

**OPERATOR**

Company: ESP DEVELOPMENT, INC.  
 Address: 1749 250TH AVENUE  
 HAYS, KANSAS  
 67601 - 9460  
 Contact Geologist: LEWIS EULERT  
 Contact Phone Nbr: 785-639-1494  
 Well Name: HAGAMAN #5  
 Location: SW NW SE SE S28 T11S R15W  
 API: 15-167-23972-00-00  
 Pool:  
 State: KANSAS  
 Field: HAGAMAN  
 Country: USA

**Scale 1:240 Imperial**

Well Name: HAGAMAN #5  
 Surface Location: SW NW SE SE S28 T11S R15W  
 Bottom Location:  
 API: 15-167-23972-00-00  
 License Number: 6194  
 Spud Date: 6/13/2014 Time: 9:45 AM  
 Region: RUSSELL COUNTY  
 Drilling Completed: 6/18/2014 Time: 12:25 AM  
 Surface Coordinates: 948 FSL & 1243 FEL  
 Bottom Hole Coordinates:  
 Ground Elevation: 1833.00ft  
 K.B. Elevation: 1840.00ft  
 Logged Interval: 2550.00ft To: 3400.00ft  
 Total Depth: 3400.00ft  
 Formation: ARBUCKLE  
 Drilling Fluid Type: CHEMICAL / FRESH WATER GEL

**SURFACE CO-ORDINATES**

Well Type: Vertical  
 Longitude: -98.9866013  
 Latitude: 39.0627611  
 N/S Co-ord: 948 FSL  
 E/W Co-ord: 1243 FEL

**LOGGED BY**

Company: SOLUTIONS CONSULTING, INC.  
 Address: 108 W 35TH  
 HAYS, KS 67601

Phone Nbr: (785) 639-1337  
 Logged By: Geologist

Name: STEVE REED / HERB DEINES

**CONTRACTOR**

Contractor: ROYAL DRILLING, INC.  
 Rig #: 2  
 Rig Type: MUD ROTARY  
 Spud Date: 6/13/2014 Time: 9:45 AM  
 TD Date: 6/18/2014 Time: 12:25 AM  
 Rig Release: 6/19/2014 Time: 6:00 AM

**ELEVATIONS**

K.B. Elevation: 1840.00ft Ground Elevation: 1833.00ft  
 K.B. to Ground: 7.00ft

**NOTES**

BASED ON RUNNING STRUCTURALLY LOW TO THE HAGAMAN #1 AND HAGAMAN #2 PRODUCING WELLS, LACK OF SIGNIFICANT SHOWS, AND THE NEGATIVE RESULTS OF DST #1 AFTER WELL LOG ANALYSIS. THE DECISION WAS MADE TO PLUG AND ABANDON HAGAMAN #5.

OPEN HOLE LOGGING PROVIDED BY: GEMINI WIRELINE  
 DUAL INDUCTION LOG, DUAL COMPENSATED POROSITY LOG, AND MICRORESISTIVITY LOGS WERE  
 PERFORMED

DRILL STEM TESTING PROVIDED BY: TRILOBITE TESTING, INC.  
 ONE (1) STRADDLE TEST COMPLETED

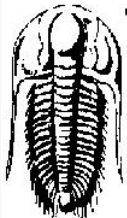
**FORMATION TOPS COMPARISON AND DAILY ACTIVITY SUMMARY**

	<b>WELL NAME</b>		<b>COMPARISON WELL</b>	<b>COMPARISON WELL</b>
	<b>HAGAMAN #5</b>		<b>HAGAMAN #2</b>	<b>HAGAMAN #1</b>
	<b>API: 15-167-23972</b>		<b>API: 15-167-23205</b>	<b>API: 15-167-00095</b>
FORMATION	SAMPLE TOPS	LOG TOPS	LOG TOPS (DATUM)	LOG TOPS (DATUM)
<b>ANHYDRITE</b>	918' (+922)	910' (+930')	+920	+941'
<b>TOPEKA</b>	2682' (-842')	2680' (-840')	-837'	-835'
<b>HEEBNER</b>	2934' (-1094')	2932' (-1092')	-1088'	-1086'
<b>TORONTO</b>	2955' (-1115')	2952' (-1112')	-1110'	-1104'
<b>LKC</b>	2983' (-1143')	2982' (-1142')	-1139'	-1138'
<b>BKC</b>	3238' (-1398')	3238' (-1398')	-1394'	NA
<b>ARBUCKLE</b>	3312' (-1472')	3311' (-1471')	-1452'	-1447'
<b>RTD</b>	3400' (-1560')	3399' (1559')	-1520'	NA

**SUMMARY OF DAILY ACTIVITY**

- 6-13-14** R.U., spud, 8 5/8" surface casing set at 213' w/150 sxs common, 2% gel, 3% cc, plug down @ 8:15pm, WOC
- 6-14-14** 408', drilling
- 6-15-14** 1879', drilling
- 6-16-14** 2659', drilling, CFS @ 3050
- 6-17-14** 3115', drilling, CFS @ 3206, CFS @ 3310, TD 3400, CFS @ 3400, Short Trip (20 stands) pulled tight, CTCH, TOWB for logging
- 6-18-14** 3400', logging, DST #1 3150 to 3204 (Straddle), laydown pipe, prepare to plug and abandon
- 6-19-14** release rig

## DST # 1 SUMMARY

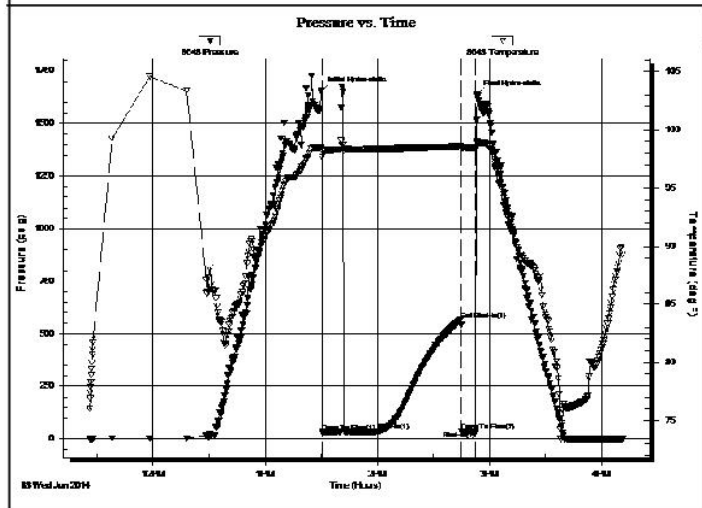
 <b>TRILOBITE TESTING, INC.</b>	<b>DRILL STEM TEST REPORT</b>	
	ESP Development Inc 1749 250TH AVE Hays KS, 67601  ATTN: Steve Reed	<b>28-11s-15w Russell KS</b>  <b>Hagaman #5</b> Job Ticket: 54059 <b>DST#:1</b>  Test Start: 2014.06.18 @ 11:26:00

**GENERAL INFORMATION:**

Formation: <b>LKC "J,K"</b>	Test Type: Conventional Straddle (Initial)
Deviated: No Whipstock:                      ft (KB)	Tester: Cody Bloedorn
Time Tool Opened: 13:30:30	Unit No: 73
Time Test Ended: 16:11:15	
<b>Interval: 3150.00 ft (KB) To 3204.00 ft (KB) (TVD)</b>	Reference Elevations: 1840.00 ft (KB)
Total Depth: 3399.00 ft (KB) (TVD)	1833.00 ft (CF)
Hole Diameter: 7.88 inches Hole Condition: Fair	KB to GR/CF: 7.00 ft

<b>Serial #: 8648</b>	<b>Inside</b>				
Press@RunDepth: 35.01 psig @ 3186.00 ft (KB)	Capacity: 8000.00 psig				
Start Date: 2014.06.18	End Date: 2014.06.18	Last Calib.: 2014.06.18			
Start Time: 11:26:05	End Time: 16:11:14	Time On Btm: 2014.06.18 @ 13:30:15			
		Time Off Btm: 2014.06.18 @ 14:53:30			

**TEST COMMENT:** 30 - IF- NO blow for 10 minutes, flushed tool, surged and died  
 45 - IS- No return  
 10 - FF- No blow - Pulled Tool



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1657.24	98.54	Initial Hydro-static
1	31.57	97.68	Open To Flow (1)
30	35.01	98.36	Shut-In(1)
75	564.27	98.59	End Shut-In(1)
75	35.07	98.38	Open To Flow (2)
83	35.24	98.48	Shut-In(2)
84	1639.23	98.92	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
10.00	Mud, 100%M	0.14

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

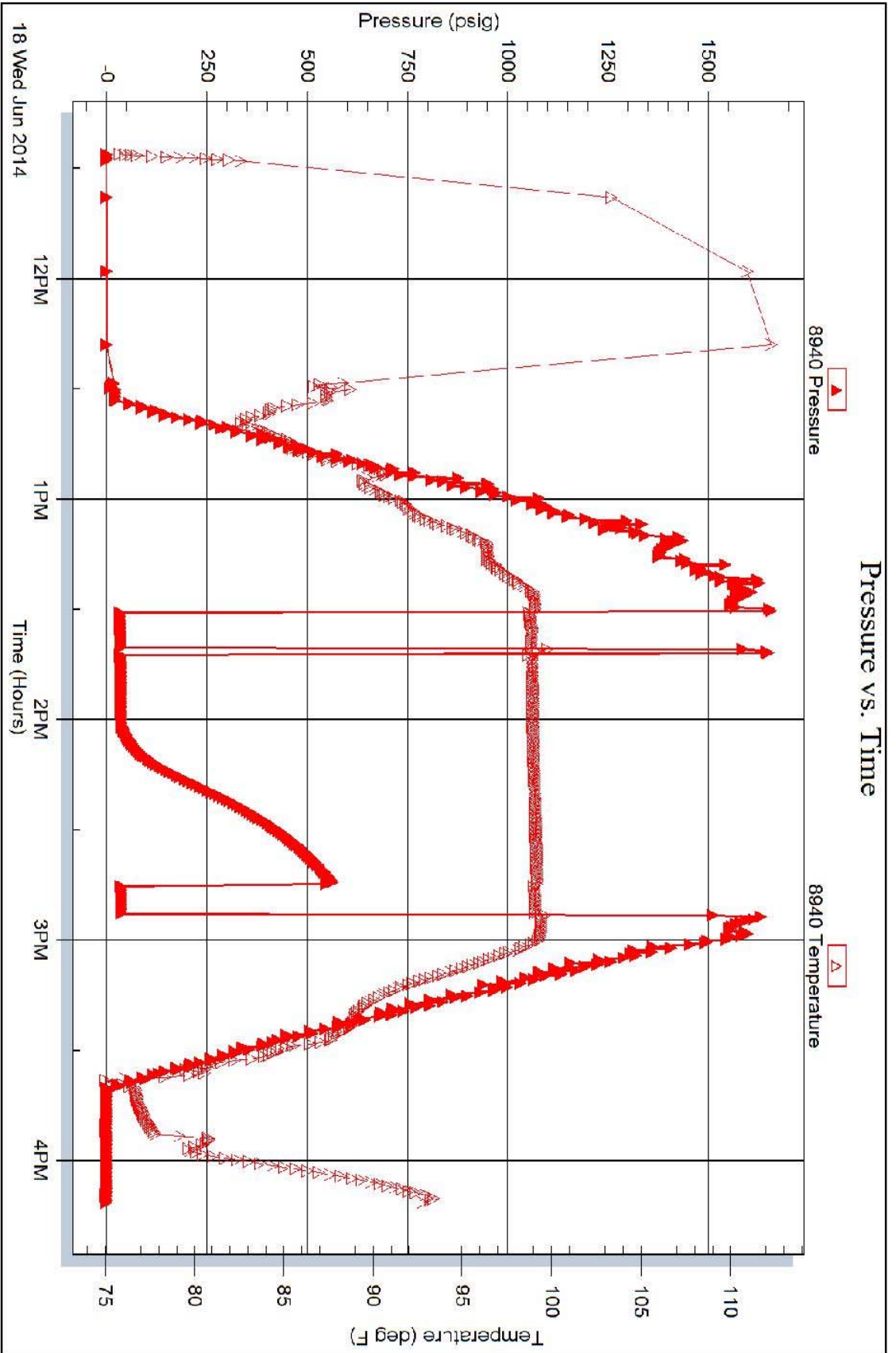
# DST #1 TEMPERATURE VS PRESSURE CHART

Serial #: 8940

Outside ESP Development Inc

Hagaman #5

DST Test Number: 1








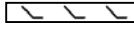




Tribolite Testing, Inc

Ref. No: 54059

Printed: 2014.06.18 @ 20:57:44

### ROCK TYPES

 Chtcongl	 Lmst fw<7	 shale, gry	 Shcol
 Dolprim	 Lmst fw7>	 Carbon Sh	
 Dol Lime	 shale, grn	 shale, red	

### ACCESSORIES

#### MINERAL

- ▲ Chert, dark
- P Pyrite
- △ Chert White

#### FOSSIL

- F Fossils < 20%
- Oolite
- ⊕ Oomoldic
- ⊕ Fossilinid

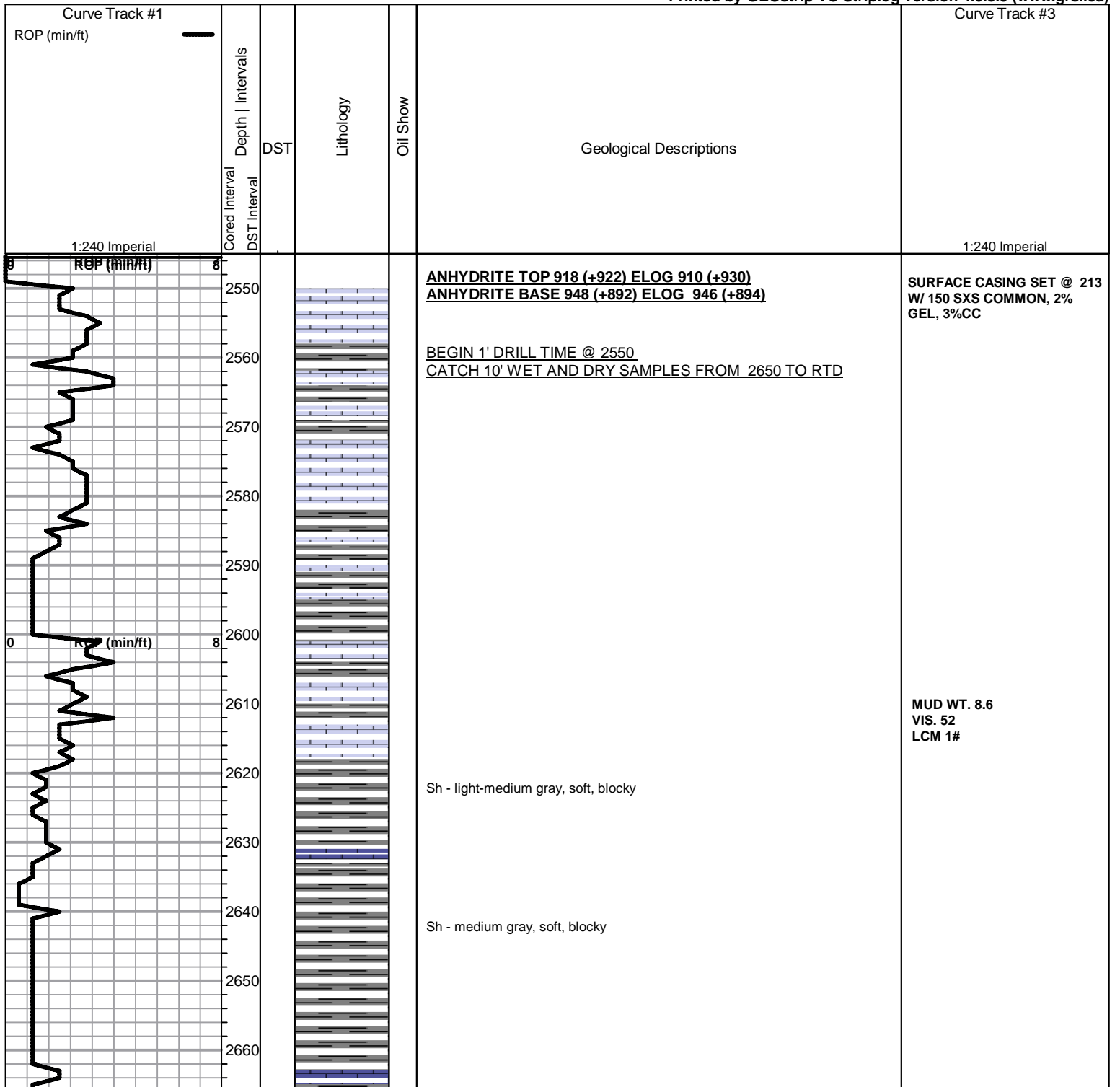
#### STRINGER

- ~ Chert
- green shale

#### TEXTURE

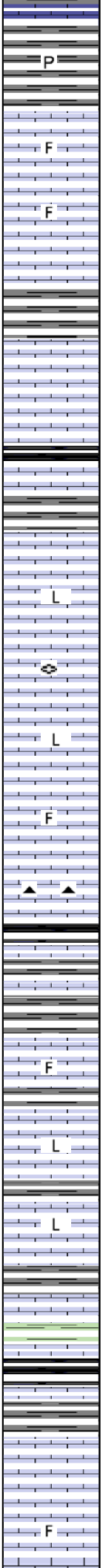
- C Chalky
- L Lithogr

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



2670  
2680  
2690  
2700  
2710  
2720  
2730  
2740  
2750  
2760  
2770  
2780  
2790  
2800  
2810  
2820  
2830  
2840  
2850  
2860  
2870  
2880

ROP (min/ft)



Lm - light gray, soft, mottled, friable

Sh - medium gray, soft, blocky, some becoming sticky clumps, pyrite

**TOPEKA SPL 2682 (-842) ELOG 2680 (-840)**

Lm - cream-tan, slightly fossiliferous, vfxln, dense, very hard

Lm - tan-light brown, fnxln, slightly fossiliferous with secondary recrystallization, hard, brittle

Sh - medium gray, soft, blocky, with light gray sticky clumps

Lm - light gray-brown, vfxln, slightly fossiliferous, dense, hard, brittle, no appreciable staining, NSFO, faint odor

Lm - cream-light gray, vfxln, slightly fossiliferous, dense, brittle, bedded chalk in part

Sh - light-medium gray, soft, blocky

Lm - medium brown, fine pinpoint porosity, sucrosic upon crush, saturated light brown stain, SFO, good odor, friable, only a couple chips

Lm - tan-light brown, vfxln to lithographic, hard, brittle, no visible porosity

Lm - light brown-gray, fnxln, brittle, fusulinids

Lm - light-medium gray, vfxln to lithographic, brittle, hard

Lm - medium gray, vfxln, slightly fossiliferous, dense, very hard

Lm - tan, fnxln, slightly fossiliferous, brittle, bedded chalk, black chert

Sh - black, carbonaceous, waxy

Sh - dark gray, firm, blocky

Lm - light gray-cream, fnxln, slightly fossiliferous, brittle

Lm - ivory, lithographic, dense, brittle, clean and bright, no visible porosity

Lm - tan, lithographic, brittle, bedded chalk in part

Lm - cream, fnxln to lithographic, brittle

Sh - light green, soft, sticky clumps

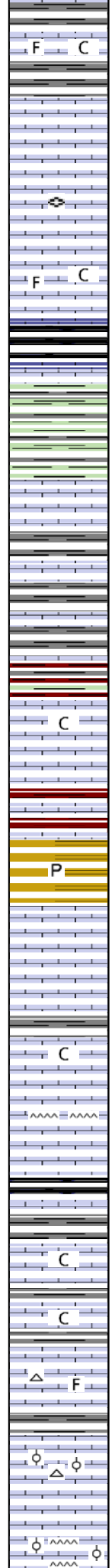
Sh - black, carbonaceous, soft, waxy, copper colored specks

Lm - medium brown, microxln, dense, very hard, brittle

Lm - tan, granular, mottled, slightly fossiliferous, bedded chalk, moderate hardness

MUD WT. 8.8  
VIS. 60  
LCM 2#

2890  
2900  
2910  
2920  
2930  
2940  
2950  
2960  
2970  
2980  
2990  
3000  
3010  
3020  
3030  
3040  
3050  
3060  
3070  
3080  
3090  
3100



Lm - tan-cream, slightly fossiliferous, brittle, chalky in part

Lm - light brown, granular, saturated light brown stain, good odor, friable, fine pinpoint porosity, NSFO, UV fluorescence, streaming wet cut

Lm - light gray, medxln, brittle, bedded chalk, fusulinids

Lm - tan-cream, fnxn, fossiliferous, brittle, chalky in part

**HEEBNER SPL 2934 (-1094) ELOG 2932 (-1092)**

Sh - black, carbonaceous, waxy, firm

Sh - greenish gray, soft, sticky

**TORONTO SPL 2955 (-1115) ELOG 2952 (-1112)**

Lm - tan-cream, granular, pinpoint porosity, slight scattered stain, faint odor, NSFO

Lm - ivory, vfxln, dense, very hard, clean and barren

Lm - cream-tan, fnxn, brittle, bedded chalky

Sh - maroon/gray/green, soft, sticky clumps

**LKC SPL 2983 (-1143) ELOG 2982 (-1142)**

Lm - tan, fnxn, brittle, chalky in part

Sh - maroon, soft, blocky, forming sticky clumps

Sh - medium brown, soft, blocky, some sticky, pyrite

Lm - cream-tan, fine interxln porosity, brittle, chalky in part, some pinpoint porosity with scattered light brown stain, NSFO, no odor

Lm - tan, fnxn, brittle, chalk in part

Lm - light brown, slightly fossiliferous, moderate hardness, slight scattered light brown stain, NSFO, questionable odor, cherty, bedded chalk

Sh - black, carbonaceous, waxy

Lm - cream-light brown, fnxn, scattered pinpoint porosity, scattered light brown stain, NSFO, no odor, chalky

Lm - tan, fnxn, dense, very hard, slightly chalky

Lm - offwhite, fossiliferous, fine interxln porosity with scattered vugs, light golden brown stain, NSFO, no odor, gray chert

Lm - cream, oolitic, scattered interxln porosity with light golden brown stain, SFO upon crush, faint odor, bedded chalk, white chert

Lm - cream-tan, fnxn, dense, hard, bedded chalk in part, oolitic chert, no shows

0  
8  
100 (min/ft)

A

B

C

D

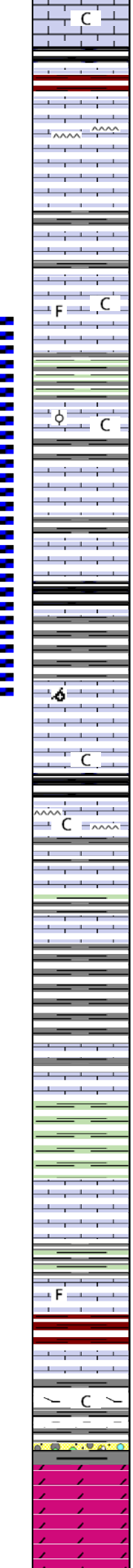
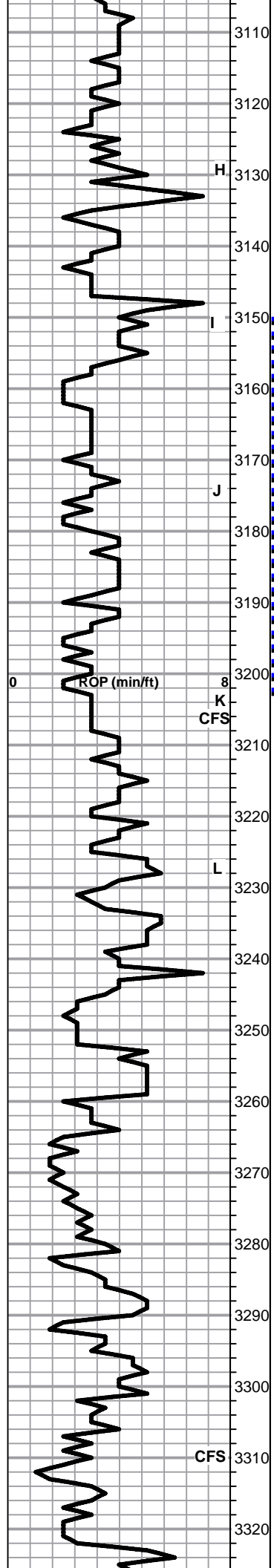
E

F

G

CFS

MUD WT. 9.0  
VIS. 65  
LCM 2#



Lm - cream-light gray, fnxn, hard, brittle, chalky in part

Sh - black carbonaceous, firm, fissile

Sh - maroon, soft, blocky

**D** Lm - tan, fnxn, brittle, bedded chalk, cherty, slight gilsonitic stain, NSFO, no odor

Sh - light gray-medium brown, soft, blocky

Lm - tan-light brown, fossiliferous, fnxn, slightly chalky, hard

Sh - gray/green, soft, blocky, forming sticky clumps

Lm - offwhite-tan, oolitic, poor development, no visible porosity, hard, chalky in part, cherty

**O** Lm - offwhite-light gray, mostly fnxn, slightly oolitic / oomoldic, fine interxn porosity, slightly scattered light brown stain, NSFO, faint odor

**O** Lm - A/A with SFO upon crush, very limited amount, chalky

Sh - black, carbonaceous, waxy

**O** Lm - light gray, fossiliferous with fine interxn porosity, good saturated stain, SFO, faint odor, bedded chalk

Lm - light gray, microxn, dense, very hard, chalky

Lm - cream-tan, fnxn, hard, cherty, chalky

Sh - lime green/gray/brown, soft, gritty, some sticky

**BKC SPL 3238 (-1398) ELOG 3238 (-1398)**

Sh - medium-dark gray, soft, blocky, some sticky

Lm - tan-light gray, vfxn, dense, very hard

Sh - medium green, firm, blocky

Lm - cream, fnxn, brittle

Sh - brown/gray/green, soft, blocky

Lm - offwhite, fnxn, slightly fossiliferous, hard, no visible porosity

Sh - maroon, soft, extremely sticky

Lm - cream, oolitic, poor development, dense, hard

Lm - offwhite, slightly dolomitic, fnxn, hard, excessive sticky white chalky clumps

Cong - dark red clusters, hard, brittle, shaley

**ARBUCKLE SPL 3312 (-1472) ELOG 3310 (-1470)**

**O** Dolo - tan-light brown, fnxn, saturated light brown stain, good odor, NSFO

**O** Dolo - tan, fnxn, scattered light brown stain, well cemented, hard, good odor

MUD WT. 9.1  
 VIS. 58  
 LCM .5#

DST #1 3150 TO 3204  
 (STRADDLE)

SEE HEADER FOR TEST  
 SUMMARY

MUD WT. 9.2  
 VIS. 55  
 LCM 1.5#



