



## DRILL STEM TEST REPORT

Prepared For: **FIML Natural Resources LLC**

410 17th St. 900  
Denver CO. 80202

ATTN: Gary Doke/ Jim Musgr

**Pfenninger02-33-1831**

**33-18s-31w Scott,KS**

Start Date: 2013.12.28 @ 11:16:00

End Date: 2013.12.28 @ 20:24:55

Job Ticket #: 50228                      DST #: 1

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

Printed: 2014.01.03 @ 08:57:18



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

FIML Natural Resources LLC

**33-18s-31w Scott, KS**

410 17th St. 900  
Denver CO. 80202

**Pfenninger02-33-1831**

ATTN: Gary Doke/ Jim Musgr

Job Ticket: 50228

**DST#: 1**

Test Start: 2013.12.28 @ 11:16:00

## GENERAL INFORMATION:

Formation: **LKC "I"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 13:53:40

Time Test Ended: 20:24:55

Test Type: Conventional Bottom Hole (Initial)

Tester: Will MacLean

Unit No: 58

**Interval: 4163.00 ft (KB) To 4192.00 ft (KB) (TVD)**

Reference Elevations: 2950.00 ft (KB)

Total Depth: 4192.00 ft (KB) (TVD)

2939.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 11.00 ft

**Serial #: 8674**

**Inside**

Press@RunDepth: 537.97 psig @ 4164.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.12.28

End Date:

2013.12.28

Last Calib.:

2013.12.28

Start Time: 11:16:00

End Time:

20:24:55

Time On Btm:

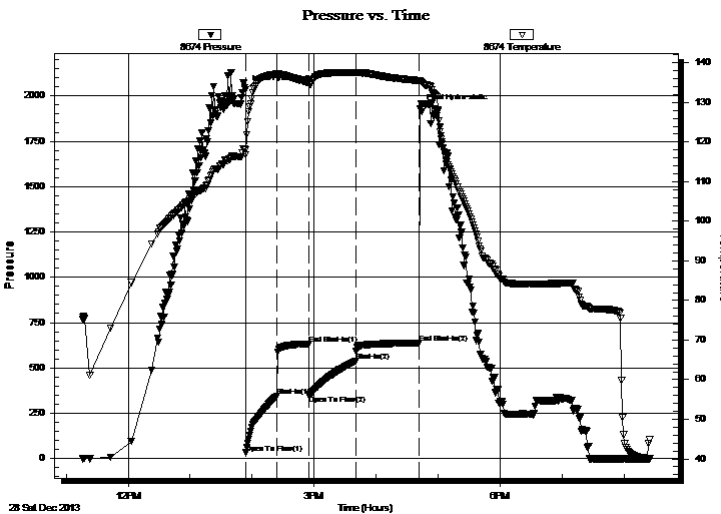
2013.12.28 @ 13:53:25

Time Off Btm:

2013.12.28 @ 16:42:24

**TEST COMMENT:** IF- Surface Blow Built to BOB in 6 1/2 min  
IS- No Blow  
FF- Weak Surface Blow Built to BOB in 11 1/4 min  
FS- No Blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2035.43	118.14	Initial Hydro-static
1	30.90	116.82	Open To Flow (1)
31	345.74	137.12	Shut-In(1)
62	633.03	134.97	End Shut-In(1)
62	349.06	134.79	Open To Flow (2)
107	537.97	137.54	Shut-In(2)
169	637.37	135.48	End Shut-In(2)
169	1927.53	135.48	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
93.00	GWCM 6%g 40%w 54%m	0.46
655.00	MCGW 7%m 8%g 85%w 48ppm of H <sub>2</sub>	2.66
188.00	GMCW 5%g 22%m 73%w 18ppm of H <sub>2</sub>	2.64
238.00	GWCM 4%g 44%w 52%m 11ppm of H <sub>2</sub>	3.34

## Gas Rates

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





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

FIML Natural Resources LLC

**33-18s-31w Scott,KS**

410 17th St. 900  
Denver CO. 80202

**Pfenninger02-33-1831**

Job Ticket: 50228

**DST#: 1**

ATTN: Gary Doke/ Jim Musgr

Test Start: 2013.12.28 @ 11:16:00

## Tool Information

Drill Pipe:	Length: 3796.00 ft	Diameter: 3.80 inches	Volume: 53.25 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 28000.00 lb
Drill Collar:	Length: 371.00 ft	Diameter: 2.25 inches	Volume: 1.82 bbl	Weight to Pull Loose: 18000.00 lb
			<u>Total Volume: 55.07 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	24.00 ft			String Weight: Initial 68000.00 lb
Depth to Top Packer:	4163.00 ft			Final 72000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	29.00 ft			
Tool Length:	49.00 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			4144.00	
Shut In Tool	5.00			4149.00	
Hydraulic tool	5.00			4154.00	
Packer	5.00			4159.00	20.00 Bottom Of Top Packer
Packer	4.00			4163.00	
Stubb	1.00			4164.00	
Recorder	0.00	8355	Outside	4164.00	
Recorder	0.00	8674	Inside	4164.00	
Perforations	23.00			4187.00	
Bullnose	5.00			4192.00	29.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>49.00</b>				



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

FIML Natural Resources LLC

**33-18s-31w Scott,KS**

410 17th St. 900  
Denver CO. 80202

**Pfenninger02-33-1831**

Job Ticket: 50228

**DST#: 1**

ATTN: Gary Doke/ Jim Musgr

Test Start: 2013.12.28 @ 11:16:00

## 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:

41000 ppm

Viscosity: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.91 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2200.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
93.00	GWCM 6%g 40%w 54%m	0.457
655.00	MCGW 7%m 8%g 85%w 48ppm of H2S	6.655
188.00	GMCW 5%g 22%m 73%w 18ppm of H2S	2.637
238.00	GWCM 4%g 44%w 52%m 11ppm of H2S	3.339

Total Length: 1174.00 ft      Total Volume: 13.088 bbl

Num Fluid Samples: 0

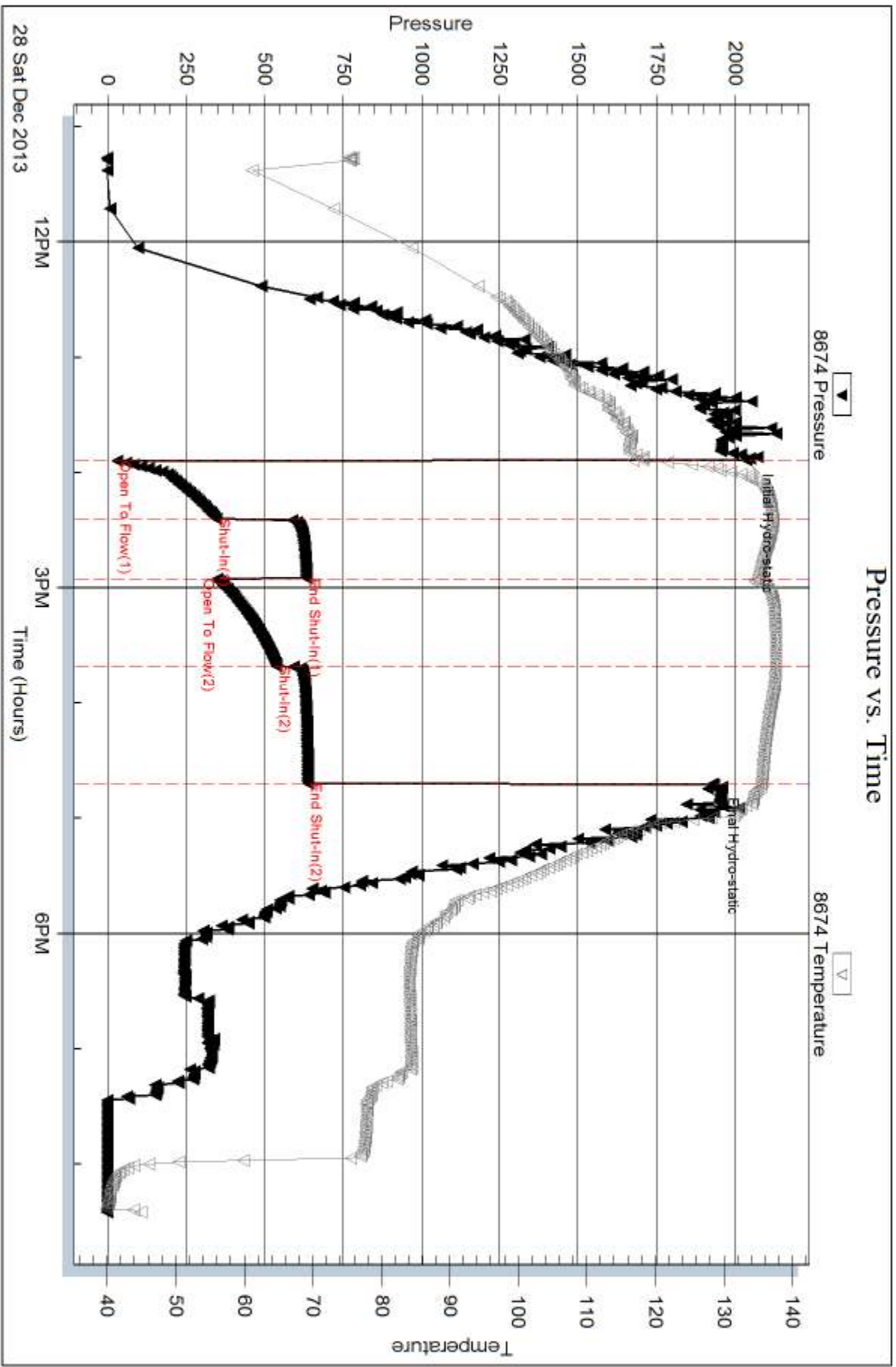
Num Gas Bombs: 0

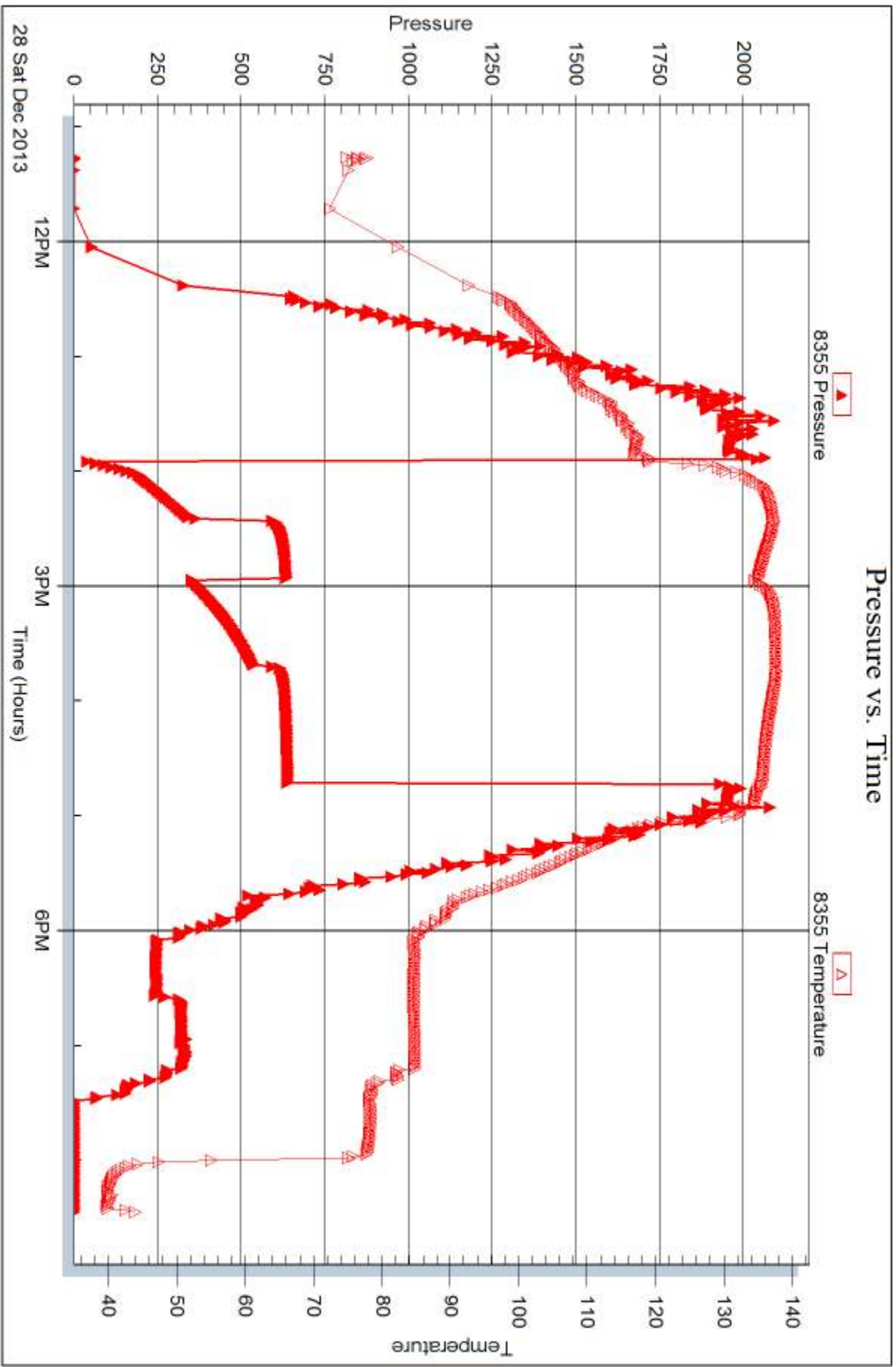
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW is .239 @ 50f = 41000







## DRILL STEM TEST REPORT

Prepared For: **FIML Natural Resources LLC**

410 17th St. 900  
Denver CO. 80202

ATTN: Gary Doke/ Jim Musgr

**Pfenninger02-33-1831**

**33-18s-31w Scott,KS**

Start Date: 2013.12.29 @ 12:34:00

End Date: 2013.12.29 @ 20:42:39

Job Ticket #: 50229                      DST #: 2

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2014.01.03 @ 08:56:52

FIML Natural Resources LLC

33-18s-31w Scott,KS

Pfenninger02-33-1831

DST # 2

LKC J - K - L

2013.12.29





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

FIML Natural Resources LLC

**33-18s-31w Scott, KS**

410 17th St. 900  
Denver CO. 80202

**Pfenninger02-33-1831**

ATTN: Gary Doke/ Jim Musgr

Job Ticket: 50229

**DST#: 2**

Test Start: 2013.12.29 @ 12:34:00

## GENERAL INFORMATION:

Formation: **LKC J - K - L**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:28:55

Time Test Ended: 20:42:39

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 58

**Interval: 4200.00 ft (KB) To 4304.00 ft (KB) (TVD)**

Reference Elevations: 2950.00 ft (KB)

Total Depth: 4304.00 ft (KB) (TVD)

2939.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 11.00 ft

**Serial #: 8674**

**Inside**

Press@RunDepth: 237.99 psig @ 4202.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.12.29

End Date:

2013.12.29

Last Calib.:

2013.12.29

Start Time: 12:34:00

End Time:

20:42:39

Time On Btm:

2013.12.29 @ 15:28:40

Time Off Btm:

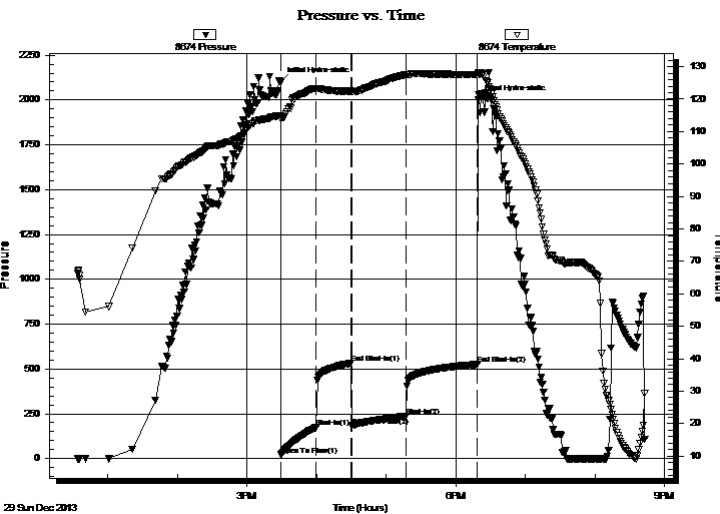
2013.12.29 @ 18:19:09

TEST COMMENT: IF- Weak Surface Blow Built to 7 1/2"

IS- No Blow

FF- Weak Surface Blow Built to 1 3/4"

FS- No Blow



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2100.45	114.87	Initial Hydro-static
1	21.28	113.98	Open To Flow (1)
31	175.93	123.29	Shut-In(1)
62	532.20	122.43	End Shut-In(1)
62	179.98	122.27	Open To Flow (2)
109	237.99	127.45	Shut-In(2)
170	525.73	127.63	End Shut-In(2)
171	2003.64	128.24	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
186.00	WCM 28%w 72%w with Oil Spots	0.91
93.00	WCM 19%w 81%w with Skim of Oil	0.46
187.00	OWCM 1%oil 16%w 83%w	1.79
57.00	WCM 10%w 90%w with Oil Spots	0.80

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

FIML Natural Resources LLC

**33-18s-31w Scott,KS**

410 17th St. 900  
Denver CO. 80202

**Pfenninger02-33-1831**

Job Ticket: 50229

**DST#: 2**

ATTN: Gary Doke/ Jim Musgr

Test Start: 2013.12.29 @ 12:34:00

## Tool Information

Drill Pipe:	Length: 3831.00 ft	Diameter: 3.80 inches	Volume: 53.74 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 30000.00 lb
Drill Collar:	Length: 371.00 ft	Diameter: 2.25 inches	Volume: 1.82 bbl	Weight to Pull Loose: 22000.00 lb
			<u>Total Volume: 55.56 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	22.00 ft			String Weight: Initial 68000.00 lb
Depth to Top Packer:	4200.00 ft			Final 68000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	104.00 ft			
Tool Length:	124.00 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			4181.00	
Shut In Tool	5.00			4186.00	
Hydraulic tool	5.00			4191.00	
Packer	5.00			4196.00	20.00 Bottom Of Top Packer
Packer	4.00			4200.00	
Stubb	1.00			4201.00	
Perforations	1.00			4202.00	
Recorder	0.00	8355	Outside	4202.00	
Recorder	0.00	8674	Inside	4202.00	
Perforations	28.00			4230.00	
Change Over Sub	1.00			4231.00	
Drill Pipe	63.00			4294.00	
Change Over Sub	1.00			4295.00	
Perforations	4.00			4299.00	
Bullnose	5.00			4304.00	104.00 Bottom Packers & Anchor

**Total Tool Length: 124.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

FIML Natural Resources LLC

**33-18s-31w Scott,KS**

410 17th St. 900  
Denver CO. 80202

**Pfenninger02-33-1831**

Job Ticket: 50229

**DST#: 2**

ATTN: Gary Doke/ Jim Musgr

Test Start: 2013.12.29 @ 12:34:00

## 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:

44000 ppm

Viscosity: 48.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.95 in<sup>3</sup>

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 bbbl
186.00	WCM 28%w 72%w with Oil Spots	0.915
93.00	WCM 19%w 81%m with Skim of Oil	0.457
187.00	OWCM 1%oil 16%w 83%m	1.785
57.00	WCM 10%w 90%m with Oil Spots	0.800

Total Length: 523.00 ft      Total Volume: 3.957 bbl

Num Fluid Samples: 0

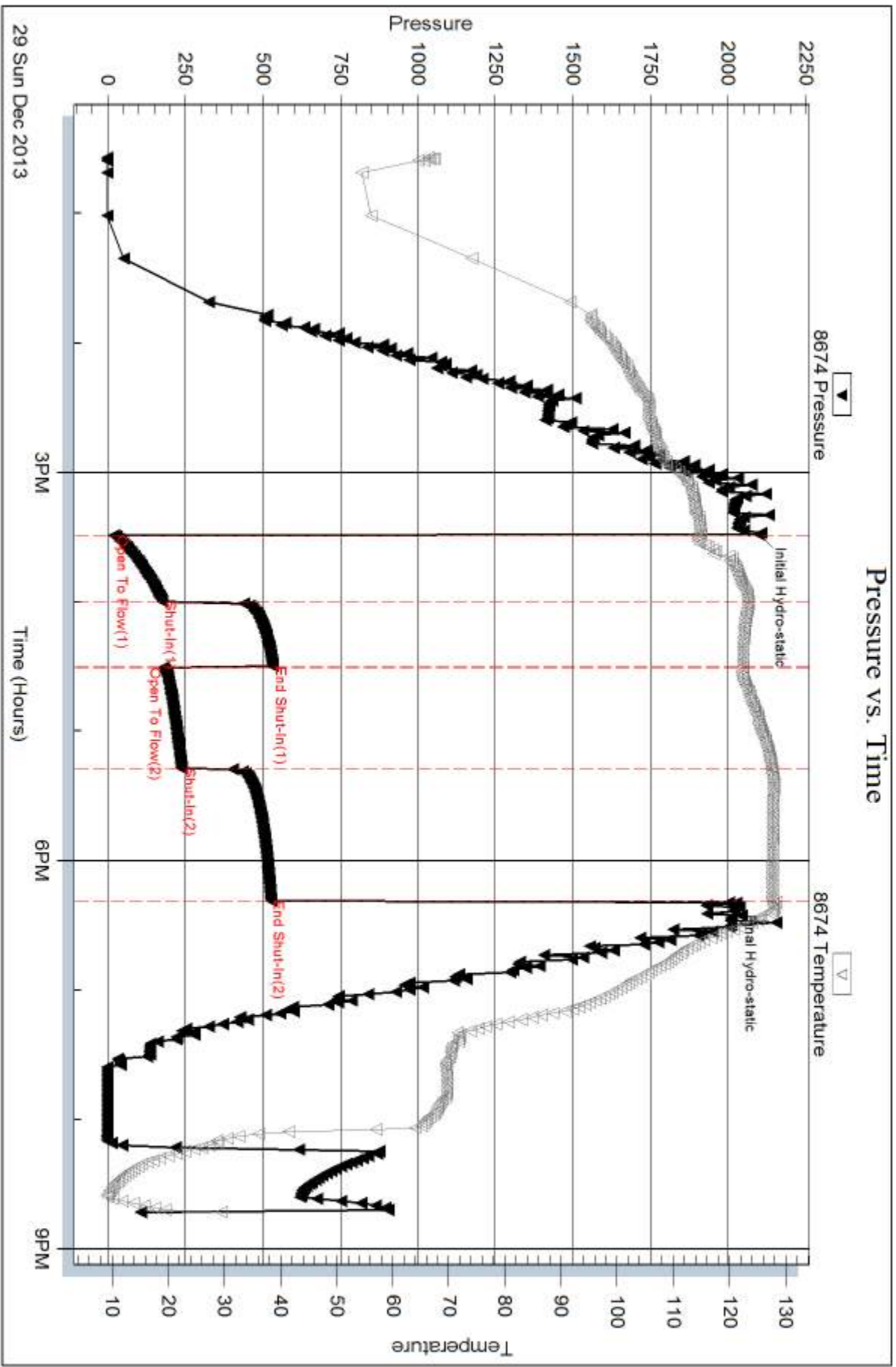
Num Gas Bombs: 0

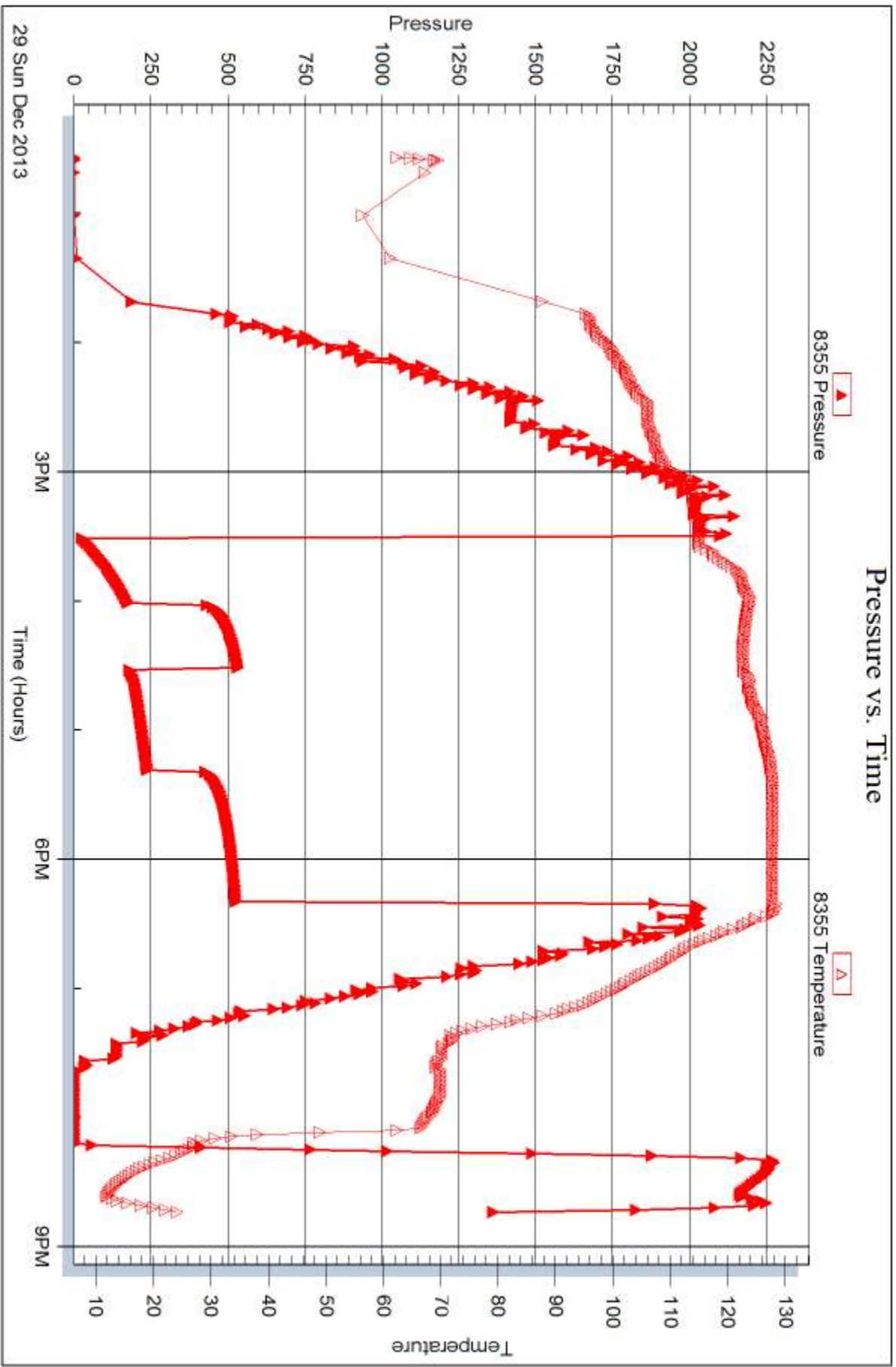
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW is .283 @ 45f = 44000







## DRILL STEM TEST REPORT

Prepared For: **FIML Natural Resources LLC**

410 17th St. 900  
Denver CO. 80202

ATTN: Gary Doke/ Jim Musgr

**Pfenninger02-33-1831**

**33-18s-31w Scott,KS**

Start Date: 2013.12.30 @ 08:28:00

End Date: 2013.12.30 @ 17:09:55

Job Ticket #: 50230                      DST #: 3

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2014.01.03 @ 08:56:22



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

FIML Natural Resources LLC

**33-18s-31w Scott, KS**

410 17th St. 900  
Denver CO. 80202

**Pfenninger02-33-1831**

ATTN: Gary Doke/ Jim Musgr

Job Ticket: 50230

**DST#: 3**

Test Start: 2013.12.30 @ 08:28:00

## GENERAL INFORMATION:

Formation: **Marmanton " A - B "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 10:57:25

Time Test Ended: 17:09:55

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 58

**Interval: 4336.00 ft (KB) To 4380.00 ft (KB) (TVD)**

Total Depth: 4380.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2950.00 ft (KB)

2939.00 ft (CF)

KB to GR/CF: 11.00 ft

**Serial #: 8674**

**Inside**

Press@RunDepth: 100.24 psig @ 4337.00 ft (KB)

Start Date: 2013.12.30

End Date:

2013.12.30

Start Time: 08:28:00

End Time:

17:09:55

Capacity: 8000.00 psig

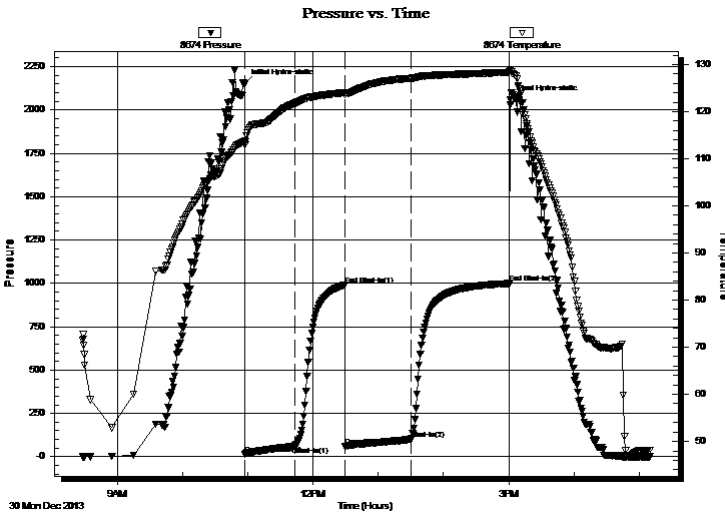
Last Calib.: 2013.12.30

Time On Btm: 2013.12.30 @ 10:57:10

Time Off Btm: 2013.12.30 @ 15:01:09

**TEST COMMENT:** IF- Weak Surface Blow Built to 5 3/4"  
IS- No Blow  
FF- Weak Surface Blow Built to BOB in 56 min  
FS- No Blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2149.63	113.82	Initial Hydro-static
1	15.02	112.91	Open To Flow (1)
46	59.33	121.75	Shut-In(1)
93	991.87	124.04	End Shut-In(1)
93	61.69	123.60	Open To Flow (2)
153	100.24	127.08	Shut-In(2)
244	999.68	128.38	End Shut-In(2)
244	2058.64	128.77	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
93.00	OGCM 12%oil 14%g 74%m	0.46
60.00	GOCM 9%g 36%oil 55%m	0.30
93.00	GO 3%g 97%oil	0.46
0.00	314' of GIP	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**

FIML Natural Resources LLC

**33-18s-31w Scott,KS**

410 17th St. 900  
Denver CO. 80202

**Pfenninger02-33-1831**

Job Ticket: 50230

**DST#: 3**

ATTN: Gary Doke/ Jim Musgr

Test Start: 2013.12.30 @ 08:28:00

## Tool Information

Drill Pipe:	Length: 3957.00 ft	Diameter: 3.80 inches	Volume: 55.51 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 28000.00 lb
Drill Collar:	Length: 371.00 ft	Diameter: 2.25 inches	Volume: 1.82 bbl	Weight to Pull Loose: 10000.00 lb
			<u>Total Volume: 57.33 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	12.00 ft			String Weight: Initial 68000.00 lb
Depth to Top Packer:	4336.00 ft			Final 68000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	44.00 ft			
Tool Length:	64.00 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			4317.00	
Shut In Tool	5.00			4322.00	
Hydraulic tool	5.00			4327.00	
Packer	5.00			4332.00	20.00 Bottom Of Top Packer
Packer	4.00			4336.00	
Stubb	1.00			4337.00	
Recorder	0.00	8355	Outside	4337.00	
Recorder	0.00	8674	Inside	4337.00	
Perforations	5.00			4342.00	
Change Over Sub	1.00			4343.00	
Drill Pipe	31.00			4374.00	
Change Over Sub	1.00			4375.00	
Bullnose	5.00			4380.00	44.00 Bottom Packers & Anchor

**Total Tool Length: 64.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

FIML Natural Resources LLC

**33-18s-31w Scott,KS**

410 17th St. 900  
Denver CO. 80202

**Pfenninger02-33-1831**

Job Ticket: 50230

**DST#: 3**

ATTN: Gary Doke/ Jim Musgr

Test Start: 2013.12.30 @ 08:28:00

## Mud and Cushion Information

Mud Type: Gel Chem  
Mud Weight: 9.00 lb/gal  
Viscosity: 46.00 sec/qt  
Water Loss: 7.97 in<sup>3</sup>  
Resistivity: ohm.m  
Salinity: 2400.00 ppm  
Filter Cake: 1.00 inches

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

Oil API: 33 deg API  
Water Salinity: ppm

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
93.00	OGCM 12%oil 14%g 74%m	0.457
60.00	GOCM 9%g 36%oil 55%m	0.295
93.00	GO 3%g 97%oil	0.457
0.00	314' of GIP	0.000

Total Length: 246.00 ft      Total Volume: 1.209 bbl

Num Fluid Samples: 0

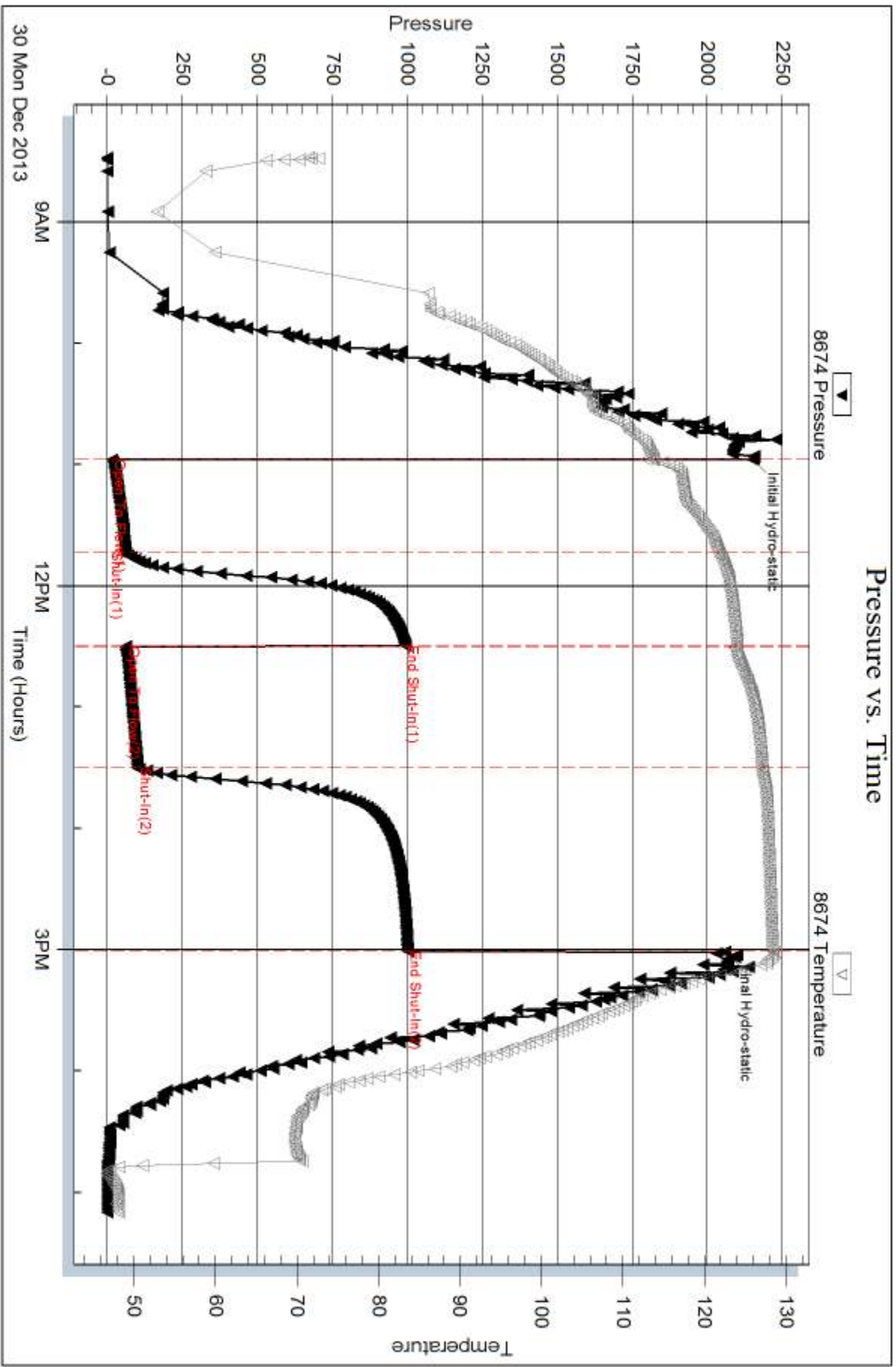
Num Gas Bombs: 0

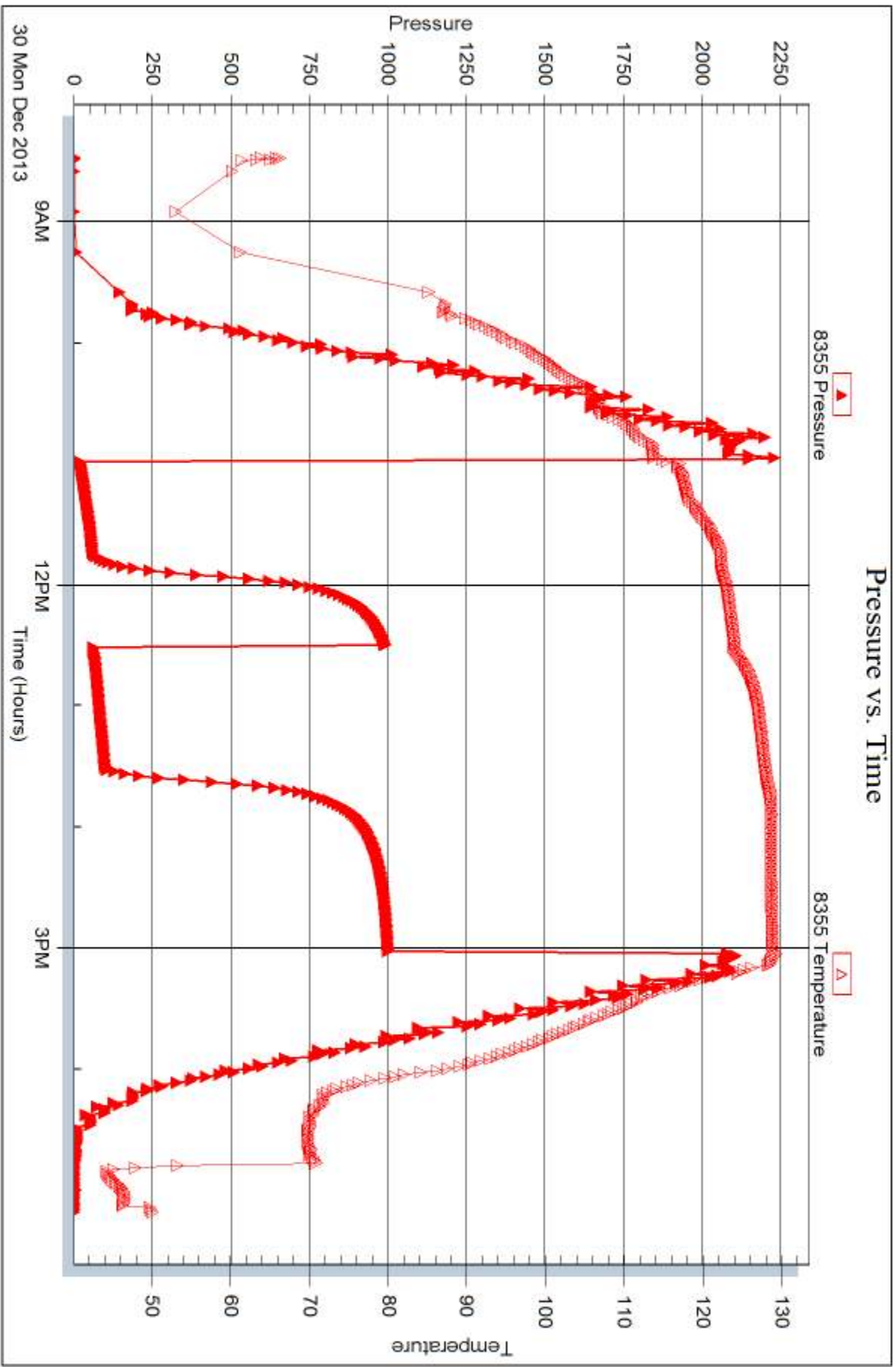
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: API is 32 @ 50f = 33







## DRILL STEM TEST REPORT

Prepared For: **FIML Natural Resources LLC**

410 17th St. 900  
Denver CO. 80202

ATTN: Gary Doke/ Jim Musgr

**Pfenninger02-33-1831**

**33-18s-31w Scott,KS**

Start Date: 2013.12.31 @ 17:24:00

End Date: 2014.01.01 @ 01:41:24

Job Ticket #: 50231                      DST #: 4

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

Printed: 2014.01.03 @ 08:55:42



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

FIML Natural Resources LLC

**33-18s-31w Scott, KS**

410 17th St. 900  
Denver CO. 80202

**Pfenninger02-33-1831**

ATTN: Gary Doke/ Jim Musgr

Job Ticket: 50231

**DST#: 4**

Test Start: 2013.12.31 @ 17:24:00

## GENERAL INFORMATION:

Formation: **Spergen**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 19:36:40

Time Test Ended: 01:41:24

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 58

**Interval: 4570.00 ft (KB) To 4596.00 ft (KB) (TVD)**

Reference Elevations: 2950.00 ft (KB)

Total Depth: 4596.00 ft (KB) (TVD)

2939.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 11.00 ft

**Serial #: 8674 Inside**

Press@RunDepth: 255.40 psig @ 4571.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.12.31

End Date:

2014.01.01

Last Calib.: 2014.01.01

Start Time: 17:24:00

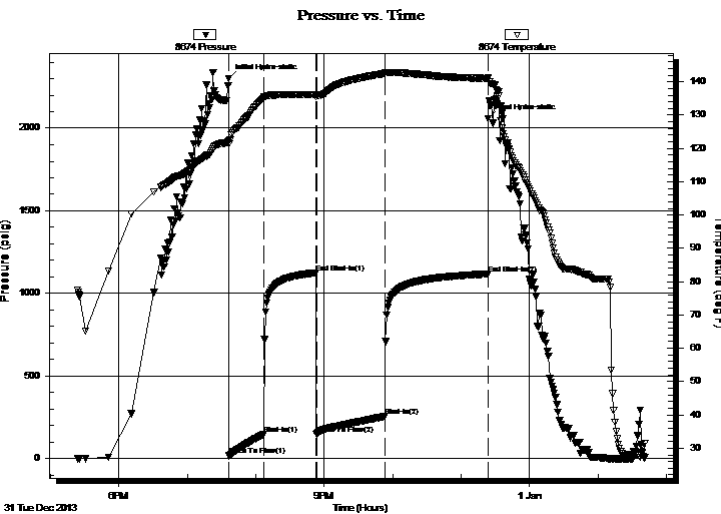
End Time:

01:41:24

Time On Btm: 2013.12.31 @ 19:36:25

Time Off Btm: 2013.12.31 @ 23:23:39

**TEST COMMENT:** IF- Weak Surface Blow Built to 7 3/4"  
IS- No Blow  
FF- Weak Surface Blow Built to 8 1/2"  
FS- No Blow



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2298.65	122.22	Initial Hydro-static
1	17.46	121.41	Open To Flow (1)
31	148.08	135.08	Shut-In(1)
77	1124.47	136.06	End Shut-In(1)
77	149.32	135.46	Open To Flow (2)
137	255.40	142.48	Shut-In(2)
227	1117.57	141.01	End Shut-In(2)
228	2055.68	141.10	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
93.00	GMCW 3%g 24%m 73%w	0.46
279.00	GMCW 3%g 17%m 80%w	1.38
94.00	MCW 29%m 71%w	1.32
85.00	WCM 18%w 82%m	1.19

\* Recovery from multiple tests

## Gas Rates

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







**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

FIML Natural Resources LLC

**33-18s-31w Scott,KS**

410 17th St. 900  
Denver CO. 80202

**Pfenninger02-33-1831**

Job Ticket: 50231

**DST#: 4**

ATTN: Gary Doke/ Jim Musgr

Test Start: 2013.12.31 @ 17:24:00

## Tool Information

Drill Pipe:	Length: 4207.00 ft	Diameter: 3.80 inches	Volume: 59.01 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 32000.00 lb
Drill Collar:	Length: 371.00 ft	Diameter: 2.25 inches	Volume: 1.82 bbl	Weight to Pull Loose: 14000.00 lb
			<u>Total Volume: 60.83 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	28.00 ft			String Weight: Initial 72000.00 lb
Depth to Top Packer:	4570.00 ft			Final 72000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	26.00 ft			
Tool Length:	46.00 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			4551.00	
Shut In Tool	5.00			4556.00	
Hydraulic tool	5.00			4561.00	
Packer	5.00			4566.00	20.00 Bottom Of Top Packer
Packer	4.00			4570.00	
Stubb	1.00			4571.00	
Recorder	0.00	8355	Outside	4571.00	
Recorder	0.00	8674	Inside	4571.00	
Perforations	20.00			4591.00	
Bullnose	5.00			4596.00	26.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>46.00</b>				



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

FIML Natural Resources LLC

**33-18s-31w Scott,KS**

410 17th St. 900  
Denver CO. 80202

**Pfenninger02-33-1831**

Job Ticket: 50231

**DST#: 4**

ATTN: Gary Doke/ Jim Musgr

Test Start: 2013.12.31 @ 17:24:00

## 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:

50000 ppm

Viscosity: 52.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.38 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1200.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
93.00	GMCW 3%g 24%m 73%w	0.457
279.00	GMCW 3%g 17%m 80%w	1.381
94.00	MCW 29%m 71%w	1.319
85.00	WCM 18%w 82%m	1.192

Total Length: 551.00 ft      Total Volume: 4.349 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

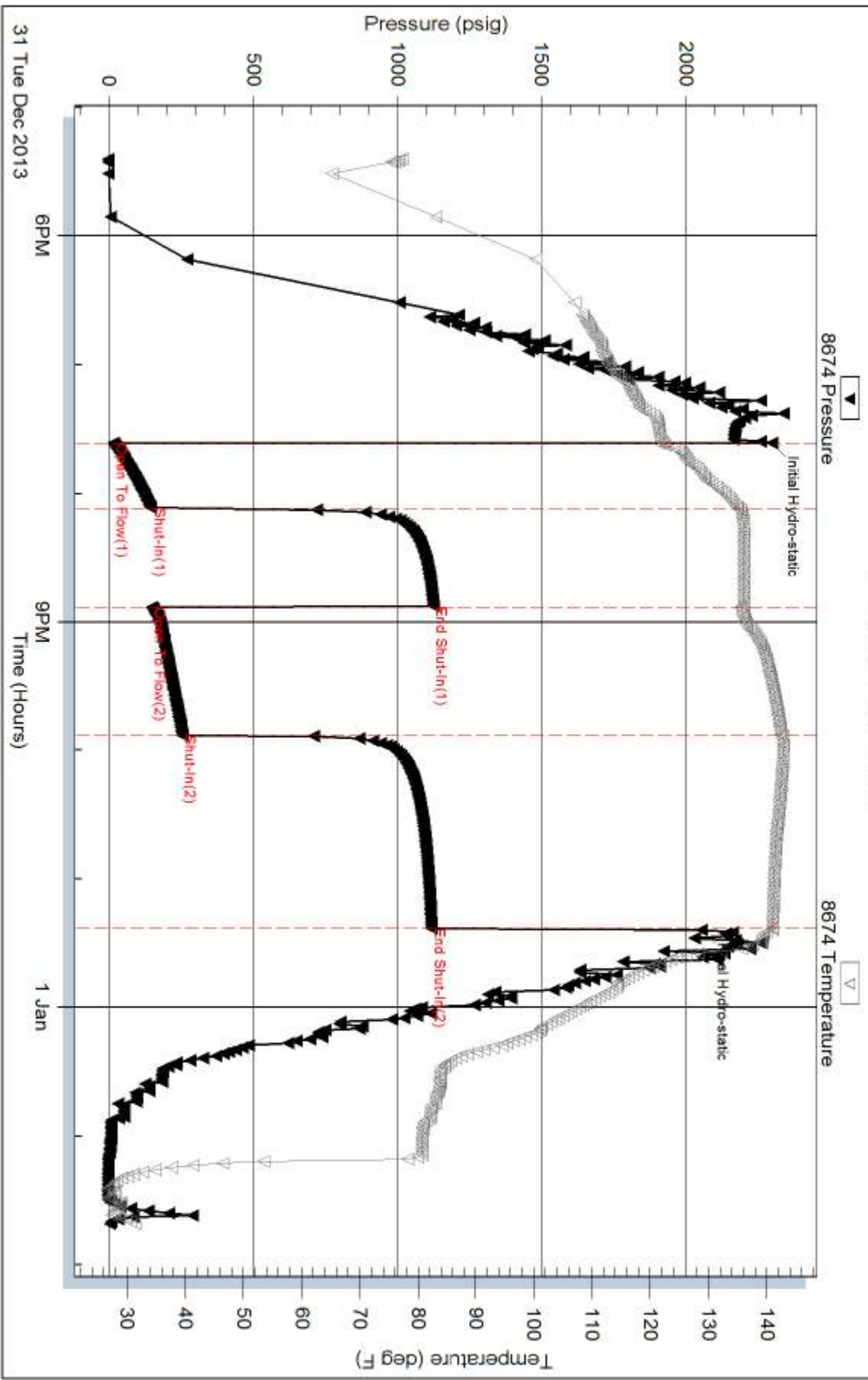
Serial #:

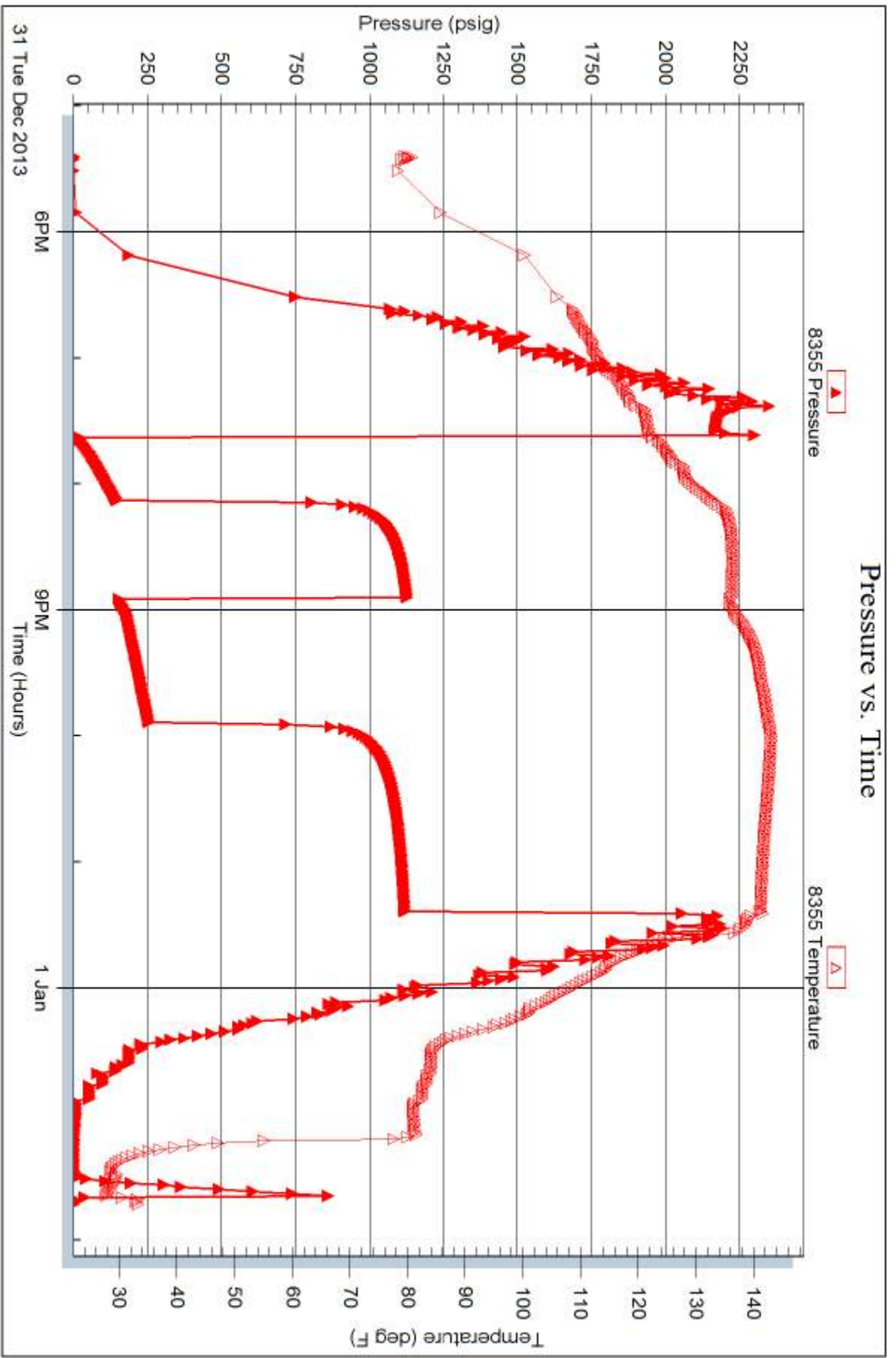
Laboratory Name:

Laboratory Location:

Recovery Comments: RW is .323 @ 31f = 50000

### Pressure vs. Time







# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 50228

Well Name & No. Pfenninger # 02-33-1831 Test No. DST #1 Date 12-28-13  
 Company FIML Natural Resources LLC Elevation 2950 KB 2939 GL  
 Address 410 17th St 900 Denver CO 80202  
 Co. Rep / Geo. Gary Duke / Jim Musgrove Rig H-2 Rig #1  
 Location: Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ Rge. \_\_\_\_\_ Co. Scott State KS

Interval Tested 4163-4192 Zone Tested LRL  
 Anchor Length 29 Drill Pipe Run 3796 Mud Wt. 8.8  
 Top Packer Depth 4159 Drill Collars Run 371 Vis 50  
 Bottom Packer Depth 4163 Wt. Pipe Run 0 WL 8.0  
 Total Depth 4192 Chlorides 2200 ppm System LCM 1016  
 Blow Description IF - Surface Blow Built to BOB in 6 1/2 min  
ISI - No Blow  
FF - Wear Surface Blow Built to BOB in 11 1/4 min

Rec	Feet of	H <sub>2</sub> S	%gas	%oil	%water	%mud
<u>288</u>	<u>G-WCM</u>	<u>11 ppm of H<sub>2</sub>S</u>	<u>4</u>	<u>44</u>	<u>52</u>	<u>52</u>
<u>188</u>	<u>GMCW</u>	<u>18 ppm of H<sub>2</sub>S</u>	<u>5</u>	<u>73</u>	<u>22</u>	<u>22</u>
<u>655</u>	<u>MCGW</u>	<u>48 ppm of H<sub>2</sub>S</u>	<u>8</u>	<u>85</u>	<u>7</u>	<u>7</u>
<u>93</u>	<u>G-WCM</u>		<u>6</u>	<u>40</u>	<u>54</u>	<u>54</u>
Rec _____	Feet of _____		%gas _____	%oil _____	%water _____	%mud _____

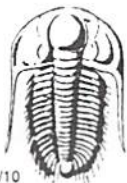
Rec Total 1174 BHT 135 Gravity \_\_\_\_\_ API RW .239 @ 50 °F Chlorides 41000 ppm

(A) Initial Hydrostatic <u>2035</u>	<input checked="" type="checkbox"/> Test <u>1250 12</u>	T-On Location <u>10:08</u>
(B) First Initial Flow <u>30</u>	<input type="checkbox"/> Jars _____	T-Started <u>11:16</u>
(C) First Final Flow <u>345</u>	<input type="checkbox"/> Safety Joint _____	T-Open <u>13:53</u>
(D) Initial Shut-In <u>633</u>	<input checked="" type="checkbox"/> Circ Sub <u>Dropped the Bar 50</u>	T-Pulled <u>16:42</u>
(E) Second Initial Flow <u>349</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>20:24</u>
(F) Second Final Flow <u>537</u>	<input checked="" type="checkbox"/> Mileage <u>20 R/T 31</u>	Comments _____
(G) Final Shut-In <u>637</u>	<input type="checkbox"/> Sampler _____	<input type="checkbox"/> Ruined Shale Packer _____
(H) Final Hydrostatic <u>1927</u>	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> Ruined Packer _____
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer _____	<input type="checkbox"/> Extra Copies _____
Initial Shut-In <u>30</u>	<input type="checkbox"/> Extra Packer _____	Sub Total <u>0</u>
Final Flow <u>45</u>	<input type="checkbox"/> Extra Recorder _____	Total <u>1481</u>
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby _____	MP/DST Disc't _____
	<input checked="" type="checkbox"/> Accessibility <u>150</u>	
	Sub Total <u>1481</u>	

Approved By \_\_\_\_\_

Our Representative Jim Musgrove

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. 50229

Well Name & No. Pfenninger # 02-33-1831 Test No. DST #2 Date 12-29-13  
 Company FIML Natural Resources LLC Elevation 2950 KB 2939 GL  
 Address 410 17th St. 900 Denver CO 80202  
 Co. Rep / Geo. Gary Dakke / Jim Musgrove Rig H-2 Ris #1  
 Location: Sec. 33 Twp. 18S Rge. 31W Co. Scott State KS

Interval Tested 4200-4304 Zone Tested LRC J-R & L  
 Anchor Length 104 Drill Pipe Run 3831 Mud Wt. 9.3  
 Top Packer Depth 4196 Drill Collars Run 371 Vis 48  
 Bottom Packer Depth 4200 Wt. Pipe Run 0 WL 8.0  
 Total Depth 4304 Chlorides 2000 ppm System LCM 616

Blow Description IF-Weak Surface Blow Built to 7 1/2"  
ISI-No Blow  
FF-Weak Surface Blow Built to 124  
FSL-No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>57</u>	<u>WCM with oil spots</u>			<u>10</u>	<u>90</u>
<u>187</u>	<u>OWCM</u>		<u>1</u>	<u>16</u>	<u>83</u>
<u>93</u>	<u>WCM with SKM of 0.1</u>			<u>19</u>	<u>81</u>
<u>186</u>	<u>WCM with oil spots</u>			<u>28</u>	<u>72</u>
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 523 BHT 128 Gravity \_\_\_\_\_ API RW 283 @ 45 ° F Chlorides 44000 ppm

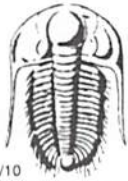
(A) Initial Hydrostatic <u>2100</u>	<input checked="" type="checkbox"/> Test <u>1250</u>	T-On Location <u>12:12</u>
(B) First Initial Flow <u>21</u>	<input type="checkbox"/> Jars _____	T-Started <u>12:34</u>
(C) First Final Flow <u>175</u>	<input type="checkbox"/> Safety Joint _____	T-Open <u>15:28</u>
(D) Initial Shut-In <u>532</u>	<input checked="" type="checkbox"/> Circ Sub <u>N/C</u>	T-Pulled <u>18:19</u>
(E) Second Initial Flow <u>179</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>20:42</u>
(F) Second Final Flow <u>237</u>	<input checked="" type="checkbox"/> Mileage <u>20 RIT x 2</u> 62	Comments _____
(G) Final Shut-In <u>525</u>	<input type="checkbox"/> Sampler _____	
(H) Final Hydrostatic <u>2003</u>	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> Ruined Shale Packer _____
	<input type="checkbox"/> Shale Packer _____	<input type="checkbox"/> Ruined Packer _____

Initial Open 30  Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Initial Shut-In 30  Extra Recorder \_\_\_\_\_ Sub Total 0  
 Final Flow 45  Day Standby \_\_\_\_\_ Total 1462  
 Final Shut-In 60  Accessibility 150 MP/DST Disc't \_\_\_\_\_  
 Sub Total 1462

Approved By \_\_\_\_\_

Our Representative Jim M

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 50230

4/10

Well Name & No. Pfenninger # 02-33-1831 Test No. DST # 3 Date 12-30-13  
 Company FJML Natural Resources LLC Elevation 2950 KB 2939 GL  
 Address 410 17th St. 900 Denver CO. 80202  
 Co. Rep / Geo. Gary Duke / Jim Musgrove Rig H-2 Rgs #1  
 Location: Sec. 33 Twp. 18s Rge. 31W Co. Scott State KS

Interval Tested 4336-4380 Zone Tested Marmanto A-B  
 Anchor Length 44 Drill Pipe Run 3957 Mud Wt. 9.4  
 Top Packer Depth 4332 Drill Collars Run 371 Vis 46  
 Bottom Packer Depth 4336 Wt. Pipe Run 0 WL 8.0  
 Total Depth 4380 Chlorides 2400 ppm System LCM 616

Blow Description IF- Wear Surface Blow Built to 5 3/4"  
ISI- No Blow  
FF- Wear Surface Blow Built to BOB in 56 min  
FSI- No Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>93</u>	<u>GO</u>	<u>3</u>	<u>97</u>		
<u>60</u>	<u>GO CM</u>	<u>9</u>	<u>36</u>		<u>55</u>
<u>93</u>	<u>OO CM</u>	<u>14</u>	<u>12</u>		<u>74</u>
Rec	Feet of <u>319' of G-IP</u>	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 246 BHT 128 Gravity 33 API RW @ \_\_\_\_\_ ° F Chlorides \_\_\_\_\_ ppm

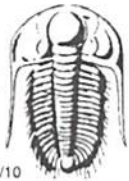
(A) Initial Hydrostatic 2149  Test 1250 T-On Location 7:56  
 (B) First Initial Flow 15  Jars \_\_\_\_\_ T-Started 8:28  
 (C) First Final Flow 59  Safety Joint \_\_\_\_\_ T-Open 10:57  
 (D) Initial Shut-In 991  Circ Sub NIC T-Pulled 15:01  
 (E) Second Initial Flow 61  Hourly Standby \_\_\_\_\_ T-Out 17:09  
 (F) Second Final Flow 100  Mileage 20 R/T 31 Comments \_\_\_\_\_  
 (G) Final Shut-In 999  Sampler \_\_\_\_\_ API is 32 @ 50T = 33  
 (H) Final Hydrostatic 2058  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_

Initial Open 45  
 Initial Shut-In 45  
 Final Flow 60  
 Final Shut-In 90

Sub Total 1431 MP/DST Disc't \_\_\_\_\_

Approved By [Signature] Our Representative [Signature]

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 50231

Well Name & No. Pfenninger #02-33-1831 Test No. DSI #4 Date 12-31-13  
 Company FIML Natural Resources LLC Elevation 2950 KB 2939 GL  
 Address 410 17th St. 900 Denver CO. 80202  
 Co. Rep / Geo. Gary Dalke / Jim Musgrove Rig H-2 Rig #1  
 Location: Sec. 33 Twp. 18s Rge. 31w Co. Scott State KS

Interval Tested 4570-4596 Zone Tested Spergen  
 Anchor Length 26 Drill Pipe Run 4207 Mud Wt. 9.2  
 Top Packer Depth 4566 Drill Collars Run 371 Vis 52  
 Bottom Packer Depth 4570 Wt. Pipe Run 0 WL 6.4  
 Total Depth 4596 Chlorides 1200 ppm System LCM 616  
 Blow Description IF-Weak Surface Blow Built to 7 3/4  
ISI- No Blow  
FF-Weak Surface Blow Built to 8 1/2"  
FSI- No Blow

Rec	Feet of	%gas	%oil	%water	%mud
85	WCM		18		82
94	MCW		71		29
279	G-MCW	3	80		17
93	G-MCW	3	73		24

Rec Total 551 BHT 142 Gravity \_\_\_\_\_ API RW 323 @ 31 °F Chlorides 50 000 ppm  
 (A) Initial Hydrostatic 2298  Test 1250 T-On Location 17:08  
 (B) First Initial Flow 17  Jars \_\_\_\_\_ T-Started 17:24  
 (C) First Final Flow 148  Safety Joint \_\_\_\_\_ T-Open 19:36  
 (D) Initial Shut-In 1124  Circ Sub NIC T-Pulled 23:23  
 (E) Second Initial Flow 149  Hourly Standby \_\_\_\_\_ T-Out 1:41  
 (F) Second Final Flow 255  Mileage 20RIT 31 Comments \_\_\_\_\_  
 (G) Final Shut-In 1117  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2055  Straddle \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility 150  
 Ruined Shale Packer \_\_\_\_\_  
 Ruined Packer \_\_\_\_\_  
 Extra Copies \_\_\_\_\_  
 Initial Open 30  
 Initial Shut-In 45  
 Final Flow 60  
 Final Shut-In 90  
 Sub Total 0  
 Total 1431  
 MP/DST Disc't \_\_\_\_\_  
 Sub Total 1431

Approved By [Signature] Our Representative [Signature]

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