



## DRILL STEM TEST REPORT

Prepared For: **Cobalt Energy LLC**

115 S. Belmont #12  
Wichita KS 67208

ATTN: Corey Baker

**Mollhagen 'A' #1-6**

**6-8S-25W Graham,KS**

Start Date: 2019.08.21 @ 01:45:00

End Date: 2019.08.21 @ 09:02:15

Job Ticket #: 66305                      DST #: 1

Trilobite Testing, Inc  
1515 Commerce Parkway Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2019.08.23 @ 14:44:57



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Cobalt Energy LLC

**6-8S-25W Graham,KS**

115 S. Belmont #12  
Wichita KS 67208

**Mollhagen 'A' #1-6**

ATTN: Corey Baker

Job Ticket: 66305

**DST#: 1**

Test Start: 2019.08.21 @ 01:45:00

## GENERAL INFORMATION:

Formation: **LKC C**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 04:33:45

Time Test Ended: 09:02:15

Test Type: Conventional Bottom Hole (Initial)

Tester: Royal Fisher

Unit No: 77

**Interval: 3758.00 ft (KB) To 3780.00 ft (KB) (TVD)**

Reference Elevations: 2459.00 ft (KB)

Total Depth: 3780.00 ft (KB) (TVD)

2454.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Poor

KB to GR/CF: 5.00 ft

**Serial #: 8671**

**Outside**

Press@RunDepth: 324.41 psig @ 3759.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.08.21

End Date:

2019.08.21

Last Calib.:

2019.08.21

Start Time: 01:45:05

End Time:

09:02:14

Time On Btm:

2019.08.21 @ 04:32:45

Time Off Btm:

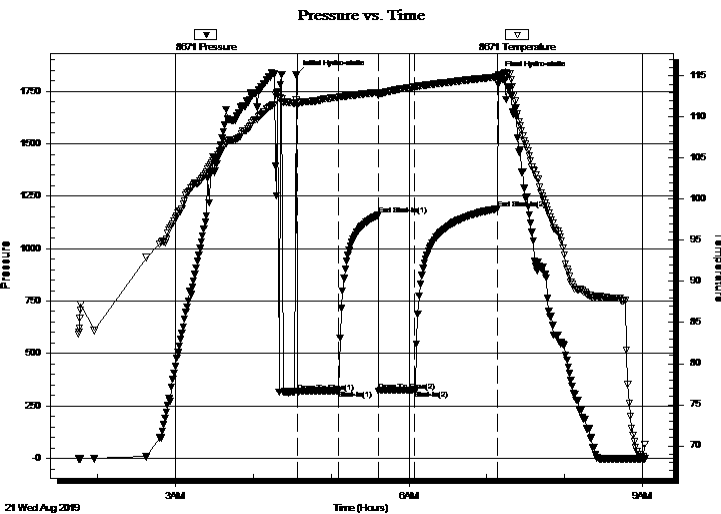
2019.08.21 @ 07:09:15

**TEST COMMENT:** 30 - IFP - Tool landed high & opened before packers set. Faint Surface died in 5 mins

30 - ISI - No Return

30 - FFP - No Surface blow

60 - FSI - No Return



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1827.78	112.05	Initial Hydro-static
1	317.27	111.39	Open To Flow (1)
33	322.98	112.39	Shut-In(1)
64	1160.15	113.01	End Shut-In(1)
64	321.57	112.59	Open To Flow (2)
92	324.41	113.67	Shut-In(2)
156	1190.08	114.88	End Shut-In(2)
157	1824.59	115.18	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
627.00	Mud - 100%m	6.28

## Gas Rates

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



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# DRILL STEM TEST REPORT

Cobalt Energy LLC

**6-8S-25W Graham,KS**

115 S. Belmont #12  
Wichita KS 67208

**Mollhagen 'A' #1-6**

Job Ticket: 66305

**DST#: 1**

ATTN: Corey Baker

Test Start: 2019.08.21 @ 01:45:00

## GENERAL INFORMATION:

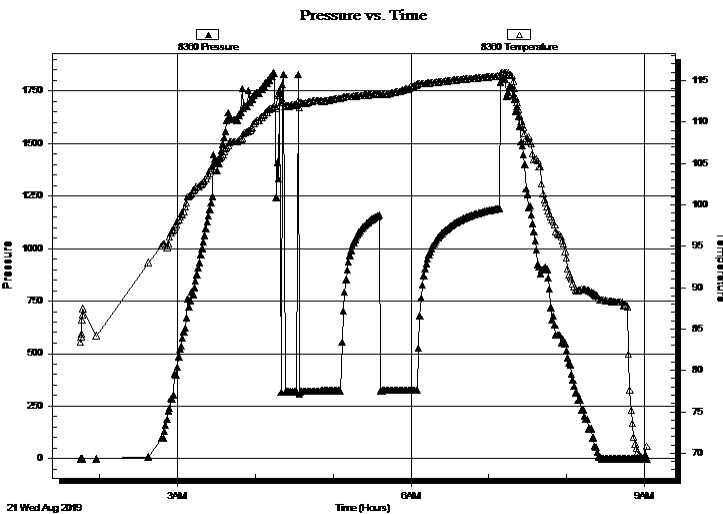
Formation: **LKC C**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Initial)  
 Time Tool Opened: 04:33:45  
 Tester: Royal Fisher  
 Time Test Ended: 09:02:15  
 Unit No: 77  
**Interval: 3758.00 ft (KB) To 3780.00 ft (KB) (TVD)**  
 Reference Elevations: 2459.00 ft (KB)  
 Total Depth: 3780.00 ft (KB) (TVD)  
 2454.00 ft (CF)  
 Hole Diameter: 7.88 inches  
 Hole Condition: Poor  
 KB to GR/CF: 5.00 ft

**Serial #: 8360**

**Inside**

Press@RunDepth: psig @ 3759.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2019.08.21 End Date: 2019.08.21 Last Calib.: 2019.08.21  
 Start Time: 01:45:05 End Time: 09:02:14 Time On Btm:  
 Time Off Btm:

**TEST COMMENT:** 30 - IFP - Tool landed high & opened before packers set. Faint Surface died in 5 mins  
 30 - ISI - No Return  
 30 - FFP - No Surface blow  
 60 - FSI - No Return



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
627.00	Mud - 100%m	6.28

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Cobalt Energy LLC

**6-8S-25W Graham,KS**

115 S. Belmont #12  
Wichita KS 67208

**Mollhagen 'A' #1-6**

Job Ticket: 66305

**DST#: 1**

ATTN: Corey Baker

Test Start: 2019.08.21 @ 01:45:00

## Tool Information

Drill Pipe:	Length: 3735.78 ft	Diameter: 3.25 inches	Volume: 38.33 bbl	Tool Weight: 2500.00 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: 28.99 ft	Diameter: 2.25 inches	Volume: 0.14 bbl	Weight to Pull Loose: 65000.00 lb
			<u>Total Volume: 38.47 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	32.77 ft			String Weight: Initial 52000.00 lb
Depth to Top Packer:	3758.00 ft			Final 55000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	22.00 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
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Shut In Tool	5.00			3737.00	
Hydraulic tool	5.00			3742.00	
EM tool	3.00			3745.00	
Safety Joint	3.00			3748.00	
Packer	5.00			3753.00	26.00 Bottom Of Top Packer
Packer	5.00			3758.00	
Stubb	1.00			3759.00	
Recorder	0.00	8360	Inside	3759.00	
Recorder	0.00	8671	Outside	3759.00	
Perforations	18.00			3777.00	
Bullnose	3.00			3780.00	22.00 Bottom Packers & Anchor

**Total Tool Length: 48.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Cobalt Energy LLC

**6-8S-25W Graham,KS**

115 S. Belmont #12  
Wichita KS 67208

**Mollhagen 'A' #1-6**

Job Ticket: 66305

**DST#: 1**

ATTN: Corey Baker

Test Start: 2019.08.21 @ 01:45:00

## 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: 55.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.18 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 500.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
627.00	Mud - 100%m	6.279

Total Length: 627.00 ft      Total Volume: 6.279 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

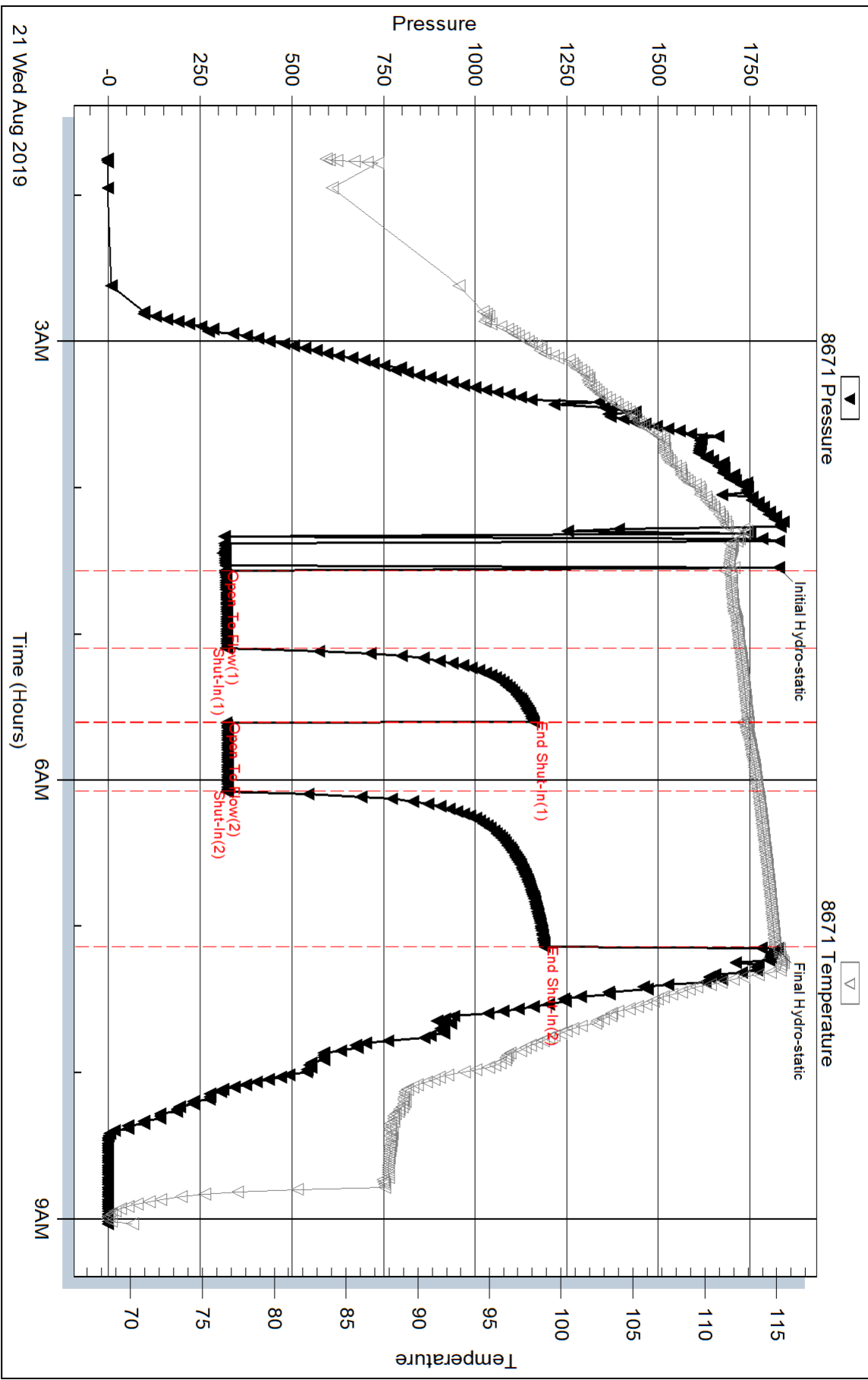
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

### Pressure vs. Time



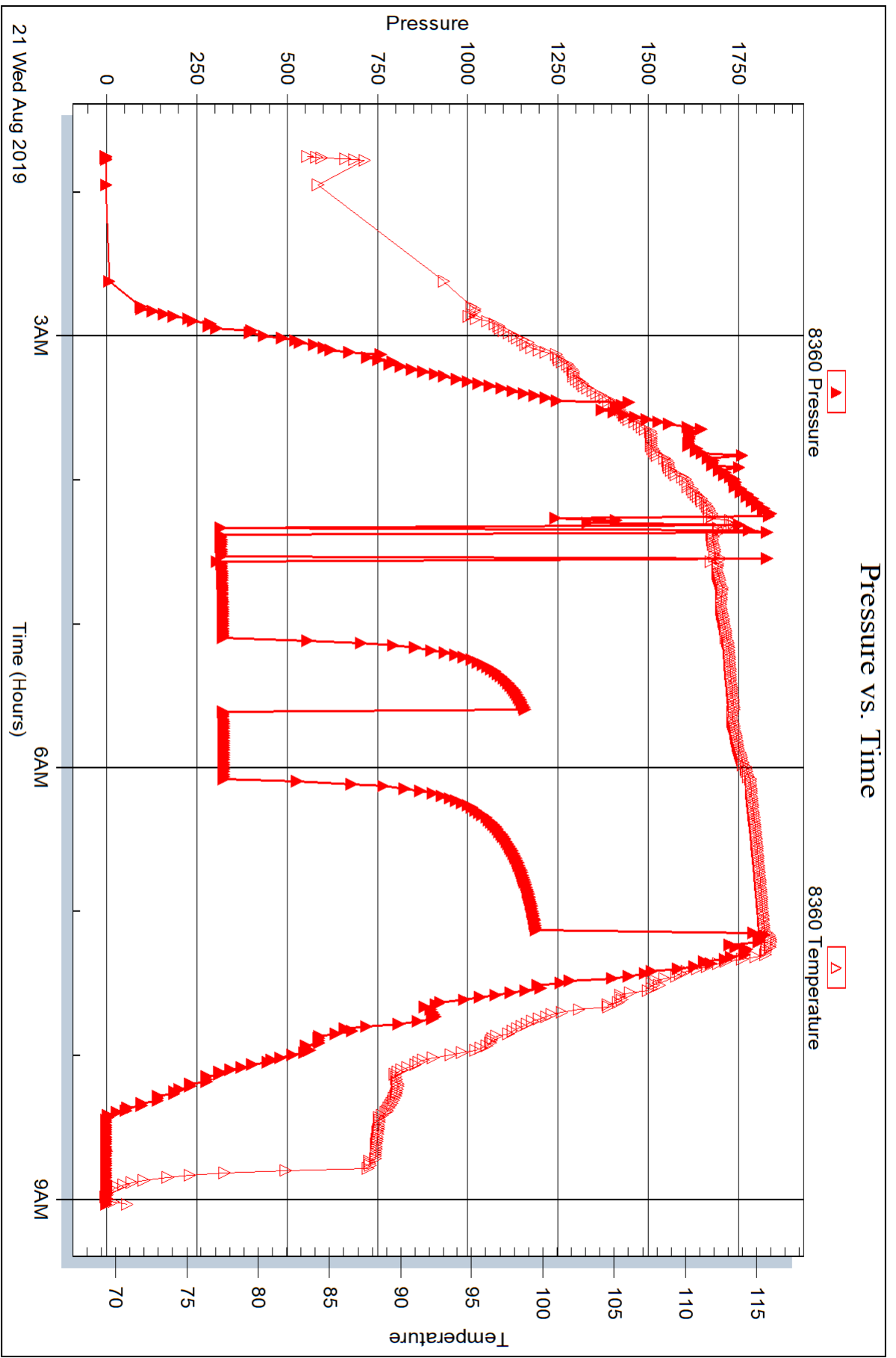
Serial #: 8360

Inside

Cobalt Energy LLC

Mollhagen 'A' #1-6

DST Test Number: 1





## DRILL STEM TEST REPORT

Prepared For: **Cobalt Energy LLC**

115 S. Belmont #12  
Wichita KS 67208

ATTN: Corey Baker

**Mollhagen 'A' #1-6**

**6-8S-25W Graham,KS**

Start Date: 2019.08.21 @ 16:10:00

End Date: 2019.08.22 @ 00:19:00

Job Ticket #: 66306                      DST #: 2

Trilobite Testing, Inc  
1515 Commerce Parkway Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2019.08.23 @ 14:41:21





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Cobalt Energy LLC

**6-8S-25W Graham,KS**

115 S. Belmont #12  
Wichita KS 67208

**Mollhagen 'A' #1-6**

ATTN: Corey Baker

Job Ticket: 66306

**DST#: 2**

Test Start: 2019.08.21 @ 16:10:00

## GENERAL INFORMATION:

Formation: **LKC C - F**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 17:53:15

Time Test Ended: 00:19:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Royal Fisher

Unit No: 77

**Interval: 3752.00 ft (KB) To 3820.00 ft (KB) (TVD)**

Reference Elevations: 2459.00 ft (KB)

Total Depth: 3820.00 ft (KB) (TVD)

2454.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

**Serial #: 8671**

**Outside**

Press@RunDepth: 331.42 psig @ 3753.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.08.21

End Date: 2019.08.22

Last Calib.: 2019.08.22

Start Time: 16:10:05

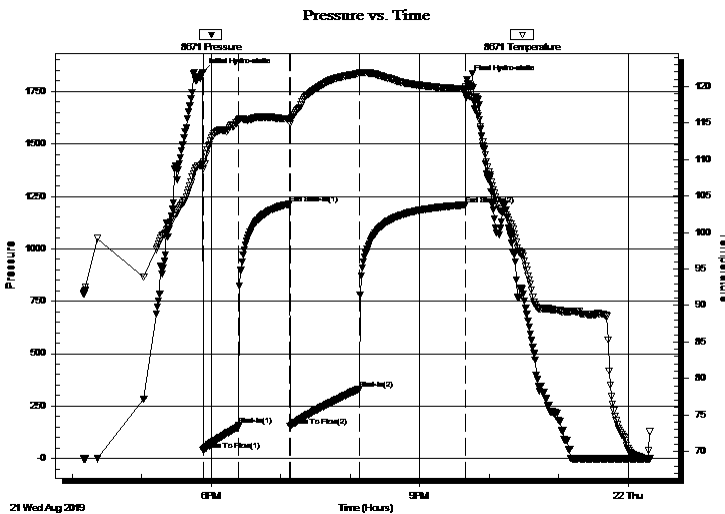
End Time: 00:18:59

Time On Btm: 2019.08.21 @ 17:53:00

Time Off Btm: 2019.08.21 @ 21:41:00

**TEST COMMENT:** 30 - IFP - Surface blow built to bottom of the bucket in 20 mins.  
45 - ISI - No Return  
60 - FFP - Surface blow built to bottom of the bucket in 50 mins.  
90 - FSI - No Return

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1840.87	109.37	Initial Hydro-static
1	38.77	108.74	Open To Flow (1)
31	156.75	115.38	Shut-In(1)
75	1213.78	115.56	End Shut-In(1)
76	154.67	114.91	Open To Flow (2)
136	331.42	121.77	Shut-In(2)
227	1209.15	119.61	End Shut-In(2)
228	1807.51	119.08	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
171.00	WM - 40%w - 60%m	1.60
189.00	MW - 40%m - 60%w	1.94
315.00	MW - 10%m - 90%w	3.23

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Cobalt Energy LLC

115 S. Belmont #12  
Wichita KS 67208

ATTN: Corey Baker

**6-8S-25W Graham,KS**

**Mollhagen 'A' #1-6**

Job Ticket: 66306

**DST#: 2**

Test Start: 2019.08.21 @ 16:10:00

### GENERAL INFORMATION:

Formation: **LKC C - F**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 17:53:15

Time Test Ended: 00:19:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Royal Fisher

Unit No: 77

**Interval: 3752.00 ft (KB) To 3820.00 ft (KB) (TVD)**

Reference Elevations: 2459.00 ft (KB)

Total Depth: 3820.00 ft (KB) (TVD)

2454.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

**Serial #: 8360**

**Inside**

Press@RunDepth: psig @ 3753.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.08.21

End Date: 2019.08.22

Last Calib.: 2019.08.22

Start Time: 16:10:05

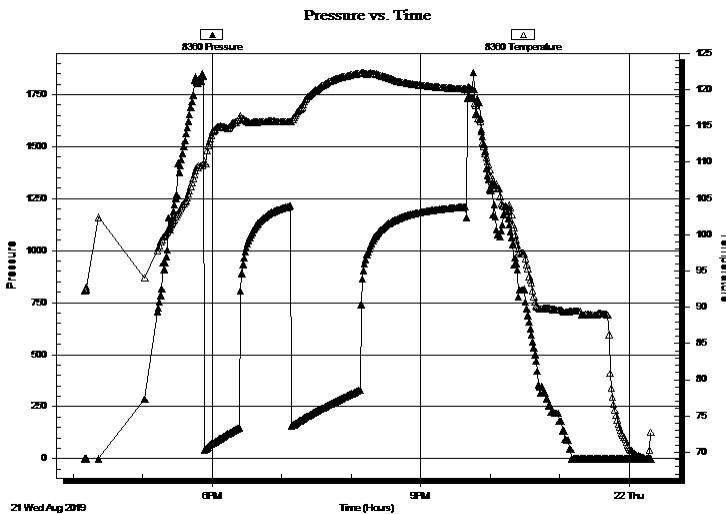
End Time: 00:18:59

Time On Btm:

Time Off Btm:

**TEST COMMENT:** 30 - IFP - Surface blow built to bottom of the bucket in 20 mins.  
45 - ISI - No Return  
60 - FFP - Surface blow built to bottom of the bucket in 50 mins.  
90 - FSI - No Return

### PRESSURE SUMMARY



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

### Recovery

Length (ft)	Description	Volume (bbl)
171.00	WM - 40%w - 60%m	1.60
189.00	MW - 40%m - 60%w	1.94
315.00	MW - 10%m - 90%w	3.23

### Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Cobalt Energy LLC

**6-8S-25W Graham,KS**

115 S. Belmont #12  
Wichita KS 67208

**Mollhagen 'A' #1-6**

Job Ticket: 66306

**DST#: 2**

ATTN: Corey Baker

Test Start: 2019.08.21 @ 16:10:00

## Tool Information

Drill Pipe:	Length: 3704.28 ft	Diameter: 3.25 inches	Volume: 38.01 bbl	Tool Weight: 2500.00 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: 28.99 ft	Diameter: 2.25 inches	Volume: 0.14 bbl	Weight to Pull Loose: 65000.00 lb
			<u>Total Volume: 38.15 bbl</u>	Tool Chased 5.00 ft
Drill Pipe Above KB:	7.27 ft			String Weight: Initial 52000.00 lb
Depth to Top Packer:	3752.00 ft			Final 55000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	68.00 ft			
Tool Length:	94.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Shut In Tool	5.00			3731.00	
Hydraulic tool	5.00			3736.00	
EM Tool	3.00			3739.00	
Safety Joint	3.00			3742.00	
Packer	5.00			3747.00	26.00 Bottom Of Top Packer
Packer	5.00			3752.00	
Stubb	1.00			3753.00	
Recorder	0.00	8360	Inside	3753.00	
Recorder	0.00	8671	Outside	3753.00	
Perforations	31.00			3784.00	
Change Over Sub	1.00			3785.00	
Drill Pipe	31.00			3816.00	
Change Over Sub	1.00			3817.00	
Bullnose	3.00			3820.00	68.00 Bottom Packers & Anchor

**Total Tool Length: 94.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Cobalt Energy LLC

**6-8S-25W Graham,KS**

115 S. Belmont #12  
Wichita KS 67208

**Mollhagen 'A' #1-6**

Job Ticket: 66306

**DST#: 2**

ATTN: Corey Baker

Test Start: 2019.08.21 @ 16:10:00

## 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: 58.00 sec/qt

Cushion Volume:

bbbl

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

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 700.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
171.00	WM - 40%w - 60%m	1.600
189.00	MW - 40%m - 60%w	1.939
315.00	MW - 10%m - 90%w	3.232

Total Length: 675.00 ft

Total Volume: 6.771 bbl

Num Fluid Samples: 0

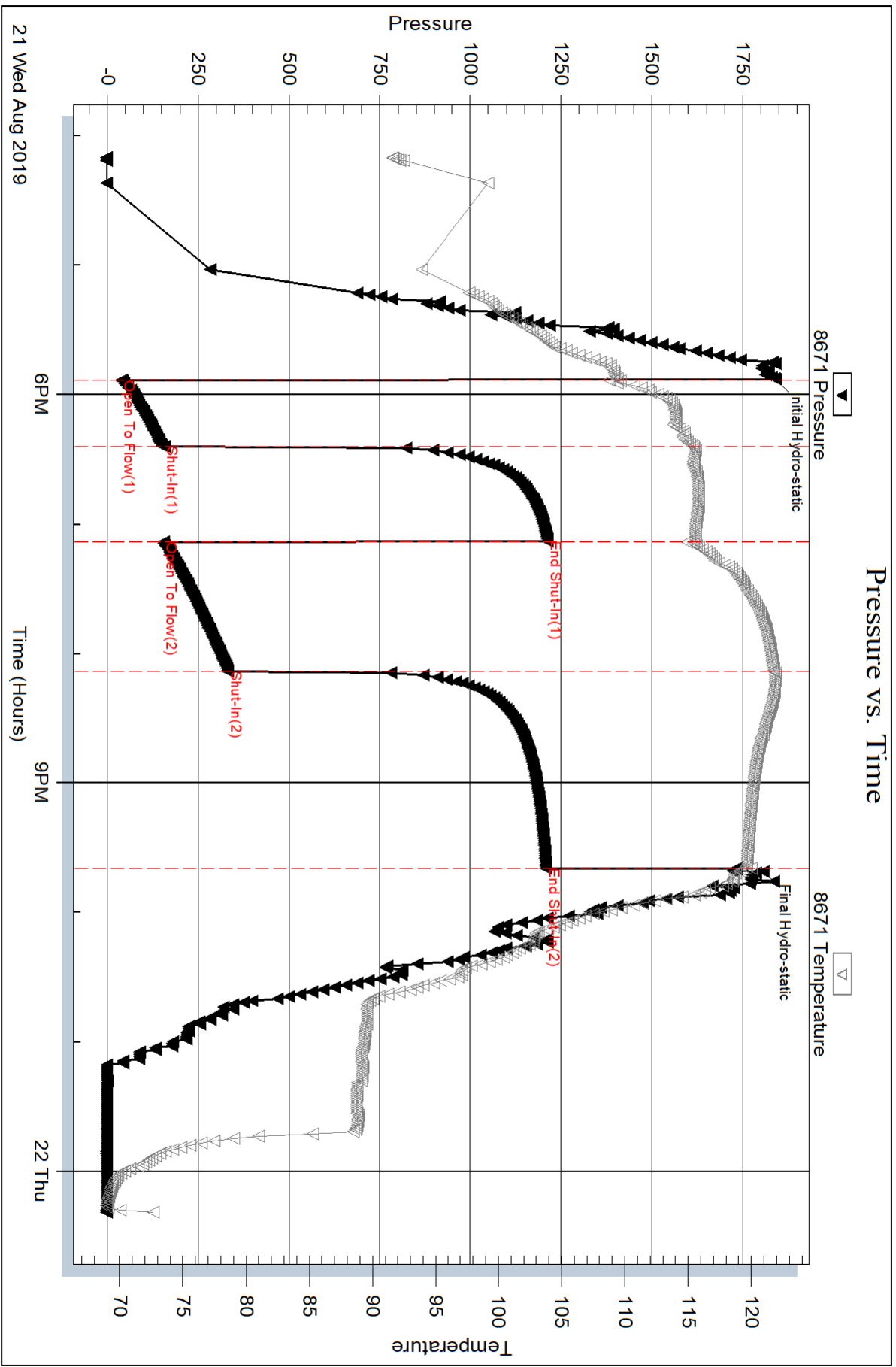
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: .375 @ 72



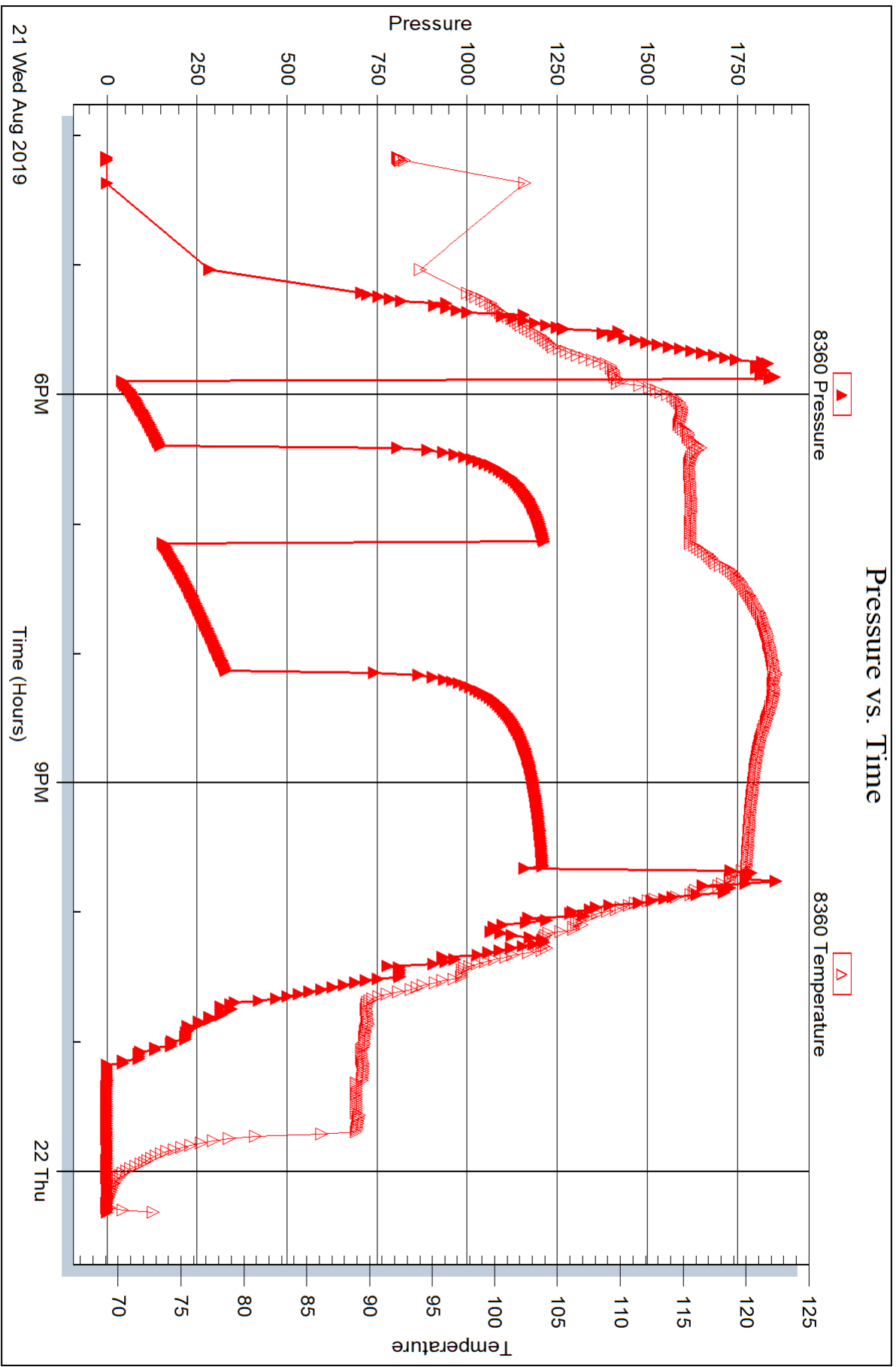
Serial #: 8360

Inside

Cobalt Energy LLC

Mollhagen 'A' #1-6

DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 66306

Printed: 2019.08.23 @ 14:41:23



## DRILL STEM TEST REPORT

Prepared For: **Cobalt Energy LLC**

115 S. Belmont #12  
Wichita KS 67208

ATTN: Corey Baker

**Mollhagen 'A' #1-6**

**6-8S-25W Graham,KS**

Start Date: 2019.08.22 @ 12:15:18

End Date: 2019.08.22 @ 19:11:48

Job Ticket #: 66307                      DST #: 3

Trilobite Testing, Inc  
1515 Commerce Parkway Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2019.08.23 @ 14:39:09



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Cobalt Energy LLC

**6-8S-25W Graham,KS**

115 S. Belmont #12  
Wichita KS 67208

**Mollhagen 'A' #1-6**

ATTN: Corey Baker

Job Ticket: 66307

**DST#: 3**

Test Start: 2019.08.22 @ 12:15:18

## GENERAL INFORMATION:

Formation: **LKC H - J**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 13:38:33

Time Test Ended: 19:11:48

Test Type: Conventional Bottom Hole (Reset)

Tester: Brannan Lonsdale

Unit No: 77

**Interval: 3839.00 ft (KB) To 3909.00 ft (KB) (TVD)**

Reference Elevations: 2459.00 ft (KB)

Total Depth: 3909.00 ft (KB) (TVD)

2454.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

**Serial #: 8671 Outside**

Press@RunDepth: 46.69 psig @ 3840.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.08.22 End Date: 2019.08.22

Last Calib.: 2019.08.22

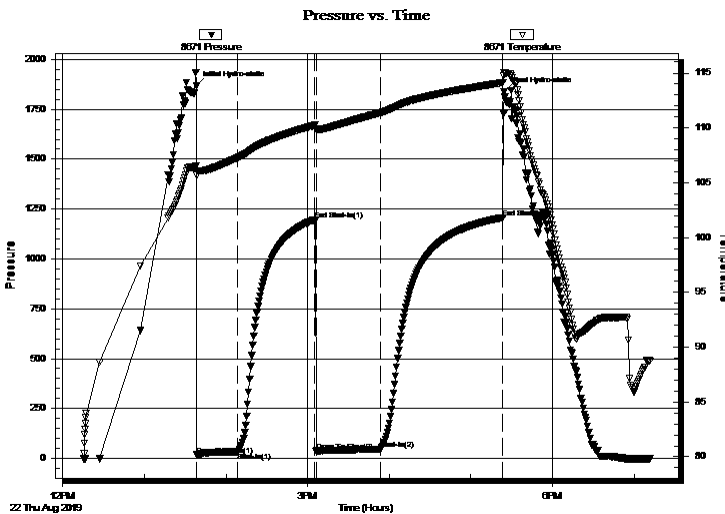
Start Time: 12:15:23 End Time: 19:11:47

Time On Btm: 2019.08.22 @ 13:38:18

Time Off Btm: 2019.08.22 @ 17:24:33

**TEST COMMENT:** 30- IF- Slow ly built to 3"  
45- IS- No blow  
60- FF- Slow ly built to 4.5"  
90- FSI- No blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1866.40	106.54	Initial Hydro-static
1	18.16	105.67	Open To Flow (1)
31	33.49	107.27	Shut-In(1)
87	1196.92	110.24	End Shut-In(1)
88	34.23	109.89	Open To Flow (2)
135	46.69	111.38	Shut-In(2)
226	1207.07	114.12	End Shut-In(2)
227	1838.31	115.06	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
75.00	OCM, 15%O 85%M	0.79
5.00	CO	0.07

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE TESTING, INC.**

**DRILL STEM TEST REPORT**

Cobalt Energy LLC

115 S. Belmont #12  
Wichita KS 67208

ATTN: Corey Baker

**6-8S-25W Graham, KS**

**Mollhagen 'A' #1-6**

Job Ticket: 66307

**DST#: 3**

Test Start: 2019.08.22 @ 12:15:18

**GENERAL INFORMATION:**

Formation: **LKC H - J**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 13:38:33

Time Test Ended: 19:11:48

Test Type: Conventional Bottom Hole (Reset)

Tester: Brannan Lonsdale

Unit No: 77

**Interval: 3839.00 ft (KB) To 3909.00 ft (KB) (TVD)**

Total Depth: 3909.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2459.00 ft (KB)

2454.00 ft (CF)

KB to GR/CF: 5.00 ft

**Serial #: 8360**

**Inside**

Press@RunDepth: psig @ 3840.00 ft (KB)

Start Date: 2019.08.22

End Date:

2019.08.22

Start Time: 12:16:04

End Time:

19:12:43

Capacity: 8000.00 psig

Last Calib.:

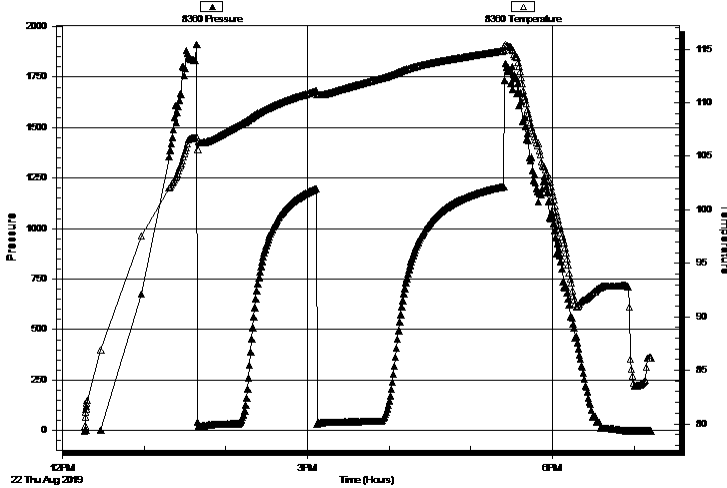
2019.08.22

Time On Btm:

Time Off Btm:

**TEST COMMENT:** 30- IF- Slow ly built to 3"  
45- IS- No blow  
60- FF- Slow ly built to 4.5"  
90- FSI- No blow

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Gas Rates

Length (ft)	Description	Volume (bbl)
75.00	OCM, 15%O 85%M	0.79
5.00	CO	0.07

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

\* Recovery from multiple tests



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Cobalt Energy LLC

**6-8S-25W Graham,KS**

115 S. Belmont #12  
Wichita KS 67208

**Mollhagen 'A' #1-6**

Job Ticket: 66307

**DST#: 3**

ATTN: Corey Baker

Test Start: 2019.08.22 @ 12:15:18

## Tool Information

Drill Pipe:	Length: 3799.00 ft	Diameter: 3.82 inches	Volume: 53.85 bbl	Tool Weight: 2500.00 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: 29.00 ft	Diameter: 2.25 inches	Volume: 0.14 bbl	Weight to Pull Loose: 64000.00 lb
			<u>Total Volume: 53.99 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial 52000.00 lb
Depth to Top Packer:	3839.00 ft			Final 54000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	70.00 ft			
Tool Length:	96.00 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			3814.00	
Shut In Tool	5.00			3819.00	
Hydraulic tool	5.00			3824.00	
Gap Sub	3.00			3827.00	
Safety Joint	3.00			3830.00	
Packer	5.00			3835.00	26.00 Bottom Of Top Packer
Packer	4.00			3839.00	
Stubb	1.00			3840.00	
Recorder	0.00	8360	Inside	3840.00	
Recorder	0.00	8671	Outside	3840.00	
Perforations	1.00			3841.00	
Change Over Sub	1.00			3842.00	
Drill Pipe	62.00			3904.00	
Change Over Sub	1.00			3905.00	
Perforations	1.00			3906.00	
Bullnose	3.00			3909.00	70.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>96.00</b>				



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Cobalt Energy LLC

**6-8S-25W Graham,KS**

115 S. Belmont #12  
Wichita KS 67208

**Mollhagen 'A' #1-6**

Job Ticket: 66307

**DST#: 3**

ATTN: Corey Baker

Test Start: 2019.08.22 @ 12:15:18

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

32 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 69.00 sec/qt

Cushion Volume:

bbbl

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

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1700.00 ppm

Filter Cake: inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
75.00	OCM, 15%O 85%M	0.795
5.00	CO	0.071

Total Length: 80.00 ft      Total Volume: 0.866 bbl

Num Fluid Samples: 0

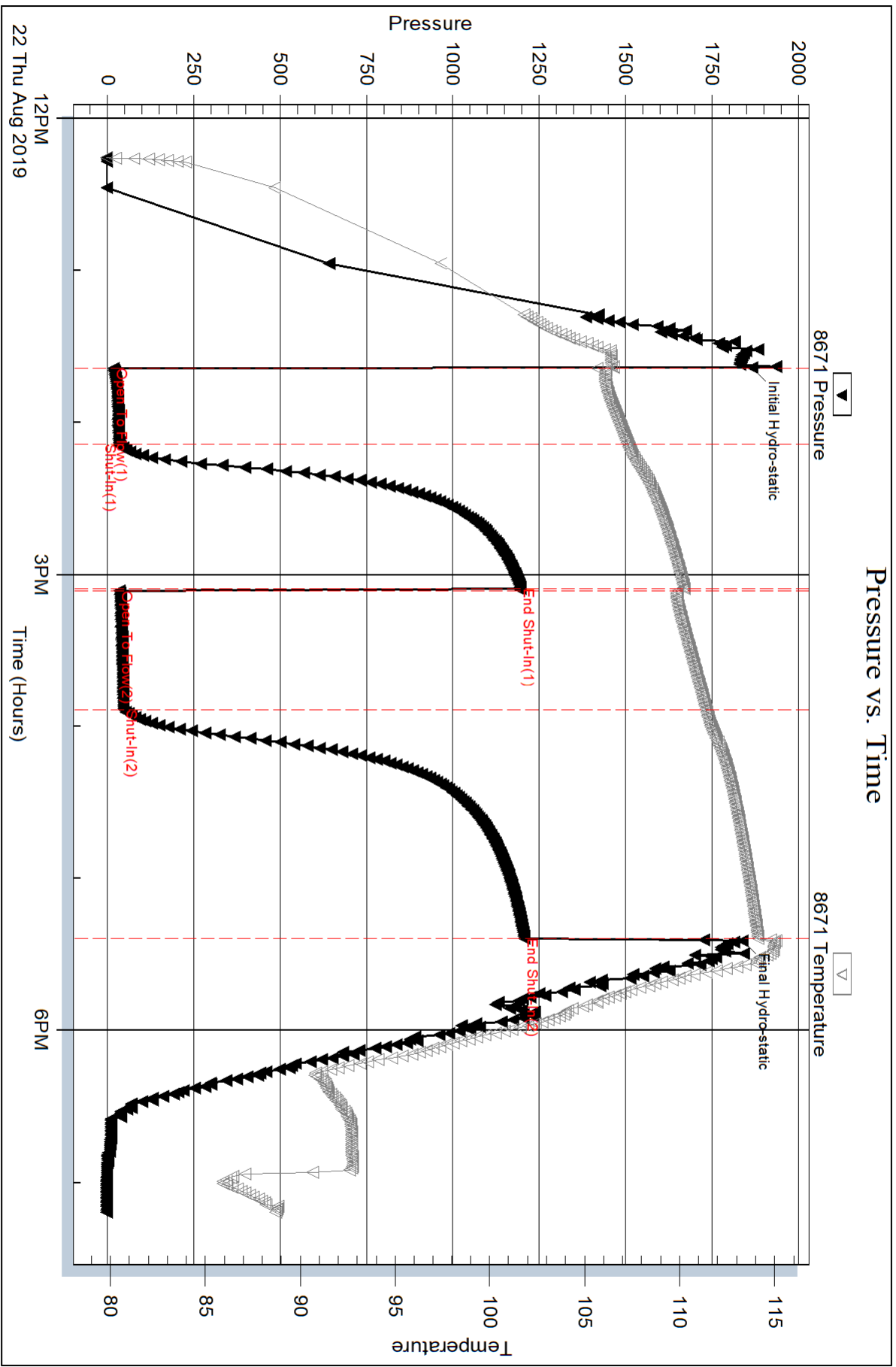
Num Gas Bombs: 0

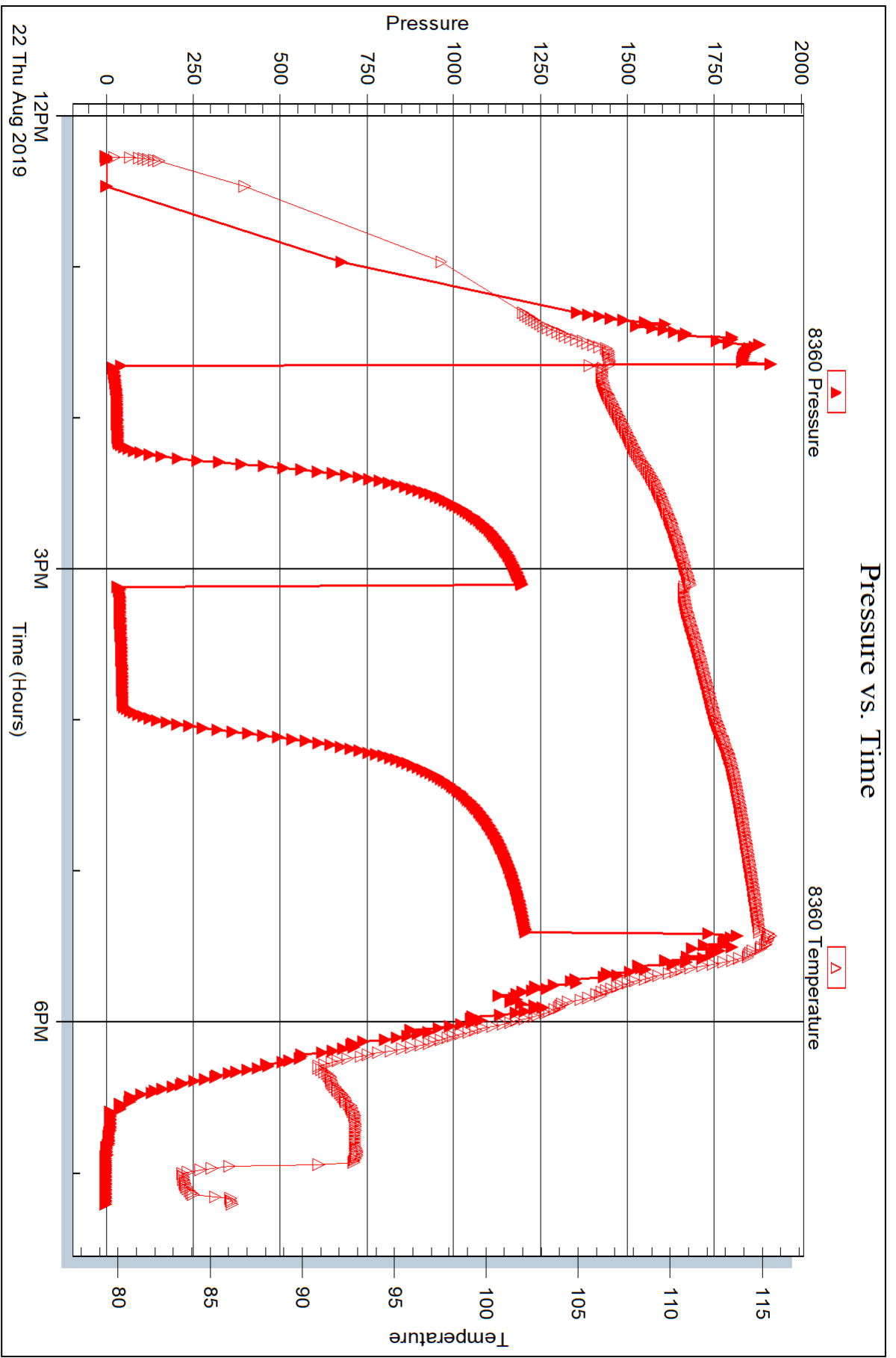
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







## DRILL STEM TEST REPORT

Prepared For: **Cobalt Energy LLC**

115 S. Belmont #12  
Wichita KS 67208

ATTN: Corey Baker

**Mollhagen 'A' #1-6**

**6-8S-25W Graham,KS**

Start Date: 2019.08.23 @ 01:14:41

End Date: 2019.08.23 @ 06:51:11

Job Ticket #: 66308                      DST #: 4

Trilobite Testing, Inc  
1515 Commerce Parkway Hays, KS 67601  
ph: 785-625-4778 fax: 785-625-5620

Printed: 2019.08.23 @ 14:38:16



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Cobalt Energy LLC

**6-8S-25W Graham, KS**

115 S. Belmont #12  
Wichita KS 67208

**Mollhagen 'A' #1-6**

ATTN: Corey Baker

Job Ticket: 66308

**DST#: 4**

Test Start: 2019.08.23 @ 01:14:41

## GENERAL INFORMATION:

Formation: **LKC "K"**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 03:06:41  
 Time Test Ended: 06:51:11  
 Interval: **3910.00 ft (KB) To 3930.00 ft (KB) (TVD)**  
 Total Depth: 3930.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Brannan Lonsdale  
 Unit No: #77  
 Reference Elevations: 2459.00 ft (KB)  
 2454.00 ft (CF)  
 KB to GR/CF: 5.00 ft

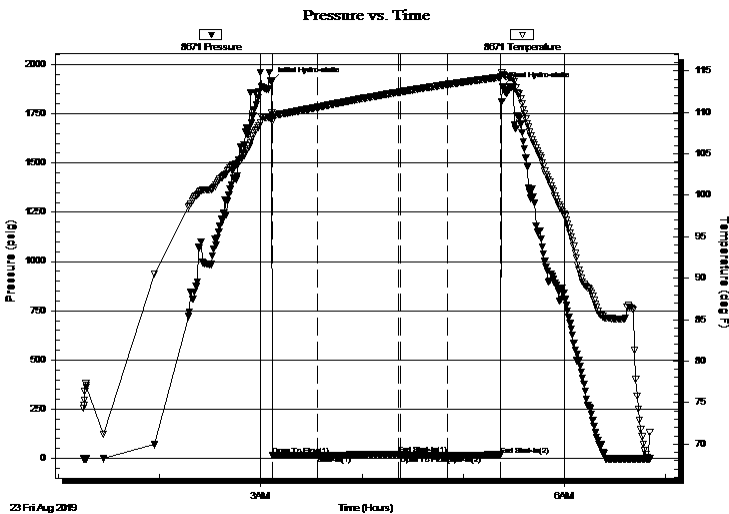
## Serial #: 8671

Outside

Press@RunDepth: 15.93 psig @ 3911.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2019.08.23 End Date: 2019.08.23 Last Calib.: 2019.08.23  
 Start Time: 01:14:46 End Time: 06:51:10 Time On Btm: 2019.08.23 @ 03:06:26  
 Time Off Btm: 2019.08.23 @ 05:23:11

TEST COMMENT: 30- IF- 0.25" blow  
 45- IS- No blow  
 30- FF- No blow  
 30- FSI- No blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1915.34	109.96	Initial Hydro-static
1	14.37	108.83	Open To Flow (1)
28	15.50	110.62	Shut-In(1)
76	21.94	112.42	End Shut-In(1)
77	14.76	112.44	Open To Flow (2)
105	15.93	113.35	Shut-In(2)
136	18.37	114.23	End Shut-In(2)
137	1887.91	114.76	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
2.00	OSM	0.01

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Cobalt Energy LLC

**6-8S-25W Graham, KS**

115 S. Belmont #12  
Wichita KS 67208

**Mollhagen 'A' #1-6**

Job Ticket: 66308

**DST#: 4**

ATTN: Corey Baker

Test Start: 2019.08.23 @ 01:14:41

## GENERAL INFORMATION:

Formation: **LKC "K"**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 03:06:41  
 Time Test Ended: 06:51:11  
 Interval: **3910.00 ft (KB) To 3930.00 ft (KB) (TVD)**  
 Total Depth: 3930.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Brannan Lonsdale  
 Unit No: #77  
 Reference Elevations: 2459.00 ft (KB)  
 2454.00 ft (CF)  
 KB to GR/CF: 5.00 ft

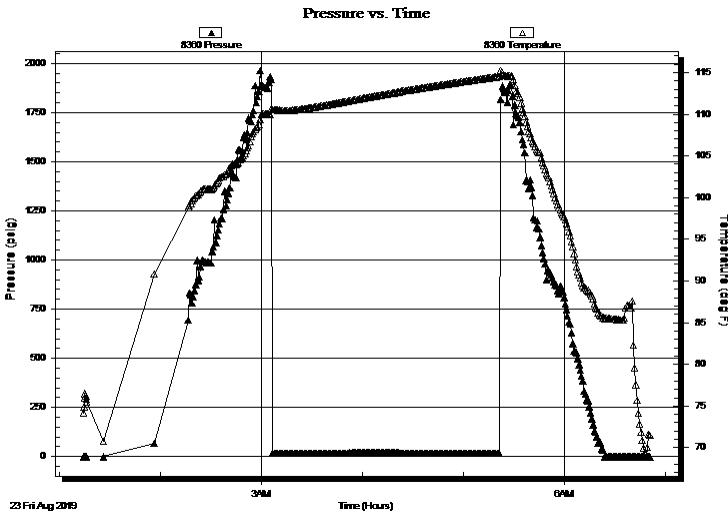
**Serial #: 8360**

**Inside**

Press@RunDepth: psig @ 3911.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2019.08.23 End Date: 2019.08.23 Last Calib.: 2019.08.23  
 Start Time: 01:14:16 End Time: 06:50:55 Time On Btm:  
 Time Off Btm:

TEST COMMENT: 30- IF- 0.25" blow  
 45- IS- No blow  
 30- FF- No blow  
 30- FS- No blow

## PRESSURE SUMMARY



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

## Recovery

Length (ft)	Description	Volume (bbl)
2.00	OSM	0.01

\* 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

**6-8S-25W Graham,KS**

115 S. Belmont #12  
Wichita KS 67208

**Mollhagen 'A' #1-6**

Job Ticket: 66308

**DST#: 4**

ATTN: Corey Baker

Test Start: 2019.08.23 @ 01:14:41

## Tool Information

Drill Pipe:	Length: 3863.00 ft	Diameter: 3.82 inches	Volume: 54.76 bbl	Tool Weight: 2500.00 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: 29.00 ft	Diameter: 2.25 inches	Volume: 0.14 bbl	Weight to Pull Loose: 75000.00 lb
			<u>Total Volume: 54.90 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	8.00 ft			String Weight: Initial 52000.00 lb
Depth to Top Packer:	3910.00 ft			Final 52000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	20.00 ft			
Tool Length:	46.00 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			3885.00	
Shut In Tool	5.00			3890.00	
Hydraulic tool	5.00			3895.00	
EM Tool	3.00			3898.00	
Safety Joint	3.00			3901.00	
Packer	5.00			3906.00	26.00 Bottom Of Top Packer
Packer	4.00			3910.00	
Stubb	1.00			3911.00	
Recorder	0.00	8360	Inside	3911.00	
Recorder	0.00	8671	Outside	3911.00	
Perforations	16.00			3927.00	
Bullnose	3.00			3930.00	20.00 Bottom Packers & Anchor

**Total Tool Length: 46.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Cobalt Energy LLC

**6-8S-25W Graham,KS**

115 S. Belmont #12  
Wichita KS 67208

**Mollhagen 'A' #1-6**

Job Ticket: 66308

**DST#: 4**

ATTN: Corey Baker

Test Start: 2019.08.23 @ 01:14:41

## 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: 69.00 sec/qt

Cushion Volume:

bbbl

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

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1700.00 ppm

Filter Cake: inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
2.00	OSM	0.010

Total Length: 2.00 ft      Total Volume: 0.010 bbl

Num Fluid Samples: 0

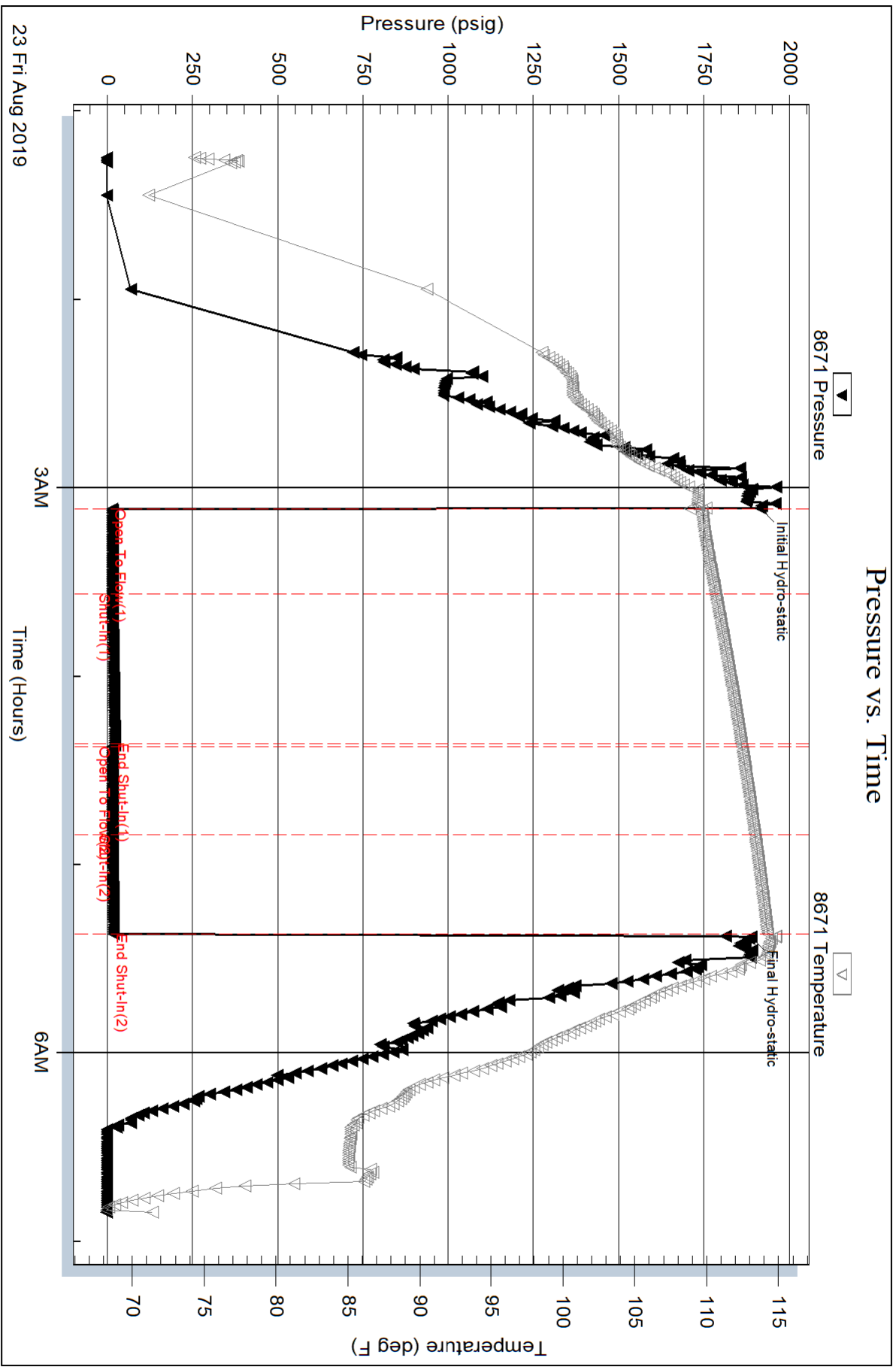
Num Gas Bombs: 0

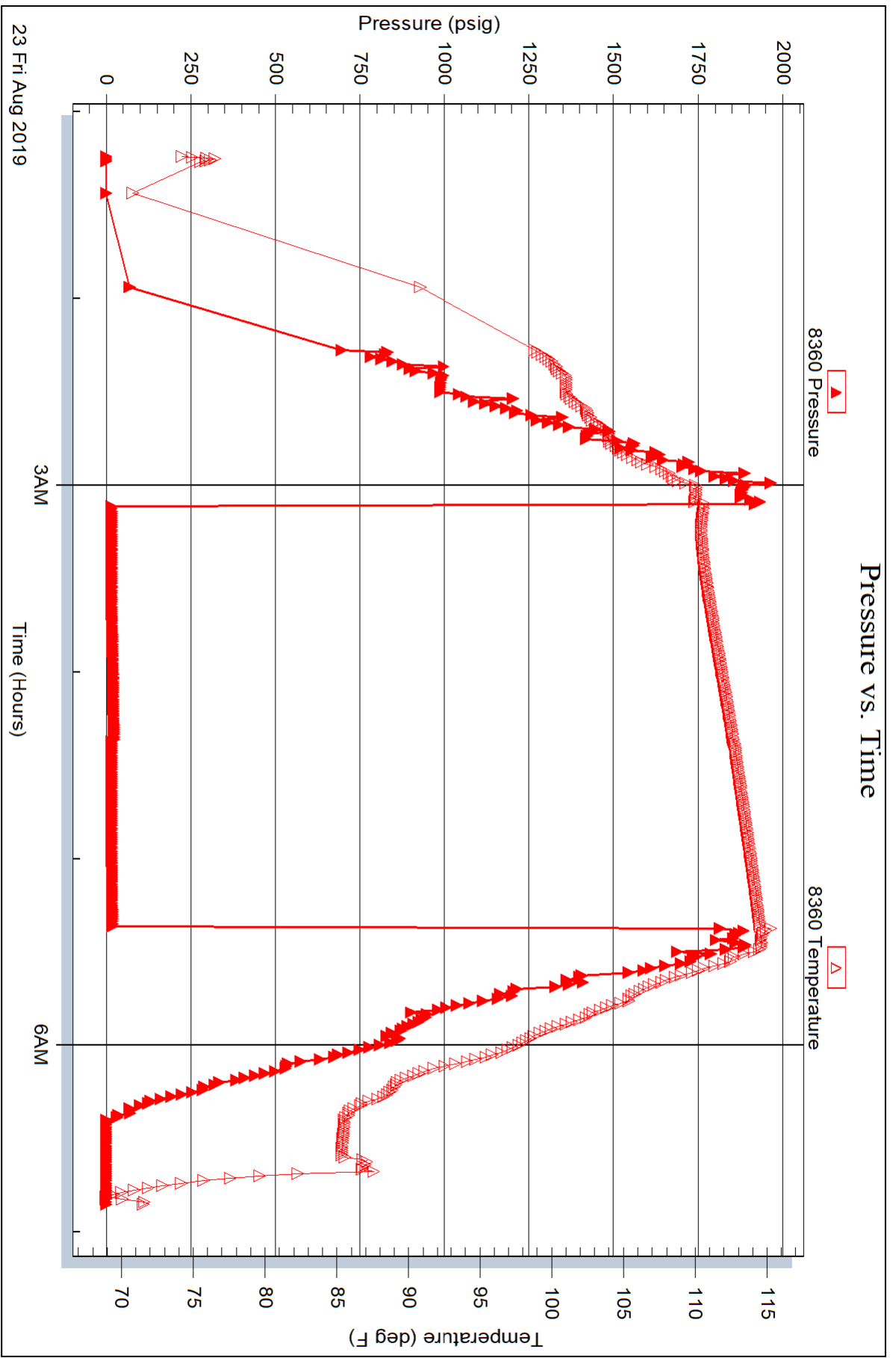
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket 66305

NO.

Well Name & No. Mallhegen Trust 'A' #1-6 Test No. 1 Date 8-21-19  
 Company Cobalt Energy LLC Elevation 2459' KB 2454' GL  
 Address 15 S. Belmont #12 Wichita ks 67208  
 Co. Rep / Geo. Corey Baker Rig Murfin #16  
 Location: Sec. 6 Twp 8S Rge. 25W Co. Graham State ks

Interval Tested 3758' - 3780' Zone Tested Lansing C  
 Anchor Length 22' Drill Pipe Run 3735.78' Mud Wt. 8.6  
 Top Packer Depth 3753' Drill Collars Run 28.99' Vis 55  
 Bottom Packer Depth 3758' Wt. Pipe Run 0 WL 7.2  
 Total Depth 3780' Chlorides 500 ppm System LCM 2#

Blow Description IIP - Faint surface died in 5 mins  
ISI - No return  
FFP - No surface blow  
FSI - No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>628'</u>	<u>Mud</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 628' BHT 115°F Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic <u>1828</u>	<input checked="" type="checkbox"/> Test 1200	T-On Location <u>12:33am</u>
(B) First Initial Flow <u>317</u>	<input type="checkbox"/> Jars _____	T-Started <u>1145am</u>
(C) First Final Flow <u>323</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>4:33am</u>
(D) Initial Shut-In <u>1160</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>7:03am</u>
(E) Second Initial Flow <u>322</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>9:02am</u>
(F) Second Final Flow <u>324</u>	<input checked="" type="checkbox"/> Mileage <u>156 R/T</u> 156	Comments <u>Think the tool opened before we got to bottom</u>
(G) Final Shut-In <u>1190</u>	<input type="checkbox"/> Sampler _____	<input checked="" type="checkbox"/> EM Tool <u>350</u>
(H) Final Hydrostatic <u>1825</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>30</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Extra Copies _____
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder _____	Sub Total <u>350</u>
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby _____	Total <u>1781</u>
	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total <u>1431</u>	

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 66306

NO.

Well Name & No. Mallhogen Trust 'A' #1-6 Test No. 2 Date 8-21-19  
 Company Cobalt Energy LLC Elevation 2459' KB 2454' GL  
 Address 115 S. Belmont #12 Wichita Ks 67208  
 Co. Rep / Geo. Casey Baker Rig Murphy #16  
 Location: Sec. 6 Twp 8S Rge. 25W Co. Graham State Ks

Interval Tested 3752'-3820' Zone Tested C-F  
 Anchor Length 68' Drill Pipe Run 3704.28' Mud Wt. 9.1  
 Top Packer Depth 3747' Drill Collars Run 28.99 Vis 58  
 Bottom Packer Depth 3752' Wt. Pipe Run 0 WL 7.2  
 Total Depth 3820' Chlorides 700 ppm System LCM 2#

Blow Description FFP - surface blow built to B.O.B in 23 mins.  
ISI - No Return  
FFP - surface blow built to B.O.B in 50 mins.  
FST - No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>171'</u>	<u>Wm</u>		<u>40</u>	<u>60</u>	
<u>189'</u>	<u>MW</u>		<u>60</u>	<u>40</u>	
<u>315'</u>	<u>MW</u>		<u>90</u>	<u>10</u>	

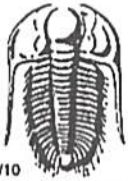
Rec Total 675 BHT 120°F Gravity \_\_\_\_\_ API RW 375 @ 72 °F Chlorides 25,000 ppm  
 (A) Initial Hydrostatic 1841  Test 1200 T-On Location 3:53pm  
 (B) First Initial Flow 39  Jars \_\_\_\_\_ T-Started 4:10pm  
 (C) First Final Flow 157  Safety Joint 75 T-Open 5:53pm  
 (D) Initial Shut-In 1214  Circ Sub \_\_\_\_\_ T-Pulled 9:38pm  
 (E) Second Initial Flow 155  Hourly Standby \_\_\_\_\_ T-Out 12:19am  
 (F) Second Final Flow 331  Mileage 1516 R/T #156 Comments \_\_\_\_\_  
 (G) Final Shut-In 1209  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1808  Straddle \_\_\_\_\_  EM Tool 350  
 Shale Packer \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  Extra Copies \_\_\_\_\_

Initial Open 30  
 Initial Shut-In 45  
 Final Flow 60  
 Final Shut-In 90  
 Sub Total 1431 MP/DST Disc't \_\_\_\_\_  
 Sub Total 1781

Approved By \_\_\_\_\_ Our Representative Raymond J. [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 66307

NO.

Well Name & No. Mollhagen Trust A #1-6 Test No. 3 Date 8/22/19  
 Company Cobalt Energy, LLC Elevation 2459 KB 2454 GL  
 Address 115 S. Belmont #12, PO Box 8037 Wichita, KS 67208  
 Co. Rep / Geo. Coney Becker Rig Murphy 16  
 Location: Sec. 6 Twp S Rge. 25 W Co. Graham State KS

Interval Tested 3839-3909 Zone Tested LKC "H-J"  
 Anchor Length 20' Drill Pipe Run 3799 Mud Wt. 9.1  
 Top Packer Depth 3834 Drill Collars Run 29 Vis 69  
 Bottom Packer Depth 3839 Wt. Pipe Run \_\_\_\_\_ WL 8.0  
 Total Depth 3909 Chlorides 1,900 ppm System LCM 1#

Blow Description IF - slowly built to 3"  
ISF - No blow  
PF - slowly built to 4 1/2"  
BSF - No blow

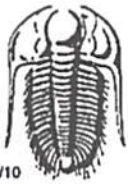
Rec	Feet of	%gas	%oil	%water	%mud
<u>25'</u>	<u>OCM</u>		<u>15</u>		<u>85</u>
<u>5'</u>	<u>LO</u>				
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 80' BHT 114° Gravity 32 API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic <u>1866</u>	<input checked="" type="checkbox"/> Test 1200	T-On Location <u>1145</u>
(B) First Initial Flow <u>18</u>	<input type="checkbox"/> Jars	T-Started <u>1215</u>
(C) First Final Flow <u>33</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>1341</u>
(D) Initial Shut-In <u>1197</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>1726</u>
(E) Second Initial Flow <u>34</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>1914</u>
(F) Second Final Flow <u>47</u>	<input checked="" type="checkbox"/> Mileage <u>156 RT</u> 156	Comments _____
(G) Final Shut-In <u>1207</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1838</u>	<input type="checkbox"/> Straddle	<input checked="" type="checkbox"/> EM Tool 350
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Shale Packer
Initial Shut-In <u>45</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Ruined Packer
Final Flow <u>60</u>	<input type="checkbox"/> Extra Recorder	<input type="checkbox"/> Extra Copies
Final Shut-In <u>90</u>	<input type="checkbox"/> Day Standby	Sub Total <u>350</u>
	<input type="checkbox"/> Accessibility	Total <u>1781</u>
	Sub Total <u>1431</u>	MP/DST Disc't _____

Approved By \_\_\_\_\_ Our Representative Bruce Lonsdale

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 66308

NO.

Well Name & No. Mallhagen Trust A<sup>1</sup>-6 Test No. 4 Date 8/23/19  
 Company Cobalt Energy LLC Elevation 2459 KB 2454 GL  
 Address 115 S. Belmont #12, PO Box 8037 Wichita, KS 67208  
 Co. Rep / Geo. Cory Baker Rig Marlin 16  
 Location: Sec. 6 Twp 8 S Rge. 25 W Co. Graham State KS

Interval Tested 3910 - 3930 Zone Tested LKC "K"  
 Anchor Length 20' Drill Pipe Run 3863 Mud Wt. 9.1  
 Top Packer Depth 3905 Drill Collars Run 29 Vis 69  
 Bottom Packer Depth 3910 Wt. Pipe Run \_\_\_\_\_ WL 8.0  
 Total Depth 3930 Chlorides 1700 ppm System LCM 1#

Blow Description IF - 1/4" blow  
ISF - No blow  
FF - No blow  
FSF - No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>2</u>	<u>OSM</u>				
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 2' BHT 114° Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic <u>1915</u>	<input checked="" type="checkbox"/> Test <u>1200</u>	T-On Location <u>0045</u>
(B) First Initial Flow <u>14</u>	<input type="checkbox"/> Jars _____	T-Started <u>0114</u>
(C) First Final Flow <u>16</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>0306</u>
(D) Initial Shut-In <u>22</u>	<input type="checkbox"/> Circ Sub _____	T-Pulled <u>0521</u>
(E) Second Initial Flow <u>15</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>0651</u>
(F) Second Final Flow <u>16</u>	<input checked="" type="checkbox"/> Mileage <u>156 RT</u> 156	Comments _____
(G) Final Shut-In <u>18</u>	<input type="checkbox"/> Sampler _____	
(H) Final Hydrostatic <u>1888</u>	<input type="checkbox"/> Straddle _____	<input checked="" type="checkbox"/> EM Tool <u>350</u>
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer _____	<input type="checkbox"/> Ruined Shale Packer _____
Initial Shut-In <u>45</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Ruined Packer _____
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder _____	<input type="checkbox"/> Extra Copies _____
Final Shut-In <u>30</u>	<input type="checkbox"/> Day Standby _____	Sub Total <u>350</u>
	<input type="checkbox"/> Accessibility _____	Total <u>1781</u>
	Sub Total <u>1431</u>	MP/DST Disc't _____

Approved By \_\_\_\_\_ Our Representative Brennan Lousdale

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.