

**OPERATOR**

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

Contact Geologist: TOM DENNING  
 Contact Phone Nbr: 785-628-2593  
 Well Name: YOUNGER UNIT # 2  
 Location: NW NW SE SW, Sec.7-15s-19w  
 API: 15-051-26,687-00-00  
 Pool:  
 State: KANSAS

Field: UNNAMED  
 Country: USA



Scale 1:240 Imperial

Well Name: YOUNGER UNIT # 2  
 Surface Location: NW NW SE SW, Sec.7-15s-19w  
 Bottom Location:  
 API: 15-051-26,687-00-00  
 License Number: 4787  
 Spud Date: 6/13/2014 Time: 4:15 PM  
 Region: ELLIS COUNTY  
 Drilling Completed: 6/18/2014 Time: 6:43 PM  
 Surface Coordinates: 1260' FSL & 1450' FWL  
 Bottom Hole Coordinates:  
 Ground Elevation: 2029.00ft  
 K.B. Elevation: 2039.00ft  
 Logged Interval: 2900.00ft To: 3718.00ft  
 Total Depth: 3718.00ft  
 Formation: LANSING-KANSAS CITY  
 Drilling Fluid Type: CHEMICAL/FRESH WATER GEL

**SURFACE CO-ORDINATES**

Well Type: Vertical  
 Longitude: -99.4803738  
 Latitude: 38.7581909  
 N/S Co-ord: 1260' FSL  
 E/W Co-ord: 1450' FWL

**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: 6/13/2014 Time: 4:15 PM  
 TD Date: 6/18/2014 Time: 6:43 PM

**ELEVATIONS**

K.B. Elevation: 2039.00ft  
K.B. to Ground: 10.00ft

Ground Elevation: 2029.00ft

**NOTES**

RECOMMENDATION TO PLUG AND ABANDON WELL BASED ON RESULTS OF TWO DSTS AND LOG ANALYSIS. A FAIR RECOVERY OF OIL AND GAS WAS FOUND WITH THE CONGLOMERATE SAND TEST BUT PRESSURE LOSS ON SHUT INS INDICATED A LIMITED RESERVOIR.

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

DRILL STEM TESTING BY TRILOBITE TESTING INC: ONE (1) CONVENTIONAL TEST AND ONE (1) STRADDLE TEST

**FORMATION TOPS COMPARISON**

	<b>YOUNGER UNIT #2</b>	<b>YOUNGER # 1</b>	<b>ORVILLE # 1</b>
	<b>NW NW SE SW</b>	<b>SW NE NW SW</b>	<b>NE NE SW SE</b>
	<b>SEC.7-15S-19W</b>	<b>SEC.7-15-19W</b>	<b>SEC.7-15-19W</b>
	<b>2029'GL 2039'KB</b>	<b>KB 2016'</b>	<b>KB 2034'</b>
<u>FORMATION</u>	<u>LOG TOPS</u>	<u>LOG TOPS</u>	<u>LOG TOPS</u>
Anhydrite	1284 +755	+ 764	+760
B-Anhydrite	1320 +719	+ 721	+722
Topeka	3026 -987	- 986	- 988
Heebner Sh.	3284-1245	-1244	-1247
Toronto	3306-1267	-1267	-1267
LKC	3330-1291	-1291	-1293
BKC	3574-1535	-1533	-1545
Marmaton	3621-1582	-1573	-1591
Conglomerate Sd	3650-1611	-1614	-1626
Arbuckle	3674-1635	-1626	-1644
RTD	3718-1679	-1682	-1672


**SUMMARY OF DAILY ACTIVITY**

6-13-14 RU, Spud 4:15 PM,  
6-14-14 1280', set 8 5/8" surface casing to 1289.36' w/ 375sxs SMD, slope 3/4 degree, plug down 4:15PM, WOC 12 Hours  
6-15-14 1370', drill plug at 4:15 AM  
6-16-14 2470', drilling, displaced 2887' to 2908'  
6-17-14 3245', CFS 3315', short trip, CFS 3391', TOWB, DST # 1 3314' to 3391' Toronto-"D" LKC, slope survey 1 degree # 3391'

6-18-14  
6-19-14

3486', drilling, RTD 3718' @6:43PM, CCH, TOWB, start logging  
3718', finish logs, straddle DST # 2 3633' to 3680' Cong. Sd, TIWB,  
LDDP, P&A

**DST # 1 TEST SUMMARY**

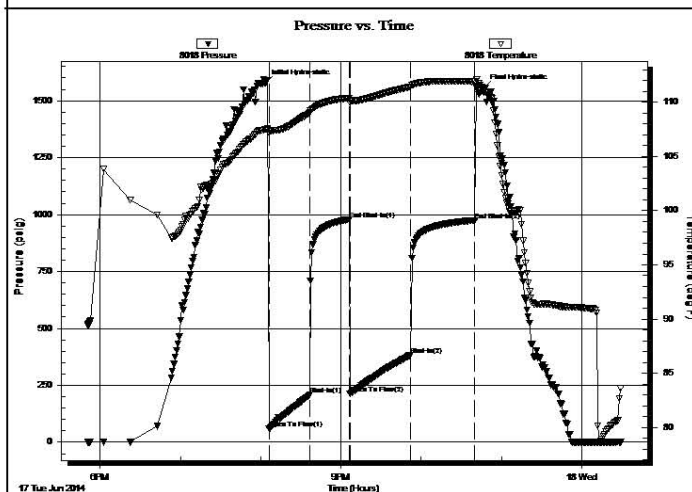
	<b>DRILL STEM TEST REPORT</b>	
	TDI, Inc 1310 Bison Rd Hays Ks 67601  ATTN: Herb Dienes, Tom Denn	<b>7-15s-19w Ellis</b>  <b>Younger Unit #2</b> Job Ticket: 59310 <b>DST#: 1</b> Test Start: 2014.06.17 @ 17:50:39

**GENERAL INFORMATION:**

Formation: <b>LKC C-D</b>	Test Type: Conventional Bottom Hole (Initial)
Deviated: No Whipstock: ft (KB)	Tester: Ray Schwager
Time Tool Opened: 20:06:04	Unit No: 70
Time Test Ended: 00:29:33	
Interval: <b>3314.00 ft (KB) To 3391.00 ft (KB) (TVD)</b>	Reference Elevations: 2039.00 ft (KB)
Total Depth: 3391.00 ft (KB) (TVD)	2028.00 ft (CF)
Hole Diameter: 7.85 inches Hole Condition: Fair	KB to GR/CF: 11.00 ft

<b>Serial #: 8018</b> <b>Inside</b>	Capacity: 8000.00 psig
Press@RunDepth: 383.40 psig @ 3324.00 ft (KB)	Last Calib.: 2014.06.18
Start Date: 2014.06.17      End Date: 2014.06.18	Time On Btm: 2014.06.17 @ 20:03:34
Start Time: 17:50:39      End Time: 00:29:33	Time Off Btm: 2014.06.17 @ 22:46:33

TEST COMMENT: 30-IFP-strg bl in 4 min  
 30-ISIP-no bl  
 45-FFP-strg bl in 10 min  
 45-FSIP-no bl



**PRESSURE SUMMARY**

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1576.46	107.51	Initial Hydro-static
3	61.36	107.17	Open To Flow (1)
33	210.32	109.01	Shut-In(1)
63	978.78	110.39	End Shut-In(1)
63	212.08	109.95	Open To Flow (2)
109	383.40	111.43	Shut-In(2)
157	974.91	111.89	End Shut-In(2)
163	1557.37	110.95	Final Hydro-static

Recovery

Gas Rates

Length (ft)	Description	Volume (bbl)
65.00	MMV 20%M 80%W w /show of oil	0.91
620.00	Water	8.70


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

Trilobite Testing, Inc

Ref. No: 59310

Printed: 2014.06.18 @ 08:35:54

### DST # 2 STRADDLE TEST SUMMARY

 <b>TRILOBITE TESTING, INC</b>	<b>DRILL STEM TEST REPORT</b>	
	TDI, Inc 1310 Bison Rd Hays Ks 67601  ATTN: Herb Dienes, Tom Denn	<b>7-15s-19w Ellis</b>  <b>Younger Unit #2</b>  Job Ticket: 59311 <b>DST#: 2</b>  Test Start: 2014.06.19 @ 02:40:58

**GENERAL INFORMATION:**

Formation: **Congl Sd**  
 Deviated: No Whipstock:                      ft (KB)  
 Time Tool Opened: 04:26:06  
 Time Test Ended: 09:01:36

Interval: **3633.00 ft (KB) To 3680.00 ft (KB) (TVD)**  
 Total Depth: 3718.00 ft (KB) (TVD)  
 Hole Diameter: 7.85 inches Hole Condition: Fair

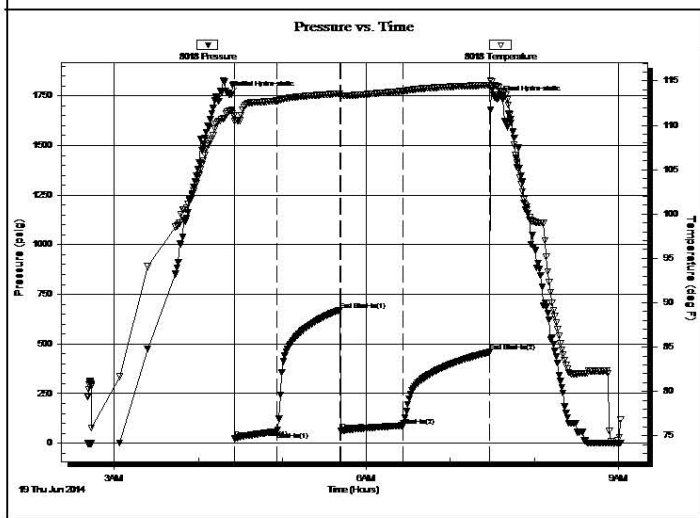
Test Type: Conventional Straddle (Reset)  
 Tester: Ray Schwager  
 Unit No: 70

Reference Elevations: 2039.00 ft (KB)  
 2028.00 ft (CF)  
 KB to GR/CF: 11.00 ft

**Serial #: 8018      Inside**

Press@RunDepth: 88.65 psig @ 3638.00 ft (KB)      Capacity: 8000.00 psig  
 Start Date: 2014.06.19      End Date: 2014.06.19      Last Calib.: 2014.06.19  
 Start Time: 02:40:58      End Time: 09:01:36      Time On Btm: 2014.06.19 @ 04:22:36  
 Time Off Btm: 2014.06.19 @ 07:33:06

**TEST COMMENT:** 30-IFP-w k to strg in 15 min  
 45-ISIP-surface bl bk  
 45-FFP-w k to a fr bl 1/4"to 3 1/2"bl  
 60-FSIP-no bl



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1756.25	111.67	Initial Hydro-static
4	22.95	110.51	Open To Flow (1)
34	58.26	112.77	Shut-In(1)
79	670.94	113.60	End Shut-In(1)
79	63.03	113.39	Open To Flow (2)
124	88.65	113.86	Shut-In(2)
186	458.80	114.53	End Shut-In(2)
191	1734.09	114.44	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)

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

Length (ft)	Description	Volume (bar)
0.00	60'GIP	0.00
135.00	CO	1.89
62.00	MGO 10%G40%M50%O	0.87










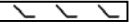




\* Recovery from multiple tests

Trilobite Testing, Inc

Ref. No: 59311

Printed: 2014.06.19 @ 10:20:33

### ROCK TYPES

 Cht vari	 Lmst fw<7	 shale, gry	 Ss	 CglSandy
 Clystgy	 Lmst fw>7	 Carbon Sh	 Sltst	 Dol Lime
 Dolprim	 shale, grn	 shale, red	 Lscongl	

### ACCESSORIES

#### MINERAL

- ▲ Chert, dark
- ∩ Glauconite
- ≡ Nodules
- Sandy

#### FOSSIL

- Oolite
- ⊕ Oomoldic
- ⊕ Fossilinid

### OTHER SYMBOLS

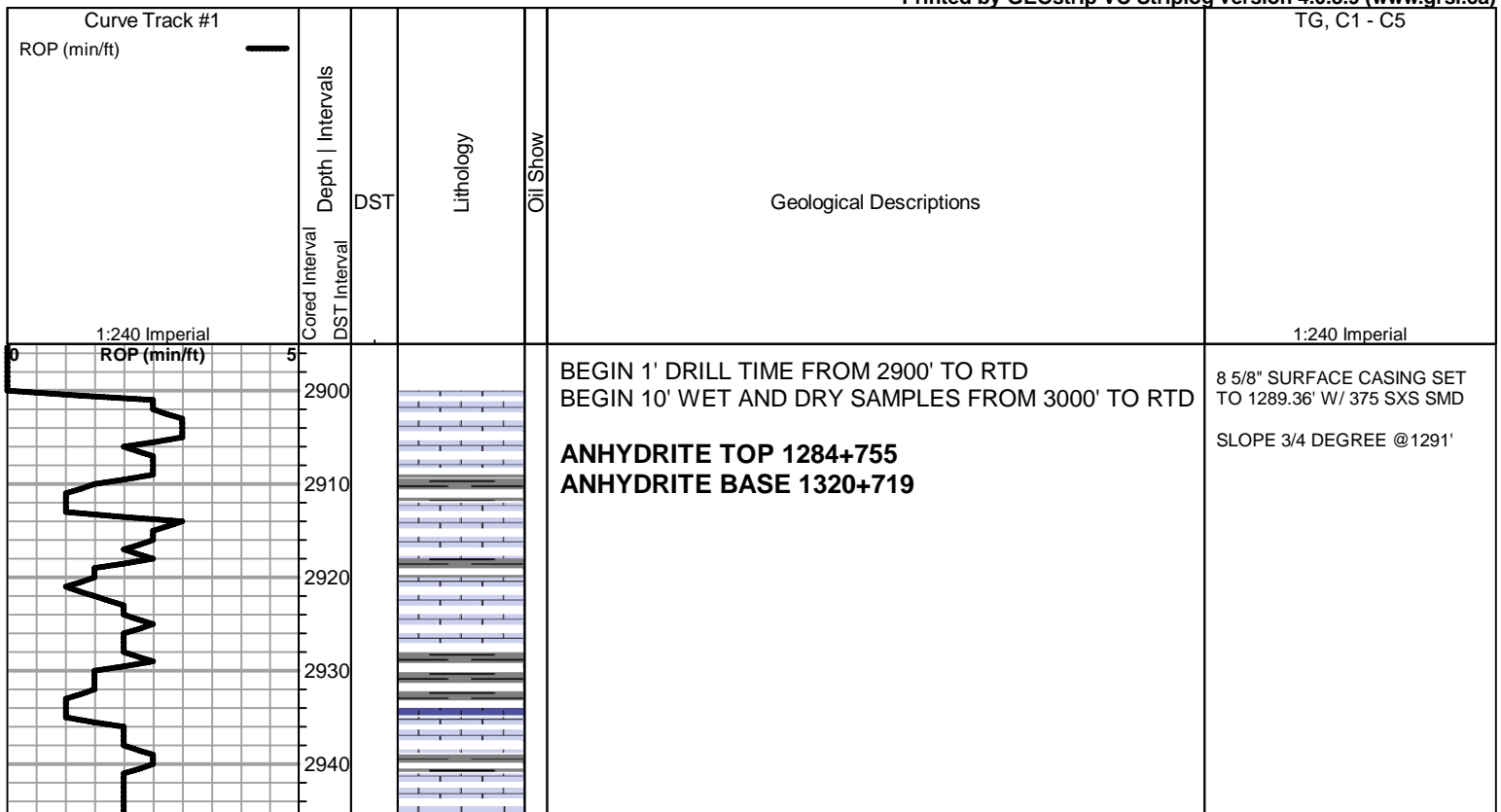
#### Oil Show

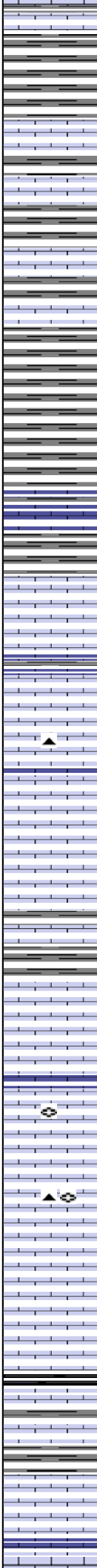
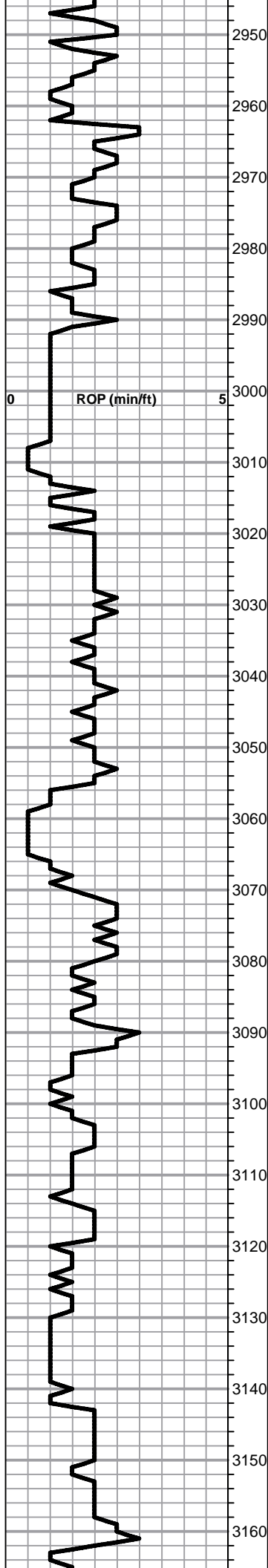
- Good Show
- Fair Show
- Poor Show
- Spotted or Trace
- Questionable Stn
- D Dead Oil Stn
- Fluorescence
- \* Gas

#### DST

- DST Int
- DST alt
- Core
- || tail pipe

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





Lime, lt-med brn, fnxln, slightly fossiliferous

Lime, med gray, fnxln-granular

Lime, dark brn, fnxln, slightly fossiliferous

Shale, med gray, soft-firm blocky

Lime, tan-lt brn-lt gray, fnxln-granular, slight bedded chalk

**TOPEKA ELog 3026-987**

Lime, lt gray-lt grayish brn, fnxln

Lime, med brn, fn-micro xln

Lime, lt-med grayish brn, fnxln, fusulinids

Lime, lt gray-lt grayish brn, fn-vfxln, slight bedded chalk

Lime, lt brn, granular, bedded chalk in part, NS, No wet cut

Lime, med brn-grayish brn, fn-vfxln

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

Lime, med-dark gray, fnxln

Lime, lt-med brn, granular, fusulinids, sticky chalk clumps in part

Lime, lt-med brn, granular-fnxln, bedded chalk in chalky matrix, white chalk wash, scattered fusulinids, dark chert fragments

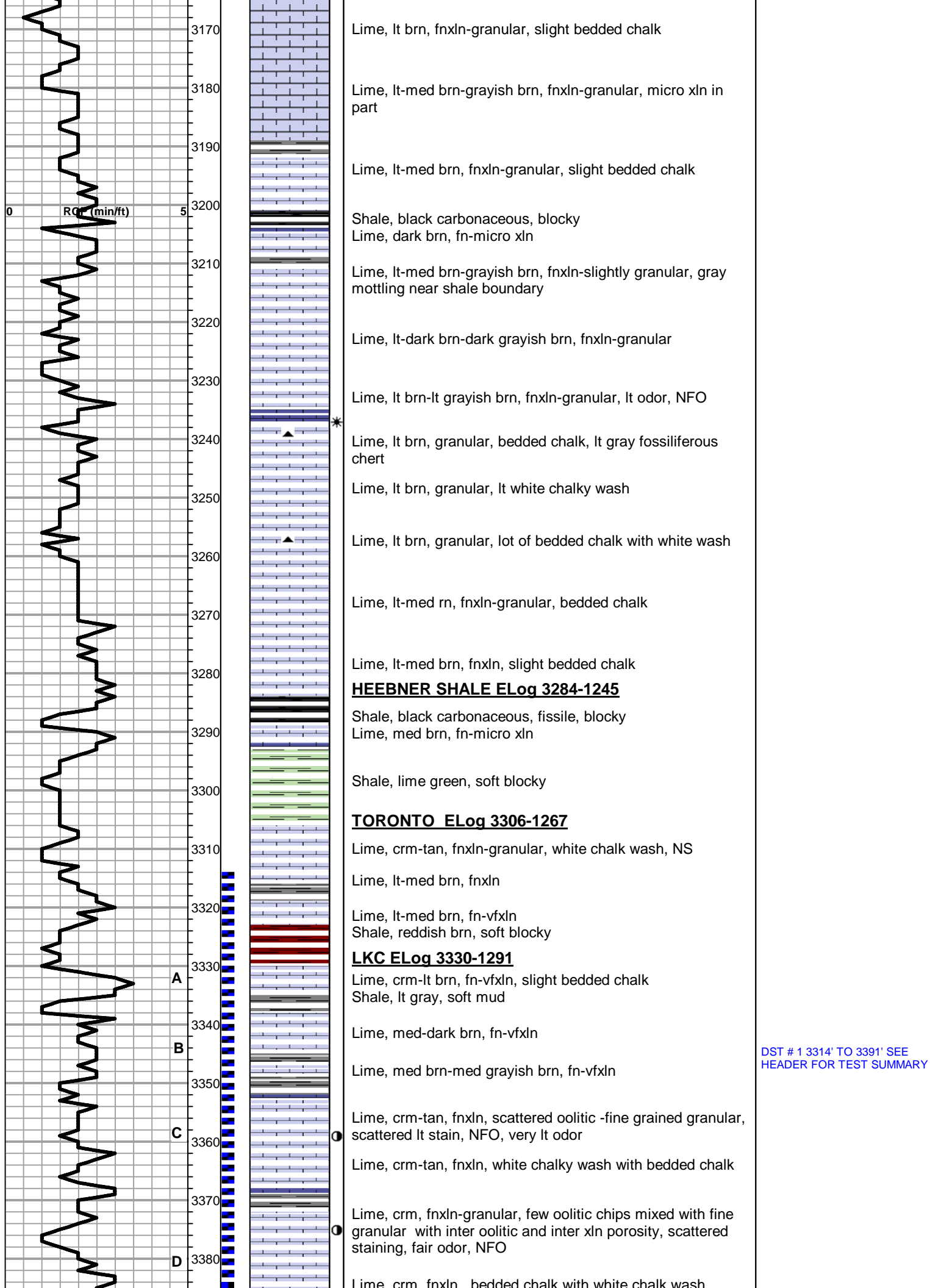
Lime, med brn, granular, increasing bedded chalk with sticky clumps in part

Shale, black carbonaceous, blocky

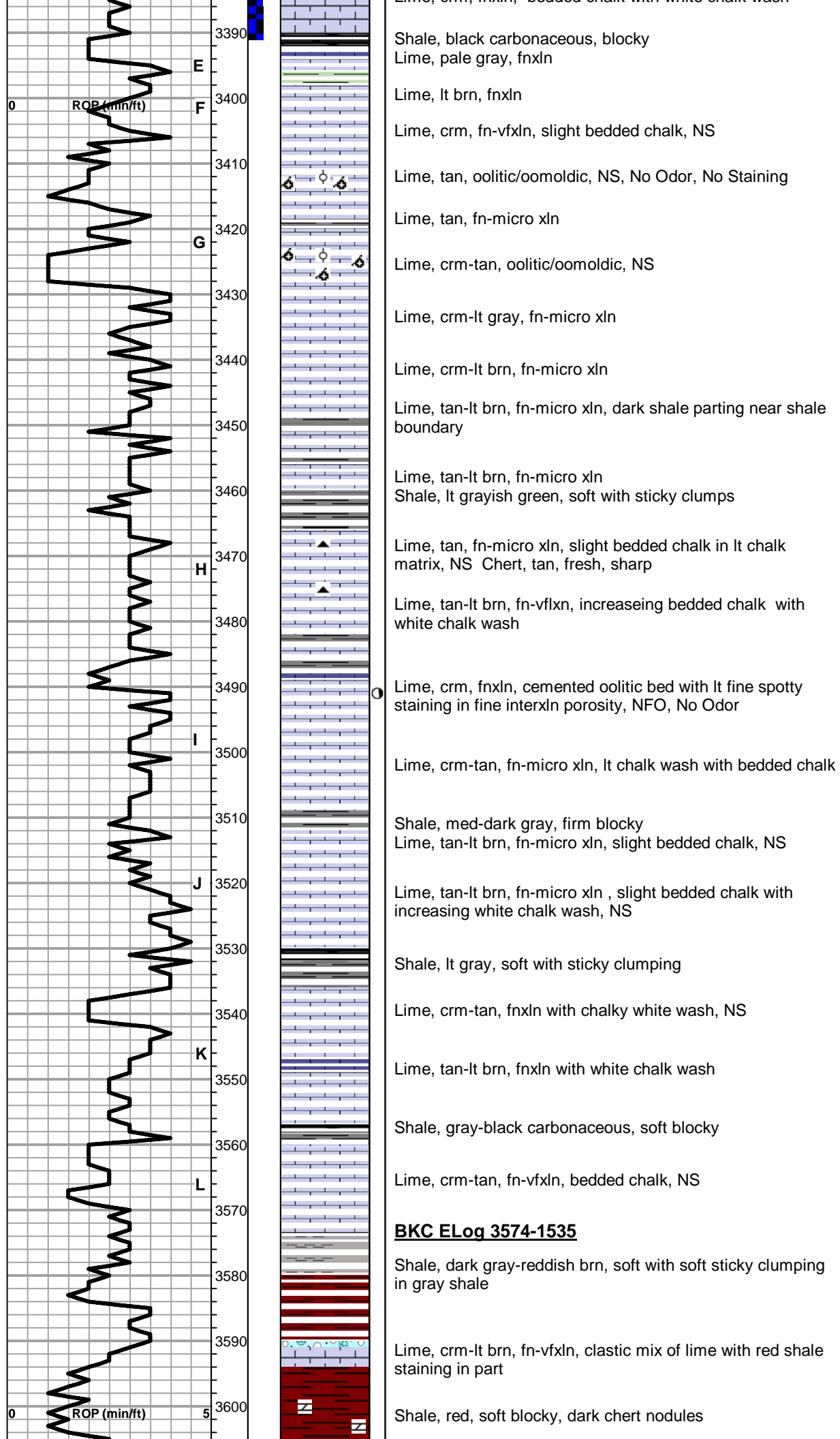
Lime, med brn, fn-vfxln

Lime, lt-med brn, fn-vfxln

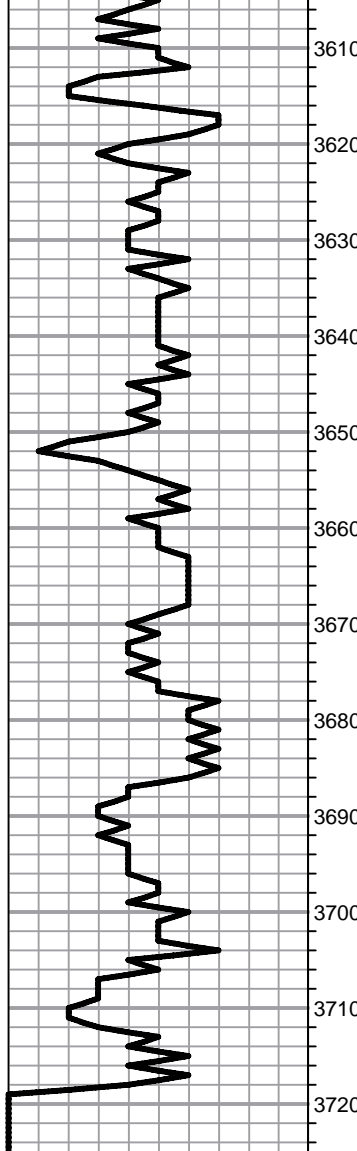
Lime, lt brn, fn-vfxln



DST # 1 3314' TO 3391' SEE HEADER FOR TEST SUMMARY







Lime, crm, fnxln

**MARMATON ELog 3621-1582**

Lime, crm-tan, fn-vfxln, dolomitic, orange chert fragments

Lime, lt-med brn, fnxln-fine granular, scattered to saturated staining, NFO, No Odor, poor wet cut, appears to be tite with little visible porosity or development

Lime, crm-lt brn, fnxln, dolomitic, tan and orange cherts

**CONGLOMERATE SAND ELog 3650-1611**

Sandstone, quartz, cemented in part, poorly sorted with thin zone of loose grains, scattered to saturated staining, lt odor with SFO on crush, dolomitic cement in part

Shale dark red, soft mud with white sticky clay in part

**ARBUCKLE ELog 3674-1635**

Dolomite, crm, granular-fnxln with specks of glauconite

Dolomite, crm, fnxln-granular

Dolomite, crm, granular, sucrosic, quartz grain inclusions increasing with depth

Dolomite, crm-tan, fnxln-granular

Dolomite, tan-crm, fnxln-granular  
Sandstone, clear quartz clusters and fused chips with fine, green stained friable sandstone in part, NS

**RTD 3718-1679      LTD 3718-1679**

1ST PLUG @3613' W/50 SXS  
2ND PLUG @1250' W/50 SXS  
3RD PLUG @475' W/80 SXS  
4TH PLUG @40' W/10 SXS  
RATHOLE W/30 SXS  
MOUSEHOLE W/15 SXS

**DST # 2 STRADDLE TEST  
3633' TO 3680' SEE HEADER  
FOR TEST SUMMARY**