

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)</i> <i>(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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Form	ACO1 - Well Completion
Operator	Ritchie Exploration, Inc.
Well Name	WHITE 4
Doc ID	1444693

Perforations

Shots Per Foot	Perforation Top	Perforation Bottom	BridgePlugType	BridgePlugSet At	Material Record
4	3713	3718			500 gals 15% MCA
4	3659	3662			187 gals 15% NE
4	3648	3650			187 gals 15% NE
4	3628	3631			188 gals 15% NE
4	3620	3622			188 gals 15% NE
4	3522	3525			375 gals 15% NE
4	3508	3510			375 gals 15% NE
4	3476	3479			375 gals 15% NE
4	3460	3463			375 gals 15% NE
4	3407	3412			500 gals 15% NE



DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration, Inc**

PO Box 783188
Wichita, KS 67278-3188

ATTN: Bob Peterson

White #4

7-6s-21w Graham,KS

Start Date: 2018.11.04 @ 14:05:00

End Date: 2018.11.04 @ 20:31:15

Job Ticket #: 64634 DST #: 1

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

Printed: 2018.11.09 @ 10:17:50



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Ritchie Exploration, Inc
 PO Box 783188
 Wichita, KS 67278-3188
 ATTN: Bob Peterson

7-6s-21w Graham,KS
White #4
 Job Ticket: 64634 **DST#: 1**
 Test Start: 2018.11.04 @ 14:05:00

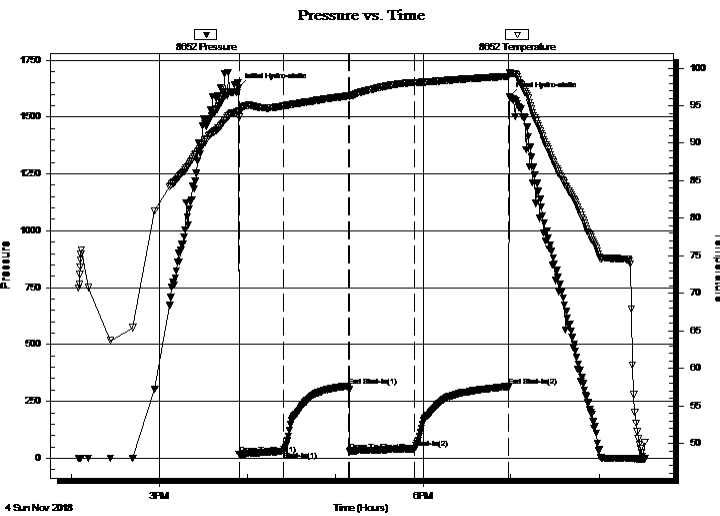
GENERAL INFORMATION:

Formation: **Oread A - B**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 15:54:30
 Time Test Ended: 20:31:15
 Interval: **3384.00 ft (KB) To 3421.00 ft (KB) (TVD)**
 Total Depth: 3421.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: James Winder
 Unit No: 83
 Reference Elevations: 2234.00 ft (KB)
 2229.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8652 Outside

Press@RunDepth: 42.12 psig @ 3385.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2018.11.04 End Date: 2018.11.04 Last Calib.: 2018.11.04
 Start Time: 14:05:05 End Time: 20:31:14 Time On Btm: 2018.11.04 @ 15:54:15
 Time Off Btm: 2018.11.04 @ 18:59:00

TEST COMMENT: 30 - IF: Blow built to 2"
 45 - IS: No blow back
 45 - FF: Blow built to 1 1/2"
 60 - FS: No blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1626.84	94.35	Initial Hydro-static
1	16.39	93.49	Open To Flow (1)
31	29.92	94.97	Shut-In(1)
75	318.02	96.32	End Shut-In(1)
76	31.48	96.24	Open To Flow (2)
120	42.12	98.12	Shut-In(2)
184	314.85	98.93	End Shut-In(2)
185	1589.56	99.44	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
58.00	SOCM 97% m, 3% o	0.29

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration, Inc
 PO Box 783188
 Wichita, KS 67278-3188
 ATTN: Bob Peterson

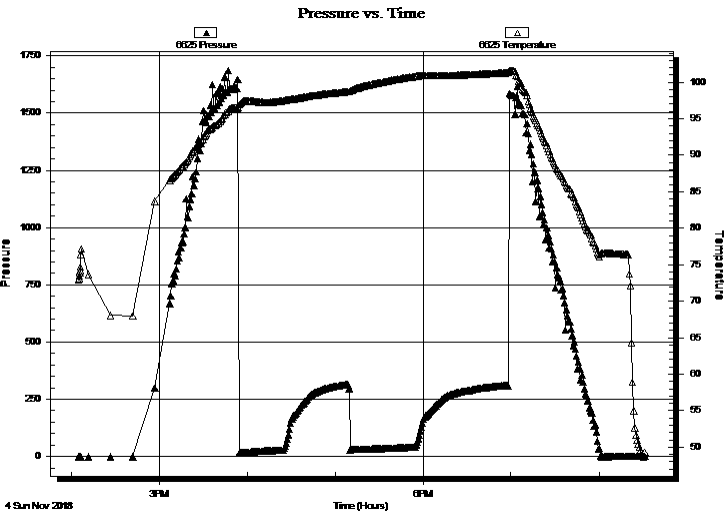
7-6s-21w Graham,KS
White #4
 Job Ticket: 64634 **DST#: 1**
 Test Start: 2018.11.04 @ 14:05:00

GENERAL INFORMATION:

Formation: **Oread A - B**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Initial)
 Time Tool Opened: 15:54:30 Tester: James Winder
 Time Test Ended: 20:31:15 Unit No: 83
 Interval: **3384.00 ft (KB) To 3421.00 ft (KB) (TVD)** Reference Elevations: 2234.00 ft (KB)
 Total Depth: 3421.00 ft (KB) (TVD) 2229.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 5.00 ft

Serial #: 6625 Inside
 Press@RunDepth: psig @ 3385.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2018.11.04 End Date: 2018.11.04 Last Calib.: 2018.11.04
 Start Time: 14:05:05 End Time: 20:31:44 Time On Btm:
 Time Off Btm:

TEST COMMENT: 30 - IF: Blow built to 2"
 45 - IS: No blow back
 45 - FF: Blow built to 1 1/2"
 60 - FS: No blow back



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

Recovery		
Length (ft)	Description	Volume (bbl)
58.00	SOCM 97% m, 3% o	0.29

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Ritchie Exploration, Inc
PO Box 783188
Wichita, KS 67278-3188
ATTN: Bob Peterson

7-6s-21w Graham,KS
White #4
Job Ticket: 64634 **DST#: 1**
Test Start: 2018.11.04 @ 14:05:00

Tool Information

Drill Pipe:	Length: 3192.00 ft	Diameter: 3.80 inches	Volume: 44.78 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 178.00 ft	Diameter: 2.25 inches	Volume: 0.88 bbl	Weight to Pull Loose: 52000.00 lb
			<u>Total Volume: 45.66 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial 50000.00 lb
Depth to Top Packer:	3384.00 ft			Final 50000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	37.00 ft			
Tool Length:	66.00 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			3356.00	
Shut In Tool	5.00			3361.00	
Hydraulic tool	5.00			3366.00	
Jars	5.00			3371.00	
Safety Joint	3.00			3374.00	
Packer	5.00			3379.00	29.00 Bottom Of Top Packer
Packer	5.00			3384.00	
Stubb	1.00			3385.00	
Recorder	0.00	6625	Inside	3385.00	
Recorder	0.00	8652	Outside	3385.00	
Perforations	33.00			3418.00	
Bullnose	3.00			3421.00	37.00 Bottom Packers & Anchor

Total Tool Length: 66.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration, Inc
PO Box 783188
Wichita, KS 67278-3188
ATTN: Bob Peterson

7-6s-21w Graham,KS
White #4
Job Ticket: 64634 **DST#: 1**
Test Start: 2018.11.04 @ 14:05:00

Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 60.00 sec/qt	Cushion Volume: bbl		
Water Loss: 5.97 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 900.00 ppm			
Filter Cake: 1.00 inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
58.00	SOCM 97% m, 3% o	0.285

Total Length: 58.00 ft Total Volume: 0.285 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:

Laboratory Name: Laboratory Location:

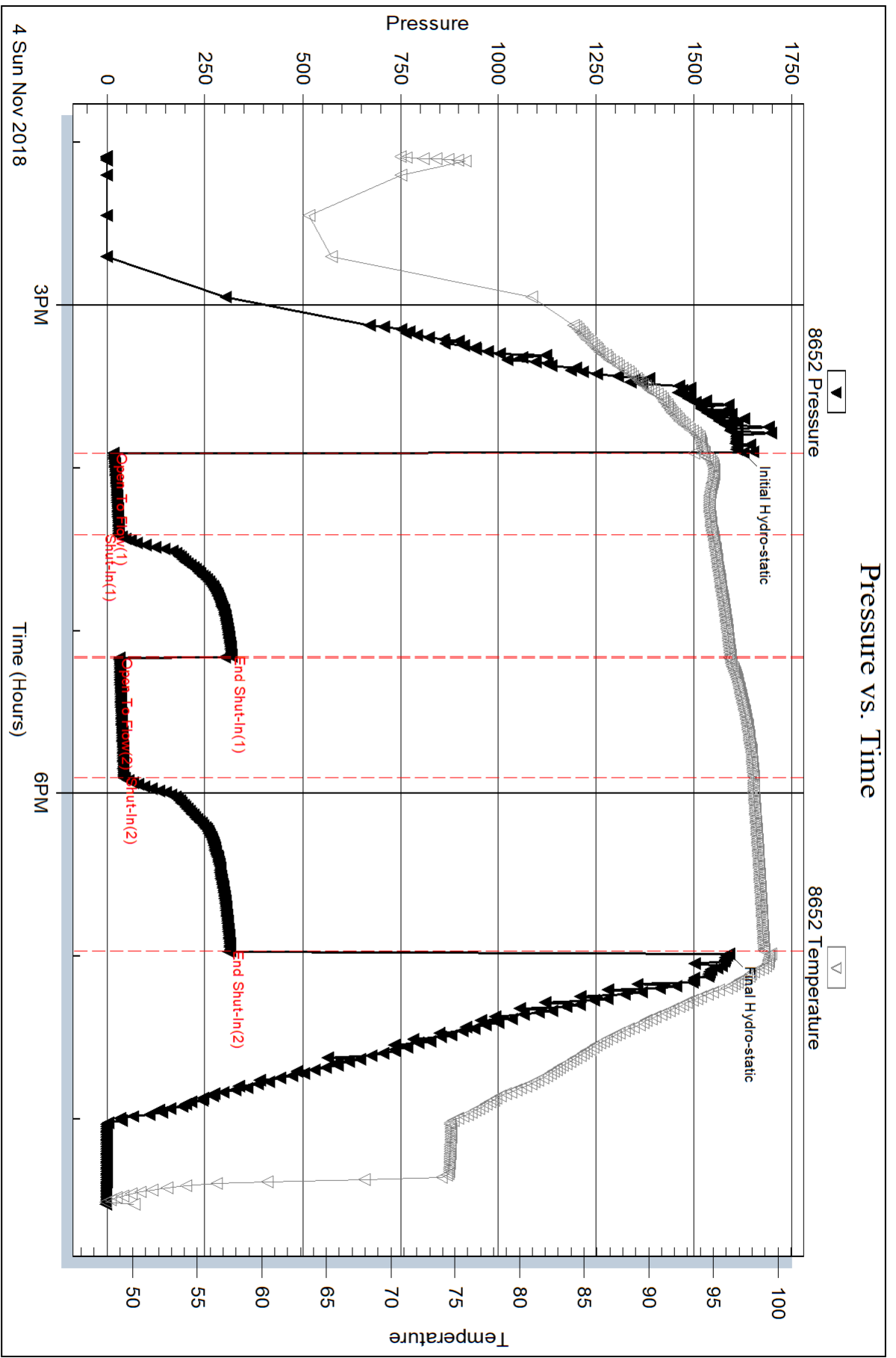
Recovery Comments:

Serial #: 8652

Outside Ritchie Exploration, Inc

White #4

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 64634

Printed: 2018.11.09 @ 10:17:50

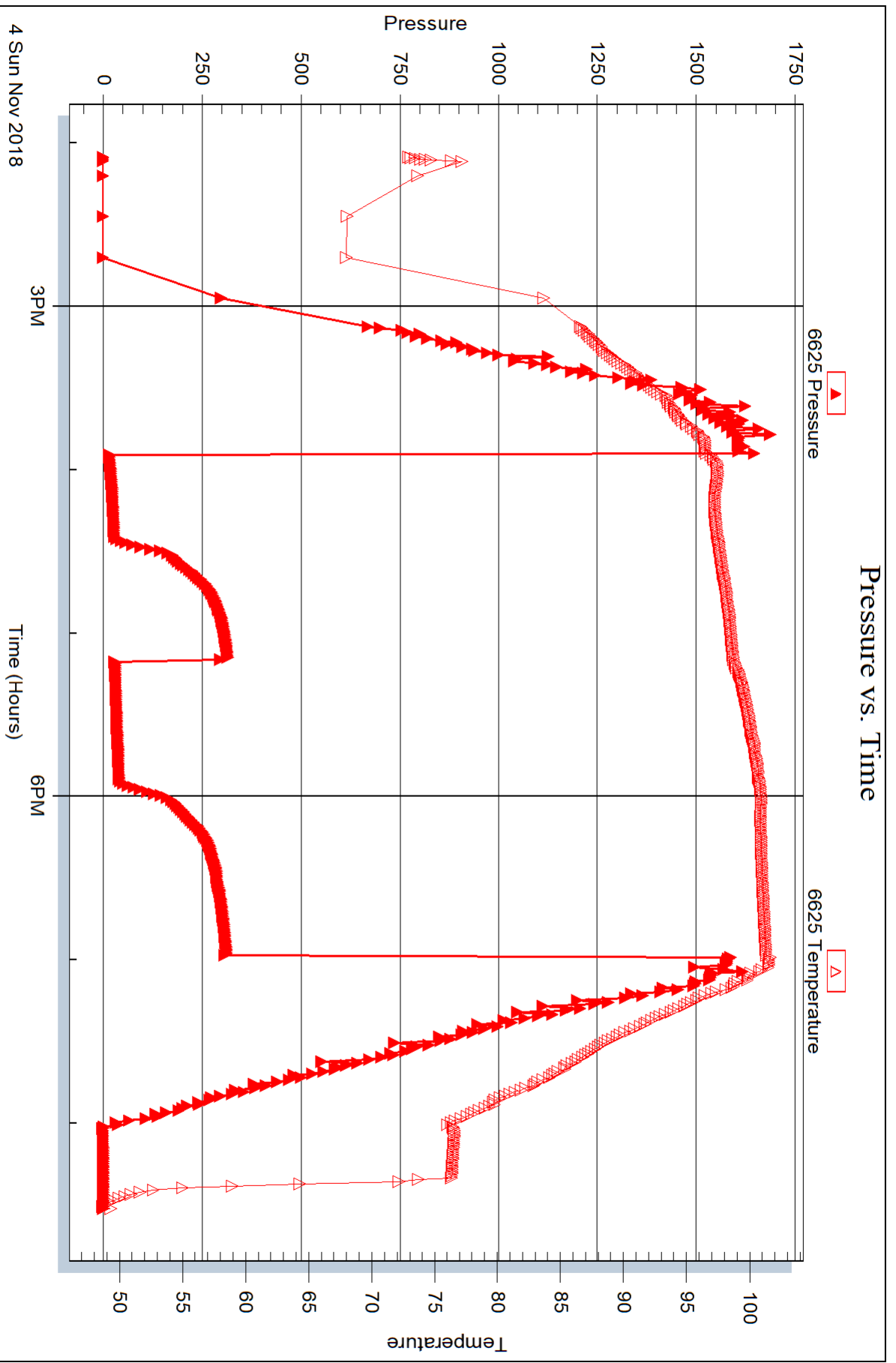
Serial #: 6625

Inside

Ritchie Exploration, Inc

White #4

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 64634

Printed: 2018.11.09 @ 10:17:51



DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration, Inc**

PO Box 783188
Wichita, KS 67278-3188

ATTN: Bob Peterson

White #4

7-6s-21w Graham,KS

Start Date: 2018.11.05 @ 06:50:00

End Date: 2018.11.05 @ 14:00:15

Job Ticket #: 64635 DST #: 2

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

Printed: 2018.11.09 @ 10:17:25

Ritchie Exploration, Inc
7-6s-21w Graham,KS
White #4
DST # 2
Toronto - LKC "A"
2018.11.05



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Ritchie Exploration, Inc
PO Box 783188
Wichita, KS 67278-3188
ATTN: Bob Peterson

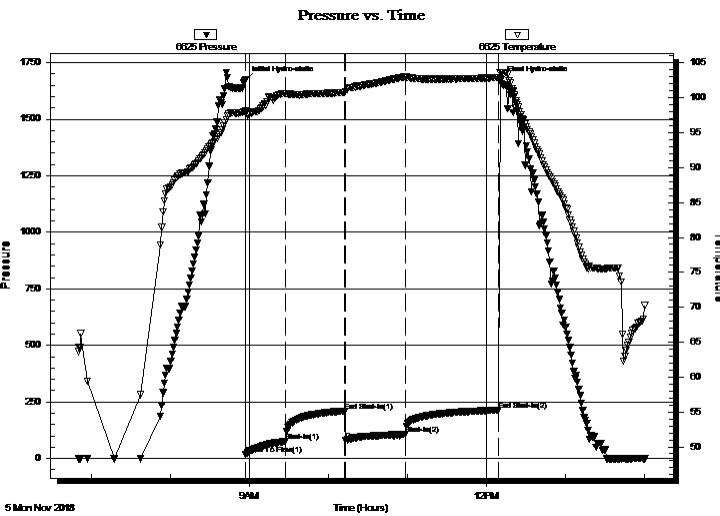
7-6s-21w Graham,KS
White #4
Job Ticket: 64635 **DST#: 2**
Test Start: 2018.11.05 @ 06:50:00

GENERAL INFORMATION:

Formation: **Toronto - LKC "A"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 08:57:15
Time Test Ended: 14:00:15
Interval: **3432.00 ft (KB) To 3490.00 ft (KB) (TVD)**
Total Depth: 3490.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Bottom Hole (Reset)
Tester: James Winder
Unit No: 83
Reference Elevations: 2234.00 ft (KB)
2229.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 6625 Inside
Press@RunDepth: 107.40 psig @ 3433.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2018.11.05 End Date: 2018.11.05 Last Calib.: 2018.11.05
Start Time: 06:50:05 End Time: 14:00:14 Time On Btm: 2018.11.05 @ 08:57:00
Time Off Btm: 2018.11.05 @ 12:10:30

TEST COMMENT: 30 - IF: Blow built to 7"
45 - IS: No blow back
45 - FF: Blow built to 5"
60+ - FSI: No blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1672.41	98.11	Initial Hydro-static
1	18.21	97.97	Open To Flow (1)
31	77.63	100.55	Shut-In(1)
75	209.81	100.76	End Shut-In(1)
76	79.81	100.90	Open To Flow (2)
122	107.40	102.98	Shut-In(2)
193	213.42	102.90	End Shut-In(2)
194	1668.37	103.60	Final Hydro-static

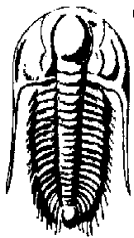
Recovery

Length (ft)	Description	Volume (bbl)
119.00	MW w/trace oil 58%w, 42%m	0.59
59.00	Mud w/Oil spots 98%m, 2%o	0.29
30.00	SOCM 94%m, 6%o	0.42

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration, Inc
 PO Box 783188
 Wichita, KS 67278-3188
 ATTN: Bob Peterson

7-6s-21w Graham, KS
White #4
 Job Ticket: 64635 **DST#: 2**
 Test Start: 2018.11.05 @ 06:50:00

GENERAL INFORMATION:

Formation: **Toronto - LKC "A"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 08:57:15
 Time Test Ended: 14:00:15

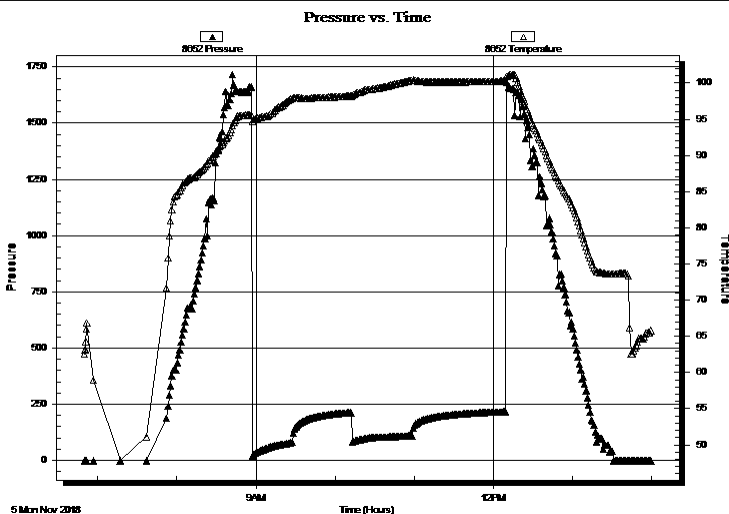
Test Type: Conventional Bottom Hole (Reset)
 Tester: James Winder
 Unit No: 83

Interval: **3432.00 ft (KB) To 3490.00 ft (KB) (TVD)**
 Total Depth: 3490.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2234.00 ft (KB)
 2229.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8652 Outside
 Press@RunDepth: psig @ 3433.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2018.11.05 End Date: 2018.11.05 Last Calib.: 2018.11.05
 Start Time: 06:50:05 End Time: 13:59:44 Time On Btm:
 Time Off Btm:

TEST COMMENT: 30 - IF: Blow built to 7"
 45 - IS: No blow back
 45 - FF: Blow built to 5"
 60+ - FSI: No blow back



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
119.00	MW w/trace oil 58%w, 42%m	0.59
59.00	Mud w/Oil spots 98%m, 2%o	0.29
30.00	SOCM 94%m, 6%o	0.42

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, Inc
 PO Box 783188
 Wichita, KS 67278-3188
 ATTN: Bob Peterson

7-6s-21w Graham,KS
White #4
 Job Ticket: 64635 **DST#: 2**
 Test Start: 2018.11.05 @ 06:50:00

Tool Information

Drill Pipe:	Length: 3256.00 ft	Diameter: 3.80 inches	Volume: 45.67 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 178.00 ft	Diameter: 2.25 inches	Volume: 0.88 bbl	Weight to Pull Loose: 52000.00 lb
			<u>Total Volume: 46.55 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	31.00 ft			String Weight: Initial 50000.00 lb
Depth to Top Packer:	3432.00 ft			Final 51000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	58.00 ft			
Tool Length:	87.00 ft			
Number of Packers:	2	Diameter: 675.00 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			3404.00	
Shut In Tool	5.00			3409.00	
Hydraulic tool	5.00			3414.00	
Jars	5.00			3419.00	
Safety Joint	3.00			3422.00	
Packer	5.00			3427.00	29.00 Bottom Of Top Packer
Packer	5.00			3432.00	
Stubb	1.00			3433.00	
Recorder	0.00	6625	Inside	3433.00	
Recorder	0.00	8652	Outside	3433.00	
Perforations	20.00			3453.00	
Blank Spacing	33.00			3486.00	
Perforations	1.00			3487.00	
Bullnose	3.00			3490.00	58.00 Bottom Packers & Anchor

Total Tool Length: 87.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration, Inc
 PO Box 783188
 Wichita, KS 67278-3188
 ATTN: Bob Peterson

7-6s-21w Graham,KS
White #4
 Job Ticket: 64635 **DST#: 2**
 Test Start: 2018.11.05 @ 06:50:00

Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	44000 ppm
Viscosity: 60.00 sec/qt	Cushion Volume: bbl		
Water Loss: 5.96 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 900.00 ppm			
Filter Cake: 1.00 inches			

Recovery Information

Recovery Table

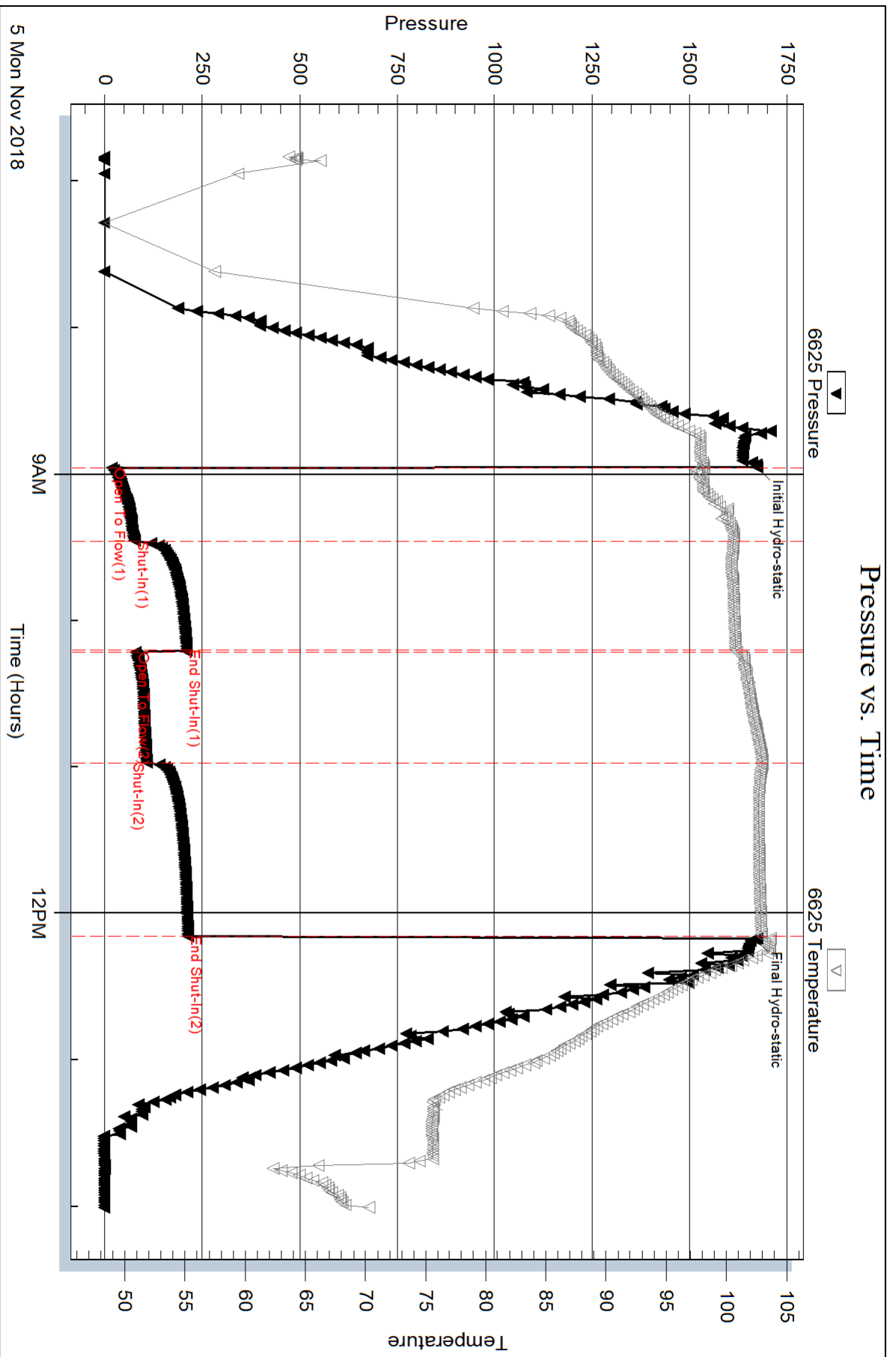
Length ft	Description	Volume bbl
119.00	MW w/trace oil 58%w , 42%m	0.585
59.00	Mud w /Oil spots 98%m, 2%o	0.290
30.00	SOCM 94%m, 6%o	0.421

Total Length: 208.00 ft Total Volume: 1.296 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:

Laboratory Name: Laboratory Location:

Recovery Comments: RW = .190 ohms @ 62.5 deg F Chlorides = 44,000 ppm

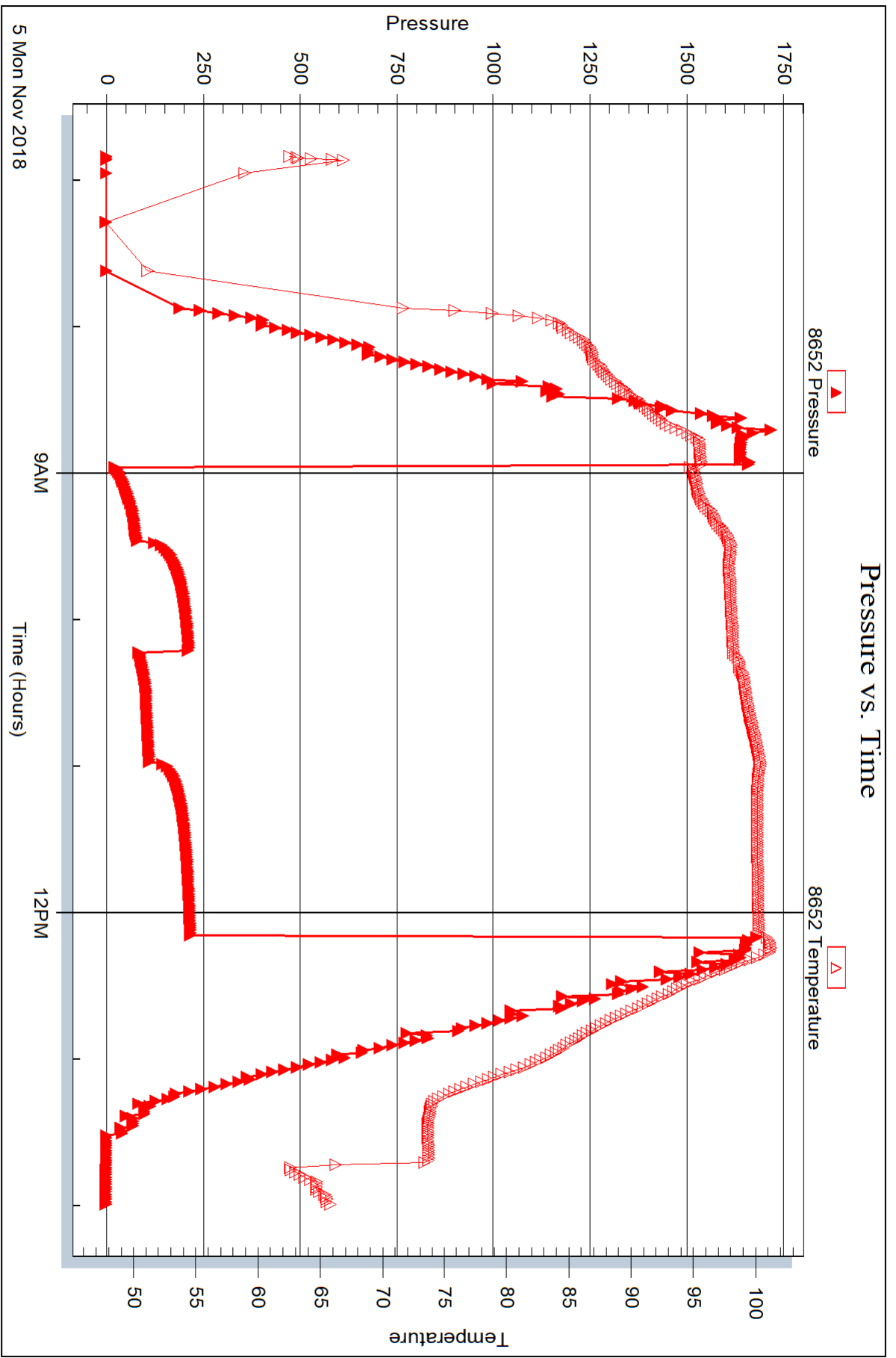


Serial #: 8652

Outside Ritchie Exploration, Inc

White #4

DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 64635

Printed: 2018.11.09 @ 10:17:26



DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration, Inc**

PO Box 783188
Wichita, KS 67278-3188

ATTN: Bob Peterson

White #4

7-6s-21w Graham,KS

Start Date: 2018.11.05 @ 20:22:00

End Date: 2018.11.06 @ 03:27:30

Job Ticket #: 64636 DST #: 3

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

Printed: 2018.11.09 @ 10:16:58



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration, Inc
 PO Box 783188
 Wichita, KS 67278-3188
 ATTN: Bob Peterson

7-6s-21w Graham,KS
White #4
 Job Ticket: 64636 **DST#: 3**
 Test Start: 2018.11.05 @ 20:22:00

GENERAL INFORMATION:

Formation: **LKC "C"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 22:29:30
 Time Test Ended: 03:27:30
 Interval: **3494.00 ft (KB) To 3516.00 ft (KB) (TVD)**
 Total Depth: 3516.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: James Winder
 Unit No: 83
 Reference Elevations: 2234.00 ft (KB)
 2229.00 ft (CF)
 KB to GR/CF: 5.00 ft

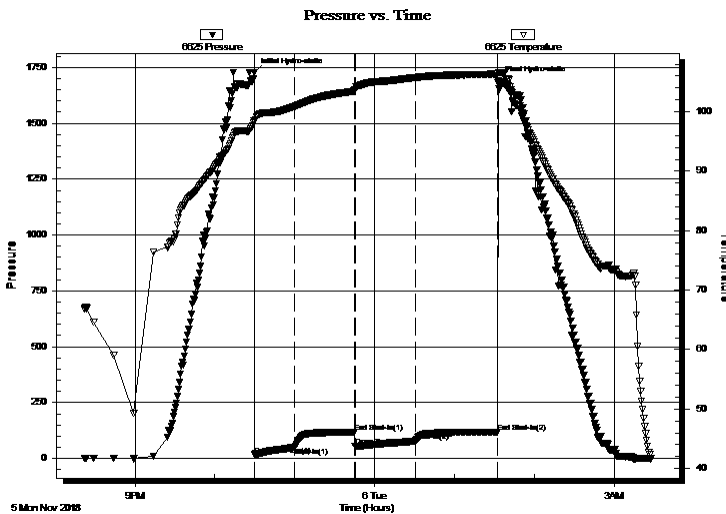
Serial #: 6625

Inside

Press@RunDepth: 77.26 psig @ 3495.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2018.11.05 End Date: 2018.11.06 Last Calib.: 2018.11.06
 Start Time: 20:22:05 End Time: 03:27:29 Time On Btm: 2018.11.05 @ 22:29:15
 Time Off Btm: 2018.11.06 @ 01:33:00

TEST COMMENT: 30 - IF: Blow built to 8 3/4"
 45 - IS: No blow back
 45 - FF: Blow built to 3 1/4"
 60 - FS: No blow back

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1727.40	98.50	Initial Hydro-static
1	16.43	98.34	Open To Flow (1)
31	49.91	100.89	Shut-In(1)
76	118.38	103.46	End Shut-In(1)
76	53.05	103.73	Open To Flow (2)
121	77.26	105.73	Shut-In(2)
183	118.26	106.32	End Shut-In(2)
184	1688.70	106.59	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
59.00	MCW w/Oil spots 65%w , 33%m, 2%o	0.29
59.00	SOWCM 85%m, 10%w , 5%o	0.29
5.00	OCM 73%m, 25%o, 2%g	0.02
2.00	Oil 97%o, 3%m	0.01
0.00	GIP = 50'+	0.00

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Ritchie Exploration, Inc
 PO Box 783188
 Wichita, KS 67278-3188
 ATTN: Bob Peterson

7-6s-21w Graham,KS
White #4
 Job Ticket: 64636 **DST#: 3**
 Test Start: 2018.11.05 @ 20:22:00

Tool Information

Drill Pipe:	Length: 3319.00 ft	Diameter: 3.80 inches	Volume: 46.56 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 178.00 ft	Diameter: 2.25 inches	Volume: 0.88 bbl	Weight to Pull Loose: 62000.00 lb
			<u>Total Volume: 47.44 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	32.00 ft			String Weight: Initial 50000.00 lb
Depth to Top Packer:	3494.00 ft			Final 51000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	22.00 ft			
Tool Length:	51.00 ft			
Number of Packers:	2	Diameter: 675.00 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			3466.00	
Shut In Tool	5.00			3471.00	
Hydraulic tool	5.00			3476.00	
Jars	5.00			3481.00	
Safety Joint	3.00			3484.00	
Packer	5.00			3489.00	29.00 Bottom Of Top Packer
Packer	5.00			3494.00	
Stubb	1.00			3495.00	
Recorder	0.00	6625	Inside	3495.00	
Recorder	0.00	8652	Outside	3495.00	
Perforations	18.00			3513.00	
Bullnose	3.00			3516.00	22.00 Bottom Packers & Anchor

Total Tool Length: 51.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration, Inc
 PO Box 783188
 Wichita, KS 67278-3188
 ATTN: Bob Peterson

7-6s-21w Graham,KS
White #4
 Job Ticket: 64636 **DST#: 3**
 Test Start: 2018.11.05 @ 20:22:00

Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API: 38.4 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: 52000 ppm
Viscosity: 60.00 sec/qt	Cushion Volume: bbl	
Water Loss: 5.96 in ³	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 900.00 ppm		
Filter Cake: 1.00 inches		

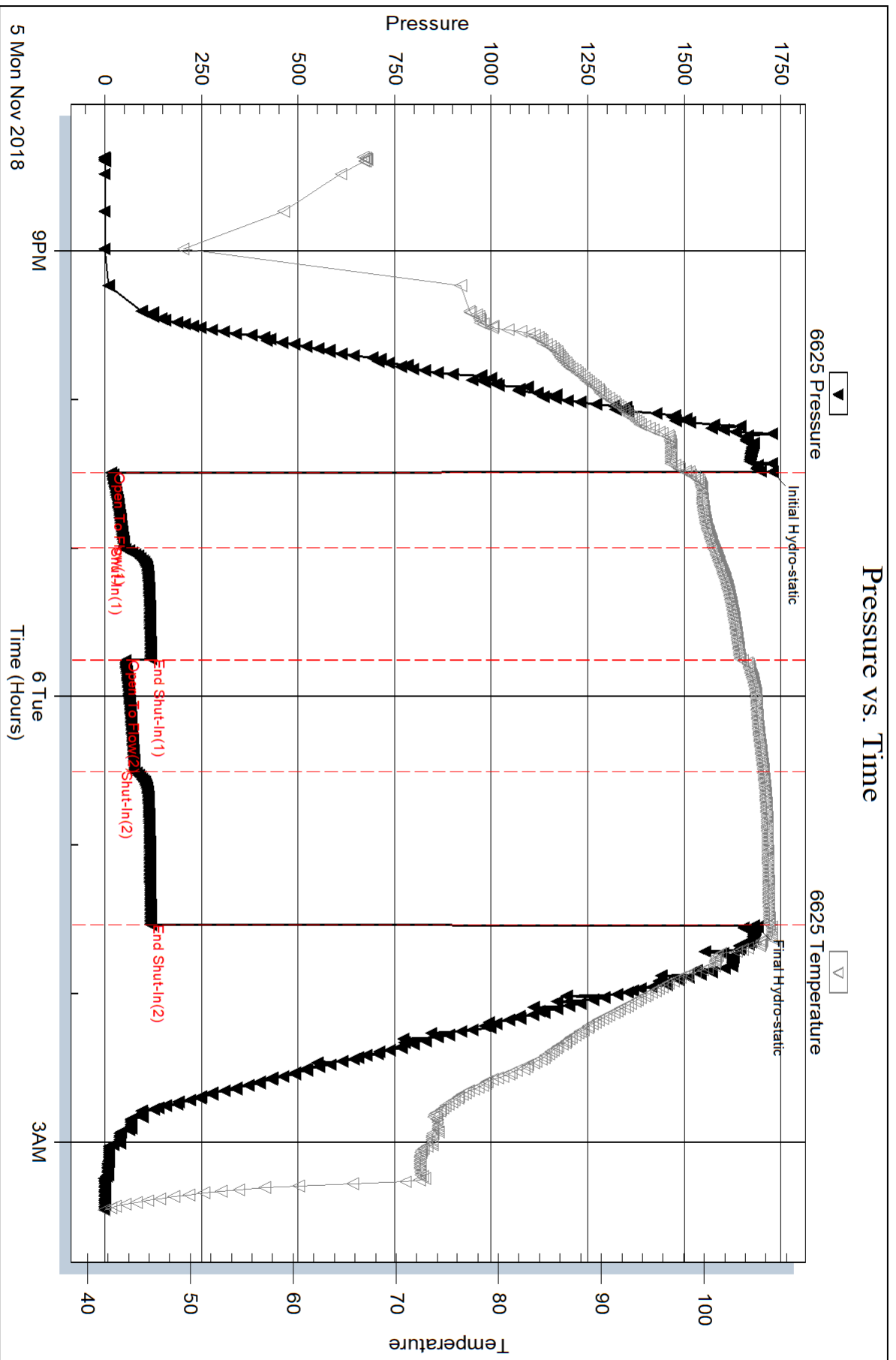
Recovery Information

Recovery Table

Length ft	Description	Volume bbl
59.00	MCW w/Oil spots 65%w , 33%m, 2%o	0.290
59.00	SOWCM 85%m, 10%w , 5%o	0.290
5.00	OCM 73%m, 25%o, 2%g	0.025
2.00	Oil 97%o, 3%m	0.010
0.00	GIP = 50'+	0.000

Total Length: 125.00 ft Total Volume: 0.615 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments: Gravity = 36.2 api @ 38 deg F Corrected Gravity = 38.4 api
 RW = .297 ohms @ 33.9 deg F Chlorides = 52,000 ppm

Pressure vs. Time

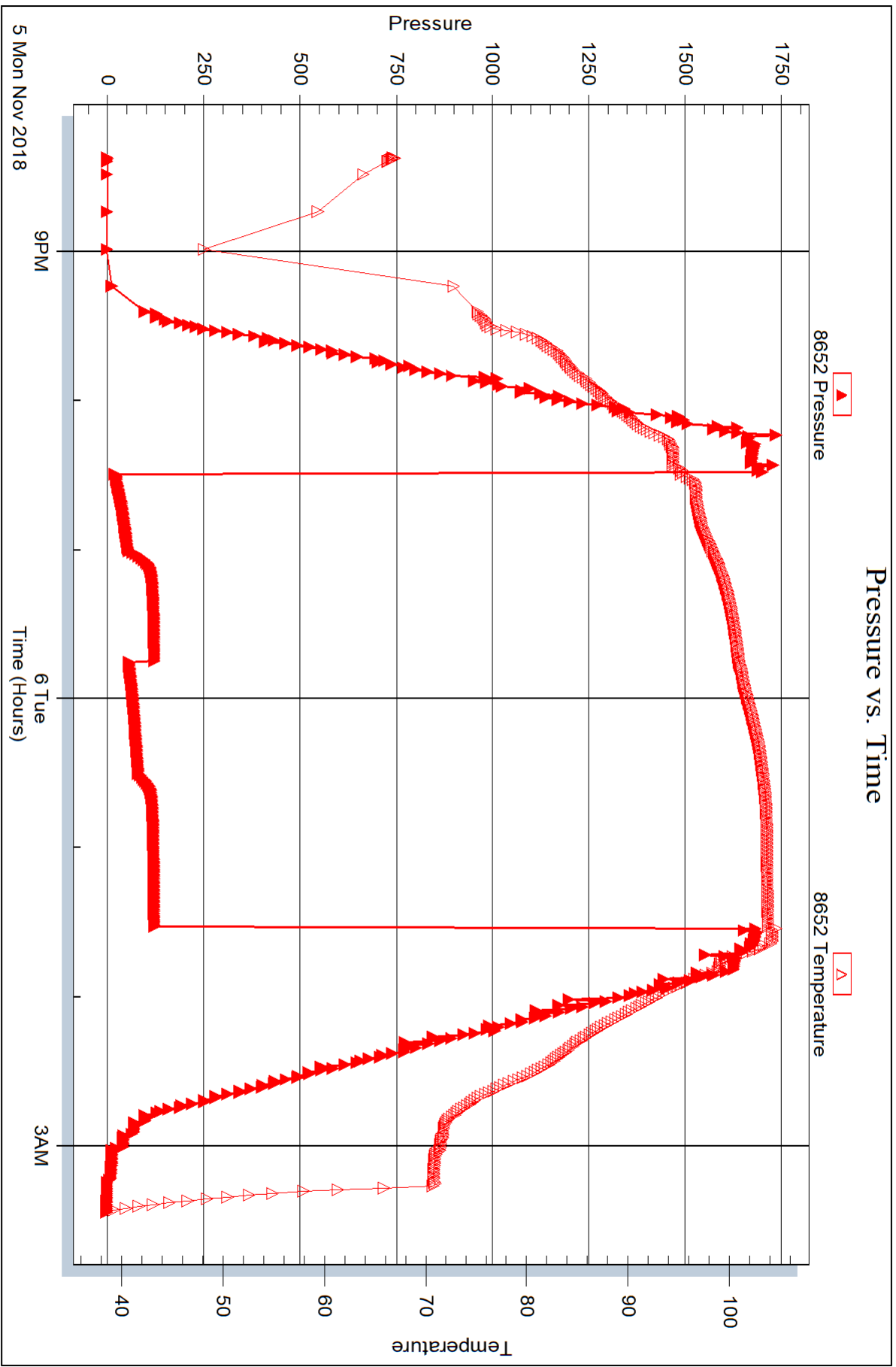


Serial #: 8652

Outside Ritchie Exploration, Inc

White #4

DST Test Number: 3



Trilobite Testing, Inc

Ref. No: 64636

Printed: 2018.11.09 @ 10:16:59



DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration, Inc**

PO Box 783188
Wichita, KS 67278-3188

ATTN: Bob Peterson

White #4

7-6s-21w Graham,KS

Start Date: 2018.11.06 @ 12:30:00

End Date: 2018.11.06 @ 20:04:00

Job Ticket #: 64637 DST #: 4

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

Printed: 2018.11.09 @ 10:16:33

Ritchie Exploration, Inc
7-6s-21w Graham,KS
White #4
DST # 4
LKC "D - F"
2018.11.06



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration, Inc
 PO Box 783188
 Wichita, KS 67278-3188
 ATTN: Bob Peterson

7-6s-21w Graham,KS
White #4
 Job Ticket: 64637 **DST#: 4**
 Test Start: 2018.11.06 @ 12:30:00

GENERAL INFORMATION:

Formation: **LKC "D - F"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 15:17:30
 Time Test Ended: 20:04:00
 Interval: **3512.00 ft (KB) To 3555.00 ft (KB) (TVD)**
 Total Depth: 3555.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: James Winder
 Unit No: 83
 Reference Elevations: 2234.00 ft (KB)
 2229.00 ft (CF)
 KB to GR/CF: 5.00 ft

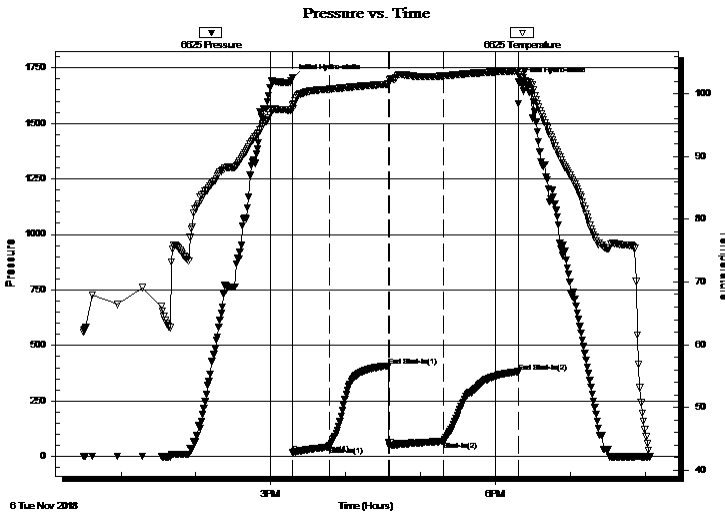
Serial #: 6625

Inside

Press@RunDepth: 68.90 psig @ 3513.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2018.11.06 End Date: 2018.11.06 Last Calib.: 2018.11.06
 Start Time: 12:30:05 End Time: 20:03:59 Time On Btm: 2018.11.06 @ 15:17:15
 Time Off Btm: 2018.11.06 @ 18:18:30

TEST COMMENT: 30 - IF: Blow built to 8"
 45 - IS: No blow back
 45 - FF: Blow built to 4"
 60 - FS: No blow back

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1703.60	98.23	Initial Hydro-static
1	16.28	97.64	Open To Flow (1)
30	43.62	100.70	Shut-In(1)
77	408.43	101.52	End Shut-In(1)
78	47.14	102.16	Open To Flow (2)
121	68.90	102.83	Shut-In(2)
181	381.49	103.66	End Shut-In(2)
182	1687.41	103.07	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
59.00	SO/WCM 65% _m , 26% _w , 5% _o , 4% _g	0.29
59.00	OCM 68% _m , 30% _o , 2% _g	0.29
0.00	GIP = 60'	0.00

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration, Inc
 PO Box 783188
 Wichita, KS 67278-3188
 ATTN: Bob Peterson

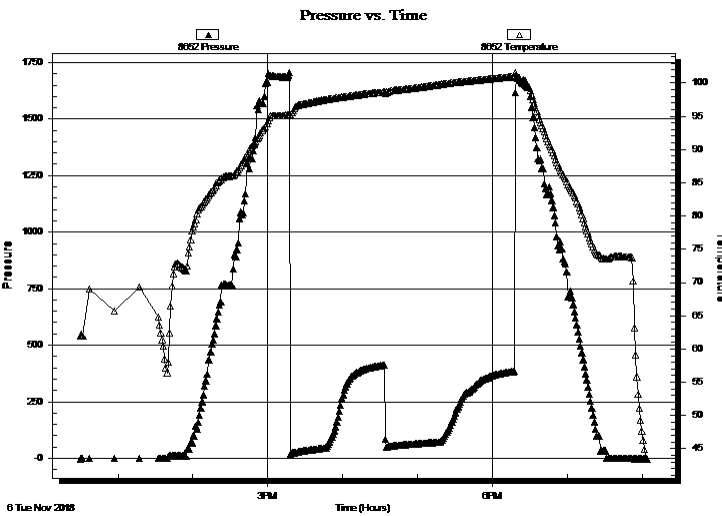
7-6s-21w Graham,KS
White #4
 Job Ticket: 64637 **DST#: 4**
 Test Start: 2018.11.06 @ 12:30:00

GENERAL INFORMATION:

Formation: **LKC "D - F"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 15:17:30
 Time Test Ended: 20:04:00
 Interval: **3512.00 ft (KB) To 3555.00 ft (KB) (TVD)**
 Total Depth: **3555.00 ft (KB) (TVD)**
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: James Winder
 Unit No: 83
 Reference Elevations: 2234.00 ft (KB)
 2229.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8652 Outside
 Press@RunDepth: psig @ 3513.00 ft (KB)
 Start Date: 2018.11.06 End Date: 2018.11.06 Capacity: 8000.00 psig
 Start Time: 12:30:05 End Time: 20:03:29 Last Calib.: 1899.12.30
 Time On Btm:
 Time Off Btm:

TEST COMMENT: 30 - IF: Blow built to 8"
 45 - IS: No blow back
 45 - FF: Blow built to 4"
 60 - FS: No blow back



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
59.00	SO/WCM 65% _m , 26% _w , 5% _o , 4% _g	0.29
59.00	OCM 68% _m , 30% _o , 2% _g	0.29
0.00	GIP = 60'	0.00

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Ritchie Exploration, Inc
 PO Box 783188
 Wichita, KS 67278-3188
 ATTN: Bob Peterson

7-6s-21w Graham,KS
White #4
 Job Ticket: 64637 **DST#: 4**
 Test Start: 2018.11.06 @ 12:30:00

Tool Information

Drill Pipe:	Length: 3320.00 ft	Diameter: 3.80 inches	Volume: 46.57 bbl	Tool Weight:	2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer:	20000.00 lb
Drill Collar:	Length: 178.00 ft	Diameter: 2.25 inches	Volume: 0.88 bbl	Weight to Pull Loose:	50000.00 lb
			<u>Total Volume: 47.45 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial	50000.00 lb
Depth to Top Packer:	3512.00 ft			Final	50000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	43.00 ft				
Tool Length:	72.00 ft				
Number of Packers:	2	Diameter: 675.00 inches			

Tool Comments:

Tool Description

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

Change Over Sub	1.00			3484.00	
Shut In Tool	5.00			3489.00	
Hydraulic tool	5.00			3494.00	
Jars	5.00			3499.00	
Safety Joint	3.00			3502.00	
Packer	5.00			3507.00	29.00 Bottom Of Top Packer
Packer	5.00			3512.00	
Stubb	1.00			3513.00	
Recorder	0.00	6625	Inside	3513.00	
Recorder	0.00	8652	Outside	3513.00	
Perforations	5.00			3518.00	
Blank Spacing	34.00			3552.00	
Bullnose	3.00			3555.00	43.00 Bottom Packers & Anchor

Total Tool Length: 72.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration, Inc
 PO Box 783188
 Wichita, KS 67278-3188
 ATTN: Bob Peterson

7-6s-21w Graham,KS
White #4
 Job Ticket: 64637 **DST#: 4**
 Test Start: 2018.11.06 @ 12:30:00

Mud and Cushion Information

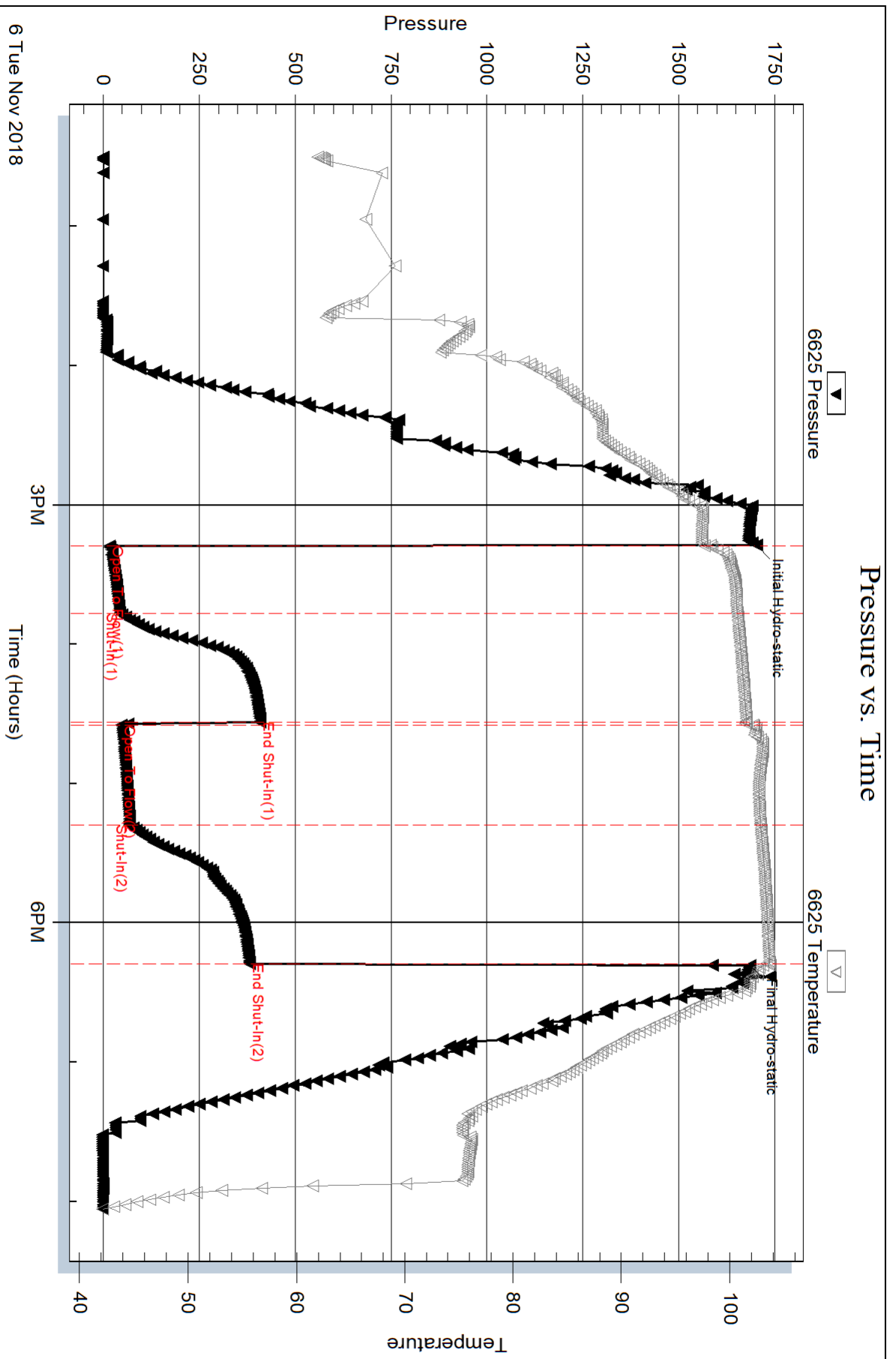
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	30000 ppm
Viscosity: 58.00 sec/qt	Cushion Volume: bbl		
Water Loss: 6.38 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 1000.00 ppm			
Filter Cake: 1.00 inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
59.00	SO/WCM 65%m, 26%w , 5%o, 4%g	0.290
59.00	OCM 68%m, 30%o, 2%g	0.290
0.00	GIP = 60'	0.000

Total Length: 118.00 ft Total Volume: 0.580 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments: RW = .411 ohms @ 39.5 deg F Chlorides = 30,000 ppm

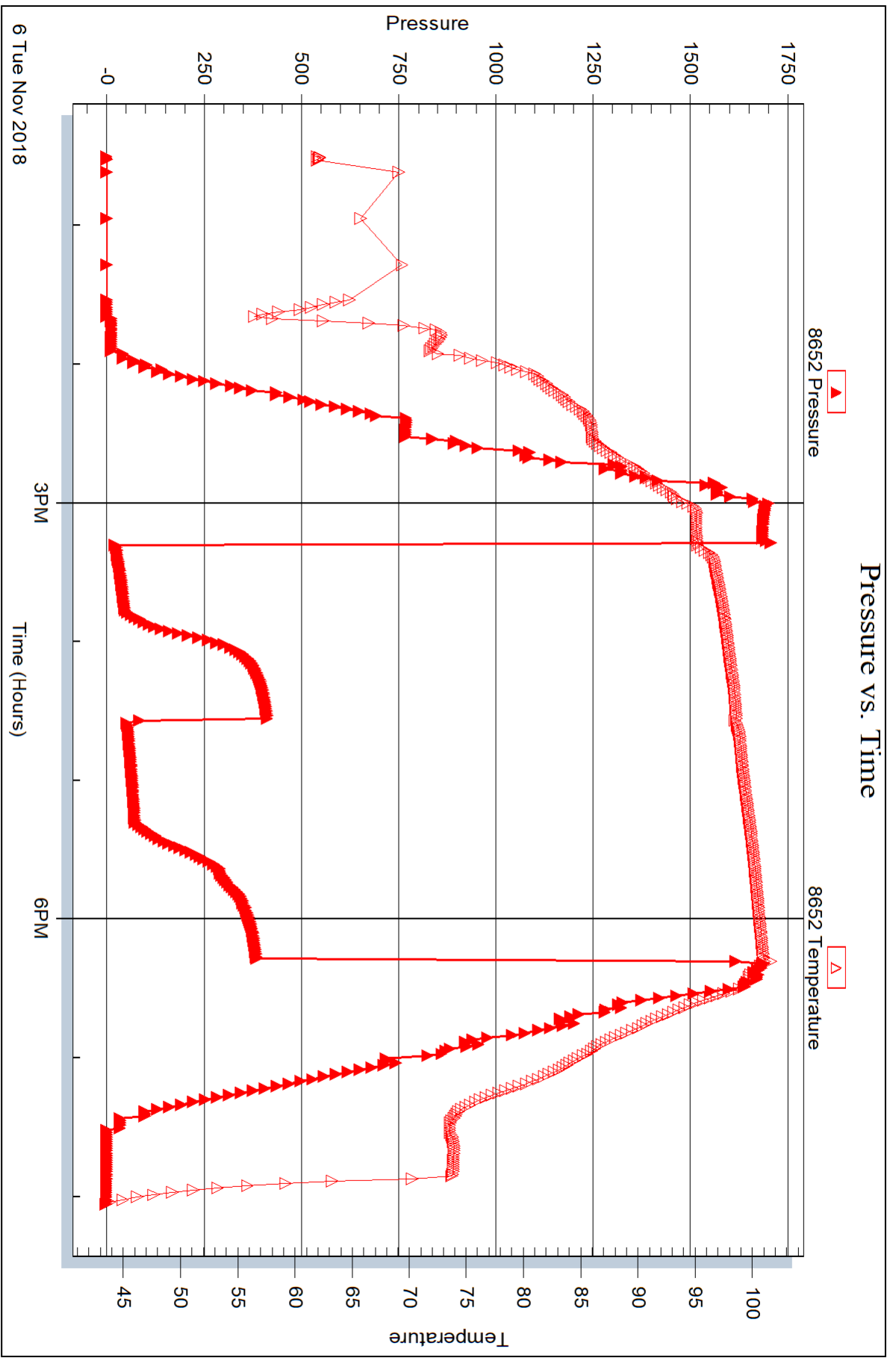


Serial #: 8652

Outside Ritchie Exploration, Inc

White #4

DST Test Number: 4



Trilobite Testing, Inc

Ref. No: 64637

Printed: 2018.11.09 @ 10:16:34



DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration, Inc**

PO Box 783188
Wichita, KS 67278-3188

ATTN: Bob Peterson

White #4

7-6s-21w Graham,KS

Start Date: 2018.11.07 @ 08:25:00

End Date: 2018.11.07 @ 14:47:15

Job Ticket #: 64638 DST #: 5

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

Printed: 2018.11.09 @ 10:15:46



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Ritchie Exploration, Inc
 PO Box 783188
 Wichita, KS 67278-3188
 ATTN: Bob Peterson

7-6s-21w Graham,KS
White #4
 Job Ticket: 64638 **DST#: 5**
 Test Start: 2018.11.07 @ 08:25:00

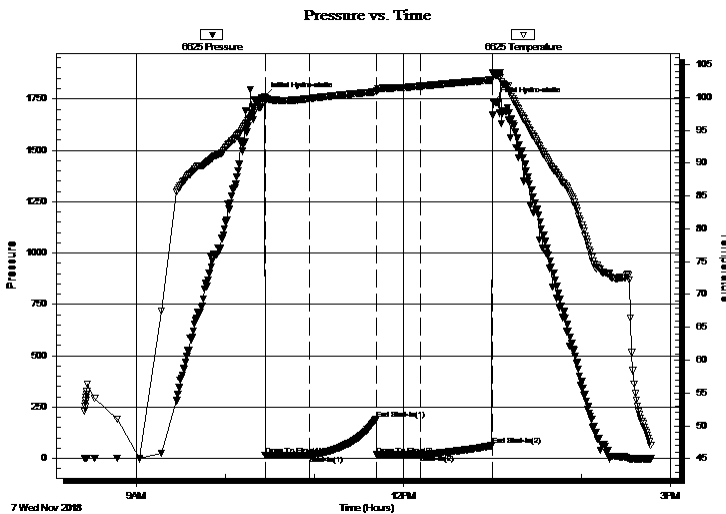
GENERAL INFORMATION:

Formation: **LKC "H - J"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 10:26:45
 Time Test Ended: 14:47:15
 Interval: **3582.00 ft (KB) To 3640.00 ft (KB) (TVD)**
 Total Depth: 3640.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: James Winder
 Unit No: 83
 Reference Elevations: 2234.00 ft (KB)
 2229.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 6625 Inside
 Press@RunDepth: 19.04 psig @ 3583.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2018.11.07 End Date: 2018.11.07 Last Calib.: 2018.11.07
 Start Time: 08:25:05 End Time: 14:47:14 Time On Btm: 2018.11.07 @ 10:26:30
 Time Off Btm: 2018.11.07 @ 13:00:30

TEST COMMENT: 30 - IF: 1/4" Blow at open, built to 1 1/4"
 45 - IS: No blow back
 30 - FF: No blow
 45 - FS: No blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1760.47	100.11	Initial Hydro-static
1	14.12	99.88	Open To Flow (1)
31	15.83	99.82	Shut-In(1)
75	191.37	100.86	End Shut-In(1)
76	17.64	100.88	Open To Flow (2)
106	19.04	101.72	Shut-In(2)
154	62.77	102.65	End Shut-In(2)
154	1738.19	103.80	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
2.00	SOCM 96% m, 4% o	0.01

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Ritchie Exploration, Inc
 PO Box 783188
 Wichita, KS 67278-3188
 ATTN: Bob Peterson

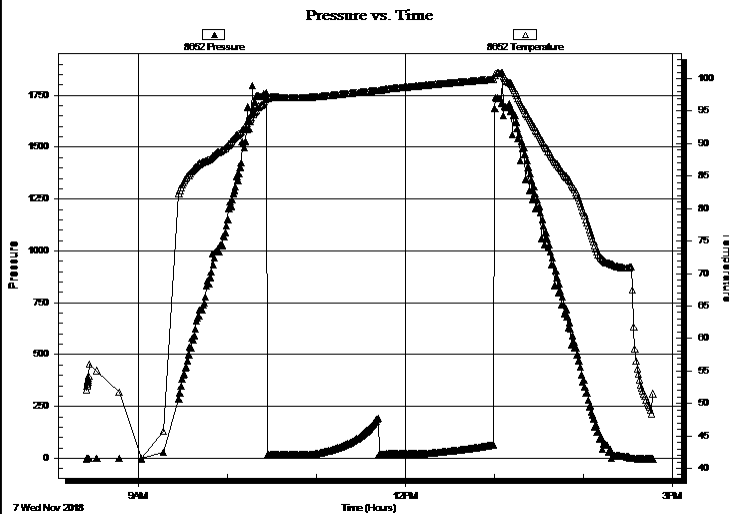
7-6s-21w Graham,KS
White #4
 Job Ticket: 64638 **DST#: 5**
 Test Start: 2018.11.07 @ 08:25:00

GENERAL INFORMATION:

Formation: **LKC "H - J"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 10:26:45
 Time Test Ended: 14:47:15
 Test Type: Conventional Bottom Hole (Reset)
 Tester: James Winder
 Unit No: 83
 Interval: **3582.00 ft (KB) To 3640.00 ft (KB) (TVD)**
 Total Depth: 3640.00 ft (KB) (TVD)
 Reference Elevations: 2234.00 ft (KB)
 2229.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 KB to GR/CF: 5.00 ft

Serial #: 8652 Outside
 Press@RunDepth: psig @ 3583.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2018.11.07 End Date: 2018.11.07 Last Calib.: 2018.11.07
 Start Time: 08:25:05 End Time: 14:46:44 Time On Btm:
 Time Off Btm:

TEST COMMENT: 30 - IF: 1/4" Blow at open, built to 1 1/4"
 45 - IS: No blow back
 30 - FF: No blow
 45 - FS: No blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
2.00	SOCM 96% m, 4% o	0.01

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Ritchie Exploration, Inc
 PO Box 783188
 Wichita, KS 67278-3188
 ATTN: Bob Peterson

7-6s-21w Graham,KS
White #4
 Job Ticket: 64638 **DST#: 5**
 Test Start: 2018.11.07 @ 08:25:00

Tool Information

Drill Pipe:	Length: 3382.00 ft	Diameter: 3.80 inches	Volume: 47.44 bbl	Tool Weight:	2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer:	20000.00 lb
Drill Collar:	Length: 178.00 ft	Diameter: 2.25 inches	Volume: 0.88 bbl	Weight to Pull Loose:	60000.00 lb
			<u>Total Volume: 48.32 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	7.00 ft			String Weight: Initial	50000.00 lb
Depth to Top Packer:	3582.00 ft			Final	50000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	58.00 ft				
Tool Length:	87.00 ft				
Number of Packers:	2	Diameter: 675.00 inches			

Tool Comments:

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

Change Over Sub	1.00			3554.00	
Shut In Tool	5.00			3559.00	
Hydraulic tool	5.00			3564.00	
Jars	5.00			3569.00	
Safety Joint	3.00			3572.00	
Packer	5.00			3577.00	29.00 Bottom Of Top Packer
Packer	5.00			3582.00	
Stubb	1.00			3583.00	
Recorder	0.00	6625	Inside	3583.00	
Recorder	0.00	8652	Outside	3583.00	
Perforations	18.00			3601.00	
Blank Spacing	33.00			3634.00	
Perforations	3.00			3637.00	
Bullnose	3.00			3640.00	58.00 Bottom Packers & Anchor

Total Tool Length: 87.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration, Inc
PO Box 783188
Wichita, KS 67278-3188
ATTN: Bob Peterson

7-6s-21w Graham,KS
White #4
Job Ticket: 64638 **DST#: 5**
Test Start: 2018.11.07 @ 08:25:00

Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 55.00 sec/qt	Cushion Volume: bbl		
Water Loss: 6.38 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 1100.00 ppm			
Filter Cake: 1.00 inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
2.00	SOCM 96% m, 4% o	0.010

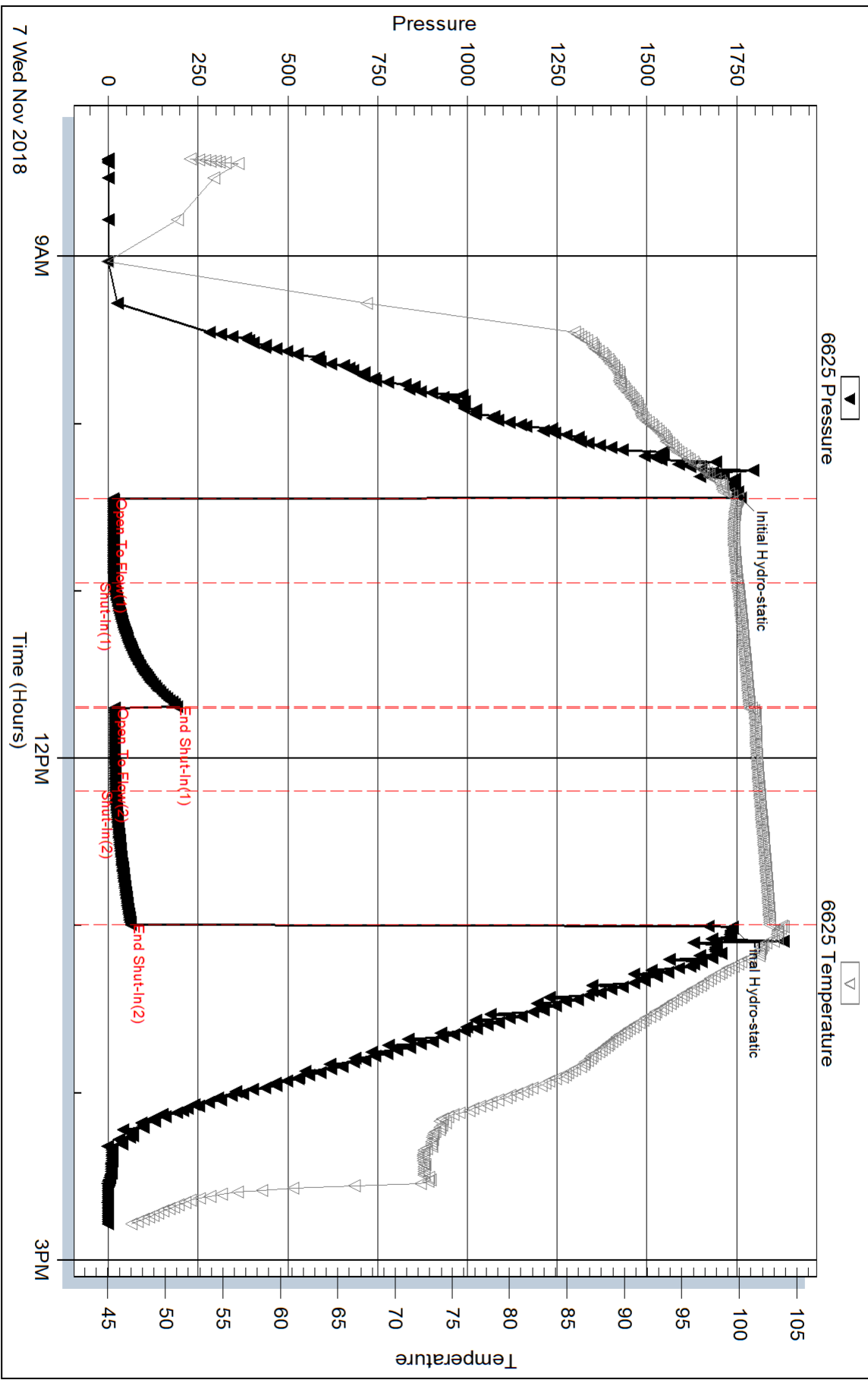
Total Length: 2.00 ft Total Volume: 0.010 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:

Laboratory Name: Laboratory Location:

Recovery Comments:

Pressure vs. Time

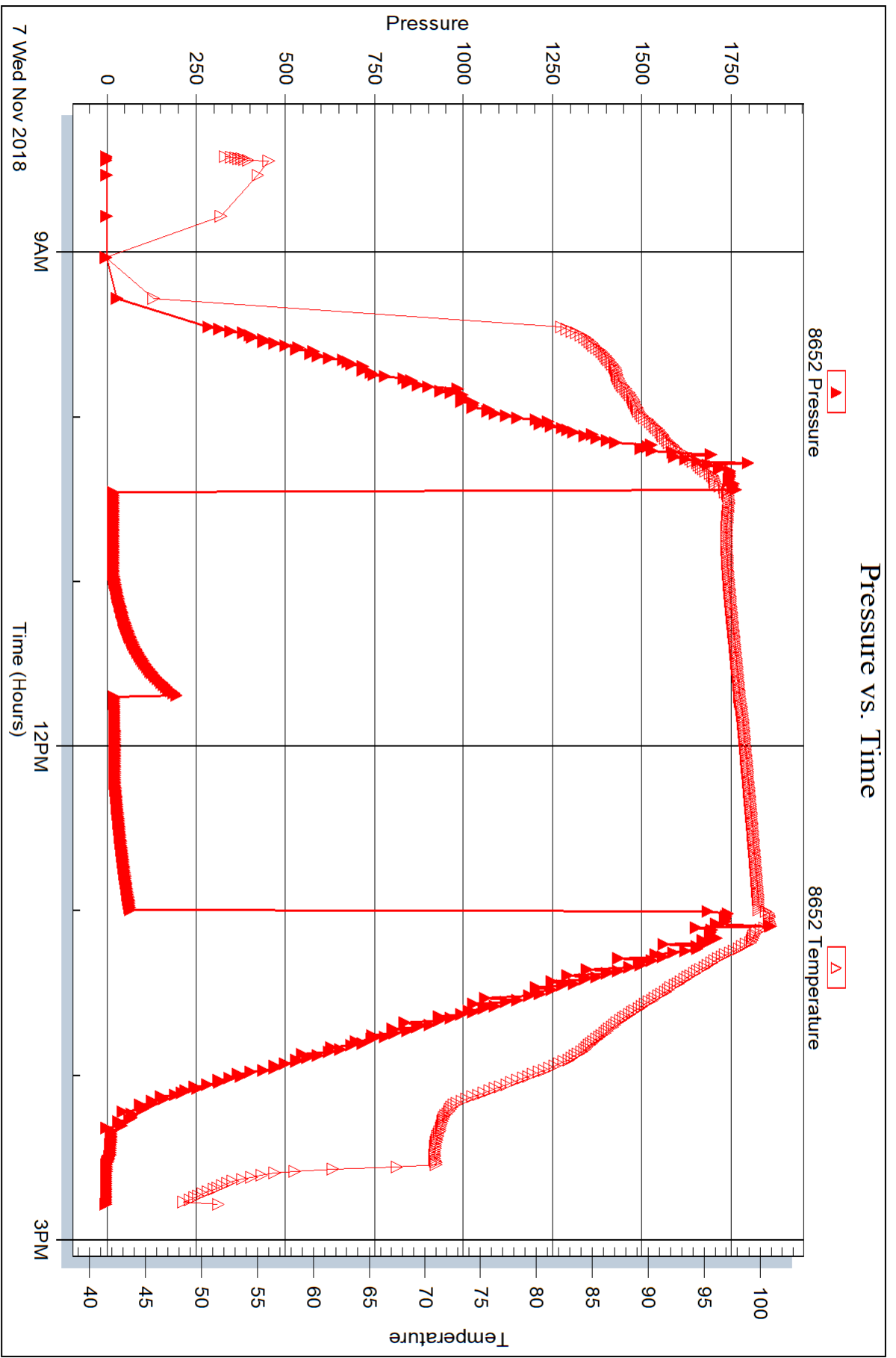


Serial #: 8652

Outside Ritchie Exploration, Inc

White #4

DST Test Number: 5





DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration, Inc**

PO Box 783188
Wichita, KS 67278-3188

ATTN: Bob Peterson

White #4

7-6s-21w Graham,KS

Start Date: 2018.11.07 @ 22:40:00

End Date: 2018.11.08 @ 05:26:45

Job Ticket #: 64639 DST #: 6

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

Printed: 2018.11.09 @ 09:24:20



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration, Inc
 PO Box 783188
 Wichita, KS 67278-3188
 ATTN: Bob Peterson

7-6s-21w Graham,KS
White #4
 Job Ticket: 64639 **DST#: 6**
 Test Start: 2018.11.07 @ 22:40:00

GENERAL INFORMATION:

Formation: **LKC "K - L"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 00:29:00
 Time Test Ended: 05:26:45
 Interval: **3636.00 ft (KB) To 3666.00 ft (KB) (TVD)**
 Total Depth: 3666.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: James Winder
 Unit No: 83
 Reference Elevations: 2234.00 ft (KB)
 2229.00 ft (CF)
 KB to GR/CF: 5.00 ft

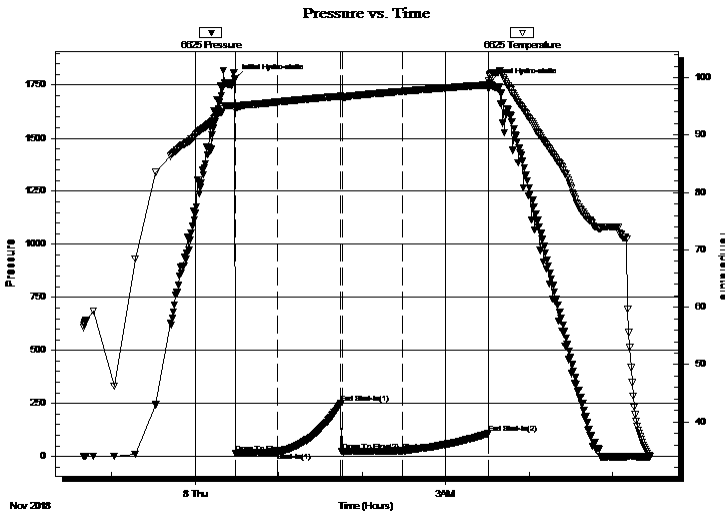
Serial #: 6625

Inside

Press@RunDepth: 26.55 psig @ 3637.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2018.11.07 End Date: 2018.11.08 Last Calib.: 2018.11.08
 Start Time: 22:40:05 End Time: 05:26:44 Time On Btm: 2018.11.08 @ 00:28:45
 Time Off Btm: 2018.11.08 @ 03:31:30

TEST COMMENT: 30 - IF: Blow built to 2"
 45 - IS: Weak surface blow back
 45 - FF: Blow built to 1"
 60 - FS: No blow back

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1779.63	95.16	Initial Hydro-static
1	15.63	94.73	Open To Flow (1)
31	21.56	95.75	Shut-In(1)
76	251.35	96.77	End Shut-In(1)
77	23.37	96.54	Open To Flow (2)
121	26.55	97.62	Shut-In(2)
182	108.72	98.76	End Shut-In(2)
183	1762.75	100.37	Final Hydro-static

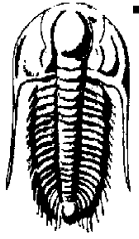
Recovery

Length (ft)	Description	Volume (bbl)
10.00	SGOCM 86%m, 12%o, 2%g	0.05
10.00	SGMCO 88%o, 10%m, 2%g	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, Inc
 PO Box 783188
 Wichita, KS 67278-3188
 ATTN: Bob Peterson

7-6s-21w Graham, KS
White #4
 Job Ticket: 64639 **DST#: 6**
 Test Start: 2018.11.07 @ 22:40:00

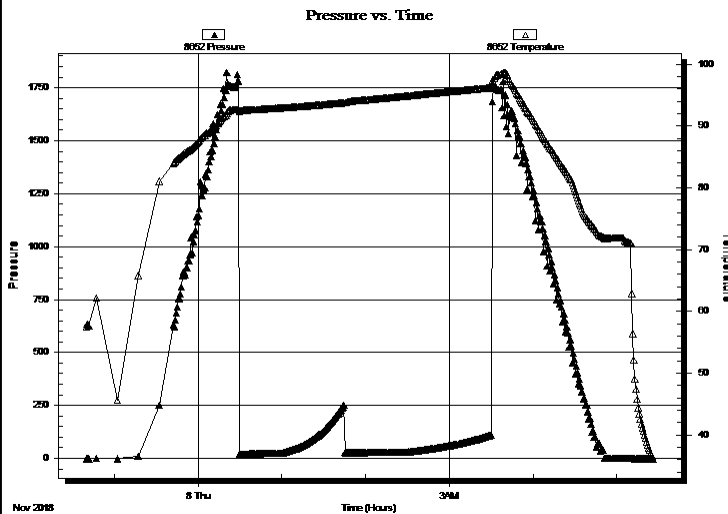
GENERAL INFORMATION:

Formation: **LKC "K - L"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 00:29:00
 Time Test Ended: 05:26:45
 Interval: **3636.00 ft (KB) To 3666.00 ft (KB) (TVD)**
 Total Depth: 3666.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: James Winder
 Unit No: 83
 Reference Elevations: 2234.00 ft (KB)
 2229.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8652 Outside

Press@RunDepth: psig @ 3637.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2018.11.07 End Date: 2018.11.08 Last Calib.: 2018.11.08
 Start Time: 22:40:05 End Time: 05:26:14 Time On Btm:
 Time Off Btm:

TEST COMMENT: 30 - IF: Blow built to 2"
 45 - IS: Weak surface blow back
 45 - FF: Blow built to 1"
 60 - FS: No blow back



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
10.00	SGOCM 86% <i>m</i> , 12% <i>o</i> , 2% <i>g</i>	0.05
10.00	SGMCO 88% <i>o</i> , 10% <i>m</i> , 2% <i>g</i>	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, Inc
 PO Box 783188
 Wichita, KS 67278-3188
 ATTN: Bob Peterson

7-6s-21w Graham,KS
White #4
 Job Ticket: 64639 **DST#: 6**
 Test Start: 2018.11.07 @ 22:40:00

Tool Information

Drill Pipe:	Length: 3446.00 ft	Diameter: 3.80 inches	Volume: 48.34 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 178.00 ft	Diameter: 2.25 inches	Volume: 0.88 bbl	Weight to Pull Loose: 56000.00 lb
			<u>Total Volume: 49.22 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	17.00 ft			String Weight: Initial 50000.00 lb
Depth to Top Packer:	3636.00 ft			Final 50000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	30.00 ft			
Tool Length:	59.00 ft			
Number of Packers:	2	Diameter: 675.00 inches		
Tool Comments:				

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

Change Over Sub	1.00			3608.00	
Shut In Tool	5.00			3613.00	
Hydraulic tool	5.00			3618.00	
Jars	5.00			3623.00	
Safety Joint	3.00			3626.00	
Packer	5.00			3631.00	29.00 Bottom Of Top Packer
Packer	5.00			3636.00	
Stubb	1.00			3637.00	
Recorder	0.00	6625	Inside	3637.00	
Recorder	0.00	8652	Outside	3637.00	
Perforations	26.00			3663.00	
Bullnose	3.00			3666.00	30.00 Bottom Packers & Anchor

Total Tool Length: 59.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration, Inc
 PO Box 783188
 Wichita, KS 67278-3188
 ATTN: Bob Peterson

7-6s-21w Graham,KS
White #4
 Job Ticket: 64639 **DST#: 6**
 Test Start: 2018.11.07 @ 22:40:00

Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API: 30.4 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: ppm
Viscosity: 55.00 sec/qt	Cushion Volume: bbl	
Water Loss: 6.39 in ³	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 1100.00 ppm		
Filter Cake: 1.00 inches		

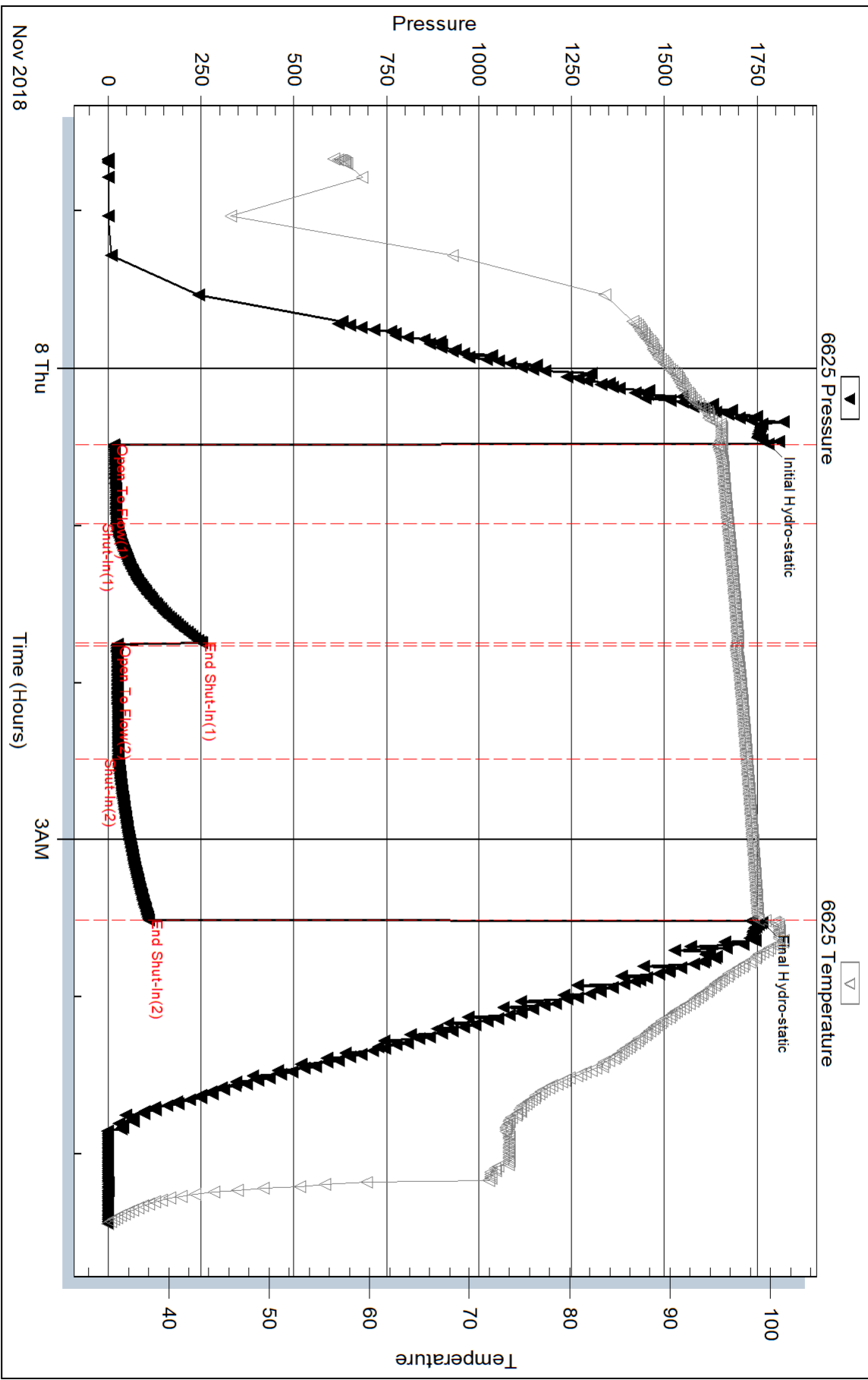
Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	SGOCM 86%m, 12%o, 2%g	0.049
10.00	SGMCO 88%o, 10%m, 2%g	0.049

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: Gravity = 28.2 api @ 38 deg F Corrected Gravity = 30.4

Pressure vs. Time

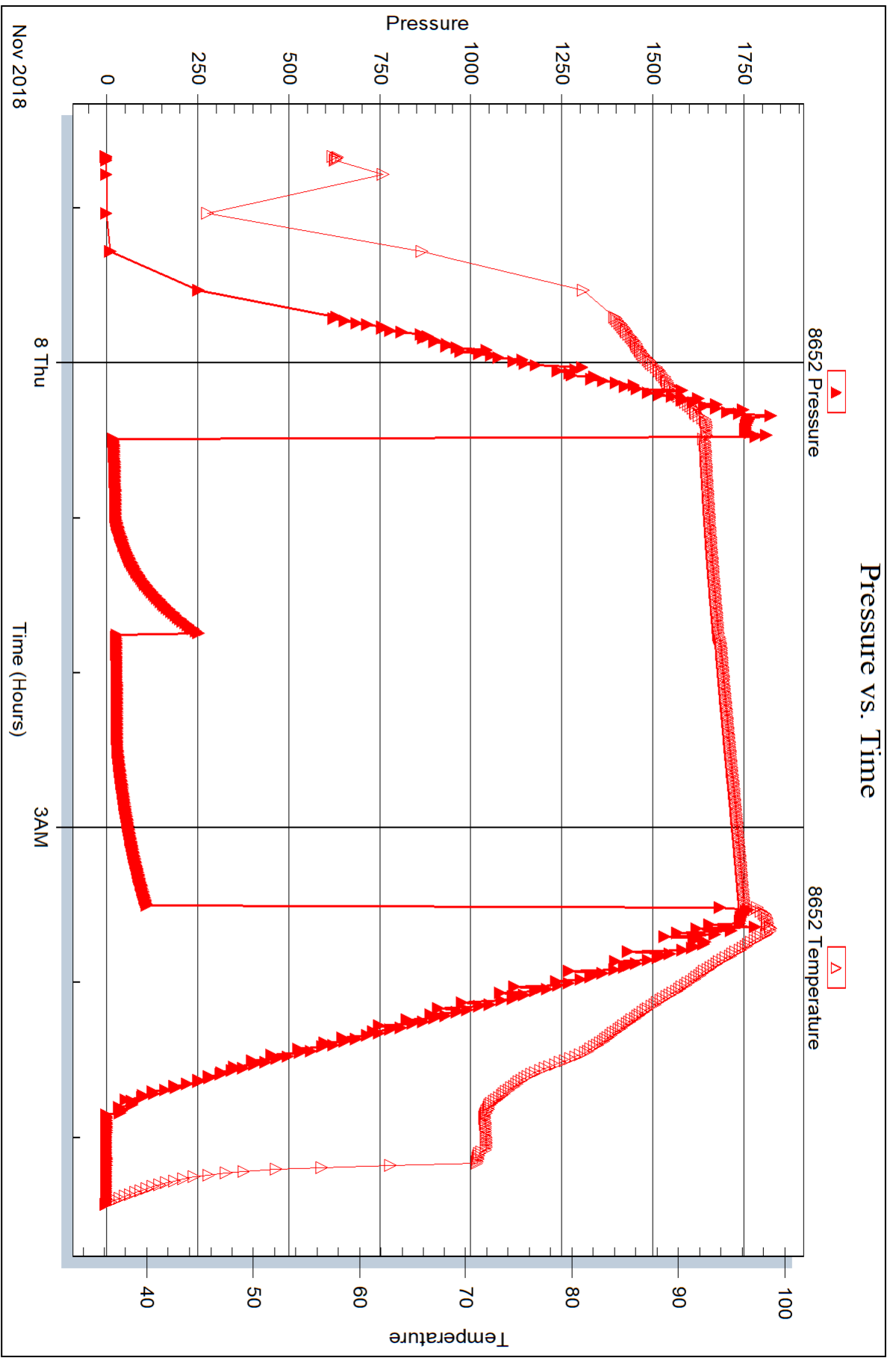


Serial #: 8652

Outside Ritchie Exploration, Inc

White #4

DST Test Number: 6



Trilobite Testing, Inc

Ref. No: 64639

Printed: 2018.11.09 @ 09:24:21



DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration, Inc**

PO Box 783188
Wichita, KS 67278-3188

ATTN: Bob Peterson

White #4

7-6s-21w Graham,KS

Start Date: 2018.11.08 @ 14:30:00

End Date: 2018.11.08 @ 21:16:00

Job Ticket #: 64640 DST #: 7

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

Printed: 2018.11.09 @ 09:23:48



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration, Inc
 PO Box 783188
 Wichita, KS 67278-3188
 ATTN: Bob Peterson

7-6s-21w Graham,KS
White #4
 Job Ticket: 64640 **DST#: 7**
 Test Start: 2018.11.08 @ 14:30:00

GENERAL INFORMATION:

Formation: **Conglomerate - Arbuc**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 16:24:45
 Time Test Ended: 21:16:00
 Interval: **3691.00 ft (KB) To 3743.00 ft (KB) (TVD)**
 Total Depth: 3743.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: James Winder
 Unit No: 83
 Reference Elevations: 2234.00 ft (KB)
 2229.00 ft (CF)
 KB to GR/CF: 5.00 ft

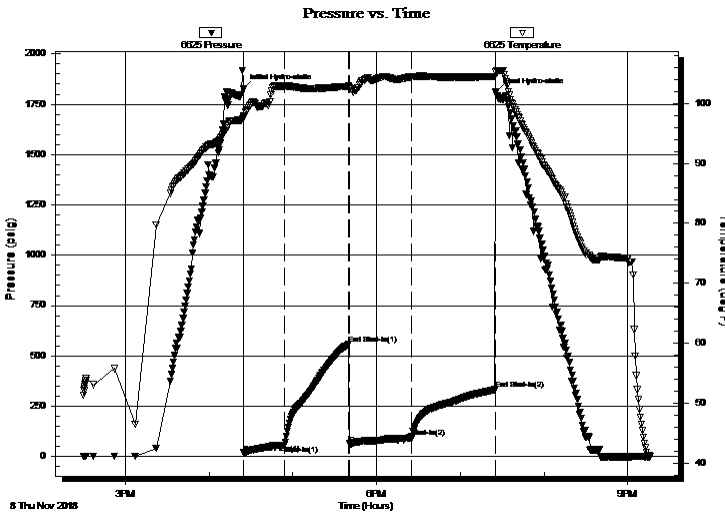
Serial #: 6625

Inside

Press@RunDepth: 93.83 psig @ 3692.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2018.11.08 End Date: 2018.11.08 Last Calib.: 2018.11.08
 Start Time: 14:30:05 End Time: 21:15:59 Time On Btm: 2018.11.08 @ 16:24:30
 Time Off Btm: 2018.11.08 @ 19:25:30

TEST COMMENT: 30 - IF: Blow built to 5"
 45 - IS: No blow back
 45 - FF: Blow built to 3 1/2"
 60 - FS: No blow back

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1824.95	97.87	Initial Hydro-static
1	18.23	97.79	Open To Flow (1)
30	56.71	102.92	Shut-In(1)
76	557.92	102.86	End Shut-In(1)
77	61.18	102.53	Open To Flow (2)
121	93.83	104.42	Shut-In(2)
181	332.04	104.47	End Shut-In(2)
181	1809.99	105.22	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
59.00	WCM w/Oil spots 64% _m , 35% _w , 1% _o	0.29
59.00	SGOCM 90% _m , 8% _o , 2% _g	0.29
46.00	GOM 50% _m , 45% _o , 5% _g	0.23
10.00	GCO 95% _o , 5% _g	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, Inc
 PO Box 783188
 Wichita, KS 67278-3188
 ATTN: Bob Peterson

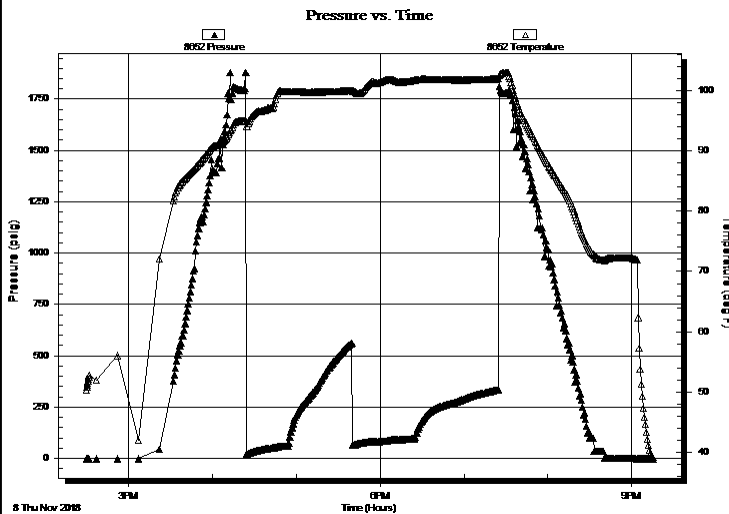
7-6s-21w Graham,KS
White #4
 Job Ticket: 64640 **DST#: 7**
 Test Start: 2018.11.08 @ 14:30:00

GENERAL INFORMATION:

Formation: **Conglomerate - Arbus**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 16:24:45
 Time Test Ended: 21:16:00
 Interval: **3691.00 ft (KB) To 3743.00 ft (KB) (TVD)**
 Total Depth: 3743.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: James Winder
 Unit No: 83
 Reference Elevations: 2234.00 ft (KB)
 2229.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8652 Outside
 Press@RunDepth: psig @ 3692.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2018.11.08 End Date: 2018.11.08 Last Calib.: 2018.11.08
 Start Time: 14:30:05 End Time: 21:15:29 Time On Btm:
 Time Off Btm:

TEST COMMENT: 30 - IF: Blow built to 5"
 45 - IS: No blow back
 45 - FF: Blow built to 3 1/2"
 60 - FS: No blow back



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
59.00	WCM w/Oil spots 64%m, 35%w, 1%o	0.29
59.00	SGOCM 90%m, 8%o, 2%g	0.29
46.00	GOM 50%m, 45%o, 5%g	0.23
10.00	GCO 95%o, 5%g	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, Inc
 PO Box 783188
 Wichita, KS 67278-3188
 ATTN: Bob Peterson

7-6s-21w Graham,KS
White #4
 Job Ticket: 64640 **DST#: 7**
 Test Start: 2018.11.08 @ 14:30:00

Tool Information

Drill Pipe:	Length: 3508.00 ft	Diameter: 3.80 inches	Volume: 49.21 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 178.00 ft	Diameter: 2.25 inches	Volume: 0.88 bbl	Weight to Pull Loose: 52000.00 lb
			<u>Total Volume: 50.09 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	24.00 ft			String Weight: Initial 50000.00 lb
Depth to Top Packer:	3691.00 ft			Final 50000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	52.00 ft			
Tool Length:	81.00 ft			
Number of Packers:	2	Diameter: 675.00 inches		

Tool Comments:

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

Change Over Sub	1.00			3663.00	
Shut In Tool	5.00			3668.00	
Hydraulic tool	5.00			3673.00	
Jars	5.00			3678.00	
Safety Joint	3.00			3681.00	
Packer	5.00			3686.00	29.00 Bottom Of Top Packer
Packer	5.00			3691.00	
Stubb	1.00			3692.00	
Recorder	0.00	6625	Inside	3692.00	
Recorder	0.00	8652	Outside	3692.00	
Perforations	15.00			3707.00	
Blank Spacing	33.00			3740.00	
Bullnose	3.00			3743.00	52.00 Bottom Packers & Anchor

Total Tool Length: 81.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration, Inc
 PO Box 783188
 Wichita, KS 67278-3188
 ATTN: Bob Peterson

7-6s-21w Graham,KS
White #4
 Job Ticket: 64640 **DST#: 7**
 Test Start: 2018.11.08 @ 14:30:00

Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	17000 ppm
Viscosity: 53.00 sec/qt	Cushion Volume: bbl		
Water Loss: 5.96 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 1000.00 ppm			
Filter Cake: 1.00 inches			

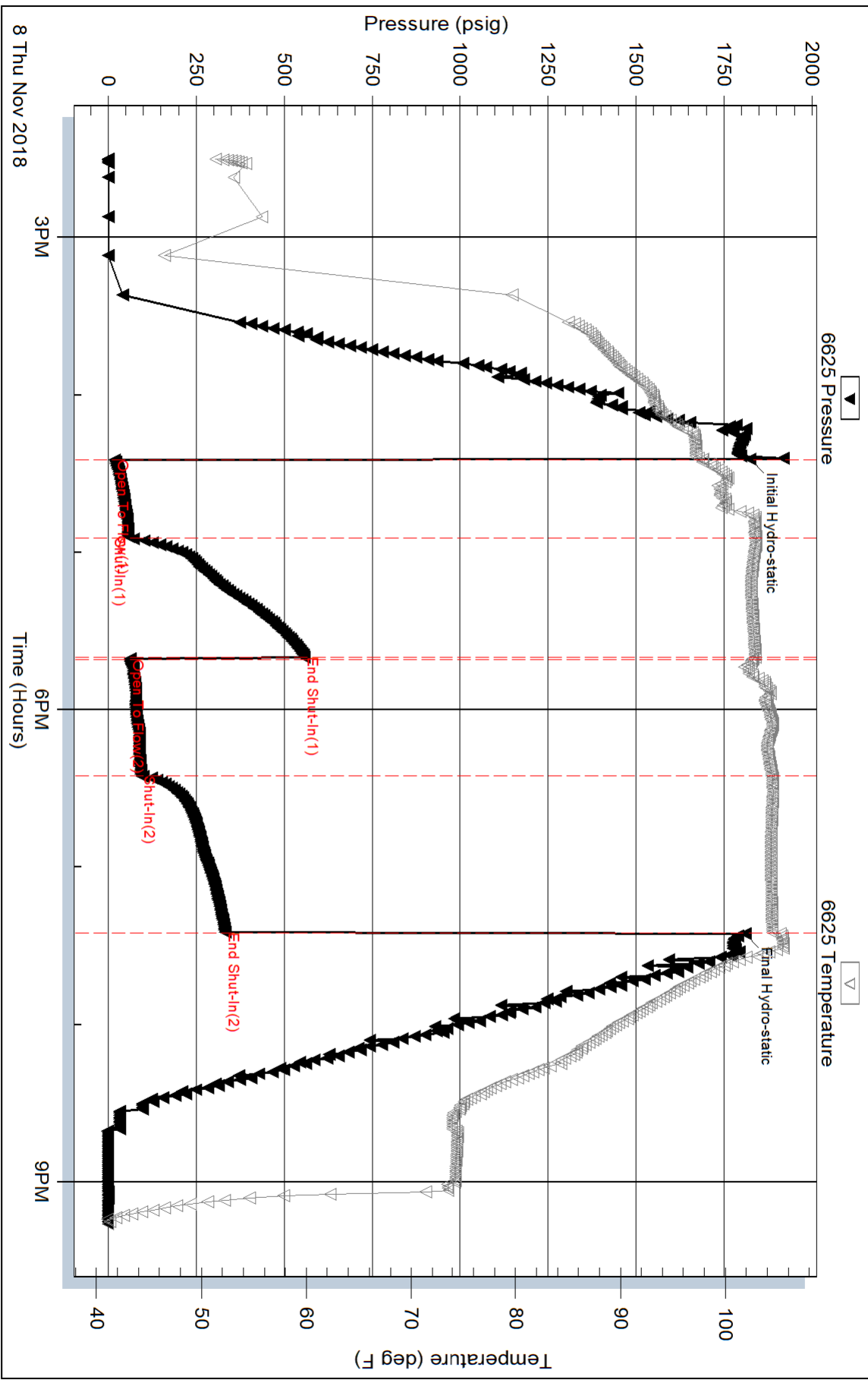
Recovery Information

Recovery Table

Length ft	Description	Volume bbl
59.00	WCM w/Oil spots 64%m, 35%w , 1%o	0.290
59.00	SGOCM 90%m, 8%o, 2%g	0.290
46.00	GOM 50%m, 45%o, 5%g	0.226
10.00	GCO 95%o, 5%g	0.049

Total Length: 174.00 ft Total Volume: 0.855 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments: Gravity = Too Low To Measure
 RW = .676 ohms @ 35.6 deg F Chlorides = 17,000 ppm

Pressure vs. Time

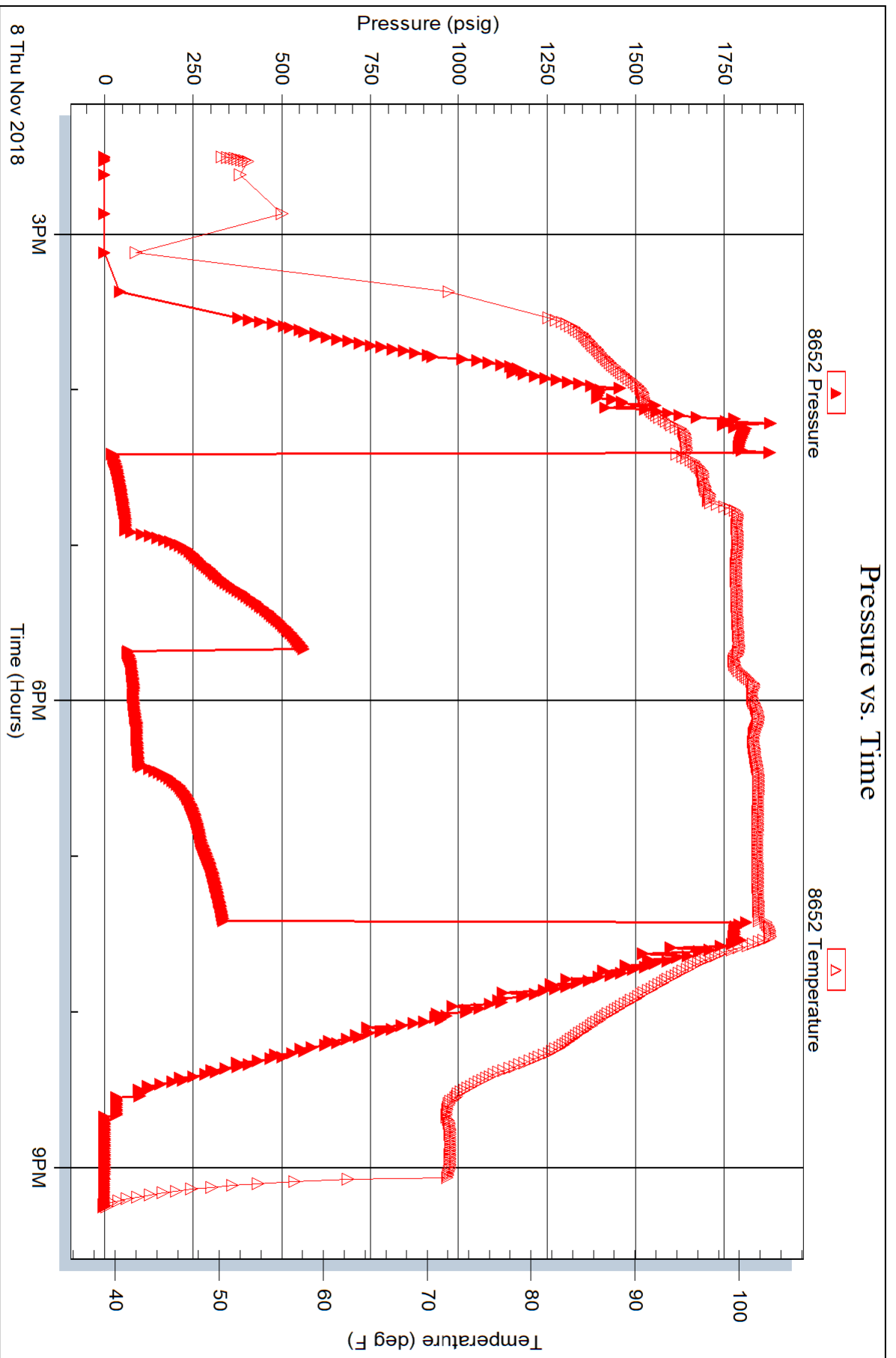


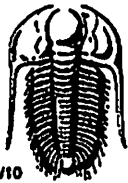
Serial #: 8652

Outside Ritchie Exploration, Inc

White #4

DST Test Number: 7





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 64634

Well Name & No. White #4 Test No. 1 Date 11-4-18
 Company Ritchie Exploration Inc Elevation 2234 KB 2229 GL
 Address 8100 E 22nd St N #700 PO Box 783188 Wichita, KS 67278-3188
 Co. Rep / Geo. Bob Peterson Rig Murfin #8
 Location: Sec. 7 Twp 6S Rge. 21W Co. Graham State KS

Interval Tested 3384-3421 Zone Tested Oread A/B
 Anchor Length 37 Drill Pipe Run 3192 Mud Wt. 9.0
 Top Packer Depth 3379 Drill Collars Run 178 Vis 60
 Bottom Packer Depth 3384 Wt. Pipe Run - WL 6.0
 Total Depth 3421 Chlorides 900 ppm System LCM 2

Blow Description IF: Blow built to 2"
ISI: No blowback
FF: Blow built to 1 1/2"
FST: No blowback

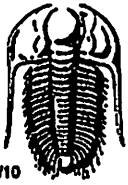
Rec	Feet of	%gas	%oil	%water	%mud
<u>58</u>	<u>SOCM</u>		<u>3</u>	<u>97</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 58 BHT 99 Gravity 1050 API RW @ °F Chlorides ppm

(A) Initial Hydrostatic 1627 Test 1050 T-On Location 13:30
 (B) First Initial Flow 16 Jars 250 T-Started 14:05
 (C) First Final Flow 30 Safety Joint 75 T-Open 15:54
 (D) Initial Shut-In 318 Circ Sub _____ T-Pulled 18:58
 (E) Second Initial Flow 31 Hourly Standby _____ T-Out 20:30
 (F) Second Final Flow 42 Mileage 130RT 130 Comments _____
 (G) Final Shut-In 315 Sampler _____
 (H) Final Hydrostatic 1590 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 1505

Initial Open 30 Ruined Shale Packer _____
 Initial Shut-In 45 Ruined Packer _____
 Final Flow 45 Extra Copies _____
 Final Shut-In 60 Sub Total 0
 Total 1505
 MP/DST Disc't _____

Approved By [Signature] Our Representative James Winder
 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. 64635

Well Name & No. White #4 Test No. 2 Date 11-5-18
 Company Ritchie Exploration Inc Elevation 2234 KB 2229 GL
 Address 8100 E 22nd St N #700 PO Box 783188 Wichita, KS 67278-3188
 Co. Rep / Geo. Bob Peterson Rig Murfin #8
 Location: Sec. 7 Twp 6S Rge. 21W Co. Graham State KS

Interval Tested 3432 - 3490 Zone Tested Toronto - LKC "A"
 Anchor Length 58 Drill Pipe Run 3256 Mud Wt. 9.0
 Top Packer Depth 3427 Drill Collars Run 178 Vis 60
 Bottom Packer Depth 3432 Wt. Pipe Run - WL 6.0
 Total Depth 3490 Chlorides 900 ppm System LCM 2

Blow Description IF: Blow built to 7"
ISI: No blowback
FF: Blow built to 5"
FSI: No blowback

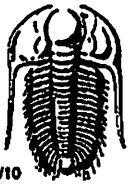
Rec	Feet of	%gas	%oil	%water	%mud
<u>30</u>	<u>50cm</u>	<u>6</u>	<u>-</u>	<u>94</u>	<u>94</u>
<u>59</u>	<u>Mud w/oil spots</u>	<u>2</u>	<u>-</u>	<u>98</u>	<u>98</u>
<u>119</u>	<u>MW w/trace oil</u>	<u>trace</u>	<u>58</u>	<u>42</u>	<u>42</u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u>Rec Total</u>	<u>208</u>	<u>BHT</u>	<u>103</u>	<u>Gravity</u>	<u>API RW</u>

190 @ 62.5 °F Chlorides 44,000 ppm

(A) Initial Hydrostatic 1672 Test 1050 T-On Location 6:15
 (B) First Initial Flow 18 Jars 250 T-Started 6:50
 (C) First Final Flow 78 Safety Joint 75 T-Open 8:57
 (D) Initial Shut-In 210 Circ Sub _____ T-Pulled 12:09
 (E) Second Initial Flow 80 Hourly Standby _____ T-Out 13:55
 (F) Second Final Flow 107 Mileage 130 RT 130 Comments _____
 (G) Final Shut-In 213 Sampler _____
 (H) Final Hydrostatic 1668 Straddle _____
 Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____

Initial Open 30
 Initial Shut-In 45
 Final Flow 45
 Final Shut-In 60 70+ misread my watch with glare on it
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 1505
 Sub Total 1505
 Sub Total 0
 Total 1505
 MP/DST Disc't _____

Approved By _____ Our Representative James Warden
 Trilobite Testing Inc. shall not be liable for damaged or 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. 64636

Well Name & No. White #4 Test No. 3 Date 11-5-78
 Company Ritchie Exploration Inc Elevation 2234 KB 2229 GL
 Address 8100 E 22nd St N #700 PO Box 783188 Wichita, KS 67278-3188
 Co. Rep / Geo. Bob Peterson Rig Murfin #8
 Location: Sec. 7 Twp 6S Rge. 21W Co. Graham State KS

Interval Tested 3494-3516 Zone Tested LKC "C"
 Anchor Length 22 Drill Pipe Run 3319 Mud Wt. 9.0
 Top Packer Depth 3489 Drill Collars Run 178 Vis 60
 Bottom Packer Depth 3494 Wt. Pipe Run - WL 6.0
 Total Depth 3516 Chlorides 900 ppm System LCM 2

Blow Description IF: Blow built to 8 3/4"
ISI: No blowback
FF: Blow built to 3 1/4"
FSI: No blowback

Rec	Feet of	%gas	%oil	%water	%mud
<u>2</u>	<u>Oil</u>	<u>97</u>	<u>3</u>		
<u>5</u>	<u>OCM</u>	<u>25</u>	<u>73</u>		
<u>59</u>	<u>SOWCM</u>	<u>5</u>	<u>10</u>	<u>85</u>	
<u>59</u>	<u>MCW w/oil spots</u>	<u>2</u>	<u>65</u>	<u>33</u>	
	<u>GIP=50'+</u>				
<u>Rec Total 125</u>	<u>BHT 106</u>	<u>Gravity 38.4</u>	<u>API RW 297</u>	<u>@ 33.9 F</u>	<u>Chlorides 52,000 ppm</u>

(A) Initial Hydrostatic 1727 Test 1050 T-On Location 19:40 1/5
 (B) First Initial Flow 16 Jars 250 T-Started 20:22
 (C) First Final Flow 50 Safety Joint 75 T-Open 22:29
 (D) Initial Shut-In 118 Circ Sub _____ T-Pulled 1:32
 (E) Second Initial Flow 53 Hourly Standby _____ T-Out 3:25 1/6
 (F) Second Final Flow 77 Mileage 130RT 130 Comments _____
 (G) Final Shut-In 118 Sampler _____
 (H) Final Hydrostatic 1689 Straddle _____

Initial Open 30 Ruined Shale Packer _____
 Initial Shut-In 45 Ruined Packer _____
 Final Flow 45 Extra Copies _____
 Final Shut-In 90 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1505
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1505

Approved By _____ Our Representative James Winder
 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. 64637

Well Name & No. White #4 Test No. 4 Date 11-6-18
 Company Ritchie Exploration Inc Elevation 2234 KB 2229 GL
 Address 8100 E 22nd St N #700 PO Box 783188 Wichita, KS 67278-3188
 Co. Rep / Geo. Bob Peterson Rig Murfin #8
 Location: Sec. 7 Twp 6s Rge. 21w Co. Graham State KS

Interval Tested 3512 - 3555 Zone Tested LKC "D-F"
 Anchor Length 43 Drill Pipe Run 3320 Mud Wt. 9.3
 Top Packer Depth 3507 Drill Collars Run 178 Vis 58
 Bottom Packer Depth 3512 Wt. Pipe Run - WL 6.4
 Total Depth 3555 Chlorides 1000 ppm System LCM 1

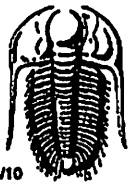
Blow Description IF: Blow built to 8"
ISI: No blowback
FF: Blow built to 4"
FSI: No blowback

Rec	Feet of	%gas	%oil	%water	%mud
<u>59</u>	<u>OCM</u>	<u>2</u>	<u>30</u>		<u>68</u>
<u>59</u>	<u>50/WCM</u>	<u>4</u>	<u>5</u>	<u>26</u>	<u>65</u>
	<u>GIP=60'</u>				

Rec Total 118 BHT 104 Gravity API RW 0.411 @ 39.5 °F Chlorides 30,000 ppm
 (A) Initial Hydrostatic 1704 Test 1050 T-On Location 11:50
 (B) First Initial Flow 16 Jars 250 T-Started 12:30
 (C) First Final Flow 44 Safety Joint 75 T-Open 15:17
 (D) Initial Shut-In 408 Circ Sub _____ T-Pulled 18:17
 (E) Second Initial Flow 47 Hourly Standby _____ T-Out 20:00
 (F) Second Final Flow 69 Mileage 130RT 130 Comments _____
 (G) Final Shut-In 381 Sampler _____
 (H) Final Hydrostatic 1687 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____

Initial Open 30
 Initial Shut-In 45
 Final Flow 45
 Final Shut-In 60
 Sub Total 1505
 Total 1505
 MP/DST Disc't _____

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 64638

Well Name & No. White #4 Test No. 5 Date 11-7-18
 Company Ritchie Exploration Inc Elevation 2234 KB 2229 GL
 Address 8100 E 22nd St N #700 PO Box 783188 Wichita, KS 67278-3188
 Co. Rep / Geo. Bob Peterson Rig Murfin #8
 Location: Sec. 7 Twp 6s Rge. 21w Co. Graham State KS

Interval Tested 3582 - 3640 Zone Tested LKC "H-J"
 Anchor Length 58 Drill Pipe Run 3382 Mud Wt. 9.2
 Top Packer Depth 3577 Drill Collars Run 178 Vis 55
 Bottom Packer Depth 3582 Wt. Pipe Run - WL 6.4
 Total Depth 3640 Chlorides 1100 ppm System LCM 1

Blow Description IF: 1/4" Blow at open, built to 1/4"
ISI: No blowback
FF: No blow
FSI: No blow

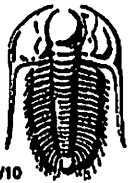
Rec	Feet of	%gas	%oil	%water	%mud
<u>2</u>	<u>SOCM</u>		<u>4</u>		<u>96</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 2 BHT 103 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 1760 Test 1050 T-On Location 7:15
 (B) First Initial Flow 14 Jars 250 T-Started 8:25
 (C) First Final Flow 16 Safety Joint 75 T-Open 10:26
 (D) Initial Shut-In 191 Circ Sub _____ T-Pulled 12:59
 (E) Second Initial Flow 18 Hourly Standby _____ T-Out 14:35
 (F) Second Final Flow 19 Mileage 130 RT 130 Comments _____
 (G) Final Shut-In 63 Sampler _____
 (H) Final Hydrostatic 1738 Straddle _____

Initial Open 30 Ruined Shale Packer _____
 Initial Shut-In 45 Ruined Packer _____
 Final Flow 30 Extra Copies _____
 Final Shut-In 45 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1505
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1505

Approved By _____ Our Representative James Winder
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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 64639

Well Name & No. White #4 Test No. 6 Date 11-7-18
 Company Ritchie Exploration Inc Elevation 2234 KB 2229 GL
 Address 8100 E 22nd St N #700 PO Box 783188 Wichita, KS 67278-3188
 Co. Rep / Geo. Bob Peterson Rig Murfin #8
 Location: Sec. 7 Twp 6S Rge. 21W Co. Graham State KS

Interval Tested 3636-3666 Zone Tested LKC "K-L"
 Anchor Length 30 Drill Pipe Run 3446 Mud Wt. 9.2
 Top Packer Depth 3631 Drill Collars Run 178 Vis 55
 Bottom Packer Depth 3636 Wt. Pipe Run - WL 6.4
 Total Depth 3666 Chlorides 1100 ppm System LCM 1

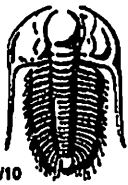
Blow Description IF: Blow built to 2"
IST: ~~to 2"~~ Weak surface blowback
FF: Blow built to 1"
FSI: No blowback

Rec	Feet of	%gas	%oil	%water	%mud
<u>10</u>	<u>MCO</u>	<u>2</u>	<u>88</u>	<u>10</u>	<u></u>
<u>10</u>	<u>OCM</u>	<u>2</u>	<u>12</u>	<u>86</u>	<u></u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 20 BHT 99 Gravity 30.4 API RW @ °F Chlorides ppm
 (A) Initial Hydrostatic 1780 Test 1050 T-On Location 21:50 "17
 (B) First Initial Flow 16 Jars 250 T-Started 22:40
 (C) First Final Flow 22 Safety Joint 75 T-Open 00:29
 (D) Initial Shut-In 251 Circ Sub _____ T-Pulled 3:30
 (E) Second Initial Flow 23 Hourly Standby _____ T-Out 5:15 "18
 (F) Second Final Flow 27 Mileage 130RT 130 Comments _____
 (G) Final Shut-In 109 Sampler _____
 (H) Final Hydrostatic 1763 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____

Initial Open 30
 Initial Shut-In 45
 Final Flow 45
 Final Shut-In 60
 Sub Total 1505
 Total 1505
 MP/DST Disc't _____

Approved By _____ Our Representative James Winder
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TRIOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 64640

Well Name & No. White #4 Test No. 7 Date 11-8-18
 Company Ritchie Exploration Inc Elevation 2234 KB 2229 GL
 Address 8100 E 22nd St N #700 PO Box 783188 Wichita, KS 67278-3188
 Co. Rep / Geo. Bob Peterson Rig Murfin #8
 Location: Sec. 7 Twp 6s Rge. 2/w Co. Graham State KS

Interval Tested 3691-3743 Zone Tested Conglomerate - Arbuckle
 Anchor Length 52 Drill Pipe Run 3508 Mud Wt. 9.0
 Top Packer Depth 3686 Drill Collars Run 178 Vis 53
 Bottom Packer Depth 3691 Wt. Pipe Run - WL 6.0
 Total Depth 3743 Chlorides 1000 ppm System LCM 2
 Blow Description IF: Blow built to 5"
ISI: No blowback
FF: Blow built to 3 1/2"
FSI: No blowback

Rec	Feet of	%gas	%oil	%water	%mud
<u>10</u>	<u>Oil</u>	<u>5</u>	<u>95</u>	<u>-</u>	<u>-</u>
<u>46</u>	<u>OM</u>	<u>5</u>	<u>45</u>	<u>-</u>	<u>50</u>
<u>59</u>	<u>SOCM</u>	<u>2</u>	<u>8</u>	<u>-</u>	<u>90</u>
<u>59</u>	<u>WCM w/oil spots</u>	<u>-</u>	<u>1</u>	<u>35</u>	<u>64</u>

Rec Total 174 BHT 105 Gravity TLTM API RW 676 @ 35.6 °F Chlorides 17,000 ppm

(A) Initial Hydrostatic <u>1825</u>	<input checked="" type="checkbox"/> Test <u>1050</u>	T-On Location <u>13:50</u>
(B) First Initial Flow <u>18</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>14:30</u>
(C) First Final Flow <u>57</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>16:24</u>
(D) Initial Shut-In <u>558</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>19:25</u>
(E) Second Initial Flow <u>61</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>21:15</u>
(F) Second Final Flow <u>94</u>	<input checked="" type="checkbox"/> Mileage <u>130 RT</u> <u>130</u>	Comments _____
(G) Final Shut-In <u>332</u>	<input type="checkbox"/> Sampler	_____
(H) Final Hydrostatic <u>1810</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>1505</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't _____
	Sub Total <u>1505</u>	

Approved By _____ Our Representative James Winder
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GEOLOGIST'S REPORT

DRILLING TIME AND SAMPLE LOG

RITCHIE EXPLORATION, INC.

WHITE #4
 SEC 7 TWP 6S RNG 21W
 1185 ' FSL & 1396' FWL
 GRAHAM COUNTY, KANSAS
 API: 15-065-24157-00-00
 X:1518267.01 Y:444847.87

DRILLING CONTR.: MURFIN RIG #8
 SPUD:11-01-2018 COMP:11-09-2018
 MUD UP: 2900' TYPE MUD: CHEM.
 DRILL TIME: 2900' to RTD
 RTD: 3757' LTD: 3753'
 SAMPLES SAVED: 3200' to RTD
 GEOLOGIST: ROBERT J. PETERSEN

ELEVATION

KB: 2234'
 GL: 2229'
 LOG MEASURED
 FROM: KB

SURFACE CASING

8 5/8" SET @ 261' CEM. W/ #180 SX

PRODUCTION CASING

NEW 5 1/2" 15.5# NEW CASING SET
 @3751'KB W/125 SX
 PORT COLLAR SET @1881'

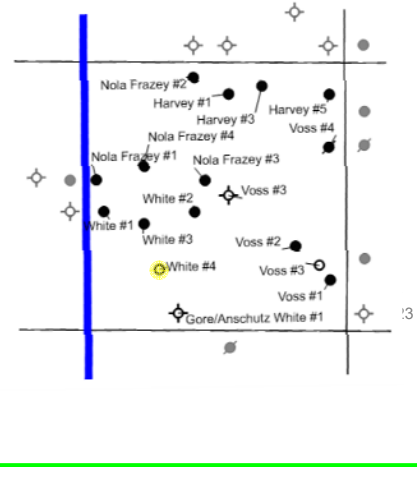
WELL LOG SURVEYS

DUAL INDUCTION
 COMPENSATED NEUTRON
 MICRORESISTIVITY

ELECTRIC LOG TOPS

FORMATION	DEPTH	DATUM	POS. A	POS. B
ANHYDRITE	1886	+348	-4	FLAT
BASE ANHY.	1918	+316	-4	FLAT
TOPEKA	3248	-1014	+3	-2
HEEBNER	3435	-1201	+6	-4
TORONTO	3460	-1226	+6	+3
LANSING	3476	-1242	+7	FLAT
C ZONE	3507	-1273	+6	-1
F ZONE	3540	-1306	+6	-5
G ZONE	3552	-1318	+7	-5
MUNCIE	3585	-1351	+8	-1
STARK	3639	-1405	+8	-1
BKC	3665	-1431	+8	-2
ARBUCKLE	3734	-1500	N/A	N/A
PRE-CAM	3751	-1517	N/A	-12
TD	3753	-1517	--	--

LOCATION MAP



REFERENCE WELL

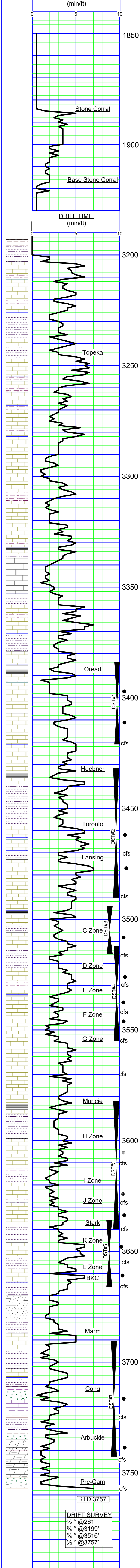
REF. WELL A RITCHIE EXPLORATION, INC WHITE #3 2080' FSL & 1240' FWL 7-6-21W	REF. WELL B RITCHIE EXPLORATION, INC WHITE #1 2310' FSL & 330' FWL 7-6-21W
---	--

REMARKS

PRODUCTION CASING WAS RUN TO FURTHER TEST THIS WELL.

DAILY REPORT @7:00 A.M.

11-01-18 MIRU/SPUD
 11-02-18 300' DRILLING
 11-03-18 2350' DRILLING
 11-04-18 3380' DRILLING
 11-05-18 3490' DST #2
 11-06-18 3530' CFS
 11-07-18 3640' DST#5
 11-08-18 3666' CIRC AFTER DST#6
 11-09-18 3757' RTD FINISH LOGGING



SAMPLE DESCRIPTION

SH; Gray, sandy (3210)
 LS: Cream, fine crystalline, foss. (3210)

SH; Gray, silty-sandy, micaceous (3220)

LS: Cream/gray, fine crystalline to dense, foss + SH; Gray/dark gray (3230)

SH; Gray, silty-sandy + LS; Lt gray (3240)

SH; Dark gray (3250)

LS: Cream/gray, sl mottled, fine crystalline to dense, foss, chalky + SH; Gray, sandy (3260)

LS: Cream/lt gray/brown, dense, foss, sl cherty + SH; Gray/dark gray (3270)

LS: Cream/lt gray/tan, fine crystalline to dense, foss, sl dolo + SH; Gray (3280)

LS: Cream/ lt gray, fine crystalline, foss, subgran., sl cherty, chalky (3290)

LS: Cream/gray, fine crystalline, foss, increase chert (blocky-gray) + SH; Gray/dark gray (3300)

LS: Cream, fine crystalline, foss, chalky, sl cherty (cream/tan/angular) (3310)

LS: Cream/gray, fine crystalline, foss/ool in part, chalky, cherty (cream/angular) (3320-3330)

LS: Cream, fine crystalline, ool, chalky, sl dolo, cherty (cream/sharp) (3340)

SH; Black (tr 3340/incr 3350)
 LS: Cream/gray, fine crystalline, chalky, sandy + SD; Tan, well-cem to hard (3350)

LS: Cream, fine crystalline, chalky, sandy + SD; Cream/gray, calc, fine grained, friable to well-cem + LS; Tan, fine crystalline, foss + SH; Gray, sandy (3360)

SH; Maroon/gray, silty (3370)

LS: Cream/lt gray, fine crystalline, foss, granular, chalky, cherty (3370)

LS: Cream/gray, fine crystalline, foss, chalky + SH; Gray (3380)

SH; Gray, sandy (3390)

LS: Cream/gray, fine crystalline, foss, sl dolo, cherty (sharp orange/cream) (3390)

SH; Black (3400)
 LS: Cream, fine crystalline, very foss + SH; Green/gray, sandy (3400)

LS: Cream/lt gray, fine crystalline, foss, granular, sl dolo, cherty, fair to good moldic por, sfo, odor (3410)

LS: Cream/lt gray, fine crystalline, foss/foss frag, granular, good moldic por, gsfo (brown), gas bubbles, strong odor + LS: Cream, dense, chalky (3420)

LS: Lt gray, very fine crystalline, foss, fair moldic por/vug por, sfo, odor (3421/15-30")

LS: Cream/lt gray/tan, fine crystalline to dense, sl dolo, chalky, cherty (3421 30-45")

LS: Cream/lt gray, fine crystalline, foss, chalky/sl cherty (3430)

SH; Black (3440/3450)
 LS; Tan, dense, foss (3450)
 SH; Gray, sandy (3450)

SH; Red/gray/green-gray, silty-sandy (3460)

LS: Cream, fine crystalline, ool/foss, granular, cherty (angular/cream) w/fair to good moldic por, sfo (brown), odor, med brown spot to full sat on dry (3470-3470/15")
 LS: Cream/tan, fine crystalline, foss, subgran + LS: Cream/gray, fine crystalline to dense, foss, cherty (tan/yellow/blocky) (3470 30-45)
 SH; Red/gray, sandy (3480)
 LS: Cream/white, fine crystalline, ool/foss, gran w/fair moldic por, sfo, (brown), odor, full med to dark brown sat on dry (3480-3490)

DST #3
 3494-3516'
 30-45-60'
 IF: BLOW BUILT TO 8.75"
 FF: BLOW BUILT TO 3.25"
 NO BLOW BACK ON SHUT-INS
 RECOVERED:
 50+ GIP
 2' OIL
 5' OCM (25%OIL/2%G/73%M)
 59' SOWCM (5%OIL/85%M/10%W)
 59' MCV W/OIL SPOT (2% OIL/85%W/33%M)
 SIP: 118-118#
 FP: 16-50/53-77#
 HP: 1727-1659#
 BHT: 103F
 OIL 38.4 API/CHL: 52.000/ BHT: 106F

LS: Cream, fine crystalline to dense, chalky, cherty (3510)

SH; Red/gray, sandy (3510)

LS: Cream, fine crystalline to dense, foss, cherty (cream/orange/ang), fair moldic/intercrystalline por, sfo, odor, spot to full sat on dry (3516)
 tr chert w/fract/vug por, sfo (3516/30")
 SH; Red/gray, sandy (3516/30-45) + SH; Maroon, sandy (3530)

LS: Cream/white, fine crystalline, foss, chalky, very cherty, sl dolo w/poor to fair moldic por/tr vug por, sfo (brown), tr gas bubbles, odor (3530-3530/15-30") LS; Gray/cream mottled, fine crystalline, foss, chalky, mealy, shaley (3530/30-45")
 SH; Dark gray/red (3540)
 LS: Cream/gray, fine crystalline, chalky, sl dolo w/red shale impurity (3542/15")
 LS: Cream, fine crystalline, ool/granular in part, chalky w/fair moldic por, sfo, light sat (3542/30") dolomitic/cherty w/fair to good moldic/tr vug por, increase sfo, odor (3542/45")
 LS: Cream, fine crystalline to dense, chalky + SH; Red, silty (3550)
 LS: Cream, fine crystalline, ool/foss, granular, chalky, w/chert incl w/fair to good moldic/oolmoldic por, sfo (brown), good odor (3555/15-30") LS.; Tan, fine crystalline, ool/foss, w/fair moldic por/vug por, sfo, odor (med to dark brown sat dry (3555/45-60"))

LS: Cream/tan, fine crystalline, chalky, cherty (3570)

LS: Cream/lt gray, very fine crystalline to dense, sl foss, chalky, cherty (3570/15-30")

LS: Cream/lt gray, very fine crystalline to dense, sl foss, chalky, cherty +SH; Gray (3580)

SH; Black (3590)
 LS; Tan/gray, dense, cherty (tan-angular) (3600)

SH; Red/gray, silty-sandy (3600-3610)

LS: Cream/tan, fine crystalline, foss, chalky, very cherty (tan-angular) tr poor ppt por, lt stain, nsfo, no odor (3610)

LS: Cream/lt gray fine crystalline to dense, foss, cherty (3610/15")
 + SH; Red/gray, sandy (3628-3628/15")
 SH; Red/gray, sandy (3628-3628/15")

LS; Tan/gray, dense, ool/foss, cherty (3628/15")
 LS: Cream/tan, dense, fl foss, chalky, cherty, poor ppt moldic por, sfo, faint odor, patchy lt brown stain, dry sample (3628/30")

LS: Cream, fine crystalline w/tr coarse crystalline, foss, subgranular w/fair to good moldic por, gsfo (amber), odor lt to med brown sat on dry sample (3640-3640/30")

LS; Lt gray, fine crystalline to dense, foss, chalky + SH; Red/gray (3640/45")

SH; Red/gray, silty-sandy (3650)

LS: Cream/w/lt gray, fine crystalline to dense, ool-granular in part, chalky, sl cherty t w/good inter-gran por/fair moldic por, sfo, sat, faint odor (3655) increase chalk, chert w/tr moldic por good por w/sfo, dark brown full sat dry (3655/15")
 SH; Dark gray/olive (3655/30")
 LS; Cream, fine crystalline to dense, foss, gas bubble, faint odor, med brown sat on dry (3666/15-30")
 SH; Red/green-gray, silty-sandy (3666/45-60")
 SH; Red, silty-sandy, calc (3680)

SD; Red, fine grained, silty calc + SH; Red, silty-sandy (3690-3700)

LS: Cream, very fine crystalline to dense, sl foss (3700)

SH; Red, sandy (3700-3710)

LS: Cream/white, dense, oo, chalky, cherty (3710)

LS: Cream/lt gray, fine crystalline to dense, foss, chalky, cherty, sandy w/red shale impurity + SH; Red/gray, sandy (3720)
 SD; Gray, fine to coarse, subgranular w/reworked chert fragments, calc, well cem, poorly sorted, poor intergranular por, sfo bleeding, faint odor, lt stain dry (3725/15")
 LS; Cream/gray, fine crystalline to dense, chalky, sandy w/red shale impurity + SH; Red/pink (3725/30-45")

SH; Maroon/gray/lt purple (3743)

Dolo: Cream/tan, fine to med crystalline, glauc, sandy w/fair vug por, sfo (black/heavy/tr gas bubble) + SD; Clear/gray, med to coarse, well cem to hard, sfo, sat (3743/15-30") increase glauc sd/tr Red ool chert + SH; Red/gray/pink (3743/45") tr fresh Qtz/feldspar/weathered granite (3743/60")

SD; Cream/white, dolomitic/glauc, coarse, fair intergran por, sfo (black) dark sat on dry (3757/15")
 Quartz; Pink/clear w/brown oil stain on dry + weathered granite, pyrite/biotite, weathered feldspar, purple (3757/ 30-60")

DST #6
 3636-3666'
 30-45-60'
 IF: BUILT TO 2"
 IOP: WEAK SURF. BLOW
 FP: BUILT TO 1"
 FCIP: NONE
 RECOVERED:
 10' MCO (2%G/88%O/10%W)
 10' OCM (2%G/12%O/86%W)
 SIP: 251-109#
 FP: 16-22/23-27#
 HP: 1780-1763#
 BHT: 99F
 OIL: 30.4 API

DST #7
 3691-3743'
 30-45-60'
 IF: BUILT TO 5"
 IF: BUILT TO 3.5"
 NO BLOW BACK ON SHUT-INS
 RECOVERED:
 10' OIL (5%G/95%O)
 46' OM (5%G/45%O/50%W)
 59' SOWCM (4%G/5%O/26%W/65%M)
 19%OCM (2%G/8%O/80%M)
 SIP: 568-332#
 FP: 18-57/181-34#
 HP: 1825-1810#
 BHT: 105F
 OIL GRAVITY TOO LOW TO MEAS.
 BHT: 105F

RITCHIE EXPLORATION, INC.
 SEC 7 TWP 6S RNG 21W LOC. 1185 ' FSL & 1396' FWL
 2229' GL/2234' KB
 GRAHAM COUNTY, KANSAS API: 15-065-24157-00-00



#4 White

1,185' FSL & 1,396' FWL
135' S & 76' E of SW Section 7-6S-21W
Graham County, Kansas
API# 15-065-24157-0000
Elevation: GL: 2,229', KB: 2,234'

Sample Tops			Ref. Well
Anhydrite	1885	+349	-4
B/Anhydrite	1917	+317	-4
Stotler	3203	-969	+1
Topeka	3245	-1011	+3
Heebner	3433	-1199	+6
Toronto	3457	-1223	+7
Lansing	3473	-1239	+7
Muncie	3583	-1349	+8
Stark	3638	-1404	+8
Hush	3653	-1419	+8
BKC	3663	-1429	+8
Marmaton	3687	-1453	+9
Conglomerate	3713	-1479	+9
Arbuckle	3735	-1501	NDE
Pre-Cambrian	3755	-1521	NDE
RTD	3757	-1523	



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

11970
 11852

TICKET NUMBER 55938
 LOCATION Okley KS
 FOREMAN Jerry Y

FIELD TICKET & TREATMENT REPORT
 CEMENT

Invoice #814507 KS

DATE	CUSTOMER #	WELL NAME & NUMBER	SECTION	TOWNSHIP	RANGE	COUNTY
11-1-18	7173	White #4	7	65	21W	Graham
CUSTOMER <u>Ritcher Exp</u>						
MAILING ADDRESS <u>P.O. Box 783188</u>						
CITY <u>Wichita</u>						
STATE <u>KS</u>						
ZIP CODE <u>67278-3188</u>						
TRUCK #	DRIVER	TRUCK #	DRIVER			
<u>535</u>	<u>Jerry Y</u>					
<u>731</u>	<u>Cory D</u>					
<u>693</u>	<u>Keith</u>					

JOB TYPE Surge HOLE SIZE 12.74 HOLE DEPTH 261 CASING SIZE & WEIGHT 8 5/8 23.7
 CASING DEPTH 261 DRILL PIPE _____ TUBING _____ OTHER _____
 SLURRY WEIGHT 14.8 SLURRY VOL 1.24 WATER gal/sk _____ CEMENT LEFT in CASING 20'
 DISPLACEMENT 15 bbl DISPLACEMENT PSI _____ MIX PSI _____ RATE _____

REMARKS: Softly meeting and rig up on Mar 28 & circulate casing mix 180
sk. Com 3-42 was 4 cups displace with 15 bbl water & started
found cement in collar

Cement came to
 surface

Thank you
 Jerry Y

ACCOUNT CODE	QUANTITY or UNITS	DESCRIPTION of SERVICES or PRODUCT	UNIT PRICE	TOTAL
<u>CE0471</u>	<u>1</u>	<u>PUMP CHARGE</u>	<u>1150.00</u>	<u>1150.00</u>
<u>CE0002</u>	<u>50</u>	<u>MILEAGE</u>	<u>7.15</u>	<u>357.50</u>
<u>CE0710</u>	<u>2.46</u>	<u>ton mileage delivery</u>	<u>1.75</u>	<u>740.25</u>
<u>CE5820</u>	<u>170 SKS</u>	<u>surface blend IT</u>	<u>24.00</u>	<u>4320.00</u>
			<u>subtotal</u>	<u>6567.75</u>
			<u>-208</u>	<u>1313.55</u>
			<u>subtotal</u>	<u>5254.20</u>
			SALES TAX	<u>259.20</u>
			ESTIMATED TOTAL	<u>5513.40</u>

AUTHORIZATION [Signature] TITLE Toolpusher 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.



Services, Inc.

CHARGE TO:

ADDRESS

CITY, STATE, ZIP CODE

Kitchie Exploration

TICKET 031856

PAGE 1 OF 2

1. SERVICE/LOCATIONS
Nov City KS

WELL/PROJECT NO. *#14*

LEASE *White*

COUNTY/PARISH *Gravett*

STATE *KS*

CITY *Hill City*

DATE *9 Nov 18*

OWNER

2. TICKET TYPE
 SERVICE
 SALES

CONTRACTOR

RIG NAME/NO.

SHIPPED *W/T*

DELIVERED TO *Location*

WELL PERMIT NO.

ORDER NO.

WELL LOCATION *7-16-21*

3. WELL TYPE
Oil

WELL CATEGORY *Development*

JOB PURPOSE *convert long string*

WELL PERMIT NO.

WELL LOCATION

WELL PERMIT NO.

WELL LOCATION

WELL PERMIT NO.

4. REFERRAL LOCATION

INVOICE INSTRUCTIONS

WELL CATEGORY

JOB PURPOSE

WELL PERMIT NO.

WELL PERMIT NO.

WELL LOCATION

WELL PERMIT NO.

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING			DESCRIPTION	MILEAGE	QTY.	UNIT	UNIT PRICE	AMOUNT
		LOG	ACCT	DF						
575					TRK 114	1	mi	5.00	300.00	
578					Run Charge	1	ea	1300.00	1300.00	
403					Convert to 1/2" string	1	ea	275.00	275.00	
414					Port collar	1	ea	2500.00	2500.00	
406					batch down plug & baffle	1	ea	250.00	250.00	
407					Insert float shoe w/ annular	1	ea	325.00	325.00	
409					TORSO CLIP	1	ea	85.00	85.00	
414					float charge	1	ea	25.00	25.00	

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

TIME SIGNED

A.M.
 P.M.

REMIT PAYMENT TO:

SWIFT SERVICES, INC.

P.O. BOX 466

NESS CITY, KS 67560

785-798-2300

SURVEY	AGREE	UNDECIDED	DISAGREE
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?	<input type="checkbox"/> YES	<input type="checkbox"/> NO	

PAGE TOTAL

6310.00

5833

12143.27

12144.37

10929.130

1049.09

TOTAL

11579.29

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

SWIFT OPERATOR

APPROVAL

Thank You!



PO Box 466
 Ness City, KS 67560
 Ott: 785-798-2300

TICKET CONTINUATION

TICKET No. 31856

CUSTOMER	Radium Exploration		WELL	1414 #4		DATE	9/22/18	PAGE	2
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PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING			TIME	DESCRIPTION	WELL				UNIT PRICE	AMOUNT											
		LOC	ACCT	DF			QTY	U/M	QTY	U/M													
325					1	Standard Count	175	sk			13.00	2,275.00											
279					1	Bentonite gal	2 1/2	gal	3	sk	30.00	90.00											
283					1	Salts	10 2/2	lb	450	lb	0.84	1,902.00											
292					1	Latex - 322	100	lb			8.00	800.00											
277					1	Elsonite	5	lb/sk	850	lb	0.85	722.50											
281					1	Wulfite	500	gal			1.50	750.00											
221					1	Red Dye	2	gal			25.00	50.00											
290					1	D-ASE	1	gal			42.00	42.00											
581					1	SERVICE CHARGE	175				1.75	306.25											
583					1	MILEAGE CHARGE	17880		80		0.85	607.82											
<table border="1"> <tr> <td colspan="11">CONTINUATION TOTAL</td> <td>5,833.67</td> </tr> </table>												CONTINUATION TOTAL											5,833.67
CONTINUATION TOTAL											5,833.67												

JOB LOG

SWIFT Services, Inc.

DATE 9 Nov 18 PAGE NO. 1

CUSTOMER *Fitchie Exploration* WELL NO. *24* LEASE *White* JOB TYPE *cement long string* TICKET NO. *31856*

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
								1756b Standard cement 10% salt 2 1/2 gal 5 1/2" 15.5# casing 89 joints TD 337 375 Set 375' sleeve + 10' part collar #43 1881' Cement blocks 1, 3, 6, 8, 4, 2, 4 Bkt 5, 43, 55, 71
	1330							on loc TRK 114
	1440							start 5 1/2" 15.5# casing in well
	1630							Drop ball - circulate - ROTATE
	1715	2 1/2	12			300		Pump 500 gal mud flush
		2 1/2	20			300		Pump 20 bbl KCL flush
			7					Plug RH - MH 30sk = 20sk
	1730	4				200		MTX STD cement 1255# @ 14.7 ppg
	1850	4	45			300		(Shutdown 300g - work site - Resume mix 1830) Drop latch down plug Wash out pump & line
	1855	6				300		Displace plug
	1915	6	42			300		Land plug
		5 1/2	89			1500		Release pressure to truck dried up
	1920							WASH TRUCK
								Pack up
								job complete
								Yanks
								Blaine, Flint, 1 1/2 skene



Services, Inc.

TICKET 27711

CHARGE TO: Ritchie Exploration
 ADDRESS: _____
 CITY, STATE, ZIP CODE: _____

PAGE 1 OF 1

SERVICE LOCATIONS
 1. Moys, KS WELLPROJECT NO. #4 LEASE White COUNTY/PARISH Graham STATE KS DATE 11/5/18 OWNER
 2. Miss City, KS TICKET TYPE SALES CONTRACTOR Express Well Service RIG NAME/NO. CS SHIPPED VIA CT DELIVERED TO Location ORDER NO.
 3. WELLS TYPE D-1 WELL CATEGORY Development JOB PURPOSE Port Collar WELL PERMIT NO.
 4. REFERRAL LOCATION INVOICE INSTRUCTIONS

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING			DESCRIPTION	QTY.	UM	QTY.	UM	UNIT PRICE	AMOUNT
		LOC	ACCT	DF							
575		1			MILEAGE #113	70	mi			5.00	350.00
576b		1			Port Collar Charge - Port Collar	1	EA			1300.00	1300.00
290		1			D-Air	3	gal			42.00	126.00
275		1			Cotton Seed Hulls	5	SKS			30.00	150.00
309-8		2			160/140 Pozmix (8% Cell)	350	SKS			11.10	3885.00
581		2			Service Charge Cement	400	SKS	3480	2416	1.25	700.00
583		2			Drayage	70	mi	1220	187M	0.85	1037.15

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

DATE SIGNED: _____ TIME SIGNED: _____

SWIFT OPERATOR: _____ APPROVAL: _____

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

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?

CUSTOMER DID NOT WISH TO RESPOND

TOTAL: 7094.80

Thank You!

JOB LOG

SWIFT Services, Inc.

DATE 11/15/18 PAGE NO. 1

CUSTOMER *Ritchie Exploration* WELL NO. *#4* LEASE *White* JOB TYPE *Port Collar* TICKET NO. *27711*

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
	1030							On location, setup trucks. Rig Running tubing in. 2 3/8 x 5 1/2 P.C. - 1881'
	1125	3	350				1200 350	Test P.C. - Held. Open P.C. = Test. Hook up to Tubing
	1140	4				350		Start Cust, mix w/ huffs.
		4	10			325		Catch Circulation
		4	112			800		Cmt Circulating
		4	112			900		Start Displacement
	1215	4	6 1/4			900		Fin Disp. shut in. Close P.C.
	1220						1200	Test P.C. - Held Run 5 Its
	1235	3	18				300	Reverse Out Wash up Truck Back up
	1255							Job Complete
								Thanks Jon, Austin, Kirby
								350 SKS 60/40 w/ 8% gel Used 25 SKS to pit.