



DRILL STEM TEST REPORT

Prepared For: **Investment Equipment LLC**

17509 County Rd 14
Ft. Morgan CO 80701

ATTN: Marc Downing

Shade #5

5-16s-16w Rush,KS

Start Date: 2013.04.13 @ 22:55:00

End Date: 2013.04.14 @ 08:23:30

Job Ticket #: 50278 DST #: 1

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

Printed: 2013.04.22 @ 14:22:44

Investment Equipment LLC
5-16s-16w Rush,KS
Shade #5
DST # 1
KC "A-D"
2013.04.13



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Investment Equipment LLC

5-16s-16w Rush,KS

17509 County Rd 14
Ft. Morgan CO 80701

Shade #5

Job Ticket: 50278

DST#: 1

ATTN: Marc Downing

Test Start: 2013.04.13 @ 22:55:00

GENERAL INFORMATION:

Formation: **KC "A-D"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 02:40:30

Time Test Ended: 08:23:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Brett Dickinson

Unit No: 59

Interval: 3179.00 ft (KB) To 3258.00 ft (KB) (TVD)

Total Depth: 3258.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 1917.00 ft (KB)

1909.00 ft (CF)

KB to GR/CF: 8.00 ft

Serial #: 8319

Inside

Press @ Run Depth: 52.79 psig @ 3180.00 ft (KB)

Start Date: 2013.04.13

End Date:

2013.04.14

Start Time: 22:55:05

End Time:

08:23:30

Capacity: 8000.00 psig

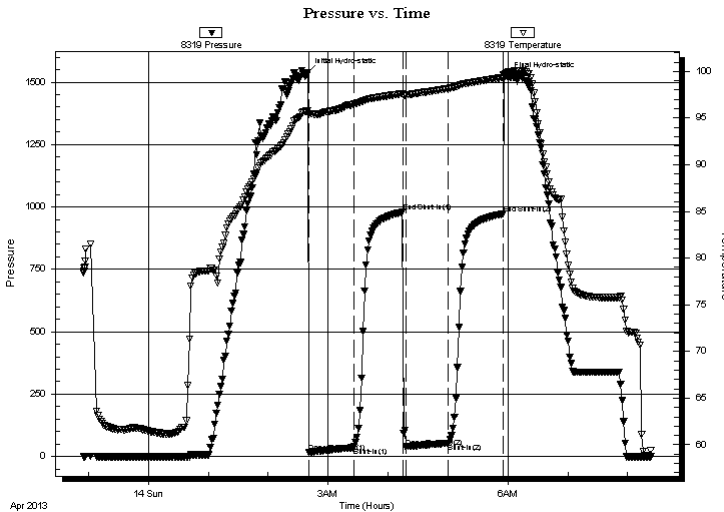
Last Calib.: 2013.04.14

Time On Btm: 2013.04.14 @ 02:39:30

Time Off Btm: 2013.04.14 @ 05:59:00

TEST COMMENT: IF-4" blow
ISI-No blow
FF-2 1/4" blow
FSI-No blow

PRESSURE SUMMARY



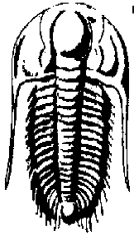
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1537.56	95.81	Initial Hydro-static
1	15.20	95.37	Open To Flow (1)
46	36.90	96.48	Shut-In(1)
95	979.42	97.61	End Shut-In(1)
99	36.83	97.44	Open To Flow (2)
141	52.79	98.16	Shut-In(2)
196	972.44	99.35	End Shut-In(2)
200	1521.65	99.88	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
65.00	Oil spotted Sw cm 10%W 90%M	0.91

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Investment Equipment LLC

5-16s-16w Rush,KS

17509 County Rd 14
Ft. Morgan CO 80701

Shade #5

Job Ticket: 50278

DST#: 1

ATTN: Marc Downing

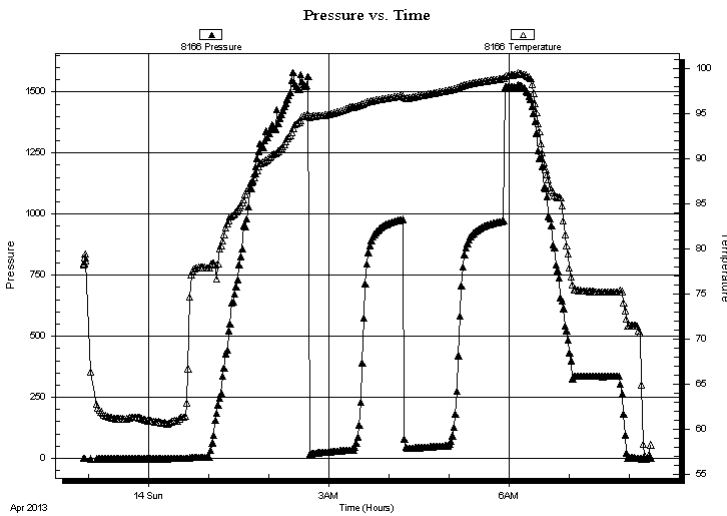
Test Start: 2013.04.13 @ 22:55:00

GENERAL INFORMATION:

Formation: **KC "A-D"**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Initial)
 Time Tool Opened: 02:40:30 Tester: Brett Dickinson
 Time Test Ended: 08:23:30 Unit No: 59
 Interval: **3179.00 ft (KB) To 3258.00 ft (KB) (TVD)** Reference Elevations: 1917.00 ft (KB)
 Total Depth: 3258.00 ft (KB) (TVD) 1909.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 8.00 ft

Serial #: 8166 Outside
 Press@RunDepth: psig @ 3180.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2013.04.13 End Date: 2013.04.14 Last Calib.: 2013.04.14
 Start Time: 22:55:05 End Time: 08:22:30 Time On Btm:
 Time Off Btm:

TEST COMMENT: IF-4" blow
 IS- No blow
 FF-2 1/4" blow
 FS- No blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
65.00	Oil spotted Sw cm 10%W 90%M	0.91

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Investment Equipment LLC

5-16s-16w Rush,KS

17509 County Rd 14
Ft. Morgan CO 80701

Shade #5

Job Ticket: 50278

DST#: 1

ATTN: Marc Downing

Test Start: 2013.04.13 @ 22:55:00

Tool Information

Drill Pipe:	Length: 3188.00 ft	Diameter: 3.80 inches	Volume: 44.72 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 27.00 inches	Volume: 0.00 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:	50000.00 lb
			<u>Total Volume: 44.72 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial	45000.00 lb
Depth to Top Packer:	3179.00 ft			Final	45000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	79.00 ft				
Tool Length:	100.00 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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Change Over Sub	1.00			3159.00	
Shut In Tool	5.00			3164.00	
Hydraulic tool	5.00			3169.00	
Packer	5.00			3174.00	21.00 Bottom Of Top Packer
Packer	5.00			3179.00	
Stubb	1.00			3180.00	
Recorder	0.00	8319	Inside	3180.00	
Recorder	0.00	8166	Outside	3180.00	
Perforations	2.00			3182.00	
Change Over Sub	1.00			3183.00	
Drill Pipe	62.00			3245.00	
Change Over Sub	1.00			3246.00	
Perforations	9.00			3255.00	
Bullnose	3.00			3258.00	79.00 Bottom Packers & Anchor

Total Tool Length: 100.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Investment Equipment LLC

5-16s-16w Rush,KS

17509 County Rd 14
Ft. Morgan CO 80701

Shade #5

Job Ticket: 50278

DST#: 1

ATTN: Marc Downing

Test Start: 2013.04.13 @ 22:55:00

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: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.79 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5000.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
65.00	Oil spotted Sw cm 10%W 90%M	0.912

Total Length: 65.00 ft Total Volume: 0.912 bbl

Num Fluid Samples: 0

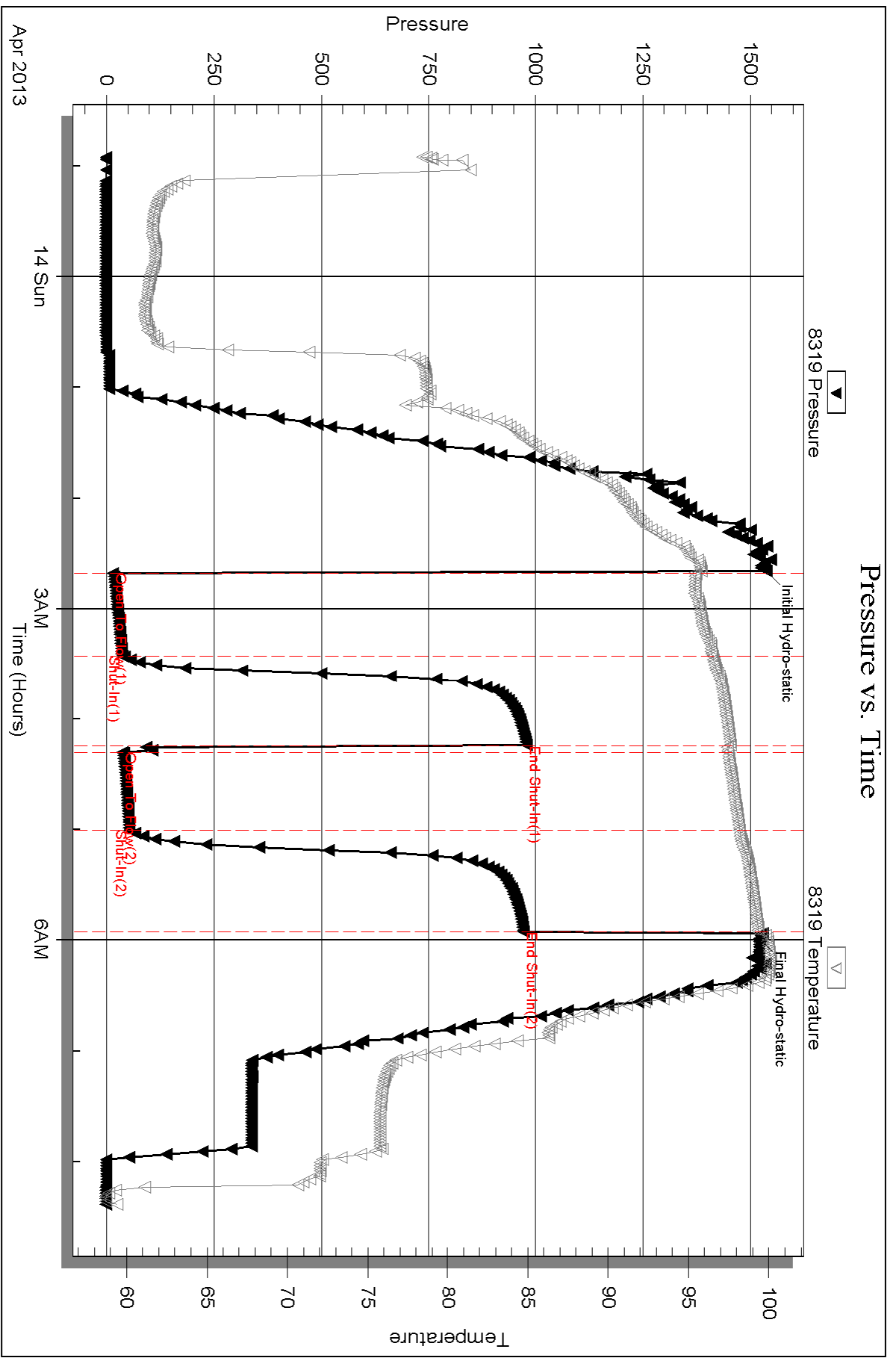
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

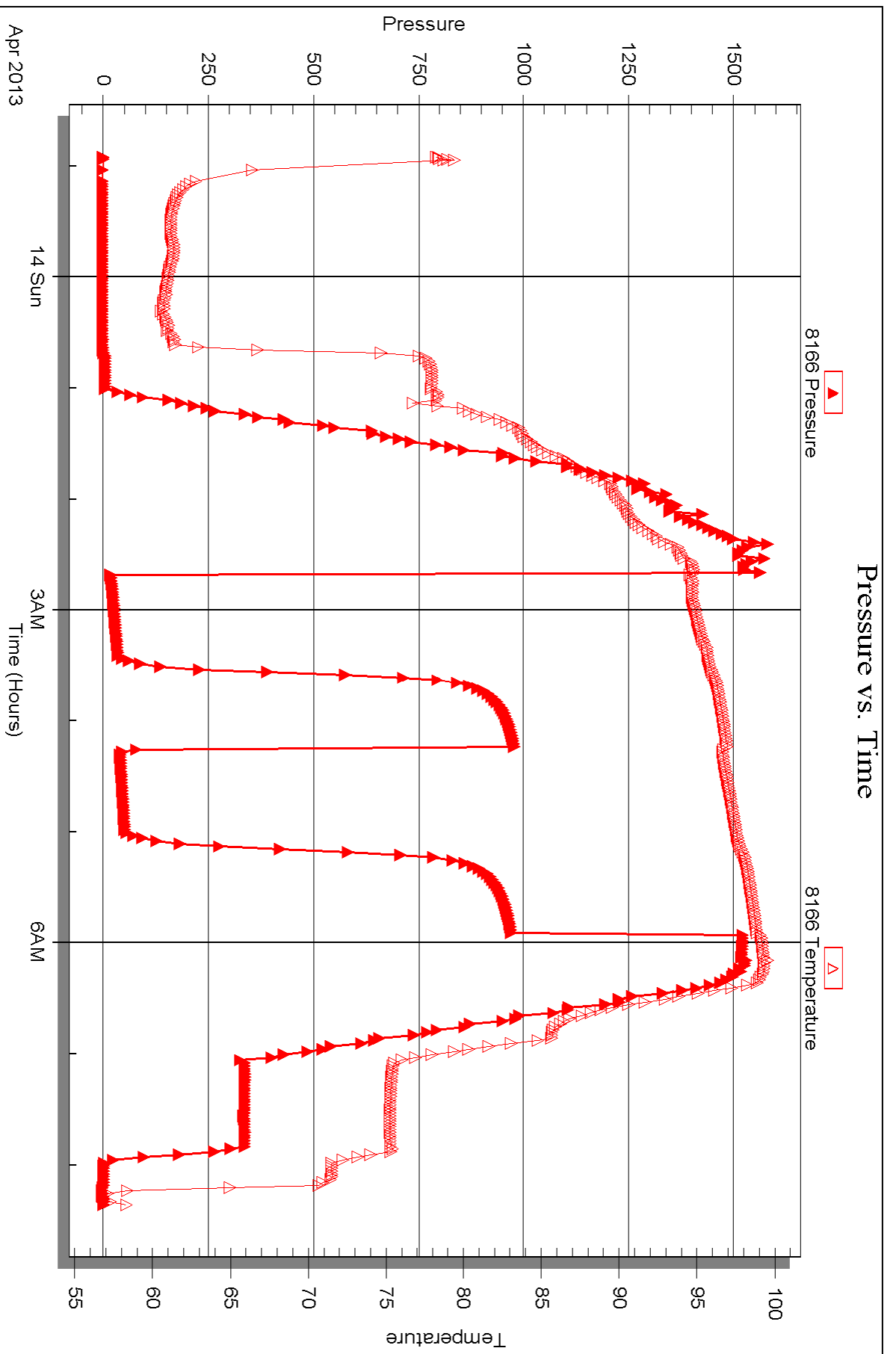


Serial #: 8166

Outside Investment Equipment LLC

Shade #5

DST Test Number: 1





DRILL STEM TEST REPORT

Prepared For: **Investment Equipment LLC**

17509 County Rd 14
Ft. Morgan CO 80701

ATTN: Marc Downing

Shade #5

5-16s-16w Rush,KS

Start Date: 2013.04.14 @ 15:20:00

End Date: 2013.04.14 @ 21:48:00

Job Ticket #: 50279 DST #: 2

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

Printed: 2013.04.22 @ 14:21:48



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Investment Equipment LLC

5-16s-16w Rush,KS

17509 County Rd 14
Ft. Morgan CO 80701

Shade #5

Job Ticket: 50279

DST#: 2

ATTN: Marc Downing

Test Start: 2013.04.14 @ 15:20:00

GENERAL INFORMATION:

Formation: **KC "E,F"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 17:39:00

Time Test Ended: 21:48:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Brett Dickinson

Unit No: 59

Interval: 3266.00 ft (KB) To 3297.00 ft (KB) (TVD)

Reference Elevations: 1917.00 ft (KB)

Total Depth: 3297.00 ft (KB) (TVD)

1909.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8319

Inside

Press @ Run Depth: 178.12 psig @ 3267.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.04.14

End Date:

2013.04.14

Last Calib.:

2013.04.14

Start Time: 15:20:05

End Time:

21:47:59

Time On Btm:

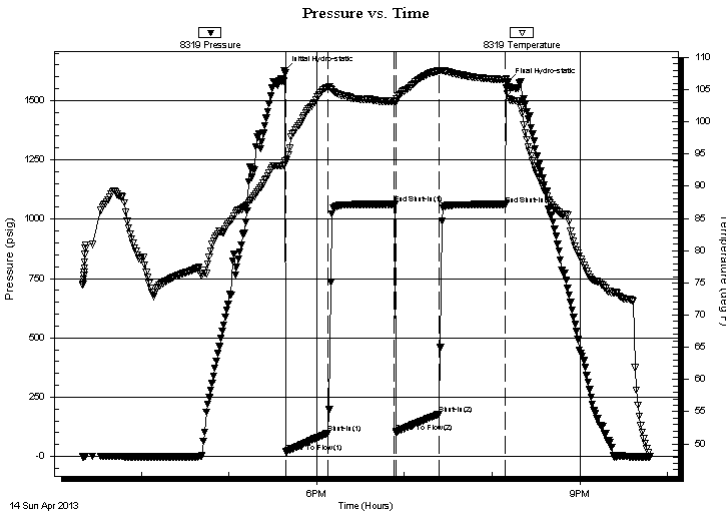
2013.04.14 @ 17:38:00

Time Off Btm:

2013.04.14 @ 20:10:30

TEST COMMENT: IF-BOB in 13 1/2 min
ISI-No blow
FF-BOB in 15 1/2 min
FSI-No blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1627.20	93.33	Initial Hydro-static
1	19.33	93.59	Open To Flow (1)
30	97.36	105.35	Shut-In(1)
75	1063.24	103.21	End Shut-In(1)
76	103.20	103.07	Open To Flow (2)
106	178.12	107.93	Shut-In(2)
151	1062.80	106.55	End Shut-In(2)
153	1578.05	104.32	Final Hydro-static

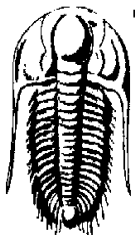
Recovery

Length (ft)	Description	Volume (bbl)
120.00	water	1.68
210.00	MCW 40%M 60%W	2.95

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Investment Equipment LLC

5-16s-16w Rush,KS

17509 County Rd 14
Ft. Morgan CO 80701

Shade #5

Job Ticket: 50279

DST#: 2

ATTN: Marc Downing

Test Start: 2013.04.14 @ 15:20:00

GENERAL INFORMATION:

Formation: **KC "E,F"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 17:39:00

Time Test Ended: 21:48:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Brett Dickinson

Unit No: 59

Interval: 3266.00 ft (KB) To 3297.00 ft (KB) (TVD)

Reference Elevations: 1917.00 ft (KB)

Total Depth: 3297.00 ft (KB) (TVD)

1909.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8166 Outside

Press @RunDepth: psig @ 3267.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.04.14

End Date: 2013.04.14

Last Calib.: 2013.04.14

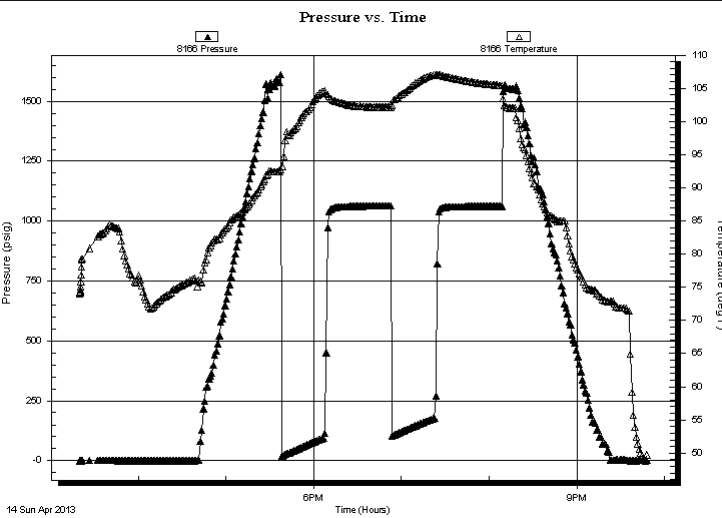
Start Time: 15:20:05

End Time: 21:47:59

Time On Btm:

Time Off Btm:

TEST COMMENT: IF-BOB in 13 1/2 min
ISI-No blow
FF-BOB in 15 1/2 min
FSI-No blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
120.00	water	1.68
210.00	MCW 40%M 60%W	2.95

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Investment Equipment LLC

5-16s-16w Rush,KS

17509 County Rd 14
Ft. Morgan CO 80701

Shade #5

Job Ticket: 50279

DST#: 2

ATTN: Marc Downing

Test Start: 2013.04.14 @ 15:20:00

Tool Information

Drill Pipe:	Length: 3253.00 ft	Diameter: 3.80 inches	Volume: 45.63 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 27.00 inches	Volume: 0.00 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:	50000.00 lb
			<u>Total Volume: 45.63 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	8.00 ft			String Weight: Initial	45000.00 lb
Depth to Top Packer:	3266.00 ft			Final	45000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	31.00 ft				
Tool Length:	52.00 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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Change Over Sub	1.00			3246.00	
Shut In Tool	5.00			3251.00	
Hydraulic tool	5.00			3256.00	
Packer	5.00			3261.00	21.00 Bottom Of Top Packer
Packer	5.00			3266.00	
Stubb	1.00			3267.00	
Recorder	0.00	8319	Inside	3267.00	
Recorder	0.00	8166	Outside	3267.00	
Perforations	2.00			3269.00	
Perforations	25.00			3294.00	
Bullnose	3.00			3297.00	31.00 Bottom Packers & Anchor

Total Tool Length: 52.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Investment Equipment LLC

5-16s-16w Rush,KS

17509 County Rd 14
Ft. Morgan CO 80701

Shade #5

Job Ticket: 50279

DST#: 2

ATTN: Marc Downing

Test Start: 2013.04.14 @ 15:20:00

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: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.78 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5000.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
120.00	water	1.683
210.00	MCW 40%M 60%W	2.946

Total Length: 330.00 ft Total Volume: 4.629 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

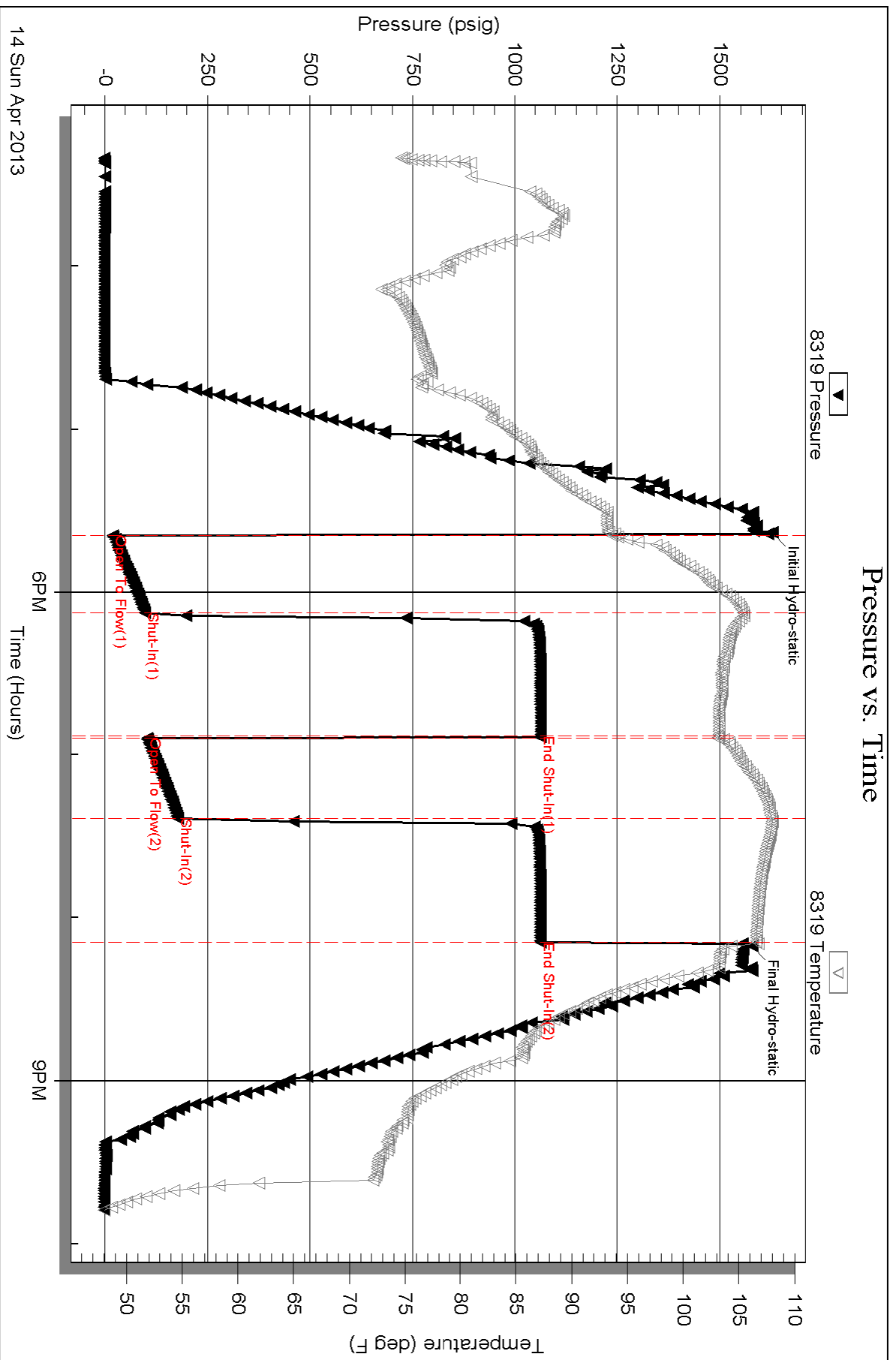
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time

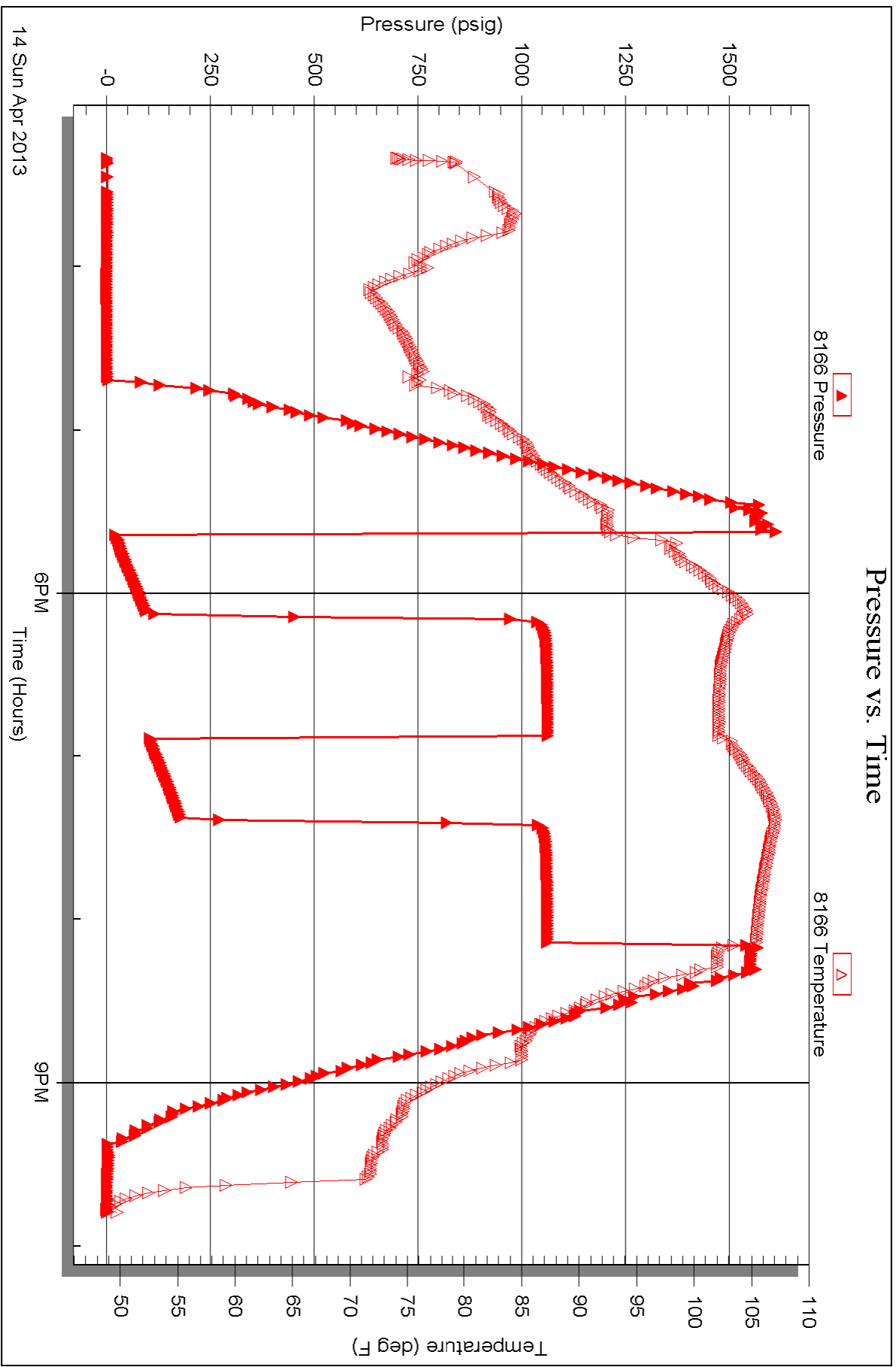


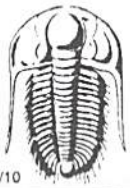
Serial #: 8166

Outside Investment Equipment LLC

Shade #5

DST Test Number: 2





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 50278

Well Name & No. Shade #5 Test No. 1 Date 4/13/13
 Company Investment Equipment LLC Elevation 1917 KB 1909 GL
 Address 17509 County Rd 14 FT Morgan CO 80701
 Co. Rep / Geo. Marc D Rig _____
 Location: Sec. 5 Twp. 16s Rge. 16w Co. R45h State KS

Interval Tested 3179-3258 Zone Tested KC "A-D"
 Anchor Length 79 Drill Pipe Run _____ Mud Wt. 8.8
 Top Packer Depth 3174 Drill Collars Run _____ Vis 50
 Bottom Packer Depth 3179 Wt. Pipe Run _____ WL 8.8
 Total Depth 3258 Chlorides 5000 ppm System LCM 2^{FF}
 Blow Description IF - 4 in blow
ISI - No blow
FF - 2 1/4 in blow
FSI - No blow

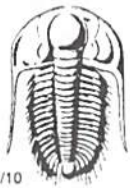
Rec	Feet of	%gas	%oil	%water	%mud
<u>75</u>	<u>Feet of spotted swcm</u>			<u>10</u>	<u>90</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 75 BHT 99 Gravity _____ API RW .15 @ 50° F Chlorides 72000 ppm

(A) Initial Hydrostatic <u>1538</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>21:00</u>
(B) First Initial Flow <u>15</u>	<input type="checkbox"/> Jars _____	T-Started <u>22:55</u>
(C) First Final Flow <u>37</u>	<input type="checkbox"/> Safety Joint _____	T-Open <u>2:40</u>
(D) Initial Shut-In <u>979</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>5:40</u>
(E) Second Initial Flow <u>37</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>8:24</u>
(F) Second Final Flow <u>53</u>	<input checked="" type="checkbox"/> Mileage <u>53 RT</u> 82.15	Comments _____
(G) Final Shut-In <u>972</u>	<input type="checkbox"/> Sampler _____	
(H) Final Hydrostatic <u>1522</u>	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> Ruined Shale Packer _____
Initial Open <u>45</u>	<input type="checkbox"/> Shale Packer _____	<input type="checkbox"/> Ruined Packer _____
Initial Shut-In <u>45</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Extra Copies _____
Final Flow <u>45</u>	<input type="checkbox"/> Extra Recorder _____	Sub Total <u>0</u>
Final Shut-In <u>45</u>	<input type="checkbox"/> Day Standby _____	Total <u>1232.15</u>
	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total <u>1232.15</u>	

Approved By _____ Our Representative Beth Duhon

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. 50279

Well Name & No. Shade #5 Test No. 2 Date 4/14/15
 Company Investment Equipment LLC Elevation 1917 KB 1909 GL
 Address 12509 County Rd 14 Ft Morgan CO 80701
 Co. Rep / Geo. Marc D. Rig Maverick #108
 Location: Sec. 5 Twp. 16s Rge. 16w Co. Rush State KS

Interval Tested 3266 - 3297 Zone Tested KC "E, F"
 Anchor Length 31 Drill Pipe Run _____ Mud Wt. _____
 Top Packer Depth 3261 Drill Collars Run — Vis _____
 Bottom Packer Depth 3266 Wt. Pipe Run — WL _____
 Total Depth 3297 Chlorides _____ ppm System LCM _____

Blow Description IF - BOB in 13 1/2 min
ISI - No blow
FF - BOB in 15 1/2 min
FSL - No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>120</u>	<u>water</u>				
<u>210</u>	<u>MCW</u>			<u>60</u>	<u>40</u>
Rec _____	Feet of _____	%gas	%oil	%water	%mud
Rec _____	Feet of _____	%gas	%oil	%water	%mud
Rec _____	Feet of _____	%gas	%oil	%water	%mud

Rec Total 330 BHT _____ Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic <u>1,627</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>15:00</u>
(B) First Initial Flow <u>19</u>	<input type="checkbox"/> Jars _____	T-Started <u>15:20</u>
(C) First Final Flow <u>97</u>	<input type="checkbox"/> Safety Joint _____	T-Open <u>17:38</u>
(D) Initial Shut-In <u>1,063</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>20:08</u>
(E) Second Initial Flow <u>103</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>21:45</u>
(F) Second Final Flow <u>178</u>	<input checked="" type="checkbox"/> Mileage <u>53.1X2</u> 164.30	Comments <u>pick up test tool</u>
(G) Final Shut-In <u>1,063</u>	<input type="checkbox"/> Sampler _____	@ 19:30
(H) Final Hydrostatic <u>1,578</u>	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> Ruined Shale Packer _____

Initial Open 30
 Initial Shut-In 45
 Final Flow 30
 Final Shut-In 45

Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____

Sub Total 1314.30

Total 1314.30
 MP/DST Disc't _____

Approved By _____ Our Representative [Signature]

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