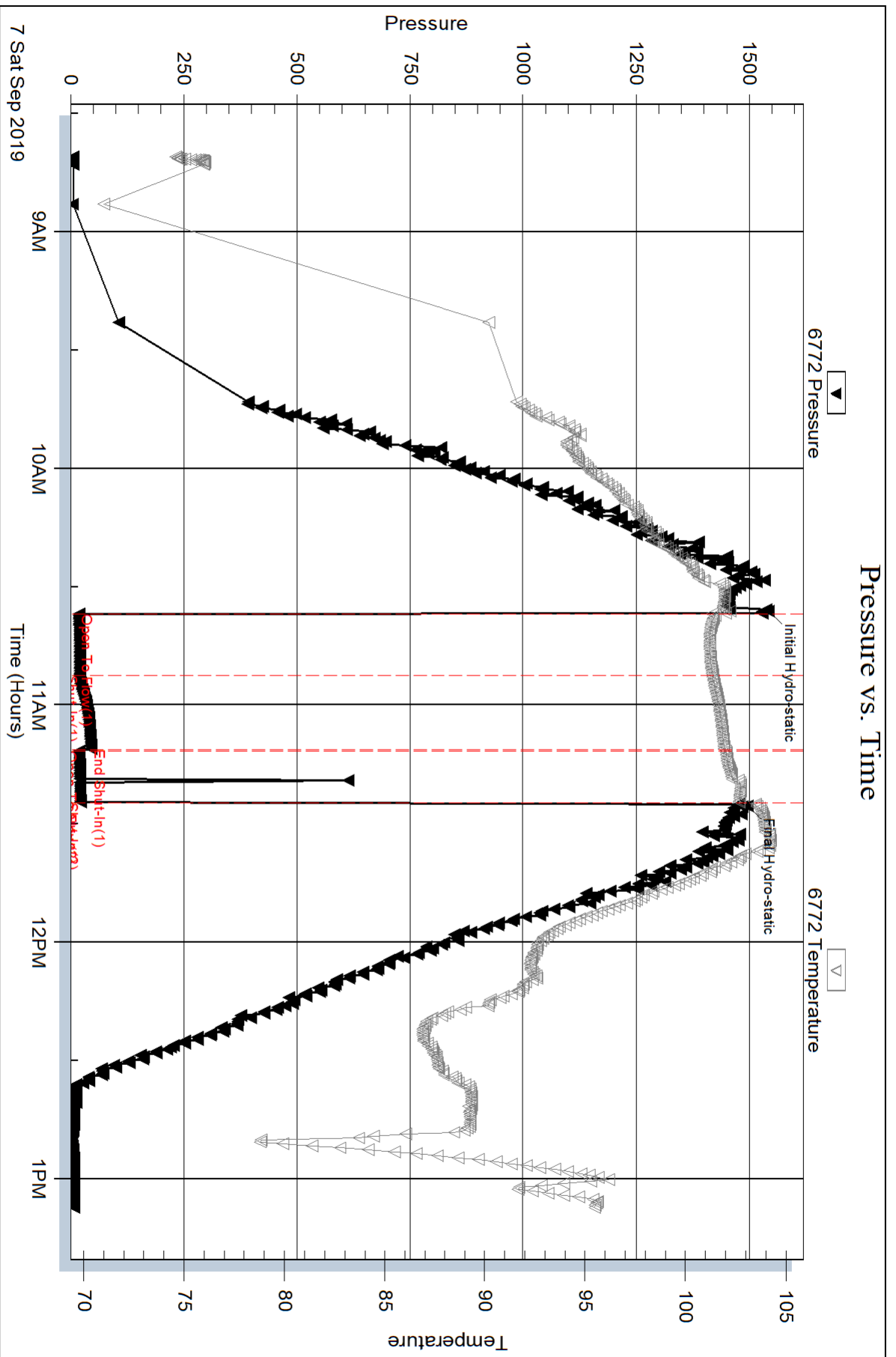
Num Gas Bombs: 0

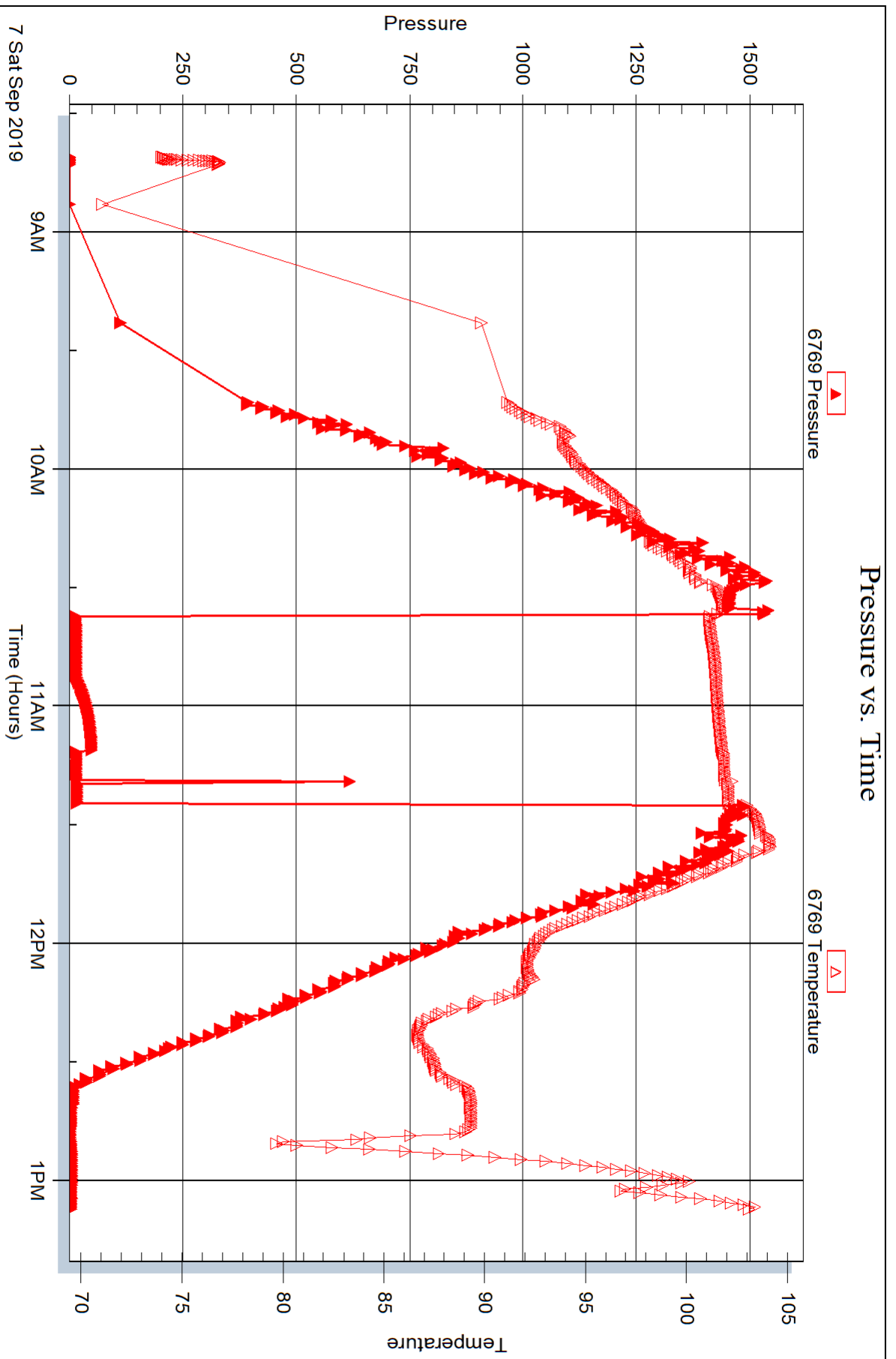
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **Mai Oil Operations**

8411 Preston Rd ste 800
Dallas TX 75225+5570

ATTN: Jim Musgrove

Kultgen #18

12-19s-12w Barton,KS

Start Date: 2019.09.07 @ 19:33:00

End Date: 2019.09.08 @ 01:43:00

Job Ticket #: 65814 DST #: 3

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

Printed: 2019.09.11 @ 13:21:53



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Mai Oil Operations
 8411 Preston Rd ste 800
 Dallas TX 75225+5570
 ATTN: Jim Musgrove

12-19s-12w Barton,KS
Kultgen #18
 Job Ticket: 65814 **DST#: 3**
 Test Start: 2019.09.07 @ 19:33:00

GENERAL INFORMATION:

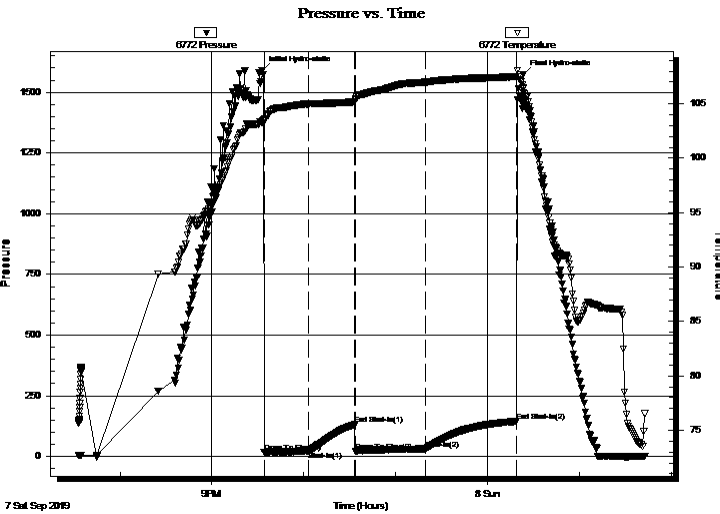
Formation: **LKC "G"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 21:34:10
 Time Test Ended: 01:43:00
 Interval: **3146.00 ft (KB) To 3169.00 ft (KB) (TVD)**
 Total Depth: 3169.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Benny Mulligan
 Unit No: 66
 Reference Elevations: 1809.00 ft (KB)
 1800.00 ft (CF)
 KB to GR/CF: 9.00 ft

Serial #: 6772

Inside

Press@RunDepth: 31.61 psig @ 3147.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.09.07 End Date: 2019.09.08 Last Calib.: 2019.09.08
 Start Time: 19:33:01 End Time: 01:43:00 Time On Btm: 2019.09.07 @ 21:32:50
 Time Off Btm: 2019.09.08 @ 00:23:20

TEST COMMENT: IF-30- built to 8"
 ISI-30- no blow back
 FF-45- built to 9"
 FSI-60- no blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1590.23	103.25	Initial Hydro-static
2	16.79	103.49	Open to Flow (1)
31	22.30	104.98	Shut-In(1)
61	130.93	105.16	End Shut-In(1)
62	20.80	105.39	Open To Flow (2)
107	31.61	106.98	Shut-In(2)
167	144.58	107.48	End Shut-In(2)
171	1574.51	106.47	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
40.00	O.S.M. 1%O 99%M	0.56

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Mai Oil Operations
 8411 Preston Rd ste 800
 Dallas TX 75225+5570
 ATTN: Jim Musgrove

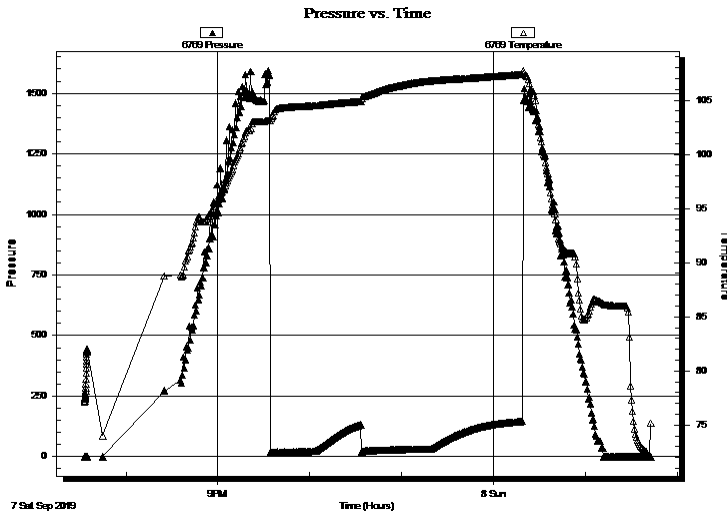
12-19s-12w Barton,KS
Kultgen #18
 Job Ticket: 65814 **DST#: 3**
 Test Start: 2019.09.07 @ 19:33:00

GENERAL INFORMATION:

Formation: LKC "G"	Test Type: Conventional Bottom Hole (Initial)
Deviated: No Whipstock: ft (KB)	Tester: Benny Mulligan
Time Tool Opened: 21:34:10	Unit No: 66
Time Test Ended: 01:43:00	Reference Elevations: 1809.00 ft (KB)
Interval: 3146.00 ft (KB) To 3169.00 ft (KB) (TVD)	1800.00 ft (CF)
Total Depth: 3169.00 ft (KB) (TVD)	KB to GR/CF: 9.00 ft
Hole Diameter: 7.88 inches	Hole Condition: Fair

Serial #: 6769	Outside	Capacity: 8000.00 psig
Press@RunDepth: psig @ 3147.00 ft (KB)	Start Date: 2019.09.07	End Date: 2019.09.08
Start Time: 19:33:01	End Time: 01:43:00	Last Calib.: 2019.09.08
		Time On Btm:
		Time Off Btm:

TEST COMMENT: IF-30- built to 8"
 ISI-30- no blow back
 FF-45- built to 9"
 FSI-60- no blow back



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
40.00	O.S.M. 1%O 99%M	0.56

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Mai Oil Operations
8411 Preston Rd ste 800
Dallas TX 75225+5570
ATTN: Jim Musgrove

12-19s-12w Barton,KS
Kultgen #18
Job Ticket: 65814 **DST#: 3**
Test Start: 2019.09.07 @ 19:33:00

Tool Information

Drill Pipe:	Length: 3131.00 ft	Diameter: 3.80 inches	Volume: 43.92 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose:	36000.00 lb
			<u>Total Volume: 43.92 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial	30000.00 lb
Depth to Top Packer:	3146.00 ft			Final	30000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	23.00 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			3127.00	
Shut In Tool	5.00			3132.00	
Hydraulic tool	5.00			3137.00	
Packer	5.00			3142.00	20.00 Bottom Of Top Packer
Packer	4.00			3146.00	
Stubb	1.00			3147.00	
Recorder	0.00	6772	Inside	3147.00	
Recorder	0.00	6769	Outside	3147.00	
Perforations	19.00			3166.00	
Bullnose	3.00			3169.00	23.00 Bottom Packers & Anchor
Total Tool Length:	43.00				



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Mai Oil Operations

12-19s-12w Barton,KS

8411 Preston Rd ste 800
Dallas TX 75225+5570

Kultgen #18

Job Ticket: 65814

DST#: 3

ATTN: Jim Musgrove

Test Start: 2019.09.07 @ 19:33:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.78 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 6000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
40.00	O.S.M. 1%O 99%M	0.561

Total Length: 40.00 ft Total Volume: 0.561 bbl

Num Fluid Samples: 0

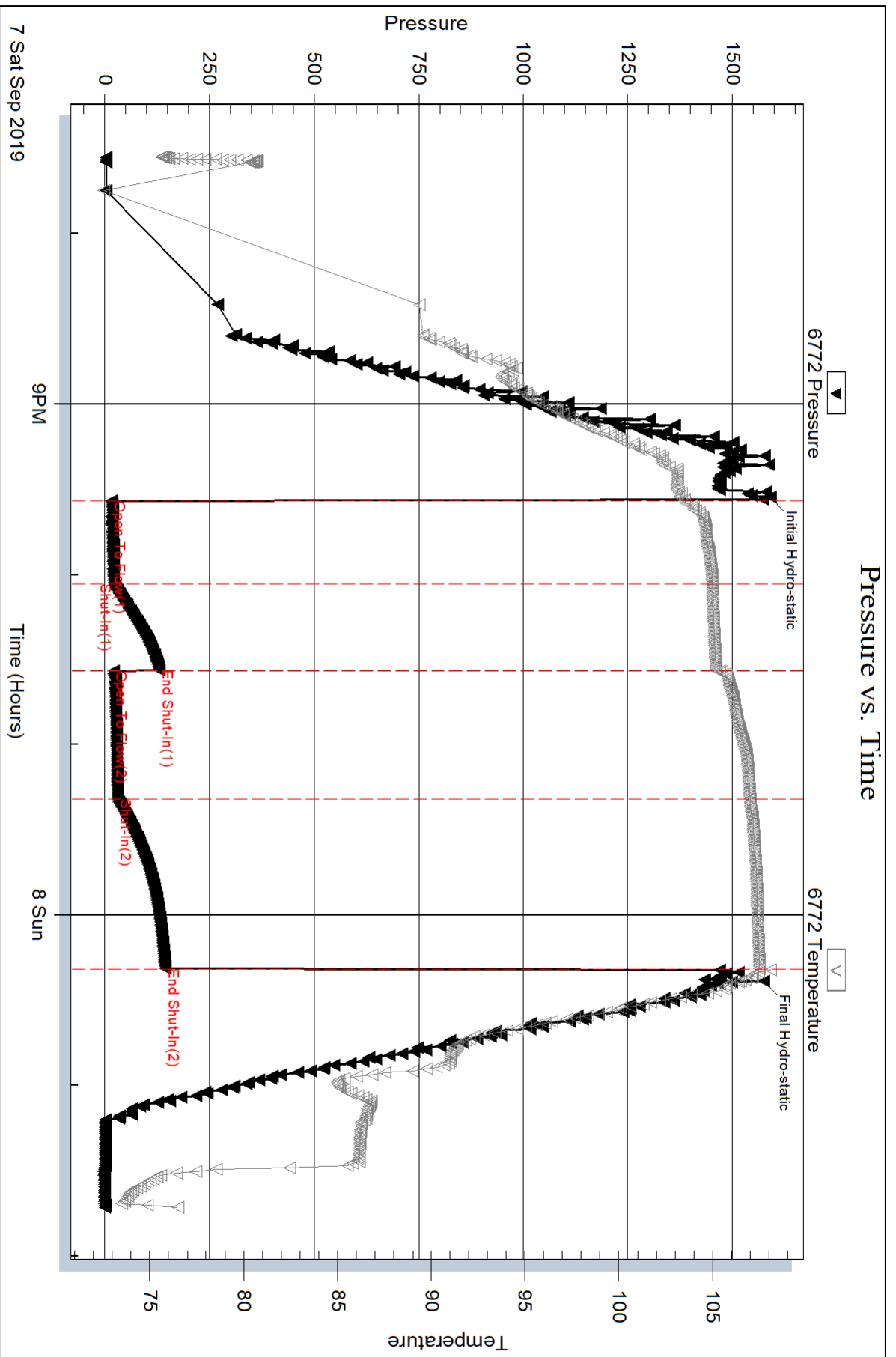
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

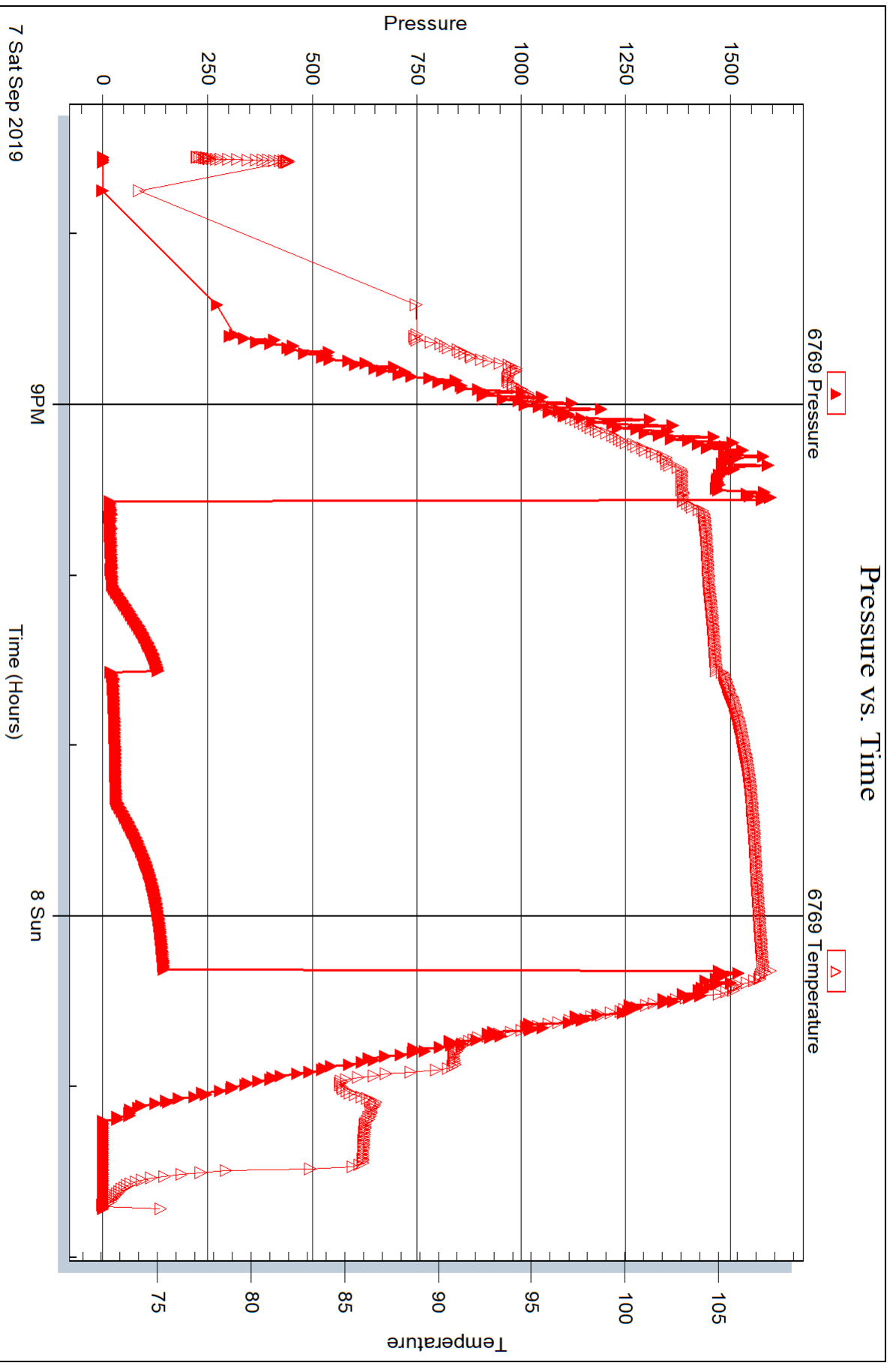


Serial #: 6769

Outside Mai Oil Operations

Kulgen #18

DST Test Number: 3





DRILL STEM TEST REPORT

Prepared For: **Mai Oil Operations**

8411 Preston Rd ste 800
Dallas TX 75225+5570

ATTN: Jim Musgrove

Kultgen #18

12-19s-12w Barton,KS

Start Date: 2019.09.08 @ 14:08:00

End Date: 2019.09.08 @ 18:40:09

Job Ticket #: 65815 DST #: 4

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

Printed: 2019.09.11 @ 13:19:11



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Mai Oil Operations
8411 Preston Rd ste 800
Dallas TX 75225+5570
ATTN: Jim Musgrove

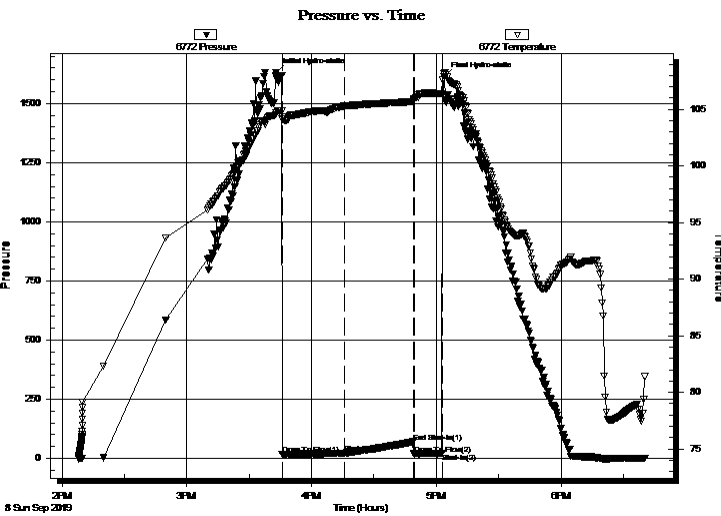
12-19s-12w Barton,KS
Kultgen #18
Job Ticket: 65815 **DST#: 4**
Test Start: 2019.09.08 @ 14:08:00

GENERAL INFORMATION:

Formation: **LKC H - K**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 15:45:50
Time Test Ended: 18:40:09
Interval: **3204.00 ft (KB) To 3300.00 ft (KB) (TVD)**
Total Depth: 3300.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Bottom Hole (Initial)
Tester: Benny Mulligan
Unit No: 66
Reference Elevations: 1809.00 ft (KB)
1800.00 ft (CF)
KB to GR/CF: 9.00 ft

Serial #: 6772 Inside
Press@RunDepth: 22.38 psig @ 3205.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2019.09.08 End Date: 2019.09.08 Last Calib.: 2019.09.08
Start Time: 14:08:01 End Time: 18:40:10 Time On Btm: 2019.09.08 @ 15:43:00
Time Off Btm: 2019.09.08 @ 17:03:40

TEST COMMENT: IF-30- built to 1 1/2 "
ISI-30- no blow back
FF-15- w as dead so pulled



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1629.37	104.65	Initial Hydro-static
3	17.25	104.12	Open To Flow (1)
33	22.38	105.28	Shut-In(1)
66	70.35	105.69	End Shut-In(1)
67	18.32	105.90	Open To Flow (2)
80	21.99	106.40	Shut-In(2)
81	1614.08	108.15	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
20.00	Mud 100%M	0.28

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Mai Oil Operations
 8411 Preston Rd ste 800
 Dallas TX 75225+5570
 ATTN: Jim Musgrove

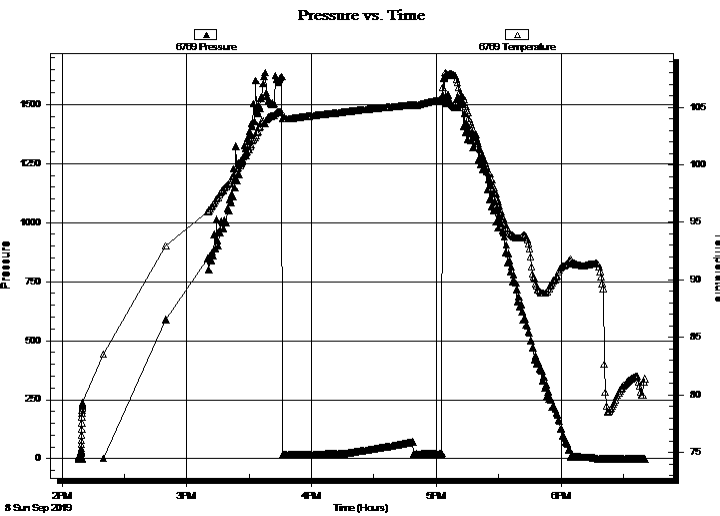
12-19s-12w Barton,KS
Kultgen #18
 Job Ticket: 65815 **DST#: 4**
 Test Start: 2019.09.08 @ 14:08:00

GENERAL INFORMATION:

Formation: **LKC H - K**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 15:45:50
 Time Test Ended: 18:40:09
Interval: 3204.00 ft (KB) To 3300.00 ft (KB) (TVD)
 Total Depth: 3300.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Benny Mulligan
 Unit No: 66
 Reference Elevations: 1809.00 ft (KB)
 1800.00 ft (CF)
 KB to GR/CF: 9.00 ft

Serial #: 6769 Outside
 Press@RunDepth: psig @ 3205.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.09.08 End Date: 2019.09.08 Last Calib.: 2019.09.08
 Start Time: 14:08:01 End Time: 18:40:10 Time On Btm:
 Time Off Btm:

TEST COMMENT: IF-30- built to 1 1/2 "
 IS-30- no blow back
 FF-15- w as dead so pulled



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
20.00	Mud 100%M	0.28

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Mai Oil Operations

12-19s-12w Barton,KS

8411 Preston Rd ste 800
Dallas TX 75225+5570

Kultgen #18

Job Ticket: 65815

DST#: 4

ATTN: Jim Musgrove

Test Start: 2019.09.08 @ 14:08:00

Tool Information

Drill Pipe:	Length: 3195.00 ft	Diameter: 3.80 inches	Volume: 44.82 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 40000.00 lb
			<u>Total Volume: 44.82 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	11.00 ft			String Weight: Initial 32000.00 lb
Depth to Top Packer:	3204.00 ft			Final 32000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	96.00 ft			
Tool Length:	116.00 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			3185.00	
Shut In Tool	5.00			3190.00	
Hydraulic tool	5.00			3195.00	
Packer	5.00			3200.00	20.00 Bottom Of Top Packer
Packer	4.00			3204.00	
Stubb	1.00			3205.00	
Recorder	0.00	6772	Inside	3205.00	
Recorder	0.00	6769	Outside	3205.00	
Perforations	26.00			3231.00	
Change Over Sub	1.00			3232.00	
Drill Pipe	64.00			3296.00	
Change Over Sub	1.00			3297.00	
Bullnose	3.00			3300.00	96.00 Bottom Packers & Anchor

Total Tool Length: 116.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Mai Oil Operations

12-19s-12w Barton,KS

8411 Preston Rd ste 800
Dallas TX 75225+5570

Kultgen #18

Job Ticket: 65815

DST#: 4

ATTN: Jim Musgrove

Test Start: 2019.09.08 @ 14:08:00

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: 49.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 9.18 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 8000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
20.00	Mud 100%M	0.281

Total Length: 20.00 ft Total Volume: 0.281 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

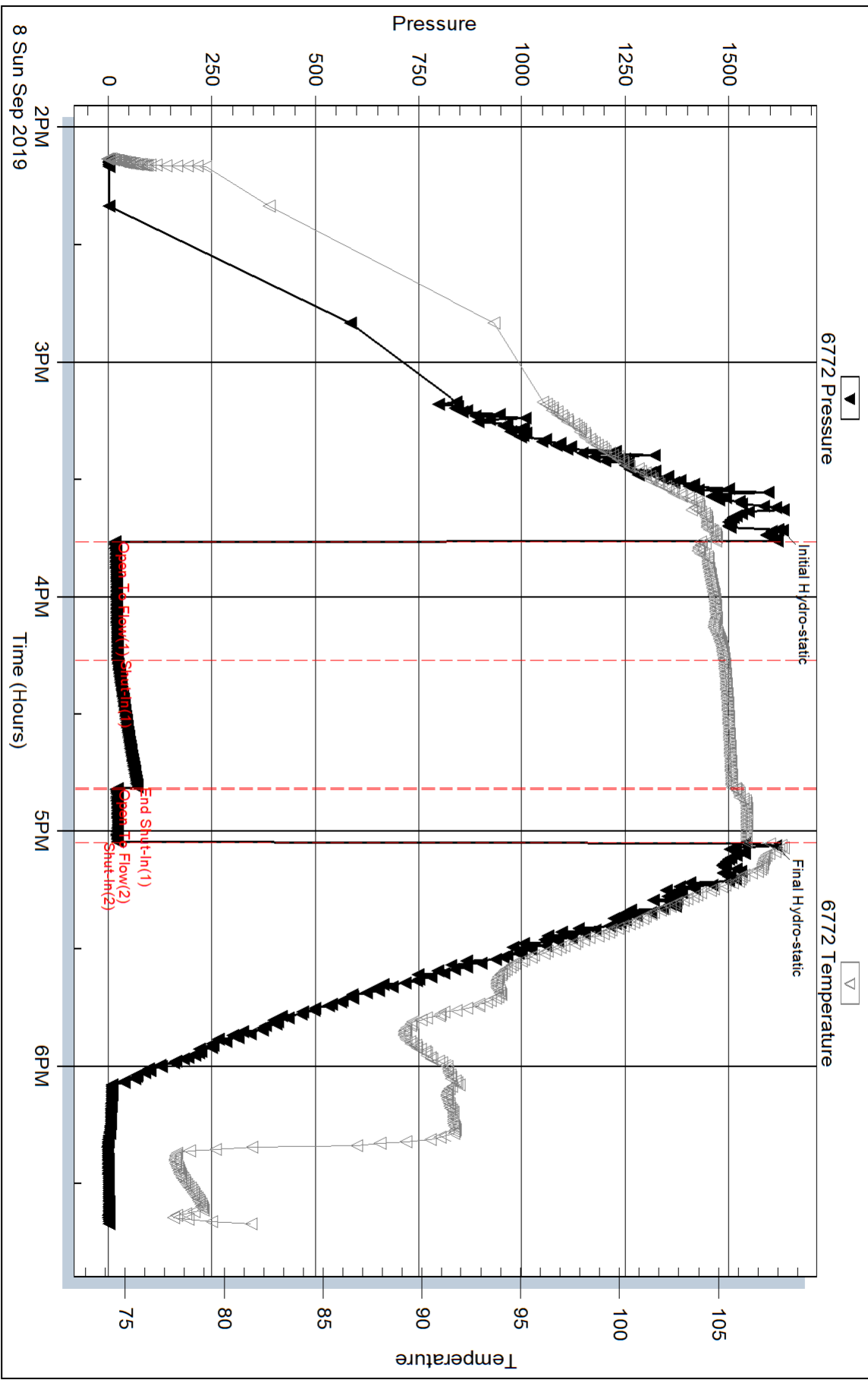
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time

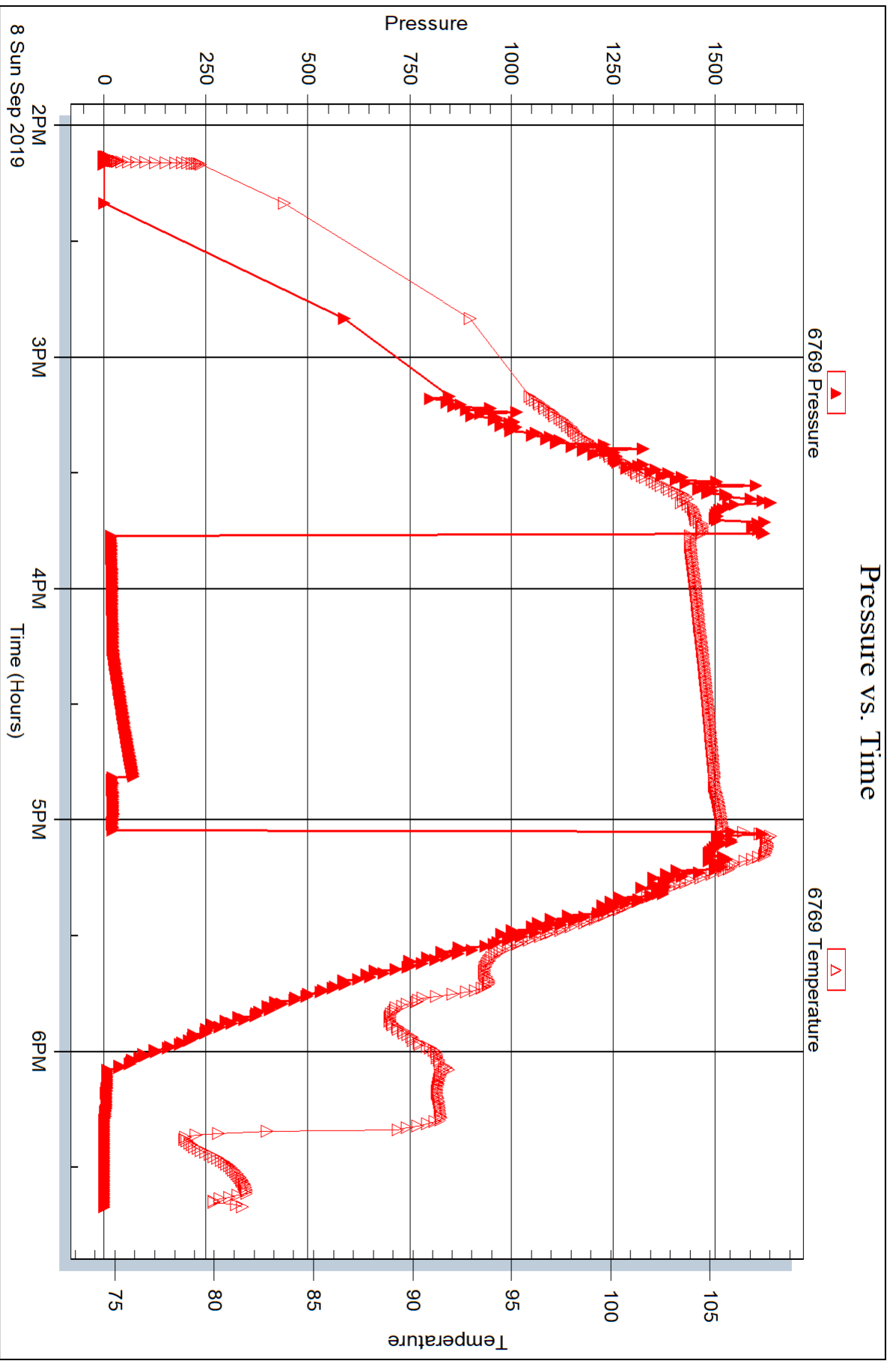


Serial #: 6769

Outside Mai Oil Operations

Kulgen #18

DST Test Number: 4





DRILL STEM TEST REPORT

Prepared For: **Mai Oil Operations**

8411 Preston Rd ste 800
Dallas TX 75225+5570

ATTN: Jim Musgrove

Kultgen #18

12-19s-12w Barton,KS

Start Date: 2019.09.09 @ 07:58:00

End Date: 2019.09.09 @ 15:20:00

Job Ticket #: 65816 DST #: 5

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

Printed: 2019.09.11 @ 13:16:20



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Mai Oil Operations
 8411 Preston Rd ste 800
 Dallas TX 75225+5570
 ATTN: Jim Musgrove

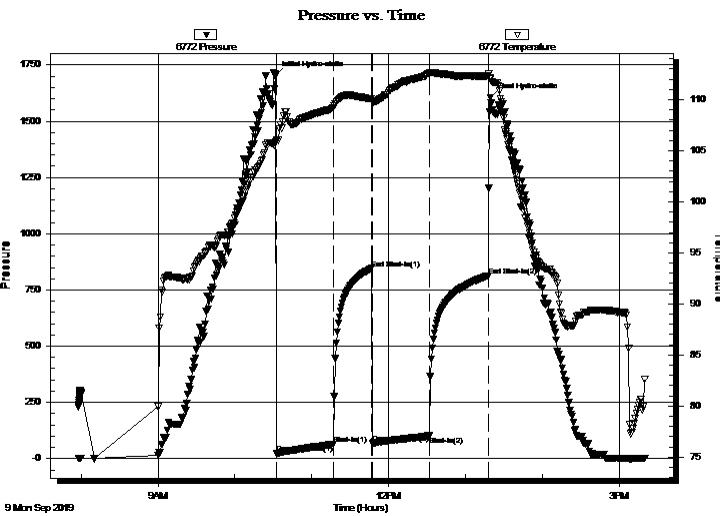
12-19s-12w Barton,KS
Kultgen #18
 Job Ticket: 65816 **DST#: 5**
 Test Start: 2019.09.09 @ 07:58:00

GENERAL INFORMATION:

Formation: **Arbuckle**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 10:32:20
 Time Test Ended: 15:20:00
 Interval: **3330.00 ft (KB) To 3386.00 ft (KB) (TVD)**
 Total Depth: 3386.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Benny Mulligan
 Unit No: 66
 Reference Elevations: 1809.00 ft (KB)
 1800.00 ft (CF)
 KB to GR/CF: 9.00 ft

Serial #: 6772 Inside
 Press@RunDepth: 101.37 psig @ 3331.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.09.09 End Date: 2019.09.09 Last Calib.: 2019.09.09
 Start Time: 07:58:01 End Time: 15:20:00 Time On Btm: 2019.09.09 @ 10:31:30
 Time Off Btm: 2019.09.09 @ 13:19:20

TEST COMMENT: IF-45- BOB 38 mins 30 secs total build of 13 1/2"
 ISI-30- no blow back
 FF-45- built to 7 1/2"
 FSI-45- no blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1701.21	105.67	Initial Hydro-static
1	21.90	105.94	Open To Flow (1)
46	64.14	109.23	Shut-In(1)
76	845.55	110.07	End Shut-In(1)
76	69.01	109.78	Open To Flow (2)
121	101.37	112.54	Shut-In(2)
167	813.72	112.33	End Shut-In(2)
168	1603.57	111.99	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
15.00	C.O. 100%O	0.21
165.00	S.O.C.M. 10%O 90%M	2.31

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Mai Oil Operations
8411 Preston Rd ste 800
Dallas TX 75225+5570
ATTN: Jim Musgrove

12-19s-12w Barton,KS
Kultgen #18
Job Ticket: 65816 **DST#: 5**
Test Start: 2019.09.09 @ 07:58:00

Tool Information

Drill Pipe:	Length: 3320.00 ft	Diameter: 3.80 inches	Volume: 46.57 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 38000.00 lb
			<u>Total Volume: 46.57 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	10.00 ft			String Weight: Initial 32000.00 lb
Depth to Top Packer:	3330.00 ft			Final 33000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	56.00 ft			
Tool Length:	76.00 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			3311.00	
Shut In Tool	5.00			3316.00	
Hydraulic tool	5.00			3321.00	
Packer	5.00			3326.00	20.00 Bottom Of Top Packer
Packer	4.00			3330.00	
Stubb	1.00			3331.00	
Recorder	0.00	6772	Inside	3331.00	
Recorder	0.00	6769	Outside	3331.00	
Perforations	19.00			3350.00	
Change Over Sub	1.00			3351.00	
Drill Pipe	31.00			3382.00	
Change Over Sub	1.00			3383.00	
Bullnose	3.00			3386.00	56.00 Bottom Packers & Anchor

Total Tool Length: 76.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Mai Oil Operations

12-19s-12w Barton,KS

8411 Preston Rd ste 800
Dallas TX 75225+5570

Kultgen #18

Job Ticket: 65816

DST#: 5

ATTN: Jim Musgrove

Test Start: 2019.09.09 @ 07:58:00

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:

ppm

Viscosity: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 9.99 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 10000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
15.00	C.O. 100%O	0.210
165.00	S.O.C.M. 10%O 90%M	2.315

Total Length: 180.00 ft

Total Volume: 2.525 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

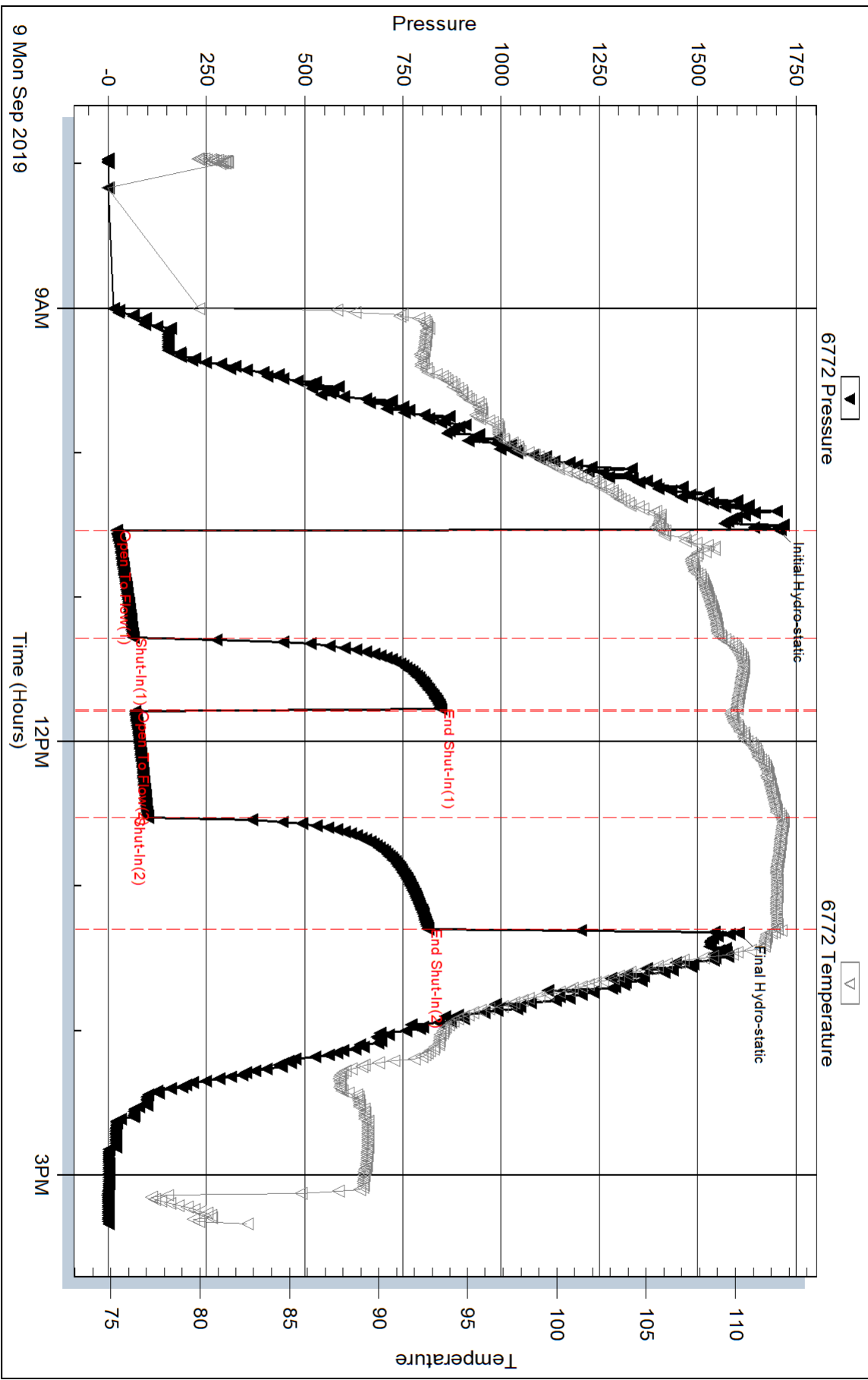
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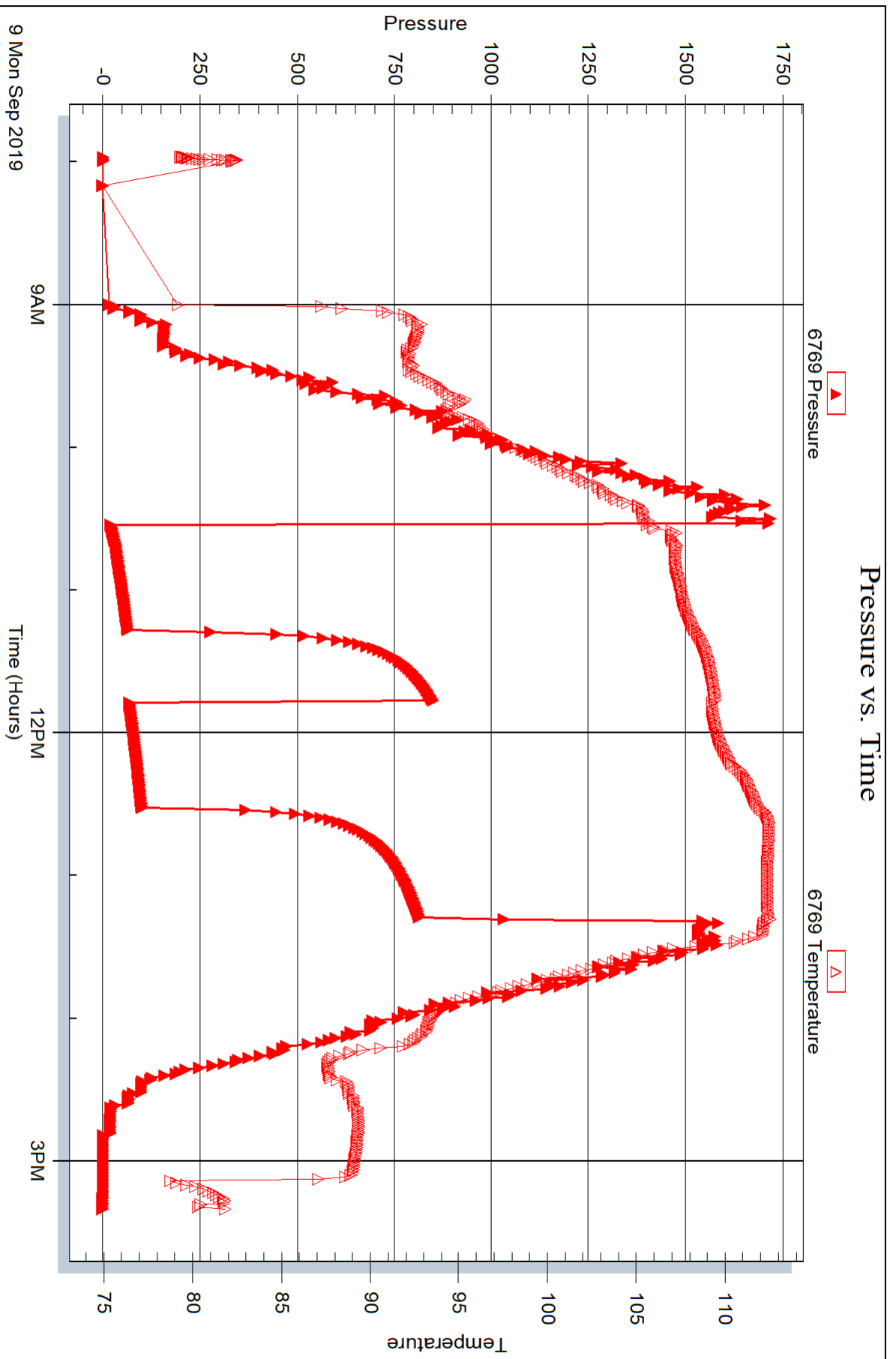
Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time







DRILL STEM TEST REPORT

Prepared For: **Mai Oil Operations**

8411 Preston Rd ste 800
Dallas TX 75225+5570

ATTN: Jim Musgrove

Kultgen #18

12-19s-12w Barton,KS

Start Date: 2019.09.09 @ 20:37:00

End Date: 2019.09.10 @ 03:52:50

Job Ticket #: 65817 DST #: 6

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

Printed: 2019.09.11 @ 13:15:41



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Mai Oil Operations

12-19s-12w Barton,KS

8411 Preston Rd ste 800
Dallas TX 75225+5570

Kultgen #18

Job Ticket: 65817

DST#: 6

ATTN: Jim Musgrove

Test Start: 2019.09.09 @ 20:37:00

Tool Information

Drill Pipe:	Length: 3384.00 ft	Diameter: 3.80 inches	Volume: 47.47 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 39000.00 lb
			<u>Total Volume: 47.47 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	18.00 ft			String Weight: Initial 31000.00 lb
Depth to Top Packer:	3386.00 ft			Final 36000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	10.00 ft			
Tool Length:	30.00 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			3367.00	
Shut In Tool	5.00			3372.00	
Hydraulic tool	5.00			3377.00	
Packer	5.00			3382.00	20.00 Bottom Of Top Packer
Packer	4.00			3386.00	
Stubb	1.00			3387.00	
Recorder	0.00	6772	Inside	3387.00	
Recorder	0.00	6769	Outside	3387.00	
Perforations	6.00			3393.00	
Bullnose	3.00			3396.00	10.00 Bottom Packers & Anchor
Total Tool Length:	30.00				



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Mai Oil Operations

12-19s-12w Barton,KS

8411 Preston Rd ste 800
Dallas TX 75225+5570

Kultgen #18

Job Ticket: 65817

DST#: 6

ATTN: Jim Musgrove

Test Start: 2019.09.09 @ 20:37:00

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: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 9.99 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 10000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
840.00	GVSOCMW 5%G 5%O 10%M 80%W	11.783
360.00	GSOCW 10%G 10%O 80%W	5.050
180.00	W 100%W	2.525

Total Length: 1380.00 ft Total Volume: 19.358 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

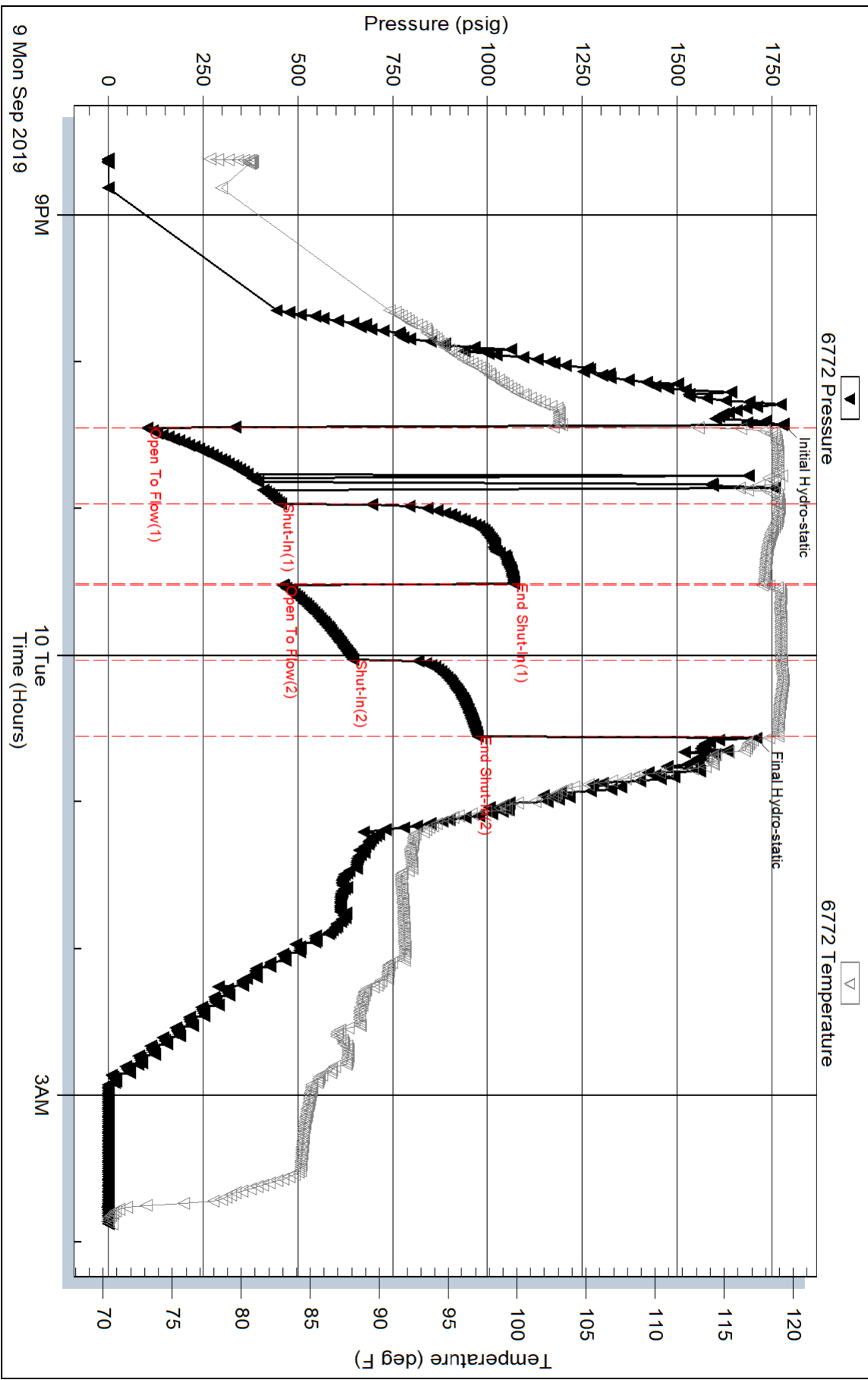
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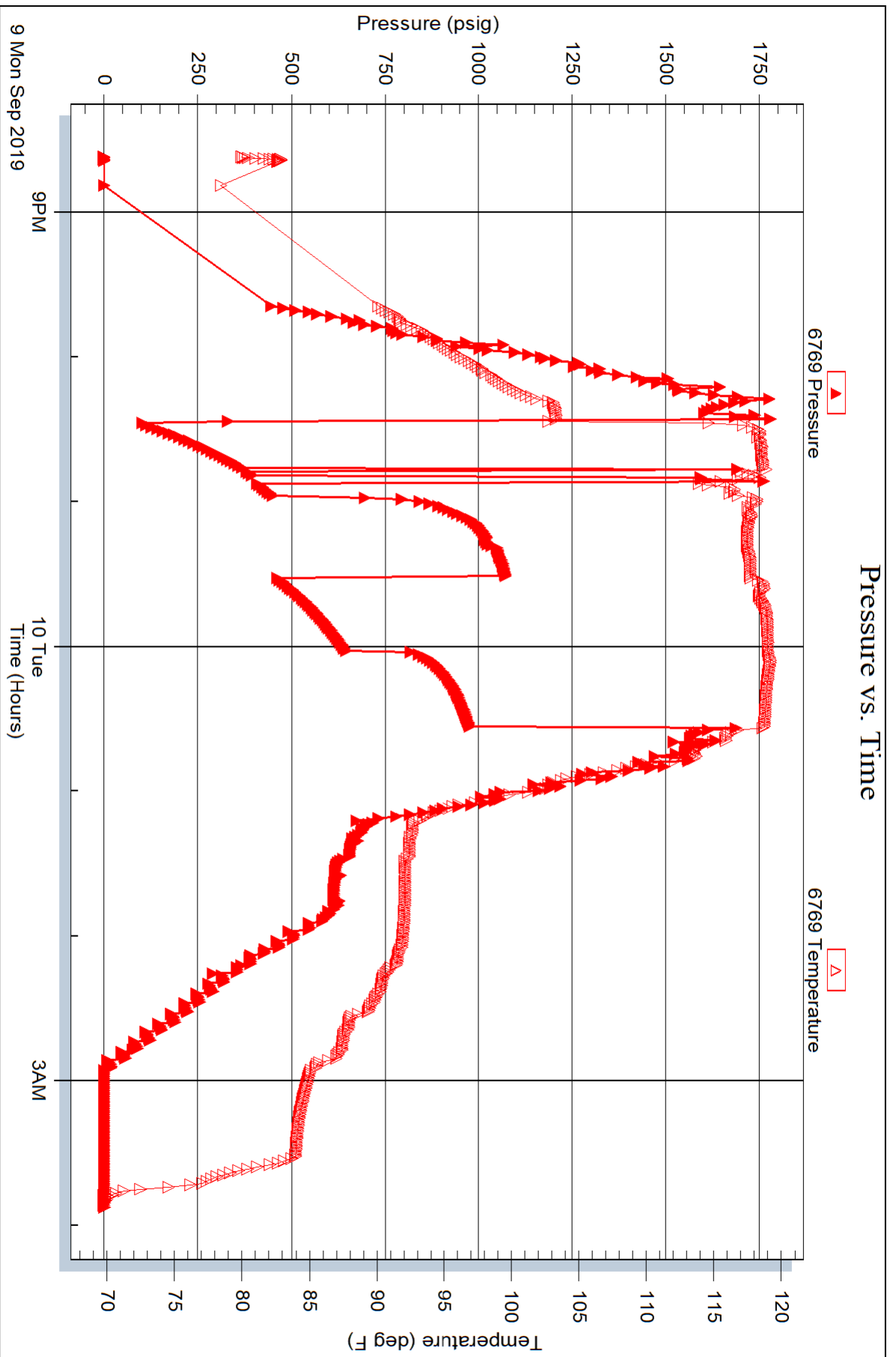
Laboratory Name:

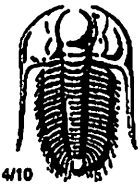
Laboratory Location:

Recovery Comments:

Pressure vs. Time







TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket 65812

NO.

Well Name & No. Kuttgen #18 Test No. 1 Date 9-6-2019
 Company Mal Oil Operations Elevation 1809 KB 1800 GL
 Address 8411 Preston Rd Ste 800 Dallas TX 75225+5570
 Co. Rep / Geo. Jim Musgrave Rig Southwind Rig 3
 Location: Sec. 12 Twp 19s Rge. 12w Co. Burton State KS

Interval Tested 2883-2915 Zone Tested Topeka
 Anchor Length 32' Drill Pipe Run _____ Mud Wt. 8.6
 Top Packer Depth 2878 Drill Collars Run _____ Vis 68
 Bottom Packer Depth 2883 Wt. Pipe Run _____ WL 8
 Total Depth 2915 Chlorides 4000 ppm System LCM 1#

Blow Description ±F - built to 3 1/2"
IST - no blow back
FE - built to 5 1/2"
FST - no blow back

Rec	Feet of	%gas	%oil	%water	%mud
<u>30</u>	<u>50cm</u>		<u>5</u>	<u>95</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 30' BHT _____ Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic <u>1386</u>	<input checked="" type="checkbox"/> Test <u>1200</u>	T-On Location <u>9:34 AM</u>
(B) First Initial Flow <u>19</u>	<input type="checkbox"/> Jars _____	T-Started <u>11:11 AM</u>
(C) First Final Flow <u>21</u>	<input type="checkbox"/> Safety Joint _____	T-Open <u>1:23 pm</u>
(D) Initial Shut-In <u>156</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>4:23</u>
(E) Second Initial Flow <u>18</u>	<input type="checkbox"/> Hourly Standby _____	T-Out _____
(F) Second Final Flow <u>26</u>	<input checked="" type="checkbox"/> Mileage <u>24mi RT</u> ²⁴	Comments _____
(G) Final Shut-In <u>169</u>	<input type="checkbox"/> Sampler _____	_____
(H) Final Hydrostatic <u>1330</u>	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> EM Tool _____

Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer _____	<input type="checkbox"/> Ruined Shale Packer _____
Initial Shut-In <u>45</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Ruined Packer _____
Final Flow <u>45</u>	<input type="checkbox"/> Extra Recorder _____	<input type="checkbox"/> Extra Copies _____
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby _____	Sub Total <u>0</u>
	<input type="checkbox"/> Accessibility _____	Total <u>1224</u>
	Sub Total <u>1224</u>	MP/DST Disc't _____

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



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket 65813

NO.

Well Name & No. Kultgen #18 Test No. 2 Date 9-7-2019
 Company Mai Oil Operations Elevation 1809 KB 1800 GL
 Address 8411 Preston Rd Ste 800 Dallas TX 75225+5570
 Co. Rep / Geo. Jim Musgrove Rig Southwind Rig 3
 Location: Sec. 12 Twp 19S Rge. 12W Co. Barton State KS

Interval Tested 3092-3154 Zone Tested LKC A-C
 Anchor Length 62' Drill Pipe Run _____ Mud Wt. 8.6
 Top Packer Depth 3087 Drill Collars Run _____ Vis 68
 Bottom Packer Depth 3092 Wt. Pipe Run _____ WL 8
 Total Depth 3154 Chlorides 4,000 ppm System LCM 1#
 Blow Description IF - weak surface blow
EST - no blow back
FE - was dead pulled
FST -

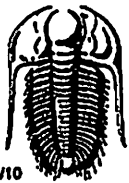
Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>Mud</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 5' BHT 103 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic <u>1542</u>	<input checked="" type="checkbox"/> Test 1200	T-On Location <u>8:25 AM</u>
(B) First Initial Flow <u>18</u>	<input type="checkbox"/> Jars _____	T-Started <u>8:41</u>
(C) First Final Flow <u>20</u>	<input type="checkbox"/> Safety Joint _____	T-Open <u>10:38</u>
(D) Initial Shut-In <u>45</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>11:27</u>
(E) Second Initial Flow <u>18</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>1:08 PM</u>
(F) Second Final Flow <u>21</u>	<input checked="" type="checkbox"/> Mileage <u>24 mi RT 24</u>	Comments _____
(G) Final Shut-In _____	<input type="checkbox"/> Sampler _____	_____
(H) Final Hydrostatic <u>1495</u>	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> EM Tool _____
Initial Open <u>15</u>	<input type="checkbox"/> Shale Packer _____	<input type="checkbox"/> Ruined Shale Packer _____
Initial Shut-In <u>20</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Ruined Packer _____
Final Flow <u>15</u>	<input type="checkbox"/> Extra Recorder _____	<input type="checkbox"/> Extra Copies _____
Final Shut-In _____	<input type="checkbox"/> Day Standby _____	Sub Total <u>0</u>
	<input type="checkbox"/> Accessibility _____	Total <u>1224</u>
	Sub Total <u>1224</u>	MP/DST Disc't _____

Approved By _____ Our Representative Benny Mulligan

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket 65814

NO.

Well Name & No. Kultgen #18 Test No. 3 Date 9-7-2019
 Company Meri Oil operations Elevation 1809 KB 1800 GL
 Address 8411 Preston Rd Ste 800 Dallas TX 75225+5570
 Co. Rep / Geo. Jim Musgrove Rig Southwind Rig 3
 Location: Sec. 12 Twp 19S Rge. 12W Co. Barton State KS

Interval Tested 3146-3169 Zone Tested LKC "G"
 Anchor Length 23' Drill Pipe Run 3131 Mud Wt. 9.2
 Top Packer Depth 3141 Drill Collars Run _____ Vis 50
 Bottom Packer Depth 3146 Wt. Pipe Run _____ WL 8.8
 Total Depth 3169 Chlorides 6000 ppm System LCM 1#
 Blow Description IF - built to 8"
ISF - no blow back
FF - built to 9"
FSI - no blow back

Rec	Feet of	%gas	%oil	%water	%mud
<u>40'</u>	<u>0.5M.</u>	<u>1</u>		<u>99</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

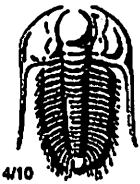
Rec Total 40' BHT 106 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 1590 Test 1200 T-On Location 6:40 PM
 (B) First Initial Flow 16 Jars _____ T-Started 7:33
 (C) First Final Flow 22 Safety Joint _____ T-Open 9:34
 (D) Initial Shut-In 130 Circ Sub _____ T-Pulled 12:19
 (E) Second Initial Flow 20 Hourly Standby _____ T-Out 1:43
 (F) Second Final Flow 31 Mileage 24mi RT 24 Comments _____
 (G) Final Shut-In 144 Sampler _____
 (H) Final Hydrostatic 1574 Straddle _____
 EM Tool _____
 Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____

Initial Open 30 Shale Packer _____
 Initial Shut-In 30 Extra Packer _____
 Final Flow 45 Extra Recorder _____
 Final Shut-In 60 Day Standby _____
 Accessibility _____
 Sub Total 1224 Sub Total 0 Total 1224 MP/DST Disc't _____

Approved By _____ Our Representative Benny Mulligan

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket 65815

NO.

Well Name & No. Kultgen #18 Test No. 4 Date 9-8-2019
 Company Mai Oil operations Elevation 1809 KB 1800 GL
 Address 8411 Preston Rd ste 800 Dallas TX 75225+5570
 Co. Rep / Geo. Jim Musgrave Rig Southwind Rig 3
 Location: Sec. 12 Twp 19S Rge. 12W Co. Barton State KS

Interval Tested 3204 - 3300 Zone Tested LKC H-K
 Anchor Length 96' Drill Pipe Run 3195 Mud Wt. 9.2
 Top Packer Depth 3199 Drill Collars Run _____ Vis 49
 Bottom Packer Depth 3204 Wt. Pipe Run _____ WL 9.2
 Total Depth 3300 Chlorides 8,000 ppm System LCM 1#

Blow Description IF - built to 1 1/2"
FST - ~~no blow back~~ no blow back
FF - was dead so pulled
FST -

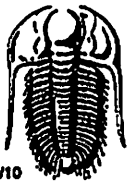
Rec	Feet of	%gas	%oil	%water	%mud
<u>20</u>	<u>Mud</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 201 BHT _____ Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic <u>1629</u>	<input checked="" type="checkbox"/> Test <u>1200</u>	T-On Location <u>1:15 pm</u>
(B) First Initial Flow <u>17</u>	<input type="checkbox"/> Jars _____	T-Started <u>2:08</u>
(C) First Final Flow <u>22</u>	<input type="checkbox"/> Safety Joint _____	T-Open <u>2:46</u>
(D) Initial Shut-In <u>70</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>5:07</u>
(E) Second Initial Flow <u>18</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>6:41</u>
(F) Second Final Flow <u>21</u>	<input checked="" type="checkbox"/> Mileage <u>24mi RT 24</u>	Comments _____
(G) Final Shut-In _____	<input type="checkbox"/> Sampler _____	_____
(H) Final Hydrostatic <u>1614</u>	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> EM Tool _____
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer _____	<input type="checkbox"/> Ruined Shale Packer _____
Initial Shut-In <u>30</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Ruined Packer _____
Final Flow <u>15</u>	<input type="checkbox"/> Extra Recorder _____	<input type="checkbox"/> Extra Copies _____
Final Shut-In _____	<input type="checkbox"/> Day Standby _____	Sub Total <u>0</u>
	<input type="checkbox"/> Accessibility _____	Total <u>1224</u>
	Sub Total <u>1224</u>	MP/DST Disc't _____

Approved By _____ Our Representative Benny Mulligan

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 65816

NO.

Well Name & No. Kultoen #18 Test No. 5 Date 9-9-2019
 Company Mari Oil Operations Elevation 1809 KB 1800 GL
 Address 8411 Preston Rd Ste 800 Dallas TX 75225+5970
 Co. Rep / Geo. Jim Musgrove Rig Southwind Rig 3
 Location: Sec. 12 Twp 19S Rge. 12W Co. Barton State KS

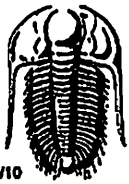
Interval Tested 3330-3386 Zone Tested Arbuckle
 Anchor Length 56' Drill Pipe Run 3320 Mud Wt. 9.2
 Top Packer Depth 3325 Drill Collars Run _____ Vls 50
 Bottom Packer Depth 3330 Wt. Pipe Run _____ WL 10
 Total Depth 3386 Chlorides 10,000 ppm System LCM 1/2 #
 Blow Description FF - BORS 38 mins 30 secs total build of 13 1/2"
EST - no blow back
FF - built to 7 1/2"
FST - no blow back

Rec	Feet of	%gas	%oil	%water	%mud
<u>15</u>	<u>G.O.</u>	<u>100</u>			
<u>165</u>	<u>S.O.C.M.</u>	<u>10</u>		<u>90</u>	
Rec _____	Feet of _____	%gas _____	%oil _____	%water _____	%mud _____
Rec _____	Feet of _____	%gas _____	%oil _____	%water _____	%mud _____

Rec Total 180' BHT _____ Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic <u>1701</u>	<input checked="" type="checkbox"/> Test <u>1200</u>	T-On Location <u>7:36 AM</u>
(B) First Initial Flow <u>20</u>	<input type="checkbox"/> Jars _____	T-Started <u>7:58</u>
(C) First Final Flow <u>64</u>	<input type="checkbox"/> Safety Joint _____	T-Open <u>10:32</u>
(D) Initial Shut-In <u>845</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>1:17 PM</u>
(E) Second Initial Flow <u>69</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>3:20</u>
(F) Second Final Flow <u>101</u>	<input checked="" type="checkbox"/> Mileage <u>24mi RT</u> ₂₄	Comments _____
(G) Final Shut-In <u>813</u>	<input type="checkbox"/> Sampler _____	_____
(H) Final Hydrostatic <u>1603</u>	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> EM Tool _____
Initial Open <u>45</u>	<input type="checkbox"/> Shale Packer _____	<input type="checkbox"/> Ruined Shale Packer _____
Initial Shut-In <u>30</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Ruined Packer _____
Final Flow <u>45</u>	<input type="checkbox"/> Extra Recorder _____	<input type="checkbox"/> Extra Copies _____
Final Shut-In <u>45</u>	<input type="checkbox"/> Day Standby _____	Sub Total <u>0</u>
	<input type="checkbox"/> Accessibility _____	Total <u>1224</u>
	Sub Total <u>1224</u>	MP/DST Disc't _____

Approved By _____ Our Representative Benny Mulligan
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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket 65817

NO.

Well Name & No. Kultgen #18 Test No. 6 Date 9-9-2019
 Company Mal Oil Operations Elevation 1809 KB 1800 GL
 Address 8411 Preston Rd Ste 800 Dallas TX 75225+5570
 Co. Rep / Geo. Jim Musgrove Rig Southwind Rig 3
 Location: Sec. 12 Twp 19S Rge. 12w Co. Barton State KS

Interval Tested 3386-3396 Zone Tested Arbuckk
 Anchor Length 10' Drill Pipe Run 3384 Mud Wt. 9.2
 Top Packer Depth 3381 Drill Collars Run ————— Vls 50
 Bottom Packer Depth 3386 Wt. Pipe Run ————— WL 10
 Total Depth 3396 Chlorides 10000 ppm System LCM 1/2#
 Blow Description IF - BOB 1min 20secs total build of 87"
ISI - no blow back
FE - BOB 2min 20secs total build of 88"
FSE - no blow back

Rec	Feet of	%gas	%oil	%water	%mud
<u>840</u>	<u>650 C.M.W.</u>	<u>5</u>	<u>5</u>	<u>80</u>	<u>10</u>
<u>360</u>	<u>650 CW</u>	<u>10</u>	<u>10</u>	<u>80</u>	<u> </u>
<u>180</u>	<u>W.</u>	<u> </u>	<u> </u>	<u>100</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 1380' BHT 118 Gravity API RW .382 @ 72.8° F Chlorides 18000 ppm

(A) Initial Hydrostatic 1778 Test 1200 T-On Location 8:18 PM.
 (B) First Initial Flow 103 Jars T-Started 8:37
 (C) First Final Flow 454 Safety Joint T-Open 10:26
 (D) Initial Shut-In 1071 Circ Sub T-Pulled 12:32 AM
 (E) Second Initial Flow 460 Hourly Standby T-Out 3:50 AM
 (F) Second Final Flow 645 Mileage 24mi RT 24 Comments Loaded tools
 (G) Final Shut-In 975 Sampler after DST #6
 (H) Final Hydrostatic 1707 Straddle EM Tool
 Shale Packer Ruined Shale Packer
 Extra Packer Ruined Packer
 Extra Recorder Extra Copies
 Day Standby Sub Total 0
 Accessibility Total 1224
 Sub Total 1224 MP/DST Disc't

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