



DRILL STEM TEST REPORT

Prepared For: **H&C Oil Operating**

PO Box 86
Plainville KS 67663

ATTN: Clayton Erickson

Riedel #17-1

17-10s-25w Graham,KS

Start Date: 2013.05.29 @ 02:55:00

End Date: 2013.05.29 @ 09:59:00

Job Ticket #: 53886 DST #: 1

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

Printed: 2013.06.05 @ 08:56:46



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

H&C Oil Operating

17-10s-25w Graham,KS

PO Box 86
Plainville KS 67663

Riedel #17-1

Job Ticket: 53886

DST#: 1

ATTN: Clayton Erickson

Test Start: 2013.05.29 @ 02:55:00

GENERAL INFORMATION:

Formation: **KC "C,D"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 05:40:30

Time Test Ended: 09:59:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Brett Dickinson

Unit No: 59

Interval: 3848.00 ft (KB) To 3885.00 ft (KB) (TVD)

Reference Elevations: 2561.00 ft (KB)

Total Depth: 3885.00 ft (KB) (TVD)

2550.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 11.00 ft

Serial #: 8319 Outside

Press @ Run Depth: 35.02 psig @ 3849.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.05.29

End Date: 2013.05.29

Last Calib.: 2013.05.29

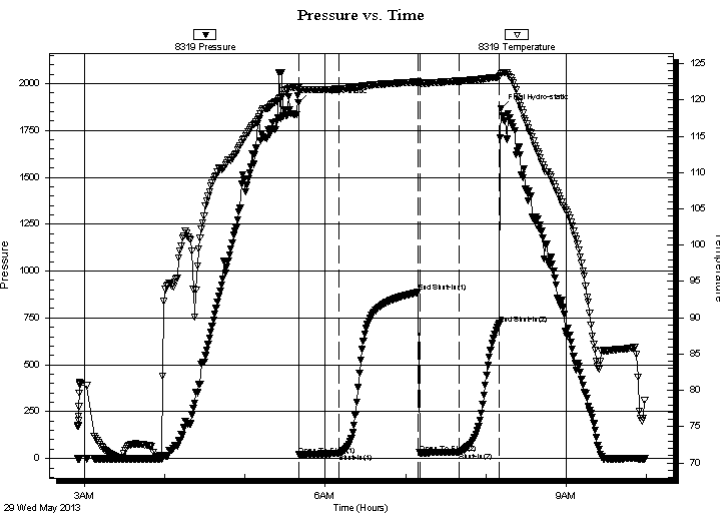
Start Time: 02:55:05

End Time: 09:58:59

Time On Btm: 2013.05.29 @ 05:40:00

Time Off Btm: 2013.05.29 @ 08:11:30

TEST COMMENT: IF-1/4" blow
ISI-No blow
FF-No blow
FSI-No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1899.34	121.75	Initial Hydro-static
1	20.02	121.41	Open To Flow (1)
30	27.58	121.52	Shut-In(1)
90	886.57	122.51	End Shut-In(1)
91	30.28	122.32	Open To Flow (2)
120	35.02	122.62	Shut-In(2)
150	719.14	123.15	End Shut-In(2)
152	1865.92	123.67	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
10.00	VSOCM 5%O 95%M	0.05

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

H&C Oil Operating
 PO Box 86
 Plainville KS 67663
 ATTN: Clayton Erickson

17-10s-25w Graham,KS
Riedel #17-1
 Job Ticket: 53886 **DST#: 1**
 Test Start: 2013.05.29 @ 02:55:00

GENERAL INFORMATION:

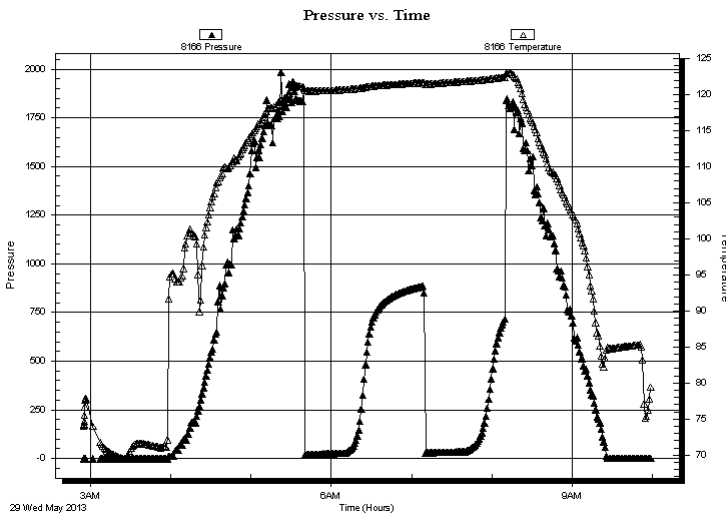
Formation: KC "C,D"		Test Type: Conventional Bottom Hole (Initial)
Deviated: No Whipstock:	ft (KB)	Tester: Brett Dickinson
Time Tool Opened: 05:40:30		Unit No: 59
Time Test Ended: 09:59:00		
Interval: 3848.00 ft (KB) To 3885.00 ft (KB) (TVD)		Reference Elevations: 2561.00 ft (KB)
Total Depth: 3885.00 ft (KB) (TVD)		2550.00 ft (CF)
Hole Diameter: 7.88 inches	Hole Condition: Fair	KB to GR/CF: 11.00 ft

Serial #: 8166 Inside

Press @ Run Depth: psig @ 3849.00 ft (KB)	Capacity: 8000.00 psig
Start Date: 2013.05.29	End Date: 2013.05.29
Last Calib.: 2013.05.29	Time On Btm:
Start Time: 02:55:05	End Time: 09:58:29
	Time Off Btm:

TEST COMMENT: IF-1/4" blow
 IS-No blow
 FF-No blow
 FS-No blow

PRESSURE SUMMARY



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

Recovery

Length (ft)	Description	Volume (bbl)
10.00	VSOCM 5%O 95%M	0.05

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

H&C Oil Operating

17-10s-25w Graham,KS

PO Box 86
Plainville KS 67663

Riedel #17-1

Job Ticket: 53886

DST#: 1

ATTN: Clayton Erickson

Test Start: 2013.05.29 @ 02:55:00

Tool Information

Drill Pipe:	Length: 3606.00 ft	Diameter: 3.80 inches	Volume: 50.58 bbl	Tool Weight: 2500.00 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: 240.00 ft	Diameter: 2.25 inches	Volume: 1.18 bbl	Weight to Pull Loose: 75000.00 lb
			<u>Total Volume: 51.76 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	26.00 ft			String Weight: Initial 70000.00 lb
Depth to Top Packer:	3848.00 ft			Final 70000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	37.00 ft			
Tool Length:	65.00 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			3821.00	
Shut In Tool	5.00			3826.00	
Hydraulic tool	5.00			3831.00	
Jars	5.00			3836.00	
Safety Joint	2.00			3838.00	
Packer	5.00			3843.00	28.00 Bottom Of Top Packer
Packer	5.00			3848.00	
Stubb	1.00			3849.00	
Recorder	0.00	8166	Inside	3849.00	
Recorder	0.00	8319	Outside	3849.00	
Perforations	33.00			3882.00	
Bullnose	3.00			3885.00	37.00 Bottom Packers & Anchor

Total Tool Length: 65.00



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DRILL STEM TEST REPORT

FLUID SUMMARY

H&C Oil Operating

17-10s-25w Graham,KS

PO Box 86
Plainville KS 67663

Riedel #17-1

Job Ticket: 53886

DST#: 1

ATTN: Clayton Erickson

Test Start: 2013.05.29 @ 02:55:00

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: 58.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.59 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1000.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	VSOCM 5%O 95%M	0.049

Total Length: 10.00 ft Total Volume: 0.049 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

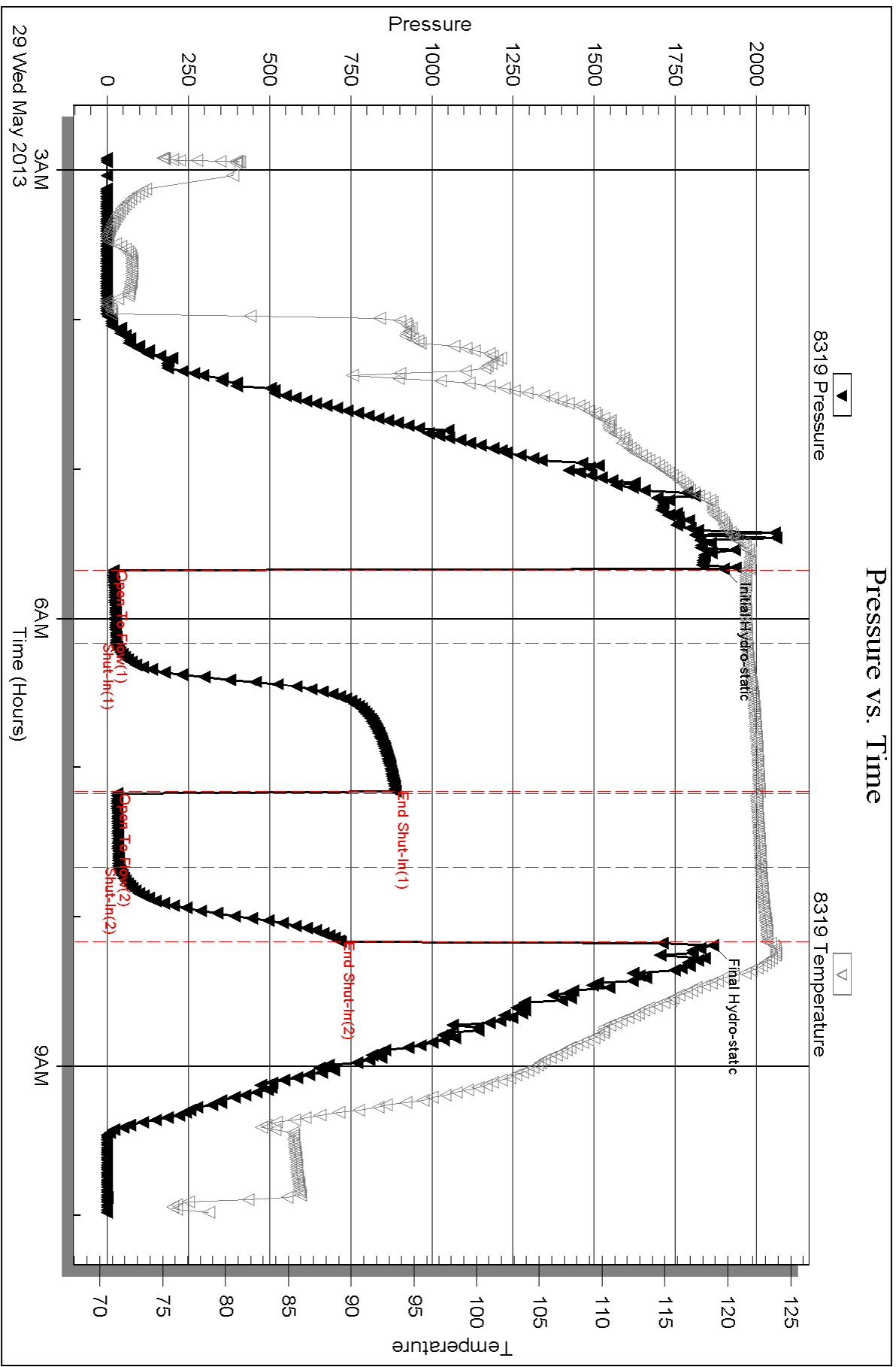
Recovery Comments:

Serial #: 8319

Outside H&C Oil Operating

Riedel #17-1

DST Test Number: 1



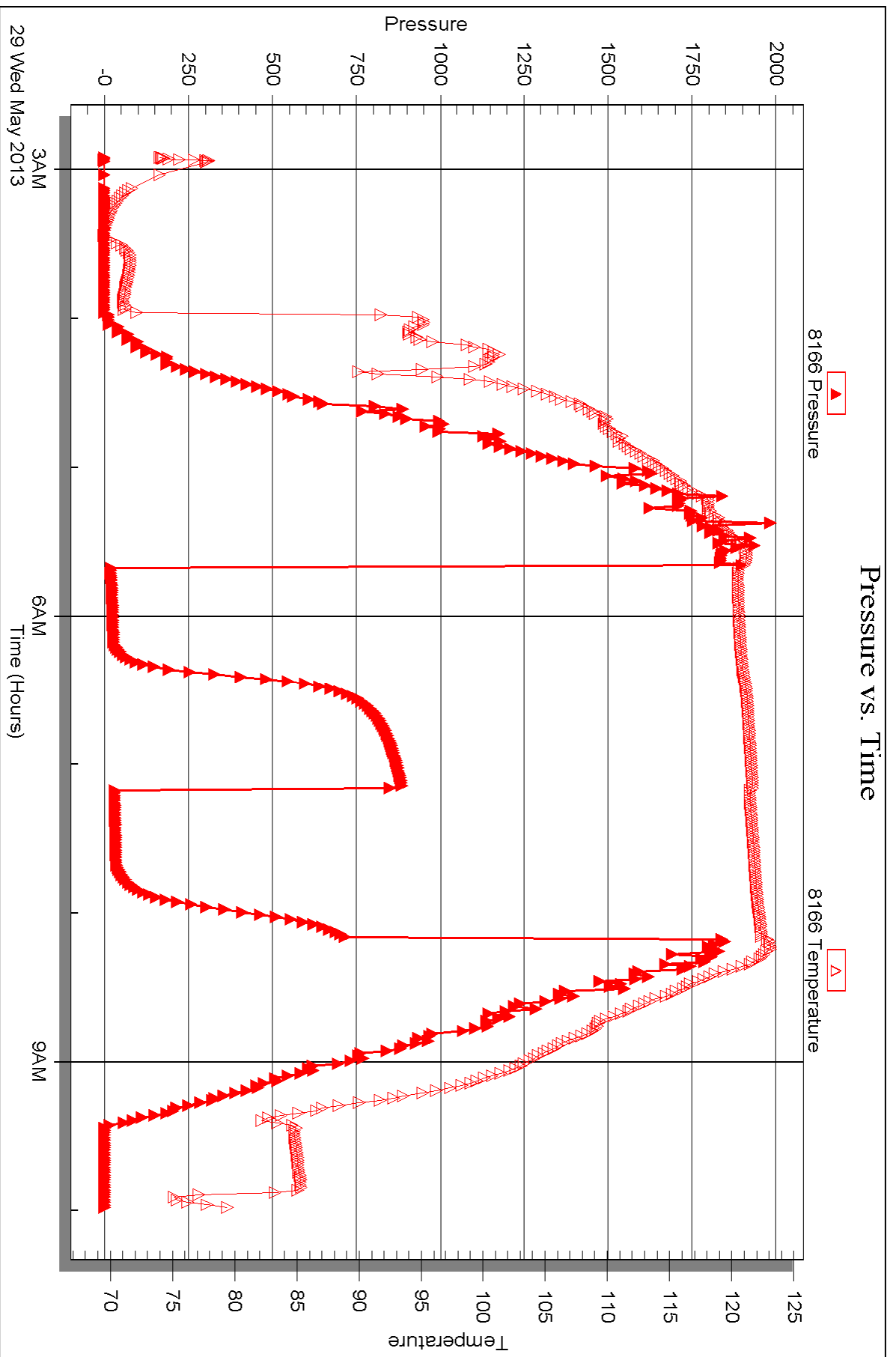
Serial #: 8166

Inside

H&C Oil Operating

Riedel #17-1

DST Test Number: 1



Triobite Testing, Inc

Ref. No: 53886

Printed: 2013.06.05 @ 08:56:49



DRILL STEM TEST REPORT

Prepared For: **H&C Oil Operating**

PO Box 86
Plainville KS 67663

ATTN: Clayton Erickson

Riedel #17-1

17-10s-25w Graham,KS

Start Date: 2013.05.30 @ 04:45:00

End Date: 2013.05.30 @ 11:42:30

Job Ticket #: 53887 DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.06.05 @ 08:56:05

H&C Oil Operating
17-10s-25w Graham,KS
Riedel #17-1
DST # 2
KC "I-J"
2013.05.30



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

H&C Oil Operating

17-10s-25w Graham,KS

PO Box 86
Plainville KS 67663

Riedel #17-1

Job Ticket: 53887

DST#: 2

ATTN: Clayton Erickson

Test Start: 2013.05.30 @ 04:45:00

GENERAL INFORMATION:

Formation: **KC "I-J"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 07:07:00

Time Test Ended: 11:42:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Brett Dickinson

Unit No: 59

Interval: 3972.00 ft (KB) To 4020.00 ft (KB) (TVD)

Total Depth: 4020.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2561.00 ft (KB)

2550.00 ft (CF)

KB to GR/CF: 11.00 ft

Serial #: 8166

Inside

Press @ Run Depth: 47.38 psig @ 3973.00 ft (KB)

Start Date: 2013.05.30

End Date:

2013.05.30

Start Time: 04:45:05

End Time:

11:42:29

Capacity: 8000.00 psig

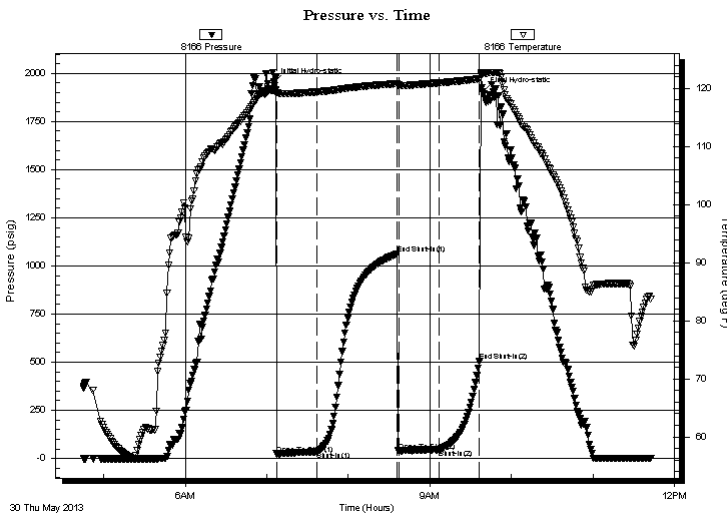
Last Calib.: 2013.05.30

Time On Btm: 2013.05.30 @ 07:05:00

Time Off Btm: 2013.05.30 @ 09:39:00

TEST COMMENT: IF-3/4" blow
ISI-No blow
FF-No blow
FSI-No blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1954.06	119.57	Initial Hydro-static
2	24.05	119.30	Open To Flow (1)
32	35.39	119.40	Shut-In(1)
91	1060.97	120.82	End Shut-In(1)
92	39.98	120.56	Open To Flow (2)
122	47.38	120.97	Shut-In(2)
152	505.10	121.68	End Shut-In(2)
154	1907.12	122.64	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
15.00	VSOCM 5%O 95%M	0.07

Gas Rates

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

* Recovery from multiple tests



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

H&C Oil Operating

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PO Box 86
Plainville KS 67663

Riedel #17-1

Job Ticket: 53887

DST#: 2

ATTN: Clayton Erickson

Test Start: 2013.05.30 @ 04:45:00

GENERAL INFORMATION:

Formation: **KC "I-J"**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Reset)
 Time Tool Opened: 07:07:00
 Tester: Brett Dickinson
 Time Test Ended: 11:42:30
 Unit No: 59
Interval: 3972.00 ft (KB) To 4020.00 ft (KB) (TVD)
 Reference Elevations: 2561.00 ft (KB)
 Total Depth: 4020.00 ft (KB) (TVD)
 2550.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 KB to GR/CF: 11.00 ft

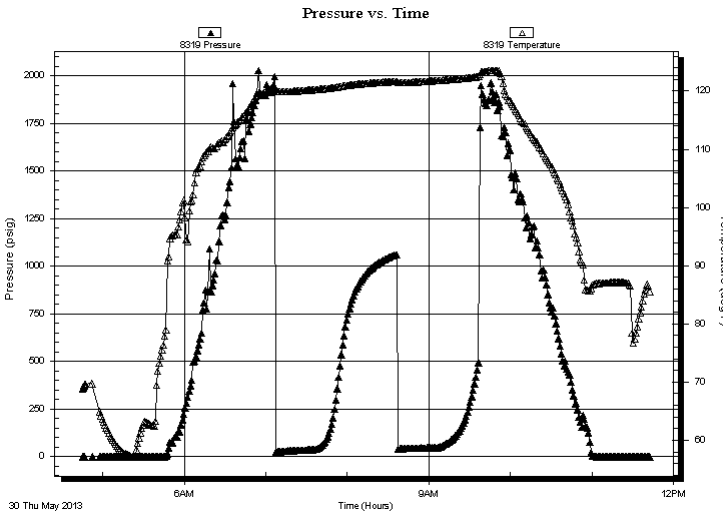
Serial #: 8319

Outside

Press @ RunDepth: psig @ 3973.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2013.05.30 End Date: 2013.05.30 Last Calib.: 2013.05.30
 Start Time: 04:45:05 End Time: 11:42:29 Time On Btm:
 Time Off Btm:

TEST COMMENT: IF-3/4" blow
 IS- No blow
 FF- No blow
 FS- No blow

PRESSURE SUMMARY



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

Recovery

Length (ft)	Description	Volume (bbl)
15.00	VSOCM 5%O 95%M	0.07

* 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

17-10s-25w Graham,KS

PO Box 86
Plainville KS 67663

Riedel #17-1

Job Ticket: 53887

DST#: 2

ATTN: Clayton Erickson

Test Start: 2013.05.30 @ 04:45:00

Tool Information

Drill Pipe:	Length: 3730.00 ft	Diameter: 3.80 inches	Volume: 52.32 bbl	Tool Weight: 2500.00 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: 240.00 ft	Diameter: 2.25 inches	Volume: 1.18 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 53.50 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	26.00 ft			String Weight: Initial 70000.00 lb
Depth to Top Packer:	3972.00 ft			Final 70000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	48.00 ft			
Tool Length:	76.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Length (ft) Serial No. Position Depth (ft) Accum. Lengths

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3945.00	
Shut In Tool	5.00			3950.00	
Hydraulic tool	5.00			3955.00	
Jars	5.00			3960.00	
Safety Joint	2.00			3962.00	
Packer	5.00			3967.00	28.00 Bottom Of Top Packer
Packer	5.00			3972.00	
Stubb	1.00			3973.00	
Recorder	0.00	8166	Inside	3973.00	
Recorder	0.00	8319	Outside	3973.00	
Perforations	11.00			3984.00	
Change Over Sub	1.00			3985.00	
Drill Pipe	31.00			4016.00	
Change Over Sub	1.00			4017.00	
Bullnose	3.00			4020.00	48.00 Bottom Packers & Anchor

Total Tool Length: 76.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

H&C Oil Operating

17-10s-25w Graham,KS

PO Box 86
Plainville KS 67663

Riedel #17-1

Job Ticket: 53887

DST#: 2

ATTN: Clayton Erickson

Test Start: 2013.05.30 @ 04:45:00

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: 51.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.58 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1000.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
15.00	VSOCM 5%O 95%M	0.074

Total Length: 15.00 ft Total Volume: 0.074 bbl

Num Fluid Samples: 0

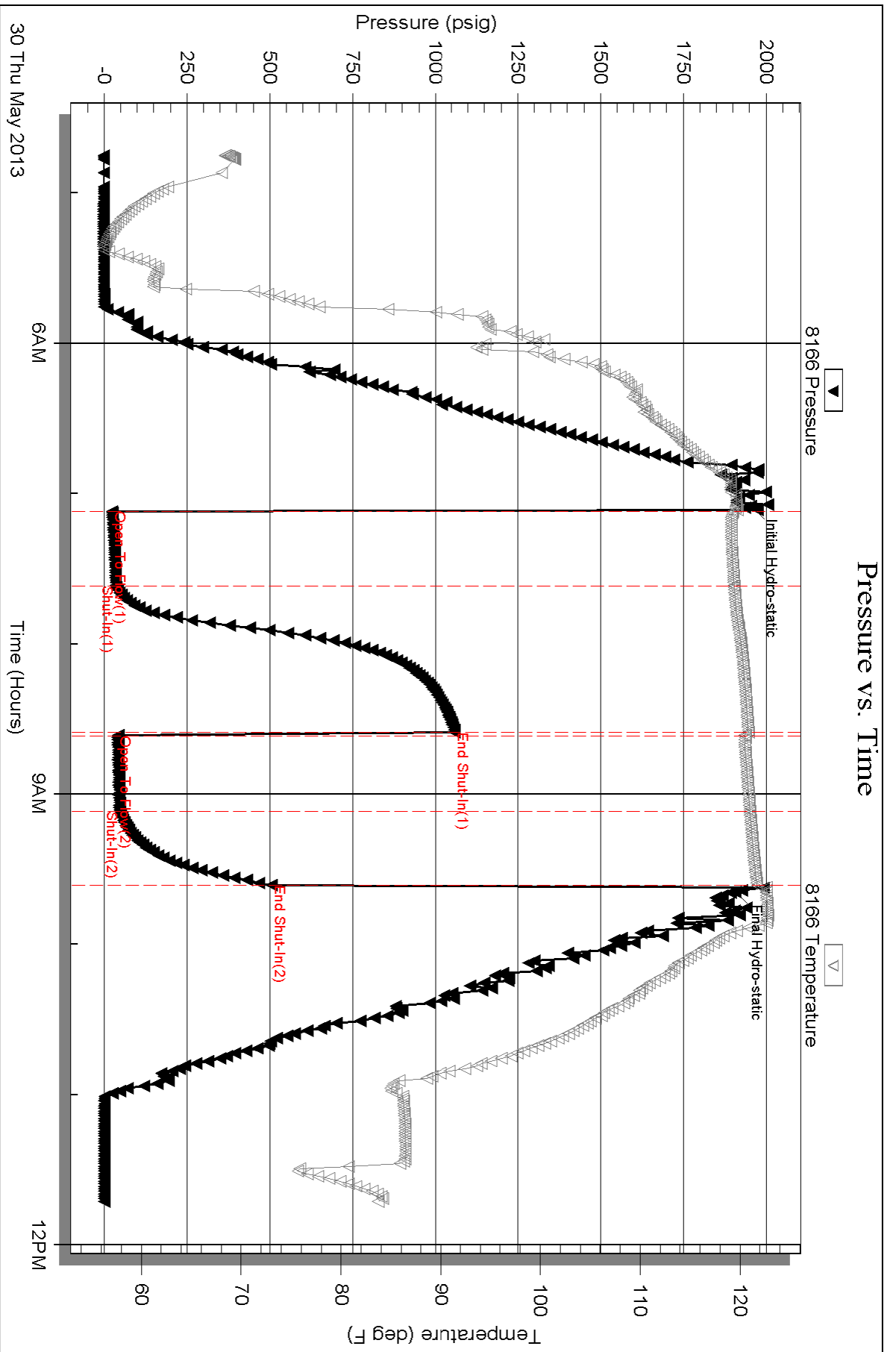
Num Gas Bombs: 0

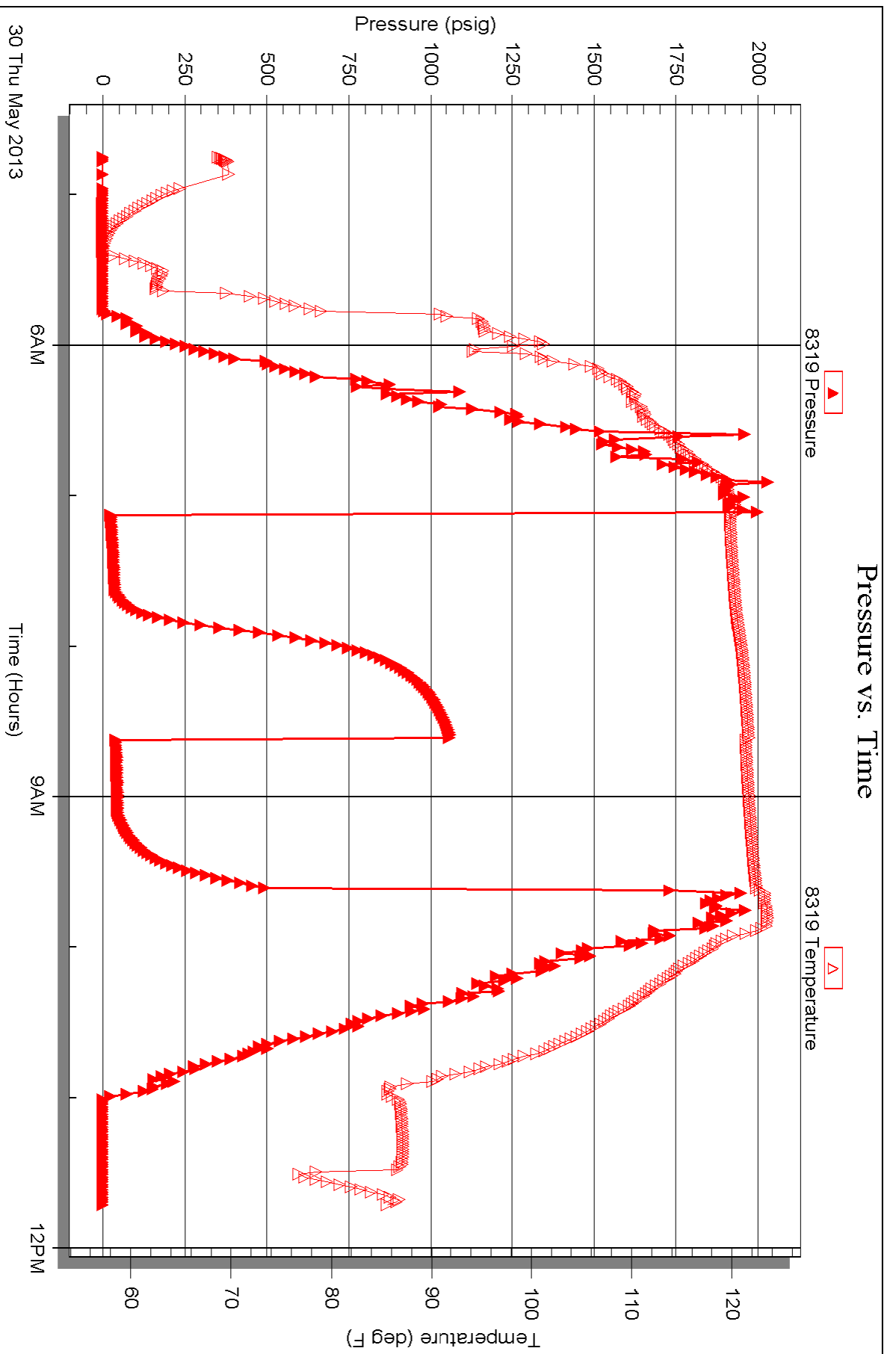
Serial #:

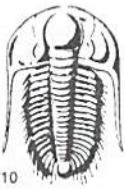
Laboratory Name:

Laboratory Location:

Recovery Comments:







TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 53886

4/10

Well Name & No. Riedel # 1-17 Test No. 1 Date 07/29/13
 Company H & C Oil Operating Elevation 2561 KB 2550 GL
 Address PO Box 86 Plainville KS 67663
 Co. Rep / Geo. Clayton Erickson Rig Martin #21
 Location: Sec. 17 Twp. 10s Rge. 25w Co. Graham State KS

Interval Tested 3848 - 3885 Zone Tested KC" C+D"
 Anchor Length 37 Drill Pipe Run _____ Mud Wt. ~~8.9~~ 9.1
 Top Packer Depth 3843 Drill Collars Run 240 Vis ~~42~~ 58
 Bottom Packer Depth 3848 Wt. Pipe Run — WL 7.6
 Total Depth 3885 Chlorides 1,000 ppm System LCM 2 1/2 #
 Blow Description IF - 1/4 in blow
ISI - No blow
FF - No blow
FSI - No blow

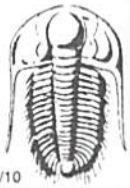
Rec	Feet of	%gas	%oil	%water	%mud
<u>10</u>	<u>VSOCM</u>		<u>5</u>		<u>95</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 10 BHT 123 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic <u>1,899</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>2:10</u>
(B) First Initial Flow <u>20</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>2:55</u>
(C) First Final Flow <u>28</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>5:40</u>
(D) Initial Shut-In <u>887</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>8:10</u>
(E) Second Initial Flow <u>30</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>10:00</u>
(F) Second Final Flow <u>35</u>	<input checked="" type="checkbox"/> Mileage <u>139rt</u> 215.45	Comments _____
(G) Final Shut-In <u>719</u>	<input type="checkbox"/> Sampler _____	
(H) Final Hydrostatic <u>6,866</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>60</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>1690.45</u>
	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total <u>1690.45</u>	

Approved By _____ Our Representative Beth D...

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. 53887

Well Name & No. ~~Riedel #1-17~~ Riedel #1-17 Test No. 2 Date 5/30/13
 Company H+C Oil Operating Elevation 2561 KB 2550 GL
 Address PO Box 86 Plainville KS 67663
 Co. Rep / Geo. Clayton Erickson Rig Murfin #21
 Location: Sec. 17 Twp. 10s Rge. 25w Co. Graham State KS

Interval Tested 3972 - 4020 Zone Tested KC "I, J"
 Anchor Length 48 Drill Pipe Run Mud Wt. 9.2
 Top Packer Depth 3967 Drill Collars Run 240 Vis 51
 Bottom Packer Depth 3972 Wt. Pipe Run - WL 7.6
 Total Depth 4020 Chlorides 1,000 ppm System LCM 2
 Blow Description IF - 3/4 in blow
 ISF - No blow
 FF - No blow
 FSF - No blow

Rec	Feet of	%gas	%oil	%water	%mud
15	150 CM		5		95

Rec Total 15 BHT 122 Gravity API RW @ ° F Chlorides ppm
 (A) Initial Hydrostatic 1,954 Test 1250 T-On Location 4:20
 (B) First Initial Flow 24 Jars 250 T-Started 4:45
 (C) First Final Flow 36 Safety Joint 75 T-Open 7:04
 (D) Initial Shut-In 1,061 Circ Sub T-Pulled 9:34
 (E) Second Initial Flow 40 Hourly Standby T-Out 11:40
 (F) Second Final Flow 47 Mileage 139 rT X 2 430.90 Comments
 (G) Final Shut-In 505 Sampler load tools 5/31 5:45
 (H) Final Hydrostatic 1,907 Straddle
 Shale Packer
 Shale Packer
 Extra Packer
 Extra Recorder
 Day Standby
 Accessibility
 Sub Total 2005.90
 Initial Open 30
 Initial Shut-In 60
 Final Flow 30
 Final Shut-In 30
 Sub Total 0
 Total 2005.90
 MP/DST Disc't

Approved By _____ Our Representative Burt D...
 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.