JASPAR COMPANY INC.

Scale 1:240 Imperial

Well Name:	GARTH UNIT #1		
Surface Location:	SW NE SE NW Sec. 22 - 6S - 20W		
Bottom Location:			
API:	15-163-24338-00-00		
License Number:	34903		
Spud Date:	4/28/2017	Time:	12:00 AM
Region:	ROOKS COUNTY KANSAS		
Drilling Completed:	5/4/2017	Time:	12:35 PM
Surface Coordinates:	1710' FNL & 1410' FWL		
Bottom Hole Coordinates:			
Ground Elevation:	2169.00ft		
K.B. Elevation:	2174.00ft		
Logged Interval:	3000.00ft	To:	3750.00ft
Total Depth:	3654.00ft		
Formation:	LANSING - KANSAS CITY; ARBUCKLE		
Drilling Fluid Type:	FRESH WATER / CHEMICAL GEL		

OPERATOR

Company:	JASPAR CO.		
Address:	P.O. BOX. 1120 HAYS, KS 67601		
Contact Geologist:	SHANE VEHIGE		
Contact Phone Nbr:	(785) 623-6982		
Well Name:	GARTH UNIT #1		
Location:	SW NE SE NW Sec. 22 - 6S - 20W		
API:	15-163-24338-00-00		
Pool:		Field:	UNNAMED
State:	KANSAS	Country:	USA

SURFACE CO-ORDINATES

Well Type:	Vertical
Longitude:	-99.5412796
Latitude:	39.5198774
N/S Co-ord:	1710' FNL
E/W Co-ord:	1410' FWL

LOGGED BY

BIG CREEK CONSULTING

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

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: 4/28/2017 Time: 12:00 AM
TD Date: 5/4/2017 Time: 12:35 PM
Rig Release: 5/6/2017 Time: 10:45 PM

ELEVATIONS

K.B. Elevation: 2174.00ft Ground Elevation: 2169.00ft
K.B. to Ground: 5.00ft

NOTES

THERE IS A 2' UPHOLE CORRECTION TO CORRELATE DRILLING TIME TO POROSITY LOG

DUE TO ECONOMICAL RECOVERY ON DST #5 IT WAS DECIDED TO RUN 5 1/2" PRODUCTION CASING AND FURTHER EVALUATE THE CONGLOMERATE SAND WITH OPEN HOLE COMPLETION.

RESPECTFULLY SUBMITTED,
JEFF LAWLER

WELL COMPARISON SHEET

					¤ JONES, SHELBORNE, & FARMER ATTABERRY #1 SE SE NW 22-6-20						• BAIRD OIL CO. GARTRELL #2 SW NE SW 22-6-20						• BAIRD OIL CO. GARTRELL #5 SE NE SW 22-6-20						• JASPAR D&R UNIT #1 SE SW SE NE 21-6-20				
	GARTH UNIT #1																									
	KB	2174	GL	2169	KB	2186					KB	2159					KB	2184					KB	2172		
	LOG TOPS		SAMPLE TOPS		LOG		LOG		SMPL.		COMP. CARD		LOG		SMPL.		LOGS		LOG		SMPL.		COMP. CARD		LOG		SMPL.	
FORMATION	DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM	CORR.		CORR.		DEPTH	DATUM	CORR.		CORR.		DEPTH	DATUM	CORR.		CORR.		DEPTH	DATUM	CORR.		CORR.	
ANHYDRITE TOP	1776	398	1776	398	1790	396	+	2	+	2	1761	398	+	0	+	0	1784	400	-	2	-	2	1770	402	-	4	-	4
BASE	1808	366	1810	364							1790	369	-	3	-	5	1812	372	-	6	-	8	1803	369	-	3	-	5
TOPEKA	3176	-1002	3176	-1002							3158	-999	-	3	-	3	3182	-998	-	4	-	4	3164	-992	-	10	-	10
HEEBNER SHALE	3373	-1199	3375	-1201	3397	-1211	+	12	+	10	3358	-1199	+	0	-	2	3383	-1199	+	0	-	2	3363	-1191	-	8	-	10
TORONTO	3396	-1222	3398	-1224	3418	-1232	+	10	+	8	3380	-1221	-	1	-	3	3407	-1223	+	1	-	1	3386	-1214	-	8	-	10
LKC	3410	-1236	3411	-1237	3434	-1248	+	12	+	11	3395	-1236	+	0	-	1	3420	-1236	+	0	-	1	3401	-1229	-	7	-	8
BKC	3610	-1436	3615	-1441							3594	-1435	-	1	-	6	3618	-1434	-	2	-	7	3599	-1427	-	9	-	14
CONGLOMERATE SAND			3650	-1476							3630	-1471			-	5	3652	-1468			-	8	3630	-1458			-	18
ARBUCKLE					3740	-1554					3670	-1511					3670	-1486					3638	-1466				
TOTAL DEPTH	3652	-1478	3654	-1480	3772	-1586	+	108	+	106	3686	-1527	+	49	+	47	3685	-1501	+	23	+	21	3698	-1526	+	48	+	46

DST #1 TORONTO - LKC A 3370' - 3430'

TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Jaspar Co

PO BOX 1120
Hays KS 67601

ATTN: Jeff Lawler

S22-6S-20W Rooks, KS

Garth Unit #1

Job Ticket: 63207 **DST#: 1**

Test Start: 2017.05.02 @ 06:20:00

GENERAL INFORMATION:

Formation: **Toronto-LKC "A"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 07:55:45
Time Test Ended: 12:05:00

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

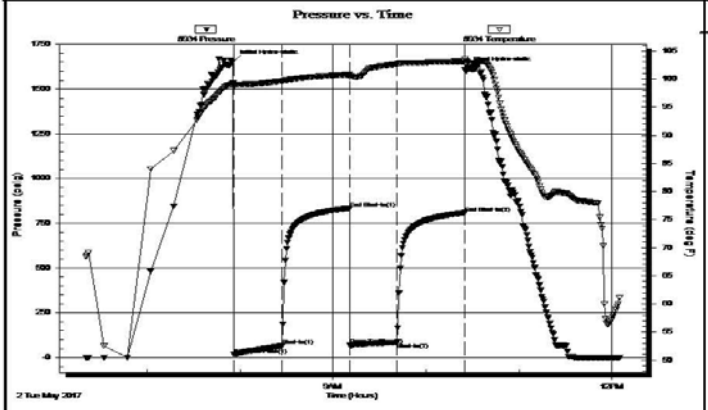
Interval: 3370.00 ft (KB) To 3430.00 ft (KB) (TVD)
Total Depth: 3430.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2174.00 ft (KB)
2169.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8934 **Inside**
Press@RunDepth: 83.70 psig @ 3377.00 ft (KB)
Start Date: 2017.05.02 End Date: 2017.05.02
Start Time: 06:20:15 End Time: 12:05:00

Capacity: 8000.00 psig
Last Calib.: 2017.05.02
Time On Btm: 2017.05.02 @ 07:55:30
Time Off Btm: 2017.05.02 @ 10:27:00

TEST COMMENT: 30-IF-Fair Blow ; Built from a surface to 5"
45-ISI-No Blow Back
30-FF-Weak Blow ; at 3 minutes built from a surface to 3"
45-FSI-No Blow Back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1654.34	99.27	Initial Hydro-static
1	15.03	98.57	Open To Flow (1)
32	63.76	99.61	Shut-In(1)
75	831.17	100.80	End Shut-In(1)
76	68.64	100.34	Open To Flow (2)
106	83.70	102.66	Shut-In(2)
150	808.32	103.11	End Shut-In(2)
152	1619.47	102.93	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
160.00	WM 10%W 90%M	1.14

Gas Rates

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

Trilobite Testing, Inc Ref. No: 63207 Printed: 2017.05.02 @ 19:38:10

DST #2 LKC C - D 3432' - 3476'

TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Jaspar Co

PO BOX 1120
Hays KS 67601

ATTN: Jeff Lawler

S22-6S-20W Rooks, KS

Garth Unit #1

Job Ticket: 63208 **DST#: 2**

Test Start: 2017.05.02 @ 19:44:00

GENERAL INFORMATION:

Formation: **LKC "C-D"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 21:37:15
Time Test Ended: 01:29:00

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

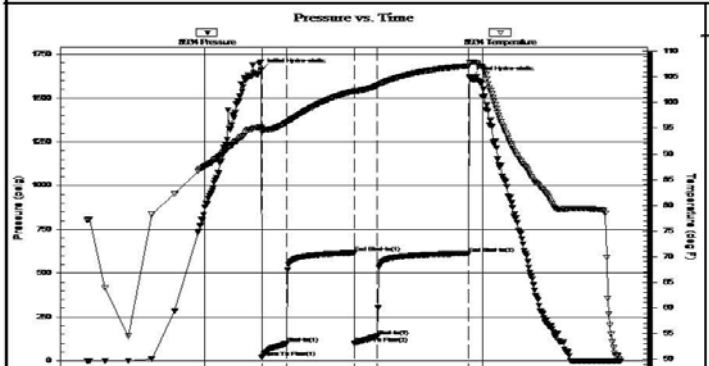
Interval: 3432.00 ft (KB) To 3476.00 ft (KB) (TVD)
Total Depth: 3476.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2174.00 ft (KB)
2169.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8934 **Inside**
Press@RunDepth: 139.22 psig @ 3439.00 ft (KB)
Start Date: 2017.05.02 End Date: 2017.05.03
Start Time: 19:44:15 End Time: 01:29:00

Capacity: 8000.00 psig
Last Calib.: 2017.05.03
Time On Btm: 2017.05.02 @ 21:37:00
Time Off Btm: 2017.05.02 @ 23:51:45

TEST COMMENT: 15-IF-Strong Blow ; Built from 1/2" to BOB in 12 mins
45-ISI-No Blow Back
15-FF-Strong Blow ; Built from surface to 9&1/2"
60-FSI-No Blow Back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1661.69	95.06	Initial Hydro-static
1	18.79	94.39	Open To Flow (1)
16	97.57	96.04	Shut-In(1)
60	615.26	102.26	End Shut-In(1)
61	99.27	102.04	Open To Flow (2)
75	139.22	103.32	Shut-In(2)
134	611.23	107.11	End Shut-In(2)
135	1619.60	107.77	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
270.00	MW 30%M 70%W	2.69

* Recovery from multiple tests

Gas Rates

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

Trilobite Testing, Inc Ref. No: 63208 Printed: 2017.05.03 @ 07:19:15

DST #3 LKC E - F 3476' - 3500'

TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Jaspar Co

PO BOX 1120
Hays KS 67601

ATTN: Jeff Lawler

S22-6S-20W Rooks, KS

Garth Unit #1

Job Ticket: 63209 **DST#: 3**

Test Start: 2017.05.03 @ 07:44:00

GENERAL INFORMATION:

Formation: **LKC "E-F"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 09:35:45
Time Test Ended: 13:23:15

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

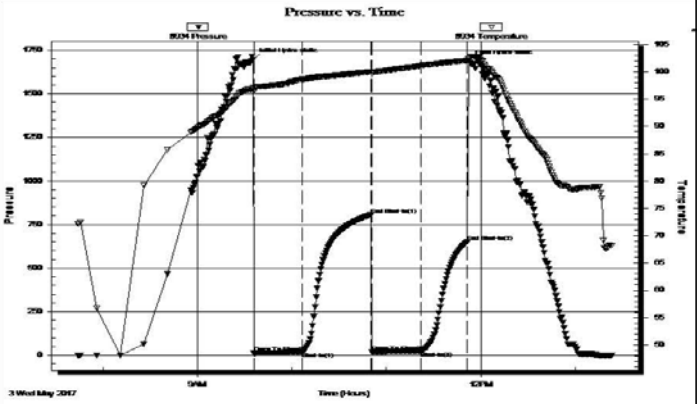
Interval: 3476.00 ft (KB) To 3500.00 ft (KB) (TVD)
Total Depth: 3500.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2174.00 ft (KB)
2169.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8934 **Outside**
Press@RunDepth: 23.44 psig @ 3477.00 ft (KB)
Start Date: 2017.05.03 End Date: 2017.05.03
Start Time: 07:44:15 End Time: 13:23:15

Capacity: 8000.00 psig
Last Calib.: 2017.05.03
Time On Btm: 2017.05.03 @ 09:35:30
Time Off Btm: 2017.05.03 @ 11:52:15

TEST COMMENT: 30-IF-Very Weak Blow ; Built from a surface to 1"
45-ISI-No Blow Back
30-FF-No Blow
30-FSI-No Blow Back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1696.74	97.07	Initial Hydro-static
1	11.79	96.44	Open To Flow (1)
31	19.64	98.65	Shut-In(1)
75	805.02	99.99	End Shut-In(1)
76	18.91	99.66	Open To Flow (2)
107	23.44	101.13	Shut-In(2)
136	651.47	102.07	End Shut-In(2)
137	1690.07	102.45	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
20.00	OCM 5% O 95%M	0.10

* Recovery from multiple tests

Gas Rates

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

Trilobite Testing, Inc Ref. No: 63209 Printed: 2017.05.03 @ 15:24:35

DST #4 LKC H - I 3524' - 3572'

TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Jaspar Co

PO BOX 1120
Hays KS 67601

ATTN: Jeff Lawler

S22-6S-20W Rooks, KS

Garth Unit #1

Job Ticket: 63210 **DST#: 4**

Test Start: 2017.05.03 @ 22:27:00

GENERAL INFORMATION:

Formation: **LKC "H-I"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 00:01:45
Time Test Ended: 04:13:00

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

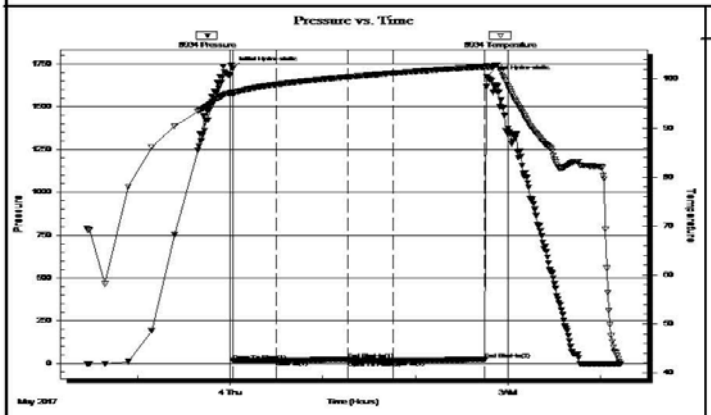
Interval: 3524.00 ft (KB) To 3572.00 ft (KB) (TVD)
Total Depth: 3572.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2174.00 ft (KB)
2169.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8934 **Inside**
Press@RunDepth: 16.79 psig @ 3535.00 ft (KB)
Start Date: 2017.05.03 End Date: 2017.05.04
Start Time: 22:27:15 End Time: 04:13:00

Capacity: 8000.00 psig
Last Calib.: 2017.05.04
Time On Btm: 2017.05.04 @ 00:01:30
Time Off Btm: 2017.05.04 @ 02:46:00

TEST COMMENT: 30-IF-Very Weak Blow ; Built from a surface to 1/2"
45-ISI-No Blow Back
30-FF-No Blow
60-FSI-No Blow Back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1724.74	97.39	Initial Hydro-static
1	15.73	96.85	Open To Flow (1)
29	16.50	98.92	Shut-In(1)
75	24.18	100.45	End Shut-In(1)
75	15.79	100.46	Open To Flow (2)
104	16.79	101.22	Shut-In(2)
164	23.09	102.57	End Shut-In(2)
165	1676.58	102.59	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud w/scum oil 100% M	0.02

* Recovery from multiple tests

Gas Rates

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

Trilobite Testing, Inc Ref. No: 63210 Printed: 2017.05.04 @ 07:19:43

ROCK TYPES

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

ACCESSORIES

MINERAL
Sandy

STRINGER
Sandstone

OTHER SYMBOLS

MISC

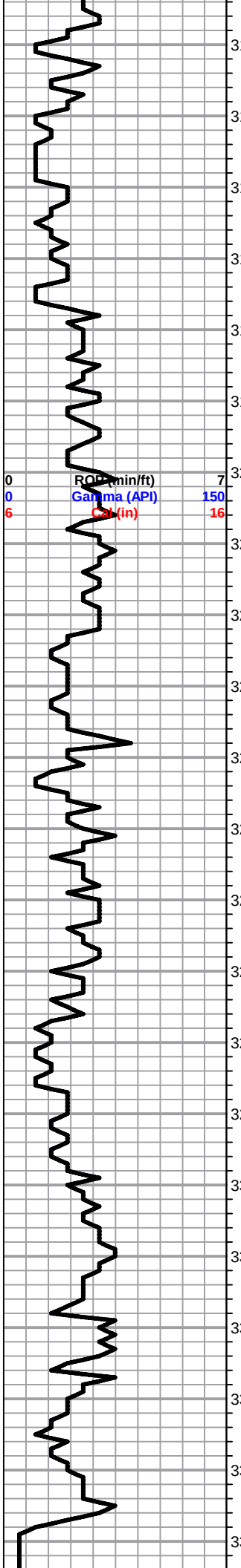
- Daily Report
- Digital Photo
- Document
- Folder
- Link
- Vertical Log File
- Horizontal Log File
- Core Log File
- Drill Cuttings Rpt

DST

- DST Int
- DST alt

Printed by GEOstrip VC Striplog version 4.0.8.15 (www.grsi.ca)

Curve Track #1 ROP (min/ft) Gamma (API) Cal (in) 1:240 Imperial	Depth | Intervals Cored Interval DST Interval	DST	Lithology	Oil Show	Geological Descriptions	Curve Track #3 1:240 Imperial
0 ROP (min/ft) 7 0 Gamma (API) 150 6 Cal (in) 16	3010 3020 3030 3040 3050 3060 3070 3080 3090 3100 3110 3120 3130				**1' DRILL TIME THROUGH ANHYDRITE FROM 1760' - 1820'** **1' DRILL TIME FROM 3050' - RTD** **10' WET/DRY SAMPLES FROM 3100' - RTD** **GEOLOGICAL SUPERVISION BY JEFF LAWLER FROM 3100' - RTD** **8 5/8" SURFACE PIPE SET @ 218' SURVEY 3/4 dgr.** **ANHYDRITE TOP 1776' (+398) E-LOG 1776' (+398)** **ANHYDRITE BASE 1810' (+364) E-LOG 1808' (+366)** Lm- Cream Tan, VF-FXLN, mix of dense tight mud supported matrix w/ no vis. porosity & heavily fsl, FXLN, dense XLN porosity, massive, barren, some soft white chalk & trashy gray FXLN w/ fsl fragments Sh- Gray Maroon White, sl dense & waxy, argillaceous clumps & soft white chalk Lm- Cream Off White, FXLN, fsl w/ oolites & fusulinids, mod. dev., some semi-granular, sctrd fn ppt & dense XLN porosity, barren Lm- Drk Gray, VF-FXLN Vf Grn, tight trashy high-energy mix, some mud supported matrix, some w/ fsl fragments, all w/ poor vis. porosity Ss/Sh- Frosted, Fn Grn, sub-rounded mod to loosely cemented & semi-friable, spkld w/ glauconite, consistent intergranular porosity, mostly barren, 2-4 PCS W/ DRK LIVE OIL STAIN & TR OIL UPON CRUSH, LT HALO FLOR., Sh- Maroon Gray, gritty &	



earthy

Sh- Gray, argillaceous clumps

Lm- Drk Gray, FXLN, trashy high-energy, poor vis. porosity, thin lens

Lm/Sh- Interbedded thin Lm & Sh beds, Lm- Tan Cream, mix of sharp cherty like Ls w/o vis. porosity, granular cream arenaceous Ls, loose & crumbly, intergranular porosity

TOPEKA 3176' (-1002) E-LOG 3176' (-1002) Lm- Cream Off White, FXLN, loosely cemented, sl fsl, poor vis. porosity, some chalky in part

Lm- Cream Tan, VFXLN Vf Grn, dense, tight, min. vis. porosity, chalky mud supported matrix

Lm- Cream Tan, Vf Grn, loosely cemented mud supported matrix, chalky, some soft white chalk

Lm- Buff Drk Gray, FXLN, well cemented high-energy trashy mix, fsl, dense XLN porosity

Lm- Gray, Fn Grn, well cemented, arenaceous Ls

Lm/Chert- Cream, mix of heavily fsl & oolitic Ls w/ sctrd-dense XLN porosity, gritty dolomitic Ls w/ consistent microXLN porosity, sharp cherty Ls w/o vis. porosity, & soft white chalk

Lm- Gray, FXLN, dense, well cemented, fsl, sctrd-dense XLN porosity, barren

Lm- Cream, VF-FXLN, mix of tight VFXLN w/ min. vis. porosity & fsl, FXLN w/ sctrd-dense XLN porosity, all barren, few sl chalky in part

Sh- Black Gray Maroon Green, fissile & carbonaceous, silty & waxy, gritty & earthy, many argillaceous clumps

Lm- Off White Cream, VF-FXLN, mix of tight sl fsl w/ dense XLN porosity & loosely cemented & semi-friable arenaceous Ls w/ consitent intergranular porosity, 2-4 PCS W/ DRK SCTRD STN, NSFO, NO ODR, much soft white chalk

3300.jpg

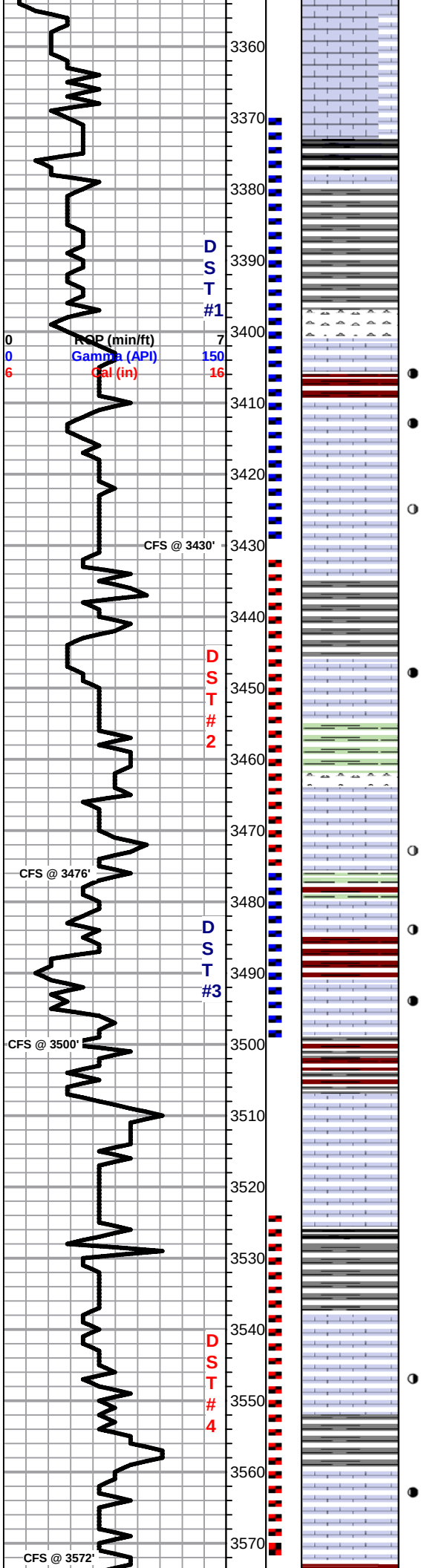
Sh- Green Maroon, sl waxy, gummy wash

Lm- Cream, FXLN, dense, well cemented, fsl w/ fusuilinds, sctrd XLN porosity, barren

Lm- Cream Off White, FXLN, fsl & sl oolitic, sctrd ppt interoolite & XLN porosity, SCTRD DRK STN, NSFO, WK ODR, abundant soft white chalk

3330.jpg

Lm- Cream Off White, mix of loosely cemented arenaceous Ls, intergranular porosity, sl fsl well cemented FXLN Lm w/ sctrd XLN porosity, & much soft white chalk



Lm- Cream Buff, FXLN, dense, well cemented, sl fsl, poorly dev. w/ sctrd XLN porosity

SHORT TRIP SURVEY 1dgr. STRAP +0.76'

DST #1 TORONOT-LKC A 3370' - 3430' 30-45-30-45

160' WM (10%W)

IFP: 15-63#
FFP: 68-83#
SIP: 831-808#
BHT: 103 dgr

HEEBNER 3375' (-1201) E-LOG 3373' (-1199) Sh- Black, fissile & carbonaceous

TORONTO 3398' (-1224) E-LOG 3396' (-1222) Lm/Chert- Gray & White sharp fresh bedded chert on top, gradating into a fsl, sl oolitic w/ crinoids, mod. dev. w/ sctrd ppt & XLN porosity, sctrd secondary reXLN, SCTRD DRK STN, FR SHEEN, SL TR FO, FR ODR

3405.jpg

LKC 3411' (-1237) E-LOG 3410' (-1236) Lm- White Off White, VF-MED XLN, mix of well dev. oolitic & fsl w/ sctrd-consistent ppt inter fsl porosity & secondary reXLN porosity, LT SCTRD STN, HVY SHEEN, NSFO, GD ODR, & mostly tight, well cemented w/ poor vis. porosity, some soft white chalk

3415.jpg

Lm- Off White, VFXLN, dense cherty Ls w/ sctrd XLN porosity, SCTRD LT STN, NSFO, FR ODR

DST #2 LKC C-D 3432' - 3476' 15-45-15-60

270' MW (70%W)

IFP: 18-97#
FFP: 99-139#
SIP: 615-611#

Sh- Gray Maroon, dense sl waxy slivers, gritty & earthy

Lm- Off White, VF-Med XLN, mix of well dev. oolitic clusters w/ consistent interoolite ppt porosity & secondary reXLN porosity, LT SCTRD STN, WK SHEEN, NSFO, MOD. ODR,, & sl fsl w/ sctrd XLN porosity, barren, & soft sl chalky mud supported matrix, barren

3450.jpg

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

Chert- Lt Gray, fresh bedded fsl sharp chert, cryptoXLN

Lm- Off White, FXLN, fsl, mod. dev. w/ sctrd fn ppt & XLN porosity, LT SCTRD STN, NSFO, LT SHEEN, WK ODR

3470.jpg

Sh- Green Maroon, silty & calcareous, argillaceous clumps

Lm- Off White, FXLN, oolitic, sctrd dev. w/ sctrd fn ppt interoolite & XLN porosity, some loosely cemented, LT SCTRD STN, FR SHEEN, SL TR FO, GD SL SULPHURIC ODR (WATER??)

3485.jpg

Lm- Tan, VF-FXLN, vry dense & well cemented, sl oolitic w/ some loose crinoids, porosity varies from min. vis.- sctrdn fn ppt interoolite & secondary reXLN porosity, DRK SCTRD STN, FR SHEEN, TR FO UPON CRUSH, GD ODR

3495.jpg

DST #3 LKC E-F 3476' - 3500' 30-45-30-30

20' OCM (5%O)

IFP: 11-19#
FFP: 18-23#
SIP: 805-651#
HYD: 1696-1690#

Lm- White Off White, VF-FXLN Vf Grn, dense tight mix, well to loosely cemented & crumbly mud supported matrix, all vry clean & barren

Lm- Lt Gray/Mint Green, VFXLN Vf Grn, dense tight mix, mostly well cemented, mix of XLN & mud supported matrix, all clean & barren

DST #4 LKC H - I 3524' - 3572' 30-45-30-60

5' MUD w/ OIL SCUM

IFP: 15-16#
FFP: 15-16#
SIP: 24-23#
HYD: 1724-1676#

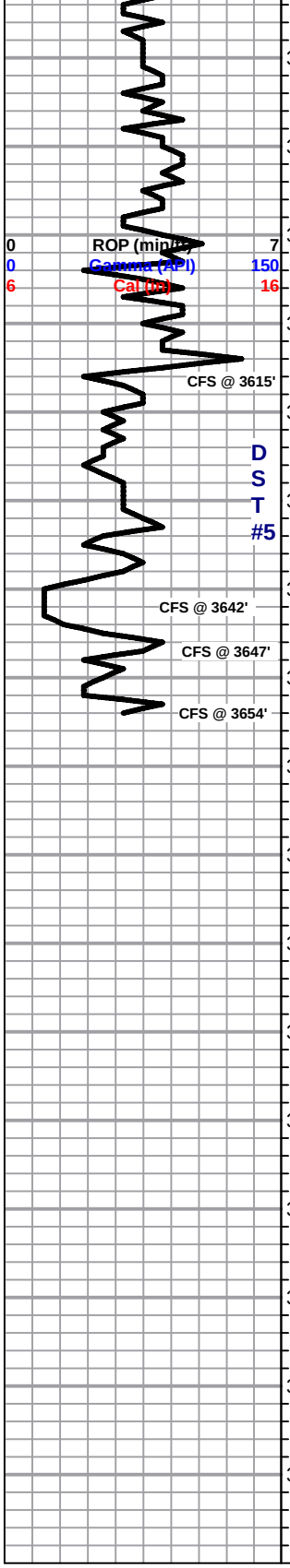
Sh- Black Gray Green, fissile & carbonaceous, argillaceous clumps, silty & calcareous

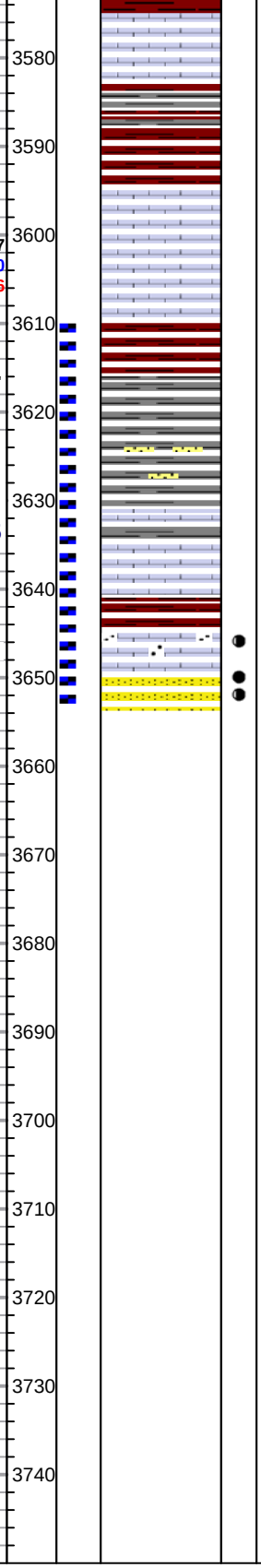
Lm- Cream Off White, VF-FXLN, sl fsl, well cemented, sctrd XLN porosity, some sl chalky in part, LT SCTRD STN, TR FO, WK ODR

3545.jpg

Lm- Off White, FXLN, fsl & oolitic, sctrd fn ppt interoolite & XLN porosity, LT SCTRD STN, 1 PC TR FO W/ GSY BUBBLES, NO ODR

3562.jpg





Lm- Cream Off White, VF-FXLN, dense, well cemented, tight, poorly dev. w/ min. vis. porosity, sl chalky in part, some soft white chalk, clean & barren

Sh- Maroon Gray, gritty & earthy, semi-waxy

Lm- Tan, VF-FXLN, dense, fsl w/ fusulinids, poorly dev. w/ sctrd micro XLN & secondary reXLN porosity, clean & barren

BKC 3615' (-1441) E-LOG 3610' (-1436) Sh- Maroon Gray Green, gritty & earthy, argillaceous clumps, silty & calcareous, sl arenaceous

Sh- Gray, abundant argillaceous clumps & sandy shale

Sh- A/A w/ abundant argillaceous maroon clumps & shaley Ss/sandy shale

3642' 20"- Lm- White, FXLN, loosely cemented & crumbly, sl oolitic, some sl chalky in part, barren, abundant shale A/A, sl influx in shaley Ss
40'- Lm- A/A, influx of gritty & earthy maroon Sh
60"- Sh- influx of gritty & earthy maroon sh
3647' 20"- Lm- White, FXLN, sl fsl, oolitic w/ sctrd fn ppt interoolite porosity, barren
40"- Lm- White, FXLN, A/A, more dev. w/ sctrd ppt & XLN porosity, SCTRD DRK STN, FR SFO, GD SULPHURIC ODR, some sl chalky in part
60"- Lm- A/A w/ sub-rounded med qtz inclusions, STN & ODR A/A

CONGLOMERATE SAND 3650' (-1476)

3654' 20"- Ss- Clear Frosted, Fn-Med Grn, sub-rounded, moderate sorting & consolidated, cementation varying from friable to mod. Ca cementation, DRK STN, FR SFO, GD ODR
40"- Ss- A/A w/ white varying degree of dolomitic cementation, DRK STN, FR SFO, GD ODR

RTD 3654' (-1480) LTD 3652' (-1478) @ 12:35 5/4/2017

3647-40.jpg
3654-20.jpg
3654-40.jpg

DST #5
CONGL. SAND
3610' - 3654'
30-45-30-60

240' TF
120' OCWM
(10%O, 25%W, 65%M)
80' OCM
(30%O, 70%M)
20' MCO
(80%O, 20%M)
20' SMCO
(95%O, 5%M)

Gr: 27 API

IFP: 32-81#
FFP: 92-11#
SIP: 1056-1057#
HYD:1772-1727#
BHT: 109 dgr.

DST 5.jpg

3300.jpg

3300' x 30

3330.jpg

3330' x 20

3405.jpg

3405' X 30

3415.jpg

3414' X 30

3450.jpg

3450' x 25

3470.jpg

3470' x 25

3485.jpg

3485' X 20

3495.jpg

3495' X 20

3545.jpg

3545' X 20

3562.jpg

3647-40.jpg

3654-20.jpg

3654' 20" X 20

3654-40.jpg

3654' 40" X 25

DST 5.jpg

TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Jaspar Co

PO BOX 1120
Hays KS 67601

ATTN: Jeff Lawler

S22-6S-20W Rooks, KS

Garth Unit #1

Job Ticket: 63207 **DST#: 5**

Test Start: 2017.05.04 @ 18:03:35

GENERAL INFORMATION:

Formation: **Conglomerate**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 19:56:50
Time Test Ended: 00:46:05

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

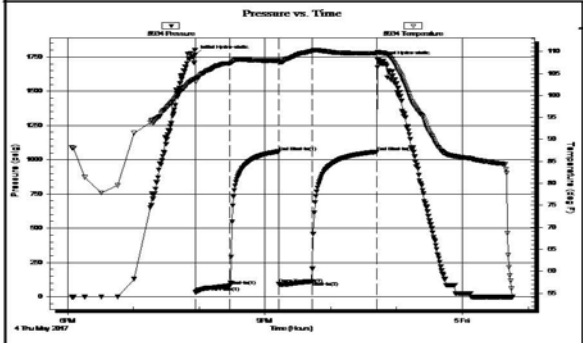
Interval: 3610.00 ft (KB) To 3654.00 ft (KB) (TVD)
Total Depth: 3654.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2174.00 ft (KB)
2169.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8934 **Inside**
Press@RunDepth: 111.70 psig @ 3617.00 ft (KB)
Start Date: 2017.05.04 End Date: 2017.05.05
Start Time: 18:03:35 End Time: 00:46:05

Capacity: 8000.00 psig
Last Calib.: 2017.05.04
Time On Btm: 2017.05.04 @ 19:56:20
Time Off Btm: 2017.05.04 @ 22:42:50

TEST COMMENT: 30 IFP - BOB in 20 min
45 ISI - Weak surface blow back built to 1/4" Died in 20 min
30 FFP - BOB in 23 min
60 FSI - Surface blow back built to 1 1/4" died back to 1/2"



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1768.06	103.82	Initial Hydro-static
1	32.30	103.14	Open To Flow (1)
32	81.98	107.30	Shut-In(1)
76	1056.55	107.95	End Shut-In(1)
77	92.36	107.42	Open To Flow (2)
107	111.70	110.01	Shut-In(2)
166	1057.52	109.60	End Shut-In(2)
167	1727.71	109.90	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
120.00	OCWM 10%O 25%W 65%M	0.59
80.00	OCM 30%O 70%M	1.11
20.00	MCO 80%O 20%M	0.28
20.00	SMCO 95%O 5%M	0.28

* Recovery from multiple tests

Gas Rates

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