



DRILL STEM TEST REPORT

Prepared For: **TDI Inc**

1310 Bison Rd
Hays KS 67601

ATTN: Herb Deines

Munsch #9 Twin

9-15s-18w Ellis,KS

Start Date: 2014.12.14 @ 12:30:00

End Date: 2014.12.14 @ 19:49:45

Job Ticket #: 62501 DST #: 1

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

Printed: 2014.12.18 @ 10:22:10

TDI Inc
9-15s-18w Ellis,KS
Munsch #9 Twin
DST # 1
LKC " D - G "
2014.12.14



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

TDI Inc
 1310 Bison Rd
 Hays KS 67601
 ATTN: Herb Deines

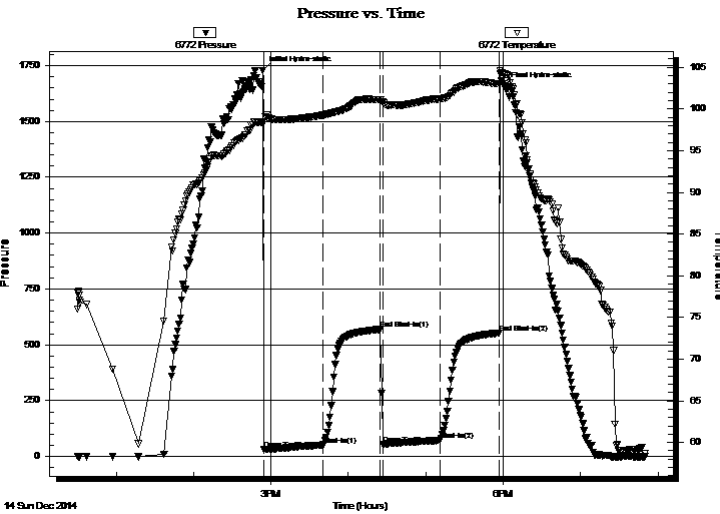
9-15s-18w Ellis, KS
Munsch #9 Twin
 Job Ticket: 62501 **DST#: 1**
 Test Start: 2014.12.14 @ 12:30:00

GENERAL INFORMATION:

Formation: **LKC " D - G "**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 14:54:45
 Time Test Ended: 19:49:45
 Interval: **3355.00 ft (KB) To 3420.00 ft (KB) (TVD)**
 Total Depth: 3420.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Bob Hamel
 Unit No: 72
 Reference Elevations: 2040.00 ft (KB)
 2031.00 ft (CF)
 KB to GR/CF: 9.00 ft

Serial #: 6772 Inside
 Press@RunDepth: 72.70 psig @ 3392.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.12.14 End Date: 2014.12.14 Last Calib.: 2014.12.14
 Start Time: 12:30:05 End Time: 19:49:44 Time On Btm: 2014.12.14 @ 14:53:30
 Time Off Btm: 2014.12.14 @ 18:01:00

TEST COMMENT: I.F. - 45 - BOB in 22 1/2 min
 I.S.I. - 45 - No blow back
 F.F. - 45 - BOB in 23 min
 F.S.I. - 45 - No blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1727.11	98.38	Initial Hydro-static
2	32.09	98.46	Open To Flow (1)
47	50.98	99.26	Shut-In(1)
92	569.48	101.09	End Shut-In(1)
94	53.42	100.84	Open To Flow (2)
138	72.70	101.22	Shut-In(2)
184	552.86	103.00	End Shut-In(2)
188	1657.47	104.23	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
3.00	S,O,C,W,M, 10%O 15%W 75%M	0.04
103.00	O,C,M, 20%O 80%M	1.44
0.00	272' G.I.P.	0.00

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

TDI Inc
1310 Bison Rd
Hays KS 67601
ATTN: Herb Deines

9-15s-18w Ellis,KS
Munsch #9 Twin
Job Ticket: 62501 **DST#: 1**
Test Start: 2014.12.14 @ 12:30:00

Tool Information

Drill Pipe:	Length: 3369.00 ft	Diameter: 3.80 inches	Volume: 47.26 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:	30000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose:	65000.00 lb
			<u>Total Volume: 47.26 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	34.00 ft			String Weight: Initial	30000.00 lb
Depth to Top Packer:	3355.00 ft			Final	61000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	65.00 ft				
Tool Length:	85.00 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			3336.00	
Shut In Tool	5.00			3341.00	
Hydraulic tool	5.00			3346.00	
Packer	5.00			3351.00	20.00 Bottom Of Top Packer
Packer	4.00			3355.00	
Stubb	1.00			3356.00	
Perforations	2.00			3358.00	
Change Over Sub	1.00			3359.00	
Drill Pipe	32.00			3391.00	
Change Over Sub	1.00			3392.00	
Recorder	0.00	6772	Inside	3392.00	
Recorder	0.00	8167	Outside	3392.00	
Perforations	25.00			3417.00	
Bullnose	3.00			3420.00	65.00 Bottom Packers & Anchor

Total Tool Length: 85.00



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DRILL STEM TEST REPORT

FLUID SUMMARY

TDI Inc
1310 Bison Rd
Hays KS 67601
ATTN: Herb Deines

9-15s-18w Ellis,KS
Munsch #9 Twin
Job Ticket: 62501
Test Start: 2014.12.14 @ 12:30:00

DST#: 1

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: 59.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.59 in ³	Gas Cushion Type:		
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig		
Salinity: 2500.00 ppm			
Filter Cake: 1.00 inches			

Recovery Information

Recovery Table

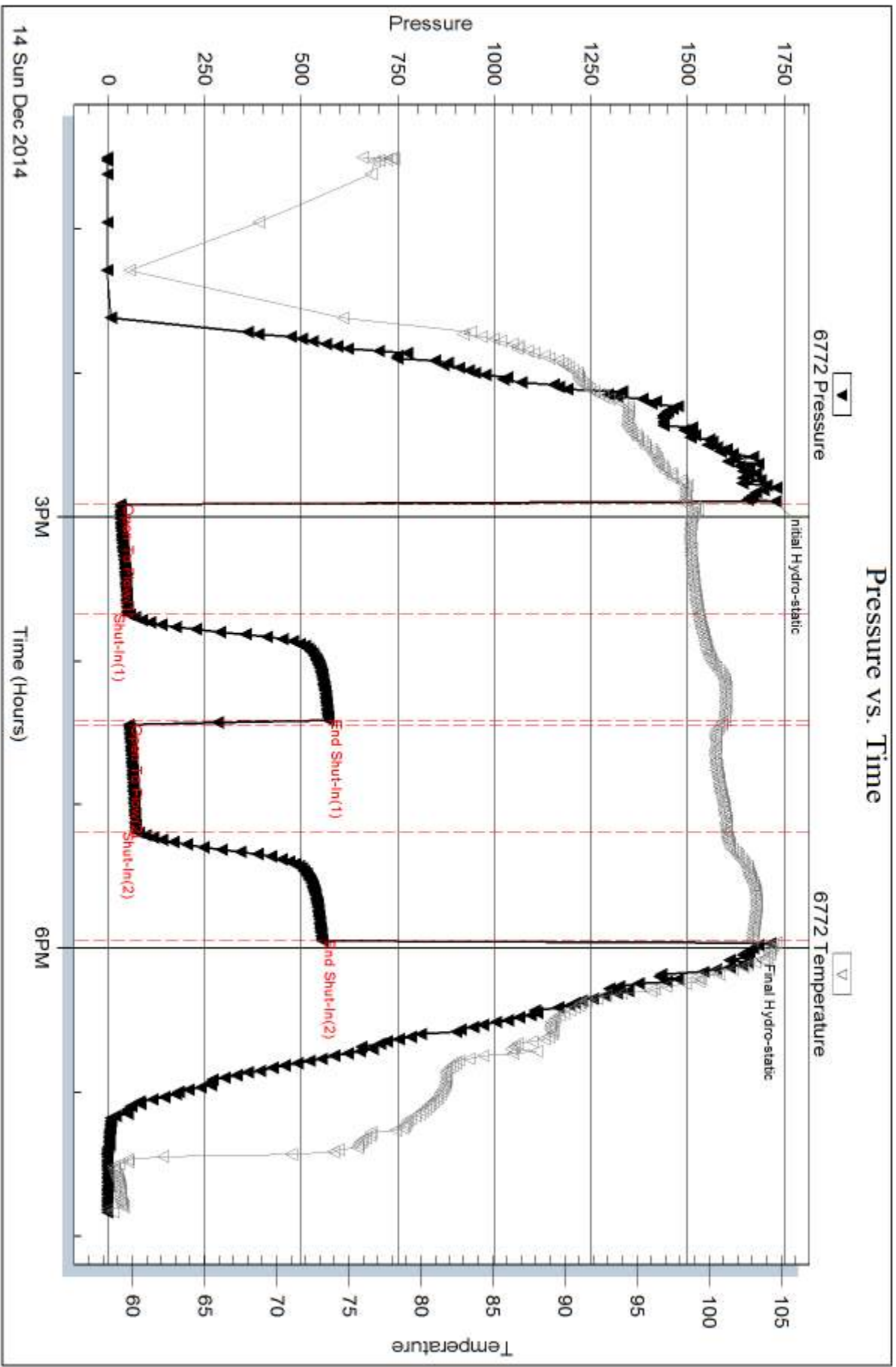
Length ft	Description	Volume bbl
3.00	S,O,C,W,M, 10%O 15%W 75%M	0.042
103.00	O,C,M, 20%O 80%M	1.445
0.00	272' G.I.P.	0.000

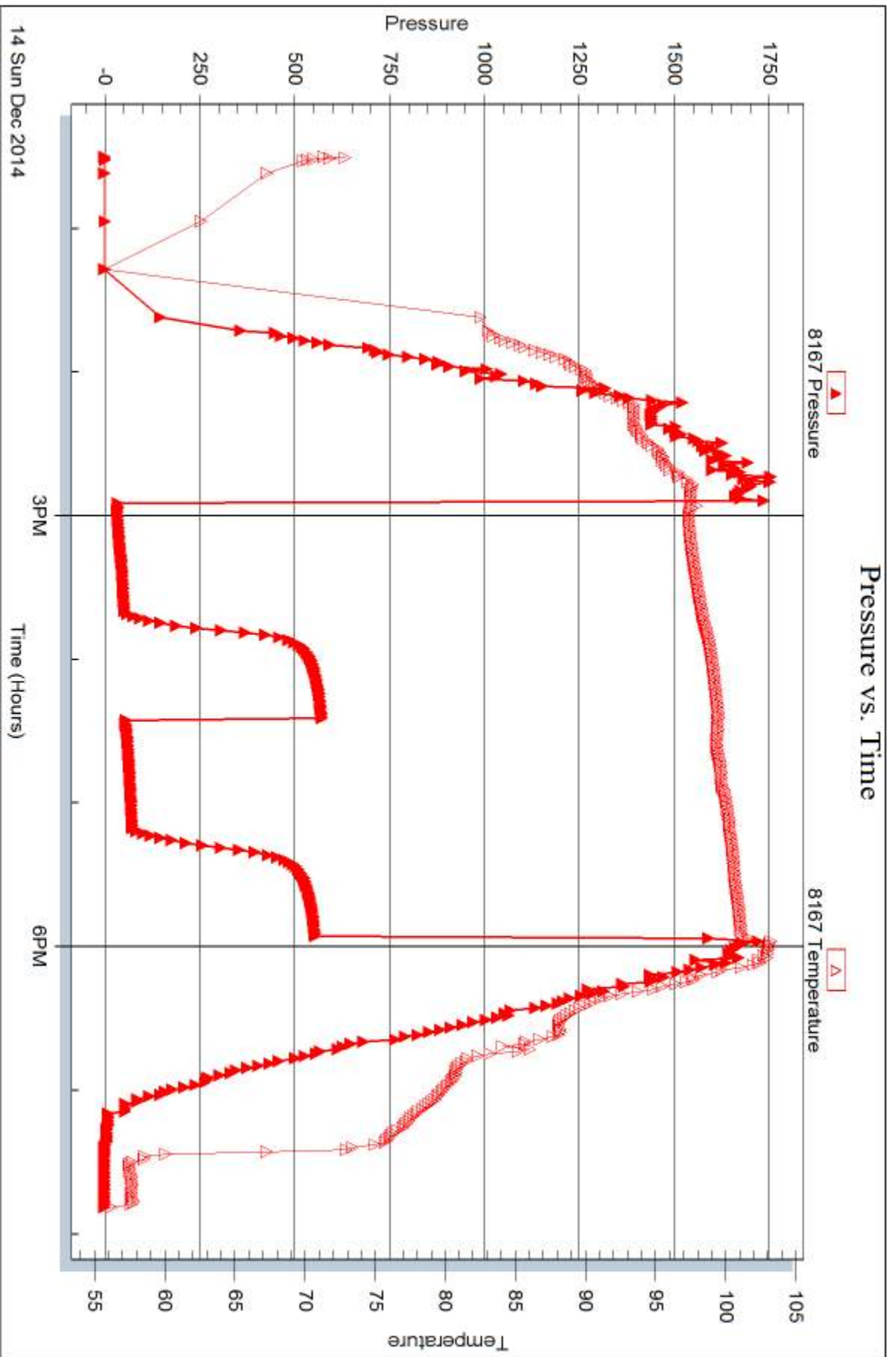
Total Length: 106.00 ft Total Volume: 1.487 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:

Laboratory Name: Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **TDI Inc**

1310 Bison Rd
Hays KS 67601

ATTN: Herb Deines

Munsch #9 Twin

9-15s-18w Ellis,KS

Start Date: 2014.12.15 @ 08:04:00

End Date: 2014.12.15 @ 16:22:15

Job Ticket #: 62502 DST #: 2

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

Printed: 2014.12.18 @ 10:21:34

TDI Inc
9-15s-18w Ellis,KS
Munsch #9 Twin
DST # 2
L.K.C. " H - K "
2014.12.15



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TDI Inc
1310 Bison Rd
Hays KS 67601
ATTN: Herb Deines

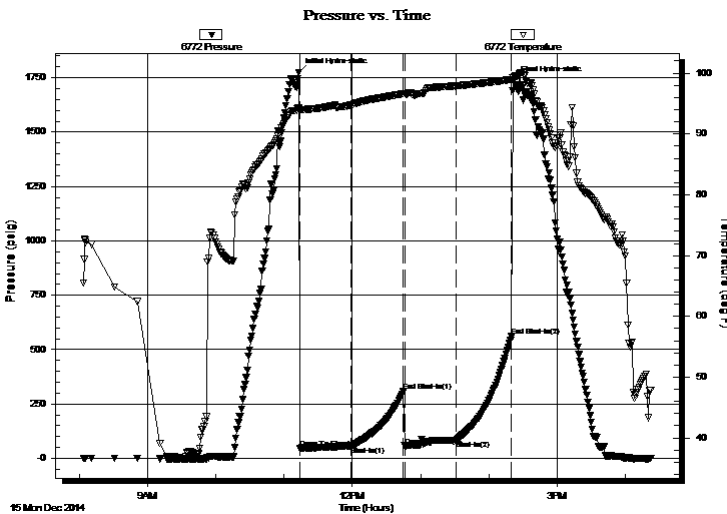
9-15s-18w Ellis,KS
Munsch #9 Twin
Job Ticket: 62502 **DST#: 2**
Test Start: 2014.12.15 @ 08:04:00

GENERAL INFORMATION:

Formation: **L.K.C. " H - K "**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 11:13:45
Time Test Ended: 16:22:15
Interval: **3440.00 ft (KB) To 3530.00 ft (KB) (TVD)**
Total Depth: 3530.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Reference Elevations: 2040.00 ft (KB)
2031.00 ft (CF)
KB to GR/CF: 9.00 ft
Test Type: Conventional Bottom Hole (Reset)
Tester: Bob Hamel
Unit No: 72

Serial #: 6772 Inside
Press@RunDepth: 83.85 psig @ 3507.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2014.12.15 End Date: 2014.12.15 Last Calib.: 2014.12.15
Start Time: 08:04:05 End Time: 16:22:14 Time On Btm: 2014.12.15 @ 11:12:45
Time Off Btm: 2014.12.15 @ 14:21:45

TEST COMMENT: I.F. - 45 - BOB in 23 min
I.S.I. - 45 - No blow back
F.F. - 45 - 8" blow died to 1/8" in 15 min. -flushed tool - 1" blow died - flushed tool at 18 min. blow died
F.S.I. - 45 - No blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1774.54	94.25	Initial Hydro-static
1	46.65	94.03	Open To Flow (1)
47	55.35	94.78	Shut-In(1)
92	307.38	96.62	End Shut-In(1)
93	57.48	96.59	Open To Flow (2)
139	83.85	97.91	Shut-In(2)
187	560.23	98.97	End Shut-In(2)
189	1737.54	99.38	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
105.00	O,C,M, 10% O 90%M	1.47
0.00	282' G.I.P.	0.00
0.00	SHOW OF FREE OIL IN TEST TOOL	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

TDI Inc
1310 Bison Rd
Hays KS 67601
ATTN: Herb Deines

9-15s-18w Ellis,KS
Munsch #9 Twin
Job Ticket: 62502 **DST#: 2**
Test Start: 2014.12.15 @ 08:04:00

Tool Information

Drill Pipe:	Length: 3434.00 ft	Diameter: 3.80 inches	Volume: 48.17 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: 30000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 35000.00 lb
			<u>Total Volume: 48.17 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	14.00 ft			String Weight: Initial 30000.00 lb
Depth to Top Packer:	3440.00 ft			Final 31000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	90.00 ft			
Tool Length:	110.00 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			3421.00	
Shut In Tool	5.00			3426.00	
Hydraulic tool	5.00			3431.00	
Packer	5.00			3436.00	20.00 Bottom Of Top Packer
Packer	4.00			3440.00	
Stubb	1.00			3441.00	
Perforations	2.00			3443.00	
Change Over Sub	1.00			3444.00	
Drill Pipe	62.00			3506.00	
Change Over Sub	1.00			3507.00	
Recorder	0.00	6772	Inside	3507.00	
Recorder	0.00	8167	Outside	3507.00	
Perforations	20.00			3527.00	
Bullnose	3.00			3530.00	90.00 Bottom Packers & Anchor

Total Tool Length: 110.00



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FLUID SUMMARY

TDI Inc
1310 Bison Rd
Hays KS 67601
ATTN: Herb Deines

9-15s-18w Ellis,KS
Munsch #9 Twin
Job Ticket: 62502 **DST#: 2**
Test Start: 2014.12.15 @ 08:04:00

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: 52.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.59 in ³	Gas Cushion Type:		
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig		
Salinity: 2500.00 ppm			
Filter Cake: 1.00 inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
105.00	O,C,M, 10% O 90%M	1.473
0.00	282' G.I.P.	0.000
0.00	SHOW OF FREE OIL IN TEST TOOL	0.000

Total Length: 105.00 ft Total Volume: 1.473 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:

Laboratory Name: Laboratory Location:

Recovery Comments:

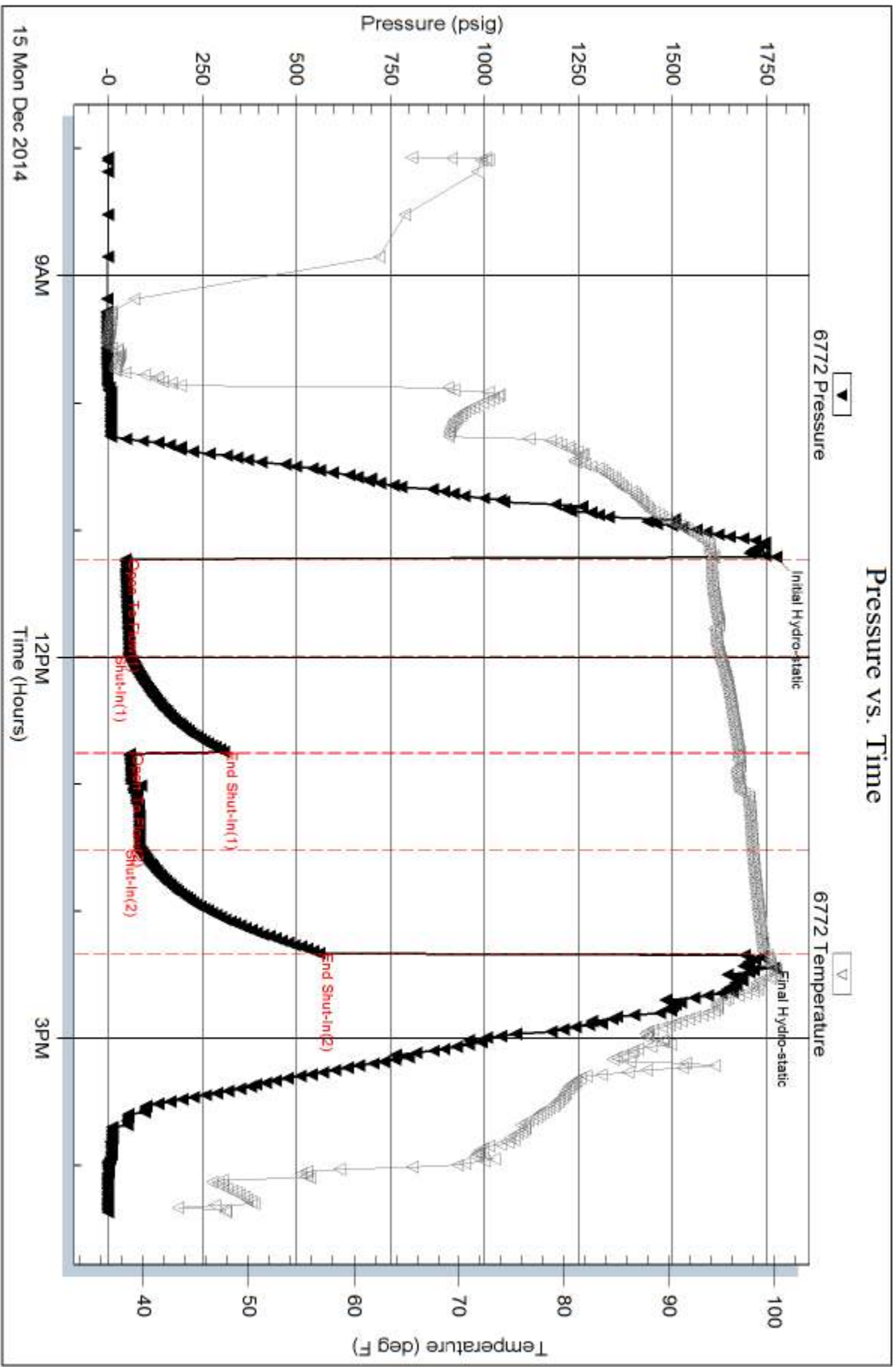
Serial #: 6772

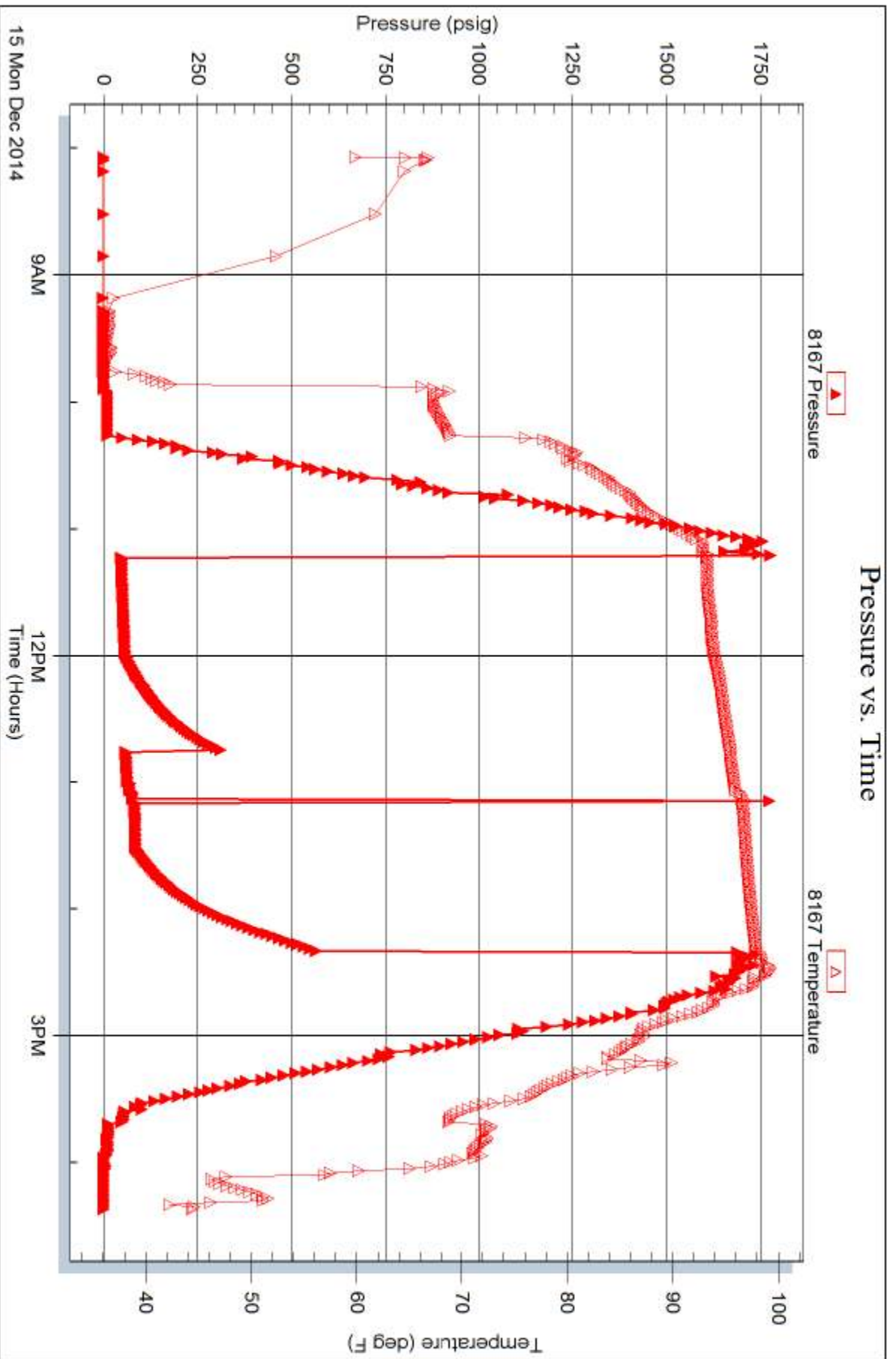
Inside

TDI Inc

Munsch #9 Tw In

DST Test Number: 2







TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 62501

Well Name & No. MunSch #9 twin Test No. 1 Date 12-14-14
 Company TOT, INC. Elevation 2031 KB 2040 GL
 Address 1310 Bison R.D. Hays, KS. 67601
 Co. Rep / Geo. Herb Deines Rig Southwind Rig #1
 Location: Sec. 9 Twp. 15 S. Rge. 18 W. Co. Ellis State KS.

Interval Tested 3355-3420 Zone Tested D-G
 Anchor Length 65 Drill Pipe Run 3369 Mud Wt. 9.3
 Top Packer Depth 3350 Drill Collars Run — Vis 59
 Bottom Packer Depth 3355 Wt. Pipe Run — WL 7.6
 Total Depth 3420 Chlorides 2,500 ppm System LCM 2

Blow Description I.F.-45-1/2" INT. Blow Bu.H to B.O.B. in 22 1/2 min.
I.S.I-45-No B.B.
F.F.-45-1/2" INT. Blow Bu.H to B.O.B. in 23 min.
F.S.I-45-No B.B.

Rec	Feet of	%gas	%oil	%water	%mud
<u>0</u>	<u>272 G.I.P.</u>	<u>100</u>			
<u>103</u>	<u>H,O,C,M</u>		<u>20</u>		<u>80</u>
<u>3</u>	<u>S,O,C,W,M</u>		<u>10</u>	<u>15</u>	<u>75</u>

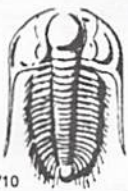
Rec Total 106 BHT 104.2 Gravity — API RW — @ — ° F Chlorides — ppm

(A) Initial Hydrostatic 1727 Test 1150 T-On Location 12:00:00
 (B) First Initial Flow 33 Jars T-Started 12:30:00
 (C) First Final Flow 51 Safety Joint T-Open 15:07:00
 (D) Initial Shut-In 569 Circ Sub T-Pulled 18:07:00
 (E) Second Initial Flow 53 Hourly Standby T-Out 19:49:15
 (F) Second Final Flow 73 Mileage 20/R.T. 31 Comments _____
 (G) Final Shut-In 553 Sampler _____
 (H) Final Hydrostatic 1657 Straddle _____

Initial Open 45 Shale Packer _____
 Initial Shut-In 45 Shale Packer _____
 Final Flow 45 Extra Packer _____
 Final Shut-In 45 Extra Recorder _____
 Sub Total 0
 Total 1181
 Sub Total 1181 Day Standby _____
 Accessibility _____ MP/DST Disc't _____

Approved By _____ Our Representative Bob Hume

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. 62502

Well Name & No. MunSch #9 twin Test No. 2 Date 12-15-14
 Company TDI INC. Elevation 2031 KB 2040 GL
 Address 1310 Bison RD. Hays KS. 67601
 Co. Rep / Geo. Herb Deines Rig South Wind Rig #1
 Location: Sec. 9 Twp. 15 S. Rge. 18 W. Co. Ellis State Ks.

Interval Tested 3440-3530 Zone Tested L.H.C. "H-K"
 Anchor Length 90 Drill Pipe Run 3434 Mud Wt. 9.0
 Top Packer Depth 3435 Drill Collars Run — Vis 52
 Bottom Packer Depth 3440 Wt. Pipe Run — WL 7.6
 Total Depth 3530 Chlorides 2500 ppm System LCM 2

Blow Description I.F.-45-1/2" INT. Blow Built to B.B. in 23 Min.

F.S.I-45-NO B.B.
F.F-45-8" INT. Blow died to 1/8" in 15 min. Flushed tool got 1" Blow died off flushed again (18 min died)
F.S.I-45-NO B.B. (26 min)

Rec	Feet of	%gas	%oil	%water	%mud
<u>0</u>	<u>282' G.I.P.</u>	<u>100</u>			
<u>105</u>	<u>O.C.M</u>		<u>10</u>		<u>90</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 105 BHT 99.4 Gravity — API RW — @ — ° F Chlorides — ppm

(A) Initial Hydrostatic 1775 Test 1150 T-On Location 07:15:00
 (B) First Initial Flow 47 Jars — T-Started 08:04:00
 (C) First Final Flow 53 Safety Joint — T-Open 11:14:00
 (D) Initial Shut-In 307 Circ Sub — T-Pulled 14:14:00
 (E) Second Initial Flow 57 Hourly Standby — T-Out 16:22:15
 (F) Second Final Flow 84 Mileage 30/R.T 31 Comments Loaded tools @
14:30 on 12-16-14
 (G) Final Shut-In 560 Sampler — "Thank-you"
 (H) Final Hydrostatic 1738 Straddle —
 Shale Packer —
 Ruined Shale Packer —
 Ruined Packer —

Initial Open 45 Extra Packer — Extra Copies —
 Initial Shut-In 45 Extra Recorder — Sub Total 0
 Final Flow 45 Day Standby — Total 1181
 Final Shut-In 45 Accessibility — MP/DST Disc't —
 Sub Total 1181

Approved By _____ Our Representative Bob Hume

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