

**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Prepared For: **Production Drilling Inc**

1023 Reservation Rd
Hays KS 67601

ATTN: Cliff Ottaway

Greibel #1

30-7a-10w Rooks,KS

Start Date: 2013.09.23 @ 11:18:36

End Date: 2013.09.23 @ 16:48:15

Job Ticket #: 54827 DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.09.24 @ 10:30:35

Production Drilling Inc
30-7a-10w Rooks,KS
Greibel #1
DST # 1
Arbuckle
2013.09.23



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Production Drilling Inc

30-7s-19w Rooks, KS

1023 Reservation Rd
Hays KS 67601

Greibel #1

Job Ticket: 54827

DST#: 1

ATTN: Cliff Ottaway

Test Start: 2013.09.23 @ 11:18:36

GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 13:34:36

Time Test Ended: 16:48:15

Test Type: Conventional Bottom Hole (Initial)

Tester: Tate Lang/ Tim Phill

Unit No: 49

Interval: **3412.00 ft (KB) To 3443.00 ft (KB) (TVD)**

Total Depth: 3443.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 1986.00 ft (KB)

1978.00 ft (CF)

KB to GR/CF: 8.00 ft

Serial #: 8898

Outside

Press@RunDepth: 14.03 psig @ 3415.00 ft (KB)

Start Date: 2013.09.23

End Date:

2013.09.23

Start Time: 11:18:37

End Time:

16:48:16

Capacity: 8000.00 psig

Last Cellb.:

2013.09.23

Time On Btm: 2013.09.23 @ 13:34:26

Time Off Btm: 2013.09.23 @ 15:35:06

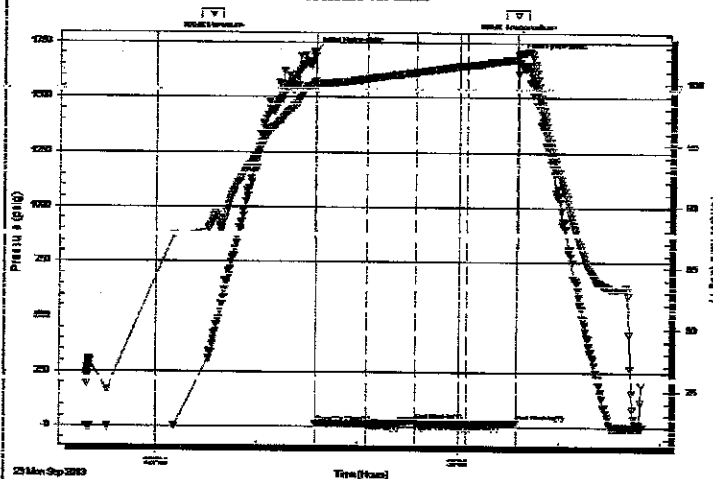
TEST COMMENT: IFP-30-weak blow built to 1/4"

FSI-30-no blow

FF-30-no blow

FSI-30-no blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1711.28	100.16	Initial Hydro-static
1	12.66	99.37	Open To Flow (1)
31	13.44	100.38	Shut-in(1)
60	28.73	100.93	End Shut-in(1)
60	14.24	100.93	Open To Flow (2)
90	14.03	101.50	Shut-in(2)
120	21.66	101.99	End Shut-in(2)
121	1588.86	102.44	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	mud with oil spots	0.02

Gas Rates

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



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TOOL DIAGRAM

Production Drilling Inc
1023 Reservation Rd
Hays KS 67601
ATTN: Cliff Ottaway

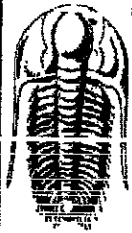
30-7s-19w Rooks,KS
Greibel #1
Job Ticket: 54827 DST#: 1
Test Start: 2013.09.23 @ 11:18:36

Tool Information

Drill Pipe:	Length: 3378.00 ft	Diameter: 3.80 inches	Volume: 47.38 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: 20000.00 lb
Drill Collar:	Length: 30.00 ft	Diameter: 2.25 inches	Volume: 0.15 bbl	Weight to Pull Loose: lb
			Total Volume: 47.53 bbl	Tool Chased 0.00 ft
Drill Pipe Above KB:	16.00 ft			String Weight: Initial 44000.00 lb
Depth to Top Packer:	3412.00 ft			Final 44000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	31.00 ft			
Tool Length:	51.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		
Tool Comments:				

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut in Tool	5.00			3397.00	
Hydraulic tool	5.00			3402.00	
Packer	5.00			3407.00	20.00 Bottom Of Top Packer
Packer	5.00			3412.00	
Stubb	1.00			3413.00	
Perforations	2.00			3415.00	
Recorder	0.00	8807	Inside	3415.00	
Recorder	0.00	8898	Outside	3415.00	
Perforations	25.00			3440.00	
Bullnose	3.00			3443.00	31.00 Bottom Packers & Anchor
Total Tool Length:	51.00				



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FLUID SUMMARY

Production Drilling Inc
1023 Reservation Rd
Hays KS 67601
ATTN: Cliff Ottaway

30-7s-19w Rooks,KS
Greibel #1
Job Ticket: 54827 DST#: 1
Test Start: 2013.09.23 @ 11:19:36

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: 54.00 sec/qt	Cushion Volume: bbl		
Water Loss: 8.78 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 2000.00 ppm			
Filter Cake: 1.00 inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	mud with oil spots	0.025

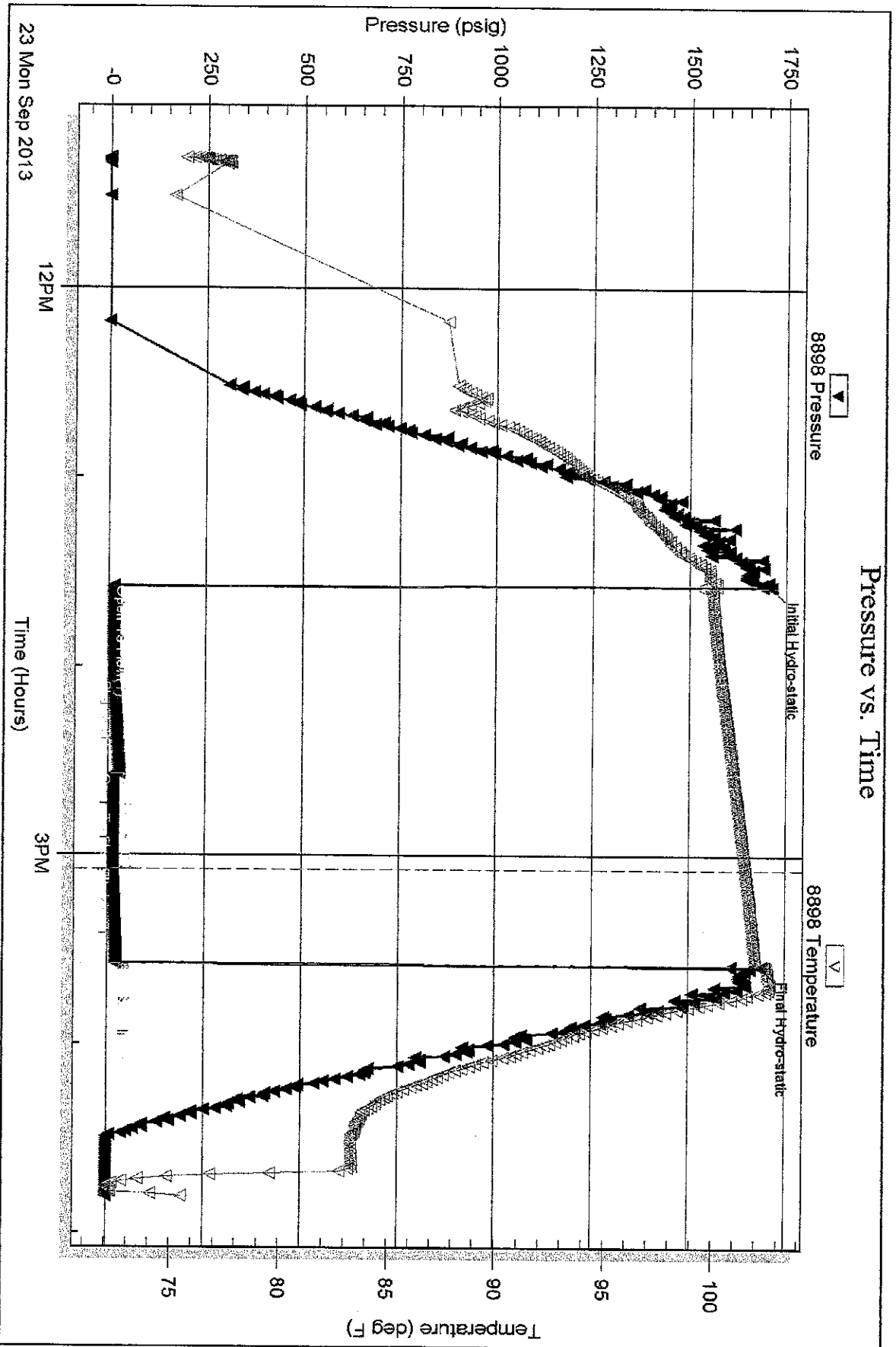
Total Length: 5.00 ft Total Volume: 0.025 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments:

Serial #: 8898

Outside Production Drilling Inc

Grebel #1

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 54827

Printed: 2013.09.24 @ 10:30:37

Serial #: 8897

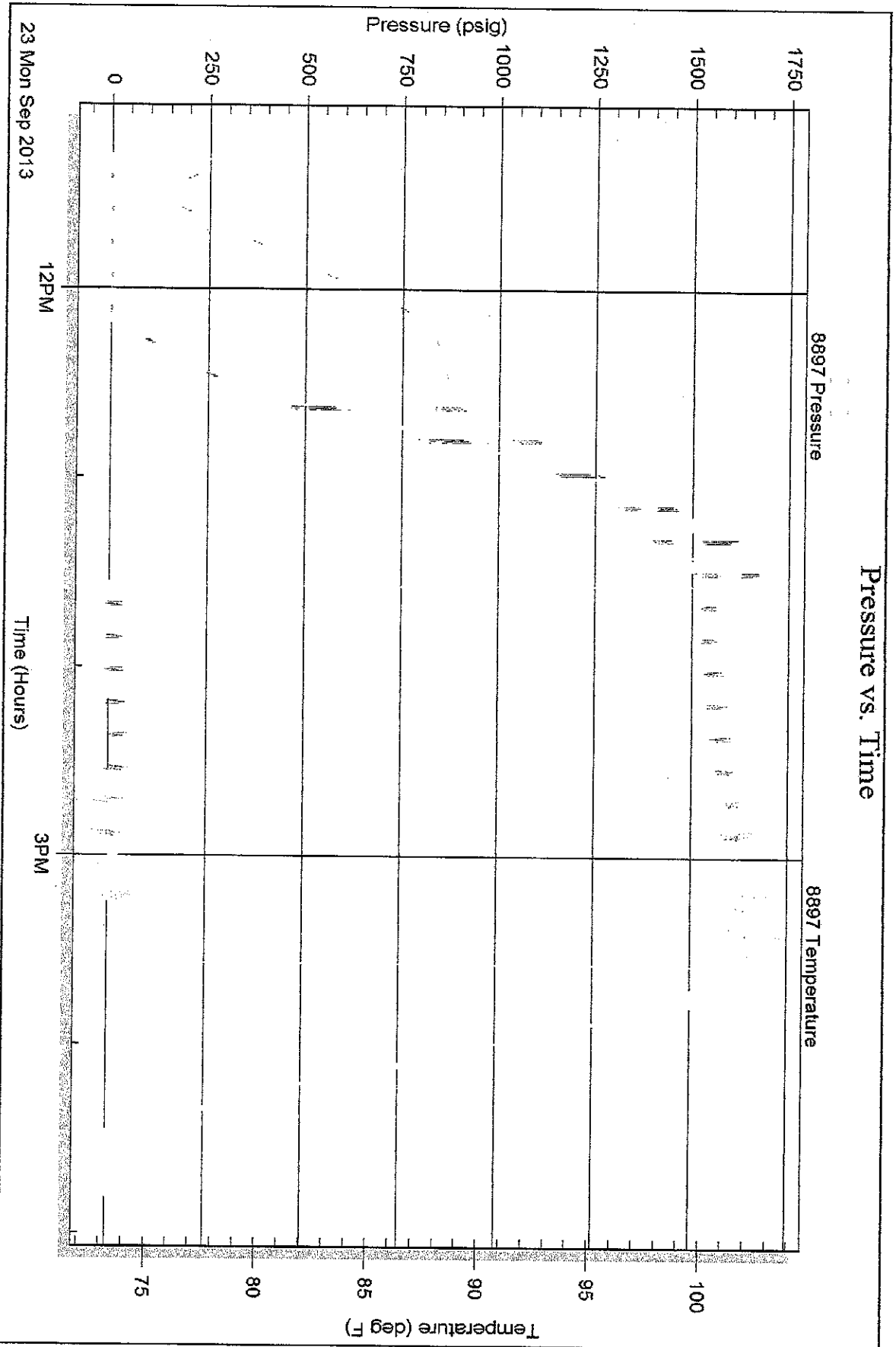
Inside

Production Drilling Inc

Grelbel #1

DST Test Number: 1

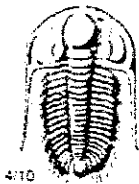
Pressure vs. Time



Trilobite Testing, Inc

Ref. No: 54827

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 3452

Well Name & No. Greibel # 1 Test No. 1 Date 09/23/2013
 Company Production Drilling Inc Elevation 1978 KB 1986 GL
 Address 1023 Reservation Rd Hays KS 67601
 Co. Rep / Geo. CLIFF O'BRAWAY Rig Discovery Rig # 4
 Location: Sec. 36 Twp. 7 S Rge. 19 W Co. Rooks State KS

Interval Tested 3412 - 3443 Zone Tested Arkuckle
 Anchor Length 31 Drill Pipe Run _____ Mud Wt. 8.8
 Top Packer Depth 3408 Drill Collars Run 30 ft Vis 54
 Bottom Packer Depth 3412 Wt. Pipe Run _____ WL 8.8
 Total Depth 3443 Chlorides 2000 ppm System LCM 2*

Blow Description 20 IFP
20 - weak blow built to 1/4"
ISI - no blow
FF - no blow
FSI - no blow

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

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

(A) Initial Hydrostatic 1711 Test 1150 T-On Location _____
 (B) First Initial Flow 13 Jars _____ T-Started 1118
 (C) First Final Flow 29 13 Safety Joint _____ T-Open 1335
 (D) Initial Shut-In 14 29 Circ Sub _____ T-Pulled 1535
 (E) Second Initial Flow 14 14 Hourly Standby _____ T-Out 1649
 (F) Second Final Flow 14 Mileage 11.5 X2 Comments Loaded tools
 (G) Final Shut-In 22 Sampler 325.50 @ 4:30 A.M. 07
 (H) Final Hydrostatic 1689 Straddle _____ 09/24/13

Initial Open 30 Ruined Shale Packer _____
 Initial Shut-In 30 Ruined Packer _____
 Final Flow 30 Extra Packer _____
 Final Shut-In 30 Extra Recorder _____
 Sub Total 0
 Total 1475.50
 MP/DST Disc't _____

Approved By [Signature] Our Representative [Signature]
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