

## DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration**

8100 E. 22nd. St.N#700  
Box 783188  
Wichita KS 67278

ATTN: Kent Matson

### **Wells-Whitham #1**

### **9-17s-36w Wichita,KS**

Start Date: 2019.06.02 @ 02:20:15

End Date: 2019.06.02 @ 09:54:00

Job Ticket #: 65143                      DST #: 1

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

Printed: 2019.06.11 @ 15:19:59

Ritchie Exploration  
9-17s-36w Wichita,KS  
Wells-Whitham #1  
DST # 1  
Lansing A  
2019.06.02



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Ritchie Exploration  
8100 E. 22nd. St. N#700  
Box 783188  
Wichita KS 67278  
ATTN: Kent Matson

**9-17s-36w Wichita, KS**

**Wells-Whitham #1**

Job Ticket: 65143      **DST#: 1**  
Test Start: 2019.06.02 @ 02:20:15

## GENERAL INFORMATION:

Formation: **Lansing A**  
Deviated: No Whipstock:                      ft (KB)  
Time Tool Opened: 04:34:00  
Time Test Ended: 09:54:00  
Interval: **3984.00 ft (KB) To 4020.00 ft (KB) (TVD)**  
Total Depth: 4020.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Fair  
Test Type: Conventional Bottom Hole (Initial)  
Tester: Mike Roberts  
Unit No: 81  
Reference Elevations: 3295.00 ft (KB)  
3290.00 ft (CF)  
KB to GR/CF: 5.00 ft

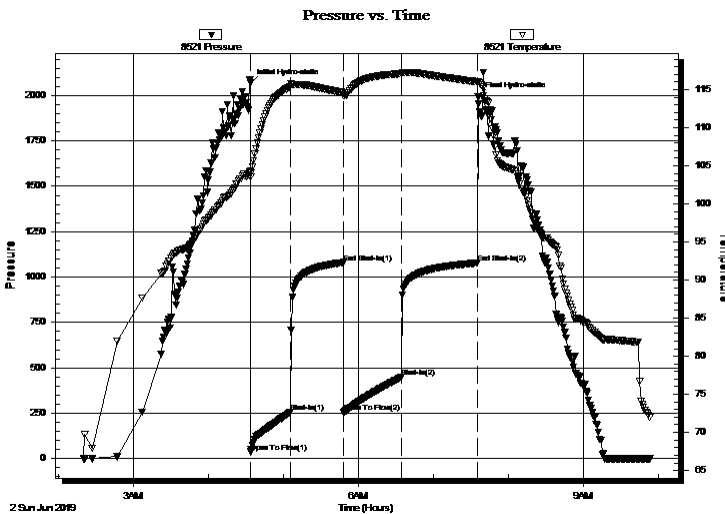
## Serial #: 8521

Inside

Press@RunDepth: 447.49 psig @ 3985.00 ft (KB)      Capacity: 8000.00 psig  
Start Date: 2019.06.02      End Date: 2019.06.02      Last Calib.: 2019.06.02  
Start Time: 02:20:15      End Time: 09:54:00      Time On Btm: 2019.06.02 @ 04:33:45  
Time Off Btm: 2019.06.02 @ 07:36:00

TEST COMMENT: IF: Built to 37 1/2" blow . BOB in 8 minutes  
IS: No return blow  
FF: Built to 45" blow .. BOB in 10 minutes  
FS: No return blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2067.82	104.28	Initial Hydro-static
1	36.28	103.58	Open To Flow (1)
33	255.28	115.40	Shut-In(1)
75	1079.47	114.63	End Shut-In(1)
75	255.11	114.18	Open To Flow (2)
121	447.49	117.10	Shut-In(2)
182	1076.71	116.03	End Shut-In(2)
183	1991.94	116.09	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
268.00	ocw m 2%o 30%w 50%m	2.06
310.00	ocmw 5% 20%m 75%w	4.35
372.00	mcw 4%m 96%w	5.22

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Ritchie Exploration  
8100 E. 22nd. St. N#700  
Box 783188  
Wichita KS 67278  
ATTN: Kent Matson

**9-17s-36w Wichita, KS**

**Wells-Whitham #1**

Job Ticket: 65143

**DST#: 1**

Test Start: 2019.06.02 @ 02:20:15

## Tool Information

Drill Pipe:	Length: 3795.00 ft	Diameter: 3.80 inches	Volume: 53.23 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 54.14 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	25.00 ft			String Weight: Initial 40000.00 lb
Depth to Top Packer:	3984.00 ft			Final 42000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	36.00 ft			
Tool Length:	64.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			3957.00	
Shut In Tool	5.00			3962.00	
Hydraulic tool	5.00			3967.00	
Jars	5.00			3972.00	
Safety Joint	3.00			3975.00	
Packer	5.00			3980.00	28.00 Bottom Of Top Packer
Packer	4.00			3984.00	
Stubb	1.00			3985.00	
Recorder	0.00	8968	Outside	3985.00	
Recorder	0.00	8521	Inside	3985.00	
Perforations	30.00			4015.00	
Bullnose	5.00			4020.00	36.00 Bottom Packers & Anchor

**Total Tool Length: 64.00**



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# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Ritchie Exploration

**9-17s-36w Wichita,KS**

8100 E. 22nd. St.N#700  
Box 783188  
Wichita KS 67278  
ATTN: Kent Matson

**Wells-Whitham #1**

Job Ticket: 65143

**DST#: 1**

Test Start: 2019.06.02 @ 02:20:15

## 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:

18000 ppm

Viscosity: 58.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.10 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 4800.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
268.00	ocw m 2%o 30%w 50%m	2.065
310.00	ocmw 5% 20%m 75%w	4.348
372.00	mcw 4%m 96%w	5.218

Total Length: 950.00 ft      Total Volume: 11.631 bbl

Num Fluid Samples: 0

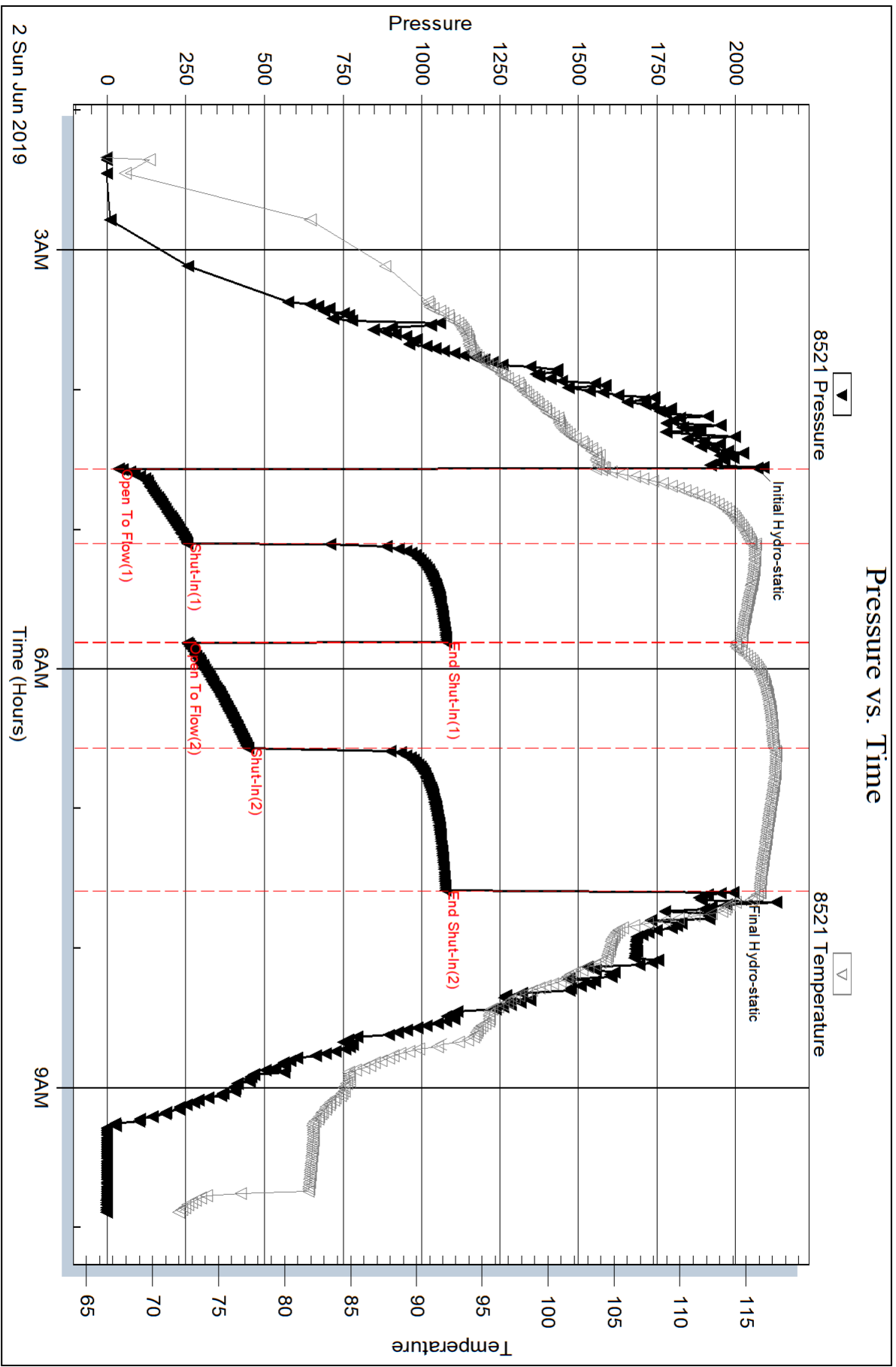
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW= .496@68.8\*= 18,000 ppm

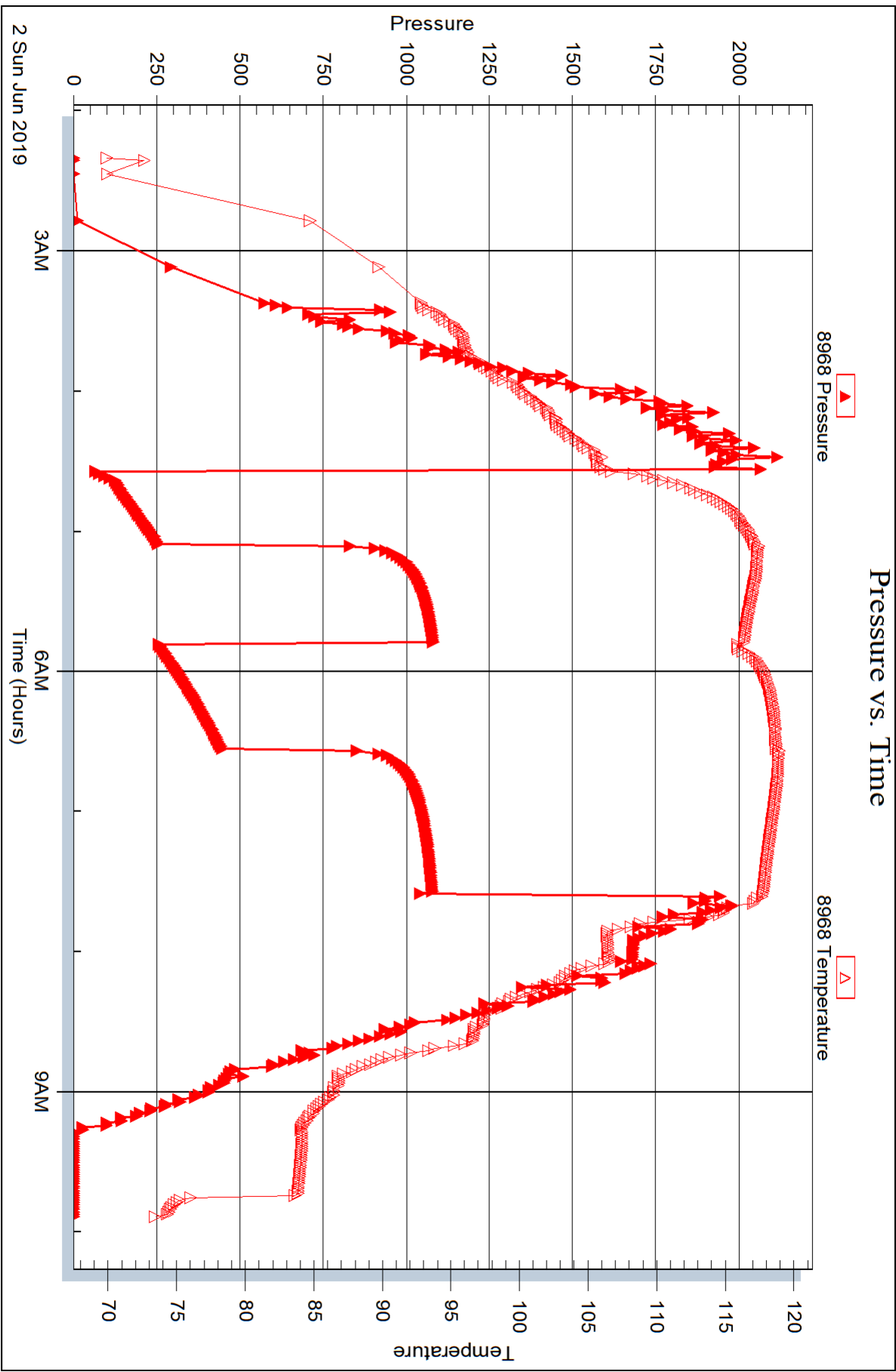


Serial #: 8968

Outside Ritchie Exploration

Wells-Whitham #1

DST Test Number: 1





## DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration**

8100 E. 22nd. St.N#700  
Box 783188  
Wichita KS 67278

ATTN: Kent Matson

### **Wells-Whitham #1**

### **9-17s-36w Wichita,KS**

Start Date: 2019.06.02 @ 22:29:15

End Date: 2019.06.03 @ 05:20:45

Job Ticket #: 65144                      DST #: 2

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

Printed: 2019.06.11 @ 15:19:23





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Ritchie Exploration  
 8100 E. 22nd. St. N#700  
 Box 783188  
 Wichita KS 67278  
 ATTN: Kent Matson

**9-17s-36w Wichita, KS**

**Wells-Whitham #1**

Job Ticket: 65144      **DST#: 2**  
 Test Start: 2019.06.02 @ 22:29:15

## GENERAL INFORMATION:

Formation: **LKC D**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 00:26:15  
 Time Test Ended: 05:20:45  
 Interval: **4046.00 ft (KB) To 4070.00 ft (KB) (TVD)**  
 Total Depth: 4070.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Mike Roberts  
 Unit No: 81  
 Reference Elevations: 3295.00 ft (KB)  
 3290.00 ft (CF)  
 KB to GR/CF: 5.00 ft

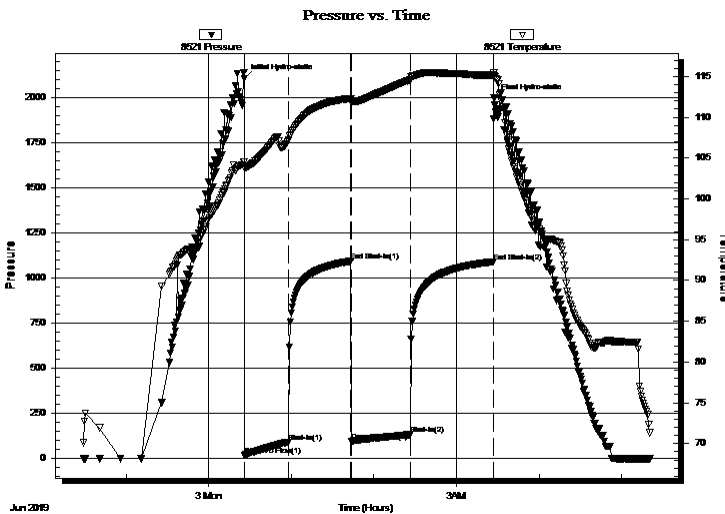
## Serial #: 8521

Inside

Press@RunDepth: 132.53 psig @ 4047.00 ft (KB)      Capacity: 8000.00 psig  
 Start Date: 2019.06.02      End Date: 2019.06.03      Last Calib.: 2019.06.03  
 Start Time: 22:29:15      End Time: 05:20:45      Time On Btm: 2019.06.03 @ 00:26:00  
 Time Off Btm: 2019.06.03 @ 03:27:15

TEST COMMENT: IF: Built to 4 1/4" blow  
 IS: No return blow  
 FF: Built to 6" blow  
 FS: No return blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2107.36	104.55	Initial Hydro-static
1	19.43	103.74	Open To Flow (1)
32	92.57	107.20	Shut-In(1)
78	1094.61	112.30	End Shut-In(1)
78	94.92	111.73	Open To Flow (2)
121	132.53	114.57	Shut-In(2)
181	1091.44	115.15	End Shut-In(2)
182	1998.72	115.12	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
249.00	w cm 5%w 95%m	1.80

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
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# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Ritchie Exploration  
8100 E. 22nd. St. N#700  
Box 783188  
Wichita KS 67278  
ATTN: Kent Matson

**9-17s-36w Wichita, KS**

**Wells-Whitham #1**

Job Ticket: 65144

**DST#: 2**

Test Start: 2019.06.02 @ 22:29:15

## Tool Information

Drill Pipe:	Length: 3857.00 ft	Diameter: 3.80 inches	Volume: 54.10 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose: 62000.00 lb
			<u>Total Volume: 55.01 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	25.00 ft			String Weight: Initial 40000.00 lb
Depth to Top Packer:	4046.00 ft			Final 41000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	25.00 ft			
Tool Length:	53.00 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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Change Over Sub	1.00			4019.00	
Shut In Tool	5.00			4024.00	
Hydraulic tool	5.00			4029.00	
Jars	5.00			4034.00	
Safety Joint	3.00			4037.00	
Packer	5.00			4042.00	28.00 Bottom Of Top Packer
Packer	4.00			4046.00	
Stubb	1.00			4047.00	
Recorder	0.00	8968	Outside	4047.00	
Recorder	0.00	8521	Inside	4047.00	
Perforations	19.00			4066.00	
Bullnose	5.00			4071.00	25.00 Bottom Packers & Anchor

**Total Tool Length: 53.00**



**TRILOBITE  
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# DRILL STEM TEST REPORT

## FLUID SUMMARY

Ritchie Exploration

**9-17s-36w Wichita,KS**

8100 E. 22nd. St.N#700  
Box 783188  
Wichita KS 67278  
ATTN: Kent Matson

**Wells-Whitham #1**

Job Ticket: 65144

**DST#: 2**

Test Start: 2019.06.02 @ 22:29:15

### 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:

18500 ppm

Viscosity: 49.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.11 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 5400.00 ppm

Filter Cake: 1.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
249.00	w cm 5%w 95%m	1.798

Total Length: 249.00 ft      Total Volume: 1.798 bbl

Num Fluid Samples: 0

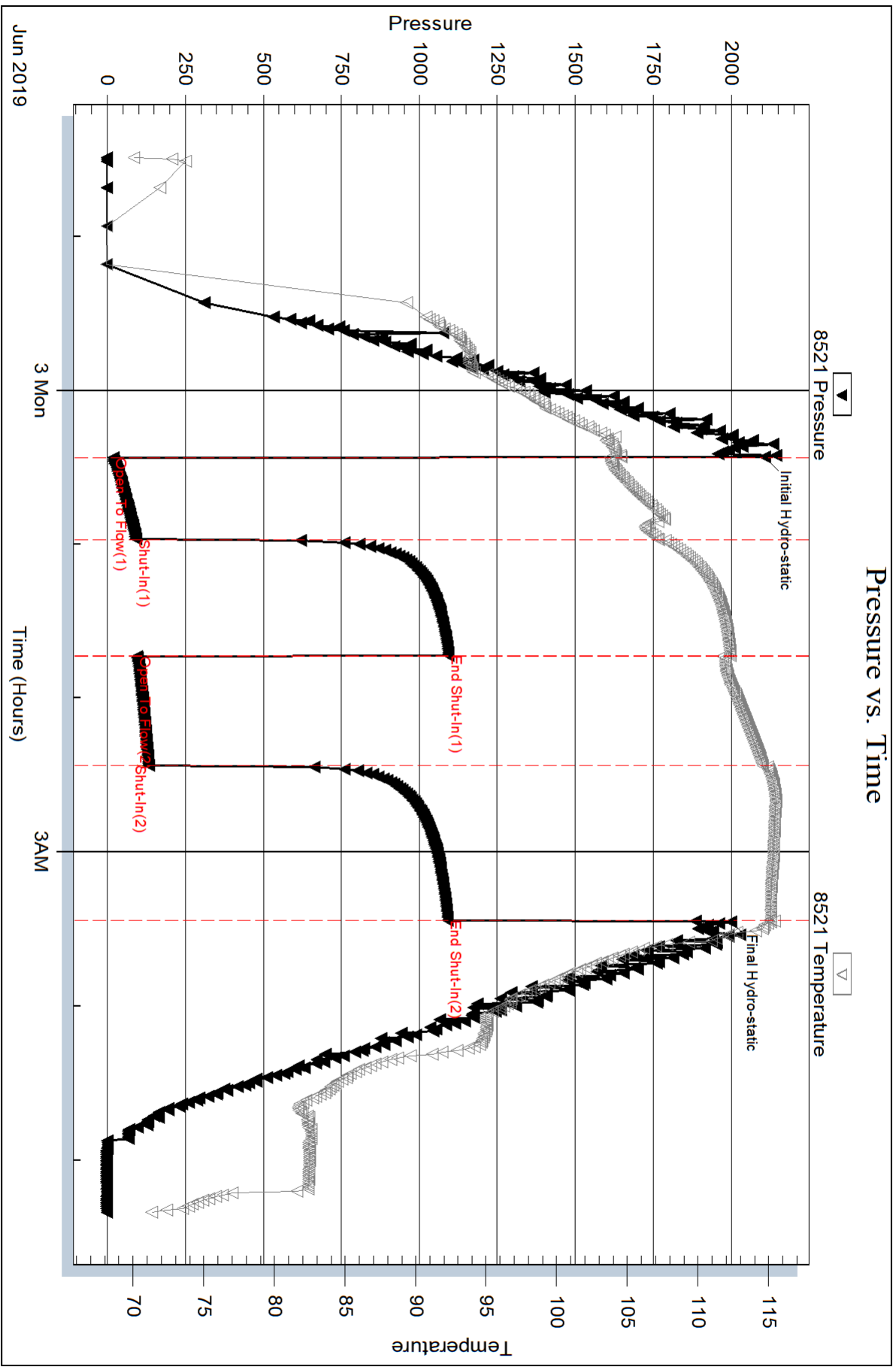
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW= .512@ 69.3= 18500 ppm

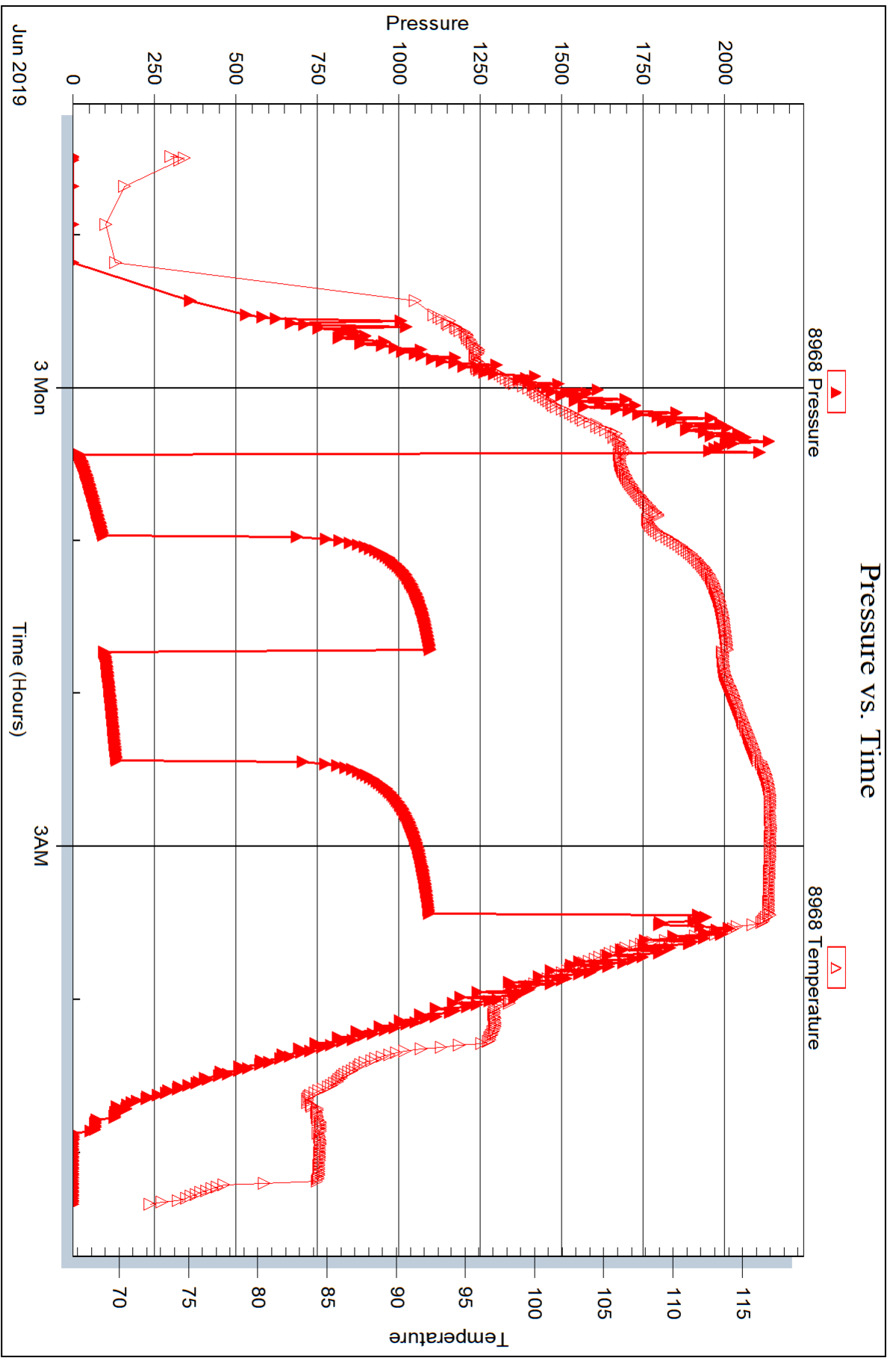


Serial #: 8968

Outside Ritchie Exploration

Wells-Whitham #1

DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 65144

Printed: 2019.06.11 @ 15:19:25



## DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration**

8100 E. 22nd. St.N#700  
Box 783188  
Wichita KS 67278

ATTN: Kent Matson

### **Wells-Whitham #1**

### **9-17s-36w Wichita,KS**

Start Date: 2019.06.03 @ 15:22:15

End Date: 2019.06.03 @ 22:33:45

Job Ticket #: 65145                      DST #: 3

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

Printed: 2019.06.11 @ 15:17:55

Ritchie Exploration  
9-17s-36w Wichita,KS  
Wells-Whitham #1  
DST # 3  
LKC E-F  
2019.06.03



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Ritchie Exploration  
 8100 E. 22nd. St. N#700  
 Box 783188  
 Wichita KS 67278  
 ATTN: Kent Matson

**9-17s-36w Wichita, KS**

**Wells-Whitham #1**

Job Ticket: 65145      **DST#: 3**  
 Test Start: 2019.06.03 @ 15:22:15

## GENERAL INFORMATION:

Formation: **LKC E-F**  
 Deviated: No Whipstock:      ft (KB)  
 Time Tool Opened: 17:17:30  
 Time Test Ended: 22:33:45  
 Interval: **4078.00 ft (KB) To 4120.00 ft (KB) (TVD)**  
 Total Depth: 4120.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Mike Roberts  
 Unit No: 81  
 Reference Elevations: 3295.00 ft (KB)  
 3290.00 ft (CF)  
 KB to GR/CF: 5.00 ft

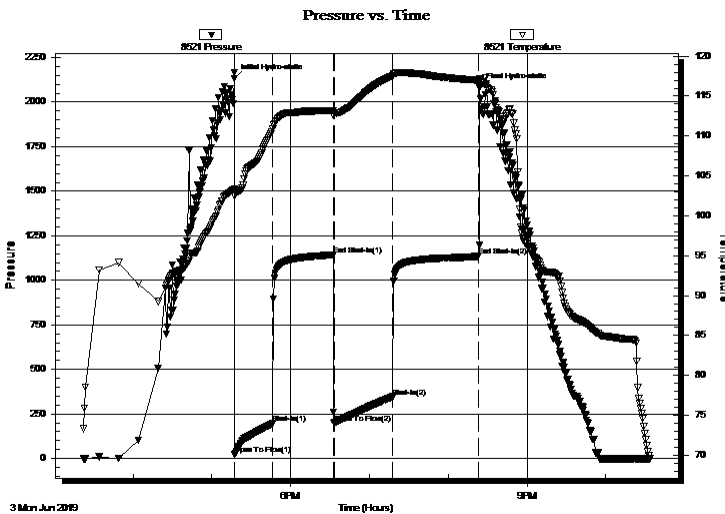
## Serial #: 8521

Inside

Press@RunDepth: 345.99 psig @ 4115.00 ft (KB)      Capacity: 8000.00 psig  
 Start Date: 2019.06.03      End Date: 2019.06.03      Last Calib.: 2019.06.03  
 Start Time: 15:22:15      End Time: 22:33:45      Time On Btm: 2019.06.03 @ 17:17:15  
 Time Off Btm: 2019.06.03 @ 20:24:00

TEST COMMENT: IF: Built to 18" blow BOB in 17 min.  
 IS: No return bow  
 FF: Built to 24" blow BOB in 22 min.  
 FS: No return blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2131.83	103.38	Initial Hydro-static
1	23.85	102.53	Open To Flow (1)
30	196.50	110.93	Shut-In(1)
76	1142.27	113.19	End Shut-In(1)
76	198.36	112.85	Open To Flow (2)
121	345.99	117.52	Shut-In(2)
186	1134.75	116.99	End Shut-In(2)
187	2079.95	117.22	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
496.00	w cm 30%w 70%m	5.26
186.00	mcw 10%m 90%w	2.61

\* Recovery from multiple tests

## Gas Rates

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







**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Ritchie Exploration  
8100 E. 22nd. St. N#700  
Box 783188  
Wichita KS 67278  
ATTN: Kent Matson

**9-17s-36w Wichita, KS**

**Wells-Whitham #1**

Job Ticket: 65145

**DST#: 3**

Test Start: 2019.06.03 @ 15:22:15

## Tool Information

Drill Pipe:	Length: 3888.00 ft	Diameter: 3.80 inches	Volume: 54.54 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose: 65000.00 lb
			<u>Total Volume: 55.45 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	24.00 ft			String Weight: Initial 40000.00 lb
Depth to Top Packer:	4078.00 ft			Final 43000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	42.00 ft			
Tool Length:	70.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

**Length (ft) Serial No. Position Depth (ft) Accum. Lengths**

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4051.00	
Shut In Tool	5.00			4056.00	
Hydraulic tool	5.00			4061.00	
Jars	5.00			4066.00	
Safety Joint	3.00			4069.00	
Packer	5.00			4074.00	28.00 Bottom Of Top Packer
Packer	4.00			4078.00	
Stubb	1.00			4079.00	
Perforations	3.00			4082.00	
Change Over Sub	1.00			4083.00	
Drill Pipe	31.00			4114.00	
Change Over Sub	1.00			4115.00	
Recorder	0.00	8968	Outside	4115.00	
Recorder	0.00	8521	Inside	4115.00	
Bullnose	5.00			4120.00	42.00 Bottom Packers & Anchor

**Total Tool Length: 70.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Ritchie Exploration

**9-17s-36w Wichita,KS**

8100 E. 22nd. St.N#700

**Wells-Whitham #1**

Box 783188

Job Ticket: 65145

**DST#: 3**

Wichita KS 67278

ATTN: Kent Matson

Test Start: 2019.06.03 @ 15:22:15

## 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:

22000 ppm

Viscosity: 55.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.70 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 6100.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
496.00	w cm 30%w 70%m	5.263
186.00	mcw 10%m 90%w	2.609

Total Length: 682.00 ft      Total Volume: 7.872 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW= .340@66.9= 22,000 ppm

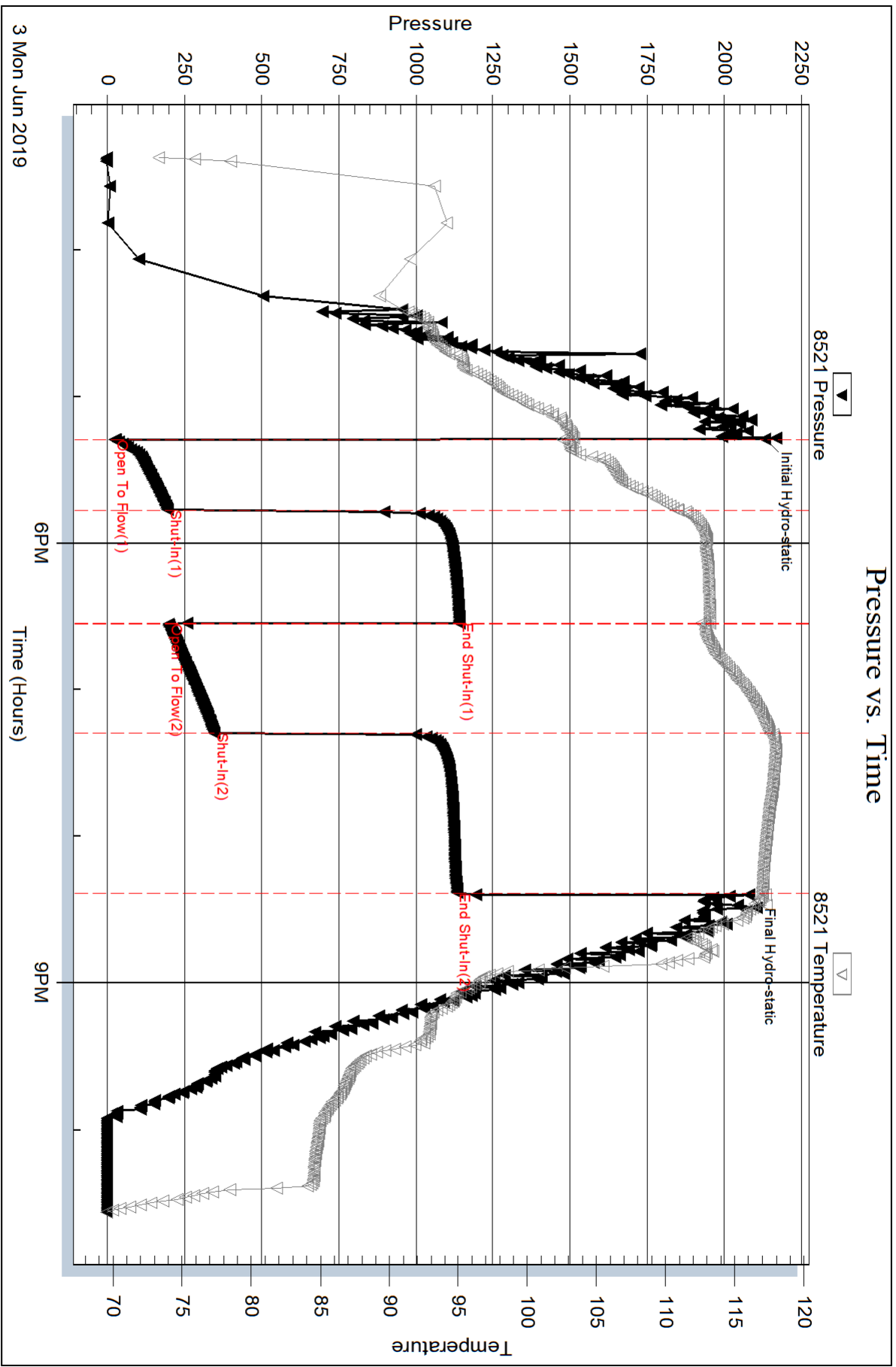
Serial #: 8521

Inside

Ritchie Exploration

Wells-Whitham #1

DST Test Number: 3



Trilobite Testing, Inc

Ref. No: 65145

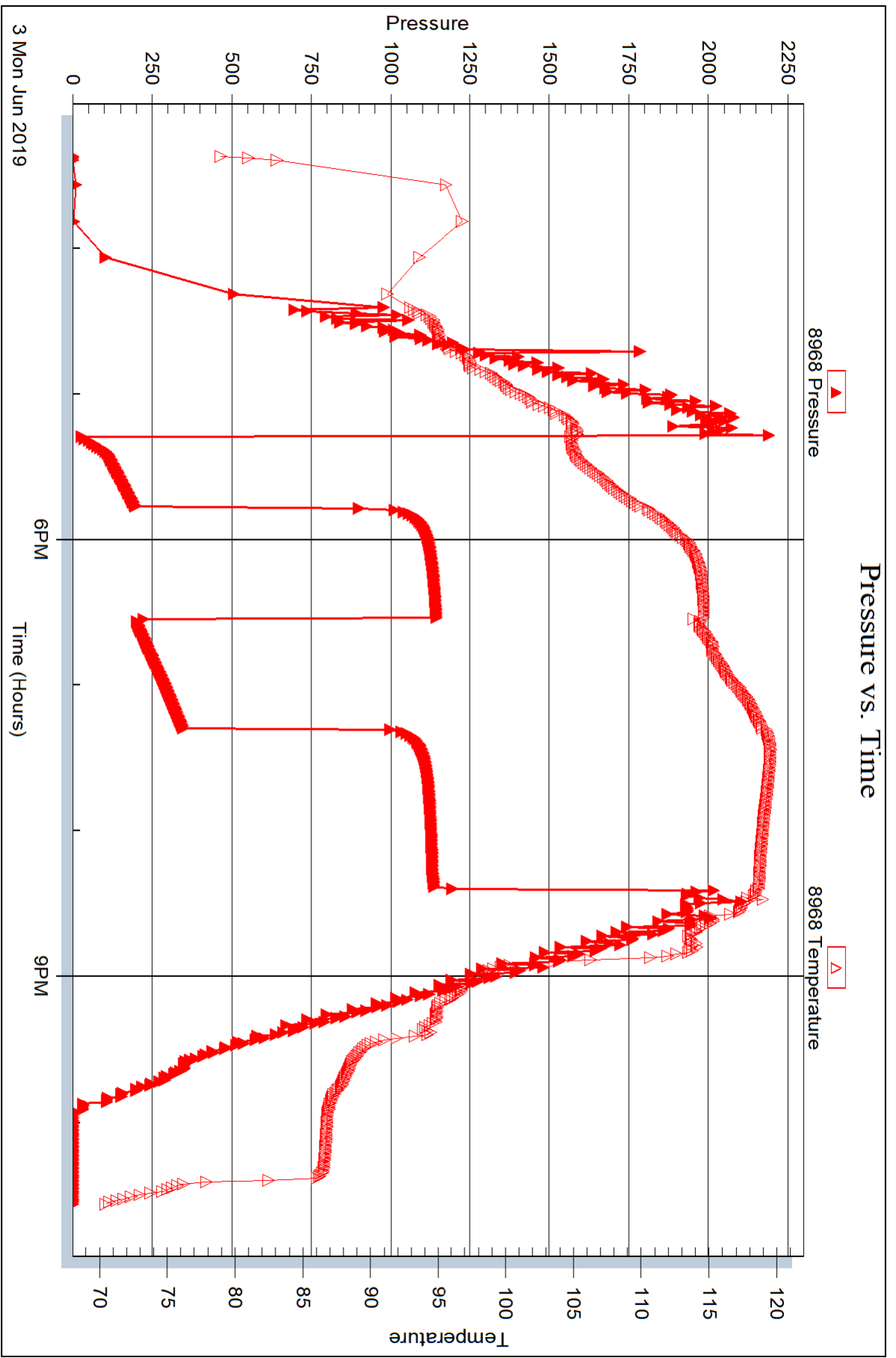
Printed: 2019.06.11 @ 15:17:56

Serial #: 8968

Outside Ritchie Exploration

Wells-Whitham #1

DST Test Number: 3





## DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration**

8100 E. 22nd. St.N#700  
Box 783188  
Wichita KS 67278

ATTN: Kent Matson

### **Wells-Whitham #1**

### **9-17s-36w Wichita,KS**

Start Date: 2019.06.04 @ 14:45:15

End Date: 2019.06.04 @ 21:04:15

Job Ticket #: 65146                      DST #: 4

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

Printed: 2019.06.11 @ 15:17:22

Ritchie Exploration  
9-17s-36w Wichita,KS  
Wells-Whitham #1  
DST # 4  
LKC 1  
2019.06.04









**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Ritchie Exploration  
8100 E. 22nd. St. N#700  
Box 783188  
Wichita KS 67278  
ATTN: Kent Matson

**9-17s-36w Wichita, KS**  
**Wells-Whitham #1**  
Job Ticket: 65146      **DST#: 4**  
Test Start: 2019.06.04 @ 14:45:15

**Tool Information**

Drill Pipe:	Length: 4015.00 ft	Diameter: 3.80 inches	Volume: 56.32 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 57.23 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	25.00 ft			String Weight: Initial 38000.00 lb
Depth to Top Packer:	4204.00 ft			Final 38000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	36.00 ft			
Tool Length:	64.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

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

Change Over Sub	1.00			4177.00	
Shut In Tool	5.00			4182.00	
Hydraulic tool	5.00			4187.00	
Jars	5.00			4192.00	
Safety Joint	3.00			4195.00	
Packer	5.00			4200.00	28.00      Bottom Of Top Packer
Packer	4.00			4204.00	
Stubb	1.00			4205.00	
Recorder	0.00	8968	Outside	4205.00	
Recorder	0.00	8521	Inside	4205.00	
Perforations	30.00			4235.00	
Bullnose	5.00			4240.00	36.00      Bottom Packers & Anchor

**Total Tool Length: 64.00**



**TRILOBITE  
TESTING, INC.**

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

Ritchie Exploration  
8100 E. 22nd. St.N#700  
Box 783188  
Wichita KS 67278  
ATTN: Kent Matson

**9-17s-36w Wichita,KS**  
**Wells-Whitham #1**  
Job Ticket: 65146      **DST#: 4**  
Test Start: 2019.06.04 @ 14:45:15

**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: bbl		
Water Loss: 8.71 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig		
Salinity: 7000.00 ppm			
Filter Cake: 1.00 inches			

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
5.00	ocm 2%o 98%m...3" of free oil	0.025

Total Length: 5.00 ft      Total Volume: 0.025 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:

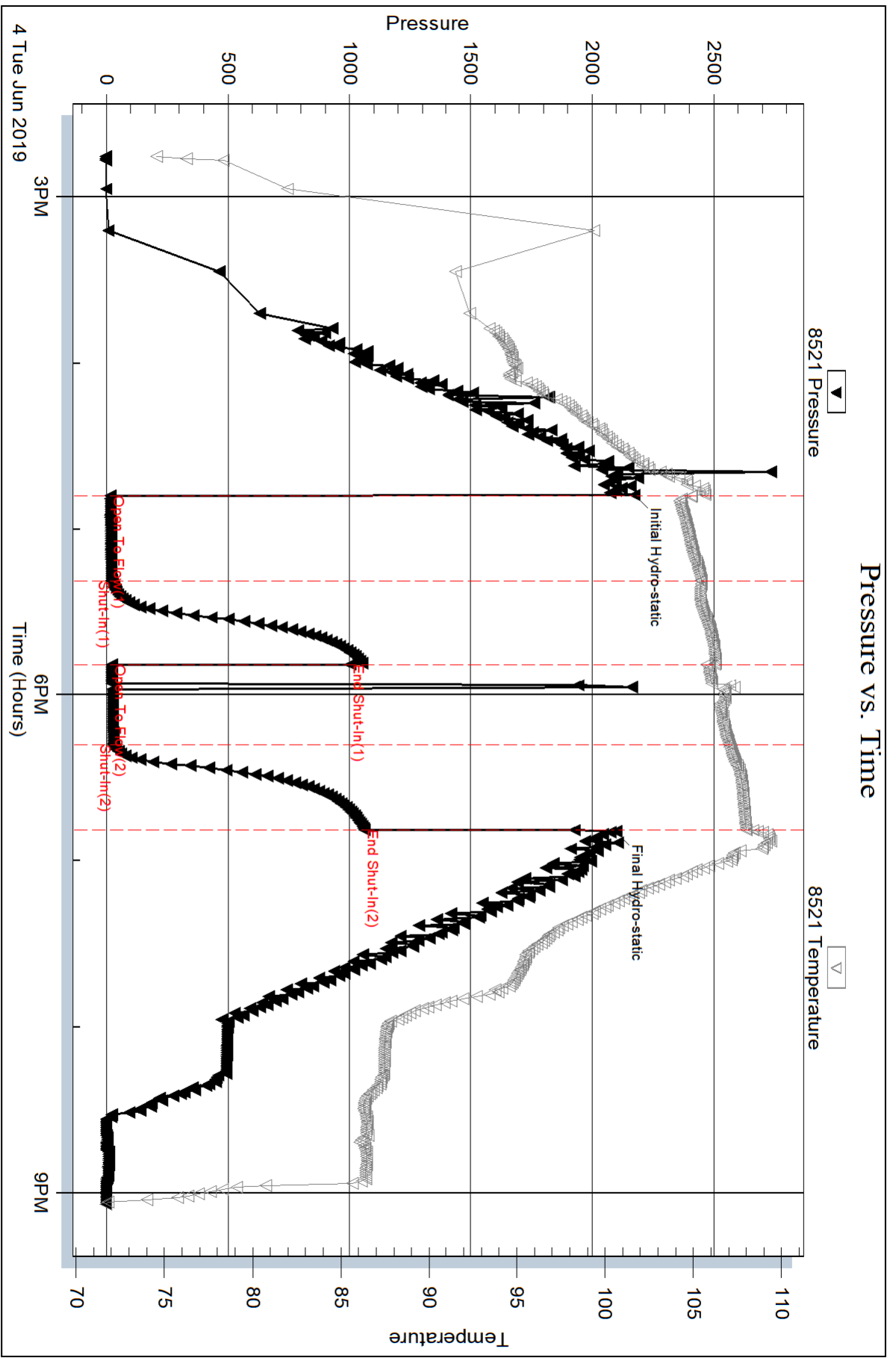
Serial #: 8521

Inside

Ritchie Exploration

Wells-Whitham #1

DST Test Number: 4

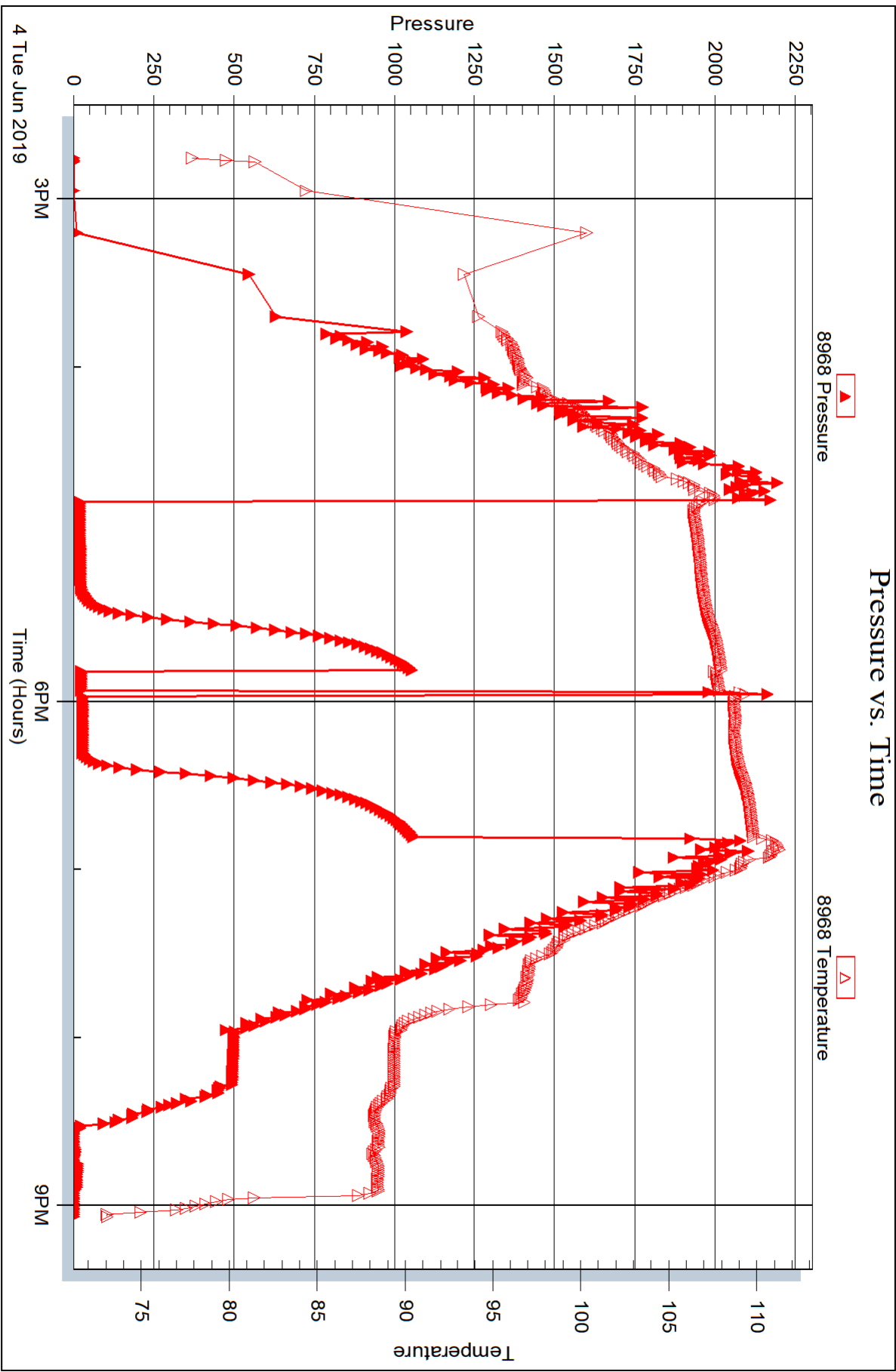


Serial #: 8968

Outside Ritchie Exploration

Wells-Whitham #1

DST Test Number: 4





## DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration**

8100 E. 22nd. St.N#700  
Box 783188  
Wichita KS 67278

ATTN: Kent Matson

### **Wells-Whitham #1**

### **9-17s-36w Wichita,KS**

Start Date: 2019.06.05 @ 07:02:15

End Date: 2019.06.05 @ 14:26:00

Job Ticket #: 65147                      DST #: 5

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

Printed: 2019.06.11 @ 15:14:54







**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Ritchie Exploration  
8100 E. 22nd. St. N#700  
Box 783188  
Wichita KS 67278  
ATTN: Kent Matson

**9-17s-36w Wichita, KS**

**Wells-Whitham #1**

Job Ticket: 65147

**DST#: 5**

Test Start: 2019.06.05 @ 07:02:15

## Tool Information

Drill Pipe:	Length: 4047.00 ft	Diameter: 3.80 inches	Volume: 56.77 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose: 65000.00 lb
			<u>Total Volume: 57.68 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	21.00 ft			String Weight: Initial 40000.00 lb
Depth to Top Packer:	4240.00 ft			Final 44000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	22.00 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			4213.00	
Shut In Tool	5.00			4218.00	
Hydraulic tool	5.00			4223.00	
Jars	5.00			4228.00	
Safety Joint	3.00			4231.00	
Packer	5.00			4236.00	28.00 Bottom Of Top Packer
Packer	4.00			4240.00	
Stubb	1.00			4241.00	
Recorder	0.00	8968	Outside	4241.00	
Recorder	0.00	8521	Inside	4241.00	
Perforations	16.00			4257.00	
Bullnose	5.00			4262.00	22.00 Bottom Packers & Anchor

**Total Tool Length: 50.00**





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Ritchie Exploration

**9-17s-36w Wichita,KS**

8100 E. 22nd. St.N#700  
Box 783188  
Wichita KS 67278  
ATTN: Kent Matson

**Wells-Whitham #1**

Job Ticket: 65147

**DST#: 5**

Test Start: 2019.06.05 @ 07:02:15

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

25 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

23000 ppm

Viscosity: 53.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.72 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 7000.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
310.00	ocmw 4%o 10%m 86%w	2.654
149.00	ocw m 10%o 30%w 60%m	2.090
5.00	Free oil	0.070

Total Length: 464.00 ft      Total Volume: 4.814 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

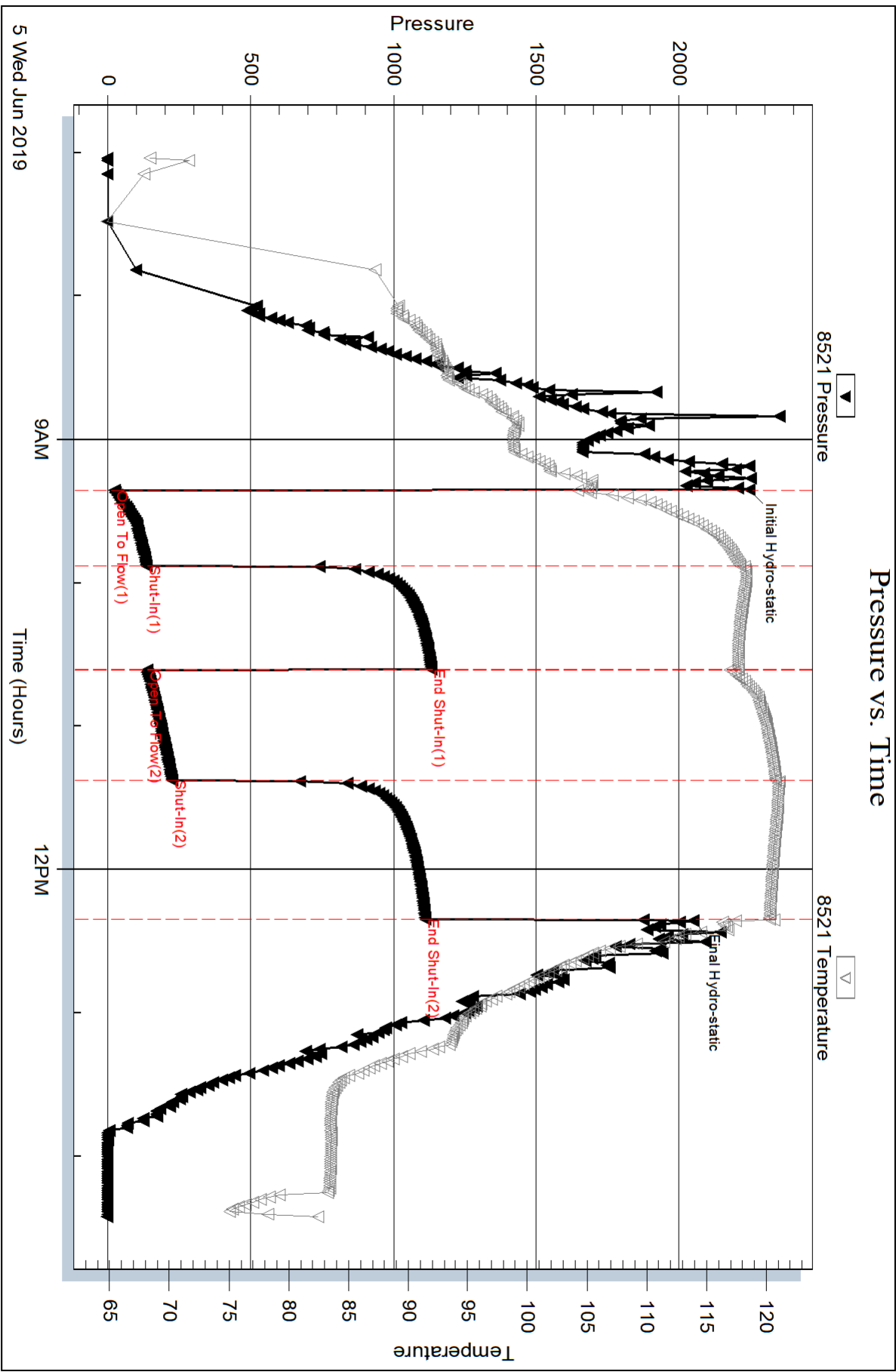
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW= .253@101.2= 23000 ppm

API= 22 @ 90 corrected to 25 @ 60

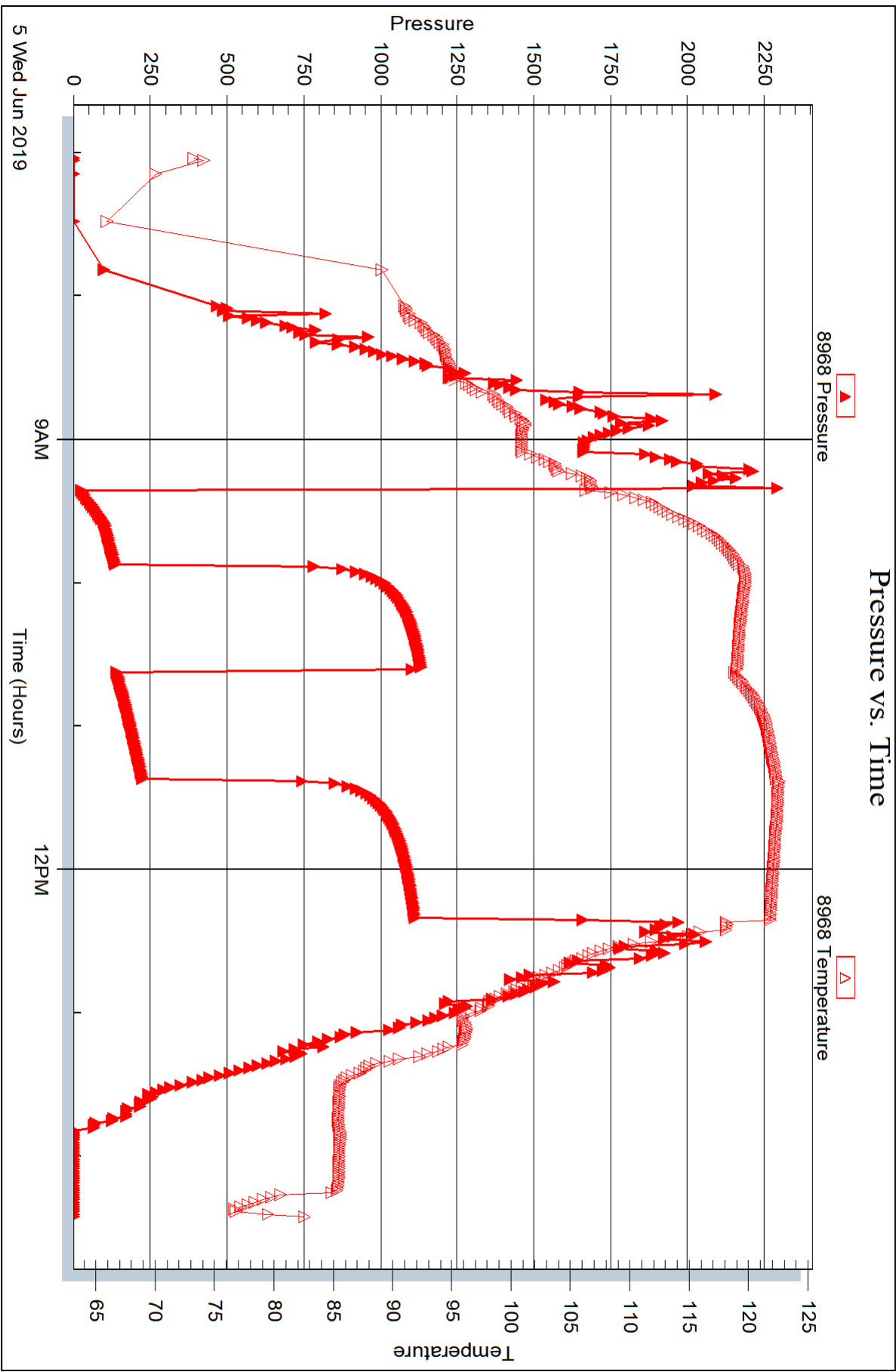


Serial #: 8968

Outside Ritchie Exploration

Wells-Whitham #1

DST Test Number: 5





## DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration**

8100 E. 22nd. St.N#700  
Box 783188  
Wichita KS 67278

ATTN: Kent Matson

### **Wells-Whitham #1**

### **9-17s-36w Wichita,KS**

Start Date: 2019.06.05 @ 23:49:15

End Date: 2019.06.06 @ 08:05:45

Job Ticket #: 65148                      DST #: 6

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

Printed: 2019.06.11 @ 15:08:30







**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Ritchie Exploration  
8100 E. 22nd. St. N#700  
Box 783188  
Wichita KS 67278  
ATTN: Kent Matson

**9-17s-36w Wichita, KS**

**Wells-Whitham #1**

Job Ticket: 65148

**DST#: 6**

Test Start: 2019.06.05 @ 23:49:15

## Tool Information

Drill Pipe:	Length: 4060.00 ft	Diameter: 3.80 inches	Volume: 56.95 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 57.86 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	14.00 ft			String Weight: Initial 50000.00 lb
Depth to Top Packer:	4260.00 ft			Final 64000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	30.00 ft			
Tool Length:	58.00 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			4233.00	
Shut In Tool	5.00			4238.00	
Hydraulic tool	5.00			4243.00	
Jars	5.00			4248.00	
Safety Joint	3.00			4251.00	
Packer	5.00			4256.00	28.00 Bottom Of Top Packer
Packer	4.00			4260.00	
Stubb	1.00			4261.00	
Recorder	0.00	8968	Outside	4261.00	
Recorder	0.00	8521	Inside	4261.00	
Perforations	24.00			4285.00	
Bullnose	5.00			4290.00	30.00 Bottom Packers & Anchor

**Total Tool Length: 58.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Ritchie Exploration  
8100 E. 22nd. St. N#700  
Box 783188  
Wichita KS 67278  
ATTN: Kent Matson

**9-17s-36w Wichita, KS**  
**Wells-Whitham #1**  
Job Ticket: 65148      **DST#: 6**  
Test Start: 2019.06.05 @ 23:49:15

## 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: 23500 ppm
Viscosity: 58.00 sec/qt	Cushion Volume: bbl	
Water Loss: 7.10 in <sup>3</sup>	Gas Cushion Type:	
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig	
Salinity: 4800.00 ppm		
Filter Cake: 1.00 inches		

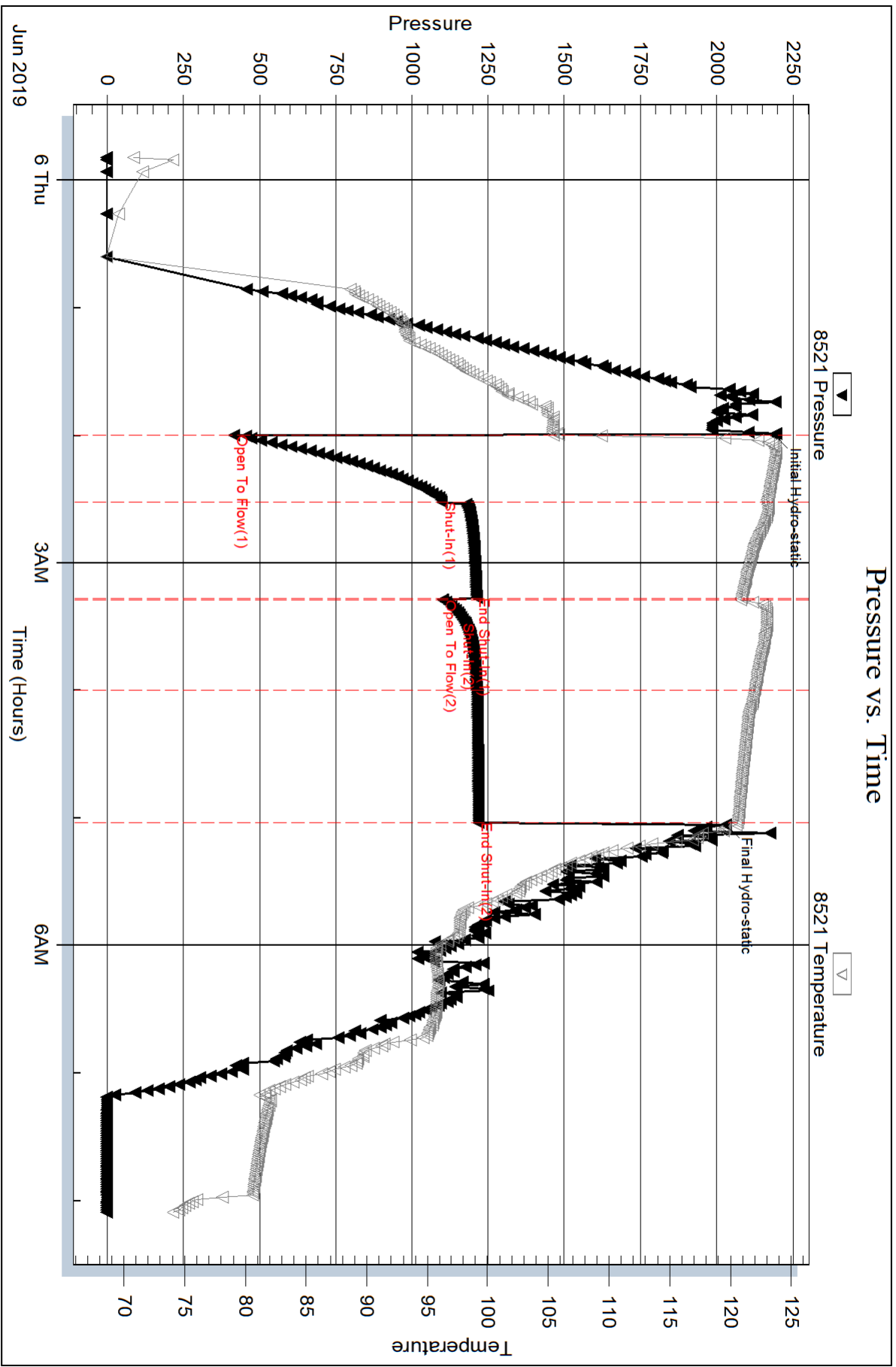
## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
310.00	w cm 5%w 95%m	2.654
2418.00	sw 100% sw	33.918

Total Length: 2728.00 ft      Total Volume: 36.572 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments: .513@ 55.7= 23,500 ppm



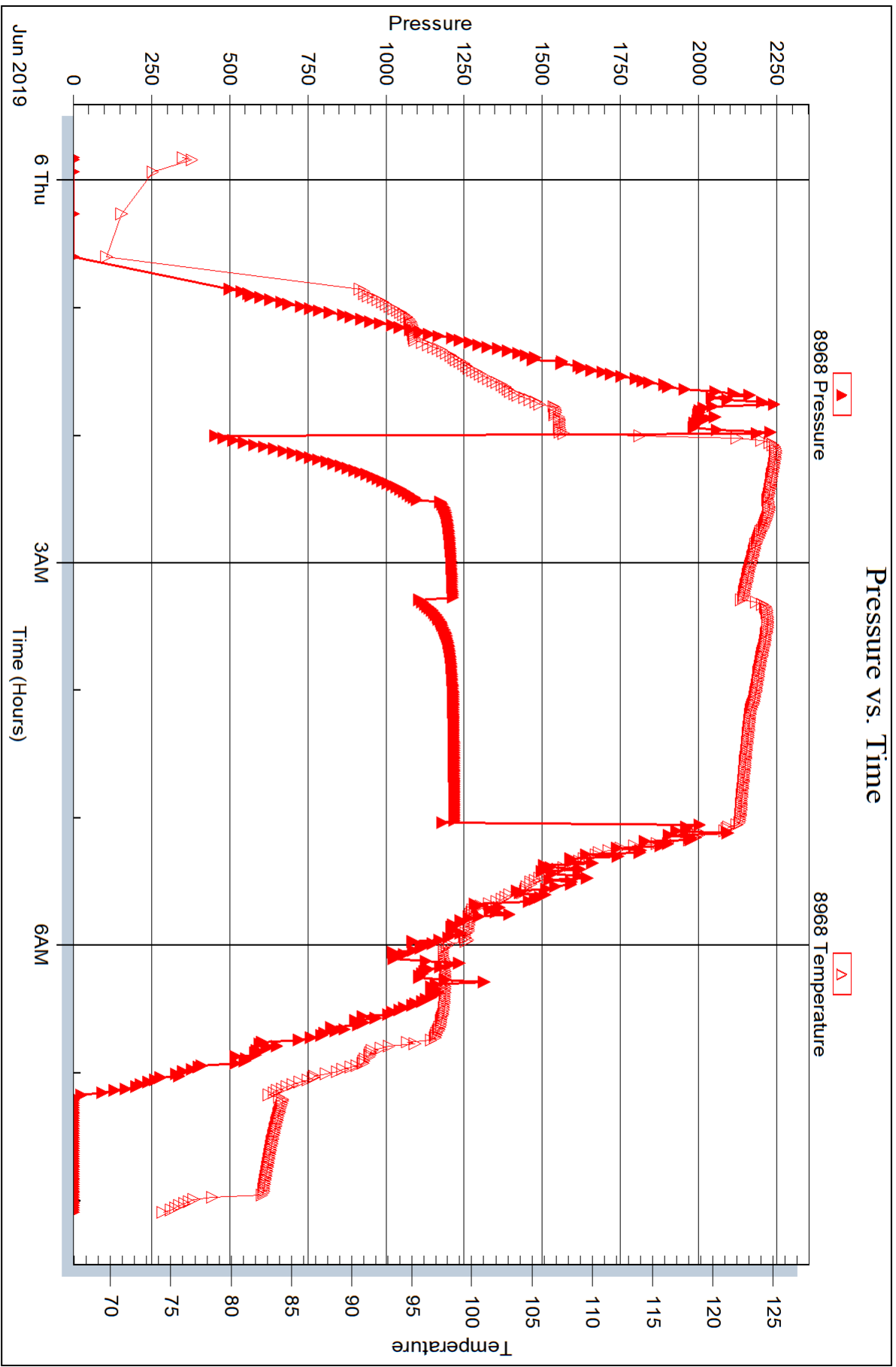


Serial #: 8968

Outside Ritchie Exploration

Wells-Whitham #1

DST Test Number: 6





## DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration**

8100 E. 22nd. St.  
N#700 Box 783188  
Wichita KS 67278

ATTN: Kent Matson

### **Wells-Whitham #1**

### **9-17s-36w Wichita,KS**

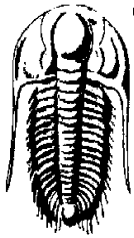
Start Date: 2019.06.06 @ 19:13:15

End Date: 2019.06.07 @ 02:49:15

Job Ticket #: 65149                      DST #: 7

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

Printed: 2019.06.11 @ 15:07:32



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Ritchie Exploration

**9-17s-36w Wichita, KS**

8100 E. 22nd. St.  
N#700 Box 783188  
Wichita KS 67278  
ATTN: Kent Matson

**Wells-Whitham #1**

Job Ticket: 65149

**DST#: 7**

Test Start: 2019.06.06 @ 19:13:15

## GENERAL INFORMATION:

Formation: **LKC L**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 21:47:45

Time Test Ended: 02:49:15

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 81

**Interval: 4308.00 ft (KB) To 4345.00 ft (KB) (TVD)**

Reference Elevations: 3295.00 ft (KB)

Total Depth: 4345.00 ft (KB) (TVD)

3290.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

**Serial #: 8521**

**Inside**

Press@RunDepth: 184.62 psig @ 4309.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.06.06

End Date:

2019.06.07

Last Calib.:

2019.06.07

Start Time:

19:13:15

End Time:

02:49:15

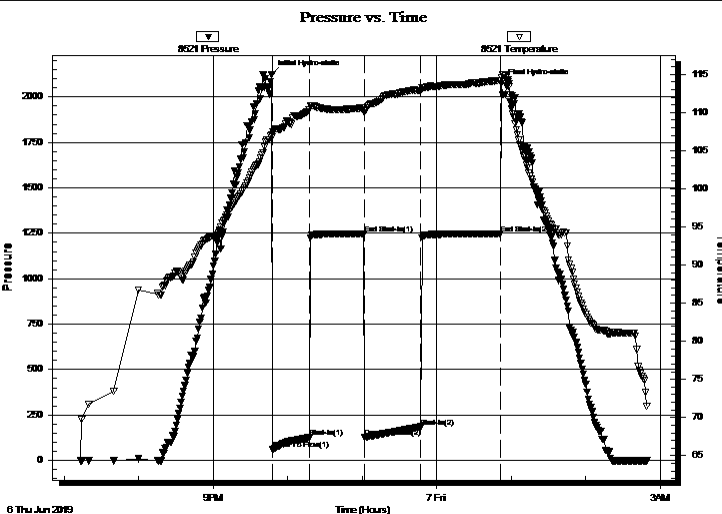
Time On Btm:

2019.06.06 @ 21:47:15

Time Off Btm:

2019.06.07 @ 00:52:15

**TEST COMMENT:** IF: Built to 6 3/4" blow  
IS: No return blow  
FF: Built to 6 1/4" blow  
FS: No return blow



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2124.12	107.09	Initial Hydro-static
1	60.46	106.79	Open To Flow (1)
30	125.33	110.33	Shut-In(1)
75	1246.75	110.59	End Shut-In(1)
75	127.56	109.94	Open To Flow (2)
120	184.62	112.81	Shut-In(2)
185	1246.23	114.17	End Shut-In(2)
185	2075.58	114.56	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
186.00	w cm 3%w 97%m	0.91
186.00	mcw 40%m 60%w	2.61

## Gas Rates

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

\* Recovery from multiple tests





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Ritchie Exploration

**9-17s-36w Wichita, KS**

8100 E. 22nd. St.  
N#700 Box 783188  
Wichita KS 67278  
ATTN: Kent Matson

**Wells-Whitham #1**

Job Ticket: 65149

**DST#: 7**

Test Start: 2019.06.06 @ 19:13:15

## Tool Information

Drill Pipe:	Length: 4109.00 ft	Diameter: 3.80 inches	Volume: 57.64 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose: 74000.00 lb
			<u>Total Volume: 58.55 bbl</u>	Tool Chased 5.00 ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial 57000.00 lb
Depth to Top Packer:	4308.00 ft			Final 58000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	37.00 ft			
Tool Length:	65.00 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			4281.00	
Shut In Tool	5.00			4286.00	
Hydraulic tool	5.00			4291.00	
Jars	5.00			4296.00	
Safety Joint	3.00			4299.00	
Packer	5.00			4304.00	28.00 Bottom Of Top Packer
Packer	4.00			4308.00	
Stubb	1.00			4309.00	
Recorder	0.00	8968	Outside	4309.00	
Recorder	0.00	8521	Inside	4309.00	
Perforations	31.00			4340.00	
Bullnose	5.00			4345.00	37.00 Bottom Packers & Anchor

**Total Tool Length: 65.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Ritchie Exploration

**9-17s-36w Wichita,KS**

8100 E. 22nd. St.  
N#700 Box 783188  
Wichita KS 67278  
ATTN: Kent Matson

**Wells-Whitham #1**

Job Ticket: 65149

**DST#: 7**

Test Start: 2019.06.06 @ 19:13:15

### 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:

27000 ppm

Viscosity: 60.00 sec/qt

Cushion Volume:

bbf

Water Loss: 9.55 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 7600.00 ppm

Filter Cake: 1.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbf
186.00	w cm 3%w 97%m	0.915
186.00	mcw 40%m 60%w	2.609

Total Length: 372.00 ft      Total Volume: 3.524 bbf

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW= .432@ 56.3= 27,000 ppm

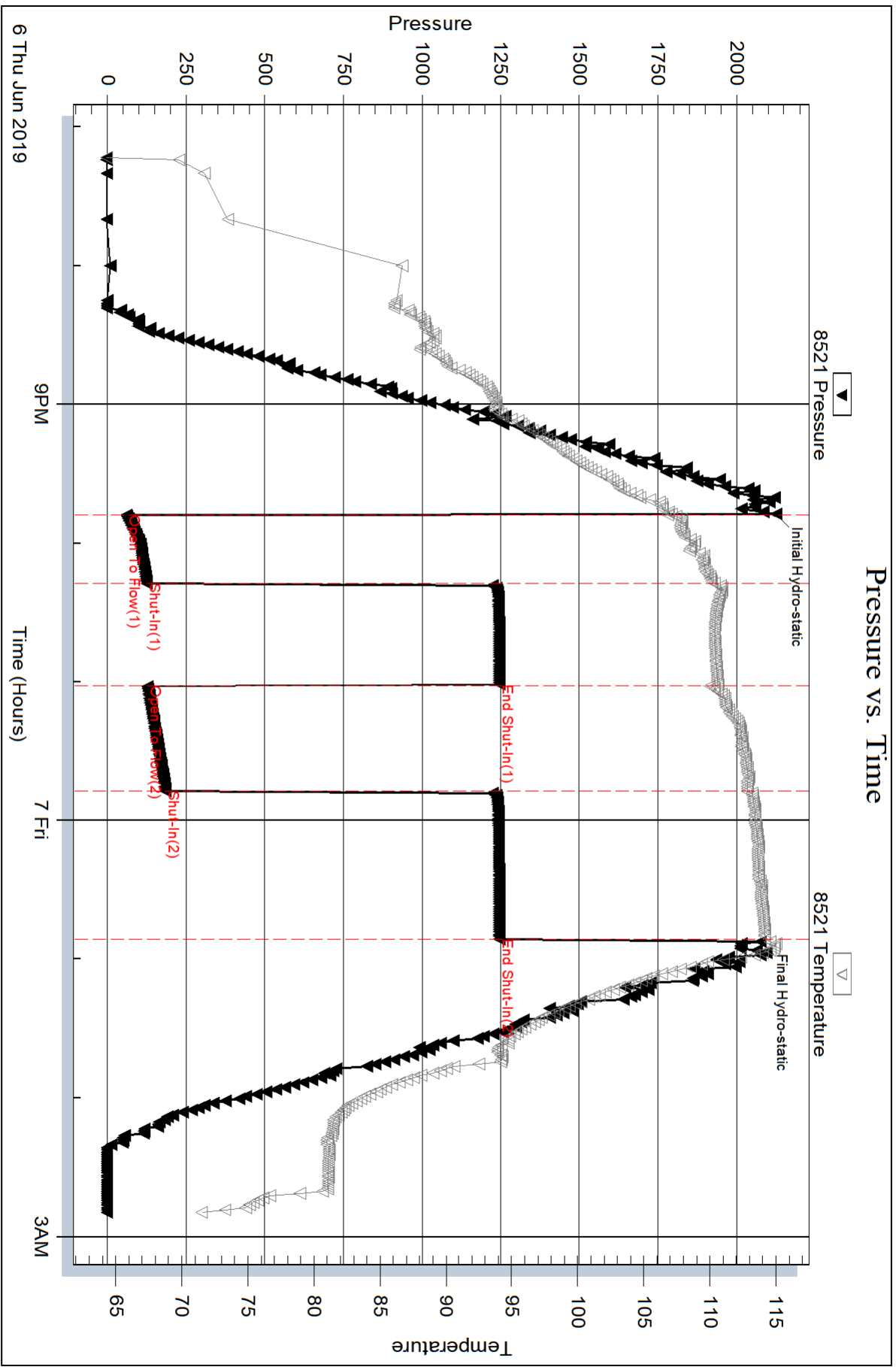
Serial #: 8521

Inside

Ritchie Exploration

Wells-Whitham #1

DST Test Number: 7



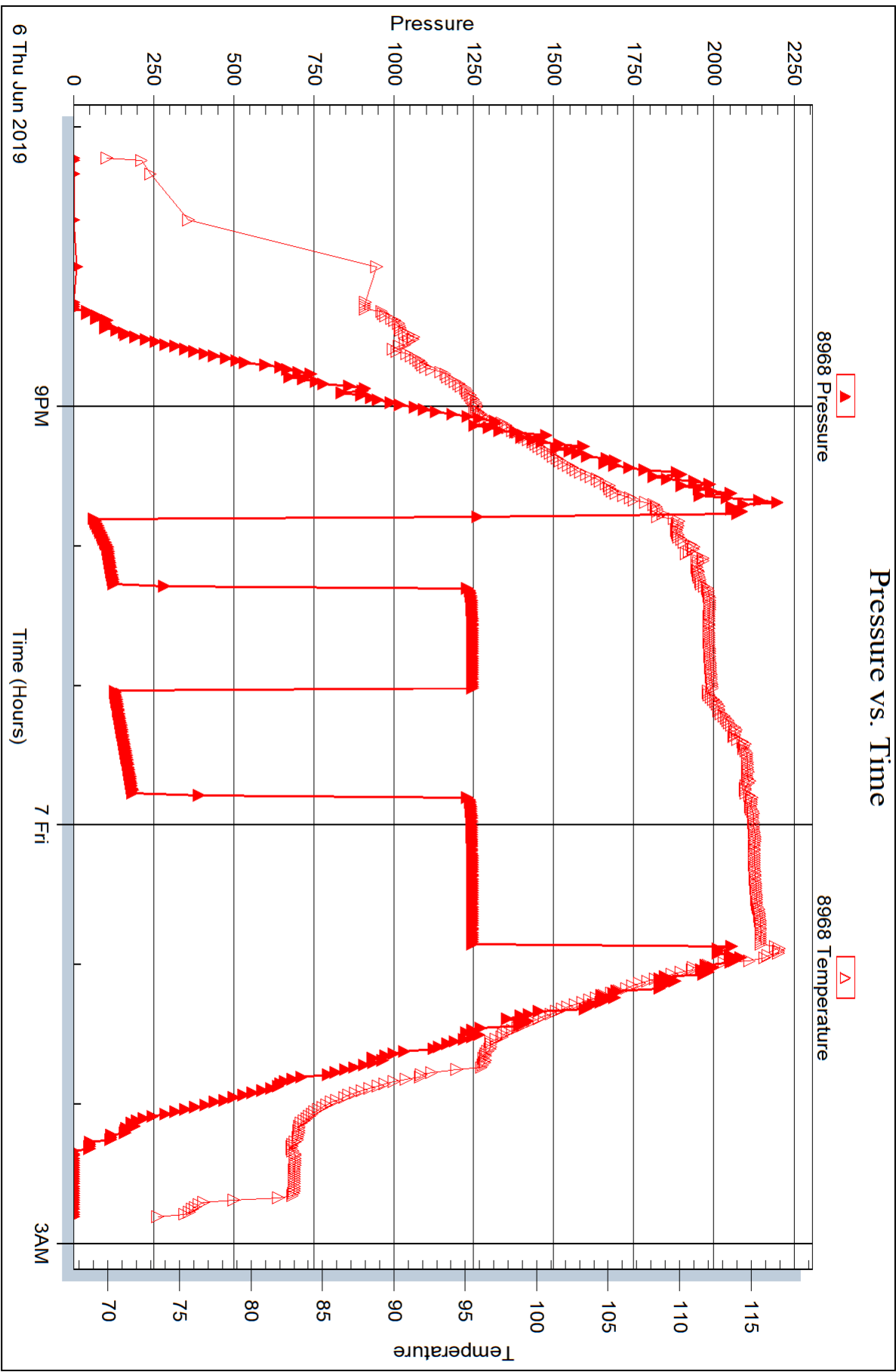


Serial #: 8968

Outside Ritchie Exploration

Wells-Whitham #1

DST Test Number: 7





## DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration**

8100 E. 22nd. St.  
N#700 Box 783188  
Wichita KS 67278

ATTN: Kent Matson

### **Wells-Whitham #1**

### **9-17s-36w Wichita,KS**

Start Date: 2019.06.07 @ 00:07:15

End Date: 2019.06.07 @ 07:37:45

Job Ticket #: 65150                      DST #: 8

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

Printed: 2019.06.11 @ 15:07:07



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Ritchie Exploration

**9-17s-36w Wichita, KS**

8100 E. 22nd. St.  
N#700 Box 783188  
Wichita KS 67278  
ATTN: Kent Matson

**Wells-Whitham #1**

Job Ticket: 65150

**DST#: 8**

Test Start: 2019.06.07 @ 00:07:15

## GENERAL INFORMATION:

Formation: **Altamont A-B**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 02:24:15

Time Test Ended: 07:37:45

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 81

**Interval: 4414.00 ft (KB) To 4470.00 ft (KB) (TVD)**

Reference Elevations: 3295.00 ft (KB)

Total Depth: 4470.00 ft (KB) (TVD)

3290.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

**Serial #: 8521 Inside**

Press@RunDepth: 113.65 psig @ 4450.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.06.07

End Date:

2019.06.08

Last Calib.: 2019.06.08

Start Time: 21:50:00

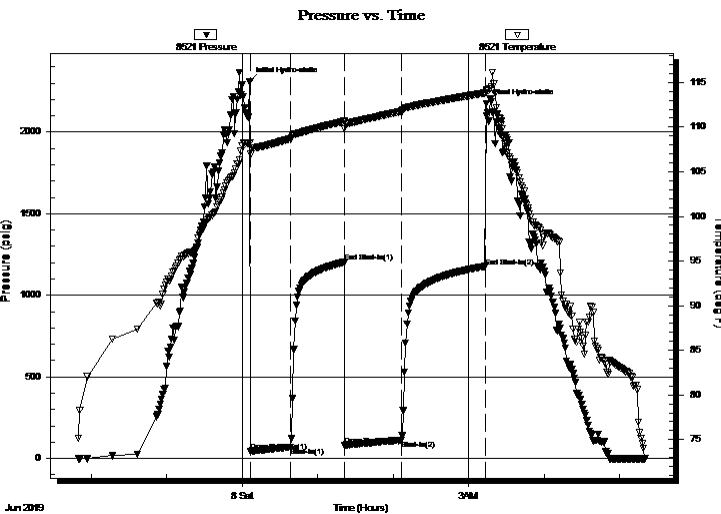
End Time:

05:20:30

Time On Btm: 2019.06.08 @ 00:06:00

Time Off Btm: 2019.06.08 @ 03:14:15

**TEST COMMENT:** IF: Built to 1 1/4" blow  
IS: No return blow  
FF: Built to 1" blow  
FS: No return blow



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2310.30	108.24	Initial Hydro-static
1	45.09	106.94	Open To Flow (1)
33	71.75	108.68	Shut-In(1)
75	1201.96	110.66	End Shut-In(1)
76	82.45	109.85	Open To Flow (2)
121	113.65	111.74	Shut-In(2)
188	1177.23	113.81	End Shut-In(2)
189	2174.63	114.04	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
186.00	sl ocm 2 %o 98%m	0.91

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Ritchie Exploration

**9-17s-36w Wichita,KS**

8100 E. 22nd. St.  
N#700 Box 783188  
Wichita KS 67278  
ATTN: Kent Matson

**Wells-Whitham #1**

Job Ticket: 65150

**DST#: 8**

Test Start: 2019.06.07 @ 00:07:15

## Tool Information

Drill Pipe:	Length: 4234.00 ft	Diameter: 3.80 inches	Volume: 59.39 bbl	Tool Weight: 1500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 186.00 ft	Diameter: 2.25 inches	Volume: 0.91 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 60.30 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	34.00 ft			String Weight: Initial 50000.00 lb
Depth to Top Packer:	4414.00 ft			Final 50000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	56.00 ft			
Tool Length:	84.00 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			4387.00	
Shut In Tool	5.00			4392.00	
Hydraulic tool	5.00			4397.00	
Jars	5.00			4402.00	
Safety Joint	3.00			4405.00	
Packer	5.00			4410.00	28.00 Bottom Of Top Packer
Packer	4.00			4414.00	
Stubb	1.00			4415.00	
Perforations	2.00			4417.00	
Change Over Sub	1.00			4418.00	
Drill Pipe	31.00			4449.00	
Change Over Sub	1.00			4450.00	
Recorder	0.00	8968	Outside	4450.00	
Recorder	0.00	8521	Inside	4450.00	
Perforations	15.00			4465.00	
Bullnose	5.00			4470.00	56.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>84.00</b>				



**TRILOBITE  
TESTING, INC.**

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

Ritchie Exploration

**9-17s-36w Wichita,KS**

8100 E. 22nd. St.  
N#700 Box 783188  
Wichita KS 67278  
ATTN: Kent Matson

**Wells-Whitham #1**

Job Ticket: 65150

**DST#: 8**

Test Start: 2019.06.07 @ 00:07:15

**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: 48.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 9.57 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 8000.00 ppm

Filter Cake: 1.00 inches

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
186.00	sl ocm 2 %o 98%m	0.915

Total Length: 186.00 ft

Total Volume: 0.915 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

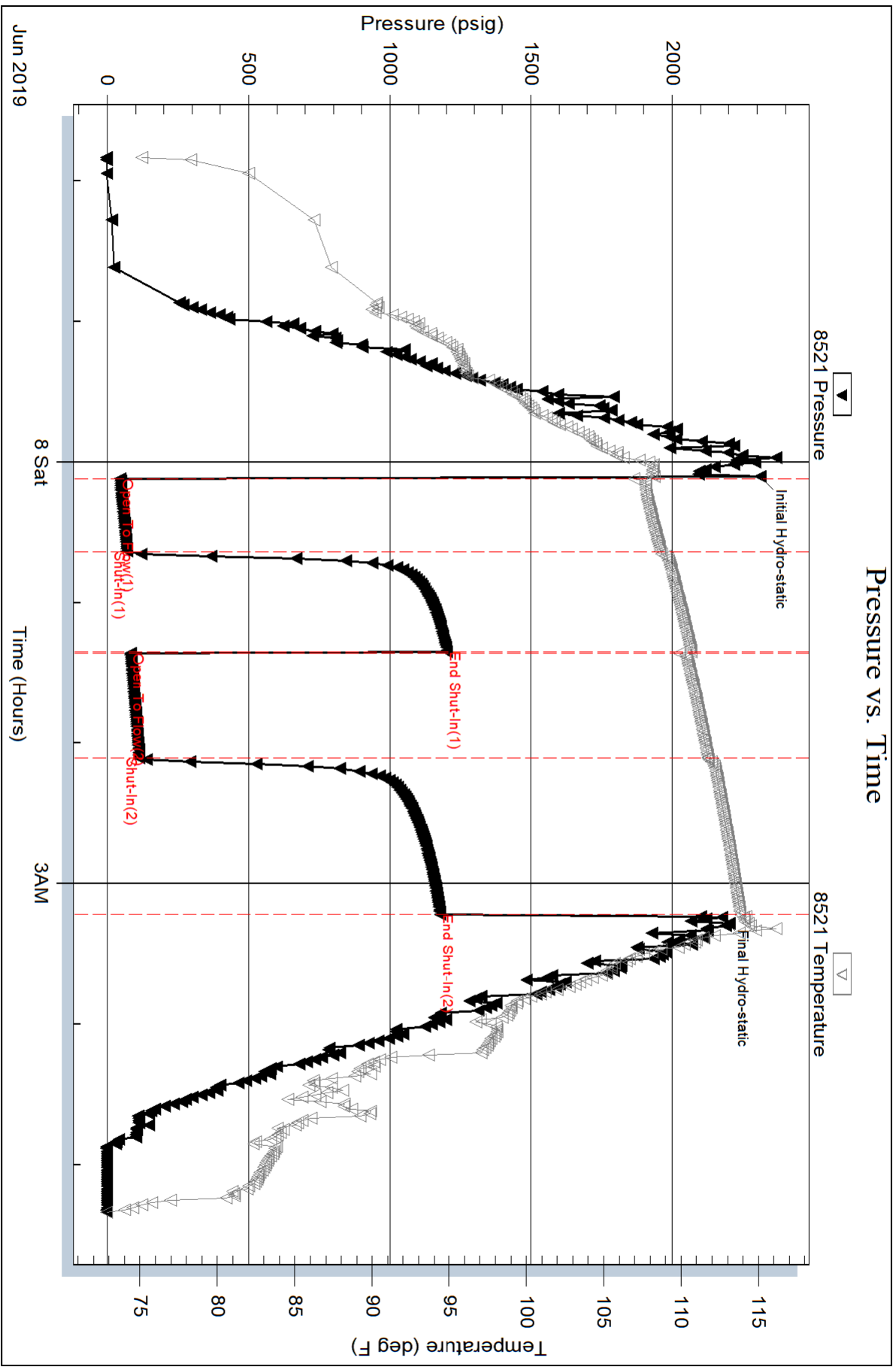
Serial #: 8521

Inside

Ritchie Exploration

Wells-Whitham #1

DST Test Number: 8



Trilobite Testing, Inc

Ref. No: 65150

Printed: 2019.06.11 @ 15:07:08

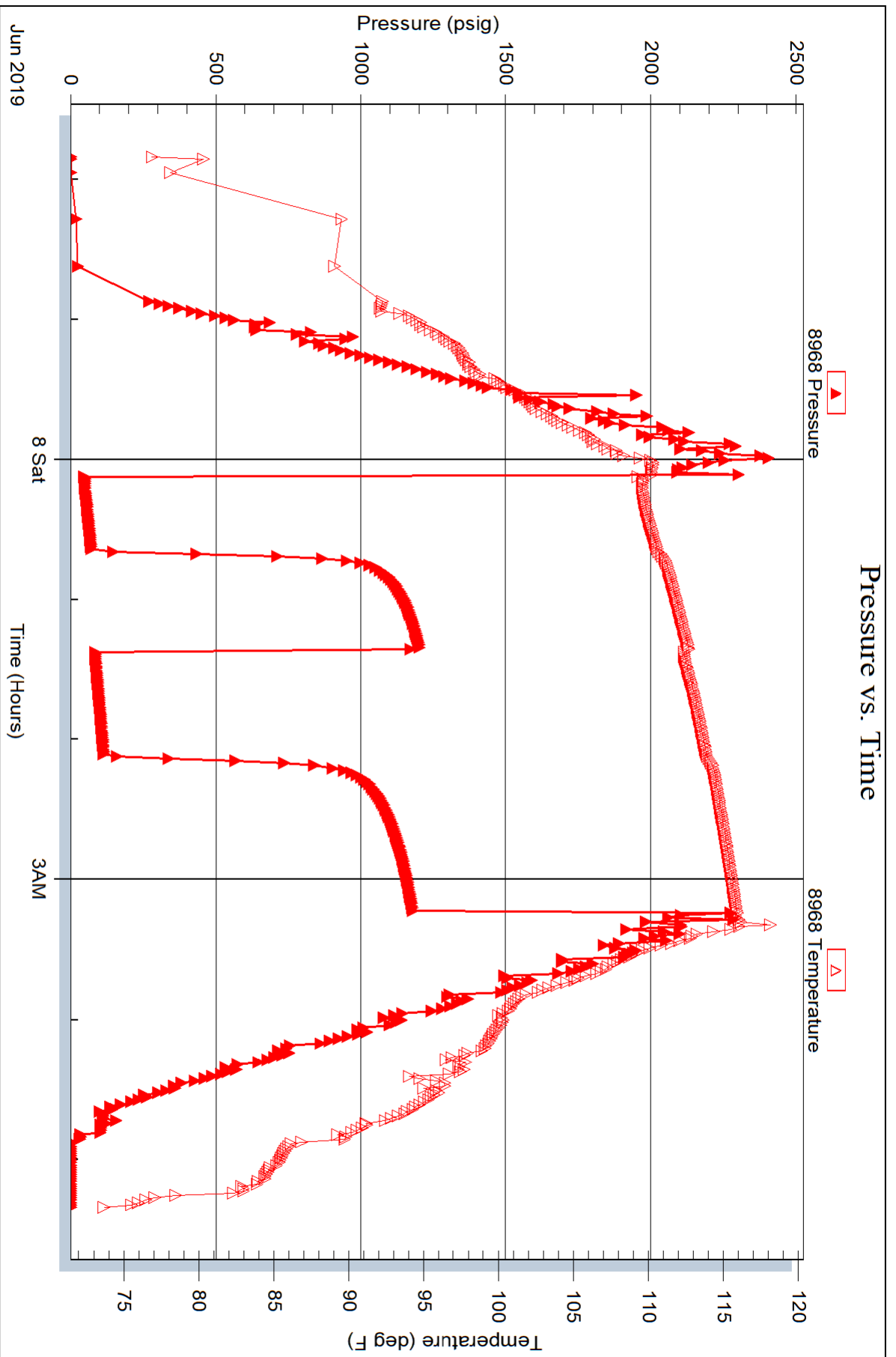
Serial #: 8968

Outside

Ritchie Exploration

Wells-Whitham #1

DST Test Number: 8







# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 65143

Well Name & No. Wells - Whittham #1 Test No. 1 Date 6-1-19  
 Company Ritchie Exploration Inc Elevation 3295 KB 3290 GL  
 Address 8100 E 22nd St N #700 Box 783188 Wichita KS 67278  
 Co. Rep / Geo. Kent Matson Rig WW 12  
 Location: Sec. 9 Twp 17S Rge. 36W Co. Wichita State KS

Interval Tested 3984-4020 Zone Tested Lansing A  
 Anchor Length 36 Drill Pipe Run 3795 Mud Wt. 8.9  
 Top Packer Depth 3979 Drill Collars Run 186 Vis 58  
 Bottom Packer Depth 3984 Wt. Pipe Run Ø WL 7.2  
 Total Depth 4020 Chlorides 4800 ppm System LCM 3  
 Blow Description IF: Built to 37 1/2" Blow BOB 8min  
IS: No Return Blow  
FF: Built to 45" Blow BOB 10 min  
FS: No Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>268</u>	<u>OCOM 2" Thick oil</u>	<u>2</u>	<u>30</u>	<u>50</u>	
<u>310</u>	<u>OCMW</u>	<u>5</u>	<u>75</u>	<u>20</u>	
<u>372</u>	<u>MCW</u>		<u>96</u>	<u>4</u>	

Rec Total 950 BHT 115 Gravity — API RW 496 @ 68.8°F Chlorides 18000 ppm  
 (A) Initial Hydrostatic 2067  Test 1300 T-On Location 23:30  
 (B) First Initial Flow 36  Jars 250 T-Started 02:20  
 (C) First Final Flow 255  Safety Joint 75 T-Open 04:33  
 (D) Initial Shut-In 1079  Circ Sub NL T-Pulled 07:33  
 (E) Second Initial Flow 255  Hourly Standby \_\_\_\_\_ T-Out 09:54  
 (F) Second Final Flow 447  Mileage BORT 80 Comments \_\_\_\_\_  
 (G) Final Shut-In 1076  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1991  Straddle \_\_\_\_\_  
 Initial Open 30  Shale Packer \_\_\_\_\_  
 Initial Shut-In 45  Extra Packer \_\_\_\_\_  
 Final Flow 45  Extra Recorder \_\_\_\_\_  
 Final Shut-In 60  Day Standby \_\_\_\_\_  
 Sub Total 1705  Accessibility \_\_\_\_\_  
 Sub Total 1705  EM Tool \_\_\_\_\_  
 Ruined Shale Packer \_\_\_\_\_  
 Ruined Packer \_\_\_\_\_  
 Extra Copies \_\_\_\_\_  
 Sub Total 0  
 Total 1705

Approved By [Signature]

Our Representative [Signature] MP/DST Disc't

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. 65144

Well Name & No. Wells-Whitham #1 Test No. 2 Date 6-2-19  
 Company Ritchie Exploration Inc Elevation 3295 KB 3290 GL  
 Address 8100 E 22<sup>nd</sup> St. N # 700 Box 783188 Wichita KS 67228  
 Co. Rep / Geo. Kent Matson Rig W1112  
 Location: Sec. 9 Twp 17s Rge. 36w Co. Wichita State KS

Interval Tested 4046-4070 Zone Tested Lansing D  
 Anchor Length 24 Drill Pipe Run 3857 Mud Wt. 9.1  
 Top Packer Depth 4041 Drill Collars Run 186 Vis 49  
 Bottom Packer Depth 4046 Wt. Pipe Run Ø WL 7.2  
 Total Depth 4070 Chlorides 5400 ppm System LCM 3  
 Blow Description IF: Built to 4 1/4"  
IS: No Return Blow  
FF: Built to 6"  
FS: No Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>249</u>	<u>WCM</u>		<u>5</u>	<u>95</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 249 BHT 115 Gravity 1300 API RW .512 @ 69.3°F Chlorides 18500 ppm  
 Test 1300 T-On Location 21:00  
 Jars 250 T-Started 22:29  
 Safety Joint 75 T-Open 12:26  
 Circ Sub NC T-Pulled 03:26  
 Hourly Standby \_\_\_\_\_ T-Out 05:20  
 Mileage 80 RT 80 Comments \_\_\_\_\_  
 Sampler \_\_\_\_\_  
 Straddle \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_  
 Sub Total 1705 MP/DST Disc't \_\_\_\_\_

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

Sub Total 0  
 Total 1705

Approved By \_\_\_\_\_ Our Representative Mike Roberts

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 65145

Well Name & No. Wells-Whitham #1 Test No. 3 Date 6-3-19  
 Company Ritchie Exploration Inc Elevation 3295 KB 3290 GL  
 Address 8100 E 22nd St N# 700 Box 783188 Wichita KS 67278  
 Co. Rep / Geo. Kent Matson Rig WW 12  
 Location: Sec. 9 Twp 17S Rge. 36W Co. Wichita State KS

Interval Tested 4078-4120 Zone Tested Lansing E-F  
 Anchor Length 42 Drill Pipe Run 3888 Mud Wt. 9.1  
 Top Packer Depth 4073 Drill Collars Run 186 Vis 55  
 Bottom Packer Depth 4078 Wt. Pipe Run 4 WL 8.8  
 Total Depth 4120 Chlorides 6100 ppm System LCM 3  
 Blow Description IF: Built to 18" BOB in 17 Min  
IS: No Return Blow  
FF: Built to 24" BOB in 22 Min  
FS: No Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>496</u>	<u>WCM</u>		<u>30</u>	<u>70</u>	
<u>186</u>	<u>MCW</u>		<u>90</u>	<u>10</u>	

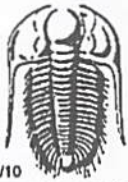
Rec Total 682 BHT 116 Gravity — API RW 1340 @ 66.9°F Chlorides 22000 ppm

(A) Initial Hydrostatic <u>2131</u>	<input checked="" type="checkbox"/> Test <u>1300</u>	T-On Location <u>14:15</u>
(B) First Initial Flow <u>23</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>15:22</u>
(C) First Final Flow <u>196</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>17:17</u>
(D) Initial Shut-In <u>1142</u>	<input checked="" type="checkbox"/> Circ Sub <u>NC</u>	T-Pulled <u>20:17</u>
(E) Second Initial Flow <u>198</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>22:33</u>
(F) Second Final Flow <u>345</u>	<input checked="" type="checkbox"/> Mileage <u>80 RT</u> 80	Comments
(G) Final Shut-In <u>1134</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2079</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> EM Tool
	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Shale Packer
	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Ruined Packer
	<input type="checkbox"/> Extra Recorder	<input type="checkbox"/> Extra Copies
	<input type="checkbox"/> Day Standby	Sub Total <u>0</u>
	<input type="checkbox"/> Accessibility	Total <u>1705</u>
	Sub Total <u>1705</u>	MP/DST Disc't

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

Our Representative Mike Rotato

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 65146

Well Name & No. Wells-Whitham #1 Test No. 4 Date 6-4-19  
 Company Ritchie Exploration Inc Elevation 3295 KB 3290 GL  
 Address 8100 E 22<sup>nd</sup> St. N. # 700 <sup>Box 783188</sup> Wichita KS 67278  
 Co. Rep / Geo. Kent Matson Rig WW12  
 Location: Sec. 9 Twp 17s Rge. 36w Co. Wichita State KS

Interval Tested 4204-4230 Zone Tested Lansing I  
 Anchor Length 26 Drill Pipe Run 4015 Mud Wt. 9.1  
 Top Packer Depth 4199 Drill Collars Run 186 Vis 53  
 Bottom Packer Depth 4204 Wt. Pipe Run Ø WL 8.8  
 Total Depth 4230 Chlorides 7000 ppm System LCM 3  
 Blow Description IF! Built to 1/4" & Died  
IS! No Return Blow  
FF! No Blow -- Flushed tool - No Blow  
FS! No Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>OCM 3" Free Oil</u>	<u>2</u>		<u>98</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

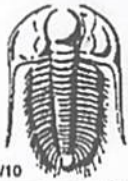
Rec Total 5 BHT 107 Gravity 1300 API RW 80 @ 80 °F Chlorides 7000 ppm

(A) Initial Hydrostatic <u>2174</u>	<input checked="" type="checkbox"/> Test <u>1300</u>	T-On Location <u>14:15</u>
(B) First Initial Flow <u>16</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>14:45</u>
(C) First Final Flow <u>21</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>16:48</u>
(D) Initial Shut-In <u>1002</u>	<input checked="" type="checkbox"/> Circ Sub <u>NC</u>	T-Pulled <u>18:48</u>
(E) Second Initial Flow <u>22</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>21:04</u>
(F) Second Final Flow <u>27</u>	<input checked="" type="checkbox"/> Mileage <u>80 RT</u> 80	Comments
(G) Final Shut-In <u>1061</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2098</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> EM Tool
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Shale Packer
Initial Shut-In <u>30</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>0</u>
	<input type="checkbox"/> Accessibility	Total <u>1705</u>
	Sub Total <u>1705</u>	MP/DST Disc't

Approved By \_\_\_\_\_ Our Representative Mike Polak

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. **65147**

Well Name & No. Wells-Whitham #1 Test No. 5 Date 6-5-19  
 Company Ritchie Exploration Inc Elevation 3295 KB 3290 GL  
 Address 8100 E 22nd St N #700 Box 783188 Wichita KS 67278  
 Co. Rep / Geo. Kent Matson Rig WLW12  
 Location: Sec. 9 Twp 17S Rge. 36W Co. Wichita State KS

Interval Tested 4240-4262 Zone Tested J  
 Anchor Length 22 Drill Pipe Run 4047 Mud Wt. 9.1  
 Top Packer Depth 4235 Drill Collars Run 186 Vis 53  
 Bottom Packer Depth 4240 Wt. Pipe Run Ø WL 8.8  
 Total Depth 4262 Chlorides 7000 ppm System LCM 3  
 Blow Description IF: Built to 12 3/4 BOB in 26 Min  
IS: No Return Blow  
FF: Built to 16" BOB in 32 Min  
FS: No Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>149 <del>149</del></u>	<u>OCWM - 5' Thick oil</u>	<u>10</u>	<u>30</u>	<u>60</u>	
<u>310</u>	<u>OCMLW</u>	<u>4</u>	<u>86</u>	<u>10</u>	

Rec Total 464 BHT 120 Gravity 25 API RW, ~~410~~ <sup>253</sup> @ 101.4 °F Chlorides 23000 ppm

(A) Initial Hydrostatic <u>2245</u>	<input checked="" type="checkbox"/> Test <u>1300</u>	T-On Location <u>06:15</u>
(B) First Initial Flow <u>23</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>07:02</u>
(C) First Final Flow <u>134</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>09:21</u>
(D) Initial Shut-In <u>1130</u>	<input checked="" type="checkbox"/> Circ Sub <u>NC</u>	T-Pulled <u>12:21</u>
(E) Second Initial Flow <u>137</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>14:26</u>
(F) Second Final Flow <u>224</u>	<input checked="" type="checkbox"/> Mileage <u>80 RT</u> 80	Comments
(G) Final Shut-In <u>1109</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2049</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> EM Tool
	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Shale Packer
	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Ruined Packer
	<input type="checkbox"/> Extra Recorder	<input type="checkbox"/> Extra Copies
	<input type="checkbox"/> Day Standby	Sub Total <u>0</u>
	<input type="checkbox"/> Accessibility	Total <u>1705</u>
	Sub Total <u>1705</u>	MP/DST Disc't

Approved By [Signature] Our Representative Mike Roberts

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 65148

Well Name & No. Wells-Whitham #1 Test No. 6 Date 6-5-19  
 Company Ritchie Exploration Inc Elevation 3295 KB 3290 GL  
 Address 8100 E 22<sup>nd</sup> St. N #700 Box 783188 Wichita KS 67278  
 Co. Rep / Geo. Kent Matson Rig WW12  
 Location: Sec. 9 Twp 17S Rge. 36W Co. Wichita State KS

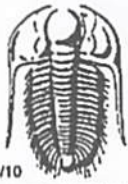
Interval Tested 4260-4290 Zone Tested K  
 Anchor Length ~~4055~~ 30 Drill Pipe Run 4060 Mud Wt. 9.2  
 Top Packer Depth ~~4255~~ 4255 Drill Collars Run 186 Vis 63  
 Bottom Packer Depth ~~4260~~ 4260 Wt. Pipe Run Ø WL 9.6  
 Total Depth 4290 Chlorides 7000 ppm System LCM 3  
 Blow Description IF: Built to 424' Blow BOB in 1 Min  
IS: No Return Blow  
FF: Built to 63" Blow BOB in 2 Min  
FS: No Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>310</u>	<u>WCM</u>		<u>5</u>	<u>95</u>	
<u>2418</u>	<u>SW</u>		<u>100</u>		

Rec Total 2728 BHT 120 Gravity 1.300 API RW 513 @ 55.7°F Chlorides 23500 ppm  
 Test 1300 T-On Location 23:00  
 Jars 250 T-Started 23:49  
 Safety Joint 75 T-Open 02:00  
 Circ Sub 50 Dropped Bar T-Pulled 05:00  
 Hourly Standby T-Out 08:05  
 Mileage BORT 80 Comments \_\_\_\_\_  
 Sampler \_\_\_\_\_  
 Straddle \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_  
 Sub Total 1755 MP/DST Disc't \_\_\_\_\_

Initial Open 30  
 Initial Shut-In 45  
 Final Flow 45  
 Final Shut-In 60  
 Approved By \_\_\_\_\_ Our Representative Mike Roberts  
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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 65149

Well Name & No. Wells-Whitham #1 Test No. 7 Date 6-6-19  
 Company Ritchie Exploration Inc Elevation 3295 KB 3290 GL  
 Address 8100 E 22<sup>nd</sup> St. N#700 Box 783188 Wichita KS 67278  
 Co. Rep / Geo. Kent Mason Rig \_\_\_\_\_  
 Location: Sec. 9 Twp 17S Rge. 36W Co. Wichita State KS

Interval Tested 4308-4345 Zone Tested L  
 Anchor Length 37 Drill Pipe Run 4109 Mud Wt. 9.2  
 Top Packer Depth 4303 Drill Collars Run 186 Vis 60  
 Bottom Packer Depth 4308 Wt. Pipe Run Ø WL 9.4  
 Total Depth 4345 Chlorides 7600 ppm System LCM 2  
 Blow Description IF: Built to 6 3/4" Blow  
IS: No Return Blow  
FF: Built to 6 1/4" Blow  
FS: No Return Blow

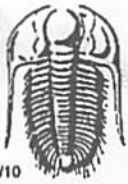
Rec	Feet of	%gas	%oil	%water	%mud
<u>186</u>	<u>WCM</u>		<u>3</u>	<u>97</u>	
<u>186</u>	<u>MCW</u>		<u>60</u>	<u>40</u>	

Rec Total 372 BHT 115 Gravity \_\_\_\_\_ API RW 432 @ 56.3/-°F Chlorides 27000 ppm  
 Test 1300 T-On Location 18:25  
 Jars 250 T-Started 19:13  
 Safety Joint 75 T-Open 21:47  
 Circ Sub NC T-Pulled 00:47  
 Hourly Standby \_\_\_\_\_ T-Out 02:49  
 Mileage 80RT 80 Comments Tool Slid  
 Sampler \_\_\_\_\_ 5'  
 Straddle \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_  
 Sub Total 1705 MP/DST Disc't \_\_\_\_\_

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

Approved By \_\_\_\_\_ Our Representative Mike Robert

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 65150

Well Name & No. Wells-Whitham #1 Test No. 8 Date 6-7-19  
 Company Ritchie Exploration Inc Elevation 3295 KB 3290 GL  
 Address 8100 E 22nd St. N #700 Box 783488 Wichita KS 67278  
 Co. Rep / Geo. Kent Matson Rig WW12  
 Location: Sec. 9 Twp 17S Rge. 36W Co. Wichita State KS

Interval Tested 4414-4470 Zone Tested Altament A-B  
 Anchor Length 56 Drill Pipe Run 4234 Mud Wt. 9.1  
 Top Packer Depth 4409 Drill Collars Run 186 Vis 48  
 Bottom Packer Depth 4414 Wt. Pipe Run Ø WL 9.6  
 Total Depth 4470 Chlorides 8000 ppm System LCM 3  
 Blow Description IF: Built to 1 1/4" Blow  
IS: No Return Blow  
FF: Built to 1" Blow  
FS: No Return Blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>186</u>	<u>DCM</u>	<u>2</u>		<u>98</u>	

Rec Total 186 BHT 115 Gravity   API RW   @   F Chlorides   ppm  
 (A) Initial Hydrostatic 2310  Test 1300 T-On Location 19:30  
 (B) First Initial Flow 45  Jars 250 T-Started 21:50  
 (C) First Final Flow 71  Safety Joint 75 T-Open 12:07  
 (D) Initial Shut-In 1201  Circ Sub NC T-Pulled 03:07  
 (E) Second Initial Flow 82  Hourly Standby   T-Out ~~05:20~~ 05:20  
 (F) Second Final Flow 113  Mileage BORT 80+80 Comments hooked tools at 21:30 6-10-19  
 (G) Final Shut-In 1177  Sampler    
 (H) Final Hydrostatic 2174  Straddle    EM Tool    
 Shale Packer    Ruined Shale Packer    
 Extra Packer    Ruined Packer    
 Extra Recorder    Extra Copies    
 Day Standby 2.5d 4.75h Sub Total 1600  
 Accessibility   Total 3385  
 Sub Total 1785 MP/DST Disc't  

Approved By \_\_\_\_\_ Our Representative Mike Roberts

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