

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 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](mailto:kcc-well-logs@kcc.ks.gov). Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

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

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

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

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

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

TUBING RECORD:	Size:	Set At:	Packer At:	
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Form	ACO1 - Well Completion
Operator	Jaspar Co.
Well Name	LIZA 1
Doc ID	1424247

Casing

Purpose Of String	Size Hole Drilled	Size Casing Set	Weight	Setting Depth	Type Of Cement	Number of Sacks Used	Type and Percent Additives
Surface	12.25	8.625	23	260	COMMON	120	3%CC 2%GEL
Surface	12.25	8.625	23	260	QMDC	30	80/20
Production	7.875	5.5	15.5	3696	COMMON	150	10% SALT, 5% GIL, 500 GAL MUD CLEAR
Production	7.875	5.5	15.5	3696	QMDC	480	80/20, 1/4#FLO



Scale 1:240 Imperial

Well Name: LIZA #1  
Surface Location: NW SW NE NE Sec. 29 - 9S - 19W  
Bottom Location:  
API: 15-163-24373  
License Number: 34903  
Spud Date: 9/20/2018 Time: 6:45 PM  
Region: ROOKS COUNTY  
Drilling Completed: 9/27/2018 Time: 6:41 AM  
Surface Coordinates: 855' FNL & 1005' FEL  
Bottom Hole Coordinates:  
Ground Elevation: 2183.00ft  
K.B. Elevation: 2188.00ft  
Logged Interval: 3040.00ft To: 3700.00ft  
Total Depth: 3700.00ft  
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) 23-6982  
Well Name: LIZA #1  
Location: NW SW NE NE Sec. 29 - 9S - 19W  
API: 15-163-24373  
Pool:  
State: KANSAS  
Field: UNKNOWN  
Country: USA

#### SURFACE CO-ORDINATES

Well Type: Vertical  
Longitude: -99.4595564  
Latitude: 39.2465019  
N/S Co-ord: 855' FNL  
E/W Co-ord: 1005' FEL

#### 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 #: 8  
 Rig Type: MUD ROTARY  
 Spud Date: 9/20/2018  
 TD Date: 9/27/2018  
 Rig Release: 9/27/2018  
 Time: 6:45 PM  
 Time: 6:41 AM  
 Time: 12:00 AM

**ELEVATIONS**

K.B. Elevation: 2188.00ft  
 K.B. to Ground: 5.00ft  
 Ground Elevation: 2183.00ft

**NOTES**


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

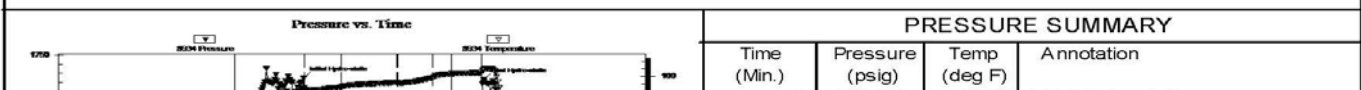
RESPECTFULLY SUBMITTED

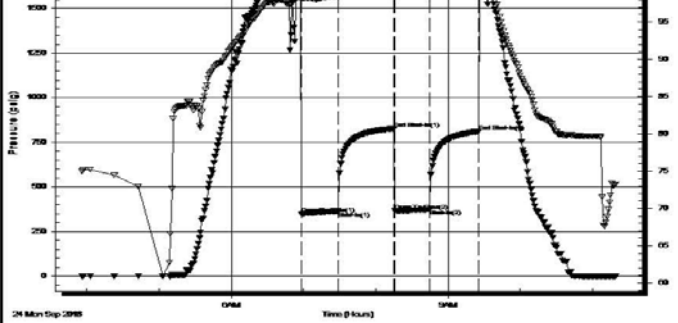
**WELL COMPARISON SHEET**

FORMATION	LIZA #1				SE SW NE NW 29-9-19				NESE NW 29-9-19				C/NE 29-9-19				SE SE SE 20-9-19			
	2188		2183		2155		2176		2181		2155		2155		2155		2155			
	KB	GL	GL	GL	KB	GL	GL	GL	KB	GL	GL	GL	KB	GL	GL	GL	KB	GL	GL	
	LOG TOPS	SAMPLE TOPS	LOG TOPS	SAMPLE TOPS	LOG TOPS	SAMPLE TOPS	LOG TOPS	SAMPLE TOPS	LOG TOPS	SAMPLE TOPS	LOG TOPS	SAMPLE TOPS	LOG TOPS	SAMPLE TOPS	LOG TOPS	SAMPLE TOPS	LOG TOPS	SAMPLE TOPS	LOG TOPS	SAMPLE TOPS
DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM	
ANHYDRITE TOP	1583	605	1589	599	1560	595	+ 10	+ 4	1560	616	- 11	- 17	1595	586	+ 19	+ 13	1545	610	- 5	- 11
BASE	1620	568	1623	565	1591	564	+ 4	+ 1												
TOPEKA	3139	-951	3138	-950	3109	-954	+ 3	+ 4					3158	-977	+ 26	+ 27				
HEEBNER SHALE	3343	-1155	3342	-1154	3311	-1156	+ 1	+ 2	3334	-1158	+ 3	+ 4					3309	-1154	- 1	+ 0
TORONTO	3362	-1174	3362	-1174	3333	-1178	+ 4	+ 4									3328	-1173	- 1	- 1
LKC	3383	-1195	3382	-1194	3353	-1198	+ 3	+ 4	3375	-1199	+ 4	+ 5	3425	-1244	+ 49	+ 50	3349	-1194	- 1	+ 0
BKC	3598	-1410	3598	-1410	3571	-1416	+ 6	+ 6	3580	-1404	- 6	- 6					3595	-1440		
CONGLOMERATE									3619	-1443			3597	-1416						
ARBUCKLE	3631	-1443	3632	-1444	3606	-1451	+ 8	+ 7	3667	-1491	+ 48	+ 47	3660	-1479	+ 36	+ 35	3614	-1459	+ 16	+ 15
TOTAL DEPTH	3701	-1513	3700	-1512	3706	-1551	+ 38	+ 39	3692	-1516	+ 3	+ 4	3685	-1504	- 9	- 8	3640	-1485	- 28	- 27

**DST #1 LKC A 3338' - 3400'**

	<b>DRILL STEM TEST REPORT</b> Jaspar Company, Inc. PO BOX 1120 Hays KS 67601 ATTN: Jeff Lawler		<b>29-9s-19w Rooks KS</b> <b>Liza #1</b> Job Ticket: 64598 Test Start: 2018.09.24 @ 03:56:00	
	<b>GENERAL INFORMATION:</b> Formation: <b>LKC 'A'</b> Deviated: No Whipstock ft (KB) Time Tool Opened: 06:58:15 Time Test Ended: 11:19:15 Interval: <b>3338.00 ft (KB) To 3400.00 ft (KB) (TVD)</b> Total Depth: 3400.00 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: 2188.00 ft (KB) 2183.00 ft (CF) KB to GR/CF: 5.00 ft	
<b>Serial #: 8934</b> Press@RunDepth: 374.58 psig @ 3341.00 ft (KB) Start Date: 2018.09.24 Start Time: 03:56:15		<b>Inside</b> End Date: 2018.09.24 End Time: 11:19:15 Capacity: 8000.00 psig Last Calib.: 2018.09.24 Time On Btm: 2018.09.24 @ 06:57:45 Time Off Btm: 2018.09.24 @ 09:27:00		
<b>TEST COMMENT:</b> 30-IF-10' Fill; Tool opened w hile making high connection; (no moushole) Bled off; Slid 10'; Weak-Fair; Built to 6' 45-ISI-No Return 30-FF-Weak-Fair; Built to 4&1/2" 45-FSI-No Return				





0	1624.78	98.38	Initial Hydro-static
1	348.94	98.08	Open To Flow (1)
31	363.77	98.51	Shut-In(1)
78	826.97	99.18	End Shut-In(1)
79	366.20	99.06	Open To Flow (2)
107	374.58	99.81	Shut-In(2)
148	810.60	100.49	End Shut-In(2)
150	1616.67	100.88	Final Hydro-static

**Recovery**

Length (ft)	Description	Volume (bbl)
120.00	GHOCM 30%G 30%O 40%M	0.61
430.00	GOCM 15%G 20%O 65%M	6.10
180.00	GSOCM 10%G 3%O 87%M	2.55
345.00	Mud 100%M	4.89

**Gas Rates**

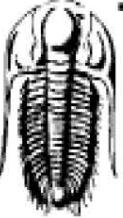
	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)

Trilobite Testing, Inc

Ref. No: 64598

Printed: 2018.09.24 @ 11:36:20

**DST #2 LKC C - D 3406' - 3448'**

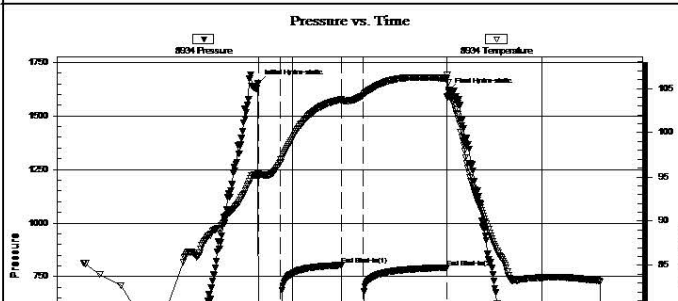
 <p><b>TRILOBITE TESTING, INC</b></p>	<b>DRILL STEM TEST REPORT</b>	
	Jaspar Company, Inc. PO BOX 1120 Hays KS 67601 ATTN: Jeff Lawler	<b>29-9s-19w Rooks KS</b> <b>Liza #1</b> Job Ticket: 64599 <b>DST#: 2</b> Test Start: 2018.09.24 @ 18:29:00

**GENERAL INFORMATION:**

Formation: <b>LKC 'C-D'</b> Deviated: No Whipstock:      ft (KB) Time Tool Opened: 20:35:45 Time Test Ended: 00:54:00 Interval: <b>3406.00 ft (KB) To 3448.00 ft (KB) (TVD)</b> Total Depth: 3448.00 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: 2188.00 ft (KB) 2183.00 ft (CF) KB to GR/CF: 5.00 ft
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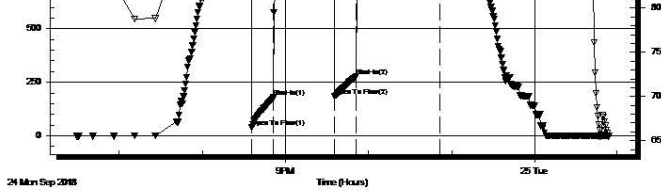
<b>Serial #: 8934</b> <b>Inside</b> Press@RunDepth: 277.88 psig @ 3412.00 ft (KB) Start Date: 2018.09.24      End Date: 2018.09.25 Start Time: 18:29:00      End Time: 00:54:00	Capacity: 8000.00 psig Last Calib.: 2018.09.25 Time On Btm: 2018.09.24 @ 20:35:15 Time Off Btm: 2018.09.24 @ 22:52:30
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**TEST COMMENT:** 15-IF-Strong; BOB in 4&1/2 min; Built to 36&1/2"  
 45-ISI-Weak; Built to 2&1/2"  
 15-FF-Strong; BOB in 3&1/2min; Built to 32"  
 60-FSI-Weak; Built to 3&1/2"



**PRESSURE SUMMARY**

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1653.82	95.34	Initial Hydro-static
1	39.93	95.07	Open To Flow (1)
16	181.36	96.68	Shut-In(1)
60	802.52	103.73	End Shut-In(1)
61	183.71	103.55	Open To Flow (2)
76	277.88	104.20	Shut-In(2)
136	792.85	106.15	End Shut-In(2)



138	1615.26	104.87	Final Hydro-static
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Recovery		
Length (ft)	Description	Volume (bbl)
120.00	MCW 10%M 90%W	0.61
390.00	VSOCCMW 2%O 30%M 68%W	5.53
30.00	SOCWM 5%O 25%W 70%M	0.43
30.00	CO 100%O	0.43
0.00	120' GIP 100%G	0.00

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

\* Recovery from multiple tests

Trilobite Testing, Inc

Ref. No: 64599

Printed: 2018.09.25 @ 13:34:34

### DST #3 LKC E-F 3446' - 3467'

	<b>DRILL STEM TEST REPORT</b>	
	Jaspar Company, Inc. PO BOX 1120 Hays KS 67601 ATTN: Jeff Lawler	<b>29-9s-19w Rooks KS</b>  <b>Liza #1</b> Job Ticket: 64600 <b>DST#: 3</b> Test Start: 2018.09.25 @ 07:21:00

**GENERAL INFORMATION:**

Formation: **LKC 'E-F**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 09:17:45  
 Time Test Ended: 13:38:00

Test Type: Conventional Bottom Hole (Reset)  
 Tester: Spencer J. Staab  
 Unit No: 84

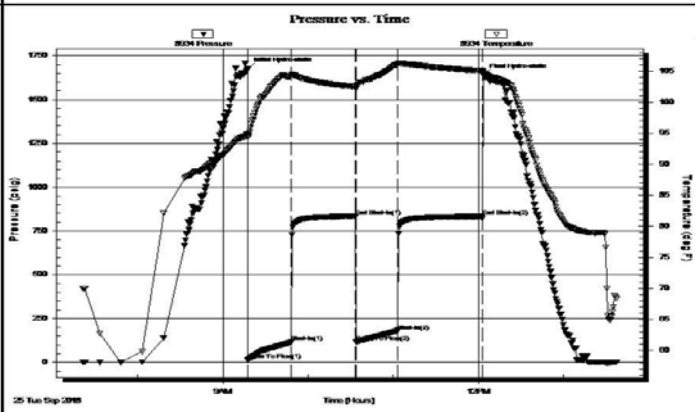
Interval: **3446.00 ft (KB) To 3467.00 ft (KB) (TVD)**  
 Total Depth: 3467.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2188.00 ft (KB)  
 2183.00 ft (CF)  
 KB to GR/CF: 5.00 ft

**Serial #: 8934      Outside**

Press@RunDepth: 178.22 psig @ 3449.00 ft (KB)	Capacity: 8000.00 psig
Start Date: 2018.09.25      End Date: 2018.09.25	Last Calib.: 2018.09.25
Start Time: 07:21:15      End Time: 13:38:00	Time On Btm: 2018.09.25 @ 09:17:30
	Time Off Btm: 2018.09.25 @ 12:03:45

**TEST COMMENT:** 30-IF-Strong; BOB in 15min; Built to 18&1/2"  
 45-ISI-No Return  
 30-FF-Strong; BOB in 20min; Built to 14"  
 60-FSI-No Return



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1674.91	94.78	Initial Hydro-static
1	14.64	94.30	Open To Flow (1)
31	114.60	104.22	Shut-In(1)
76	833.33	102.50	End Shut-In(1)
77	116.18	102.09	Open To Flow (2)
106	178.22	106.00	Shut-In(2)
166	832.67	105.03	End Shut-In(2)
167	1640.17	104.85	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)

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

160.00	MCVV 10% M 90% W	1.18
160.00	HMCW 35% M 65% W	2.27
60.00	MVW 50% M 50% W	0.85

\* Recovery from multiple tests

Trilobite Testing, Inc

Ref. No: 64600

Printed: 2018.09.25 @ 15:24:38

### DST #4 LKC H-I 3498' - 3544'



**TRILOBITE TESTING, INC.**

## DRILL STEM TEST REPORT

Jaspar Company, Inc.

**29-9s-19w Rooks KS**

PO BOX 1120  
Hays KS 67601

**Liza #1**

Job Ticket: 64753

**DST#: 4**

ATTN: Jeff Lawler

Test Start: 2018.09.25 @ 23:18:00

#### GENERAL INFORMATION:

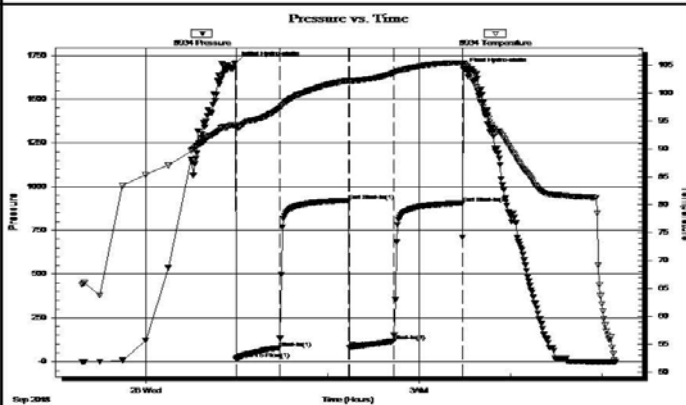
Formation: **LKC 'H-I'**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 00:59:30  
 Time Test Ended: 05:09:00  
 Interval: **3498.00 ft (KB) To 3544.00 ft (KB) (TVD)**  
 Total Depth: 3400.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Spencer J. Staab  
 Unit No: 84  
 Reference Elevations: 2188.00 ft (KB)  
 2183.00 ft (CF)  
 KB to GR/CF: 5.00 ft

#### Serial #: 8934

#### Inside

Press@RunDepth: 77.91 psig @ 3502.00 ft (KB)  
 Start Date: 2018.09.25 End Date: 2018.09.26  
 Start Time: 23:18:15 End Time: 05:09:00  
 Capacity: 8000.00 psig  
 Last Calib.: 2018.09.26  
 Time On Btm: 2018.09.26 @ 00:59:15  
 Time Off Btm: 2018.09.26 @ 03:29:15

TEST COMMENT: 30-IF-BOB 27 mins; Built to 10&1/2"  
 45-ISI-No Return  
 30-FF-BOB 28 mins; Built to 10&1/4"  
 45-FSI-Weak Surface



#### PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1708.68	94.28	Initial Hydro-static
1	14.86	93.76	Open To Flow (1)
29	77.91	97.26	Shut-In(1)
75	920.51	102.24	End Shut-In(1)
75	81.65	102.09	Shut-In(2)
104	116.89	103.56	Shut-In(3)
149	906.76	105.45	End Shut-In(2)
150	1670.47	105.41	Final Hydro-static

#### Recovery

Length (ft)	Description	Volume (bbl)
120.00	GWM 15% G 35% W 50% M	0.61
75.00	GSOCWM 20% G 5% O 35% W 40% M	1.06
15.00	GO 10% G 90% O	0.21

\* Recovery from multiple tests

Trilobite Testing, Inc

Ref. No: 64753











Printed: 2018.09.26 @ 06:55:14

#### Gas Rates

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



**ROCK TYPES**

 Cht vari	 Lmst fw7>	 Carbon Sh	 Ss
 Dolprim	 shale, grn	 shale, red	
 Dolsec	 shale, gry	 Arg/Shale	

**ACCESSORIES**

**MINERAL**










.\* Sandy

**STRINGER**

~~~~ Chert

**OTHER SYMBOLS**

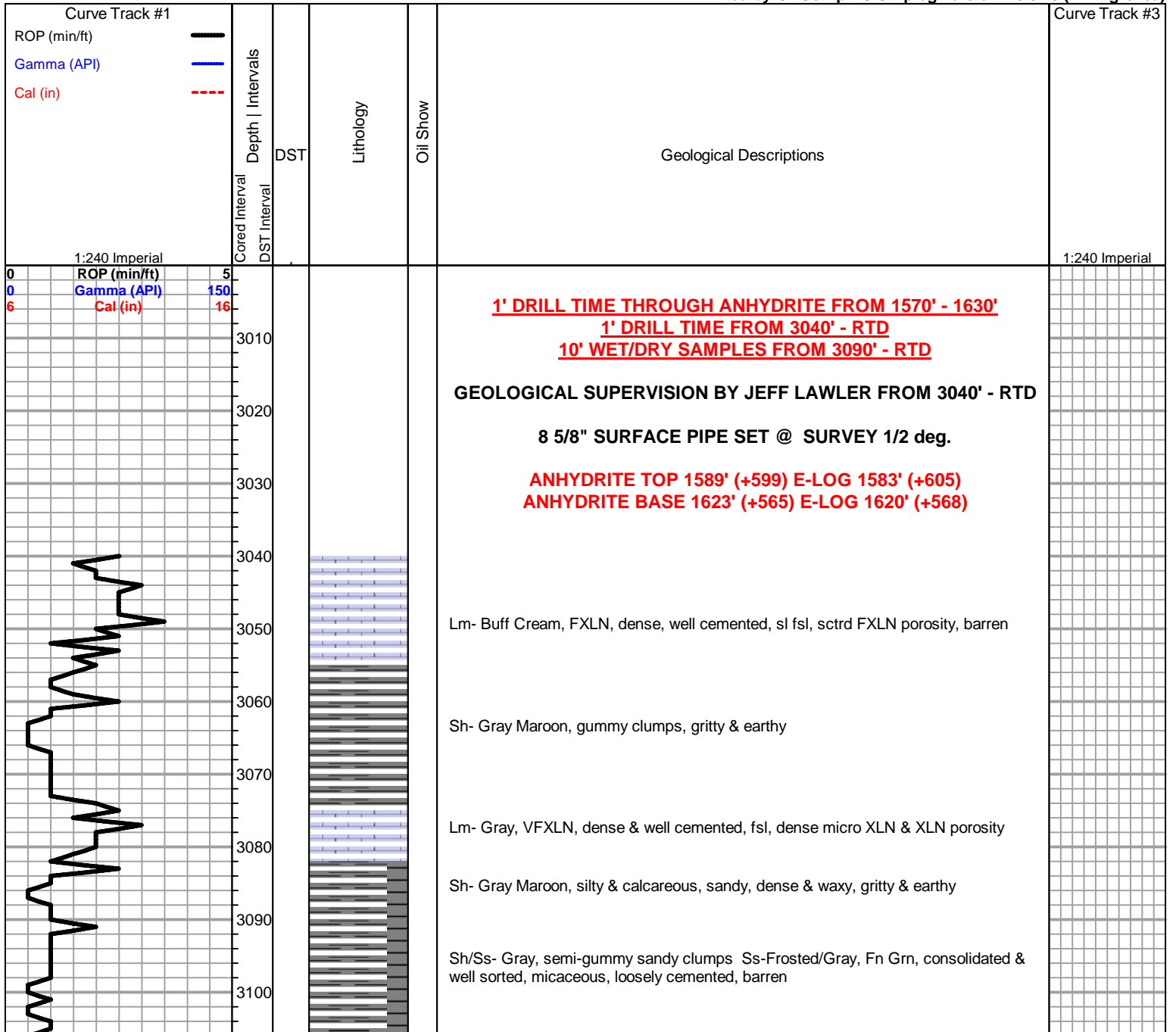
**MISC**

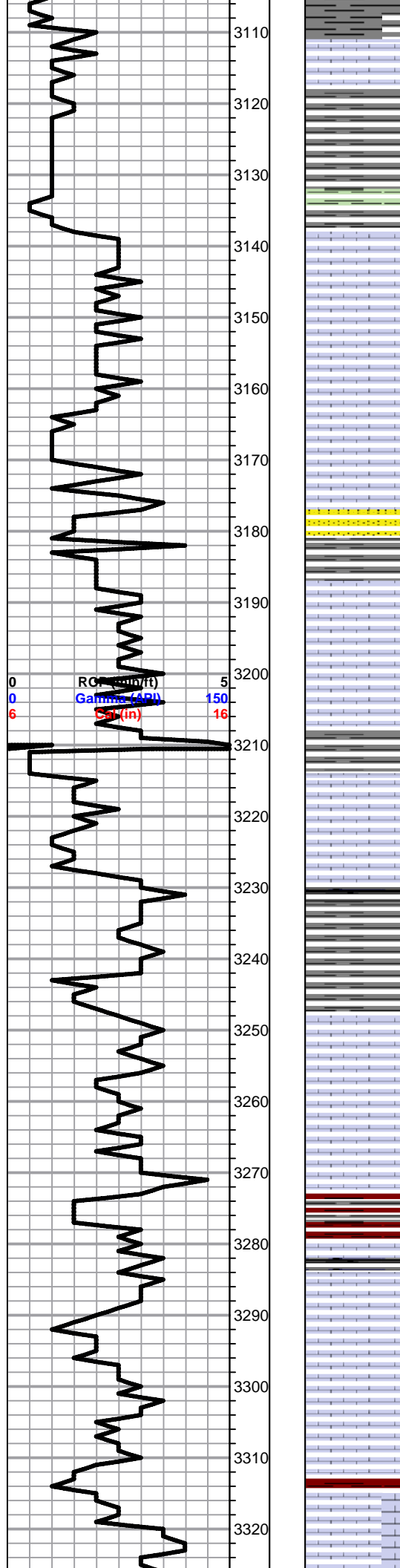
-  Daily Report
-  Digital Photo
-  Document
-  Folder
-  Link
-  Vertical Log File
-  Horizontal Log File
-  Core Log File
-  Drill Cuttings Rpt

**DST**

-  DST Int
-  DST alt

Printed by GEOstrip VC Striplog version 4.0.8.15 ([www.grsi.ca](http://www.grsi.ca))





Sh-Ss- Gray, A/A, abundant gummy clumps

Sh- A/A, Green, dense & semi-waxy

**TOPEKA 3138' (-950) E-LOG 3139' (-951)** Lm- Cream, FXLN, dense, well cemented, fsl, sctrd to dnse XLN porosity, barren

Lm- Cream Buff, VFXLN, dense, well cemented & tight w/ poor vis. porosity, barren

Lm- Cream Gray, Fn Grn, loosely cemented, chalky, sl fsl, poor vis. porosity, much soft white chalk, barren

Ss- Drk Gray, loosely cemented, consolidated & well sorted, barren

Lm- Cream, FXLN, fsl, mostly well cemented, w/ dnse XLN porosity, few slightly chalky in part

Lm- Tan, VF-FXLN, dense, well cemented, mostly tight w/ poor vis. porosity, barren

Sh- Gray White, dense calcareous & soft white chalk

Lm- Cream, FXLN, dense, most heavily chalky, heavily mottled, sandy, poor vis. porosity, massive, barren

Sh- Black, carbonaceous & fissile

Sh- Gray, soft & calcareous

Lm- Tan, VFXLN, dense, well cemented & tight, min. vis porosity, cherty like Ls

Lm- Cream Tan, VF-FXLN, sl fsl, mostly tight w/ sctrd XLN porosity, clean & barren

Lm- A/A, Tan Gray, VFXLN, dense, well cemented, high energy & sl trashy, tight w/ sctrd micro XLN porosity, barren

Sh- Black Gray, fissile & carbonaceous, gummy soft clumps

Lm- Cream Off White, FXLN, mod. well dev. w/ sctrd ppt porosity, sl fsl, SCTRD DRK, NSFO, WK ODR

Lm- Cream Off White, FXLN, sl fsl, dense & well cemented, sctrd to dense XLN porosity, clean & barren

Lm- Cream Off White, FXLN, fsl, sctrd ppt inter fsl porosity, SCTRD DRK STN, TR FO, GD ODR

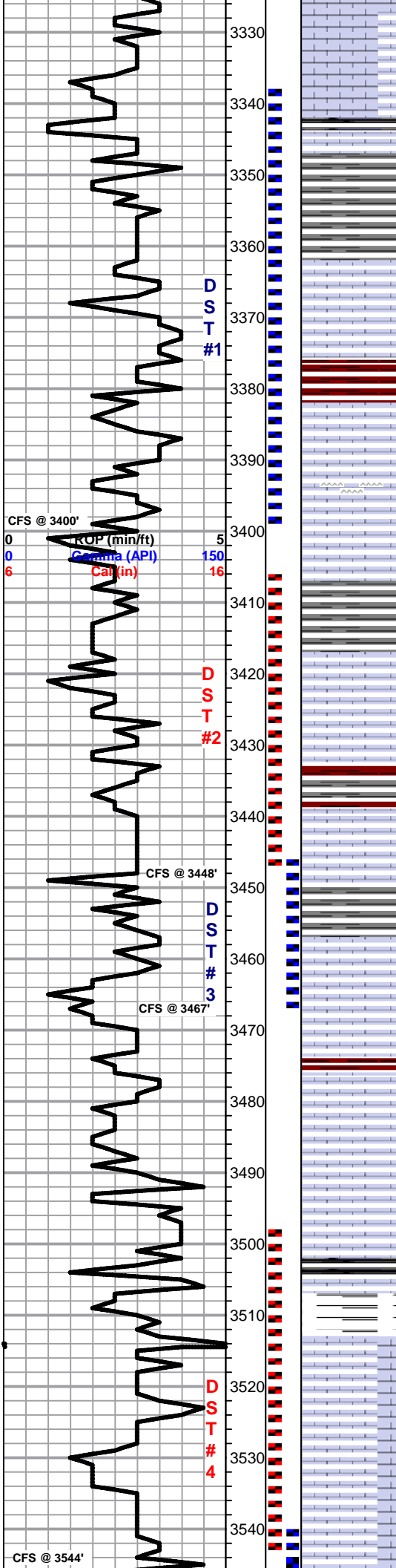
Lm- Cream Off White, VF-FXLN, dense, well cemented, mostly tight w/ micro XLN porosity, heavily mottled

3295.jpg

3310.jpg

SHORT TRIP  
SURVEY 3/4 deg  
STRAP +2.3'

TOOL SLID -10'



Lm- Cream Off White, FXLN, dense, sl chalky in part, poor vis. porosity, heavily mottled, clean & barren, few pcs of cherty Ls w/ sctrd micro XLN porosity

**HEEBNER 3342' (-1154) E-LOG 3343' (-1155)** Sh- Black, fissile & carbonaceous

Sh- Gray Maroon Green, silty & calcareous, gritty & earthy, soft & calcareous

**TORONTO 3362' (-1174) E-LOG 3362' (-1174)** Lm- Off White, Med XLN, fsl w/ fusulinids, sctrd fn ppt inter fsl porosity, SCTRD DRK STN, TR FO??, WK ODR

Lm- Cream Off White, FXLN, sl fsl, sctrd micro XLN & XLN porosity, vry clean & barren

**LKC 3382' (-1194) E-LOG 3383' (-1195)** Lm- Cream Off White, VF-FXLN, dense, mix of fsl & sl oolitic w/ sctrd fn ppt inter oolite porosity, gritty sl dolomitic, mod well dev. w/ dense micro XLN porosity, ALL W/ LT SCTRD STN, TR FO??, OILY SHEEN, FR-GD ODR, many pcs of creamy white & golden porcelain like cherty Ls w/o vis. porosity

Lm- Off White, FXLN, dense, well cemented, sctrd XLN porosity, clean & barren

Sh- Gray, trashy, sl fsl, chalky & calcareous

Lm- Cream Tan, mix of oolitic, w/ sctrd fn ppt inter oolite porosity, some clear replacement inter oolite cementation, SCTRD DRK STN, SL TR FO & well cemented FXLN w/ dense micro XLN porosity throughout, possible sl dolomitic??, DRK SAT STN, TR FO, ALL W/ GD ODR

Lm- Cream Off White, FXLN, 2-3 pcs fsl w/ fusulinids & ppt inter fsl porosity, SCTRD LT STN, NSFO, WK ODR, mixed w/ dense, poorly dev. w/ sctrd micro XLN & XLN porosity, chalky in part, clean & barren, several pcs of buff VFXLN, w/ poor vis. porosity

Lm- Off White, FXLN, vry well dev. oolitic w/ consistent ppt inter oolite porosity, sctrd reXLN w/in vugs, SCTRD COPPER COLORED STN, SL TR FO, STRNG PUNGENT ODR, much soft white chalk, mixed w/ FXLN, dense, well cemented, poorly dev. w/ sctrd micro XLN & XLN porosity, vry clean & barren

Lm/Chert- White Off White, mix of VF-FXLN, oolitic Ls, loosely cemented & chalky to well cemented & tight w/ micro XLN inter oolite porosity & milky white oolitic fresh bedded chert w/o vis. porosity

Chert- Golden Brown, fresh bedded vitreous chert w/o vis. porosity

Lm- Cream Off White, VF-FXLN, dense, well cemented, poorly dev. w/ sctrd micro XLN porosity, vry clean & barren

Sh- Black Gray Green, fissile & carbonaceous, gummy argillaceous gray & green clumps

Lm- Cream Off White, F-Med XLN, fsl w/ ppt inter fsl porosity, well cemented, SCTRD LT STN, NSFO, GD ODR, cream vf grn, poorly dev. & tight, sl chalky in part, vry clean & barren

Lm- Cream Off White, VF-FXLN Fn Grn, dense mostly tight mix, loosely cemented & chalky in part to well cemented, sctrd to dense micro XLN porosity, LT SCTRD STN, NSFO, FR-WK ODR, much soft white chalk

TO BOTTOM

DST #1 LKC A  
3338' - 3400'  
30-45-30-45

1075' TF  
120' GHOCM  
(30%G,30%O)  
430' GOCM  
(15%G,20%O)  
180' GSOCM  
(10%G,3%O)  
345' MUD

IFP: 348-363#  
FFP: 366-374#  
SIP: 826-810#  
BHT: 100 deg.

3365.jpg

3384.jpg

DST #2 LKC C-D  
3406' - 3448'  
15-45-15-60

TOOL SLID -4'

570' TOTAL FLUID  
120' GIP  
120' MCW  
(90%W)  
390' VSOCMW  
(2%O,68%W)  
30' SOCWM  
(5%O, 25%W)  
30' CLN OIL Gr:32

IFP: 39-181#  
FFP: 183-277#  
SIP: 802-792#  
BHT: 106

3425.jpg

3440.jpg

3467.jpg

DST #3 LKC E-F  
3446' - 3467'  
30-45-30-60

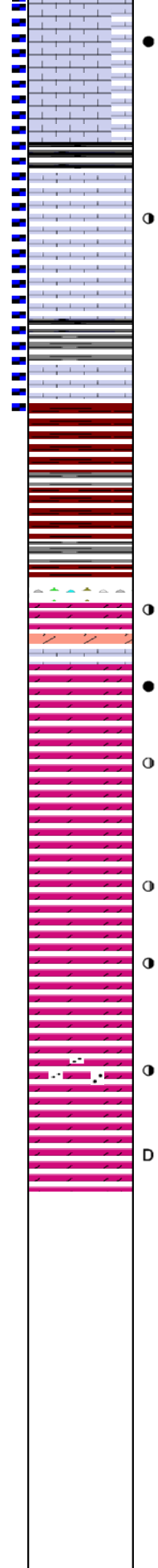
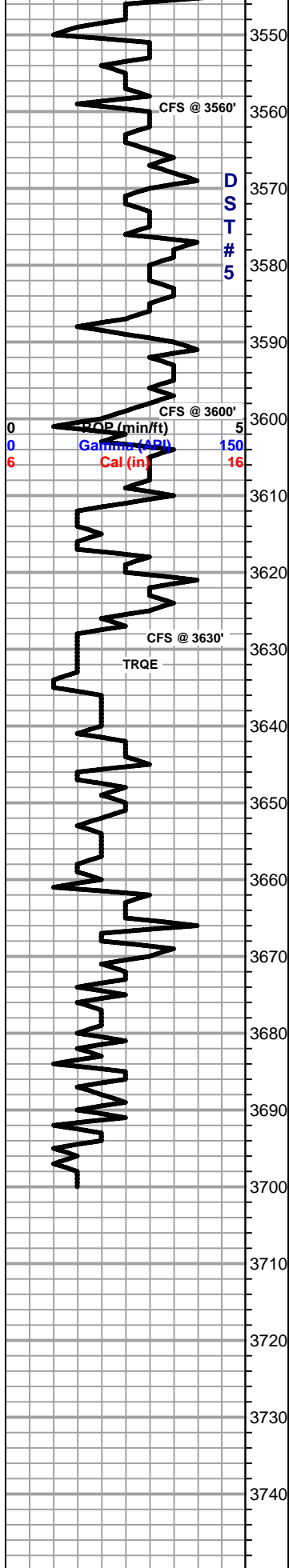
380' TOTAL FLUID  
160' MCW  
(90%W, 10%M)  
160' HMCW  
(65%W, 35%M)  
60' MW  
(50%W, 50%M)

IFP: 14-114#  
FFP: 116-178#  
SIP: 833-832#  
CHLOR: 60K

3520.jpg

3535.jpg

CFS @ 3544'



Lm- Cream Off White, FXLN, oolitic/oolimoldic, mod well dev. w/ sctrd vuggy porosity, SUB-SAT-SAT DRK STN, FR SFO, HVY ODR, HVY OILY SHEEN, SOME FO FLOATING ON WET CUP, mixed w/ dense micro XLN porosity throughout, STN & ODR A/A

Sh- Black Maroon, fissile & carbonaceous, gummy black wash, gritty & earthy

Lm- Cream Off White, mix of sl fsl w/ sctrd XLN porosity, well cemented, sctrd dev., LT SCTRDR STN, NSFO, FR ODR & well cemented, mostly tight w/ sctrd micro XLN porosity & some soft white chalk, vry clean & barren

Lm- Tan, FXLN, dense, well cemented, fsl & sl oolitic, semi-trashy high energy w/ sctrd to dense XLN porosity, clean & barren

**BKC 3598' (-1410) E-LOG 3598' (-1410)** Sh- Gray Maroon, gummy argillaceous clumps, gritty & earthy

Sh- A/A

Chert/Dolomite- various colored fresh bedded & conglomerate chert, Dolo- Cream Tan, mix of conglomerate/reworked Arbuckle, few pcs of fn grn loosely cemented sandy dolomite, few pcs of F-Crs XLN reworked Arbuckle, few pcs of F-Med XLN semi-sucrosic & sucrosic fresh bedded dolomite, few pcs of Fn-Med grn rounded sandy dolomite, MOST W/ SCTRDR DRK STN, TR FO, WK ODR, few pcs of various color oolitic fresh bedded vitreous chert

**ARBUCKLE 3632' (-1444) E-LOG 3631' (-1443)** Dolo- Cream Tan, VF-FXLN, dense, well cemented, consistent micro XLN porosity, SAT DRK STN, SFO, GD ODR mixed w/ FXLN, well dev. semi-sucrosic w/ sctrd ppt porosity, clean & barren

Dolo- Off White Buff Cream, F-Med XLN, well cemented, consistent XLN porosity throughout, mostly clean & barren, few w/ SCTRDR DRK STN, SL SFO, FR ODR, HVY OIL SHEEN ON WET CUP

Dolo- A/A Lt Pink tint, FXLN, dense w/ consistent XLN porosity throughout, mostly barren

Dolo/Chert- Cream Tan, mix of FXLN, well cemented w/ rounded qtz. inclusions, clean & barren, & well cemented, oomoldic w/ vuggy porosity, SCTRDR DRK STN, TR FO, FR ODR, HVY OIL SHEEN ON WET CUP, milky yellow fresh bedded vitreous chert w/o vis. porosity

Dolo- Cream Tan, Med XLN, semi-sucrosic-sucrosic, well cemented w/ consistent fn ppt inter XLN porosity, SCTRDR DRK STN, TR FO, FR ODR, OIL SHEEN ON WET CUP

Dolo- Off White Cream VFXLN, dense, well cemented, mostly tight w/ consistent micro XLN porosity, barren

Lm/Ss- Off White, VFXLN, tight limey dolomite/dolomitic Ls, SCTRDR BLK DO STN, NSFO, FR ODR, 3-5 pcs of clear, mod cemented, consolidated & well sorted sub-round qtz clusters, LT LIVELY OIL, ODR A/A

Dolo- Off White, F-Med XLN, mod. well dev. w/ sctrd XLN & fn ppt porosity, SCTRDR BLK DO STN, NSFO, FR ODR??

**LTD 3700' (-1512) LTD @ 06:41 9/27/2018**

3550.jpg

3580.jpg

DST #4 LKC H-I  
3498' - 3544'  
30-45-30-45

210' TOTAL FLUID  
15' GSY OIL  
120' GWM  
(15% G, 35% W  
50% M)

75' GSOCWM  
(20% G, 5% O  
35% W, 40% M)

Gr: 31 API  
CHLOR: 80K

IFP: 14-77#  
FFP: 81-116#  
SIP: 920-906#

3628.jpg

3635.jpg

3660.jpg

3670.jpg

3688.jpg

DST 5.jpg

SURVEY 3/4 deg.  
TOH FOR LOGS

DST #5 LKC J-L  
3540' - 3600'  
30-45-30-60

150' TOTAL FLUID  
210' GIP  
60' GMCO  
(30% G, 50% O  
20% M)

70' HMCO  
(70% O, 30% M)

20' GMO  
(10% G, 85% O,  
5% MUD)

Gr: 35

IFP: 15-47#  
FFP: 49-65#  
SIP: 931-926#



0.5 mm

3295' x 20





0.5 mm

3365' x 20

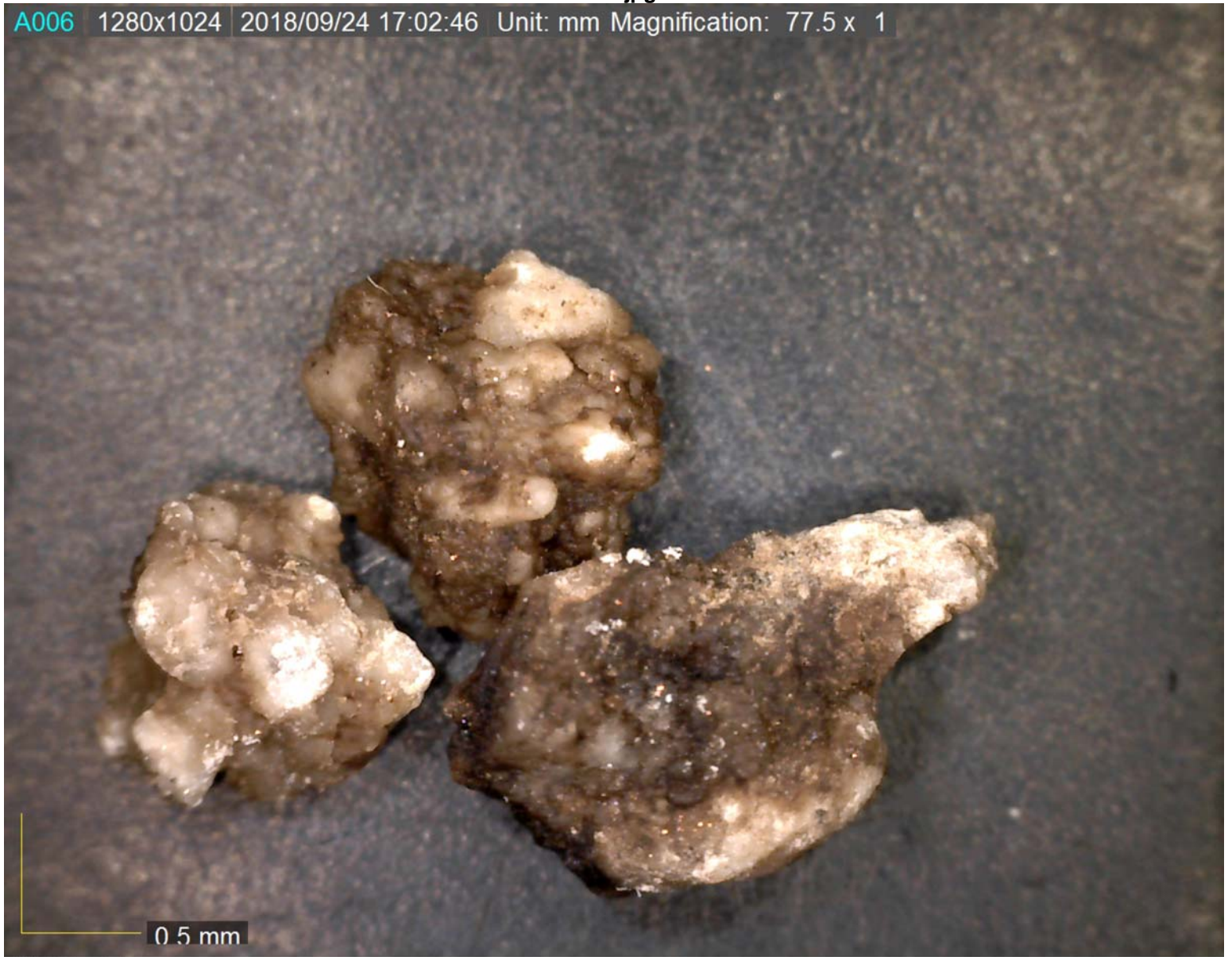


0.5 mm

3384' x 20



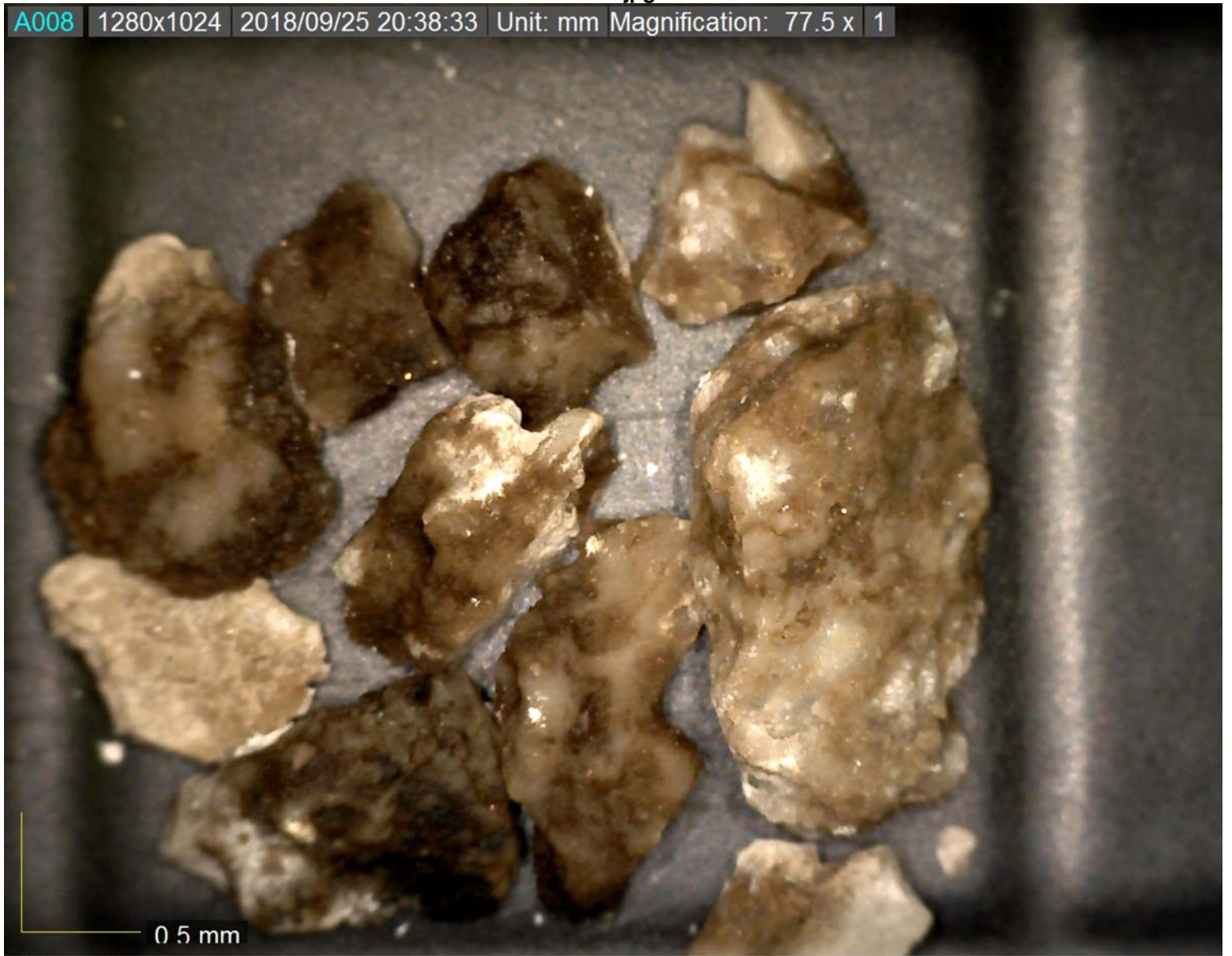




0.5 mm

3440' x 30





0.5 mm

3520' x 20





0.5 mm

3550' x 20





0.5 mm

3628' X 20





0.5 mm

3635' X 20



0.5 mm


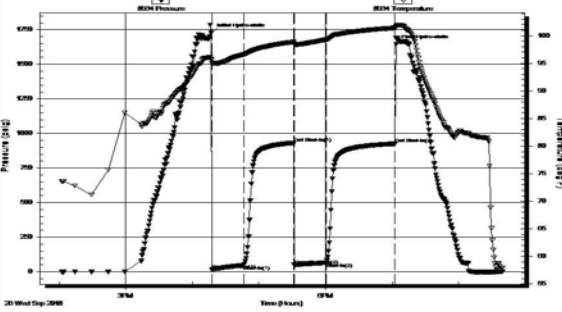
3660' X 20



0.5 mm

3670' X 20



|                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>DRILL STEM TEST REPORT</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                  |                                                                                                                          |              |             |                     |              |            |               |         |       |                      |      |       |          |                  |                                                                                                                                                                                                                                                                                                                            |       |                |                 |                  |        |       |                |    |       |       |                  |     |       |       |            |     |        |        |                |     |         |        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------------------------------------------------------------------------------------------------------------|--------------|-------------|---------------------|--------------|------------|---------------|---------|-------|----------------------|------|-------|----------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----------------|-----------------|------------------|--------|-------|----------------|----|-------|-------|------------------|-----|-------|-------|------------|-----|--------|--------|----------------|-----|---------|--------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Jaspar Company, Inc.<br>PO BOX 1120<br>Hays KS 67601<br><br>ATTN: Jeff Lawler                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                  | <b>29-9s-19w Rooks KS</b><br><br><b>Liza #1</b><br>Job Ticket: 64754 <b>DST#: 5</b><br>Test Start: 2018.09.26 @ 14:02:00 |              |             |                     |              |            |               |         |       |                      |      |       |          |                  |                                                                                                                                                                                                                                                                                                                            |       |                |                 |                  |        |       |                |    |       |       |                  |     |       |       |            |     |        |        |                |     |         |        |
| <b>GENERAL INFORMATION:</b><br>Formation: <b>LKC K</b><br>Deviated: No Whipstock: ft (KB)<br>Time Tool Opened: 16:17:45<br>Time Test Ended: 20:39:30<br><br>Interval: <b>3540.00 ft (KB) To 3600.00 ft (KB) (TVD)</b><br>Total Depth: 3600.00 ft (KB) (TVD)<br>Hole Diameter: 7.88 inches Hole Condition: Good<br><br>Test Type: Conventional Bottom Hole (Reset)<br>Tester: Spencer J. Staab<br>Unit No: 84<br><br>Reference Elevations: 2188.00 ft (KB)<br>2183.00 ft (CF)<br>KB to GR/CF: 5.00 ft |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |                                                                                                                          |              |             |                     |              |            |               |         |       |                      |      |       |          |                  |                                                                                                                                                                                                                                                                                                                            |       |                |                 |                  |        |       |                |    |       |       |                  |     |       |       |            |     |        |        |                |     |         |        |
| <b>Serial #: 8934 Inside</b><br>Press@RunDepth: 66.65 psig @ 3543.00 ft (KB)<br>Start Date: 2018.09.26      End Date: 2018.09.26<br>Start Time: 14:02:15      End Time: 20:39:30<br>Capacity: 8000.00 psig<br>Last Calib.: 1899.12.30<br>Time On Btm: 2018.09.26 @ 16:17:15<br>Time Off Btm: 2018.09.26 @ 19:03:45                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |                                                                                                                          |              |             |                     |              |            |               |         |       |                      |      |       |          |                  |                                                                                                                                                                                                                                                                                                                            |       |                |                 |                  |        |       |                |    |       |       |                  |     |       |       |            |     |        |        |                |     |         |        |
| <b>TEST COMMENT:</b> IFP 30 BOB 25 min built to 12 1/2"<br>ISI 45 Weak blow back built to 1"<br>FFP 30 BOB in 14 min built to 18"<br>FSI 60 Weak blow back built to 1"                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |                                                                                                                          |              |             |                     |              |            |               |         |       |                      |      |       |          |                  |                                                                                                                                                                                                                                                                                                                            |       |                |                 |                  |        |       |                |    |       |       |                  |     |       |       |            |     |        |        |                |     |         |        |
|                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>PRESSURE SUMMARY</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                  |                                                                                                                          |              |             |                     |              |            |               |         |       |                      |      |       |          |                  |                                                                                                                                                                                                                                                                                                                            |       |                |                 |                  |        |       |                |    |       |       |                  |     |       |       |            |     |        |        |                |     |         |        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Time (Min.)</th> <th>Pressure (psig)</th> <th>Temp (deg F)</th> <th>Annotation</th> </tr> </thead> <tbody> <tr><td>0</td><td>1726.88</td><td>95.64</td><td>Initial Hydro-static</td></tr> <tr><td>1</td><td>15.08</td><td>94.90</td><td>Open To Flow (1)</td></tr> <tr><td>29</td><td>47.00</td><td>96.60</td><td>Shut-In(1)</td></tr> <tr><td>74</td><td>931.80</td><td>98.85</td><td>End Shut-In(1)</td></tr> <tr><td>75</td><td>49.02</td><td>98.50</td><td>Open To Flow (2)</td></tr> <tr><td>104</td><td>66.65</td><td>99.28</td><td>Shut-In(2)</td></tr> <tr><td>166</td><td>926.26</td><td>101.40</td><td>End Shut-In(2)</td></tr> <tr><td>167</td><td>1644.29</td><td>101.66</td><td>Final Hydro-static</td></tr> </tbody> </table> |                  |                                                                                                                          |              | Time (Min.) | Pressure (psig)     | Temp (deg F) | Annotation | 0             | 1726.88 | 95.64 | Initial Hydro-static | 1    | 15.08 | 94.90    | Open To Flow (1) | 29                                                                                                                                                                                                                                                                                                                         | 47.00 | 96.60          | Shut-In(1)      | 74               | 931.80 | 98.85 | End Shut-In(1) | 75 | 49.02 | 98.50 | Open To Flow (2) | 104 | 66.65 | 99.28 | Shut-In(2) | 166 | 926.26 | 101.40 | End Shut-In(2) | 167 | 1644.29 | 101.66 |
| Time (Min.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Pressure (psig)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Temp (deg F)     | Annotation                                                                                                               |              |             |                     |              |            |               |         |       |                      |      |       |          |                  |                                                                                                                                                                                                                                                                                                                            |       |                |                 |                  |        |       |                |    |       |       |                  |     |       |       |            |     |        |        |                |     |         |        |
| 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1726.88                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 95.64            | Initial Hydro-static                                                                                                     |              |             |                     |              |            |               |         |       |                      |      |       |          |                  |                                                                                                                                                                                                                                                                                                                            |       |                |                 |                  |        |       |                |    |       |       |                  |     |       |       |            |     |        |        |                |     |         |        |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 15.08                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 94.90            | Open To Flow (1)                                                                                                         |              |             |                     |              |            |               |         |       |                      |      |       |          |                  |                                                                                                                                                                                                                                                                                                                            |       |                |                 |                  |        |       |                |    |       |       |                  |     |       |       |            |     |        |        |                |     |         |        |
| 29                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 47.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 96.60            | Shut-In(1)                                                                                                               |              |             |                     |              |            |               |         |       |                      |      |       |          |                  |                                                                                                                                                                                                                                                                                                                            |       |                |                 |                  |        |       |                |    |       |       |                  |     |       |       |            |     |        |        |                |     |         |        |
| 74                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 931.80                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 98.85            | End Shut-In(1)                                                                                                           |              |             |                     |              |            |               |         |       |                      |      |       |          |                  |                                                                                                                                                                                                                                                                                                                            |       |                |                 |                  |        |       |                |    |       |       |                  |     |       |       |            |     |        |        |                |     |         |        |
| 75                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 49.02                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 98.50            | Open To Flow (2)                                                                                                         |              |             |                     |              |            |               |         |       |                      |      |       |          |                  |                                                                                                                                                                                                                                                                                                                            |       |                |                 |                  |        |       |                |    |       |       |                  |     |       |       |            |     |        |        |                |     |         |        |
| 104                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 66.65                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 99.28            | Shut-In(2)                                                                                                               |              |             |                     |              |            |               |         |       |                      |      |       |          |                  |                                                                                                                                                                                                                                                                                                                            |       |                |                 |                  |        |       |                |    |       |       |                  |     |       |       |            |     |        |        |                |     |         |        |
| 166                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 926.26                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 101.40           | End Shut-In(2)                                                                                                           |              |             |                     |              |            |               |         |       |                      |      |       |          |                  |                                                                                                                                                                                                                                                                                                                            |       |                |                 |                  |        |       |                |    |       |       |                  |     |       |       |            |     |        |        |                |     |         |        |
| 167                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1644.29                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 101.66           | Final Hydro-static                                                                                                       |              |             |                     |              |            |               |         |       |                      |      |       |          |                  |                                                                                                                                                                                                                                                                                                                            |       |                |                 |                  |        |       |                |    |       |       |                  |     |       |       |            |     |        |        |                |     |         |        |
| <b>Recovery</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>Gas Rates</b> |                                                                                                                          |              |             |                     |              |            |               |         |       |                      |      |       |          |                  |                                                                                                                                                                                                                                                                                                                            |       |                |                 |                  |        |       |                |    |       |       |                  |     |       |       |            |     |        |        |                |     |         |        |
| <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Length (ft)</th> <th>Description</th> <th>Volume (bbl)</th> </tr> </thead> <tbody> <tr><td>60.00</td><td>GMCO 30%G 50%O 20%M</td><td>0.30</td></tr> <tr><td>70.00</td><td>MCO 70%O 30%M</td><td>0.46</td></tr> <tr><td>20.00</td><td>GSMCO 10%G 85%O 5%M</td><td>0.28</td></tr> <tr><td>0.00</td><td>210' GIP</td><td>0.00</td></tr> </tbody> </table>                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Length (ft)      | Description                                                                                                              | Volume (bbl) | 60.00       | GMCO 30%G 50%O 20%M | 0.30         | 70.00      | MCO 70%O 30%M | 0.46    | 20.00 | GSMCO 10%G 85%O 5%M  | 0.28 | 0.00  | 210' GIP | 0.00             | <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Choke (inches)</th> <th>Pressure (psig)</th> <th>Gas Rate (Mcf/D)</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table> |       | Choke (inches) | Pressure (psig) | Gas Rate (Mcf/D) |        |       |                |    |       |       |                  |     |       |       |            |     |        |        |                |     |         |        |
| Length (ft)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Volume (bbl)     |                                                                                                                          |              |             |                     |              |            |               |         |       |                      |      |       |          |                  |                                                                                                                                                                                                                                                                                                                            |       |                |                 |                  |        |       |                |    |       |       |                  |     |       |       |            |     |        |        |                |     |         |        |
| 60.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | GMCO 30%G 50%O 20%M                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 0.30             |                                                                                                                          |              |             |                     |              |            |               |         |       |                      |      |       |          |                  |                                                                                                                                                                                                                                                                                                                            |       |                |                 |                  |        |       |                |    |       |       |                  |     |       |       |            |     |        |        |                |     |         |        |
| 70.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | MCO 70%O 30%M                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0.46             |                                                                                                                          |              |             |                     |              |            |               |         |       |                      |      |       |          |                  |                                                                                                                                                                                                                                                                                                                            |       |                |                 |                  |        |       |                |    |       |       |                  |     |       |       |            |     |        |        |                |     |         |        |
| 20.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | GSMCO 10%G 85%O 5%M                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 0.28             |                                                                                                                          |              |             |                     |              |            |               |         |       |                      |      |       |          |                  |                                                                                                                                                                                                                                                                                                                            |       |                |                 |                  |        |       |                |    |       |       |                  |     |       |       |            |     |        |        |                |     |         |        |
| 0.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 210' GIP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 0.00             |                                                                                                                          |              |             |                     |              |            |               |         |       |                      |      |       |          |                  |                                                                                                                                                                                                                                                                                                                            |       |                |                 |                  |        |       |                |    |       |       |                  |     |       |       |            |     |        |        |                |     |         |        |
| Choke (inches)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Pressure (psig)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Gas Rate (Mcf/D) |                                                                                                                          |              |             |                     |              |            |               |         |       |                      |      |       |          |                  |                                                                                                                                                                                                                                                                                                                            |       |                |                 |                  |        |       |                |    |       |       |                  |     |       |       |            |     |        |        |                |     |         |        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |                                                                                                                          |              |             |                     |              |            |               |         |       |                      |      |       |          |                  |                                                                                                                                                                                                                                                                                                                            |       |                |                 |                  |        |       |                |    |       |       |                  |     |       |       |            |     |        |        |                |     |         |        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |                                                                                                                          |              |             |                     |              |            |               |         |       |                      |      |       |          |                  |                                                                                                                                                                                                                                                                                                                            |       |                |                 |                  |        |       |                |    |       |       |                  |     |       |       |            |     |        |        |                |     |         |        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |                                                                                                                          |              |             |                     |              |            |               |         |       |                      |      |       |          |                  |                                                                                                                                                                                                                                                                                                                            |       |                |                 |                  |        |       |                |    |       |       |                  |     |       |       |            |     |        |        |                |     |         |        |
| <small>* Recovery from multiple tests</small><br>Trilobite Testing, Inc      Ref. No: 64754      Printed: 2018.09.27 @ 08:38:16                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |                                                                                                                          |              |             |                     |              |            |               |         |       |                      |      |       |          |                  |                                                                                                                                                                                                                                                                                                                            |       |                |                 |                  |        |       |                |    |       |       |                  |     |       |       |            |     |        |        |                |     |         |        |



## DRILL STEM TEST REPORT

Prepared For: **Jaspar Company, Inc.**

PO Box 1120  
Hays KS 67601

ATTN: Jeff Lawler

**Liza #1**

**29-9s-19w Rooks,KS**

Start Date: 2018.09.24 @ 03:56:00

End Date: 2018.09.24 @ 11:19:15

Job Ticket #: 64598                      DST #: 1

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

Printed: 2018.09.27 @ 14:01:29



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Jaspar Company, Inc.

**29-9s-19w Rooks,KS**

PO Box 1120  
Hays KS 67601

**Liza #1**

Job Ticket: 64598

**DST#: 1**

ATTN: Jeff Lawler

Test Start: 2018.09.24 @ 03:56:00

## GENERAL INFORMATION:

Formation: **LKC 'A'**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 06:58:15

Time Test Ended: 11:19:15

Test Type: Conventional Bottom Hole (Initial)

Tester: Spencer J. Staab

Unit No: 84

**Interval: 3338.00 ft (KB) To 3400.00 ft (KB) (TVD)**

Reference Elevations: 2188.00 ft (KB)

Total Depth: 3400.00 ft (KB) (TVD)

2183.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

**Serial #: 8934**

**Inside**

Press@RunDepth: 374.58 psig @ 3341.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2018.09.24

End Date:

2018.09.24

Last Calib.:

2018.09.24

Start Time: 03:56:15

End Time:

11:19:15

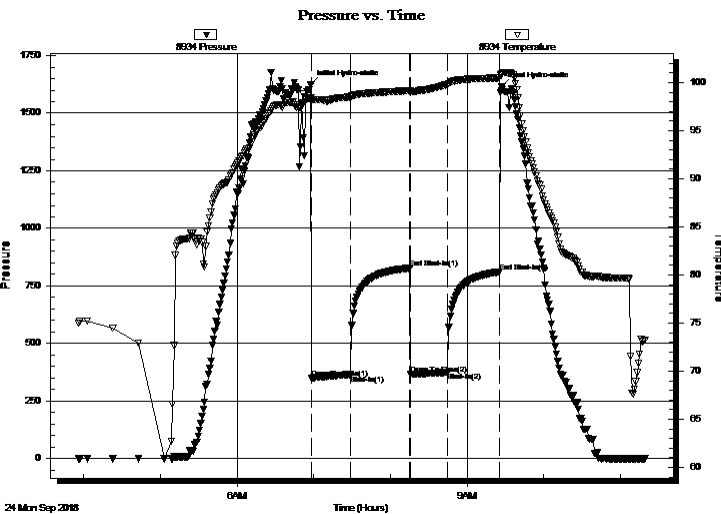
Time On Btm:

2018.09.24 @ 06:57:45

Time Off Btm:

2018.09.24 @ 09:27:00

**TEST COMMENT:** 30-IF-10' Fill; Tool opened w hile making high connection; (no moushole) Bled off; Slid 10'; Weak-Fair; Built to 6"  
45-ISI-No Return  
30-FF-Weak-Fair; Built to 4 1/2"  
45-FSI-No Return



## PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 1624.78         | 98.38        | Initial Hydro-static |
| 1           | 348.94          | 98.08        | Open To Flow (1)     |
| 31          | 363.77          | 98.51        | Shut-In(1)           |
| 78          | 826.97          | 99.18        | End Shut-In(1)       |
| 79          | 366.20          | 99.06        | Open To Flow (2)     |
| 107         | 374.58          | 99.81        | Shut-In(2)           |
| 148         | 810.60          | 100.49       | End Shut-In(2)       |
| 150         | 1616.67         | 100.88       | Final Hydro-static   |

## Recovery

| Length (ft) | Description          | Volume (bbl) |
|-------------|----------------------|--------------|
| 120.00      | GHOCM 30%G 30%O 40%M | 0.61         |
| 430.00      | GOCM 15%G 20%O 65%M  | 6.10         |
| 180.00      | GSOCM 10%G 3%O 87%M  | 2.55         |
| 345.00      | Mud 100%M            | 4.89         |
|             |                      |              |
|             |                      |              |

## Gas Rates

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



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Jaspar Company, Inc.

**29-9s-19w Rooks,KS**

PO Box 1120  
Hays KS 67601

**Liza #1**

Job Ticket: 64598

**DST#: 1**

ATTN: Jeff Lawler

Test Start: 2018.09.24 @ 03:56:00

## GENERAL INFORMATION:

Formation: **LKC 'A'**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 06:58:15

Time Test Ended: 11:19:15

Test Type: Conventional Bottom Hole (Initial)

Tester: Spencer J. Staab

Unit No: 84

Interval: **3338.00 ft (KB) To 3400.00 ft (KB) (TVD)**

Total Depth: 3400.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2188.00 ft (KB)

2183.00 ft (CF)

KB to GR/CF: 5.00 ft

**Serial #: 8368 Inside**

Press@RunDepth: psig @ 3341.00 ft (KB)

Start Date: 2018.09.24

End Date: 2018.09.24

Start Time: 03:56:15

End Time: 11:19:15

Capacity: 8000.00 psig

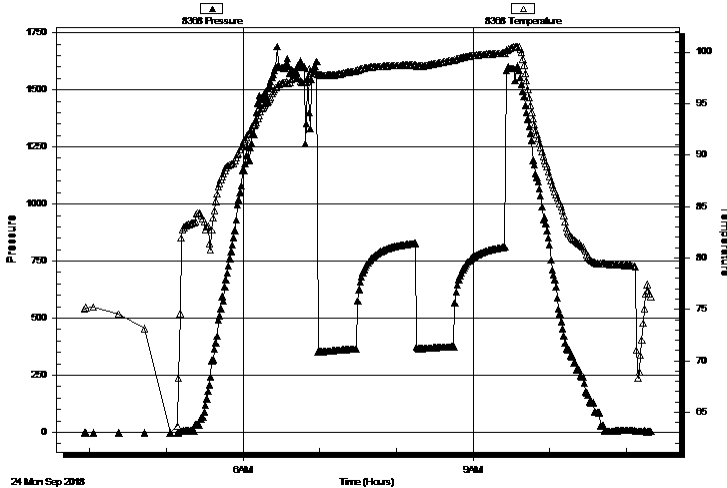
Last Calib.: 2018.09.24

Time On Btm:

Time Off Btm:

**TEST COMMENT:** 30-IF-10' Fill; Tool opened w hile making high connection; (no moushole) Bled off; Slid 10'; Weak-Fair; Built to 6"  
45-ISI-No Return  
30-FF-Weak-Fair; Built to 4 1/2"  
45-FSI-No Return

Pressure vs. Time



## PRESSURE SUMMARY

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

## Recovery

| Length (ft) | Description          | Volume (bbl) |
|-------------|----------------------|--------------|
| 120.00      | GHOCM 30%G 30%O 40%M | 0.61         |
| 430.00      | GOCM 15%G 20%O 65%M  | 6.10         |
| 180.00      | GSOCM 10%G 3%O 87%M  | 2.55         |
| 345.00      | Mud 100%M            | 4.89         |
|             |                      |              |
|             |                      |              |
|             |                      |              |

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Jaspar Company, Inc.

**29-9s-19w Rooks,KS**

PO Box 1120  
Hays KS 67601

**Liza #1**

Job Ticket: 64598

**DST#: 1**

ATTN: Jeff Lawler

Test Start: 2018.09.24 @ 03:56:00

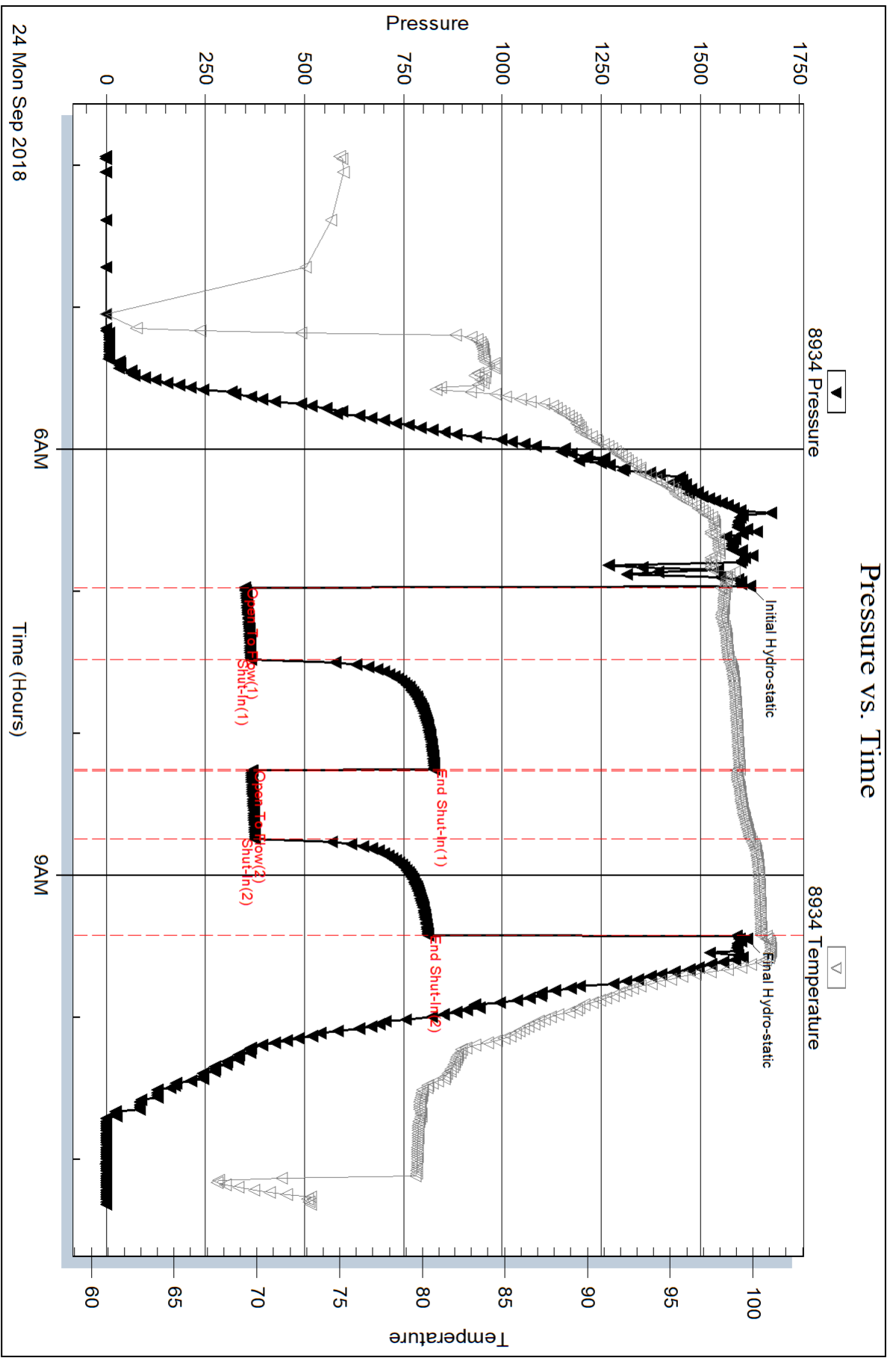
## Tool Information

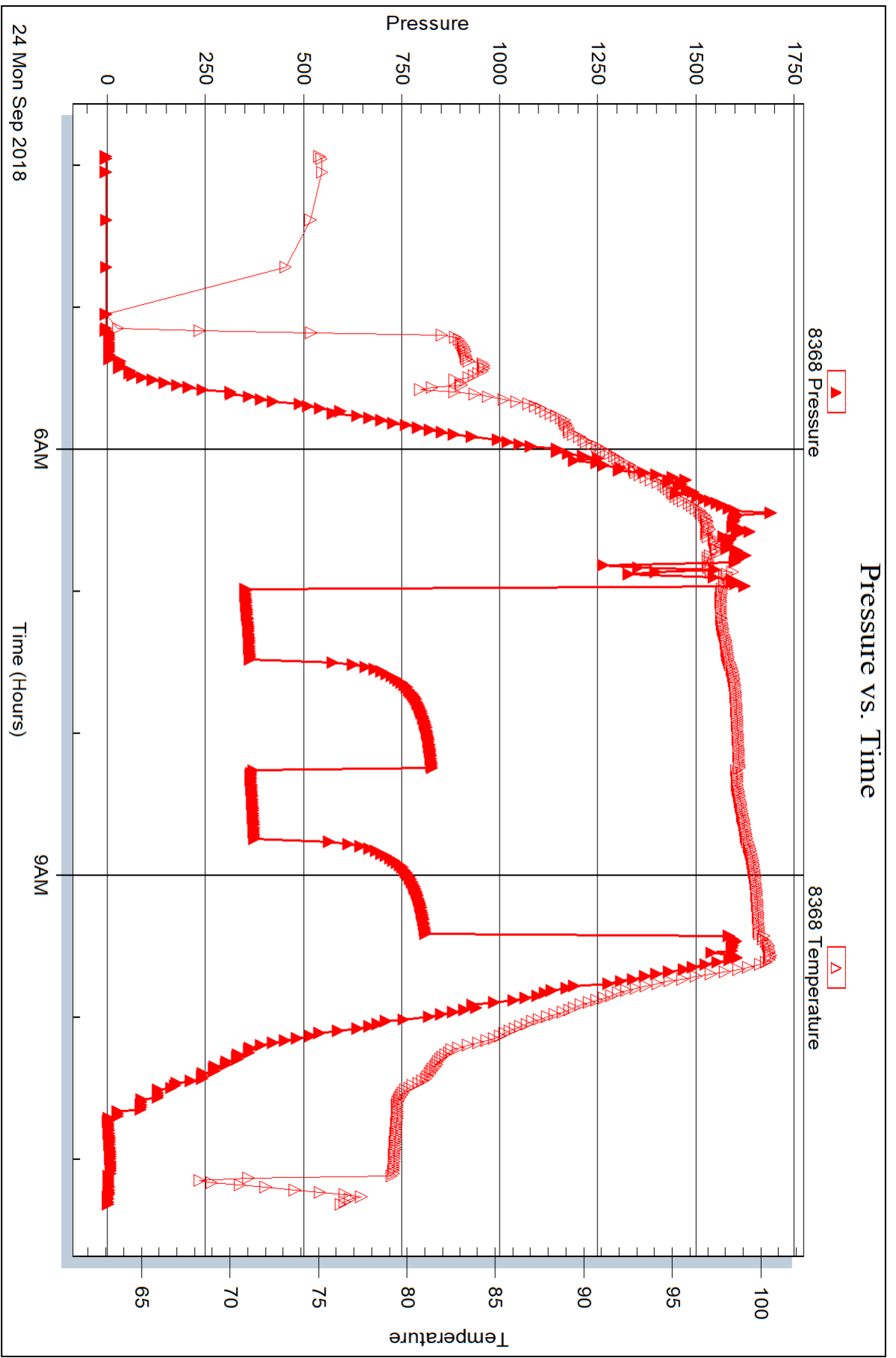
|                           |                    |                       |                                |                                    |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe:               | Length: 3223.00 ft | Diameter: 3.82 inches | Volume: 45.69 bbl              | Tool Weight: 2000.00 lb            |
| Heavy Wt. Pipe:           | Length: 0.00 ft    | Diameter: 2.75 inches | Volume: 0.00 bbl               | Weight set on Packer: 25000.00 lb  |
| Drill Collar:             | Length: 118.00 ft  | Diameter: 2.25 inches | Volume: 0.58 bbl               | Weight to Pull Loose: 90000.00 lb  |
|                           |                    |                       | <u>Total Volume: 46.27 bbl</u> | Tool Chased 10.00 ft               |
| Drill Pipe Above KB:      | 32.00 ft           |                       |                                | String Weight: Initial 50000.00 lb |
| Depth to Top Packer:      | 3338.00 ft         |                       |                                | Final 55000.00 lb                  |
| Depth to Bottom Packer:   | ft                 |                       |                                |                                    |
| Interval between Packers: | 62.00 ft           |                       |                                |                                    |
| Tool Length:              | 91.00 ft           |                       |                                |                                    |
| Number of Packers:        | 1                  | Diameter: 6.75 inches |                                |                                    |

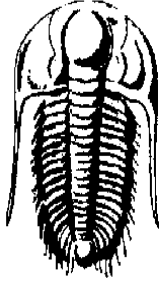
Tool Comments:

## Tool Description

| Tool Description          | Length (ft)  | Serial No. | Position | Depth (ft) | Accum. Lengths                |
|---------------------------|--------------|------------|----------|------------|-------------------------------|
| Change Over Sub           | 1.00         |            |          | 3310.00    |                               |
| Shut In Tool              | 5.00         |            |          | 3315.00    |                               |
| Hydraulic tool            | 5.00         |            |          | 3320.00    |                               |
| Jars                      | 5.00         |            |          | 3325.00    |                               |
| Safety Joint              | 3.00         |            |          | 3328.00    |                               |
| Packer                    | 5.00         |            |          | 3333.00    | 29.00 Bottom Of Top Packer    |
| Packer                    | 5.00         |            |          | 3338.00    |                               |
| Stubb                     | 1.00         |            |          | 3339.00    |                               |
| Perforations              | 1.00         |            |          | 3340.00    |                               |
| Change Over Sub           | 1.00         |            |          | 3341.00    |                               |
| Recorder                  | 0.00         | 8368       | Inside   | 3341.00    |                               |
| Recorder                  | 0.00         | 8934       | Inside   | 3341.00    |                               |
| Drill Pipe                | 32.00        |            |          | 3373.00    |                               |
| Change Over Sub           | 1.00         |            |          | 3374.00    |                               |
| Perforations              | 23.00        |            |          | 3397.00    |                               |
| Bullnose                  | 3.00         |            |          | 3400.00    | 62.00 Bottom Packers & Anchor |
| <b>Total Tool Length:</b> | <b>91.00</b> |            |          |            |                               |







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

## DRILL STEM TEST REPORT

Prepared For: **Jaspar Company, Inc.**

PO Box 1120  
Hays KS 67601

ATTN: Jeff Lawler

**Liza #1**

**29-9s-19w Rooks,KS**

Start Date: 2018.09.24 @ 18:29:15

End Date: 2018.09.25 @ 00:54:00

Job Ticket #: 64599                      DST #: 2

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

Printed: 2018.09.27 @ 13:48:22

Jaspar Company, Inc. 29-9s-19w Rooks,KS Liza #1 DST # 2 LKC C - D 2018.09.24



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Jaspar Company, Inc.

**29-9s-19w Rooks, KS**

PO Box 1120  
Hays KS 67601

**Liza #1**

Job Ticket: 64599

**DST#: 2**

ATTN: Jeff Lawler

Test Start: 2018.09.24 @ 18:29:15

## GENERAL INFORMATION:

Formation: **LKC C - D**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 20:35:45

Time Test Ended: 00:54:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Spencer J. Staab

Unit No: 84

**Interval: 3406.00 ft (KB) To 3448.00 ft (KB) (TVD)**

Reference Elevations: 2188.00 ft (KB)

Total Depth: 3448.00 ft (KB) (TVD)

2183.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

**Serial #: 8934**

**Inside**

Press@RunDepth: 277.88 psig @ 3412.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2018.09.24

End Date:

2018.09.25

Last Calib.:

2018.09.24

Start Time:

18:29:15

End Time:

00:54:00

Time On Btm:

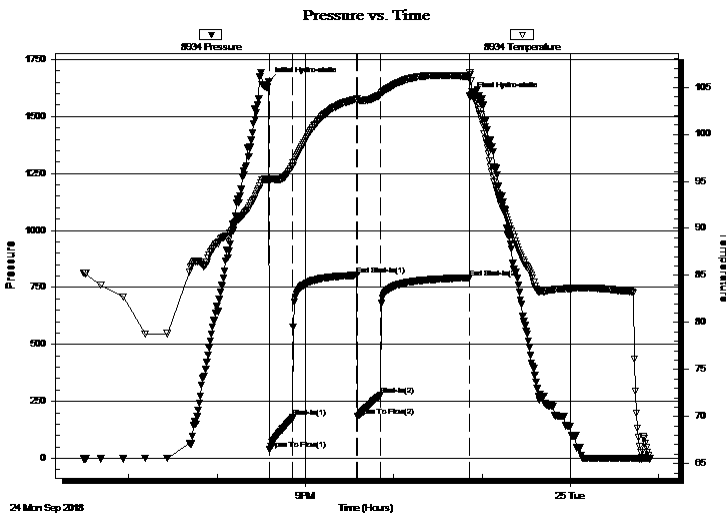
2018.09.24 @ 20:35:00

Time Off Btm:

2018.09.24 @ 22:52:00

**TEST COMMENT:** IFP 15 BOB in 4 1/2 min built to 36 1/2"  
ISI 45 Weak blow back built to 2 1/2"  
FFP 15 BOB in 3 1/2 min built to 32"  
FSI 60 WEak blow back built to 3 1/2"

## PRESSURE SUMMARY



| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 1653.94         | 95.29        | Initial Hydro-static |
| 1           | 39.93           | 95.07        | Open To Flow (1)     |
| 17          | 181.35          | 96.68        | Shut-In(1)           |
| 60          | 803.60          | 103.73       | End Shut-In(1)       |
| 61          | 183.71          | 103.55       | Open To Flow (2)     |
| 76          | 277.88          | 104.20       | Shut-In(2)           |
| 137         | 792.85          | 106.15       | End Shut-In(2)       |
| 137         | 1586.10         | 106.32       | Final Hydro-static   |

## Recovery

| Length (ft) | Description          | Volume (bbl) |
|-------------|----------------------|--------------|
| 120.00      | MCW 10%M 90%W        | 0.61         |
| 390.00      | VSOCMW 2%O 68%W 30%M | 5.53         |
| 30.00       | SOCWM 5%O 25%W 70%M  | 0.43         |
| 30.00       | CO                   | 0.43         |
| 0.00        | 120' GIP             | 0.00         |

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Jaspar Company, Inc.

**29-9s-19w Rooks,KS**

PO Box 1120  
Hays KS 67601

**Liza #1**

Job Ticket: 64599

**DST#: 2**

ATTN: Jeff Lawler

Test Start: 2018.09.24 @ 18:29:15

## Tool Information

|                           |                    |                       |                                |                        |             |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------|-------------|
| Drill Pipe:               | Length: 3292.00 ft | Diameter: 3.82 inches | Volume: 46.67 bbl              | Tool Weight:           | 2000.00 lb  |
| Heavy Wt. Pipe:           | Length: 0.00 ft    | Diameter: 2.75 inches | Volume: 0.00 bbl               | Weight set on Packer:  | 2500.00 lb  |
| Drill Collar:             | Length: 118.00 ft  | Diameter: 2.25 inches | Volume: 0.58 bbl               | Weight to Pull Loose:  | 76000.00 lb |
|                           |                    |                       | <u>Total Volume: 47.25 bbl</u> | Tool Chased            | 4.00 ft     |
| Drill Pipe Above KB:      | 25.00 ft           |                       |                                | String Weight: Initial | 50000.00 lb |
| Depth to Top Packer:      | 3406.00 ft         |                       |                                | Final                  | 52000.00 lb |
| Depth to Bottom Packer:   | ft                 |                       |                                |                        |             |
| Interval between Packers: | 42.00 ft           |                       |                                |                        |             |
| Tool Length:              | 63.00 ft           |                       |                                |                        |             |
| Number of Packers:        | 2                  | Diameter: 6.75 inches |                                |                        |             |

Tool Comments:

## Tool Description

| Tool Description | Length (ft) | Serial No. | Position | Depth (ft) | Accum. Lengths                |
|------------------|-------------|------------|----------|------------|-------------------------------|
| Change Over Sub  | 1.00        |            |          | 3386.00    |                               |
| Shut In Tool     | 5.00        |            |          | 3391.00    |                               |
| Hydraulic tool   | 5.00        |            |          | 3396.00    |                               |
| Packer           | 5.00        |            |          | 3401.00    | 21.00 Bottom Of Top Packer    |
| Packer           | 5.00        |            |          | 3406.00    |                               |
| Stubb            | 1.00        |            |          | 3407.00    |                               |
| Perforations     | 4.00        |            |          | 3411.00    |                               |
| Change Over Sub  | 1.00        |            |          | 3412.00    |                               |
| Recorder         | 0.00        | 8368       | Inside   | 3412.00    |                               |
| Recorder         | 0.00        | 8934       | Inside   | 3412.00    |                               |
| Drill Pipe       | 32.00       |            |          | 3444.00    |                               |
| Change Over Sub  | 1.00        |            |          | 3445.00    |                               |
| Bullnose         | 3.00        |            |          | 3448.00    | 42.00 Bottom Packers & Anchor |

**Total Tool Length: 63.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Jaspar Company, Inc.

**29-9s-19w Rooks,KS**

PO Box 1120  
Hays KS 67601

**Liza #1**

Job Ticket: 64599

**DST#: 2**

ATTN: Jeff Lawler

Test Start: 2018.09.24 @ 18:29:15

## 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: 49.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.98 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 4000.00 ppm

Filter Cake: inches

## Recovery Information

Recovery Table

| Length<br>ft | Description          | Volume<br>bbl |
|--------------|----------------------|---------------|
| 120.00       | MCW 10%M 90%W        | 0.609         |
| 390.00       | VSOCMW 2%O 68%W 30%M | 5.528         |
| 30.00        | SOCWM 5%O 25%W 70%M  | 0.425         |
| 30.00        | CO                   | 0.425         |
| 0.00         | 120' GIP             | 0.000         |

Total Length: 570.00 ft

Total Volume: 6.987 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

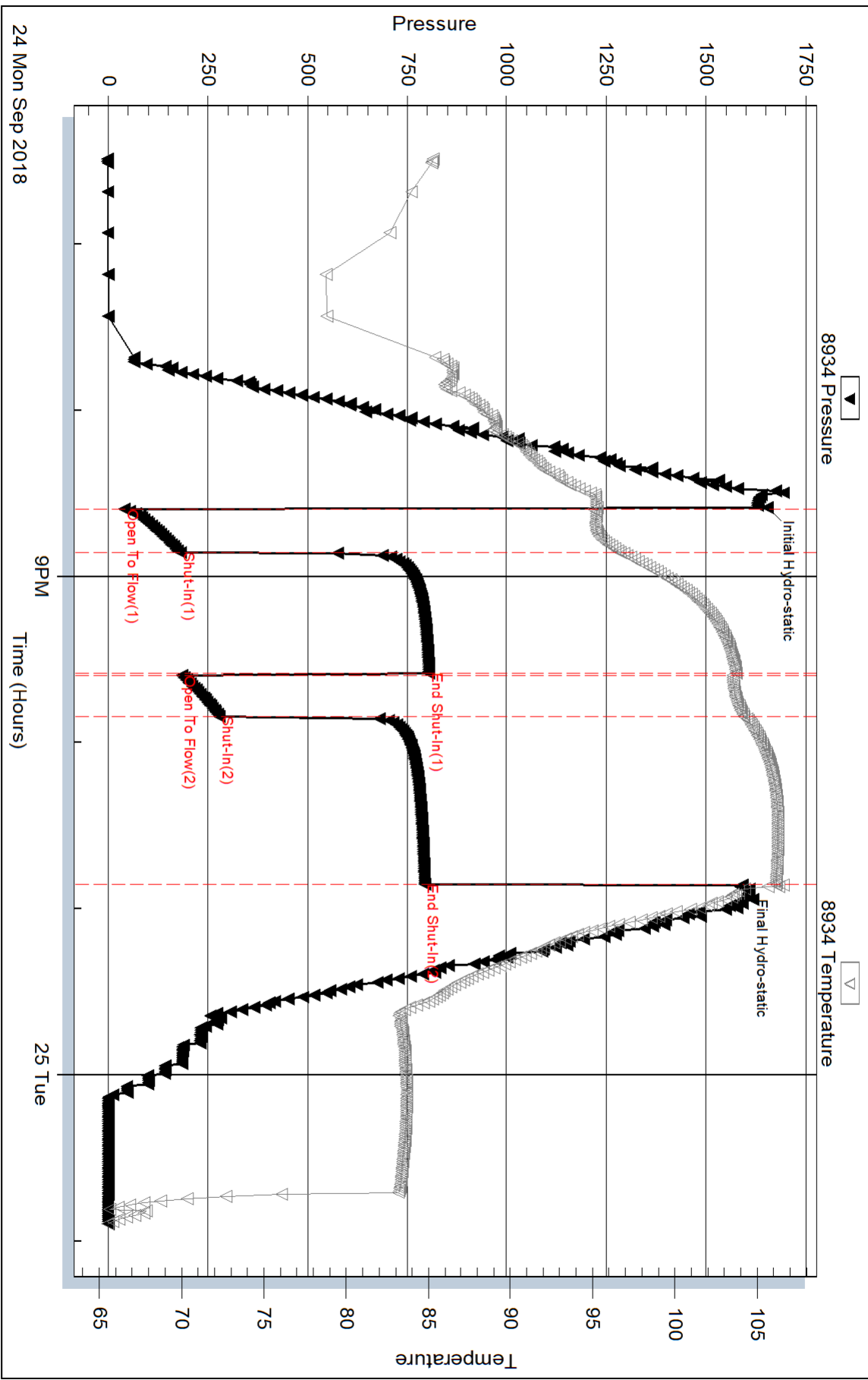
Laboratory Name:

Laboratory Location:

Recovery Comments:



### Pressure vs. Time



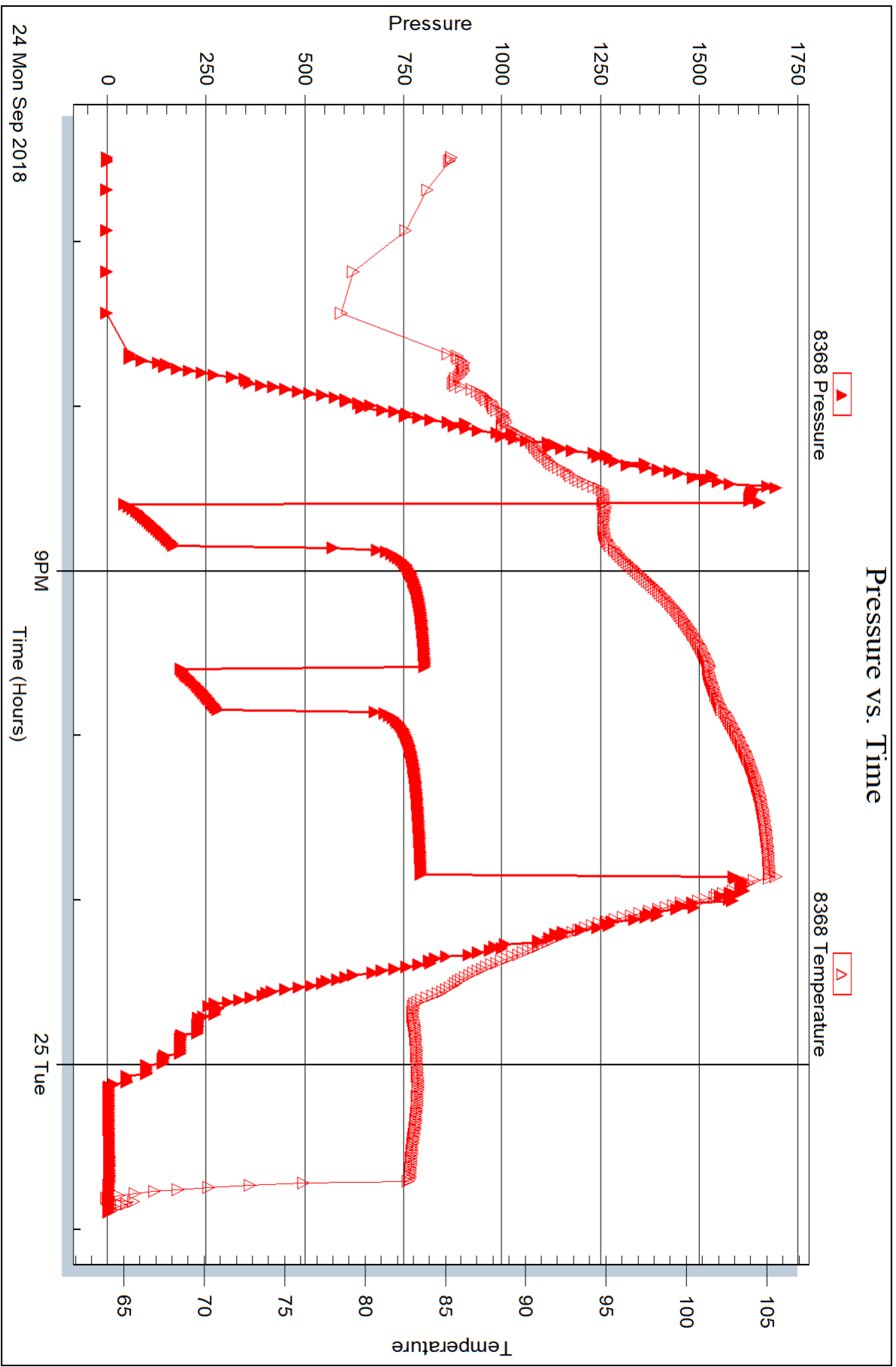
Serial #: 8368

Inside

Jaspar Company, Inc.

Liza #1

DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 64599

Printed: 2018.09.27 @ 13:48:23



## DRILL STEM TEST REPORT

Prepared For: **Jaspar Company, Inc.**

PO Box 1120  
Hays KS 67601

ATTN: Jeff Lawler

**Liza #1**

**29-9s-19w Rooks,KS**

Start Date: 2018.09.25 @ 07:21:00

End Date: 2018.09.25 @ 13:38:00

Job Ticket #: 64600                      DST #: 3

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

Printed: 2018.09.27 @ 13:47:55



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Jaspar Company, Inc.

**29-9s-19w Rooks,KS**

PO Box 1120  
Hays KS 67601

**Liza #1**

Job Ticket: 64600

**DST#: 3**

ATTN: Jeff Lawler

Test Start: 2018.09.25 @ 07:21:00

## GENERAL INFORMATION:

Formation: **LKC 'E-F'**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 09:17:45

Time Test Ended: 13:38:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Spencer J. Staab

Unit No: 84

**Interval: 3446.00 ft (KB) To 3467.00 ft (KB) (TVD)**

Reference Elevations: 2188.00 ft (KB)

Total Depth: 3467.00 ft (KB) (TVD)

2183.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

**Serial #: 8934 Outside**

Press@RunDepth: 178.22 psig @ 3449.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2018.09.25 End Date: 2018.09.25

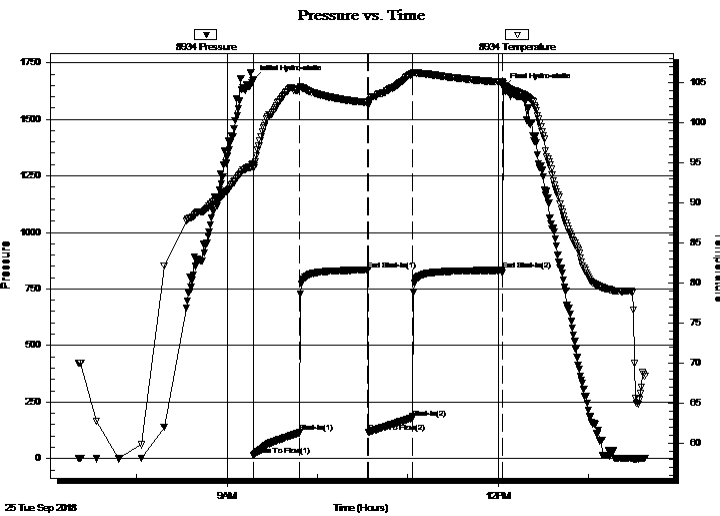
Last Calib.: 2018.09.25

Start Time: 07:21:15 End Time: 13:38:00

Time On Btm: 2018.09.25 @ 09:17:30

Time Off Btm: 2018.09.25 @ 12:03:45

**TEST COMMENT:** 30-IF-Strong; BOB in 15 min; Built to 18 1/2"  
45-ISI-No Return  
30-FF-Strong; BOB in 20 min; Built to 14"  
60-FSI-No Return



## PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 1674.91         | 94.78        | Initial Hydro-static |
| 1           | 14.64           | 94.30        | Open To Flow (1)     |
| 31          | 114.60          | 104.22       | Shut-In(1)           |
| 76          | 833.33          | 102.50       | End Shut-In(1)       |
| 77          | 116.18          | 102.09       | Open To Flow (2)     |
| 106         | 178.22          | 106.00       | Shut-In(2)           |
| 166         | 832.67          | 105.03       | End Shut-In(2)       |
| 167         | 1640.17         | 104.85       | Final Hydro-static   |

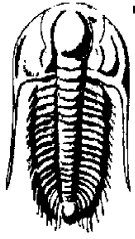
## Recovery

| Length (ft) | Description    | Volume (bbl) |
|-------------|----------------|--------------|
| 160.00      | MCW 10%M 90%W  | 1.18         |
| 160.00      | HMCW 35%M 65%W | 2.27         |
| 60.00       | MW 50%M 50%W   | 0.85         |
|             |                |              |
|             |                |              |

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE TESTING, INC.**

**DRILL STEM TEST REPORT**

Jaspar Company, Inc.

**29-9s-19w Rooks,KS**

PO Box 1120  
Hays KS 67601

**Liza #1**

Job Ticket: 64600

**DST#: 3**

ATTN: Jeff Lawler

Test Start: 2018.09.25 @ 07:21:00

**GENERAL INFORMATION:**

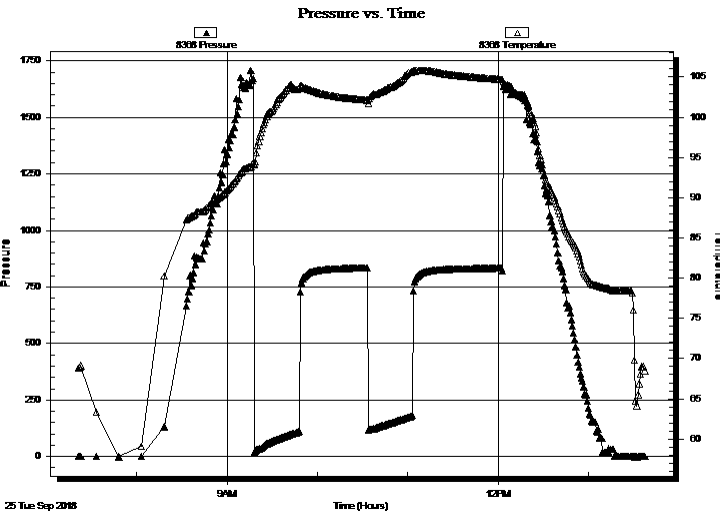
Formation: **LKC 'E-F'**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 09:17:45  
 Time Test Ended: 13:38:00  
 Interval: **3446.00 ft (KB) To 3467.00 ft (KB) (TVD)**  
 Total Depth: 3467.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Spencer J. Staab  
 Unit No: 84  
 Reference Elevations: 2188.00 ft (KB)  
 2183.00 ft (CF)  
 KB to GR/CF: 5.00 ft

**Serial #: 8368**

**Inside**

Press@RunDepth: psig @ 3449.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2018.09.25 End Date: 2018.09.25 Last Calib.: 2018.09.25  
 Start Time: 07:21:15 End Time: 13:38:00 Time On Btm:  
 Time Off Btm:

**TEST COMMENT:** 30-IF-Strong; BOB in 15 min; Built to 18 1/2"  
 45-ISI-No Return  
 30-FF-Strong; BOB in 20 min; Built to 14"  
 60-FSI-No Return



**PRESSURE SUMMARY**

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

**Recovery**

| Length (ft) | Description    | Volume (bbl) |
|-------------|----------------|--------------|
| 160.00      | MCW 10%M 90%W  | 1.18         |
| 160.00      | HMCW 35%M 65%W | 2.27         |
| 60.00       | MW 50%M 50%W   | 0.85         |
|             |                |              |
|             |                |              |
|             |                |              |

**Gas Rates**

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

\* Recovery from multiple tests



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Jaspar Company, Inc.

**29-9s-19w Rooks,KS**

PO Box 1120  
Hays KS 67601

**Liza #1**

Job Ticket: 64600

**DST#: 3**

ATTN: Jeff Lawler

Test Start: 2018.09.25 @ 07:21:00

## Tool Information

|                           |                    |                       |                                |                                    |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe:               | Length: 3315.00 ft | Diameter: 3.82 inches | Volume: 46.99 bbl              | Tool Weight: 2000.00 lb            |
| Heavy Wt. Pipe:           | Length: 0.00 ft    | Diameter: 2.75 inches | Volume: 0.00 bbl               | Weight set on Packer: 25000.00 lb  |
| Drill Collar:             | Length: 118.00 ft  | Diameter: 2.25 inches | Volume: 0.58 bbl               | Weight to Pull Loose: 52000.00 lb  |
|                           |                    |                       | <u>Total Volume: 47.57 bbl</u> | Tool Chased 0.00 ft                |
| Drill Pipe Above KB:      | 16.00 ft           |                       |                                | String Weight: Initial 50000.00 lb |
| Depth to Top Packer:      | 3446.00 ft         |                       |                                | Final 50000.00 lb                  |
| Depth to Bottom Packer:   | ft                 |                       |                                |                                    |
| Interval between Packers: | 21.00 ft           |                       |                                |                                    |
| Tool Length:              | 50.00 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        |            |          | 3418.00    |                               |
| Shut In Tool     | 5.00        |            |          | 3423.00    |                               |
| Hydraulic tool   | 5.00        |            |          | 3428.00    |                               |
| Jars             | 5.00        |            |          | 3433.00    |                               |
| Safety Joint     | 3.00        |            |          | 3436.00    |                               |
| Packer           | 5.00        |            |          | 3441.00    | 29.00 Bottom Of Top Packer    |
| Packer           | 5.00        |            |          | 3446.00    |                               |
| Stubb            | 1.00        |            |          | 3447.00    |                               |
| Perforations     | 2.00        |            |          | 3449.00    |                               |
| Recorder         | 0.00        | 8368       | Inside   | 3449.00    |                               |
| Recorder         | 0.00        | 8934       | Outside  | 3449.00    |                               |
| Perforations     | 15.00       |            |          | 3464.00    |                               |
| Bullnose         | 3.00        |            |          | 3467.00    | 21.00 Bottom Packers & Anchor |

**Total Tool Length: 50.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Jaspar Company, Inc.

**29-9s-19w Rooks,KS**

PO Box 1120  
Hays KS 67601

**Liza #1**

Job Ticket: 64600

**DST#: 3**

ATTN: Jeff Lawler

Test Start: 2018.09.25 @ 07:21:00

## 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:

60000 ppm

Viscosity: 49.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.97 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 4000.00 ppm

Filter Cake: inches

## Recovery Information

Recovery Table

| Length<br>ft | Description    | Volume<br>bbbl |
|--------------|----------------|----------------|
| 160.00       | MCW 10%M 90%W  | 1.176          |
| 160.00       | HMCW 35%M 65%W | 2.268          |
| 60.00        | MW 50%M 50%W   | 0.851          |

Total Length: 380.00 ft      Total Volume: 4.295 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

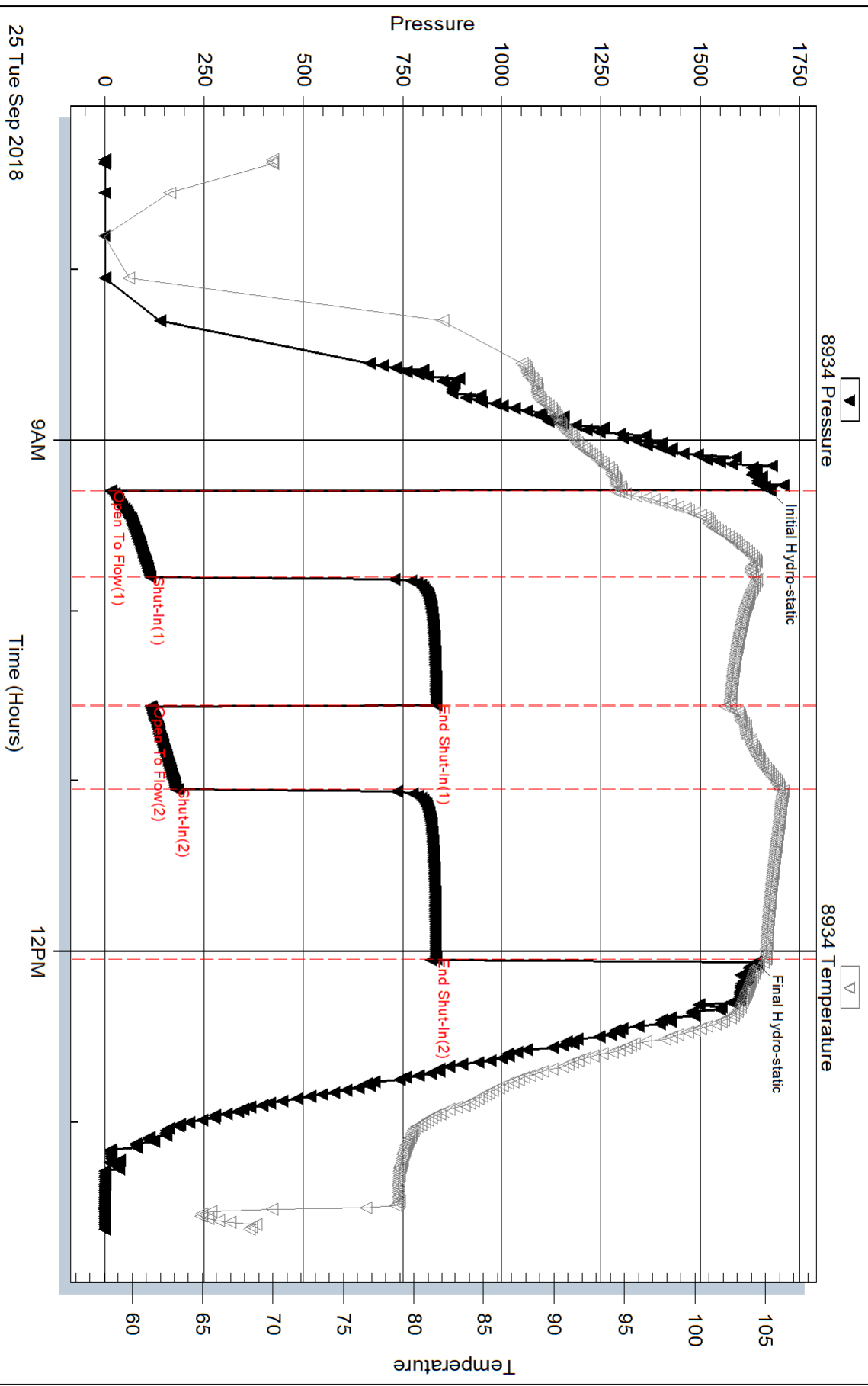
Laboratory Name:

Laboratory Location:

Recovery Comments: 2#LCM

RW=.115@70F

### Pressure vs. Time





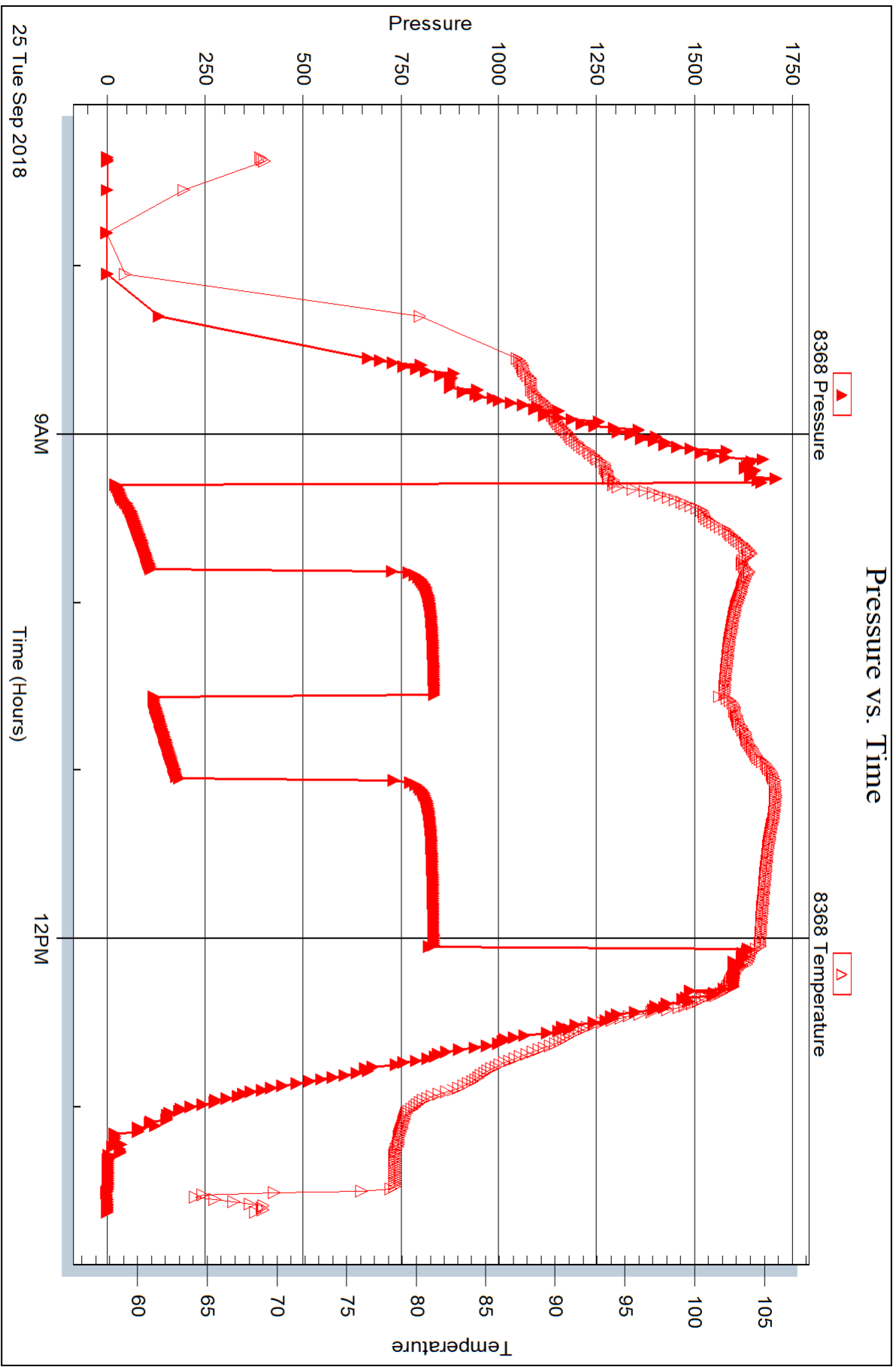
Serial #: 8368

Inside

Jaspar Company, Inc.

Liza #1

DST Test Number: 3



Trilobite Testing, Inc

Ref. No: 64600

Printed: 2018.09.27 @ 13:47:56



## DRILL STEM TEST REPORT

Prepared For: **Jaspar Company, Inc.**

PO Box 1120  
Hays KS 67601

ATTN: Jeff Lawler

**Liza #1**

**29-9s-19w Rooks,KS**

Start Date: 2018.09.25 @ 23:18:00

End Date: 2018.09.26 @ 05:09:00

Job Ticket #: 64753                      DST #: 4

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

Printed: 2018.09.27 @ 13:43:03

Jaspar Company, Inc.  
29-9s-19w Rooks,KS  
Liza #1  
DST # 4  
LKC 'H'  
2018.09.25



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Jaspar Company, Inc.

**29-9s-19w Rooks,KS**

PO Box 1120  
Hays KS 67601

**Liza #1**

Job Ticket: 64753

**DST#: 4**

ATTN: Jeff Lawler

Test Start: 2018.09.25 @ 23:18:00

## GENERAL INFORMATION:

Formation: **LKC 'H-I'**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:59:30

Time Test Ended: 05:09:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Spencer J. Staab

Unit No: 84

**Interval: 3498.00 ft (KB) To 3544.00 ft (KB) (TVD)**

Reference Elevations: 2188.00 ft (KB)

Total Depth: 3400.00 ft (KB) (TVD)

2183.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

**Serial #: 8934**

**Inside**

Press@RunDepth: 77.91 psig @ 3502.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2018.09.25

End Date:

2018.09.26

Last Calib.:

2018.09.26

Start Time: 23:18:15

End Time:

05:09:00

Time On Btm:

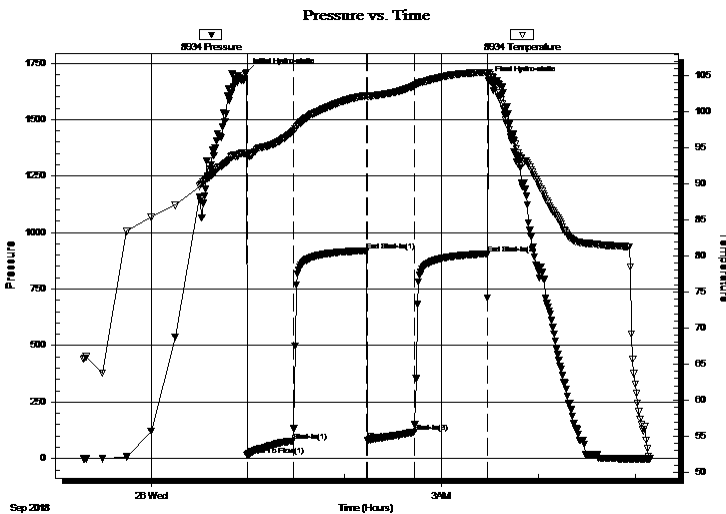
2018.09.26 @ 00:59:15

Time Off Btm:

2018.09.26 @ 03:29:15

**TEST COMMENT:** 30-IF-BOB 27 mins; Built to 10 1/2"  
45-ISI-No Return  
30-FF-BOB 28 mins; Built to 10 1/4"  
45-FSI-Weak Surface

## PRESSURE SUMMARY



| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 1708.68         | 94.28        | Initial Hydro-static |
| 1           | 14.86           | 93.76        | Open To Flow (1)     |
| 29          | 77.91           | 97.26        | Shut-In(1)           |
| 75          | 920.51          | 102.24       | End Shut-In(1)       |
| 75          | 81.65           | 102.09       | Shut-In(2)           |
| 104         | 116.89          | 103.56       | Shut-In(3)           |
| 149         | 906.76          | 105.45       | End Shut-In(2)       |
| 150         | 1670.47         | 105.41       | Final Hydro-static   |

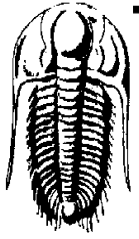
## Recovery

| Length (ft) | Description               | Volume (bbl) |
|-------------|---------------------------|--------------|
| 120.00      | GWM 15%G 35%W 50%M        | 0.61         |
| 75.00       | GSOCWM 20%G 5%O 35%W 40%M | 1.06         |
| 15.00       | GO 10%G 90%O              | 0.21         |
|             |                           |              |
|             |                           |              |

\* Recovery from multiple tests

## Gas Rates

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



# TRILOBITE TESTING, INC.

## DRILL STEM TEST REPORT

Jaspar Company, Inc.

**29-9s-19w Rooks, KS**

PO Box 1120  
Hays KS 67601

**Liza #1**

Job Ticket: 64753

**DST#: 4**

ATTN: Jeff Lawler

Test Start: 2018.09.25 @ 23:18:00

### GENERAL INFORMATION:

Formation: **LKC 'H-I'**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:59:30

Time Test Ended: 05:09:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Spencer J. Staab

Unit No: 84

**Interval: 3498.00 ft (KB) To 3544.00 ft (KB) (TVD)**

Reference Elevations: 2188.00 ft (KB)

Total Depth: 3400.00 ft (KB) (TVD)

2183.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

**Serial #: 8368 Inside**

Press@RunDepth: psig @ 3502.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2018.09.25 End Date: 2018.09.26

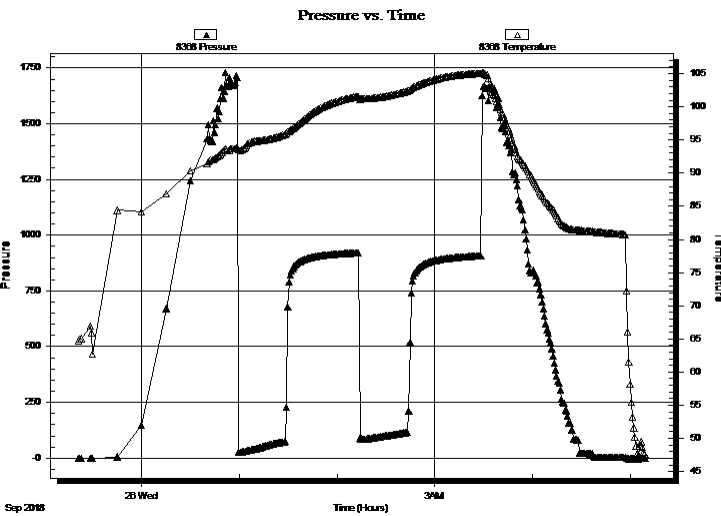
Last Calib.: 2018.09.26

Start Time: 23:21:22 End Time: 05:09:15

Time On Btm:

Time Off Btm:

**TEST COMMENT:** 30-IF-BOB 27 mins; Built to 10 1/2"  
45-ISI-No Return  
30-FF-BOB 28 mins; Built to 10 1/4"  
45-FSI-Weak Surface



### PRESSURE SUMMARY

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

### Recovery

| Length (ft) | Description               | Volume (bbl) |
|-------------|---------------------------|--------------|
| 120.00      | GWM 15%G 35%W 50%M        | 0.61         |
| 75.00       | GSOCWM 20%G 5%O 35%W 40%M | 1.06         |
| 15.00       | GO 10%G 90%O              | 0.21         |
|             |                           |              |
|             |                           |              |

### Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Jaspar Company, Inc.

**29-9s-19w Rooks,KS**

PO Box 1120  
Hays KS 67601

**Liza #1**

Job Ticket: 64753

**DST#: 4**

ATTN: Jeff Lawler

Test Start: 2018.09.25 @ 23:18:00

## Tool Information

|                           |                    |                       |                                |                                    |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe:               | Length: 3387.00 ft | Diameter: 3.82 inches | Volume: 48.01 bbl              | Tool Weight: 2000.00 lb            |
| Heavy Wt. Pipe:           | Length: 0.00 ft    | Diameter: 2.75 inches | Volume: 0.00 bbl               | Weight set on Packer: 25000.00 lb  |
| Drill Collar:             | Length: 118.00 ft  | Diameter: 2.25 inches | Volume: 0.58 bbl               | Weight to Pull Loose: 60000.00 lb  |
|                           |                    |                       | <u>Total Volume: 48.59 bbl</u> | Tool Chased 0.00 ft                |
| Drill Pipe Above KB:      | 28.00 ft           |                       |                                | String Weight: Initial 50000.00 lb |
| Depth to Top Packer:      | 3498.00 ft         |                       |                                | Final 50000.00 lb                  |
| Depth to Bottom Packer:   | ft                 |                       |                                |                                    |
| Interval between Packers: | 46.00 ft           |                       |                                |                                    |
| Tool Length:              | 67.00 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        |            |          | 3478.00    |                               |
| Shut In Tool     | 5.00        |            |          | 3483.00    |                               |
| Hydraulic tool   | 5.00        |            |          | 3488.00    |                               |
| Packer           | 5.00        |            |          | 3493.00    | 21.00 Bottom Of Top Packer    |
| Packer           | 5.00        |            |          | 3498.00    |                               |
| Stubb            | 1.00        |            |          | 3499.00    |                               |
| Perforations     | 2.00        |            |          | 3501.00    |                               |
| Change Over Sub  | 1.00        |            |          | 3502.00    |                               |
| Recorder         | 0.00        | 8368       | Inside   | 3502.00    |                               |
| Recorder         | 0.00        | 8934       | Inside   | 3502.00    |                               |
| Drill Pipe       | 32.00       |            |          | 3534.00    |                               |
| Change Over Sub  | 1.00        |            |          | 3535.00    |                               |
| Perforations     | 6.00        |            |          | 3541.00    |                               |
| Bullnose         | 3.00        |            |          | 3544.00    | 46.00 Bottom Packers & Anchor |

**Total Tool Length: 67.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Jaspar Company, Inc.

**29-9s-19w Rooks,KS**

PO Box 1120  
Hays KS 67601

**Liza #1**

Job Ticket: 64753

**DST#: 4**

ATTN: Jeff Lawler

Test Start: 2018.09.25 @ 23:18:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

31 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

80000 ppm

Viscosity: 46.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.97 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 6000.00 ppm

Filter Cake: inches

## Recovery Information

Recovery Table

| Length<br>ft | Description               | Volume<br>bbbl |
|--------------|---------------------------|----------------|
| 120.00       | GWM 15%G 35%W 50%M        | 0.609          |
| 75.00        | GSOCWM 20%G 5%O 35%W 40%M | 1.063          |
| 15.00        | GO 10%G 90%O              | 0.213          |

Total Length: 210.00 ft      Total Volume: 1.885 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

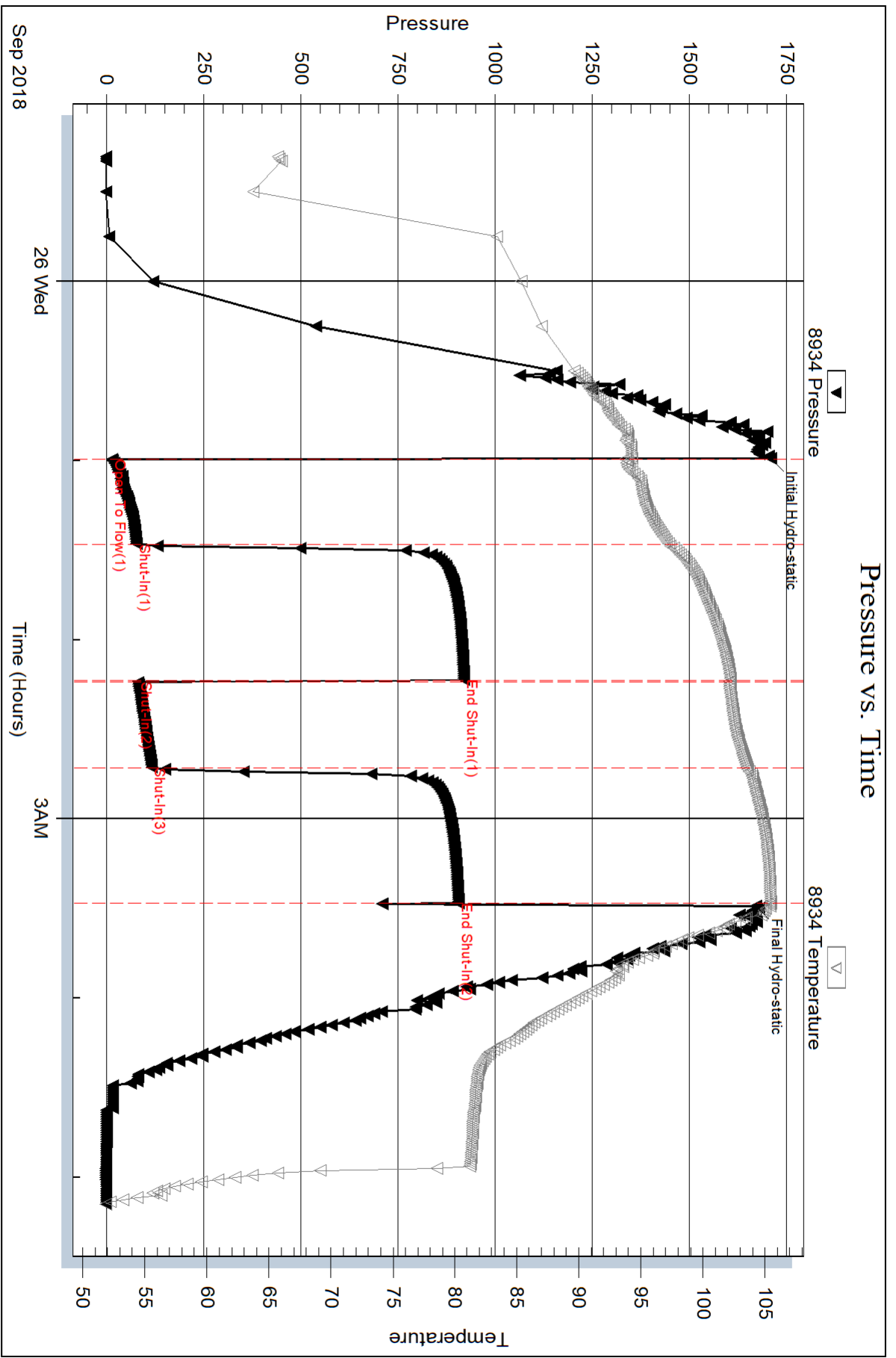
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 2#LCM

RW=.118@45F



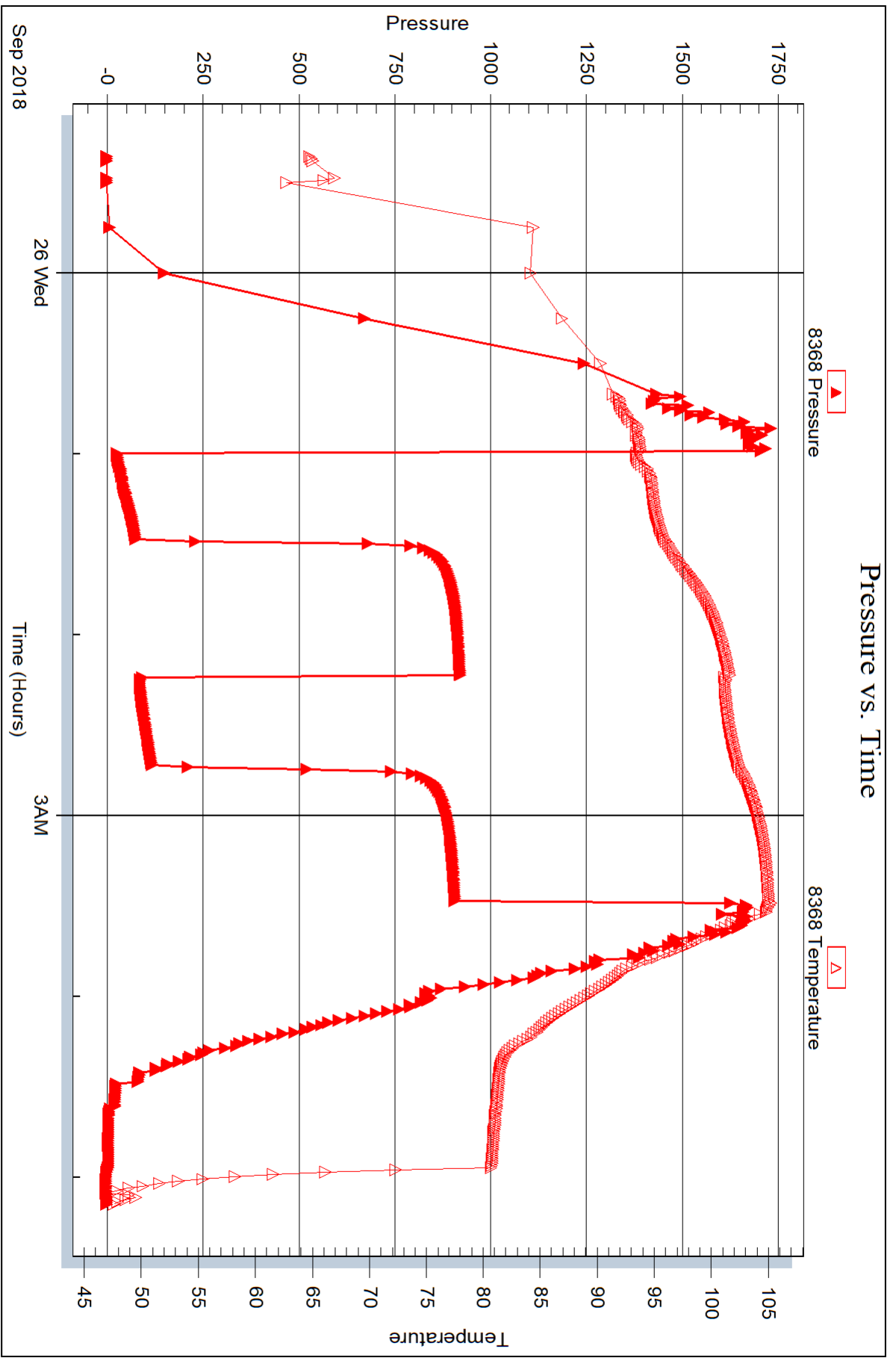
Serial #: 8368

Inside

Jaspar Company, Inc.

Liza #1

DST Test Number: 4



Trilobite Testing, Inc

Ref. No: 64753

Printed: 2018.09.27 @ 13:43:04





## DRILL STEM TEST REPORT

Prepared For: **Jaspar Company, Inc.**

PO Box 1120  
Hays KS 67601

ATTN: Jeff Lawler

**Liza #1**

**29-9s-19w Rooks,KS**

Start Date: 2018.09.26 @ 14:02:00

End Date: 2018.09.26 @ 20:39:30

Job Ticket #: 64754                      DST #: 5

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

Printed: 2018.09.27 @ 13:28:33

Jaspar Company, Inc. 29-9s-19w Rooks,KS Liza #1 DST # 5 LKC K 2018.09.26



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Jaspar Company, Inc.

**29-9s-19w Rooks,KS**

PO Box 1120  
Hays KS 67601

**Liza #1**

Job Ticket: 64754

**DST#: 5**

ATTN: Jeff Lawler

Test Start: 2018.09.26 @ 14:02:00

## GENERAL INFORMATION:

Formation: **LKC K**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 16:17:45

Time Test Ended: 20:39:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Spencer J. Staab

Unit No: 84

**Interval: 3540.00 ft (KB) To 3600.00 ft (KB) (TVD)**

Reference Elevations: 2188.00 ft (KB)

Total Depth: 3600.00 ft (KB) (TVD)

2183.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

**Serial #: 8934**

**Inside**

Press@RunDepth: 66.65 psig @ 3543.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2018.09.26

End Date:

2018.09.26

Last Calib.:

2018.09.26

Start Time: 14:02:15

End Time:

20:39:30

Time On Btm:

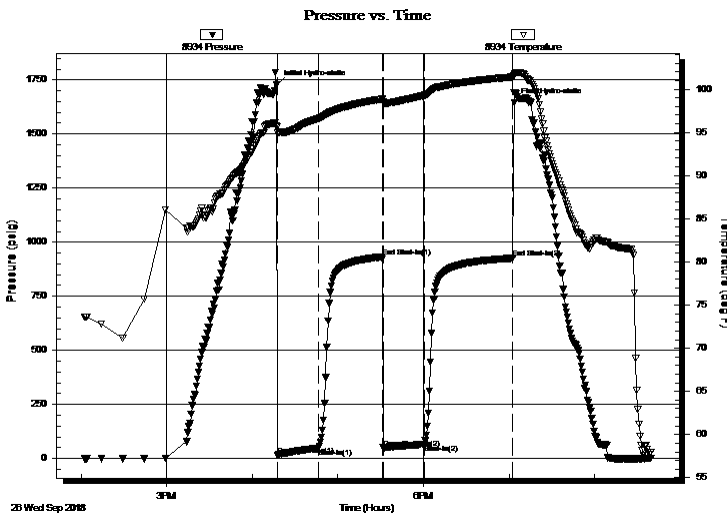
2018.09.26 @ 16:17:15

Time Off Btm:

2018.09.26 @ 19:03:45

**TEST COMMENT:** IFP 30 BOB 25 min built to 12 1/2"  
ISI 45 Weak blow back built to 1"  
FFP 30 BOB in 14 min built to 18"  
FSI 60 Weak blow back built to 1"

## PRESSURE SUMMARY



| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 1726.88         | 95.64        | Initial Hydro-static |
| 1           | 15.08           | 94.90        | Open To Flow (1)     |
| 29          | 47.00           | 96.60        | Shut-In(1)           |
| 74          | 931.80          | 98.85        | End Shut-In(1)       |
| 75          | 49.02           | 98.50        | Open To Flow (2)     |
| 104         | 66.65           | 99.28        | Shut-In(2)           |
| 166         | 926.26          | 101.40       | End Shut-In(2)       |
| 167         | 1644.29         | 101.66       | Final Hydro-static   |

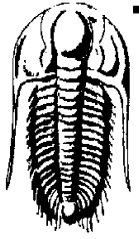
## Recovery

| Length (ft) | Description         | Volume (bbl) |
|-------------|---------------------|--------------|
| 60.00       | GMCO 30%G 50%O 20%M | 0.30         |
| 70.00       | MCO 70%O 30%M       | 0.46         |
| 20.00       | GSMCO 10%G 85%O 5%M | 0.28         |
| 0.00        | 210' GIP            | 0.00         |
|             |                     |              |
|             |                     |              |

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

Jaspar Company, Inc.

**29-9s-19w Rooks,KS**

PO Box 1120  
Hays KS 67601

**Liza #1**

Job Ticket: 64754

**DST#: 5**

ATTN: Jeff Lawler

Test Start: 2018.09.26 @ 14:02:00

### GENERAL INFORMATION:

|                   |                                                 |                 |         |                       |                                  |
|-------------------|-------------------------------------------------|-----------------|---------|-----------------------|----------------------------------|
| Formation:        | <b>LKC K</b>                                    |                 |         |                       |                                  |
| Deviated:         | No Whipstock:                                   |                 | ft (KB) | Test Type:            | Conventional Bottom Hole (Reset) |
| Time Tool Opened: | 16:17:45                                        |                 |         | Tester:               | Spencer J. Staab                 |
| Time Test Ended:  | 20:39:30                                        |                 |         | Unit No:              | 84                               |
| <b>Interval:</b>  | <b>3540.00 ft (KB) To 3600.00 ft (KB) (TVD)</b> |                 |         | Reference Elevations: | 2188.00 ft (KB)                  |
| Total Depth:      | 3600.00 ft (KB) (TVD)                           |                 |         |                       | 2183.00 ft (CF)                  |
| Hole Diameter:    | 7.88 inches                                     | Hole Condition: | Good    | KB to GR/CF:          | 5.00 ft                          |

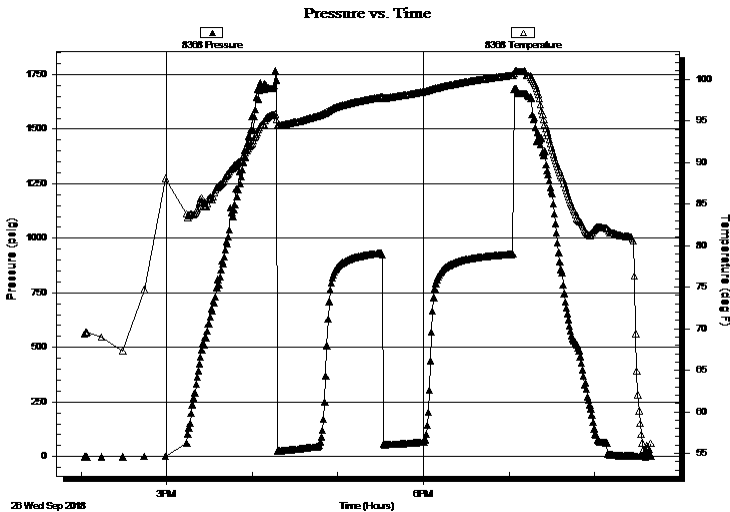
### Serial #: 8368

Inside

|                 |            |                 |            |               |            |
|-----------------|------------|-----------------|------------|---------------|------------|
| Press@RunDepth: | psig @     | 3543.00 ft (KB) | Capacity:  | 8000.00 psig  |            |
| Start Date:     | 2018.09.26 | End Date:       | 2018.09.26 | Last Calib.:  | 1899.12.30 |
| Start Time:     | 14:02:15   | End Time:       | 20:39:30   | Time On Btm:  |            |
|                 |            |                 |            | Time Off Btm: |            |

**TEST COMMENT:** IFP 30 BOB 25 min built to 12 1/2"  
 ISI 45 Weak blow back built to 1"  
 FFP 30 BOB in 14 min built to 18"  
 FSI 60 Weak blow back built to 1"

### PRESSURE SUMMARY



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

### Recovery

| Length (ft) | Description         | Volume (bbl) |
|-------------|---------------------|--------------|
| 60.00       | GMCO 30%G 50%O 20%M | 0.30         |
| 70.00       | MCO 70%O 30%M       | 0.46         |
| 20.00       | GSMCO 10%G 85%O 5%M | 0.28         |
| 0.00        | 210' GIP            | 0.00         |
|             |                     |              |
|             |                     |              |

### Gas Rates

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

\* Recovery from multiple tests



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Jaspar Company, Inc.

**29-9s-19w Rooks,KS**

PO Box 1120  
Hays KS 67601

**Liza #1**

Job Ticket: 64754

**DST#: 5**

ATTN: Jeff Lawler

Test Start: 2018.09.26 @ 14:02:00

## Tool Information

|                           |                    |                       |                                |                        |            |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------|------------|
| Drill Pipe:               | Length: 3419.00 ft | Diameter: 3.82 inches | Volume: 48.47 bbl              | Tool Weight:           | 2000.00 lb |
| Heavy Wt. Pipe:           | Length: 0.00 ft    | Diameter: 2.75 inches | Volume: 0.00 bbl               | Weight set on Packer:  | lb         |
| Drill Collar:             | Length: 118.00 ft  | Diameter: 2.25 inches | Volume: 0.58 bbl               | Weight to Pull Loose:  | lb         |
|                           |                    |                       | <u>Total Volume: 49.05 bbl</u> | Tool Chased            | ft         |
| Drill Pipe Above KB:      | 18.00 ft           |                       |                                | String Weight: Initial | lb         |
| Depth to Top Packer:      | 3540.00 ft         |                       |                                | Final                  | lb         |
| Depth to Bottom Packer:   | ft                 |                       |                                |                        |            |
| Interval between Packers: | 60.00 ft           |                       |                                |                        |            |
| Tool Length:              | 81.00 ft           |                       |                                |                        |            |
| Number of Packers:        | 2                  | Diameter: 6.75 inches |                                |                        |            |

Tool Comments:

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

|                 |       |      |        |         |                               |
|-----------------|-------|------|--------|---------|-------------------------------|
| Change Over Sub | 1.00  |      |        | 3520.00 |                               |
| Shut In Tool    | 5.00  |      |        | 3525.00 |                               |
| Hydraulic tool  | 5.00  |      |        | 3530.00 |                               |
| Packer          | 5.00  |      |        | 3535.00 | 21.00 Bottom Of Top Packer    |
| Packer          | 5.00  |      |        | 3540.00 |                               |
| Stubb           | 1.00  |      |        | 3541.00 |                               |
| Perforations    | 1.00  |      |        | 3542.00 |                               |
| Change Over Sub | 1.00  |      |        | 3543.00 |                               |
| Recorder        | 0.00  | 8368 | Inside | 3543.00 |                               |
| Recorder        | 0.00  | 8934 | Inside | 3543.00 |                               |
| Drill Pipe      | 32.00 |      |        | 3575.00 |                               |
| Change Over Sub | 1.00  |      |        | 3576.00 |                               |
| Perforations    | 21.00 |      |        | 3597.00 |                               |
| Bullnose        | 3.00  |      |        | 3600.00 | 60.00 Bottom Packers & Anchor |

**Total Tool Length: 81.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Jaspar Company, Inc.

**29-9s-19w Rooks,KS**

PO Box 1120  
Hays KS 67601

**Liza #1**

Job Ticket: 64754

**DST#: 5**

ATTN: Jeff Lawler

Test Start: 2018.09.26 @ 14:02:00

## 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:

ppm

Viscosity: 60.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.56 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3000.00 ppm

Filter Cake: inches

## Recovery Information

Recovery Table

| Length<br>ft | Description         | Volume<br>bbbl |
|--------------|---------------------|----------------|
| 60.00        | GMCO 30%G 50%O 20%M | 0.295          |
| 70.00        | MCO 70%O 30%M       | 0.455          |
| 20.00        | GSMCO 10%G 85%O 5%M | 0.284          |
| 0.00         | 210' GIP            | 0.000          |

Total Length: 150.00 ft

Total Volume: 1.034 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

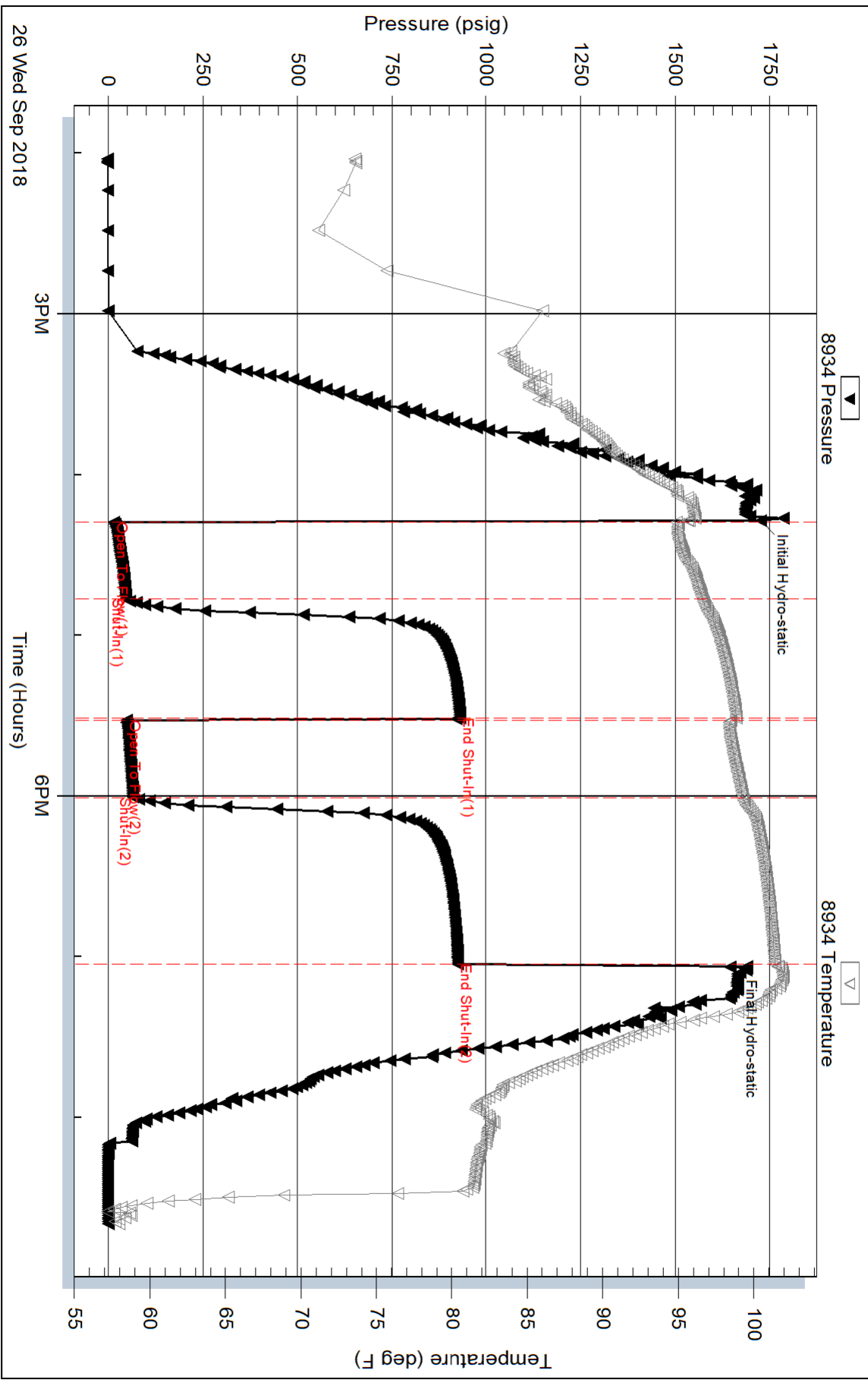
Serial #:

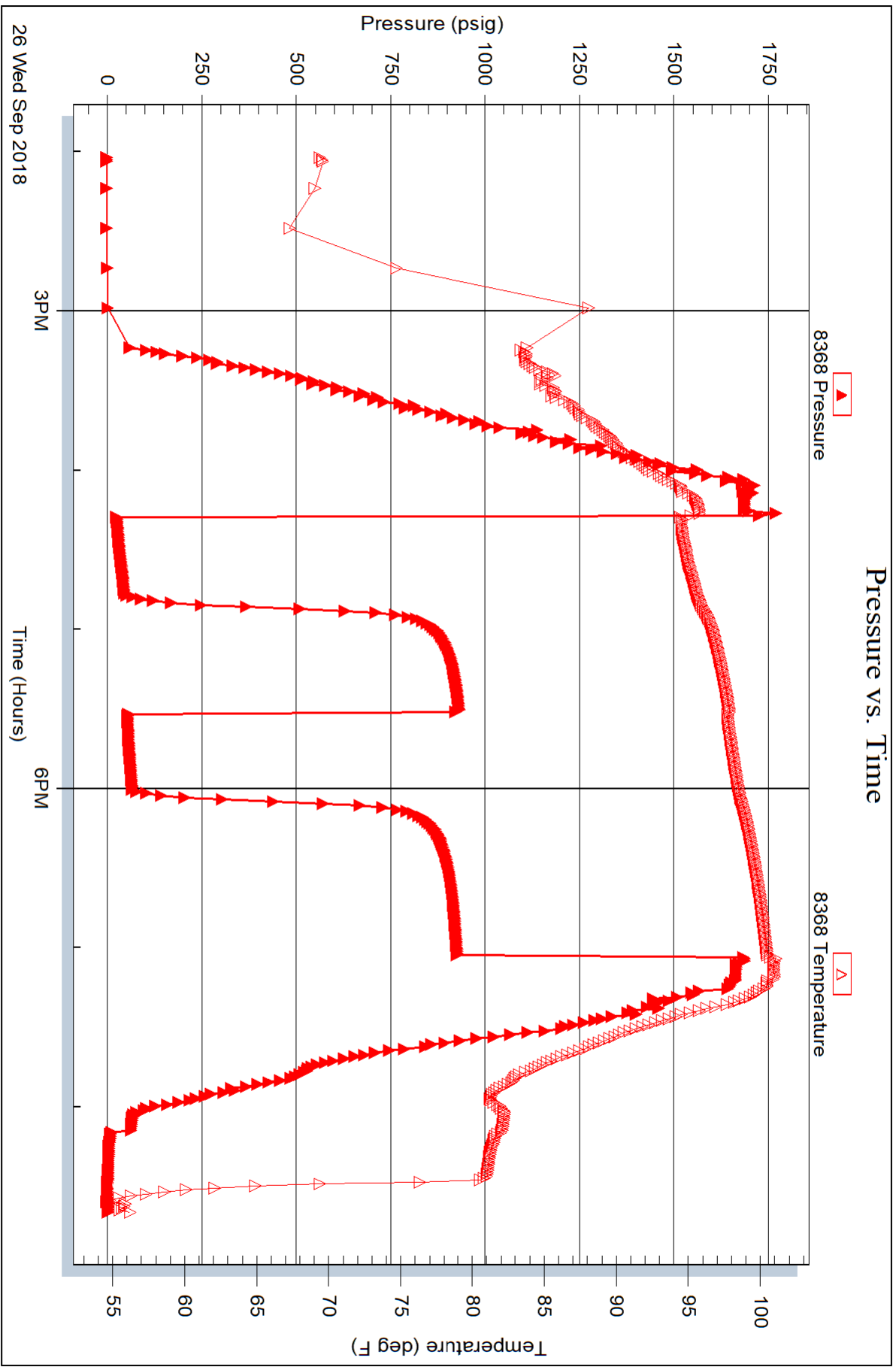
Laboratory Name:

Laboratory Location:

Recovery Comments:

# Pressure vs. Time







# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 64598

Well Name & No. Lipa #1 Test No. 1 Date 09/24/2018  
 Company Jasper Company Inc. Elevation 2188 KB 2183 GL  
 Address PO BOX 1120 Hays KS 67601  
 Co. Rep / Geo. Jeff Lawler Rig 200W#8  
 Location: Sec. 29 Twp 9s Rge. 19w Co. Hooker State KS

Interval Tested 3338' - 3400' Zone Tested JAC 'a'  
 Anchor Length 62' Drill Pipe Run 3223' Mud Wt. 8.6  
 Top Packer Depth 3333' Drill Collars Run 118' Vis 60  
 Bottom Packer Depth 3338' Wt. Pipe Run - WL 7.6  
 Total Depth 3400' Chlorides 3000 ppm System LCM 2 1/2#

Blow Description 77- Tool Opened while trying high connection; slid off; 9' Wash-Fair Built to 6"  
78- No Return  
79- Wash-Fair; Built to 4 1/2"  
80- No Return

| Rec  | Feet of | %gas | %oil | %water | %mud |
|------|---------|------|------|--------|------|
| 120' | JACCM   | 30   | 30   | 40     |      |
| 430' | JOCM    | 15   | 20   | 65     |      |
| 180' | JSOCM   | 10   | 3    | 87     |      |
| 345' | Mud     |      |      | 100    |      |
|      |         |      |      |        |      |

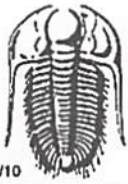
Rec Total 1075' BHT 100° Gravity 2.5° API RW - @ - ° F Chlorides - ppm

(A) Initial Hydrostatic 1624  Test 1050 T-On Location 03:40  
 (B) First Initial Flow 348  Jars \_\_\_\_\_ T-Started 03:56  
 (C) First Final Flow 363  Safety Joint \_\_\_\_\_ T-Open 06:55  
 (D) Initial Shut-In 826  Circ Sub \_\_\_\_\_ T-Pulled 09:25  
 (E) Second Initial Flow 366  Hourly Standby \_\_\_\_\_ T-Out 11:16  
 (F) Second Final Flow 374  Mileage 7427 74 Comments Tool slid off  
 (G) Final Shut-In 810  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1616  Straddle \_\_\_\_\_

Initial Open 30  Ruined Shale Packer \_\_\_\_\_  
 Initial Shut-In 45  Ruined Packer \_\_\_\_\_  
 Final Flow 30  Extra Packer \_\_\_\_\_  
 Final Shut-In 45  Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_ Sub Total 0  
 Accessibility \_\_\_\_\_ Total 1124  
 Sub Total 1124 MP/DST Disc't \_\_\_\_\_

Approved By \_\_\_\_\_ Our Representative Spencer A. Stealy Thanks!  
 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.  
 785-259-0056





# TRIBOLITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 64599

Well Name & No. Liza #1 Test No. 2 Date 09/24/2008  
 Company Jasper Company, Inc Elevation 2188 KB 2183 GL  
 Address PO BOX 1120 Hays KS 67601  
 Co. Rep / Geo. Jeff Lawler Rig W W #8  
 Location: Sec. 29 Twp 9S Rge. 19W Co. Rooks State Ks

Interval Tested 3406' - 3448' Zone Tested LKC 'C-D'  
 Anchor Length 42' Drill Pipe Run 3288' Mud Wt. 9.2  
 Top Packer Depth 3401' Drill Collars Run 118' Vis 49  
 Bottom Packer Depth 3406' Wt. Pipe Run - WL 8  
 Total Depth 3448' Chlorides 4000 ppm System LCM 2#

Blow Description 77- Strong; BOB in 4 1/2 min; Built to 36 1/2"  
78- Weak; Built to 27"  
79- Strong; BOB in 3 1/2 min; Built to 32"  
75- Weak; Built to 3 1/2"

| Rec         | Feet of        | %gas       | %oil      | %water    | %mud |
|-------------|----------------|------------|-----------|-----------|------|
| <u>120'</u> | <u>MCW</u>     |            | <u>90</u> | <u>10</u> |      |
| <u>390'</u> | <u>VSOC MW</u> |            | <u>68</u> | <u>30</u> |      |
| <u>30'</u>  | <u>SOC WM</u>  | <u>5</u>   | <u>25</u> | <u>70</u> |      |
| <u>30'</u>  | <u>CO</u>      | <u>100</u> |           |           |      |
| <u>120'</u> | <u>ZHP</u>     | <u>100</u> |           |           |      |

Rec Total 570' BHT 106° Gravity 32° API RW 165 @ 82° F Chlorides 39000 ppm

(A) Initial Hydrostatic 1653  Test 1050 T-On Location 18:10  
 (B) First Initial Flow 39  Jars \_\_\_\_\_ T-Started 18:29  
 (C) First Final Flow 181  Safety Joint \_\_\_\_\_ T-Open 20:35  
 (D) Initial Shut-In 802  Circ Sub \_\_\_\_\_ T-Pulled 22:50  
 (E) Second Initial Flow 183  Hourly Standby \_\_\_\_\_ T-Out 00:53 09/25/2008  
 (F) Second Final Flow 277  Mileage 74R7 74 Comments 4 ft fill  
 (G) Final Shut-In 792  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1615  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_

Initial Open 15  Shale Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Initial Shut-In 45  Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Final Flow 15  Extra Recorder \_\_\_\_\_ Sub Total 0  
 Final Shut-In 60  Day Standby \_\_\_\_\_ Total 1124  
 Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Sub Total 1124

Approved By \_\_\_\_\_ Our Representative Spencer J. Neal Thanks!

Tribolite 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.

785-259-0056



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 64600

Well Name & No. Liza #1 Test No. 3 Date 09/25/2018  
 Company Jasper Company, Inc. Elevation 2188 KB 2183 GL  
 Address PO BOX 1120 Hays KS 67601  
 Co. Rep / Geo. Jeff Lowler Rig WW #8  
 Location: Sec. 29 Twp 9S Rge. 19W Co. Rooks State KS

Interval Tested 3446' - 3467' Zone Tested LKC 'E+7'  
 Anchor Length 21' Drill Pipe Run 3315' Mud Wt. 9.2  
 Top Packer Depth 3441' Drill Collars Run 118' Vis 49  
 Bottom Packer Depth 3446' Wt. Pipe Run - WL 8.0  
 Total Depth 3467' Chlorides 4000 ppm System LCM 2#

Blow Description 17-Strong; BOB 15mins; Built to 18 1/2"  
1st - No Return

77-Strong; BOB 20mins; Built to 14"

7SD - No Return

| Rec         | Feet of        | %gas | %oil      | %water    | %mud |
|-------------|----------------|------|-----------|-----------|------|
| <u>160'</u> | <u>MCW</u>     |      | <u>90</u> | <u>10</u> |      |
| <u>160'</u> | <u>2/3 MCW</u> |      | <u>65</u> | <u>35</u> |      |
| <u>60'</u>  | <u>MW</u>      |      | <u>50</u> | <u>50</u> |      |
|             |                |      |           |           |      |
|             |                |      |           |           |      |

Rec Total 380' BHT 1050 Gravity - API RW 115 @ 70 °F Chlorides 60000 ppm

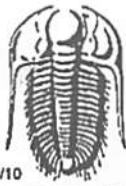
(A) Initial Hydrostatic 1674  Test 1050 T-On Location 07:09  
 (B) First Initial Flow 14  Jars - T-Started 07:21  
 (C) First Final Flow 114  Safety Joint - T-Open 09:15  
 (D) Initial Shut-In 833  Circ Sub - T-Pulled 12:00  
 (E) Second Initial Flow 116  Hourly Standby - T-Out 13:37  
 (F) Second Final Flow 178  Mileage 7427 74 Comments -  
 (G) Final Shut-In 832  Sampler -  
 (H) Final Hydrostatic 1640  Straddle -  Ruined Shale Packer -  
 Shale Packer -  Ruined Packer -  
 Extra Packer -  Extra Copies -  
 Extra Recorder -

Initial Open 30  
 Initial Shut-In 45  
 Final Flow 30  
 Final Shut-In 60  
 Sub Total 0  
 Total 1124  
 MP/DST Disc't -  
 Sub Total 1124

Approved By \_\_\_\_\_ Our Representative Jasper Lowler Thanks!

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.

785-259-0056



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 64753

Well Name & No. Lina #1 Test No. 4 Date 09/25/2018  
 Company Jasper Company Inc. Elevation 2188 KB 2183 GL  
 Address PO BOX 1120 Hays KS 67601  
 Co. Rep / Geo. Jeff Lawler Rig W2W#8  
 Location: Sec. 29 Twp 9s Rge. 19w Co. Rooks State Ks

Interval Tested 3498' - 3544' Zone Tested LKC '26-D'  
 Anchor Length 46' Drill Pipe Run 3387' Mud Wt. 9.1  
 Top Packer Depth 3493' Drill Collars Run 118' Vis 46  
 Bottom Packer Depth 3498' Wt. Pipe Run - WL 8.0  
 Total Depth 3544' Chlorides 6000 ppm System LCM 2#

Blow Description 77-BOB 27 min; Built to 10 1/2"  
55- No Return

77-BOB 28 min; Built to 10 1/4"

78- Wash Surface

| Rec         | Feet of         | %gas      | %oil      | %water    | %mud      |
|-------------|-----------------|-----------|-----------|-----------|-----------|
| <u>120'</u> | <u>29WM</u>     | <u>15</u> | <u>35</u> | <u>50</u> | <u>0</u>  |
| <u>75'</u>  | <u>29sec WM</u> | <u>20</u> | <u>5</u>  | <u>35</u> | <u>40</u> |
| <u>15'</u>  | <u>29</u>       | <u>10</u> | <u>90</u> | <u>0</u>  | <u>0</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 210' BHT 105° Gravity 31° API RW 128 @ 45° F Chlorides 80,000 ppm

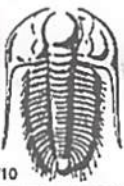
(A) Initial Hydrostatic 1708  Test 1050 T-On Location 23:07  
 (B) First Initial Flow 14  Jars \_\_\_\_\_ T-Started 23:18  
 (C) First Final Flow 77  Safety Joint \_\_\_\_\_ T-Open 00:58  
 (D) Initial Shut-In 920  Circ Sub \_\_\_\_\_ T-Pulled 03:28  
 (E) Second Initial Flow 81  Hourly Standby \_\_\_\_\_ T-Out 05:08  
 (F) Second Final Flow 116  Mileage 7423 74 Comments \_\_\_\_\_  
 (G) Final Shut-In 906  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1670  Straddle \_\_\_\_\_  
 Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_  
 Day Standby \_\_\_\_\_  
 Accessibility \_\_\_\_\_

Initial Open 30  EM Tool \_\_\_\_\_  
 Initial Shut-In 45  Ruined Shale Packer \_\_\_\_\_  
 Final Flow 30  Ruined Packer \_\_\_\_\_  
 Final Shut-In 45  Extra Copies \_\_\_\_\_  
 Sub Total 1124  
 Total 1124  
 Sub Total 1124 MP/DST Disc't \_\_\_\_\_

Approved By \_\_\_\_\_ Our Representative Spencer J. Grant Thanks!

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.

785-259-0036



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 64754

Well Name & No. Liza #1 Test No. 5 Date 09/26/2018  
 Company Jasper Company, Inc. Elevation 2188 KB 2183 GL  
 Address PO BOX 1120 Hays KS 67601  
 Co. Rep / Geo. Jeff Lowler Rig W9W#8  
 Location: Sec. 24 Twp 9s Rge. 19w Co. Rocks State KS

Interval Tested 3540' - 3600' Zone Tested LKC 'K'  
 Anchor Length 60' Drill Pipe Run 3419' Mud Wt. 9.0  
 Top Packer Depth 3535' Drill Collars Run 118' Vis 52  
 Bottom Packer Depth 3540' Wt. Pipe Run - WL 7.2  
 Total Depth 3600' Chlorides 6000 ppm System LCM 2#

Blow Description 77- BOB 25 min; Built to 12 1/2"  
1st Weak; Built to 1"  
77- BOB 14 min; Built to 18"  
75th Weak; Built to 1"

| Rec         | Feet of         | %gas        | %oil        | %water      | %mud        |
|-------------|-----------------|-------------|-------------|-------------|-------------|
| <u>60'</u>  | <u>JMCO</u>     | <u>30%</u>  | <u>50%</u>  | <u>20%</u>  | <u>0%</u>   |
| <u>70'</u>  | <u>JMCO</u>     | <u>70%</u>  | <u>70%</u>  | <u>30%</u>  | <u>0%</u>   |
| <u>20'</u>  | <u>JMO</u>      | <u>10%</u>  | <u>85%</u>  | <u>5%</u>   | <u>0%</u>   |
| <u>    </u> | <u>JHP 210'</u> | <u>100%</u> | <u>    </u> | <u>    </u> | <u>    </u> |
| <u>    </u> | <u>    </u>     | <u>    </u> | <u>    </u> | <u>    </u> | <u>    </u> |

Rec Total 150' BHT 101° Gravity 35 API RW - @ - ° F Chlorides - ppm

(A) Initial Hydrostatic 1729  Test 1050 T-On Location 13:45  
 (B) First Initial Flow 15  Jars      T-Started 14:02  
 (C) First Final Flow 47  Safety Joint      T-Open 16:16  
 (D) Initial Shut-In 931  Circ Sub      T-Pulled 19:00  
 (E) Second Initial Flow 49  Hourly Standby      T-Out       
 (F) Second Final Flow 65  Mileage 74R7x2 74+74 Comments Loaded 09/27/2018  
 (G) Final Shut-In 926  Sampler      @ 07:00  
 (H) Final Hydrostatic 1690  Straddle       EM Tool       
 Shale Packer       Ruined Shale Packer       
 Extra Packer       Ruined Packer       
 Extra Recorder       Extra Copies     

Initial Open 30  Day Standby      Sub Total 0  
 Initial Shut-In 45  Accessibility      Total 1199  
 Final Flow 30  MP/DST Disc't       
 Final Shut-In 60 Sub Total 1199

Approved By \_\_\_\_\_ Our Representative Spencer J. Fralich Thanks!  
 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.

785-259-0056

# 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. 1014

|          |      |      |       |                      |       |             |          |
|----------|------|------|-------|----------------------|-------|-------------|----------|
| Date     | Sec. | Twp. | Range | County               | State | On Location | Finish   |
| 9-21-18  | 29   | 9    | 19    | Rooks                | KS    |             | 12:25 AM |
| Location |      |      |       | Zurich 1w 7/4V Winto |       |             |          |

|                         |            |                                                                                                                                          |  |
|-------------------------|------------|------------------------------------------------------------------------------------------------------------------------------------------|--|
| Lease                   | Well No.   | Owner                                                                                                                                    |  |
| Liza                    | 1          | To-Quality Oilwell Cementing, Inc.                                                                                                       |  |
| Contractor              |            | You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed. |  |
| WW #8                   |            |                                                                                                                                          |  |
| Type Job                |            | Charge To                                                                                                                                |  |
| Surface                 |            | <del>XXXXXXXXXX</del> Jasper Company                                                                                                     |  |
| Hole Size               | T.D.       | Street                                                                                                                                   |  |
| 12 1/4                  | 259        |                                                                                                                                          |  |
| Csg. 8 5/8              | Depth      | City                                                                                                                                     |  |
|                         | 259        | State                                                                                                                                    |  |
| Tbg. Size               | Depth      | The above was done to satisfaction and supervision of owner agent or contractor.                                                         |  |
|                         |            | Cement Amount Ordered 150 8/20 3/4 2/4 2/4                                                                                               |  |
| Tool                    | Depth      |                                                                                                                                          |  |
|                         |            |                                                                                                                                          |  |
| Cement Left in Csg. 10' | Shoe Joint |                                                                                                                                          |  |
|                         |            |                                                                                                                                          |  |
| Meas Line               | Displace   |                                                                                                                                          |  |
|                         | 15' 2 3/4  |                                                                                                                                          |  |

**EQUIPMENT**

|         |     |          |          |
|---------|-----|----------|----------|
| Pumptrk | No. | Cementor | Common   |
| 5       |     | Helper   | 120      |
|         |     | Driver   | Poz. Mix |
|         |     | Driver   | 30       |
| Bulktrk | No. | Driver   | Gel.     |
|         |     | Driver   | 3        |
| Bulktrk | No. | Driver   | Calcium  |
| 14      |     | Driver   | 6        |

**JOB SERVICES & REMARKS**

|                                    |                         |
|------------------------------------|-------------------------|
| Remarks:                           | Hulls                   |
| Rat Hole                           | Salt                    |
| Mouse Hole                         | Flowseal                |
| Centralizers                       | Kol-Seal                |
| Baskets                            | Mud CLR 48              |
| DV or Port Collar                  | CFL-117 or CD110 CAF 38 |
| 8 5/8 on bottom. Est. Circulation. | Sand                    |
| Mix 150SK Displace.                | Handling 159            |
|                                    | Mileage                 |

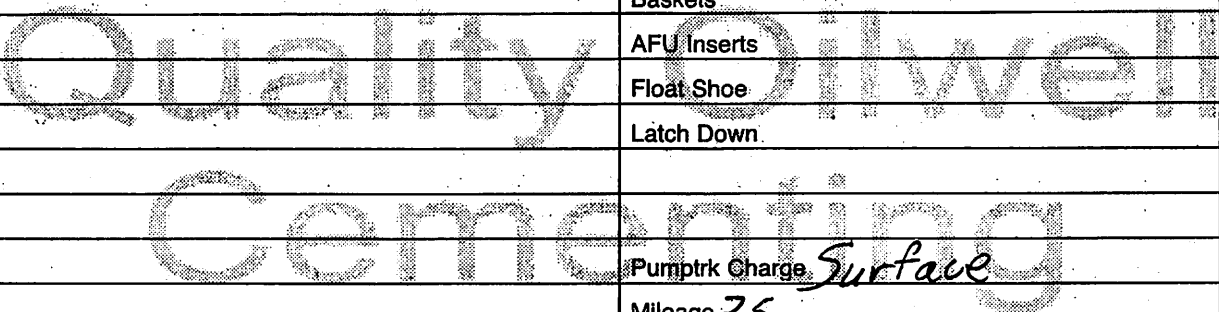
**FLOAT EQUIPMENT**

|             |
|-------------|
| Guide Shoe  |
| Centralizer |
| Baskets     |
| AFU Inserts |
| Float Shoe  |
| Latch Down  |

Pumptrk Charge Surface  
Mileage 35

Tax  
Discount  
Total Charge

X Signature *Scott Jones*



## GENERAL TERMS AND CONDITIONS

**DEFINITIONS:** In these terms and conditions, "Quality" shall mean Quality Oilwell Cementing, Inc., and "Customer" shall refer to the party identified by that term on the front of this contract. As applicable, "Job" relates to the services described on the front side of this contract, "merchandise" refers to the material described on the front of this contract and to any other materials, products, or supplies used, sold, or furnished under the requirements of this contract.

**TERMS:** Unless satisfactory credit has been established, "CUSTOMER" must tender full cash payment to "QUALITY" before the job is undertaken or merchandise is delivered. If satisfactory credit has been established, the terms of payment for the job and/or merchandise, including bulk cement, are net cash, payable in 30 days from the completion of the job and/or delivery of the merchandise. For all past due invoices, "CUSTOMER" agrees to pay interest on amounts invoiced at a rate of 18 percent per annum until paid. Notwithstanding the foregoing in no event shall this Contract provide for interest exceeding the maximum rate of interest that "CUSTOMER" may agree to pay under applicable law. If any such interest should be provided for, it shall be and hereby is deemed to be a mistake, and this contract shall be automatically reformed to lower the rate of interest to the maximum legal contract rate, any amounts previously paid as excess interest shall be deducted from the amounts owing from the "CUSTOMER" or at the option of "QUALITY," refunded directly to "CUSTOMER." For purposes of this paragraph, QUALITY and CUSTOMER agree that KANSAS law shall apply. Any discounts granted with this contract are null and void if the charges are not paid when due.

**ATTORNEY FEES:** In any legal action or proceeding between the parties to enforce any of the terms of this Service Contract, or in any way pertaining to the term of this Contract, the prevailing party shall be entitled to recover all expenses, including, but not limit to, a reasonable sum as and attorney's fees.

**PRICES AND TAXES:** All merchandise listed in "QUALITY'S" current price schedule are F.O.B. QUALITY'S local station and are subject to change without notice. All prices are exclusive of any federal, state, local, or special taxes for the sale or use of the merchandise or services listed. The amount of taxes required to be paid by QUALITY shall be added to the quoted prices charged to CUSTOMER.

**TOWING CHARGES:** QUALITY will make a reasonable attempt to get to and from each job site using its own equipment. Should QUALITY be unable to do so because of poor or inadequate road conditions, and should it become necessary to employ a tractor or other pulling equipment to get to or from the job site, the tractor or pulling equipment will be supplied by CUSTOMER or, if furnished by QUALITY, will be charged to and paid by CUSTOMER.

**PREPARATION CHARGES:** If a job and/or merchandise is ordered and CUSTOMER cancels the order after preparation of a chemical solution or other material, CUSTOMER will pay QUALITY for the expenses incurred by QUALITY as a result of the cancellation.

**DEADHAUL CHARGES:** Unless otherwise specified on the front of this Contract, a deadhaul charges as set forth in QUALITY'S current price book will be charged each way for each service unit which is ordered by CUSTOMER but not used.

**SERVICE CONDITIONS AND LIABILITIES:** 1. QUALITY carries public liability and property damage insurance, but since there are so many uncertain and unknown conditions beyond QUALITY'S control, QUALITY shall not be liable for injuries to property or persons or for loss or damage arising from the performance of the job or delivery of the merchandise. Customer shall be responsible for and indemnify, defend, and hold harmless QUALITY, its officers, agents and employees, from and against any and all claims or suits for:

(A) Damage to property or for bodily injury, sickness, disease, or death, brought by any person, including CUSTOMER and/or the well owner; and:

(B) Oil spills, pollution, surface or sub-surface damage, injury to the well, reservoir loss, or damage arising from a well blowout arising out of or in connection with QUALITY'S performance of the job or furnishing of merchandise in accordance with this contract, unless such loss or damage is caused by the willful misconduct or gross negligence of QUALITY or its employees.

2. With respect to any of QUALITY'S tools, equipment, or instruments which are lost in the well or damaged when performing or attempting to perform the job or, in the case of marine operations, are lost or damaged at any time after delivery to the landing for CUSTOMER and before return to QUALITY at the landing, CUSTOMER shall either recover the lost item without cost to QUALITY or reimburse QUALITY the current replacement cost of the item unless the loss or damage results from the sole negligence of QUALITY or its employees.

3. QUALITY does not assume any liability or responsibility for damages or conditions resulting from chemical action in cements caused by contamination of water or other fluids.

**WARRANTIES:** 1. QUALITY warrants all merchandise manufactured or furnished by it to be free from defects in material and workmanship under normal use and service when installed, and used, and/or serviced in the manner provided and intended. QUALITY'S obligation under this warranty is expressly limited to repair replacement, or allowance for credit, at its option, for any merchandise which is determined by QUALITY to be defective. THIS IS THE SOLE WARRANTY OF QUALITY AND NO OTHER WARRANTY IS APPLICABLE, EITHER EXPRESS OR OTHERWISE IMPLIED, IN FACT OR IN LAW, INCLUDING ANY WARRANTY AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE, CUSTOMER'S sole and only remedy with regard to any defective merchandise shall be the repair or replacement thereof or allowance for credit as herein provided, and QUALITY shall not be liable for any consequential, special, incidental, or punitive damages resulting from or caused by defective materials, products or supplies.

2. More specifically:

(A) Nothing in this contract shall be construed as a warranty by QUALITY of the success or the effectiveness of the result of any work done or merchandise used, sold, or furnished under this contract.

(B) Nothing in this contract shall be construed as a warranty of the accuracy or correctness of any facts, information, or data furnished by QUALITY or any interpretation of test, meter readings, chart information, analysis or research, or recommendations made by QUALITY, unless the inaccuracy or incorrectness is caused by the willful misconduct or gross negligence of QUALITY or its employees in the preparation or furnishing of such facts, information or data. (C) Work done by QUALITY shall be under the direct supervision and control of the CUSTOMER or his agent and QUALITY will accomplish the job as an independent contractor and not as an employee or agent of the CUSTOMER.

# 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. 1022

|          |         |      |    |      |   |       |    |        |       |       |    |             |                   |        |       |
|----------|---------|------|----|------|---|-------|----|--------|-------|-------|----|-------------|-------------------|--------|-------|
| Date     | 9-27-18 | Sec. | 29 | Twp. | 9 | Range | 19 | County | Reels | State | KS | On Location |                   | Finish | 11:45 |
| Location |         |      |    |      |   |       |    |        |       |       |    |             | Zunch W 1/2 Winto |        |       |

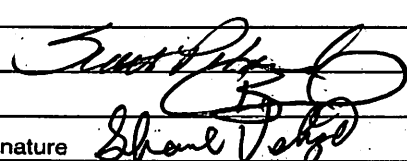
|                     |                   |            |       |                                                                                  |                                                                                                                                                                                |
|---------------------|-------------------|------------|-------|----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Lease               | L-2a              | Well No.   | 1     | Owner                                                                            | To Quality Oilwell Cementing, Inc.<br>You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed. |
| Contractor          | WV # 8            |            |       |                                                                                  |                                                                                                                                                                                |
| Type Job            | Production String |            |       |                                                                                  |                                                                                                                                                                                |
| Hole Size           | 7 7/8             | T.D.       | 3700  | Charge To                                                                        | Jasper                                                                                                                                                                         |
| Csg.                | 5 1/2 15.50'      | Depth      | 3696  | Street                                                                           |                                                                                                                                                                                |
| Tbg. Size           |                   | Depth      |       | City                                                                             | State                                                                                                                                                                          |
| Tool                |                   | Depth      |       | The above was done to satisfaction and supervision of owner agent or contractor. |                                                                                                                                                                                |
| Cement Left in Csg. | 43.24             | Shoe Joint | 43.24 | Cement Amount Ordered                                                            | 480 #/100 QMDC 1/4# No                                                                                                                                                         |
| Meas Line           |                   | Displace   | 87 BL | 150 com 10% salt 5% Calcrete 500 gal mud Clear                                   |                                                                                                                                                                                |

**EQUIPMENT**

|         |        |               |       |         |                |
|---------|--------|---------------|-------|---------|----------------|
| Pumptrk | 5 No.  | Cement Helper | Ernie | Common  | 150            |
| Bulktrk | 15 No. | Driver        | Jack  | Poz Mix | 480 #/100 QMDC |
| Bulktrk | 19 No. | Driver        | Glenn | Gel.    |                |
|         |        | Driver        |       | Calcium |                |

**JOB SERVICES & REMARKS**

|                                         |      |                              |             |
|-----------------------------------------|------|------------------------------|-------------|
| Remarks:                                |      | Hulls                        |             |
| Rat Hole                                | 305# | Salt                         | 13          |
| Mouse Hole                              |      | Flowseal                     | 125#        |
| Centralizers                            |      | Kol-Seal                     | 750#        |
| Baskets                                 |      | Mud CLR 48                   | 500 gal     |
| DV or Port Collar                       |      | CFL-117 or CD110 CAF 38      |             |
| 5 1/2 size 36 gal. Baffle @ 3652.76     |      | Sand                         |             |
| Best Circulation Pump 500 gal mud Clear |      | Handling                     | 651         |
| Plug Rathole with 305# Cement 5 1/2     |      | Mileage                      |             |
| with loose clean lines of Displace Plug |      | <b>FLOAT EQUIPMENT 5 1/2</b> |             |
| Plug landed @ 1800'                     |      | Guide Shoe                   |             |
| 6 ft Pressure 1000'                     |      | Centralizer                  | 7           |
| Cement Circulate @ 11                   |      | Baskets                      | 10          |
|                                         |      | AFU Inserts                  |             |
|                                         |      | Float Shoe                   | 1           |
|                                         |      | Latch Down                   | 1           |
|                                         |      | Pumptrk Charge               | Prod String |
|                                         |      | Mileage                      | 35          |

|             |                                                                                    |              |  |
|-------------|------------------------------------------------------------------------------------|--------------|--|
| X Signature |  | Tax          |  |
|             |                                                                                    | Discount     |  |
|             |                                                                                    | Total Charge |  |

## GENERAL TERMS AND CONDITIONS

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(A) Damage to property or for bodily injury, sickness, disease, or death, brought by any person, including CUSTOMER and/or the well owner; and:

(B) Oil spills, pollution, surface or sub-surface damage, injury to the well, reservoir loss, or damage arising from a well blowout arising out of or in connection with QUALITY'S performance of the job or furnishing of merchandise in accordance with this contract, unless such loss or damage is caused by the willful misconduct or gross negligence of QUALITY or its employees.

2. With respect to any of QUALITY'S tools, equipment, or instruments which are lost in the well or damaged when performing or attempting to perform the job or, in the case of marine operations, are lost or damaged at any time after delivery to the landing for CUSTOMER and before return to QUALITY at the landing, CUSTOMER shall either recover the lost item without cost to QUALITY or reimburse QUALITY the current replacement cost of the item unless the loss or damage results from the sole negligence of QUALITY or its employees.

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2. More specifically:

(A) Nothing in this contract shall be constructed as a warranty by QUALITY of the success or the effectiveness of the result of any work done or merchandise used, sold, or furnished under this contract.

(B) Nothing in this contract shall be construed as a warranty of the accuracy or correctness of any facts, information, or data furnished by QUALITY or any interpretation of test, meter readings, chart information, analysis or research, or recommendations made by QUALITY, unless the inaccuracy or incorrectness is caused by the willful misconduct or gross negligence of QUALITY or its employees in the preparation or furnishing of such facts, information or data. (C) Work done by QUALITY shall be under the direct supervision and control of the CUSTOMER or his agent and QUALITY will accomplish the job as an independent contractor and not as an employee or agent of the CUSTOMER.