



DRILL STEM TEST REPORT

Prepared For: **Woolsey Operating Co**

125 N. Market STE1000
Wichita KS 67202+1729

ATTN: Bill Klaver

McElwain #1

20-28s-19w Kiowa,KS

Start Date: 2019.02.10 @ 22:09:00

End Date: 2019.02.11 @ 06:41:40

Job Ticket #: 64987 DST #: 2

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

Printed: 2019.02.13 @ 15:34:28



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Woolsey Operating Co

20-28s-19w Kiowa,KS

125 N. Market STE1000
Wichita KS 67202+1729

McElwain #1

Job Ticket: 64987

DST#: 2

ATTN: Bill Klaver

Test Start: 2019.02.10 @ 22:09:00

GENERAL INFORMATION:

Formation: **Mississippi**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:37:40

Time Test Ended: 06:41:40

Test Type: Conventional Bottom Hole (Initial)

Tester: Benny Mulligan

Unit No: 66

Interval: 4876.00 ft (KB) To 4924.00 ft (KB) (TVD)

Reference Elevations: 2298.00 ft (KB)

Total Depth: 4924.00 ft (KB) (TVD)

2288.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 10.00 ft

Serial #: 6772 Inside

Press@RunDepth: 428.56 psig @ 4877.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.02.10

End Date: 2019.02.11

Last Calib.: 2019.02.11

Start Time: 22:09:01

End Time: 06:41:40

Time On Btm: 2019.02.11 @ 00:31:50

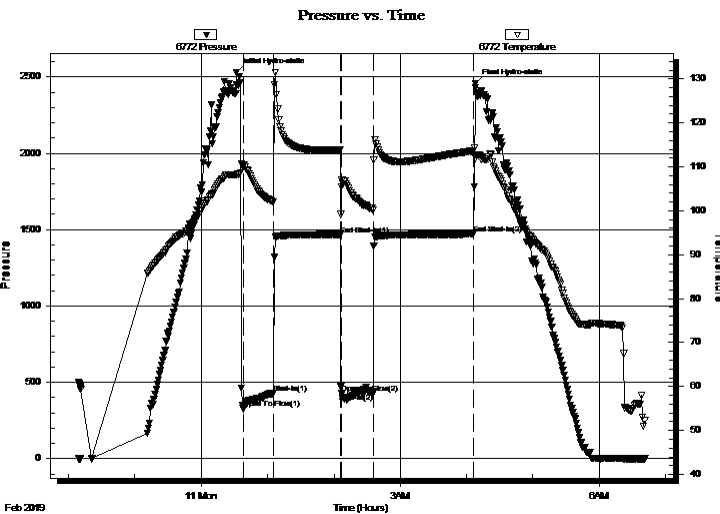
Time Off Btm: 2019.02.11 @ 04:07:50

TEST COMMENT: I.F.-30-BOB 15 sec built to 120 psi- gas to surface 8 mins

I.S.I.-60- weak blow back died 30 mins

F.F.-30- Built to 120 psi

F.S.I.-90-weak blow back died in 45 mins



PRESSURE SUMMARY

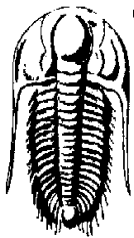
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2529.67	108.17	Initial Hydro-static
6	327.79	110.37	Open To Flow (1)
34	428.16	101.93	Shut-In(1)
94	1468.45	113.82	End Shut-In(1)
95	429.14	105.40	Open To Flow (2)
124	428.56	100.14	Shut-In(2)
215	1470.14	113.65	End Shut-In(2)
217	2456.13	111.95	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
70.00	WCM 10%W 90%M	0.34
0.00	GTS 8 mins	0.00

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
First Gas Rate	1.00	120.00	3863.84
Last Gas Rate	1.00	120.00	3863.84
Max. Gas Rate	1.00	120.00	3863.84



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Woolsey Operating Co
125 N. Market STE1000
Wichita KS 67202+1729
ATTN: Bill Klaver

20-28s-19w Kiowa,KS

McElwain #1

Job Ticket: 64987

DST#: 2

Test Start: 2019.02.10 @ 22:09:00

GENERAL INFORMATION:

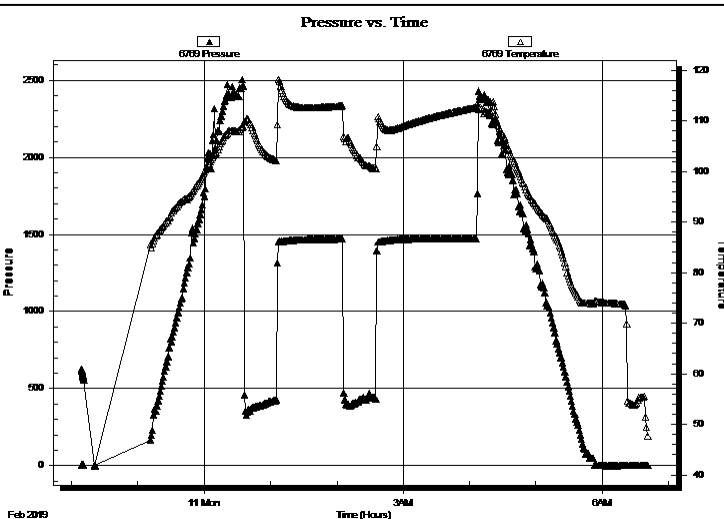
Formation: **Mississippi**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 00:37:40
 Time Test Ended: 06:41:40
 Interval: **4876.00 ft (KB) To 4924.00 ft (KB) (TVD)**
 Total Depth: 4924.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Benny Mulligan
 Unit No: 66
 Reference Elevations: 2298.00 ft (KB)
 2288.00 ft (CF)
 KB to GR/CF: 10.00 ft

Serial #: 6769

Outside

Press@RunDepth: psig @ 4877.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.02.10 End Date: 2019.02.11 Last Calib.: 2019.02.11
 Start Time: 22:09:01 End Time: 06:41:40 Time On Btm:
 Time Off Btm:

TEST COMMENT: I.F.-30-BOB 15 sec built to 120 psi- gas to surface 8 mins
 I.S.I.-60- weak blow back died 30 mins
 F.F.-30- Built to 120 psi
 F.S.I.-90-weak blow back died in 45 mins



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
70.00	WCM 10%W 90%M	0.34
0.00	GTS 8 mins	0.00

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
First Gas Rate	1.00	120.00	3863.84
Last Gas Rate	1.00	120.00	3863.84
Max. Gas Rate	1.00	120.00	3863.84



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DRILL STEM TEST REPORT

TOOL DIAGRAM

Woolsey Operating Co

20-28s-19w Kiowa,KS

125 N. Market STE1000
Wichita KS 67202+1729

McElwain #1

Job Ticket: 64987

DST#: 2

ATTN: Bill Klaver

Test Start: 2019.02.10 @ 22:09:00

Tool Information

Drill Pipe:	Length: 4752.00 ft	Diameter: 3.88 inches	Volume: 69.49 bbl	Tool Weight: 2500.00 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: 122.00 ft	Diameter: 2.25 inches	Volume: 0.60 bbl	Weight to Pull Loose: 65000.00 lb
			<u>Total Volume: 70.09 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	25.00 ft			String Weight: Initial 69000.00 lb
Depth to Top Packer:	4876.00 ft			Final 69000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	48.00 ft			
Tool Length:	75.00 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			4850.00	
Shut In Tool	5.00			4855.00	
Hydraulic tool	5.00			4860.00	
Jars	5.00			4865.00	
Safety Joint	2.00			4867.00	
Packer	5.00			4872.00	27.00 Bottom Of Top Packer
Packer	4.00			4876.00	
Stubb	1.00			4877.00	
Recorder	0.00	6772	Inside	4877.00	
Recorder	0.00	6769	Outside	4877.00	
Perforations	10.00			4887.00	
Change Over Sub	1.00			4888.00	
Drill Pipe	32.00			4920.00	
Change Over Sub	1.00			4921.00	
Bullnose	3.00			4924.00	48.00 Bottom Packers & Anchor

Total Tool Length: 75.00



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FLUID SUMMARY

Woolsey Operating Co

20-28s-19w Kiowa,KS

125 N. Market STE1000
Wichita KS 67202+1729

McElwain #1

Job Ticket: 64987

DST#: 2

ATTN: Bill Klaver

Test Start: 2019.02.10 @ 22:09:00

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: 77.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.77 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
70.00	WCM 10%W 90%M	0.344
0.00	GTS 8 mins	0.000

Total Length: 70.00 ft Total Volume: 0.344 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



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GAS RATES

Woolsey Operating Co

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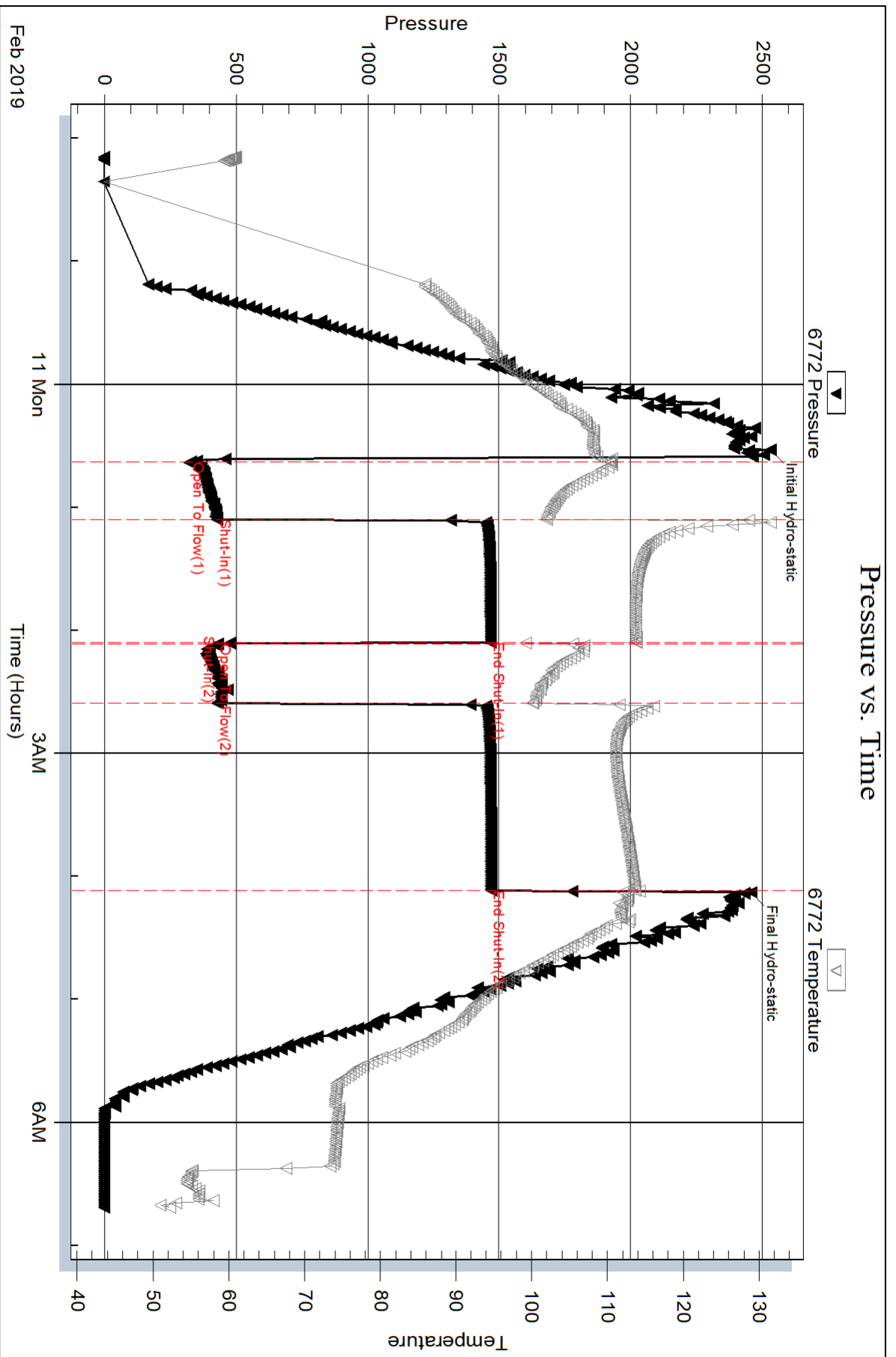
Test Start: 2019.02.10 @ 22:09:00

Gas Rates Information

Temperature: 59 (deg F)
Relative Density: 0.65
Z Factor: 0.8

Gas Rates Table

Flow Period	Elapsed Time	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
1	20	1.00	120.00	3863.84
1	30	1.00	120.00	3863.84
2	5	1.00	80.00	2713.89
2	10	1.00	105.00	3432.61
2	15	1.00	120.00	3863.84
2	20	1.00	120.00	3863.84
2	30	1.00	120.00	3863.84



Serial #: 6769

Outside Woodsey Operating Co

McEwain #1

DST Test Number: 2

