

## DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration Incorporated**

8100 East 22nd Street North  
#700  
PO Box 783188

ATTN: Max Lovely

**#1 Durler 14D**

**14/27S/24W/Ford**

Start Date: 2013.07.25 @ 23:05:00

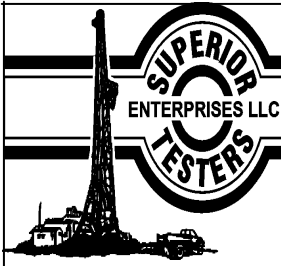
End Date: 2013.07.26 @ 06:24:30

Job Ticket #: 18146                      DST #: 1

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

Printed: 2013.07.26 @ 06:41:47

Ritchie Exploration Incorporated  
14/27S/24W/Ford  
#1 Durler 14D  
DST # 1  
Pawnee  
2013.07.25



# DRILL STEM TEST REPORT

Ritchie Exploration Incorporated  
 8100 East 22nd Street North  
 #700  
 PO Box 783188  
 ATTN: Max Lovely

**14/27S/24W/Ford**

**#1 Durler 14D**

Job Ticket: 18146

**DST#: 1**

Test Start: 2013.07.25 @ 23:05:00

## GENERAL INFORMATION:

Formation: **Pawnee**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Initial)  
 Time Tool Opened: 01:18:30  
 Tester: Ken Swinney  
 Time Test Ended: 06:24:30  
 Unit No: 3325 Great Bend/164  
 Interval: **4802.00 ft (KB) To 4824.00 ft (KB) (TVD)**  
 Reference Elevations: 2475.00 ft (KB)  
 Total Depth: 4824.00 ft (KB) (TVD)  
 2465.00 ft (CF)  
 Hole Diameter: 7.80 inches  
 Hole Condition: Fair  
 KB to GR/CF: 10.00 ft

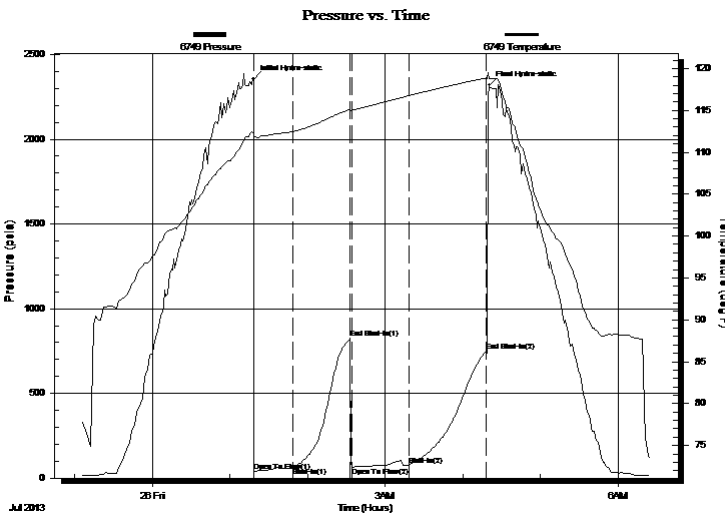
## Serial #: 6749

Inside

Press @ Run Depth: 78.37 psia @ 4820.00 ft (KB) Capacity: 5000.00 psia  
 Start Date: 2013.07.25 End Date: 2013.07.26 Last Calib.: 2013.07.26  
 Start Time: 23:05:00 End Time: 06:24:30 Time On Btm: 2013.07.26 @ 01:18:00  
 Time Off Btm: 2013.07.26 @ 04:20:30

TEST COMMENT: 1ST Open 30 Minutes/Weak blow/Blow built to 3 1/2 inches  
 1ST Shut In 45 Minutes/Weak surface blow back  
 2ND Open 45 Minutes/Fair blow/Blow built to bottom of bucket in 27 minutes  
 2ND Shut In 60 Minutes/Weak surface blow back

## PRESSURE SUMMARY



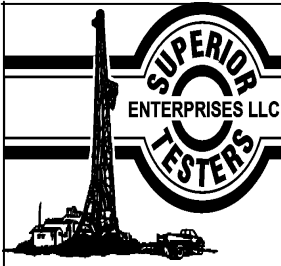
Time (Min.)	Pressure (psia)	Temp (deg F)	Annotation
0	2354.89	112.41	Initial Hydro-static
1	41.23	111.88	Open To Flow (1)
31	61.60	112.46	Shut-In(1)
75	824.88	115.15	End Shut-In(1)
77	61.87	115.02	Open To Flow (2)
120	78.37	116.74	Shut-In(2)
180	749.38	118.83	End Shut-In(2)
183	2318.16	118.84	Final Hydro-static

## Recovery

## Gas Rates

Length (ft)	Description	Volume (bbl)
0.00	150 feet of gas in pipe	0.00
90.00	Slightly oil cut mud	1.26
0.00	Oil 5% Mud 95%	0.00

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



# DRILL STEM TEST REPORT

Ritchie Exploration Incorporated

14/27S/24W/Ford

8100 East 22nd Street North  
 #700  
 PO Box 783188  
 ATTN: Max Lovely

#1 Durler 14D

Job Ticket: 18146

DST#: 1

Test Start: 2013.07.25 @ 23:05:00

## GENERAL INFORMATION:

Formation: **Pawnee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 01:18:30

Time Test Ended: 06:24:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Ken Swinney

Unit No: 3325 Great Bend/164

Interval: **4802.00 ft (KB) To 4824.00 ft (KB) (TVD)**

Reference Elevations: 2475.00 ft (KB)

Total Depth: 4824.00 ft (KB) (TVD)

2465.00 ft (CF)

Hole Diameter: 7.80 inches Hole Condition: Fair

KB to GR/CF: 10.00 ft

Serial #: **6838** Outside

Press @ Run Depth: 745.67 psia @ 4821.00 ft (KB)

Capacity: 5000.00 psia

Start Date: 2013.07.25

End Date: 2013.07.26

Last Calib.: 2013.07.26

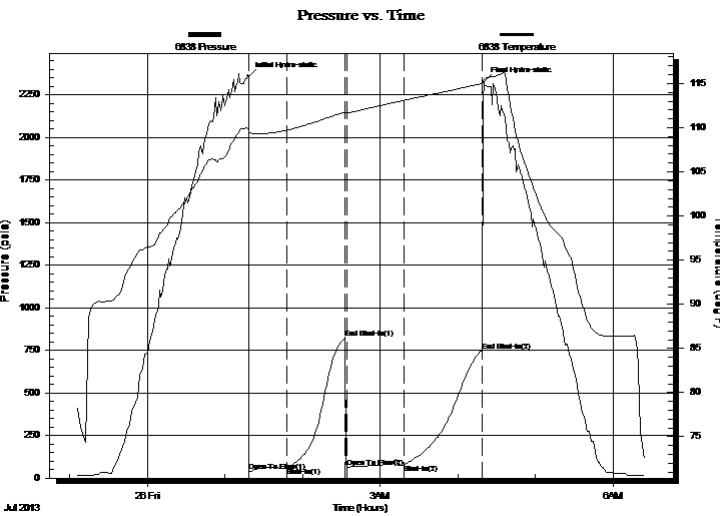
Start Time: 23:05:00

End Time: 06:25:00

Time On Btm: 2013.07.26 @ 01:18:00

Time Off Btm: 2013.07.26 @ 04:20:00

TEST COMMENT: 1ST Open 30 Minutes/Weak blow/Blow built to 3 1/2 inches  
 1ST Shut In 45 Minutes/Weak surface blow back  
 2ND Open 45 Minutes/Fair blow/Blow built to bottom of bucket in 27 minutes  
 2ND Shut In 60 Minutes/Weak surface blow back



## PRESSURE SUMMARY

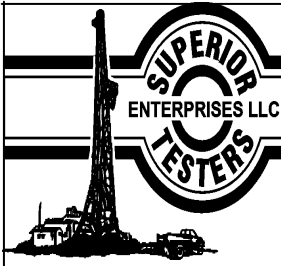
Time (Min.)	Pressure (psia)	Temp (deg F)	Annotation
0	2359.05	109.94	Initial Hydro-static
1	39.63	109.50	Open To Flow (1)
30	61.06	109.73	Shut-In(1)
75	825.22	111.76	End Shut-In(1)
77	61.72	111.66	Open To Flow (2)
120	78.36	113.08	Shut-In(2)
181	745.67	114.98	End Shut-In(2)
182	2326.89	115.50	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
0.00	150 feet of gas in pipe	0.00
90.00	Slightly oil cut mud	1.26
0.00	Oil 5% Mud 95%	0.00

## Gas Rates

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



# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Ritchie Exploration Incorporated  
 8100 East 22nd Street North  
 #700  
 PO Box 783188  
 ATTN: Max Lovely

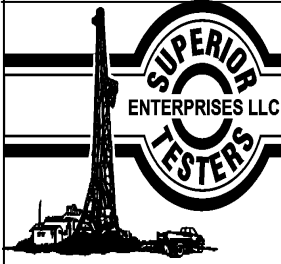
**14/27S/24W/Ford**  
**#1 Durler 14D**  
 Job Ticket: 18146      **DST#: 1**  
 Test Start: 2013.07.25 @ 23:05:00

**Tool Information**

Drill Pipe:	Length: 4782.00 ft	Diameter: 3.80 inches	Volume: 67.08 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: 67.08 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	7.00 ft			String Weight: Initial 70000.00 lb
Depth to Top Packer:	4802.00 ft			Final 70000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	22.00 ft			
Tool Length:	49.00 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			4780.00	
Hydraulic Tool	5.00			4785.00	
Jars	5.00			4790.00	
Safety Joint	2.00			4792.00	
Packer	5.00			4797.00	27.00      Bottom Of Top Packer
Packer	5.00			4802.00	
Anchor	17.00			4819.00	
Recorder	1.00	6749	Inside	4820.00	
Recorder	1.00	6838	Outside	4821.00	
Bullnose	3.00			4824.00	22.00      Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>49.00</b>				



# DRILL STEM TEST REPORT

## FLUID SUMMARY

Ritchie Exploration Incorporated

**14/27S/24W/Ford**

8100 East 22nd Street North  
 #700  
 PO Box 783188  
 ATTN: Max Lovely

**#1 Durler 14D**

Job Ticket: 18146

**DST#: 1**

Test Start: 2013.07.25 @ 23:05:00

### Mud and Cushion Information

Mud Type: Gel Chem  
 Mud Weight: 9.00 lb/gal  
 Viscosity: 53.00 sec/qt  
 Water Loss: 12.79 in<sup>3</sup>  
 Resistivity: ohm.m  
 Salinity: 8000.00 ppm  
 Filter Cake: 1.00 inches

Cushion Type:  
 Cushion Length: ft  
 Cushion Volume: bbl  
 Gas Cushion Type:  
 Gas Cushion Pressure: psia

Oil API: deg API  
 Water Salinity: ppm

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
0.00	150 feet of gas in pipe	0.000
90.00	Slightly oil cut mud	1.262
0.00	Oil 5% Mud 95%	0.000

Total Length: 90.00 ft      Total Volume: 1.262 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

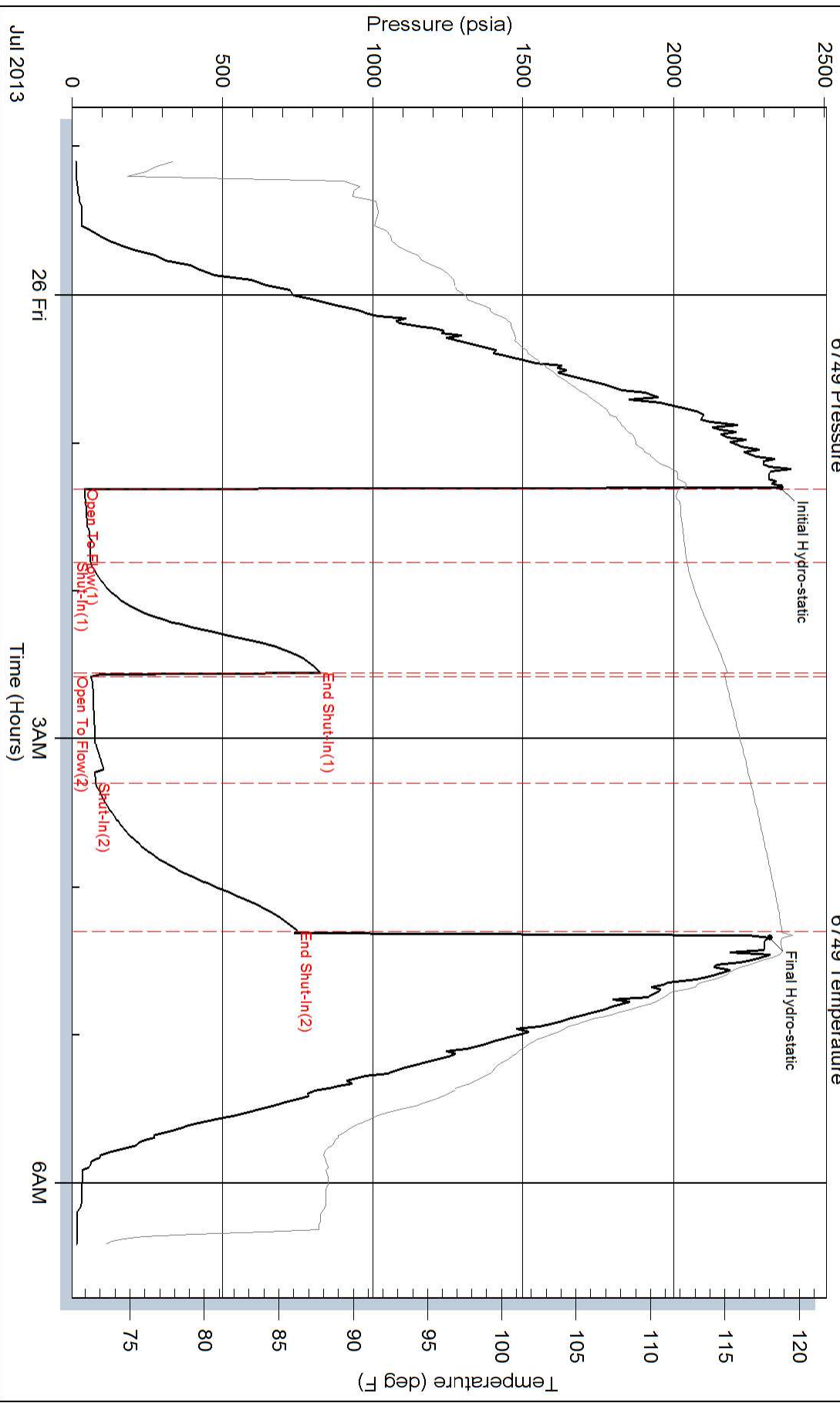
Serial #:

Laboratory Name:

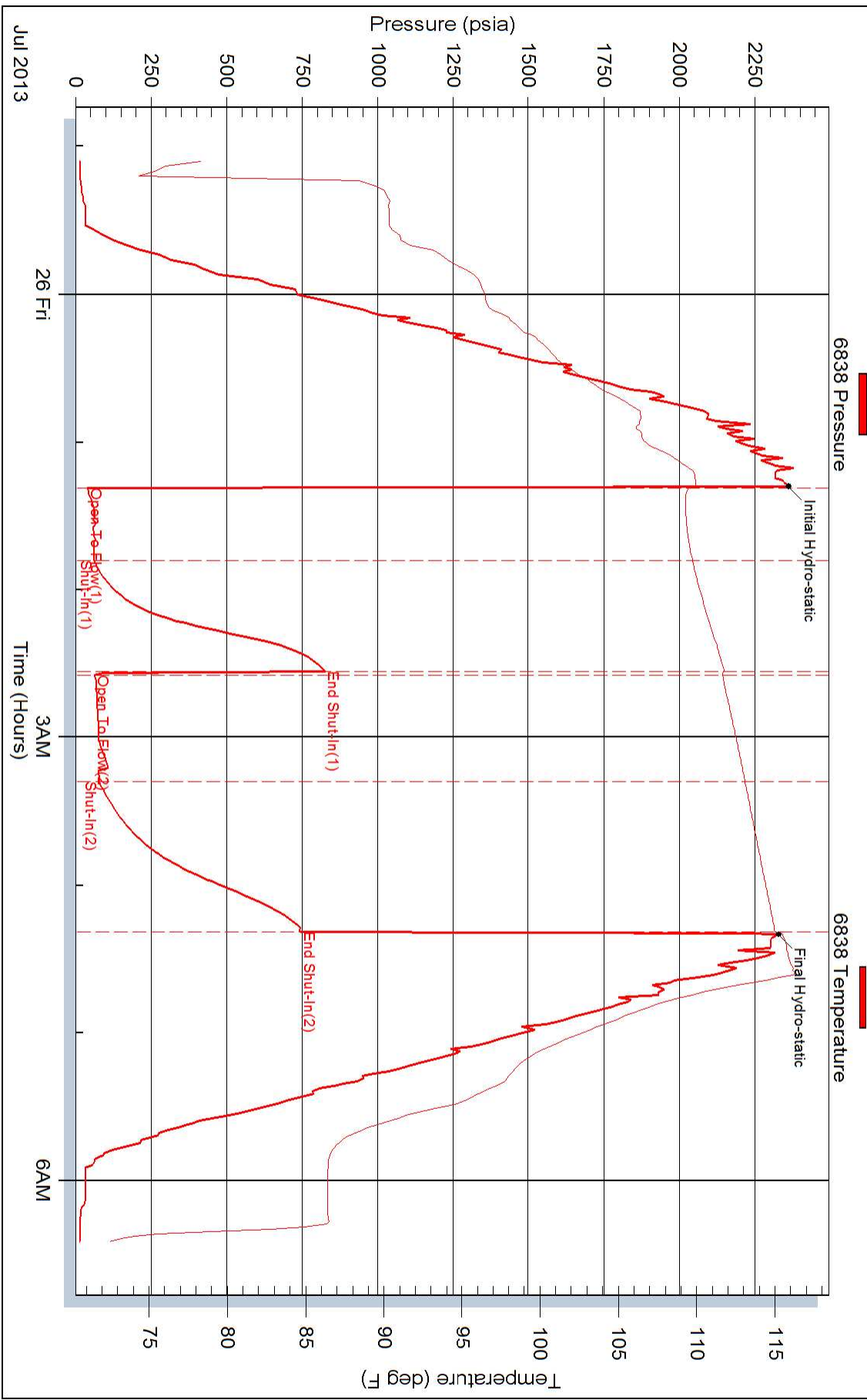
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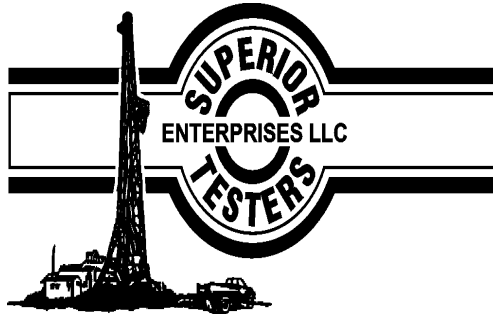
Recovery Comments:

### Pressure vs. Time



### Pressure vs. Time





## DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration Incorporated**

8100 East 22nd Street North  
#700  
PO Box 783188

ATTN: Max Lovely

**#1 Durler 14D**

**14/27S/24W/Ford**

Start Date: 2013.07.27 @ 04:39:00

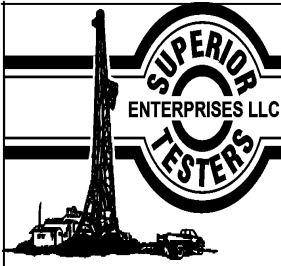
End Date: 2013.07.27 @ 12:33:00

Job Ticket #: 18147                      DST #: 2

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

Printed: 2013.07.27 @ 12:41:17

Ritchie Exploration Incorporated  
14/27S/24W/Ford  
#1 Durler 14D  
DST # 2  
Cherokee/Huck  
2013.07.27



# DRILL STEM TEST REPORT

Ritchie Exploration Incorporated

**14/27S/24W/Ford**

8100 East 22nd Street North  
 #700  
 PO Box 783188  
 ATTN: Max Lovely

**#1 Durler 14D**

Job Ticket: 18147

**DST#: 2**

Test Start: 2013.07.27 @ 04:39:00

## GENERAL INFORMATION:

Formation: **Cherokee/Huck**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 06:54:30

Time Test Ended: 12:33:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Ken Swinney

Unit No: 3235 Great Bend/164

**Interval: 4853.00 ft (KB) To 4978.00 ft (KB) (TVD)**

Reference Elevations: 2475.00 ft (KB)

Total Depth: 4978.00 ft (KB) (TVD)

2465.00 ft (CF)

Hole Diameter: 7.80 inches Hole Condition: Fair

KB to GR/CF: 10.00 ft

## Serial #: 6749

Press @ RunDepth: 118.44 psia @ ft (KB)

Capacity: 5000.00 psia

Start Date: 2013.07.27

End Date: 2013.07.27

Last Calib.: 2013.07.27

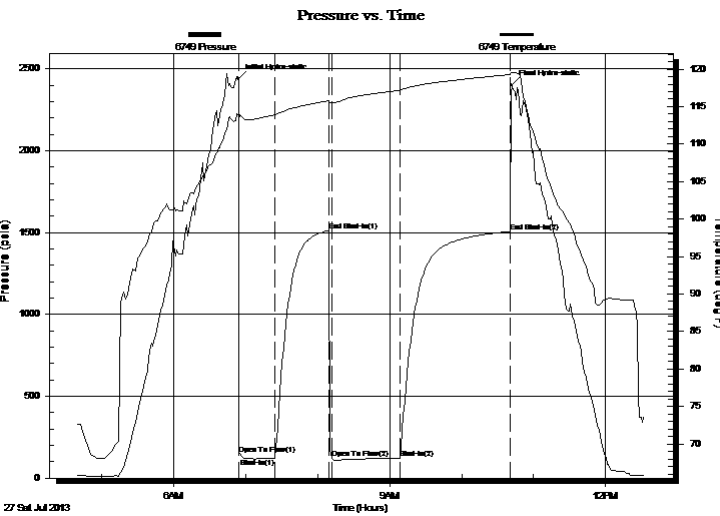
Start Time: 04:39:00

End Time: 12:33:00

Time On Btm: 2013.07.27 @ 06:54:00

Time Off Btm: 2013.07.27 @ 10:42:00

**TEST COMMENT:** 1ST Open 30 Minutes/Strong blow/Blow built to bottom of bucket in 1 min 15 sec/Gas to surface in 11 minutes  
 1ST Shut In 45 Minutes/No blow back  
 2ND Open 60 Minutes/Strong blow/Blow at bottom of bucket at open  
 2ND Shut In 90 Minutes/No blow back



## PRESSURE SUMMARY

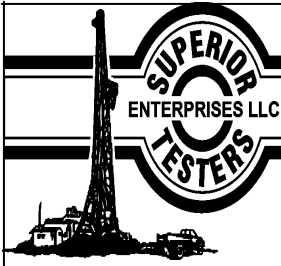
Time (Min.)	Pressure (psia)	Temp (deg F)	Annotation
0	2441.77	113.88	Initial Hydro-static
1	144.98	113.25	Open To Flow (1)
31	118.61	113.93	Shut-In(1)
76	1513.55	115.81	End Shut-In(1)
78	119.21	115.48	Open To Flow (2)
135	118.44	117.17	Shut-In(2)
227	1506.99	119.27	End Shut-In(2)
228	2402.11	119.52	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
100.00	Mud 100%	1.40

## Gas Rates

	Choke (inches)	Pressure (psia)	Gas Rate (Mcf/d)
First Gas Rate	0.50	8.62	58.11
Last Gas Rate	0.75	4.26	66.61
Max. Gas Rate	0.50	8.62	58.11



# DRILL STEM TEST REPORT

Ritchie Exploration Incorporated

**14/27S/24W/Ford**

8100 East 22nd Street North  
 #700  
 PO Box 783188  
 ATTN: Max Lovely

**#1 Durler 14D**

Job Ticket: 18147

**DST#: 2**

Test Start: 2013.07.27 @ 04:39:00

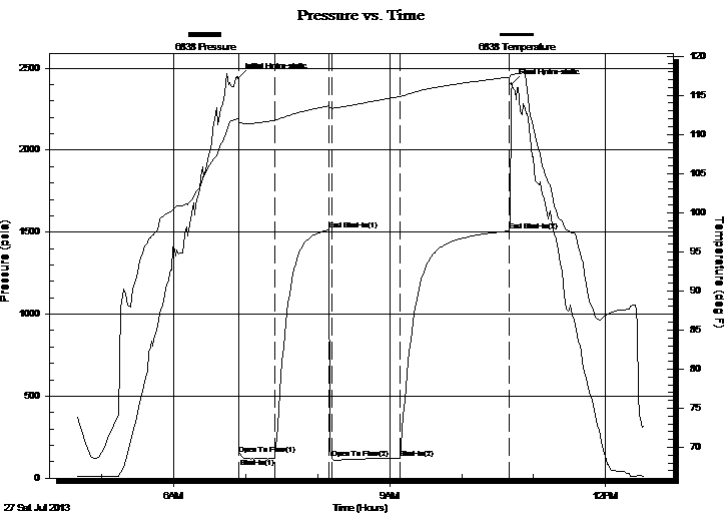
## GENERAL INFORMATION:

Formation: **Cherokee/Huck**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Initial)  
 Time Tool Opened: 06:54:30 Tester: Ken Swinney  
 Time Test Ended: 12:33:00 Unit No: 3235 Great Bend/164  
 Interval: **4853.00 ft (KB) To 4978.00 ft (KB) (TVD)** Reference Elevations: 2475.00 ft (KB)  
 Total Depth: 4978.00 ft (KB) (TVD) 2465.00 ft (CF)  
 Hole Diameter: 7.80 inches Hole Condition: Fair KB to GR/CF: 10.00 ft

## Serial #: 6838

Press @ RunDepth: 1507.12 psia @ ft (KB) Capacity: 5000.00 psia  
 Start Date: 2013.07.27 End Date: 2013.07.27 Last Calib.: 2013.07.27  
 Start Time: 04:39:00 End Time: 12:32:30 Time On Btm: 2013.07.27 @ 06:54:00  
 Time Off Btm: 2013.07.27 @ 10:42:00

TEST COMMENT: 1ST Open 30 Minutes/Strong blow/Blow built to bottom of bucket in 1 min 15 sec/Gas to surface in 11 minutes  
 1ST Shut In 45 Minutes/No blow back  
 2ND Open 60 Minutes/Strong blow/Blow at bottom of bucket at open  
 2ND Shut In 90 Minutes/No blow back



## PRESSURE SUMMARY

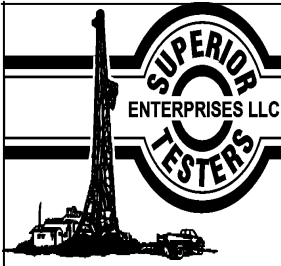
Time (Min.)	Pressure (psia)	Temp (deg F)	Annotation
0	2441.92	112.07	Initial Hydro-static
1	147.03	111.61	Open To Flow (1)
30	118.45	111.81	Shut-In(1)
76	1514.32	113.65	End Shut-In(1)
78	118.42	113.35	Open To Flow (2)
135	118.08	114.83	Shut-In(2)
226	1507.12	117.32	End Shut-In(2)
228	2404.37	117.66	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
100.00	Mud 100%	1.40

## Gas Rates

	Choke (inches)	Pressure (psia)	Gas Rate (Mcf/d)
First Gas Rate	0.50	8.62	58.11
Last Gas Rate	0.75	4.26	66.61
Max. Gas Rate	0.50	8.62	58.11



# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Ritchie Exploration Incorporated

**14/27S/24W/Ford**

8100 East 22nd Street North  
 #700  
 PO Box 783188  
 ATTN: Max Lovely

**#1 Durler 14D**

Job Ticket: 18147

**DST#: 2**

Test Start: 2013.07.27 @ 04:39:00

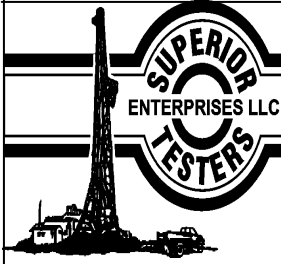
**Tool Information**

Drill Pipe:	Length: 4845.00 ft	Diameter: 3.80 inches	Volume: 67.96 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: 79000.00 lb
			<u>Total Volume: 67.96 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	12.00 ft			String Weight: Initial 71000.00 lb
Depth to Top Packer:	4853.00 ft			Final 71000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	125.10 ft			
Tool Length:	145.10 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			4838.00	
Hydraulic Tool	5.00			4843.00	
Packer	5.00			4848.00	20.00 Bottom Of Top Packer
Packer	5.00			4853.00	
Perforations	6.00			4859.00	
Change Over Sub	0.75			4859.75	
Drill Pipe	94.60			4954.35	
Change Over Sub	0.75			4955.10	
Anchor	18.00			4973.10	
Recorder	1.00	6749	Inside	4974.10	
Recorder	1.00	6838	Outside	4975.10	
Bullnose	3.00			4978.10	125.10 Bottom Packers & Anchor

**Total Tool Length: 145.10**



# DRILL STEM TEST REPORT

## FLUID SUMMARY

Ritchie Exploration Incorporated

**14/27S/24W/Ford**

8100 East 22nd Street North  
#700  
PO Box 783188  
ATTN: Max Lovely

**#1 Durler 14D**

Job Ticket: 18147

**DST#: 2**

Test Start: 2013.07.27 @ 04:39:00

### Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 50.00 sec/qt

Water Loss: 6.40 in<sup>3</sup>

Resistivity: ohm.m

Salinity: 7000.00 ppm

Filter Cake: 1.00 inches

Cushion Type:

Cushion Length: ft

Cushion Volume: bbl

Gas Cushion Type:

Gas Cushion Pressure: psia

Oil API:

Water Salinity: deg API

ppm

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
100.00	Mud 100%	1.403

Total Length: 100.00 ft      Total Volume: 1.403 bbl

Num Fluid Samples: 0

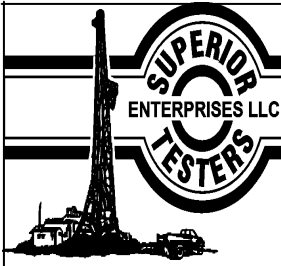
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



# DRILL STEM TEST REPORT

**GAS RATES**

Ritchie Exploration Incorporated

**14/27S/24W/Ford**

8100 East 22nd Street North  
#700  
PO Box 783188  
ATTN: Max Lovely

**#1 Durler 14D**

Job Ticket: 18147

**DST#: 2**

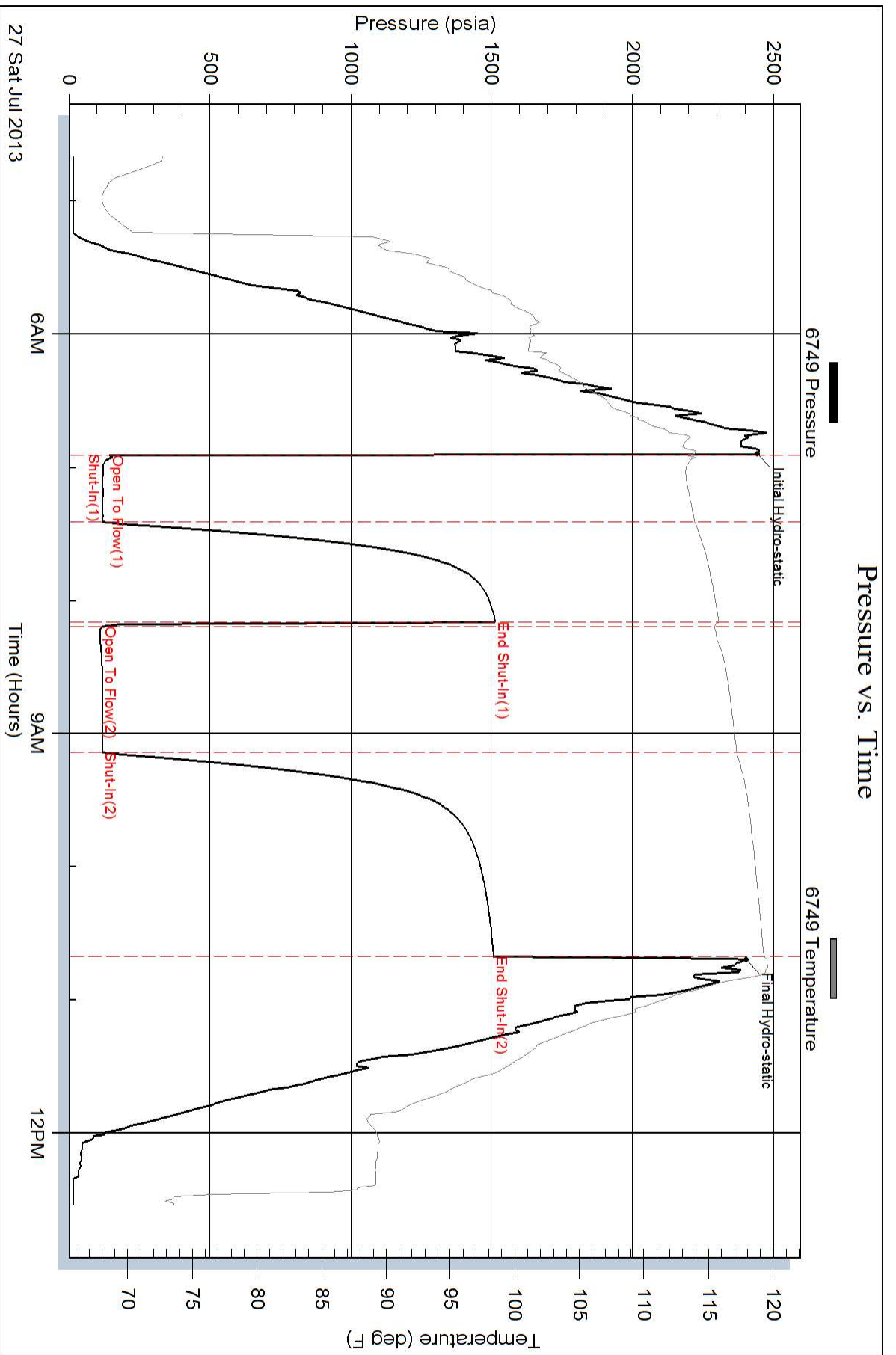
Test Start: 2013.07.27 @ 04:39:00

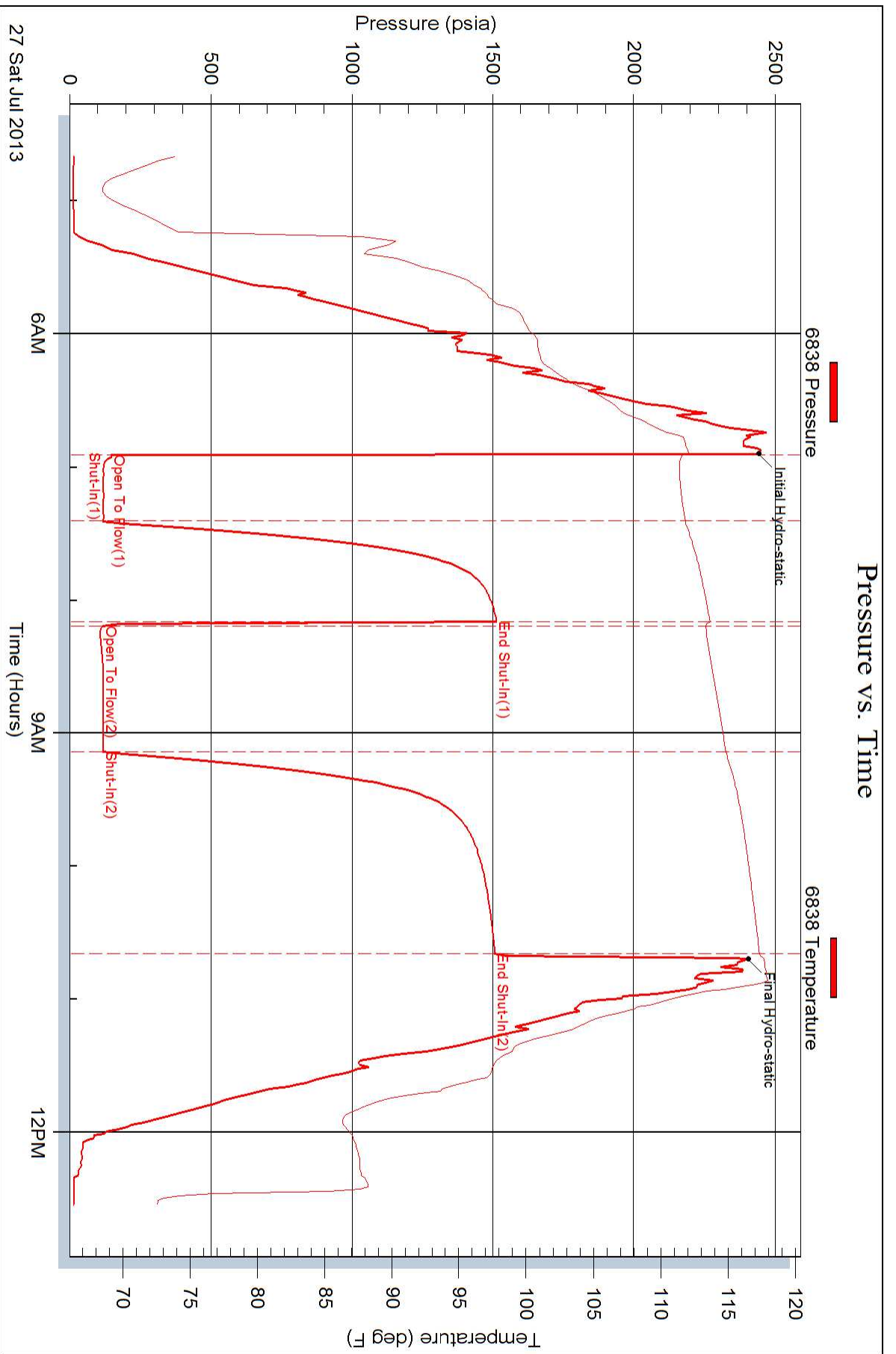
## Gas Rates Information

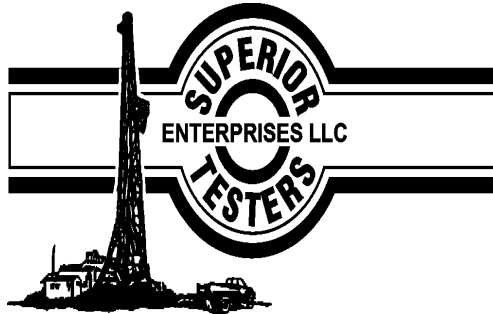
Temperature: 59 (deg F)  
Relative Density: 0.65  
Z Factor: 0.8

Gas Rates Table

Flow Period	Elapsed Time	Choke (inches)	Pressure (psia)	Gas Rate (Mcf/d)
1	15	0.50	8.62	58.11
1	15	0.50	8.62	58.11
1	20	1.00	2.01	57.70
1	30	0.75	4.64	72.40
2	1	1.00	7.27	209.00
2	10	1.00	2.84	81.50
2	20	0.75	4.26	66.61
2	30	0.75	4.26	66.61
2	40	0.75	4.26	66.61
2	50	0.75	4.26	66.61







## DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration Incorporated**

8100 East 22nd Street North  
#700  
PO Box 783188

ATTN: Max Lovely

**#1 Durler 14D**

**14/27S/24W/Ford**

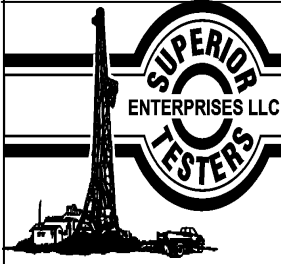
Start Date: 2013.07.27 @ 21:07:00

End Date: 2013.07.28 @ 05:25:30

Job Ticket #: 18148                      DST #: 3

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

Printed: 2013.07.28 @ 05:38:52



# DRILL STEM TEST REPORT

Ritchie Exploration Incorporated  
 8100 East 22nd Street North  
 #700  
 PO Box 783188  
 ATTN: Max Lovely

**14/27S/24W/Ford**

**#1 Durler 14D**

Job Ticket: 18148

**DST#: 3**

Test Start: 2013.07.27 @ 21:07:00

## GENERAL INFORMATION:

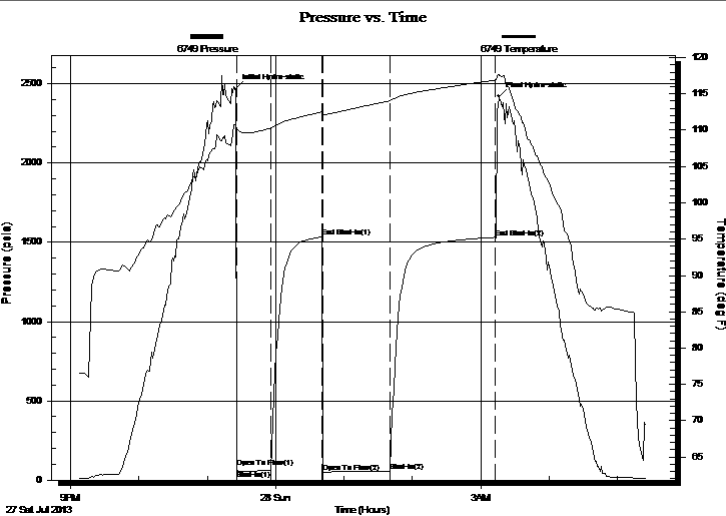
Formation: **Atoka**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Initial)  
 Time Tool Opened: 23:25:30 Tester: Ken Swinney  
 Time Test Ended: 05:25:30 Unit No: 3325 Great Bend/164  
 Interval: **4956.00 ft (KB) To 4998.00 ft (KB) (TVD)** Reference Elevations: 2475.00 ft (KB)  
 Total Depth: 4998.00 ft (KB) (TVD) 2465.00 ft (CF)  
 Hole Diameter: 7.80 inches Hole Condition: Fair KB to GR/CF: 10.00 ft

## Serial #: 6749

Inside

Press @ RunDepth: 56.20 psia @ 4994.00 ft (KB) Capacity: 5000.00 psia  
 Start Date: 2013.07.27 End Date: 2013.07.28 Last Calib.: 2013.07.28  
 Start Time: 21:07:00 End Time: 05:25:30 Time On Btm: 2013.07.27 @ 23:25:00  
 Time Off Btm: 2013.07.28 @ 03:16:00

TEST COMMENT: 1ST Open 30 Minutes/Stong blow/Blow built to bottom of bucket in 1 min 30 sec/Gas to surface in 18 min  
 1ST Shut In 45 Minutes/Weak surface blow back  
 2ND Open 60 Minutes/Stong blow/Blow at bottom of bucket at open  
 2ND Shut In 90 Minutes/No blow back



## PRESSURE SUMMARY

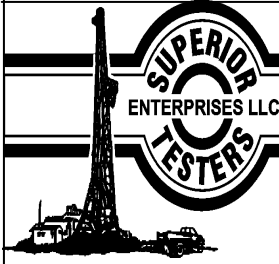
Time (Min.)	Pressure (psia)	Temp (deg F)	Annotation
0	2466.29	110.79	Initial Hydro-static
1	79.13	110.08	Open To Flow (1)
31	61.11	110.26	Shut-In(1)
76	1532.52	112.52	End Shut-In(1)
77	50.57	112.20	Open To Flow (2)
136	56.20	114.05	Shut-In(2)
228	1531.43	116.88	End Shut-In(2)
231	2420.13	117.60	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
45.00	Lightly oil spotted mud	0.63
0.00	Oil 1% Mud 99%	0.00

## Gas Rates

	Choke (inches)	Pressure (psia)	Gas Rate (Mcf/d)
First Gas Rate	0.50	3.73	25.13
Last Gas Rate	0.50	6.89	46.51
Max. Gas Rate	0.50	6.89	46.51



# DRILL STEM TEST REPORT

Ritchie Exploration Incorporated

14/27S/24W/Ford

8100 East 22nd Street North  
 #700  
 PO Box 783188  
 ATTN: Max Lovely

#1 Durler 14D

Job Ticket: 18148

DST#: 3

Test Start: 2013.07.27 @ 21:07:00

## GENERAL INFORMATION:

Formation: **Atoka**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 23:25:30

Time Test Ended: 05:25:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Ken Swinney

Unit No: 3325 Great Bend/164

Interval: **4956.00 ft (KB) To 4998.00 ft (KB) (TVD)**

Reference Elevations: 2475.00 ft (KB)

Total Depth: 4998.00 ft (KB) (TVD)

2465.00 ft (CF)

Hole Diameter: 7.80 inches Hole Condition: Fair

KB to GR/CF: 10.00 ft

**Serial #: 6838 Outside**

Press @ RunDepth: 1531.78 psia @ 4995.00 ft (KB)

Capacity: 5000.00 psia

Start Date: 2013.07.27

End Date:

2013.07.28

Last Calib.:

2013.07.28

Start Time: 21:07:00

End Time:

05:25:00

Time On Btm:

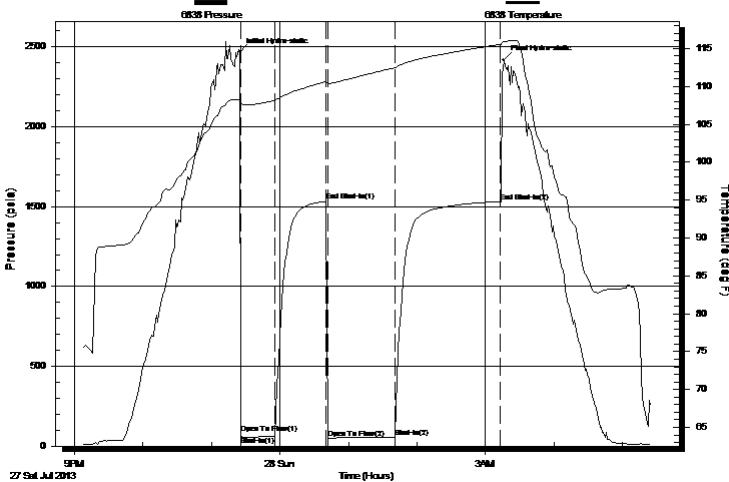
2013.07.27 @ 23:25:00

Time Off Btm:

2013.07.28 @ 03:16:00

TEST COMMENT: 1ST Open 30 Minutes/Stong blow/Blow built to bottom of bucket in 1 min 30 sec/Gas to surface in 18 min  
 1ST Shut In 45 Minutes/Weak surface blow back  
 2ND Open 60 Minutes/Stong blow/Blow at bottom of bucket at open  
 2ND Shut In 90 Minutes/No blow back

Pressure vs. Time



PRESSURE SUMMARY

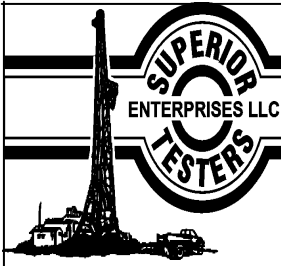
Time (Min.)	Pressure (psia)	Temp (deg F)	Annotation
0	2467.43	108.26	Initial Hydro-static
1	78.11	107.85	Open To Flow (1)
31	61.09	108.20	Shut-In(1)
76	1533.05	110.66	End Shut-In(1)
77	50.13	110.40	Open To Flow (2)
136	56.05	112.46	Shut-In(2)
228	1531.78	115.55	End Shut-In(2)
231	2420.49	115.90	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
45.00	Lightly oil spotted mud	0.63
0.00	Oil 1% Mud 99%	0.00

Gas Rates

	Choke (inches)	Pressure (psia)	Gas Rate (Mcf/d)
First Gas Rate	0.50	3.73	25.13
Last Gas Rate	0.50	6.89	46.51
Max. Gas Rate	0.50	6.89	46.51



# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Ritchie Exploration Incorporated

**14/27S/24W/Ford**

8100 East 22nd Street North  
 #700  
 PO Box 783188  
 ATTN: Max Lovely

**#1 Durler 14D**

Job Ticket: 18148

**DST#: 3**

Test Start: 2013.07.27 @ 21:07:00

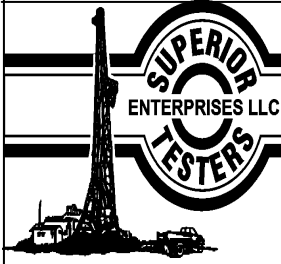
## Tool Information

Drill Pipe:	Length: 4939.00 ft	Diameter: 3.80 inches	Volume: 69.28 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:	85000.00 lb
			<u>Total Volume: 69.28 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	3.00 ft			String Weight: Initial	72000.00 lb
Depth to Top Packer:	4956.00 ft			Final	72000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	42.00 ft				
Tool Length:	62.00 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			4941.00	
Hydraulic Tool	5.00			4946.00	
Packer	5.00			4951.00	20.00 Bottom Of Top Packer
Packer	5.00			4956.00	
Anchor	37.00			4993.00	
Recorder	1.00	6749	Inside	4994.00	
Recorder	1.00	6838	Outside	4995.00	
Bullnose	3.00			4998.00	42.00 Bottom Packers & Anchor

**Total Tool Length: 62.00**



# DRILL STEM TEST REPORT

## FLUID SUMMARY

Ritchie Exploration Incorporated

**14/27S/24W/Ford**

8100 East 22nd Street North  
#700  
PO Box 783188  
ATTN: Max Lovely

**#1 Durler 14D**

Job Ticket: 18148

**DST#: 3**

Test Start: 2013.07.27 @ 21:07:00

### Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 48.00 sec/qt

Water Loss: 7.99 in<sup>3</sup>

Resistivity: ohm.m

Salinity: 8000.00 ppm

Filter Cake: 1.00 inches

Cushion Type:

Cushion Length: ft

Cushion Volume: bbl

Gas Cushion Type:

Gas Cushion Pressure: psia

Oil API:

Water Salinity: deg API

ppm

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
45.00	Lightly oil spotted mud	0.631
0.00	Oil 1% Mud 99%	0.000

Total Length: 45.00 ft      Total Volume: 0.631 bbl

Num Fluid Samples: 0

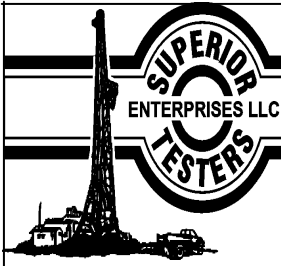
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



# DRILL STEM TEST REPORT

**GAS RATES**

Ritchie Exploration Incorporated

**14/27S/24W/Ford**

8100 East 22nd Street North  
 #700  
 PO Box 783188  
 ATTN: Max Lovely

**#1 Durler 14D**

Job Ticket: 18148

**DST#: 3**

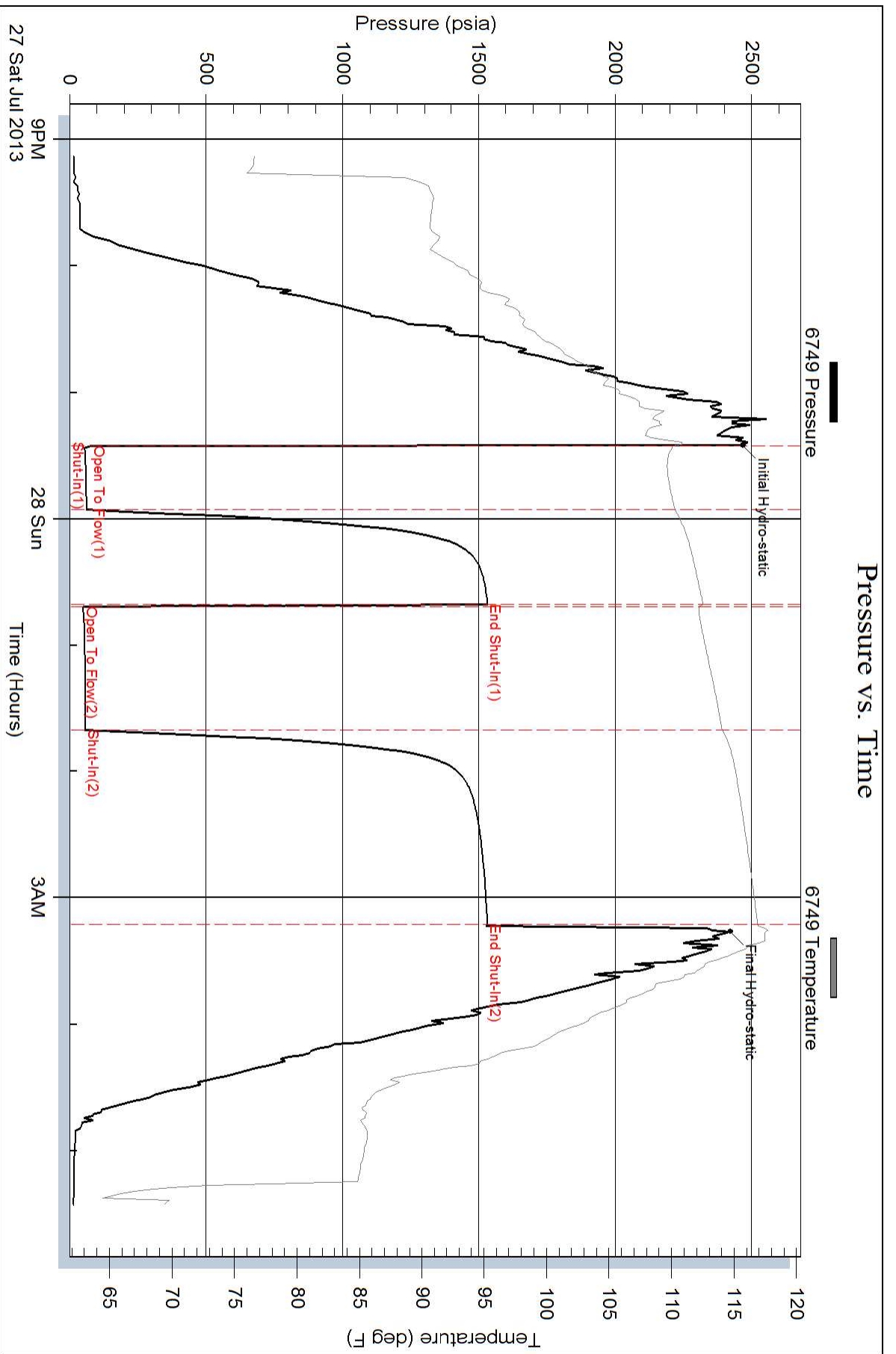
Test Start: 2013.07.27 @ 21:07:00

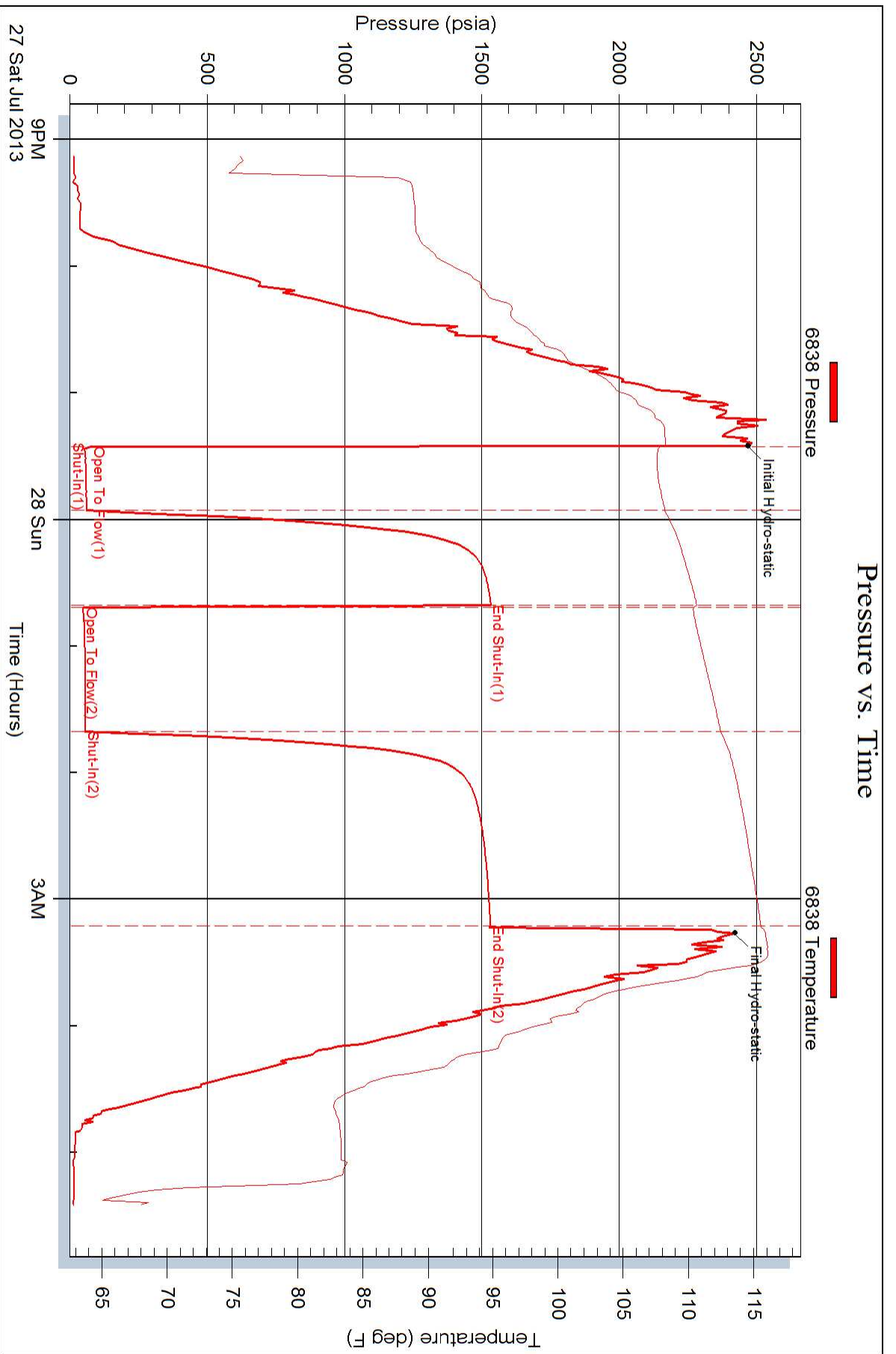
## Gas Rates Information

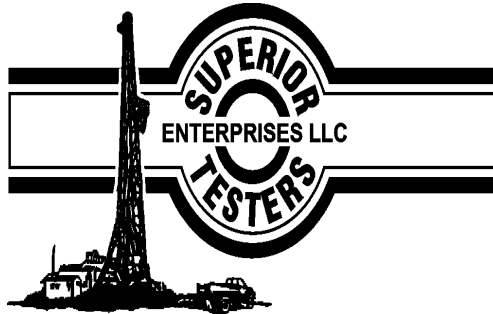
Temperature: 59 (deg F)  
 Relative Density: 0.65  
 Z Factor: 0.8

Gas Rates Table

Flow Period	Elapsed Time	Choke (inches)	Pressure (psia)	Gas Rate (Mcf/d)
1	20	0.50	3.73	25.13
1	20	0.50	3.73	25.13
1	30	0.50	5.41	36.49
2	1	1.00	4.77	137.07
2	10	0.50	6.78	45.70
2	20	0.50	6.78	45.70
2	30	0.50	6.78	45.70
2	40	0.50	6.83	46.10
2	50	0.50	6.89	46.51
2	60	0.50	6.89	46.51







## DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration Incorporated**

8100 East 22nd Street North  
#700  
PO Box 783188

ATTN: Max Lovely

**#1 Durler 14D**

**14/27S/24W/Ford**

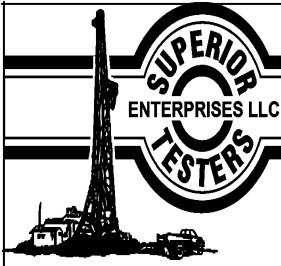
Start Date: 2013.07.28 @ 19:33:00

End Date: 2013.07.29 @ 02:06:30

Job Ticket #: 18149                      DST #: 4

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

Printed: 2013.07.29 @ 02:17:37



# DRILL STEM TEST REPORT

Ritchie Exploration Incorporated

**14/27S/24W/Ford**

8100 East 22nd Street North  
 #700  
 PO Box 783188  
 ATTN: Max Lovely

**#1 Durler 14D**

Job Ticket: 18149

**DST#: 4**

Test Start: 2013.07.28 @ 19:33:00

## GENERAL INFORMATION:

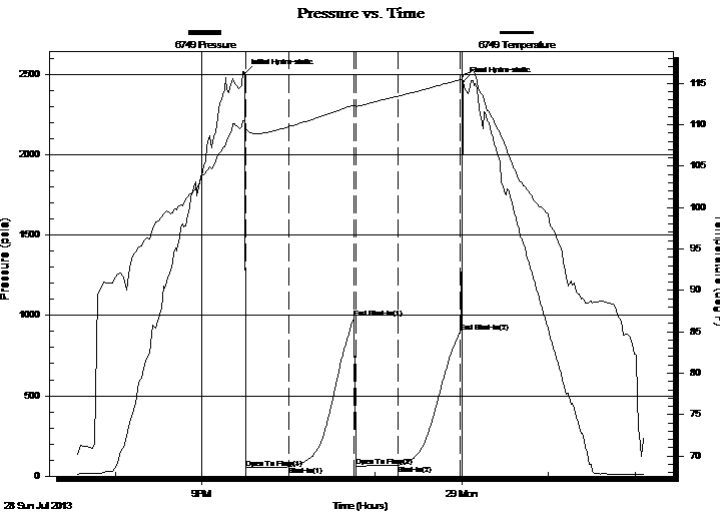
Formation: **Mississippi**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 21:30:30  
 Time Test Ended: 02:06:30  
 Interval: **5005.00 ft (KB) To 5059.00 ft (KB) (TVD)**  
 Total Depth: 5059.00 ft (KB) (TVD)  
 Hole Diameter: 7.80 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Ken Swinney  
 Unit No: 3325 Great Bend/164  
 Reference Elevations: 2475.00 ft (KB)  
 2465.00 ft (CF)  
 KB to GR/CF: 10.00 ft

## Serial #: 6749

Inside

Press @ RunDepth: 66.54 psia @ 5054.58 ft (KB) Capacity: 5000.00 psia  
 Start Date: 2013.07.28 End Date: 2013.07.29 Last Calib.: 2013.07.29  
 Start Time: 19:33:00 End Time: 02:06:30 Time On Btm: 2013.07.28 @ 21:29:30  
 Time Off Btm: 2013.07.29 @ 00:01:00

TEST COMMENT: 1ST Open 30 Mintues/Weak blow /Blow built to 1/2 inch/Blow did not die  
 1ST Shut In 45 Minutes/No blow back  
 2ND Open 30 Mintues/Dead no blow /Flush tool/Good surge then dead  
 2ND Shut In 45 Mintues/No blow back



## PRESSURE SUMMARY

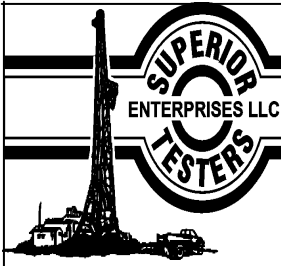
Time (Min.)	Pressure (psia)	Temp (deg F)	Annotation
0	2504.94	110.32	Initial Hydro-static
1	51.88	109.49	Open To Flow (1)
31	57.94	109.75	Shut-In(1)
76	985.10	112.40	End Shut-In(1)
77	60.69	112.22	Open To Flow (2)
106	66.54	113.44	Shut-In(2)
149	893.08	115.40	End Shut-In(2)
152	2453.15	115.89	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
30.00	Mud w with show of oil/Mud 100%	0.42

## Gas Rates

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



# DRILL STEM TEST REPORT

Ritchie Exploration Incorporated

14/27S/24W/Ford

8100 East 22nd Street North  
#700  
PO Box 783188  
ATTN: Max Lovely

#1 Durler 14D

Job Ticket: 18149

DST#: 4

Test Start: 2013.07.28 @ 19:33:00

## GENERAL INFORMATION:

Formation: **Mississippi**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 21:30:30

Time Test Ended: 02:06:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Ken Swinney

Unit No: 3325 Great Bend/164

Interval: **5005.00 ft (KB) To 5059.00 ft (KB) (TVD)**

Reference Elevations: 2475.00 ft (KB)

Total Depth: 5059.00 ft (KB) (TVD)

2465.00 ft (CF)

Hole Diameter: 7.80 inches Hole Condition: Fair

KB to GR/CF: 10.00 ft

Serial #: **6838** Outside

Press @ RunDepth: 911.02 psia @ 5055.58 ft (KB)

Capacity: 5000.00 psia

Start Date: 2013.07.28

End Date:

2013.07.29

Last Calib.:

2013.07.29

Start Time: 19:33:00

End Time:

02:06:00

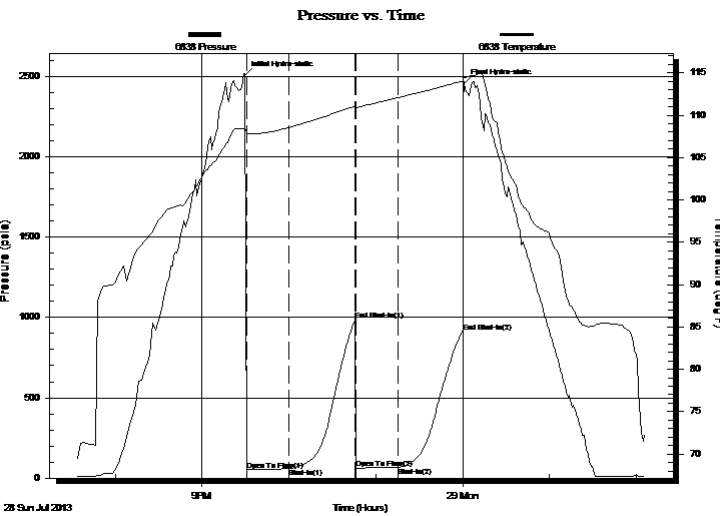
Time On Btm:

2013.07.28 @ 21:29:30

Time Off Btm:

2013.07.29 @ 00:01:00

TEST COMMENT: 1ST Open 30 Mintues/Weak blow /Blow built to 1/2 inch/Blow did not die  
1ST Shut In 45 Minutes/No blow back  
2ND Open 30 Mintues/Dead no blow /Flush tool/Good surge then dead  
2ND Shut In 45 Mintues/No blow back



## PRESSURE SUMMARY

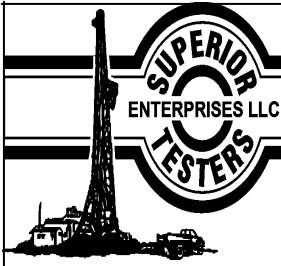
Time (Min.)	Pressure (psia)	Temp (deg F)	Annotation
0	2505.47	108.47	Initial Hydro-static
1	51.93	107.95	Open To Flow (1)
31	58.17	108.56	Shut-In(1)
76	986.01	111.06	End Shut-In(1)
77	60.69	110.93	Open To Flow (2)
106	66.56	112.07	Shut-In(2)
151	911.02	114.02	End Shut-In(2)
152	2455.15	114.42	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
30.00	Mud w with show of oil/Mud 100%	0.42

## Gas Rates

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



# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Ritchie Exploration Incorporated

**14/27S/24W/Ford**

8100 East 22nd Street North  
 #700  
 PO Box 783188  
 ATTN: Max Lovely

**#1 Durler 14D**

Job Ticket: 18149

**DST#: 4**

Test Start: 2013.07.28 @ 19:33:00

**Tool Information**

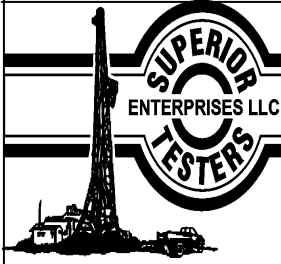
Drill Pipe:	Length: 4997.00 ft	Diameter: 3.80 inches	Volume: 70.09 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 70.09 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	12.00 ft			String Weight: Initial 72000.00 lb
Depth to Top Packer:	5005.00 ft			Final 72000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	53.58 ft			
Tool Length:	73.58 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

<b>Tool Description</b>	<b>Length (ft)</b>	<b>Serial No.</b>	<b>Position</b>	<b>Depth (ft)</b>	<b>Accum. Lengths</b>
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Shut In Tool	5.00			4990.00	
Hydraulic Tool	5.00			4995.00	
Packer	5.00			5000.00	20.00 Bottom Of Top Packer
Packer	5.00			5005.00	
Perforations	5.00			5010.00	
Change Over Sub	0.75			5010.75	
Drill Pipe	31.08			5041.83	
Change Over Sub	0.75			5042.58	
Anchor	11.00			5053.58	
Recorder	1.00	6749	Inside	5054.58	
Recorder	1.00	6838	Outside	5055.58	
Bullnose	3.00			5058.58	53.58 Bottom Packers & Anchor

**Total Tool Length: 73.58**



# DRILL STEM TEST REPORT

## FLUID SUMMARY

Ritchie Exploration Incorporated

**14/27S/24W/Ford**

8100 East 22nd Street North  
 #700  
 PO Box 783188  
 ATTN: Max Lovely

**#1 Durler 14D**

Job Ticket: 18149

**DST#: 4**

Test Start: 2013.07.28 @ 19:33:00

### Mud and Cushion Information

Mud Type: Gel Chem  
 Mud Weight: 9.00 lb/gal  
 Viscosity: 54.00 sec/qt  
 Water Loss: 8.79 in<sup>3</sup>  
 Resistivity: ohm.m  
 Salinity: 8000.00 ppm  
 Filter Cake: 1.00 inches

Cushion Type:  
 Cushion Length: ft  
 Cushion Volume: bbl  
 Gas Cushion Type:  
 Gas Cushion Pressure: psia

Oil API: deg API  
 Water Salinity: ppm

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
30.00	Mud with show of oil/Mud 100%	0.421

Total Length: 30.00 ft      Total Volume: 0.421 bbl

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

Laboratory Name:      Laboratory Location:

Recovery Comments:

### Pressure vs. Time

