Scale 1:240 Imperial

Well Name:	ROY #1		
Surface Location:	N2 SW NW NW Sec. 8 - 7S - 20W		
Bottom Location:			
API:	15-163-24197		
License Number:	34903		
Spud Date:	4/4/2014	Time:	1:15 PM
Region:	ROOKS COUNTY		
Drilling Completed:	4/11/2014	Time:	11:11 AM
Surface Coordinates:	700' FNL & 330' FWL		
Bottom Hole Coordinates:			
Ground Elevation:	2162.00ft		
K.B. Elevation:	2167.00ft		
Logged Interval:	3050.00ft	To:	3720.00ft
Total Depth:	3720.00ft		
Formation:	LANSING - KANSAS CITY, ARBUCKLE		
Drilling Fluid Type:	FRESH WATER / CHEMICAL GEL		

OPERATOR

Company:	JASPAR COMPANY, INC.		
Address:	1681 LIMESTONE ROAD SOUTH P.O. BOX 1120 HAYS, KS 67601		
Contact Geologist:	SHANE VEHIGE		
Contact Phone Nbr:	(785) 623-6982		
Well Name:	ROY #1		
Location:	N2 SW NW NW Sec. 8 - 7S - 20W	API:	15-163-24197
Pool:		Field:	ROY
State:	KANSAS	Country:	USA

SURFACE CO-ORDINATES

Well Type:	Vertical		
Longitude:	-99.5827640	Latitude:	39.4646464
N/S Co-ord:	700' FNL		
E/W Co-ord:	330' FWL		

LOGGED BY

Company:	BIG CREEK CONSULTING, INC.		
Address:	1909 MAPLE ELLIS, KS 67637		
Phone Nbr:	(785) 259-3737		
Logged By:	Geologist	Name:	JEFF LAWLER

CONTRACTOR

Contractor:	WW DRILLING, LLC		
Rig #:	6		
Rig Type:	MUD ROTARY		
Spud Date:	4/4/2014	Time:	1:15 PM
TD Date:	4/11/2014	Time:	11:11 AM
Rig Release:	4/12/2014	Time:	9:15 PM

ELEVATIONS

K.B. Elevation:	2167.00ft	Ground Elevation:	2162.00ft

K.B. to Ground: 5.00ft

NOTES

DUE TO ECONOMICAL RECOVERY ON DST #5 & #8 DECISION WAS MADE TO RUN 5 1/2" PRODUCTION CASING AND FUTHER EVALUATE ZONES WITH PERFORMATION. THERE ARE ALSO ARBUCKLE INTERVALS THAT SHOULD BE TESTED BEFORE CONVERTING TO A SALT WATER DISPOSAL OR INJECTION WELL.

RESPECTFULLY SUBMITTED,
JEFF LAWLER

WELL COMPARISON SHEET

	ROY #1				BAIRD OIL COMPANY ROY-FISCHLI UNIT #1-8 NE NW NE NW 8-7-20						CLINTON OIL CO. CECIL ROY #1 SW NE NW 8-7-20						ALCONA OIL COMPANY LOEFFLER #1 NE SW NE 7-7-20						N.B. COMPANY LOEFFLER # B-2 SW SE SE 6-7-20					
	KB	2167	GL	2162	KB	2211					KB	2187					KB	2156					KB	2199				
	LOG TOPS		SAMPLE TOPS		LOG		LOG		SMPL.		COMP. CARD		LOG		SMPL.		COMP. CARD		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	1749	418	1749	418	1789	422	-	4	-	4	1756	431	-	13	-	13	1740	416	+	2	+	2	1797	402	+	16	+	16
BASE	1780	387	1780	387	1821	390	-	3	-	3							1770	386	+	1	+	1	1810	389	-	2	-	2
TOPEKA	3144	-977	3143	-976	3183	-972	-	5	-	4	3172	-985	+	8	+	9	3137	-981	+	4	+	5	3186	-987	+	10	+	11
HEEBNER SHALE	3352	-1185	3352	-1185	3392	-1181	-	4	-	4	3377	-1190	+	5	+	5	3349	-1193	+	8	+	8	3389	-1190	+	5	+	5
TORONTO	3375	-1208	3379	-1212	3414	-1203	-	5	-	9	3401	-1214	+	6	+	2	3372	-1216	+	8	+	4	3410	-1211	+	3	-	1
LKC	3390	-1223	3393	-1226	3429	-1218	-	5	-	8	3416	-1229	+	6	+	3	3388	-1232	+	9	+	6	3424	-1225	+	2	-	1
BKC	3588	-1421	3588	-1421	3622	-1411	-	10	-	10	3614	-1427	+	6	+	6	3582	-1426	+	5	+	5	3622	-1423	+	2	+	2
CHERTY CONGLOMERATE											3668	-1481																
ARBUCKLE	3628	-1461	3626	-1459	3663	-1452	-	9	-	7							3618	-1462	+	1	+	3						
RTD			3720	-1553	3710	-1499			-	54	3718	-1531			-	22	3653	-1497			-	56	3700	-1501			-	52
LTD	3719	-1552			3705	-1494	-	58															3699	-1500	-	52		

DST #1 TORONTO 3351' - 3391'

TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Jasper Co.

P. O. Box 1120
Hays KS 67601

ATTN: Jeff Lawler

8 7s 20w Rooks

Roy # 1

Job Ticket: 57585 **DST#: 1**

Test Start: 2014.04.07 @ 13:13:00

GENERAL INFORMATION:

Formation: **Toronto**
Deviated: No Whipstock: 2164.00 ft (KB)
Time Tool Opened: 14:58:45
Time Test Ended: 18:36:00

Test Type: Conventional Bottom Hole (Initial)
Tester: Jim Svaty
Unit No: 76

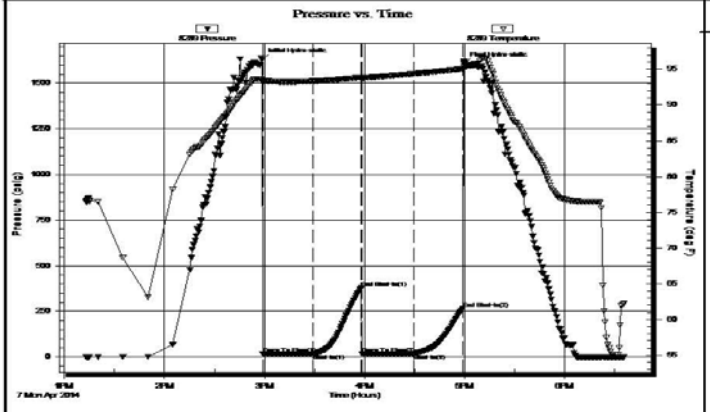
Interval: 3351.00 ft (KB) To 3391.00 ft (KB) (TVD)
Total Depth: 3391.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2164.00 ft (KB)
2159.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8289 **Outside**
Press@RunDepth: 19.46 psig @ 3352.00 ft (KB)
Start Date: 2014.04.07 End Date: 2014.04.07
Start Time: 13:13:02 End Time: 18:35:45

Capacity: 8000.00 psig
Last Calib.: 2014.04.07
Time On Btm: 2014.04.07 @ 14:58:30
Time Off Btm: 2014.04.07 @ 16:59:15

TEST COMMENT: 30-IFP- Weak Surface Blow Died in 17 min.
30-ISIP- No Blow
30-FFP- No Blow
30-FSIP- No Blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1630.51	93.66	Initial Hydro-static
1	16.46	93.16	Open To Flow (1)
31	17.59	93.36	Shut-In(1)
60	378.75	93.88	End Shut-In(1)
60	18.07	93.73	Open To Flow (2)
91	19.46	94.38	Shut-In(2)
121	263.30	95.08	End Shut-In(2)
121	1608.61	95.36	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
2.00	OSM 100%	0.01

Gas Rates

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

DST #2 LKC A - B 3387' - 3423'

TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Jasper Co.

P. O. Box 1120
Hays KS 67601

ATTN: Jeff Lawler

8 7s 20w Rooks

Roy # 1

Job Ticket: 57586 **DST#: 2**

Test Start: 2014.04.08 @ 01:05:00

GENERAL INFORMATION:

Formation: **LKC " A & B "**
Deviated: No Whipstock: 2164.00 ft (KB)
Time Tool Opened: 02:53:45
Time Test Ended: 06:40:00

Test Type: Conventional Bottom Hole (Reset)
Tester: Jim Svaty
Unit No: 76

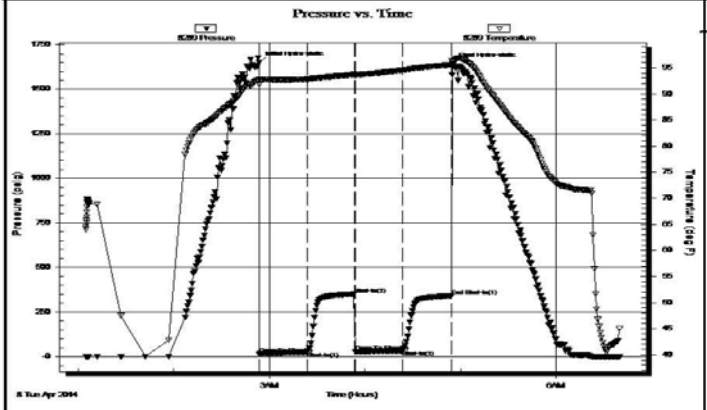
Interval: 3387.00 ft (KB) To 3423.00 ft (KB) (TVD)
Total Depth: 3423.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2164.00 ft (KB)
2159.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8289 **Outside**
Press@RunDepth: 25.61 psig @ 3388.00 ft (KB)
Start Date: 2014.04.08 End Date: 2014.04.08
Start Time: 01:05:02 End Time: 06:40:00

Capacity: 8000.00 psig
Last Calib.: 2014.04.08
Time On Btm: 2014.04.08 @ 02:53:30
Time Off Btm: 2014.04.08 @ 04:54:45

TEST COMMENT: 30-IFP- Surface Blow Building to 1 in.
30-ISIP- No Blow
30-FFP- Weak Surface Blow in 4 min.
30-FSIP- No Blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1649.26	92.72	Initial Hydro-static
1	15.32	91.79	Open To Flow (1)
31	25.61	92.82	Shut-In(1)
60	350.88	93.71	Shut-In(2)
61	27.41	93.57	Open To Flow (2)
91	34.57	94.52	Shut-In(3)
121	341.05	95.61	End Shut-In(1)
122	1640.93	95.92	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
15.00	WCM 30%w 70%m	0.07

* Recovery from multiple tests

Gas Rates

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

DST #3 LKC C - D 3418' - 3460'

TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Jasper Co.

P. O. Box 1120
Hays KS 67601

ATTN: Jeff Lawler

8 7s 20w Rooks

Roy # 1

Job Ticket: 57587 **DST#: 3**

Test Start: 2014.04.08 @ 12:55:00

GENERAL INFORMATION:

Formation: **LKC " C & D"**
Deviated: No Whipstock: 2164.00 ft (KB)
Time Tool Opened: 14:29:45
Time Test Ended: 17:50:00

Test Type: Conventional Bottom Hole (Reset)
Tester: Jim Svaty
Unit No: 76

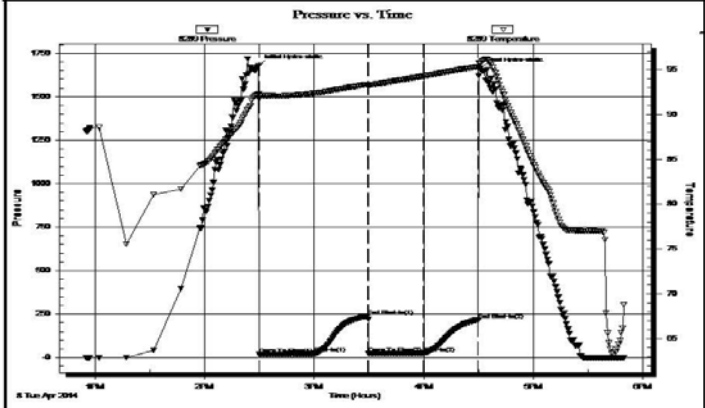
Interval: 3418.00 ft (KB) To 3460.00 ft (KB) (TVD)
Total Depth: 3460.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2164.00 ft (KB)
2159.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8289 **Outside**
Press@RunDepth: 24.61 psig @ 3419.00 ft (KB)
Start Date: 2014.04.08 End Date: 2014.04.08
Start Time: 12:55:02 End Time: 17:50:15

Capacity: 8000.00 psig
Last Calib.: 2014.04.08
Time On Btm: 2014.04.08 @ 14:29:30
Time Off Btm: 2014.04.08 @ 16:30:30

TEST COMMENT: 30-IFP- 1/4 in. Blow
30-ISIP- No Blow
30-FFP- No Blow
30-FSIP- No Blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1677.74	92.29	Initial Hydro-static
1	19.14	91.74	Open To Flow (1)
31	21.95	92.36	Shut-In(1)
60	238.11	93.37	End Shut-In(1)
61	22.80	93.24	Open To Flow (2)
91	24.61	94.26	Shut-In(2)
121	216.22	95.33	End Shut-In(2)
121	1661.81	95.67	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	OSM 100%	0.02

* Recovery from multiple tests

Gas Rates

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

Trilobite Testing, Inc Ref. No: 57587 Printed: 2014.04.08 @ 20:57:44

DST #4 LCK E - F 3452' - 3482'

TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Jasper Co.

P. O. Box 1120
Hays KS 67601

ATTN: Jeff Lawler

8 7s 20w Rooks

Roy # 1

Job Ticket: 57588 **DST#: 4**

Test Start: 2014.04.08 @ 23:33:00

GENERAL INFORMATION:

Formation: **LKC " E & F "**
Deviated: No Whipstock: 2164.00 ft (KB)
Time Tool Opened: 01:17:45
Time Test Ended: 06:06:00

Test Type: Conventional Bottom Hole (Reset)
Tester: Jim Svaty
Unit No: 76

Interval: 3452.00 ft (KB) To 3482.00 ft (KB) (TVD)
Total Depth: 3482.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

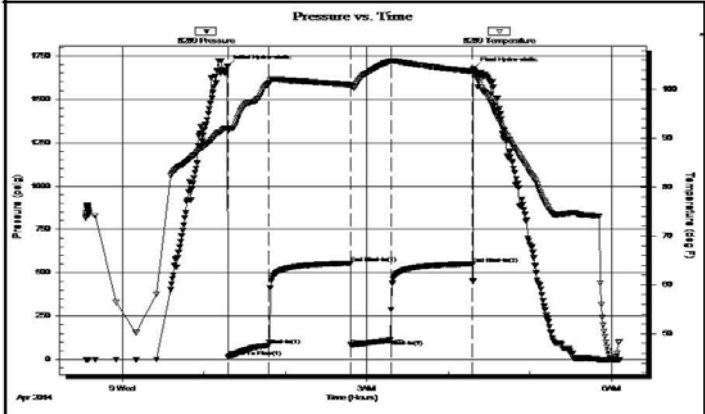
Reference Elevations: 2164.00 ft (KB)
2159.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8289 **Outside**

Press@RunDepth: 111.80 psig @ 3453.00 ft (KB)
Start Date: 2014.04.08 End Date: 2014.04.09
Start Time: 23:33:02 End Time: 06:06:15

Capacity: 8000.00 psig
Last Calib.: 2014.04.09
Time On Btm: 2014.04.09 @ 01:17:15
Time Off Btm: 2014.04.09 @ 04:18:30

TEST COMMENT: 30-IFP- Surface Blow Building to 9 1/2in.
60-ISIP- No Blow
30-FFP- Surface Blow Building to 7 1/4in.
60-FSIP- No Blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1691.15	92.12	Initial Hydro-static
1	14.89	91.61	Open To Flow (1)
31	81.02	101.23	Shut-In(1)
91	555.18	100.99	End Shut-In(1)
91	83.54	100.70	Open To Flow (2)
121	111.80	105.74	Shut-In(2)
181	551.63	103.67	End Shut-In(2)
182	1679.21	103.86	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
202.00	MCW 10%m 90%w	1.72
1.00	Oil Cap 100%	0.01

* Recovery from multiple tests

Gas Rates

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

Trilobite Testing, Inc Ref. No: 57588 Printed: 2014.04.09 @ 07:54:42

ROCK TYPES

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

ACCESSORIES

MINERAL
P Pyrite
Sandy
Euhed rhombs of dol or c

FOSSIL
Oolite

STRINGER
Shale
green shale
red shale

OTHER SYMBOLS

MISC
Daily Report
Digital Photo
Document
Folder
Link
Vertical Log File
Horizontal Log File
Core Log File

DST
DST Int
DST alt
DST

Drill Cuttings Rpt

Printed by GEOstrip VC Striplog version 4.0.7.0 (www.grsi.ca)

Curve Track #1
ROP (min/ft)
Gamma (API)
Cal (in)
1:240 Imperial

Depth | Intervals
Cored Interval
DST Interval

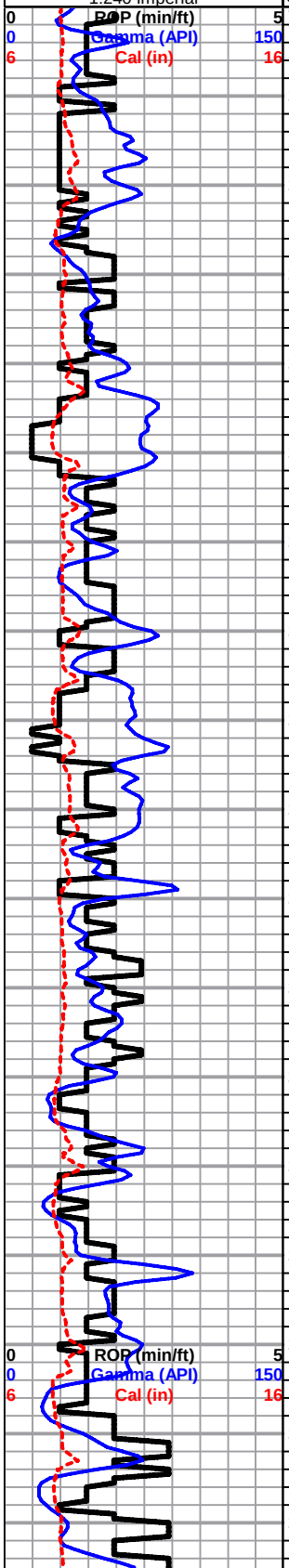
DST

Lithology

Oil Show

Geological Descriptions

Curve Track #3
1:240 Imperial



1' DRILL TIME THROUGH ANHYDRITE FROM 1720' - 1820'
1' DRILL TIME FROM 3050' - RTD
10' WET/DRY SAMPLES FROM 3100' - RTD

GEOLOGICAL SUPERVISION FROM 3100' - RTD

8 5/8" SURFACE PIPE @ 216' SURVEY 1/4 dgr.

DRILLER'S ANHYDRITE 1749' (+418) E-LOG 1749' (+418)
DRILLER'S BASE 1780' (+387) E-LOG 1780' (+387)

Lm- Cream Off White, FXLN, fsl, sl-mod dev. w/ dense micro XLN porosity, some massive, well cemented, barren

Lm- Lt-Drk Gray, high-energy bioclasitc w/ fsl frag., well cemented & tight w/ sctrd micro XLN porosity

Sh- Lt Gray, soft, silty & calcareous Ss- Frosted, Fn Grn, mod. cementation, consolidated & sorted, sub-angular, consistant intergranular porosity, barren

Lm- Lt Gray, VFXLN, bioclastic w/ fsl frag., tight w/o vis. porosity, much soft white chalk

Lm- A/A w/ dense micro XLN & XLN porosity, w/ cream densely packed oolites, poorly dev. w/ minimal vis. porosity, sparry replacement cementation

Lm- Lt Gray, VFXLN, dense, sl fsl w/ frag., trashy, poor vis. porosity, some chalky in part

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

TOPEKA 3143' (-976) E-LOG 3144' (-977) Lm- Cream Tan, VFXLN, dense, vry well cemented, tight w/o vis. porosity, some soft mud supported matrix

Lm- Gray, VF-FXLN, dense, vry well cemented, sl cherty ls, sl fsl, tight & sl trashy, some silty calcareous lime Sh- Gummy Gray clumps & black shale & wash

Lm- Cream Off White, VFXLN, dense, mostly tight w/ poor vis. porosity, some chalky mud supported matrix spkld w/ black sediment

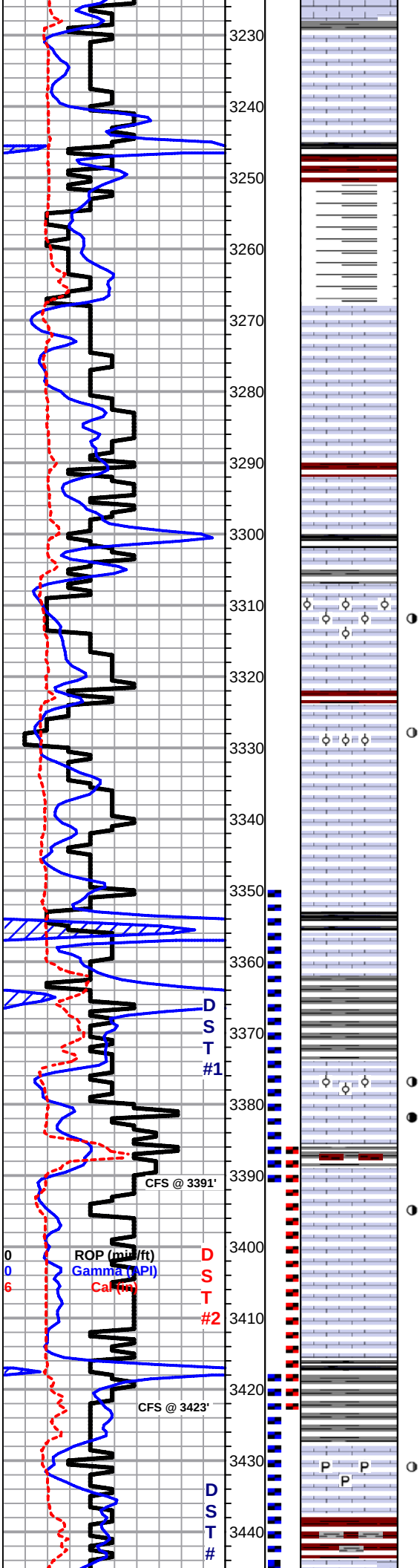
Lm- Cream Off White, VF-FXLN, dense, well cemented, mostly tight w/ minimal vis. porosity, few pcs of fsl fresh bedded lt gray chert

Lm- Lt Gray, FXLN, high energy bioclastic, fsl w/ frag., sl trashy w/ sctrd XLN porosity, sctrd recrystallization, barren

Lm- Cream Off White, VF-FXLN, dense, vry well cemented, sl fsl, sctrd micro XLN & XLN porosity, 1-2 PCS W/ VRY WK SPOTTY EDGE STN, NSFO, NO ODR

Lm- A/A w/ much soft white chalk & few pcs of milky white sharp angular fresh bedded chert

Lm- Buff Lt Gray, Vf-Fn Grn, dense, loosely-vry well cemented siltstone w/o vis. porosity, some



Lm- Buff Lt Gray, VF-FXLN, dense, lossely vry well cemented siltstone w/o vis. porosity, some sl unconsolidated

Lm- Cream Off White, FXLN, sl dolomitic ls w/ consistant XLN porosity throughout, most well cemented, some sl chalky in part, clean & barren

Sh- Black Brick Red Lm Green, fissile, carbonaceous, gritty & earthy, gummy sandy lime

Sh- Maroon, gummy argillaceous clumps

Lm- Cream Off White, VF-FXLN, dense, fsl & sl oolitic, poorly dev., mostly well cemented & tight w/ sctrd recrystallization, sctrd micro XLN & XLN porosity, some soft mud supported matrix & soft white chalk

Lm- A/A w/ few pcs of VFXLN of sl dolomitic ls w/ consistant micro XLN porosity, barren

Sh- Maroon, gritty & earthy

Lm- Cream Off White, FXLN, oolitic, some w/ sctrd recrystallization, XLN porosity, barren

Sh- Black Gray Maroon, fissile & carbonaceous, silty & soft, gritty & earthy, some gummy clumps

Lm- Cream Off White, FXLN Fn Grn, dense mix, sl fsl xln, well cemented, sctrd XLN porosity & some mud supported matrix, chalky in part, poor vis. porosity

Lm- Cream, pearl shaped oolitic grainstone w/ ppt interoolite porosity & FXLN, oolitic w/ sctrd recrystallization, SCTRD BLK STN, TR FO UPON CRUSH, WK ODR, some soft white chalk carrying STN A/A, NO FO

Lm- Lt Gray, FXLN, dense, well cemented, massive, vry well cemented, high energy w/ fsl frag. poor vis. porosity, sctrd recrystallization

Lm- Lt Gray Buff, FXLN, massive, well cemented, oolitic w/ minimal effective porosity, much recrystallization, FEW PCS W/ SPOTTY STN, TR FO, NO ODR, much soft white chalk & few pcs of gray fresh bedded chert

Lm- Tan Cream Buff, VF-FXLN, dense, well cemented, mostly tight w/ minimal-poor vis. porosity, some sl chalky in part

Lm- Buff Tan, FXLN, poorly dev., chalky in part, most w/ poor XLN porosity, barren

HEEBNER 3352' (-1185) E-LOG 3352' (-1185) Sh- Black Gray Maroon, fissile, carbonaceous, gritty & earthy, gummy wash, silty & calcareous

Sh- A/A w/ increasing amount of wash

TORONTO 3379' (-1212) E-LOG 3375' (-1208) Lm- Cream Off White, F-MED XLN, oolitic w/ few fusulinids, some w/ sctrd recrystallization, sctrd fn ppt inter oolite & fsl porosity, SCTRD LT STN, SL OILY SHEEN (POSSIBLY WET), TR FO, FNT ODR, few pcs of vfxln w/o vis. porosity

20"- Lm- A/A w/ SL INCR. IN ODR, STN A/A, buff VF-FXLN, dense, vry well cemented, sl trashy & fsl, no vis. porosity

40"- Lm- oolitic & fuslunid ls A/A w/ pyrite inclusions, SL INCR. IN SFO, GD SULPHURIC ODR, FR-GD OIL SHEEN ON WET CUP, some sl fsl chert & sl dolomitic chert

60"- Lm- Cream Off White, FXLN, densely packed oolites, mod. well dev. inter oolite ppt porosity, LT BRWN STN, TR FO, GD SULPHURIC ODR, OILY SHEEN & SCUM ON WET CUP, some w/ sparry replacement cementation Sh- Lt Gray Maroon, silty & soft, gritty & earthy

LKC 3393' (-1226) E-LOG 3390' (-1223) Lm- White Off White, F-CRS XLN, med-large oolites & fusulinds, well dev. w/ GD inter fsl ppt porosity, loose-well cemented, some w/ recrystallization among porosity, LT SCTRD STN, SL SFO, MOD. ODR, GD SHEEN ON WET CUP, some sl chalky in part

Lm- Cream Off White, VF-FXLN, dense, few sl fsl, mostly vry clean, poorly dev. & tight, lithographic w/o vis. porosity to sctrd micro XLN & XLN porosity, barren, some sctrd recrystallization, drk gray cryptoXLN w/o vis. porosity

Sh- Black Lt Gray Maroon, fissile, carbonaceous, silty, gummy argillaceous clumps

Lm- Cream Tan, FXLN, oolitic, sl-mod. dev. w/ sctrd XLN & ppt inter oolite porosity, few w/ micro pyrite inclusions, few pcs w/ lithofied mud matrix, sctrd ppt porosity, ALL W/ LT SCTRD STN, TR FO, OILY SHEEN, WK-FR ODR

Sh- Gray Maroon Lm Green, silty & calcareous, dense, silty & soft

SHORT TRIP SURVEY 1/2 dgr. STRAP -1.71

DST #1 TORONTO 3351' - 3391' (ALL PERF ON BOTTOM)

30-30-30-30

2' OSPM

IFP: 16-17#
FFP: 18-19#
SIP: 378-263#
HYD: 1630-1608#
BHT: 95 dgr.

DST #2 LKC A - B 3387' - 3423'

30-30-30-30

15' WCM (30%W, 70%M)

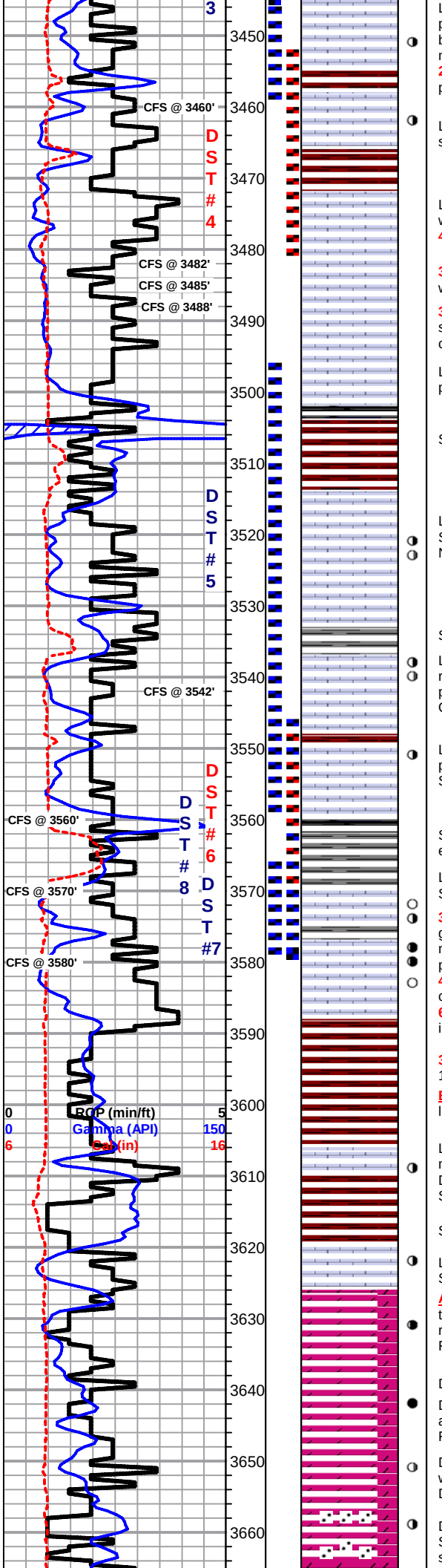
IFP: 15-25#
FFP: 27-34#
SIP: 350-341#
HYD: 1649-1640#
BHT: 95 dgr.

DST #3 LKC C - D 3418' - 3460'

30-30-30-30

5' OSPM

IFP: 19-21#
FFP: 22-24#
SIP: 238-216#



Lm/Chert- Mix of F-MED XLN mod. well dev. oolitic ls w/ mostly consistant fn ppt interoolite porosity, LT SCTRD STN, NSFO, OILY SHEEN, FNT ODR, several pcs of weathered golden brown chert & milky white fresh bedded chert, & some dense, well cemented mud supported matrix, chalky in part

20"- Lm- incr. algal & mud supported matrix **40"-** Lm- VFXLN, dense w/ consistant micro XLN porosity, barren

HYD: 1677-1661#
BHT: 65 dgr.

DST #4
LKC E - F
3452' - 3482'

30-60-30-60

202' MCW
(10%M, 90%W)
1' OIL CAP

IFP: 14-81#
FFP: 83-111#
SIP: 555-551#
HYD: 1691-1679#
BHT: 103 dgr.

Lm- Tan, VFXLN, dense, vry well cemented, massive, lithofied mud matrix, poorly dev. w/ few sctrd ppt porosity, WK SPOTTY STN, SL SFO, NO ODR,

Lm- Cream Off White, VFXLN, dense, most well cemented, few sl chalky in part, mostly tight w/ poor vis. porosity, some fsl cherty Ls w/o vis. porosity, soft white chalk

40"- A/A w/ increasing amount of soft chalk

3485'- Lm/Chert- Tan Cream, VFXLN, massive, vry well cemented, tight dolomitic ls & milky white fresh bedded chert, all w/ minimal vis. porosity, barren

3488'- Lm- White Off White, VF-FXLN, dense poorly dev. mix., few sl oolitic, well cemented w/ sctrd XLN porosity, barren **40"-** Lm- White Off White, VFXLN Vf Grn, dense, tight, some sl chalky in part, no-poor vis. porosity, vry clean & barren

Lm- White Off White, VFXLN, sl fsl cherty ls/chert, some w/ sctrd recrystallization, poor vis. porosity, vry clean & barren

DST #5
LKC H-J
3497' - 3560'

30-45-45-90

670' GIP
351' TOTAL FLUID
184' OCM
(40%O, 60%M)
67' CLEAN OIL
Gr: 38 API

IFP: 42-102#
FFP: 108-124#
SIP: 274-346#
HYD: 1726-1666#
BHT: 103 dgr.

Sh- Black Maroon Gray Lm Green, fissile, carbonaceous, gritty & earthy, gummy lime

Lm- Cream Off White, FXLN, mostly dense, poorly dev. w/ dense vry fn ppt porosity, LT SCTRD STN, TR FO, few FXLN, oolitic, poorly dev. sctrd XLN porosity, WK SPOTTY STN, NSFO, ALL W/ WK ODR

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

Lm- Cream Tan, Crypto-FXLN, mix of tight sl cherty ls w/ sctrd ppt to vuggy porosity, recrystallization w/in por., SCTRD LT STN, SFO, & FXLN, mod. well dev. w/ consistant fn ppt porosity, mostly throughout, DRK STN, SFO, ALL W/ FR-GD SWEET ODR, GD OIL SCUM ON TOP OF WET CUP

SURVEY 3/4 dgr.

DST #6
LKC K
3547' - 3570'

30-30-30-30

5' SOCM
(5%O, 95%M)

IFP: 11-12#
FFP: 11-12#
SIP: 19-17#
HYD: 1780-1742#
BHT: 97 dgr.

Lm- Tan Cream, VF-FXLN, oolitic, ranging from few pcs w/ ppt to sub-vuggy interoolite porosity to sctrd XLN & micro XLN porosity, & some chalky w/ poor vis. porosity, LT SCTRD STN, TR FO, FNT ODR

Sh- Black Gray Maroon Lm Green, fissile, soft, carbonaceous, many gummy clumps, gritty & earthy

Lm- Tan Cream, VF-FXLN, sl oolitic, poorly dev. w/ dense-sctrd XLN porosity, WK SPOTTY STN, NSFO, NO DOR

DST #7
LKC L
3567' - 3580'
(MISRUN)

220' MUD

3580' 20"- Lm- White Cream, F-MED XLN Vf Grn, ranging from well dev. oolitic & fusulinid grainstone w/ GD consistant ppt porosity throughout w/ SCTRD DRK STN, TR FO, WK ODR, mod. dev. oolitic & fusulinids w/ sctrd ppt porosity, to tight mud supported matrix w/o vis. porosity

40"- Lm- A/A w/ increasing quality/quantity of show/stain, free oil, & odr, few pcs sub-sat w/ coarse recrystallization

60"- Lm- A/A w/ increasing amount of pearl shaped oolitic grainstone w/ GD consistant interoolite porosity throughout w/ STN & SFO A/A, SL INCR. IN ODR, less soft white chalk

DST #8
LKC L
3547' - 3580'

30-60-45-60

50' GIP
10' CLEAN OIL
63' MCO
(40%M, 60%O)

IFP: 16-31#
FFP: 32-50#
SIP: 663-650#

3584'- Lm- White to Buff, VF-FXLN, sl fsl & oolitic, poorly dev. w/ sctrd XLN porosity, vry clean, 1-2 pcs w/ WK SPOTTY EDGE STN, NSFO, NO ODR, much soft white chalk

BKC 3588' (-1421) E-LOG 3588' (-1421) Sh- Maroon Gray Lm Green, sandy, gummy sandy lime, silty & pebbley, silty & calcareous

Lm- White, mix of sl unconsolidated & sediment spkld FXLN, poor vis. porosity, some w/ dense mud supported matrix, & several pcs of friable arenaceous ls w/ sctrd intergranular porosity, DRK SCTRD STN, NSFO, FNT ODR, SOME W/O FLOR., SOME W/ WK DULL YLW, NO STRM WET CUT

Sh- Maroon Gray, gritty & earthy, dense

Lm- Cream Off White, FXLN, fsl & sl oolitic w/ sctrd XLN porosity, 2-3 pcs W/ DRK SCTRD STN, TR FO, NO ODR UPON CRUSH

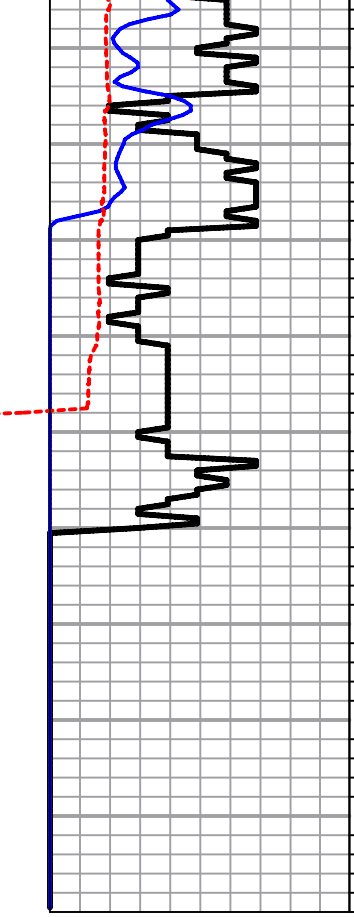
ARBUCKLE 3626' (-1459) E-LOG 3628' (-1461) Dol- Buff Cream, VF-FXLN, massive, mostly tight w/ micro XLN & sctrd fn ppt to mod. well dev. w/ ppt porosity throughout & anhedral rhombs, lesser dev. lacking stn, mod dev. w/ DRK SUB-SAT TO SAT STN, SL-FR SFO, WK-FR ODR, GD OIL SHEEN & SOME FLOATING FREE OIL ON TOP OF WET CUP

Dol- Cream, VFXLN, dense, vry well cemented, tight w/ poor micro XLN porosity

Dol- Buff Cream, Med-Crs XLN, massive, well dev. w/ consistant ppt porosity throughout, anhedral rhombs, DRK SAT STN, GD SFO, WK-FR ODR, HVY OIL SHEEN & MUCH FLOATING FREE OIL ON WET CUP

Dol- Tan, VF-FXLN, vry well cemented, mostly tight & poorly dev. w/ micro XLN porosity, some w/ sctrd XLN to fn ppt porosity, mostly barren, few pcs w/ WK SPOTTY STN, SOME W/ BLK DO STN, NSFO, NO ODR

Dol- Off White Cream Tan, mix of MED XLN, mod. well dev. w/ consistant fn ppt porosity, SCTRD STN, TR FO, OILY SHEEN, FNT ODR, mostly tight VF-FXLN, dense micro XLN to sctrd XLN porosity, barren, few pcs unconsolidated w/ fn-med sub-rounded to angular qtz.



inclusions w/ solid dolomitic cementation, barren, & few pcs of FXLN sl oolitic dolomitic ls w/ dense XLN porosity, barren

Lm- White Off White, VFXLN, dense, tight w/ minimal vis. porosity, soft white chalk, unconsolidated w/ qtz inclusions A/A w/ glauconite

Dol- Tan,VF-FXLN, most sl unconsolidated w/ sub-rounded med qtz inclustions, dense XLN porosity, most well cemented, brittle, mostly barren, few pcs w/ BLK STN, FEW W/ SCTRD LT STN, NSFO, NODR

D

Dol- Clear to Frosted, med grn sandy dolomite, loosely cemented, spkld w/ glauconite, most well dev. w/ consistant intergranular porosity, mostly baren, FEW PCS W/ SCTRD BLK STN, NO SFO, FEW W/ LT SCTRD STN, NSFO, NO ODR

Dol- A/A w/ VFXLN, dense, vry well cemented, tight w/ sctrd to dense micro XLN porosity, barren

Dol- Cream/Salmon, F-CRSE XLN, massive, vry well cemented, most well dev. w/ GD consistant inter XLN porosity, euhedral to anhedral rhombs, SCTRD BKL DO STN, NO SFO, NODR, & salmon VFXLN, tight w/ minimal vis. porosity, barren

RTD 3720' (-1553) LTD 3719' (-1552) @ 11:11 4-11-2014

DST#5LKC_H_J.jpg
DST#6LKC_K.jpg
DST#7LKC_L.jpg
DST#8LKC_L.jpg

15 STND SHORT TRIP CTCH 1 1/2 HR. SURVEY 1 dgr.

DST#5LKC_H_J.jpg

TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Jasper Co.

P. O. Box 1120
Hays KS 67601

ATTN: Jeff Lawler

8 7s 20w Rooks

Roy # 1

Job Ticket: 57589 **DST#: 5**

Test Start: 2014.04.09 @ 17:05:00

GENERAL INFORMATION:

Formation: **LKC " H - J "**
Deviated: No Whipstock: 2164.00 ft (KB)
Time Tool Opened: 18:52:15
Time Test Ended: 00:28:00

Test Type: Conventional Bottom Hole (Reset)
Tester: Jim Svaty
Unit No: 76

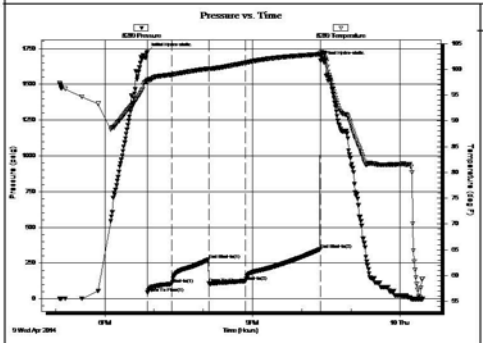
Interval: 3497.00 ft (KB) To 3560.00 ft (KB) (TVD)
Total Depth: 3560.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2164.00 ft (KB)
2159.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8289 **Outside**
Press@RunDepth: 124.03 psig @ 3532.00 ft (KB)
Start Date: 2014.04.09 End Date: 2014.04.10
Start Time: 17:05:02 End Time: 00:28:00

Capacity: 8000.00 psig
Last Calib.: 2014.04.10
Time On Btm: 2014.04.09 @ 18:52:00
Time Off Btm: 2014.04.09 @ 22:23:15

TEST COMMENT: 30-IFP- BOB in 9 min.
45-ISIP- Surface Blow in 2 min. Died Back in 35 min.
45-FFP- BOB in 29 min.
90-FSIP- Surface Blow in 1 1/2 min. Died Back in 36 min.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1726.78	97.97	Initial Hydro-static
1	42.94	97.42	Open To Flow (1)
30	102.61	98.96	Shut-In(1)
75	274.66	100.11	End Shut-In(1)
75	108.32	100.05	Open To Flow (2)
120	124.03	101.25	Shut-In(2)
211	346.32	102.91	End Shut-In(2)
212	1666.08	103.16	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
184.00	OCM 40%o 60%m	1.47
67.00	CO 100%	0.94
0.00	670 GIP	0.00

* Recovery from multiple tests

Gas Rates

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

DST#6LKC_K.jpg

TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Jasper Co.

P. O. Box 1120
Hays KS 67601

ATTN: Jeff Lawler

8 7s 20w Rooks

Roy # 1

Job Ticket: 57533 **DST#: 6**

Test Start: 2014.04.10 @ 06:40:00

GENERAL INFORMATION:

Formation: **LKC K**
Deviated: No Whipstock: 2164.00 ft (KB)
Time Tool Opened: 08:19:45
Time Test Ended: 11:51:00

Test Type: Conventional Bottom Hole (Reset)
Tester: Tim Phillips
Unit No: 76

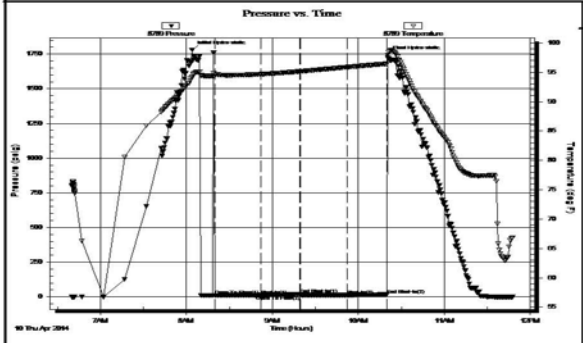
Interval: 3547.00 ft (KB) To 3570.00 ft (KB) (TVD)
Total Depth: 3570.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2164.00 ft (KB)
2159.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8789 **Inside**
Press@RunDepth: 12.48 psig @ 3548.00 ft (KB)
Start Date: 2014.04.10 End Date: 2014.04.10
Start Time: 06:40:02 End Time: 11:48:00

Capacity: 8000.00 psig
Last Calib.: 2014.04.10
Time On Btm: 2014.04.10 @ 08:04:00
Time Off Btm: 2014.04.10 @ 10:20:30

TEST COMMENT: IFP- Dead no blow
ISI-Dead no blow back
FF-Dead no blow
FSI-Dead no blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1780.09	94.16	Initial Hydro-static
16	11.66	94.32	Open To Flow (1)
48	12.19	94.69	Shut-In(1)
76	19.24	95.15	End Shut-In(1)
76	11.90	95.15	Open To Flow (2)
108	12.48	95.89	Shut-In(2)
136	17.28	96.47	End Shut-In(2)
137	1742.73	97.53	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	SOCM 5%O, 95% M	0.02

* Recovery from multiple tests

Gas Rates

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

DST#7LKC_L.jpg

TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Jasper Co.

P. O. Box 1120
Hays KS 67601

ATTN: Jeff Lawler

8 7s 20w Rooks

Roy # 1

Job Ticket: 57534 **DST#: 7**

Test Start: 2014.04.10 @ 16:22:00

GENERAL INFORMATION:

Formation: **LKC L**
Deviated: No Whipstock: ft (KB)
Time Tool Opened:
Time Test Ended: 20:42:00

Test Type: Conventional Bottom Hole (Reset)
Tester: Tim Phillips
Unit No: 76

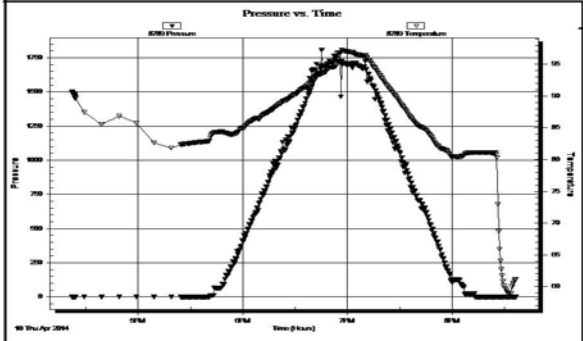
Interval: 3567.00 ft (KB) To 3580.00 ft (KB) (TVD)
Total Depth: 3580.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2164.00 ft (KB)
2159.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8789 **Inside**
Press@RunDepth: psig @ 3574.00 ft (KB)
Start Date: 2014.04.10 End Date: 2014.04.10
Start Time: 16:22:02 End Time: 20:36:45

Capacity: 8000.00 psig
Last Calib.: 2014.04.10
Time On Btm:
Time Off Btm:

TEST COMMENT: Packer failure



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
220.00	100% Mud	1.97

* Recovery from multiple tests

Gas Rates

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

DST#8LKC_L.jpg

TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Jasper Co.

P. O. Box 1120
Hays KS 67601

ATTN: Jeff Lawler

8 7s 20w Rooks

Roy # 1

Job Ticket: 57535 **DST#: 8**

Test Start: 2014.04.10 @ 20:58:00

GENERAL INFORMATION:

Formation: **LKC K,L**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 22:29:45
Time Test Ended: 03:24:00

Test Type: Conventional Bottom Hole (Reset)
Tester: Tim Phillips
Unit No: 76

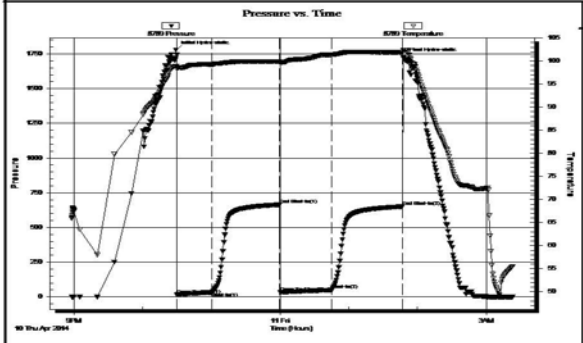
Interval: 3547.00 ft (KB) To 3580.00 ft (KB) (TVD)
Total Depth: 3580.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2164.00 ft (KB)
2159.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8789 **Inside**
Press@RunDepth: 50.13 psig @ 3548.00 ft (KB)
Start Date: 2014.04.10 End Date: 2014.04.11
Start Time: 20:58:02 End Time: 03:23:15

Capacity: 8000.00 psig
Last Calib.: 2014.04.11
Time On Btm: 2014.04.10 @ 22:29:00
Time Off Btm: 2014.04.11 @ 01:48:00

TEST COMMENT: IFP- Blow built to 3.75 in
ISI- Dead no blow back
FF- Blow built to 4 in
FSI- Dead no blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1779.26	98.95	Initial Hydro-static
1	16.38	98.30	Open To Flow (1)
31	31.16	99.19	Shut-In(1)
91	663.85	99.93	End Shut-In(1)
91	32.99	99.71	Open To Flow (2)
136	50.13	101.34	Shut-In(2)
198	650.45	101.92	End Shut-In(2)
199	1728.46	102.41	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
10.00	CO 100% Oil	0.05
63.00	MCO 40%M, 60%O	0.31
0.00	GIP 50 ft	0.00

* Recovery from multiple tests

Gas Rates

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