



## DRILL STEM TEST REPORT

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

PO Box 86  
Plainville, KS 67663

ATTN: Marc Downing

### **Richmeier #2-1**

### **2-9s-25w Graham,KS**

Start Date: 2016.02.21 @ 05:20:50

End Date: 2016.02.21 @ 12:17:20

Job Ticket #: 64844                      DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2016.02.23 @ 09:18:55



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

H&C Oil Operating, Inc.

**2-9s-25w Graham,KS**

PO Box 86  
Plainville, KS 67663

**Richmeier #2-1**

Job Ticket: 64844

**DST#: 1**

ATTN: Marc Downing

Test Start: 2016.02.21 @ 05:20:50

## GENERAL INFORMATION:

Formation: **LKC "C&D"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 08:32:20

Time Test Ended: 12:17:20

Test Type: Conventional Bottom Hole (Initial)

Tester: Brannan Lonsdale

Unit No: 73

**Interval: 3849.00 ft (KB) To 3900.00 ft (KB) (TVD)**

Reference Elevations: 2534.00 ft (KB)

Total Depth: 3900.00 ft (KB) (TVD)

2526.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Poor

KB to GR/CF: 8.00 ft

**Serial #: 6651**

**Inside**

Press@RunDepth: 21.94 psig @ 3897.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.02.21

End Date:

2016.02.21

Last Calib.:

2016.02.21

Start Time: 05:20:51

End Time:

12:17:20

Time On Btm:

2016.02.21 @ 08:31:50

Time Off Btm:

2016.02.21 @ 10:38:20

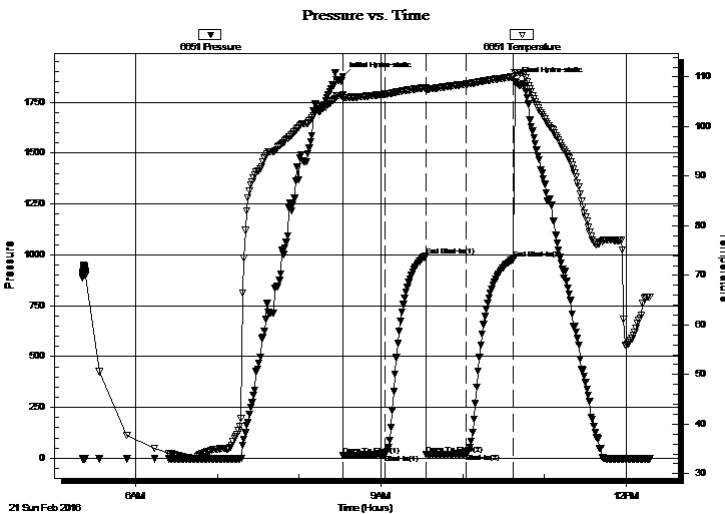
TEST COMMENT: 30- IF- Built very slow ly to 1 1/2"

30- IS- No blow

30- FF- No blow

30- FSI- No blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1876.04	106.33	Initial Hydro-static
1	13.56	105.73	Open To Flow (1)
31	18.32	106.52	Shut-In(1)
61	995.92	107.89	End Shut-In(1)
62	19.04	107.36	Open To Flow (2)
91	21.94	108.57	Shut-In(2)
126	981.10	110.04	End Shut-In(2)
127	1850.46	110.84	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
32.00	SWM, 10%W 90%M	0.24

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

H&C Oil Operating, Inc.

PO Box 86  
Plainville, KS 67663

ATTN: Marc Downing

**2-9s-25w Graham,KS**

**Richmeier #2-1**

Job Ticket: 64844

**DST#: 1**

Test Start: 2016.02.21 @ 05:20:50

## GENERAL INFORMATION:

Formation: **LKC "C&D"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 08:32:20

Time Test Ended: 12:17:20

**Interval: 3849.00 ft (KB) To 3900.00 ft (KB) (TVD)**

Total Depth: 3900.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Poor

Test Type: Conventional Bottom Hole (Initial)

Tester: Brannan Lonsdale

Unit No: 73

Reference Elevations: 2534.00 ft (KB)

2526.00 ft (CF)

KB to GR/CF: 8.00 ft

**Serial #: 6839**

**Outside**

Press@RunDepth: psig @ 3897.00 ft (KB)

Start Date: 2016.02.21

End Date: 2016.02.21

Start Time: 05:20:37

End Time: 12:17:06

Capacity: 8000.00 psig

Last Calib.: 2016.02.21

Time On Btm:

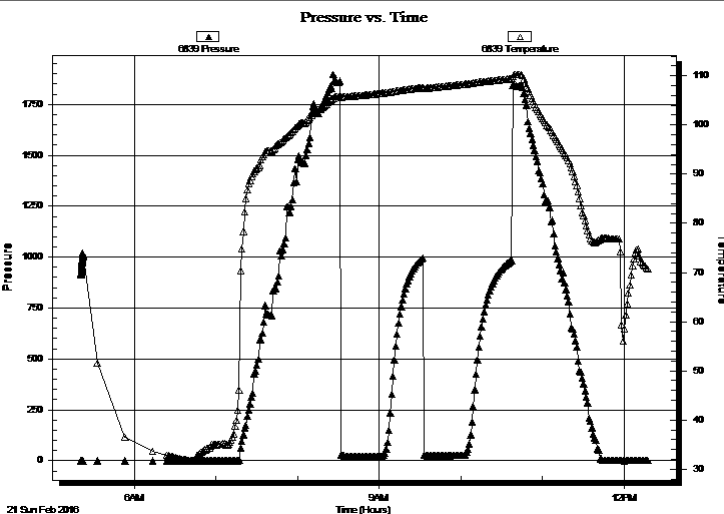
Time Off Btm:

TEST COMMENT: 30- IF- Built very slow ly to 1 1/2"

30- IS- No blow

30- FF- No blow

30- FSI- No blow



## PRESSURE SUMMARY

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

Length (ft)	Description	Volume (bbl)
32.00	SWM, 10%W 90%M	0.24

## Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
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**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

H&C Oil Operating, Inc.

**2-9s-25w Graham,KS**

PO Box 86  
Plainville, KS 67663

**Richmeier #2-1**

Job Ticket: 64844

**DST#: 1**

ATTN: Marc Downing

Test Start: 2016.02.21 @ 05:20:50

## Tool Information

Drill Pipe:	Length: 3535.00 ft	Diameter: 3.82 inches	Volume: 50.11 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 311.00 ft	Diameter: 2.75 inches	Volume: 2.28 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 64000.00 lb
			<u>Total Volume: 52.39 bbl</u>	Tool Chased 2.00 ft
Drill Pipe Above KB:	17.00 ft			String Weight: Initial 49000.00 lb
Depth to Top Packer:	3849.00 ft			Final 49000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	51.00 ft			
Tool Length:	71.00 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			3830.00	
Shut In Tool	5.00			3835.00	
Hydraulic tool	5.00			3840.00	
Packer	5.00			3845.00	20.00 Bottom Of Top Packer
Packer	4.00			3849.00	
Stubb	1.00			3850.00	
Perforations	13.00			3863.00	
Change Over Sub	1.00			3864.00	
Drill Pipe	32.00			3896.00	
Change Over Sub	1.00			3897.00	
Recorder	0.00	6651	Inside	3897.00	
Recorder	0.00	6839	Outside	3897.00	
Bullnose	3.00			3900.00	51.00 Bottom Packers & Anchor

**Total Tool Length: 71.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

H&C Oil Operating, Inc.

**2-9s-25w Graham,KS**

PO Box 86  
Plainville, KS 67663

**Richmeier #2-1**

Job Ticket: 64844

**DST#: 1**

ATTN: Marc Downing

Test Start: 2016.02.21 @ 05:20:50

## 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: sec/qt

Cushion Volume:

bbbl

Water Loss: 7.19 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1500.00 ppm

Filter Cake: inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
32.00	SWM, 10%W 90%M	0.235

Total Length: 32.00 ft      Total Volume: 0.235 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

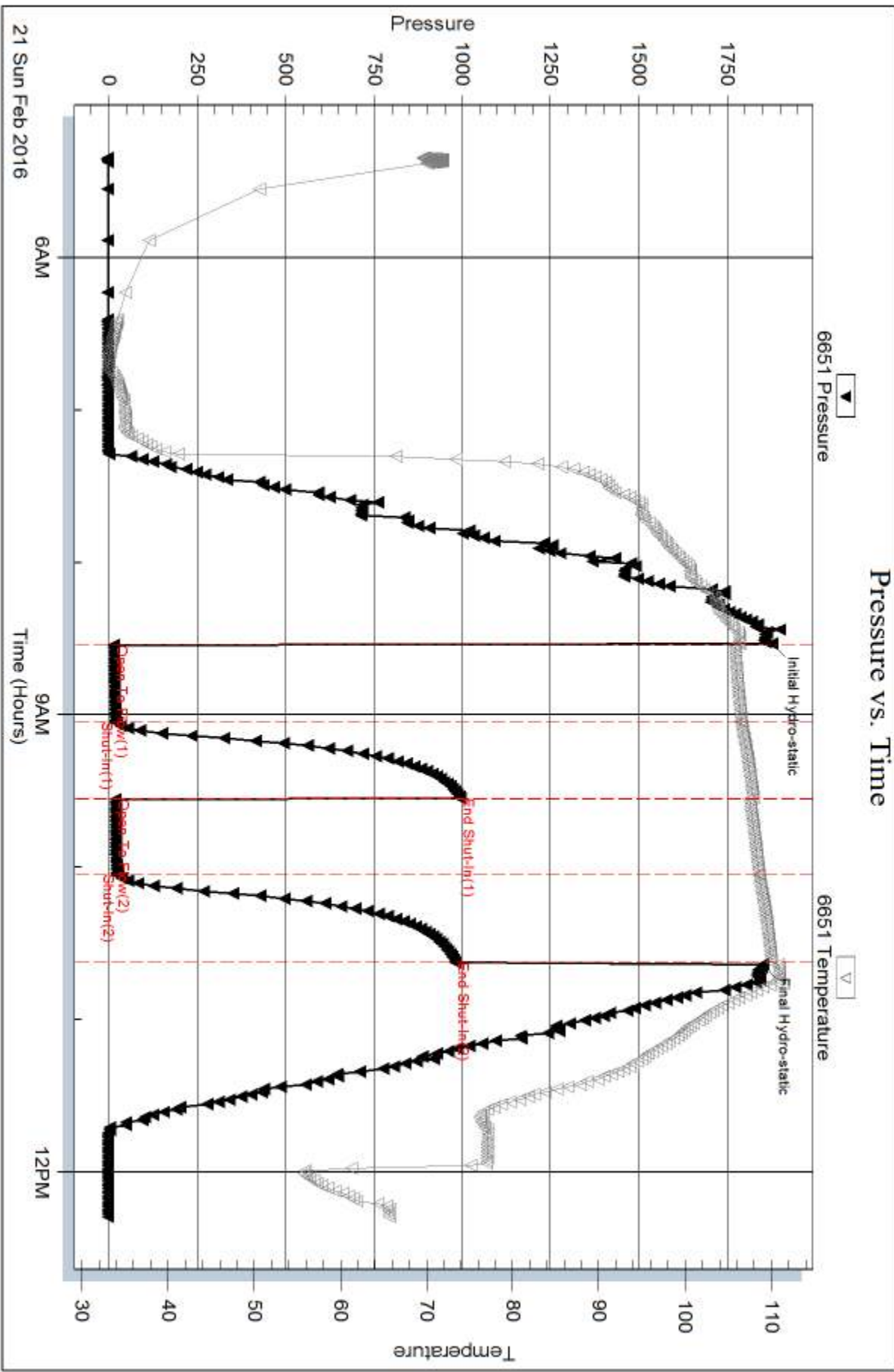
Serial #: 6651

Inside

H&C Oil Operating, Inc.

Richmeier #2-1

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 64844

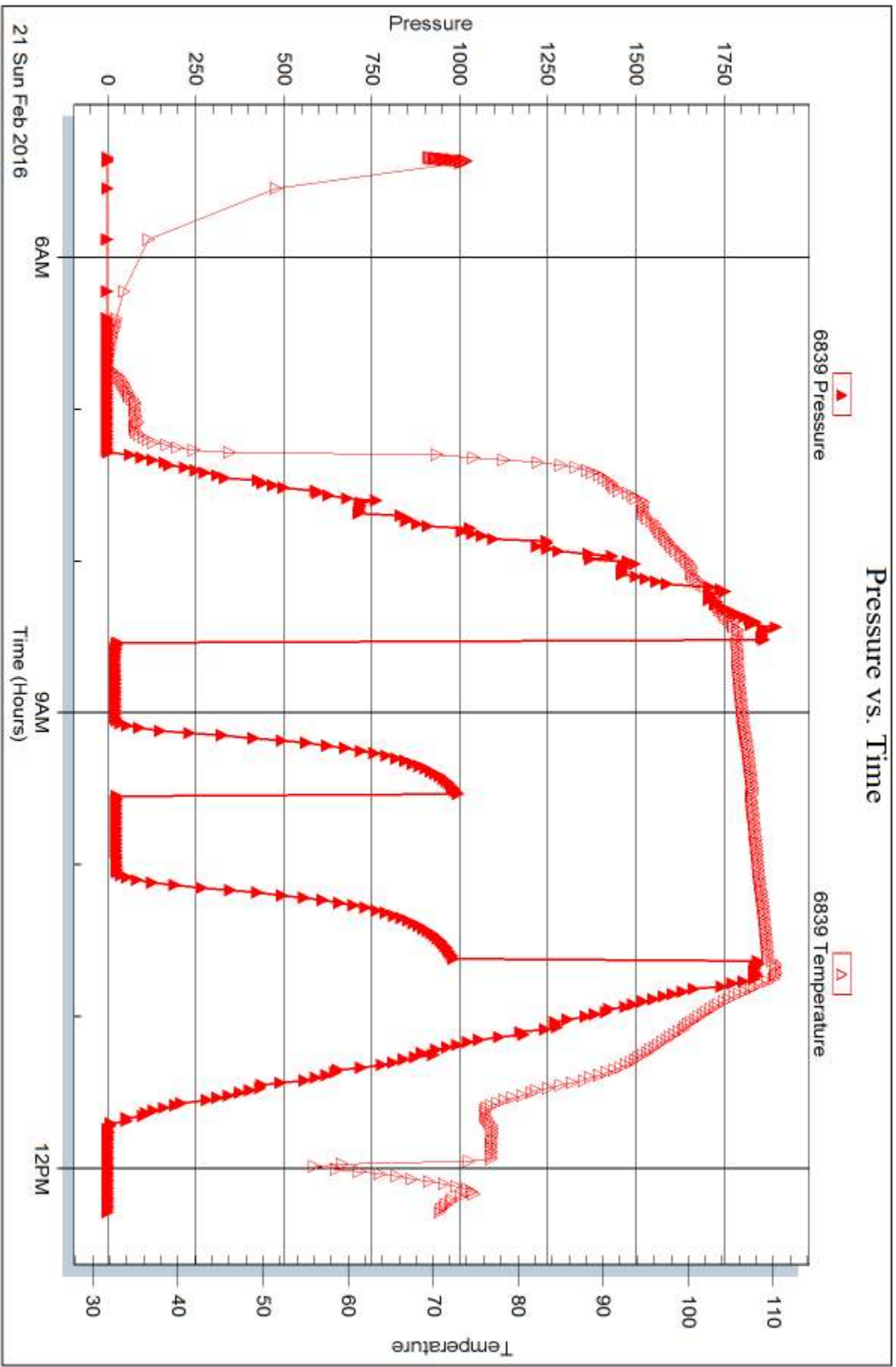
Printed: 2016.02.23 @ 09:18:56

Serial #: 6839

Outside H&C Oil Operating, Inc.

Richmeier #2-1

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 64844

Printed: 2016.02.23 @ 09:18:56



## DRILL STEM TEST REPORT

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

PO Box 86  
Plainville, KS 67663

ATTN: Marc Downing

### **Richmeier #2-1**

### **2-9s-25w Graham,KS**

Start Date: 2016.02.22 @ 01:33:33

End Date: 2016.02.22 @ 07:59:03

Job Ticket #: 64845                      DST #: 2

Trilobite Testing, Inc  
PO Box 362 Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2016.02.23 @ 09:18:08





**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

H&C Oil Operating, Inc.

**2-9s-25w Graham,KS**

PO Box 86  
Plainville, KS 67663

**Richmeier #2-1**

Job Ticket: 64845

**DST#: 2**

ATTN: Marc Downing

Test Start: 2016.02.22 @ 01:33:33

## GENERAL INFORMATION:

Formation: **LKC H-J**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 03:53:33

Time Test Ended: 07:59:03

Test Type: Conventional Bottom Hole (Reset)

Tester: Brannan Lonsdale

Unit No: 73

**Interval: 3959.00 ft (KB) To 4029.00 ft (KB) (TVD)**

Reference Elevations: 2534.00 ft (KB)

Total Depth: 4029.00 ft (KB) (TVD)

2526.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Poor

KB to GR/CF: 8.00 ft

**Serial #: 6651**

**Inside**

Press@RunDepth: 35.82 psig @ 4026.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.02.22

End Date: 2016.02.22

Last Calib.: 2016.02.22

Start Time: 01:33:34

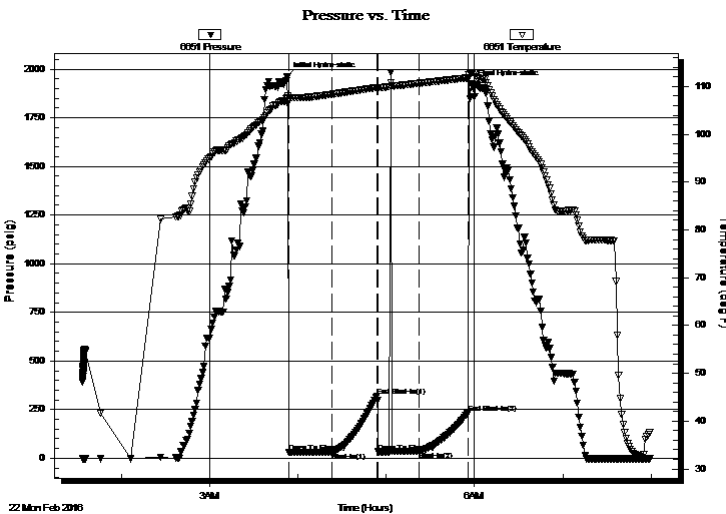
End Time: 07:59:03

Time On Btm: 2016.02.22 @ 03:52:33

Time Off Btm: 2016.02.22 @ 05:57:33

**TEST COMMENT:** 30- IF- Surface blow built slowly to 1/4"  
30- IS- No blow  
30- FF- No blow Flushed tool Surface blow died in 3 mins  
30- FS- No blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1961.49	107.60	Initial Hydro-static
1	30.23	107.59	Open To Flow (1)
31	32.05	108.36	Shut-In(1)
61	318.89	109.78	End Shut-In(1)
62	32.53	109.72	Open To Flow (2)
90	35.82	110.65	Shut-In(2)
123	233.62	111.79	End Shut-In(2)
125	1922.78	112.94	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
45.00	M	0.33

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

H&C Oil Operating, Inc.

**2-9s-25w Graham,KS**

PO Box 86  
Plainville, KS 67663

**Richmeier #2-1**

Job Ticket: 64845

**DST#: 2**

ATTN: Marc Downing

Test Start: 2016.02.22 @ 01:33:33

## GENERAL INFORMATION:

Formation: **LKC H-J**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 03:53:33

Time Test Ended: 07:59:03

Test Type: Conventional Bottom Hole (Reset)

Tester: Brannan Lonsdale

Unit No: 73

**Interval: 3959.00 ft (KB) To 4029.00 ft (KB) (TVD)**

Reference Elevations: 2534.00 ft (KB)

Total Depth: 4029.00 ft (KB) (TVD)

2526.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Poor

KB to GR/CF: 8.00 ft

**Serial #: 6839 Outside**

Press@RunDepth: psig @ 4026.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.02.22 End Date: 2016.02.22

Last Calib.: 2016.02.22

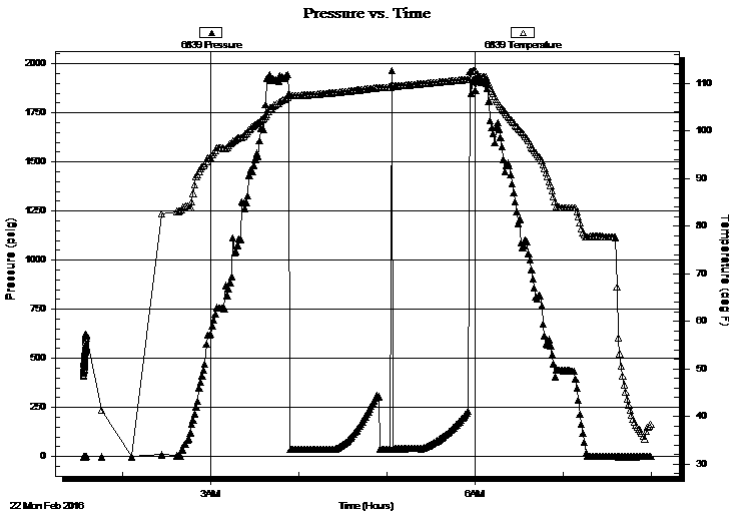
Start Time: 01:33:42 End Time: 07:59:11

Time On Btm:

Time Off Btm:

TEST COMMENT: 30- IF- Surface blow built slowly to 1/4"  
30- IS- No blow  
30- FF- No blow Flushed tool Surface blow died in 3 mins  
30- FS- No blow

## PRESSURE SUMMARY



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

## Recovery

Length (ft)	Description	Volume (bbl)
45.00	M	0.33

## Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

H&C Oil Operating, Inc.

**2-9s-25w Graham,KS**

PO Box 86  
Plainville, KS 67663

**Richmeier #2-1**

Job Ticket: 64845

**DST#: 2**

ATTN: Marc Downing

Test Start: 2016.02.22 @ 01:33:33

## Tool Information

Drill Pipe:	Length: 3695.00 ft	Diameter: 3.82 inches	Volume: 52.38 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 249.00 ft	Diameter: 2.75 inches	Volume: 1.83 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose:	60000.00 lb
			<u>Total Volume: 54.21 bbl</u>	Tool Chased	3.00 ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial	53000.00 lb
Depth to Top Packer:	3959.00 ft			Final	53000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	70.00 ft				
Tool Length:	90.00 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			3940.00	
Shut In Tool	5.00			3945.00	
Hydraulic tool	5.00			3950.00	
Packer	5.00			3955.00	20.00 Bottom Of Top Packer
Packer	4.00			3959.00	
Stubb	1.00			3960.00	
Perforations	3.00			3963.00	
Change Over Sub	1.00			3964.00	
Drill Pipe	61.00			4025.00	
Change Over Sub	1.00			4026.00	
Recorder	0.00	6651	Inside	4026.00	
Recorder	0.00	6839	Outside	4026.00	
Bullnose	3.00			4029.00	70.00 Bottom Packers & Anchor

**Total Tool Length: 90.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

H&C Oil Operating, Inc.

**2-9s-25w Graham,KS**

PO Box 86  
Plainville, KS 67663

**Richmeier #2-1**

Job Ticket: 64845

**DST#: 2**

ATTN: Marc Downing

Test Start: 2016.02.22 @ 01:33:33

## 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: 63.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.18 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1500.00 ppm

Filter Cake: inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
45.00	M	0.331

Total Length: 45.00 ft      Total Volume: 0.331 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Serial #: 6651

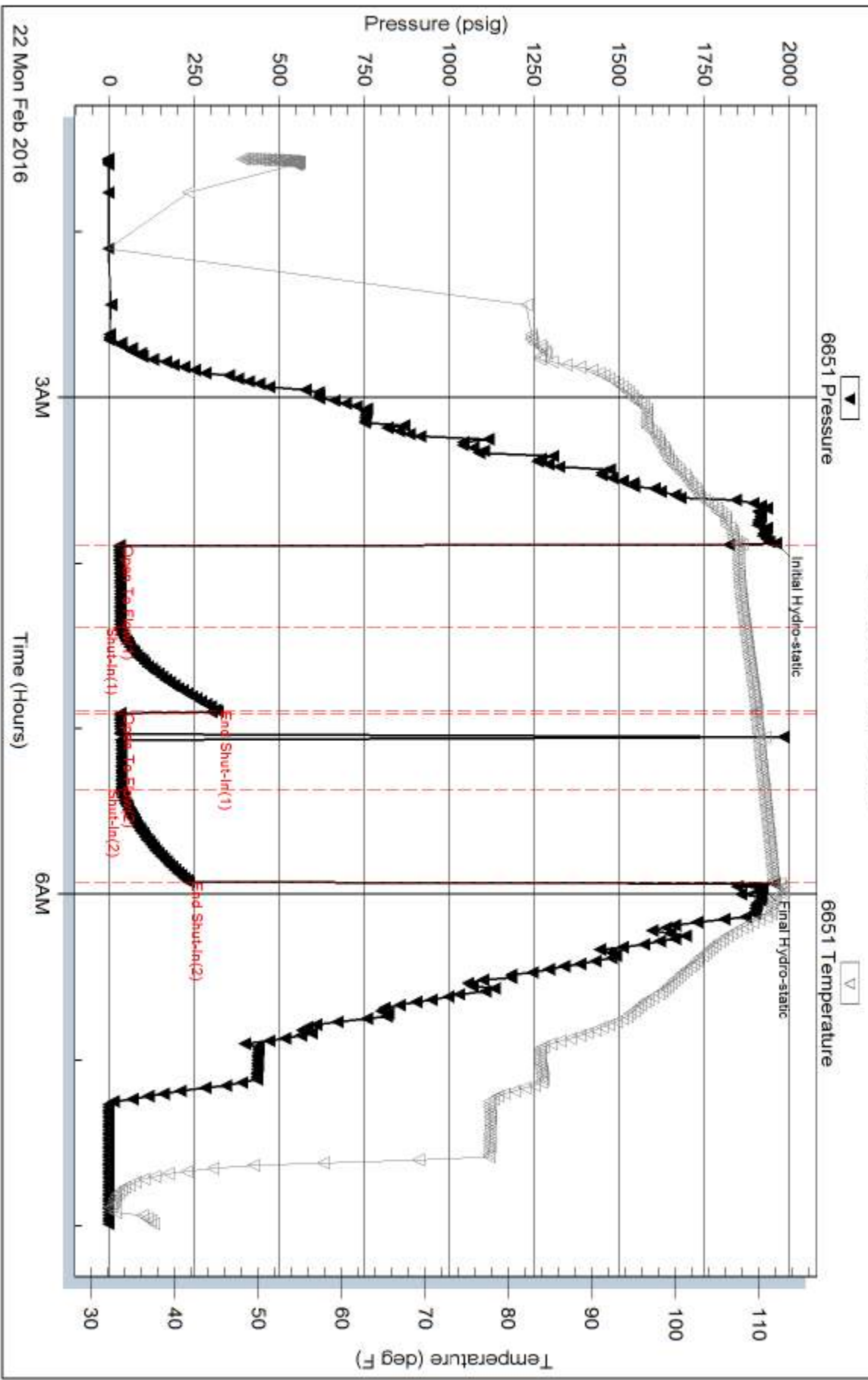
Inside

H&C Oil Operating, Inc.

Richmeier #2-1

DST Test Number: 2

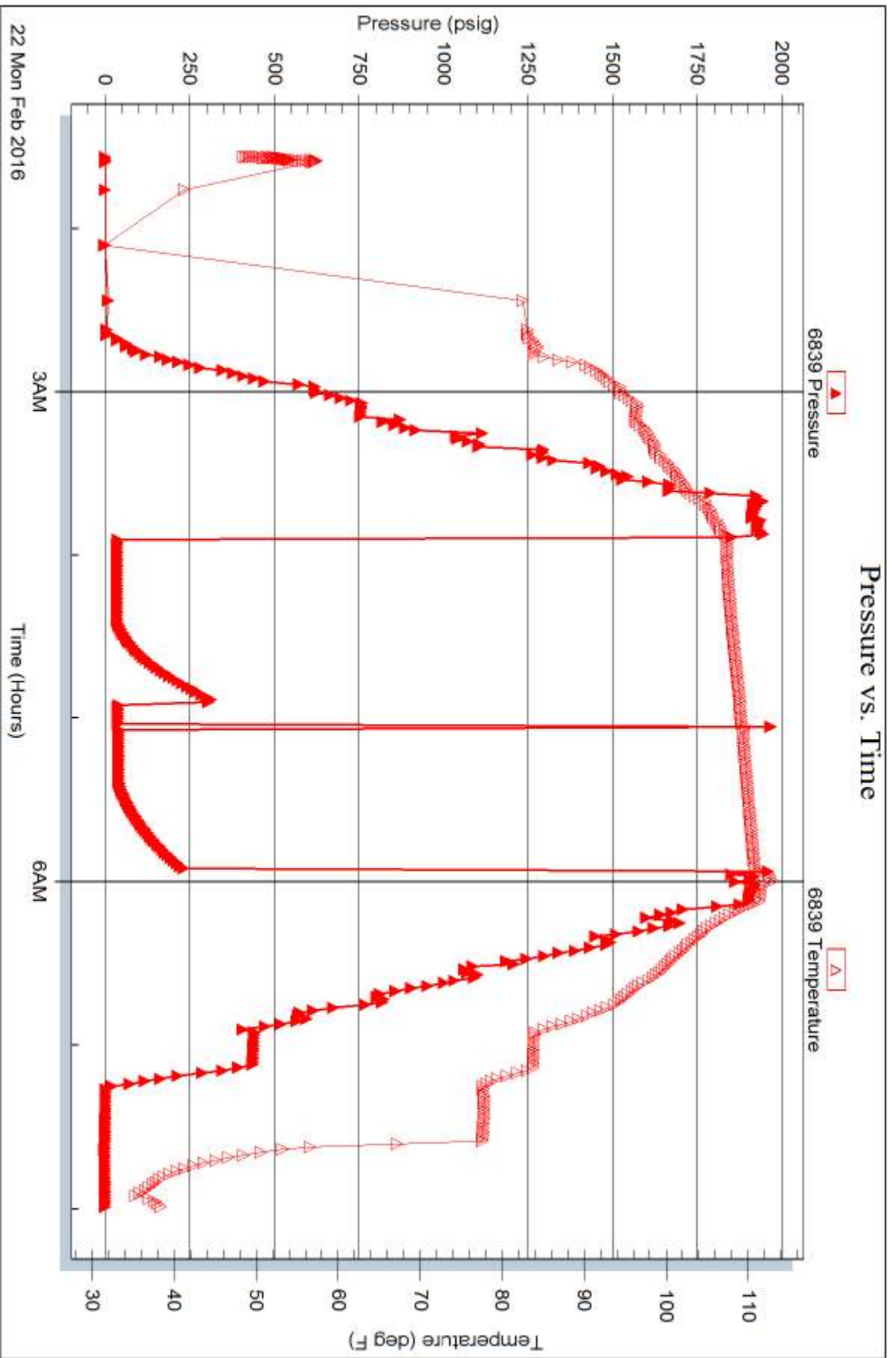
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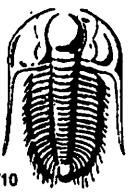


Trilobite Testing, Inc

Ref. No: 64845

Printed: 2016.02.23 @ 09:18:09





# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 64844

Well Name & No. Richmeier #2-1 Test No. 1 Date 2/21/16  
 Company HTC Oil Operating, Inc. Elevation 2534 KB 2526GL  
 Address PO Box 86 Plainville, KS 67663  
 Co. Rep / Geo. Marc Downing Rig Discovery #1  
 Location: Sec. 2 Twp. 9 S Rge. 25 W Co. Graham State KS

Interval Tested 3849-3900 Zone Tested LKC "C&D"  
 Anchor Length 51' Drill Pipe Run 3535 Mud Wt. 8.6  
 Top Packer Depth 3844 Drill Collars Run 311 Vis 60+  
 Bottom Packer Depth 3849 Wt. Pipe Run --- WL 7.2  
 Total Depth 3900 Chlorides 1,500 ppm System LCM 3#

Blow Description IF - Slowly built to 1 1/2"  
ISF - No blow  
FF - No blow  
FST - No blow

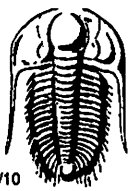
Rec	Feet of	%gas	%oil	%water	%mud
<u>32</u>	<u>SWM</u>			<u>10%</u>	<u>90%</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 32' BHT 110° Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic <u>1876</u>	<input checked="" type="checkbox"/> Test <u>1050</u>	T-On Location <u>0502</u>
(B) First Initial Flow <u>14</u>	<input type="checkbox"/> Jars _____	T-Started <u>0520</u>
(C) First Final Flow <u>18</u>	<input type="checkbox"/> Safety Joint _____	T-Open <u>0831</u>
(D) Initial Shut-In <u>996</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>1031</u>
(E) Second Initial Flow <u>19</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>1216</u>
(F) Second Final Flow <u>22</u>	<input checked="" type="checkbox"/> Mileage <u>100 RT</u>	Comments _____
(G) Final Shut-In <u>981</u>	<input type="checkbox"/> Sampler <u>124rt 93</u>	_____
(H) Final Hydrostatic <u>1850</u>	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> Ruined Shale Packer _____
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer _____	<input type="checkbox"/> Ruined Packer _____
Initial Shut-In <u>30</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Extra Copies _____
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder _____	Sub Total <u>0</u>
Final Shut-In <u>30</u>	<input type="checkbox"/> Day Standby _____	Total <u>1143</u>
	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total <u>1143</u>	

Approved By \_\_\_\_\_ Our Representative Brannan Lonsdale

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

NO. 64845

Well Name & No. Richmeier #2-1 Test No. 2 Date 2/22/16  
 Company H+C Oil Operating, Inc. Elevation 2534 KB 2526GL  
 Address PO Box 56 Plainville, KS 67663  
 Co. Rep / Geo. Marc Downing Rig Discovery #1  
 Location: Sec. 2 Twp. N 9 S Rge. 25 W Co. Graham State KS

Interval Tested 3959-4029 Zone Tested LKC "H-J"  
 Anchor Length 20' Drill Pipe Run 3695 Mud Wt. 9.0  
 Top Packer Depth 3954 Drill Collars Run 249 Vis 63  
 Bottom Packer Depth 3959 Wt. Pipe Run — WL 7.2  
 Total Depth 4029 Chlorides 1500 ppm System LCM 2<sup>1</sup>  
 Blow Description IF - Surface blow built slowly to 1/4"  
ISI - No blow  
FF - No blow Flashed tool surface blow died in 3mins  
FST - No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>45</u>	<u>M</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 45' BHT 112° Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic <u>1961</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>0115</u>
(B) First Initial Flow <u>30</u>	<input type="checkbox"/> Jars _____	T-Started <u>0133</u>
(C) First Final Flow <u>32</u>	<input type="checkbox"/> Safety Joint _____	T-Open <u>0353</u>
(D) Initial Shut-In <u>319</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>0553</u>
(E) Second Initial Flow <u>33</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>0759</u>
(F) Second Final Flow <u>36</u>	<input checked="" type="checkbox"/> Mileage <u>180 RTx2</u>	Comments <u>Loaded tools</u>
(G) Final Shut-In <u>234</u>	<input type="checkbox"/> Sampler <u>186</u>	<u>10/22/16 2015</u>
(H) Final Hydrostatic <u>1923</u>	<input type="checkbox"/> Straddle _____	
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>30</u>	<input type="checkbox"/> Extra Recorder _____	Sub Total <u>0</u>
Final Shut-In <u>30</u>	<input type="checkbox"/> Day Standby _____	Total <u>1336</u>
	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total <u>1336</u>	

Approved By \_\_\_\_\_ Our Representative Braman Lonsdale

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.