

Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION 1243698  
OIL & GAS CONSERVATION DIVISION

Form ACO-1

August 2013

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       SIOW
- Gas       D&A       ENHR       SIGW
- OG       GSW       Temp. Abd.
- 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 ENHR       Conv. to SWD
- Plug Back       Conv. to GSW       Conv. to Producer
- Commingled      Permit #: \_\_\_\_\_
- Dual Completion      Permit #: \_\_\_\_\_
- SWD      Permit #: \_\_\_\_\_
- ENHR      Permit #: \_\_\_\_\_
- GSW      Permit #: \_\_\_\_\_

Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date
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API No. 15 - \_\_\_\_\_

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
- Geologist Report Received
- UIC Distribution
- ALT  I  II  III Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

1243698

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

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

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

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

Drill Stem Tests Taken <i>(Attach Additional Sheets)</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Log	Formation (Top), Depth and Datum	<input type="checkbox"/> Sample
Samples Sent to Geological Survey	<input type="checkbox"/> Yes <input type="checkbox"/> No	Name	Top	Datum
Cores Taken	<input type="checkbox"/> Yes <input type="checkbox"/> No			
Electric Log Run	<input type="checkbox"/> Yes <input type="checkbox"/> No			
List All E. Logs Run:				

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				

Did you perform a hydraulic fracturing treatment on this well?  Yes  No *(If No, skip questions 2 and 3)*

Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons?  Yes  No *(If No, skip question 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)*

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record <i>(Amount and Kind of Material Used)</i>	Depth

TUBING RECORD: Size: \_\_\_\_\_ Set At: \_\_\_\_\_ Packer At: \_\_\_\_\_ Liner Run:  Yes  No

Date of First, Resumed Production, SWD or ENHR: \_\_\_\_\_ Producing Method:  Flowing  Pumping  Gas Lift  Other *(Explain)* \_\_\_\_\_

Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity
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<b>DISPOSITION OF GAS:</b> <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	<b>METHOD OF COMPLETION:</b> <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <i>(Submit ACO-4)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____	<b>PRODUCTION INTERVAL:</b> _____ _____
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Form	ACO1 - Well Completion
Operator	Jaspar Co.
Well Name	D & R Unit 1
Doc ID	1243698

All Electric Logs Run

Micro Log
Sonic Log
Compensated density/Neutron
Dual Induction

Form	ACO1 - Well Completion
Operator	Jaspar Co.
Well Name	D & R Unit 1
Doc ID	1243698

Perforations

Shots Per Foot	Perforation Record	Material Record	Depth
4	3437-40	1000 gal 20% MudAcid	
4	3458-60	1000 gal 20% Mud Acid	
4	3472-74	1000 gal 20% Mud Acid	
4	3483-85	1000 gal 20% Mud Acid	
	retreated above zones	3000 gal 20% NE	
4	3551-53	500 gal 20% Mud Acid	
		100 gal 20% Mud Acid	
	Bridge Plug		3615
6	3657-59		







# QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

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

No. 898

Phone 785-483-2025

Cell 785-324-1041

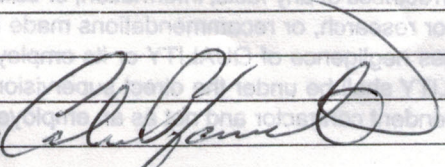
Date	12-5-14	Sec.	21	Twp.	6	Range	20	County	Rooks	State	Ks	On Location	14	Finish	5:15 PM
Location														Stockton, KS - W to 4Rd, 8N, W140	

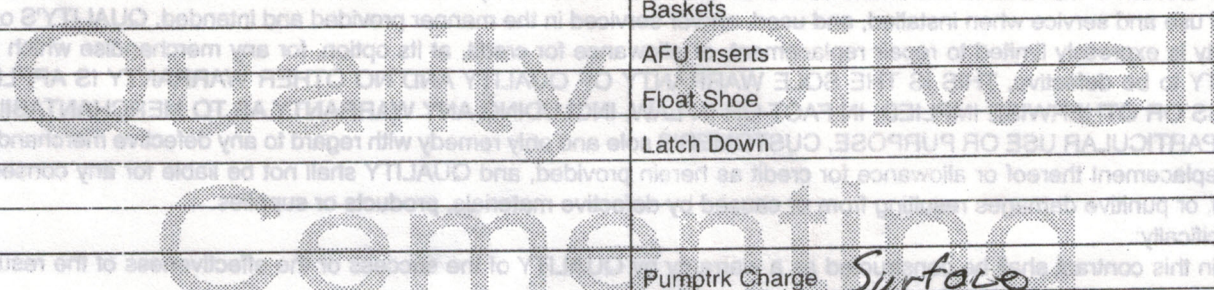
Lease	D + R unit		Well No.	1		Owner	To Quality Oilwell Cementing, Inc. You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.								
Contractor	WW #12					Charge To	Jaspar Oil Co								
Type Job	Surface					Street									
Hole Size	12 1/4"		T.D.	220'		City	State								
Csg.	8 3/8"		Depth	220'		The above was done to satisfaction and supervision of owner agent or contractor.									
Tbg. Size			Depth			Cement Amount Ordered	150 Common 3% CC								
Tool			Depth	<del>400</del>		Meas Line	Displace 13 BLS								
Cement Left in Csg.	15		Shoe Joint	15'		2% Gel									

<b>EQUIPMENT</b>			Common	150	
Pumptrk	5 No.	Cementer	Brett		
		Helper			
Bulktrk	9 No.	Driver	Tyson		
		Driver	Rick		
Bulktrk	plu. No.	Driver	Rick		
		Driver			

<b>JOB SERVICES &amp; REMARKS</b>		Hulls			
Remarks:	Cement did Circulate		Salt		
Rat Hole			Flowseal		
Mouse Hole			Kol-Seal		
Centralizers			Mud CLR 48		
Baskets			CFL-117 or CD110 CAF 38		
D/V or Port Collar			Sand		
			Handling	158	
			Mileage	48	

<b>FLOAT EQUIPMENT</b>		
Guide Shoe		
Centralizer		
Baskets		
AFU Inserts		
Float Shoe		
Latch Down		
Pumptrk Charge	Surface	
Mileage	48	
Tax		
Discount		
Total Charge		

X Signature 





# 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. 1062

Date	12-12-14	Sec.	21	Twp.	6	Range	20	County	ROOKS	State	KANSAS	On Location		Finish	4:30 Am
Location													STOCKTON KS, West TO RD #4	8N 1/4 W	

Lease	D & R UNIT	Well No. #1	Owner	To Quality Oilwell Cementing, Inc.
Contractor	W-W DRUG. Rig # 12	CALVIN	You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.	

Type Job	PRODUCTION STRING	Charge To	JASPAR CO.
Hole Size	7 7/8	R.T.D.	3700 LTD 3678

Csg.	5 1/2 New	Depth	3695	Street	
Size	15.50# csg	Depth		City	

Tool	LATCH DOWN Plug Assy	Depth	3677	The above was done to satisfaction and supervision of owner agent or contractor.	
Cement Left in Csg.	18.12	Shoe Joint	18.17	Cement Amount Ordered	450 SX Qm Dc 1/4 # 70-seal

Meas Line	Displace	87 1/2 BBL	150 SX 10% SALT 5% gils wire
EQUIPMENT			Common 150

Pumptrk	18	No.	Cement Helper	GLENN G.	Poz Mix	450 Qm DC
Bulktrk	21	No.	Driver	CODY B.	Gel.	
Bulktrk	15	No.	Driver	CHAD M.	Calcium	
			Driver	RYAN M.	Hulls	

JOB SERVICES & REMARKS				Hulls	
Remarks:				Salt	13

Rat Hole	30 SX	Flowseal	112 #
Mouse Hole		Kol-Seal	750 #

Centralizers	1, 5, 7, 9, 11, 13, 15, 17, 46	Mud CLR 48	500 GAL
Baskets	2, 4, 6, 8, 10, 12, 14, 16, 18, 47	CFL-117 or CD110 CAF 38	

D/V or Port Collar		Sand	
Ran 87 JOINTS OF 15.50# csg.		Handling	620

Set @ 3695, ROTATE AND CIRCULATE 1 HR. ON BOTTOM.		Mileage	
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Pump 500 GAL MUD-CLR, 30 SX @ Rat Hole, CEMENT w/ 420 SX Qm Dc and 150 SX Com 10% SALT, 5% gils wire		FLOAT EQUIPMENT	
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Clear-line & Release Plug.		Guide Shoe	
Displace A TOTAL OF 87 1/2 BBL		Centralizer	X 10 TURBO

HAD 1200 #, LIFT PRESSURE & LAND LATCH DOWN Plug @ 1700 #.		Baskets	X 10
Release PRESSURE & AFU - Plug (HELD)		AFU Inserts	

Cement DID CIRCULATE TO SURFACE.		Float Shoe	X 1
Share Vehicle for helper (Cement)		Latch Down Plug Assy.	X 1

		ROTATING HEAD	
		Pumptrk Charge	prod string

		Mileage	48
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Signature	Calvin	T.P.		Tax	
				Discount	
				Total Charge	





Scale 1:240 Imperial

Well Name: DR UNIT #1  
Surface Location: SE SW SE NE Sec. 21 - 6S - 20W  
Bottom Location:  
API: 15-163-24268-00-00  
License Number: 34903  
Spud Date: 12/5/2014 Time: 1:15 PM  
Region: ROOKS COUNTY KANSAS  
Drilling Completed: 12/11/2014 Time: 9:10 AM  
Surface Coordinates: 2415' FNL & 870' FEL  
Bottom Hole Coordinates:  
Ground Elevation: 2164.00ft  
K.B. Elevation: 2172.00ft  
Logged Interval: 2850.00ft To: 3700.00ft  
Total Depth: 3700.00ft  
Formation: LANSING - KANSAS CITY; ARBUCKLE  
Drilling Fluid Type: FRESH WATER / CHEMICAL GEL

#### OPERATOR

Company: JASPAR COMPANY, INC.  
Address: 1681 LIMESTONE RD. SOUTH  
P.O. BOX 1120  
HAYS, KS 67601  
Contact Geologist: SHANE VEHIGE  
Contact Phone Nbr: (785) 623-6982  
Well Name: DR UNIT #1  
Location: SE SW SE NE Sec. 21 - 6S - 20W  
API: 15-163-24268-00-00  
Pool:  
State: KANSAS Field: TODD NORTHWEST  
Country: USA

#### SURFACE CO-ORDINATES

Well Type: Vertical  
Longitude: -99.5493707  
Latitude: 39.5179343  
N/S Co-ord: 2415' FNL  
E/W Co-ord: 870' 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 #: 12  
Rig Type: MUD ROTARY  
Spud Date: 12/5/2014 Time: 1:15 PM  
TD Date: 12/11/2014 Time: 9:10 AM  
Rig Release: 12/12/2014 Time: 6:30 AM

#### ELEVATIONS

K.B. Elevation: 2172.00ft  
K.B. to Ground: 8.00ft

Ground Elevation: 2164.00ft

**NOTES**


DUE TO ECONOMICAL RECOVERY ON DRILL STEM TEST #1 & #2 DECISION WAS MADE TO RUN 5 1/2" PRODUCTION PIPE AND FURHTER EVALUATE ZONES OF INTEREST WITH PERFORATION.

RESPECTFULLY SUBMITTED,  
JEFF LAWLER

**WELL COMPARISON SHEET**

FORMATION	D&R UNIT #1								LIBERTY OPERATIONS				BAIRD OIL COMPANY, LLC				JONES, SHELBURNE, & FARMER							
	SAMMONS #1				NE SW SE 21-6-20				FISCHLI #2				SE NENW 21-6-20				GARTELL #2				ATTEBERRY #1			
	KB		GL		2164		2191		KB		2206		KB		2159		KB		2186					
	LOG TOPS	SAMPLE TOPS	LOG	LOG	SMPL.	COMP. CARD	LOG	SMPL.	COMP. CARD	LOG	SMPL.	COMP. CARD	LOG	SMPL.	COMP. CARD	LOG	SMPL.	COMP. CARD	LOG	SMPL.				
DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM	CORR.	CORR.	DEPTH	DATUM	CORR.	CORR.	DEPTH	DATUM	CORR.	CORR.	DEPTH	DATUM	CORR.	CORR.	DEPTH	DATUM	CORR.	CORR.	
ANHYDRITE TOP	1770	402	1774	398	1794	397	+ 5	+ 1	1813	393	+ 9	+ 5	1761	398	+ 4	+ 0	1790	396	+ 6	+ 2				
BASF	1803	369	1807	365	1819	372	- 3	- 7					1790	369	+ 0	- 4								
TOPEKA	3164	-992	3169	-997	3185	-994	+ 2	- 3	3216	-1010	+ 18	+ 13	3158	-999	+ 7	+ 2								
HEEBNER SHALE	3363	-1191	3368	-1196	3385	-1194	+ 3	- 2	3414	-1208	+ 17	+ 12	3358	-1199	+ 8	+ 3	3397	-1211	+ 20	+ 15				
TORONTO	3386	-1214	3391	-1219	3410	-1219	+ 5	+ 0	3435	-1229	+ 15	+ 10	3380	-1221	+ 7	+ 2	3418	-1232	+ 18	+ 13				
LKC	3401	-1229	3406	-1234	3425	-1234	+ 5	+ 0	3449	-1243	+ 14	+ 9	3395	-1236	+ 7	+ 2	3434	-1248	+ 19	+ 14				
BKC	3599	-1427	3606	-1434	3620	-1429	+ 2	- 5	3643	-1437	+ 10	+ 3	3594	-1435	+ 8	+ 1								
GORHAM SAND	3630	-1458	3641	-1469	3664	-1473	+ 15	+ 4					3630	-1471	+ 13	+ 2								
ARBUCKLE	3638	-1466	3649	-1477	3683	-1492	+ 26	+ 15	3676	-1470	+ 4	- 7	3670	-1511	+ 45	+ 34	3740	-1554	+ 88	+ 77				
TOTAL DEPTH	3698	-1526	3700	-1528	3691	-1500	- 26	- 28	3740	-1534	+ 8	+ 6	3686	-1527	+ 1	- 1	3772	-1586	+ 60	+ 58				

**DST #1 TORONTO - LKC A 3367' - 3425'**



**TRILOBITE TESTING, INC.**

**DRILL STEM TEST REPORT**

Jaspar Co. **21-6-20- Rooks Co.**

1681 Limestone Rd S **D&R Unit #1**  
PO Box 1120  
Hays KS 67601  
ATTN: Jeff Lawler

Job Ticket: 60698 **DST#: 1**  
Test Start: 2014.12.09 @ 05:52:50

**GENERAL INFORMATION:**

Formation: **Toronto-LKC A**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 08:04:00  
 Time Test Ended: 12:47:20

Interval: **3367.00 ft (KB) To 3425.00 ft (KB) (TVD)**  
 Total Depth: 3425.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good

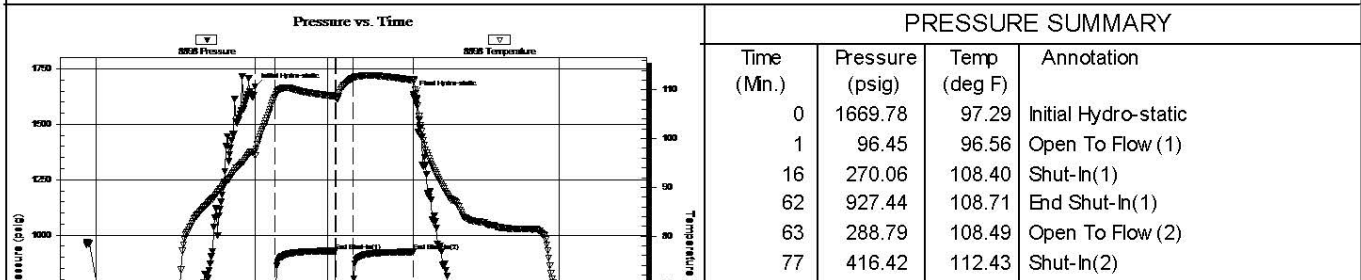
Test Type: Conventional Bottom Hole (Initial)  
 Tester: Tate Lang  
 Unit No: 77

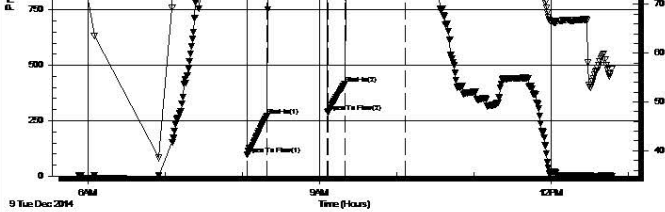
Reference Elevations: 2172.00 ft (KB)  
 2164.00 ft (CF)  
 KB to GR/CF: 8.00 ft

**Serial #: 8898** **Outside**

Press@RunDepth: 416.42 psig @ 3369.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.12.09 End Date: 2014.12.09 Last Calib.: 2014.12.09  
 Start Time: 05:52:51 End Time: 12:47:20 Time On Btm: 2014.12.09 @ 08:03:50  
 Time Off Btm: 2014.12.09 @ 10:07:00

**TEST COMMENT:** 15-B.O.B. in 1 min  
 45-B.O.B. in 9 mins  
 15-B.O.B. in 1 min  
 45-B.O.B. in 9 mins





123	924.28	111.98	End Shut-In(2)
124	1634.81	112.11	Final Hydro-static

**Recovery**

Length (ft)	Description	Volume (bbl)
180.00	MCOG 10%G 60%O 30%M	1.44
930.00	GO 25%G 75%O	13.05
0.00	990 GIP	0.00

**Gas Rates**

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

Trilobite Testing, Inc

Ref. No: 60698

Printed: 2014.12.09 @ 13:33:20

**LKC C - D 3426' - 3469'**



**DRILL STEM TEST REPORT**

Jaspar Co. **21-6-20- Rooks Co.**  
 1681 Limestone Rd S **D&R Unit #1**  
 PO Box 1120 Job Ticket: 60699 **DST#: 2**  
 Hays KS 67601 Test Start: 2014.12.09 @ 19:29:45  
 ATTN: Jeff Lawler

**GENERAL INFORMATION:**

Formation: **LKC C-D**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 21:28:45  
 Time Test Ended: 01:55:35  
 Interval: **3426.00 ft (KB) To 3469.00 ft (KB) (TVD)**  
 Total Depth: 3469.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Tate Lang  
 Unit No: 77  
 Reference Elevations: 2172.00 ft (KB)  
 2164.00 ft (CF)  
 KB to GR/CF: 8.00 ft

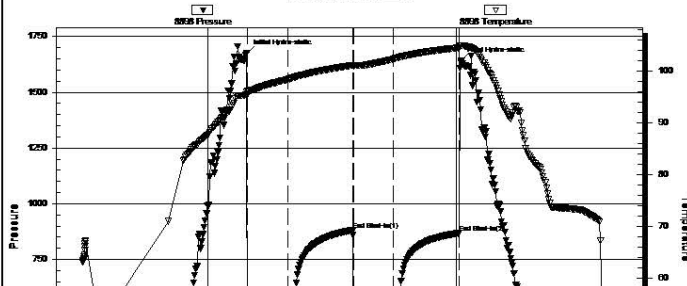
**Serial #: 8898**

**Outside**

Press@RunDepth: 81.58 psig @ 3433.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.12.09 End Date: 2014.12.10 Last Calib.: 2014.12.10  
 Start Time: 19:29:46 End Time: 01:55:35 Time On Btm: 2014.12.09 @ 21:28:35  
 Time Off Btm: 2014.12.10 @ 00:03:24

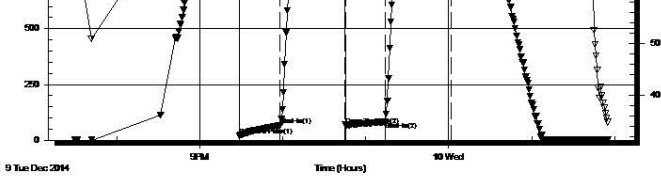
TEST COMMENT: 30-B.O.B. in 27 mins  
 45-Weak surface blow built to 1/4 in  
 30-B.O.B. in 21 mins  
 45-Weak surface blow built to

**Pressure vs. Time**



**PRESSURE SUMMARY**

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1675.10	96.10	Initial Hydro-static
1	18.61	95.26	Open To Flow (1)
30	66.13	98.38	Shut-In(1)
76	880.22	101.10	End Shut-In(1)
77	68.82	100.99	Open To Flow (2)
106	81.58	102.31	Shut-In(2)
154	868.16	104.51	End Shut-In(2)



155	1639.81	104.93	Final Hydro-static
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**Recovery**

Length (ft)	Description	Volume (bbl)
60.00	SGOCM 5%G 15%O 80%M	0.30
60.00	GOCM 5%G 40%O 55%M	0.30
30.00	MCGO 20%G 40%O 40%M	0.42
10.00	GO 10%G 90%O	0.14
0.00	140 GIP	0.00

**Gas Rates**

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

Trilobite Testing, Inc

Ref. No: 60699

Printed: 2014.12.10 @ 08:20:25

**DST #3 LKC J - K 3563' - 3600'**



**DRILL STEM TEST REPORT**

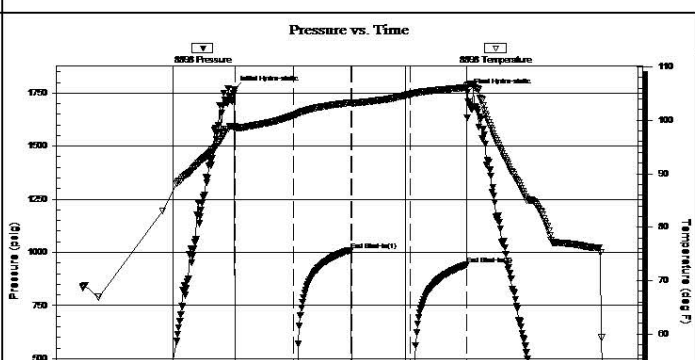
Jaspar Co. **21-6-20- Rooks Co.**  
 1681 Limestone Rd S **D&R Unit #1**  
 PO Box 1120 Job Ticket: 60700 **DST#: 3**  
 Hays KS 67601 Test Start: 2014.12.10 @ 19:50:08  
 ATTN: Jeff Lawler

**GENERAL INFORMATION:**

Formation: **LKC J&K**  
 Deviated: No Whipstock: ft (KB) Test Type: Conventional Bottom Hole (Reset)  
 Time Tool Opened: 21:47:48 Tester: Tate Lang  
 Time Test Ended: 02:42:58 Unit No: 77  
 Interval: **3563.00 ft (KB) To 3600.00 ft (KB) (TVD)** Reference Elevations: 2172.00 ft (KB)  
 Total Depth: 3600.00 ft (KB) (TVD) 2164.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Good KB to GR/CF: 8.00 ft

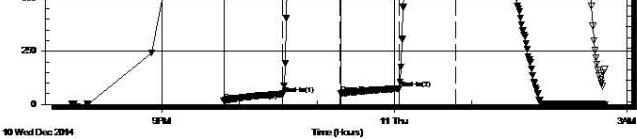
**Serial #: 8898** **Outside**  
 Press@RunDepth: 73.56 psig @ 3565.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.12.10 End Date: 2014.12.11 Last Calib.: 2014.12.11  
 Start Time: 19:50:09 End Time: 02:42:58 Time On Btm: 2014.12.10 @ 21:47:38  
 Time Off Btm: 2014.12.11 @ 00:48:08

**TEST COMMENT:** 45-Fair blow built to 4 in  
 45-Dead no blow back  
 45-Weak surface blow built to 2 1/2 in  
 45-Dead no blow back



**PRESSURE SUMMARY**

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1767.40	98.93	Initial Hydro-static
1	18.01	98.29	Open To Flow (1)
46	49.36	100.94	Shut-In(1)
91	1007.82	103.36	End Shut-In(1)
91	51.91	103.15	Open To Flow (2)
136	73.56	104.88	Shut-In(2)
180	942.54	106.14	End Shut-In(2)
181	1753.15	106.47	Final Hydro-static



**Recovery**

Length (ft)	Description	Volume (bbl)
120.00	SMCW 10%W 90%M	0.60

\* Recovery from multiple tests

**Gas Rates**

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

Trilobite Testing, Inc

Ref. No: 60700

Printed: 2014.12.11 @ 08:27:38

**ROCK TYPES**

Dolprim	shale, grn	Carbon Sh	Arg/Shale	Lscongl
Lmst fw7>	shale, gry	shale, red	Ss	

**ACCESSORIES**

**MINERAL**

↙ Dolomitic

**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)

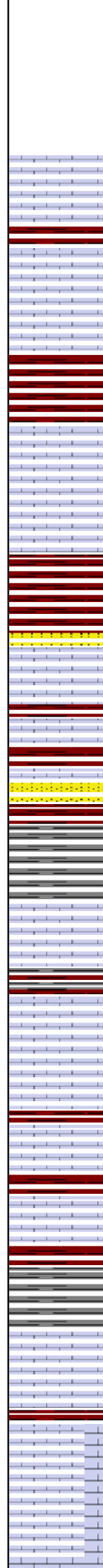
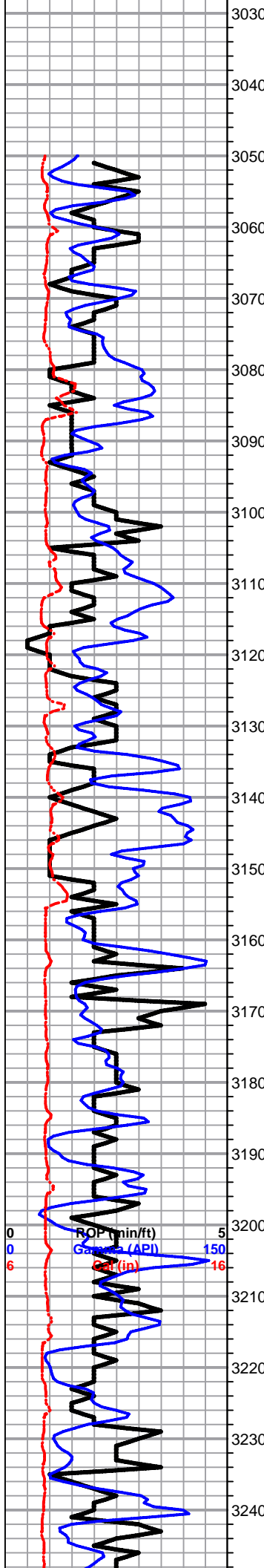
Curve Track #1				Curve Track #3			
ROP (min/ft)	Gamma (API)	Cal (in)	Depth   Intervals	DST	Lithology	Oil Show	Geological Descriptions
1:240 Imperial	1:240 Imperial	1:240 Imperial	Cored Interval DST Interval				
0	0	6	5				
			150				
			16				
			3010				
			3020				
<p><b>1' DRILL TIME THROUGH THE ANHYDRITE FROM 1750' - 1820'</b>  <b>1' DRILL TIME FROM 3050' - RTD</b>  <b>10' WET/DRY SAMPLES FROM 3100' - RTD</b></p> <p><b>GEOLOGICAL SUPERVISION BY JEFF LAWLER FROM 3100' - RTD</b></p>							



DRILLER'S ANHYDRITE TOP 1774' (+398) E-LOG 1770' (+402)  
DRILLER'S ANHYDRITE BASE 1807' (+365) E-LOG 1803' (+369)

SAMPLE DESCRIPTION AND LITHOLOGY REPRESENTATIVE OF LAGGED  
SAMPLES

**\*\*NOTE: THERE IS AN ~4' - 6' UPHOLE CORRECTION TO  
CORRELATE DRILL TIME TO POROSITY LOG CURVES\*\***



Sh- Maroon Gray Lm Green, gummy wash, silty & calcareous, silty & soft

Lm- Cream Tan, VFXLN Vf Grn, dense, well cemented, trashy high-energy mix, poor vis. porosity, some mud supported matrix

Sh- Maroon Gray Lm Green, abundant sl sandy gummy wash

Ss- Dove Gray, Fn Grn, friable, sl unconsolidated, well sorted, sub-angular, spkld w/ glauconite, LT STN, FR SFO UPON CRUSH, FR ODR (many pcs)

Lm- Black Drk Gray, VF-FXLN, dense, well cemented trashy high-energy bioclastic w/ XLN porosity,

Lm- Cream Off White, VFXLN & Vf Grn, dense, sl fsl, poorly dev. w/ sctrd micro XLN & XLN porosity, some chalky mud supported matrix, barren

Ss- Frosted Gray, Vf Grn, loosely cemented, semi-friable, micaceous, spkld w/ glauconite, DRK SAT STN, HVY FR O, STRNG ODR, MUCH FREE FLOATING OIL IN WET CUP (6-8 pcs)

Lm- Drk Gray, FXLN, trashy high-energy fsl w/ bioclastics, dense XLN & sctrd secondary recrystallization porosity

Sh- Maroon Gray Lm Green, gritty & earthy, gummy wash & soft sandy lime, silty & calcareous lime

**TOPEKA 3169' (-997) E-LOG 3164' (-992)** Drk & Lt Gray Tan, VFXLN, dense trashy high-energy mix w/ fsl fragments, dense XLN & secondary recrystallization porosity, some chalky mud supported matrix

Lm- Cream Off White, VF-FXLN, dense, mostly tight, few w/ sctrd micro XLN porosity, clean & barren

Lm- Cream Gray, mix of VFXLN, dense, well cemented, tight w/ sctrd micro XLN & XLN porosity & trashy high-energy bioclastic mix w/ dense XLN & secondary recrystallization porosity

Sh/Ss- Gray, soft, silty & calcareous, fn grn well cemented Ss, consolidated & sorted, shaley, barren

Lm- Cream Off White, VF-FXLN Vf Grn, oolitic mix, sctrd dev., much clear replacement cementation, sctrd XLN & fn ppt interoolite porosity, some w/ poor vis. porosity, some soft white chalk

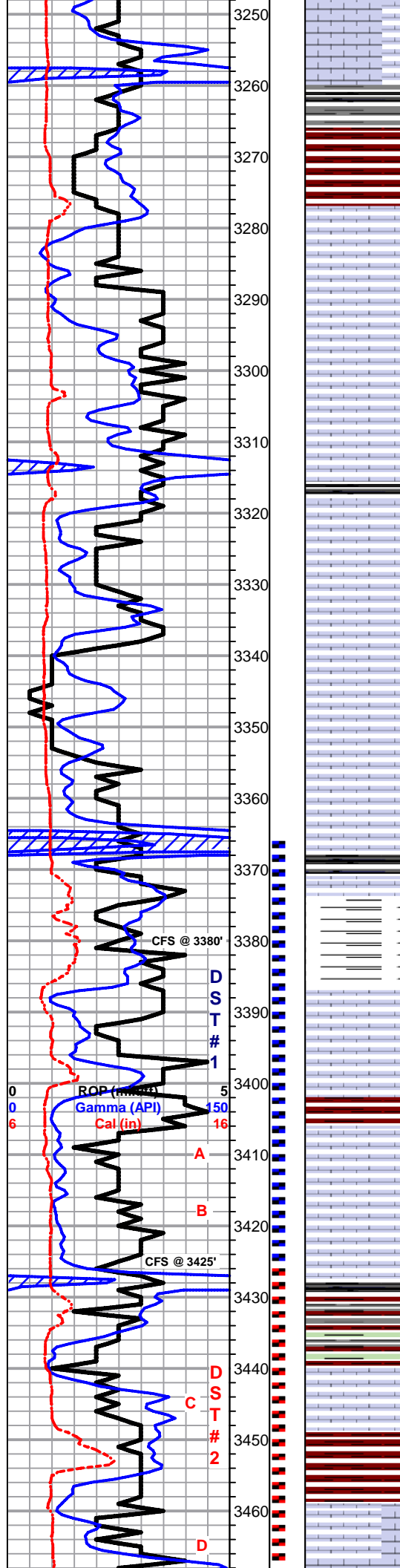
Lm/Chert- Cream Off White, VF-FXLN, dense, well cemented, mostly tight w/ sctrd micro XLN porosity, few pcs of sl dolomitic Ls, several pcs of bone white/cream fresh bedded chert/cherty Ls w/o vis. porosity, all vry clean & barren

Lm- Lt & Drk Gray, dense, sl trashy w/ fsl fragments, sctrd-dense XLN porosity, some

-3118.jpg

-3140.jpg

ROP (min/ft) 5  
Gamma (API) 150  
GRT (in) 16  
0 0 6



sctrd secondary recrystallization

Sh- Black Maroon Gray Lm Green, fissile & carbonaceous, gritty & soft, silty & calcareous

Sh- Maroon Gray Lm Green, sandy gummy wash

Lm- Cream Tan, VF-FXLN Vf Grn, dense tight mix, poor vis. porosity, some chalky mud supported matrix, all vry clean & barren

Lm- Gray Buff Mustard, VF-FXLN, dense, tight trashy mix, high-energy w/ fsl fragments & bioclastic, dense XLN porosity

Lm- Cream Tan, FXLN, dense, well cemented, sl fsl, poorly dev. w/ dense XLN porosity & sctrd secondary recrystallization porosity

Sh- Black Gray Maroon Lm Green, fissile & carbonaceous, much semi-gummy various colored wash, silty lime

Lm- Cream Buff, VF-FXLN, mix, sl fsl, well cemented w/ sctrd XLN & vry fn ppt porosity & dense, well cemented w/ mostly consistent vry fn ppt porosity throughout, SCTRD LT STN, SL TR FO, STRNG SULFURIC ODR (several pcs)

Lm- Cream Off White, VFXLN, massive, unconsolidated, sctrd crs XLN recrystallization, sctrd micro XLN porosity, barren, sl trashy

Lm- Cream, VFXLN, dense, vry well cemented, grainy sl dolomitic Ls w/ consistent micro XLN porosity throughout, WK SPOTTY STN, NSFO, GD ODR?? (2-3 pcs)

**HEEBNER 3368' (-1196) E-LOG 3363' (-1191)** Sh- Black, abundant fissile & carbonaceous pcs

Sh- abundant gummy argillaceous clumps & sandy lime wash

Sh- A/A w/ gummy maroon wash

**TORONTO 3391' (-1219) E-LOG 3386' (-1214)** Lm- Cream Off White, F-Med XLN, fsl & oolitic, well dev. w/ mostly consistent ppt inter oolite porosity throughout, sctrd recrystallization w/in porosity, DRK SCTRD STN, NSFO, GD SULFURIC ODR, several pcs of golden brown/cream fesh bedded chert/cherty Ls w/ov vis porosity

**LKC 3406' (-1234) E-LOG 3401' (-1229)** Lm- Cream Off White, F-Med XLN, oolitic & fsl, well dev. w/ sctrd fn ppt inter oolite porosity, LT BRWN STN, SL-FR SFO, STRONG SULFURIC ODR (many pcs), FEW PCS W/ GSY BUBBLES WHEN HEATED UNDER LAMP

Lm- Cream Off White, VF-FXLN, sl fsl, sl less dev. w/ sctrd-dense XLN porosity, LT BRWN STN, SL TR FO, OILY SHEEN, STRNG ODR (many pcs)

Lm- Cream Off White, VF-FXLN, sl fsl, sctrd XLN porosity, much barren porosity, some tight w/ min. vis. porosity & small amount of soft white chalk

Sh- Black Maroon Gray Lm Green, soft & carbonaceous, gritty & earthy, silty & dense, soft & calcareous

Lm- Cream Off White, VF-Med XLN, oolitic w/ sctrd fn ppt inter oolite porosity, some w/ XLN porosity, LT BRWN STN, TR FO, GD SULFURIC ODR (possible carryover) (many pcs)

Sh- Maroon Gray Lm Green, gritty & earthy, some gummy maroon & gray wash, silty & calcareous green pcs, som sl unconsolidated & pebbly

Lm- Off White Buff, VF-FXLN, mix of off white FXLN w/ sctrd dev & sctrd XLN & vry fn ppt porosity, LT BRWN STN, TR FO, GD SULFURIC ODR? (possible carryover from DST #1) (several pcs) & buff VFXLN, dense, well cemented, mostly tight w/ poor vis. porosity

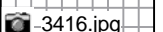
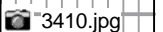
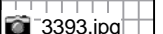
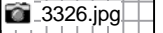
SHORT TRIP SURVEY 3/4 dgr. STRAP +0.14'

DST #1 TORONTO - LKC A 3367' - 3425' 15-45-15-45

1110' TOTAL FLUID 990' GIP

930' GSY OIL (25% G, 75% O) Gr: 37 API 180' MCGO (10%G, 60%O, 30% M)

IFP: 96-270# FFP: 288-416# SIP: 927-924#



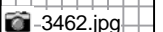
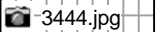
SHORT TRIP SURVEY 3/4 dgr.

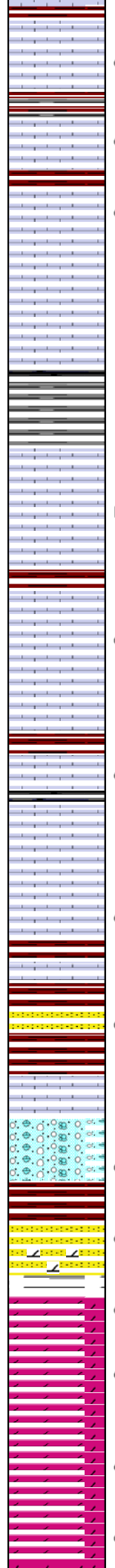
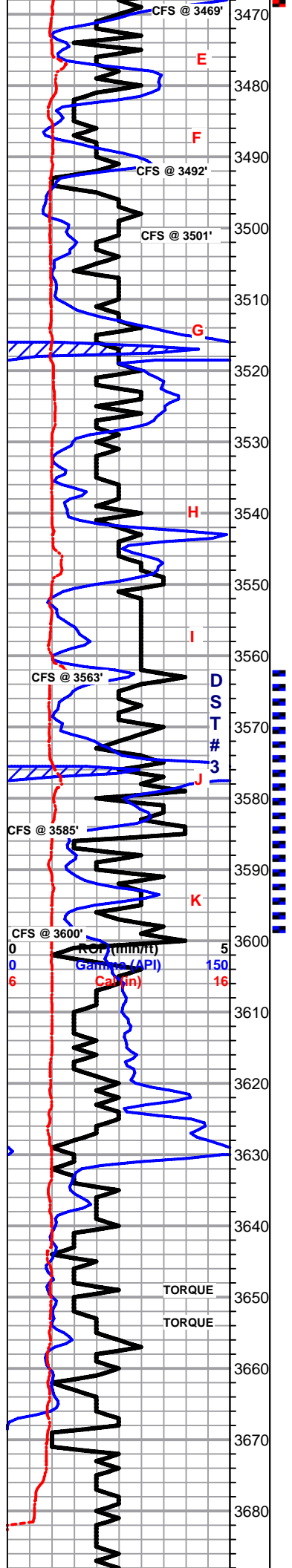
DST #3 LKC J - K 3563' - 3600'

45-45-45-45

150' SWCM w/ OIL SPOTS (10%W, 90%M)

IFP: 18-49# FFP: 52-74# SIP: 1008-943#





**40"**- A/A w/ incr. in off white cream VFXLN, vry well cemented, sctrd XLN & ppt porosity, some w/ crse. recrystallization, recrystallization w/in porosity, LT-DRK SCTRDR STN, SL INCR. IN FR O, ODR A/A, 1-2 pcs of mod. dev. & oolitic w/ sctrd XLN & fn ppt inter oolite porosity, STN & ODR A/A

**3476'**- Lm- White Off White, FXLN, oolitic w/ few fusulinids, mod. well dev. w/ mostly consistent ppt inter fsl & oolite porosity, some sl chalky in part & soft white chalk, LT BRWN STN, TR FO UPON CRUSH, FR SULFURIC ODR (carryover??) (several pcs)

**3487'**- Lm- Cream Off White, F-Med XLN, well dev. oolitic w/ consistent fn ppt & ppt inter oolite porosity, SCTRDR DRK STN, FR GSY FO UPON CRUSH, FR-GD SULFURIC ODR (carryover??) (6-10 pcs), some dense VFXLN, massive & vry well cemented w/ sctrd recrystallization, poor vis. porosity, barren

Lm- Cream Off White, VF-FXLN, mix of mod. dev. oolitic w/ sctrd fn ppt & XLN porosity, SCTRDR LT STN, TR FO, ODR (possible carryover) (4-6 pcs)

Lm- Gray Buff, VF-FXLN Vf Grn, dense mostly tight mix, some loosely cemented & crumbly, some well cemented & lithographic, some mud supported matrix, all barren

Sh- Black Maroon Gray Lm Green, fissile & carbonaceous, gritty & earthy, silty & calcareous

Lm- Tan, VFXLN, dense, well cemented, tight w/ sctrd micro XLN porosity, tight, SCTRDR EDGE GILSONITE DO STN, NO SFO

Lm- Gray Lm Green, VF-FXLN Vf Grn, dense, well cemented, tight, some chalky & w/ some mud supported matrix, barren

Lm- Tan Cream, VF-FXLN, dense, well cemented, mostly tight w/ sctrd vry fn ppt porosity, some chalky in part, SCTRDR LT STN, NO SFO, ODR?? (probable carryover)

Lm- Tan, VFXLN, dense, vry well cemented, tight, some chalky, poor vis. porosity

Lm- Off White, FXLN, fsl & sl oolitic, loosely-well cemented, dense XLN & vry fn ppt porosity, LT BRWN STN, TR FO, SOME SL FLAKEY, STRNG SULFUIC ODR, SLW STRM WET CUT

Sh- Black Gray Maroon, dense & semi-waxy, silty & soft, gritty & earthy

Lm- Off White, VF-MedXLN, oolitic, mod. dev. w/ sctrd ppt inter oolite porosity, some chalky in part & some soft white chalk, SCTRDR DRK STN, TR GSY BUBBLES UPON CRUSH, FR SULFURIC ODR, some w/ much barren porosity

**40"**- Lm- Cream, FXLN, fsl, poorly dev. w/ sctrd XLN porosity, some soft white chalk, all clean & barren

Lm- White, VF-FXLN, dense, semi-crumbly, much soft white chalk, vry clean & barren

**BKC 3606' (-1434) E-LOG 3599' (-1427)** Sh- Maroon Gray Lm Green, gritty & earthy, many gummy clumps & white chalk, unconsolidated w/ organics, silty & calcareous, Ss- Drk Gray, shaley/limey loosely cemented Ss, spkld, & well sorted, WK SPOTTTY STN, NSFO, ? ODR (probable carryover) (4-6 pcs)

Lm- Cream Off White, FXLN, sl fsl, unconsolidated & spkld w/ sediment, sctrd XLN porosity, barren

Lm- Cream Tan, FXLN, dense, sl chalky, fsl fragments, unconsolidated, dense XLN porosity, most loosely cemented & crumbly, SCTRDR LT & DRK STN, TR FO, FR SULFURIC ODR (new odor) (several pcs)

**GORHAM SAND 3641' (-1469) E-LOG 3630' (-1458)** Sand/Dolomite- unconsolidated & poorly sorted, round to sub-angular, some friable, some well cemented w/ dolomite cementation, SCTRDR DRK STN, TR-FR SFO, GD SULFURIC ODR (many various pcs), some white sucrosic to sub-sucrosic FXLN poorly-well dev. dolomite, some w/ vis. euhedral rhombs, sctrd micro XLN to sub-vuggy porosity, STN A/A

**ARBUCKLE 3649' (-1477) E-LOG 3638' (-1466)** Dolomite- White Cream Mustard, VF-Med XLN, mostly well dev. sub-sucrosic to sucrosic w/ vis. euhedral rhombs, well cemented, SCTRDR DRK STN, TR-GD SFO, GD SULFURIC ODR (<80% of 3670' sample), SOME FREE FLOATING OIL IN WET CUP

**3662'**- Dolomite- Cream Tan, VF-FXLN, dense, well cemented, mostly consistent XLN porosity throughout, SAT TO SUB-SAT DRK STN, HVY SFO, SOME BLEEDING, GD ODR, HVY FREE FLOATING OIL ON WET CUP (many pcs), some w/ sctrd barren porosity

**3674'**- Dolomite- A/A, some w/ more sctrd barren porosity, some w/ STN A/A & HEAVIER BLEEDING FO, STRNG ODR, HVY FLOATING FREE OIL IN CUP

**3683'**- Dolomite- Cream, VF-FXLN, dense, well cemented, gritty & grainy, dense micro XLN porosity, mostly barren porosity (<80% of tray), several pcs w/ SCTRDR BK STN, NSEQ, FR ODR (probably carryover)

3468.jpg

3476.jpg

3487.jpg

3496.jpg

DST #2 LKC C-D  
3426' - 3469'  
30-45-30-45

160' TOTAL FLUID  
140' GIP

10' GSY OIL  
(10% G, 90% O)

30' MCGO  
(20%G, 40%O, 40%  
M)

60' GOCM  
(5%G, 40%O, 55%  
M)

60' SGOCM  
(5%G, 15%O, 80%  
M)

IFP: 19-66#  
FFP: 69-82#  
SIP: 880-868#

3540.jpg

3560.jpg

3578.jpg

3596.jpg

3610.jpg

3632.jpg

3642.jpg

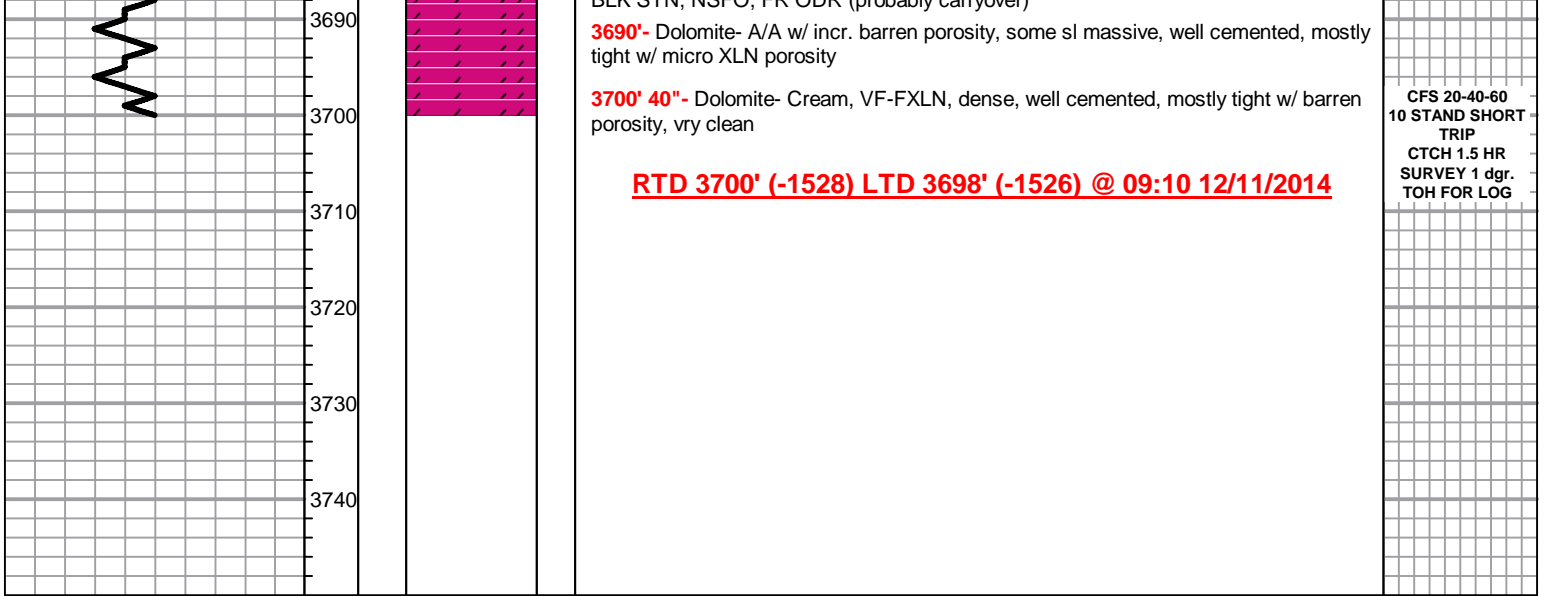
3652.jpg

3662.jpg

3674.jpg

3683.jpg





3118.jpg

A058 1280x1024 2014/12/08 14:08:13 Unit: mm Magnification: 154x 1



3118' x 40







0.5 mm

3326' X 20



0.2 mm

3352' X 60















0.5 mm

3444' X 20



0.5 mm

3462' X 25





0.2 mm

3468' X 30







0.2 mm

3487' x 40







0.2 mm

3540' X







0.2 mm

3578" X 30









0.2 mm

3632' x 35





0.5 mm

3642' x 25









0.5 mm





0.5 mm

3674' x 20





0.5 mm

3683' x 20



## DRILL STEM TEST REPORT

Prepared For: **Jaspar Co.**

PO Box 1120  
Hays KS 67601

ATTN: Jeff Lawler

### **D&R Unit #1**

### **21-6s-20w Rooks,KS**

Start Date: 2014.12.09 @ 05:52:50

End Date: 2014.12.09 @ 12:47:20

Job Ticket #: 60698                      DST #: 1

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

Printed: 2014.12.12 @ 13:55:20





**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

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

**21-6s-20w Rooks, KS**  
**D&R Unit #1**  
 Job Ticket: 60698 **DST#: 1**  
 Test Start: 2014.12.09 @ 05:52:50

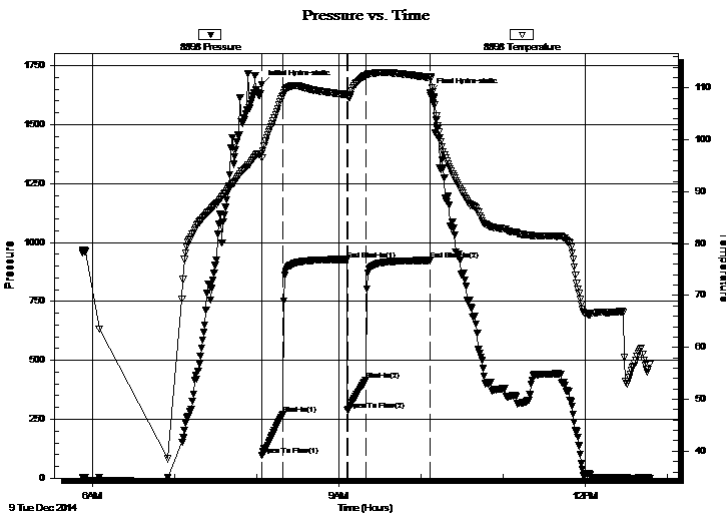
## GENERAL INFORMATION:

Formation: **Toronto - LKC A**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 08:04:00  
 Time Test Ended: 12:47:20  
 Interval: **3367.00 ft (KB) To 3425.00 ft (KB) (TVD)**  
 Total Depth: 3425.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Tate Lang  
 Unit No: 77  
 Reference Elevations: 2172.00 ft (KB)  
 2164.00 ft (CF)  
 KB to GR/CF: 8.00 ft

**Serial #: 8898 Outside**  
 Press@RunDepth: 416.42 psig @ 3369.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.12.09 End Date: 2014.12.09 Last Calib.: 2014.12.09  
 Start Time: 05:52:51 End Time: 12:47:20 Time On Btm: 2014.12.09 @ 08:03:50  
 Time Off Btm: 2014.12.09 @ 10:07:00

TEST COMMENT: 15-B.O.B. in 1 min  
 45-B.O.B. in 9 mins  
 15-B.O.B. in 1 min  
 45-B.O.B. in 9 mins

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1669.78	97.29	Initial Hydro-static
1	96.45	96.56	Open To Flow (1)
16	270.06	108.40	Shut-In(1)
62	927.44	108.71	End Shut-In(1)
63	288.79	108.49	Open To Flow (2)
77	416.42	112.43	Shut-In(2)
123	924.28	111.98	End Shut-In(2)
124	1634.81	112.11	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
180.00	MCGO 10%G 60%O 30%M	1.44
930.00	GO 25%G 75%O	13.05
0.00	990 GIP	0.00

## Gas Rates

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







**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

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

**21-6s-20w Rooks,KS**  
**D&R Unit #1**  
Job Ticket: 60698      **DST#: 1**  
Test Start: 2014.12.09 @ 05:52:50

**Tool Information**

Drill Pipe:	Length: 3260.00 ft	Diameter: 3.80 inches	Volume: 45.73 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	20000.00 lb
Drill Collar:	Length: 119.00 ft	Diameter: 2.25 inches	Volume: 0.59 bbl	Weight to Pull Loose:	50000.00 lb
			<u>Total Volume: 46.32 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	32.00 ft			String Weight: Initial	40000.00 lb
Depth to Top Packer:	3367.00 ft			Final	46000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	58.00 ft				
Tool Length:	78.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

<b>Tool Description</b>	<b>Length (ft)</b>	<b>Serial No.</b>	<b>Position</b>	<b>Depth (ft)</b>	<b>Accum. Lengths</b>
-------------------------	--------------------	-------------------	-----------------	-------------------	-----------------------

Shut In Tool	5.00			3352.00	
Hydraulic tool	5.00			3357.00	
Packer	5.00			3362.00	20.00      Bottom Of Top Packer
Packer	5.00			3367.00	
Stubb	1.00			3368.00	
Perforations	1.00			3369.00	
Recorder	0.00	8897	Inside	3369.00	
Recorder	0.00	8898	Outside	3369.00	
Perforations	20.00			3389.00	
Change Over Sub	1.00			3390.00	
Drill Pipe	31.00			3421.00	
Change Over Sub	1.00			3422.00	
Bullnose	3.00			3425.00	58.00      Bottom Packers & Anchor

**Total Tool Length: 78.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Jaspar Co.

**21-6s-20w Rooks,KS**

PO Box 1120  
Hays KS 67601

**D&R Unit #1**

Job Ticket: 60698

**DST#: 1**

ATTN: Jeff Lawler

Test Start: 2014.12.09 @ 05:52:50

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

37 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 72.00 sec/qt

Cushion Volume:

bbbl

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

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 500.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
180.00	MCGO 10%G 60%O 30%M	1.441
930.00	GO 25%G 75%O	13.045
0.00	990 GIP	0.000

Total Length: 1110.00 ft      Total Volume: 14.486 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

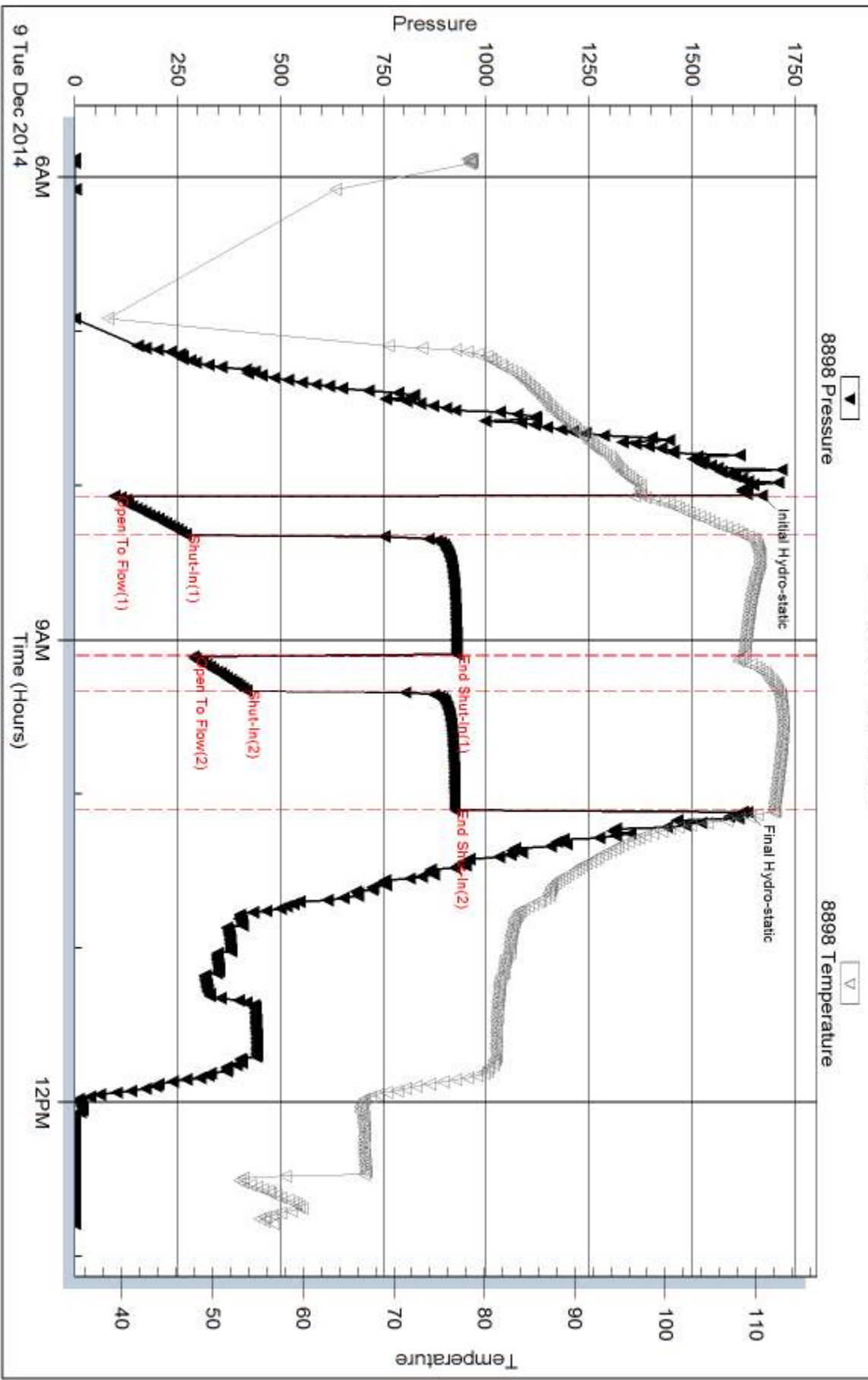
Laboratory Name:

Laboratory Location:

Recovery Comments:



### Pressure vs. Time



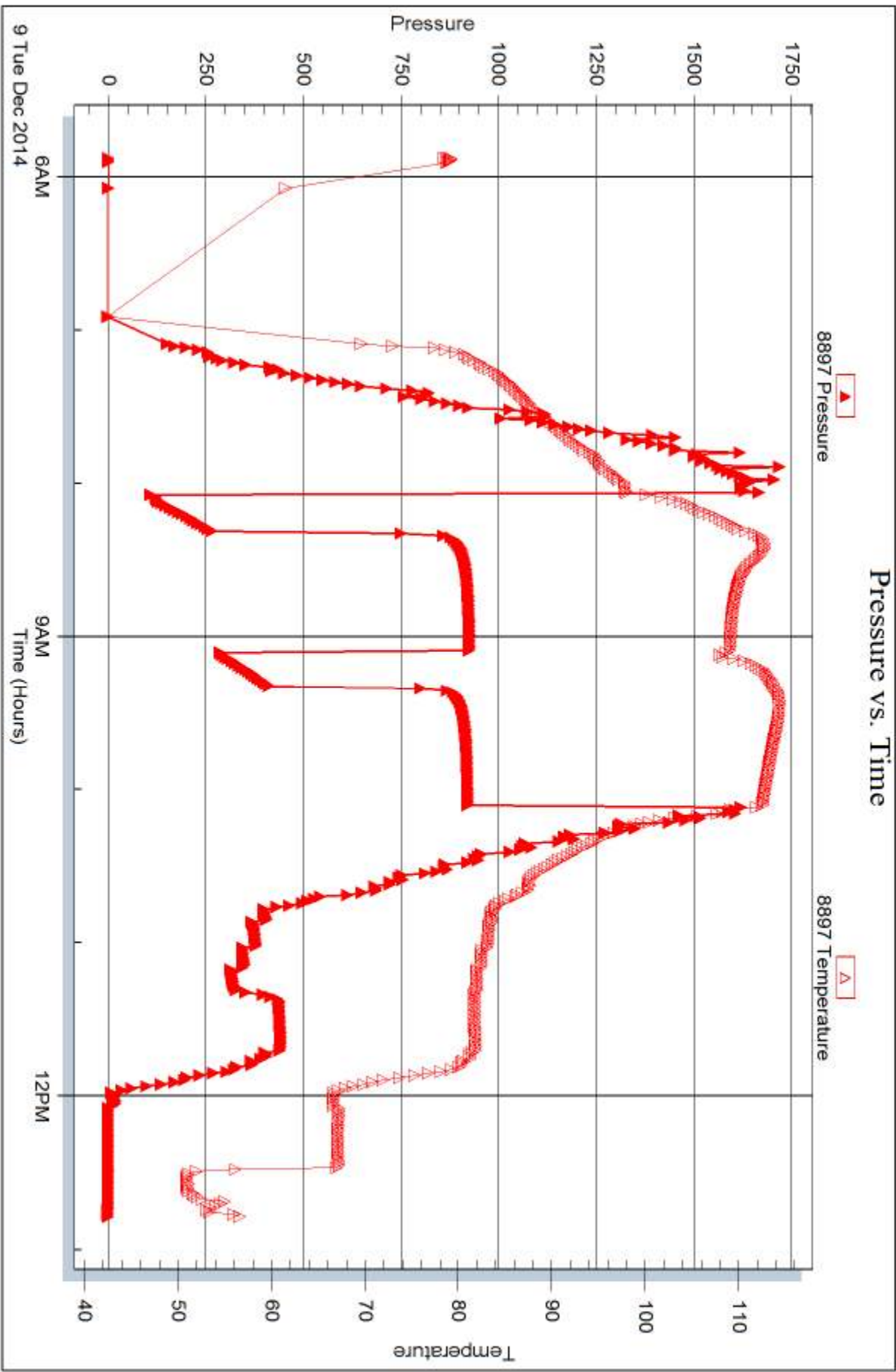
Serial #: 8897

Inside

Jaspar Co.

D&R Unit #1

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 60698

Printed: 2014.12.12 @ 13:55:22





## DRILL STEM TEST REPORT

Prepared For: **Jaspar Co.**

PO Box 1120  
Hays KS 67601

ATTN: Jeff Lawler

### **D&R Unit #1**

### **21-6s-20w Rooks,KS**

Start Date: 2014.12.09 @ 19:29:45

End Date: 2014.12.10 @ 01:55:35

Job Ticket #: 60699                      DST #: 2

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

Printed: 2014.12.12 @ 13:54:48

Jaspar Co. 21-6s-20w Rooks,KS D&R Unit #1 DST # 2 LKC C-D 2014.12.09



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

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

**21-6s-20w Rooks, KS**  
**D&R Unit #1**  
Job Ticket: 60699 **DST#: 2**  
Test Start: 2014.12.09 @ 19:29:45

## GENERAL INFORMATION:

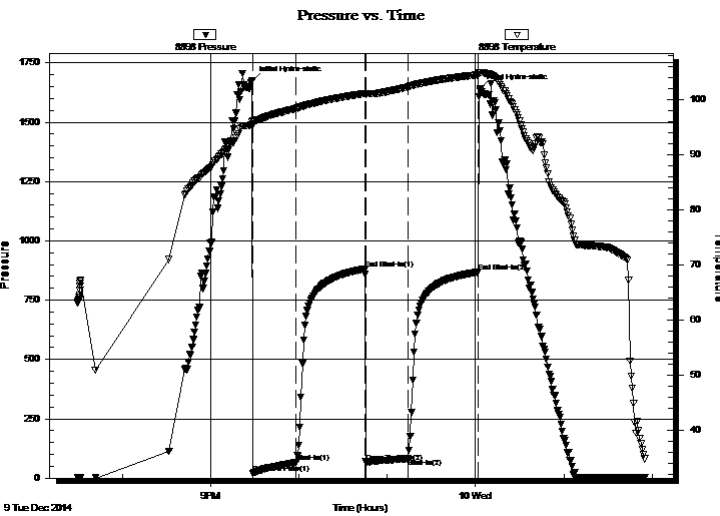
Formation: **LKC C-D**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 21:28:45  
Time Test Ended: 01:55:35  
Interval: **3426.00 ft (KB) To 3469.00 ft (KB) (TVD)**  
Total Depth: 3469.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Good  
Reference Elevations: 2172.00 ft (KB)  
2164.00 ft (CF)  
KB to GR/CF: 8.00 ft  
Test Type: Conventional Bottom Hole (Reset)  
Tester: Tate Lang  
Unit No: 77

## Serial #: 8898

Outside

Press@RunDepth: 81.58 psig @ 3433.00 ft (KB)  
Start Date: 2014.12.09 End Date: 2014.12.10  
Start Time: 19:29:46 End Time: 01:55:35  
Capacity: 8000.00 psig  
Last Calib.: 2014.12.10  
Time On Btm: 2014.12.09 @ 21:28:35  
Time Off Btm: 2014.12.10 @ 00:03:24

TEST COMMENT: 30-B.O.B. in 27 mins  
45-Weak surface blow built to 1/4"  
30-B.O.B. in 21 mins  
45-Weak surface blow built to 1/2"



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1675.10	96.10	Initial Hydro-static
1	18.61	95.26	Open To Flow (1)
30	66.13	98.38	Shut-In(1)
76	880.22	101.10	End Shut-In(1)
77	68.82	100.99	Open To Flow (2)
106	81.58	102.31	Shut-In(2)
154	868.16	104.51	End Shut-In(2)
155	1639.81	104.93	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
60.00	SGOCM 5%G 15%O 80%M	0.30
60.00	GOCM 5%G 40%O 55%M	0.30
30.00	MCGO 20%G 40%O 40%M	0.42
10.00	GO 10%G 90%O	0.14
0.00	140 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 Co.

**21-6s-20w Rooks,KS**

PO Box 1120  
Hays KS 67601

**D&R Unit #1**

Job Ticket: 60699

**DST#: 2**

ATTN: Jeff Lawler

Test Start: 2014.12.09 @ 19:29:45

## Tool Information

Drill Pipe:	Length: 3293.00 ft	Diameter: 3.80 inches	Volume: 46.19 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	20000.00 lb
Drill Collar:	Length: 119.00 ft	Diameter: 2.25 inches	Volume: 0.59 bbl	Weight to Pull Loose:	45000.00 lb
			<u>Total Volume: 46.78 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	6.00 ft			String Weight: Initial	42000.00 lb
Depth to Top Packer:	3426.00 ft			Final	45000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	43.00 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
Shut In Tool	5.00			3411.00	
Hydraulic tool	5.00			3416.00	
Packer	5.00			3421.00	20.00 Bottom Of Top Packer
Packer	5.00			3426.00	
Stubb	1.00			3427.00	
Perforations	6.00			3433.00	
Recorder	0.00	8897	Inside	3433.00	
Recorder	0.00	8898	Outside	3433.00	
Change Over Sub	1.00			3434.00	
Drill Pipe	31.00			3465.00	
Change Over Sub	1.00			3466.00	
Bullnose	3.00			3469.00	43.00 Bottom Packers & Anchor

**Total Tool Length: 63.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

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

**21-6s-20w Rooks,KS**  
**D&R Unit #1**  
Job Ticket: 60699      **DST#: 2**  
Test Start: 2014.12.09 @ 19:29:45

## 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: 72.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.97 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 500.00 ppm			
Filter Cake: 1.00 inches			

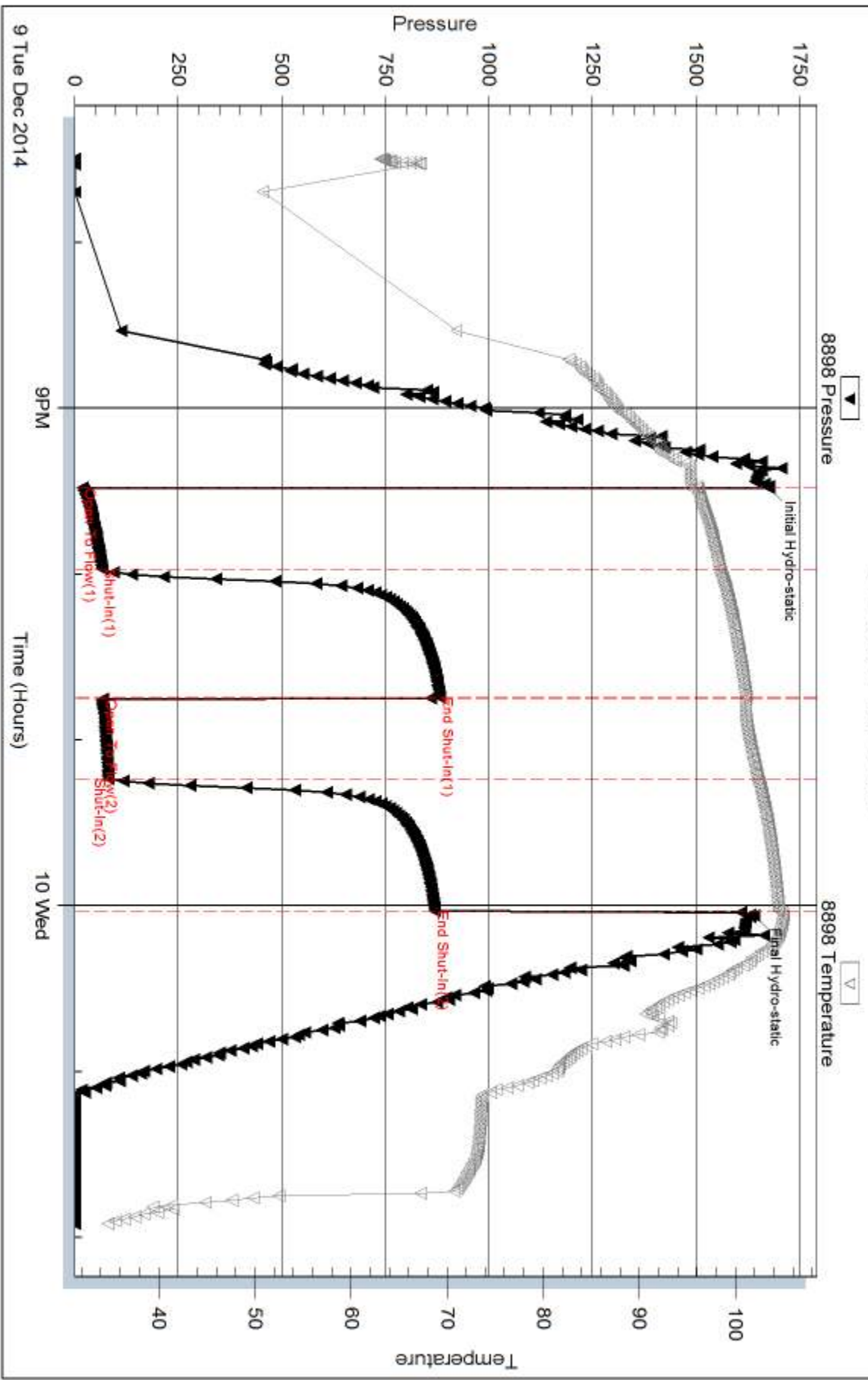
## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
60.00	SGOCM 5%G 15%O 80%M	0.295
60.00	GOCM 5%G 40%O 55%M	0.304
30.00	MCGO 20%G 40%O 40%M	0.421
10.00	GO 10%G 90%O	0.140
0.00	140 GIP	0.000

Total Length: 160.00 ft      Total Volume: 1.160 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:

### Pressure vs. Time









## DRILL STEM TEST REPORT

Prepared For: **Jaspar Co.**

PO Box 1120  
Hays KS 67601

ATTN: Jeff Lawler

### **D&R Unit #1**

### **21-6s-20w Rooks,KS**

Start Date: 2014.12.10 @ 19:50:08

End Date: 2014.12.11 @ 02:42:58

Job Ticket #: 60700                      DST #: 3

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

Printed: 2014.12.12 @ 13:46:52



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

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

**21-6s-20w Rooks, KS**  
**D&R Unit #1**  
 Job Ticket: 60700 **DST#: 3**  
 Test Start: 2014.12.10 @ 19:50:08

## GENERAL INFORMATION:

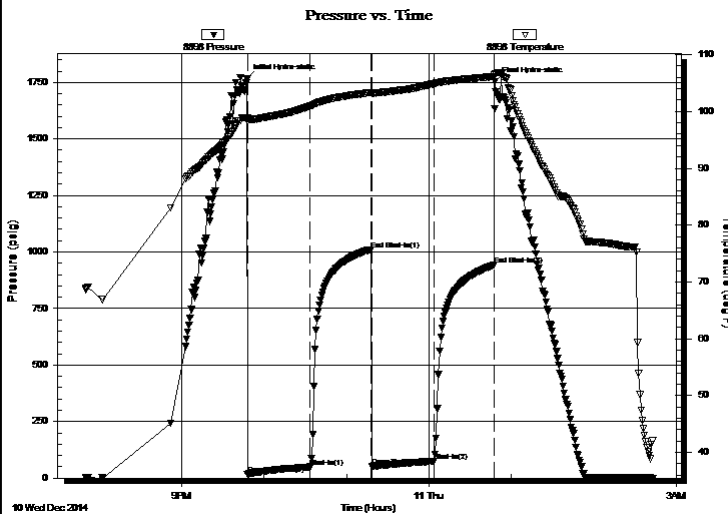
Formation: **LKC J&K**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 21:47:48  
 Time Test Ended: 02:42:58  
 Interval: **3563.00 ft (KB) To 3600.00 ft (KB) (TVD)**  
 Total Depth: 3600.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Tate Lang  
 Unit No: 77  
 Reference Elevations: 2172.00 ft (KB)  
 2164.00 ft (CF)  
 KB to GR/CF: 8.00 ft

## Serial #: 8898

Outside

Press@RunDepth: 73.56 psig @ 3565.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2014.12.10 End Date: 2014.12.11 Last Calib.: 2014.12.11  
 Start Time: 19:50:09 End Time: 02:42:58 Time On Btm: 2014.12.10 @ 21:47:38  
 Time Off Btm: 2014.12.11 @ 00:48:08

TEST COMMENT: 45-Fair blow built to 4"  
 45-Dead no blow back  
 45-Weak surface blow built to 2 1/2"  
 45-Dead no blow back



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1767.40	98.93	Initial Hydro-static
1	18.01	98.29	Open To Flow (1)
46	49.36	100.94	Shut-In(1)
91	1007.82	103.36	End Shut-In(1)
91	51.91	103.15	Open To Flow (2)
136	73.56	104.88	Shut-In(2)
180	942.54	106.14	End Shut-In(2)
181	1753.15	106.47	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
120.00	SMCW 10%W 90%M	0.60

\* Recovery from multiple tests

## Gas Rates

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







**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

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

**21-6s-20w Rooks, KS**  
**D&R Unit #1**  
Job Ticket: 60700      **DST#: 3**  
Test Start: 2014.12.10 @ 19:50:08

**Tool Information**

Drill Pipe:	Length: 3450.00 ft	Diameter: 3.80 inches	Volume: 48.39 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer:	20000.00 lb
Drill Collar:	Length: 119.00 ft	Diameter: 2.25 inches	Volume: 0.59 bbl	Weight to Pull Loose:	60000.00 lb
			<u>Total Volume: 48.98 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	26.00 ft			String Weight: Initial	42000.00 lb
Depth to Top Packer:	3563.00 ft			Final	42000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	37.00 ft				
Tool Length:	57.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			
Tool Comments:					

<b>Tool Description</b>	<b>Length (ft)</b>	<b>Serial No.</b>	<b>Position</b>	<b>Depth (ft)</b>	<b>Accum. Lengths</b>
-------------------------	--------------------	-------------------	-----------------	-------------------	-----------------------

Shut In Tool	5.00			3548.00	
Hydraulic tool	5.00			3553.00	
Packer	5.00			3558.00	20.00      Bottom Of Top Packer
Packer	5.00			3563.00	
Stubb	1.00			3564.00	
Perforations	1.00			3565.00	
Recorder	0.00	8897	Inside	3565.00	
Recorder	0.00	8898	Outside	3565.00	
Perforations	32.00			3597.00	
Bullnose	3.00			3600.00	37.00      Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>57.00</b>				



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Jaspar Co.

**21-6s-20w Rooks,KS**

PO Box 1120  
Hays KS 67601

**D&R Unit #1**

Job Ticket: 60700

**DST#: 3**

ATTN: Jeff Lawler

Test Start: 2014.12.10 @ 19:50:08

## 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: 45.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.59 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 700.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
120.00	SMCW 10%W 90%M	0.599

Total Length: 120.00 ft      Total Volume: 0.599 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

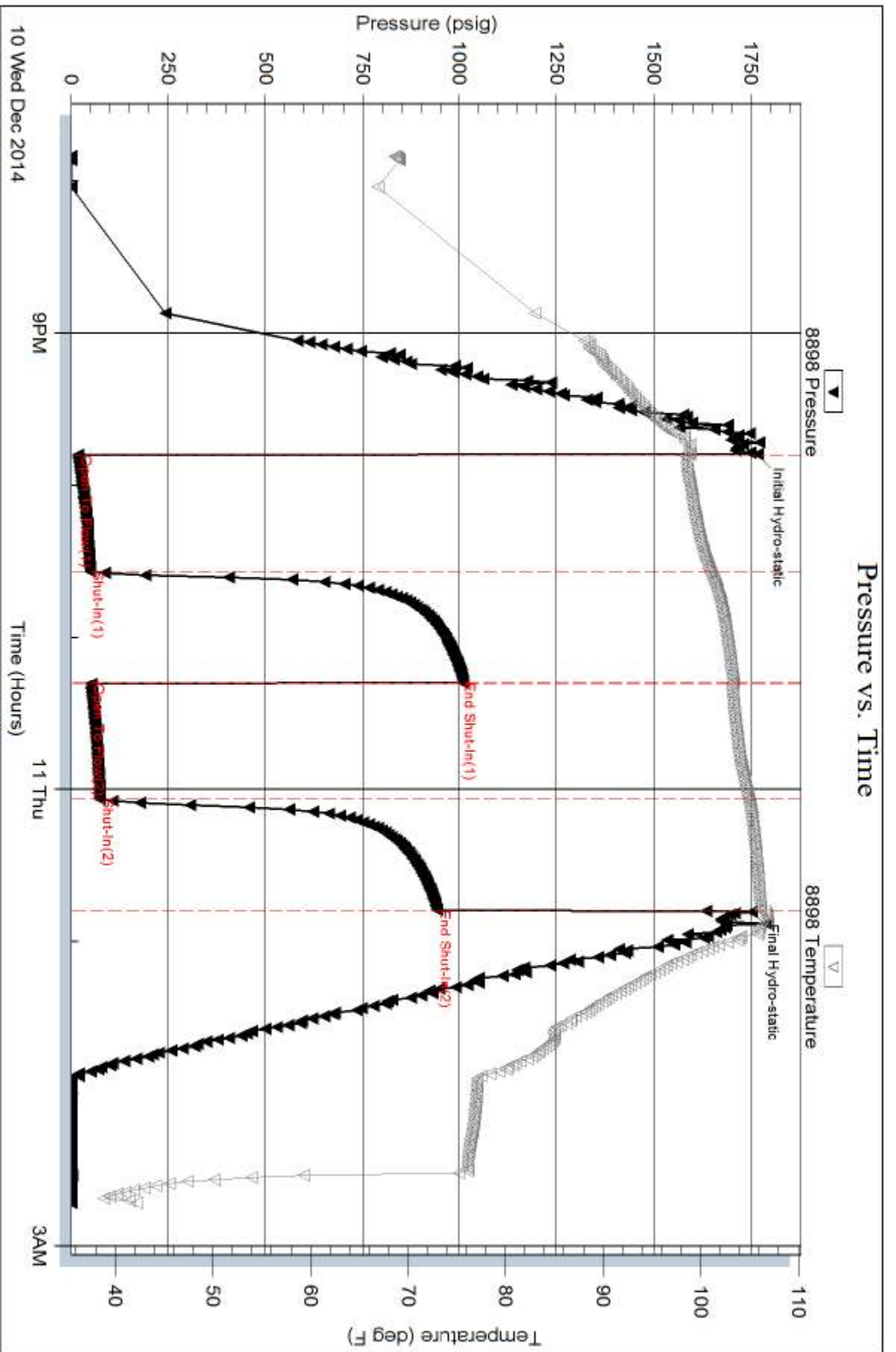
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:





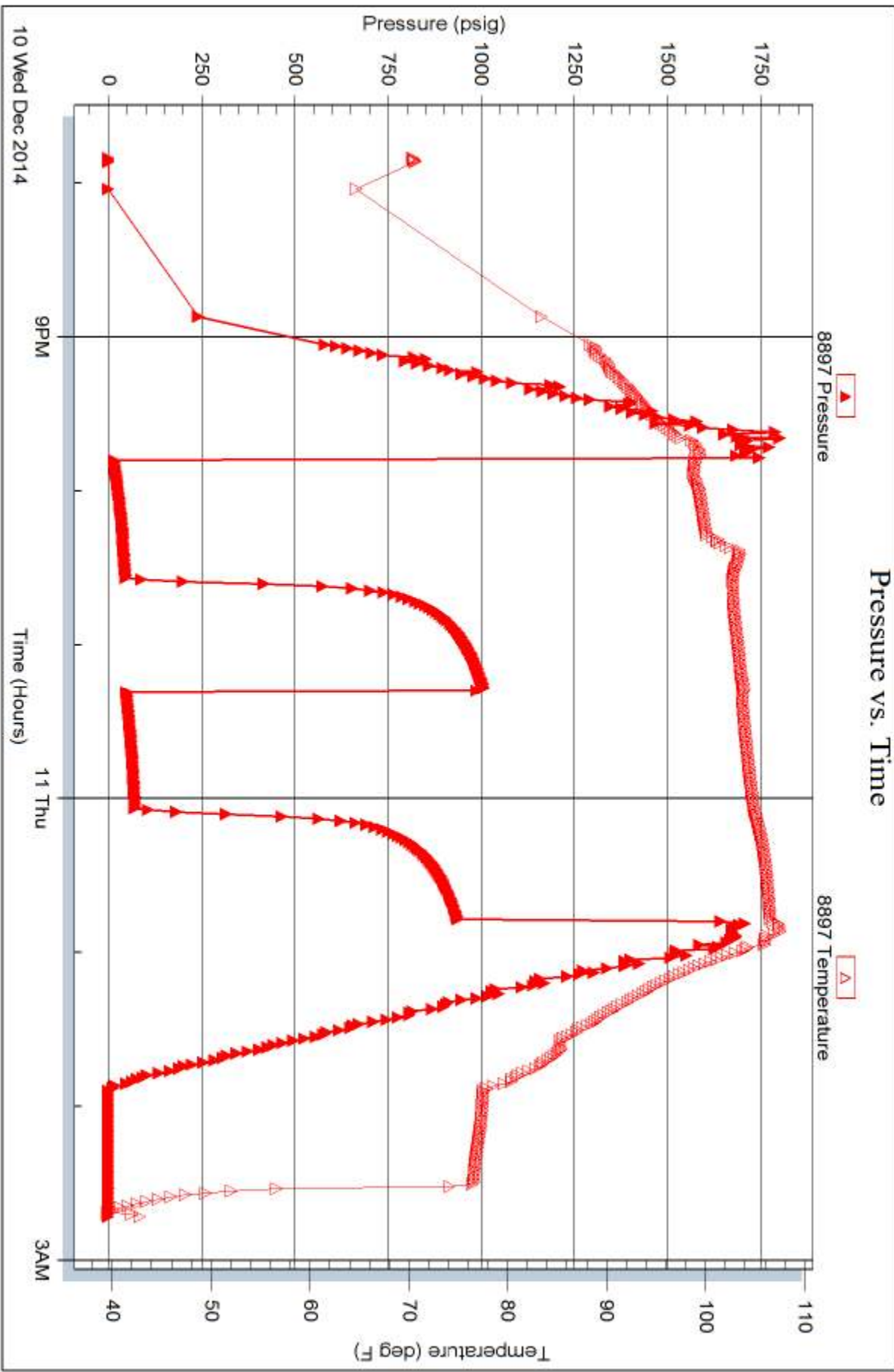
Serial #: 8897

Inside

Jaspar Co.

D&R Unit #1

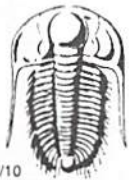
DST Test Number: 3



Tribble Testing, Inc

Ref. No: 60700

Printed: 2014.12.12 @ 13:46:53



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 60698

4/10

Well Name & No. D+R Unit #1 Test No. 1 Date 12-9-14  
 Company Jasper Co. Elevation 2172 KB 2164 GL  
 Address 1681 Limestone Rd S Po Box 1120 Hays KS 67601  
 Co. Rep / Geo. Jeff Lawler Rig WW #12  
 Location: Sec. 21 Twp. 6 Rge. 20 Co. ~~Wichita~~ Roots State KS

Interval Tested 3367 3425 Zone Tested Toronto - LKA  
 Anchor Length 58 Drill Pipe Run 3260 Mud Wt. 8.9  
 Top Packer Depth 3362 Drill Collars Run 119 Vis 72  
 Bottom Packer Depth 3367 Wt. Pipe Run 0 WL 8  
 Total Depth 3425 Chlorides 500 ppm System LCM 2 1/2 #

Blow Description B.O.B. IN 1min  
B.O.B. IN 9min  
B.O.B. IN 1min  
B.O.B. IN 9min

Rec	Feet of	%gas	%oil	%water	%mud
<u>150</u>	<u>MCGO</u>	<u>10</u>	<u>60</u>	<u>30</u>	
<u>930</u>	<u>GO</u>	<u>25</u>	<u>75</u>		
<u>0</u>	<u>990 GIP</u>	<u>100</u>			

Rec Total 1110 BHT 112 Gravity 37 API RW @ \_\_\_\_\_ ° F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 1670  Test 1150 T-On Location 0430  
 (B) First Initial Flow 96  Jars \_\_\_\_\_ T-Started 0552  
 (C) First Final Flow 270  Safety Joint N/C T-Open 08 03  
 (D) Initial Shut-In 927  Circ Sub \_\_\_\_\_ T-Pulled 10 03  
 (E) Second Initial Flow 289  Hourly Standby \_\_\_\_\_ T-Out 12 47  
 (F) Second Final Flow 416  Mileage 124 R/T 192.20 Comments \_\_\_\_\_  
 (G) Final Shut-In 924  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1635  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_

Initial Open 15  Shale Packer 250  Ruined Packer \_\_\_\_\_  
 Initial Shut-In 45  Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Final Flow 15  Extra Recorder \_\_\_\_\_ Sub Total 0  
 Final Shut-In 45  Day Standby \_\_\_\_\_ Total 1592.20  
 Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Sub Total 1592.20

Approved By \_\_\_\_\_ Our Representative Jeff Lawler  
 TriLOBITE TESTING INC. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.





# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 60699

4/10

Well Name & No. DTR Unit #1 Test No. 2 Date 12-9-14  
 Company Jasper Co. Elevation 2172 KB 2164 GL  
 Address 1681 Limestone Rd S, PO Box 1120 Hays KS 67601  
 Co. Rep / Geo. Jeff Lawler Rig WW #12  
 Location: Sec. 21 Twp. 6 Rge. 20 Co. Roots State KS

Interval Tested 3426 3469 Zone Tested LRC-C-D  
 Anchor Length 43 Drill Pipe Run 3293 Mud Wt. 8.9  
 Top Packer Depth 3421 Drill Collars Run 119 Vis 72  
 Bottom Packer Depth 3426 Wt. Pipe Run 0 WL 8.0  
 Total Depth 3469 Chlorides 500 ppm System LCM 2 1/2 #  
 Blow Description B.O.B. IN 27 mins  
Weak surface built to 1/4 in  
B.O.B. FN 21 mins

Rec	Feet of	%gas	%oil	%water	%mud
60	SGOCM	5	15		80
60	GOCM	5	40		55
30	MCGO	20	40		40
10	GO	10	90		
0	140 GIP	100			

Rec Total 160 BHT 104 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ ° F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 1675  Test 1150 T-On Location 1915  
 (B) First Initial Flow 19  Jars \_\_\_\_\_ T-Started 1929  
 (C) First Final Flow 66  Safety Joint \_\_\_\_\_ T-Open 2128  
 (D) Initial Shut-In 880  Circ Sub \_\_\_\_\_ T-Pulled 2358  
 (E) Second Initial Flow 69  Hourly Standby \_\_\_\_\_ T-Out 0155 (12-10-14)  
 (F) Second Final Flow 82  Mileage 192.20 Comments \_\_\_\_\_  
 (G) Final Shut-In 868  Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1640  Straddle \_\_\_\_\_  Ruined Shale Packer \_\_\_\_\_  
 Shale Packer 250  Ruined Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Extra Copies \_\_\_\_\_  
 Initial Open 30  Extra Recorder \_\_\_\_\_ Sub Total 0  
 Initial Shut-In 45  Day Standby \_\_\_\_\_ Total 1592.20  
 Final Flow 30  Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Final Shut-In 45 Sub Total 1592.20

Approved By \_\_\_\_\_ Our Representative [Signature]  
 Trilobite Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.





# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 60700

Well Name & No. D+R Unit #1 Test No. 3 Date 12-10-14  
 Company Jasper Co. Elevation 2172 KB 2164 GL  
 Address 11981 Limestone Rd S PO Box 1120 Hays KS 67601  
 Co. Rep / Geo. Jeff Lawler Rig WW #12  
 Location: Sec. 21 Twp. 6 Rge. 20 Co. Rooks State KS

Interval Tested 3563 3600 Zone Tested LKC JHK  
 Anchor Length 37 Drill Pipe Run 3450 Mud Wt. 9.3  
 Top Packer Depth 3558 Drill Collars Run 119 Vis 45  
 Bottom Packer Depth 3563 Wt. Pipe Run 0 WL 7.6  
 Total Depth 3600 Chlorides 700 ppm System LCM 2#

Blow Description Fair blow built to 4in  
Dead no blow back  
bleeds surface blow built to 2 1/2 in  
Dead no blow back

Rec	Feet of	%gas	%oil	%water	%mud
Rec <u>120</u>	Feet of <u>SWCM / Oil spots</u>			<u>10</u>	<u>90</u>

Rec Total 120 BHT 106 Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ ° F Chlorides \_\_\_\_\_ ppm

(A) Initial Hydrostatic 1767  Test 1150 T-On Location 1845  
 (B) First Initial Flow 18  Jars \_\_\_\_\_ T-Started 1950  
 (C) First Final Flow 49  Safety Joint \_\_\_\_\_ T-Open 2148  
 (D) Initial Shut-In 1608  Circ Sub \_\_\_\_\_ T-Pulled 0048/12-11-14  
 (E) Second Initial Flow 52  Hourly Standby \_\_\_\_\_ T-Out 0248  
 (F) Second Final Flow 74  Mileage X2 384.40 Comments Loaded  
 (G) Final Shut-In 943  Sampler \_\_\_\_\_ 18:30 12-11-14  
 (H) Final Hydrostatic 1753  Straddle \_\_\_\_\_  
 Shale Packer 250  Ruined Shale Packer \_\_\_\_\_  
 Extra Packer \_\_\_\_\_  Ruined Packer \_\_\_\_\_  
 Extra Recorder \_\_\_\_\_ Sub Total 0  
 Day Standby \_\_\_\_\_ Total 1884.40  
 Accessibility \_\_\_\_\_ MP/DST Disc't \_\_\_\_\_  
 Sub Total 1884.40

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

Approved By \_\_\_\_\_ Our Representative [Signature]

Trilobite Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.