



DRILL STEM TEST REPORT

Prepared For: **Culbreath Oil & Gas Company**

3501 S Yale Ave.
Tulsa, OK 74135

ATTN: Steve Murphy

Zerr #4-17

17-12s-32w Logan,KS

Start Date: 2016.08.23 @ 12:15:50

End Date: 2016.08.23 @ 19:51:50

Job Ticket #: 65505 DST #: 1

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

Printed: 2016.08.29 @ 10:01:05



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Culbreath Oil & Gas Company

17-12s-32w Logan,KS

3501 S Yale Ave.
Tulsa, OK 74135

Zerr #4-17

Job Ticket: 65505

DST#: 1

ATTN: Steve Murphy

Test Start: 2016.08.23 @ 12:15:50

GENERAL INFORMATION:

Formation: **LKC E**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 14:25:50

Time Test Ended: 19:51:50

Test Type: Conventional Bottom Hole (Initial)

Tester: Brandon Turley

Unit No: 79

Interval: 4066.00 ft (KB) To 4082.00 ft (KB) (TVD)

Reference Elevations: 2994.00 ft (KB)

Total Depth: 4082.00 ft (KB) (TVD)

2984.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 10.00 ft

Serial #: 8166 Outside

Press@RunDepth: 79.83 psig @ 4067.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.08.23

End Date:

2016.08.23

Last Calib.:

2016.08.23

Start Time:

12:15:55

End Time:

19:51:49

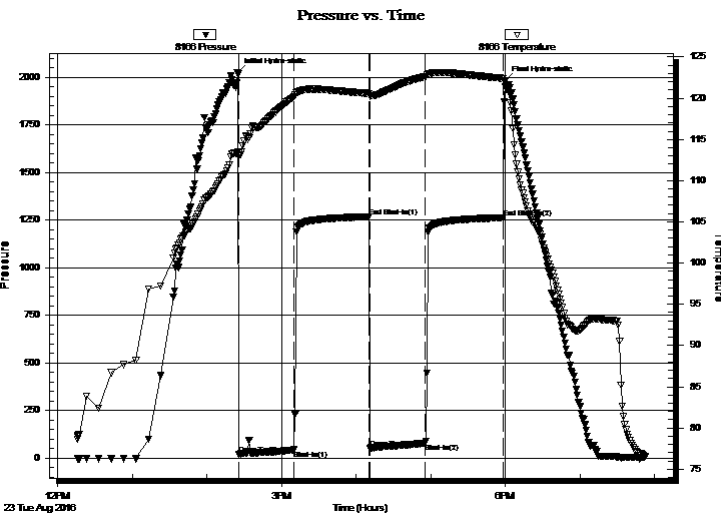
Time On Btm:

2016.08.23 @ 14:24:20

Time Off Btm:

2016.08.23 @ 17:59:50

TEST COMMENT: IF: Surface blow built to 4" in 45 min.
IS: No return.
FF: Surface blow built to 4" in 45 min.
FS: No return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2027.02	113.40	Initial Hydro-static
2	21.61	113.04	Open To Flow (1)
46	43.97	120.18	Shut-In(1)
106	1268.80	120.59	End Shut-In(1)
107	53.70	120.24	Open To Flow (2)
151	79.83	122.61	Shut-In(2)
214	1263.73	122.41	End Shut-In(2)
216	1982.32	121.40	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
67.00	mcw 10%m 90%w	0.94
62.00	mcw 5%m 95%w	0.87

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Culbreath Oil & Gas Company

17-12s-32w Logan,KS

3501 S Yale Ave.
Tulsa, OK 74135

Zerr #4-17

Job Ticket: 65505

DST#: 1

ATTN: Steve Murphy

Test Start: 2016.08.23 @ 12:15:50

Tool Information

Drill Pipe:	Length: 4069.00 ft	Diameter: 3.80 inches	Volume: 57.08 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose:	65000.00 lb
			<u>Total Volume: 57.08 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	30.00 ft			String Weight: Initial	55000.00 lb
Depth to Top Packer:	4066.00 ft			Final	55000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	16.00 ft				
Tool Length:	43.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

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

Stubb	1.00			4040.00	
Shut In Tool	5.00			4045.00	
Hydraulic tool	5.00			4050.00	
Jars	5.00			4055.00	
Safety Joint	2.00			4057.00	
Packer	5.00			4062.00	27.00 Bottom Of Top Packer
Packer	4.00			4066.00	
Stubb	1.00			4067.00	
Recorder	0.00	8875	Inside	4067.00	
Recorder	0.00	8166	Outside	4067.00	
Perforations	10.00			4077.00	
Bullnose	5.00			4082.00	16.00 Bottom Packers & Anchor

Total Tool Length: 43.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Culbreath Oil & Gas Company

17-12s-32w Logan,KS

3501 S Yale Ave.
Tulsa, OK 74135

Zerr #4-17

Job Ticket: 65505

DST#: 1

ATTN: Steve Murphy

Test Start: 2016.08.23 @ 12:15:50

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

19000 ppm

Viscosity: 54.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.98 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
67.00	mcw 10%m 90%w	0.940
62.00	mcw 5%m 95%w	0.870

Total Length: 129.00 ft Total Volume: 1.810 bbl

Num Fluid Samples: 0

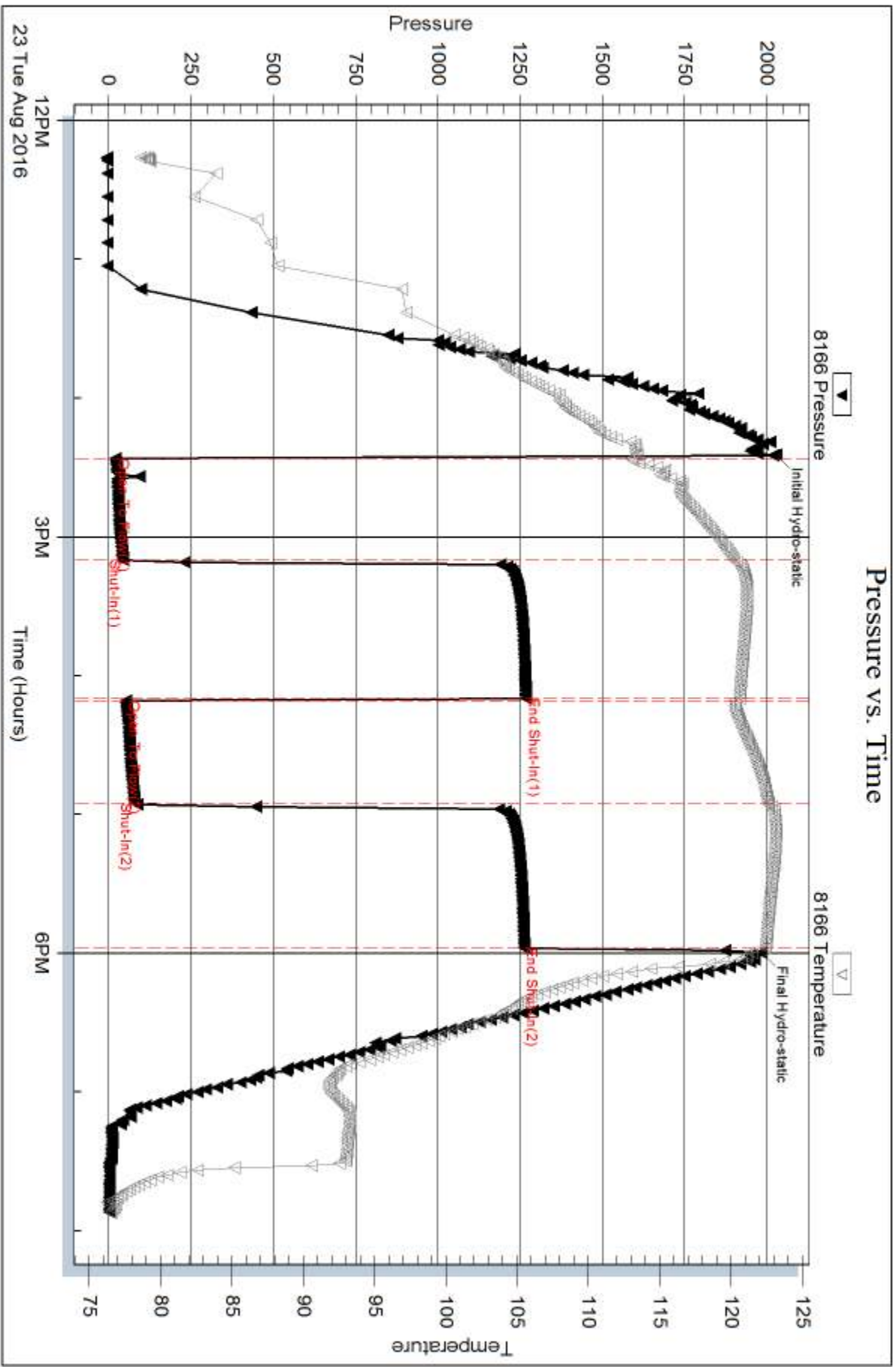
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: .27@91=19000



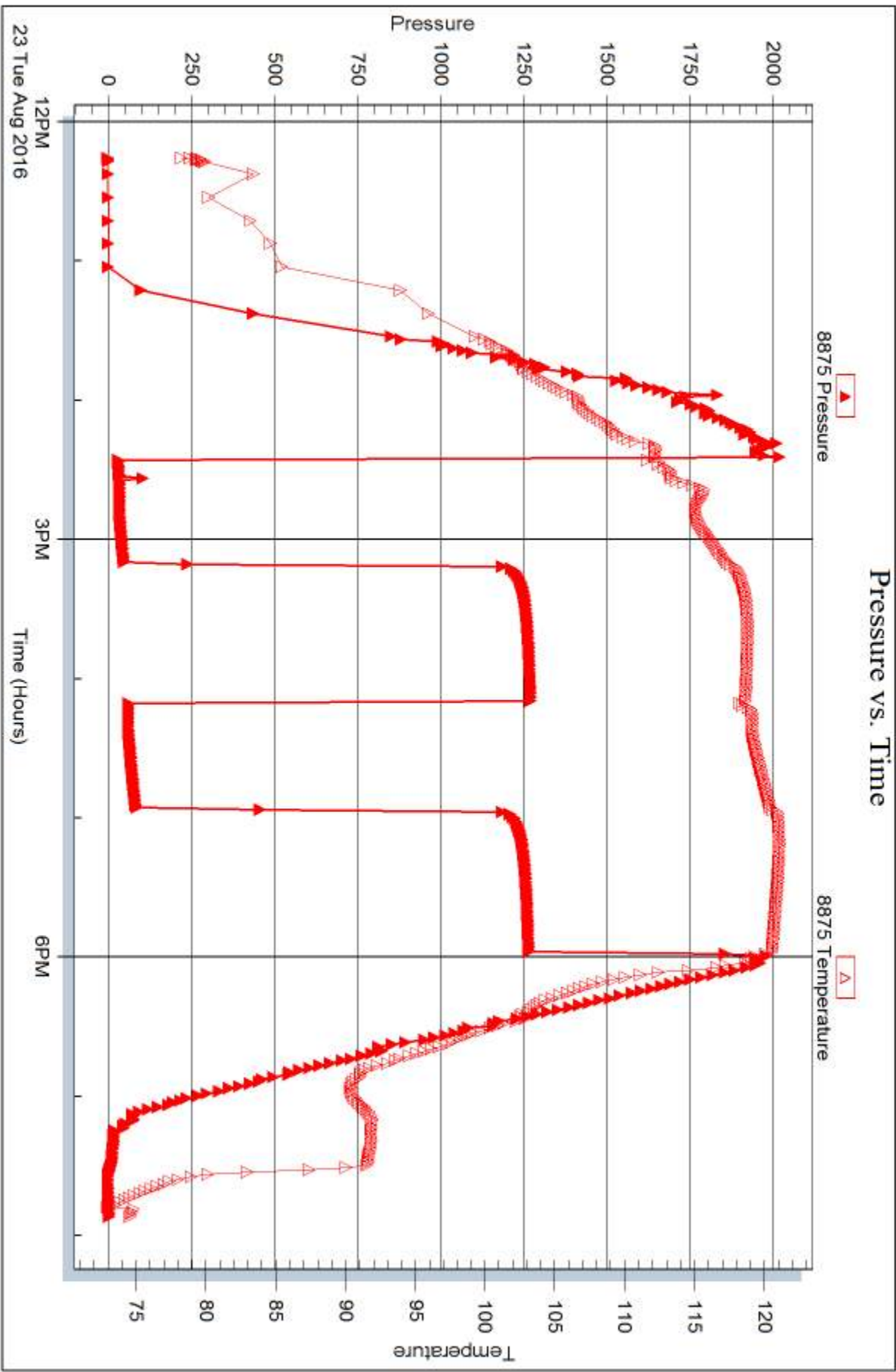
Serial #: 8875

Inside

Culbreath Oil & Gas Company

Zerr #4-17

DST Test Number: 1





DRILL STEM TEST REPORT

Prepared For: **Culbreath Oil & Gas Company**

3501 S Yale Ave.
Tulsa, OK 74135

ATTN: Steve Murphy

Zerr #4-17

17-12s-32w Logan,KS

Start Date: 2016.08.24 @ 11:01:23

End Date: 2016.08.24 @ 18:01:23

Job Ticket #: 65506 DST #: 2

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

Printed: 2016.08.29 @ 10:00:42



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Culbreath Oil & Gas Company

17-12s-32w Logan,KS

3501 S Yale Ave.
Tulsa, OK 74135

Zerr #4-17

Job Ticket: 65506

DST#: 2

ATTN: Steve Murphy

Test Start: 2016.08.24 @ 11:01:23

GENERAL INFORMATION:

Formation: **LKC H-1**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 12:43:23

Time Test Ended: 18:01:23

Test Type: Conventional Bottom Hole (Reset)

Tester: Brandon Turley

Unit No: 79

Interval: 4140.00 ft (KB) To 4192.00 ft (KB) (TVD)

Reference Elevations: 2994.00 ft (KB)

Total Depth: 4192.00 ft (KB) (TVD)

2984.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 10.00 ft

Serial #: 8166

Outside

Press@RunDepth: 207.54 psig @ 4141.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.08.24

End Date:

2016.08.24

Last Calib.:

2016.08.24

Start Time: 11:01:28

End Time:

18:01:22

Time On Btm:

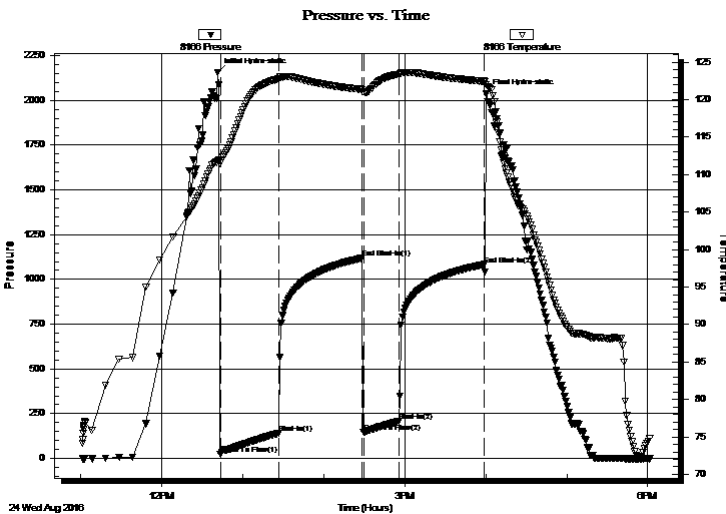
2016.08.24 @ 12:41:23

Time Off Btm:

2016.08.24 @ 16:00:23

TEST COMMENT: IF: BOB in 17 min.
IS: No return.
FF: BOB in 25 min.
FS: No return.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2156.00	111.85	Initial Hydro-static
2	24.82	111.49	Open To Flow (1)
46	141.99	122.79	Shut-In(1)
107	1118.94	121.36	End Shut-In(1)
108	145.16	121.09	Open To Flow (2)
135	207.54	123.39	Shut-In(2)
198	1083.43	122.44	End Shut-In(2)
199	2035.18	122.02	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
124.00	mcw 95%w 5%m	1.74
124.00	mcw 90%w 10%m	1.74
155.00	mcw 60%w 40%m	2.17

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Culbreath Oil & Gas Company

17-12s-32w Logan,KS

3501 S Yale Ave.
Tulsa, OK 74135

Zerr #4-17

Job Ticket: 65506

DST#: 2

ATTN: Steve Murphy

Test Start: 2016.08.24 @ 11:01:23

Tool Information

Drill Pipe:	Length: 4136.00 ft	Diameter: 3.80 inches	Volume: 58.02 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose:	65000.00 lb
			<u>Total Volume: 58.02 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	23.00 ft			String Weight: Initial	55000.00 lb
Depth to Top Packer:	4140.00 ft			Final	57000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	52.00 ft				
Tool Length:	79.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Stubb	1.00			4114.00	
Shut In Tool	5.00			4119.00	
Hydraulic tool	5.00			4124.00	
Jars	5.00			4129.00	
Safety Joint	2.00			4131.00	
Packer	5.00			4136.00	27.00 Bottom Of Top Packer
Packer	4.00			4140.00	
Stubb	1.00			4141.00	
Recorder	0.00	8875	Inside	4141.00	
Recorder	0.00	8166	Outside	4141.00	
Perforations	12.00			4153.00	
Change Over Sub	1.00			4154.00	
Drill Pipe	32.00			4186.00	
Change Over Sub	1.00			4187.00	
Bullnose	5.00			4192.00	52.00 Bottom Packers & Anchor

Total Tool Length: 79.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Culbreath Oil & Gas Company

17-12s-32w Logan,KS

3501 S Yale Ave.
Tulsa, OK 74135

Zerr #4-17

Job Ticket: 65506

DST#: 2

ATTN: Steve Murphy

Test Start: 2016.08.24 @ 11:01:23

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

25000 ppm

Viscosity: 54.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.97 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
124.00	mcw 95%w 5%m	1.739
124.00	mcw 90%w 10%m	1.739
155.00	mcw 60%w 40%m	2.174

Total Length: 403.00 ft Total Volume: 5.652 bbl

Num Fluid Samples: 0

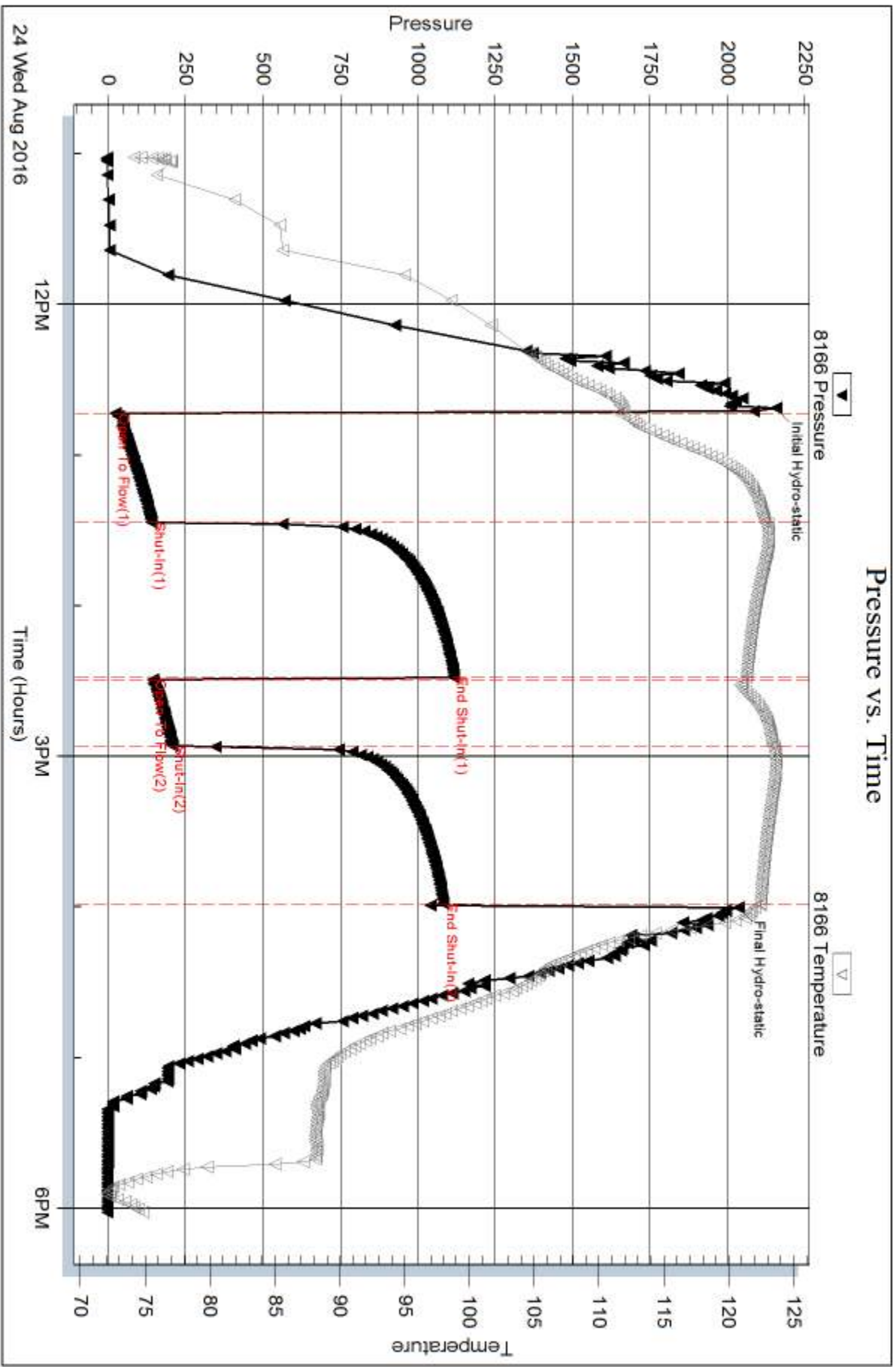
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: .25@78=25000



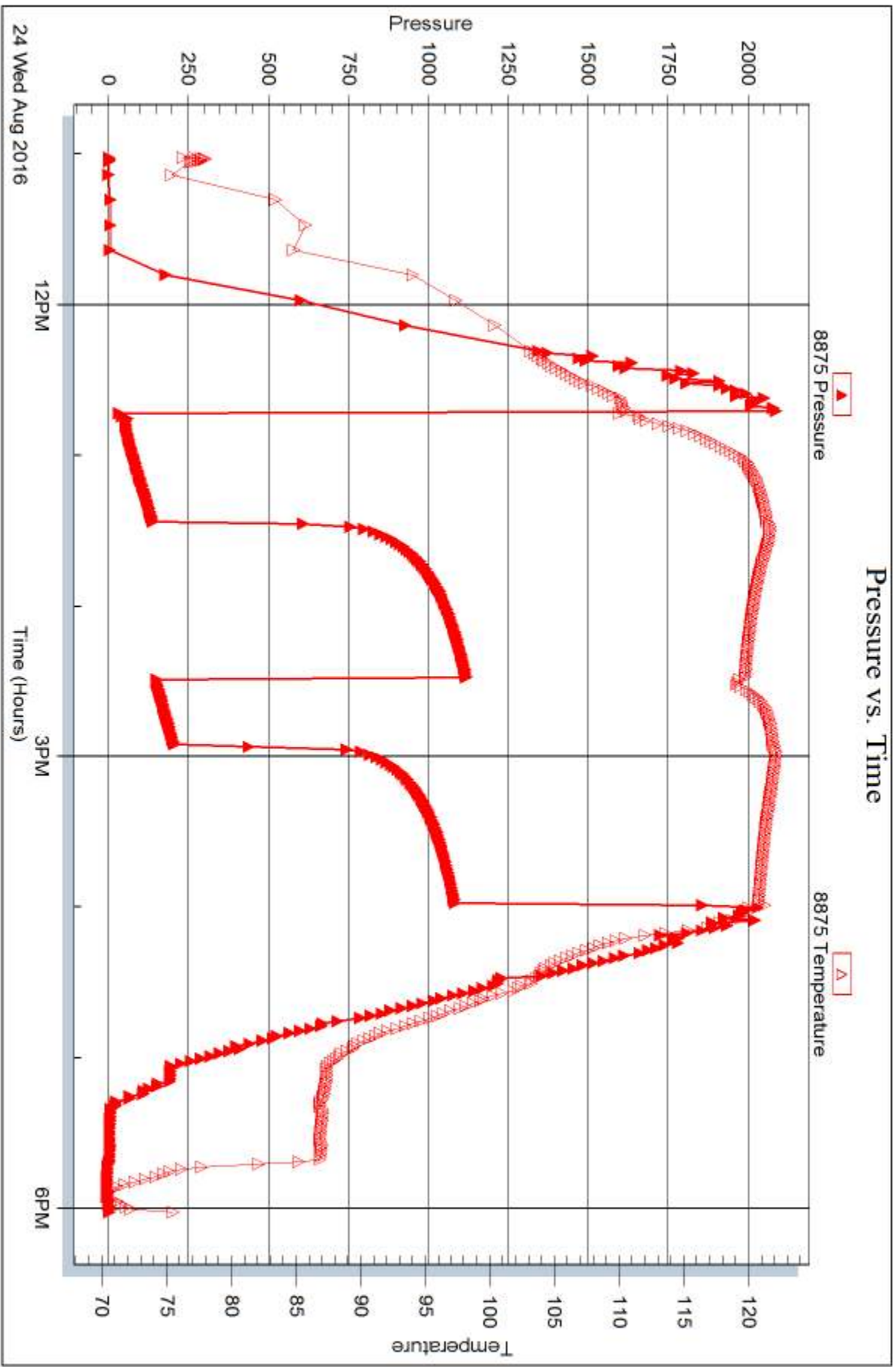
Serial #: 8875

Inside

Culbreath Oil & Gas Company

Zerr #4-17

DST Test Number: 2





DRILL STEM TEST REPORT

Prepared For: **Culbreath Oil & Gas Company**

3501 S Yale Ave.
Tulsa, OK 74135

ATTN: Steve Murphy

Zerr #4-17

17-12s-32w Logan,KS

Start Date: 2016.08.25 @ 01:59:17

End Date: 2016.08.25 @ 07:33:47

Job Ticket #: 65507 DST #: 3

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

Printed: 2016.08.29 @ 10:00:17



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Culbreath Oil & Gas Company

17-12s-32w Logan,KS

3501 S Yale Ave.
Tulsa, OK 74135

Zerr #4-17

Job Ticket: 65507

DST#: 3

ATTN: Steve Murphy

Test Start: 2016.08.25 @ 01:59:17

GENERAL INFORMATION:

Formation: **LKC J**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 03:45:17

Time Test Ended: 07:33:47

Test Type: Conventional Bottom Hole (Reset)

Tester: Brandon Turley

Unit No: 79

Interval: 4194.00 ft (KB) To 4210.00 ft (KB) (TVD)

Reference Elevations: 2994.00 ft (KB)

Total Depth: 4210.00 ft (KB) (TVD)

2984.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 10.00 ft

Serial #: 8166

Outside

Press@RunDepth: 13.75 psig @ 4195.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.08.25

End Date:

2016.08.25

Last Calib.:

2016.08.25

Start Time: 01:59:22

End Time:

07:33:46

Time On Btm:

2016.08.25 @ 03:43:47

Time Off Btm:

2016.08.25 @ 05:47:17

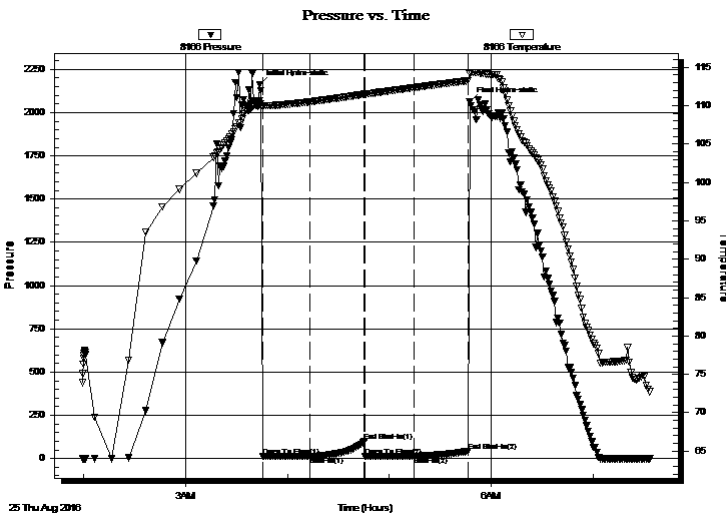
TEST COMMENT: IF: Surface blow died in 4 min.

IS: No return.

FF: No blow.

FS: No return.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2160.64	110.18	Initial Hydro-static
2	10.87	109.87	Open To Flow (1)
30	12.99	110.51	Shut-In(1)
62	100.97	111.49	End Shut-In(1)
62	12.59	111.46	Open To Flow (2)
91	13.75	112.37	Shut-In(2)
123	42.76	113.27	End Shut-In(2)
124	2065.24	114.16	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	mud oil spots 100%m	0.07

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Culbreath Oil & Gas Company

17-12s-32w Logan,KS

3501 S Yale Ave.
Tulsa, OK 74135

Zerr #4-17

Job Ticket: 65507

DST#: 3

ATTN: Steve Murphy

Test Start: 2016.08.25 @ 01:59:17

Tool Information

Drill Pipe:	Length: 4201.00 ft	Diameter: 3.80 inches	Volume: 58.93 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 65000.00 lb
			<u>Total Volume: 58.93 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	27.00 ft			String Weight: Initial 55000.00 lb
Depth to Top Packer:	4194.00 ft			Final 55000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	16.00 ft			
Tool Length:	36.00 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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Stubb	1.00			4175.00	
Shut In Tool	5.00			4180.00	
Hydraulic tool	5.00			4185.00	
Packer	5.00			4190.00	20.00 Bottom Of Top Packer
Packer	4.00			4194.00	
Stubb	1.00			4195.00	
Recorder	0.00	8875	Inside	4195.00	
Recorder	0.00	8166	Outside	4195.00	
Perforations	10.00			4205.00	
Bullnose	5.00			4210.00	16.00 Bottom Packers & Anchor
Total Tool Length:	36.00				



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Culbreath Oil & Gas Company

17-12s-32w Logan,KS

3501 S Yale Ave.
Tulsa, OK 74135

Zerr #4-17

Job Ticket: 65507

DST#: 3

ATTN: Steve Murphy

Test Start: 2016.08.25 @ 01:59:17

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 53.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.99 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2500.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	mud oil spots 100%m	0.070

Total Length: 5.00 ft Total Volume: 0.070 bbl

Num Fluid Samples: 0

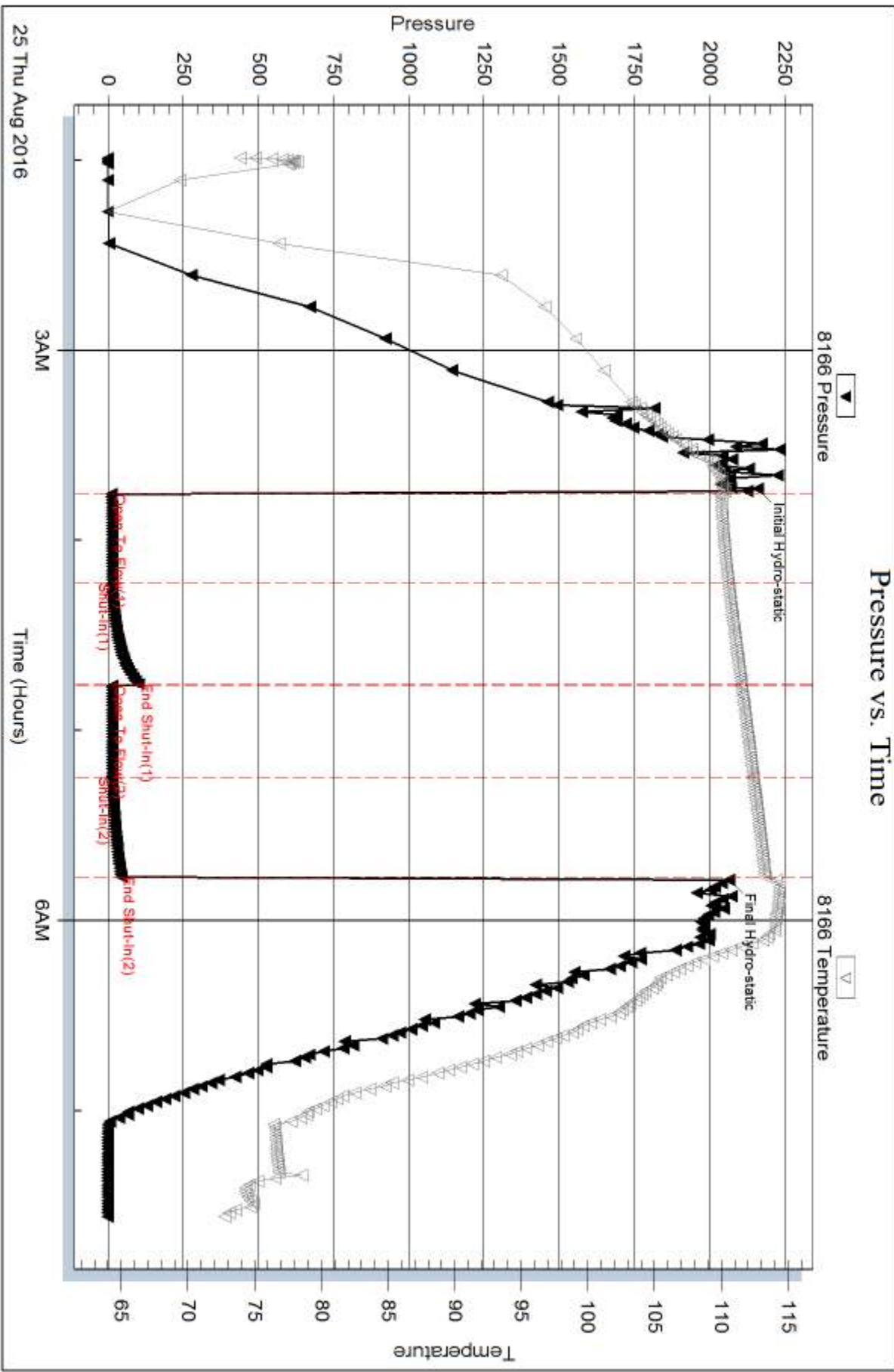
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



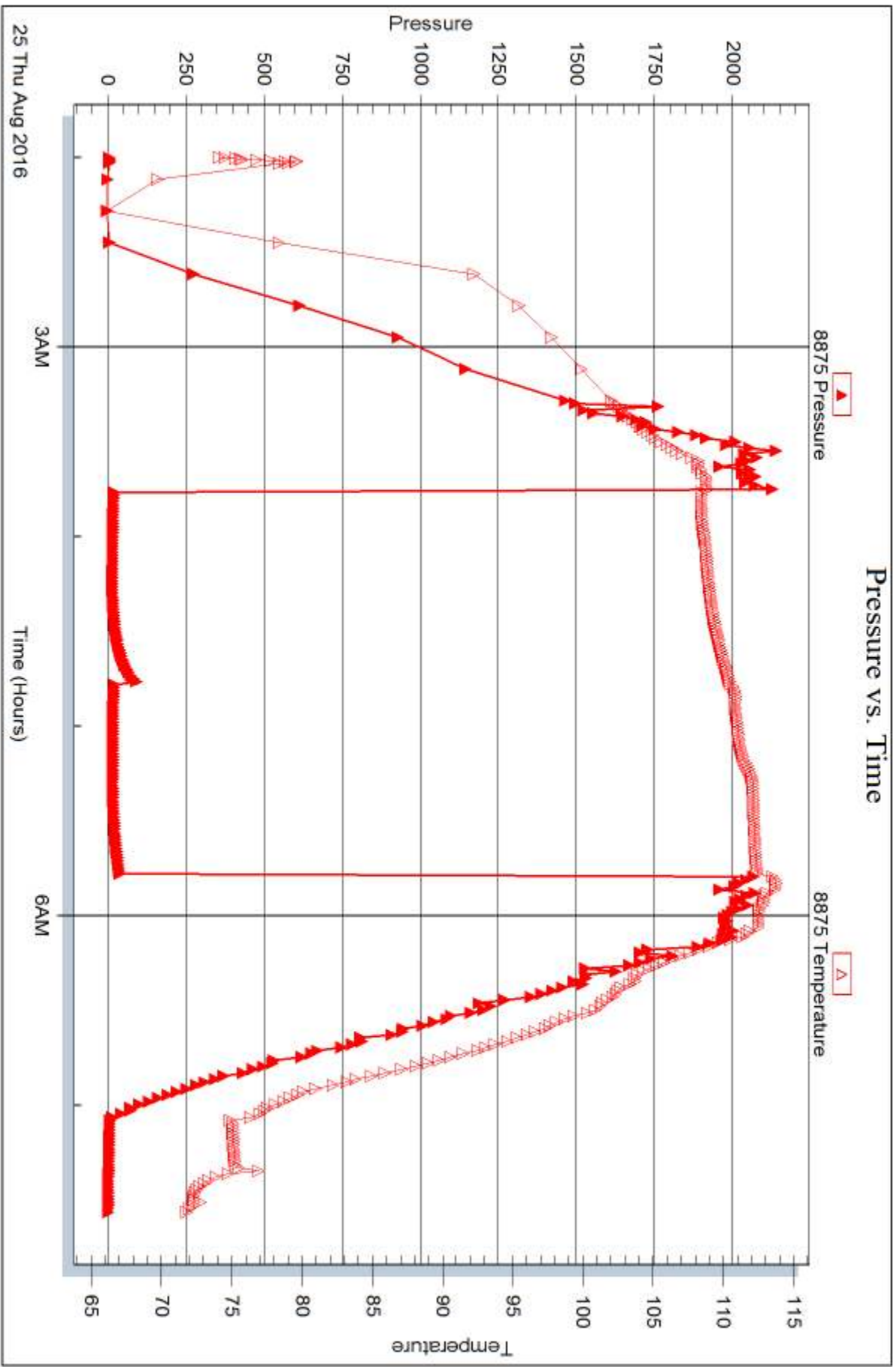
Serial #: 8875

Inside

Culbreath Oil & Gas Company

Zerr #4-17

DST Test Number: 3





DRILL STEM TEST REPORT

Prepared For: **Culbreath Oil & Gas Company**

3501 S Yale Ave.
Tulsa, OK 74135

ATTN: Steve Murphy

Zerr #4-17

17-12s-32w Logan,KS

Start Date: 2016.08.27 @ 01:22:00

End Date: 2016.08.27 @ 08:57:30

Job Ticket #: 65508 DST #: 4

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

Printed: 2016.08.29 @ 09:59:27



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Culbreath Oil & Gas Company

17-12s-32w Logan,KS

3501 S Yale Ave.
Tulsa, OK 74135

Zerr #4-17

Job Ticket: 65508

DST#: 4

ATTN: Steve Murphy

Test Start: 2016.08.27 @ 01:22:00

GENERAL INFORMATION:

Formation: **Cherokee Lime - John**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 03:09:30

Time Test Ended: 08:57:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Brandon Turley

Unit No: 79

Interval: **4496.00 ft (KB) To 4574.00 ft (KB) (TVD)**

Reference Elevations: 2994.00 ft (KB)

Total Depth: 4574.00 ft (KB) (TVD)

2984.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 10.00 ft

Serial #: 8166 Outside

Press@RunDepth: 49.17 psig @ 4497.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2016.08.27

End Date:

2016.08.27

Last Calib.:

2016.08.27

Start Time: 01:22:05

End Time:

08:57:29

Time On Btm:

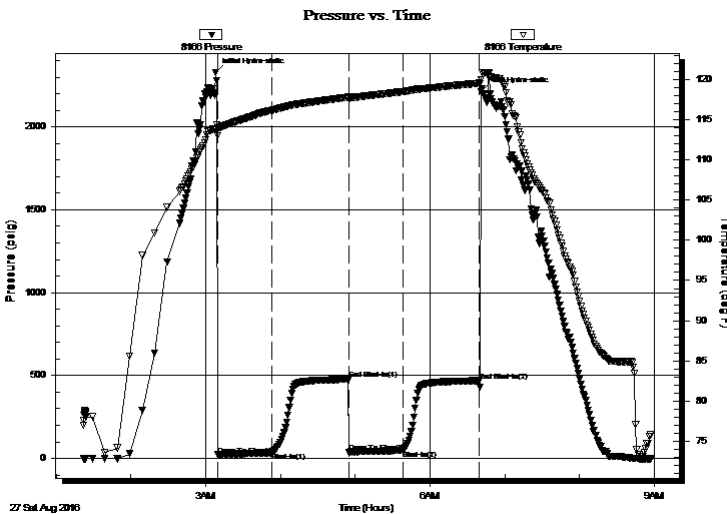
2016.08.27 @ 03:08:00

Time Off Btm:

2016.08.27 @ 06:41:00

TEST COMMENT: IF: BOB in 32 min.
IS: No return.
FF: BOB in 20 min.
FS: No return.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2328.97	113.93	Initial Hydro-static
2	22.30	113.03	Open To Flow (1)
45	34.83	116.17	Shut-In(1)
107	479.74	117.82	End Shut-In(1)
107	34.81	117.68	Open To Flow (2)
151	49.17	118.50	Shut-In(2)
212	469.13	119.56	End Shut-In(2)
213	2212.74	119.99	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
62.00	gocm 20%g 10%o 70%m	0.87
31.00	gocm 5%g 10%o 85%m	0.43
0.00	403 GIP	0.00

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Culbreath Oil & Gas Company

17-12s-32w Logan,KS

3501 S Yale Ave.
Tulsa, OK 74135

Zerr #4-17

Job Ticket: 65508

DST#: 4

ATTN: Steve Murphy

Test Start: 2016.08.27 @ 01:22:00

Tool Information

Drill Pipe:	Length: 4483.00 ft	Diameter: 3.80 inches	Volume: 62.88 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 85000.00 lb
			<u>Total Volume: 62.88 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	14.00 ft			String Weight: Initial 55000.00 lb
Depth to Top Packer:	4496.00 ft			Final 58000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	78.00 ft			
Tool Length:	105.00 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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Stubb	1.00			4470.00	
Shut In Tool	5.00			4475.00	
Hydraulic tool	5.00			4480.00	
Jars	5.00			4485.00	
Safety Joint	2.00			4487.00	
Packer	5.00			4492.00	27.00 Bottom Of Top Packer
Packer	4.00			4496.00	
Stubb	1.00			4497.00	
Recorder	0.00	8875	Inside	4497.00	
Recorder	0.00	8166	Outside	4497.00	
Perforations	6.00			4503.00	
Change Over Sub	1.00			4504.00	
Drill Pipe	64.00			4568.00	
Change Over Sub	1.00			4569.00	
Bullnose	5.00			4574.00	78.00 Bottom Packers & Anchor

Total Tool Length: 105.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Culbreath Oil & Gas Company

17-12s-32w Logan,KS

3501 S Yale Ave.
Tulsa, OK 74135

Zerr #4-17

Job Ticket: 65508

DST#: 4

ATTN: Steve Murphy

Test Start: 2016.08.27 @ 01:22:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 10.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 52.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.79 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 5000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
62.00	gocm 20%g 10%o 70%m	0.870
31.00	gocm 5%g 10%o 85%m	0.435
0.00	403 GIP	0.000

Total Length: 93.00 ft Total Volume: 1.305 bbl

Num Fluid Samples: 0

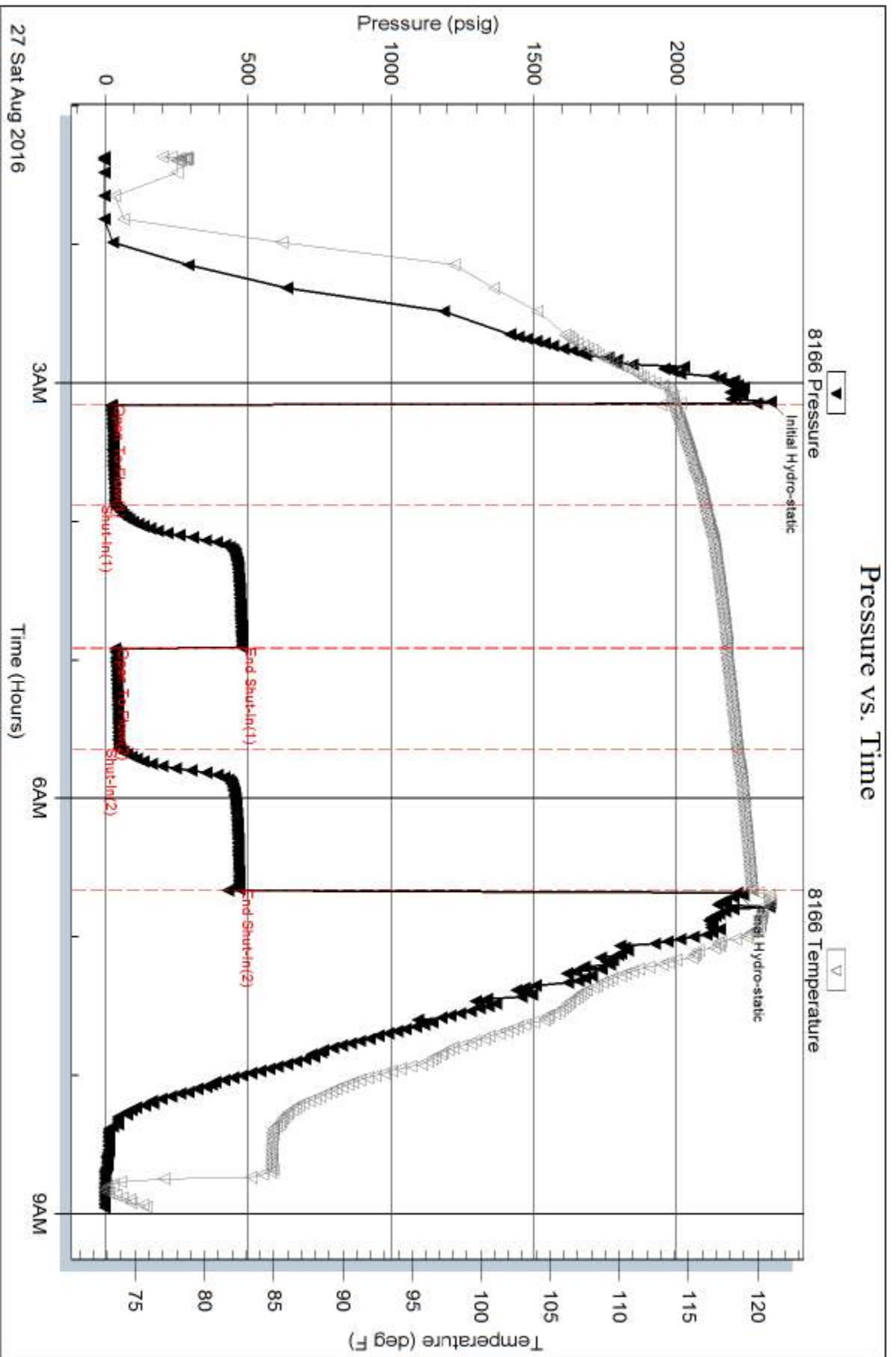
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



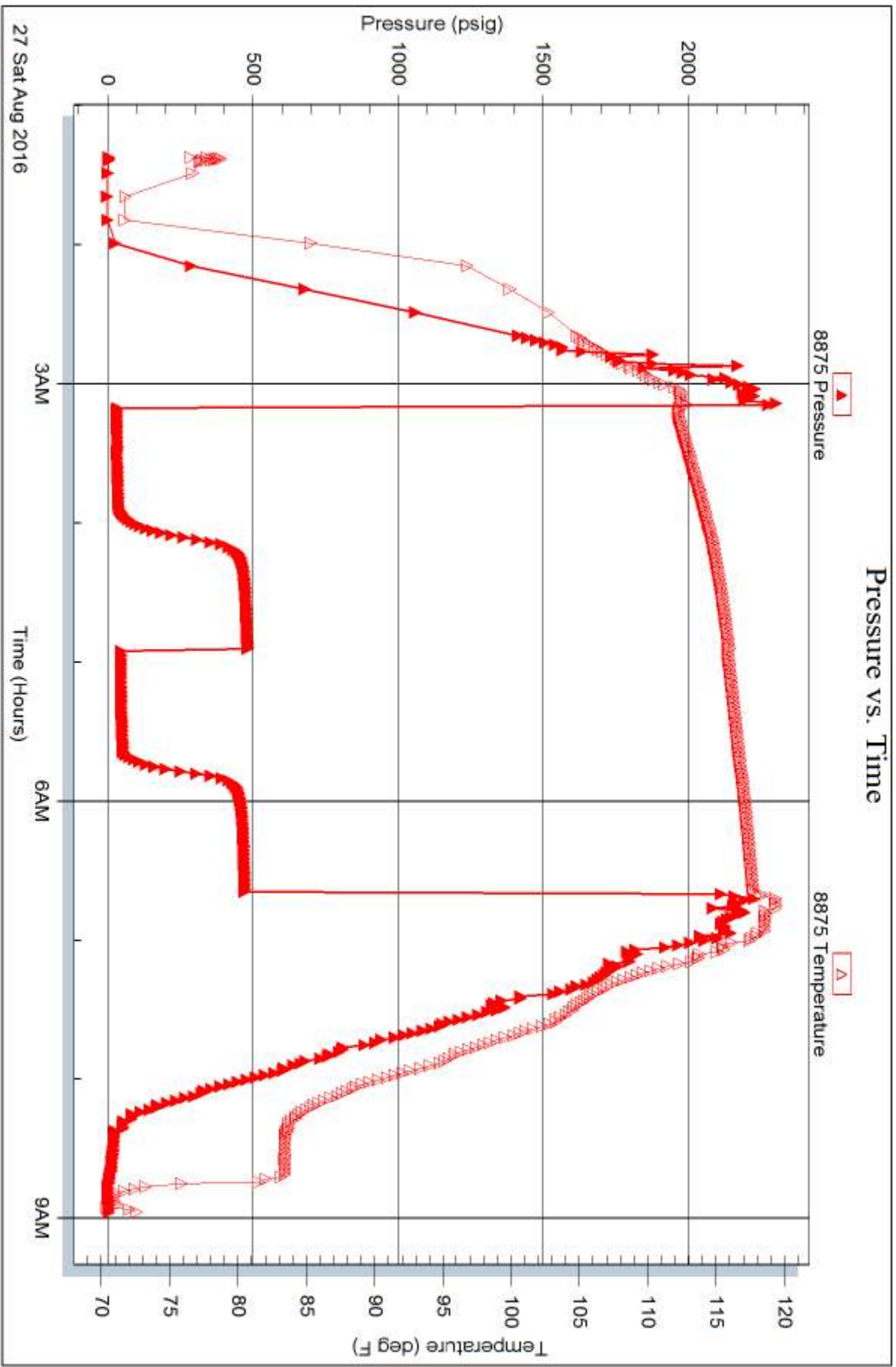
Serial #: 8875

Inside

Culbreath Oil & Gas Company

Zerr #4-17

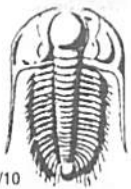
DST Test Number: 4



Trilobite Testing, Inc

Ref. No: 65508

Printed: 2016.08.29 @ 09:59:29



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **65505**

Well Name & No. Zerr 4-17 Test No. 1 Date 8-23-16
 Company Cybrex Oil & Gas Elevation 2994 KB 2984 GL
 Address 3501 S Yale Ave. Tulsa, OK 74135
 Co. Rep / Geo. Steve Murphy Rig Southwind 8
 Location: Sec. 17 Twp. 12 Rge. 32 Co. Logan State KS

Interval Tested 4066 4082 Zone Tested Leasing E
 Anchor Length 16 Drill Pipe Run 4069 Mud Wt. 9.2
 Top Packer Depth 4061 Drill Collars Run — Vis 54
 Bottom Packer Depth 4066 Wt. Pipe Run — WL 8.0
 Total Depth 4082 Chlorides 2000 ppm System LCM 1 1/2

Blow Description IF: Surface blow built to 4 in 45 min.
IS: No return.
FF: Surface blow built to 4 in 45 min.
FS No return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>67</u>	<u>MCW</u>		<u>90</u>	<u>10</u>	
<u>62</u>	<u>MCW</u>		<u>95</u>	<u>5</u>	

Rec Total 129 BHT 122 Gravity — API RW 27 @ 91 °F Chlorides 19,000 ppm

(A) Initial Hydrostatic 2027 Test 1150 T-On Location 11:20
 (B) First Initial Flow 21 Jars 250 T-Started 12:15
 (C) First Final Flow 43 Safety Joint 75 T-Open 14:25
 (D) Initial Shut-In 1268 Circ Sub NIC T-Pulled 17:55
 (E) Second Initial Flow 53 Hourly Standby _____ T-Out 19:53
 (F) Second Final Flow 79 Mileage 102- 76.50 Comments _____
 (G) Final Shut-In 1263 Sampler _____
 (H) Final Hydrostatic 1982 Straddle _____

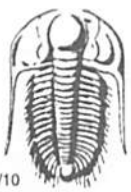
Shale Packer _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 1551.50

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

Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Sub Total 0
 Total 1551.50
 MP/DST Disc't _____

Approved By [Signature] Our Representative [Signature]

Trilobite Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **65506**

Well Name & No. Zerr 4-17 Test No. 2 Date 8-24-16
 Company Calbreath oil & gas Elevation 2994 KB 2984 GL
 Address _____
 Co. Rep / Geo. Steve Murphy Rig Southwind 8
 Location: Sec. 17 Twp. 12 Rge. 32 Co. Logan State KS

Interval Tested 4140 4192 Zone Tested H-I
 Anchor Length 52 Drill Pipe Run 4136 Mud Wt. 9.2
 Top Packer Depth 4135 Drill Collars Run — Vis 54
 Bottom Packer Depth 4140 Wt. Pipe Run — WL 8
 Total Depth 4192 Chlorides 2600 ppm System LCM 1 1/2

Blow Description IF: BoB in 17 min.
IS: No return,
FF: BoB in 25 min.
FS: No return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>155</u>	<u>MCLW</u>		<u>60</u>	<u>40</u>	
<u>124</u>	<u>MCLW</u>		<u>90</u>	<u>10</u>	
<u>124</u>	<u>MCLW</u>		<u>95</u>	<u>5</u>	
Rec _____	Feet of _____	%gas _____	%oil _____	%water _____	%mud _____
Rec _____	Feet of _____	%gas _____	%oil _____	%water _____	%mud _____

Rec Total 403 BHT 122 Gravity — API RW 25 @ 78 °F Chlorides 25,000 ppm

(A) Initial Hydrostatic 2156 Test 1150 T-On Location 10:10
 (B) First Initial Flow 24 Jars 250 T-Started 11:01
 (C) First Final Flow 141 Safety Joint 75 T-Open 12:42
 (D) Initial Shut-In 1118 Circ Sub NIC T-Pulled 15:57
 (E) Second Initial Flow 145 Hourly Standby _____ T-Out 18:06
 (F) Second Final Flow 207 Mileage 102- 76.50 Comments _____
 (G) Final Shut-In 1083 Sampler _____
 (H) Final Hydrostatic 2035 Straddle _____
 Shale Packer _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____

Initial Open 45
 Initial Shut-In 60
 Final Flow 30
 Final Shut-In 60
 Sub Total 0
 Total 1551.50
 MP/DST Disc't _____

Approved By Steve Murphy Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **65507**

Well Name & No. Zerr 4-17 Test No. 3 Date 8-25-16
 Company Culbreath oil & Gas Elevation 2994 KB 2984 GL
 Address _____
 Co. Rep / Geo. Steve Murphy Rig Southwind 8
 Location: Sec. 17 Twp. 12 Rge. 32 Co. Logan State KS

Interval Tested 4194 4210 Zone Tested L&C J
 Anchor Length 16 Drill Pipe Run 4201 Mud Wt. 9.2
 Top Packer Depth 4189 Drill Collars Run — Vis 53
 Bottom Packer Depth 4194 Wt. Pipe Run — WL 8.0
 Total Depth 4210 Chlorides 2500 ppm System LCM 1 1/2

Blow Description IF: Surface blow died in 4 min.
IS: No return.
FF: No blow.
FS: No return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>mud oil spots</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	Feet of	%gas	%oil	%water	%mud

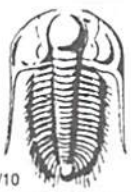
Rec Total 5 BHT 113 Gravity — API RW — @ — F Chlorides — ppm

(A) Initial Hydrostatic 2160 Test 1150 T-On Location 1:00
 (B) First Initial Flow 10 Jars _____ T-Started 1:59
 (C) First Final Flow 12 Safety Joint _____ T-Open 3:44
 (D) Initial Shut-In 100 Circ Sub NIC T-Pulled 5:44
 (E) Second Initial Flow 12 Hourly Standby _____ T-Out 7:35
 (F) Second Final Flow 13 Mileage 102 76.50
 (G) Final Shut-In 42 Sampler _____
 (H) Final Hydrostatic 2065 Straddle _____
 Shale Packer _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____

Initial Open 30
 Initial Shut-In 30
 Final Flow 30
 Final Shut-In 30
 Sub Total 1226.50

Approved By _____ Our Representative _____

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. **65508**

Well Name & No. Zerr 4-17 Test No. 4 Date 8-27-16
 Company Culbreath oil & gas Elevation 2994 KB 2984 GL
 Address _____
 Co. Rep / Geo. Steve Murphy Rig Southwind 8
 Location: Sec. 17 Twp. 12 Rge. 32 Co. Logan State KS

Interval Tested 4496 4574 Zone Tested Cherokee lime & Johnson
 Anchor Length 78 Drill Pipe Run 4483 Mud Wt. 9.5
 Top Packer Depth 4491 Drill Collars Run — Vis 52
 Bottom Packer Depth 4496 Wt. Pipe Run — WL 8.8
 Total Depth 4574 Chlorides 5000 ppm System LCM 3/4
 Blow Description IF: BoB in 32 min.
IS: No return
FF: BoB in 20 min.
FS: No return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>31</u>	<u>90cm</u>	<u>5</u>	<u>16</u>	<u>85</u>	<u>—</u>
<u>62</u>	<u>90cm</u>	<u>20</u>	<u>16</u>	<u>70</u>	<u>—</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 93 BHT 119 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic 2328 Test 1150 T-On Location 1:00
 (B) First Initial Flow 22 Jars 250 T-Started 1:22
 (C) First Final Flow 34 Safety Joint 75 T-Open 3:10
 (D) Initial Shut-In 479 Circ Sub N/L T-Pulled 6:40
 (E) Second Initial Flow 34 Hourly Standby _____ T-Out 9:00
 (F) Second Final Flow 49 Mileage 102- 76.50 Comments _____
 (G) Final Shut-In 469 Sampler _____
 (H) Final Hydrostatic 2212 Straddle _____
 Shale Packer _____ Ruined Shale Packer _____
 Extra Packer _____ Ruined Packer 320
 Extra Recorder _____
 Day Standby 1.5d 5.5h Sub Total 183.33 + 320
 Accessibility _____ Total 2054.83
 Sub Total 1551.50 MP/DST Disc't _____

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

Approved By Steve Murphy Our Representative [Signature]

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