



## DRILL STEM TEST REPORT

Prepared For: **Werth Exploration Trust**

1308 Schwaller Avenue  
Hays Kansas 67601+2242

ATTN:

**Walz-Mustang SOL #16**

**7/11S/20E/Ellis**

Start Date: 2013.11.15 @ 07:15:00

End Date: 2013.11.15 @ 16:54:00

Job Ticket #: 17064                      DST #: 2

Superior Testers Enterprises LLC  
PO Box 138 Great Bend KS 67530  
1-800-792-6902

Printed: 2013.11.13 @ 17:13:40

Werth Exploration Trust

7/11S/20E/Ellis

Walz-Mustang SOL #16

DST # 2

Lansing/Kansas City

2013.11.15



# DRILL STEM TEST REPORT

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 1308 Schwaller Avenue  
 Hays Kansas 67601+2242  
 ATTN:

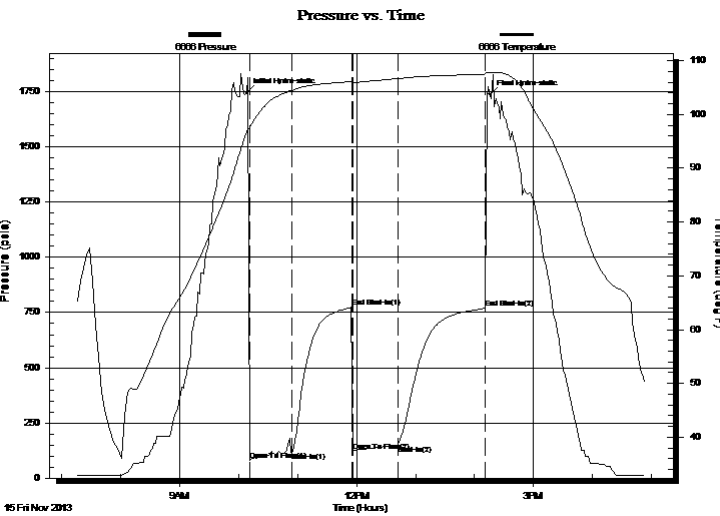
**7/11S/20E/Ellis**  
**Walz-Mustang SOL #16**  
 Job Ticket: 17064      **DST#: 2**  
 Test Start: 2013.11.15 @ 07:15:00

## GENERAL INFORMATION:

Formation: **Lansing/Kansas City**  
 Deviated: No Whipstock:      ft (KB)  
 Time Tool Opened: 10:11:00  
 Time Test Ended: 16:54:00  
 Interval: **3352.00 ft (KB) To 3458.00 ft (KB) (TVD)**  
 Total Depth: 3750.00 ft (KB) (TVD)  
 Hole Diameter: 7.80 inches Hole Condition: Fair  
 Test Type: Conventional Straddle (Initial)  
 Tester: Ken Swinney  
 Unit No: 3325 Hays/  
 Reference Elevations: 2068.00 ft (KB)  
 2061.00 ft (CF)  
 KB to GR/CF: 7.00 ft

**Serial #: 6666      Inside**  
 Press @ RunDepth: 148.96 psia @ 3452.00 ft (KB)      Capacity: 5000.00 psia  
 Start Date: 2013.11.15      End Date: 2013.11.15      Last Calib.: 2013.11.13  
 Start Time: 07:15:00      End Time: 16:54:00      Time On Btm: 2013.11.15 @ 10:08:30  
 Time Off Btm: 2013.11.15 @ 14:15:30

**TEST COMMENT:** 1ST Open 45 Minutes/Weak blow/Blow built to 3 1/2 inches  
 1ST Shut In 60 Minutes/Weak surface blow back  
 2ND Open 45 Minutes/Weak blow/Blow built to 2 1/2 inches  
 2ND Shut In 90 Minutes/Blow back built just below surface



## PRESSURE SUMMARY

Time (Min.)	Pressure (psia)	Temp (deg F)	Annotation
0	1744.21	96.82	Initial Hydro-static
3	82.70	97.25	Open To Flow (1)
46	118.88	104.47	Shut-In(1)
107	774.07	106.09	End Shut-In(1)
108	123.56	105.95	Open To Flow (2)
153	148.96	106.65	Shut-In(2)
243	768.74	107.51	End Shut-In(2)
247	1737.45	107.75	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
150.00	Oil cut Mud	0.74
0.00	Oil 3% Mud 97%	0.00

## Gas Rates

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



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**7/11S/20E/Ellis**  
**Walz-Mustang SOL #16**  
 Job Ticket: 17064      **DST#: 2**  
 Test Start: 2013.11.15 @ 07:15:00

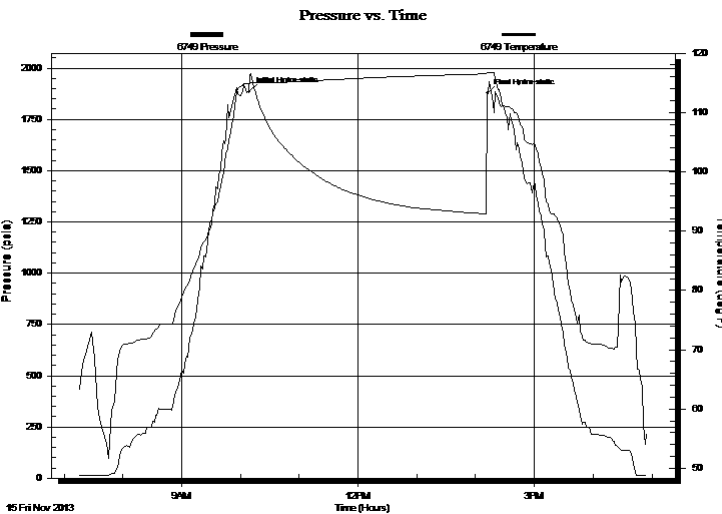
## GENERAL INFORMATION:

Formation: **Lansing/Kansas City**  
 Deviated: No Whipstock:      ft (KB)  
 Time Tool Opened: 10:11:00  
 Time Test Ended: 16:54:00  
**Interval: 3352.00 ft (KB) To 3458.00 ft (KB) (TVD)**  
 Total Depth: 3750.00 ft (KB) (TVD)  
 Hole Diameter: 7.80 inches Hole Condition: Fair  
 Test Type: Conventional Straddle (Initial)  
 Tester: Ken Swinney  
 Unit No: 3325 Hays/  
 Reference Elevations: 2068.00 ft (KB)  
 2061.00 ft (CF)  
 KB to GR/CF: 7.00 ft

## Serial #: 6749 Below

Press @ RunDepth:      psia @ 3745.22 ft (KB)      Capacity: 5000.00 psia  
 Start Date: 2013.11.15      End Date: 2013.11.15      Last Calib.: 2013.11.13  
 Start Time: 07:15:00      End Time: 16:55:00      Time On Btm: 2013.11.15 @ 10:09:00  
 Time Off Btm: 2013.11.15 @ 14:12:00

**TEST COMMENT:** 1ST Open 45 Minutes/Weak blow/Blow built to 3 1/2 inches  
 1ST Shut In 60 Minutes/Weak surface blow back  
 2ND Open 45 Minutes/Weak blow/Blow built to 2 1/2 inches  
 2ND Shut In 90 Minutes/Blow back built just below surface



## PRESSURE SUMMARY

Time (Min.)	Pressure (psia)	Temp (deg F)	Annotation
0	1884.22	114.85	Initial Hydro-static
243	1876.52	116.69	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
150.00	Oil cut Mud	0.74
0.00	Oil 3% Mud 97%	0.00

## Gas Rates

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



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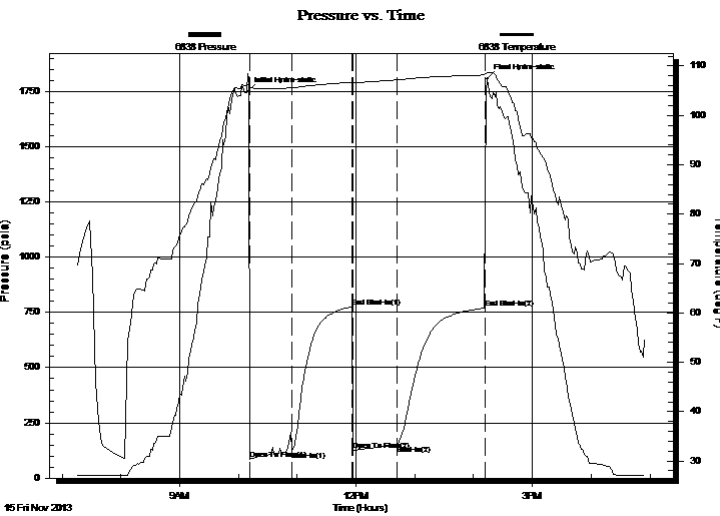
**7/11S/20E/Ellis**  
**Walz-Mustang SOL #16**  
 Job Ticket: 17064 **DST#: 2**  
 Test Start: 2013.11.15 @ 07:15:00

## GENERAL INFORMATION:

Formation: **Lansing/Kansas City**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 10:11:00  
 Time Test Ended: 16:54:00  
 Interval: **3352.00 ft (KB) To 3458.00 ft (KB) (TVD)**  
 Total Depth: 3750.00 ft (KB) (TVD)  
 Hole Diameter: 7.80 inches Hole Condition: Fair  
 Test Type: Conventional Straddle (Initial)  
 Tester: Ken Swinney  
 Unit No: 3325 Hays/  
 Reference Elevations: 2068.00 ft (KB)  
 2061.00 ft (CF)  
 KB to GR/CF: 7.00 ft

**Serial #: 6838 Inside**  
 Press @ Run Depth: 769.60 psia @ 3452.00 ft (KB) Capacity: 5000.00 psia  
 Start Date: 2013.11.15 End Date: 2013.11.15 Last Calib.: 2013.11.13  
 Start Time: 07:15:00 End Time: 16:55:00 Time On Btm: 2013.11.15 @ 10:09:00  
 Time Off Btm: 2013.11.15 @ 14:14:00

**TEST COMMENT:** 1ST Open 45 Minutes/Weak blow/Blow built to 3 1/2 inches  
 1ST Shut In 60 Minutes/Weak surface blow back  
 2ND Open 45 Minutes/Weak blow/Blow built to 2 1/2 inches  
 2ND Shut In 90 Minutes/Blow back built just below surface



## PRESSURE SUMMARY

Time (Min.)	Pressure (psia)	Temp (deg F)	Annotation
0	1748.43	106.06	Initial Hydro-static
3	84.67	105.78	Open To Flow (1)
46	120.00	105.61	Shut-In(1)
107	775.34	106.72	End Shut-In(1)
108	124.39	106.62	Open To Flow (2)
153	149.41	107.22	Shut-In(2)
243	769.60	108.20	End Shut-In(2)
245	1806.48	108.60	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
150.00	Oil cut Mud	0.74
0.00	Oil 3% Mud 97%	0.00

## Gas Rates

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



# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Werth Exploration Trust  
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**7/11S/20E/Ellis**  
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 Job Ticket: 17064      **DST#: 2**  
 Test Start: 2013.11.15 @ 07:15:00

## Tool Information

Drill Pipe:	Length: 3208.00 ft	Diameter: 3.80 inches	Volume: 45.00 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: 150.00 ft	Diameter: 2.25 inches	Volume: 0.74 bbl	Weight to Pull Loose: 68000.00 lb
			<u>Total Volume: 45.74 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	24.76 ft			String Weight: Initial 49000.00 lb
Depth to Top Packer:	3352.00 ft			Final 50000.00 lb
Depth to Bottom Packer:	3748.22 ft			
Interval between Packers:	396.22 ft			
Tool Length:	414.98 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			3338.24	
Hydraulic Tool	5.00			3343.24	
Jars	5.00			3348.24	
Safety Joint	2.00			3350.24	
Packer	1.76			3352.00	18.76      Bottom Of Top Packer
Change Over Sub	0.79			3352.79	
Drill Pipe	62.55			3415.34	
Change Over Sub	0.66			3416.00	
Handling Sub	5.00			3421.00	
Perforations	31.00			3452.00	
Recorder	0.00	6666	Inside	3452.00	
Recorder	0.00	6838	Inside	3452.00	
Blank Off Sub	0.65			3452.65	
Travel Collar	1.67			3454.32	
Packer Interval side	1.70			3456.02	
Packer Tail Side	1.55			3457.57	
Change Over Sub	0.64			3458.21	
Drill Pipe	283.35			3741.56	
Change Over sub	0.66			3742.22	
Perforations	3.00			3745.22	
Recorder	0.00	6749	Below	3745.22	
Bullnose	3.00			3748.22	396.22      Anchor Tool

**Total Tool Length: 414.98**



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FLUID SUMMARY

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**Walz-Mustang SOL #16**  
Job Ticket: 17064      **DST#: 2**  
Test Start: 2013.11.15 @ 07:15:00

## 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:	8.80 in <sup>3</sup>	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psia		
Salinity:	2500.00 ppm				
Filter Cake:	1.00 inches				

## Recovery Information

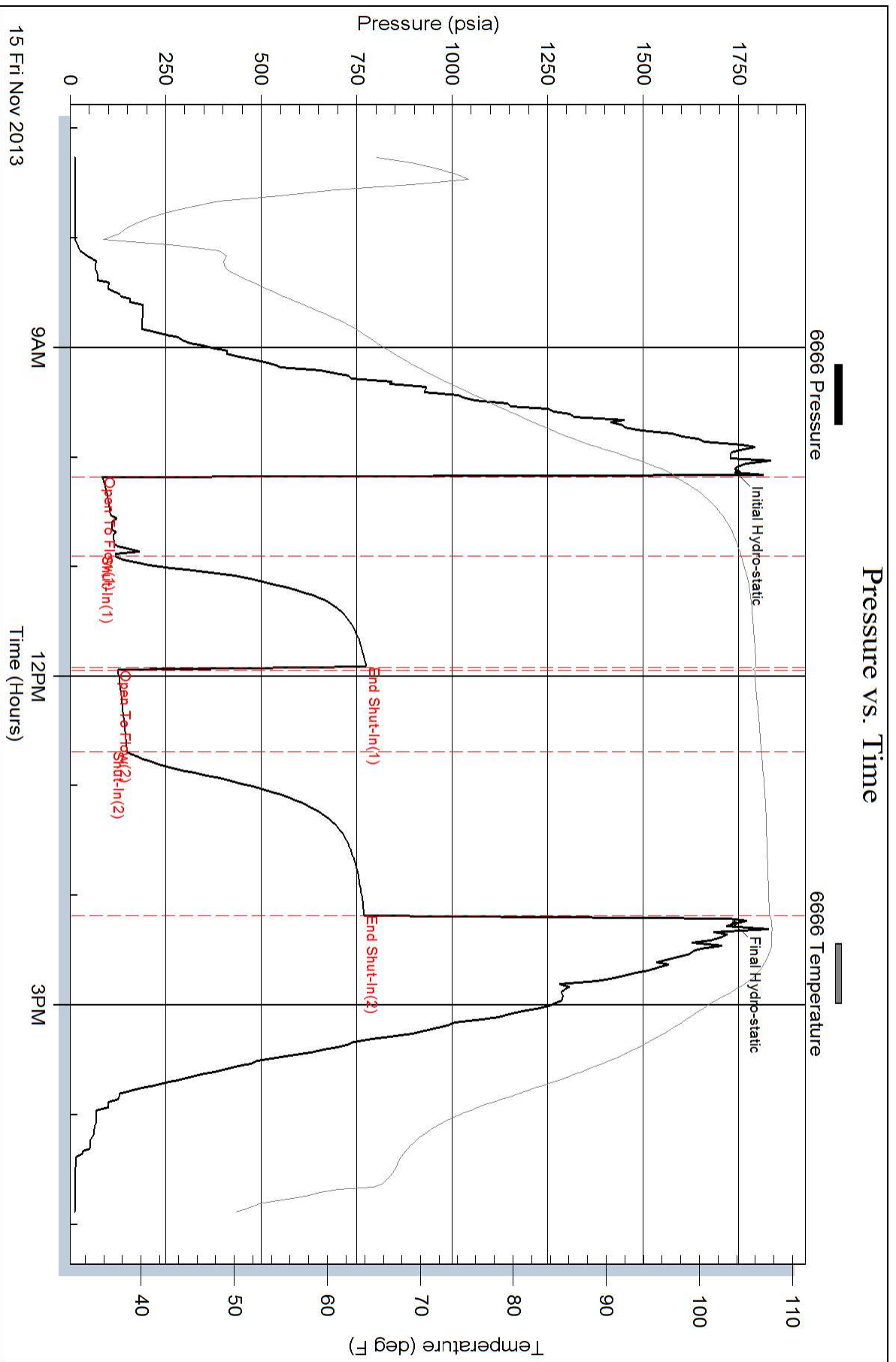
Recovery Table

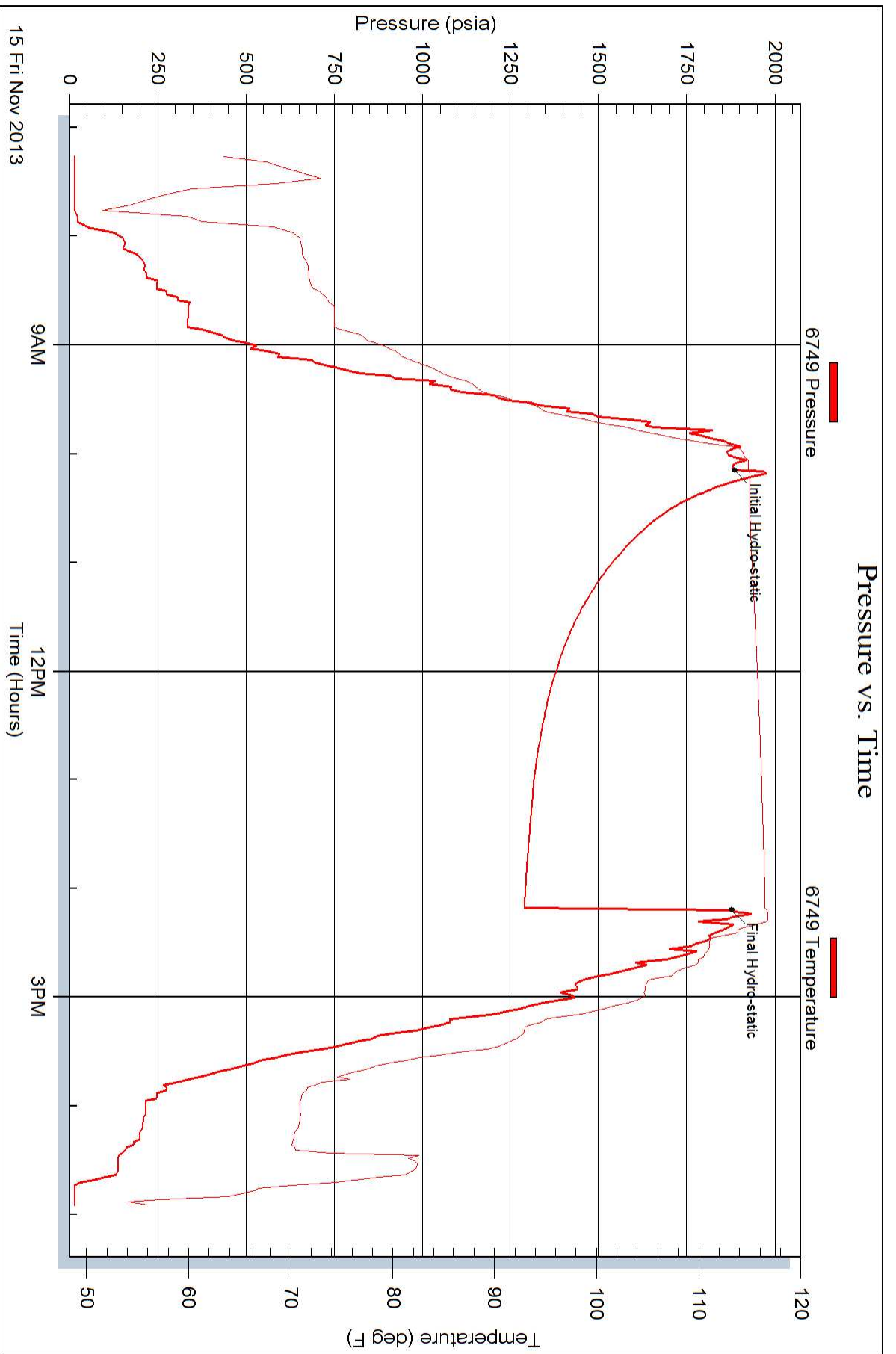
Length ft	Description	Volume bbbl
150.00	Oil cut Mud	0.738
0.00	Oil 3% Mud 97%	0.000

Total Length: 150.00 ft      Total Volume: 0.738 bbl

Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
Laboratory Name:      Laboratory Location:  
Recovery Comments:

### Pressure vs. Time







### Pressure vs. Time

