



## DRILL STEM TEST REPORT

Prepared For: **Cobalt Energy LLC**

PO Box 8037  
Wichita KS 67208

ATTN: Larry Nicholson

### **Caroline A #1-19**

#### **19-6s-25w Graham,KS**

Start Date: 2016.12.30 @ 19:35:54

End Date: 2016.12.31 @ 04:48:57

Job Ticket #: 64080                      DST #: 1

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

Printed: 2017.01.02 @ 10:20:25

Cobalt Energy LLC  
19-6s-25w Graham,KS  
Caroline A #1-19  
DST # 1  
LKC "B"  
2016.12.30



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Cobalt Energy LLC

**19-6s-25w Graham,KS**

PO Box 8037  
Wichita KS 67208

**Caroline A #1-19**

Job Ticket: 64080

**DST#: 1**

ATTN: Larry Nicholson

Test Start: 2016.12.30 @ 19:35:54

## GENERAL INFORMATION:

Formation: **LKC "B"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 22:06:27

Time Test Ended: 04:48:57

Test Type: Conventional Bottom Hole (Initial)

Tester: Ray Schwager

Unit No: 77

**Interval: 3708.00 ft (KB) To 3737.00 ft (KB) (TVD)**

Reference Elevations: 2617.00 ft (KB)

Total Depth: 3737.00 ft (KB) (TVD)

2612.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

**Serial #: 8018**

**Inside**

Press@RunDepth: 169.72 psig @ 3714.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.12.30

End Date:

2016.12.31

Last Calib.:

2016.12.31

Start Time:

19:35:54

End Time:

04:48:56

Time On Btm:

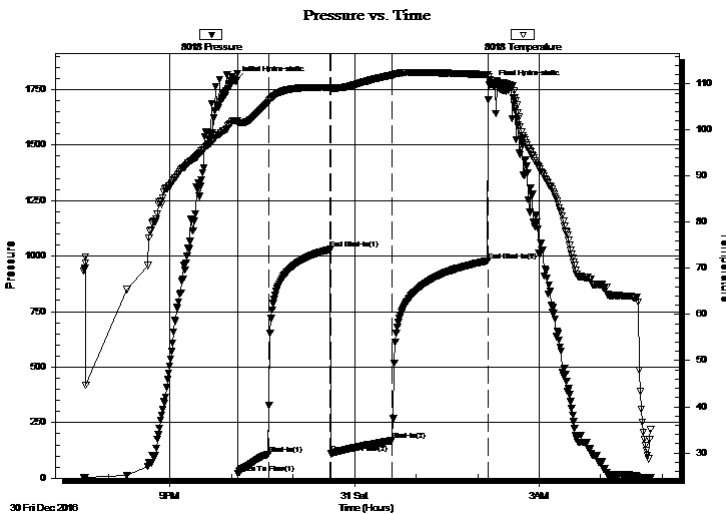
2016.12.30 @ 22:04:27

Time Off Btm:

2016.12.31 @ 02:13:56

**TEST COMMENT:** 30-IFP-w k to a fr bl 1/2" to 5 1/2" bl  
60-ISIP-no bl  
60-FFP-w k bl thru-out 1/4" to 3" bl  
90-FSIP-no bl

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1788.02	102.08	Initial Hydro-static
2	21.94	101.50	Open To Flow (1)
32	106.70	106.02	Shut-In(1)
92	1029.91	109.23	End Shut-In(1)
93	110.23	108.62	Open To Flow (2)
153	169.72	111.89	Shut-In(2)
246	978.41	112.02	End Shut-In(2)
250	1771.55	109.85	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
240.00	Water	1.73
90.00	MW 20%M80%W	1.26
1.00	CO	0.01

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Cobalt Energy LLC

**19-6s-25w Graham,KS**

PO Box 8037  
Wichita KS 67208

**Caroline A #1-19**

Job Ticket: 64080

**DST#: 1**

ATTN: Larry Nicholson

Test Start: 2016.12.30 @ 19:35:54

## GENERAL INFORMATION:

Formation: **LKC "B"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 22:06:27

Time Test Ended: 04:48:57

Test Type: Conventional Bottom Hole (Initial)

Tester: Ray Schwager

Unit No: 77

**Interval: 3708.00 ft (KB) To 3737.00 ft (KB) (TVD)**

Reference Elevations: 2617.00 ft (KB)

Total Depth: 3737.00 ft (KB) (TVD)

2612.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

**Serial #: 8700 Outside**

Press@RunDepth: psig @ 3714.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.12.30

End Date:

2016.12.31

Last Calib.:

2016.12.31

Start Time:

19:35:57

End Time:

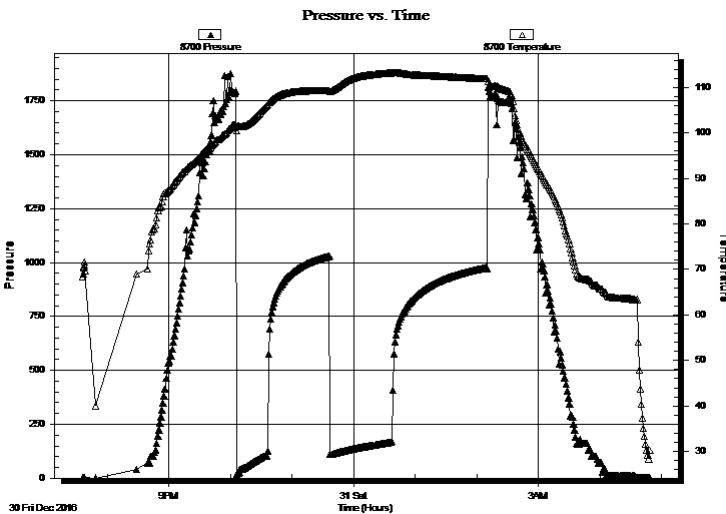
04:48:59

Time On Btm:

Time Off Btm:

**TEST COMMENT:** 30-IFP-w k to a fr bl 1/2" to 5 1/2" bl  
60-ISIP-no bl  
60-FFP-w k bl thru-out 1/4" to 3" bl  
90-FSIP-no bl

## PRESSURE SUMMARY



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

## Recovery

Length (ft)	Description	Volume (bbl)
240.00	Water	1.73
90.00	MW 20%M80%W	1.26
1.00	CO	0.01

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Cobalt Energy LLC

**19-6s-25w Graham,KS**

PO Box 8037  
Wichita KS 67208

**Caroline A #1-19**

Job Ticket: 64080

**DST#: 1**

ATTN: Larry Nicholson

Test Start: 2016.12.30 @ 19:35:54

## Tool Information

Drill Pipe:	Length: 3523.00 ft	Diameter: 3.80 inches	Volume: 49.42 bbl	Tool Weight: 2200.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 180.00 ft	Diameter: 2.25 inches	Volume: 0.89 bbl	Weight to Pull Loose: 65000.00 lb
			<u>Total Volume: 50.31 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	16.00 ft			String Weight: Initial 52000.00 lb
Depth to Top Packer:	3708.00 ft			Final 58000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	29.00 ft			
Tool Length:	50.00 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			3688.00	
Shut In Tool	5.00			3693.00	
Hydraulic tool	5.00			3698.00	
Packer	5.00			3703.00	21.00 Bottom Of Top Packer
Packer	5.00			3708.00	
Stubb	1.00			3709.00	
Perforations	5.00			3714.00	
Recorder	0.00	8018	Inside	3714.00	
Recorder	0.00	8700	Outside	3714.00	
Perforations	20.00			3734.00	
Bullnose	3.00			3737.00	29.00 Bottom Packers & Anchor

**Total Tool Length: 50.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Cobalt Energy LLC

**19-6s-25w Graham,KS**

PO Box 8037  
Wichita KS 67208

**Caroline A #1-19**

Job Ticket: 64080

**DST#: 1**

ATTN: Larry Nicholson

Test Start: 2016.12.30 @ 19:35:54

### 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:

57000 ppm

Viscosity: 60.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.73 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 900.00 ppm

Filter Cake: 1.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
240.00	Water	1.727
90.00	MW 20%M80%W	1.262
1.00	CO	0.014

Total Length: 331.00 ft      Total Volume: 3.003 bbl

Num Fluid Samples: 0

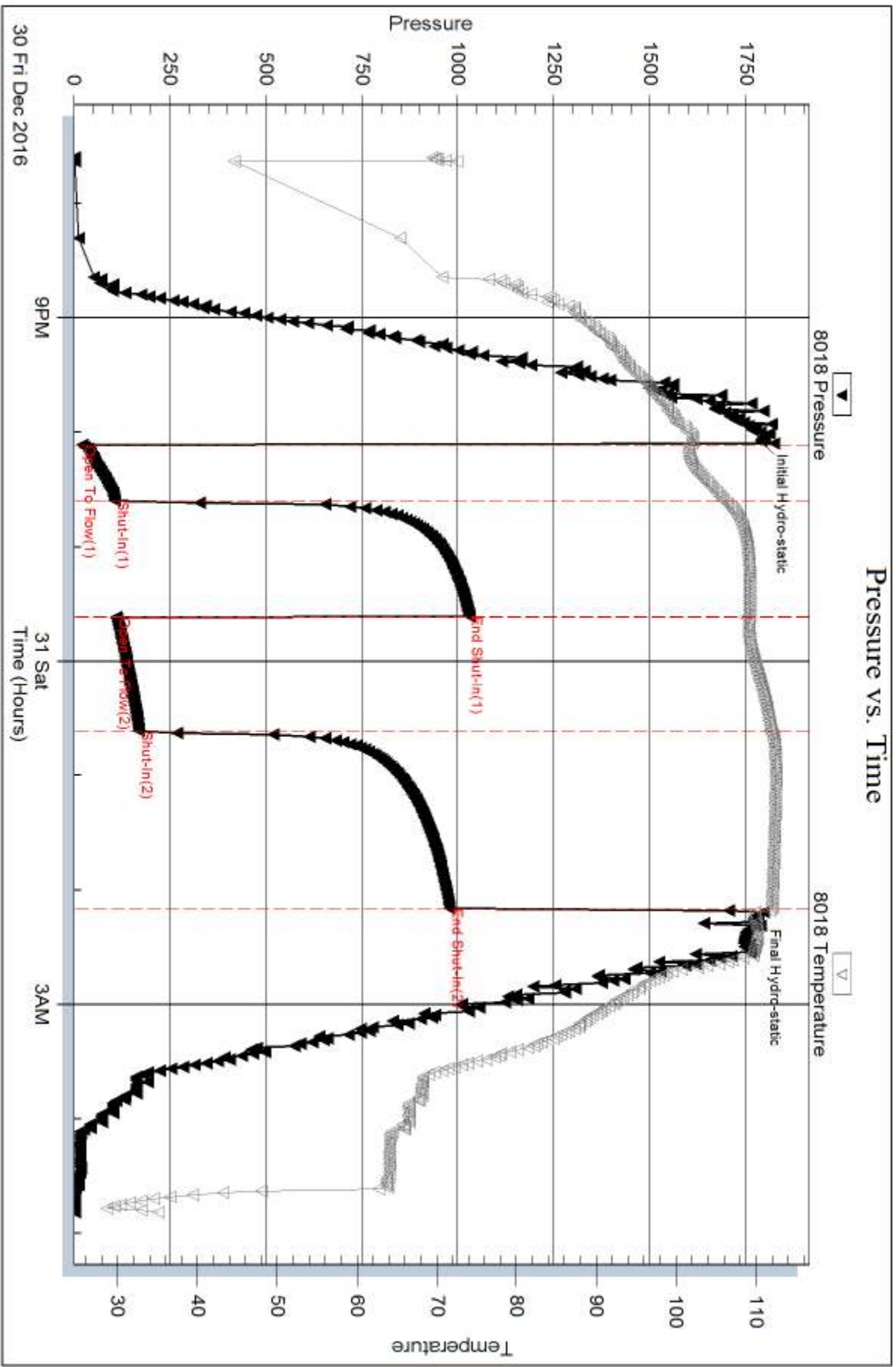
Num Gas Bombs: 0

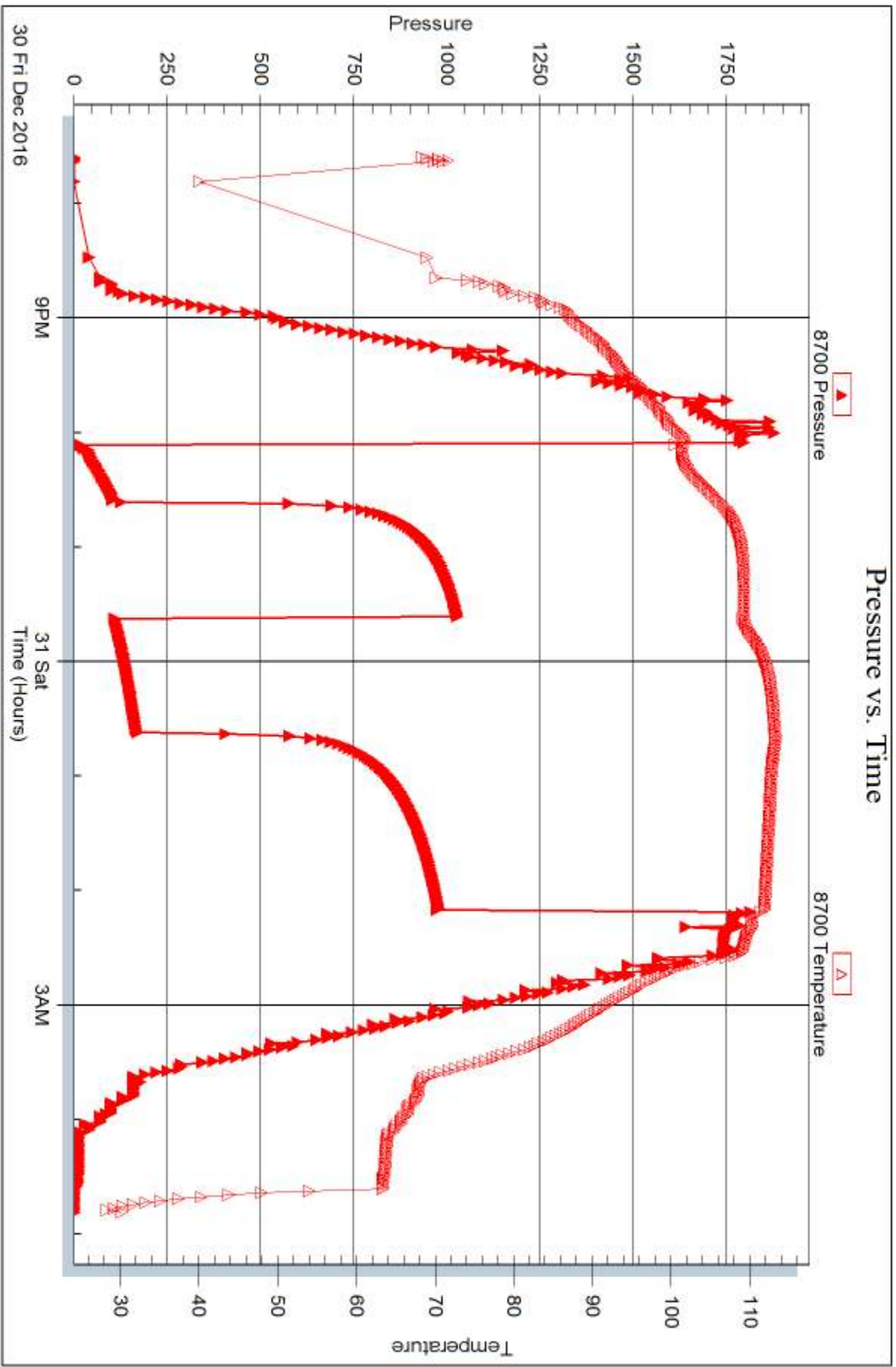
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW .14@65F







## DRILL STEM TEST REPORT

Prepared For: **Cobalt Energy LLC**

PO Box 8037  
Wichita KS 67208

ATTN: Larry Nicholson

### **Caroline A #1-19**

#### **19-6s-25w Graham,KS**

Start Date: 2016.12.31 @ 13:55:20

End Date: 2016.12.31 @ 21:20:14

Job Ticket #: 64081                      DST #: 2

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

Printed: 2017.01.02 @ 10:20:05





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Cobalt Energy LLC

**19-6s-25w Graham,KS**

PO Box 8037  
Wichita KS 67208

**Caroline A #1-19**

Job Ticket: 64081

**DST#: 2**

ATTN: Larry Nicholson

Test Start: 2016.12.31 @ 13:55:20

## GENERAL INFORMATION:

Formation: **LKC "C-G"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 16:10:00

Time Test Ended: 21:20:14

Test Type: Conventional Bottom Hole (Reset)

Tester: Ray Schwager

Unit No: 77

**Interval: 3733.00 ft (KB) To 3782.00 ft (KB) (TVD)**

Reference Elevations: 2617.00 ft (KB)

Total Depth: 3782.00 ft (KB) (TVD)

2612.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

## Serial #: 8018

Inside

Press@RunDepth: 44.34 psig @ 3746.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.12.31

End Date:

2016.12.31

Last Calib.: 2016.12.31

Start Time: 13:55:20

End Time:

21:20:14

Time On Btm: 2016.12.31 @ 16:08:00

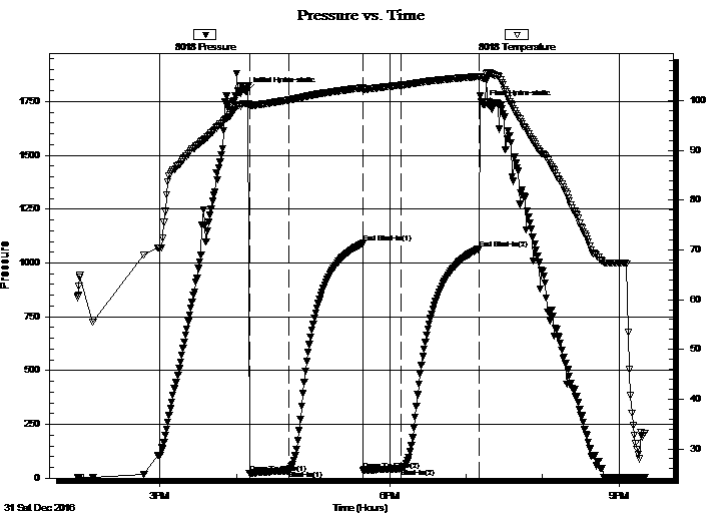
Time Off Btm: 2016.12.31 @ 19:13:29

TEST COMMENT: 30-IFP-w k bl thru-out 1/2" bl

60-ISIP-no bl

30-FFP-no bl

60-FSIP-no bl



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1796.70	99.40	Initial Hydro-static
2	22.38	99.00	Open To Flow (1)
33	34.84	100.15	Shut-In(1)
92	1091.19	102.59	End Shut-In(1)
92	37.71	102.12	Open To Flow (2)
121	44.34	103.11	Shut-In(2)
183	1065.81	104.86	End Shut-In(2)
186	1736.66	104.56	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
30.00	SOCM 1%O99%M	0.15

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Cobalt Energy LLC

**19-6s-25w Graham,KS**

PO Box 8037  
Wichita KS 67208

**Caroline A #1-19**

Job Ticket: 64081

**DST#: 2**

ATTN: Larry Nicholson

Test Start: 2016.12.31 @ 13:55:20

### GENERAL INFORMATION:

Formation: **LKC "C-G"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 16:10:00

Time Test Ended: 21:20:14

Test Type: Conventional Bottom Hole (Reset)

Tester: Ray Schwager

Unit No: 77

**Interval: 3733.00 ft (KB) To 3782.00 ft (KB) (TVD)**

Reference Elevations: 2617.00 ft (KB)

Total Depth: 3782.00 ft (KB) (TVD)

2612.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

**Serial #: 8700 Outside**

Press@RunDepth: psig @ 3746.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.12.31

End Date:

2016.12.31

Last Calib.:

2016.12.31

Start Time: 13:55:41

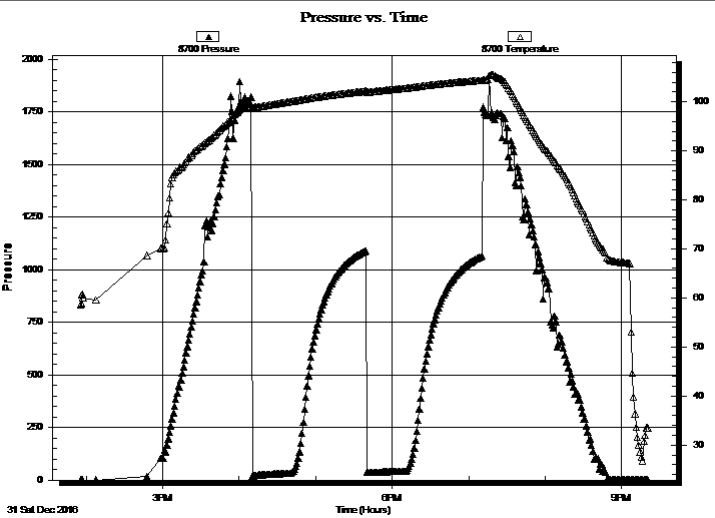
End Time:

21:20:20

Time On Btm:

Time Off Btm:

**TEST COMMENT:** 30-IFP-w k bl thru-out 1/2" bl  
60-ISIP-no bl  
30-FFP-no bl  
60-FSIP-no bl



### PRESSURE SUMMARY

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

### Recovery

Length (ft)	Description	Volume (bbl)
30.00	SOCM 1% O99%M	0.15

\* Recovery from multiple tests

### Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Cobalt Energy LLC

**19-6s-25w Graham,KS**

PO Box 8037  
Wichita KS 67208

**Caroline A #1-19**

Job Ticket: 64081

**DST#: 2**

ATTN: Larry Nicholson

Test Start: 2016.12.31 @ 13:55:20

## Tool Information

Drill Pipe:	Length: 3555.00 ft	Diameter: 3.80 inches	Volume: 49.87 bbl	Tool Weight: 2200.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 180.00 ft	Diameter: 2.25 inches	Volume: 0.89 bbl	Weight to Pull Loose: 65000.00 lb
			<u>Total Volume: 50.76 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	23.00 ft			String Weight: Initial 53000.00 lb
Depth to Top Packer:	3733.00 ft			Final 53000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	49.00 ft			
Tool Length:	70.00 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			3713.00	
Shut In Tool	5.00			3718.00	
Hydraulic tool	5.00			3723.00	
Packer	5.00			3728.00	21.00 Bottom Of Top Packer
Packer	5.00			3733.00	
Stubb	1.00			3734.00	
Perforations	12.00			3746.00	
Recorder	0.00	8018	Inside	3746.00	
Recorder	0.00	8700	Outside	3746.00	
Blank Spacing	33.00			3779.00	
Bullnose	3.00			3782.00	49.00 Bottom Packers & Anchor

**Total Tool Length: 70.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Cobalt Energy LLC

**19-6s-25w Graham,KS**

PO Box 8037  
Wichita KS 67208

**Caroline A #1-19**

Job Ticket: 64081

**DST#: 2**

ATTN: Larry Nicholson

Test Start: 2016.12.31 @ 13:55:20

## 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: 58.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.76 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1900.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
30.00	SOCM 1%O99%M	0.148

Total Length: 30.00 ft      Total Volume: 0.148 bbl

Num Fluid Samples: 0

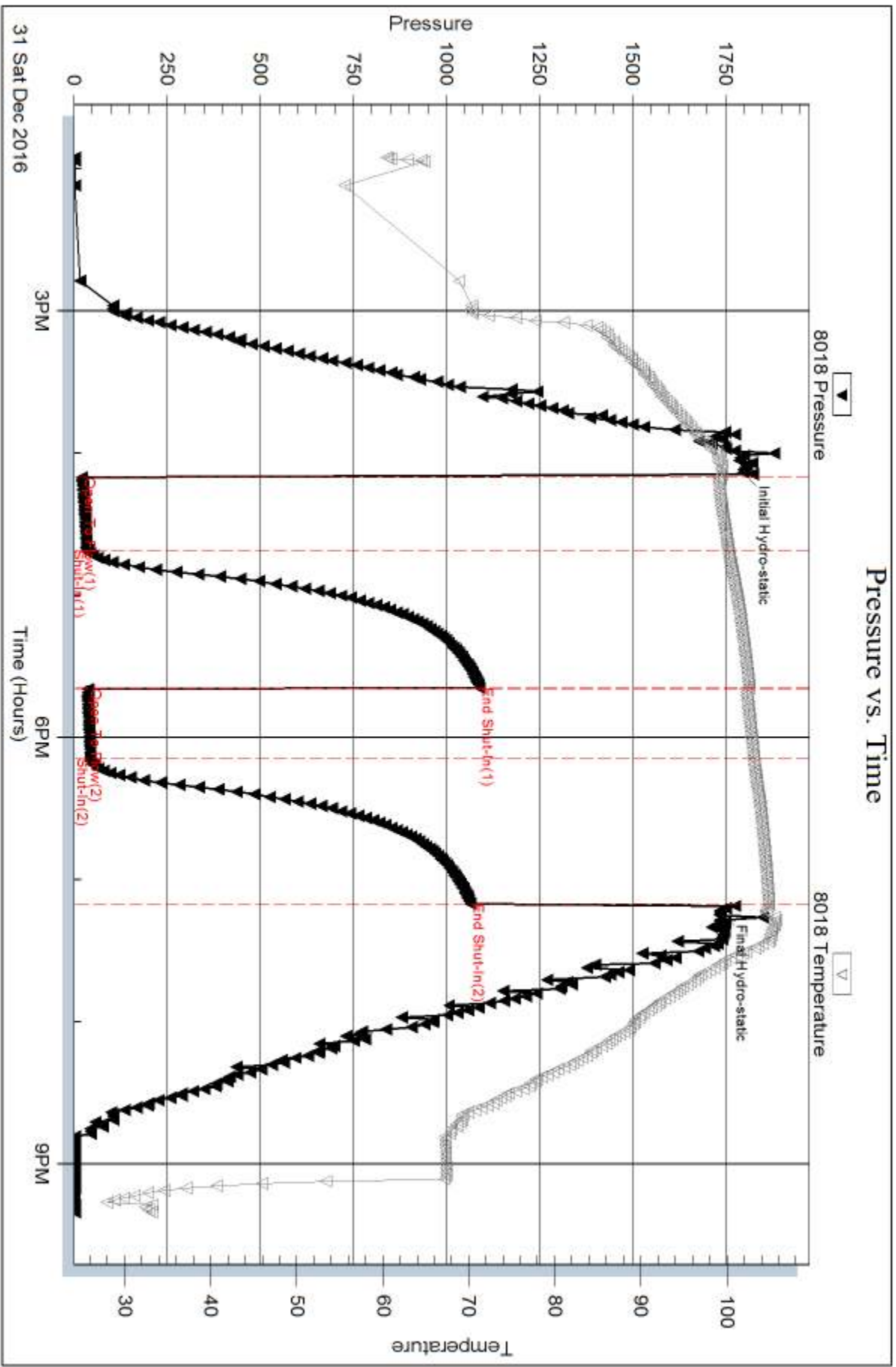
Num Gas Bombs: 0

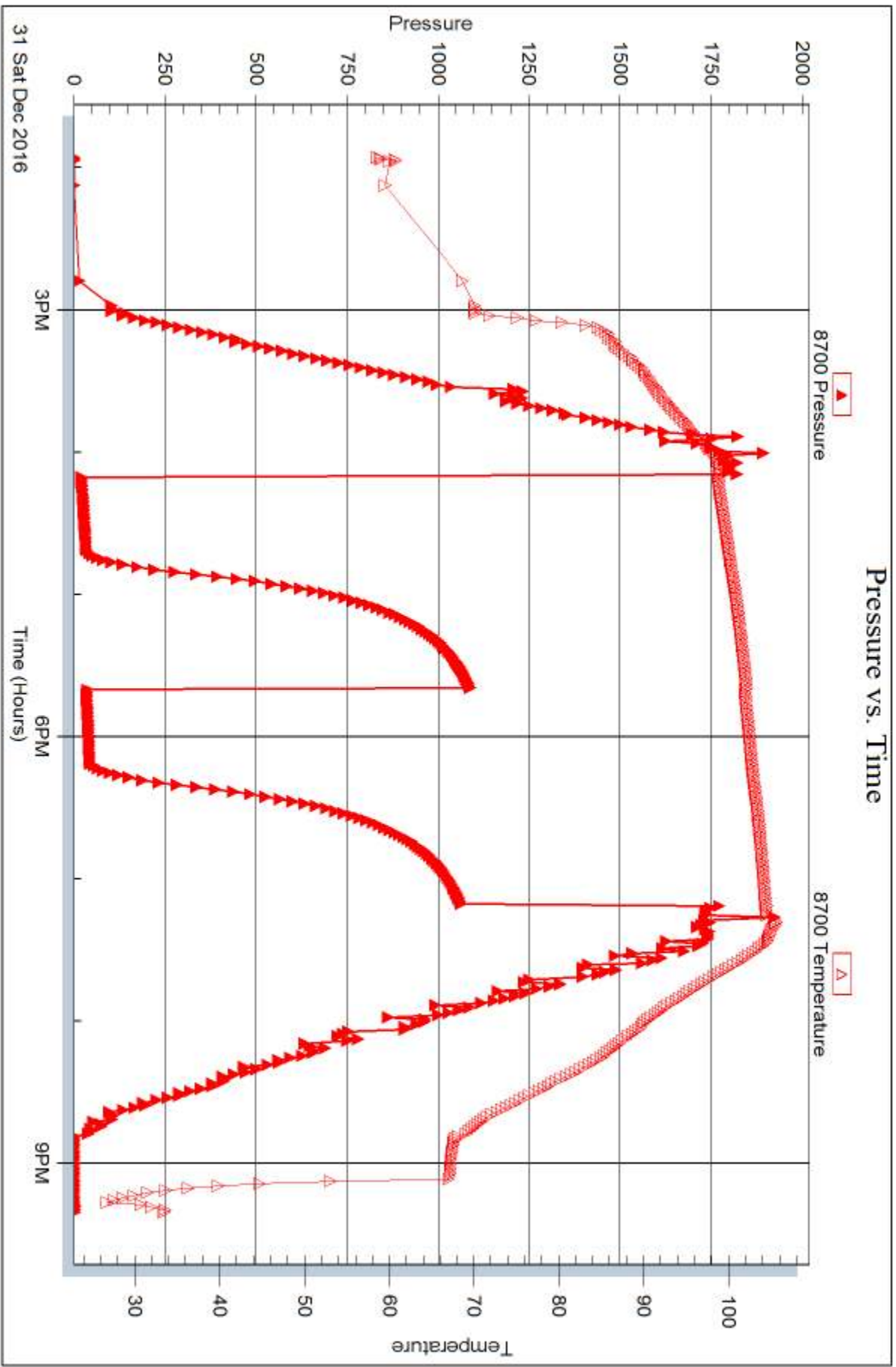
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







## DRILL STEM TEST REPORT

Prepared For: **Cobalt Energy LLC**

PO Box 8037  
Wichita KS 67208

ATTN: Larry Nicholson

### **Caroline A #1-19**

#### **19-6s-25w Graham,KS**

Start Date: 2017.01.01 @ 07:35:40

End Date: 2017.01.01 @ 17:05:20

Job Ticket #: 64082                      DST #: 3

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

Printed: 2017.01.02 @ 11:00:18



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Cobalt Energy LLC

**19-6s-25w Graham,KS**

PO Box 8037  
Wichita KS 67208

**Caroline A #1-19**

Job Ticket: 64082

**DST#: 3**

ATTN: Larry Nicholson

Test Start: 2017.01.01 @ 07:35:40

## GENERAL INFORMATION:

Formation: **LKC "J"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 09:45:05

Time Test Ended: 17:05:20

Test Type: Conventional Bottom Hole (Reset)

Tester: Ray Schwager

Unit No: 77

**Interval: 3825.00 ft (KB) To 3855.00 ft (KB) (TVD)**

Reference Elevations: 2617.00 ft (KB)

Total Depth: 3855.00 ft (KB) (TVD)

2612.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

**Serial #: 8018**

**Inside**

Press@RunDepth: 697.58 psig @ 3831.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2017.01.01

End Date:

2017.01.01

Last Calib.:

2017.01.01

Start Time: 07:35:40

End Time:

17:05:20

Time On Btm:

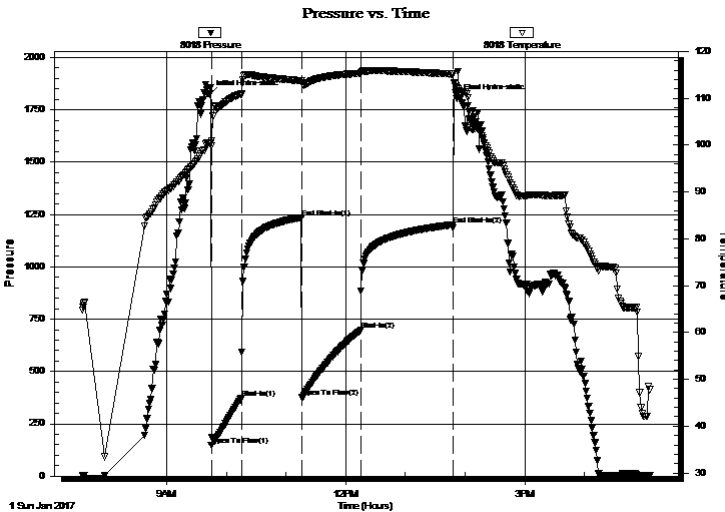
2017.01.01 @ 09:42:50

Time Off Btm:

2017.01.01 @ 13:51:34

**TEST COMMENT:** 30-IFP-BOB in 1min  
60-ISIP-BOB in 56 min  
60-FFP-BOB thru-out  
90-FSIP-6 " bl bk

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1824.58	100.41	Initial Hydro-static
3	148.90	99.80	Open To Flow (1)
33	372.83	110.89	Shut-In(1)
93	1235.67	113.73	End Shut-In(1)
94	378.44	113.30	Open To Flow (2)
153	697.58	115.32	Shut-In(2)
245	1199.53	115.15	End Shut-In(2)
249	1804.81	112.30	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
150.00	MGO 20%G20%M60%O	0.74
1740.00	CO	24.13
0.00	960' GIP	0.00

\* Recovery from multiple tests

## Gas Rates

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





# TRILOBITE TESTING, INC

## DRILL STEM TEST REPORT

Cobalt Energy LLC

19-6s-25w Graham,KS

PO Box 8037  
Wichita KS 67208

Caroline A #1-19

Job Ticket: 64082 **DST#: 3**

ATTN: Larry Nicholson

Test Start: 2017.01.01 @ 07:35:40

### GENERAL INFORMATION:

Formation: **LKC "J"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 09:45:05

Time Test Ended: 17:05:20

Interval: **3825.00 ft (KB) To 3855.00 ft (KB) (TVD)**

Total Depth: 3855.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Test Type: Conventional Bottom Hole (Reset)

Tester: Ray Schwager

Unit No: 77

Reference Elevations: 2617.00 ft (KB)

2612.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: **8700**

Outside

Press@RunDepth: psig @ 3831.00 ft (KB)

Start Date: 2017.01.01

End Date:

2017.01.01

Capacity: 8000.00 psig

Last Calib.:

2017.01.01

Start Time: 07:35:56

End Time:

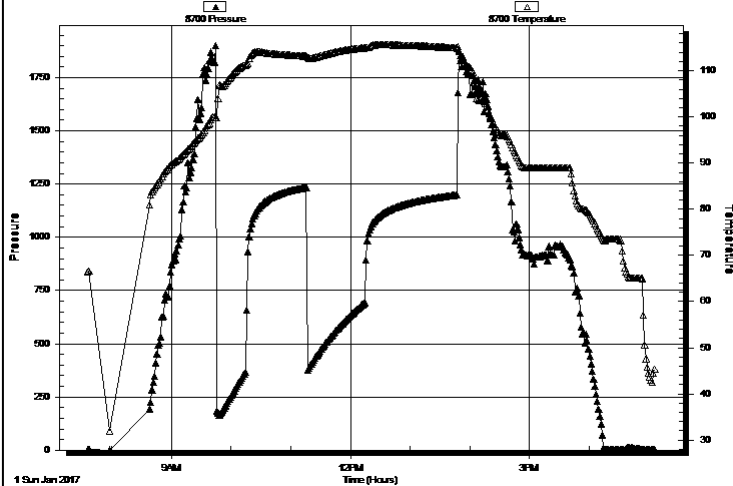
17:05:36

Time On Btm:

Time Off Btm:

TEST COMMENT: 30-IFP-BOB in 1min  
60-ISIP-BOB in 56 min  
60-FFP-BOB thru-out  
90-FSIP-6 " bl bk

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
150.00	MGO 20%G20%M60%O	0.74
1740.00	CO	24.13
0.00	960' 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**

Cobalt Energy LLC

**19-6s-25w Graham,KS**

PO Box 8037  
Wichita KS 67208

**Caroline A #1-19**

Job Ticket: 64082

**DST#: 3**

ATTN: Larry Nicholson

Test Start: 2017.01.01 @ 07:35:40

## Tool Information

Drill Pipe:	Length: 3650.00 ft	Diameter: 3.80 inches	Volume: 51.20 bbl	Tool Weight: 2200.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 180.00 ft	Diameter: 2.25 inches	Volume: 0.89 bbl	Weight to Pull Loose: 65000.00 lb
			<u>Total Volume: 52.09 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	26.00 ft			String Weight: Initial 54000.00 lb
Depth to Top Packer:	3825.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	30.00 ft			
Tool Length:	51.00 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			3805.00	
Shut In Tool	5.00			3810.00	
Hydraulic tool	5.00			3815.00	
Packer	5.00			3820.00	21.00 Bottom Of Top Packer
Packer	5.00			3825.00	
Stubb	1.00			3826.00	
Perforations	5.00			3831.00	
Recorder	0.00	8018	Inside	3831.00	
Recorder	0.00	8700	Outside	3831.00	
Perforations	21.00			3852.00	
Bullnose	3.00			3855.00	30.00 Bottom Packers & Anchor

**Total Tool Length: 51.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Cobalt Energy LLC

**19-6s-25w Graham,KS**

PO Box 8037  
Wichita KS 67208

**Caroline A #1-19**

Job Ticket: 64082

**DST#: 3**

ATTN: Larry Nicholson

Test Start: 2017.01.01 @ 07:35:40

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

35 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 59.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.73 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1900.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
150.00	MGO 20%G20%M60%O	0.738
1740.00	CO	24.134
0.00	960' GIP	0.000

Total Length: 1890.00 ft      Total Volume: 24.872 bbl

Num Fluid Samples: 0

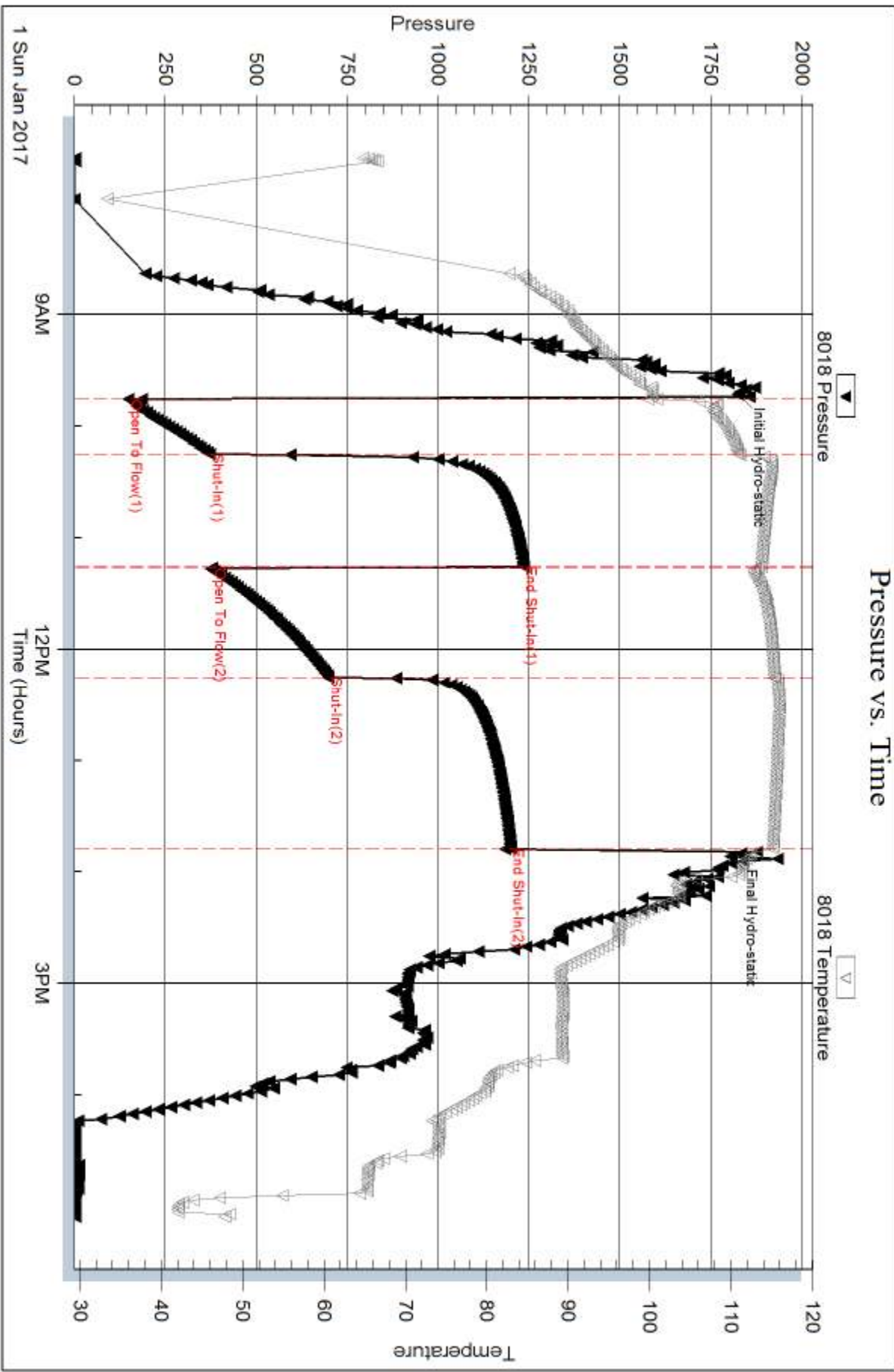
Num Gas Bombs: 0

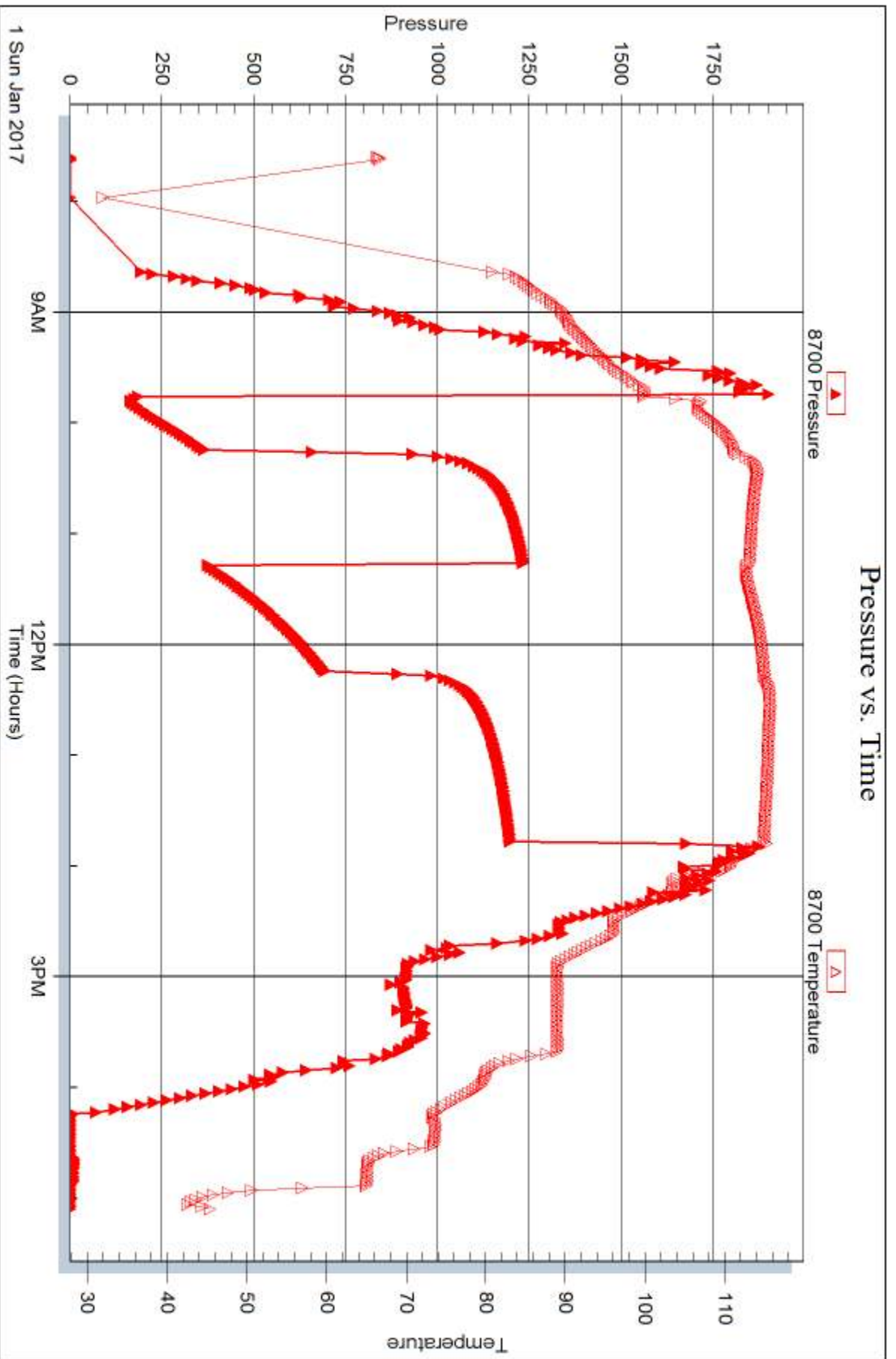
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







## DRILL STEM TEST REPORT

Prepared For: **Cobalt Energy LLC**

PO Box 8037  
Wichita KS 67208

ATTN: Larry Nicholson

### **Caroline A #1-19**

#### **19-6s-25w Graham,KS**

Start Date: 2017.01.02 @ 01:05:17

End Date: 2017.01.02 @ 08:55:26

Job Ticket #: 64083                      DST #: 4

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2017.01.02 @ 10:19:01



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Cobalt Energy LLC

**19-6s-25w Graham,KS**

PO Box 8037  
Wichita KS 67208

**Caroline A #1-19**

Job Ticket: 64083

**DST#: 4**

ATTN: Larry Nicholson

Test Start: 2017.01.02 @ 01:05:17

## GENERAL INFORMATION:

Formation: **LKC "K-L"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 04:02:27

Time Test Ended: 08:55:26

Test Type: Conventional Bottom Hole (Reset)

Tester: Ray Schwager

Unit No: 77

**Interval: 3853.00 ft (KB) To 3890.00 ft (KB) (TVD)**

Reference Elevations: 2617.00 ft (KB)

Total Depth: 3890.00 ft (KB) (TVD)

2612.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

**Serial #: 8018**

**Inside**

Press@RunDepth: 20.30 psig @ 3860.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2017.01.02

End Date:

2017.01.02

Last Calib.:

2017.01.02

Start Time: 01:05:17

End Time:

08:55:26

Time On Btm:

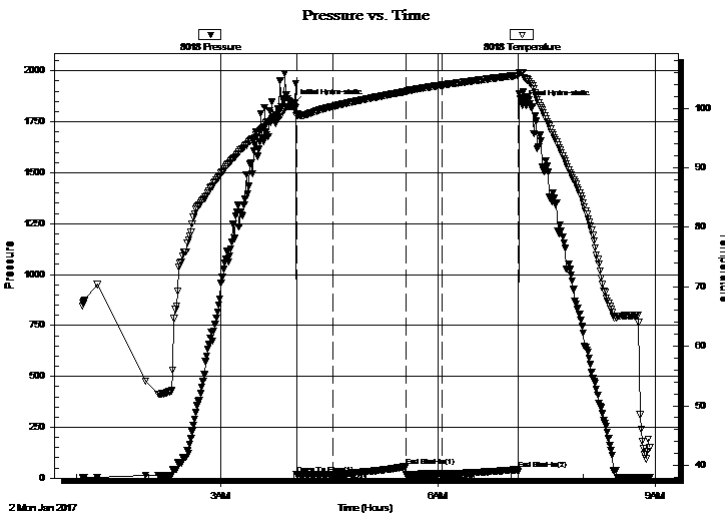
2017.01.02 @ 04:00:12

Time Off Btm:

2017.01.02 @ 07:09:41

**TEST COMMENT:** 30-IFP-w k surface bl thru-out  
60-ISIP-no bl  
30-FFP-no bl  
60-FSIP-no bl

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1841.17	100.20	Initial Hydro-static
3	18.22	98.73	Open To Flow (1)
33	18.23	100.33	Shut-In(1)
93	56.68	102.80	End Shut-In(1)
94	19.58	102.81	Open To Flow (2)
123	20.30	103.88	Shut-In(2)
186	42.29	105.52	End Shut-In(2)
190	1831.98	106.02	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
2.00	Mud w/show of oil	0.01

## Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Cobalt Energy LLC

**19-6s-25w Graham,KS**

PO Box 8037  
Wichita KS 67208

**Caroline A #1-19**

Job Ticket: 64083

**DST#: 4**

ATTN: Larry Nicholson

Test Start: 2017.01.02 @ 01:05:17

## GENERAL INFORMATION:

Formation: **LKC "K-L"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 04:02:27

Time Test Ended: 08:55:26

Test Type: Conventional Bottom Hole (Reset)

Tester: Ray Schwager

Unit No: 77

**Interval: 3853.00 ft (KB) To 3890.00 ft (KB) (TVD)**

Reference Elevations: 2617.00 ft (KB)

Total Depth: 3890.00 ft (KB) (TVD)

2612.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

**Serial #: 8700 Outside**

Press@RunDepth: psig @ 3860.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2017.01.02

End Date: 2017.01.02

Last Calib.: 2017.01.02

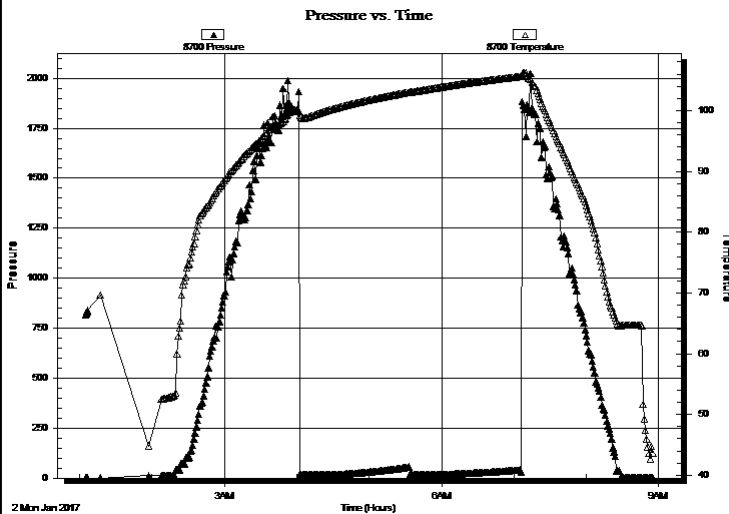
Start Time: 01:05:12

End Time: 08:55:21

Time On Btm:

Time Off Btm:

TEST COMMENT: 30-IFP-w k surface bl thru-out  
60-ISIP-no bl  
30-FFP-no bl  
60-FSIP-no bl



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
2.00	Mud w/show of oil	0.01

## Gas Rates

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

\* Recovery from multiple tests





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Cobalt Energy LLC

**19-6s-25w Graham,KS**

PO Box 8037  
Wichita KS 67208

**Caroline A #1-19**

Job Ticket: 64083

**DST#: 4**

ATTN: Larry Nicholson

Test Start: 2017.01.02 @ 01:05:17

## Tool Information

Drill Pipe:	Length: 3682.00 ft	Diameter: 3.80 inches	Volume: 51.65 bbl	Tool Weight: 2200.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 180.00 ft	Diameter: 2.25 inches	Volume: 0.89 bbl	Weight to Pull Loose: 65000.00 lb
			<u>Total Volume: 52.54 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial 56000.00 lb
Depth to Top Packer:	3853.00 ft			Final 56000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	37.00 ft			
Tool Length:	58.00 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			3833.00	
Shut In Tool	5.00			3838.00	
Hydraulic tool	5.00			3843.00	
Packer	5.00			3848.00	21.00 Bottom Of Top Packer
Packer	5.00			3853.00	
Stubb	1.00			3854.00	
Perforations	6.00			3860.00	
Recorder	0.00	8018	Inside	3860.00	
Recorder	0.00	8700	Outside	3860.00	
Perforations	27.00			3887.00	
Bullnose	3.00			3890.00	37.00 Bottom Packers & Anchor

**Total Tool Length: 58.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Cobalt Energy LLC

**19-6s-25w Graham,KS**

PO Box 8037  
Wichita KS 67208

**Caroline A #1-19**

Job Ticket: 64083

**DST#: 4**

ATTN: Larry Nicholson

Test Start: 2017.01.02 @ 01:05:17

## 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: 60.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.19 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1300.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
2.00	Mud w/show of oil	0.010

Total Length: 2.00 ft      Total Volume: 0.010 bbl

Num Fluid Samples: 0

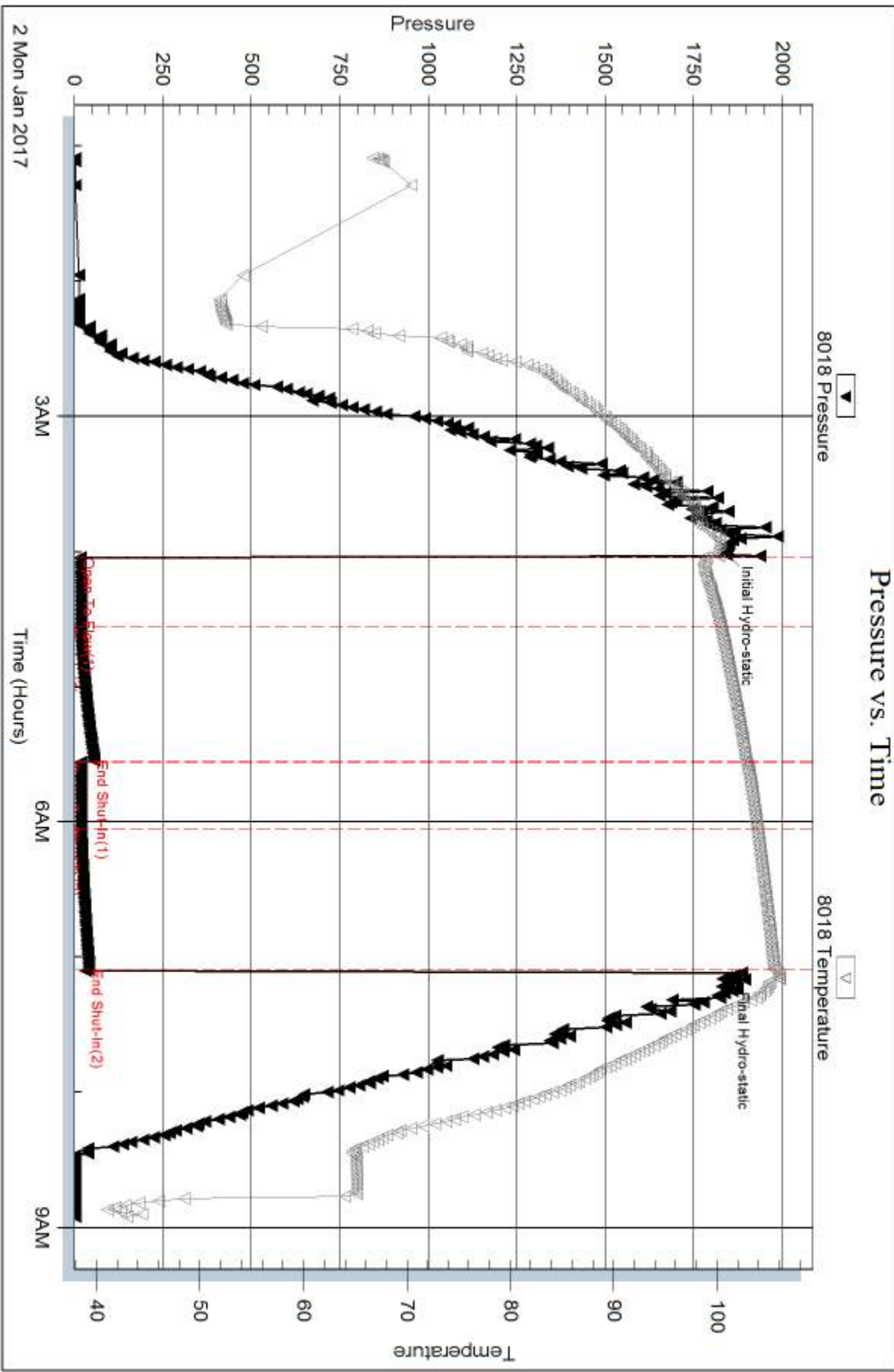
Num Gas Bombs: 0

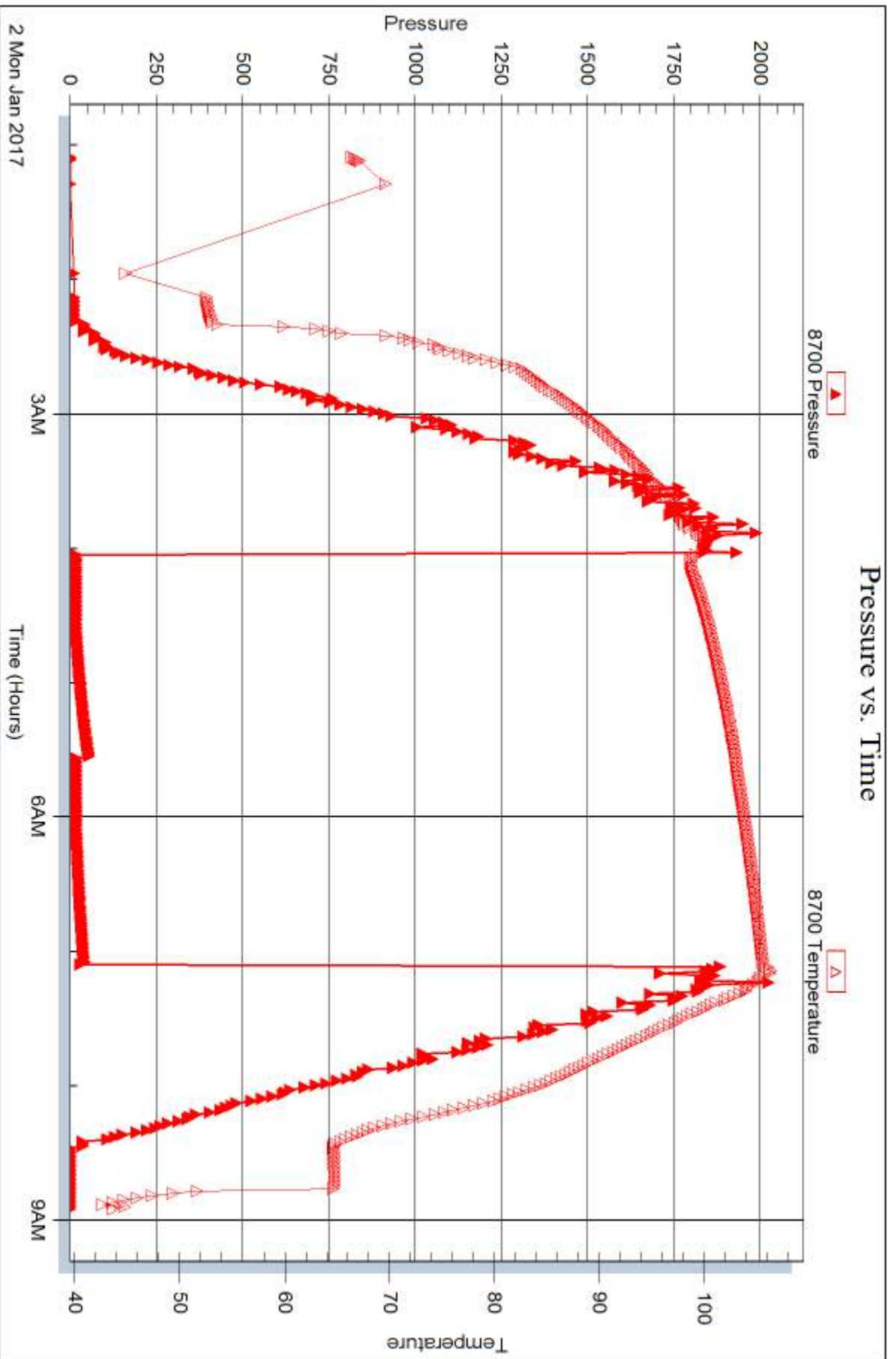
Serial #:

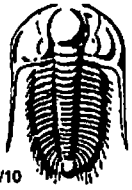
Laboratory Name:

Laboratory Location:

Recovery Comments:







# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 64080

Well Name & No. CAROLINE "A" 1-19 Test No. 1 Date 12-30-16  
 Company Cobalt Energy LLC Elevation 2617 KB 2612 GL  
 Address 115 S. BELMONT #12 POBOX 8037 WICHITA, KS 67208  
 Co. Rep / Geo. LARRY NICHOLSON Rig MURFIN RIG 7  
 Location: Sec. 19 Twp. 6<sup>s</sup> Rge. 25<sup>w</sup> Co. GRAHAM State Ks

Interval Tested 3708-3737 Zone Tested LKC "B"  
 Anchor Length 29 Drill Pipe Run 3523 Mud Wt. 8.8  
 Top Packer Depth 3703 Drill Collars Run 180 Vis 60  
 Bottom Packer Depth 3208 Wt. Pipe Run - WL 6.8  
 Total Depth 3737 Chlorides 900 ppm System LCM 6#

Blow Description TEF - WEAK TO A FAIR BLOW 1/2" TO 5 1/2" BLOW  
ISIF - NO BLOW  
FFP - WEAK BLOW THROUGH 1/4" TO 3" BLOW  
FSTP - NO BLOW

Rec	Feet of	%gas	%oil	%water	%mud
<u>1</u>	<u>Oil</u>				
<u>90</u>	<u>MW</u>				
<u>240</u>	<u>WATER</u>				

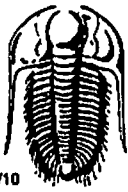
Rec Total 331 BHT 112 Gravity - API RW .14 @ 65 ° F Chlorides 57000 ppm  
 (A) Initial Hydrostatic 1788  Test 1050 T-On Location 1840  
 (B) First Initial Flow 21  Jars \_\_\_\_\_ T-Started 1935  
 (C) First Final Flow 106  Safety Joint \_\_\_\_\_ T-Open 2205  
 (D) Initial Shut-In 1029  Circ Sub \_\_\_\_\_ T-Pulled 0205  
 (E) Second Initial Flow 110  Hourly Standby \_\_\_\_\_ T-Out 0448  
 (F) Second Final Flow 169  Mileage 175RT 122ft 91.50  
 (G) Final Shut-In 978  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1771  Straddle \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_  
 Sub Total 1141.50

Initial Open 30  
 Initial Shut-In 60  
 Final Flow 60  
 Final Shut-In 90

Comments \_\_\_\_\_  
 Ruined Shale Packer \_\_\_\_\_  
 Ruined Packer \_\_\_\_\_  
 Extra Copies \_\_\_\_\_  
 Sub Total 0  
 Total 1141.50  
 MP/DST Disc't \_\_\_\_\_

Approved By \_\_\_\_\_ Our Representative RAY SCHWAGN *Thank you*

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. 64081

Well Name & No. CAROLINE 'A' 1-19 Test No. 2 Date 12-31-16  
 Company Cobalt Energy LLC Elevation 2617 KB 2612 GL  
 Address 115 S. Belmont #12, PO Box 8037 Wichita, KS 67208  
 Co. Rep / Geo. LARRY NICHOLSON Rig MURFIN 197  
 Location: Sec. 19 Twp. 6<sup>s</sup> Rge. 25<sup>w</sup> Co. GRAHAM State Ks

Interval Tested 3733-3782 Zone Tested LKC C-6  
 Anchor Length 49 Drill Pipe Run 3555 Mud Wt. 9  
 Top Packer Depth 3728 Drill Collars Run 180 Vis 58  
 Bottom Packer Depth 3733 Wt. Pipe Run - WL 6.8  
 Total Depth 3782 Chlorides 1900 ppm System LCM 5#

Blow Description IFP - WEAK Blow thru-out 1/2" Blow  
ISIP - NO Blow  
FFP - NO Blow  
FSIP - NO Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>30</u>	<u>50CM</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

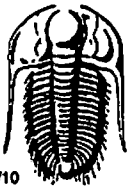
Rec Total 30 BHT 105 Gravity - API RW - @ - F Chlorides - ppm

(A) Initial Hydrostatic <u>1796</u>	<input checked="" type="checkbox"/> Test <u>1050</u>	T-On Location <u>1330</u>
(B) First Initial Flow <u>22</u>	<input type="checkbox"/> Jars	T-Started <u>1355</u>
(C) First Final Flow <u>34</u>	<input type="checkbox"/> Safety Joint	T-Open <u>1610</u>
(D) Initial Shut-In <u>1091</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>1910</u>
(E) Second Initial Flow <u>37</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>2120</u>
(F) Second Final Flow <u>44</u>	<input checked="" type="checkbox"/> Mileage <u>91.50</u>	Comments
(G) Final Shut-In <u>1065</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1736</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>1141.50</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1141.50</u>	

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

Approved By \_\_\_\_\_ Our Representative Ray Schwager *Thank you*

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. 64082

Well Name & No. CAROLINE "A" 1-19 Test No. 3 Date 1-1-2017  
 Company Cobalt Energy LLC Elevation 2617 KB 2612 GL  
 Address 115 S. Belmont #12 PO Box 8037 WICHITA, KS 67208  
 Co. Rep / Geo. Larry Nicholson Rig MURFIN rig?  
 Location: Sec. 19 Twp. 6<sup>s</sup> Rge. 25<sup>w</sup> Co. GRAHAM State Ks

Interval Tested 3825-3855 Zone Tested LKC "J"  
 Anchor Length 30 Drill Pipe Run 3650 Mud Wt. 9.1  
 Top Packer Depth 3820 Drill Collars Run 180 Vis 59  
 Bottom Packer Depth 3825 Wt. Pipe Run - WL 6.8  
 Total Depth 3855 Chlorides 1900 ppm System LCM 6#

Blow Description JFP - BOB IN 1 MIN  
ISTP - BOB IN 66 MIN  
FFP - STRONG THRU-OUT  
FSIP - 6" BLOW BACK

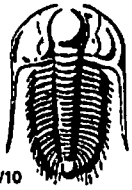
Rec	Feet of	%gas	%oil	%water	%mud
<u>960</u>	<u>GIP</u>				
<u>1740</u>	<u>CO</u>				
<u>150</u>	<u>MGO</u>	<u>20</u>	<u>60</u>		<u>20</u>

Rec Total 1890 BHT 115 Gravity 35 API RW - @ - °F Chlorides - ppm

(A) Initial Hydrostatic <u>1824</u>	<input checked="" type="checkbox"/> Test <u>1050</u>	T-On Location <u>0650</u>
(B) First Initial Flow <u>148</u>	<input type="checkbox"/> Jars	T-Started <u>0735</u>
(C) First Final Flow <u>372</u>	<input type="checkbox"/> Safety Joint	T-Open <u>0945</u>
(D) Initial Shut-In <u>1235</u>	<input checked="" type="checkbox"/> Circ Sub <u>50</u>	T-Pulled <u>1345</u>
(E) Second Initial Flow <u>378</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>1705</u>
(F) Second Final Flow <u><del>998</del> 696</u>	<input checked="" type="checkbox"/> Mileage <u>91.50</u>	Comments
(G) Final Shut-In <u>1199</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1804</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Packer
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Final Flow <u>60</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Shut-In <u>90</u>	<input type="checkbox"/> Day Standby	Total <u>1191.50</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1191.50</u>	

Approved By \_\_\_\_\_ Our Representative Ray Schwager Thank you

Triobite 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. 64083

Well Name & No. Caroline "A" 1-19 Test No. 4 Date 1-2-2017  
 Company Cobalt Energy LLC Elevation 2617 KB 2612 GL  
 Address 115 S. Belmont #12 PO Box 8037 Wichita, Ks 67208  
 Co. Rep / Geo. LARRY Nicholson Rig Murfin rig 7  
 Location: Sec. 19 Twp. 6 Rge. 25 Co. GRAHAM State Ks

Interval Tested 3853-3890 Zone Tested LKC K-2  
 Anchor Length 37 Drill Pipe Run 3682 Mud Wt. 9  
 Top Packer Depth 3848 Drill Collars Run 180 Vis 60  
 Bottom Packer Depth 3853 Wt. Pipe Run - WL 7.2  
 Total Depth 3890 Chlorides 1300 ppm System LCM 8 #

Blow Description IFP - WEAK SURFACE Blow then out  
ISIP - NO Blow  
FFP - NO Blow  
FSIP - NO Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>2</u>	<u>Mud</u>				
	<u>w/show gas</u>				

Rec Total 2 BHT 10.5 Gravity - API RW - @ - ° F Chlorides - ppm

- (A) Initial Hydrostatic 1841
- (B) First Initial Flow 18
- (C) First Final Flow 18
- (D) Initial Shut-In 56
- (E) Second Initial Flow 19
- (F) Second Final Flow 20
- (G) Final Shut-In 42
- (H) Final Hydrostatic 1831

- Test 1050
- Jars
- Safety Joint
- Circ Sub
- Hourly Standby
- Mileage 91.50
- Sampler
- Straddle
- Shale Packer
- Extra Packer
- Extra Recorder
- Day Standby
- Accessibility
- Sub Total 1141.50

T-On Location 0000  
 T-Started 0105  
 T-Open 0405  
 T-Pulled 0705  
 T-Out 0855

Comments \_\_\_\_\_  
 Ruined Shale Packer  
 Ruined Packer  
 Extra Copies  
 Sub Total 0  
 Total 1141.50  
 MP/DST Disc't \_\_\_\_\_

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

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

Our Representative Ray Schwager Thank you

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.