

Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION  
OIL & GAS CONSERVATION DIVISION

Form ACO-1

January 2018

Form must be Typed

Form must be Signed

All blanks must be Filled

WELL COMPLETION FORM  
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # \_\_\_\_\_

Name: \_\_\_\_\_

Address 1: \_\_\_\_\_

Address 2: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_ + \_\_\_\_\_

Contact Person: \_\_\_\_\_

Phone: ( \_\_\_\_\_ ) \_\_\_\_\_

CONTRACTOR: License # \_\_\_\_\_

Name: \_\_\_\_\_

Wellsite Geologist: \_\_\_\_\_

Purchaser: \_\_\_\_\_

Designate Type of Completion:

New Well  Re-Entry  Workover

Oil  WSW  SWD

Gas  DH  EOR

OG  GSW

CM (Coal Bed Methane)

Cathodic  Other (Core, Expl., etc.): \_\_\_\_\_

If Workover/Re-entry: Old Well Info as follows:

Operator: \_\_\_\_\_

Well Name: \_\_\_\_\_

Original Comp. Date: \_\_\_\_\_ Original Total Depth: \_\_\_\_\_

Deepening  Re-perf.  Conv. to EOR  Conv. to SWD

Plug Back  Liner  Conv. to GSW  Conv. to Producer

Commingled Permit #: \_\_\_\_\_

Dual Completion Permit #: \_\_\_\_\_

SWD Permit #: \_\_\_\_\_

EOR Permit #: \_\_\_\_\_

GSW Permit #: \_\_\_\_\_

Spud Date or Date Reached TD Completion Date or Recompletion Date

API No.: \_\_\_\_\_

Spot Description: \_\_\_\_\_

\_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

\_\_\_\_\_ Feet from  North /  South Line of Section

\_\_\_\_\_ Feet from  East /  West Line of Section

Footages Calculated from Nearest Outside Section Corner:

NE  NW  SE  SW

GPS Location: Lat: \_\_\_\_\_, Long: \_\_\_\_\_  
(e.g. xx.xxxxx) (e.g. -xxx.xxxxx)

Datum:  NAD27  NAD83  WGS84

County: \_\_\_\_\_

Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Field Name: \_\_\_\_\_

Producing Formation: \_\_\_\_\_

Elevation: Ground: \_\_\_\_\_ Kelly Bushing: \_\_\_\_\_

Total Vertical Depth: \_\_\_\_\_ Plug Back Total Depth: \_\_\_\_\_

Amount of Surface Pipe Set and Cemented at: \_\_\_\_\_ Feet

Multiple Stage Cementing Collar Used?  Yes  No

If yes, show depth set: \_\_\_\_\_ Feet

If Alternate II completion, cement circulated from: \_\_\_\_\_

feet depth to: \_\_\_\_\_ w/ \_\_\_\_\_ sx cmt.

Drilling Fluid Management Plan

(Data must be collected from the Reserve Pit)

Chloride content: \_\_\_\_\_ ppm Fluid volume: \_\_\_\_\_ bbls

Dewatering method used: \_\_\_\_\_

Location of fluid disposal if hauled offsite:

Operator Name: \_\_\_\_\_

Lease Name: \_\_\_\_\_ License #: \_\_\_\_\_

Quarter \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

County: \_\_\_\_\_ Permit #: \_\_\_\_\_

AFFIDAVIT

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

KCC Office Use ONLY

Confidentiality Requested

Date: \_\_\_\_\_

Confidential Release Date: \_\_\_\_\_

Wireline Log Received  Drill Stem Tests Received

Geologist Report / Mud Logs Received

UIC Distribution

ALT  I  II  III Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

Operator Name: \_\_\_\_\_ Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West County: \_\_\_\_\_

**INSTRUCTIONS:** Show important tops of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed.

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to kcc-well-logs@kcc.ks.gov. Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

Drill Stem Tests Taken <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(Attach Additional Sheets)</i>  Samples Sent to Geological Survey <input type="checkbox"/> Yes <input type="checkbox"/> No  Cores Taken <input type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Run <input type="checkbox"/> Yes <input type="checkbox"/> No Geologist Report / Mud Logs <input type="checkbox"/> Yes <input type="checkbox"/> No  List All E. Logs Run:	<input type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample  Name Top Datum
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CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> Used							
Report all strings set-conductor, surface, intermediate, production, etc.							
Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives

ADDITIONAL CEMENTING / SQUEEZE RECORD				
Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
<input type="checkbox"/> Perforate <input type="checkbox"/> Protect Casing <input type="checkbox"/> Plug Back TD <input type="checkbox"/> Plug Off Zone				

1. Did you perform a hydraulic fracturing treatment on this well?  Yes  No *(If No, skip questions 2 and 3)*
2. Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons?  Yes  No *(If No, skip question 3)*
3. Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry?  Yes  No *(If No, fill out Page Three of the ACO-1)*

Date of first Production/Injection or Resumed Production/Injection:	Producing Method: <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other <i>(Explain)</i> _____				
Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5) (Submit ACO-4)</i>	PRODUCTION INTERVAL: Top Bottom
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Shots Per Foot	Perforation Top	Perforation Bottom	Bridge Plug Type	Bridge Plug Set At	Acid, Fracture, Shot, Cementing Squeeze Record <i>(Amount and Kind of Material Used)</i>

TUBING RECORD:	Size:	Set At:	Packer At:	
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## DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration**

8100 E 22nd St N 700  
Wichita, KS 67278

ATTN: Bob Peterson

**D. Schumacher #2**

**23-15-36 Logan,KS**

Start Date: 2018.04.05 @ 18:14:15

End Date: 2018.04.05 @ 23:39:45

Job Ticket #: 64321                      DST #: 1

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

Printed: 2018.04.12 @ 15:45:39



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Ritchie Exploration  
8100 E 22nd St N 700  
Wichita, KS 67278  
ATTN: Bob Peterson

**23-15-36 Logan, KS**  
**D. Schumacher #2**  
Job Ticket: 64321      **DST#: 1**  
Test Start: 2018.04.05 @ 18:14:15

## GENERAL INFORMATION:

Formation: **LKC- A**  
Deviated: No Whipstock: ft (KB)      Test Type: Conventional Bottom Hole (Initial)  
Time Tool Opened: 20:07:45      Tester: Brandon Turley  
Time Test Ended: 23:39:45      Unit No: 79  
**Interval: 4032.00 ft (KB) To 4055.00 ft (KB) (TVD)**      Reference Elevations: 3295.00 ft (KB)  
Total Depth: 4055.00 ft (KB) (TVD)      3290.00 ft (CF)  
Hole Diameter: 7.88 inches Hole Condition: Good      KB to GR/CF: 5.00 ft

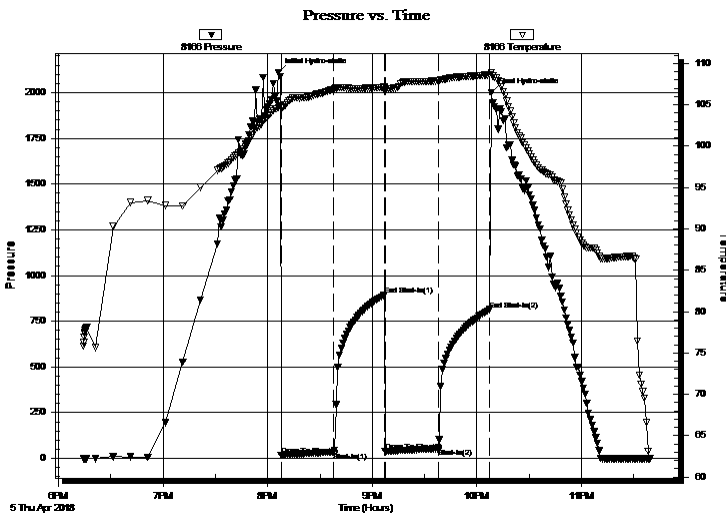
## Serial #: 8166

Outside

Press@RunDepth: 53.08 psig @ 4033.00 ft (KB)      Capacity: 8000.00 psig  
Start Date: 2018.04.05      End Date: 2018.04.05      Last Calib.: 2018.04.05  
Start Time: 18:14:20      End Time: 23:39:44      Time On Btm: 2018.04.05 @ 20:06:15  
Time Off Btm: 2018.04.05 @ 22:08:15

**TEST COMMENT:** IF: Surface blow built to 1 3/4"  
IS: No return.  
FF: No blow. Flushed the tool Surface blow built to 1/4"  
FS: No return.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2110.27	104.62	Initial Hydro-static
2	17.62	104.62	Open To Flow (1)
32	35.03	106.84	Shut-In(1)
61	892.50	107.12	End Shut-In(1)
61	37.10	106.58	Open To Flow (2)
92	53.08	107.89	Shut-In(2)
121	813.06	108.61	End Shut-In(2)
122	1998.03	108.90	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
70.00	wcm 5%w 95%m	0.34

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Ritchie Exploration

**23-15-36 Logan, KS**

8100 E 22nd St N 700  
Wichita, KS 67278

**D. Schumacher #2**

ATTN: Bob Peterson

Job Ticket: 64321

**DST#: 1**

Test Start: 2018.04.05 @ 18:14:15

## Tool Information

Drill Pipe:	Length: 3903.00 ft	Diameter: 3.80 inches	Volume: 54.75 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: 30000.00 lb
Drill Collar:	Length: 117.00 ft	Diameter: 2.25 inches	Volume: 0.58 bbl	Weight to Pull Loose: 75000.00 lb
			<u>Total Volume: 55.33 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial 65000.00 lb
Depth to Top Packer:	4032.00 ft			Final 65000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	23.00 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
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Stubb	1.00			4006.00	
Shut In Tool	5.00			4011.00	
Hydraulic tool	5.00			4016.00	
Jars	5.00			4021.00	
Safety Joint	2.00			4023.00	
Packer	5.00			4028.00	27.00 Bottom Of Top Packer
Packer	4.00			4032.00	
Stubb	1.00			4033.00	
Recorder	0.00	6651	Inside	4033.00	
Recorder	0.00	8166	Outside	4033.00	
Perforations	17.00			4050.00	
Bullnose	5.00			4055.00	23.00 Bottom Packers & Anchor

**Total Tool Length: 50.00**



**TRILOBITE  
TESTING, INC.**

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

Ritchie Exploration

**23-15-36 Logan,KS**

8100 E 22nd St N 700  
Wichita, KS 67278

**D. Schumacher #2**

Job Ticket: 64321

**DST#: 1**

ATTN: Bob Peterson

Test Start: 2018.04.05 @ 18:14:15

**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: 58.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 10.38 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 13500.00 ppm

Filter Cake: 2.00 inches

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
70.00	w cm 5%w 95%m	0.344

Total Length: 70.00 ft      Total Volume: 0.344 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

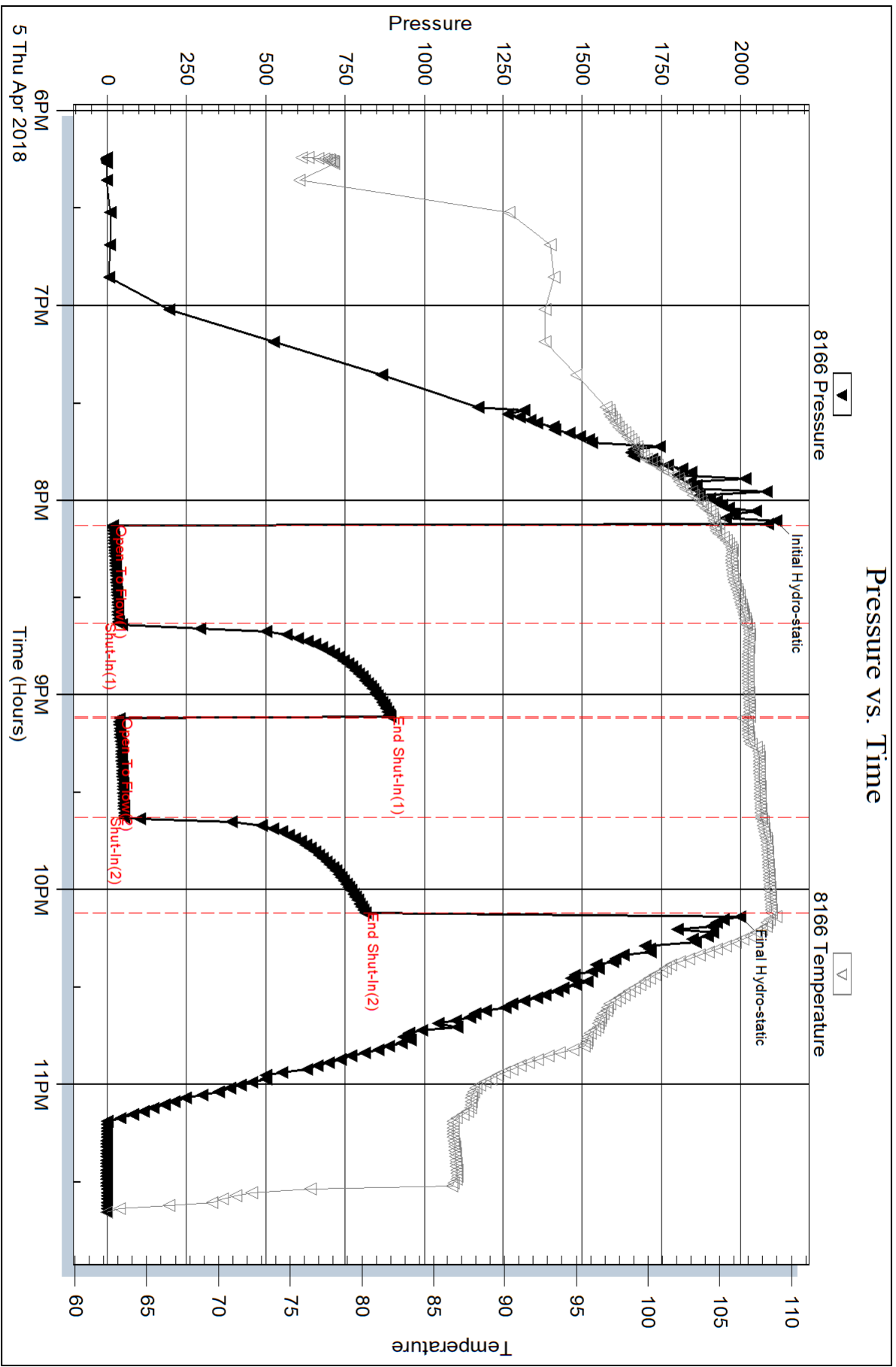
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:





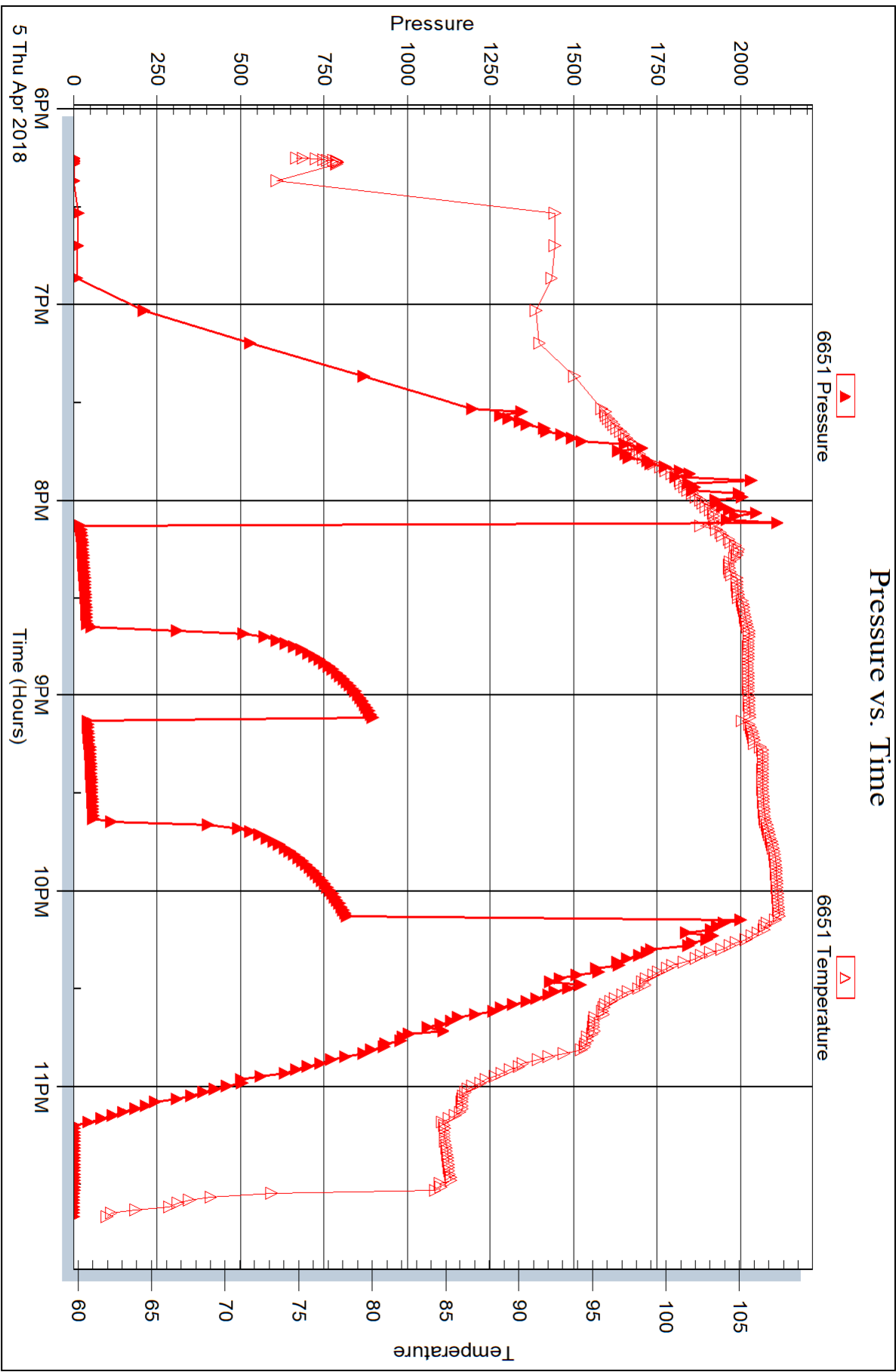
Serial #: 6651

Inside

Ritchie Exploration

D. Schunacher #2

DST Test Number: 1





## DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration**

8100 E 22nd St N 700  
Wichita, KS 67278

ATTN: Bob Peterson

**D. Schumacher #2**

**23-15-36 Logan,KS**

Start Date: 2018.04.06 @ 13:43:22

End Date: 2018.04.06 @ 20:25:52

Job Ticket #: 64322                      DST #: 2

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

Printed: 2018.04.12 @ 15:45:10

Ritchie Exploration  
23-15-36 Logan,KS  
D. Schumacher #2  
DST # 2  
LKC E-F  
2018.04.06



**TRILOBITE**  
**TESTING, INC.**

## DRILL STEM TEST REPORT

Ritchie Exploration  
8100 E 22nd St N 700  
Wichita, KS 67278  
ATTN: Bob Peterson

**23-15-36 Logan,KS**

**D. Schumacher #2**

Job Ticket: 64322

**DST#: 2**

Test Start: 2018.04.06 @ 13:43:22

### GENERAL INFORMATION:

Formation: **LKC E-F**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:19:22

Time Test Ended: 20:25:52

Test Type: Conventional Bottom Hole (Reset)

Tester: Brandon Turley

Unit No: 79

**Interval: 4127.00 ft (KB) To 4165.00 ft (KB) (TVD)**

Total Depth: 4165.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 3295.00 ft (KB)

3290.00 ft (CF)

KB to GR/CF: 5.00 ft

**Serial #: 8166**

**Outside**

Press@RunDepth: 254.33 psig @ 4128.00 ft (KB)

Start Date: 2018.04.06

End Date: 2018.04.06

Start Time: 13:43:27

End Time: 20:25:51

Capacity: 8000.00 psig

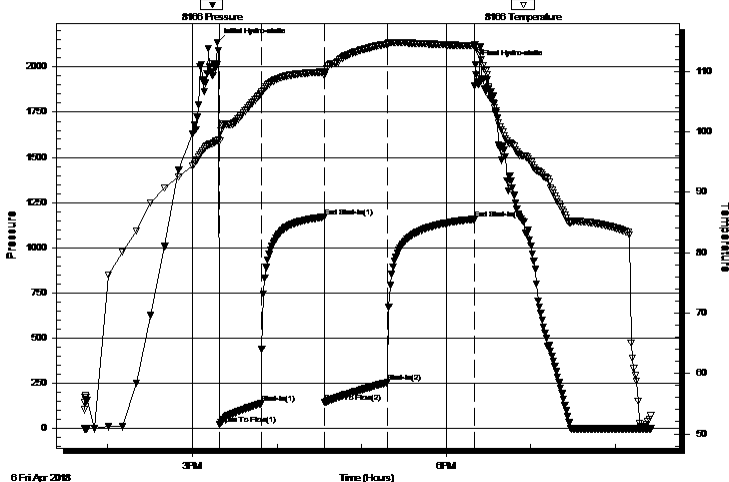
Last Calib.: 2018.04.06

Time On Btm: 2018.04.06 @ 15:17:52

Time Off Btm: 2018.04.06 @ 18:20:52

**TEST COMMENT:** IF: BOB in 13 min.  
IS: No return.  
FF: BOB in 16 min.  
FS: No return.

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2136.06	98.51	Initial Hydro-static
2	23.68	98.46	Open To Flow (1)
31	138.22	106.30	Shut-In(1)
76	1169.51	109.87	End Shut-In(1)
76	143.43	109.28	Open To Flow (2)
121	254.33	114.51	Shut-In(2)
182	1157.66	114.20	End Shut-In(2)
183	2011.23	114.38	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
252.00	mcw 95%w 5%m	2.47
126.00	w cm 30%w 70%m	1.77
151.00	w cm 10%w 90%m	2.12

Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
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\* Recovery from multiple tests



# TRILOBITE TESTING, INC.

## DRILL STEM TEST REPORT

Ritchie Exploration  
8100 E 22nd St N 700  
Wichita, KS 67278  
ATTN: Bob Peterson

23-15-36 Logan, KS

D. Schumacher #2

Job Ticket: 64322      DST#: 2  
Test Start: 2018.04.06 @ 13:43:22

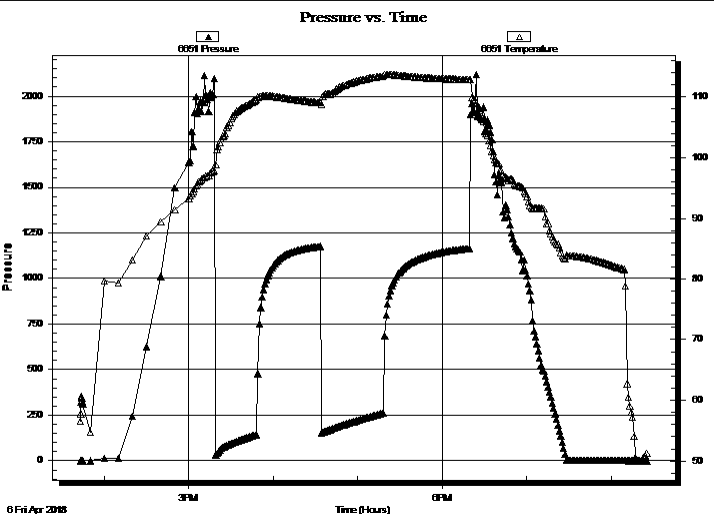
### GENERAL INFORMATION:

Formation: **LKC E-F**  
Deviated: No Whipstock:      ft (KB)  
Test Type: Conventional Bottom Hole (Reset)  
Time Tool Opened: 15:19:22  
Tester: Brandon Turley  
Time Test Ended: 20:25:52  
Unit No: 79  
Interval: **4127.00 ft (KB) To 4165.00 ft (KB) (TVD)**  
Reference Elevations: 3295.00 ft (KB)  
Total Depth: 4165.00 ft (KB) (TVD)      3290.00 ft (CF)  
Hole Diameter: 7.88 inches  
Hole Condition: Good      KB to GR/CF: 5.00 ft

Serial #: **6651**      Inside

Press@RunDepth:      psig @ 4128.00 ft (KB)      Capacity: 8000.00 psig  
Start Date: 2018.04.06      End Date: 2018.04.06      Last Calib.: 2018.04.06  
Start Time: 13:43:22      End Time: 20:25:46      Time On Btm:  
Time Off Btm:

TEST COMMENT: IF: BOB in 13 min.  
IS: No return.  
FF: BOB in 16 min.  
FS: No return.



### PRESSURE SUMMARY

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

### Recovery

Length (ft)	Description	Volume (bbl)
252.00	mcw 95%w 5%m	2.47
126.00	w cm 30%w 70%m	1.77
151.00	w cm 10%w 90%m	2.12

### 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

**23-15-36 Logan, KS**

8100 E 22nd St N 700  
Wichita, KS 67278

**D. Schumacher #2**

Job Ticket: 64322

**DST#: 2**

ATTN: Bob Peterson

Test Start: 2018.04.06 @ 13:43:22

## Tool Information

Drill Pipe:	Length: 3997.00 ft	Diameter: 3.80 inches	Volume: 56.07 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: 30000.00 lb
Drill Collar:	Length: 117.00 ft	Diameter: 2.25 inches	Volume: 0.58 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 56.65 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	14.00 ft			String Weight: Initial 68000.00 lb
Depth to Top Packer:	4127.00 ft			Final 70000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	38.00 ft			
Tool Length:	65.00 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			4101.00	
Shut In Tool	5.00			4106.00	
Hydraulic tool	5.00			4111.00	
Jars	5.00			4116.00	
Safety Joint	2.00			4118.00	
Packer	5.00			4123.00	27.00 Bottom Of Top Packer
Packer	4.00			4127.00	
Stubb	1.00			4128.00	
Recorder	0.00	6651	Inside	4128.00	
Recorder	0.00	8166	Outside	4128.00	
Perforations	32.00			4160.00	
Bullnose	5.00			4165.00	38.00 Bottom Packers & Anchor

**Total Tool Length: 65.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Ritchie Exploration

**23-15-36 Logan,KS**

8100 E 22nd St N 700  
Wichita, KS 67278

**D. Schumacher #2**

Job Ticket: 64322

**DST#: 2**

ATTN: Bob Peterson

Test Start: 2018.04.06 @ 13:43:22

### 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:

39500 ppm

Viscosity: 64.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 9.58 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 11000.00 ppm

Filter Cake: 1.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
252.00	mcw 95%w 5%m	2.469
126.00	w cm 30%w 70%m	1.767
151.00	w cm 10%w 90%m	2.118

Total Length: 529.00 ft

Total Volume: 6.354 bbl

Num Fluid Samples: 0

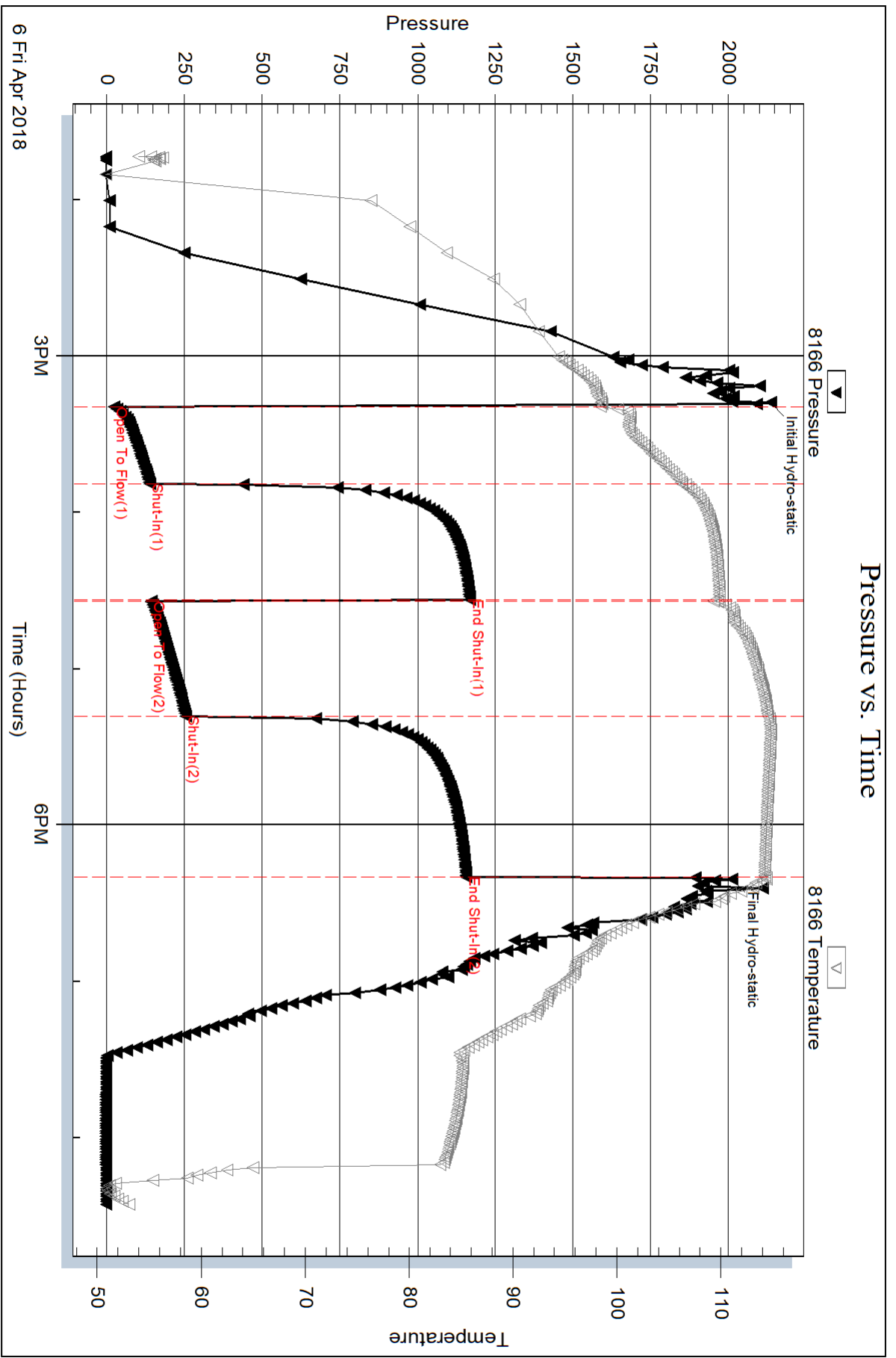
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: .38@35=39500





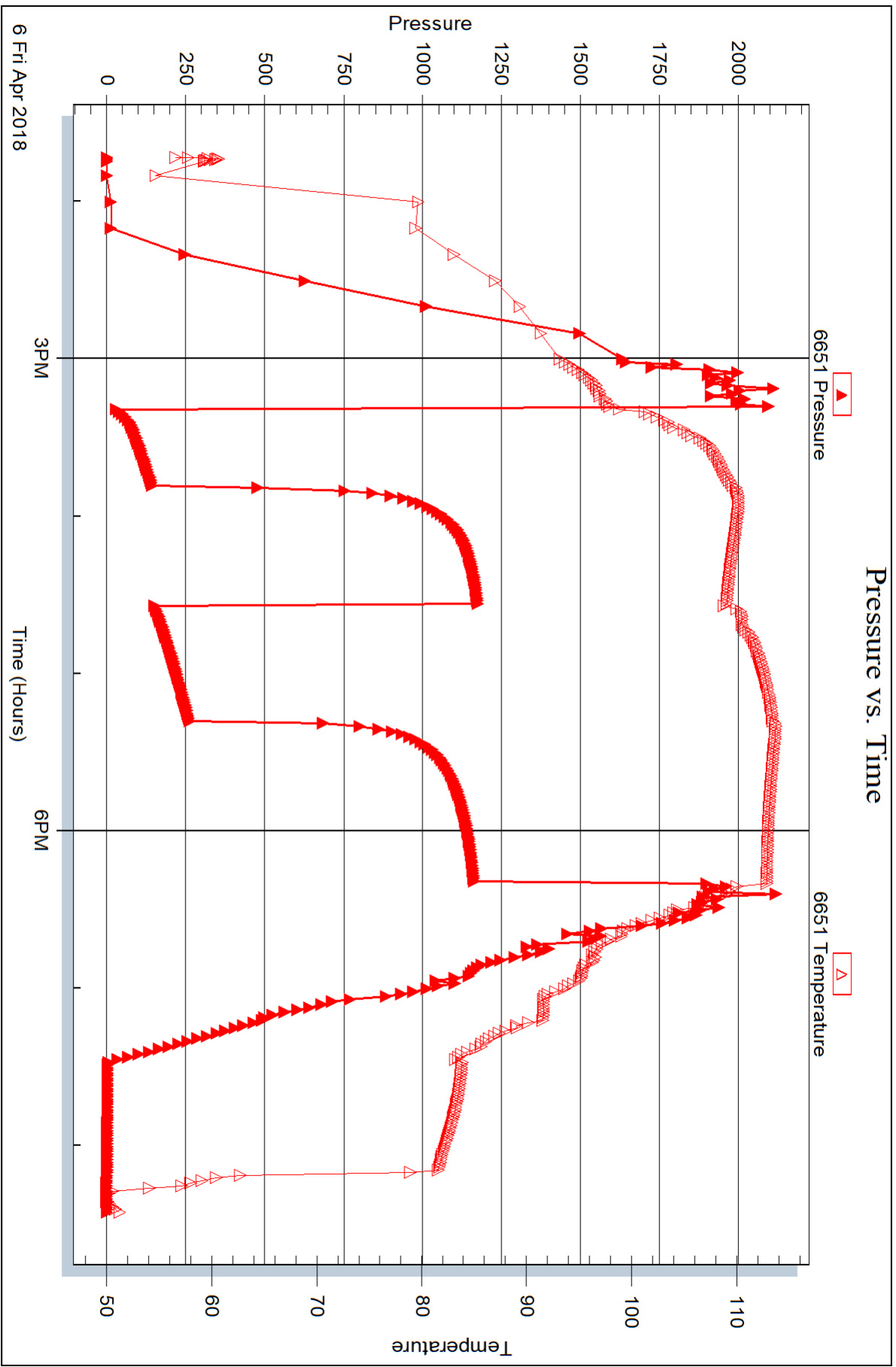
Serial #: 6651

Inside

Ritchie Exploration

D. Schunacher #2

DST Test Number: 2





## DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration**

8100 E 22nd St N 700  
Wichita, KS 67278

ATTN: Bob Peterson

**D. Schumacher #2**

**23-15-36 Logan,KS**

Start Date: 2018.04.07 @ 14:33:40

End Date: 2018.04.07 @ 20:23:40

Job Ticket #: 64323                      DST #: 3

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

Printed: 2018.04.12 @ 15:43:32



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Ritchie Exploration

**23-15-36 Logan,KS**

8100 E 22nd St N 700  
Wichita, KS 67278

**D. Schumacher #2**

ATTN: Bob Peterson

Job Ticket: 64323

**DST#: 3**

Test Start: 2018.04.07 @ 14:33:40

## GENERAL INFORMATION:

Formation: **LKC K**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 16:20:40

Time Test Ended: 20:23:40

Test Type: Conventional Bottom Hole (Reset)

Tester: Brandon Turley

Unit No: 79

**Interval: 4308.00 ft (KB) To 4350.00 ft (KB) (TVD)**

Reference Elevations: 3295.00 ft (KB)

Total Depth: 4350.00 ft (KB) (TVD)

3290.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 6651**

**Inside**

Press@RunDepth: 665.05 psig @ 4309.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2018.04.07

End Date:

2018.04.07

Last Calib.:

2018.04.07

Start Time: 14:33:45

End Time:

20:23:39

Time On Btm:

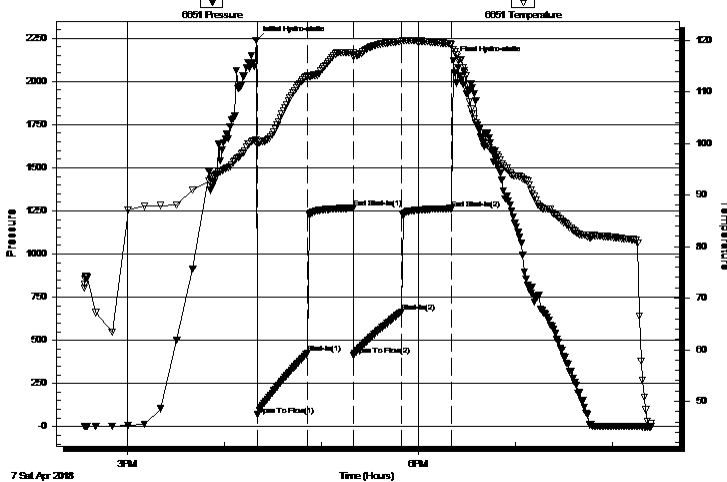
2018.04.07 @ 16:19:40

Time Off Btm:

2018.04.07 @ 18:21:40

**TEST COMMENT:** IF: BOB in 4 min.  
IS: No return.  
FF: BOB in 5 min.  
FS: No return.

Pressure vs. Time



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2237.42	100.69	Initial Hydro-static
1	68.45	99.72	Open To Flow (1)
32	427.20	113.21	Shut-In(1)
60	1266.32	117.58	End Shut-In(1)
61	414.11	116.89	Open To Flow (2)
90	665.05	119.78	Shut-In(2)
121	1263.81	119.25	End Shut-In(2)
122	2120.46	118.21	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
882.00	water 100%w	11.31
252.00	mcw 90%w 10%m	3.53
302.00	w cm oil spots on top 30%w 70%m	4.24

## Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Ritchie Exploration  
8100 E 22nd St N 700  
Wichita, KS 67278  
ATTN: Bob Peterson

**23-15-36 Logan, KS**  
**D. Schumacher #2**  
Job Ticket: 64323      **DST#: 3**  
Test Start: 2018.04.07 @ 14:33:40

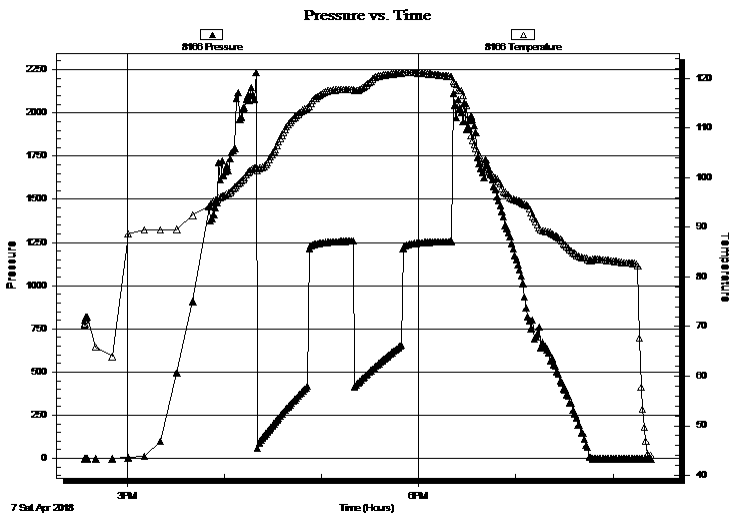
**GENERAL INFORMATION:**

Formation: <b>LKC K</b>	Deviated: No Whipstock:      ft (KB)	Test Type: Conventional Bottom Hole (Reset)
Time Tool Opened: 16:20:40	Time Test Ended: 20:23:40	Tester: Brandon Turley
		Unit No: 79
<b>Interval: 4308.00 ft (KB) To 4350.00 ft (KB) (TVD)</b>	Reference Elevations: 3295.00 ft (KB)	
Total Depth: 4350.00 ft (KB) (TVD)	3290.00 ft (CF)	
Hole Diameter: 7.88 inches	Hole Condition: Good	KB to GR/CF: 5.00 ft

**Serial #: 8166      Outside**

Press@RunDepth:      psig @ 4309.00 ft (KB)	Capacity: 8000.00 psig
Start Date: 2018.04.07      End Date: 2018.04.07	Last Calib.: 2018.04.07
Start Time: 14:33:24      End Time: 20:23:18	Time On Btm:
	Time Off Btm:

**TEST COMMENT:** IF: BOB in 4 min.  
IS: No return.  
FF: BOB in 5 min.  
FS: No return.



**PRESSURE SUMMARY**

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

**Recovery**

Length (ft)	Description	Volume (bbl)
882.00	water 100%w	11.31
252.00	mcw 90%w 10%m	3.53
302.00	w cm oil spots on top 30%w 70%m	4.24

**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

**23-15-36 Logan, KS**

8100 E 22nd St N 700  
Wichita, KS 67278

**D. Schumacher #2**

ATTN: Bob Peterson

Job Ticket: 64323

**DST#: 3**

Test Start: 2018.04.07 @ 14:33:40

## Tool Information

Drill Pipe:	Length: 4188.00 ft	Diameter: 3.80 inches	Volume: 58.75 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: 30000.00 lb
Drill Collar:	Length: 117.00 ft	Diameter: 2.25 inches	Volume: 0.58 bbl	Weight to Pull Loose: 85000.00 lb
			<u>Total Volume: 59.33 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	24.00 ft			String Weight: Initial 70000.00 lb
Depth to Top Packer:	4308.00 ft			Final 74000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	42.00 ft			
Tool Length:	69.00 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			4282.00	
Shut In Tool	5.00			4287.00	
Hydraulic tool	5.00			4292.00	
Jars	5.00			4297.00	
Safety Joint	2.00			4299.00	
Packer	5.00			4304.00	27.00 Bottom Of Top Packer
Packer	4.00			4308.00	
Stubb	1.00			4309.00	
Recorder	0.00	6651	Inside	4309.00	
Recorder	0.00	8166	Outside	4309.00	
Perforations	3.00			4312.00	
Change Over Sub	1.00			4313.00	
Packer - Shale	31.00			4344.00	
Change Over Sub	1.00			4345.00	
Bullnose	5.00			4350.00	42.00 Bottom Packers & Anchor

**Total Tool Length: 69.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Ritchie Exploration

**23-15-36 Logan,KS**

8100 E 22nd St N 700  
Wichita, KS 67278

**D. Schumacher #2**

Job Ticket: 64323

**DST#: 3**

ATTN: Bob Peterson

Test Start: 2018.04.07 @ 14:33:40

### 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:

37000 ppm

Viscosity: 63.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.79 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 11500.00 ppm

Filter Cake: 2.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
882.00	water 100%w	11.306
252.00	mcw 90%w 10%m	3.535
302.00	w cm oil spots on top 30%w 70%m	4.236

Total Length: 1436.00 ft      Total Volume: 19.077 bbl

Num Fluid Samples: 0

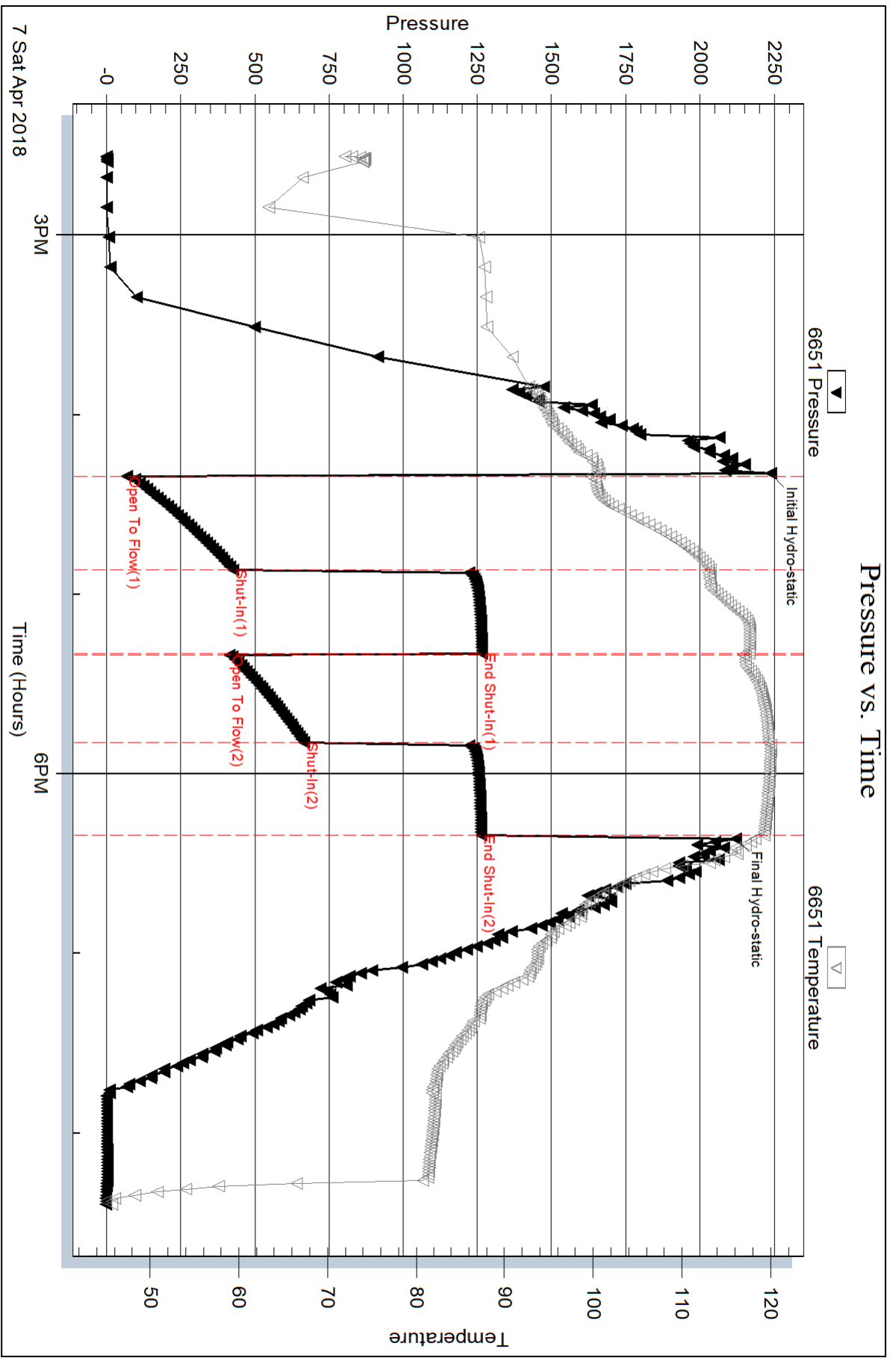
Num Gas Bombs: 0

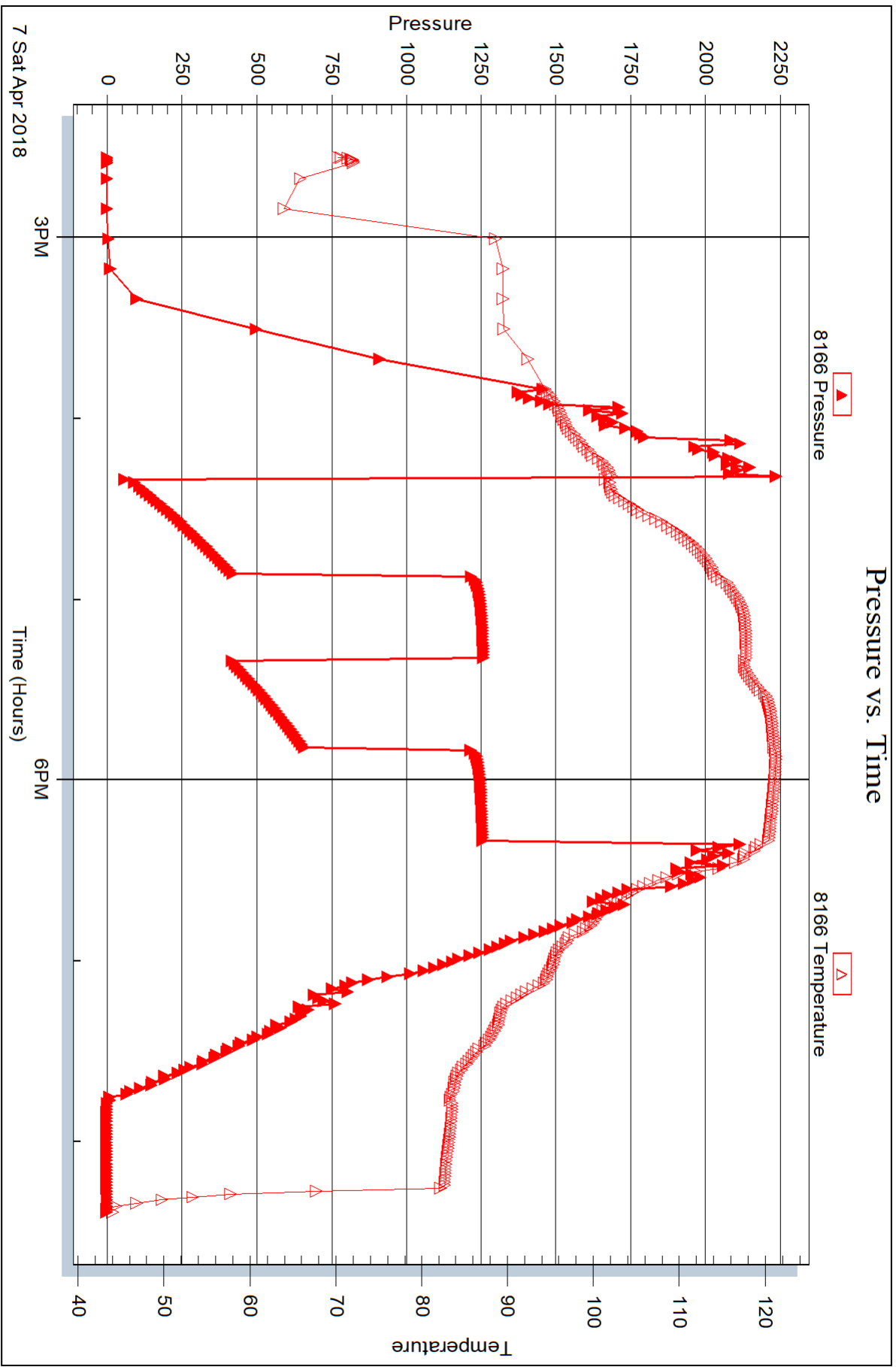
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: .28@49=37000









## DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration**

8100 E 22nd St N 700  
Wichita, KS 67278

ATTN: Bob Peterson

**D. Schumacher #2**

**23-15-36 Logan,KS**

Start Date: 2018.04.08 @ 13:29:52

End Date: 2018.04.08 @ 20:18:22

Job Ticket #: 64324                      DST #: 4

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

Printed: 2018.04.12 @ 15:28:53



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Ritchie Exploration  
8100 E 22nd St N 700  
Wichita, KS 67278  
ATTN: Bob Peterson

**23-15-36 Logan,KS**  
**D. Schumacher #2**  
Job Ticket: 64324      **DST#: 4**  
Test Start: 2018.04.08 @ 13:29:52

## GENERAL INFORMATION:

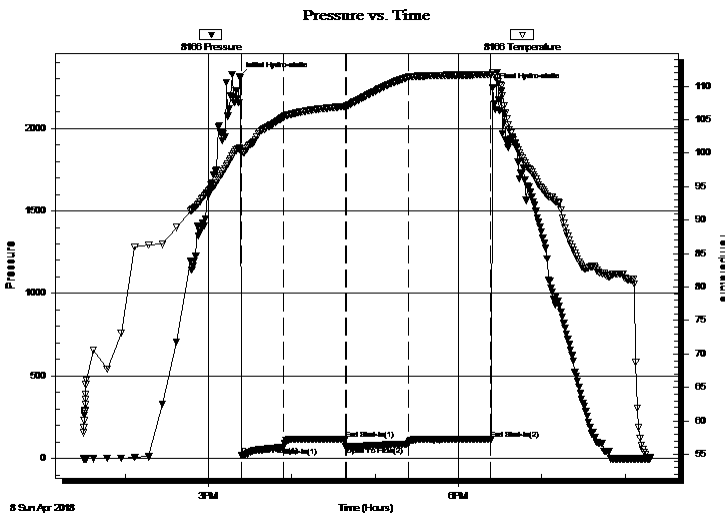
Formation: **Altamont A**  
Deviated: No Whipstock: ft (KB)      Test Type: Conventional Bottom Hole (Reset)  
Time Tool Opened: 15:23:52      Tester: Brandon Turley  
Time Test Ended: 20:18:22      Unit No: 79  
**Interval: 4434.00 ft (KB) To 4471.00 ft (KB) (TVD)**      Reference Elevations: 3295.00 ft (KB)  
Total Depth: 4471.00 ft (KB) (TVD)      3290.00 ft (CF)  
Hole Diameter: 7.88 inches Hole Condition: Good      KB to GR/CF: 5.00 ft

## Serial #: 8166      Outside

Press@RunDepth: 88.07 psig @ 4435.00 ft (KB)      Capacity: 8000.00 psig  
Start Date: 2018.04.08      End Date: 2018.04.08      Last Calib.: 2018.04.08  
Start Time: 13:29:57      End Time: 20:18:21      Time On Btm: 2018.04.08 @ 15:22:22  
Time Off Btm: 2018.04.08 @ 18:24:52

**TEST COMMENT:** IF: 1/4" blow built to 8"  
IS: Surface blow died in 30 min.  
FF: Surface blow built to 6"  
FS: Weak surface blow.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2314.68	100.78	Initial Hydro-static
2	18.16	100.10	Open To Flow (1)
32	67.09	105.40	Shut-In(1)
76	116.86	107.00	End Shut-In(1)
77	71.72	107.03	Open To Flow (2)
122	88.07	111.36	Shut-In(2)
181	117.23	111.73	End Shut-In(2)
183	2248.27	112.07	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
141.00	go 20%g 80%o	0.91
63.00	gocm 10%g 10%o 80%m	0.88

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Ritchie Exploration  
 8100 E 22nd St N 700  
 Wichita, KS 67278  
 ATTN: Bob Peterson

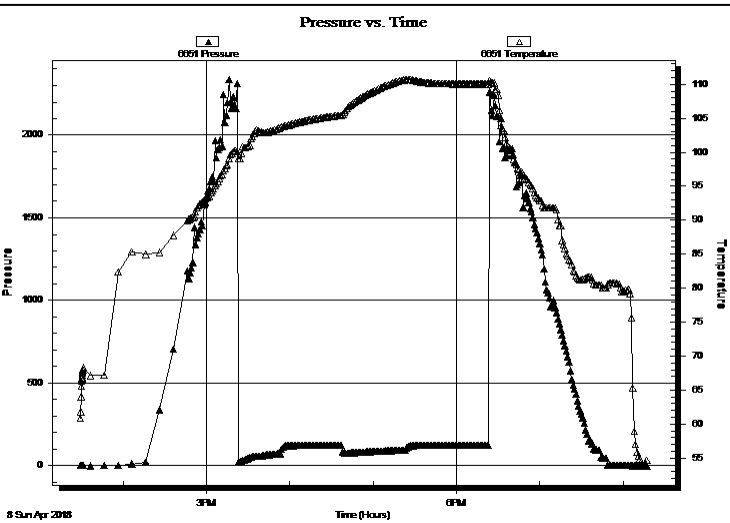
**23-15-36 Logan, KS**  
**D. Schumacher #2**  
 Job Ticket: 64324      **DST#: 4**  
 Test Start: 2018.04.08 @ 13:29:52

## GENERAL INFORMATION:

Formation: <b>Altamont A</b>			
Deviated: No Whipstock: ft (KB)		Test Type: Conventional Bottom Hole (Reset)	
Time Tool Opened: 15:23:52		Tester: Brandon Turley	
Time Test Ended: 20:18:22		Unit No: 79	
<b>Interval: 4434.00 ft (KB) To 4471.00 ft (KB) (TVD)</b>		Reference Elevations: 3295.00 ft (KB)	
Total Depth: 4471.00 ft (KB) (TVD)		3290.00 ft (CF)	
Hole Diameter: 7.88 inches	Hole Condition: Good	KB to GR/CF: 5.00 ft	

<b>Serial #: 6651</b>	<b>Inside</b>		
Press@RunDepth: psig @ 4435.00 ft (KB)		Capacity: 8000.00 psig	
Start Date: 2018.04.08	End Date: 2018.04.08	Last Calib.: 2018.04.08	
Start Time: 13:29:12	End Time: 20:17:36	Time On Btm:	
		Time Off Btm:	

**TEST COMMENT:** IF: 1/4" blow built to 8"  
 IS: Surface blow died in 30 min.  
 FF: Surface blow built to 6"  
 FS: Weak surface blow.



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

Recovery		
Length (ft)	Description	Volume (bbl)
141.00	go 20%g 80%o	0.91
63.00	gocm 10%g 10%o 80%m	0.88

\* 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

**23-15-36 Logan, KS**

8100 E 22nd St N 700  
Wichita, KS 67278

**D. Schumacher #2**

ATTN: Bob Peterson

Job Ticket: 64324

**DST#: 4**

Test Start: 2018.04.08 @ 13:29:52

## Tool Information

Drill Pipe:	Length: 4316.00 ft	Diameter: 3.80 inches	Volume: 60.54 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: 30000.00 lb
Drill Collar:	Length: 117.00 ft	Diameter: 2.25 inches	Volume: 0.58 bbl	Weight to Pull Loose: 85000.00 lb
			<u>Total Volume: 61.12 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	26.00 ft			String Weight: Initial 70000.00 lb
Depth to Top Packer:	4434.00 ft			Final 72000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	37.00 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
------------------	-------------	------------	----------	------------	----------------

Stubb	1.00			4408.00	
Shut In Tool	5.00			4413.00	
Hydraulic tool	5.00			4418.00	
Jars	5.00			4423.00	
Safety Joint	2.00			4425.00	
Packer	5.00			4430.00	27.00 Bottom Of Top Packer
Packer	4.00			4434.00	
Stubb	1.00			4435.00	
Recorder	0.00	6651	Inside	4435.00	
Recorder	0.00	8166	Outside	4435.00	
Perforations	31.00			4466.00	
Bullnose	5.00			4471.00	37.00 Bottom Packers & Anchor

**Total Tool Length: 64.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Ritchie Exploration

**23-15-36 Logan,KS**

8100 E 22nd St N 700  
Wichita, KS 67278

**D. Schumacher #2**

Job Ticket: 64324

**DST#: 4**

ATTN: Bob Peterson

Test Start: 2018.04.08 @ 13:29:52

### 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:

0 ppm

Viscosity: 63.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 9.59 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 12400.00 ppm

Filter Cake: 2.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
141.00	go 20%g 80%o	0.912
63.00	gocm 10%g 10%o 80%m	0.884

Total Length: 204.00 ft

Total Volume: 1.796 bbl

Num Fluid Samples: 0

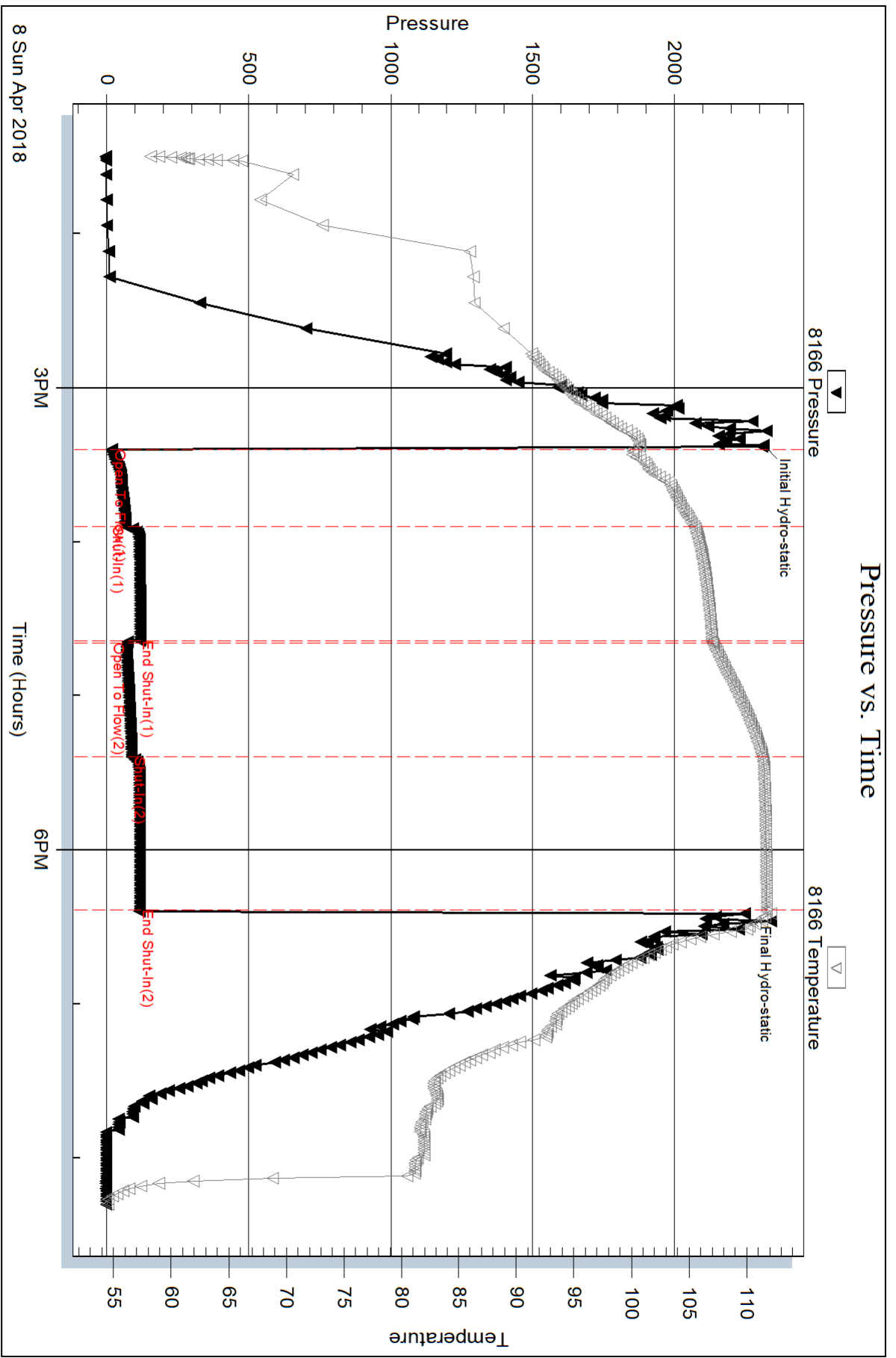
Num Gas Bombs: 0

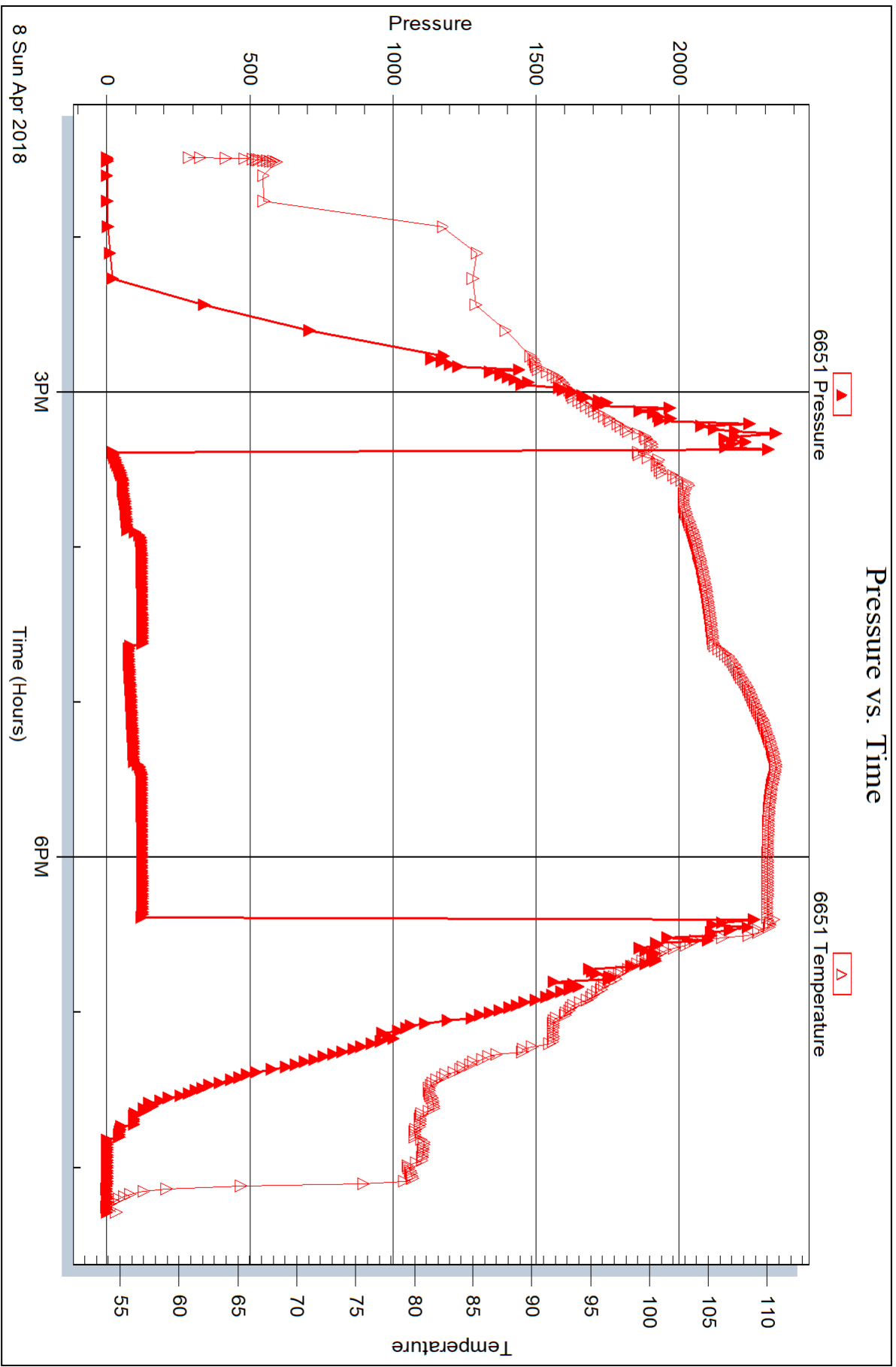
Serial #:

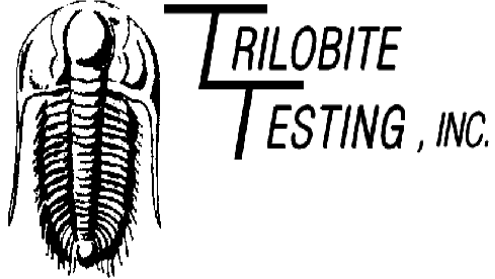
Laboratory Name:

Laboratory Location:

Recovery Comments: 32@60=32







## DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration**

8100 E 22nd St N 700  
Wichita, KS 67278

ATTN: Bob Peterson

**D. Schumacher #2**

**23-15-36 Logan,KS**

Start Date: 2018.04.09 @ 03:41:45

End Date: 2018.04.09 @ 09:06:15

Job Ticket #: 64325                      DST #: 5

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

Printed: 2018.04.12 @ 14:57:14





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Ritchie Exploration  
 8100 E 22nd St N 700  
 Wichita, KS 67278  
 ATTN: Bob Peterson

**23-15-36 Logan, KS**  
**D. Schumacher #2**  
 Job Ticket: 64325 **DST#: 5**  
 Test Start: 2018.04.09 @ 03:41:45

## GENERAL INFORMATION:

Formation: **Altamont B**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Reset)  
 Time Tool Opened: 05:28:15 Tester: Brandon Turley  
 Time Test Ended: 09:06:15 Unit No: 79  
 Interval: **4468.00 ft (KB) To 4482.00 ft (KB) (TVD)** Reference Elevations: 3295.00 ft (KB)  
 Total Depth: 4468.00 ft (KB) (TVD) 3290.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Good KB to GR/CF: 5.00 ft

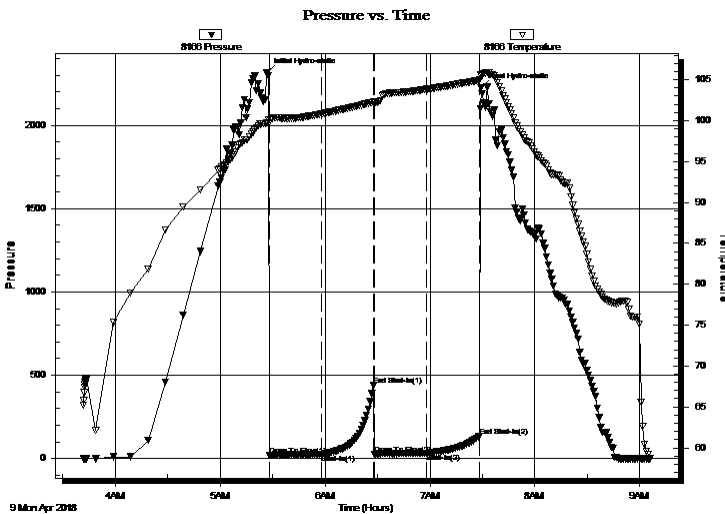
## Serial #: 8166

Outside

Press@RunDepth: 31.30 psig @ 4469.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2018.04.09 End Date: 2018.04.09 Last Calib.: 2018.04.09  
 Start Time: 03:41:50 End Time: 09:06:14 Time On Btm: 2018.04.09 @ 05:26:45  
 Time Off Btm: 2018.04.09 @ 07:29:15

TEST COMMENT: IF: Surface blow died in 8 min.  
 IS: No return.  
 FF: No blow. Flushed tool surface blow died in 2 min.  
 FS: No return.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2318.43	99.75	Initial Hydro-static
2	19.53	99.77	Open To Flow (1)
31	24.47	100.80	Shut-In(1)
61	437.70	102.29	End Shut-In(1)
62	26.93	102.17	Open To Flow (2)
92	31.30	103.83	Shut-In(2)
122	133.71	104.93	End Shut-In(2)
123	2228.44	105.48	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
20.00	ocm 5%o 95%m	0.10

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Ritchie Exploration

**23-15-36 Logan,KS**

8100 E 22nd St N 700  
Wichita, KS 67278

**D. Schumacher #2**

ATTN: Bob Peterson

Job Ticket: 64325

**DST#: 5**

Test Start: 2018.04.09 @ 03:41:45

## GENERAL INFORMATION:

Formation: **Altamont B**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 05:28:15

Time Test Ended: 09:06:15

Test Type: Conventional Bottom Hole (Reset)

Tester: Brandon Turley

Unit No: 79

**Interval: 4468.00 ft (KB) To 4482.00 ft (KB) (TVD)**

Reference Elevations: 3295.00 ft (KB)

Total Depth: 4468.00 ft (KB) (TVD)

3290.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 6651**

**Inside**

Press@RunDepth: psig @ 4469.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2018.04.09

End Date:

2018.04.09

Last Calib.:

2018.04.09

Start Time: 03:41:35

End Time:

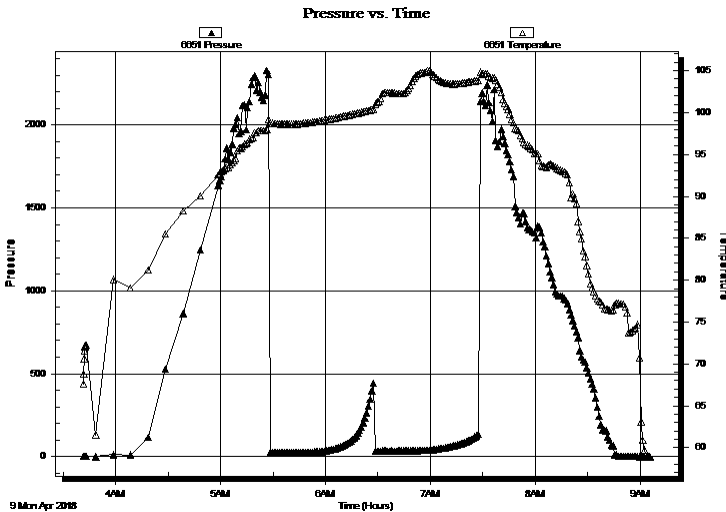
09:05:59

Time On Btm:

Time Off Btm:

**TEST COMMENT:** IF: Surface blow died in 8 min.  
IS: No return.  
FF: No blow. Flushed tool surface blow died in 2 min.  
FS: No return.

## PRESSURE SUMMARY



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

## Recovery

Length (ft)	Description	Volume (bbl)
20.00	ocm 5%o 95%m	0.10

## 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

**23-15-36 Logan,KS**

8100 E 22nd St N 700  
Wichita, KS 67278

**D. Schumacher #2**

Job Ticket: 64325

**DST#: 5**

ATTN: Bob Peterson

Test Start: 2018.04.09 @ 03:41:45

## Tool Information

Drill Pipe:	Length: 4346.00 ft	Diameter: 3.80 inches	Volume: 60.96 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: 30000.00 lb
Drill Collar:	Length: 117.00 ft	Diameter: 2.25 inches	Volume: 0.58 bbl	Weight to Pull Loose: 95000.00 lb
			<u>Total Volume: 61.54 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	22.00 ft			String Weight: Initial 72000.00 lb
Depth to Top Packer:	4468.00 ft			Final 72000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	14.00 ft			
Tool Length:	41.00 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			4442.00	
Shut In Tool	5.00			4447.00	
Hydraulic tool	5.00			4452.00	
Jars	5.00			4457.00	
Safety Joint	2.00			4459.00	
Packer	5.00			4464.00	27.00 Bottom Of Top Packer
Packer	4.00			4468.00	
Stubb	1.00			4469.00	
Recorder	0.00	6651	Inside	4469.00	
Recorder	0.00	8166	Outside	4469.00	
Perforations	8.00			4477.00	
Bullnose	5.00			4482.00	14.00 Bottom Packers & Anchor

**Total Tool Length: 41.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Ritchie Exploration

**23-15-36 Logan,KS**

8100 E 22nd St N 700  
Wichita, KS 67278

**D. Schumacher #2**

Job Ticket: 64325

**DST#: 5**

ATTN: Bob Peterson

Test Start: 2018.04.09 @ 03:41:45

## 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: 63.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 9.59 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 12400.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
20.00	ocm 5%o 95%m	0.098

Total Length: 20.00 ft      Total Volume: 0.098 bbl

Num Fluid Samples: 0

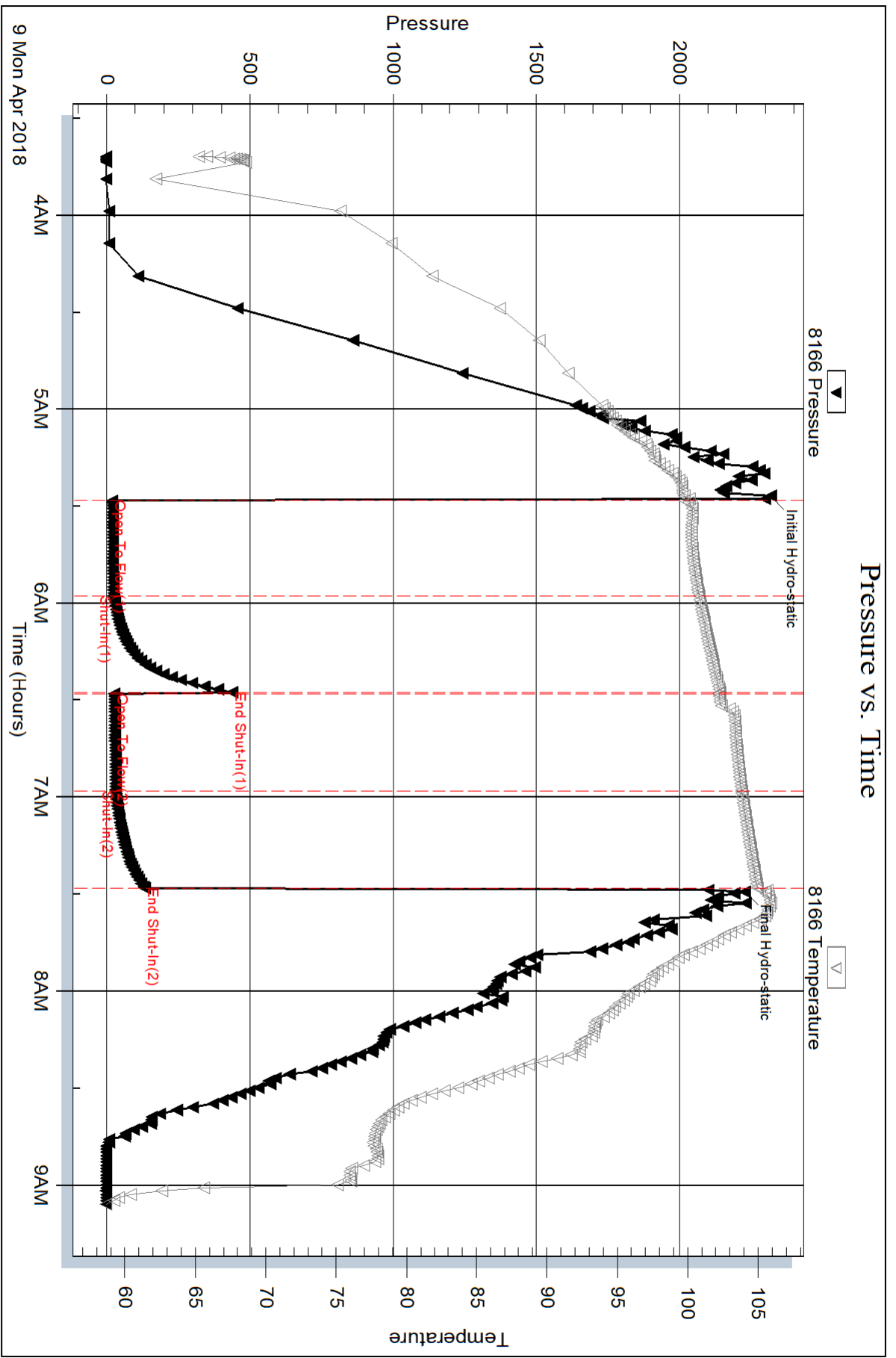
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



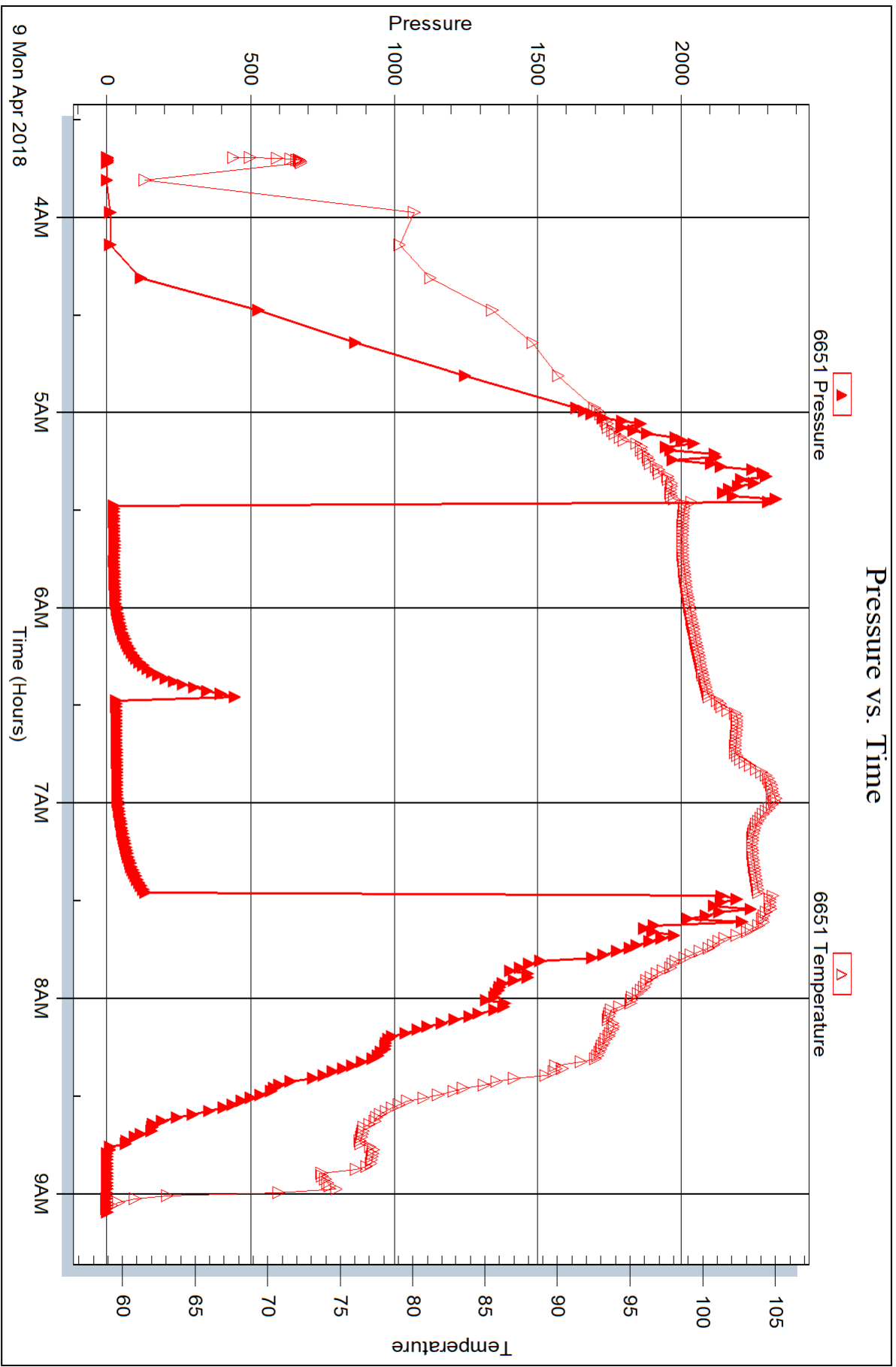
Serial #: 6651

Inside

Ritchie Exploration

D. Schunacher #2

DST Test Number: 5





## DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration**

8100 E 22nd St N 700  
Wichita, KS 67278

ATTN: Bob Peterson

**D. Schumacher #2**

**23-15-36 Logan,KS**

Start Date: 2018.04.09 @ 16:56:17

End Date: 2018.04.09 @ 22:43:47

Job Ticket #: 63626                      DST #: 6

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

Printed: 2018.04.12 @ 14:56:44

Ritchie Exploration  
23-15-36 Logan,KS  
D. Schumacher #2  
DST # 6  
Altamont C  
2018.04.09



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Ritchie Exploration

**23-15-36 Logan,KS**

8100 E 22nd St N 700  
Wichita, KS 67278

**D. Schumacher #2**

ATTN: Bob Peterson

Job Ticket: 63626

**DST#: 6**

Test Start: 2018.04.09 @ 16:56:17

## GENERAL INFORMATION:

Formation: **Altamont C**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 18:58:17

Time Test Ended: 22:43:47

Test Type: Conventional Bottom Hole (Reset)

Tester: Brandon Turley

Unit No: 79

**Interval: 4478.00 ft (KB) To 4510.00 ft (KB) (TVD)**

Reference Elevations: 3295.00 ft (KB)

Total Depth: 4510.00 ft (KB) (TVD)

3290.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 8166 Outside**

Press@RunDepth: 18.50 psig @ 4479.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2018.04.09

End Date:

2018.04.09

Last Calib.:

2018.04.09

Start Time:

16:56:22

End Time:

22:43:46

Time On Btm:

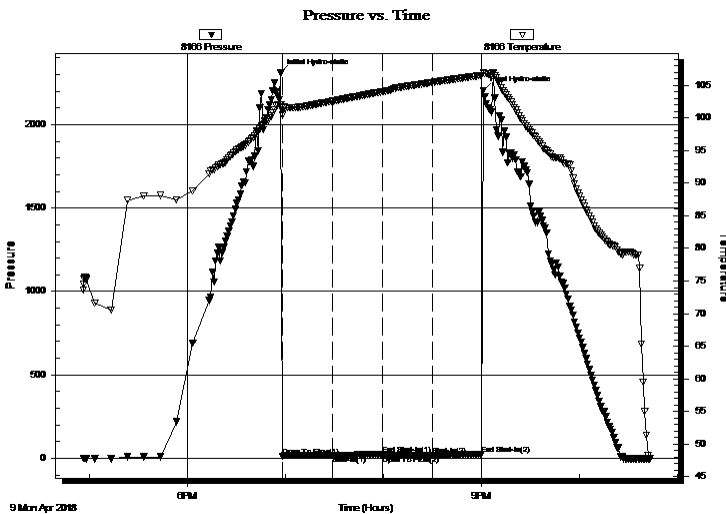
2018.04.09 @ 18:57:17

Time Off Btm:

2018.04.09 @ 21:01:17

**TEST COMMENT:** IF: Surface blow died in 4 min.  
IS: No return.  
FF: No blow. Flushed tool no blow.  
FS: No return.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2309.04	101.98	Initial Hydro-static
1	13.89	100.44	Open To Flow (1)
32	17.25	102.59	Shut-In(1)
62	25.53	104.03	End Shut-In(1)
63	16.60	104.05	Open To Flow (2)
93	18.50	105.47	Shut-In(2)
123	26.19	106.56	End Shut-In(2)
124	2202.75	107.00	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	mud 100% m	0.02

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Ritchie Exploration  
8100 E 22nd St N 700  
Wichita, KS 67278  
ATTN: Bob Peterson

**23-15-36 Logan, KS**  
**D. Schumacher #2**  
Job Ticket: 63626 **DST#: 6**  
Test Start: 2018.04.09 @ 16:56:17

## GENERAL INFORMATION:

Formation: **Altamont C**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 18:58:17  
Time Test Ended: 22:43:47  
Interval: **4478.00 ft (KB) To 4510.00 ft (KB) (TVD)**  
Total Depth: 4510.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Good  
Reference Elevations: 3295.00 ft (KB)  
3290.00 ft (CF)  
KB to GR/CF: 5.00 ft  
Test Type: Conventional Bottom Hole (Reset)  
Tester: Brandon Turley  
Unit No: 79

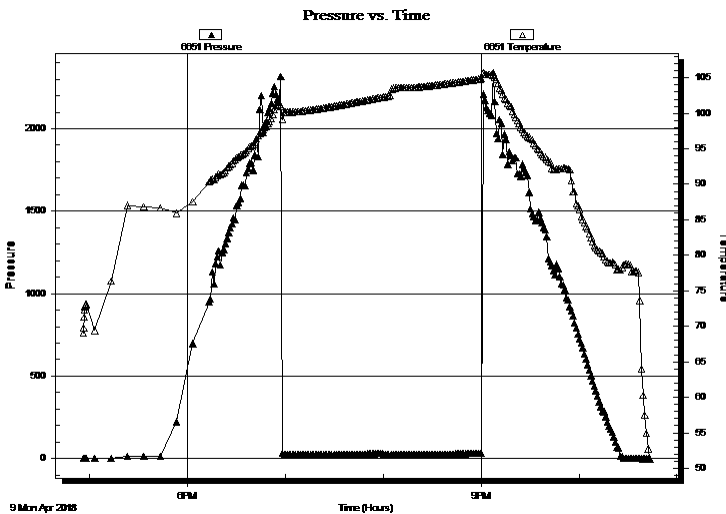
## Serial #: 6651

Inside

Press@RunDepth: psig @ 4479.00 ft (KB) Capacity: 8000.00 psig  
Start Date: 2018.04.09 End Date: 2018.04.09 Last Calib.: 2018.04.09  
Start Time: 16:56:27 End Time: 22:43:51 Time On Btm:  
Time Off Btm:

**TEST COMMENT:** IF: Surface blow died in 4 min.  
IS: No return.  
FF: No blow. Flushed tool no blow.  
FS: No return.

## PRESSURE SUMMARY



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

## Recovery

Length (ft)	Description	Volume (bbl)
5.00	mud 100% <sub>m</sub>	0.02

## 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

**23-15-36 Logan,KS**

8100 E 22nd St N 700  
Wichita, KS 67278

**D. Schumacher #2**

Job Ticket: 63626

**DST#: 6**

ATTN: Bob Peterson

Test Start: 2018.04.09 @ 16:56:17

## Tool Information

Drill Pipe:	Length: 4346.00 ft	Diameter: 3.80 inches	Volume: 60.96 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: 30000.00 lb
Drill Collar:	Length: 117.00 ft	Diameter: 2.25 inches	Volume: 0.58 bbl	Weight to Pull Loose: 85000.00 lb
			<u>Total Volume: 61.54 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	12.00 ft			String Weight: Initial 74000.00 lb
Depth to Top Packer:	4478.00 ft			Final 74000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	32.00 ft			
Tool Length:	59.00 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			4452.00	
Shut In Tool	5.00			4457.00	
Hydraulic tool	5.00			4462.00	
Jars	5.00			4467.00	
Safety Joint	2.00			4469.00	
Packer	5.00			4474.00	27.00 Bottom Of Top Packer
Packer	4.00			4478.00	
Stubb	1.00			4479.00	
Recorder	0.00	6651	Inside	4479.00	
Recorder	0.00	8166	Outside	4479.00	
Perforations	26.00			4505.00	
Bullnose	5.00			4510.00	32.00 Bottom Packers & Anchor

**Total Tool Length: 59.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Ritchie Exploration

**23-15-36 Logan,KS**

8100 E 22nd St N 700  
Wichita, KS 67278

**D. Schumacher #2**

Job Ticket: 63626

**DST#: 6**

ATTN: Bob Peterson

Test Start: 2018.04.09 @ 16:56:17

## 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: 67.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.79 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 10000.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	mud 100%m	0.025

Total Length: 5.00 ft      Total Volume: 0.025 bbl

Num Fluid Samples: 0

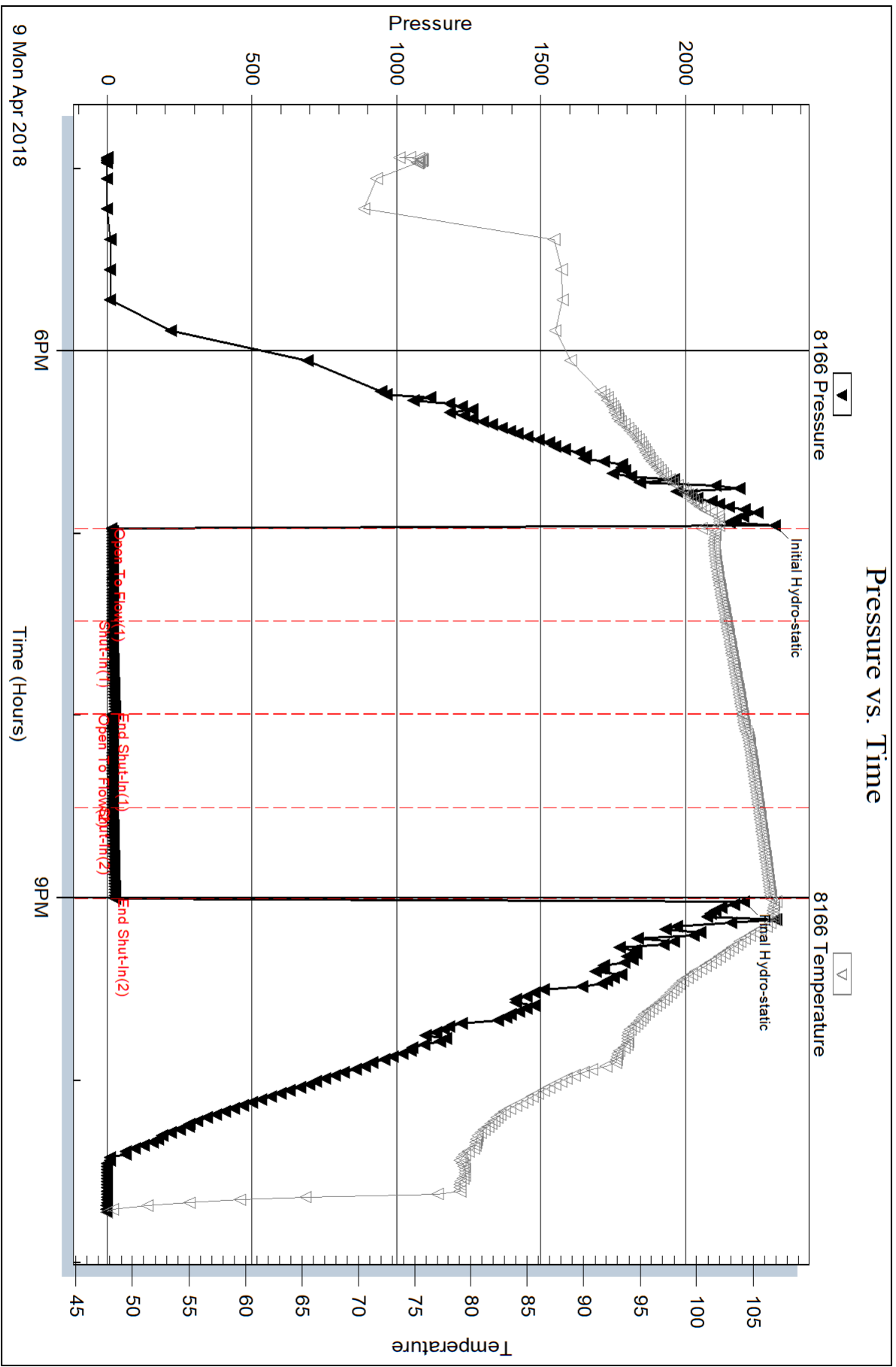
Num Gas Bombs: 0

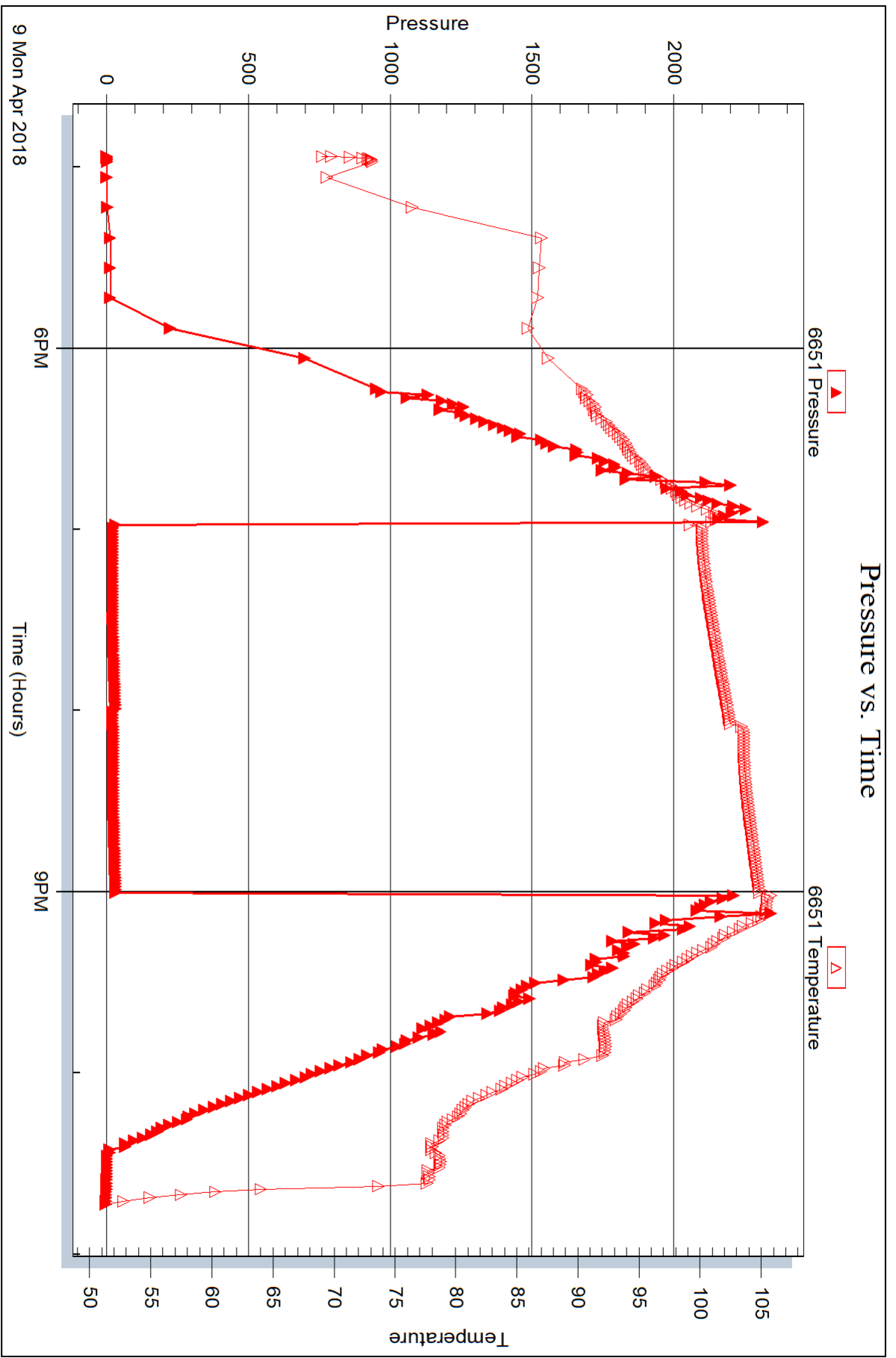
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







## DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration**

8100 E 22nd St N 700  
Wichita, KS 67278

ATTN: Bob Peterson

**D. Schumacher #2**

**23-15-36 Logan,KS**

Start Date: 2018.04.10 @ 13:25:07

End Date: 2018.04.10 @ 19:11:37

Job Ticket #: 63627                      DST #: 7

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

Printed: 2018.04.12 @ 14:56:08



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Ritchie Exploration  
8100 E 22nd St N 700  
Wichita, KS 67278  
ATTN: Bob Peterson

**23-15-36 Logan, KS**  
**D. Schumacher #2**  
Job Ticket: 63627      **DST#: 7**  
Test Start: 2018.04.10 @ 13:25:07

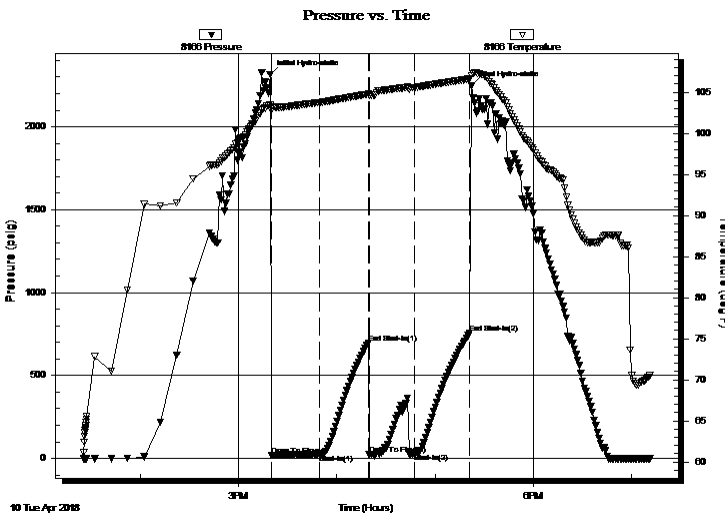
## GENERAL INFORMATION:

Formation: **Pawnee - Ft Scott**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 15:20:07  
Time Test Ended: 19:11:37  
Interval: **4500.00 ft (KB) To 4601.00 ft (KB) (TVD)**  
Total Depth: 4601.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Good  
Test Type: Conventional Bottom Hole (Reset)  
Tester: Brandon Turley  
Unit No: 79  
Reference Elevations: 3295.00 ft (KB)  
3290.00 ft (CF)  
KB to GR/CF: 5.00 ft

**Serial #: 8166      Outside**  
Press@RunDepth: 28.61 psig @ 4501.00 ft (KB)      Capacity: 8000.00 psig  
Start Date: 2018.04.10      End Date: 2018.04.10      Last Calib.: 2018.04.10  
Start Time: 13:25:12      End Time: 19:11:36      Time On Btm: 2018.04.10 @ 15:19:07  
Time Off Btm: 2018.04.10 @ 17:22:07

**TEST COMMENT:** IF: Surface blow died in 8 min.  
IS: No return.  
FF: No blow. Flushed tool surface blow died in 1 min.  
FS: No return.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2315.56	103.42	Initial Hydro-static
1	19.22	102.76	Open To Flow (1)
31	22.13	103.75	Shut-In(1)
60	695.80	104.76	End Shut-In(1)
61	22.90	104.58	Open To Flow (2)
89	28.61	105.58	Shut-In(2)
122	754.99	106.60	End Shut-In(2)
123	2245.81	106.99	Final Hydro-static

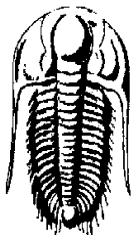
## Recovery

Length (ft)	Description	Volume (bbl)
10.00	mud 100%m	0.05

\* Recovery from multiple tests

## Gas Rates

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



# TRILOBITE TESTING, INC.

## DRILL STEM TEST REPORT

Ritchie Exploration

8100 E 22nd St N 700  
Wichita, KS 67278

ATTN: Bob Peterson

23-15-36 Logan,KS

D. Schumacher #2

Job Ticket: 63627

DST#: 7

Test Start: 2018.04.10 @ 13:25:07

### GENERAL INFORMATION:

Formation: **Pawnee - Ft Scott**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:20:07

Time Test Ended: 19:11:37

Interval: **4500.00 ft (KB) To 4601.00 ft (KB) (TVD)**

Total Depth: 4601.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Test Type: Conventional Bottom Hole (Reset)

Tester: Brandon Turley

Unit No: 79

Reference Elevations: 3295.00 ft (KB)

3290.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 6651

Inside

Press@RunDepth: psig @ 4501.00 ft (KB)

Start Date: 2018.04.10

End Date: 2018.04.10

Start Time: 13:25:22

End Time: 19:11:46

Capacity: 8000.00 psig

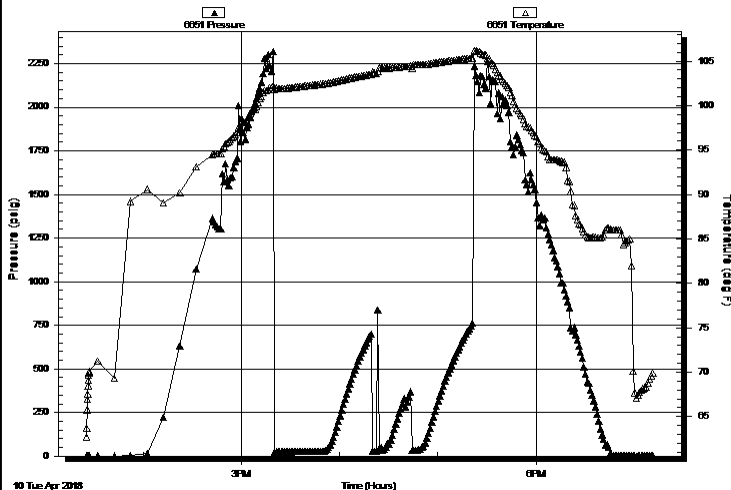
Last Calib.: 2018.04.10

Time On Btm:

Time Off Btm:

TEST COMMENT: IF: Surface blow died in 8 min.  
IS: No return.  
FF: No blow. Flushed tool surface blow died in 1 min.  
FS: No return.

Pressure vs. Time



### PRESSURE SUMMARY

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

### Recovery

Length (ft)	Description	Volume (bbl)
10.00	mud 100%m	0.05

### 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

**23-15-36 Logan,KS**

8100 E 22nd St N 700  
Wichita, KS 67278

**D. Schumacher #2**

ATTN: Bob Peterson

Job Ticket: 63627

**DST#: 7**

Test Start: 2018.04.10 @ 13:25:07

### Tool Information

Drill Pipe:	Length: 4380.00 ft	Diameter: 3.80 inches	Volume: 61.44 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: 30000.00 lb
Drill Collar:	Length: 117.00 ft	Diameter: 2.25 inches	Volume: 0.58 bbl	Weight to Pull Loose: 85000.00 lb
			<u>Total Volume: 62.02 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	24.00 ft			String Weight: Initial 74000.00 lb
Depth to Top Packer:	4500.00 ft			Final 74000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	101.00 ft			
Tool Length:	128.00 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			4474.00	
Shut In Tool	5.00			4479.00	
Hydraulic tool	5.00			4484.00	
Jars	5.00			4489.00	
Safety Joint	2.00			4491.00	
Packer	5.00			4496.00	27.00 Bottom Of Top Packer
Packer	4.00			4500.00	
Stubb	1.00			4501.00	
Recorder	0.00	6651	Inside	4501.00	
Recorder	0.00	8166	Outside	4501.00	
Perforations	29.00			4530.00	
Change Over Sub	1.00			4531.00	
Drill Pipe	64.00			4595.00	
Change Over Sub	1.00			4596.00	
Bullnose	5.00			4601.00	101.00 Bottom Packers & Anchor

**Total Tool Length: 128.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Ritchie Exploration

**23-15-36 Logan,KS**

8100 E 22nd St N 700  
Wichita, KS 67278

**D. Schumacher #2**

Job Ticket: 63627

**DST#: 7**

ATTN: Bob Peterson

Test Start: 2018.04.10 @ 13:25:07

### 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: 66.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 9.59 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 12000.00 ppm

Filter Cake: 1.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	mud 100%m	0.049

Total Length: 10.00 ft      Total Volume: 0.049 bbl

Num Fluid Samples: 0

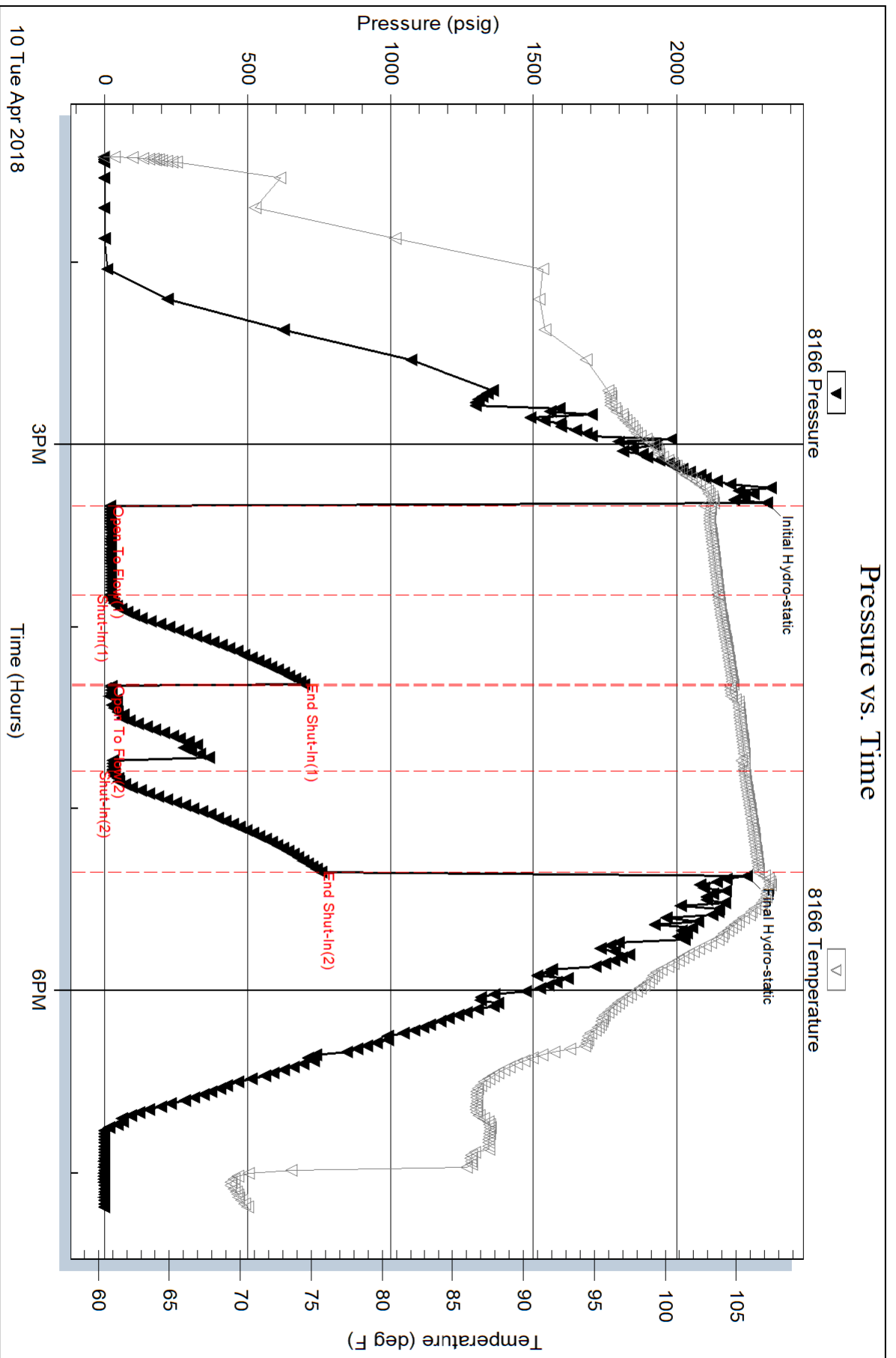
Num Gas Bombs: 0

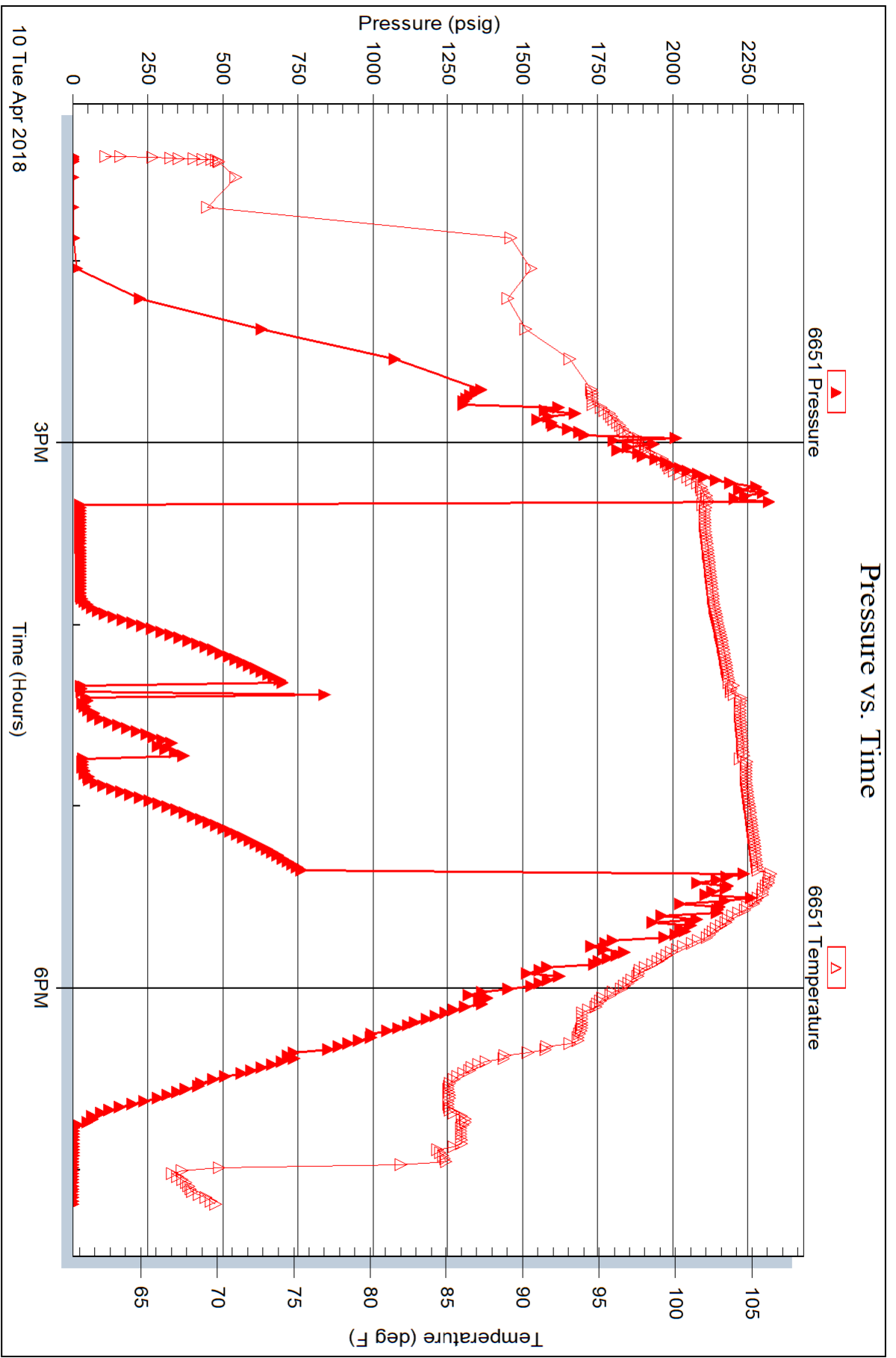
Serial #:

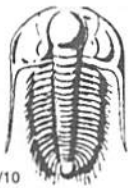
Laboratory Name:

Laboratory Location:

Recovery Comments:







# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 64321

Well Name & No. D. Schumacher #2 Test No. 1 Date 4-5-18  
 Company Ritchie Exploration Elevation 3295 KB 3290 GL  
 Address 8100 E 22nd St N 700 Wichita, KS 67278  
 Co. Rep / Geo. Bob Peterson Rig WU #10  
 Location: Sec. 23 Twp. 15 Rge. 36 Co. Logan State KS

Interval Tested 4032 4055 Zone Tested LKC - A  
 Anchor Length 23 Drill Pipe Run 3903 Mud Wt. 8.6  
 Top Packer Depth 4027 Drill Collars Run 117 Vis 58  
 Bottom Packer Depth 4032 Wt. Pipe Run --- WL 10.4  
 Total Depth 4055 Chlorides 13500 ppm System LCM 2

Blow Description IFi surface blow ~~built~~ built to 13/4.  
IS: No return.  
FFi No blow. Flushed tool surface, blow built to 1/4.  
FS: No return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>70</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 70 BHT 108 Gravity --- API RW --- @ --- °F Chlorides --- ppm

(A) Initial Hydrostatic 2110  Test 1150  
 (B) First Initial Flow 17  Jars 250  
 (C) First Final Flow 35  Safety Joint 75  
 (D) Initial Shut-In 892  Circ Sub N/C  
 (E) Second Initial Flow 37  Hourly Standby ---  
 (F) Second Final Flow 52  Mileage 100 - 100  
 (G) Final Shut-In 813  Sampler ---  
 (H) Final Hydrostatic 1998  Straddle ---  
 Shale Packer ---  
 Extra Packer ---  
 Extra Recorder ---  
 Day Standby ---  
 Accessibility ---  
 Sub Total 1575

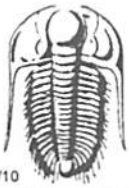
T-On Location 17:00  
 T-Started 18:14  
 T-Open 20:08  
 T-Pulled 22:08  
 T-Out 23:40

Comments ---  
 Ruined Shale Packer ---  
 Ruined Packer ---  
 Extra Copies ---  
 Sub Total 0  
 Total 1575  
 MP/DST Disc't ---

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

Approved By [Signature] Our Representative [Signature]

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. **64322**

Well Name & No. D. Schumacher #2 Test No. 2 Date 4-6-18  
 Company Ritchie Exploration Elevation 3295 KB 3290 GL  
 Address \_\_\_\_\_  
 Co. Rep / Geo. Bob Peterson Rig WW #10  
 Location: Sec. 23 Twp. 15 Rge. 36 Co. Logan State KS

Interval Tested 4127 4165 Zone Tested LKC E-F  
 Anchor Length \_\_\_\_\_ 38 Drill Pipe Run 3997 Mud Wt. 8.8  
 Top Packer Depth \_\_\_\_\_ 4122 Drill Collars Run 117 Vis 64  
 Bottom Packer Depth \_\_\_\_\_ 4127 Wt. Pipe Run \_\_\_\_\_ WL 9.6  
 Total Depth \_\_\_\_\_ 4165 Chlorides 11,000 ppm System LCM 1.5  
 Blow Description IF: 1/4 blow BOB in 13 min.  
IS: No return.  
FF: BOB in 16 min.  
FS: No return.

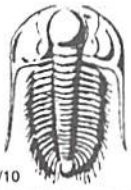
Rec	Feet of	%gas	%oil	%water	%mud
<u>151</u>	<u>wcm</u>		<u>10</u>	<u>90</u>	
<u>126</u>	<u>wcm</u>		<u>30</u>	<u>70</u>	
<u>252</u>	<u>MLW</u>		<u>95</u>	<u>5</u>	
Rec _____	Feet of _____	%gas _____	%oil _____	%water _____	%mud _____
Rec _____	Feet of _____	%gas _____	%oil _____	%water _____	%mud _____

Rec Total 529 BHT 114 Gravity \_\_\_\_\_ API RW 138 @ 35 °F Chlorides 39500 ppm

(A) Initial Hydrostatic <u>2136</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>13:15</u>
(B) First Initial Flow <u>23</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>13:43</u>
(C) First Final Flow <u>138</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>15:19</u>
(D) Initial Shut-In <u>1169</u>	<input checked="" type="checkbox"/> Circ Sub <u>NIC</u>	T-Pulled <u>18:19</u>
(E) Second Initial Flow <u>143</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>20:30</u>
(F) Second Final Flow <u>254</u>	<input checked="" type="checkbox"/> Mileage <u>100 - 100</u>	Comments _____
(G) Final Shut-In <u>1157</u>	<input type="checkbox"/> Sampler _____	_____
(H) Final Hydrostatic <u>2011</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>45</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Extra Copies _____
Final Flow <u>45</u>	<input type="checkbox"/> Extra Recorder _____	Sub Total <u>0</u>
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby _____	Total <u>1575</u>
	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total <u>1575</u>	

Approved By RJ [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. **64323**

Well Name & No. D. Schumacher #2 Test No. 3 Date 4-7-18  
 Company Ritchie Exploration Elevation 3295 KB 3290 GL  
 Address \_\_\_\_\_  
 Co. Rep / Geo. Bob Peterson Rig WW #10  
 Location: Sec. 23 Twp. 15 Rge. 36 Co. Logan State KS

Interval Tested 4308 4350 Zone Tested K  
 Anchor Length \_\_\_\_\_ Drill Pipe Run 4188 Mud Wt. 9.1  
 Top Packer Depth \_\_\_\_\_ Drill Collars Run 117 Vis 63  
 Bottom Packer Depth 4308 Wt. Pipe Run \_\_\_\_\_ WL 8.8  
 Total Depth 4350 Chlorides 11,500 ppm System LCM 2  
 Blow Description IF: BoB in 4 min.  
IS: No return.  
FF: BoB in 5 min.  
FS: No return.

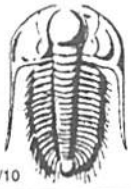
Rec	Feet of	%gas	%oil	%water	%mud
<u>302</u>	<u>wcm oil spots on top</u>		<u>30</u>	<u>50</u>	
<u>252</u>	<u>mcw</u>		<u>90</u>	<u>10</u>	
<u>882</u>	<u>water</u>		<u>100</u>		
_____	_____				
_____	_____				

Rec Total 1436 BHT 120 Gravity \_\_\_\_\_ API RW .28 @ 49 °F Chlorides 37,000 ppm

(A) Initial Hydrostatic <u>2237</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>13:50</u>
(B) First Initial Flow <u>68</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>14:33</u>
(C) First Final Flow <u>427</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>16:19</u>
(D) Initial Shut-In <u>1266</u>	<input checked="" type="checkbox"/> Circ Sub <u>N/L</u>	T-Pulled <u>18:19</u>
(E) Second Initial Flow <u>414</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>20:23</u>
(F) Second Final Flow <u>665</u>	<input checked="" type="checkbox"/> Mileage <u>100 - 100</u>	Comments _____
(G) Final Shut-In <u>1263</u>	<input type="checkbox"/> Sampler _____	_____
(H) Final Hydrostatic <u>2120</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>0</u>
Final Shut-In <u>30</u>	<input type="checkbox"/> Day Standby _____	Total <u>1575</u>
	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total <u>1575</u>	

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. **64324**

Well Name & No. D. Schumacher #2 Test No. 4 Date 4-8-19  
 Company Ritchie Exploration Elevation 3295 KB 3290 GL  
 Address \_\_\_\_\_  
 Co. Rep / Geo. Bob Peterson Rig WW #10  
 Location: Sec. 23 Twp. 15 Rge. 36 Co. Logan State K5

Interval Tested 4434 4471 Zone Tested Altamont A  
 Anchor Length 37 Drill Pipe Run 4316 Mud Wt. 9.1  
 Top Packer Depth 4429 Drill Collars Run 117 Vis 63  
 Bottom Packer Depth 4434 Wt. Pipe Run \_\_\_\_\_ WL 9.6  
 Total Depth 4471 Chlorides 12,400 ppm System LCM 2  
 Blow Description IF: 1/4 blow built to 8.  
IS: surface blow died in 30 min.  
FF: surface blow built to 6.  
FS: ~~no return~~, weak surface blow.

Rec	Feet of	%gas	%oil	%water	%mud
<u>141</u>	<u>90</u>	<u>20</u>	<u>80</u>		
<u>63</u>	<u>90cm</u>	<u>10</u>	<u>10</u>	<u>80</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

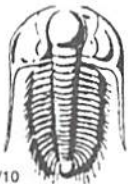
Rec Total 204 BHT 111 Gravity 32 API RW - @ - °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic <u>2314</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>12:30</u>
(B) First Initial Flow <u>18</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>13:29</u>
(C) First Final Flow <u>67</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>15:22</u>
(D) Initial Shut-In <u>116</u>	<input checked="" type="checkbox"/> Circ Sub <u>N/C</u>	T-Pulled <u>18:22</u>
(E) Second Initial Flow <u>71</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>20:20</u>
(F) Second Final Flow <u>88</u>	<input checked="" type="checkbox"/> Mileage <u>100 - 100</u>	Comments _____
(G) Final Shut-In <u>117</u>	<input type="checkbox"/> Sampler _____	_____
(H) Final Hydrostatic <u>2248</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>45</u>	<input type="checkbox"/> Extra Packer _____	<input type="checkbox"/> Extra Copies _____
Final Flow <u>45</u>	<input type="checkbox"/> Extra Recorder _____	Sub Total <u>0</u>
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby _____	Total <u>1575</u>
	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total <u>1575</u>	

Approved By [Signature] Our Representative [Signature]

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 64325

Well Name & No. D. Schumacher #2 Test No. 5 Date 4-9-18  
 Company Ritchie Exploration Elevation 3295 KB 3290 GL  
 Address \_\_\_\_\_  
 Co. Rep / Geo. Bob Peterson Rig WW#10  
 Location: Sec. 23 Twp. 15 Rge. 36 Co. Logan State KS

Interval Tested 4468 4482 Zone Tested Altamont B  
 Anchor Length \_\_\_\_\_ Drill Pipe Run 4346 Mud Wt. 9.1  
 Top Packer Depth \_\_\_\_\_ Drill Collars Run 117 Vis 63  
 Bottom Packer Depth 4468 Wt. Pipe Run \_\_\_\_\_ WL 9.6  
 Total Depth 4482 Chlorides 12400 ppm System LCM 2

Blow Description IF: Surface blow died in 8 min.  
IS: No return.  
FF: No blow, Flushed tool surface blow died in 2 min.  
FS: No return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>20</u>	<u>ocm</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 20 BHT 104 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ ° F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic <u>2318</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>3:00</u>
(B) First Initial Flow <u>19</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>3:41</u>
(C) First Final Flow <u>24</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>5:27</u>
(D) Initial Shut-In <u>437</u>	<input checked="" type="checkbox"/> Circ Sub <u>NIL</u>	T-Pulled <u>7:27</u>
(E) Second Initial Flow <u>26</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>9:06</u>
(F) Second Final Flow <u>31</u>	<input checked="" type="checkbox"/> Mileage <u>100 - 100</u>	Comments _____
(G) Final Shut-In <u>133</u>	<input type="checkbox"/> Sampler _____	_____
(H) Final Hydrostatic <u>2228</u>	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> Ruined Shale Packer _____
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer _____	<input checked="" type="checkbox"/> Ruined Packer <u>320</u>
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>320</u>
Final Shut-In <u>30</u>	<input type="checkbox"/> Day Standby _____	Total <u>1895</u>
	<input type="checkbox"/> Accessibility _____	MP/DST Disc't _____
	Sub Total <u>1575</u>	

Approved By [Signature] Our Representative [Signature]

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 63626

Well Name & No. D. Schumacher #2 Test No. 6 Date 4-9-18  
 Company Ritchie Exploration Elevation 3295 KB 3290 GL  
 Address \_\_\_\_\_  
 Co. Rep / Geo. Bob Peterson Rig WW#10  
 Location: Sec. 23 Twp 15 Rge. 36 Co. Logan State KS

Interval Tested 4478 4510 Zone Tested AH-C  
 Anchor Length \_\_\_\_\_ 32 Drill Pipe Run 4346 Mud Wt. 9.0  
 Top Packer Depth \_\_\_\_\_ 4473 Drill Collars Run 117 Vis 67  
 Bottom Packer Depth \_\_\_\_\_ 4478 Wt. Pipe Run \_\_\_\_\_ WL 8.8  
 Total Depth \_\_\_\_\_ 4510 Chlorides 10,000 ppm System LCM 2

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

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

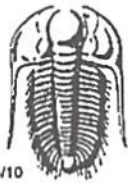
Rec Total 5 BHT 106 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 2309  Test 1150 T-On Location 16:15  
 (B) First Initial Flow 13  Jars 250 T-Started ~~16:58~~ 16:56  
 (C) First Final Flow 17  Safety Joint 75 T-Open 18:58  
 (D) Initial Shut-In 25  Circ Sub NIL T-Pulled 21:58  
 (E) Second Initial Flow 16  Hourly Standby \_\_\_\_\_ T-Out 22:45  
 (F) Second Final Flow 18  Mileage 100 - 100 Comments \_\_\_\_\_  
 (G) Final Shut-In 26  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 2202  Straddle \_\_\_\_\_  
 Ruined Shale Packer \_\_\_\_\_  
 Ruined Packer \_\_\_\_\_

Initial Open 30  Extra Packer \_\_\_\_\_  
 Initial Shut-In 30  Extra Recorder \_\_\_\_\_  
 Final Flow 30  Day Standby \_\_\_\_\_  
 Final Shut-In 30  Accessibility \_\_\_\_\_  
 Sub Total 1575

Approved By [Signature] Our Representative [Signature]

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 63627

Well Name & No. D. Schumacher #2 Test No. 7 Date 4-10-18  
 Company Ritchie Exploration Elevation 3295 KB 3290 GL  
 Address \_\_\_\_\_  
 Co. Rep / Geo. Bob Peterson Rig WW#10  
 Location: Sec. 23 Twp 15 Rge. 36 Co. Logan State K5

Interval Tested 4500 4601 Zone Tested Pawnee / Ft Scott  
 Anchor Length \_\_\_\_\_ 101 Drill Pipe Run 4380 Mud Wt. 9.2  
 Top Packer Depth \_\_\_\_\_ 4495 Drill Collars Run 117 Vis 66  
 Bottom Packer Depth \_\_\_\_\_ 4500 Wt. Pipe Run \_\_\_\_\_ WL 9.8  
 Total Depth \_\_\_\_\_ 4601 Chlorides 12,000 ppm System LCM 1.5

Blow Description IFI Surface blow died in 8 min.  
FS: No return.  
FF: No blow, Flushed the tool surface blow died in 1 min.  
FS: No return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>10</u>	<u>mud</u>			<u>100</u>	
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Rec Total 10 BHT 106 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ ° F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic <u>2315</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>13:00</u>
(B) First Initial Flow <u>19</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>13:25</u>
(C) First Final Flow <u>22</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>15:20</u>
(D) Initial Shut-In <u>695</u>	<input checked="" type="checkbox"/> Circ Sub <u>N/A</u>	T-Pulled <u>17:20</u>
(E) Second Initial Flow <u>22</u>	<input type="checkbox"/> Hourly Standby _____	T-Out <u>17:12</u>
(F) Second Final Flow <u>28</u>	<input checked="" type="checkbox"/> Mileage <u>100-X2</u> 200	Comments _____
(G) Final Shut-In <u>754</u>	<input type="checkbox"/> Sampler _____	<u>loaded tools 4/11 16:30</u>
(H) Final Hydrostatic <u>2245</u>	<input type="checkbox"/> Straddle _____	<input type="checkbox"/> Ruined Shale Packer _____

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

Sub Total 1675

Approved By AK Our Representative \_\_\_\_\_

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**#2 D. Schumacher**

771' FNL & 954' FWL

NW SE NW NW Section 23-15S-36W

Logan County, Kansas

API# 15-109-21543-0000

Elevation: GL: 3290', KB: 3295'

Sample Tops			Ref. Well
Anhydrite	2561	+734	Flat
B/Anhydrite	2580	+715	+1
Stotler	3637	-342	-5
Heebner	3993	-698	Flat
Toronto	4017	-722	Flat
Lansing	4045	-750	+1
Muncie	4216	-921	-3
Stark	4310	-1015	-3
Hush	4353	-1058	+1
BKC	4388	-1093	+2
Marmaton	4432	-1137	+3
Altamont	4445	-1150	+3
Pawnee	4519	-1224	Flat
Myrick	4560	-1265	+4
Ft. Scott	4579	-1285	-1
Cherokee	4595	-1310	+2
Johnson	4687	-1392	+5
Morrow	4741	-1446	+1
Mississippian	4815	-1520	+4
RTD	4900	-1605	



PRESSURE PUMPING LLC

PO Box 884, Chanute, KS 66720  
620-431-9210 or 800-467-8676

10343  
10234

TICKET NUMBER 55113

LOCATION ~~20~~ Oakley KS

FOREMAN M. Les Shaw

FIELD TICKET & TREATMENT REPORT  
CEMENT

Invoice #812800

DATE	CUSTOMER #	WELL NAME & NUMBER	SECTION	TOWNSHIP	RANGE	COUNTY
3-30-18	1177	D. Schumacher #2	23	155	36 W	Logan
CUSTOMER D. Schumacher Exploration			TRUCK #			
MAILING ADDRESS P.O. Box 783188			DRIVER		TRUCK #	
CITY Wichita			DRIVER		TRUCK #	
STATE KS			DRIVER		TRUCK #	
ZIP CODE 67218-3188			DRIVER		TRUCK #	

JOB TYPE ~~200~~ Surface HOLE SIZE 12.25" HOLE DEPTH 218' CASING SIZE & WEIGHT 85/16" 28#  
 CASING DEPTH 218' DRILL PIPE TUBING OTHER  
 SLURRY WEIGHT 14.8 SLURRY VOL 1.36 WATER gal/sk CEMENT LEFT in CASING 20'  
 DISPLACEMENT 12.5bbls DISPLACEMENT PSI MIX PSI RATE

REMARKS: Safety meeting and Rig in on well drilling rig #10. Circulate casing mix 165sx  
 Surface blend II class A cement with 3.8 calcium 2.8 gal displace 12.5bbls water Shut in  
 Cement did circulate 3bbls to pit

Thanks Mike & Crew

ACCOUNT CODE	QUANTITY or UNITS	DESCRIPTION of SERVICES or PRODUCT	UNIT PRICE	TOTAL
CE0471	1	PUMP CHARGE	1150.00	1150.00
CE0202	45	MILEAGE	7.15	321.75
CE0710	7.75 Ton	Ton mileage delivery	660.00	660.00
CE5871	165sx	Surface blend II	24.00	3960.00
			Subtotal	6091.75
			less 30% disc count	1827.52
			Subtotal	4264.23
			SALES TAX	221.74
			ESTIMATED TOTAL	4485.97

Form 3737

AUTHORIZATION

TITLE

DATE

I acknowledge that the payment terms, unless specifically amended in writing on the front of the form or in the customer's account records, at our office, and conditions of service on the back of this form are in effect for services identified on this form.



CHARGE TO: Ritchie Exploration  
 ADDRESS \_\_\_\_\_  
 CITY, STATE, ZIP CODE \_\_\_\_\_

TICKET 031435

PAGE 1 OF 2

SERVICE LOCATIONS  
 1. 1. Ness City KS  
 2. \_\_\_\_\_  
 3. \_\_\_\_\_  
 4. \_\_\_\_\_

WELL/PROJECT NO. #2  
 LEASE D. Schrammer  
 COUNTY/PARISH Leech  
 STATE KS  
 CITY Leech  
 DATE 4-12-18  
 OWNER Same

TICKET TYPE  SALES  
 CONTRACTOR W+W Drilling  
 RIG NAME/NO. #10  
 SHIPPED VIA CT  
 ORDER NO. \_\_\_\_\_

WELL TYPE Oil  
 WELL CATEGORY Development  
 JOB PURPOSE Cement 4 1/2" Longstring  
 DELIVERED TO Leech  
 WELL LOCATION Leech - 19, 4, 1/2, 1/2, 1/2, 1/2, 1/2, 1/2  
 WELL PERMIT NO. \_\_\_\_\_

INVOICE INSTRUCTIONS \_\_\_\_\_

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING		DESCRIPTION	QTY.	U/M	QTY.	U/M	UNIT PRICE	AMOUNT
		LOC	ACCT							
575		1					80	mi	5.00	400.00
578		1		Tsk # 115			1	job	1300.00	1300.00
409		1		Pump Change- Longstring			8	ea	70.00	560.00
403		1		Turbolizer			3	ea	250.00	750.00
406		1		Cement Basket			1	ea	225.00	225.00
407		1		Latch Down Plug + Baffle			1	ea	300.00	300.00
404		1		Insert Float Shoe w/ Auto Fill			1	ea	2400.00	2400.00
				Port Collar						

LEGAL TERMS: Customer hereby acknowledges and agrees to the terms and conditions on the reverse side hereof which include, but are not limited to, **PAYMENT, RELEASE, INDEMNITY, and LIMITED WARRANTY** provisions.

MUST BE SIGNED BY CUSTOMER OR CUSTOMER'S AGENT PRIOR TO START OF WORK OR DELIVERY OF GOODS.

**X**

DATE SIGNED 4-12-18 TIME SIGNED \_\_\_\_\_  
 A.M.  P.M.

REMIT PAYMENT TO:  
**SWIFT SERVICES, INC.**  
 P.O. BOX 466  
 NESS CITY, KS 67560  
 785-798-2300

SURVEY  
 OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN? \_\_\_\_\_  
 WE UNDERSTOOD AND MET YOUR NEEDS? \_\_\_\_\_  
 OUR SERVICE WAS PERFORMED WITHOUT DELAY? \_\_\_\_\_  
 WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY? \_\_\_\_\_  
 ARE YOU SATISFIED WITH OUR SERVICE?  YES  NO

PAGE TOTAL #1 5935.00  
 #2 8155.00  
14090.50  
-1409.05  
12681.45  
 TAX 12681.45  
 TOTAL 13949.60

APPROVAL David Kuehn  
 SWIFT OPERATOR David Kuehn

CUSTOMER ACCEPTANCE OF MATERIALS AND SERVICES The customer hereby acknowledges receipt of the materials and services listed on this ticket.

APPROVAL Gary Rowland  
 CUSTOMER DID NOT WISH TO RESPOND

Thank You!





JOB LOG

SWIFT Services, Inc.

DATE 4-12-18	PAGE NO. 1
TICKET NO. # 31435	

CUSTOMER Ritchie Exploration	WELL NO. #2	LEASE D. Schumacher	JOB TYPE 4 1/2" Longstring
---------------------------------	----------------	------------------------	-------------------------------

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
	1500							on location 4 1/2" 10.5"
								RTD - 4900' LTD - 4903' TP - 4884' SJ - #1 25.01' P.C. - #57 2504' Turbo - #1"3"5"8"12"56"58"76 Basket - #10"57"75 wax on welder - 8 1/8" slip collar
	1810							Start 4 1/2" 10.5" casing in well
	2005							Drop Ball circulate
	2110	6 1/2	12		✓		300	Pump 500gal MudFlush
			7					Plug RH (30 stks)
	2120	4 1/2	55		✓		200	mix 220 stks STD 2% Gel 10% salt @ 15.0ppg
								wash out Pump + Lines Release Latch Down Plug
	2145	6 1/2	Ø		✓		100	Start Displacement
		6 1/2	59		✓		250	lift Pressure
		6 1/2	76		✓		900	max lift Pressure
	2200	6 1/2	77.3		✓		1800	Land Latch Down Plug
								Release Pressure * Plug Held *
								wash up truck
	2230							Job Complete
								Thank You Dave Preston Kirby



TICKET 031437

CHARGE TO: Ritchie Exploration  
 ADDRESS \_\_\_\_\_  
 CITY, STATE, ZIP CODE \_\_\_\_\_

PAGE 1 OF 1

WELL/PROJECT NO. #2 LEASE D. Schumacher COUNTY/PARISH Leban CITY Lechi STATE KS DATE 4-17-18 OWNER Same  
 SERVICE TYPE  SALES  CONTRACTOR Husker Energy Services RIG NAME/NO. \_\_\_\_\_ DELIVERED TO \_\_\_\_\_  
 WELL TYPE Oil WELL CATEGORY Development JOB PURPOSE Cement 4 1/2" Post Collar WELL PERMIT NO. \_\_\_\_\_ WELL LOCATION Lechi - 19, 4E, 1B, 6in  
 INVOICE INSTRUCTIONS \_\_\_\_\_

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING		DESCRIPTION	QTY.	U/M	QTY.	U/M	UNIT PRICE	AMOUNT
		LOC	ACCT							
575	1			MILEAGE Trk # 112	100	mi.			5.00	500.00
576-D	1			Pump Change - Post Collar	1	job			1300.00	1300.00
328-6	1			60/40 Pozmix (6% Gel)	400	slks			10.85	4340.00
276	1			Floccide	1/4	lb			2.50	250.00
290	1			D-Air	4	gal			42.00	168.00
275	1			<del>Skid</del> Cotton Seed Hulls	3	slks			30.00	90.00
581	1			Services Charge Cement	450	slks			1.75	787.50
583	1			Drayage	38640	lbs	1932	TM	00.88	1642.20

LEGAL TERMS: Customer hereby acknowledges and agrees to the terms and conditions on the reverse side hereof which include, but are not limited to, **PAYMENT, RELEASE, INDEMNITY, and LIMITED WARRANTY** provisions.

MUST BE SIGNED BY CUSTOMER OR CUSTOMER'S AGENT PRIOR TO START OF WORK OR DELIVERY OF GOODS.

DATE SIGNED 4-17-18 TIME SIGNED 1245  A.M.  P.M.

REMIT PAYMENT TO:  
 SWIFT SERVICES, INC.  
 P.O. BOX 466  
 NESS CITY, KS 67560  
 785-798-2300

OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?  YES  NO  
 WE UNDERSTOOD AND MET YOUR NEEDS?  YES  NO  
 OUR SERVICE WAS PERFORMED WITHOUT DELAY?  YES  NO  
 WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY?  YES  NO  
 ARE YOU SATISFIED WITH OUR SERVICE?  YES  NO  
 CUSTOMER DID NOT WISH TO RESPOND

PAGE TOTAL 9077.70  
 102.04  
 8119.93  
 TAX 349.06  
 TOTAL 8518.99

CUSTOMER ACCEPTANCE OF MATERIALS AND SERVICES The customer hereby acknowledges receipt of the materials and services listed on this ticket.

SWIFT OPERATOR David Kuehn APPROVAL Gay K. GMD  
 Thank You!

JOB LOG

SWIFT Services, Inc.

DATE 4-17-18 PAGE NO. 1  
TICKET NO. #31437

CUSTOMER Ritchie Exploration

WELL NO. #2

LEASE D. Schumacher

JOB TYPE 4 1/2" Post Collar

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
	1030							on location 2 3/8" x 4 1/2"
								P.C. - 2504'
	1045	0	0	✓		1250		Pressure Test *Hold*
								open P.C.
	1055	5	3	✓		300		Injection Rate
	1105	4	120	✓		400		mix 400 sks 60/40 6% Gel w/ 30 sks Hulls circulate cement to surface - 25 sks
	1200	3 1/2	9	✓		700		Displace cement
	1205	0	0	✓		1250		close P.C. *Test Hold*
								Run 5 sks
	1215	2	25	✓		250		Reverse Clean
								wash up truck
								total - 400 sks 60/40 Pozmix 6% Gel 1/4" Flo * 25 sks to Pit *
	1245							Job Complete

Thank You  
Dave Preston Shure