



## DRILL STEM TEST REPORT

Prepared For: **Richland Oil Investments**

PO Box 166  
Palco KS 67657

ATTN: Steve Murphy

### **Schonthaler #4**

#### **30-11s-19w Ellis,KS**

Start Date: 2014.04.28 @ 14:30:00

End Date: 2014.04.28 @ 22:12:00

Job Ticket #: 57613                      DST #: 1

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

Printed: 2014.05.02 @ 11:56:42



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Richland Oil Investments

**30-11s-19w Ellis,KS**

PO Box 166  
Palco KS 67657

**Schonthaler #4**

Job Ticket: 57613

**DST#: 1**

ATTN: Steve Murphy

Test Start: 2014.04.28 @ 14:30:00

## GENERAL INFORMATION:

Formation: **LKC "A - D"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 16:59:30

Time Test Ended: 22:12:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Bob Hamel

Unit No: 67

**Interval: 3318.00 ft (KB) To 3380.00 ft (KB) (TVD)**

Reference Elevations: 2041.00 ft (KB)

Total Depth: 3380.00 ft (KB) (TVD)

2035.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 6.00 ft

**Serial #: 6625 Outside**

Press@RunDepth: 80.89 psig @ 3353.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.04.28

End Date:

2014.04.28

Last Calib.:

2014.04.28

Start Time: 14:30:01

End Time:

22:12:00

Time On Btm:

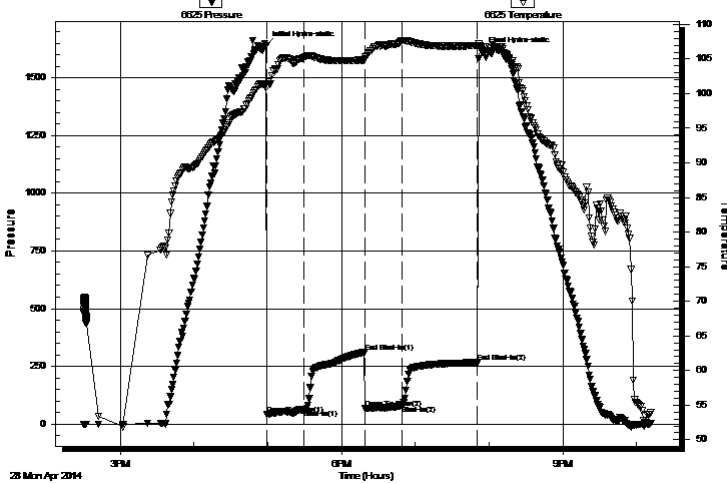
2014.04.28 @ 16:58:30

Time Off Btm:

2014.04.28 @ 19:54:00

**TEST COMMENT:** I.F. - 30 - Weak blow built to 6 3/4"  
I.S.I. - 45 - No blow back  
F.F. - 30 - Weak blow built to 4 1/2"  
F.S.I. - 60 - No blow back

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1638.71	101.13	Initial Hydro-static
1	42.36	100.97	Open To Flow (1)
31	61.95	105.11	Shut-In(1)
80	310.91	104.86	End Shut-In(1)
81	68.77	105.07	Open To Flow (2)
111	80.89	107.66	Shut-In(2)
172	267.04	106.93	End Shut-In(2)
176	1613.37	106.77	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
95.00	O,C,M, 20% OIL 80% MUD	1.33

Gas Rates

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



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Richland Oil Investments  
 PO Box 166  
 Palco KS 67657  
 ATTN: Steve Murphy

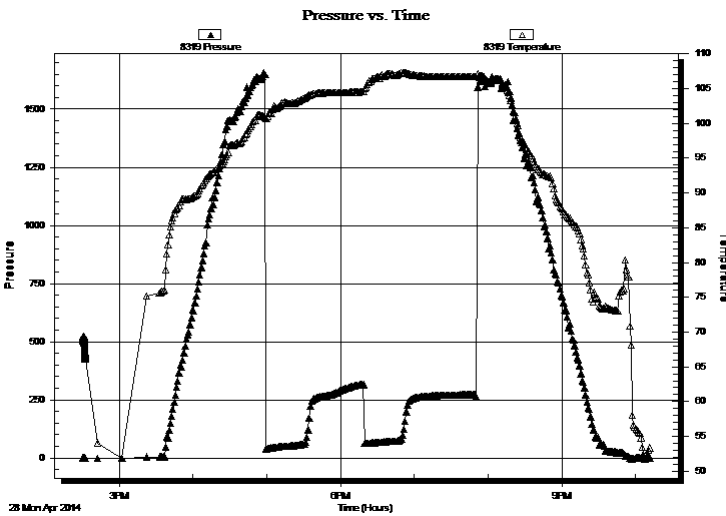
**30-11s-19w Ellis,KS**  
**Schonthalor #4**  
 Job Ticket: 57613 **DST#: 1**  
 Test Start: 2014.04.28 @ 14:30:00

**GENERAL INFORMATION:**

Formation: **LKC "A - D"**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 16:59:30  
 Time Test Ended: 22:12:00  
**Interval: 3318.00 ft (KB) To 3380.00 ft (KB) (TVD)**  
 Total Depth: 3380.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Bob Hamel  
 Unit No: 67  
 Reference Elevations: 2041.00 ft (KB)  
 2035.00 ft (CF)  
 KB to GR/CF: 6.00 ft

**Serial #: 8319 Inside**  
 Press@RunDepth: psig @ 3353.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.04.28 End Date: 2014.04.28 Last Calib.: 2014.04.28  
 Start Time: 14:30:01 End Time: 22:12:00 Time On Btm:  
 Time Off Btm:

**TEST COMMENT:** I.F. - 30 - Weak blow built to 6 3/4"  
 I.S.I. - 45 - No blow back  
 F.F. - 30 - Weak blow built to 4 1/2"  
 F.S.I. - 60 - No blow back



**PRESSURE SUMMARY**

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

**Recovery**

Length (ft)	Description	Volume (bbl)
95.00	O,C,M, 20% OIL 80% MUD	1.33

**Gas Rates**

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Richland Oil Investments

**30-11s-19w Ellis,KS**

PO Box 166  
Palco KS 67657

**Schonhaler #4**

Job Ticket: 57613

**DST#: 1**

ATTN: Steve Murphy

Test Start: 2014.04.28 @ 14:30:00

## Tool Information

Drill Pipe:	Length: 3317.00 ft	Diameter: 3.80 inches	Volume: 46.53 bbl	Tool Weight: 2500.00 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: 34000.00 lb
			<u>Total Volume: 46.53 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	27.00 ft			String Weight: Initial 30000.00 lb
Depth to Top Packer:	3318.00 ft			Final 30000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	62.00 ft			
Tool Length:	90.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3291.00	
Shut In Tool	5.00			3296.00	
Hydraulic tool	5.00			3301.00	
Jars	5.00			3306.00	
Safety Joint	3.00			3309.00	
Packer	4.00			3313.00	28.00 Bottom Of Top Packer
Packer	5.00			3318.00	
Stubb	1.00			3319.00	
Change Over Sub	1.00			3320.00	
Drill Pipe	32.00			3352.00	
Change Over Sub	1.00			3353.00	
Recorder	0.00	6625	Outside	3353.00	
Recorder	0.00	8319	Inside	3353.00	
Perforations	23.00			3376.00	
Bullnose	4.00			3380.00	62.00 Bottom Packers & Anchor

**Total Tool Length: 90.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Richland Oil Investments

**30-11s-19w Ellis,KS**

PO Box 166  
Palco KS 67657

**Schonthaler #4**

Job Ticket: 57613

**DST#: 1**

ATTN: Steve Murphy

Test Start: 2014.04.28 @ 14:30:00

## 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: 6.77 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 4200.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
95.00	O,C,M, 20% OIL 80% MUD	1.333

Total Length: 95.00 ft      Total Volume: 1.333 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

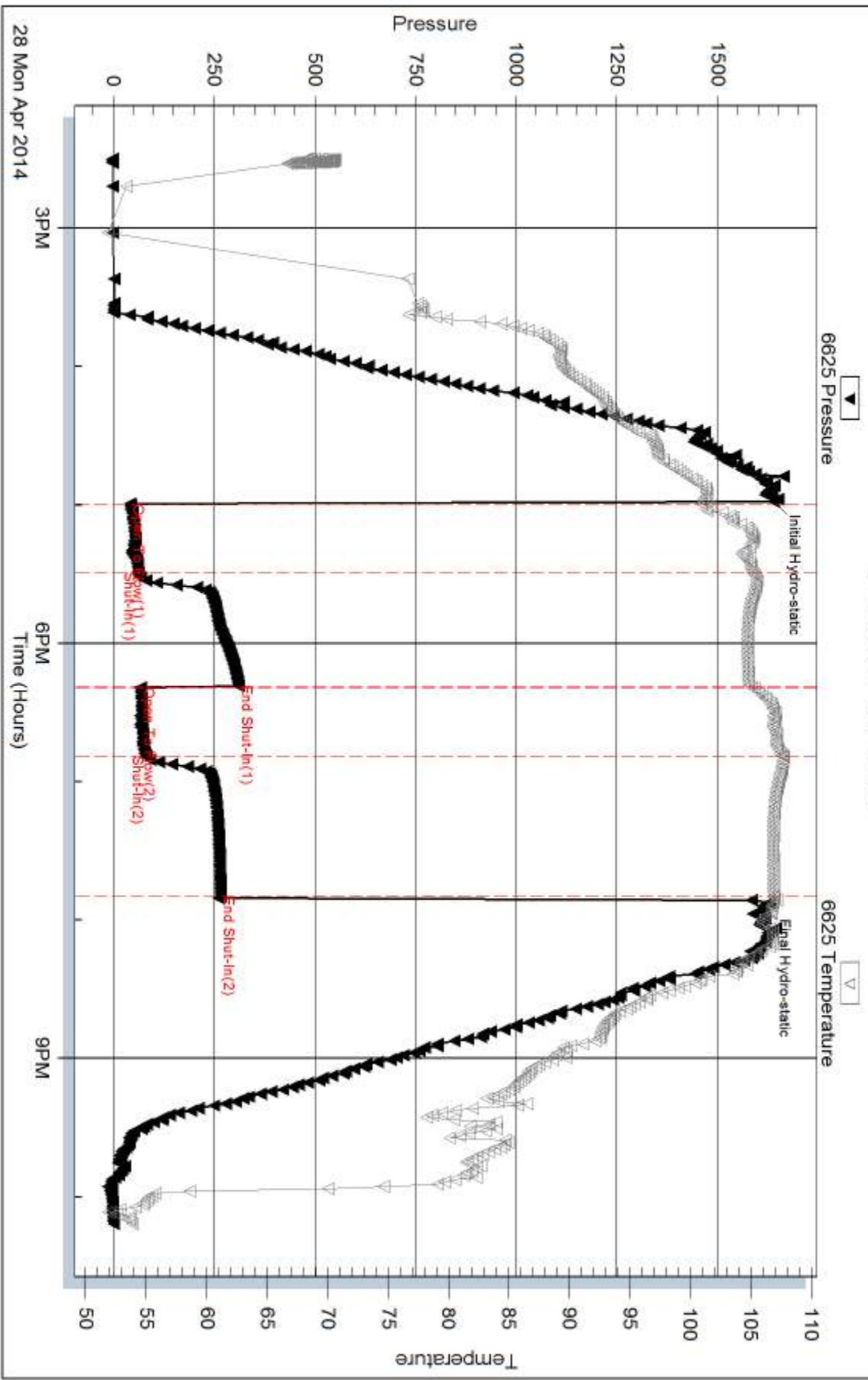
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

### Pressure vs. Time



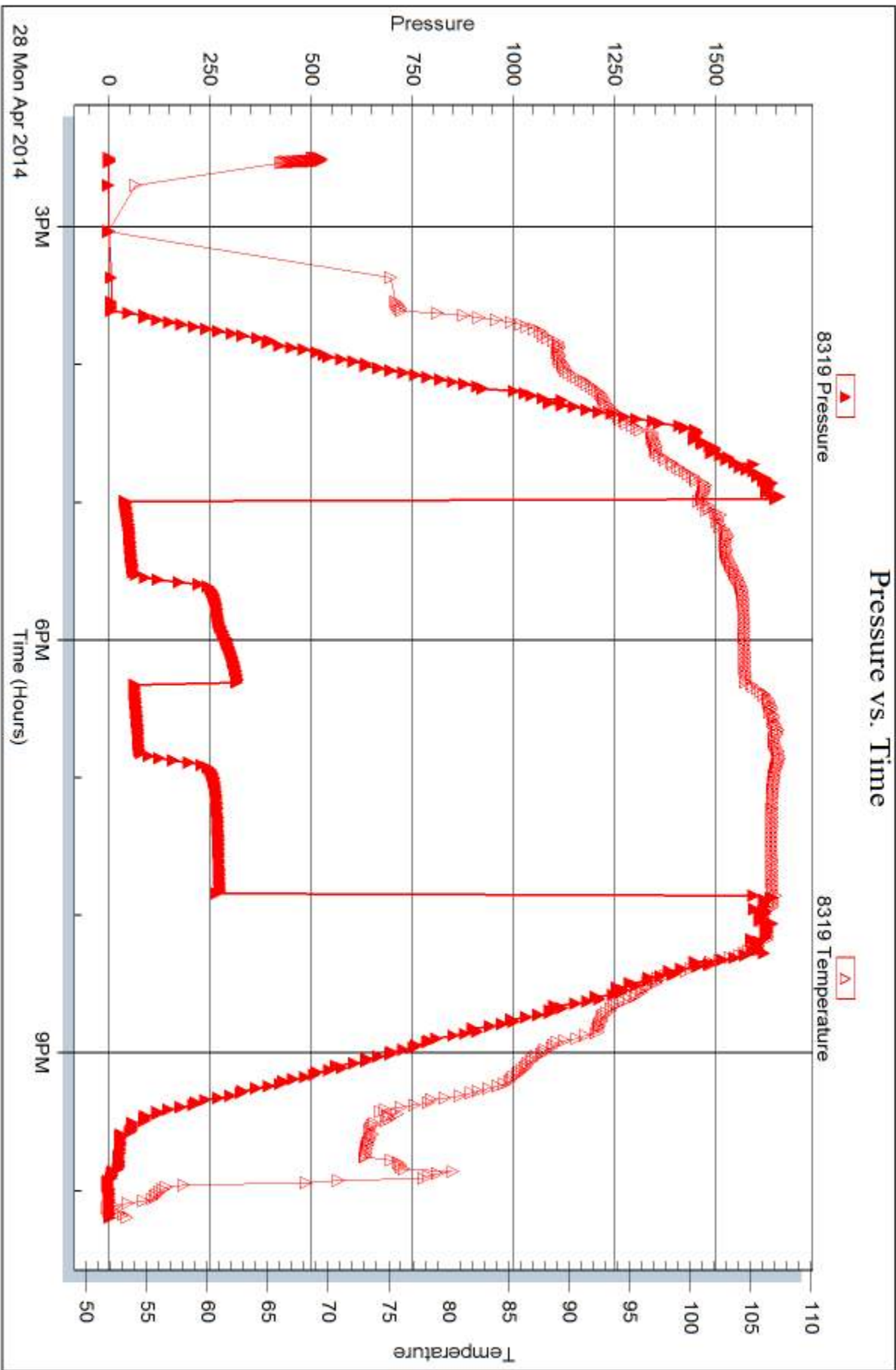
Serial #: 8319

Inside

Richland Oil Investments

Schonthaler #4

DST Test Number: 1





## DRILL STEM TEST REPORT

Prepared For: **Richland Oil Investments**

PO Box 166  
Palco KS 67657

ATTN: Steve Murphy

### **Schonthaler #4**

#### **30-11s-19w Ellis,KS**

Start Date: 2014.04.29 @ 07:30:00

End Date: 2014.04.29 @ 13:52:30

Job Ticket #: 57614                      DST #: 2

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

Printed: 2014.05.02 @ 11:56:20

Richland Oil Investments  
30-11s-19w Ellis,KS  
Schonthaler #4  
DST # 2  
LKG "E - F"  
2014.04.29





**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Richland Oil Investments

**30-11s-19w Ellis,KS**

PO Box 166  
Palco KS 67657

**Schonthaler #4**

Job Ticket: 57614

**DST#: 2**

ATTN: Steve Murphy

Test Start: 2014.04.29 @ 07:30:00

## GENERAL INFORMATION:

Formation: **LKC "E - F"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 09:31:30

Time Test Ended: 13:52:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Bob Hamel

Unit No: 67

**Interval: 3376.00 ft (KB) To 3396.00 ft (KB) (TVD)**

Reference Elevations: 2041.00 ft (KB)

Total Depth: 3396.00 ft (KB) (TVD)

2035.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 6.00 ft

**Serial #: 6625 Outside**

Press@RunDepth: 20.65 psig @ 3377.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.04.29 End Date: 2014.04.29

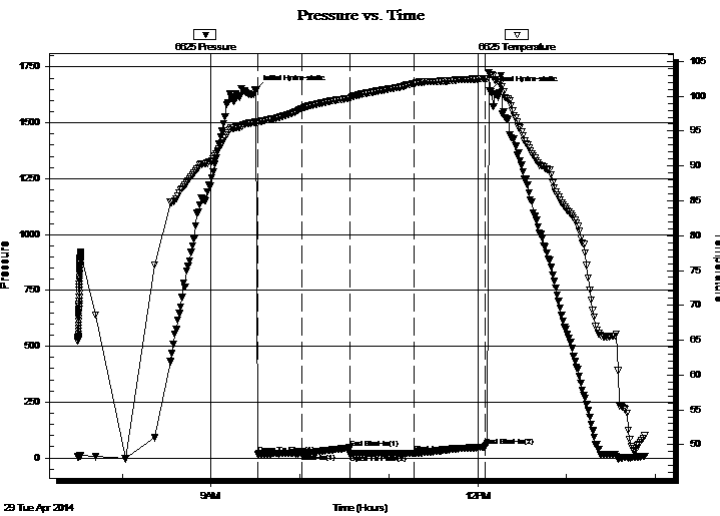
Last Calib.: 2014.04.29

Start Time: 07:30:01 End Time: 13:52:30

Time On Btm: 2014.04.29 @ 09:30:30

Time Off Btm: 2014.04.29 @ 12:08:00

**TEST COMMENT:** I.F. - 30 - Weak blow built to 1"  
I.S.I. - 30 - No blow back  
F.F. - 45 - Weak blow built to 3 1/2"  
F.S.I. - 45 - No blow back



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1648.55	96.25	Initial Hydro-static
1	17.60	96.08	Open To Flow (1)
31	21.21	98.22	Shut-In(1)
63	45.12	99.71	End Shut-In(1)
64	14.87	99.71	Open To Flow (2)
107	20.65	101.84	Shut-In(2)
155	51.70	102.52	End Shut-In(2)
158	1645.70	103.15	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
25.00	S,O,S,M, 1%OIL 99%MUD	0.35

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Richland Oil Investments

**30-11s-19w Ellis,KS**

PO Box 166  
Palco KS 67657

**Schonthaler #4**

Job Ticket: 57614

**DST#: 2**

ATTN: Steve Murphy

Test Start: 2014.04.29 @ 07:30:00

## GENERAL INFORMATION:

Formation: **LKC "E - F"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 09:31:30

Time Test Ended: 13:52:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Bob Hamel

Unit No: 67

**Interval: 3376.00 ft (KB) To 3396.00 ft (KB) (TVD)**

Total Depth: 3396.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2041.00 ft (KB)

2035.00 ft (CF)

KB to GR/CF: 6.00 ft

**Serial #: 8319 Inside**

Press@RunDepth: psig @ 3377.00 ft (KB)

Start Date: 2014.04.29

End Date: 2014.04.29

Start Time: 07:30:01

End Time: 13:52:30

Capacity: 8000.00 psig

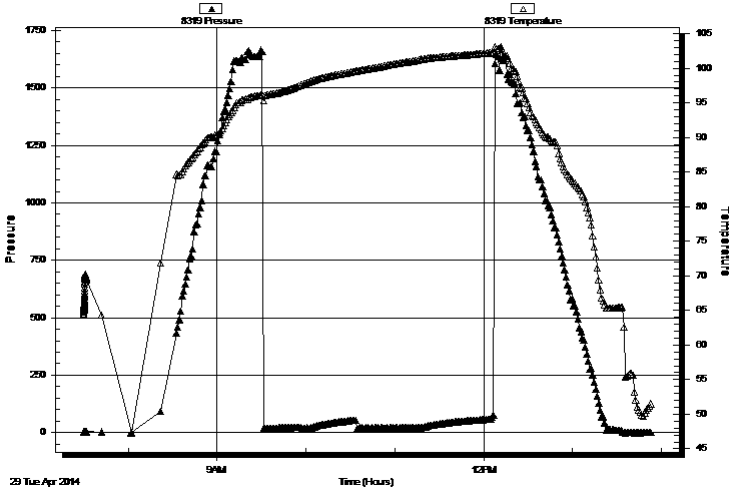
Last Calib.: 2014.04.29

Time On Btm:

Time Off Btm:

TEST COMMENT: I.F. - 30 - Weak blow built to 1"  
I.S.I. - 30 - No blow back  
F.F. - 45 - Weak blow built to 3 1/2"  
F.S.I. - 45 - No blow back

Pressure vs. Time



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
25.00	S,O,S,M, 1%OIL 99%MUD	0.35

## Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Richland Oil Investments

**30-11s-19w Ellis,KS**

PO Box 166  
Palco KS 67657

**Schonhaler #4**

Job Ticket: 57614

**DST#: 2**

ATTN: Steve Murphy

Test Start: 2014.04.29 @ 07:30:00

## Tool Information

Drill Pipe:	Length: 3362.00 ft	Diameter: 3.80 inches	Volume: 47.16 bbl	Tool Weight: 2500.00 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: 34000.00 lb
			<u>Total Volume: 47.16 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	14.00 ft			String Weight: Initial 30000.00 lb
Depth to Top Packer:	3376.00 ft			Final 30000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	20.00 ft			
Tool Length:	48.00 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			3349.00	
Shut In Tool	5.00			3354.00	
Hydraulic tool	5.00			3359.00	
Jars	5.00			3364.00	
Safety Joint	3.00			3367.00	
Packer	4.00			3371.00	28.00 Bottom Of Top Packer
Packer	5.00			3376.00	
Stubb	1.00			3377.00	
Recorder	0.00	6625	Outside	3377.00	
Recorder	0.00	8319	Inside	3377.00	
Perforations	15.00			3392.00	
Bullnose	4.00			3396.00	20.00 Bottom Packers & Anchor

**Total Tool Length: 48.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Richland Oil Investments

**30-11s-19w Ellis,KS**

PO Box 166  
Palco KS 67657

**Schonthalder #4**

Job Ticket: 57614

**DST#: 2**

ATTN: Steve Murphy

Test Start: 2014.04.29 @ 07:30:00

## 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:

bbf

Water Loss: 6.79 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 4800.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbf
25.00	S,O,S,M, 1%OIL 99%MUD	0.351

Total Length: 25.00 ft      Total Volume: 0.351 bbf

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

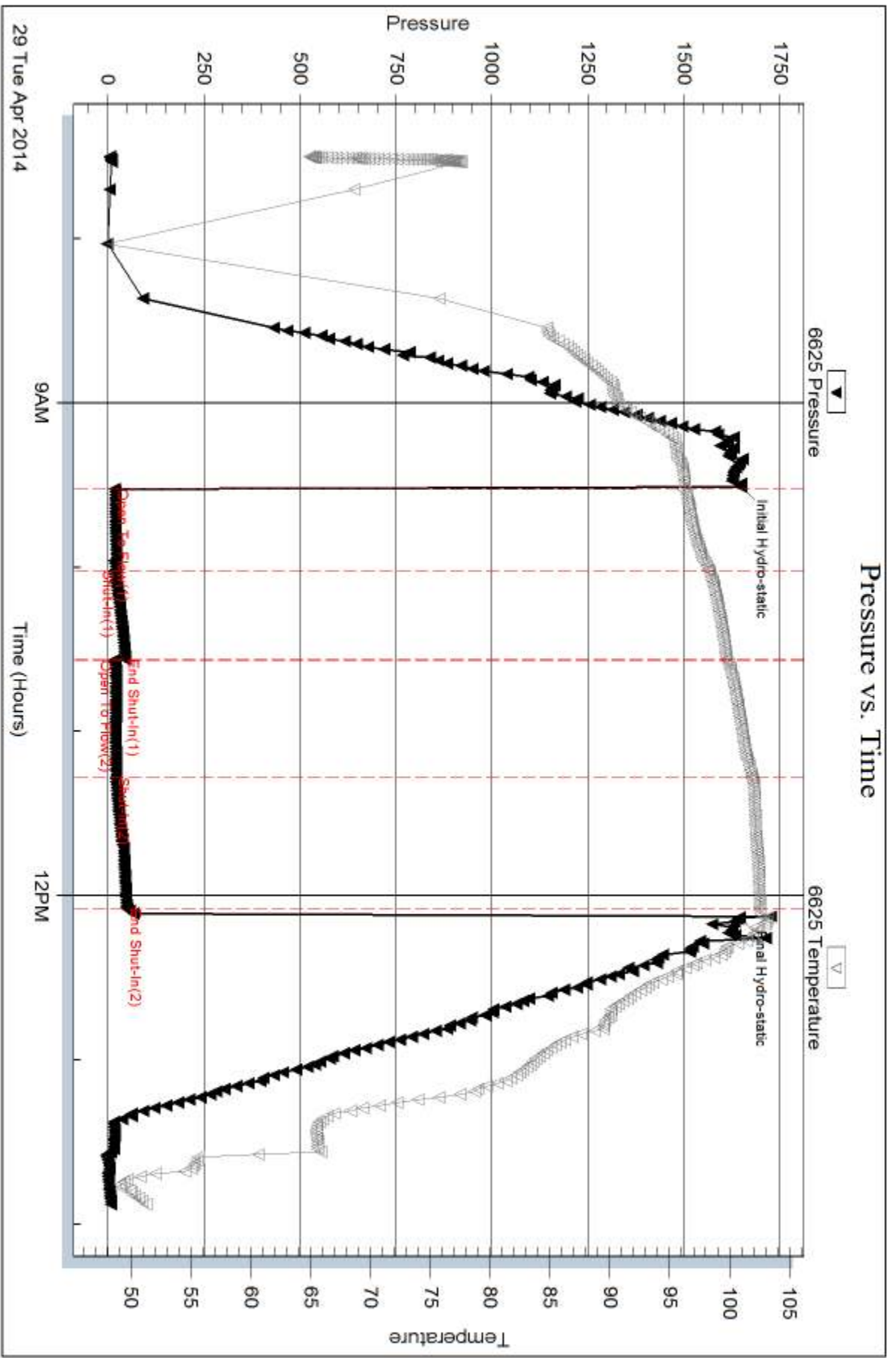
Recovery Comments:

Serial #: 6625

Outside Richland Oil Investments

Schonthaler #4

DST Test Number: 2



Triobite Testing, Inc

Ref. No: 57614

Printed: 2014.05.02 @ 11:56:21

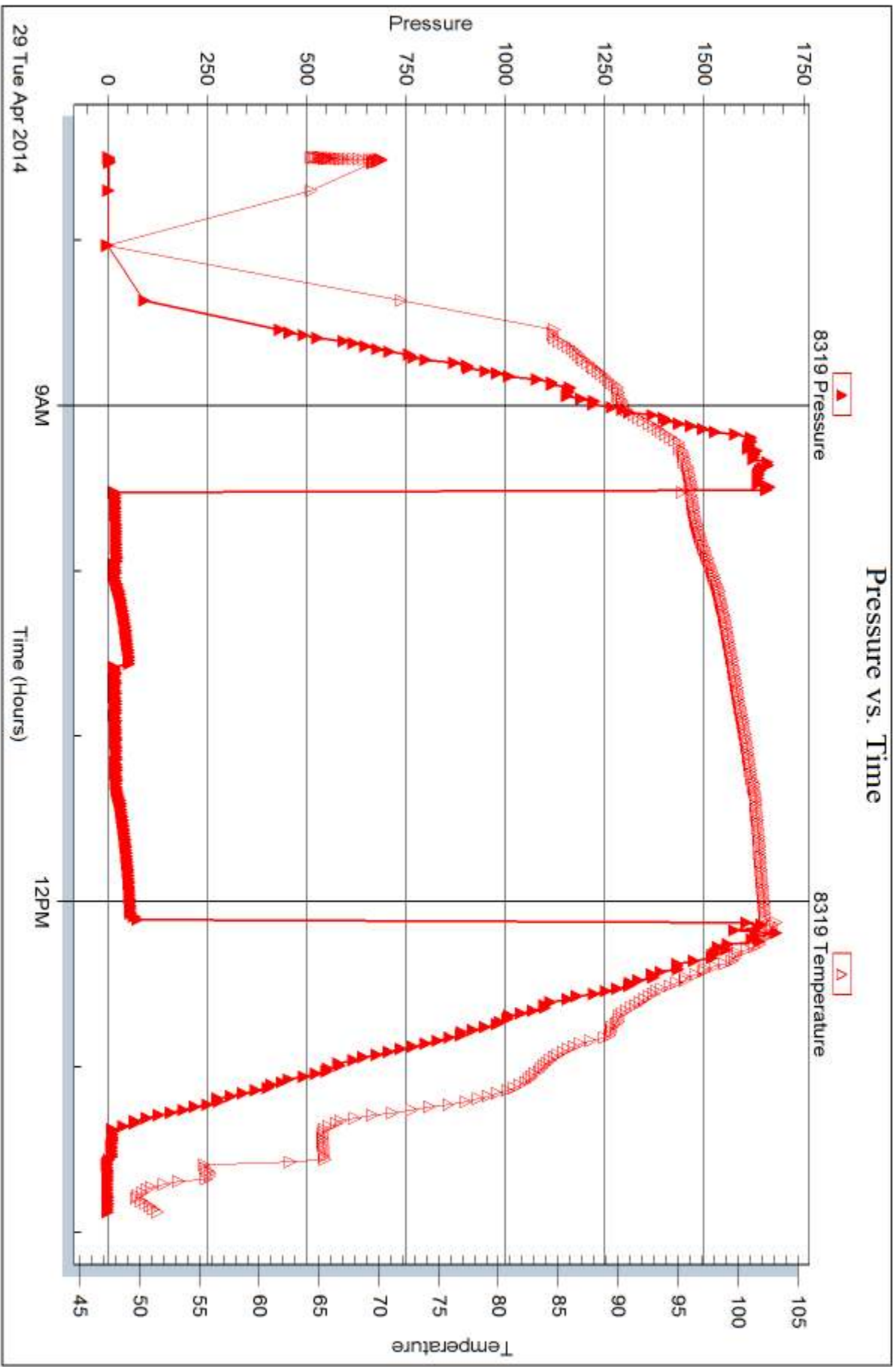
Serial #: 8319

Inside

Richland Oil Investments

Schonthaler #4

DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 57614

Printed: 2014.05.02 @ 11:56:22



## DRILL STEM TEST REPORT

Prepared For: **Richland Oil Investments**

PO Box 166  
Palco KS 67657

ATTN: Steve Murphy

### **Schonthaler #4**

#### **30-11s-19w Ellis,KS**

Start Date: 2014.04.30 @ 06:20:00

End Date: 2014.04.30 @ 14:46:30

Job Ticket #: 57615                      DST #: 3

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

Printed: 2014.05.02 @ 11:55:57



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Richland Oil Investments  
 PO Box 166  
 Palco KS 67657  
 ATTN: Steve Murphy

**30-11s-19w Ellis,KS**  
**Schonthaler #4**  
 Job Ticket: 57615      **DST#: 3**  
 Test Start: 2014.04.30 @ 06:20:00

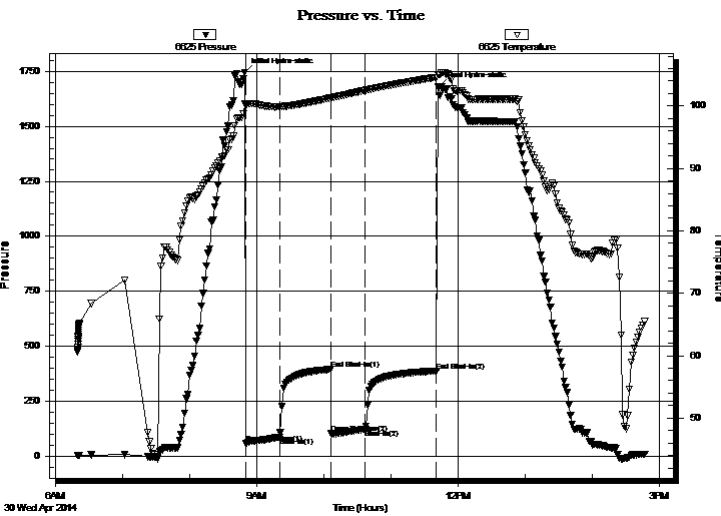
## GENERAL INFORMATION:

Formation: **LKC "H-K"**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 08:50:30  
 Time Test Ended: 14:46:30  
 Interval: **3450.00 ft (KB) To 3524.00 ft (KB) (TVD)**  
 Total Depth: 3524.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Bob Hamel  
 Unit No: 67  
 Reference Elevations: 2041.00 ft (KB)  
 2035.00 ft (CF)  
 KB to GR/CF: 6.00 ft

## Serial #: 6625 Outside

Press@RunDepth: 124.51 psig @ 3520.00 ft (KB)      Capacity: 8000.00 psig  
 Start Date: 2014.04.30      End Date: 2014.04.30      Last Calib.: 2014.04.30  
 Start Time: 06:20:01      End Time: 14:46:30      Time On Btm: 2014.04.30 @ 08:49:30  
 Time Off Btm: 2014.04.30 @ 11:42:30

TEST COMMENT: I.F. - 30 - BOB in 9 min 45 sec  
 I.S.I. - 45 - Weak surface blow back built to 1/4"  
 F.F. - 30 - BOB in 6 min  
 F.S.I. - 60 - Weak surface blow back built to 3 1/2"



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1744.54	100.29	Initial Hydro-static
1	58.36	100.19	Open To Flow (1)
31	88.27	99.87	Shut-In(1)
77	395.18	101.31	End Shut-In(1)
77	103.86	101.32	Open To Flow (2)
108	124.51	102.51	Shut-In(2)
171	388.12	104.59	End Shut-In(2)
173	1679.63	105.00	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
63.00	S,G,W,C,O,M, 5%G 15%W 35%O 45%M	0.88
126.00	CLEAN OIL 100%	1.77
0.00	189 G.I.P.	0.00

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Richland Oil Investments

**30-11s-19w Ellis,KS**

PO Box 166  
Palco KS 67657

**Schonthaler #4**

Job Ticket: 57615

**DST#: 3**

ATTN: Steve Murphy

Test Start: 2014.04.30 @ 06:20:00

## GENERAL INFORMATION:

Formation: **LKC "H-K"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 08:50:30

Time Test Ended: 14:46:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Bob Hamel

Unit No: 67

**Interval: 3450.00 ft (KB) To 3524.00 ft (KB) (TVD)**

Reference Elevations: 2041.00 ft (KB)

Total Depth: 3524.00 ft (KB) (TVD)

2035.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 6.00 ft

**Serial #: 8319**

**Inside**

Press@RunDepth: psig @ 3520.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.04.30

End Date:

2014.04.30

Last Calib.:

2014.04.30

Start Time: 06:20:01

End Time:

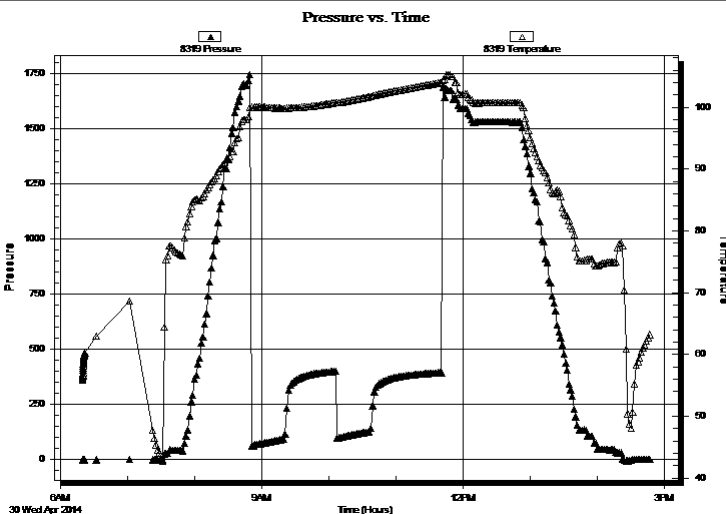
14:46:30

Time On Btm:

Time Off Btm:

**TEST COMMENT:** I.F. - 30 - BOB in 9 min 45 sec  
I.S.I. - 45 - Weak surface blow back built to 1/4"  
F.F. - 30 - BOB in 6 min  
F.S.I. - 60 - Weak surface blow back built to 3 1/2"

## PRESSURE SUMMARY



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

## Recovery

Length (ft)	Description	Volume (bbl)
63.00	S,G,W,C,O,M, 5%G 15%W 35%O 45%M	0.88
126.00	CLEAN OIL 100%	1.77
0.00	189 G.I.P.	0.00

## Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Richland Oil Investments

**30-11s-19w Ellis,KS**

PO Box 166  
Palco KS 67657

**Schonthaler #4**

Job Ticket: 57615

**DST#: 3**

ATTN: Steve Murphy

Test Start: 2014.04.30 @ 06:20:00

## Tool Information

Drill Pipe:	Length: 3450.00 ft	Diameter: 3.80 inches	Volume: 48.39 bbl	Tool Weight: 2500.00 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: 48.39 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	28.00 ft			String Weight: Initial 31000.00 lb
Depth to Top Packer:	3450.00 ft			Final 32000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	74.00 ft			
Tool Length:	102.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3423.00	
Shut In Tool	5.00			3428.00	
Hydraulic tool	5.00			3433.00	
Jars	5.00			3438.00	
Safety Joint	3.00			3441.00	
Packer	4.00			3445.00	28.00 Bottom Of Top Packer
Packer	5.00			3450.00	
Stubb	1.00			3451.00	
Perforations	4.00			3455.00	
Change Over Sub	1.00			3456.00	
Drill Pipe	63.00			3519.00	
Change Over Sub	1.00			3520.00	
Recorder	0.00	6625	Outside	3520.00	
Recorder	0.00	8319	Inside	3520.00	
Bullnose	4.00			3524.00	74.00 Bottom Packers & Anchor

**Total Tool Length: 102.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Richland Oil Investments

**30-11s-19w Ellis,KS**

PO Box 166  
Palco KS 67657

**Schonthaler #4**

Job Ticket: 57615

**DST#: 3**

ATTN: Steve Murphy

Test Start: 2014.04.30 @ 06:20:00

## 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: 51.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.77 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 4200.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
63.00	S,G,W,C,O,M, 5%G 15%W 35%O 45%M	0.884
126.00	CLEAN OIL 100%	1.767
0.00	189 G.I.P.	0.000

Total Length: 189.00 ft      Total Volume: 2.651 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

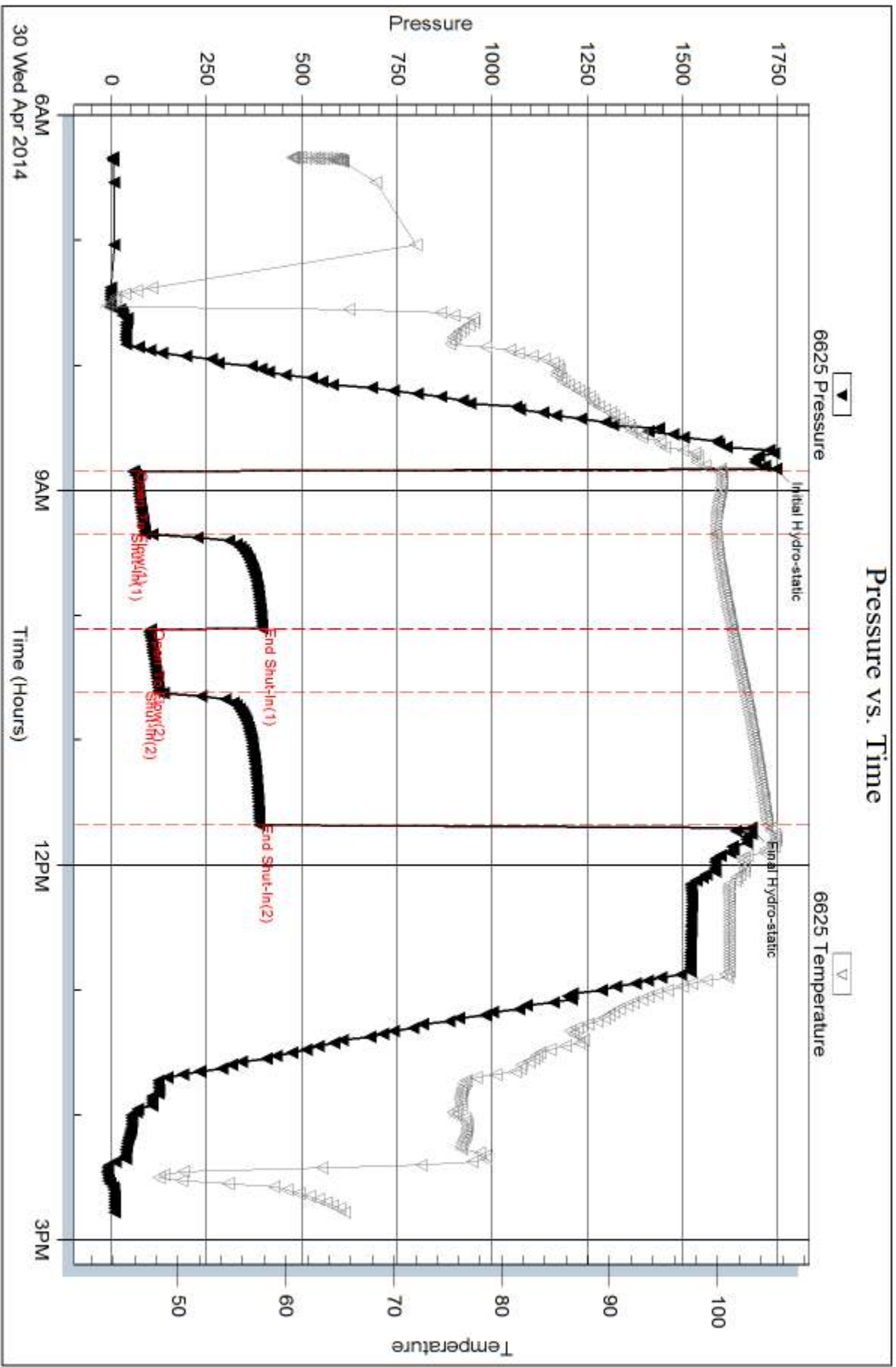
Recovery Comments:

Serial #: 6625

Outside Richland Oil Investments

Schonhaler #4

DST Test Number: 3



Triobite Testing, Inc

Ref. No: 57615

Printed: 2014.05.02 @ 11:55:58

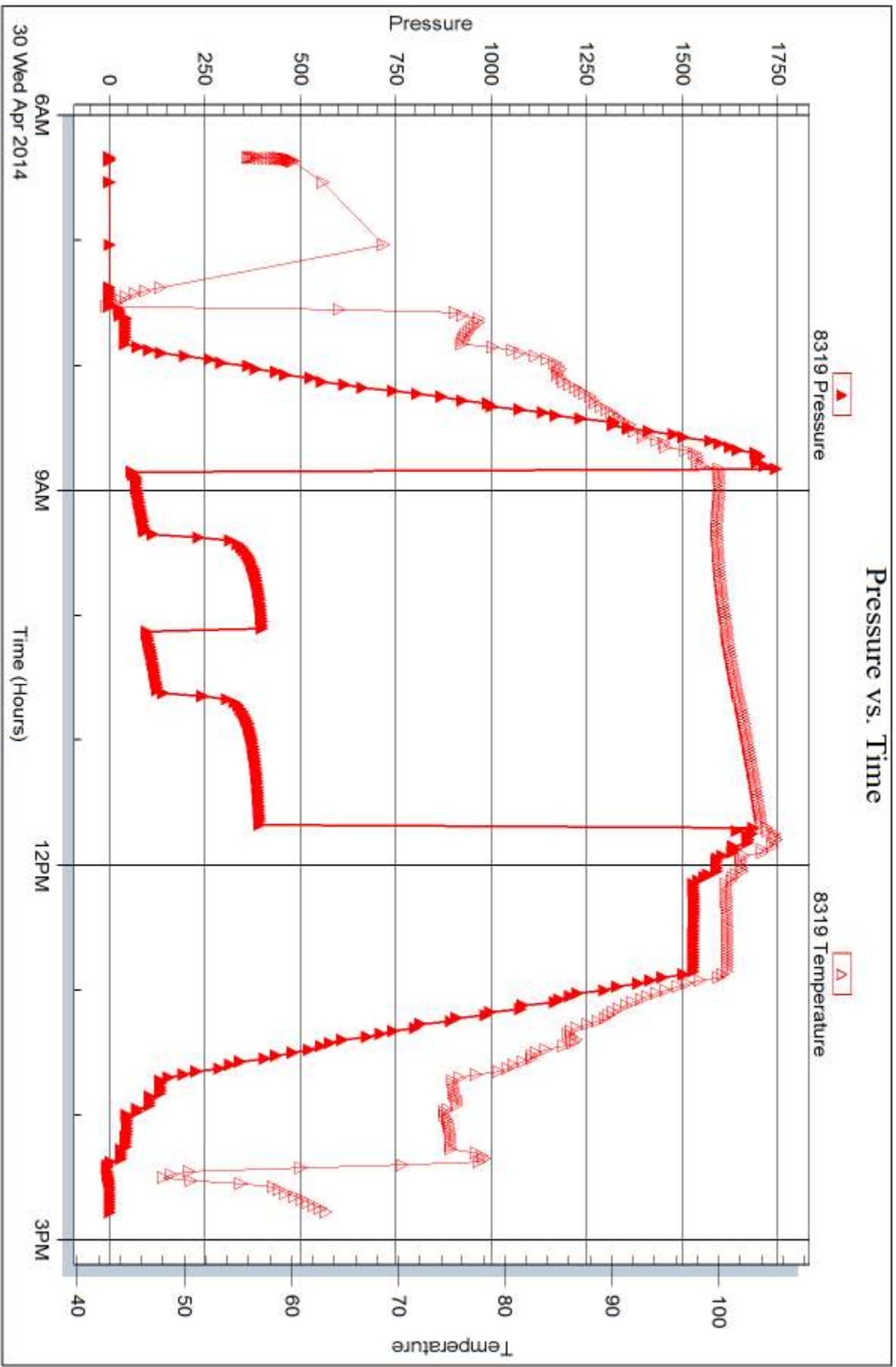
Serial #: 8319

Inside

Richland Oil Investments

Schonthaler #4

DST Test Number: 3



Trilobite Testing, Inc

Ref. No: 57615

Printed: 2014.05.02 @ 11:55:58



## DRILL STEM TEST REPORT

Prepared For: **Richland Oil Investments**

PO Box 166  
Palco KS 67657

ATTN: Steve Murphy

### **Schonthaler #4**

#### **30-11s-19w Ellis,KS**

Start Date: 2014.05.01 @ 02:30:00

End Date: 2014.05.01 @ 12:21:00

Job Ticket #: 57616                      DST #: 4

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

Printed: 2014.05.02 @ 11:55:16



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Richland Oil Investments

**30-11s-19w Ellis,KS**

PO Box 166  
Palco KS 67657

**Schonthaler #4**

Job Ticket: 57616

**DST#: 4**

ATTN: Steve Murphy

Test Start: 2014.05.01 @ 02:30:00

## GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 07:12:00

Time Test Ended: 12:21:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Bob Hamel

Unit No: 67

**Interval: 3612.00 ft (KB) To 3628.00 ft (KB) (TVD)**

Total Depth: 3628.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2041.00 ft (KB)

2035.00 ft (CF)

KB to GR/CF: 6.00 ft

**Serial #: 6625 Outside**

Press@RunDepth: 173.18 psig @ 3612.00 ft (KB)

Start Date: 2014.05.01

End Date:

2014.05.01

Start Time: 02:30:01

End Time:

12:21:00

Capacity: 8000.00 psig

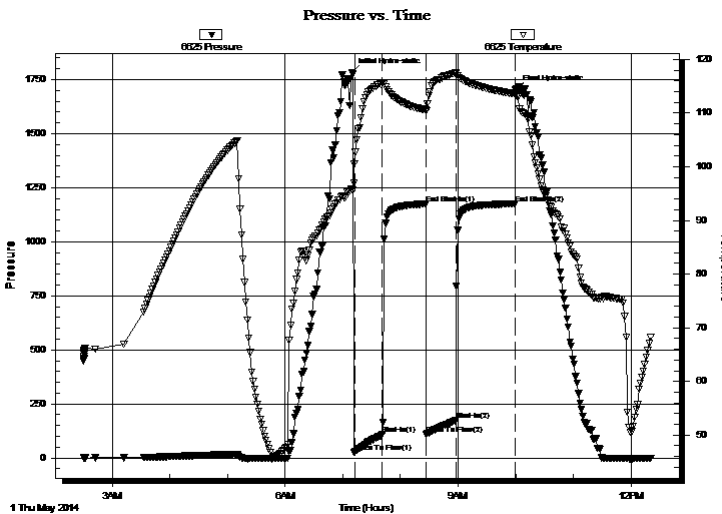
Last Calib.: 2014.05.01

Time On Btm: 2014.05.01 @ 07:09:30

Time Off Btm: 2014.05.01 @ 10:00:00

**TEST COMMENT:** I.F. - 30 - BOB in 10 min  
I.S.I. - 45 - No blow back  
F.F. - 30 - BOB in 17 min  
F.S.I - 60 - No blow back'

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1783.58	95.75	Initial Hydro-static
3	25.24	100.61	Open To Flow (1)
32	108.33	115.60	Shut-In(1)
77	1175.48	110.56	End Shut-In(1)
78	111.50	110.43	Open To Flow (2)
108	173.18	117.47	Shut-In(2)
170	1176.29	113.58	End Shut-In(2)
171	1702.91	113.46	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
63.00	S,O,S,W 1%O 99%W	0.88
121.00	S,O,C,M,W, 10%O 20%M 70%W	1.70
126.00	S,M,C,O,W, 10%M 30%O 60%W	1.77
5.00	CLEAN OIL 100%	0.07
0.00	63' G.I.P. 100%	0.00

## Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Richland Oil Investments

**30-11s-19w Ellis, KS**

PO Box 166  
Palco KS 67657

**Schonthaler #4**

ATTN: Steve Murphy

Job Ticket: 57616

**DST#: 4**

Test Start: 2014.05.01 @ 02:30:00

## GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 07:12:00

Time Test Ended: 12:21:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Bob Hamel

Unit No: 67

**Interval: 3612.00 ft (KB) To 3628.00 ft (KB) (TVD)**

Total Depth: 3628.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2041.00 ft (KB)

2035.00 ft (CF)

KB to GR/CF: 6.00 ft

**Serial #: 8319 Inside**

Press@RunDepth: psig @ 3612.00 ft (KB)

Start Date: 2014.05.01

End Date: 2014.05.01

Start Time: 02:30:01

End Time: 12:21:00

Capacity: 8000.00 psig

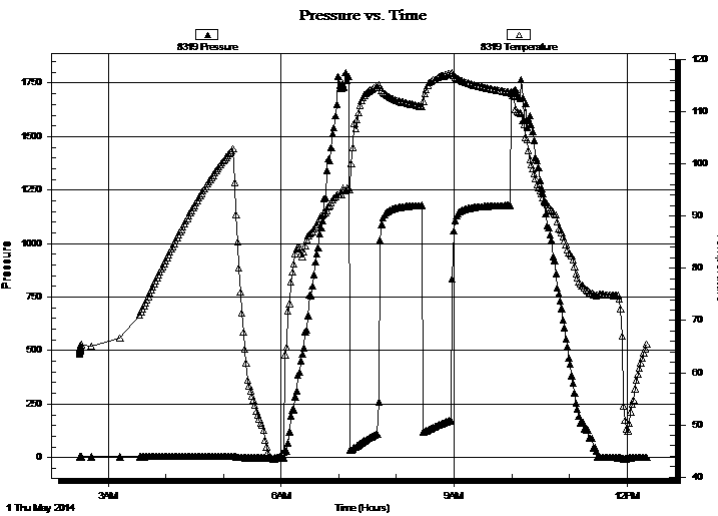
Last Calib.: 2014.05.01

Time On Btm:

Time Off Btm:

**TEST COMMENT:** I.F. - 30 - BOB in 10 min  
I.S.I. - 45 - No blow back  
F.F. - 30 - BOB in 17 min  
F.S.I. - 60 - No blow back

## PRESSURE SUMMARY



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

## Recovery

Length (ft)	Description	Volume (bbl)
63.00	S,O,S,W 1%O 99%W	0.88
121.00	S,O,C,M,W, 10%O 20%M 70%W	1.70
126.00	S,M,C,O,W, 10%M 30%O 60%W	1.77
5.00	CLEAN OIL 100%	0.07
0.00	63' G.I.P. 100%	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**

Richland Oil Investments

**30-11s-19w Ellis,KS**

PO Box 166  
Palco KS 67657

**Schonhaler #4**

Job Ticket: 57616

**DST#: 4**

ATTN: Steve Murphy

Test Start: 2014.05.01 @ 02:30:00

## Tool Information

Drill Pipe:	Length: 3599.00 ft	Diameter: 3.80 inches	Volume: 50.48 bbl	Tool Weight: 2500.00 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: 36000.00 lb
			<u>Total Volume: 50.48 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial 32000.00 lb
Depth to Top Packer:	3612.00 ft			Final 34000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	15.00 ft			
Tool Length:	43.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Change Over Sub	1.00			3585.00	
Shut In Tool	5.00			3590.00	
Hydraulic tool	5.00			3595.00	
Jars	5.00			3600.00	
Safety Joint	3.00			3603.00	
Packer	4.00			3607.00	28.00 Bottom Of Top Packer
Packer	5.00			3612.00	
Recorder	0.00	6625	Outside	3612.00	
Recorder	0.00	8319	Inside	3612.00	
Perforations	11.00			3623.00	
Bullnose	4.00			3627.00	15.00 Bottom Packers & Anchor

**Total Tool Length: 43.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Richland Oil Investments

**30-11s-19w Ellis,KS**

PO Box 166  
Palco KS 67657

**Schonthaler #4**

Job Ticket: 57616

**DST#: 4**

ATTN: Steve Murphy

Test Start: 2014.05.01 @ 02:30:00

## 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:

40000 ppm

Viscosity: 53.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.98 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 4900.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
63.00	S,O,S,W 1%O 99%W	0.884
121.00	S,O,C,M,W, 10%O 20%M 70%W	1.697
126.00	S,M,C,O,W, 10%M 30%O 60%W	1.767
5.00	CLEAN OIL 100%	0.070
0.00	63' G.I.P. 100%	0.000

Total Length: 315.00 ft      Total Volume: 4.418 bbl

Num Fluid Samples: 0

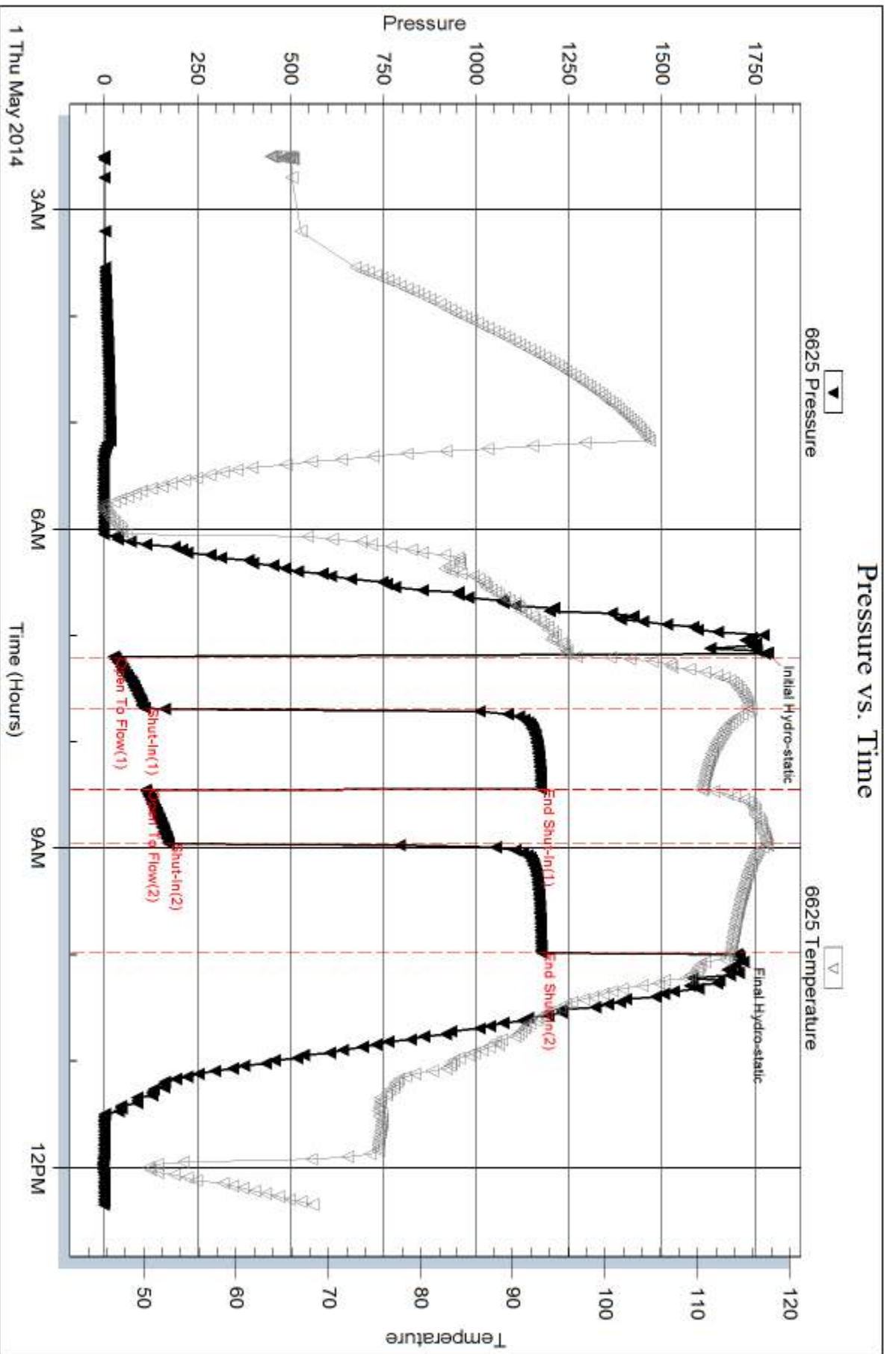
Num Gas Bombs: 0

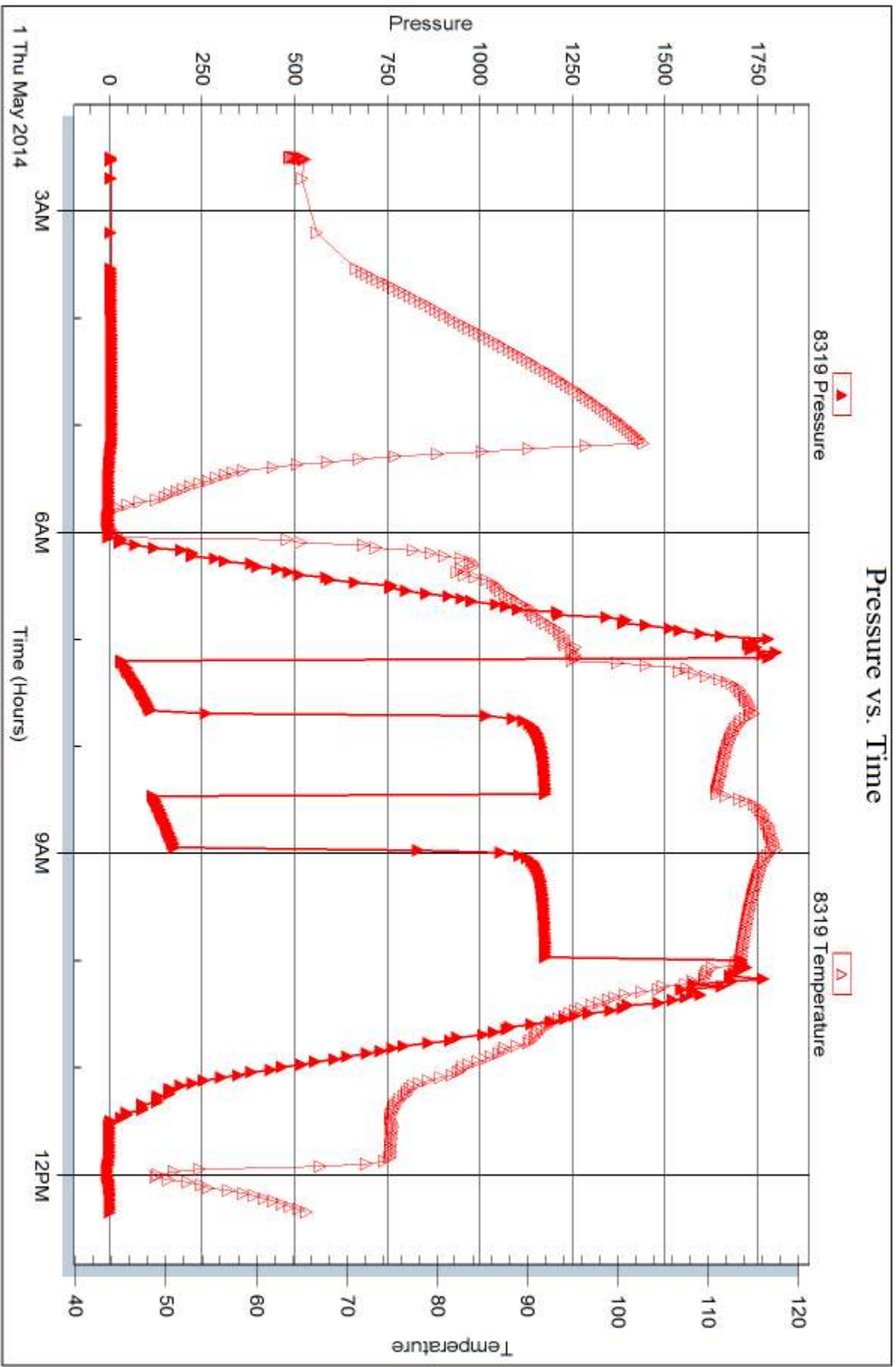
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: R.W. =.22 OHMS @ 59.6 DEG







# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 57613

Well Name & No. Schonthaler #4 Test No. 1 Date 4-28-14  
 Company Richland Oil Investments L.L.C. Elevation 2041 KB 2035 GL  
 Address P.O. Box 166 Palco KS. 67657  
 Co. Rep / Geo. Steve Murphy Rig Maverick #102  
 Location: Sec. 30 Twp. 11 - S. Rge. 19 W. Co. Ellis State KS.

Interval Tested 3318-3380 Zone Tested h.K.C.'A-D"  
 Anchor Length 62' Drill Pipe Run 3325 Mud Wt. 9.4  
 Top Packer Depth 3313 Drill Collars Run --- Vis 51  
 Bottom Packer Depth 3318 Wt. Pipe Run --- WL 6.8  
 Total Depth 3380 Chlorides 4,200 ppm System LCM 2

Blow Description I.F.-30-1/2" INT Blow Built to (6 3/4" in 30 min.)  
I.S.I.-45-NO B.B.  
E.F.-30-W.S.B. started @ 3 min. Built to (4 1/2" in 30 min.)  
F.S.I.-60-NO B.B.

Rec	Feet of	%gas	%oil	%water	%mud
<u>95</u>	<u>O, C, m.</u>	<u>20</u>		<u>80</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 95 BHT 107 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic <u>1,639</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>13'50.00</u>
(B) First Initial Flow <u>42</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>14'30.00</u>
(C) First Final Flow <u>62</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>17'05.00</u>
(D) Initial Shut-In <u>311</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>19'50.00</u>
(E) Second Initial Flow <u>69</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>22:12.00</u>
(F) Second Final Flow <u>81</u>	<input checked="" type="checkbox"/> Mileage <u>60 R.T</u> 93	Comments _____
(G) Final Shut-In <u>267</u>	<input type="checkbox"/> Sampler _____	<u>"Thank-you"</u>
(H) Final Hydrostatic <u>1,613</u>	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> Ruined Shale Packer _____
	<input type="checkbox"/> Shale Packer _____	<input type="checkbox"/> Ruined Packer _____
	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Extra Copies _____
	<input type="checkbox"/> Extra Recorder _____	Sub Total <u>0</u>
	<input type="checkbox"/> Day Standby _____	Total <u>1568</u>
	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total <u>1568</u>	

Initial Open 30  
 Initial Shut-In 45  
 Final Flow 30  
 Final Shut-In 60

Approved By \_\_\_\_\_ Our Representative [Signature]

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. 57614

Well Name & No. Schonthaler #4 Test No. 2 Date 4-29-14  
 Company Richland oil investments L.L.C. Elevation 2041 KB 2035 GL  
 Address P.O. Box 166 Palco KS. 67657  
 Co. Rep / Geo. Steve Murphy Rig Maverick #102  
 Location: Sec. 30 Twp. 11 S. Rge. 19 - W. Co. Ellis State KS.

Interval Tested 3376-3396 Zone Tested L.H.C. "E-F"  
 Anchor Length 20' Drill Pipe Run 3362 Mud Wt. 9.3  
 Top Packer Depth 3371 Drill Collars Run — Vis 52  
 Bottom Packer Depth 3376 Wt. Pipe Run — WL 6.8  
 Total Depth 3396 Chlorides 4800 ppm System LCM 2

Blow Description I.F. - 30 - 1/4" INT. Blow Built to 1" in 30 min.  
I.S.I - 30 - NO B.B.  
E.F. - 45 - 1/2" INT. Blow Built to (3 1/2" in 45 min.)  
F.S.I - 45 - NO B.B.

Rec	Feet of	%gas	%oil	%water	%mud
<u>25</u>	<u>5, 0, 5, m</u>		<u>1</u>		<u>99</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 25 BHT 103 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic <u>1,649</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>06:45:00</u>
(B) First Initial Flow <u>18</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>07:30:00</u>
(C) First Final Flow <u>21</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>09:39:00</u>
(D) Initial Shut-In <u>45</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>12:09:00</u>
(E) Second Initial Flow <u>15</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>14:00:00</u>
(F) Second Final Flow <u>21</u>	<input checked="" type="checkbox"/> Mileage <u>60 / R.T</u> 93	Comments <u>Thank you</u>
(G) Final Shut-In <u>52</u>	<input type="checkbox"/> Sampler	<input type="checkbox"/> Ruined Shale Packer
(H) Final Hydrostatic <u>1,646</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Packer

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

Sub Total 1568

Approved By \_\_\_\_\_ Our Representative [Signature]

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 57615

Well Name & No. Schonthaler #4 Test No. 3 Date 4-30-14  
 Company Richland oil investments L.L.C. Elevation 2041 KB 2035 GL  
 Address P.O. Box 166 Pales KS. 67657  
 Co. Rep / Geo. Steve Murphy Rig Maverick #102  
 Location: Sec. 30 Twp. 11 - S. Rge. 19 - W. Co. Ellis. State KS.

Interval Tested 3450 - 3524 Zone Tested h.k.c. "H-K"  
 Anchor Length 74 Drill Pipe Run 3450 Mud Wt. 9.3  
 Top Packer Depth 3445 Drill Collars Run \_\_\_\_\_ Vis 52  
 Bottom Packer Depth 3450 Wt. Pipe Run \_\_\_\_\_ WL 6.8  
 Total Depth 3524 Chlorides 4,800 ppm System LCM 2

Blow Description I.F.-30-1/2" INT. Blow Built to (B.O.B. in 10 min)  
I.S.I.-45 - W.S.B.B. Started @ 5 min. (Built to 14" in 45 min.)  
FF-30-1/2" INT. Blow Built to (B.O.B. in 6 min.)  
F.S.I.-60 - W.S.B.B. Started @ 5 min. Built to (3 1/2" in 60 min.)

Rec	Feet of	%gas	%oil	%water	%mud
	<u>189' GIP</u>	<u>100</u>			
Rec <u>126</u>	Feet of <u>Clean oil</u>	%gas	<u>100</u> %oil	%water	%mud
Rec <u>63</u>	Feet of <u>S.G.W.C.O.M</u>	<u>5</u> %gas	<u>35</u> %oil	<u>15</u> %water	<u>45</u> %mud
Rec _____	Feet of _____	%gas	%oil	%water	%mud
Rec _____	Feet of _____	%gas	%oil	%water	%mud

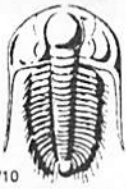
Rec Total 189 BHT 105 Gravity 26.4 API RW - @ - °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 1,744  Test 1150 T-On Location 05:50:00  
 (B) First Initial Flow 58  Jars 250 T-Started 06:20:00  
 (C) First Final Flow 88  Safety Joint 75 T-Open 08:55:00  
 (D) Initial Shut-In 395  Circ Sub \_\_\_\_\_ T-Pulled 11:40:00  
 (E) Second Initial Flow 104  Hourly Standby \_\_\_\_\_ T-Out 14:50:00  
 (F) Second Final Flow 125  Mileage 60/10.7 93 Comments \_\_\_\_\_  
 (G) Final Shut-In 388  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1,680  Straddle \_\_\_\_\_

Initial Open 30  Shale Packer \_\_\_\_\_  
 Initial Shut-In 45  Extra Packer \_\_\_\_\_  
 Final Flow 30  Extra Recorder \_\_\_\_\_  
 Final Shut-In 60  Day Standby \_\_\_\_\_  
 Sub Total 1568  Accessibility \_\_\_\_\_  
 Total 1568 MP/DST Disc't \_\_\_\_\_

Approved By \_\_\_\_\_ Our Representative Bob Hame

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. 57616

Well Name & No. Schonthaler #4 Test No. 4 Date 5-01-14  
 Company Richland oil investments L.L.C. Elevation 2041 KB 2035 GL  
 Address P.O. Box 166 Pelee KS. 67657  
 Co. Rep / Geo. Steve Murphy Rig Maverick # 102  
 Location: Sec. 30 Twp. 11 - S. Rge. 19 - W. Co. Ellis. State KS.

Interval Tested 3612 - 3628 Zone Tested Arbuckle  
 Anchor Length 16 Drill Pipe Run 3607 Mud Wt. 9.4  
 Top Packer Depth 3607 Drill Collars Run — Vis 53  
 Bottom Packer Depth 3612 Wt. Pipe Run — WL 8.0  
 Total Depth 3628 Chlorides 4900 ppm System LCM 2

Blow Description I.F. - 30 - 1/2" INT. Blow Built to B.O.B. in 10 min.  
I.S.I. - 45 - No B.B.  
FF. - 30 - 1/2" INT. Built to B.O.B. in 17 min.  
F.S.I. - 80 - No B.B.

Rec	Feet of	%gas	%oil	%water	%mud
Rec	63 G.I.P	100			
Rec	5 Clean oil		100		
Rec	120 <del>50</del> s, m, c, o, w	30	60	10	
Rec	120 s, o, c, m, w	10	70	20	
Rec	63 s, o, s, w (few oil specs)	1	99		

Rec Total 315 BHT 113 Gravity 28 API RW .22 @ 59.6 °F Chlorides 40,000 ppm

(A) Initial Hydrostatic 1,784  Test 1150 T-On Location 01:30:00  
 (B) First Initial Flow 25  Jars 250 T-Started 62:30:00  
 (C) First Final Flow 108  Safety Joint 75 T-Open ~~01:00:00~~ 01:16:00  
 (D) Initial Shut-In 1,175  Circ Sub T-Pulled 10:03:00  
 (E) Second Initial Flow 112  Hourly Standby 1h 100 T-Out 12:26:00  
 (F) Second Final Flow 173  Mileage 60 / R.T. 93 Comments \_\_\_\_\_  
 (G) Final Shut-In 1,176  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1,703  Straddle \_\_\_\_\_  
 Shale Packer 250  Ruined Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  Extra Copies \_\_\_\_\_

Initial Open 30  
 Initial Shut-In 45  
 Final Flow 30  
 Final Shut-In 60

Sub Total 1918 Total 1918 MP/DST Disc't \_\_\_\_\_

Approved By \_\_\_\_\_ Our Representative Bel Hamid

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