

**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Prepared For: **Outlaw Well Service LLC**

1408 West 42ND
Hays KS 67601

ATTN: Preston Wolf

Don #1

20-8s-19w Rooks,KS

Start Date: 2015.07.12 @ 10:50:19

End Date: 2015.07.12 @ 17:20:43

Job Ticket #: 60592 DST #: 1

Trilobite Testing, Inc

1515 Commerce Parkway Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

Printed: 2015.07.14 @ 10:03:15

Outlaw Well Service LLC 20-8s-19w Rooks,KS Don #1 DST # 1 LKC C-D 2015.07.12



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Outlaw Well Service LLC

20-8s-19w Rooks, KS

1408 West 42ND
Hays KS 67601

Don #1

Job Ticket: 60592

DST#: 1

ATTN: Preston Wolf

Test Start: 2015.07.12 @ 10:50:19

GENERAL INFORMATION:

Formation: LKC C-D

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 12:42:29

Time Test Ended: 17:20:43

Test Type: Conventional Bottom Hole (Initial)

Tester: Ray Schwager

Unit No: 70

Interval: 3232.00 ft (KB) To 3278.00 ft (KB) (TVD)

Total Depth: 3278.00 ft (KB) (TVD)

Hole Diameter: 7.85 inches Hole Condition: Fair

Reference Elevations: 2014.00 ft (KB)

2006.00 ft (CF)

KB to GR/CF: 8.00 ft

Serial #: 8018

Inside

Press@RunDepth: 353.51 psig @ 3242.00 ft (KB)

Start Date: 2015.07.12

End Date:

2015.07.12

Start Time: 10:50:19

End Time:

17:20:43

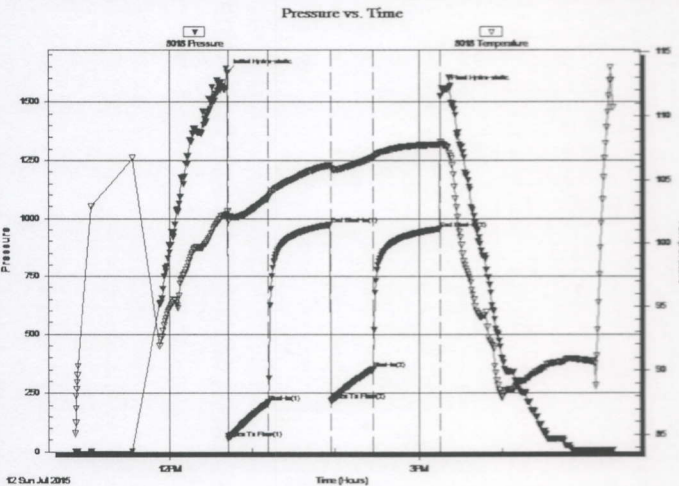
Capacity: 8000.00 psig

Last Calib.: 2015.07.12

Time On Btm: 2015.07.12 @ 12:41:59

Time Off Btm: 2015.07.12 @ 15:18:58

TEST COMMENT: 30-IFP-w k to strg in 5 min
45-ISIP-no bl bk
30-FFP-w k to strg in 9 min
45-FSIP-no bl



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1624.74	102.47	Initial Hydro-static
1	55.47	101.73	Open To Flow (1)
30	212.09	103.59	Shut-In(1)
75	973.71	106.17	End Shut-In(1)
75	218.90	105.91	Open To Flow (2)
106	353.51	106.76	Shut-In(2)
154	955.86	107.80	End Shut-In(2)
157	1555.63	107.70	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
1.00	CO	0.01
315.00	SOCMW 1%O10%M89%W	4.42
310.00	Water	4.35

Gas Rates

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



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DRILL STEM TEST REPORT

Outlaw Well Service LLC
 1408 West 42ND
 Hays KS 67601
 ATTN: Preston Wolf

20-8s-19w Rooks,KS
Don #1
 Job Ticket: 60592 **DST#: 1**
 Test Start: 2015.07.12 @ 10:50:19

GENERAL INFORMATION:

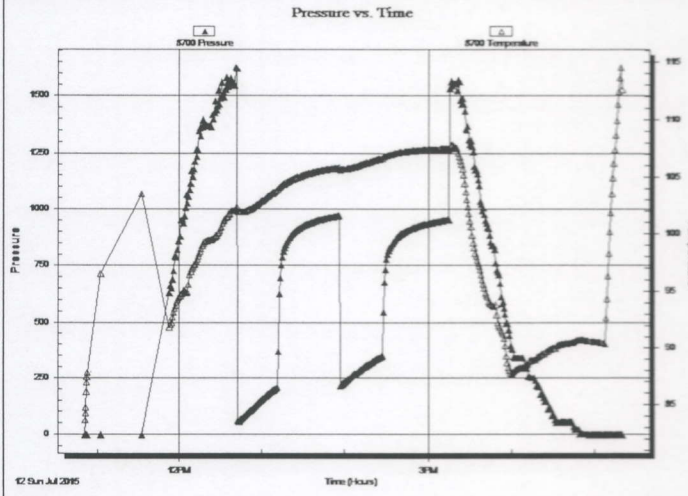
Formation: LKC C-D		Test Type: Conventional Bottom Hole (Initial)
Deviated: No Whipstock: ft (KB)		Tester: Ray Schwager
Time Tool Opened: 12:42:29		Unit No: 70
Time Test Ended: 17:20:43		
Interval: 3232.00 ft (KB) To 3278.00 ft (KB) (TVD)		Reference Elevations: 2014.00 ft (KB)
Total Depth: 3278.00 ft (KB) (TVD)		2006.00 ft (CF)
Hole Diameter: 7.85 inches Hole Condition: Fair		KB to GR/CF: 8.00 ft

Serial #: 8700

Outside

Press@RunDepth: psig @ 3242.00 ft (KB)	Capacity: 8000.00 psig
Start Date: 2015.07.12 End Date: 2015.07.12	Last Calib.: 2015.07.12
Start Time: 10:50:26 End Time: 17:20:50	Time On Btm:
	Time Off Btm:

TEST COMMENT: 30-IFP-w k to strg in 5 min
 45-ISIP-no bl bk
 30-FFP-w k to strg in 9 min
 45-FSIP-no bl



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
1.00	CO	0.01
315.00	SOCMW 1%O10%M89%W	4.42
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Gas Rates

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



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DRILL STEM TEST REPORT

TOOL DIAGRAM

Outlaw Well Service LLC

20-8s-19w Rooks, KS

1408 West 42ND
Hays KS 67601

Don #1

Job Ticket: 60592

DST#: 1

ATTN: Preston Wolf

Test Start: 2015.07.12 @ 10:50:19

Tool Information

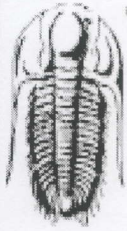
Drill Pipe:	Length: 3216.00 ft	Diameter: 3.80 inches	Volume: 45.11 bbl	Tool Weight: 2200.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 45000.00 lb
			<u>Total Volume: 45.11 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial 34000.00 lb
Depth to Top Packer:	3232.00 ft			Final 39000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	46.00 ft			
Tool Length:	67.00 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			3212.00	
Shut In Tool	5.00			3217.00	
Hydraulic tool	5.00			3222.00	
Packer	5.00			3227.00	21.00 Bottom Of Top Packer
Packer	5.00			3232.00	
Stubb	1.00			3233.00	
Perforations	9.00			3242.00	
Recorder	0.00	8018	Inside	3242.00	
Recorder	0.00	8700	Outside	3242.00	
Blank Spacing	33.00			3275.00	
Bullnose	3.00			3278.00	46.00 Bottom Packers & Anchor

Total Tool Length: 67.00



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FLUID SUMMARY

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1408 West 42ND
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Don #1

Job Ticket: 60592

DST#: 1

ATTN: Preston Wolf

Test Start: 2015.07.12 @ 10:50:19

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:

103000 ppm

Viscosity: 51.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 10.35 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
1.00	CO	0.014
315.00	SOCMW 1%O10%M89%W	4.419
310.00	Water	4.348

Total Length: 626.00 ft Total Volume: 8.781 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW .05 @ 100F

Serial #: 8018

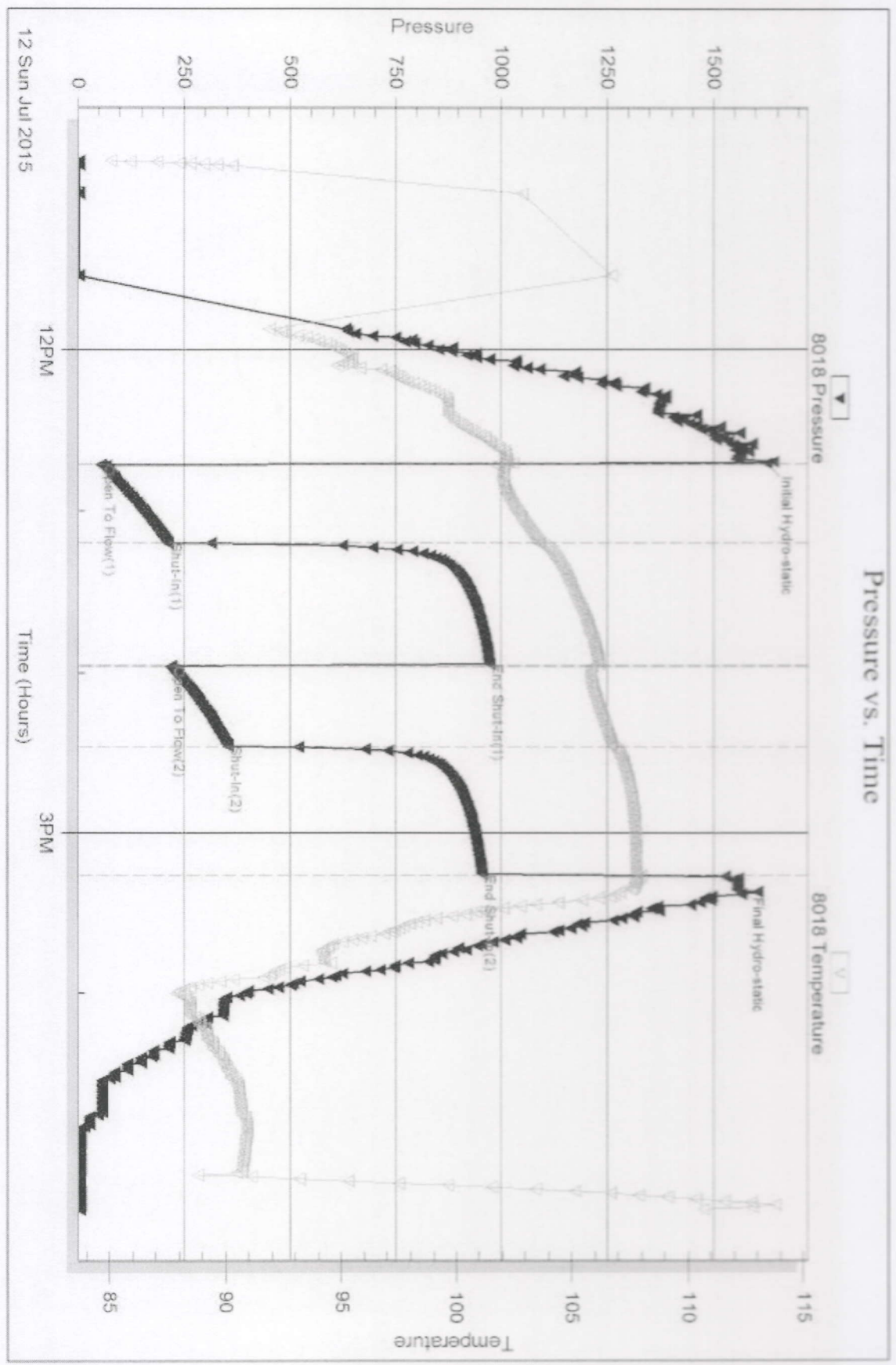
Inside

Outlaw Well Service LLC

Don #1

DST Test Number: 1

Pressure vs. Time



Tribble Testing, Inc

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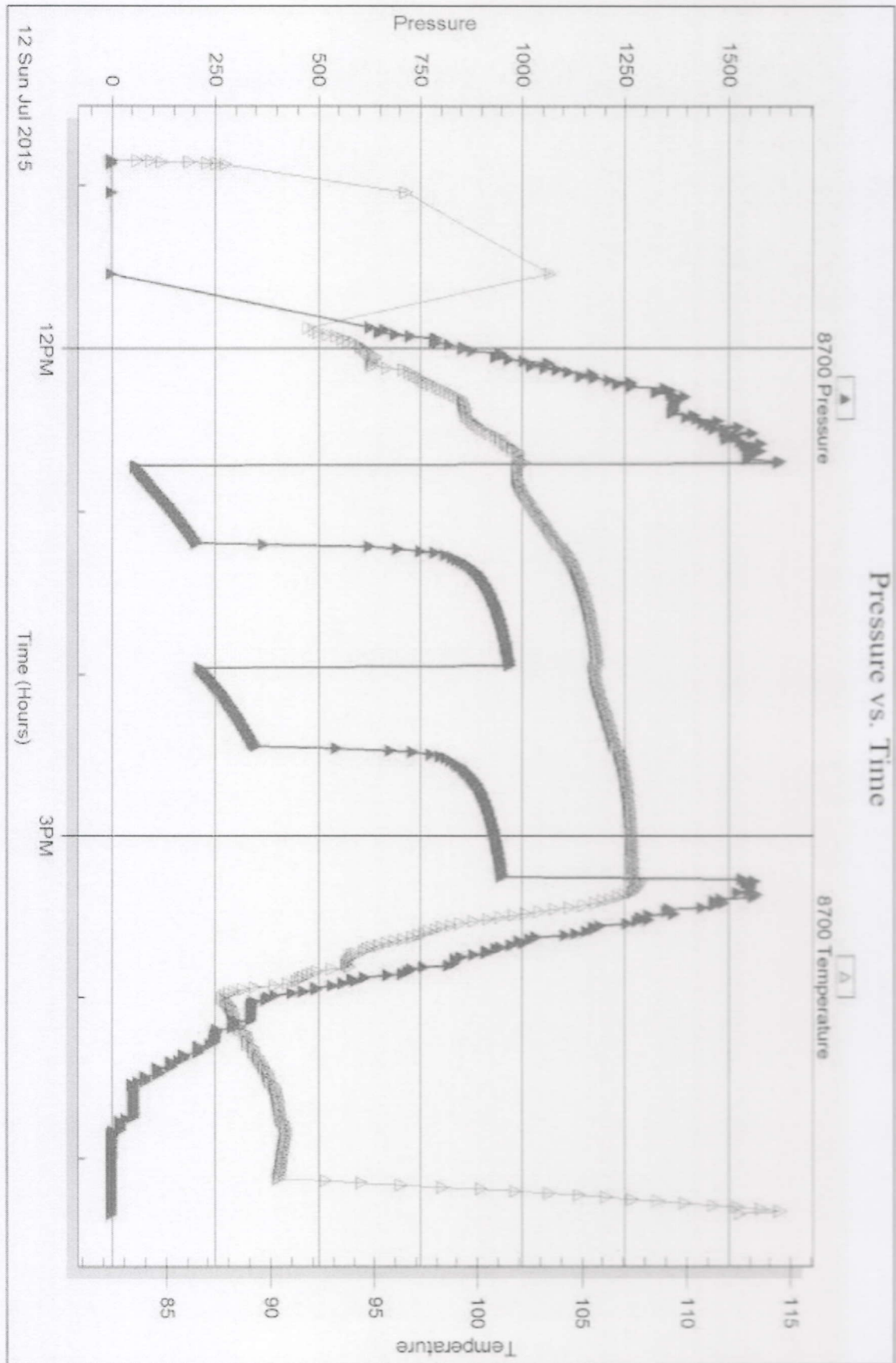
Serial #: 8700

Outside Outlaw Well Service LLC

Don #1

DST Test Number: 1

Pressure vs. Time



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