

OPERATOR

Company: TDI, INC.
 Address: 1310 BISON ROAD
 HAYS, KANSAS 67601

Contact Geologist: TOM DENNING
 Contact Phone Nbr: 785-628-2593
 Well Name: JEROME # 1
 Location: SW NE NW SE, SEC. 7-15S-18W
 API: 15-051-26,722-00-00
 Pool: WILDCAT
 State: KANSAS
 Field: RUDER
 Country: USA



Scale 1:240 Imperial

Well Name: JEROME # 1
 Surface Location: SW NE NW SE, SEC. 7-15S-18W
 Bottom Location:
 API: 15-051-26,722-00-00
 License Number: 4787
 Spud Date: 8/7/2014 Time: 4:00 PM
 Region: ELLIS COUNTY
 Drilling Completed: 8/13/2014 Time: 4:54 PM
 Surface Coordinates: 2095' FSL & 1695' FEL
 Bottom Hole Coordinates:
 Ground Elevation: 2028.00ft
 K.B. Elevation: 2038.00ft
 Logged Interval: 2900.00ft To: 3725.00ft
 Total Depth: 3725.00ft
 Formation: ARBUCKLE
 Drilling Fluid Type: CHEMICAL/FRESH WATER GEL

SURFACE CO-ORDINATES

Well Type: Vertical
 Longitude: -99.3618492
 Latitude: 38.760695
 N/S Co-ord: 2095' FSL
 E/W Co-ord: 1695' FEL

LOGGED BY

Company: SOLUTIONS CONSULTING, INC.
 Address: 108 WEST 35TH STREET
 HAYS, KANSAS 67601

Phone Nbr: 785-625-3380
 Logged By: GEOLOGIST Name: HERB DEINES

CONTRACTOR

Contractor: SOUTHWIND DRILLING, INC.
 Rig #: 1
 Rig Type: MUD ROTARY
 Spud Date: 8/7/2014 Time: 4:00 PM
 TD Date: 8/13/2014 Time: 4:54 PM

ELEVATIONS

K.B. Elevation: 2038.00ft
 K.B. to Ground: 10.00ft

Ground Elevation: 2028.00ft

NOTES

RECOMMENDATION TO RUN PRODUCTION CASING BASED ON FAVORABLE RESULTS OF THREE DSTS AND GOOD STRUCTURE THROUGHOUT THE LANSING-KANSAS CITY.

OPEN HOLE LOGGING BY PIONEER ENERGY SERVICES: DUAL INDUCTION LOG, DUAL COMPENSATED POROSITY LOG, MICRORESISTIVITY LOG

DRILL STEM TESTING BY TRILOBITE TESTING INC: THREE (3) CONVENTIONAL TESTS


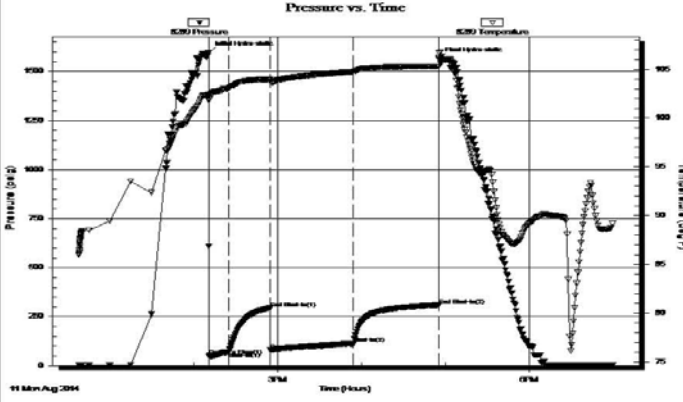
FORMATION TOPS SUMMARY

	JEROME # 1	SWIRES # 1	NICKEL # 2
	SW NE NW SE	NE SW SW	SE NE SE
	SEC.7-15S-18W	SEC.7-15-18W	SEC.7-15-18W
	2028'GL 2038'KB	KB 2074'	KB 2015'
<u>FORMATION</u>	<u>LOG TOPS</u>	<u>LOG TOPS</u>	<u>LOG TOPS</u>
Anhydrite	1220 +818	+ 815	+832
B-Anhydrite	1256 +782	+ 778	
Topeka	3008 - 970	- 973	
Heebner Sh.	3267-1229	-1234	-1235
Toronto	3289-1251	-1255	-1254
LKC	3315-1277	-1280	-1281
BKC	3558-1520	-1527	-1540
Arbuckle	3640-1602	-1585	-1651
RTD	3725-1687	-1634	-1657


SUMMARY OF DAILY ACTIVITY

8-07-14	RU, spud 4:00 PM, set 8 5/8" surface casing to 221' w/ 150 sxs Common 2%Gel 3% CC, slope 3/4 degree, plug down 11:00PM
8-08-14	222', WOC, drill plug 7:00 AM
8-09-14	2094', drilling
8-10-14	2754', drilling, displaced 2848' to 2880'
8-11-14	3325', CFS 3360', TOWB, DST # 1 3304' to 3360' "A"- "C" LKC, TIWB
8-12-14	3436', CFS 3436, DST # 2 3375' to 3436' "F" to "G", TIWB, CFS 3536', DST # 3 3438' to 3536' "H" to "K"
8-13-14	3536', finish DST # 3, TIWB, RTD 3725' @4:54PM, CCH, TOWB, logs
8-14-14	3725', finish logging, TIWB, LDDP, run production casing, RD

DST # 1 TEST SUMMARY

 TRILOBITE TESTING, INC.	DRILL STEM TEST REPORT TDI 7 15s 18w Ellis 1310 Bison Rd Jerome # 1 Hays KS 67601-9696 Job Ticket: 65130 DST#: 1 ATTN: Herb Deines Test Start: 2014.08.11 @ 12:38:00																																								
GENERAL INFORMATION: Formation: LKC " A - C " Deviated: No Whipstock: ft (KB) Test Type: Conventional Bottom Hole (Initial) Time Tool Opened: 14:11:15 Tester: Jim Svaty Time Test Ended: 19:00:00 Unit No: 76 Interval: 3304.00 ft (KB) To 3360.00 ft (KB) (TVD) Reference Elevations: 2038.00 ft (KB) Total Depth: 3360.00 ft (KB) (TVD) 2028.00 ft (CF) Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 10.00 ft																																									
Serial #: 8289 Outside Press@RunDepth: 112.55 psig @ 3305.00 ft (KB) Capacity: 8000.00 psig Start Date: 2014.08.11 End Date: 2014.08.11 Last Calib.: 2014.08.11 Start Time: 12:38:02 End Time: 18:59:45 Time On Btm: 2014.08.11 @ 14:10:45 Time Off Btm: 2014.08.11 @ 16:55:45																																									
TEST COMMENT: 15-IFP- BOB in 1min. 30-ISIP- No Blow 60-FFP- BOB in 1min. 60-FSP- No Blow																																									
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4" style="text-align: center;">PRESSURE SUMMARY</th> </tr> <tr> <th>Time (Min.)</th> <th>Pressure (psig)</th> <th>Temp (deg F)</th> <th>Annotation</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>1596.92</td> <td>102.39</td> <td>Initial Hydro-static</td> </tr> <tr> <td>1</td> <td>51.44</td> <td>101.90</td> <td>Open To Flow (1)</td> </tr> <tr> <td>15</td> <td>71.36</td> <td>103.08</td> <td>Shut-In(1)</td> </tr> <tr> <td>44</td> <td>293.71</td> <td>103.99</td> <td>End Shut-In(1)</td> </tr> <tr> <td>45</td> <td>79.44</td> <td>103.78</td> <td>Open To Flow (2)</td> </tr> <tr> <td>104</td> <td>112.55</td> <td>104.76</td> <td>Shut-In(2)</td> </tr> <tr> <td>165</td> <td>309.38</td> <td>105.29</td> <td>End Shut-In(2)</td> </tr> <tr> <td>165</td> <td>1564.16</td> <td>106.19</td> <td>Final Hydro-static</td> </tr> </tbody> </table>	PRESSURE SUMMARY				Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation	0	1596.92	102.39	Initial Hydro-static	1	51.44	101.90	Open To Flow (1)	15	71.36	103.08	Shut-In(1)	44	293.71	103.99	End Shut-In(1)	45	79.44	103.78	Open To Flow (2)	104	112.55	104.76	Shut-In(2)	165	309.38	105.29	End Shut-In(2)	165	1564.16	106.19	Final Hydro-static
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DST # 2 TEST SUMMARY

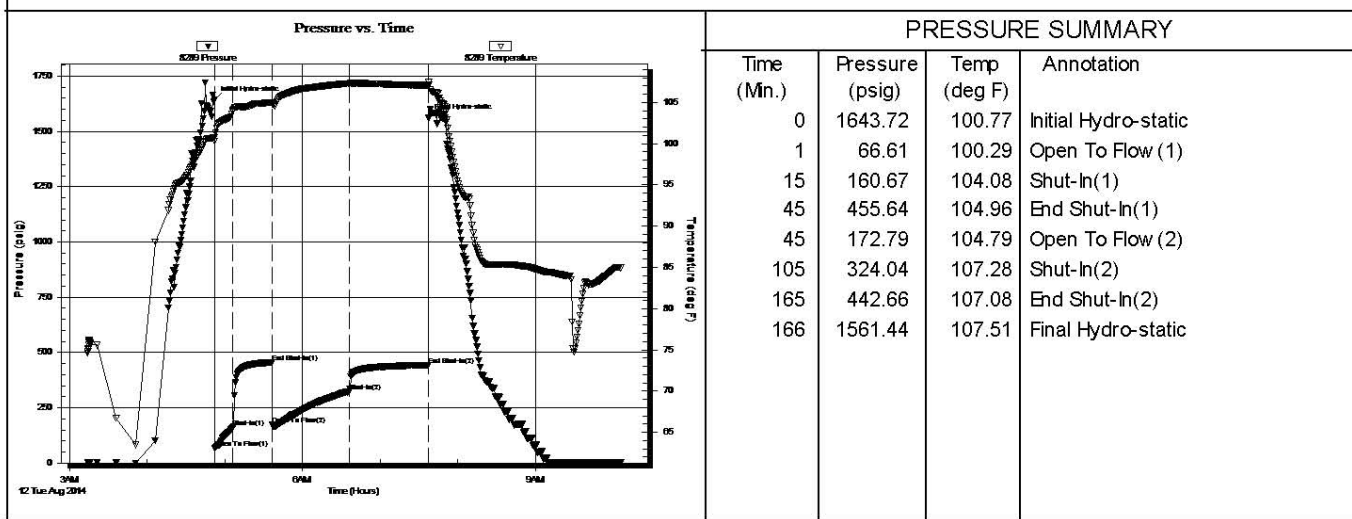
 TRIBOLITE TESTING, INC.	DRILL STEM TEST REPORT		
	TDI 1310 Bison Rd Hays KS 67601-9696 ATTN: Herb Deines	7 15s 18w Ellis Jerome # 1 Job Ticket: 56131 DST#: 2 Test Start: 2014.08.12 @ 03:14:00	

GENERAL INFORMATION:

Formation: LKC " F & G "	Test Type: Conventional Bottom Hole (Reset)
Deviated: No Whipstock: ft (KB)	Tester: Jim Svaty
Time Tool Opened: 04:52:15	Unit No: 76
Time Test Ended: 10:06:00	Reference Elevations: 2038.00 ft (KB)
Interval: 3375.00 ft (KB) To 3436.00 ft (KB) (TVD)	2028.00 ft (CF)
Total Depth: 3436.00 ft (KB) (TVD)	KB to GR/CF: 10.00 ft
Hole Diameter: 7.88 inches Hole Condition: Fair	

Serial #: 8289	Outside	Capacity: 8000.00 psig
Press@RunDepth: 324.04 psig @ 3376.00 ft (KB)	Start Date: 2014.08.12	Last Calib.: 2014.08.12
Start Time: 03:14:02	End Date: 2014.08.12	Time On Btm: 2014.08.12 @ 04:52:00
End Time: 10:06:00	Time Off Btm: 2014.08.12 @ 07:37:30	

TEST COMMENT: 15-IFP- BOB in 1min. 45sec.
 30-ISIP- Surface Blow Building to 4in. In 5min. Died Back in 9min.
 60-FFP- BOB in 2min. 45sec. Gas to Surface
 60-FSIP- BOB in 6min. 30sec.



<p style="text-align: center;">Recovery</p> <table border="1" style="width: 100%; border-collapse: collapse; font-size: x-small;"> <thead> <tr> <th>Length (ft)</th> <th>Description</th> <th>Volume (bbl)</th> </tr> </thead> <tbody> <tr><td>30.00</td><td>GOMCW 3%o 15%g 15%m 67%w</td><td>0.42</td></tr> <tr><td>345.00</td><td>GMWCO 5%m 10%w 20%g 65%o</td><td>4.84</td></tr> <tr><td>252.00</td><td>GMCO 10%m 40%o 50%g</td><td>3.53</td></tr> <tr><td>156.00</td><td>GCO 50%G 50%O</td><td>2.19</td></tr> <tr><td>0.00</td><td>Gas to Surface</td><td>0.00</td></tr> </tbody> </table> <p style="font-size: x-small;">* Recovery from multiple tests</p>	Length (ft)	Description	Volume (bbl)	30.00	GOMCW 3%o 15%g 15%m 67%w	0.42	345.00	GMWCO 5%m 10%w 20%g 65%o	4.84	252.00	GMCO 10%m 40%o 50%g	3.53	156.00	GCO 50%G 50%O	2.19	0.00	Gas to Surface	0.00	<p style="text-align: center;">Gas Rates</p> <table border="1" style="width: 100%; border-collapse: collapse; font-size: x-small;"> <thead> <tr> <th></th> <th>Choke (inches)</th> <th>Pressure (psig)</th> <th>Gas Rate (Mcf/d)</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>		Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)				
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156.00	GCO 50%G 50%O	2.19																									
0.00	Gas to Surface	0.00																									
	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)																								

DST # 3 TEST SUMMARY



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TDI
1310 Bison Rd
Hays KS 67601-9696

ATTN: Herb Deines

7 15s 18w Ellis
Jerome # 1
Job Ticket: 56132 **DST#: 3**
Test Start: 2014.08.12 @ 22:00:00

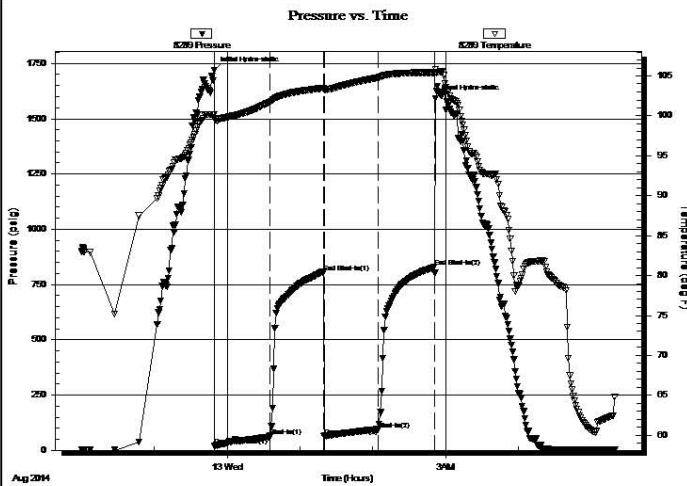
GENERAL INFORMATION:

Formation: **LKC " H - K "**
Deviated: No Whipstock: ft (KB) Test Type: Conventional Bottom Hole (Reset)
Time Tool Opened: 23:49:30 Tester: Jim Svaty
Time Test Ended: 05:19:00 Unit No: 76

Interval: **3438.00 ft (KB) To 3536.00 ft (KB) (TVD)** Reference Elevations: 2038.00 ft (KB)
Total Depth: 3536.00 ft (KB) (TVD) 2028.00 ft (CF)
Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 10.00 ft

Serial #: 8289 Outside
Press@RunDepth: 95.04 psig @ 3439.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2014.08.12 End Date: 2014.08.13 Last Calib.: 2014.08.13
Start Time: 22:00:02 End Time: 05:19:15 Time On Btm: 2014.08.12 @ 23:49:15
Time Off Btm: 2014.08.13 @ 02:51:30

TEST COMMENT: 45-IFP- BOB in 28min.
45-ISIP- No Blow
45-FFP- BOB in 23min.
45-FSIP- Surface Blow in 1min.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1720.29	100.17	Initial Hydro-static
1	20.71	99.65	Open To Flow (1)
46	61.59	101.73	Shut-In(1)
90	805.76	103.47	End Shut-In(1)
91	63.07	103.28	Open To Flow (2)
136	95.04	104.79	Shut-In(2)
182	827.50	105.44	End Shut-In(2)
183	1590.99	105.85	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
125.00	OWCM 3%o 47%w 50%m	1.75
30.00	OSM 2%o 98%m	0.42
15.00	CO 100%	0.21
0.00	GIP 267	0.00

Gas Rates

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

* Recovery from multiple tests

Image Header 05

ROCK TYPES



ACCESSORIES

MINERAL

- ▲ Chert, dark
- ∩ Glauconite
- P Pyrite
- Sandy
- △ Chert White

FOSSIL

- Oolite
- ⊕ Oomoldic

OTHER SYMBOLS

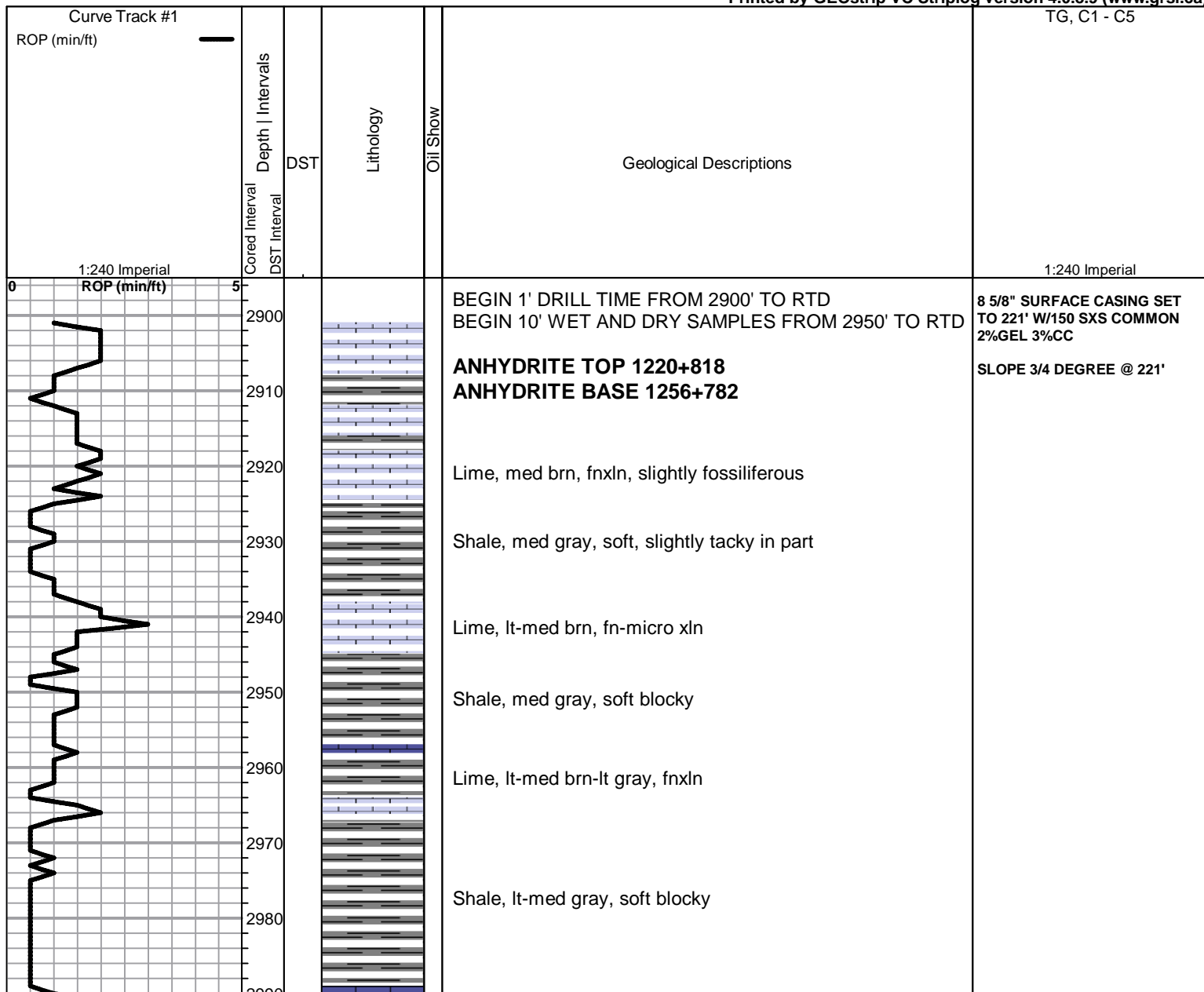
Oil Show

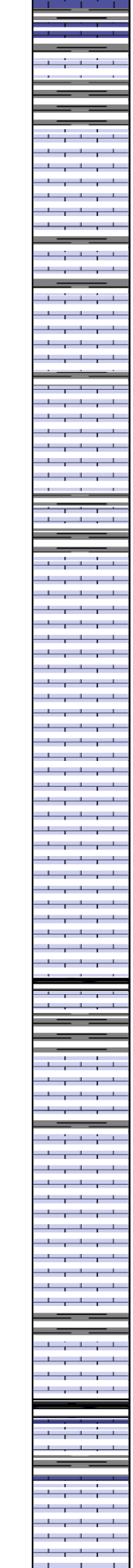
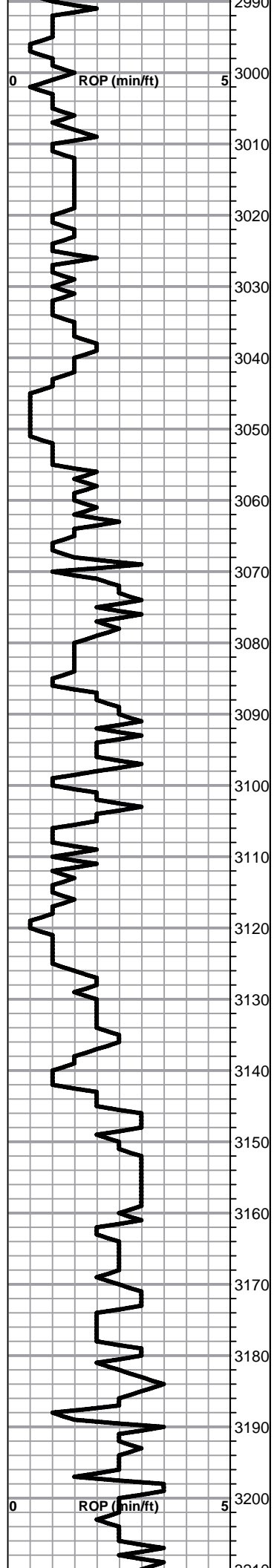
- Good Show
- Fair Show
- Poor Show
- Spotted or Trace
- Questionable Stn
- Dead Oil Stn
- Fluorescence
- * Gas

DST

- DST Int
- DST alt
- Core
- tail pipe

Printed by GEOstrip VC Striplog version 4.0.8.9 (www.grsi.ca)





Lime, med grayish brn, fnxln

Lime, lt-med brn-lt grayish brn, fnxln, lt gray mottling in part

TOPEKA ELog 3008-970

Lime, lt brn-lt grayish brn, fnxln, slightly fossiliferous

Lime, crm-lt brn, fnxln-granular in part, slight bedded chalk

Lime, lt brn-lt grayish brn, fnxln-granular, slightly fossiliferous

Lime, lt brn, fnxln grading into granular

Lime, lt brn, granular, fn grained, NS, No Wet Cut

Lime, lt-med brn-med grayish brn, fnxln, slightly fossiliferous

Lime, lt brn-med grayish brn, fnxln

Lime, crm-lt brn, fnxln, slightly fossiliferous

Lime, lt-med brn, fnxln

Lime, rm-lt brn, fnxln-granular in part

Lime, lt brn-lt grayish brn, fnxln-granular, slightly fossiliferous

Lime, lt-med brn, granular, slightly fossiliferous-fusulinids, slight bedded chalk

Shale, gray-black carbonaceous, blocky

Lime, crm-lt brn, fnxln, bedded chalk grading into sub-lithographic

Lime, crm-lt brn, fn-micro xln, slight bedded chalk

Lime, crm-lt brn, fn-micro xln

Lime, crm-lt brn, fn-vfxln, slight bedded chalk

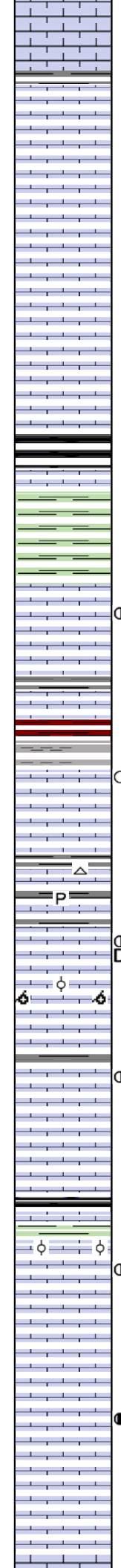
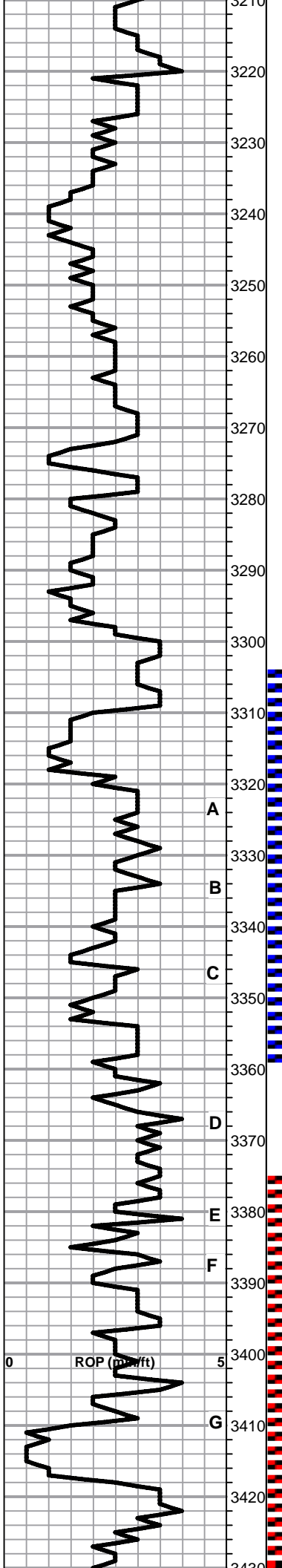
Shale, grayish green, firm, blocky

Lime, lt brn-lt gray, fnxln

Shale, black carbonaceous, fissile, blocky
Lime, med grayish brn, fn-vfxln

Lime, crm-lt brn, fn-micro xln, slight bedded chalk

Lime, lt brn, fnxln, lt chalky matrix with bedded chalk. NS



Lime, lt brn-lt grayish brn, fn-micro xln, bedded chalk, NS

Lime, crm-tan, fnxln-granular with increasing bedded chalk content

Lime, crm-tan, fnxln-granular, bedded chalk, NS

Lime, lt brn-lt grayish brn, fnxln, slight bedded chalk

Lime, crm-lt brn, fnxln, bedded chalk

Lime, lt grayish brn, fn-vfxln

HEEBNER SHALE SPL 3271-1233 ELog 3267-1229

Shale, black carbonaceous, fissile, blocky
Lime, lt brn, fn-micro xln

Shale, lime green with green wash, soft mud

TORONTO SPL 3292-1254 ELog 3289-1251

Lime, crm-lt brn, fnxln, slight bedded chalk, few chips with spotty staining in fine inter xln porosity, scattered fine vugs, NFO, No Odor

Lime, tan-lt brn, fn-vfxln

LKC SPL 3318-1280 ELog 3315-1277

Lime, lt brn, fnxln, few chips lt spotty stain with lt sheen in fine granular lime with inter xln porosity, NFO, No Odor

Lime, lt-med brn, fn-vfxln

Lime, lt-med brn, fnxln, white chert, pyritic

Lime, lt-med brn, mostly fnxln, slightly fossiliferous

Lime, white, granular, fine-coarse grained, gilsonitic in part with spotty fresh oil staining, very lt odor, NFO, few barren oomoldic chips

Lime, lt-med brn, fnxln

Lime, lt-med brn, fn-vfxln, few chips oolitic with spotty staining, NFO, No Odor, partial sparry calcite backfill

Lime, crm-lt brn, fn-vfxln, slight bedded chalk

Shale, black carbonaceous, blocky
Lime, med brn-med grayish brn, fn-vfxln

Lime, crm-tan, mostly fnxln, lt chalky wash, few chips oolitic with fossil fragments with spotting staining, NFO

Lime, tan-lt brn, fnxln, bedded chalk, lt white chalk wash

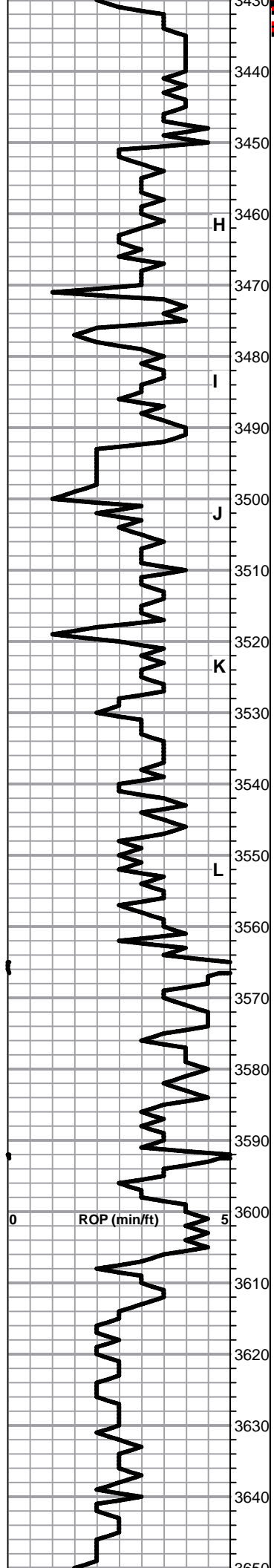
Lime, crm-white, coarse granular in part with SFO on crush grading into oolitic/oomoldic with spotty dark staining

Lime, crm-tan, fn-micro xln, bedded chalk

Lime, crm-tan, fn-micro xln, bedded chalk

DST # 1 3304' TO 3360' SEE
HEADER FOR TEST
SUMMARY

DST # 2 3375' TO 3436' SEE
HEADER FOR TEST
SUMMARY



3430 Lime, crm-tan, fn-micro xln, slight bedded chalk

3440 Lime, lt-med brn, fn-vfxln

3450 Lime, lt-med brn, fn-vfxln

3460 Lime, crm-tan, fn-vfxln, slightly fossiliferous, slight bed chalk

3470 Shale, lt-med gray, soft blocky, pyritic

3480 Lime, crm-tan, oolitic/oomoldic with fossil fragments with fine inter xln granular, scattered ppt porosity, scattered to saturated staining, scattered gilsonite flakes, spotty staining, NFO

3490 Lime, crm-tan-lt brn, fn-vfxln, slight bedded chalk

3500 Lime, crm-tan, oolitic/oomoldic, scattered to saturated staining, lt odor

3510 Lime, lt brn, fn-vfxln

3520 Lime, lt-med brn, fnxln

3530 Lime, lt-med brn, fn-vfxln, NS noted in samples

3540 Lime, tan-lt brn, fnxln, bedded chalk

3550 Lime, tan-lt brn, fn-vfxln

3560 Lime, crm-lt brn, fn-vfxln

3570 Lime, crm-lt brn, fnxln

BKC SPL 3561-1523 ELog 3558-1520

3580 Shale, reddish brn, soft blocky

3590 Lime, lt brn, fn-vfxln, clastic in part

3600 Shale, lt red wash, red, soft blocky

3610 Lime, lt brn, fn-vfxln, slightly dolomitic, tan chert, fresh, sharp

3620 Shale, lt red wash

3630 Lime, lt-med brn, fn-vfxln

3640 Lime, crm-lt brn, fnxln, dolomitic in part, red shale staining in reworked clastic contact with shales

3650 Shale, red-brn, lt red wash, vari colored cherts

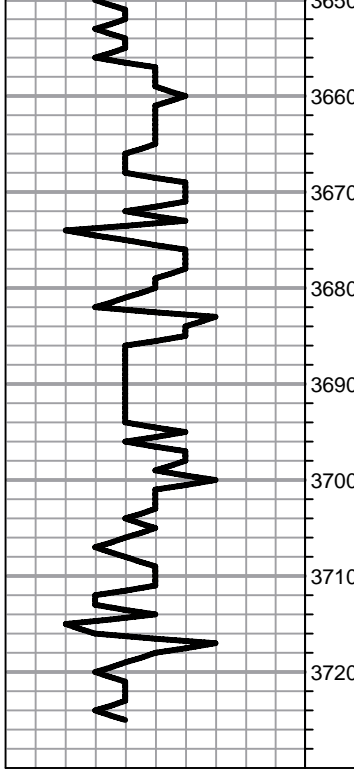
Shale, dark brn, firm blocky

Shale, dark brn, firm blocky

ARBUCKLE SPL & ELog 3640-1602

Dolomite, ivory-lt brn, fnxln-granular/sucrosic in part trace of FO on crush, lt saturated staining in poorly developed inter xln porosity

DST # 3 3438' TO 3536' SEE HEADER FOR TEST SUMMARY



Dolomite, ivory, med-cxln, interxln porosity

Dolomite, ivory-frm, fnxln-granular, fine-coarse grained sucrosic, few flakes of glauconite

Dolomite, ivory, fnxln-granular in part

Dolomite, offwhite-ivory, fnxln, pyritic with scattered quartz grain inclusions

Dolomite, offwhite-ivory-lt salmon, fnxln, scattered quartz grain inclusions

Dolomite, as above

RTD 3725-1687 LTD 3724-1686

**RAN 5 1/2" PRODUCTION
CASING SET TO 3719'
CEMENTED W/ 150 SXS EA2**

**DV SET IN ANHYDRITE W/ 150
SXS SMD, RH W/25SXS, MH W/
25 SXS, PLUG DOWN 12:50
PM 8/14/2014**

SLOPE 1 1/2 DEGREE @3725'