



DRILL STEM TEST REPORT

Prepared For: **Vamco Operations**

265 Avenue K
Chase, KS 67524+9440

ATTN: Eli Felts

Sanford Trust #3

23-17s-12w Barton,KS

Start Date: 2014.09.30 @ 19:37:00

End Date: 2014.10.01 @ 03:01:00

Job Ticket #: 61902 DST #: 1

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

Printed: 2014.10.03 @ 15:53:32



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Vamco Operations
 265 Avenue K
 Chase, KS 67524+9440
 ATTN: Eli Felts

23-17s-12w Barton, KS
Sanford Trust #3
 Job Ticket: 61902 **DST#: 1**
 Test Start: 2014.09.30 @ 19:37:00

GENERAL INFORMATION:

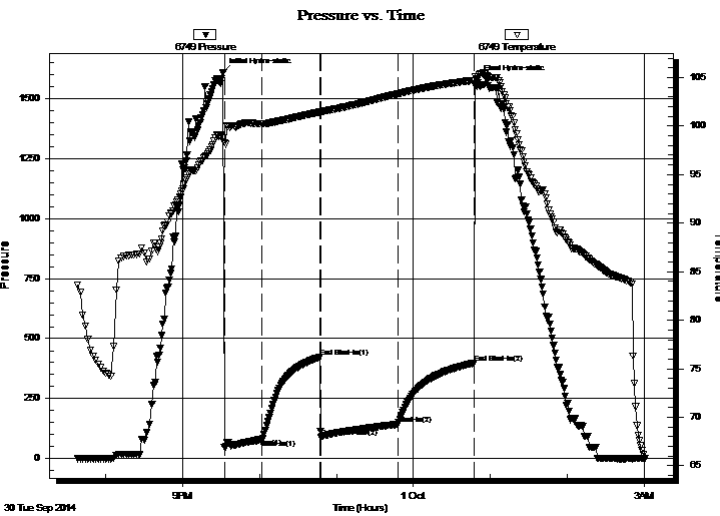
Formation: **LKC H**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 21:32:30
 Time Test Ended: 03:01:00
 Interval: **3285.00 ft (KB) To 3311.00 ft (KB) (TVD)**
 Total Depth: 3311.00 ft (KB) (TVD)
 Hole Diameter: 7.80 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Ken Swinney
 Unit No: S1
 Reference Elevations: 1925.00 ft (KB)
 1916.00 ft (CF)
 KB to GR/CF: 9.00 ft

Serial #: 6749

Inside

Press@RunDepth: 143.38 psig @ 3307.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.09.30 End Date: 2014.10.01 Last Calib.: 2014.10.01
 Start Time: 19:38:00 End Time: 03:01:00 Time On Btm: 2014.09.30 @ 21:31:30
 Time Off Btm: 2014.10.01 @ 00:50:00

TEST COMMENT: 1ST Open 30 Minutes/Good blow/Blow built to bottom of bucket in 4 minutes 15 seconds
 1ST Shut In 45 Minutes/Blow back built to 1 1/2 inch
 2ND Open 60 Minutes/Good blow/Blow built to bottom of bucket in 5 minutes 45 seconds
 2ND Shut In 60 Minutes/Blow back built to bottom of bucket in 31 minutes



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1609.34	98.83	Initial Hydro-static
1	46.08	98.32	Open To Flow (1)
31	81.72	100.23	Shut-In(1)
76	422.93	101.45	End Shut-In(1)
77	89.93	101.45	Shut To Flow (2)
137	143.38	103.32	Shut-In(2)
196	398.95	104.72	End Shut-In(2)
199	1580.84	104.77	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
0.00	1515 feet of gas in pipe	0.00
97.00	VGOCM Mud 20% Oil 30% Gas 50%	1.36
62.00	VGMCEO Mud 5% Emulsified Oil 20% Gas 0.87%	0.87
62.00	VGMWCO Mud 5% Water 10% Oil 35% Gas 0.870%	0.870%
62.00	MW Mud 20% Water 80%	0.87

Gas Rates

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



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Vamco Operations
265 Avenue K
Chase, KS 67524+9440
ATTN: Eli Felts

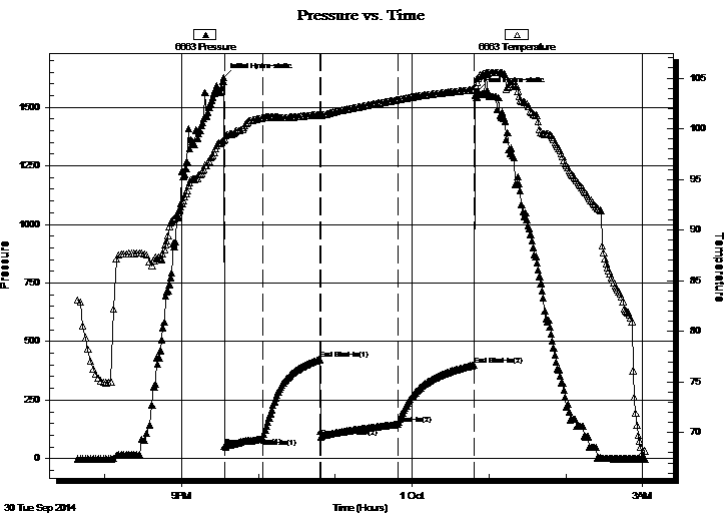
23-17s-12w Barton,KS
Sanford Trust #3
Job Ticket: 61902 **DST#: 1**
Test Start: 2014.09.30 @ 19:37:00

GENERAL INFORMATION:

Formation: **LKC H**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 21:32:30
Time Test Ended: 03:01:00
Interval: **3285.00 ft (KB) To 3311.00 ft (KB) (TVD)**
Total Depth: 3311.00 ft (KB) (TVD)
Hole Diameter: 7.80 inches Hole Condition: Fair
Reference Elevations: 1925.00 ft (KB)
1916.00 ft (CF)
KB to GR/CF: 9.00 ft
Test Type: Conventional Bottom Hole (Initial)
Tester: Ken Swinney
Unit No: S1

Serial #: 6663 Outside
Press@RunDepth: 400.01 psig @ 3308.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2014.09.30 End Date: 2014.10.01 Last Calib.: 2014.10.01
Start Time: 19:39:00 End Time: 03:02:00 Time On Btm: 2014.09.30 @ 21:33:00
Time Off Btm: 2014.10.01 @ 00:51:00

TEST COMMENT: 1ST Open 30 Minutes/Good blow/Blow built to bottom of bucket in 4 minutes 15 seconds
1ST Shut In 45 Minutes/Blow back built to 1 1/2 inch
2ND Open 60 Minutes/Good blow/Blow built to bottom of bucket in 5 minutes 45 seconds
2ND Shut In 60 Minutes/Blow back built to bottom of bucket in 31 minutes



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1627.29	98.86	Initial Hydro-static
1	53.66	98.98	Open To Flow (1)
31	87.23	101.10	Shut-In(1)
75	423.80	101.43	End Shut-In(1)
76	93.18	101.35	Open To Flow (2)
136	147.11	102.87	Shut-In(2)
196	400.01	103.86	End Shut-In(2)
198	1568.24	104.93	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
0.00	1515 feet of gas in pipe	0.00
97.00	VGOCM Mud 20% Oil 30% Gas 50%	1.36
62.00	VGMCEO Mud 5% Emulsified Oil 20% Gas 0.87%	0.87
62.00	VGMWCO Mud 5% Water 10% Oil 35% Gas 0.870%	0.870%
62.00	MW Mud 20% Water 80%	0.87

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Vamco Operations
265 Avenue K
Chase, KS 67524+9440
ATTN: Eli Felts

23-17s-12w Barton,KS
Sanford Trust #3
Job Ticket: 61902 **DST#: 1**
Test Start: 2014.09.30 @ 19:37:00

Tool Information

Drill Pipe:	Length: 3289.00 ft	Diameter: 3.80 inches	Volume: 46.14 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 46.14 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	31.00 ft			String Weight: Initial 38000.00 lb
Depth to Top Packer:	3285.00 ft			Final 40000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	26.00 ft			
Tool Length:	53.00 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			3263.00	
Hydraulic tool	5.00			3268.00	
Jars	5.00			3273.00	
Safety Joint	2.00			3275.00	
Top Packer	5.00			3280.00	
Packer	5.00			3285.00	27.00 Bottom Of Top Packer
Anchor	21.00			3306.00	
Recorder	1.00	6749	Inside	3307.00	
Recorder	1.00	6663	Outside	3308.00	
Bullnose	3.00			3311.00	26.00 Anchor Tool
Total Tool Length:	53.00				



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Vamco Operations

23-17s-12w Barton,KS

265 Avenue K
Chase, KS 67524+9440

Sanford Trust #3

Job Ticket: 61902

DST#: 1

ATTN: Eii Felts

Test Start: 2014.09.30 @ 19:37:00

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: 53.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.17 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
0.00	1515 feet of gas in pipe	0.000
97.00	VGOCM Mud 20% Oil 30% Gas 50%	1.361
62.00	VGMCEO Mud 5% Emulsified Oil 20% Gas 75'	0.870
62.00	VGMWCO Mud 5% Water 10% Oil 35% Gas 5'	0.870
62.00	MW Mud 20% Water 80%	0.870

Total Length: 283.00 ft

Total Volume: 3.971 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Serial #: 6749

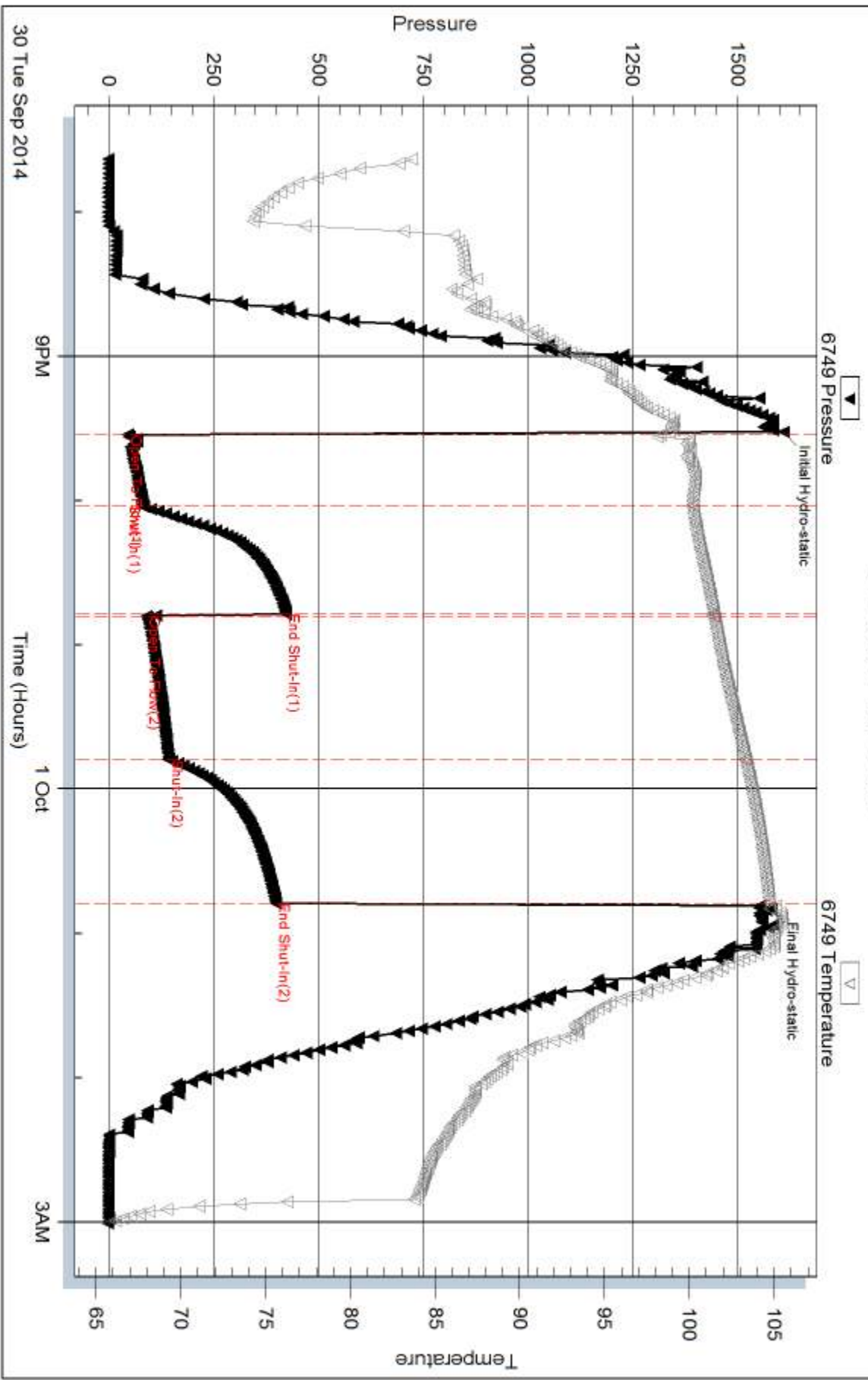
Inside

Varco Operations

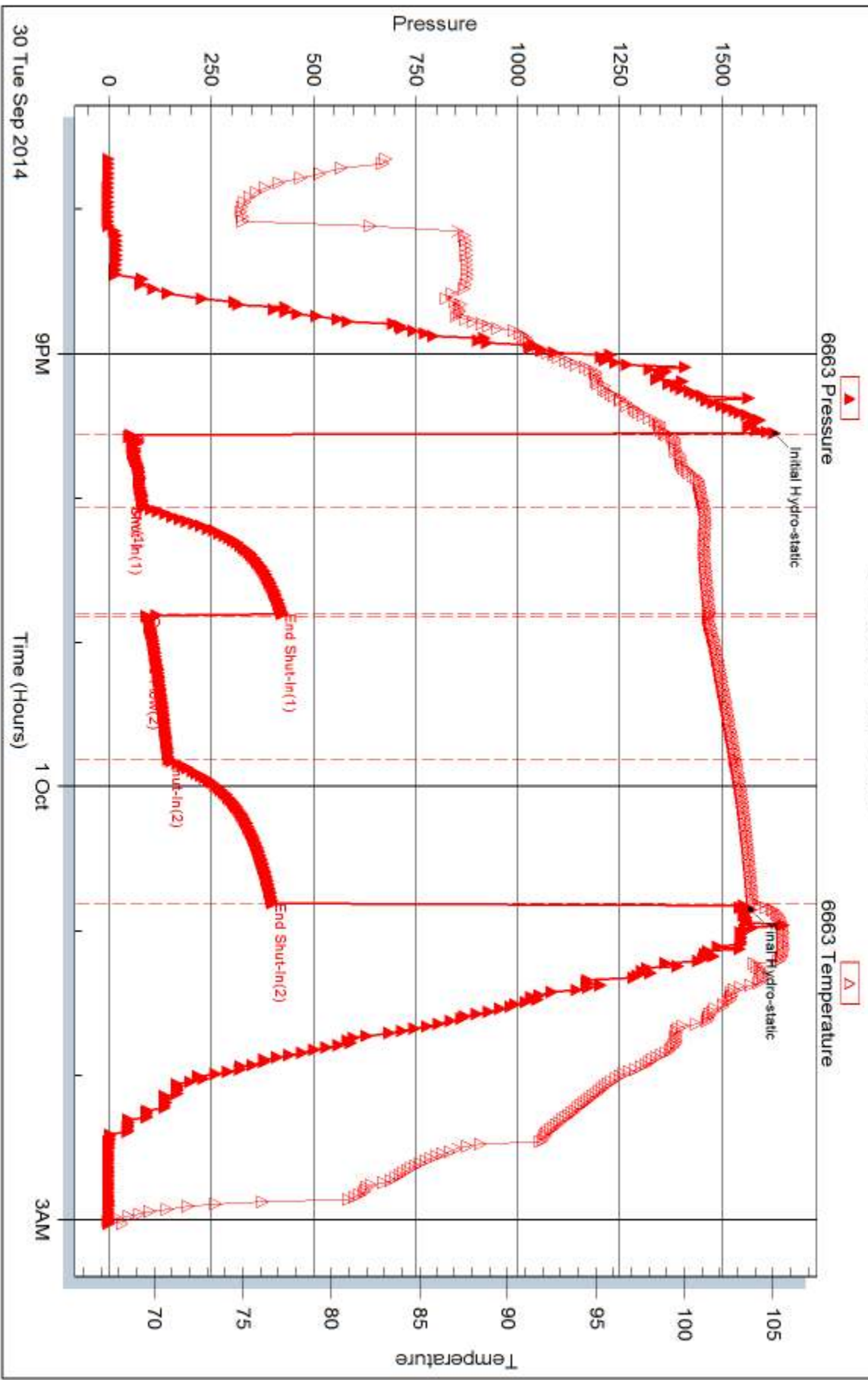
Sanford Trust #3

DST Test Number: 1

Pressure vs. Time



Pressure vs. Time





DRILL STEM TEST REPORT

Prepared For: **Vamco Operations**

265 Avenue K
Chase, KS 67524+9440

ATTN: Eli Felts

Sanford Trust #3

23-17s-12w Barton,KS

Start Date: 2014.09.30 @ 18:11:00

End Date: 2014.10.01 @ 01:03:00

Job Ticket #: 61903 DST #: 2

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

Printed: 2014.10.03 @ 15:37:10



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Vamco Operations
 265 Avenue K
 Chase, KS 67524+9440
 ATTN: Eli Felts

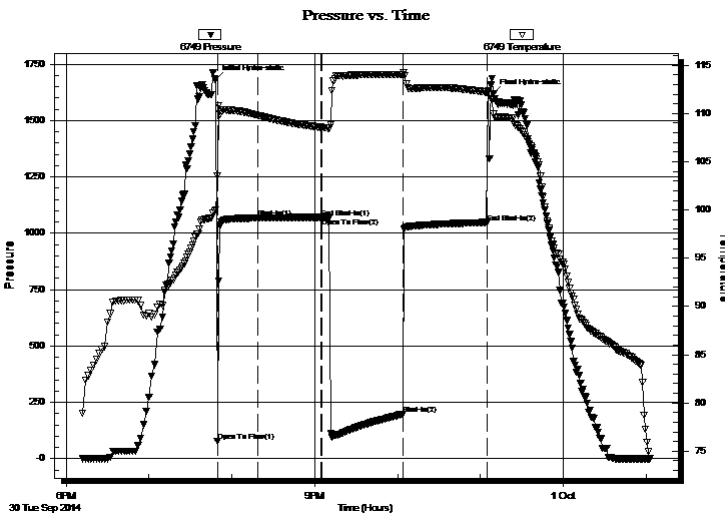
23-17s-12w Barton,KS
Sanford Trust #3
 Job Ticket: 61903 **DST#: 2**
 Test Start: 2014.09.30 @ 18:11:00

GENERAL INFORMATION:

Formation: **Arbuckle**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 19:49:30
 Time Test Ended: 01:03:00
 Interval: **3374.00 ft (KB) To 3430.00 ft (KB) (TVD)**
 Total Depth: 3430.00 ft (KB) (TVD)
 Hole Diameter: 7.80 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Ken Swinney
 Unit No: S1
 Reference Elevations: 1925.00 ft (KB)
 1916.00 ft (CF)
 KB to GR/CF: 9.00 ft

Serial #: 6749 Inside
 Press@RunDepth: 198.79 psig @ 3425.82 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.09.30 End Date: 2014.10.01 Last Calib.: 2014.10.02
 Start Time: 18:12:00 End Time: 01:03:00 Time On Btm: 2014.09.30 @ 19:48:30
 Time Off Btm: 2014.09.30 @ 23:09:30

TEST COMMENT: 1ST Open 30 Minutes/Weak blow /Blow built to 8 inches in 7 minutes then died to 5 1/2 inches
 1ST Shut In 45 Minutes/No blow back
 2ND Open 60 Minutes/No blow /Flush tool/Surging blow built to bottom of bucket in 10 minutes
 2ND Shut In 60 Minutes/No blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1682.28	100.01	Initial Hydro-static
1	77.76	103.54	Open To Flow (1)
31	1067.89	109.80	Shut-In(1)
76	1070.81	108.57	End Shut-In(1)
77	1070.81	108.56	Open To Flow (2)
136	198.79	114.02	Shut-In(2)
196	1048.15	112.22	End Shut-In(2)
201	1618.09	109.93	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
176.00	Oil cut Mud/Oil 5% Mud 95%	2.47
124.00	Muddy Water/Mud 5% Water 95%	1.74
62.00	Mud with show of oil/Mud 100%	0.87

Gas Rates

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



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TESTING, INC.**

DRILL STEM TEST REPORT

Vamco Operations
265 Avenue K
Chase, KS 67524+9440
ATTN: Eli Felts

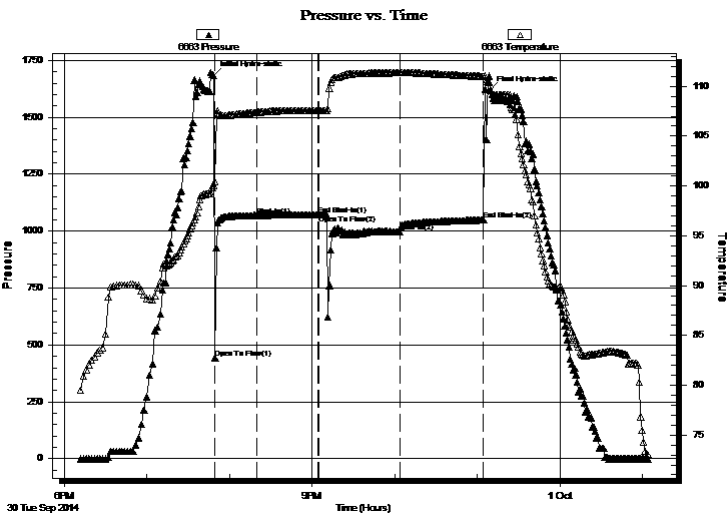
23-17s-12w Barton, KS
Sanford Trust #3
Job Ticket: 61903 **DST#: 2**
Test Start: 2014.09.30 @ 18:11:00

GENERAL INFORMATION:

Formation: **Arbuckle**
Deviated: No Whipstock: ft (KB) Test Type: Conventional Bottom Hole (Initial)
Time Tool Opened: 19:49:30 Tester: Ken Swinney
Time Test Ended: 01:03:00 Unit No: S1
Interval: 3374.00 ft (KB) To 3430.00 ft (KB) (TVD) Reference Elevations: 1925.00 ft (KB)
Total Depth: 3430.00 ft (KB) (TVD) 1916.00 ft (CF)
Hole Diameter: 7.80 inches Hole Condition: Fair KB to GR/CF: 9.00 ft

Serial #: 6663 Outside
Press@RunDepth: 1049.11 psig @ 3426.82 ft (KB) Capacity: 8000.00 psig
Start Date: 2014.09.30 End Date: 2014.10.01 Last Calib.: 2014.10.02
Start Time: 18:12:00 End Time: 01:03:30 Time On Btm: 2014.09.30 @ 19:48:30
Time Off Btm: 2014.09.30 @ 23:09:30

TEST COMMENT: 1ST Open 30 Minutes/Weak blow /Blow built to 8 inches in 7 minutes then died to 5 1/2 inches
1ST Shut In 45 Minutes/No blow back
2ND Open 60 Minutes/No blow /Flush tool/Surging blow built to bottom of bucket in 10 minutes
2ND Shut In 60 Minutes/No blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1684.58	100.07	Initial Hydro-static
1	442.30	100.47	Open To Flow (1)
31	1069.08	107.39	Shut-In(1)
76	1071.82	107.57	End Shut-In(1)
77	1071.83	107.57	Open To Flow (2)
135	997.25	111.37	Shut-In(2)
196	1049.11	110.99	End Shut-In(2)
201	1619.25	109.57	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
176.00	Oil cut Mud/Oil 5% Mud 95%	2.47
124.00	Muddy Water/Mud 5% Water 95%	1.74
62.00	Mud with show of oil/Mud 100%	0.87

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Vamco Operations
265 Avenue K
Chase, KS 67524+9440
ATTN: Eli Felts

23-17s-12w Barton,KS
Sanford Trust #3
Job Ticket: 61903 **DST#: 2**
Test Start: 2014.09.30 @ 18:11:00

Tool Information

Drill Pipe:	Length: 3351.00 ft	Diameter: 3.80 inches	Volume: 47.01 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 47.01 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	5.00 ft			String Weight: Initial 40000.00 lb
Depth to Top Packer:	3374.00 ft			Final 41000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	55.82 ft			
Tool Length:	83.82 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments: Ruined packer

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut-In Tool	5.00			3351.00	
Hydraulic tool	5.00			3356.00	
Jars	6.00			3362.00	
Safety Joint	2.00			3364.00	
Top Packer	5.00			3369.00	
Packer	5.00			3374.00	28.00 Bottom Of Top Packer
Anchor	3.00			3377.00	
Change Over Sub	0.75			3377.75	
Drill Pipe	31.32			3409.07	
Change Over Sub	0.75			3409.82	
Anchor	15.00			3424.82	
Recorder	1.00	6749	Inside	3425.82	
Recorder	1.00	6663	Outside	3426.82	
Bullnose	3.00			3429.82	55.82 Anchor Tool

Total Tool Length: 83.82



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Vamco Operations

23-17s-12w Barton,KS

265 Avenue K
Chase, KS 67524+9440

Sanford Trust #3

Job Ticket: 61903

DST#: 2

ATTN: Eii Felts

Test Start: 2014.09.30 @ 18:11:00

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: 53.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 9.18 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
176.00	Oil cut Mud/Oil 5% Mud 95%	2.469
124.00	Muddy Water/Mud 5% Water 95%	1.739
62.00	Mud with show of oil/Mud 100%	0.870

Total Length: 362.00 ft

Total Volume: 5.078 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

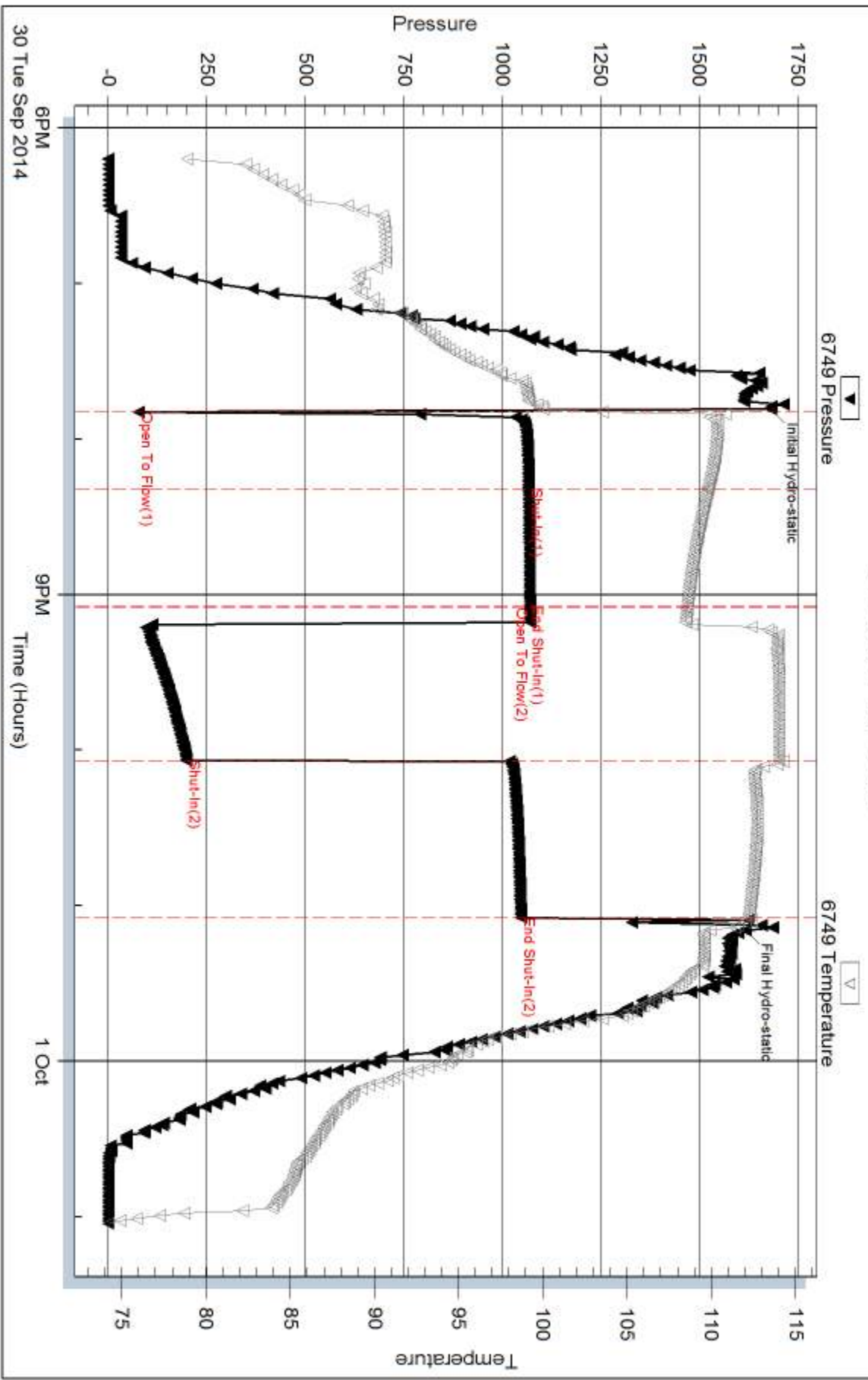
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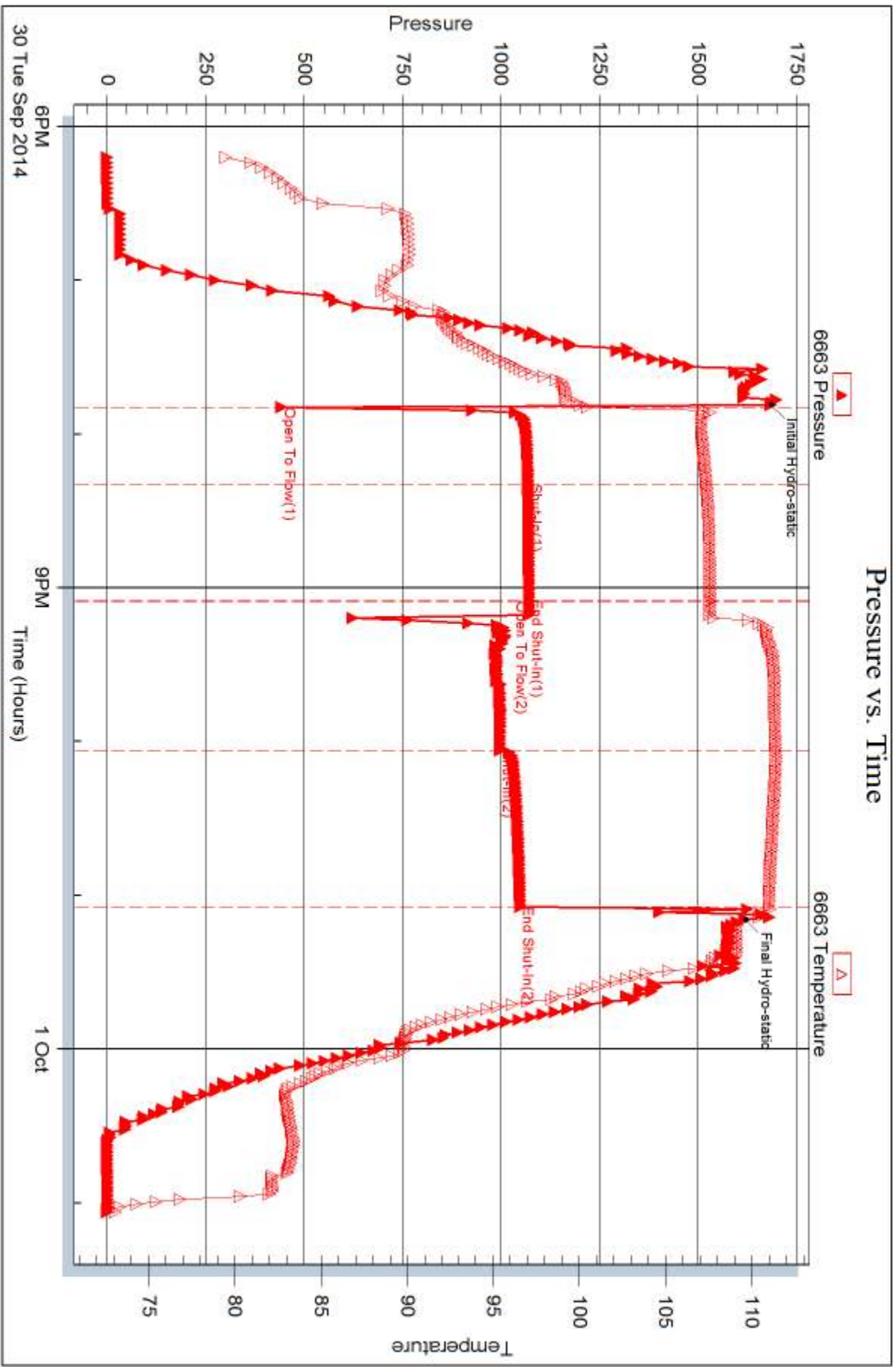
Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time







DRILL STEM TEST REPORT

Prepared For: **Vamco Operations**

265 Avenue K
Chase, KS 67524+9440

ATTN: Eli Felts

Sanford Trust #3

23-17s-12w Barton,KS

Start Date: 2014.10.02 @ 15:13:00

End Date: 2014.10.02 @ 21:39:00

Job Ticket #: 61904 DST #: 3

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

Printed: 2014.10.03 @ 15:35:46

Vamco Operations
23-17s-12w Barton,KS
Sanford Trust #3
DST # 3
LKC B-G
2014.10.02



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Vamco Operations
 265 Avenue K
 Chase, KS 67524+9440
 ATTN: Eli Felts

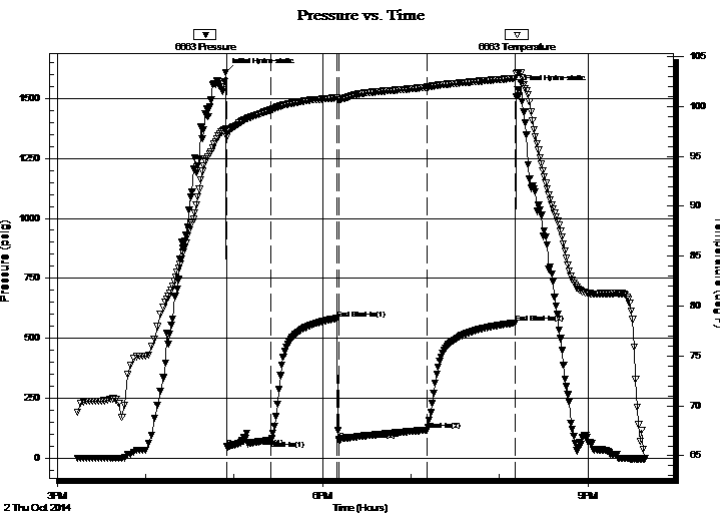
23-17s-12w Barton, KS
Sanford Trust #3
 Job Ticket: 61904 **DST#: 3**
 Test Start: 2014.10.02 @ 15:13:00

GENERAL INFORMATION:

Formation: **LKC B-G**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 16:55:00
 Time Test Ended: 21:39:00
 Interval: **3184.00 ft (KB) To 3250.00 ft (KB) (TVD)**
 Total Depth: 3475.00 ft (KB) (TVD)
 Hole Diameter: 7.80 inches Hole Condition: Fair
 Test Type: Conventional Straddle (Initial)
 Tester: Ken Swinney
 Unit No: S1
 Reference Elevations: 1925.00 ft (KB)
 1916.00 ft (CF)
 KB to GR/CF: 9.00 ft

Serial #: 6663 Inside
 Press@RunDepth: 118.86 psig @ 3244.03 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.10.02 End Date: 2014.10.02 Last Calib.: 2014.10.02
 Start Time: 15:14:00 End Time: 21:39:00 Time On Btm: 2014.10.02 @ 16:54:30
 Time Off Btm: 2014.10.02 @ 20:12:30

TEST COMMENT: 1ST Open 30 Mintues/Good blow /Blow built to bottom of bucket in 14 minutes 30 seconds
 1ST Shut In 45 Minutes/Blow back built to 1/4 inch
 2ND Open 60 Minutes/Good blow /Blow built to bottom of bucket in 6 minutes
 2ND Shut In 60 Minutes/Blow back built to 2 inches



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1608.00	97.79	Initial Hydro-static
1	48.71	96.91	Open To Flow (1)
31	75.18	99.65	Shut-In(1)
75	583.00	100.86	End Shut-In(1)
77	75.60	100.69	Open To Flow (2)
137	118.86	101.92	Shut-In(2)
196	564.16	102.80	End Shut-In(2)
198	1535.77	103.40	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
45.00	GOCM Oil 15% Gas 40% Mud 45%	0.63
62.00	GOCM Gas 5% Oil 15% Mud 80%	0.87
62.00	Mud w ith show of oil/Mud 100%	0.87
0.00	449 feet of gas in pipe	0.00

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Vamco Operations
265 Avenue K
Chase, KS 67524+9440
ATTN: Eli Felts

23-17s-12w Barton,KS
Sanford Trust #3
Job Ticket: 61904 **DST#: 3**
Test Start: 2014.10.02 @ 15:13:00

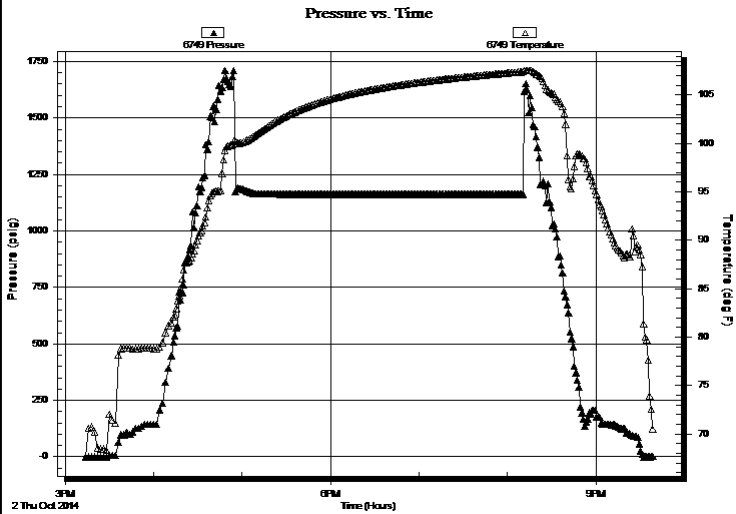
GENERAL INFORMATION:

Formation: **LKC B-G**
Deviated: No Whipstock: ft (KB) Test Type: Conventional Straddle (Initial)
Time Tool Opened: 16:55:00 Tester: Ken Swinney
Time Test Ended: 21:39:00 Unit No: S1

Interval: **3184.00 ft (KB) To 3250.00 ft (KB) (TVD)** Reference Elevations: 1925.00 ft (KB)
Total Depth: 3475.00 ft (KB) (TVD) 1916.00 ft (CF)
Hole Diameter: 7.80 inches Hole Condition: Fair KB to GR/CF: 9.00 ft

Serial #: 6749 Below (Straddle)
Press@RunDepth: psig @ 3471.83 ft (KB) Capacity: 8000.00 psig
Start Date: 2014.10.02 End Date: 2014.10.02 Last Calib.: 2014.10.02
Start Time: 15:14:00 End Time: 21:39:00 Time On Btm:
Time Off Btm:

TEST COMMENT: 1ST Open 30 Mintues/Good blow /Blow built to bottom of bucket in 14 minutes 30 seconds
1ST Shut In 45 Minutes/Blow back built to 1/4 inch
2ND Open 60 Minutes/Good blow /Blow built to bottom of bucket in 6 minutes
2ND Shut In 60 Minutes/Blow back built to 2 inches



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
45.00	GOCM Oil 15% Gas 40% Mud 45%	0.63
62.00	GOCM Gas 5% Oil 15% Mud 80%	0.87
62.00	Mud with show of oil/Mud 100%	0.87
0.00	449 feet of gas in pipe	0.00

Gas Rates

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



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Vamco Operations
 265 Avenue K
 Chase, KS 67524+9440
 ATTN: Eli Felts

23-17s-12w Barton, KS
Sanford Trust #3
 Job Ticket: 61904 **DST#: 3**
 Test Start: 2014.10.02 @ 15:13:00

GENERAL INFORMATION:

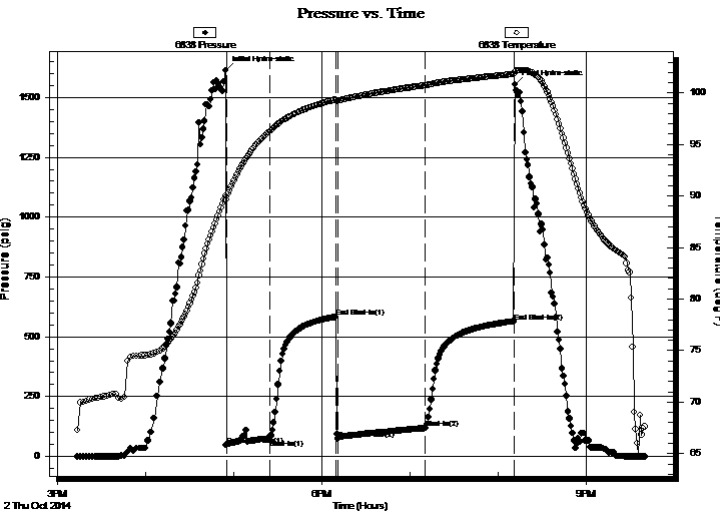
Formation: **LKC B-G**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 16:55:00
 Time Test Ended: 21:39:00
 Interval: **3184.00 ft (KB) To 3250.00 ft (KB) (TVD)**
 Total Depth: 3475.00 ft (KB) (TVD)
 Hole Diameter: 7.80 inches Hole Condition: Fair
 Test Type: Conventional Straddle (Initial)
 Tester: Ken Swinney
 Unit No: S1
 Reference Elevations: 1925.00 ft (KB)
 1916.00 ft (CF)
 KB to GR/CF: 9.00 ft

Serial #: 6838

Inside

Press@RunDepth: 562.92 psig @ 3244.03 ft (KB) Capacity: 8000.00 psig
 Start Date: 2014.10.02 End Date: 2014.10.02 Last Calib.: 2014.10.02
 Start Time: 15:14:00 End Time: 21:39:30 Time On Btm: 2014.10.02 @ 16:54:30
 Time Off Btm: 2014.10.02 @ 20:11:30

TEST COMMENT: 1ST Open 30 Mintues/Good blow /Blow built to bottom of bucket in 14 minutes 30 seconds
 1ST Shut In 45 Minutes/Blow back built to 1/4 inch
 2ND Open 60 Minutes/Good blow /Blow built to bottom of bucket in 6 minutes
 2ND Shut In 60 Minutes/Blow back built to 2 inches



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1613.08	90.02	Initial Hydro-static
1	47.25	89.64	Open To Flow (1)
30	73.36	96.25	Shut-In(1)
75	582.06	99.33	End Shut-In(1)
77	73.48	99.23	Open To Flow (2)
136	116.64	100.72	Shut-In(2)
196	562.92	101.79	End Shut-In(2)
197	1555.27	102.11	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
45.00	GOCM Oil 15% Gas 40% Mud 45%	0.63
62.00	GOCM Gas 5% Oil 15% Mud 80%	0.87
62.00	Mud w ith show of oil/Mud 100%	0.87
0.00	449 feet of gas in pipe	0.00

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Vamco Operations
265 Avenue K
Chase, KS 67524+9440
ATTN: Eli Felts

23-17s-12w Barton,KS
Sanford Trust #3
Job Ticket: 61904 **DST#: 3**
Test Start: 2014.10.02 @ 15:13:00

Tool Information

Drill Pipe:	Length: 3168.00 ft	Diameter: 3.80 inches	Volume: 44.44 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 46000.00 lb
			<u>Total Volume: 44.44 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	8.75 ft			String Weight: Initial 40000.00 lb
Depth to Top Packer:	3184.00 ft			Final 41000.00 lb
Depth to Bottom Packer:	3474.83 ft			
Interval between Packers:	290.83 ft			
Tool Length:	315.58 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut-In Tool	5.00			3164.25	
Hydraulic tool	5.00			3169.25	
Jars	6.00			3175.25	
Safety Joint	2.00			3177.25	
Top Packer	5.00			3182.25	
Packer	1.75			3184.00	24.75 Bottom Of Top Packer
Anchor	5.00			3189.00	
Change Over Sub	0.66			3189.66	
Drill Pipe	31.58			3221.24	
Change Over Sub	0.79			3222.03	
Anchor	22.00			3244.03	
Recorder	0.00	6663	Inside	3244.03	
Recorder	0.00	6838	Inside	3244.03	
Blank Off Sub	0.66			3244.69	
Travel Collar	1.74			3246.43	
Packer (Interval Side)	1.68			3248.11	
Packer (Tail side)	1.55			3249.66	
Change Over Sub	0.66			3250.32	
Drill Pipe	220.86			3471.18	
Change Over Sub	0.65			3471.83	
Recorder	0.00	6749	Below	3471.83	
Bullnose	3.00			3474.83	290.83 Anchor Tool

Total Tool Length: 315.58



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Vamco Operations
265 Avenue K
Chase, KS 67524+9440
ATTN: Eii Felts

23-17s-12w Barton,KS
Sanford Trust #3
Job Ticket: 61904 **DST#: 3**
Test Start: 2014.10.02 @ 15:13:00

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: 9.58 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 5000.00 ppm			
Filter Cake: 1.00 inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
45.00	GOCM Oil 15% Gas 40% Mud 45%	0.631
62.00	GOCM Gas 5% Oil 15% Mud 80%	0.870
62.00	Mud with show of oil/Mud 100%	0.870
0.00	449 feet of gas in pipe	0.000

Total Length: 169.00 ft Total Volume: 2.371 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments:

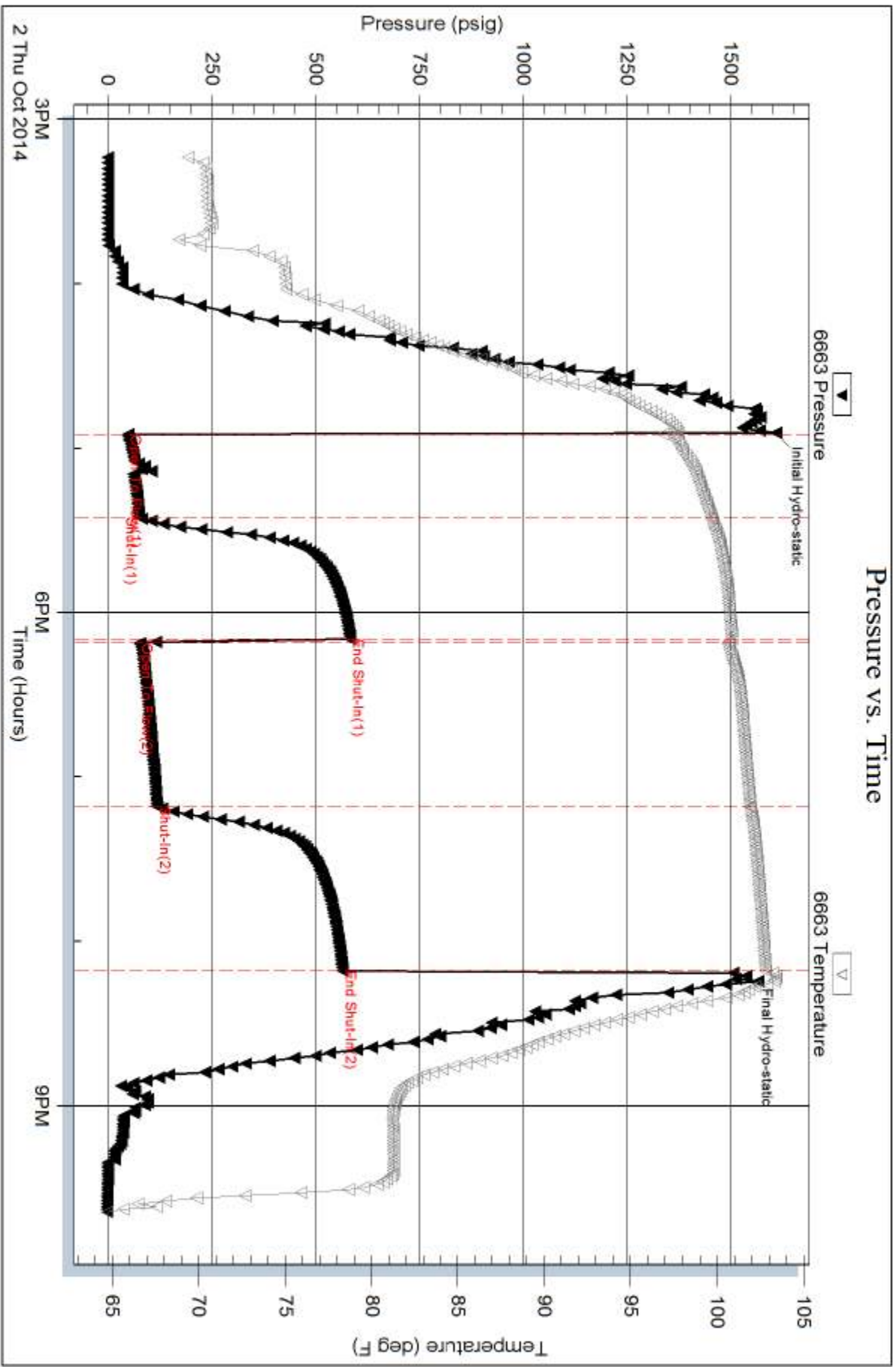
Serial #: 6663

Inside

Varco Operations

Sanford Trust #3

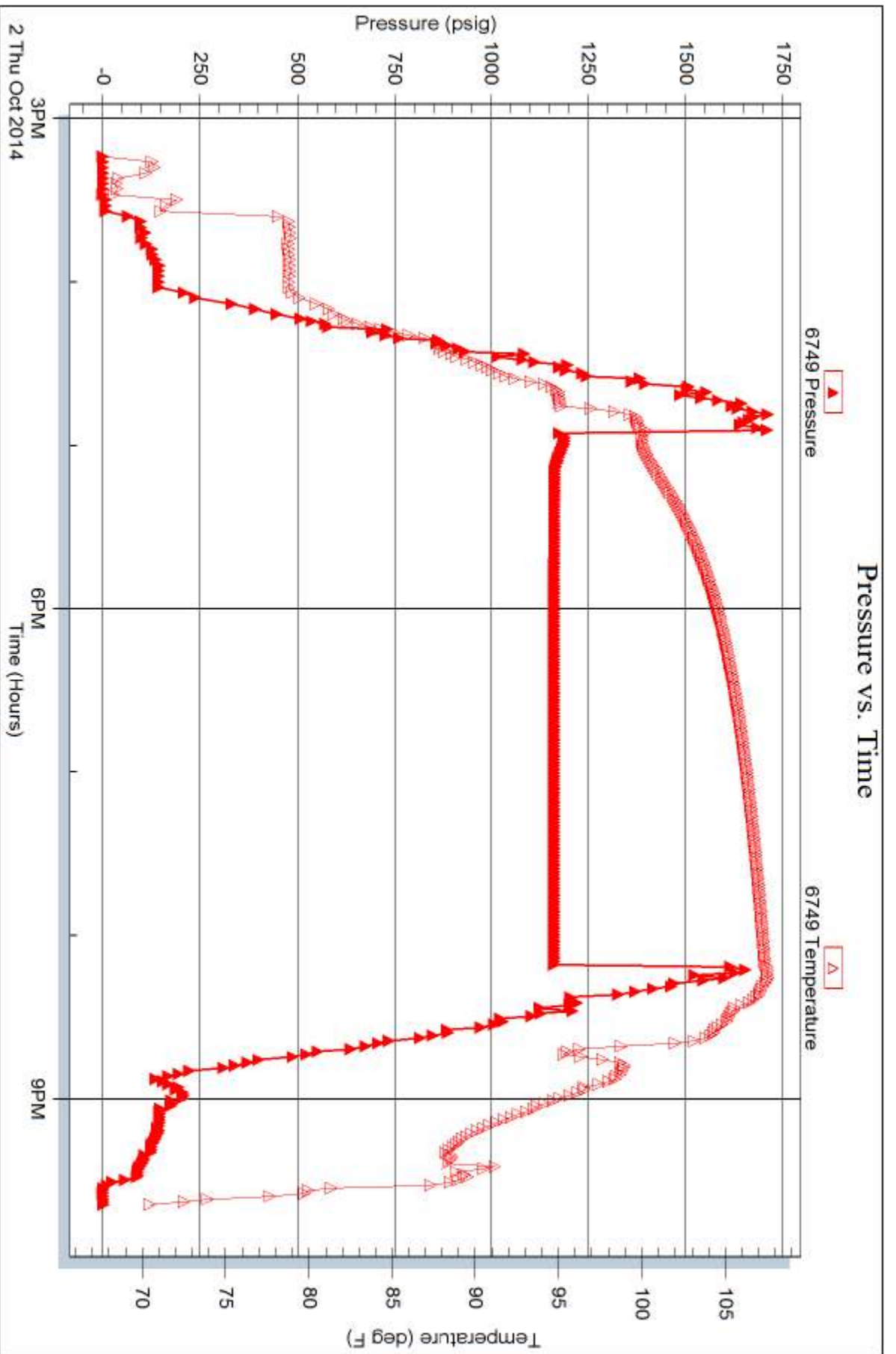
DST Test Number: 3



Tribble Testing, Inc

Ref. No: 61904

Printed: 2014, 10, 03 @ 15:35:48



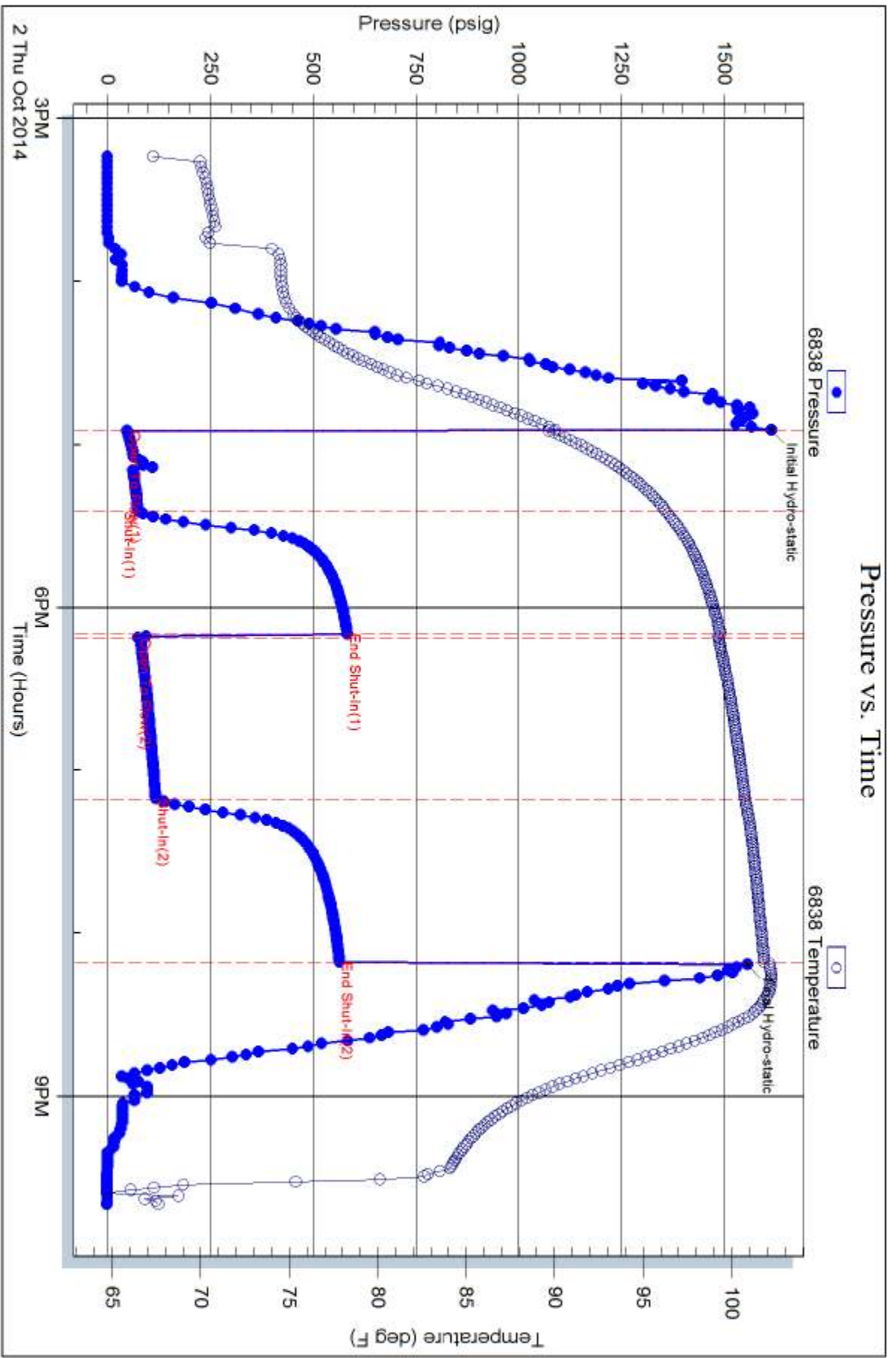
Serial #: 6838

Inside

Varco Operations

Sanford Trust #3

DST Test Number: 3



Triobite Testing, Inc

Ref. No: 61904

Printed: 2014, 10:03 @ 15:35:48



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 61902

Well Name & No. Sanford Trust #3 Test No. 1 Date 30 Sept. 14
 Company Vanco Operations Elevation 1925 KB 1916 GL
 Address 265 Avenue K Chase Kansas 67524-9440
 Co. Rep / Geo. El. Felts Rig Southwind Rig #5
 Location: Sec. 23 Twp. 17S Rge. 12W Co. Barton State KS

Interval Tested 3285-3311 Zone Tested Lansing/Kansas G4 zone H
 Anchor Length 26 Drill Pipe Run 3289 Mud Wt. 8.9
 Top Packer Depth 3280 Drill Collars Run 0 Vis 53
 Bottom Packer Depth 3285 Wt. Pipe Run 0 WL 8.2
 Total Depth 3311 Chlorides 2000 ppm System LCM 1/2 H

Blow Description Good blow/ Blow built to bottom of bucket in 4 minutes 15 seconds
Blow back built to 1 1/2 inch
Good blow/ Blow built to bottom of bucket in 5 minutes 45 seconds
Blow back built to bottom of bucket in 31 minutes

Rec	Feet of	%gas	%oil	%water	%mud
<u>97</u>	<u>mud cut oily gas</u>	<u>50</u>	<u>30</u>	<u>20</u>	<u>0</u>
<u>62</u>	<u>mud cut Emulsified oily gas</u>	<u>75</u>	<u>20</u>	<u>5</u>	<u>0</u>
<u>62</u>	<u>mud + water cut oily gas</u>	<u>50</u>	<u>35</u>	<u>10</u>	<u>5</u>
<u>62</u>	<u>Muddy Water</u>	<u>0</u>	<u>0</u>	<u>80</u>	<u>20</u>
<u>1515</u>	<u>Gas in pipe</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>

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

(A) Initial Hydrostatic 1609 Test 1150 T-On Location 5:00 pm
 (B) First Initial Flow 46 Jars 250 T-Started 7:37 pm
 (C) First Final Flow 81 Safety Joint 75 T-Open 9:31 pm
 (D) Initial Shut-In 422 Circ Sub _____ T-Pulled 12:46 am
 (E) Second Initial Flow 89 Hourly Standby _____ T-Out 3:00 am
 (F) Second Final Flow 143 Mileage 32 49.60 Comments Head broke
 (G) Final Shut-In 398 Sampler _____ loose and affected
 (H) Final Hydrostatic 1580 Straddle _____ 1st shut + 2nd open
 Ruined Shale Packer _____
 Shale Packer _____
 Ruined Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 1524.60 MP/DST Disc't _____

Approved By El. Felts Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 61903

Well Name & No. Sanford Trust #3 Test No. 2 Date 1 OCT 14
 Company Vamco Operations Elevation 1925 KB 1915 GL
 Address 265 Avenue K Chase Kansas 67524-9440
 Co. Rep / Geo. El. Felts Rig Southwind Rig #8
 Location: Sec. 23 Twp. 17S Rge. 12W Co. Barton State KS

Interval Tested 3374-3430 Zone Tested Asbuckle
 Anchor Length 56 Drill Pipe Run 3351 Mud Wt. 8.7
 Top Packer Depth 3369 Drill Collars Run 0 Vis 53
 Bottom Packer Depth 3374 Wt. Pipe Run 0 WL 9.2
 Total Depth 3430 Chlorides 5000 ppm System LCM 4.2#
 Blow Description Weak blow/Blow built to 4 inches in 7 minutes then died to 5 1/2 inches
No blow back
No blow at open/Flush tool/Surging blow built to bottom of bucket in 10 minutes
No blow back

Rec	Feet of	%gas	%oil	%water	%mud
<u>176</u>	<u>Oil cut Mud</u>	<u>5</u>	<u>95</u>	<u>5</u>	<u>95</u>
<u>124</u>	<u>Muddy Water</u>		<u>95</u>	<u>5</u>	<u>5</u>
<u>62</u>	<u>Mud with show of oil</u>			<u>100</u>	<u>100</u>
<u> </u>	<u> </u>				
<u> </u>	<u> </u>				

Rec Total 362 BHT 112 Gravity _____ API RW .28 @ 60 °F Chlorides 24,000 ppm

(A) Initial Hydrostatic 1682 Test 1150 T-On Location 4:30 pm
 (B) First Initial Flow 77 Jars 250 T-Started 6:11 pm
 (C) First Final Flow 1067 Safety Joint 75 T-Open 8:49 pm
 (D) Initial Shut-In 1070 Circ Sub _____ T-Pulled 11:04 pm
 (E) Second Initial Flow 1070 Hourly Standby _____ T-Out 1:03 am
 (F) Second Final Flow 198 Mileage 32 49.60 Comments _____
 (G) Final Shut-In 1048 Sampler _____
 (H) Final Hydrostatic 1618 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer 320
 Extra Packer _____ Extra Copies _____
 Initial Open 30 Extra Recorder _____ Sub Total 320
 Initial Shut-In 45 Day Standby _____ Total 1844.60
 Final Flow 60 Accessibility _____ MP/DST Disc't _____
 Final Shut-In 60 Sub Total 1524.60

Approved By [Signature] Our Representative [Signature]
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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 61904

Well Name & No. Sanford Trust #3 Test No. 3 Date 7 OCT 14
 Company Vamco Operations Elevation 1925 KB 1915 GL
 Address 265 Avenue K Chase Kansas 67524+9440
 Co. Rep / Geo. Eli Felts Rig Southwind Rig #8
 Location: Sec. 23 Twp. 17S Rge. 12W Co. Barton State K5

Interval Tested 3184-3250 Zone Tested Lansing/Kansas City zones B-G
 Anchor Length 66 Drill Pipe Run 3168 Mud Wt. 8.9
 Top Packer Depth 3179 Drill Collars Run 0 Vis 52
 Bottom Packer Depth 3184 Wt. Pipe Run 0 WL 9.6
 Total Depth 3475 Chlorides 5000 ppm System LCM 1/2 #
 Blow Description Good blow/Blow built to bottom of bucket in 14 minutes 30 seconds
Blowback built to 1/2 inch
Good blow/Blow built to bottom of bucket in 6 minutes
Blowback built to 2 inches

Rec	Feet of	%gas	%oil	%water	%mud
45	Oil cut Gassy mud	40	15	45	
62	Gas cut oily mud	5	15	80	
62	mud with slow of oil			100	
449	Gas in pipe	100			

Rec Total _____ BHT 102 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 1608 Test 1150 T-On Location 2:45
 (B) First Initial Flow 48 Jars 250 T-Started 3:13
 (C) First Final Flow 75 Safety Joint 75 T-Open 4:54
 (D) Initial Shut-In 583 Circ Sub _____ T-Pulled 8:09
 (E) Second Initial Flow 75 Hourly Standby _____ T-Out 9:39
 (F) Second Final Flow 118 Mileage 37 49.60 Comments _____
 (G) Final Shut-In 564 Sampler _____
 (H) Final Hydrostatic 1535 Straddle 600 Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer 250 Extra Copies _____
 Extra Recorder 200 Sub Total _____
 Day Standby _____ Total _____
 Accessibility _____ MP/DST Disc't _____
 Sub Total _____

Approved By [Signature] Our Representative [Signature]

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