



## DRILL STEM TEST REPORT

Prepared For: **H&C Oil Operating, Inc.**

PO Box 86  
Plainville KS 6763

ATTN: Marc Downing

### **Griffith #3-1**

### **3-8s-22w Graham,KS**

Start Date: 2014.11.11 @ 02:50:00

End Date: 2014.11.11 @ 11:47:30

Job Ticket #: 62527                      DST #: 1

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

Printed: 2014.11.14 @ 13:48:15



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

H&C Oil Operating, Inc.

**3-8s-22w Graham, KS**

PO Box 86  
Plainville KS 6763

**Griffith #3-1**

Job Ticket: 62527

**DST#: 1**

ATTN: Marc Downing

Test Start: 2014.11.11 @ 02:50:00

## GENERAL INFORMATION:

Formation: **KC"E"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 06:49:30

Time Test Ended: 11:47:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Brett Dickinson

Unit No: 59

**Interval: 3440.00 ft (KB) To 3454.00 ft (KB) (TVD)**

Reference Elevations: 2161.00 ft (KB)

Total Depth: 3440.00 ft (KB) (TVD)

2154.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 7.00 ft

**Serial #: 8957 Outside**

Press@RunDepth: 58.30 psig @ 3441.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.11.11

End Date:

2014.11.11

Last Calib.:

2014.11.11

Start Time: 02:50:05

End Time:

11:47:30

Time On Btm:

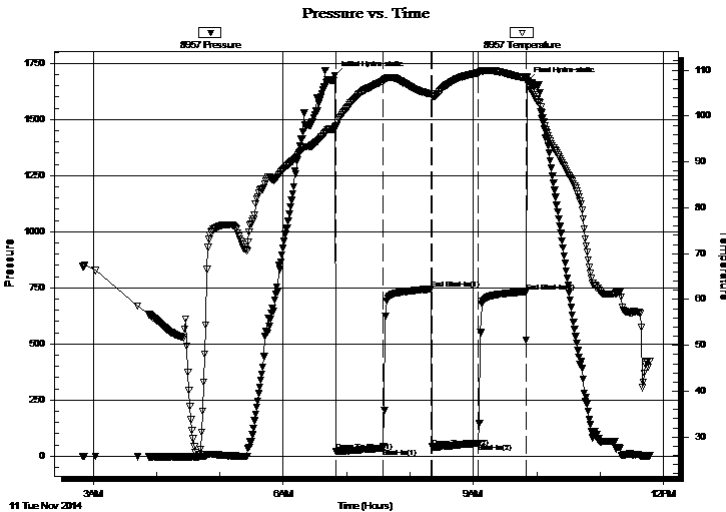
2014.11.11 @ 06:48:45

Time Off Btm:

2014.11.11 @ 09:50:30

TEST COMMENT: IF-BOB in 26 min  
ISI-Very weak surface blow  
FF-BOB in 35 min  
FSI-Very Weak surface blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1693.94	97.57	Initial Hydro-static
1	21.89	97.51	Open To Flow (1)
46	35.56	107.66	Shut-In(1)
91	744.69	104.77	End Shut-In(1)
93	40.98	104.36	Open To Flow (2)
136	58.30	109.43	Shut-In(2)
181	732.42	108.25	End Shut-In(2)
182	1670.27	108.48	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
60.00	VSGMCO 5%G 5%M 90%O	0.57
70.00	SGO 5%G 95%O	0.98
0.00	180ft GIP	0.00

## Gas Rates

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





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

H&C Oil Operating, Inc.

**3-8s-22w Graham, KS**

PO Box 86  
Plainville KS 6763

**Griffith #3-1**

Job Ticket: 62527

**DST#: 1**

ATTN: Marc Downing

Test Start: 2014.11.11 @ 02:50:00

## Tool Information

Drill Pipe:	Length: 3424.00 ft	Diameter: 3.80 inches	Volume: 48.03 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 30.00 ft	Diameter: 2.25 inches	Volume: 0.15 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 48.18 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	34.00 ft			String Weight: Initial 40000.00 lb
Depth to Top Packer:	3440.00 ft			Final 41000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	14.00 ft			
Tool Length:	34.00 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			3425.00	
Hydraulic tool	5.00			3430.00	
Packer	5.00			3435.00	20.00 Bottom Of Top Packer
Packer	5.00			3440.00	
Stubb	1.00			3441.00	
Recorder	0.00	8736	Inside	3441.00	
Recorder	0.00	8957	Outside	3441.00	
Perforations	10.00			3451.00	
Bullnose	3.00			3454.00	14.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>34.00</b>				



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

H&C Oil Operating, Inc.

**3-8s-22w Graham, KS**

PO Box 86  
Plainville KS 6763

**Griffith #3-1**

Job Ticket: 62527

**DST#: 1**

ATTN: Marc Downing

Test Start: 2014.11.11 @ 02:50:00

### Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

35 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 56.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.99 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 900.00 ppm

Filter Cake: inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
60.00	VSGMCO 5%G 5%M 90%O	0.568
70.00	SGO 5%G 95%O	0.982
0.00	180ft GIP	0.000

Total Length: 130.00 ft

Total Volume: 1.550 bbl

Num Fluid Samples: 0

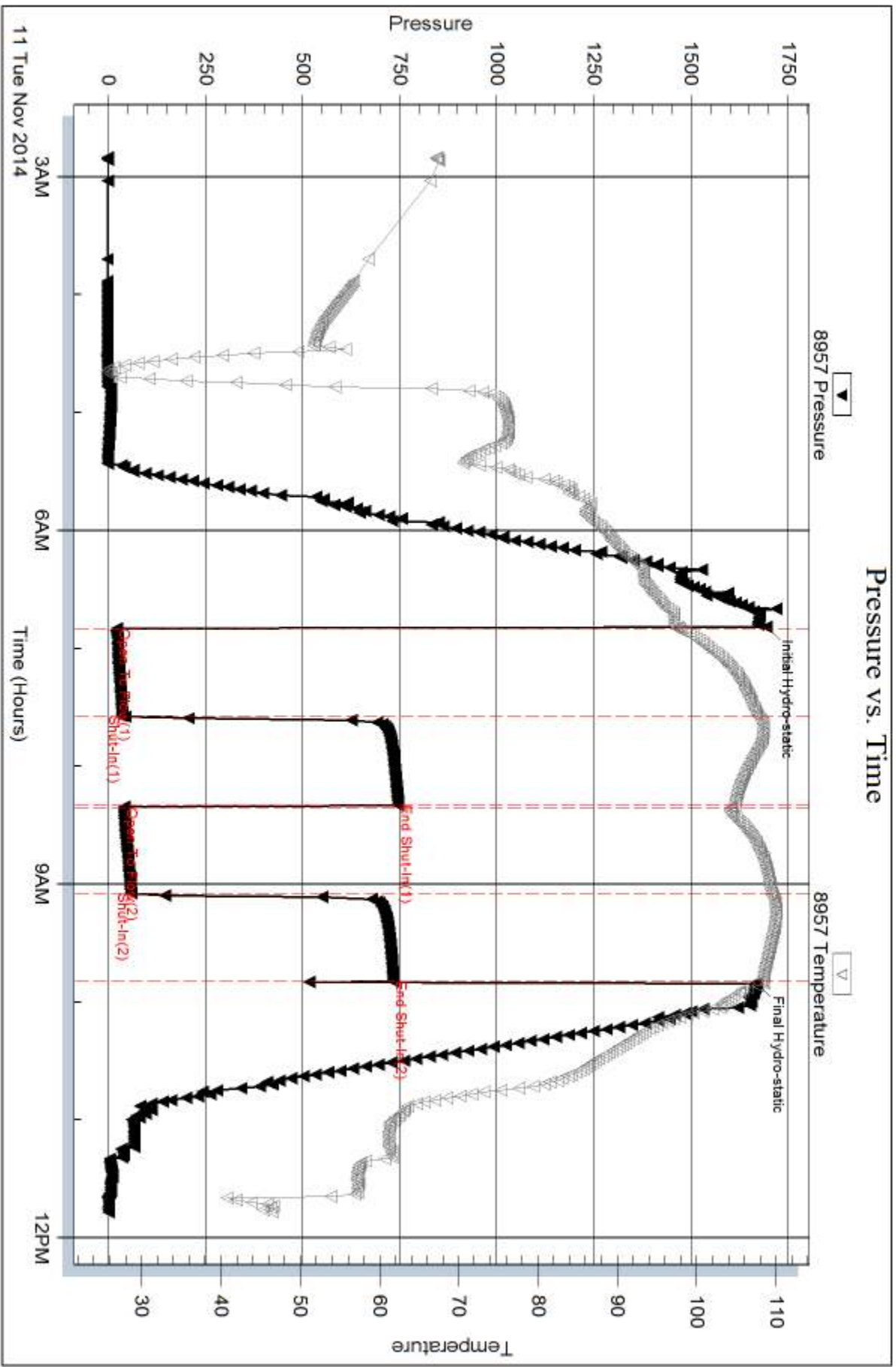
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



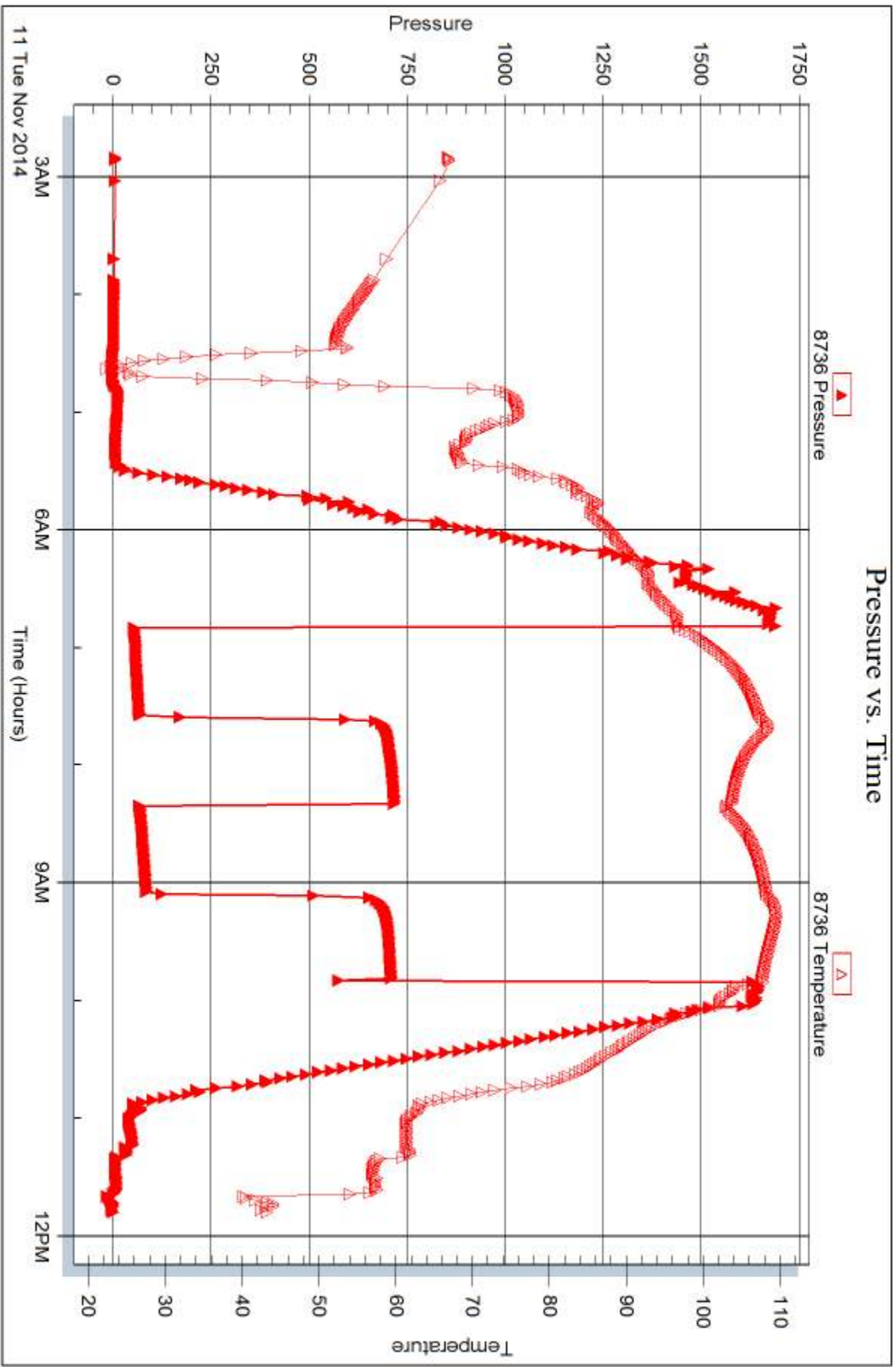
Serial #: 8736

Inside

H&C Oil Operating, Inc.

Griffith #3-1

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 62527

Printed: 2014.11.14 @ 13:48:18



## DRILL STEM TEST REPORT

Prepared For: **H&C Oil Operating, Inc.**

PO Box 86  
Plainville KS 6763

ATTN: Marc Downing

### **Griffith #3-1**

### **3-8s-22w Graham, KS**

Start Date: 2014.11.12 @ 01:05:00

End Date: 2014.11.12 @ 08:22:45

Job Ticket #: 62528                      DST #: 2

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

Printed: 2014.11.14 @ 13:47:15





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

H&C Oil Operating, Inc.

**3-8s-22w Graham, KS**

PO Box 86  
Plainville KS 6763

**Griffith #3-1**

Job Ticket: 62528

**DST#: 2**

ATTN: Marc Downing

Test Start: 2014.11.12 @ 01:05:00

## GENERAL INFORMATION:

Formation: **KC "H-K"**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 03:31:00  
 Time Test Ended: 08:22:45  
 Interval: **3493.00 ft (KB) To 3572.00 ft (KB) (TVD)**  
 Total Depth: 3572.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Brett Dickinson  
 Unit No: 59  
 Reference Elevations: 2161.00 ft (KB)  
 2154.00 ft (CF)  
 KB to GR/CF: 7.00 ft

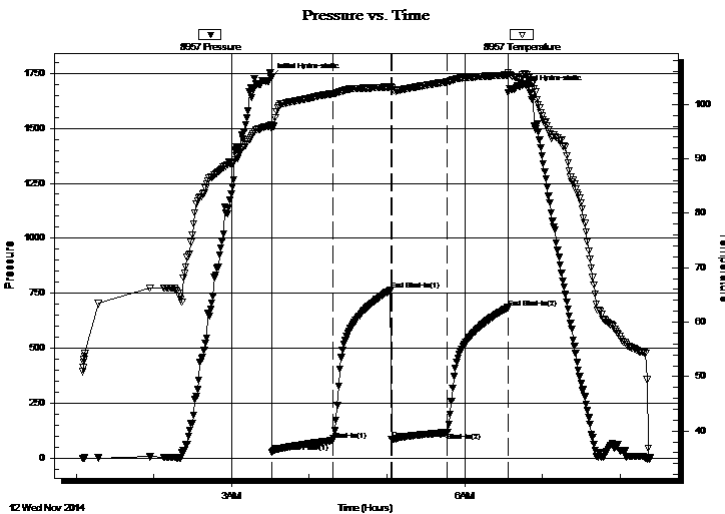
## Serial #: 8957

**Outside**

Press@RunDepth: 115.87 psig @ 3496.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.11.12 End Date: 2014.11.12 Last Calib.: 2014.11.12  
 Start Time: 01:05:05 End Time: 08:22:44 Time On Btm: 2014.11.12 @ 03:30:15  
 Time Off Btm: 2014.11.12 @ 06:37:45

TEST COMMENT: IF-BOB in 14 min  
 IS-1" blow  
 FF-BOB in 24 min  
 FS-Surface blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1731.59	96.12	Initial Hydro-static
1	26.46	95.60	Open To Flow (1)
48	79.89	101.97	Shut-In(1)
93	764.40	103.23	End Shut-In(1)
94	86.64	102.99	Open To Flow (2)
137	115.87	104.14	Shut-In(2)
183	684.06	105.39	End Shut-In(2)
188	1677.02	105.10	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
60.00	OCM 20%O 80%M	0.57
125.00	VSGOCM 5%G 45%O 50%M	1.75
55.00	VSGMCO 5%G 5% M 90%O	0.77
0.00	700ft GIP	0.00

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

H&C Oil Operating, Inc.

**3-8s-22w Graham, KS**

PO Box 86  
Plainville KS 6763

**Griffith #3-1**

Job Ticket: 62528

**DST#: 2**

ATTN: Marc Downing

Test Start: 2014.11.12 @ 01:05:00

## Tool Information

Drill Pipe:	Length: 3458.00 ft	Diameter: 3.80 inches	Volume: 48.51 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 30.00 ft	Diameter: 2.25 inches	Volume: 0.15 bbl	Weight to Pull Loose: 50000.00 lb
			<u>Total Volume: 48.66 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial 40000.00 lb
Depth to Top Packer:	3493.00 ft			Final 41000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	79.00 ft			
Tool Length:	99.00 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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Shut In Tool	5.00			3478.00	
Hydraulic tool	5.00			3483.00	
Packer	5.00			3488.00	20.00 Bottom Of Top Packer
Packer	5.00			3493.00	
Stubb	1.00			3494.00	
Perforations	1.00			3495.00	
Change Over Sub	1.00			3496.00	
Recorder	0.00	8736	Inside	3496.00	
Recorder	0.00	8957	Outside	3496.00	
Drill Pipe	63.00			3559.00	
Change Over Sub	1.00			3560.00	
Perforations	9.00			3569.00	
Bullnose	3.00			3572.00	79.00 Bottom Packers & Anchor

**Total Tool Length: 99.00**



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**FLUID SUMMARY**

H&C Oil Operating, Inc.

**3-8s-22w Graham, KS**

PO Box 86  
Plainville KS 6763

**Griffith #3-1**

Job Ticket: 62528

**DST#: 2**

ATTN: Marc Downing

Test Start: 2014.11.12 @ 01:05:00

## 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: 56.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 5.99 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 900.00 ppm

Filter Cake: inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
60.00	OCM 20%O 80%M	0.568
125.00	VSGOCM 5%G 45%O 50%M	1.753
55.00	VSGMCO 5%G 5% M 90%O	0.772
0.00	700ft GIP	0.000

Total Length: 240.00 ft

Total Volume: 3.093 bbl

Num Fluid Samples: 0

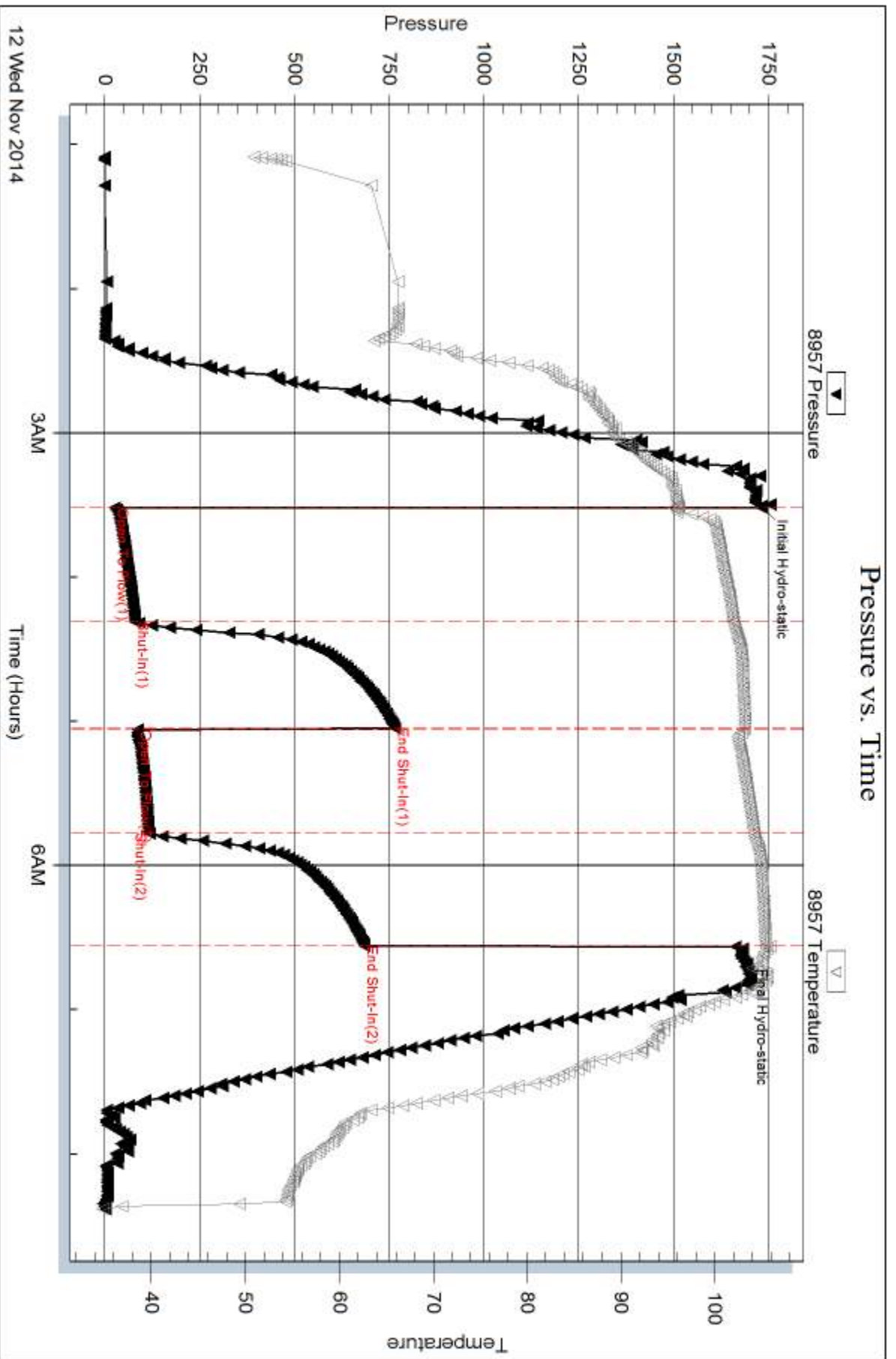
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



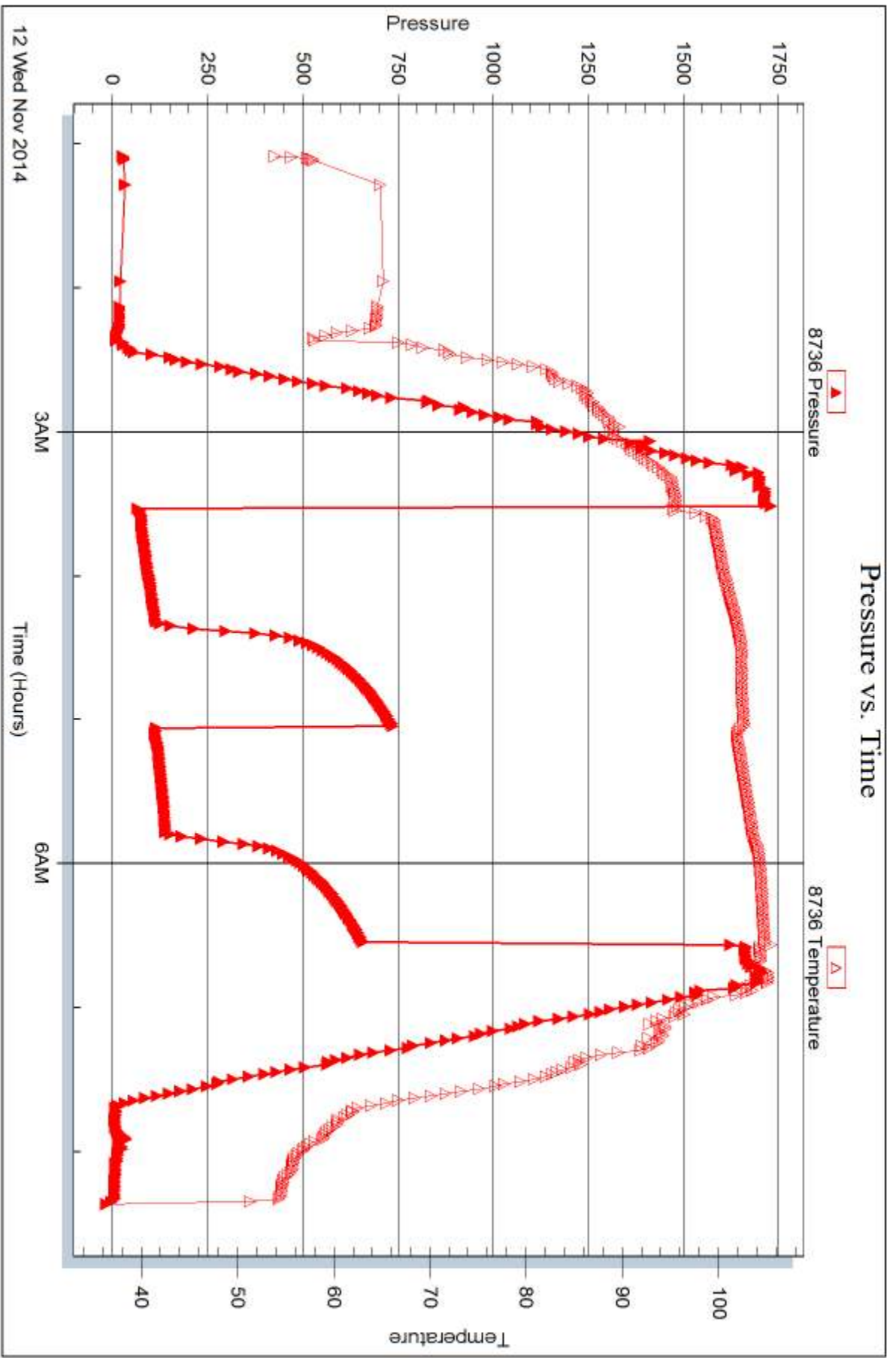
Serial #: 8736

Inside

H&C Oil Operating, Inc.

Griffith #3-1

DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 62528

Printed: 2014.11.14 @ 13:47:17



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 62527

Well Name & No. Gritwith # 3-1 Test No. 1 Date 11-11-14  
 Company HOC Oil Operating, Inc Elevation 2161 KB 2154 GL  
 Address P.O. Box 86 Plainville KS 67663  
 Co. Rep / Geo. Marc Downing Rig American Eagle  
 Location: Sec. 3 Twp. 8s Rge. 22w Co. Graham State KS

Interval Tested 3440-3454 Zone Tested Kc<sup>u</sup> E<sup>u</sup>  
 Anchor Length 14 Drill Pipe Run \_\_\_\_\_ Mud Wt. 9.2  
 Top Packer Depth 3435 Drill Collars Run 30 Vis 56  
 Bottom Packer Depth 3440 Wt. Pipe Run - WL 6.0  
 Total Depth 3454 Chlorides 900 ppm System LCM -

Blow Description IF- BOB in 26min  
ISI- Very weak surface blow  
FF- BOB in 35min  
ISI- very weak surface blow

Rec	Feet of	%gas	%oil	%water	%mud
<del>70</del>	<u>560</u>	<u>5</u>	<u>95</u>		
<u>60</u>	<u>VSM 60</u>	<u>5</u>	<u>90</u>		<u>5</u>
	<u>180ft GAP</u>				

Rec Total 130 BHT 108 Gravity 35 API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm  
 (A) Initial Hydrostatic 4694  Test 1150 T-On Location 1:50  
 (B) First Initial Flow 22  Jars \_\_\_\_\_ T-Started 2:50  
 (C) First Final Flow 36  Safety Joint \_\_\_\_\_ T-Open 6:47  
 (D) Initial Shut-In 745  Circ Sub \_\_\_\_\_ T-Pulled 9:47  
 (E) Second Initial Flow 41  Hourly Standby \_\_\_\_\_ T-Out 11:47  
 (F) Second Final Flow 58  Mileage 130rt 201.50 Comments \_\_\_\_\_  
 (G) Final Shut-In 732  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 4670  Straddle \_\_\_\_\_  
 Initial Open 45  Shale Packer \_\_\_\_\_  
 Initial Shut-In 45  Shale Packer \_\_\_\_\_  
 Final Flow 45  Extra Packer \_\_\_\_\_  
 Final Shut-In 45  Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_  
 Sub Total 1351.50

Sub Total 0  
 Total 1351.50  
 MP/DST Disc't \_\_\_\_\_

Approved By \_\_\_\_\_ Our Representative Burt Down

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

NO. **62528**

Well Name & No. Griffith #3-1 Test No. 2 Date 11-12-14  
 Company H C Oil Operating, Inc Elevation 2161 KB 2154 GL  
 Address \_\_\_\_\_  
 Co. Rep / Geo. Marc D Rig Eagle  
 Location: Sec. B Twp. 8 Rge. 22 Co. Graham State KS

Interval Tested 3493-3572 Zone Tested KC "H-A"  
 Anchor Length 29 Drill Pipe Run \_\_\_\_\_ Mud Wt. \_\_\_\_\_  
 Top Packer Depth 3498 Drill Collars Run 30 Vis \_\_\_\_\_  
 Bottom Packer Depth 3493 Wt. Pipe Run - WL \_\_\_\_\_  
 Total Depth 3572 Chlorides \_\_\_\_\_ ppm System \_\_\_\_\_ LCM \_\_\_\_\_  
 Blow Description FF-BOB in 14 min  
FSI - lin blow  
FF-BOB in 24 min  
FSI - surface blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>35</u>	<u>VSGMCO</u>	<u>5</u>	<u>90</u>	<u>5</u>	<u>5</u>
<u>125</u>	<u>VSG OCM</u>	<u>5</u>	<u>45</u>	<u>50</u>	<u>50</u>
<u>60</u>	<u>OCM</u>	<u>20</u>	<u>80</u>	<u>80</u>	<u>80</u>
____	<u>200 FT GIP</u>	____	____	____	____
____	____	____	____	____	____

Rec Total 240 BHT \_\_\_\_\_ Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 1732  Test 1150 T-On Location 00:30  
 (B) First Initial Flow 26  Jars \_\_\_\_\_ T-Started 1:05  
 (C) First Final Flow 80  Safety Joint \_\_\_\_\_ T-Open 3:30  
 (D) Initial Shut-In 264  Circ Sub \_\_\_\_\_ T-Pulled 6:30  
 (E) Second Initial Flow 87  Hourly Standby \_\_\_\_\_ T-Out 8:15  
 (F) Second Final Flow 116  Mileage 130.712 Comments \_\_\_\_\_  
 (G) Final Shut-In 684  Sampler 201.50+201.50 loaded tools  
 (H) Final Hydrostatic 1077  Straddle \_\_\_\_\_ 11-13-14 AM  
 Ruined Shale Packer \_\_\_\_\_  
 Ruined Packer \_\_\_\_\_  
 Extra Copies \_\_\_\_\_  
 Initial Open 45  Shale Packer \_\_\_\_\_  
 Initial Shut-In 45  Extra Packer \_\_\_\_\_  
 Final Flow 45  Extra Recorder \_\_\_\_\_  
 Final Shut-In 45  Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_  
 Sub Total 1553.00 Total 1553.00 MP/DST Disc't \_\_\_\_\_

Approved By \_\_\_\_\_ Our Representative [Signature]

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.