

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	Jaspar Co.
Well Name	LARRY 1
Doc ID	1377545

All Electric Logs Run

COMPENSATED DENSITY/NEUTRON LOG
MICRO LOG
DUAL INDUCTION LOG
SONIC LOG



DRILL STEM TEST REPORT

Prepared For: **Jaspar Co**

PO Box 1120
Hays KS 67601

ATTN: Jeff Lawler

Larry #1

20-9s-19w Rooks,KS

Start Date: 2017.11.15 @ 03:26:00

End Date: 2017.11.15 @ 11:58:30

Job Ticket #: 63180 DST #: 1

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

Printed: 2017.11.21 @ 08:19:00



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Jaspar Co
 PO Box 1120
 Hays KS 67601
 ATTN: Jeff Lawler

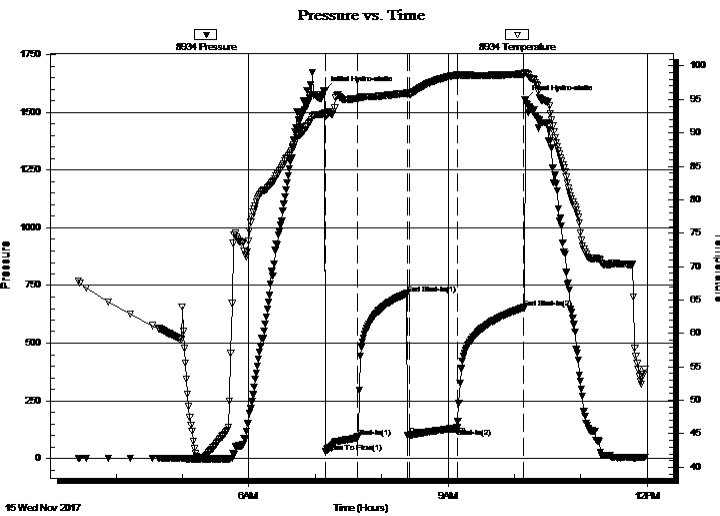
20-9s-19w Rooks,KS
Larry #1
 Job Ticket: 63180 **DST#: 1**
 Test Start: 2017.11.15 @ 03:26:00

GENERAL INFORMATION:

Formation: **Toronto - LKC 'A'**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 07:09:00
 Time Test Ended: 11:58:30
 Interval: **3290.00 ft (KB) To 3350.00 ft (KB) (TVD)**
 Total Depth: 3350.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Spencer J. Staab
 Unit No: 84
 Reference Elevations: 2146.00 ft (KB)
 2141.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8934 Outside
 Press@RunDepth: 132.36 psig @ 3291.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2017.11.15 End Date: 2017.11.15 Last Calib.: 2017.11.15
 Start Time: 03:26:15 End Time: 11:58:30 Time On Btm: 2017.11.15 @ 07:08:45
 Time Off Btm: 2017.11.15 @ 10:09:30

TEST COMMENT: 30-IF-Fair Blow ; BOB in 20 mins
 45-ISI-No Return
 45-FF-Fair Blow ; Built to 9 1/2"
 60-FSI-Weak Blow ; Died 20 mins in



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1596.19	92.93	Initial Hydro-static
1	28.31	92.39	Open To Flow (1)
30	89.67	95.14	Shut-In(1)
75	714.90	95.93	End Shut-In(1)
76	99.29	95.76	Open To Flow (2)
120	132.36	98.65	Shut-In(2)
180	653.70	98.81	End Shut-In(2)
181	1554.55	99.04	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
120.00	MW 30%M 70%W	0.59
60.00	WCM 5%W 95%M	0.84
75.00	OCM 7%O 93%M	1.05
15.00	MCO 5%M 95%O	0.21

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Jaspar Co

20-9s-19w Rooks,KS

PO Box 1120
Hays KS 67601

Larry #1

Job Ticket: 63180

DST#: 1

ATTN: Jeff Lawler

Test Start: 2017.11.15 @ 03:26:00

Tool Information

Drill Pipe:	Length: 3175.00 ft	Diameter: 3.80 inches	Volume: 44.54 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 2.75 inches	Volume: - bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 120.00 ft	Diameter: 2.25 inches	Volume: 0.59 bbl	Weight to Pull Loose:	50000.00 lb
			<u>Total Volume:</u>	Tool Chased	ft
			- bbl	String Weight: Initial	34000.00 lb
Drill Pipe Above KB:	25.00 ft			Final	34000.00 lb
Depth to Top Packer:	3290.00 ft				
Depth to Bottom Packer:	ft				
Interval between Packers:	60.00 ft				
Tool Length:	80.00 ft				
Number of Packers:	1	Diameter:	6.75 inches		
Tool Comments:					

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3271.00	
Shut In Tool	5.00			3276.00	
Hydraulic tool	5.00			3281.00	
Packer	5.00			3286.00	20.00 Bottom Of Top Packer
Packer	4.00			3290.00	
Stubb	1.00			3291.00	
Recorder	0.00	9120	Inside	3291.00	
Recorder	0.00	8934	Outside	3291.00	
Perforations	22.00			3313.00	
Change Over Sub	1.00			3314.00	
Drill Pipe	32.00			3346.00	
Change Over Sub	1.00			3347.00	
Bullnose	3.00			3350.00	60.00 Bottom Packers & Anchor

Total Tool Length: 80.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Jaspar Co

20-9s-19w Rooks,KS

PO Box 1120
Hays KS 67601

Larry #1

Job Ticket: 63180

DST#: 1

ATTN: Jeff Lawler

Test Start: 2017.11.15 @ 03:26:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

35 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

56000 ppm

Viscosity: 68.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.58 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2500.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
120.00	MW 30%M 70%W	0.590
60.00	WCM 5%W 95%M	0.842
75.00	OCM 7%O 93%M	1.052
15.00	MCO 5%M 95%O	0.210

Total Length: 270.00 ft

Total Volume: 2.694 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

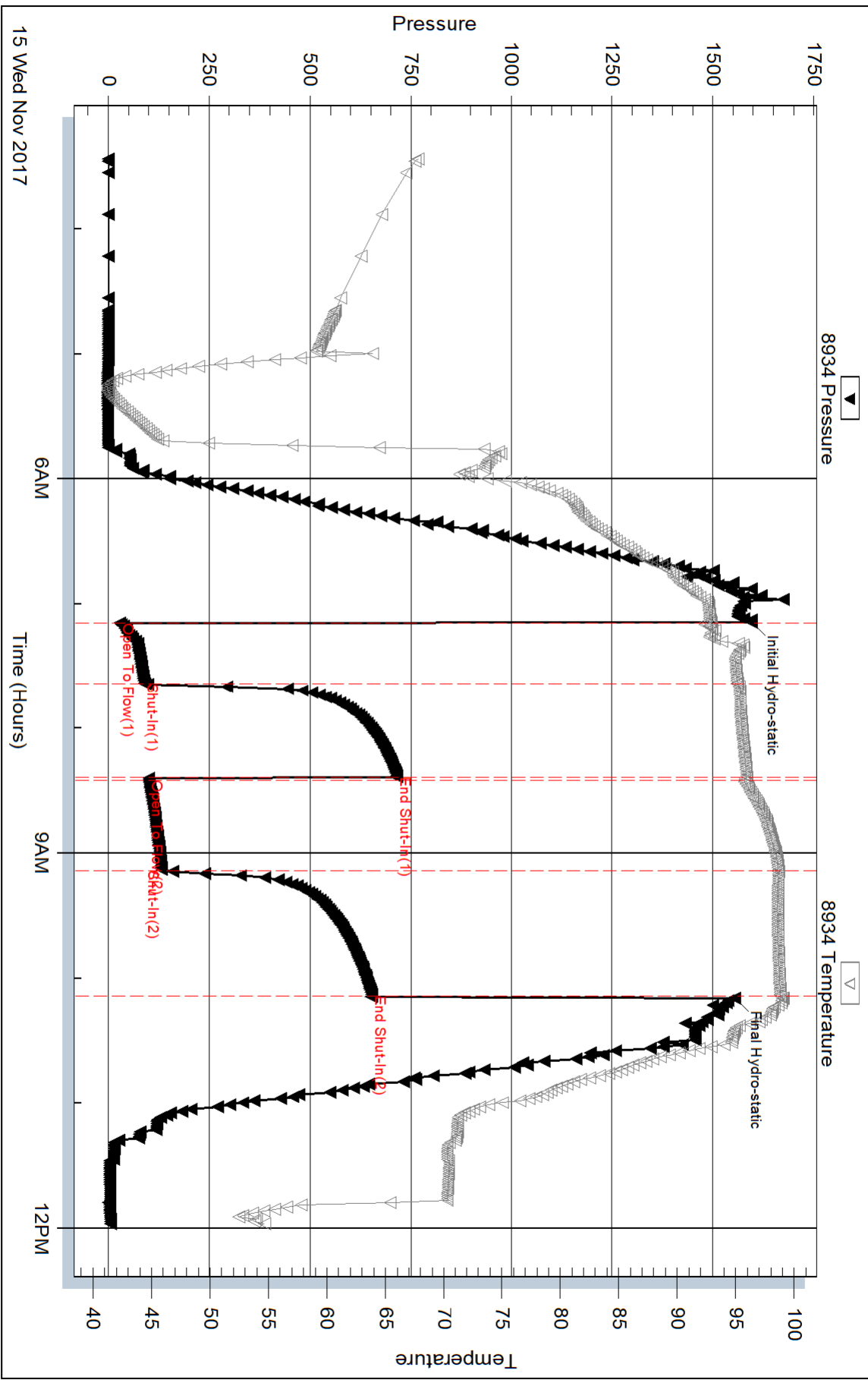
Laboratory Name:

Laboratory Location:

Recovery Comments: 4#LCM

RW=.195@50degrees

Pressure vs. Time



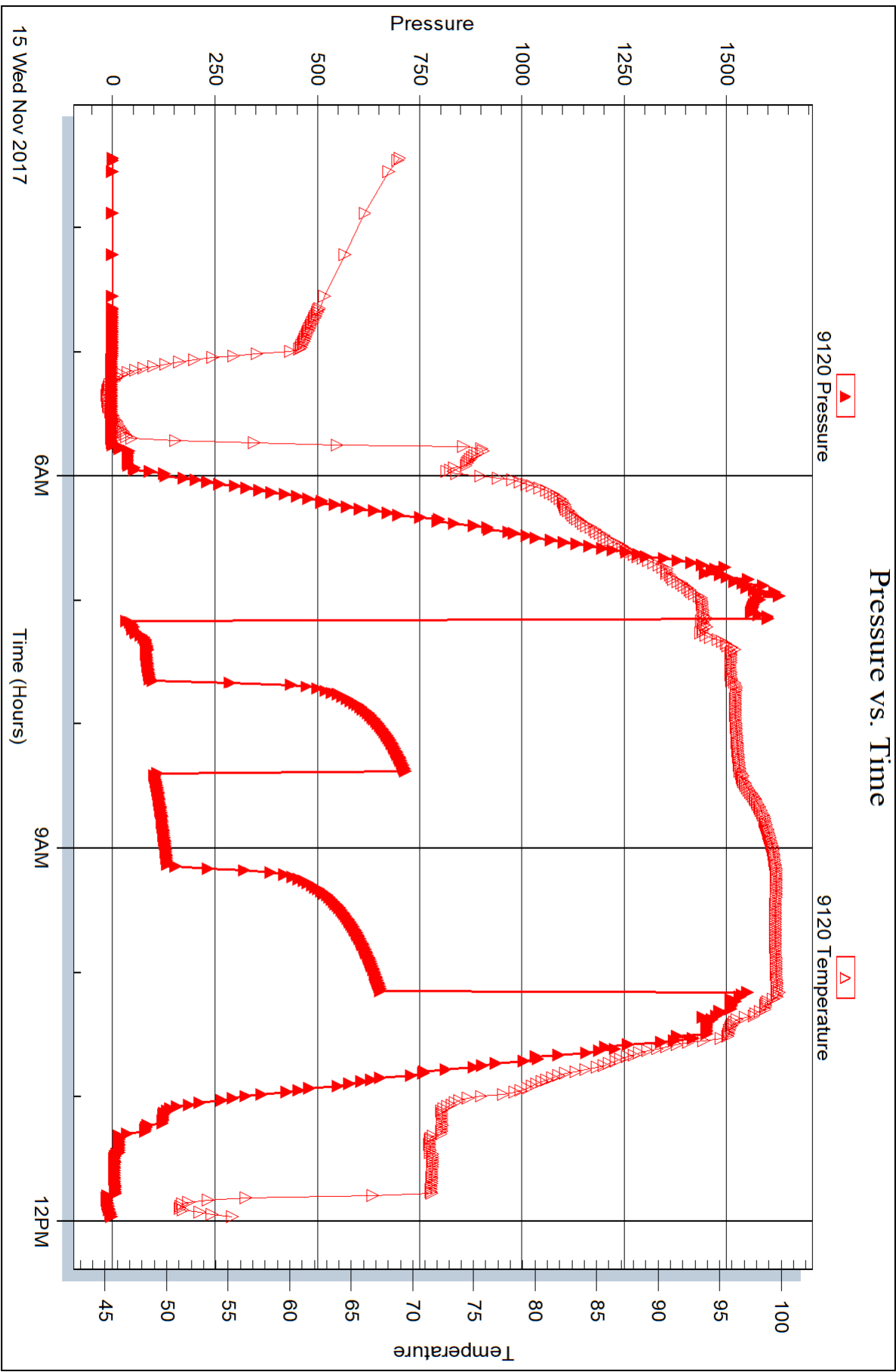
Serial #: 9120

Inside

Jaspar Co

Larry #1

DST Test Number: 1



Triobite Testing, Inc

Ref. No: 63180

Printed: 2017.11.21 @ 08:19:01



DRILL STEM TEST REPORT

Prepared For: **Jaspar Co**

PO Box 1120
Hays KS 67601

ATTN: Jeff Lawler

Larry #1

20-9s-19w Rooks,KS

Start Date: 2017.11.15 @ 20:22:00

End Date: 2017.11.16 @ 02:43:30

Job Ticket #: 63181 DST #: 2

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

Printed: 2017.11.21 @ 08:18:36

Jaspar Co
20-9s-19w Rooks,KS
Larry #1
DST # 2
LKC 'C-D'
2017.11.15



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Jaspar Co
PO Box 1120
Hays KS 67601
ATTN: Jeff Lawler

20-9s-19w Rooks,KS
Larry #1
Job Ticket: 63181 **DST#: 2**
Test Start: 2017.11.15 @ 20:22:00

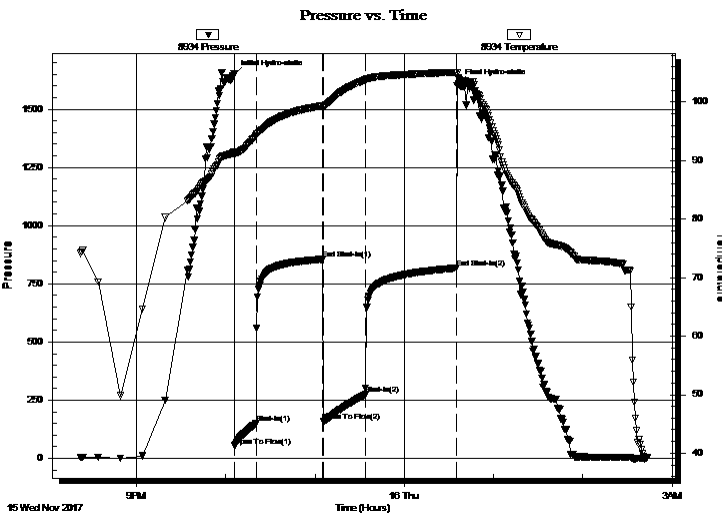
GENERAL INFORMATION:

Formation: **LKC 'C-D'**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 22:05:45
Time Test Ended: 02:43:30
Interval: **3354.00 ft (KB) To 3414.00 ft (KB) (TVD)**
Total Depth: 3414.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Reference Elevations: 2146.00 ft (KB)
2141.00 ft (CF)
KB to GR/CF: 5.00 ft
Test Type: Conventional Bottom Hole (Reset)
Tester: Spencer J. Staab
Unit No: 84

Serial #: 8934 **Inside**
Press@RunDepth: 273.64 psig @ 3355.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2017.11.15 End Date: 2017.11.16 Last Calib.: 2017.11.16
Start Time: 20:22:15 End Time: 02:43:30 Time On Btm: 2017.11.15 @ 22:05:30
Time Off Btm: 2017.11.16 @ 00:36:30

TEST COMMENT: 15-IF-Strong Blow ; BOB in 5 mins
45-ISI-Weak Surface Blow @ 7 mins; died after 8 mins
30-FF-Strong Blow ; BOB in 6 mins
60-FSI-No Return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1650.16	91.45	Initial Hydro-static
1	53.93	90.96	Open To Flow (1)
15	151.57	94.23	Shut-In(1)
60	854.61	99.34	End Shut-In(1)
61	157.84	99.23	Open To Flow (2)
89	273.64	103.74	Shut-In(2)
150	816.19	105.03	End Shut-In(2)
151	1608.41	103.94	Final Hydro-static

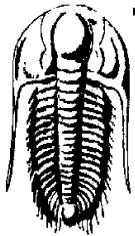
Recovery

Length (ft)	Description	Volume (bbl)
525.00	MW 30%M 70%W	6.27
10.00	MW 50%M 50%W	0.14

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Jaspar Co
 PO Box 1120
 Hays KS 67601
 ATTN: Jeff Lawler

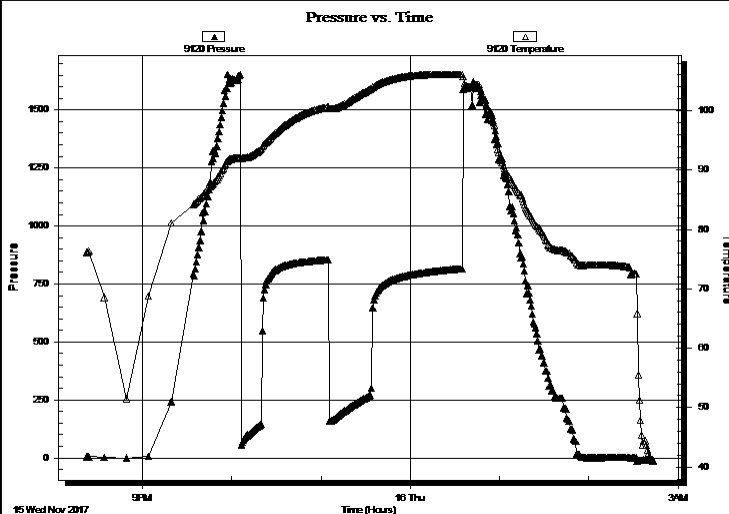
20-9s-19w Rooks, KS
Larry #1
 Job Ticket: 63181 **DST#: 2**
 Test Start: 2017.11.15 @ 20:22:00

GENERAL INFORMATION:

Formation: **LKC 'C-D'**
 Deviated: No Whipstock: ft (KB) Test Type: Conventional Bottom Hole (Reset)
 Time Tool Opened: 22:05:45 Tester: Spencer J. Staab
 Time Test Ended: 02:43:30 Unit No: 84
Interval: 3354.00 ft (KB) To 3414.00 ft (KB) (TVD) Reference Elevations: 2146.00 ft (KB)
 Total Depth: 3414.00 ft (KB) (TVD) 2141.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 5.00 ft

Serial #: 9120 Inside
 Press@RunDepth: psig @ 3355.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2017.11.15 End Date: 2017.11.16 Last Calib.: 2017.11.16
 Start Time: 20:22:15 End Time: 02:43:30 Time On Btm:
 Time Off Btm:

TEST COMMENT: 15-IF-Strong Blow ; BOB in 5 mins
 45-ISI-Weak Surface Blow @ 7 mins; died after 8 mins
 30-FF-Strong Blow ; BOB in 6 mins
 60-FSI-No Return



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
525.00	MW 30%M 70%W	6.27
10.00	MW 50%M 50%W	0.14

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Jaspar Co
PO Box 1120
Hays KS 67601
ATTN: Jeff Lawler

20-9s-19w Rooks,KS
Larry #1
Job Ticket: 63181 **DST#: 2**
Test Start: 2017.11.15 @ 20:22:00

Tool Information

Drill Pipe:	Length: 3242.00 ft	Diameter: 3.80 inches	Volume: 45.48 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 2.75 inches	Volume: - bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 120.00 ft	Diameter: 2.25 inches	Volume: 0.59 bbl	Weight to Pull Loose:	42000.00 lb
			<u>Total Volume: - bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	28.00 ft			String Weight: Initial	34000.00 lb
Depth to Top Packer:	3354.00 ft			Final	35000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	60.00 ft				
Tool Length:	80.00 ft				
Number of Packers:	1	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			3335.00	
Shut In Tool	5.00			3340.00	
Hydraulic tool	5.00			3345.00	
Packer	5.00			3350.00	20.00 Bottom Of Top Packer
Packer	4.00			3354.00	
Stubb	1.00			3355.00	
Recorder	0.00	9120	Inside	3355.00	
Recorder	0.00	8934	Inside	3355.00	
Perforations	22.00			3377.00	
Change Over Sub	1.00			3378.00	
Drill Pipe	32.00			3410.00	
Change Over Sub	1.00			3411.00	
Bullnose	3.00			3414.00	60.00 Bottom Packers & Anchor

Total Tool Length: 80.00



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

FLUID SUMMARY

Jaspar Co

20-9s-19w Rooks,KS

PO Box 1120
Hays KS 67601

Larry #1

Job Ticket: 63181

DST#: 2

ATTN: Jeff Lawler

Test Start: 2017.11.15 @ 20:22:00

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:

70000 ppm

Viscosity: 55.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.58 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3000.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
525.00	MW 30%M 70%W	6.271
10.00	MW 50%M 50%W	0.140

Total Length: 535.00 ft Total Volume: 6.411 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

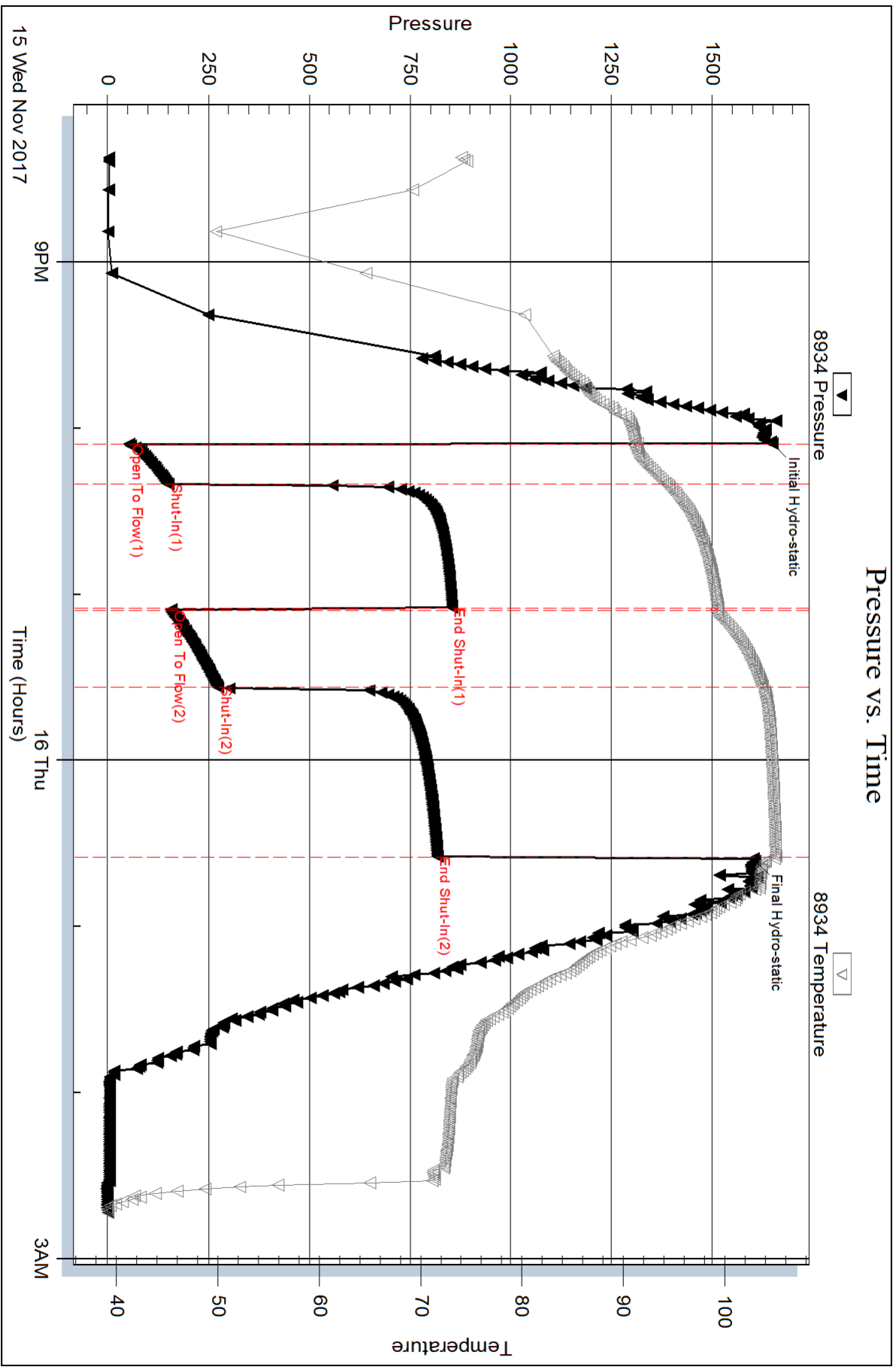
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 2&1/2#LCM

Rw = .223@36degrees

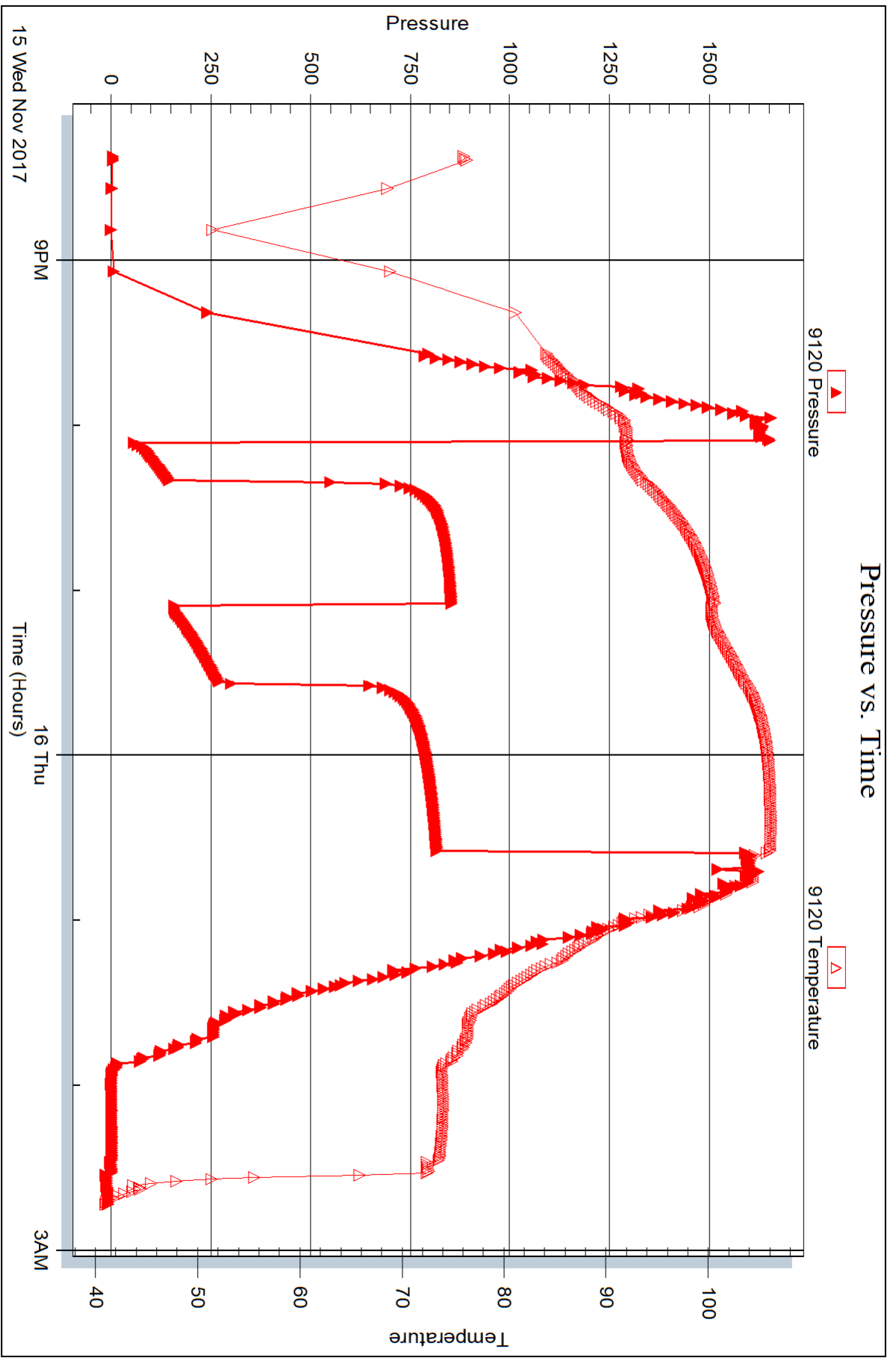


Serial #: 9120

Inside Jasper Co

Larry #1

DST Test Number: 2





DRILL STEM TEST REPORT

Prepared For: **Jaspar Co**

PO Box 1120
Hays KS 67601

ATTN: Jeff Lawler

Larry #1

20-9s-19w Rooks,KS

Start Date: 2017.11.16 @ 09:34:00

End Date: 2017.11.16 @ 15:44:15

Job Ticket #: 63182 DST #: 3

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

Printed: 2017.11.21 @ 08:18:12

Jaspar Co
20-9s-19w Rooks,KS
Larry #1
DST # 3
LKC 'E-F'
2017.11.16



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Jaspar Co
 PO Box 1120
 Hays KS 67601
 ATTN: Jeff Lawler

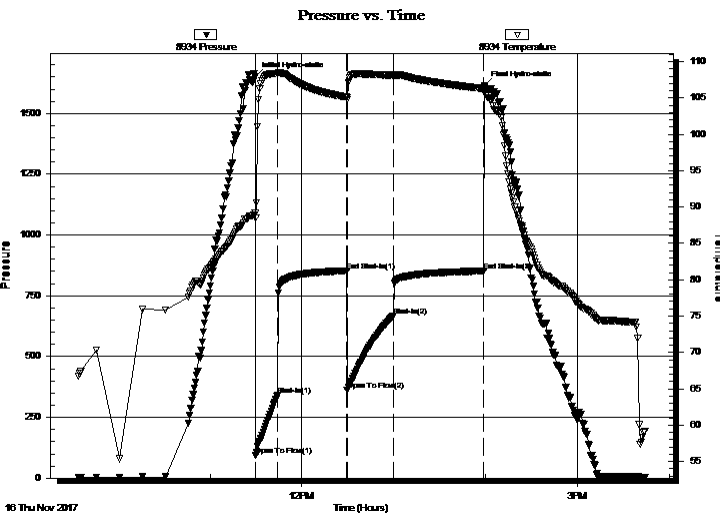
20-9s-19w Rooks,KS
Larry #1
 Job Ticket: 63182 **DST#: 3**
 Test Start: 2017.11.16 @ 09:34:00

GENERAL INFORMATION:

Formation: **LKC 'E-F'**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 11:30:00
 Time Test Ended: 15:44:15
 Interval: **3414.00 ft (KB) To 3430.00 ft (KB) (TVD)**
 Total Depth: 3430.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Spencer J. Staab
 Unit No: 84
 Reference Elevations: 2146.00 ft (KB)
 2141.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8934 Outside
 Press@RunDepth: 666.71 psig @ 3417.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2017.11.16 End Date: 2017.11.16 Last Calib.: 2017.11.16
 Start Time: 09:34:15 End Time: 15:44:15 Time On Btm: 2017.11.16 @ 11:29:45
 Time Off Btm: 2017.11.16 @ 13:59:15

TEST COMMENT: 15-IF-Strong Blow ; BOB in 2 mins
 45-ISI-Weak Blow ; Built to 1 1/4"
 30-FF-Strong Blow ; BOB in 1 1/2 mins
 60-FSI-Weak Surface Blow @ 12 mins; Died after 5 mins



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1652.21	89.14	Initial Hydro-static
1	93.45	88.48	Open To Flow (1)
15	341.04	108.38	Shut-In(1)
60	852.87	105.09	End Shut-In(1)
60	362.28	104.80	Open To Flow (2)
90	666.71	108.11	Shut-In(2)
149	851.78	106.29	End Shut-In(2)
150	1614.40	106.49	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
1100.00	Water 100%W	14.34
300.00	MCW 5%M 95%W	4.21

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Jaspar Co
 PO Box 1120
 Hays KS 67601

ATTN: Jeff Lawler

20-9s-19w Rooks, KS

Larry #1

Job Ticket: 63182

DST#: 3

Test Start: 2017.11.16 @ 09:34:00

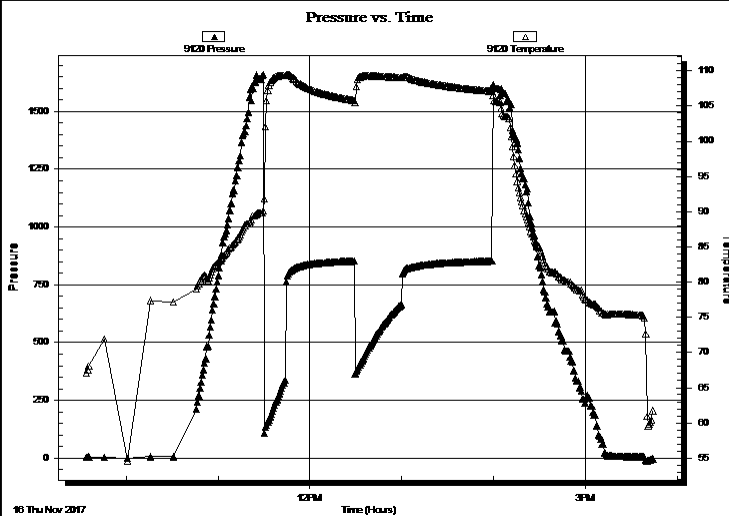
GENERAL INFORMATION:

Formation: **LKC 'E-F'**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 11:30:00
 Time Test Ended: 15:44:15
Interval: 3414.00 ft (KB) To 3430.00 ft (KB) (TVD)
 Total Depth: 3430.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches
 Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Spencer J. Staab
 Unit No: 84
 Reference Elevations: 2146.00 ft (KB)
 2141.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 9120 Inside

Press@RunDepth: psig @ 3417.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2017.11.16 End Date: 2017.11.16 Last Calib.: 2017.11.16
 Start Time: 09:34:15 End Time: 15:44:15 Time On Btm:
 Time Off Btm:

TEST COMMENT: 15-IF-Strong Blow ; BOB in 2 mins
 45-ISI-Weak Blow ; Built to 1 1/4"
 30-FF-Strong Blow ; BOB in 1 1/2 mins
 60-FSI-Weak Surface Blow @ 12 mins; Died after 5 mins



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
1100.00	Water 100%W	14.34
300.00	MCW 5%M 95%W	4.21

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Jaspar Co
PO Box 1120
Hays KS 67601
ATTN: Jeff Lawler

20-9s-19w Rooks,KS
Larry #1
Job Ticket: 63182 **DST#: 3**
Test Start: 2017.11.16 @ 09:34:00

Tool Information

Drill Pipe:	Length: 3296.00 ft	Diameter: 3.80 inches	Volume: 46.23 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 2.75 inches	Volume: - bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 120.00 ft	Diameter: 2.25 inches	Volume: 0.59 bbl	Weight to Pull Loose:	50000.00 lb
			<u>Total Volume:</u>	Tool Chased	ft
				String Weight: Initial	34000.00 lb
Drill Pipe Above KB:	22.00 ft			Final	41000.00 lb
Depth to Top Packer:	3414.00 ft				
Depth to Bottom Packer:	ft				
Interval between Packers:	16.00 ft				
Tool Length:	36.00 ft				
Number of Packers:	1	Diameter: 6.75 inches			

Tool Comments:

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

Change Over Sub	1.00			3395.00	
Shut In Tool	5.00			3400.00	
Hydraulic tool	5.00			3405.00	
Packer	5.00			3410.00	20.00 Bottom Of Top Packer
Packer	4.00			3414.00	
Stubb	1.00			3415.00	
Perforations	2.00			3417.00	
Recorder	0.00	9120	Inside	3417.00	
Recorder	0.00	8934	Outside	3417.00	
Perforations	10.00			3427.00	
Bullnose	3.00			3430.00	16.00 Bottom Packers & Anchor

Total Tool Length: 36.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Jaspar Co

20-9s-19w Rooks,KS

PO Box 1120
Hays KS 67601

Larry #1

Job Ticket: 63182

DST#: 3

ATTN: Jeff Lawler

Test Start: 2017.11.16 @ 09:34:00

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:

94000 ppm

Viscosity: 56.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.59 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3000.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
1100.00	Water 100%W	14.337
300.00	MCW 5%M 95%W	4.208

Total Length: 1400.00 ft Total Volume: 18.545 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

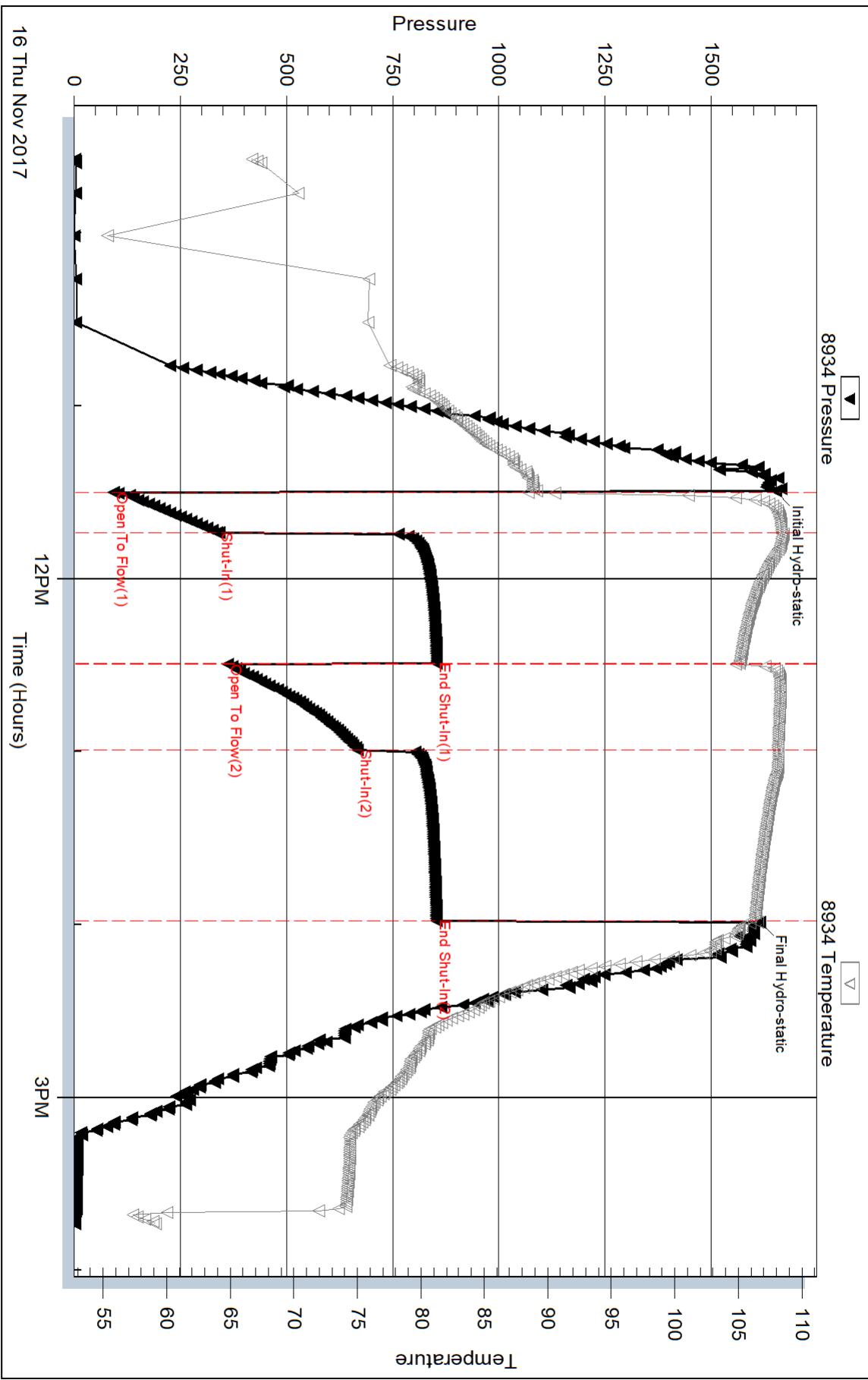
Laboratory Name:

Laboratory Location:

Recovery Comments: 2#LCM

RW=.999@60degrees

Pressure vs. Time

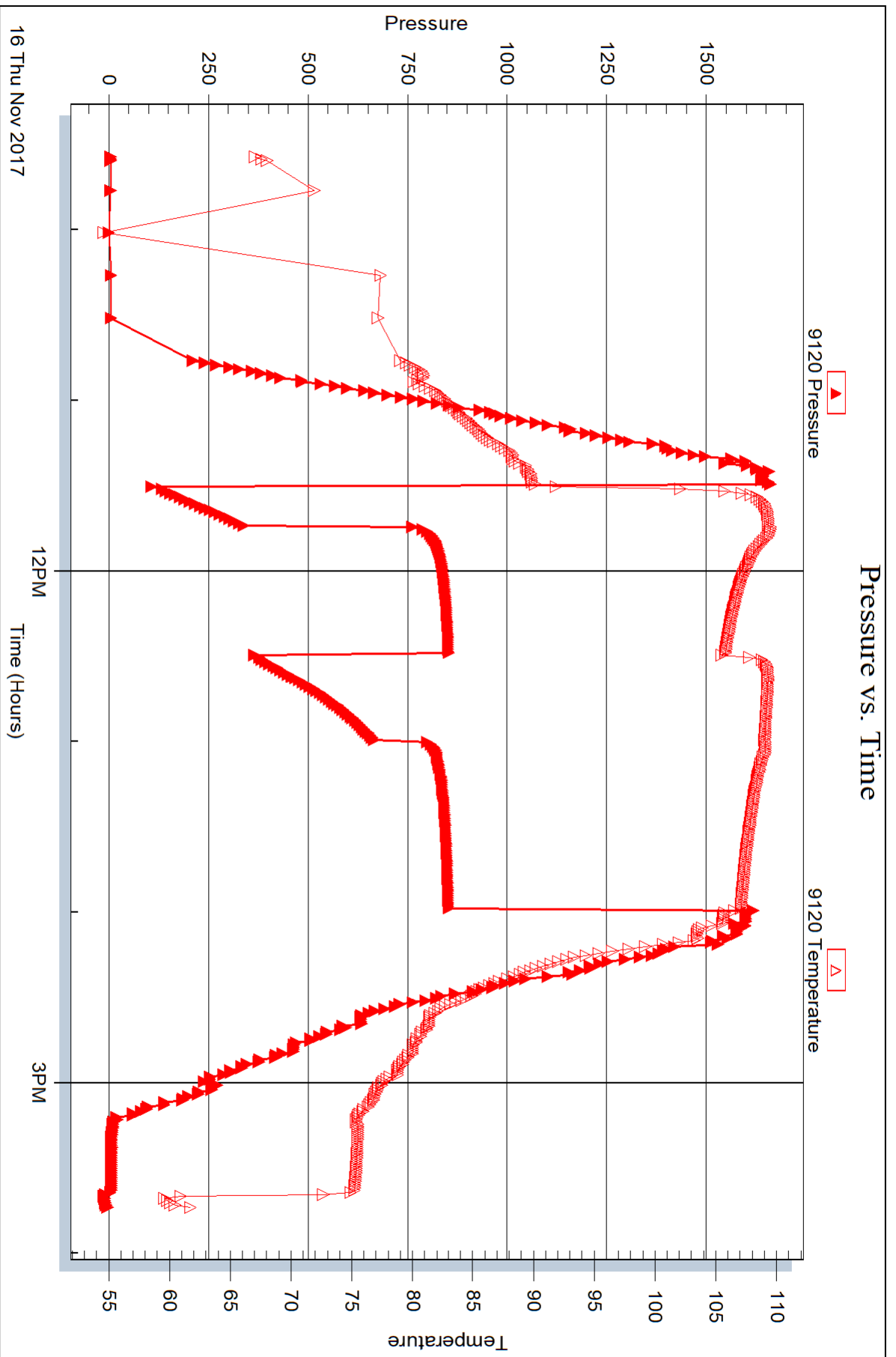


Serial #: 9120

Inside Jasper Co

Larry #1

DST Test Number: 3



Triobite Testing, Inc

Ref. No: 63182

Printed: 2017.11.21 @ 08:18:13



DRILL STEM TEST REPORT

Prepared For: **Jaspar Co**

PO Box 1120
Hays KS 67601

ATTN: Jeff Lawler

Larry #1

20-9s-19w Rooks,KS

Start Date: 2017.11.17 @ 00:14:00

End Date: 2017.11.17 @ 07:06:15

Job Ticket #: 63183 DST #: 4

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

Printed: 2017.11.21 @ 08:17:48

Jaspar Co
20-9s-19w Rooks,KS
Larry #1
DST # 4
LKC-H-I
2017.11.17



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Jaspar Co
 PO Box 1120
 Hays KS 67601
 ATTN: Jeff Lawler

20-9s-19w Rooks,KS
Larry #1
 Job Ticket: 63183 **DST#: 4**
 Test Start: 2017.11.17 @ 00:14:00

GENERAL INFORMATION:

Formation: **LKC 'H-I'**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 02:32:45
 Time Test Ended: 07:06:15
 Interval: **3458.00 ft (KB) To 3509.00 ft (KB) (TVD)**
 Total Depth: 3509.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Spencer J. Staab
 Unit No: 84
 Reference Elevations: 2146.00 ft (KB)
 2141.00 ft (CF)
 KB to GR/CF: 5.00 ft

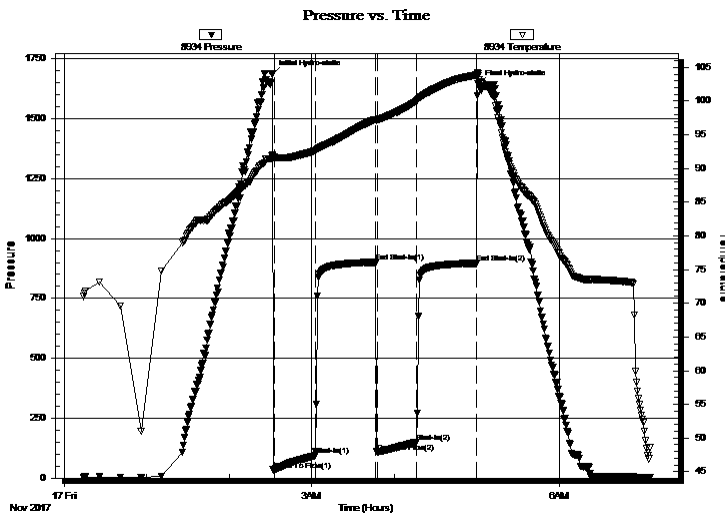
Serial #: 8934

Inside

Press@RunDepth: 150.97 psig @ 3463.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2017.11.17 End Date: 2017.11.17 Last Calib.: 2017.11.17
 Start Time: 00:14:15 End Time: 07:06:15 Time On Btm: 2017.11.17 @ 02:31:30
 Time Off Btm: 2017.11.17 @ 05:01:00

TEST COMMENT: 30-IF-Fair Blow ; BOB in 17 mins
 45-ISI-Weak Blow ; Built to 1/2"; Died back to 1/4"
 30-FF-Fair Blow ; BOB in 16 mins
 45-FSI-Weak Blow ; Built to 1"; Died back to 1/4"

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1685.75	91.94	Initial Hydro-static
2	34.42	91.66	Open To Flow (1)
31	94.51	92.64	Shut-In(1)
75	900.65	97.28	End Shut-In(1)
76	109.57	97.19	Open To Flow (2)
105	150.97	100.01	Shut-In(2)
149	896.32	103.88	End Shut-In(2)
150	1643.87	104.11	Final Hydro-static

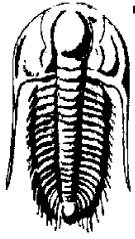
Recovery

Length (ft)	Description	Volume (bbl)
60.00	OCWM 2%O 28%W 70%M	0.30
120.00	OCMW 1%O 10%M 89%W	1.14
60.00	OCWM 3%O 27%W 70%M	0.84
10.00	OCM 5%O 95%M	0.14
30.00	MCGO 5%M 10%G 85%O	0.42

* Recovery from multiple tests

Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
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**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Jaspar Co
PO Box 1120
Hays KS 67601
ATTN: Jeff Lawler

20-9s-19w Rooks, KS
Larry #1
Job Ticket: 63183 **DST#: 4**
Test Start: 2017.11.17 @ 00:14:00

GENERAL INFORMATION:

Formation: LKC 'H-I'			
Deviated: No Whipstock:	ft (KB)	Test Type: Conventional Bottom Hole (Reset)	
Time Tool Opened: 02:32:45		Tester: Spencer J. Staab	
Time Test Ended: 07:06:15		Unit No: 84	
Interval: 3458.00 ft (KB) To 3509.00 ft (KB) (TVD)		Reference Elevations: 2146.00 ft (KB)	
Total Depth: 3509.00 ft (KB) (TVD)		2141.00 ft (CF)	
Hole Diameter: 7.88 inches	Hole Condition: Fair	KB to GR/CF: 5.00 ft	

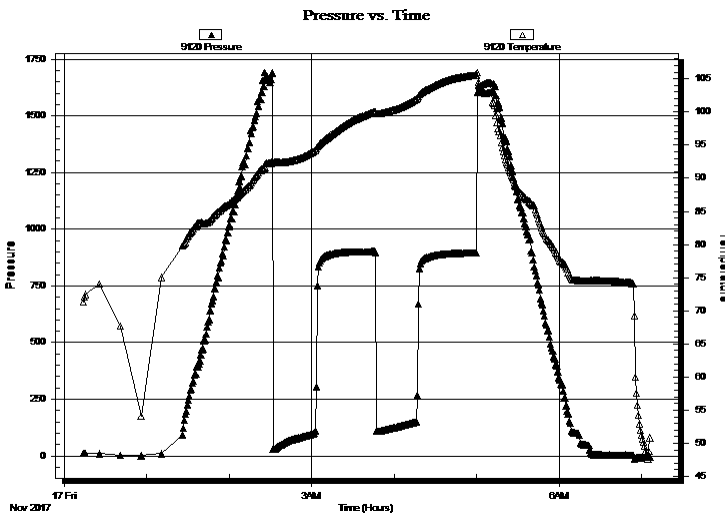
Serial #: 9120

Inside

Press@RunDepth: psig @	3463.00 ft (KB)	Capacity:	8000.00 psig
Start Date: 2017.11.17	End Date: 2017.11.17	Last Calib.:	2017.11.17
Start Time: 00:14:15	End Time: 07:06:15	Time On Btm:	
		Time Off Btm:	

TEST COMMENT: 30-IF-Fair Blow ; BOB in 17 mins
45-ISI-Weak Blow ; Built to 1/2"; Died back to 1/4"
30-FF-Fair Blow ; BOB in 16 mins
45-FSI-Weak Blow ; Built to 1"; Died back to 1/4"

PRESSURE SUMMARY



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

Recovery

Length (ft)	Description	Volume (bbl)
60.00	OCWM 2%O 28%W 70%M	0.30
120.00	OCMW 1%O 10%M 89%W	1.14
60.00	OCWM 3%O 27%W 70%M	0.84
10.00	OCM 5%O 95%M	0.14
30.00	MCGO 5%M 10%G 85%O	0.42

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Jaspar Co
PO Box 1120
Hays KS 67601
ATTN: Jeff Lawler

20-9s-19w Rooks,KS
Larry #1
Job Ticket: 63183 **DST#: 4**
Test Start: 2017.11.17 @ 00:14:00

Tool Information

Drill Pipe:	Length: 3336.00 ft	Diameter: 3.80 inches	Volume: 46.80 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 2.75 inches	Volume: - bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 120.00 ft	Diameter: 2.25 inches	Volume: 0.59 bbl	Weight to Pull Loose:	40000.00 lb
			<u>Total Volume:</u> - bbl	Tool Chased	ft
Drill Pipe Above KB:	18.00 ft			String Weight: Initial	34000.00 lb
Depth to Top Packer:	3458.00 ft			Final	35000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	51.00 ft				
Tool Length:	71.00 ft				
Number of Packers:	1	Diameter: 6.75 inches			

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3439.00	
Shut In Tool	5.00			3444.00	
Hydraulic tool	5.00			3449.00	
Packer	5.00			3454.00	20.00 Bottom Of Top Packer
Packer	4.00			3458.00	
Stubb	1.00			3459.00	
Perforations	3.00			3462.00	
Change Over Sub	1.00			3463.00	
Recorder	0.00	9120	Inside	3463.00	
Recorder	0.00	8934	Inside	3463.00	
Drill Pipe	32.00			3495.00	
Change Over Sub	1.00			3496.00	
Perforations	10.00			3506.00	
Bullnose	3.00			3509.00	51.00 Bottom Packers & Anchor

Total Tool Length: 71.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Jaspar Co
PO Box 1120
Hays KS 67601

20-9s-19w Rooks,KS

Larry #1

Job Ticket: 63183

DST#: 4

ATTN: Jeff Lawler

Test Start: 2017.11.17 @ 00:14:00

Mud and Cushion Information

Mud Type: Gel Chem
Mud Weight: 9.00 lb/gal
Viscosity: 56.00 sec/qt
Water Loss: 7.59 in³
Resistivity: ohm.m
Salinity: 3000.00 ppm
Filter Cake: inches

Cushion Type:
Cushion Length: ft
Cushion Volume: bbl
Gas Cushion Type:
Gas Cushion Pressure: psig

Oil API: 36 deg API
Water Salinity: 74000 ppm

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
60.00	OCWM 2%O 28%W 70%M	0.295
120.00	OCMW 1%O 10%M 89%W	1.137
60.00	OCWM 3%O 27%W 70%M	0.842
10.00	OCM 5%O 95%M	0.140
30.00	MCGO 5%M 10%G 85%O	0.421

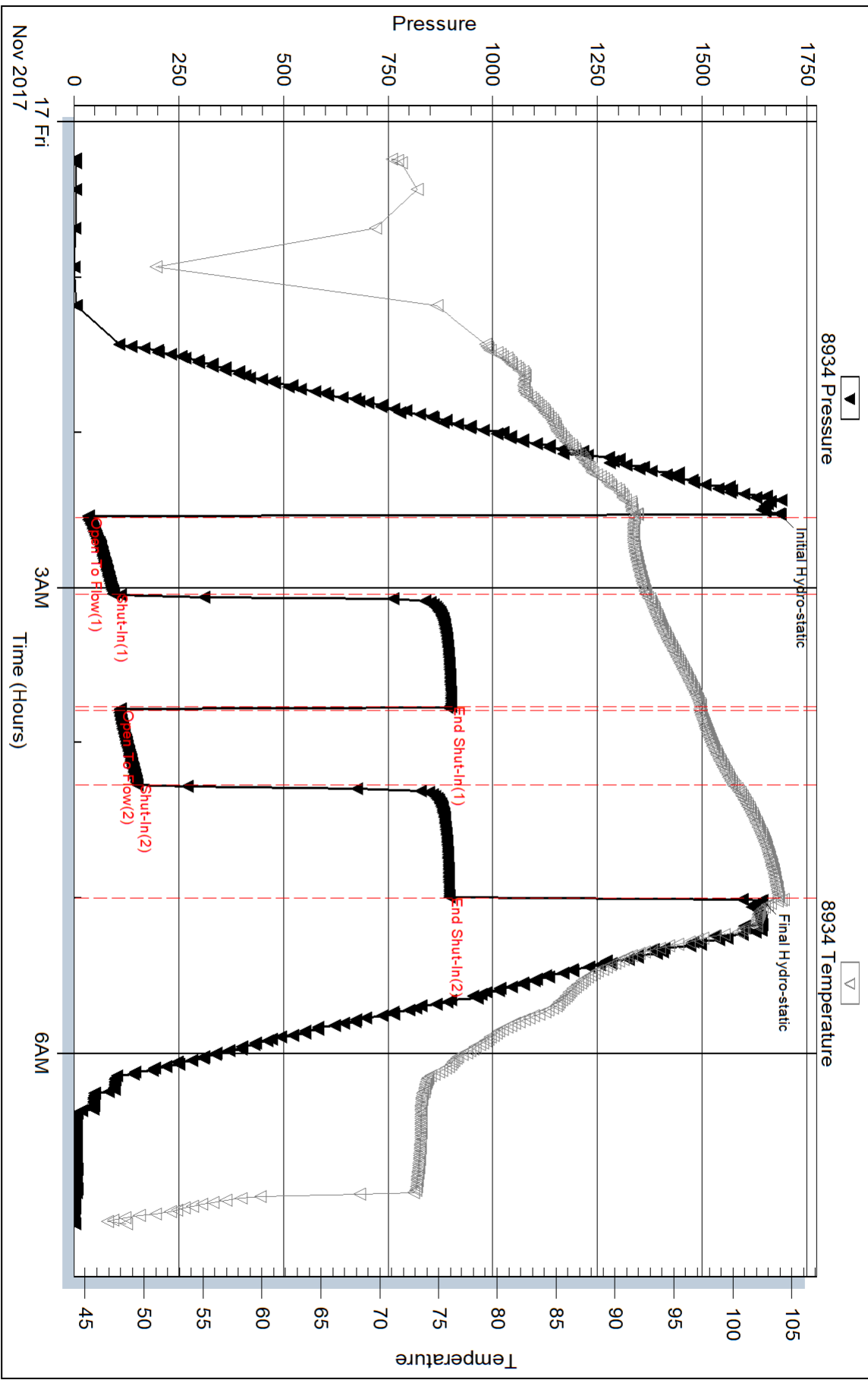
Total Length: 280.00 ft Total Volume: 2.835 bbl

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

Laboratory Name: Laboratory Location:

Recovery Comments: 2#LCM
RW=.149@51degrees

Pressure vs. Time

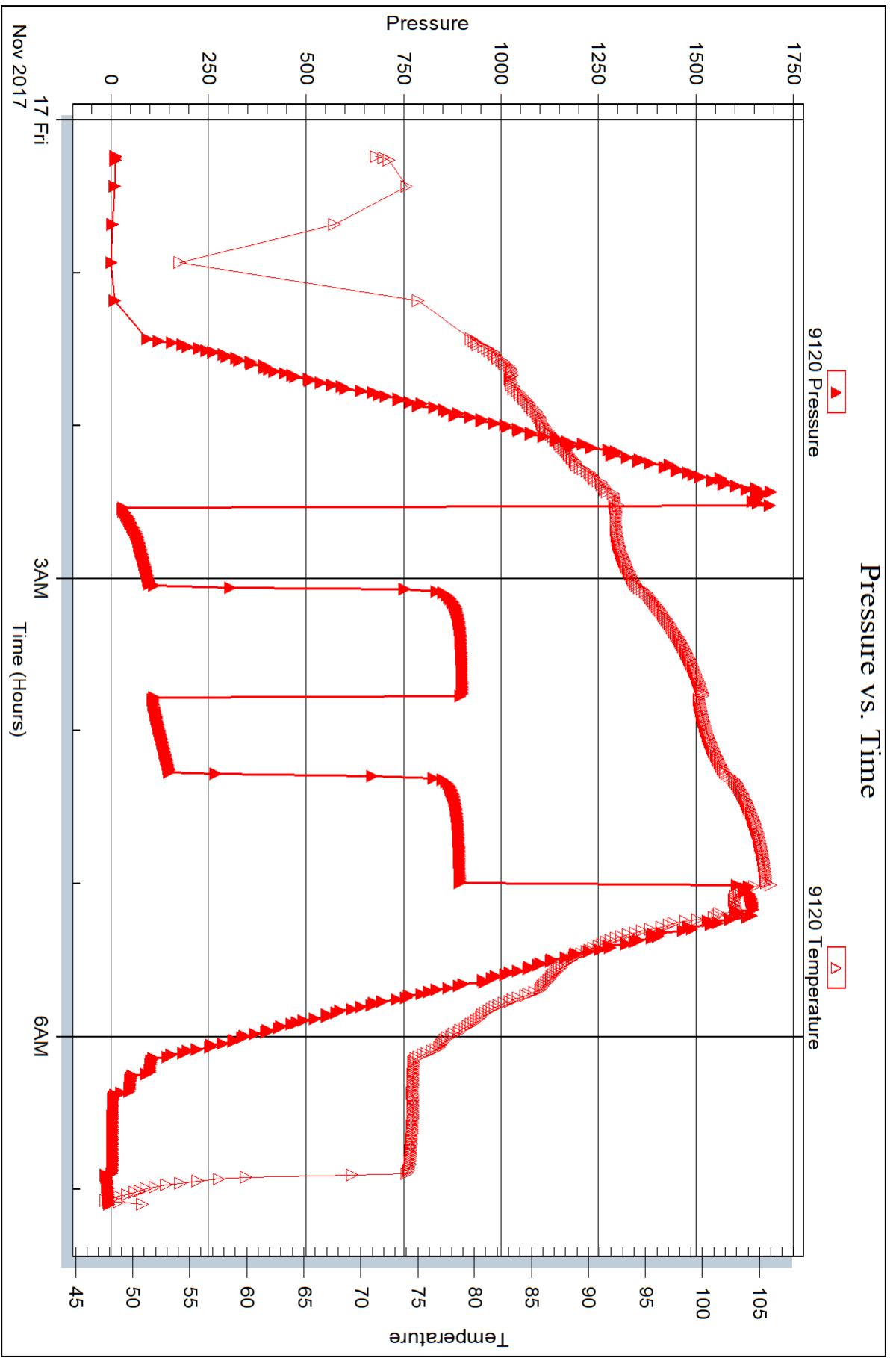


Serial #: 9120

Inside Jasper Co

Larry #1

DST Test Number: 4



Trilobite Testing, Inc

Ref. No: 63183

Printed: 2017.11.21 @ 08:17:49



DRILL STEM TEST REPORT

Prepared For: **Jaspar Co**
PO Box 1120
Hays KS 67601

ATTN: Jeff Lawler

Larry #1

20-9s-19w Rooks,KS

Start Date: 2017.11.17 @ 13:55:15

End Date: 2017.11.17 @ 21:04:00

Job Ticket #: 63184 DST #: 5

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

Printed: 2017.11.21 @ 08:17:23

Jaspar Co
20-9s-19w Rooks,KS
Larry #1
DST # 5
LKC 'J'
2017.11.17



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Jaspar Co
PO Box 1120
Hays KS 67601

20-9s-19w Rooks, KS

Larry #1

Job Ticket: 63184

DST#: 5

ATTN: Jeff Lawler

Test Start: 2017.11.17 @ 13:55:15

GENERAL INFORMATION:

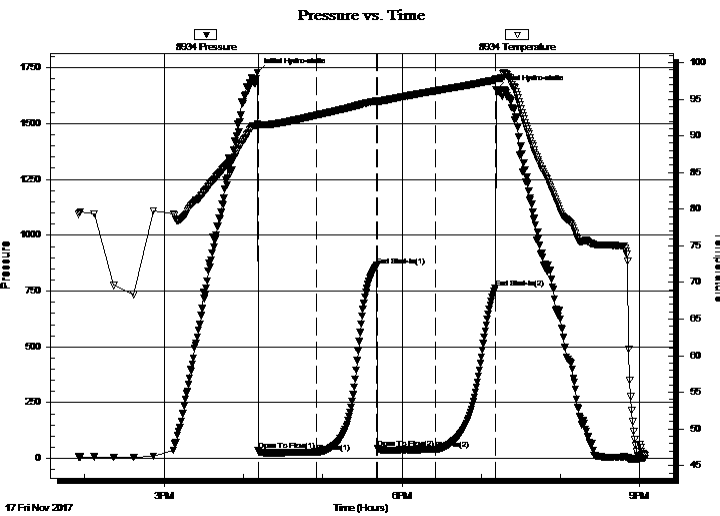
Formation: **LKC 'J'**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 16:11:00
 Time Test Ended: 21:04:00
 Interval: **3507.00 ft (KB) To 3525.00 ft (KB) (TVD)**
 Total Depth: 3525.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Spencer J. Staab
 Unit No: 84
 Reference Elevations: 2146.00 ft (KB)
 2141.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8934

Outside

Press@RunDepth: 40.63 psig @ 3512.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2017.11.17 End Date: 2017.11.17 Last Calib.: 2017.11.17
 Start Time: 13:55:15 End Time: 21:04:00 Time On Btm: 2017.11.17 @ 16:10:45
 Time Off Btm: 2017.11.17 @ 19:11:15

TEST COMMENT: 45-IF-Weak Blow ; Built to 1 3/4"
 45-ISI-No Return
 45-FF-Weak Blow ; Built to 1 3/4"
 45-FSI-No Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1729.15	91.70	Initial Hydro-static
1	36.17	91.24	Open To Flow (1)
45	29.29	92.82	Shut-In(1)
91	864.28	94.79	End Shut-In(1)
91	44.49	94.60	Open To Flow (2)
135	40.63	96.14	Shut-In(2)
180	763.41	97.61	End Shut-In(2)
181	1653.60	97.86	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
57.00	HOCM 40%O 60%M	0.28
5.00	Clean Oil 100%O	0.02

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Jaspar Co
PO Box 1120
Hays KS 67601
ATTN: Jeff Lawler

20-9s-19w Rooks, KS
Larry #1
Job Ticket: 63184 **DST#: 5**
Test Start: 2017.11.17 @ 13:55:15

Tool Information

Drill Pipe:	Length: 3399.00 ft	Diameter: 3.80 inches	Volume: 47.68 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 2.75 inches	Volume: - bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 120.00 ft	Diameter: 2.25 inches	Volume: 0.59 bbl	Weight to Pull Loose:	40000.00 lb
			<u>Total Volume:</u> - bbl	Tool Chased	ft
Drill Pipe Above KB:	32.00 ft			String Weight: Initial	35000.00 lb
Depth to Top Packer:	3507.00 ft			Final	35000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	18.00 ft				
Tool Length:	38.00 ft				
Number of Packers:	1	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			3488.00	
Shut In Tool	5.00			3493.00	
Hydraulic tool	5.00			3498.00	
Packer	5.00			3503.00	20.00 Bottom Of Top Packer
Packer	4.00			3507.00	
Stubb	1.00			3508.00	
Perforations	4.00			3512.00	
Recorder	0.00	9120	Inside	3512.00	
Recorder	0.00	8934	Outside	3512.00	
Perforations	10.00			3522.00	
Bullnose	3.00			3525.00	18.00 Bottom Packers & Anchor

Total Tool Length: 38.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Jaspar Co

20-9s-19w Rooks,KS

PO Box 1120
Hays KS 67601

Larry #1

Job Ticket: 63184

DST#: 5

ATTN: Jeff Lawler

Test Start: 2017.11.17 @ 13:55:15

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

35 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 54.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.59 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 8500.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
57.00	HOCM 40%O 60%M	0.280
5.00	Clean Oil 100%O	0.025

Total Length: 62.00 ft Total Volume: 0.305 bbl

Num Fluid Samples: 0

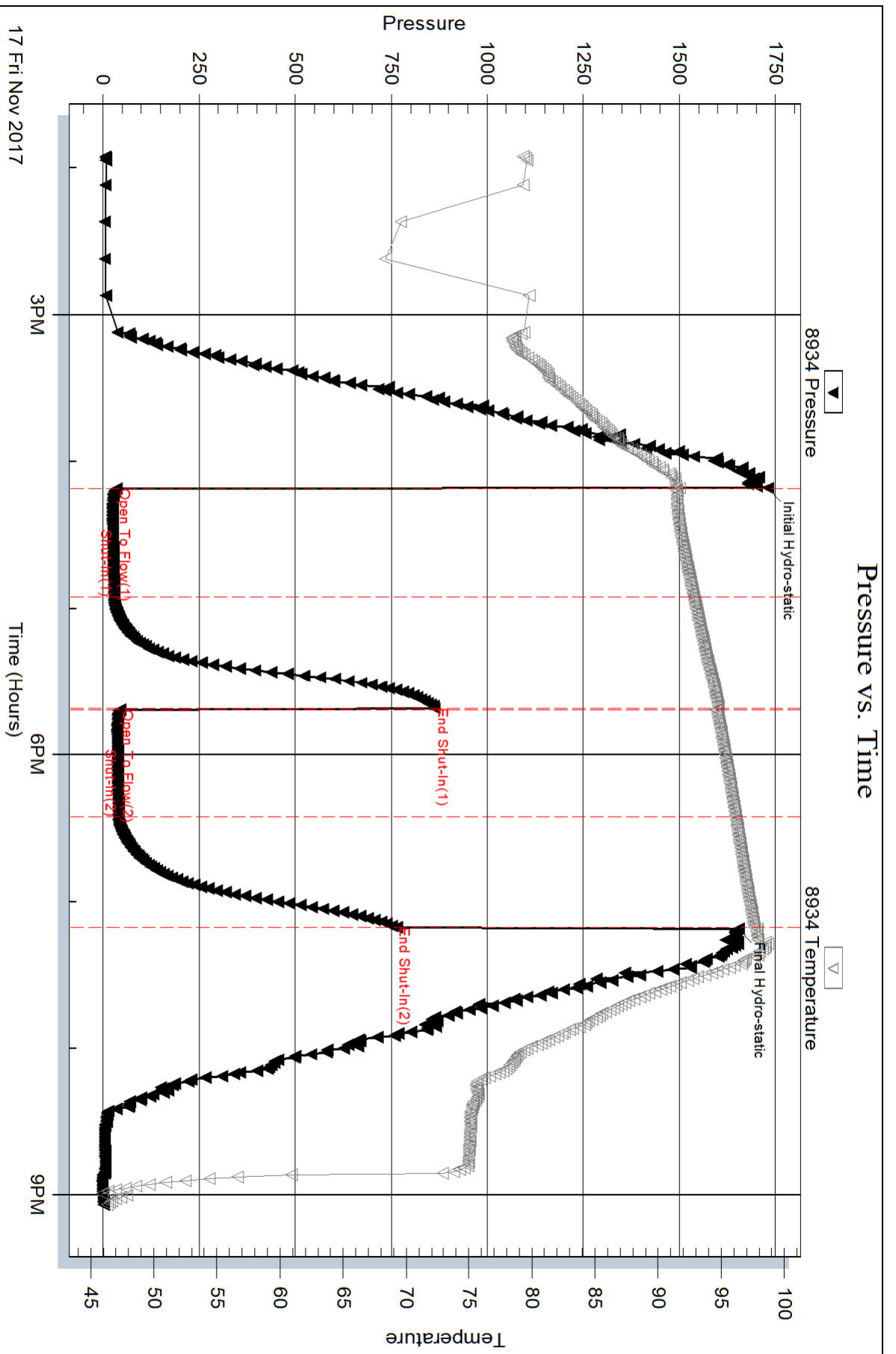
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 3&1/2#LCM

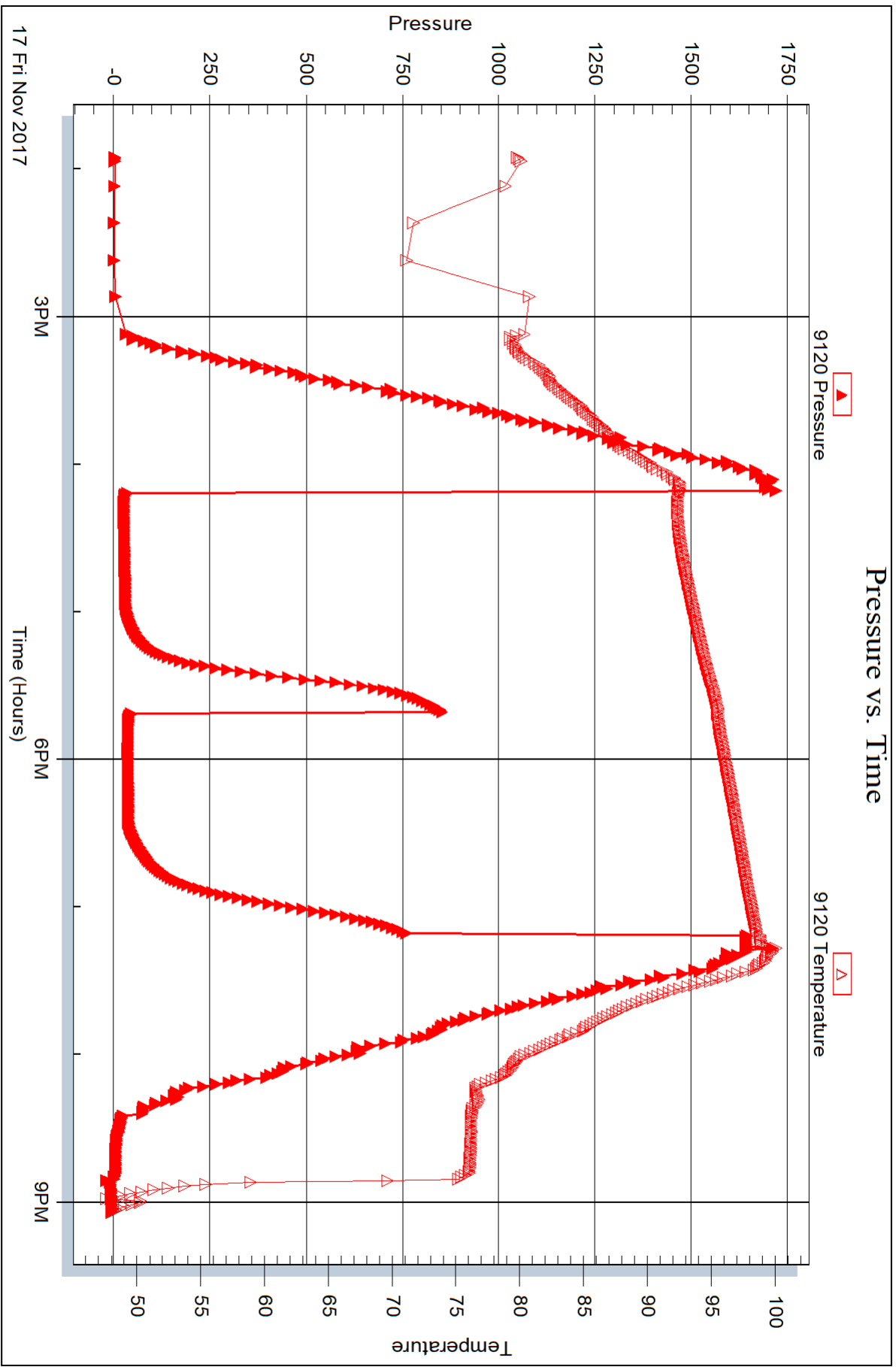


Serial #: 9120

Inside Jasper Co

Larry #1

DST Test Number: 5





DRILL STEM TEST REPORT

Prepared For: **Jaspar Co**

PO Box 1120
Hays KS 67601

ATTN: Jeff Lawler

Larry #1

20-9s-19w Rooks,KS

Start Date: 2017.11.18 @ 08:18:00

End Date: 2017.11.18 @ 12:58:45

Job Ticket #: 63185 DST #: 6

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

Printed: 2017.11.21 @ 08:16:56

Jaspar Co
20-9s-19w Rooks,KS
Larry #1
DST # 6
Arbuckle
2017.11.18



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Jaspar Co
PO Box 1120
Hays KS 67601

20-9s-19w Rooks, KS

Larry #1

Job Ticket: 63185

DST#: 6

ATTN: Jeff Lawler

Test Start: 2017.11.18 @ 08:18:00

GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 10:50:45

Time Test Ended: 12:58:45

Test Type: Conventional Bottom Hole (Reset)

Tester: Spencer J. Staab

Unit No: 84

Interval: **3582.00 ft (KB) To 3593.00 ft (KB) (TVD)**

Total Depth: 3350.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2146.00 ft (KB)

2141.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8934 Outside

Press@RunDepth: psig @ 3583.00 ft (KB)

Start Date: 2017.11.18

End Date: 2017.11.18

Start Time: 08:18:15

End Time: 12:58:45

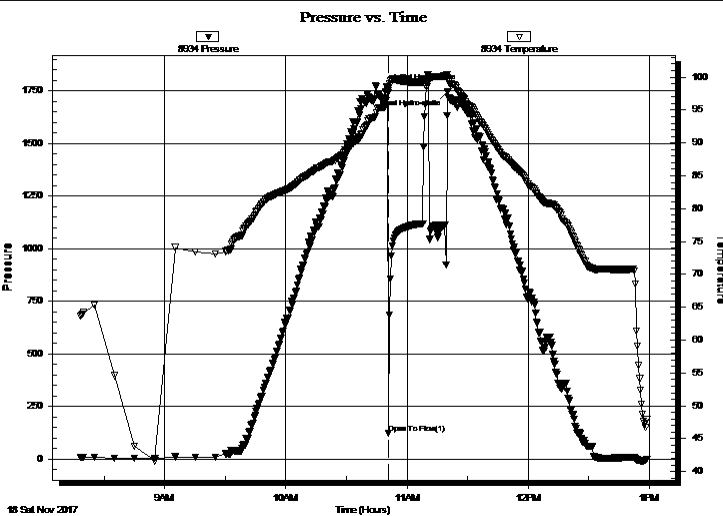
Capacity: 8000.00 psig

Last Calib.: 2017.11.18

Time On Btm: 2017.11.18 @ 10:50:30

Time Off Btm: 2017.11.18 @ 11:20:15

TEST COMMENT: IF-Weak Blow ; Built to 1"; Started to die back; Flushed Tool; No Help



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1760.16	97.90	Initial Hydro-static
1	123.27	97.68	Open To Flow (1)
30	1746.51	99.69	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud w/show oil	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

Jaspar Co
PO Box 1120
Hays KS 67601
ATTN: Jeff Lawler

20-9s-19w Rooks,KS
Larry #1
Job Ticket: 63185 **DST#: 6**
Test Start: 2017.11.18 @ 08:18:00

Tool Information

Drill Pipe:	Length: 3463.00 ft	Diameter: 3.80 inches	Volume: 48.58 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 2.75 inches	Volume: - bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 120.00 ft	Diameter: 2.25 inches	Volume: 0.59 bbl	Weight to Pull Loose:	42000.00 lb
			<u>Total Volume: - bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	21.00 ft			String Weight: Initial	34000.00 lb
Depth to Top Packer:	3582.00 ft			Final	34000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	11.00 ft				
Tool Length:	31.00 ft				
Number of Packers:	1	Diameter: 6.75 inches			
Tool Comments:					

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3563.00	
Shut In Tool	5.00			3568.00	
Hydraulic tool	5.00			3573.00	
Packer	5.00			3578.00	20.00 Bottom Of Top Packer
Packer	4.00			3582.00	
Stubb	1.00			3583.00	
Recorder	0.00	9120	Inside	3583.00	
Recorder	0.00	8934	Outside	3583.00	
Perforations	7.00			3590.00	
Bullnose	3.00			3593.00	11.00 Bottom Packers & Anchor
Total Tool Length:	31.00				



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Jaspar Co
PO Box 1120
Hays KS 67601
ATTN: Jeff Lawler

20-9s-19w Rooks,KS
Larry #1
Job Ticket: 63185 **DST#: 6**
Test Start: 2017.11.18 @ 08:18:00

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: 54.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.59 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 8500.00 ppm			
Filter Cake: inches			

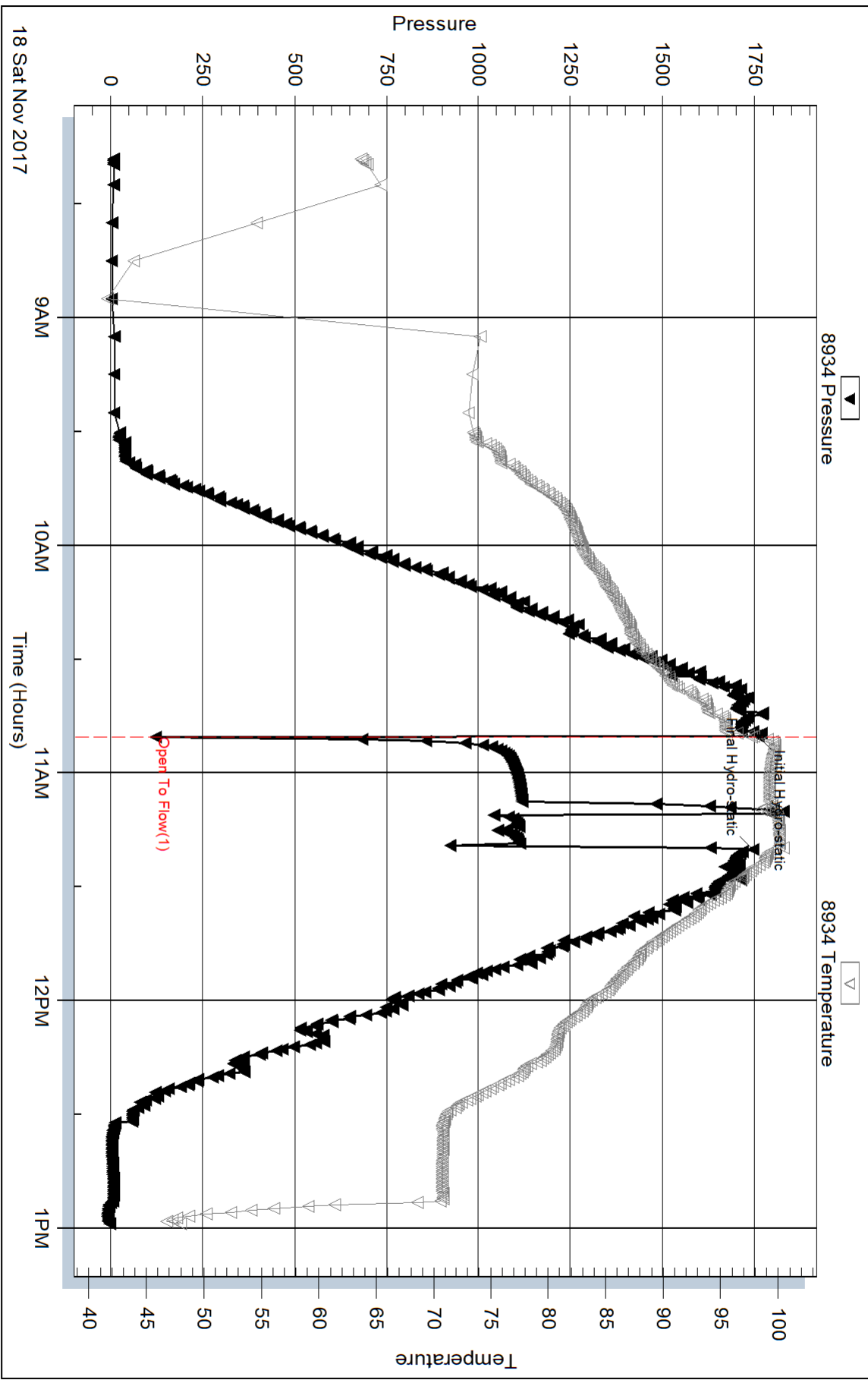
Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	Mud w/show oil	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments: 3&1/2#LCM

Pressure vs. Time

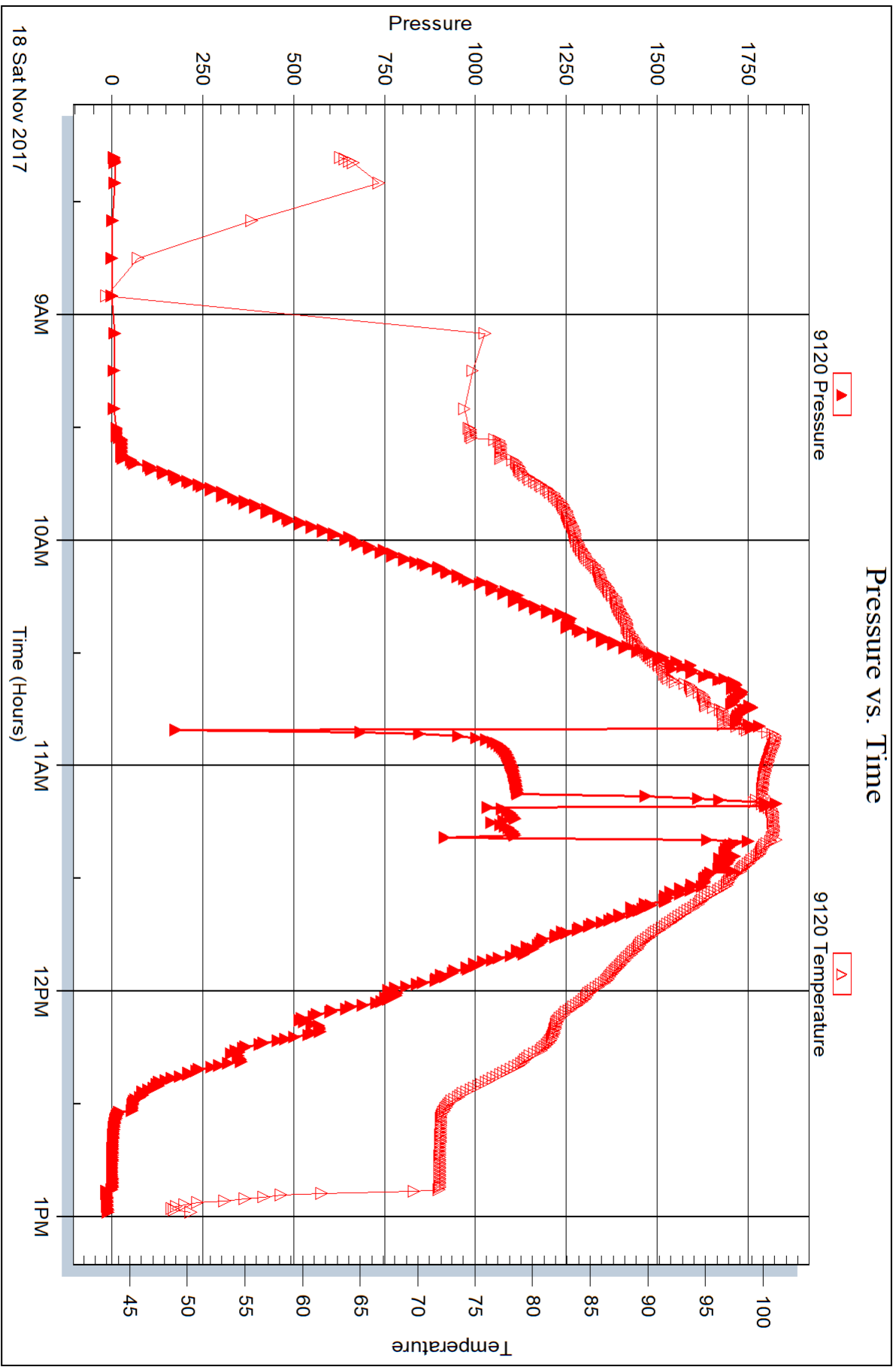


Serial #: 9120

Inside Jasper Co

Larry #1

DST Test Number: 6





DRILL STEM TEST REPORT

Prepared For: **Jaspar Co**

PO Box 1120
Hays KS 67601

ATTN: Jeff Lawler

Larry #1

20-9s-19w Rooks,KS

Start Date: 2017.11.18 @ 18:29:00

End Date: 2017.11.19 @ 02:24:30

Job Ticket #: 63186 DST #: 7

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

Printed: 2017.11.21 @ 08:16:23



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Jaspar Co
 PO Box 1120
 Hays KS 67601
 ATTN: Jeff Lawler

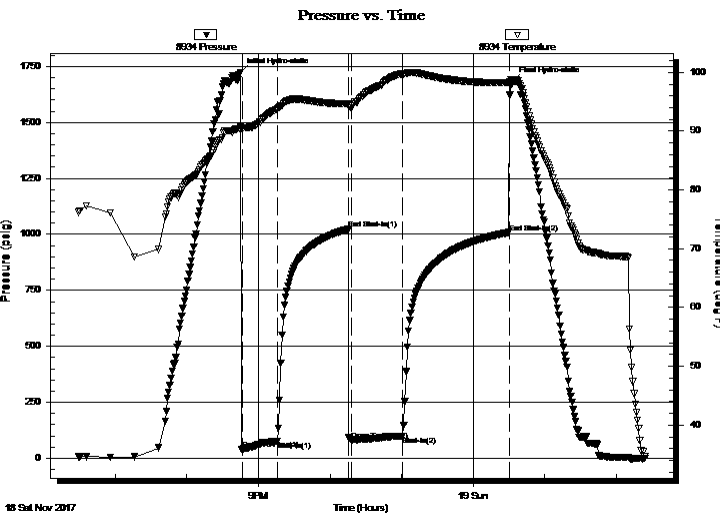
20-9s-19w Rooks,KS
Larry #1
 Job Ticket: 63186 **DST#: 7**
 Test Start: 2017.11.18 @ 18:29:00

GENERAL INFORMATION:

Formation: **Arbuckle**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 20:46:15
 Time Test Ended: 02:24:30
 Interval: **3540.00 ft (KB) To 3595.00 ft (KB) (TVD)**
 Total Depth: 3595.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Spencer J. Staab
 Unit No: 84
 Reference Elevations: 2146.00 ft (KB)
 2141.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8934 Inside
 Press@RunDepth: 100.08 psig @ 3543.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2017.11.18 End Date: 2017.11.19 Last Calib.: 2017.11.19
 Start Time: 18:29:15 End Time: 02:24:30 Time On Btm: 2017.11.18 @ 20:44:45
 Time Off Btm: 2017.11.19 @ 00:33:00

TEST COMMENT: 30-IF-Fair Blow ; Built to 9"
 60-ISI-No Return
 45-FF-Fair Blow ; BOB in 31 mins
 90-FSI-Weak Blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1722.97	90.67	Initial Hydro-static
2	41.23	90.58	Open To Flow (1)
31	76.02	93.84	Shut-In(1)
91	1022.85	94.63	End Shut-In(1)
94	82.90	94.10	Open To Flow (2)
137	100.08	99.69	Shut-In(2)
226	1008.35	98.21	End Shut-In(2)
229	1681.58	98.80	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
190.00	HMCO 40%M 60%O	1.57
30.00	MCO 20%M 80%O	0.42

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Jaspar Co
PO Box 1120
Hays KS 67601
ATTN: Jeff Lawler

20-9s-19w Rooks, KS
Larry #1
Job Ticket: 63186 **DST#: 7**
Test Start: 2017.11.18 @ 18:29:00

Tool Information

Drill Pipe:	Length: 3432.00 ft	Diameter: 3.80 inches	Volume: 48.14 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 2.75 inches	Volume: - bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 120.00 ft	Diameter: 2.25 inches	Volume: 0.59 bbl	Weight to Pull Loose:	42000.00 lb
			<u>Total Volume:</u>	Tool Chased	ft
Drill Pipe Above KB:	32.00 ft			String Weight: Initial	34000.00 lb
Depth to Top Packer:	3540.00 ft			Final	35000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	55.00 ft				
Tool Length:	75.00 ft				
Number of Packers:	1	Diameter:	6.75 inches		

Tool Comments:

Tool Description

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

Change Over Sub	1.00			3521.00	
Shut In Tool	5.00			3526.00	
Hydraulic tool	5.00			3531.00	
Packer	5.00			3536.00	20.00 Bottom Of Top Packer
Packer	4.00			3540.00	
Stubb	1.00			3541.00	
Perforations	1.00			3542.00	
Change Over Sub	1.00			3543.00	
Recorder	0.00	9120	Inside	3543.00	
Recorder	0.00	8934	Inside	3543.00	
Drill Pipe	32.00			3575.00	
Change Over Sub	1.00			3576.00	
Perforations	16.00			3592.00	
Bullnose	3.00			3595.00	55.00 Bottom Packers & Anchor

Total Tool Length: 75.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Jaspar Co
PO Box 1120
Hays KS 67601
ATTN: Jeff Lawler

20-9s-19w Rooks,KS
Larry #1
Job Ticket: 63186 **DST#: 7**
Test Start: 2017.11.18 @ 18:29:00

Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API: 25 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: ppm
Viscosity: 48.00 sec/qt	Cushion Volume: bbl	
Water Loss: 7.99 in ³	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 9000.00 ppm		
Filter Cake: inches		

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
190.00	HMCO 40%M 60%O	1.572
30.00	MCO 20%M 80%O	0.421

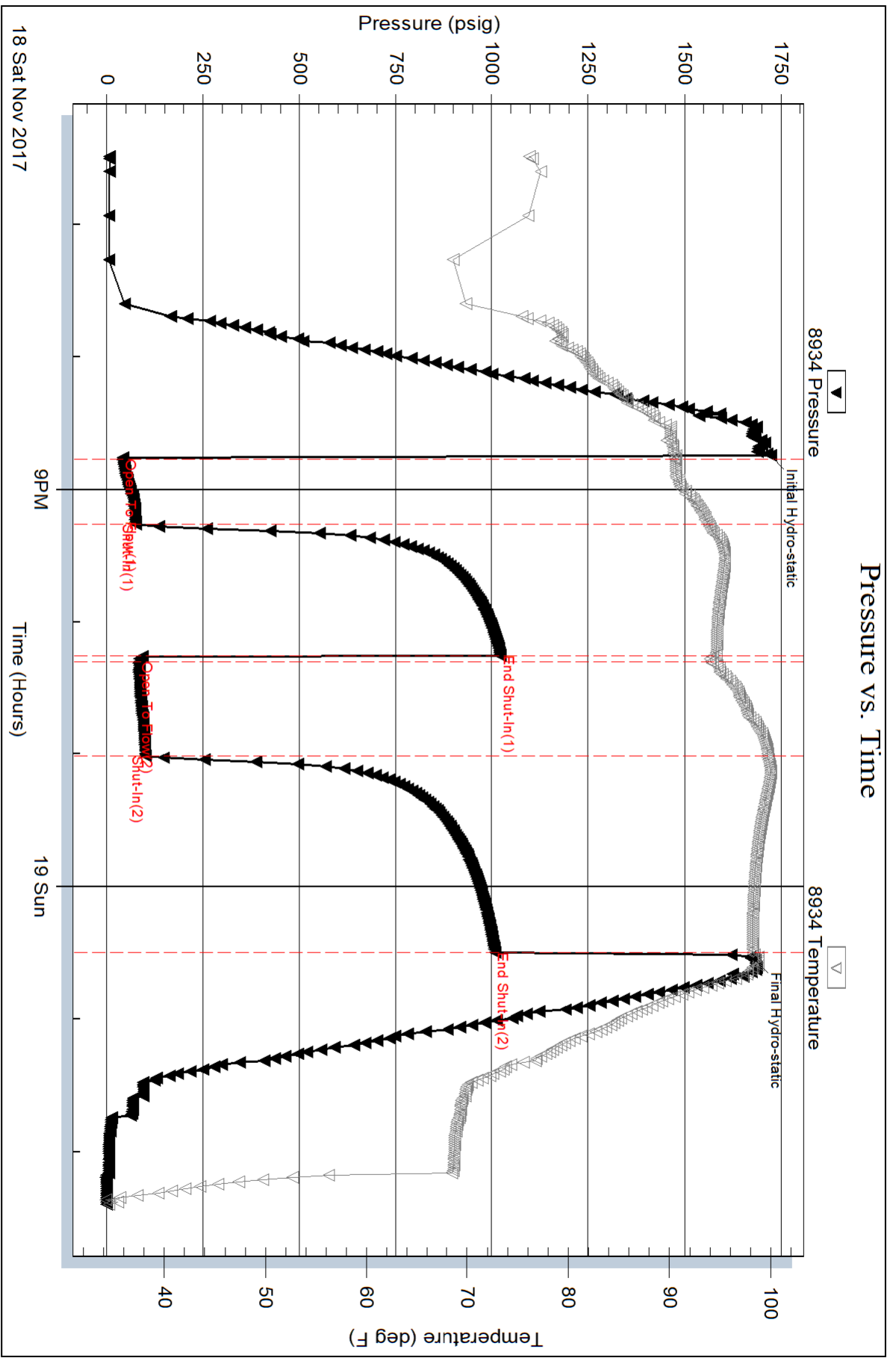
Total Length: 220.00 ft Total Volume: 1.993 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments: 2#LCM

Serial #: 8934

Inside Jasper Co

Larry #1

DST Test Number: 7



Triobite Testing, Inc

Ref. No: 63186

Printed: 2017.11.21 @ 08:16:24

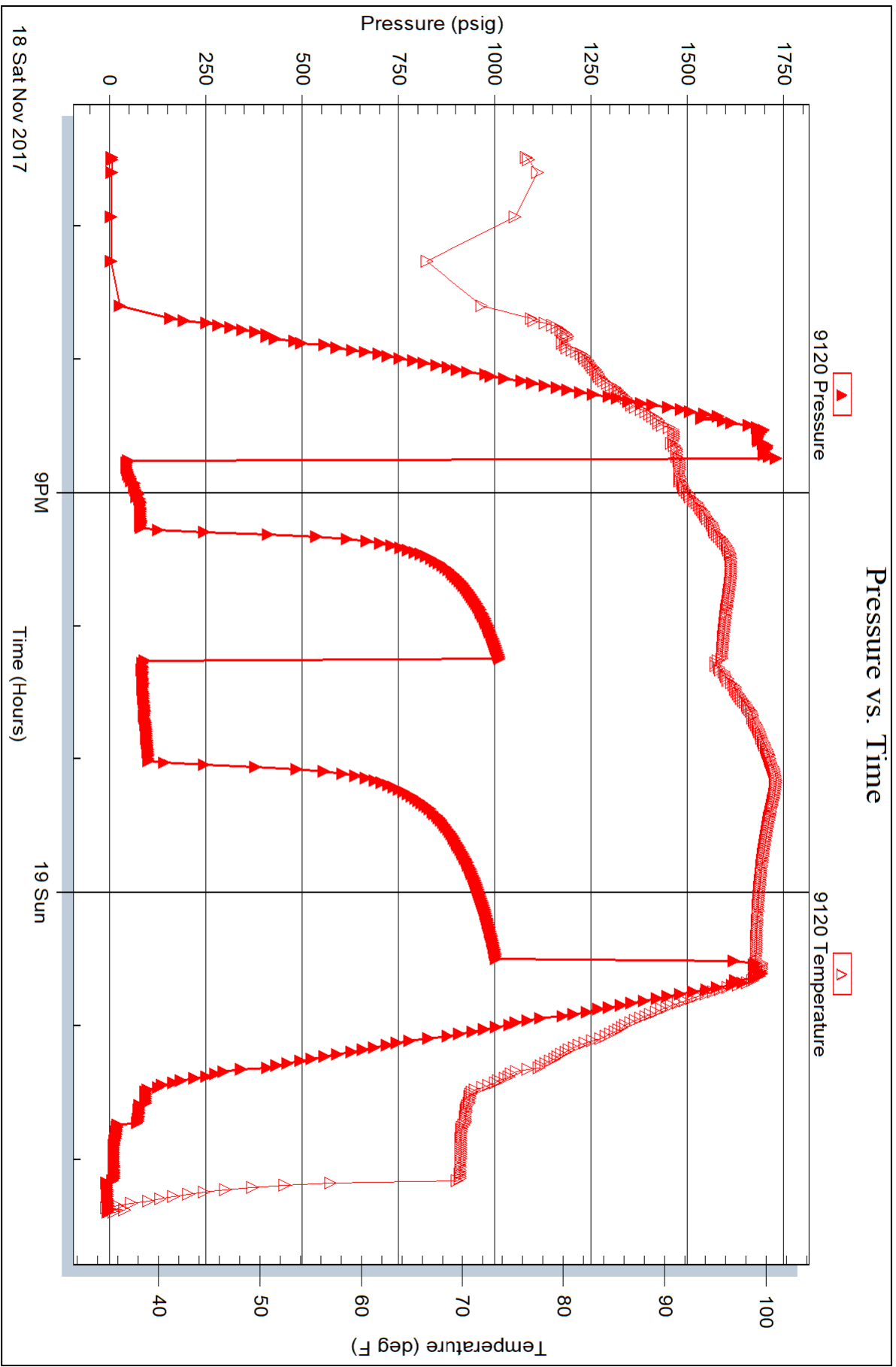
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Inside

Jaspar Co

Larry #1

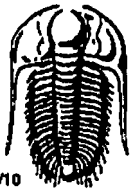
DST Test Number: 7



Triobite Testing, Inc

Ref. No: 63186

Printed: 2017.11.21 @ 08:16:24



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63180

Well Name & No. Larry #1 Test No. 1 Date 11/15/2017
 Company Jasper Co Elevation 2146 KB 2141 GL
 Address PO Box 1120 Hays KS 67601
 Co. Rep / Geo. Jeff Lawler Rig WW #8
 Location: Sec. 20 Twp. 9s Rge. 19w Co. Rooks State Ks

Interval Tested 3290' - 3350' Zone Tested Toronto - LHC 'a'
 Anchor Length 60' Drill Pipe Run 3175' Mud Wt. 8.6
 Top Packer Depth 3285' Drill Collars Run 120' Vis 6.8
 Bottom Packer Depth 3290' Wt. Pipe Run - WL 7.6
 Total Depth 3350' Chlorides 2500 ppm System LCM 4#

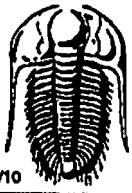
Blow Description 77- Fair Blow; BOB in 20 mins
75D- No Return
77- Fair Blow, Built to 9 1/2"
75D- Weak Blow; Did 20 min in

Rec	Feet of	%gas	%oil	%water	%mud
<u>120'</u>	<u>MW</u>			<u>70</u>	<u>30</u>
<u>60'</u>	<u>WCM</u>			<u>5</u>	<u>95</u>
<u>75'</u>	<u>OCM</u>		<u>7</u>		<u>93</u>
<u>15'</u>	<u>MCB</u>	<u>95</u>			<u>5</u>

Rec Total 280' BHT 98° Gravity 35° API RW .195 @ 50° F Chlorides 56,000 ppm

(A) Initial Hydrostatic 1596 Test 1050 T-On Location 02:15
 (B) First Initial Flow 88 Jars _____ T-Started 03:26
 (C) First Final Flow 89 Safety Joint _____ T-Open 07:09
 (D) Initial Shut-In 714 Circ Sub _____ T-Pulled 10:09
 (E) Second Initial Flow 99 Hourly Standby _____ T-Out 11:59
 (F) Second Final Flow 132 Mileage 74 R7 55.50 Comments _____
 (G) Final Shut-In 653 Sampler _____
 (H) Final Hydrostatic 1554 Straddle _____
 Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Initial Open 30 Shale Packer _____
 Initial Shut-In 45 Extra Packer _____
 Final Flow 45 Extra Recorder _____
 Final Shut-In 60 Day Standby _____
 Accessibility _____
 Sub Total 1105.50 Sub Total 0
 Total 1105.50 MP/DST Disc't _____

Approved By _____ Our Representative Spencer J. Staab Thanks!
785-259-0056



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63181

Well Name & No. Larry #1 Test No. 2 Date 11/15/2017
 Company Jasper Co Elevation 2146 KB 2141 GL
 Address PO BOX 1120 Hays KS 67601
 Co. Rep / Geo. Jeff Lawler Rig WW #8
 Location: Sec. 20 Twp. 9s Rge. 19w Co. Rooks State KS

Interval Tested 3354' - 3414' Zone Tested LAC 'C-D'
 Anchor Length 60' Drill Pipe Run 3242' Mud Wt. 9.0
 Top Packer Depth 3349' Drill Collars Run 120' Vis 55
 Bottom Packer Depth 3354' Wt. Pipe Run - WL 7.6
 Total Depth 3414' Chlorides 3,000 ppm System LCM 2 1/2 #

Blow Description 77-Strong Blow, BOB in 5 mins
75A-Weak Surface Blow @ 7 min; died after 8 mins
77-Strong Blow, BOB in 6 mins
75B-No Return

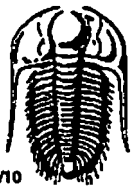
Rec	Feet of	%gas	%oil	%water	%mud
<u>525</u>	<u>MW</u>			<u>70</u>	<u>30</u>
<u>10'</u>	<u>MW</u>			<u>50</u>	<u>50</u>

Rec Total 535' BHT 105° Gravity - API RW 223 @ 36 °F Chlorides 70,000 ppm

(A) Initial Hydrostatic 1650 Test 1050 T-On Location 20:05
 (B) First Initial Flow 53 Jars _____ T-Started 20:22
 (C) First Final Flow 151 Safety Joint _____ T-Open 22:05
 (D) Initial Shut-In 854 Circ Sub _____ T-Pulled 00:35 11/16/2017
 (E) Second Initial Flow 157 Hourly Standby _____ T-Out 02:43
 (F) Second Final Flow 273 Mileage 7427 55.50 Comments _____
 (G) Final Shut-In 816 Sampler _____
 (H) Final Hydrostatic 1608 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1105.50
 Accessibility _____ MP/DST Disc't _____

Initial Open 15
 Initial Shut-In 45
 Final Flow 30
 Final Shut-In 60

Approved By _____ Sub Total 1105.50
 Our Representative Spencer J. Jacob Thanks!
 785-259-0056



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63182

Well Name & No. Larry #1 Test No. 3 Date 11/16/2017
 Company Jasper Co Elevation 2146 KB 2141 GL
 Address PO BOX 1120 Hays KS 67601
 Co. Rep / Geo. Jeff Lawler Rig WW#8
 Location: Sec. 20 Twp. 9s Rge. 19w Co. Rocks State Ks

Interval Tested 3414' - 3430' Zone Tested LAC 'E-7'
 Anchor Length 16' Drill Pipe Run 3296' Mud Wt. 9.1
 Top Packer Depth 3409' Drill Collars Run 120' Vis 56
 Bottom Packer Depth 3414' Wt. Pipe Run - WL 7.6
 Total Depth 3430' Chlorides 3000 ppm System LCM 2#

Blow Description: D7-Strong Blow; BOB in 2 mins
D5-Weak Blow; Built to 1/4"
F7-Strong Blow; BOB in 1/2 mins
F5-Weak Surface Blow @ 12 mins; Died 5 mins after

Rec	Feet of	%gas	%oil	%water	%mud
<u>1100'</u>	<u>Water</u>		<u>100</u>		
<u>300'</u>	<u>MCGW</u>		<u>95</u>	<u>5</u>	

Rec Total 1400' BHT 106° Gravity - API RW 999 @ 60 ° F Chlorides 94,000 ppm

(A) Initial Hydrostatic 1652 Test 1050 T-On Location 09:22
 (B) First Initial Flow 93 Jars _____ T-Started 09:34
 (C) First Final Flow 341 Safety Joint _____ T-Open 11:29
 (D) Initial Shut-In 852 Circ Sub _____ T-Pulled 13:59
 (E) Second Initial Flow 362 Hourly Standby _____ T-Out 15:43
 (F) Second Final Flow 666 Mileage 74R7 55.50 Comments _____
 (G) Final Shut-In 851 Sampler _____
 (H) Final Hydrostatic 1614 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 1105.50

Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Sub Total 0
 Total 1105.50
 MP/DST Disc't _____

Initial Open 15
 Initial Shut-In 45
 Final Flow 30
 Final Shut-In 60
 Approved By _____
 Our Representative Spencer J. Steab Thanks!
 785-259-0056



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63183

Well Name & No. Larry #1 Test No. 4 Date 11/16/2017
 Company Jasper Co Elevation 2146 KB 2141 GL
 Address PO Box 1120 Hays Ks 67601
 Co. Rep / Geo. Jeff Lawler Rig WW#8
 Location: Sec. 20 Twp. 9s Rge. 19w Co. Rooks State Ks

Interval Tested 3458' - 3509' Zone Tested LKC 'A-D'
 Anchor Length 51' Drill Pipe Run 3336' Mud Wt. 9.1
 Top Packer Depth 3453' Drill Collars Run 120' Vis 56
 Bottom Packer Depth 3458' Wt. Pipe Run - WL 7.6
 Total Depth 3509' Chlorides 3000 ppm System LCM 2#

Blow Description 77 - Fair Blow; BOB in 17 mins
151 - Weak Blow; Built to 1/2"; Died back to 1/4"
77 - Fair Blow; BOB in 16 mins
75 - Weak Blow; Built to 1"

Rec	Feet of	%gas	%oil	%water	%mud
60'	OCWM	2	28	70	
120'	OCMW	1	89	10	
60'	OCWM	3	27	70	
10'	OCM	5		95	
30'	MC10	10	85	5	

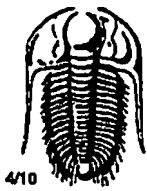
Rec Total 280' BHT 103° Gravity 36° API RW .149 @ 51 °F Chlorides 74,000 ppm

(A) Initial Hydrostatic 1685 Test 1050 T-On Location 23:55
 (B) First Initial Flow 34 Jars _____ T-Started 00:14 11/17/2017
 (C) First Final Flow 94 Safety Joint _____ T-Open 02:30
 (D) Initial Shut-In 900 Circ Sub _____ T-Pulled 05:00
 (E) Second Initial Flow 109 Hourly Standby _____ T-Out 07:04
 (F) Second Final Flow 150 Mileage 7427 55.50 Comments _____
 (G) Final Shut-In 896 Sampler _____
 (H) Final Hydrostatic 1643 Straddle _____
 Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Initial Open 30 Shale Packer _____
 Initial Shut-In 45 Extra Packer _____
 Final Flow 30 Extra Recorder _____
 Final Shut-In 45 Day Standby _____
 Accessibility _____
 Sub Total 1105.50 Sub Total 0
 Total 1105.50 MP/DST Disc't _____

Approved By _____

Our Representative

Spencer J. Staab
 785-259-0056



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63184

Well Name & No. Larry #1 Test No. 5 Date 11/17/2017
 Company Jasper Co Elevation 2146 KB 2141 GL
 Address PO BOX 1120 Hays Ks 67601
 Co. Rep / Geo. Jeff Lawler Rig WW#8
 Location: Sec. 20 Twp. 9s Rge. 19w Co. Rooks State Ks

Interval Tested 3507' - 3525' Zone Tested LHC 'J'
 Anchor Length 18' Drill Pipe Run 3399' Mud Wt. 9.1
 Top Packer Depth 3502' Drill Collars Run 120' Vis 54
 Bottom Packer Depth 3507' Wt. Pipe Run - WL 7.6
 Total Depth 3525 Chlorides 8500 ppm System LCM 3 1/2#

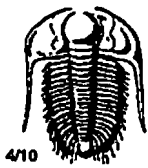
Blow Description 17-Weak Blow, Built to 1 3/4"
1SD- No Return
77-Weak Blow, Built to 1 3/4"
75- No Return

Rec	Feet of	%gas	%oil	%water	%mud
57'	40CM	40		60	
5'	Clean Oil	100			

Rec Total 62 BHT 97° Gravity 35° API RW - @ - °F Chlorides - ppm

(A) Initial Hydrostatic 1729 Test 1050 T-On Location 13:40
 (B) First Initial Flow 36 Jars _____ T-Started 13:55
 (C) First Final Flow 29 Safety Joint _____ T-Open 16:10
 (D) Initial Shut-In 864 Circ Sub _____ T-Pulled 19:10
 (E) Second Initial Flow 44 Hourly Standby _____ T-Out 21:02
 (F) Second Final Flow 40 Mileage 7427 55.50 Comments _____
 (G) Final Shut-In 763 Sampler _____
 (H) Final Hydrostatic 1653 Straddle _____
 Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Initial Open 45 Shale Packer _____
 Initial Shut-In 45 Extra Packer _____
 Final Flow 45 Extra Recorder _____
 Final Shut-In 45 Day Standby _____
 Accessibility _____
 Sub Total 1105.50 Sub Total 0
 Total 1105.50 MP/DST Disc't _____

Approved By _____ Our Representative Spencer J. Staal Thanks!
785-259-0056



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63185

Well Name & No. Larry #1 Test No. 6 Date 11/18/2017
 Company Spencer Co Elevation 2146 KB 2141 GL
 Address PO BOX 1120 Hays Ks 67601
 Co. Rep / Geo. Jeff Lawler Rig WW#8
 Location: Sec. 20 Twp. 9S Rge. RW Co. Rooks State Ks

Interval Tested 3582' - 3593' Zone Tested Arbuckle
 Anchor Length 11' Drill Pipe Run 3463' Mud Wt. 9.1
 Top Packer Depth 3578' Drill Collars Run 120' Vis 54
 Bottom Packer Depth 3582' Wt. Pipe Run - WL 7.6
 Total Depth 3593 Chlorides 8500 ppm System LCM 3 1/2#

Blow Description 7 - Weak Blow; Built to 1"; started to die back; Flushed; No help
7SD -
77 -
7SD -

Rec	Feet of	%gas	%oil	%water	%mud
<u>5'</u>	<u>Mud w/ serum oil</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 99° Gravity - API RW - @ - °F Chlorides - ppm

- (A) Initial Hydrostatic 1760
- (B) First Initial Flow 123
- (C) First Final Flow -
- (D) Initial Shut-In -
- (E) Second Initial Flow -
- (F) Second Final Flow -
- (G) Final Shut-In -
- (H) Final Hydrostatic 1776

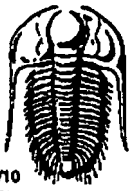
- Test 850
- Jars
- Safety Joint
- Circ Sub
- Hourly Standby
- Mileage 74 R7 55.50
- Sampler
- Straddle
- Shale Packer
- Extra Packer
- Extra Recorder
- Day Standby
- Accessibility
- Sub Total 905.50

- T-On Location 08:02
- T-Started 08:18
- T-Open 10:50
- T-Pulled 11:20
- T-Out 12:58
- Comments tool plugged 2 mins after opening; slid 6 ft. to bottom
- Ruined Shale Packer
- Ruined Packer
- Extra Copies
- Sub Total 0
- Total 1105.50
- MP/DST Disc't

Initial Open 20 - Flushed @ 11:10
 Initial Shut-In -
 Final Flow -
 Final Shut-In -

Approved By _____

Our Representative Spencer J. Staal Thanks!
 785-259-0056



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63186

Well Name & No. Larry #1 Test No. 7 Date 11/18/2017
 Company Jasper Co Elevation 2146 KB 2141 GL
 Address PO Box 1120 Hays Ks 67601
 Co. Rep / Geo. Jeff Lawler Rig WW#8
 Location: Sec. 20 Twp. 9s Rge. 19w Co. Rooks State Ks

Interval Tested 3540' - 3595' Zone Tested Arbuckle
 Anchor Length 55' Drill Pipe Run 3432' Mud Wt. 9.1
 Top Packer Depth 3535' Drill Collars Run 120' Vis 48
 Bottom Packer Depth 3540' Wt. Pipe Run - WL 8
 Total Depth 3595' Chlorides 9000 ppm System LCM 2

Blow Description 17- Fair Blow; Built to 9"

ISD- No Return

77- Fair Blow; Built to BOB in 31 mins

7SD- Weak Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>190'</u>	<u>HMCO</u>	<u>60</u>		<u>40</u>	
<u>30'</u>	<u>MCO</u>	<u>80</u>		<u>20</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 220' BHT 98° Gravity 25° API RW - @ - °F Chlorides - ppm

- (A) Initial Hydrostatic 1722
- (B) First Initial Flow 41
- (C) First Final Flow 76
- (D) Initial Shut-In 1022
- (E) Second Initial Flow 82
- (F) Second Final Flow 100
- (G) Final Shut-In 1008
- (H) Final Hydrostatic 1681

- Test 1050
- Jars
- Safety Joint
- Circ Sub
- Hourly Standby
- Mileage 7427 55.50
- Sampler
- Straddle
- Shale Packer
- Extra Packer
- Extra Recorder
- Day Standby
- Accessibility
- Sub Total 1105.50

- T-On Location 18:12
- T-Started 18:29
- T-Open 20:44
- T-Pulled 00:29 11/19/2017
- T-Out 02:22
- Comments
- Ruined Shale Packer
- Ruined Packer
- Extra Copies
- Sub Total 0
- Total 1150.50
- MP/DST Disc't

Initial Open 30
 Initial Shut-In 60
 Final Flow 45
 Final Shut-In 90

Approved By _____

Our Representative

Spencer J. Jacob Thanks

785-259-0056

JASPAR COMPANY INC.

Scale 1:240 Imperial

Well Name: LARRY #1
Surface Location: W2 SE SE SW 20-9-19
Bottom Location:
API: 15-163-24347
License Number: 34903
Spud Date: 11/10/2017 Time: 12:00 PM
Region: ROOKS COUNTY KANSAS
Drilling Completed: 11/18/2017 Time: 6:16 PM
Surface Coordinates: 330' FSL & 2290' FWL
Bottom Hole Coordinates:
Ground Elevation: 2141.00ft
K.B. Elevation: 2146.00ft
Logged Interval: 2900.00ft To: 3599.00ft
Total Depth: 3595.00ft
Formation: LANSING - KANSAS CITY; ARBUCKLE
Drilling Fluid Type: FRESH WATER / CHEMICAL GEL

OPERATOR

Company: JASPAR CO.
Address: P.O. BOX 1120
HAYS, KS 67601
Contact Geologist: SHANE VEHIGE
Contact Phone Nbr: (785) 623-6982
Well Name: LARRY #1
Location: W2 SE SE SW 20-9-19
API: 15-163-24347
Pool:
State: KANSAS
Field: UNNAMED
Country: USA

SURFACE CO-ORDINATES

Well Type: Vertical
Longitude: -99.4665087
Latitude: 39.2495970
N/S Co-ord: 330' FSL
E/W Co-ord: 2290' FWL

LOGGED BY



Company: BIG CREEK CONSULTING, INC.
Address: 1909 MAPLE
ELLIS, KS 67637

Phone Nbr: (785) 259-3737
 Logged By: GEOLOGIST

Name: JEFF LAWLER

CONTRACTOR

Contractor: WW DRILLING, LLC
 Rig #: 4
 Rig Type: MUD ROTARY
 Spud Date: 11/10/2017
 TD Date: 11/18/2017
 Rig Release: 11/20/2017
 Time: 12:00 PM
 Time: 6:16 PM
 Time: 1:00 AM

ELEVATIONS

K.B. Elevation: 2146.00ft
 K.B. to Ground: 5.00ft
 Ground Elevation: 2141.00ft

NOTES


DUE TO ECONOMICAL RECOVERY ON DRILL STEM TESTS THE DECISION WAS MADE TO RUN 5 1/2" PRODUCTION CASING AND FURTHER EVALUATE ZONES OF INTEREST.

RESPECTFULLY SUBMITTED,
 JEFF LAWLER

WELL COMPARISON SHEET

FORMATION	LARRY #1				SW SW SE 20-9-19				SW SE SW 20-9-19				NW NESW 29-9-19				SE NW SE 19-9-16			
	2146		GL 2141		2175		2137		2141		2144		2144		2144		2144			
	LOG TOPS	SAMPLE TOPS	LOG	SMPL.	LOG	SMPL.	LOG	SMPL.	LOG	SMPL.	LOG	SMPL.	LOG	SMPL.	LOG	SMPL.	LOG	SMPL.		
ANHYDRITE TOP	1546	600	1550	596	1568	607	-7	-11	1536	601	-1	-5	1540	601	-1	-5				
BASE	1585	561	1587	559									1581	560	+1	-1				
TOPEKA	3094	-948	3093	-947	3121	-946	-2	-1					3093	-952	+4	+5	3094	-950	+2	+3
HEEBNER SHALE	3296	-1150	3294	-1148	3327	-1152	+2	+4	3293	-1156	+6	+8	3298	-1157	+7	+9	3301	-1157	+7	+9
TORONTO	3320	-1174	3315	-1169	3348	-1173	-1	+4					3319	-1178	+4	+9	3324	-1180	+6	+11
LKC	3341	-1195	3336	-1190	3368	-1193	-2	+3	3323	-1186	-9	-4	3339	-1198	+3	+8	3342	-1198	+3	+8
BKC	3557	-1411	3554	-1408	3586	-1411	+0	+3					3559	-1418	+7	+10	3561	-1417	+6	+9
CONGLOMERATE													3584	-1443			3571	-1427		
ARBUCKLE	3582	-1436	3581	-1435	3611	-1436	+0	+1	3580	-1443	+7	+8	3586	-1445	+9	+10	3589	-1445	+9	+10
TOTAL DEPTH	3599	-1453	3595	-1449	3690	-1515	+62	+66	3663	-1526	+73	+77	3624	-1483	+30	+34	3591	-1447	-6	-2

DST #1 TORONTO - LKC A 3290' - 3350'



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Jaspar Co
 PO BOX 1120
 Hays KS 67601
 ATTN: Jeff Lawler

20-9s-19w Rooks KS

Larry #1
 Job Ticket: 63180
 Test Start: 2017.11.15 @ 03:26:00

DST#: 1

GENERAL INFORMATION:

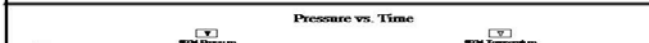
Formation: **Toronto-LKC 'A'**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 07:09:00
 Time Test Ended: 11:58:30
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Spencer J. Staab
 Unit No: 84
 Interval: **3290.00 ft (KB) To 3350.00 ft (KB) (TVD)**
 Total Depth: 3350.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Reference Elevations: 2146.00 ft (KB)
 2141.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8934 Outside

Press@RunDepth: 132.36 psig @ 3291.00 ft (KB)
 Start Date: 2017.11.15 End Date: 2017.11.15
 Start Time: 03:26:15 End Time: 11:58:30
 Capacity: 8000.00 psig
 Last Calib.: 2017.11.15
 Time On Btm: 2017.11.15 @ 07:08:45
 Time Off Btm: 2017.11.15 @ 10:09:30

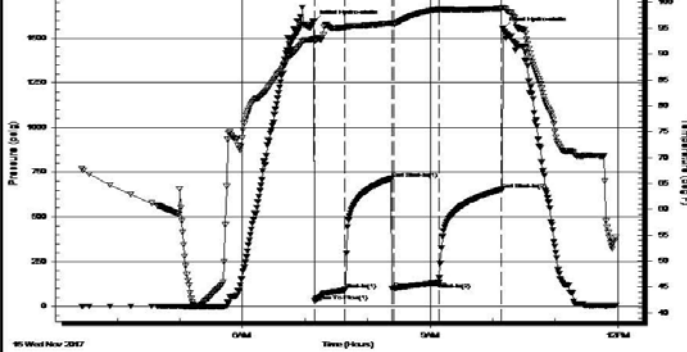
TEST COMMENT: 30-IF-Fair Blow ; BOB in 20 mins
 45-ISI-No Return
 45-FF-Fair Blow ; Built to 9&1/2"
 60-FSI-Weak Blow ; Died 20 mins in

Pressure vs. Time



PRESSURE SUMMARY

Time	Pressure	Temp	Annotation



(Min.)	(psig)	(deg F)	
0	1596.19	92.93	Initial Hydro-static
1	28.31	92.39	Open To Flow (1)
30	89.67	95.14	Shut-In(1)
75	714.90	95.93	End Shut-In(1)
76	99.29	95.76	Open To Flow (2)
120	132.36	98.65	Shut-In(2)
180	653.70	98.81	End Shut-In(2)
181	1554.55	99.04	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
120.00	MWV 30% M 70% WV	0.59
60.00	WCM 5% W 95% M	0.84
75.00	OCM 7% O 93% M	1.05
15.00	MCO 5% M 95% O	0.21

Gas Rates

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

Trilobite Testing, Inc

Ref. No: 63180

Printed: 2017.11.15 @ 13:22:25

DST #2 LKC C - D 3354' - 3414'



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Jaspar Co
PO BOX 1120
Hays KS 67601
ATTN: Jeff Lawler

20-9s-19w Rooks KS

Larry #1

Job Ticket: 63181 **DST#: 2**
Test Start: 2017.11.15 @ 20:22:00

GENERAL INFORMATION:

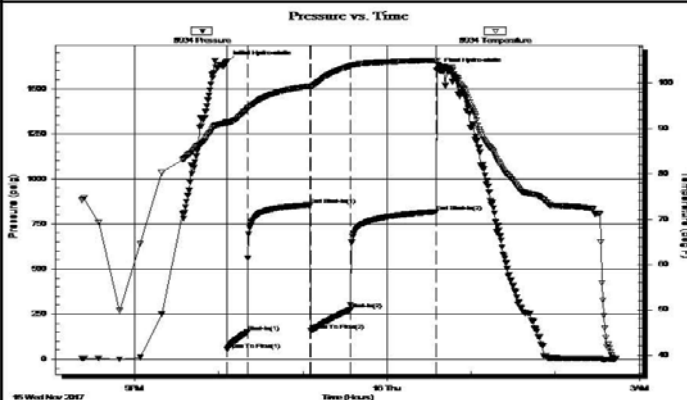
Formation: **LKC 'C-D'**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 22:05:45
Time Test Ended: 02:43:30
Interval: **3354.00 ft (KB) To 3414.00 ft (KB) (TVD)**
Total Depth: 3414.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Bottom Hole (Reset)
Tester: Spencer J. Staab
Unit No: 84
Reference Elevations: 2146.00 ft (KB)
2141.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8934

Inside

Press@RunDepth: 273.64 psig @ 3355.00 ft (KB)
Start Date: 2017.11.15 End Date: 2017.11.16
Start Time: 20:22:15 End Time: 02:43:30
Capacity: 8000.00 psig
Last Calib.: 2017.11.16
Time On Btm: 2017.11.15 @ 22:05:30
Time Off Btm: 2017.11.16 @ 00:36:30

TEST COMMENT: 15-IF-Strong Blow ; BOB in 5 mins
45-ISI-Weak Surface Blow @ 7 mins; died after 8 mins
30-FF-Strong Blow ; BOB in 6 mins
60-FS-No Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1650.16	91.45	Initial Hydro-static
1	53.93	90.96	Open To Flow (1)
15	151.57	94.23	Shut-In(1)
60	854.61	99.34	End Shut-In(1)
61	157.84	99.23	Open To Flow (2)
89	273.64	103.74	Shut-In(2)
150	816.19	105.03	End Shut-In(2)
151	1608.41	103.94	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
525.00	MWV 30% M 70%WV	6.27
10.00	MWV 50% M 50%WV	0.14

* Recovery from multiple tests

Trilobite Testing, Inc

Ref. No: 63181

Gas Rates

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

Printed: 2017.11.16 @ 08:49:26

DST #3 LKC E - F 3414' - 3430'



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Jaspar Co
 PO BOX 1120
 Hays KS 67601
 ATTN: Jeff Lawler

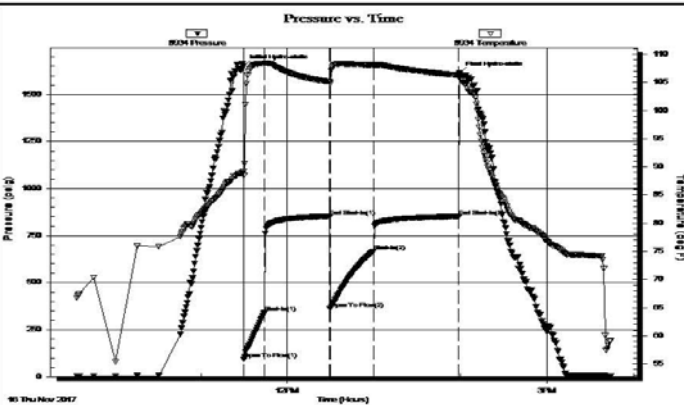
20-9s-19w Rooks KS
Larry #1
 Job Ticket: 63182 **DST#: 3**
 Test Start: 2017.11.16 @ 09:34:00

GENERAL INFORMATION:

Formation: **LKC 'E-F**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 11:30:00
 Time Test Ended: 15:44:15
Interval: 3414.00 ft (KB) To 3430.00 ft (KB) (TVD)
 Total Depth: 3430.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Spencer J. Staab
 Unit No: 84
 Reference Elevations: 2146.00 ft (KB)
 2141.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8934 Outside
 Press@RunDepth: 666.71 psig @ 3417.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2017.11.16 End Date: 2017.11.16 Last Calib.: 2017.11.16
 Start Time: 09:34:15 End Time: 15:44:15 Time On Btm: 2017.11.16 @ 11:29:45
 Time Off Btm: 2017.11.16 @ 13:59:15

TEST COMMENT: 15-IF-Strong Blow ; BOB in 2 mins
 45-ISI-Weak Blow ; Built to 1&1/4"
 30-FF-Strong Blow ; BOB in 1&1/2 mins
 60-FSI-Weak Surface Blow @ 12 mins ; Died after 5 mins



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1652.21	89.14	Initial Hydro-static
1	93.45	88.48	Open To Flow (1)
15	341.04	108.38	Shut-In(1)
60	852.87	105.09	End Shut-In(1)
60	362.28	104.80	Open To Flow (2)
90	666.71	108.11	Shut-In(2)
149	851.78	106.29	End Shut-In(2)
150	1614.40	106.49	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
1100.00	Water 100%WV	14.34
300.00	MCWV 5% M 95%WV	4.21

* Recovery from multiple tests

Trilobite Testing, Inc

Ref. No: 63182

Gas Rates

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

Printed: 2017.11.16 @ 17:00:22

DST #4 LKC H - I 3458' - 3509'



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Jaspar Co
 PO BOX 1120
 Hays KS 67601
 ATTN: Jeff Lawler

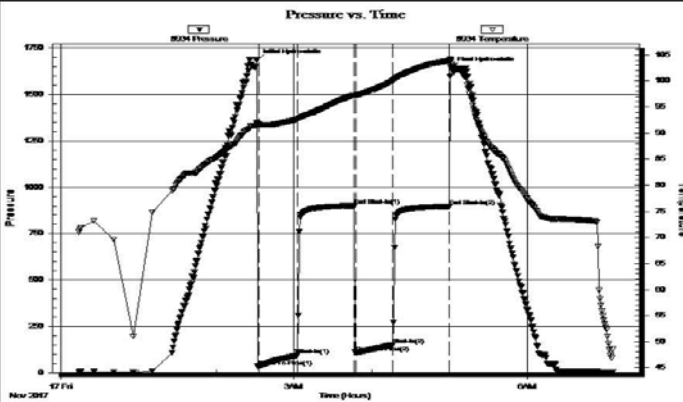
20-9s-19w Rooks KS
Larry #1
 Job Ticket: 63183 **DST#: 4**
 Test Start: 2017.11.17 @ 00:14:00

GENERAL INFORMATION:

Formation: **LKC 'H-I'**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 02:32:45
 Time Test Ended: 07:06:15
Interval: 3458.00 ft (KB) To 3509.00 ft (KB) (TVD)
 Total Depth: 3509.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Spencer J. Staab
 Unit No: 84
 Reference Elevations: 2146.00 ft (KB)
 2141.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8934 Inside
 Press@RunDepth: 150.97 psig @ 3463.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2017.11.17 End Date: 2017.11.17 Last Calib.: 2017.11.17
 Start Time: 00:14:15 End Time: 07:06:15 Time On Btm: 2017.11.17 @ 02:31:30
 Time Off Btm: 2017.11.17 @ 05:01:00

TEST COMMENT: 30-IF-Fair Blow ; BOB in 17 mins
 45-ISI-Weak Blow ; Built to 1/2"; Died back to 1/4"
 30-FF-Fair Blow ; BOB in 16 mins
 45-FSI-Weak Blow ; Built to 1"; Died back to 1/4"



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1685.75	91.94	Initial Hydro-static
2	34.42	91.66	Open To Flow (1)
31	94.51	92.64	Shut-In(1)
75	900.65	97.28	End Shut-In(1)
76	109.57	97.19	Open To Flow (2)
105	150.97	100.01	Shut-In(2)
149	896.32	103.88	End Shut-In(2)
150	1643.87	104.11	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	OCVM 2% O 28% W 70% M	0.30
120.00	OCMV 1% O 10% M 89% W	1.14
60.00	OCVM 3% O 27% W 70% M	0.84
10.00	OCM 5% O 95% M	0.14
30.00	MCOG 5% M 10% G 85% O	0.42

* Recovery from multiple tests

Gas Rates

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

Trilobite Testing, Inc

Ref. No: 63183

Printed: 2017.11.18 @ 11:35:51

ROCK TYPES

- Dolprim
- shale, gry
- shale, red
- Lmst fw7>
- Carbon Sh

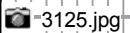
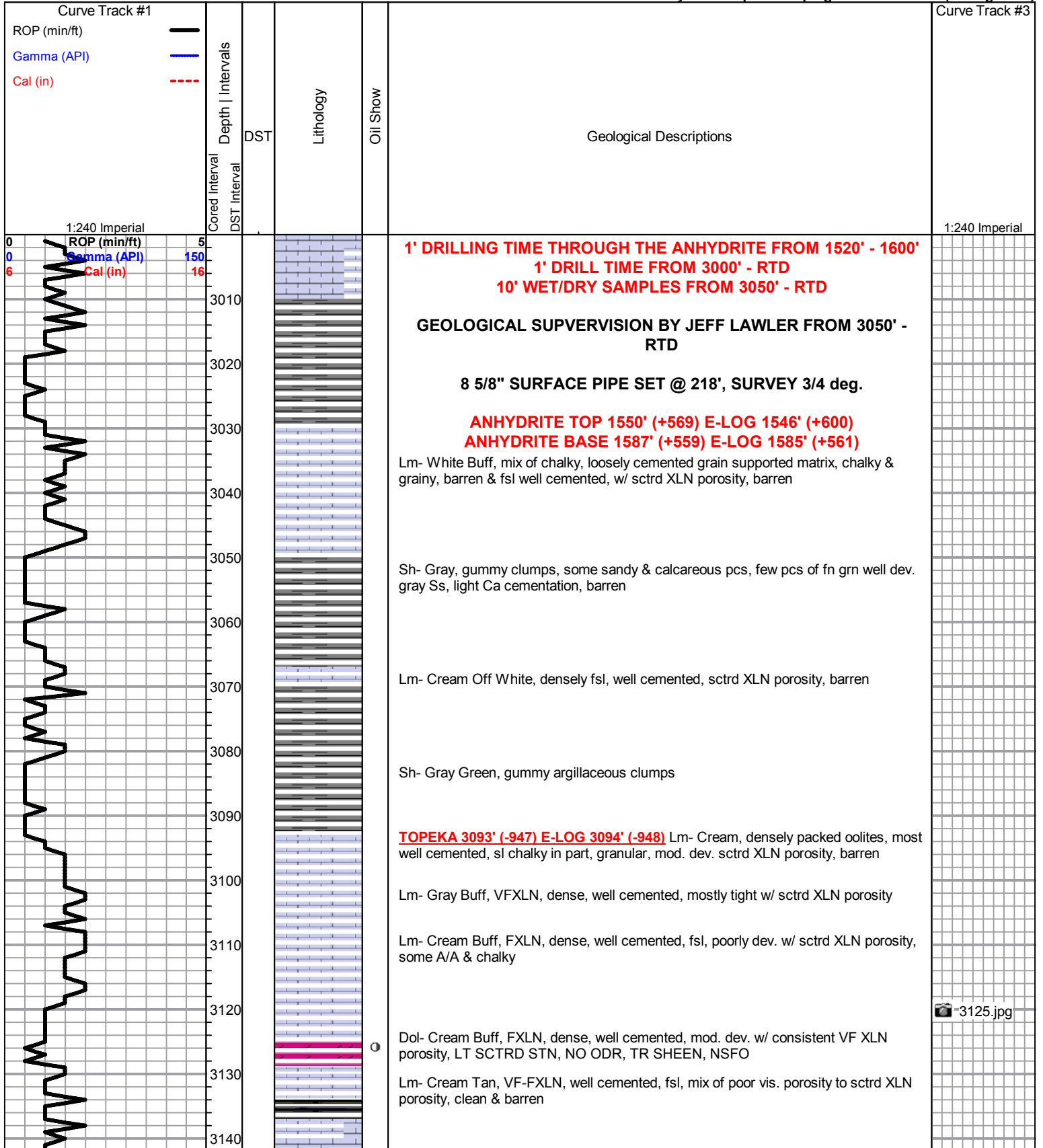
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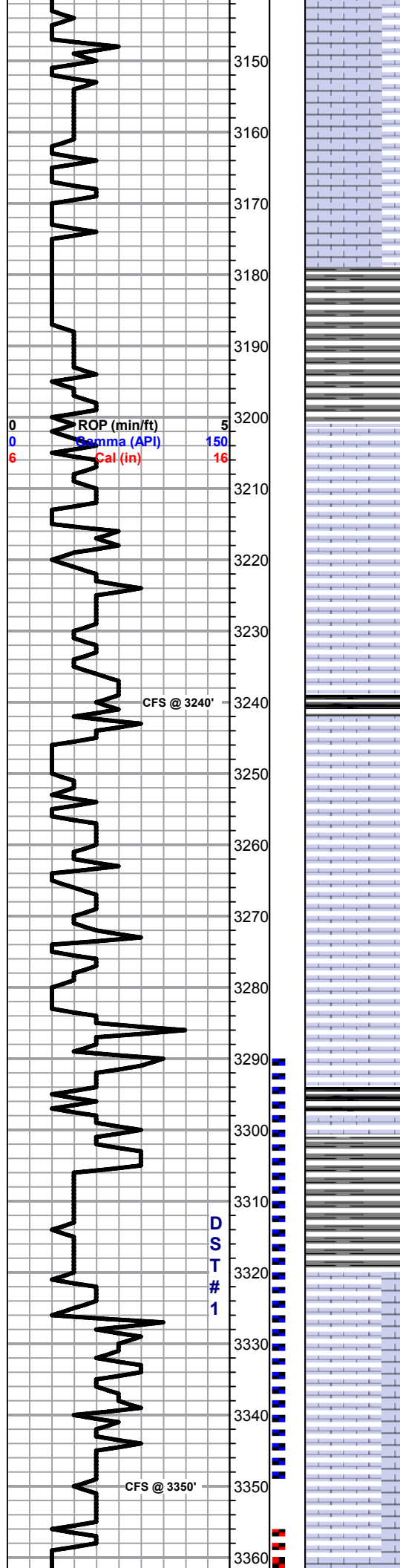
FOSSIL
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OTHER SYMBOLS

- MISC**
- Daily Report
 - Digital Photo
 - Document
 - Folder
 - Link
 - Vertical Log File
 - Horizontal Log File
 - Core Log File
 - Drill Cuttings Rpt

- DST**
- DST Int
 - DST alt





Lm- Cream Off White, FXLN, semi-granular, fsl & oolitic, mod. well dev., some sl chalky in part, sctrd XLN & vry fn ppt inter oolite porosity, barren

Lm/Chert- Cream Translucent, fresh bedded fsl chert w/o vis. porosity

Lm- Cream White, abundant soft white chalk, grainy arenaceous Ls, loosely cemented & crumbly, barren

Lm- A/A

Lm- Cream Off White, FXLN, dense, well cemented, sl fsl, sctrd XLN porosity, some chalky in part, barren

Lm- Cream, VFXLN, dense, vry well cemented, tight w/ min. vis. porosity, vry clean & barren

Lm- Tan Buff, FXLN, loosely cemented, densely fsl w/ crinoids, sctrd XLN porosity, barren

Sh- Black Gray Brown Maroon Green, carbonaceous, argillaceous clumps, gritty & earthy

Lm- Cream Off White, FXLN, fsl, dense, mostly well cemented, sctrd XLN porosity, barren, 1 pc. loosely cemented w/ consistent fn ppt porosity, SCTRDRK STN, NO ODR, TR FO

Lm- Cream Buff, VF-FXLN, dense, well cemented, sl fsl, sctrd XLN & fn ppt porosity, DRK STN, TR FO, GD ODR

Lm- Cream Buff, VF-FXLN, dense, well cemented, sl dolomitic Ls, tight w/ micro XLN porosity, barren

Lm- Cream Off White, VFXLN, dense, fsl cherty Ls w/ poor vis. porosity, some dolomitic chert, barren

Lm- Cream Off White, FXLN, mix of well cemented & loosely cemented, heavily mottled, sctrd XLN porosity, some sl fsl, barren, some soft white chalk

HEEBNER 3294' (-1148) E-LOG 3296' (-1150) Sh- Black, carbonaceous & fissile

Sh- Gray Maroon, gummy clumps & wash, gritty & earthy

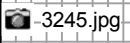
TORONTO 3315' (-1169) E-LOG 3320' (-1174) Lm- Cream, mix of VFXLN mudstone w/ poor vis. porosity, sctrd secondary reXLN inclusions, sctrd vry fn ppt porosity, SCTRDRK STN, TR FO, NODR, & loosely cemented & densely fsl w/ sctrd ppt & XLN porosity, barren

Sh- Green Maroon, gummy wash

LKC 3336' (-1190) E-LOG 3341' (-1195) Lm- Off White, FXLN, fsl & oolitic, mod. well dev. w/ sctrd ppt interoolite porosity, some sctrd reXLN w/in porosity, SCTRDRK STN, NSFO, FR ODR

****ODOR CARRIED OVER FROM DST #1****

Chert/Lm- White Cream, mix of fsl fresh bedded & gritty dolomitic chert, all barren, some soft white chalk



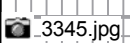
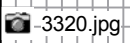
SHORT TRIP STRAP +0.36' SURVEY 3/4 deg.

DST #1 TORONTO - LKC A 30-45-45-60

280' TOTAL FLUID
 120' MW (70%W, 30%M)
 60' WCM (5%W, 95%M)
 75' OCM (7%O, 93%M)
 15'MCO (95%O, 5%M)

Gr: 35 API
 CHLOR: 56K

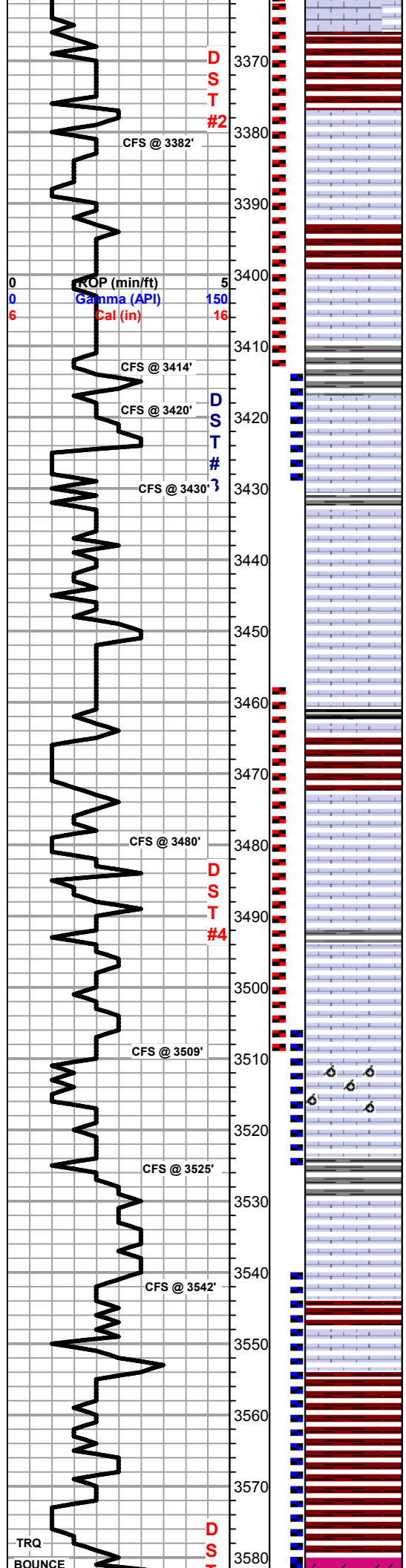
IFP: 28-89#
 FFP: 99-132#
 SIP: 714-653#
 BHT: 99



DST #2 LKC C - D 3354' - 3414' 15-45-30-60

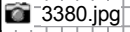
535' TOTAL FLUID
 525' MW (70%W)
 10' MW (50%W)

IFP: 53-151#
FFP: 157-273#
SIP: 854-816#
CLHOR: 70K



Sh- Maroon Green Gray, gritty & earthy, some gummy wash

Lm- Cream Buff, VF-FXLN, mix of dense, well cemented w/ sctrd dev. & fn ppt to ppt porosity, sctrd secondary reXLN w/in porosity, LT SCTRD STN, GSY FRO UPON CRUSH, GD ODR (some recirc. from dumped DST #1)



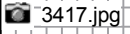
Lm- Off White, FXLN, fsl & oolitic, mod. well dev., some oolite clusters, all w/ sctrd fn ppt to ppt porosity, LT SCTRD STN, TR FO UPON CRUSH, FR ODR (NOTE ABOVE)



Lm- Cream Off White, VF-FXLN, dense, well cemented, poorly dev. w/ sctrd micro XLN porosity, SCTRD LT STN, NSFO, FR ODR (NOTE ABOVE)



Lm- Cream, VF-FXLN, well cemented, sctrd to rare ppt porosity, SCTRD DRK STN, SL TR FO, SL INFLUX IN ODR



DST #3
LKC E - F
3414' - 3430'
15-45-30-60

Lm- White, abundant amount of soft white chalk, VF-FXLN, dense, well cemented, mostly tight w/ poor vis. porosity, vry clean & barren

1400' TOTAL FLUID
1100' WATER 100%

Lm/Chert- mix of Off White Cream, VF-FXLN clean & barren Ls w/ XLN porosity & FXLN dolomitic Ls w/ consistent fnXLN porosity, barren, soft white chalk & loosely cemented chalky Ls, barren, bone white & milky tan fresh bedded sl fsl chert, cryptoXLN

300' MCW (95%W, 5%M)

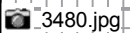
Lm- Cream Buff, VF-FXLN, dense, well cemented, mostly tight w/ sctrd XLN porosity, barren

IFP: 93-341#
FFP: 362-666#
SIP: 852-851#
BHT: 106 deg.
CHLOR: 94K
Rw: .999 @ 60deg

Sh- Black Maroon Gray Green, fissile & carbonaceous, gritty & earthy, slick slivers

Lm- Cream Buff, FXLN, dense, well cemented, mostly tight w/ sctrd XLN porosity, vry clean & barren

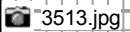
Lm- Cream Off White, F-MED XLN, mod. well dev. fsl w/ sctrd XLN & ppt porosity, DRK SUB-SAT TO SAT STN, SL TR FO, FR ODR



Sh- dense semi-waxy slivers, gritty & earthy, sl calcareous

Lm- Cream Tan, VFXLN, dense, well cemented, tight w/ min. vis. porosity, clean & barren

Lm- Tan Cream, FXLLN, mod. well dev. oomoldic, mostly consistent vuggy porosity, DRK SUB-STN, NOSFO, GD ODR



Lm- Gray Buff, FXLN, fsl, poorly dev. well cemented, sctrd XLN porosity, sl trashy, barren

DST #4
LKC H - I
3458' - 3509'
30-45-30-45

Lm- Cream Off White, VF-FXLN, mix of tight well cemented w/ no - poor vis. porosity & sl fsl, poorly dev. w/ sctrd XLN porosity, all vry clean & barren

280' TOTAL FLUID
60' OCWM (2%O, 28%W, 70%M)
120' OCMW (1%O, 89%W, 10%M)
60' OCWM (3%O, 27%W, 70%M)
10' OCM (5%O, 95%M)
30' MGGO (10%G, 85%O, 5%M)

Sh- Gray Maroon Black, silty & soft, sl pebbly, gritty & earthy, fissile & carbonaceous

Lm- Cream Off White, fsl & oolitic mix, some well cemented & tight w/ min. vis. porosity, some loosely cemented & sl chalky in part, all barren

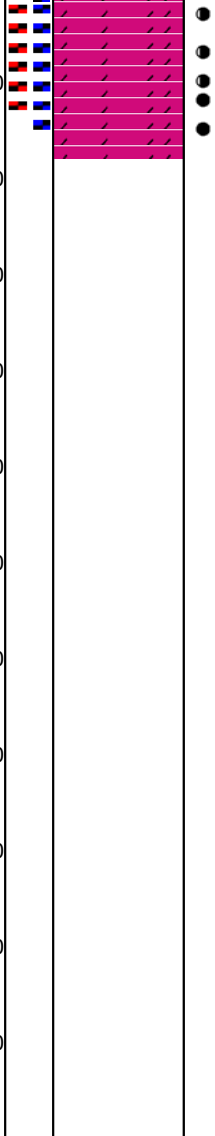
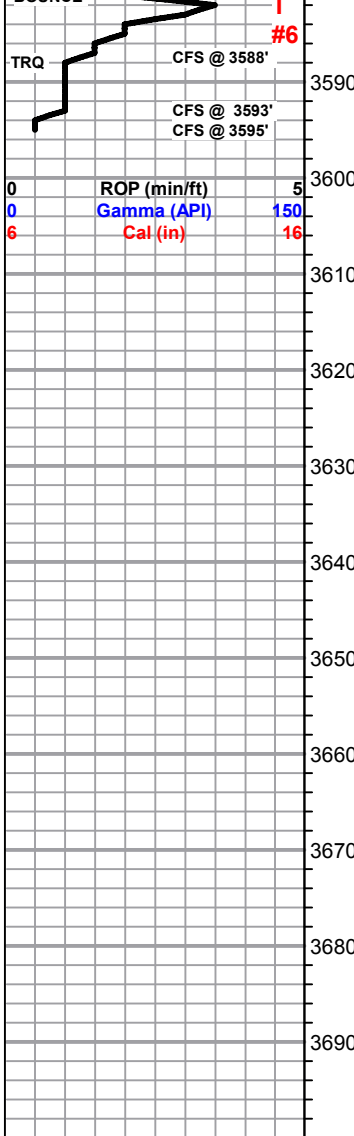
BKC 3554' (-1408) E-LOG 3557' (-1411) Sh- Maroon Green, mix of arenaceous sandy shale/shaley Ss & argillaceous wash

Gr: 36 deg
IFP: 34-94#
FFP: 109-150#
SIP: 900-896#
BHT: 106 deg.
CHLOR: 74K

Sh- A/A w/ influx of calcaerous green shale & argillaceous wash



ARBUCKLE 3581' (-1435) E-LOG 3582' (-1436)



ARBUCKLE 3587 (-1499) E-LOG 3592 (-1499)

3588'-40" Dolomite- Cream, VF-FXLN, sctrd dev. well cemented, most w/ micro XLN porosity, few w/ sctrd fn ppt porosity, most w/ DRK SCTRDR STN, HVY SHEEN, TR FO, FR ODR

60" Dolo- Cream Tan, F-Med XLN, sl more dev., few pcs w/ mostly consistent ppt inter XLN porosity, SCTRDR DRK STN, GD SHEEN, FR SFO, GD ODR

3593' 20" Dol- Cream Off White, F-Med XLN, mod. well dev. w/ mostly consistent ppt interXLN porosity, DRK STN, FR SFO, GD ODR, some w/ vis. rhombic matrix

40" Dolo- White Cream, Med XLN, good consistent ppt interXLN porosity, vis. rhombic matrix, DRK STN, GD SFO, GD ODR

60" A/A

3595' 40" Dolo- Cream, FXLN, vry well dev. w/ consistent fn ppt porosity throughout, SAT BLK STN, BLEEDING FO, GD ODR

60" Dolo- Cream, FXLN, A/A

RTD 3595' (-1449) LTD @ 18:16 11/18/2017

DST 7.jpg

3588-60.jpg

3593-20.jpg

3593-60.jpg

3595.jpg

DST #5
LKC J
3507' - 3525'
45-45-45-45

62' TOTAL FLUID
57' HOCM
(40%O, 60%M)
5' CLEAN OIL
Gr: 35 deg.

IFP: 36-29#
FFP: 44-40#
SIP: 864-763#
HYD: 1729-1653#
BHT: 97 deg.

DST #6
ARBUCKLE
3582' - 3593'
TOOL SLID 8' TO
BOTTOM &
PLUGGED 2 min
INTO 1st OPEN

5' MUD W/ SCUM
OIL

DST #7
ARBUCKLE
3540' - 3595'
30-60-45-90

220' TOTAL FLUID
190' HMCO
(60%O, 40%M)
30' MCO
(80%O, 20%M)

Gr: 25 deg.

IFP: 41-76#
FFP: 82-100#
SIP: 1022-1008#
HYD: 1722-1681#
BHT: 98 deg.



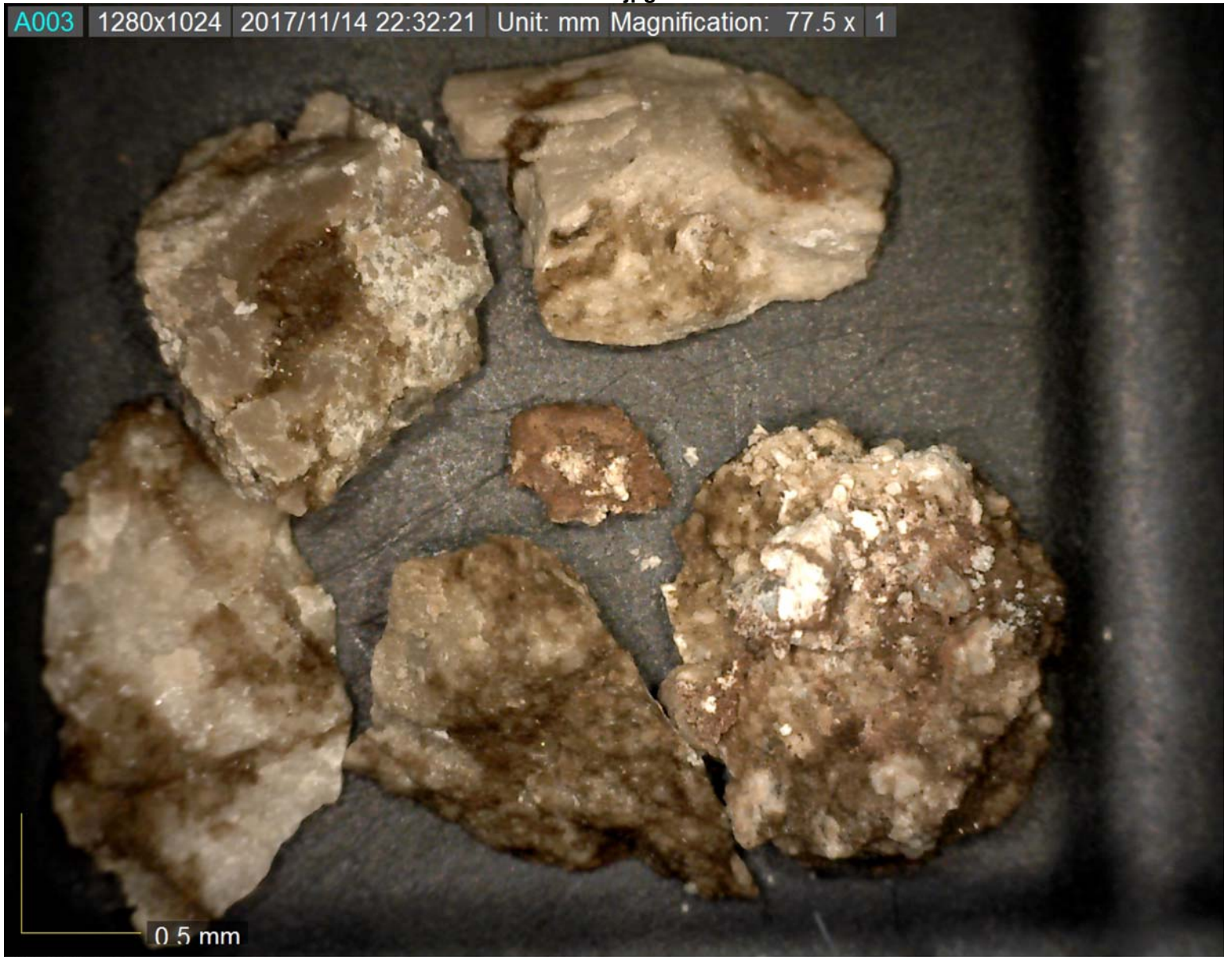
0.2 mm

3125' X 30



0.5 mm

3245' x 25



3320' X 20





0.5 mm

3370' x 20



0.5 mm

3380' X 25





0.5 mm

3417' X 20




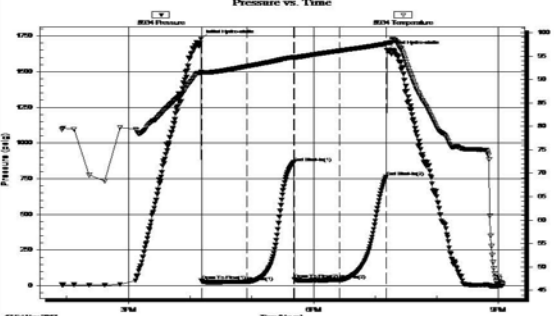
0.5 mm

3480' x 20



0.5 mm

3513' X 20

 TRILOBITE TESTING, INC.	DRILL STEM TEST REPORT																																					
Jaspar Co PO BOX 1120 Hays KS 67601 ATTN: Jeff Lawler	20-9s-19w Rooks KS Larry #1 Job Ticket: 63184 DST#: 5 Test Start: 2017.11.17 @ 13:55:15																																					
GENERAL INFORMATION: Formation: LKC 'J' Deviated: No Whipstock ft (KB) Time Tool Opened: 16:11:00 Time Test Ended: 21:04:00 Test Type: Conventional Bottom Hole (Reset) Tester: Spencer J. Staab Unit No: 84 Reference Elevations: 2146.00 ft (KB) 2141.00 ft (CF) KB to GR/CF: 5.00 ft Interval: 3507.00 ft (KB) To 3525.00 ft (KB) (TVD) Total Depth: 3525.00 ft (KB) (TVD) Hole Diameter: 7.88 inches Hole Condition: Fair																																						
Serial #: 8934 Outside Press@RunDepth: 40.63 psig @ 3512.00 ft (KB) Capacity: 8000.00 psig Start Date: 2017.11.17 End Date: 2017.11.17 Last Calib.: 2017.11.17 Start Time: 13:55:15 End Time: 21:04:00 Time On Btm: 2017.11.17 @ 16:10:45 Time Off Btm: 2017.11.17 @ 19:11:15																																						
TEST COMMENT: 45-IF-Weak Blow ; Built to 1&3/4" 45-ISI-No Return 45-FF-Weak Blow ; Built to 1&3/4" 45-FSI-No Return																																						
 <p style="font-size: small;">17 Feb Nov 2017</p>	PRESSURE SUMMARY																																					
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3588-40.jpg



3588-60.jpg



3593-20.jpg

A013 1280x1024 2017/11/18 06:31:46 Unit: mm Magnification: 116.2 x 1



3593' 20"

3593-60.jpg

A014 1280x1024 2017/11/18 07:09:57 Unit: mm Magnification: 116.2 x 1



3593' 60"



QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025
Cell 785-324-1041

Home Office P.O. Box 32 Russell, KS 67665

No. 455

Date	11-11-17	Sec.	20	Twp.	9	Range	19	County	Rooks	State	KS	On Location		Finish	6:45 PM
------	----------	------	----	------	---	-------	----	--------	-------	-------	----	-------------	--	--------	---------

Location Zurich 1W 1N 1/2 W N into

Lease	Larry	Well No.	H1	Owner	To Quality Oilwell Cementing, Inc. You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.
Contractor	WW 8			Charge To	Jasper Oil Company
Type Job	Surface			Street	
Hole Size	12 1/4	T.D.	218	City	
Csg.	8 5/8	Depth	218	State	
Tbg. Size		Depth		The above was done to satisfaction and supervision of owner agent or contractor.	
Tool		Depth		Cement Amount Ordered	150 8/20 3% cc 2% Gel
Cement Left in Csg.		Shoe Joint			
Meas Line		Displace	12 3/4 bbl		

EQUIPMENT

Pumptrk	20	No.	Cementer	Brett	Common	120
			Helper		Poz. Mix	30
Bulktrk	15	No.	Driver	Jordan	Gel.	3
			Driver		Calcium	2
Bulktrk		No.	Driver	Bog		

JOB SERVICES & REMARKS

Remarks:		Hulls	
Rat Hole		Salt	
Mouse Hole		Flowseal	
Centralizers		Kol-Seal	
Baskets		Mud CLR 48	
D/V or Port Collar		CFL-117 or CD110 CAF 38	
		Sand	
		Handling	159
		Mileage	

FLOAT EQUIPMENT

Mix	150 cc + Displaced 12 3/4 bbl	Guide Shoe	
		Centralizer	
		Baskets	
		AFU Inserts	
		Float Shoe	
		Latch Down	
		Pumptrk Charge	Surface
		Mileage	36

Cement circulated

X Signature *Walt Bergman*

Tax	
Discount	
Total Charge	

QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025
Cell 785-324-1041

Home Office P.O. Box 32 Russell, KS 67665

No. 348

Date	11-19-17	Sec.	20	Twp.	9	Range	19	County	Rooks	State	KS	On Location		Finish	9:00 p.m.
Location								Zuck 1w 1w 1/2w 1into							

Lease	Larry	Well No.	1	Owner	To Quality Oilwell Cementing, Inc. You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.
Contractor	69W			Charge To	Jasper Co.
Type Job	Production String			Street	
Hole Size	7 7/8	T.D.	3599	City	
Csg.	5 1/2	Depth	3586	State	
Tbg. Size		Depth		The above was done to satisfaction and supervision of owner agent or contractor.	
Tool		Depth		Cement Amount Ordered	425 @ 20 QMDC 1/4 # Pb
Cement Left in Csg.	44.70	Shoe Joint	44.70	150 gal 10% Salt 5% Glycerite 500 gal med flush	
Meas Line		Displace	84 1/2 Bbl	Common	150

EQUIPMENT

Pumptrk	5	No.	Cementer	raig	Poz. Mix
			Helper	Brent	
Bulktrk	2	No.	Driver		425 @ 20 QMDC
			Driver		
Bulktrk	9	No.	Driver	Tom	Calcium
			Driver	Jason	

JOB SERVICES & REMARKS

Remarks:		Hulls	
Rat Hole	335K	Salt	13
Mouse Hole		Flowseal	100 #
Centralizers		Kol-Seal	750 #
Baskets		Mud CLR 48	500 gal
D/V or Port Collar		CFL-117 or CD110 CAF 38	
		Sand	
		Handling	595
		Mileage	

FLOAT EQUIPMENT

5 1/2 sp @ 3586	Bull @ 3591.30	Guide Shoe	
Est. Circulation - Pump 500 gal med clear		Centralizer	7
10 Bbl spacer Plug Kothole		Baskets	6
Cement 5 1/2 with 5455K.		AFU Inserts	
Clear lines & Displace Pvs.		Float Shoe	1
Plug back @ 1800 #		Latch Down	1
1 Lt. sp @ 800 #			
Cement Circulation			

Pumptrk Charge	prod string	Tax	
Mileage	36	Discount	
Signature		Total Charge	

Joel Perry
Shane V. Chy

