

**OPERATOR**

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

Contact Geologist: TOM DENNING  
 Contact Phone Nbr: 785-628-2593  
 Well Name: STEPHANIE # 1  
 Location: SW NW SE SW, Sec.10-10s-17w      API: 15-163-24,200-00-00  
 Pool: WILDCAT      Field: UNNAMED  
 State: KANSAS      Country: USA



Scale 1:240 Imperial

Well Name: STEPHANIE # 1  
 Surface Location: SW NW SE SW, Sec.10-10s-17w  
 Bottom Location:  
 API: 15-163-24,200-00-00  
 License Number: 4787  
 Spud Date: 4/30/2014      Time: 2:00 PM  
 Region: ROOKS COUNTY  
 Drilling Completed: 5/6/2014      Time: 2:06 PM  
 Surface Coordinates: 916' FSL & 1617' FWL  
 Bottom Hole Coordinates:  
 Ground Elevation: 2012.00ft  
 K.B. Elevation: 2022.00ft  
 Logged Interval: 2100.00ft      To: 3646.00ft  
 Total Depth: 3646.00ft  
 Formation: LANSING-KANSAS CITY  
 Drilling Fluid Type: CHEMICAL/FRESH WATER GEL

**SURFACE CO-ORDINATES**

Well Type: Vertical  
 Longitude: -99.2081733      Latitude: 39.1930971  
 N/S Co-ord: 916' FSL  
 E/W Co-ord: 1617' FWL

**LOGGED BY**

Company: SOLUTIONS CONSULTING, INC.  
 Address: 108 W 35TH  
 HAYS, KS 67601  
 Phone Nbr: (785) 639-1337  
 Logged By: GEOLOGIST      Name: HERB DEINES

**CONTRACTOR**

Contractor: SOUTHWIND DRILLING, INC.  
 Rig #: 1  
 Rig Type: MUD ROTARY  
 Spud Date: 4/30/2014      Time: 2:00 PM  
 TD Date: 5/6/2014      Time: 2:06 PM  
 Rig Release: 5/7/2014      Time: 10:00 AM

**ELEVATIONS**

K.B. Elevation: 2022.00ft      Ground Elevation: 2012.00ft  
 K.B. to Ground: 10.00ft

**NOTES**

RECOMMENDATION TO RUN PRODUCTION CASING TO TEST NUMEROUS LKC BENCHES WITH SHOWS OF HYDROCARBONS

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

DRILL STEM TESTING BY TRILOBITE TESTING INC: TWO (2) COVENTIONAL TESTS

**FORMATION TOPS COMPARISON AND CHRONOLOGY OF DAILY ACTIVITY**

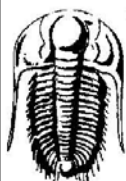
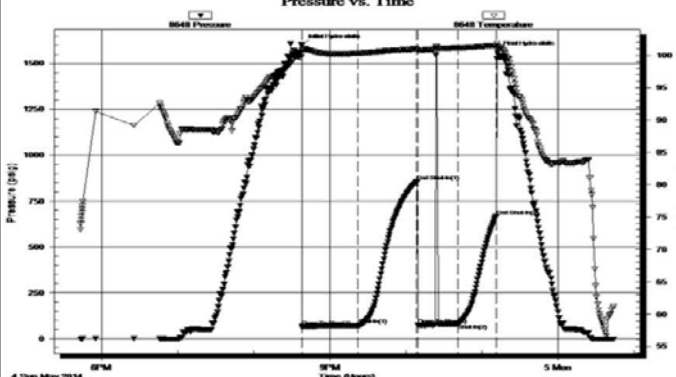
	<b>STEPHANIE # 1</b>	<b>BICE EAST #1-3</b>	<b>VIOLA # 1</b>
	<b>SW NW SE SW</b>	<b>SW SW SW</b>	<b>SW NE NW SE</b>
	<b>SEC.10-10S-17W</b>	<b>SEC.10-10-17W</b>	<b>SEC.22-10-17W</b>
	<b>2012'GL 2022'KB</b>	<b>KB 2023'</b>	<b>KB 2090'</b>
	<u>FORMATION</u>	<u>LOG TOPS</u>	<u>LOG TOPS</u>
	<b>Anhydrite</b>	<b>1286 +736</b>	<b>+756</b>
	<b>B-Anhydrite</b>	<b>1320 +702</b>	<b>+718</b>
	<b>Topeka</b>	<b>2932 -910</b>	<b>- 933</b>
		<b>- 918</b>	

Heebner Sh.	3154-1132	-1139	-1153
Toronto	3172-1150	-1158	-1171
LKC	3194-1172	-1181	-1193
BKC	3436-1414	-1419	-1437
Conglomerate	NONE	-1470	-1482
Arbuckle	3500-1478	-1505	-1584
RTD	3646-1624	-1577	-1634

**SUMMARY OF DAILY ACTIVITY**

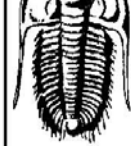
- 4-30-14 RU, Spud 2:00 PM, set 8 5/8" surface casing to 223.11' w/ 150 sxs  
Common 2%Gel 3%CC, slope 1 degree, plug down 8:00 PM
- 5-01-14 463', drill plug 4:00 AM
- 5-02-14 1941', drilling
- 5-03-14 2675', drilling, displaced 2660' to 2674'
- 5-04-14 3195', CFS 3195', short trip, CFS 3270', TOWB, DST # 1 3152' to  
3270' Toronto-"D" LKC, slope 1 degree @3270'
- 5-05-14 3320', drilling, CFS 3299', CFS 3393', DST # 2 3298' to 3393', "G" to  
"J" LKC, TIWB
- 5-06-14 3535', CFS 3535', RTD 3646'@2:06 PM, TOWB, logs, TIWB, LDDP
- 5-07-14 3646', finish LDDP, run production casing and cement

**DST # 1 3152' TO 3270' TORONTO - "D" LKC TEST SUMMARY**

	<b>TRILOBITE TESTING, INC.</b>	<b>DRILL STEM TEST REPORT</b>																																					
	TDI Inc 1310 Bison Rd Hays KS, 67601  ATTN: Herb Deines	<b>10-10s-17w Rooks KS</b>  <b>Stephanie #1</b> Job Ticket: 54038      DST#: 1 Test Start: 2014.05.04 @ 17:43:00																																					
<b>GENERAL INFORMATION:</b>																																							
Formation: <b>Toronto - D</b> Deviated: No      Whipstock:      ft (KB) Time Tool Opened: 20:38:00 Time Test Ended: 00:43:45		Test Type: Conventional Bottom Hole (Initial) Tester: Cody Bloedorn Unit No: 73																																					
Interval: 3152.00 ft (KB) To 3270.00 ft (KB) (TVD) Total Depth: 3270.00 ft (KB) (TVD) Hole Diameter: 7.88 inches      Hole Condition: Fair		Reference Elevations: 2022.00 ft (KB) 2012.00 ft (CF) KB to GR/CF: 10.00 ft																																					
<b>Serial #: 8648</b> Inside Press@RunDepth: 80.96 psig @ 3258.00 ft (KB)      Capacity: 8000.00 psig Start Date: 2014.05.04      End Date: 2014.05.05      Last Calib.: 2014.05.05 Start Time: 17:43:05      End Time: 00:43:44      Time On Btm: 2014.05.04 @ 20:37:45 Time Off Btm: 2014.05.04 @ 23:12:00																																							
<b>TEST COMMENT:</b> 45 - IF- 1.5" blow 45 - ISI- No return 30 - FF- No blow for 15 minutes, flushed tool, weak return fading in and out 30 - FSI- No return																																							
<b>Pressure vs. Time</b> 		<b>PRESSURE SUMMARY</b>																																					
		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Time (Min.)</th> <th>Pressure (psig)</th> <th>Temp (deg F)</th> <th>Annotation</th> </tr> </thead> <tbody> <tr><td>0</td><td>1600.95</td><td>100.75</td><td>Initial Hydro-static</td></tr> <tr><td>1</td><td>65.15</td><td>100.28</td><td>Open To Flow(1)</td></tr> <tr><td>44</td><td>72.11</td><td>100.33</td><td>Shut-In(1)</td></tr> <tr><td>91</td><td>856.87</td><td>100.98</td><td>End Shut-In(1)</td></tr> <tr><td>92</td><td>72.54</td><td>100.79</td><td>Open To Flow(2)</td></tr> <tr><td>123</td><td>80.96</td><td>101.16</td><td>Shut-In(2)</td></tr> <tr><td>154</td><td>667.91</td><td>101.51</td><td>End Shut-In(2)</td></tr> <tr><td>155</td><td>1558.85</td><td>101.36</td><td>Final Hydro-static</td></tr> </tbody> </table>	Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation	0	1600.95	100.75	Initial Hydro-static	1	65.15	100.28	Open To Flow(1)	44	72.11	100.33	Shut-In(1)	91	856.87	100.98	End Shut-In(1)	92	72.54	100.79	Open To Flow(2)	123	80.96	101.16	Shut-In(2)	154	667.91	101.51	End Shut-In(2)	155	1558.85	101.36	Final Hydro-static	
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Trilobite Testing, Inc		Ref. No: 54038																																					
Printed: 2014.05.05 @ 06:41:53																																							

**DST # 2 3298' TO 3393' "G" TO "J" LKC TEST SUMMARY**

	<b>TRILOBITE TESTING, INC.</b>	<b>DRILL STEM TEST REPORT</b>	
	TDI Inc 1310 Bison Rd Hays KS, 67601  ATTN: Herb Deines	<b>10-10s-17w Rooks KS</b>  <b>Stephanie #1</b> Job Ticket: 54038      DST#: 1 Test Start: 2014.05.04 @ 17:43:00	



**TRILOBITE TESTING, INC.**

TDI Inc  
1310 Bison Rd  
Hays KS, 67601  
ATTN: Herb Deines

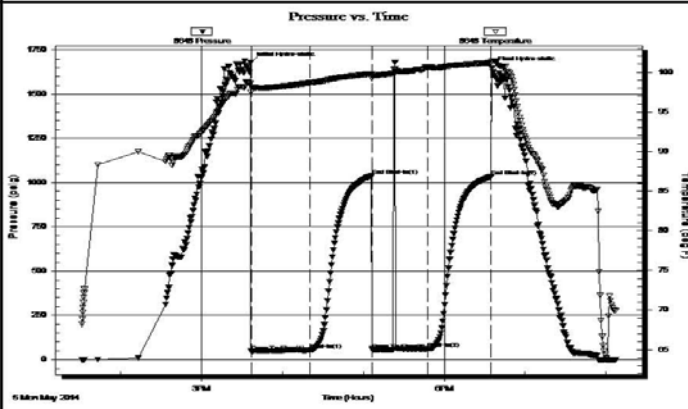
**10-10s-17w Rooks KS**  
**Stephanie #1**  
Job Ticket: 54039 **DST#: 2**  
Test Start: 2014.05.05 @ 13:31:00

**GENERAL INFORMATION:**

Formation: **LKC "G-J"**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 15:36:30  
Time Test Ended: 20:07:00  
Test Type: Conventional Bottom Hole (Reset)  
Tester: Cody Bloedorn  
Unit No: 73  
Interval: **3298.00 ft (KB) To 3393.00 ft (KB) (TVD)**  
Total Depth: 3393.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Fair  
Reference Elevations: 2022.00 ft (KB)  
2012.00 ft (CF)  
KB to GR/CF: 10.00 ft

**Serial #: 8648 Inside**  
Press@RunDepth: 60.86 psig @ 3368.00 ft (KB)  
Start Date: 2014.05.05 End Date: 2014.05.05  
Start Time: 13:31:05 End Time: 20:06:59  
Capacity: 8000.00 psig  
Last Calib.: 2014.05.05  
Time On Btm: 2014.05.05 @ 15:36:15  
Time Off Btm: 2014.05.05 @ 18:35:30

**TEST COMMENT:** 45 - IF- 3/4" blow  
45 - IS- No return  
45 - FF- No blow for 15 minutes, flushed tool, surged and died  
45 - FS- No return



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1677.92	98.54	Initial Hydro-static
1	46.43	97.49	Open To Flow (1)
44	52.10	98.66	Shut-In(1)
90	1040.18	99.79	End Shut-In(1)
91	55.26	99.50	Open To Flow (2)
132	60.86	100.59	Shut-In(2)
179	1035.42	101.21	End Shut-In(2)
180	1649.53	101.43	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
20.00	WM - Oil spots, 5%V, 95%M	0.28

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

Recovery from multiple tests  
Trilobite Testing, Inc Ref. No: 54039 Printed: 2014.05.05 @ 22:50:22

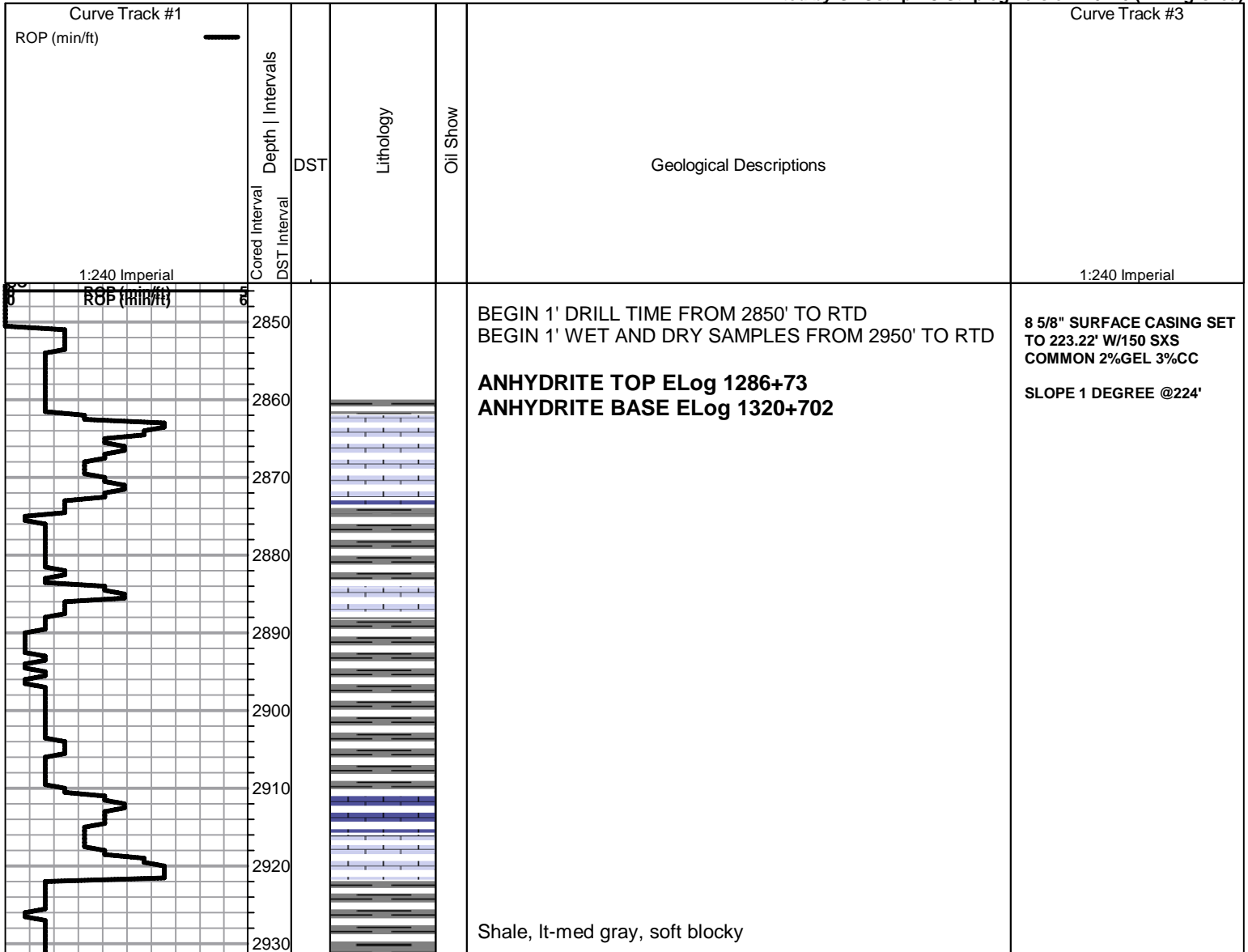
**ROCK TYPES**

Clystgy	Lmst fw<7	shale, grn	shale, red
Chtcongl	Lmst fw7>	shale, gry	
Dolprim	Lscongl	Carbon Sh	

**ACCESSORIES**

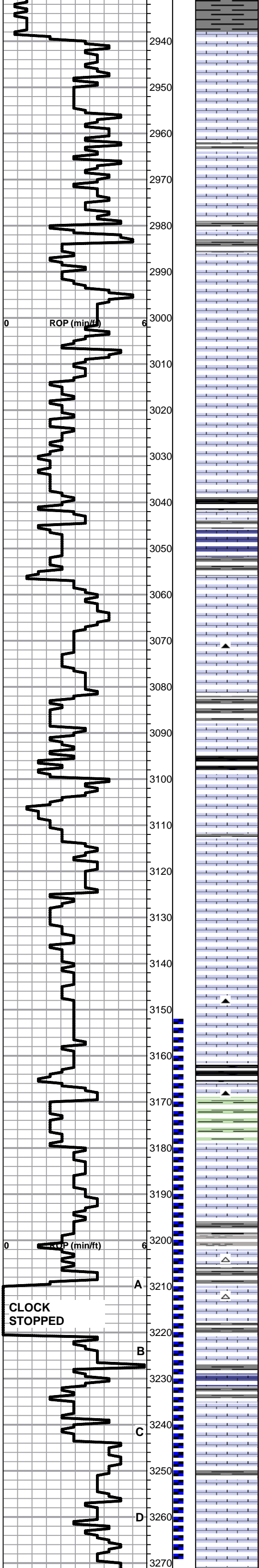
<b>MINERAL</b> ▲ Chert, dark P Pyrite △ Chert White	<b>FOSSIL</b> ○ Oolite ⊕ Oomoldic
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Printed by GEOstrip VC Striplog version 4.0.7.0 (www.grsi.ca)



Curve Track #3  
1:240 Imperial  
8 5/8" SURFACE CASING SET TO 223.22' W/150 SXS COMMON 2%GEL 3%CC SLOPE 1 DEGREE @224'

Shale, lt-med gray, soft blocky



**TOPEKA SPL 2938-916**

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

Lime, med grayish brn-gray, fnxln

Lime, lt gray-lt brn, fn-vfxln

Lime, lt grayish brn, fnxln

Lime, lt brn-grayish brn, fn-vfxln  
Shale, gray, calcareous

Lime, lt-med brn-grayish brn, fnxln-granular in part, fossiliferous

Lime, lt-med brn, fnxln-granular in part, chalk matrix in part with bed chalk, slightly fossiliferous

Lime, lt-med brn, fnxln-increasing granular, slightly fossiliferous, bedded chalk in part

Lime, med brn-med gray, increasing chalk matrix with bedded chalk

Shale, black carbonaceous, fissile, blocky  
Lime, med brn, vfxln

Lime, lt gray with green tinting, soft on crush

Lime, lt-med brn, fn-vfxln

Lime, crm-tan, fn-vfxln, slight bedded chalk

Lime, tan-lt brn with lt gray tint, fn-vfxln

Lime, lt brn-lt grayish brn, fnxln, fossiliferous in part

Lime, lt brn, fn-vfxln

Shale, black carbonaceous

Lime, lt-med brn, fnxln

Lime, lt-med brn, fnxln-granular, chalk matrix in part, NS

Lime, lt-med brn, fnxln-granular, white chalk wash with sticky clumps of chalk in part, NS

Lime, lt-med brn, fnxln-granular, scattered fusulinids

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

Lime, lt-med brn, fnxln, slightly granular in part

**HEEBNER SHALE SPL 3162-1140**

Shale, black carbonaceous, fisile, blocky  
Lime, lt brn, fn-vfxln

**TORONTO SPL 3179-1157**

Lime, white-crm, mostly fnxln, thin zone with fine inter xln porosity, very lt odor, lt staining w few specks of free oil on crush

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

**LKC SPL 3202-1180**

Lime, crm, fnxln, scattered fine ppt vuggy porosity in fine inter xln granular porosity, lt staining, very lt odor, NFO

Lime, lt-med brn, fnxln

Lime, med-dark grayish brn, fnxln, scattered micro fossils

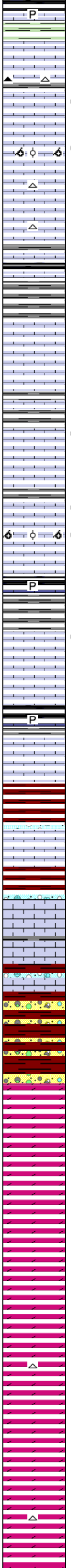
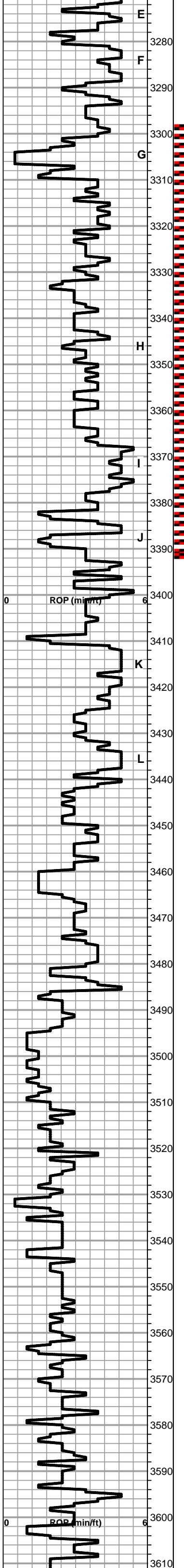
Lime, tan-lt brn, mostly fnxln with thin zone slightly fossiliferous with fine inter xln porosity with scattered fine vugs, very lt odor, scattered-saturated staining, NFO

Lime, lt brn, fnxln

Lime, crm, fnxln, fine xln with ppt vuggy porosity, scattered to saturated staining, very lt odor, NFO

Lime, crm-offwhite, fn-micro xln

DST # 1 3152' TO 3270'  
TORONTO - "D" LKC  
SEE HEADER FOR TEST SUMMARY



Shale, black carbonaceous  
Lime, lt brn, vfxln

Lime, lt brn, fnxln, no visible porosity

Lime, crm-tan fn-vfxln, NS

Lime, crm-tan, fnxln, thin zone with fine interxln porosity with scattered vugs, lt spotty staining, very lt odor

Lime, crm-tan, oolitic/oomoldic with scattered to saturated staining in part, very lt odor, NFO, some barren oomoldic in part

Lime, crm-tan, fn-micro xln

Lime, crm-tan, fn-micro xln

Shale, black carbonaceous lime, med brn, vfxln

Lime, crm, fn-vfxln, very clean appearance, NS

Lime, crm, fn-micro xln, slightly fossiliferous, no visible porosity

Lime, crm, fn-vfxln, thin zone with fine inter xln granular porosity, lt scattered staining, very lt odor

Lime, crm, fn-vfxln, slight bedded chalk

Lime, crm-tan, fnxln with thin fnxln granular with fine ppt vuggy porosity, spotty staining, very lt odor

Lime, crm-tan, oomoldic in part, very lt odor with spotty staining

Shale gray-black carbonaceous, blocky, pyrite clusters, shale grading into grayish green, soft blocky

Lime, tan, thin oolitic/oomoldic zone, very lt odor, spotty staining, NFO, interoolitic porosity with scattered vugs.

Lime, crm-tan, fn-vfxln, hard on crush

Shale, med gray-black carbonaceous

Lime, tan, fn-micro xln, NS, very hard on crush

**BKC SPL 3441-1419**

Shale, reddish brn, soft, blocky

Lime, crm, fn-vfxln, red shale stain in part, no visible porosity

Shale, red, soft sticky

Lime, crm-lt brn, fnxln-granular

Lime, crm-lt-med brn, fn-vfxln, slight clastic lime content in part

Shale, vari colored with red shale

**ARBUCKLE SPL 3506-1484**

Dolomite, white-tan, soft granular, NS. Interval to 3530' drilled smoothly consistent with shale until harder dolomite encountered with increasing torque on drill string and bouncing of bit

Dolomite, lt brn-dark salmon, fn-cxln, inter xln porosity

Dolomite, lt brn, fn-cxln, scattered salmon colored dolomite in part

Dolomite, lt-med brn, fn-cxln, slight white chalk wash

Dolomite, lt-med brn, fnxln with scattered med-cxln

Dolomite, lt-med brn-scattered salmon, fn-cxln with scattered rhombic xln clusters

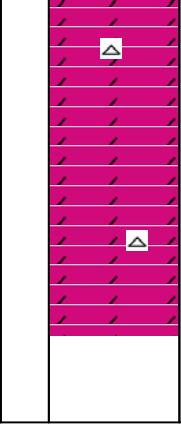
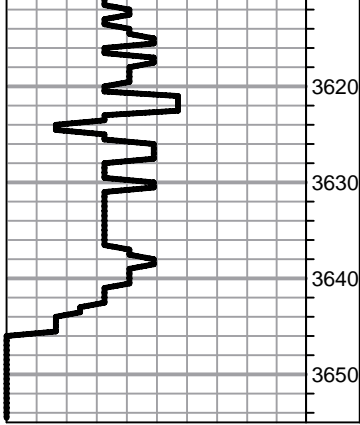
Dolomite, lt-med brn, fn-cxln

Dolomite, lt-med brn, fn-cxln

Dolomite, lt-med brn, fn-cxln, oolitic chert and bone white

CFS 3299'

DST # 2 3298' TO 3393' SEE HEADER FOR TEST SUMMARY



Dolomite, as described above to RTD

RTD 3646-1624    LTD 3643-1621