

**OPERATOR**

Company: TDI, INC.  
 Address: 1310 BISON ROAD  
 HAYS, KANSAS 67601-9696

Contact Geologist: TOM DENNING  
 Contact Phone Nbr: 785-628-2593  
 Well Name: DERRICK # 3  
 Location: E2 SE SW SE, SEC.4-T15S-R18W  
 API: 15-051-26,883-00-00  
 Pool: IN FIELD  
 State: KANSAS

Field: DINGES  
 Country: USA



Scale 1:240 Imperial

Well Name: DERRICK # 3  
 Surface Location: E2 SE SW SE, SEC.4-T15S-R18W  
 Bottom Location:  
 API: 15-051-26,883-00-00  
 License Number: 4787  
 Spud Date: 8/4/2017 Time: 4:15 PM  
 Region: ELLIS COUNTY  
 Drilling Completed: 8/9/2017 Time: 4:23 AM  
 Surface Coordinates: 330' FSL & 1595' FEL  
 Bottom Hole Coordinates:  
 Ground Elevation: 2022.00ft  
 K.B. Elevation: 2032.00ft  
 Logged Interval: 0.00ft To: 0.00ft  
 Total Depth: 3646.00ft  
 Formation: ARBUCKLE  
 Drilling Fluid Type: CHEMICAL/FRESH WATER GEL

**SURFACE CO-ORDINATES**

Well Type: Vertical  
 Longitude: -99.3243787  
 Latitude: 38.7703904  
 N/S Co-ord: 330' FSL  
 E/W Co-ord: 1595' FEL

**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: MED ROTARY  
 Spud Date: 8/4/2017 Time: 4:15 PM  
 TD Date: 8/9/2017 Time: 4:23 AM

**ELEVATIONS**

K.B. Elevation: 2032.00ft                      Ground Elevation: 2022.00ft  
 K.B. to Ground: 10.00ft

**NOTES**

RECOMMENDATION TO PLUG AND ABANDON WELL BASED ON NEGATIVE RESULTS OF TWO DSTS, LOW STRUCTURE OF WELL AND LACK OF SHOWS AND RESERVOIR DEVELOPMENT IN LKC AND ARBUCKLE.

NO OPEN HOLE LOGS WERE RAN ON THIS WELL.

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

<b>DERRICK # 3</b>	<b>DERRICK UNIT #1</b>	<b>DERRICK # 2</b>
<b>E2 SE SW SE</b>	<b>SE SE SE SE</b>	<b>S2 NW SW SE</b>
<b>SEC.4-15S-18W</b>	<b>SEC.4-15-18NW</b>	<b>SEC.4-15-18W</b>
<b>2032'KB</b>	<b>KB 2037'</b>	<b>KB 2029'</b>

<u>FORMATION</u>	<u>SAMPLE TOPS</u>	<u>LOG TOPS</u>	<u>LOG TOPS</u>
<b>Anhydrite</b>	<b>1209 +823</b>	<b>+ 830</b>	<b>+ 824</b>
<b>B-Anhydrite</b>	<b>1245 +787</b>	<b>+ 790</b>	<b>+788</b>
<b>Topeka</b>	<b>3005 - 973</b>	<b>- 964</b>	<b>- 969</b>
<b>Heebner Sh.</b>	<b>3279-1247</b>	<b>-1248</b>	<b>-1241</b>
<b>Toronto</b>	<b>3299-1267</b>	<b>-1264</b>	<b>-1261</b>
<b>LKC</b>	<b>3332-1300</b>	<b>-1298</b>	<b>-1293</b>
<b>BKC</b>	<b>3564-1532</b>	<b>-1528</b>	<b>-1527</b>
<b>Arbuckle</b>	<b>3638-1606</b>	<b>-1586</b>	<b>-1595</b>
<b>RTD</b>	<b>3646-1614</b>	<b>-1713</b>	<b>-1721</b>

**SUMMARY OF DAILY ACTIVITY**

- 8-04-17**    **RU, Spud 4:15 PM, set 8 5/8" surface casing to 206' w/ 150 sxs  
Common 2%gel 3%cc, WOC 8 hrs, slope 3/4 degree @207'.**
- 8-05-17**    **207', WOC, drill plug at 7:45AM**
- 8-06-17**    **1815' drilling**
- 8-07-17**    **2751', drilling, displaced 2732' to 2759'**
- 8-08-17**    **3481', drilling, CFS 3630', CFS 3636', short trip 28 stands, TOWB,  
DST # 1 3554' to 3636'**
- 8-09-17**    **3646' TIWB, drilling, CFS 3646', RTD 4:23 AM @ 3646', TOWB, DST  
# 2 3554' to 3646', decision to plug and abandon, LDDP/plug, RD**



**TRILOBITE TESTING, INC.**

**DRILL STEM TEST REPORT**

TDI, Inc  
1310 Bison Rd  
Hays Ks 67601-9696

**4-15s18w Ellis**  
**Derrick #3**  
Job Ticket: 63011 **DST#: 1**  
Test Start: 2017.08.08 @ 19:40:24

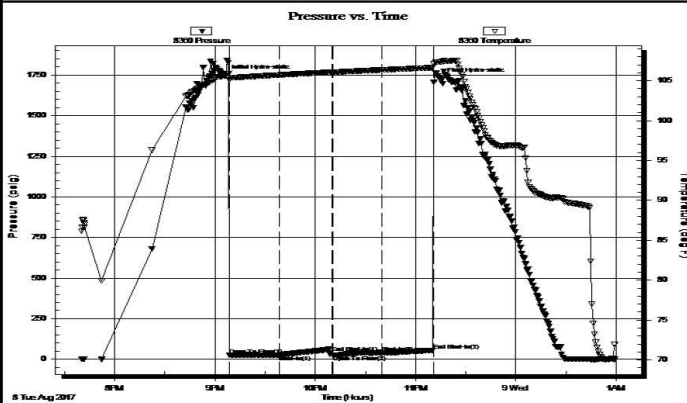
ATTN: Tom Denning, Herb Dei

**GENERAL INFORMATION:**

Formation: **Arbuckle**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 21:08:49  
Time Test Ended: 00:59:33  
Test Type: Conventional Bottom Hole (Initial)  
Tester: Ray Schwager  
Unit No: 77  
Interval: **3554.00 ft (KB) To 3636.00 ft (KB) (TVD)**  
Reference Elevations: 2032.00 ft (KB)  
Total Depth: 3636.00 ft (KB) (TVD) 2023.00 ft (CF)  
Hole Diameter: 7.85 inches Hole Condition: Fair KB to GR/CF: 9.00 ft

**Serial #: 8360 Inside**  
Press@RunDepth: 38.36 psig @ 3568.00 ft (KB) Capacity: 8000.00 psig  
Start Date: 2017.08.08 End Date: 2017.08.09 Last Calib.: 2017.08.09  
Start Time: 19:40:24 End Time: 00:59:33 Time On Btm: 2017.08.08 @ 21:06:34  
Time Off Btm: 2017.08.08 @ 23:15:04

TEST COMMENT: 30-IFP-w k bl, died in 22 min  
30-ISIP-no bl  
30-FFP-no bl  
30-FSIP-no bl



**PRESSURE SUMMARY**

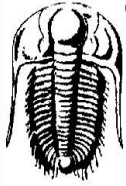
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1744.92	105.59	Initial Hydro-static
3	24.52	105.05	Open To Flow (1)
33	25.79	105.73	Shut-In(1)
64	39.18	106.06	End Shut-In(1)
64	25.93	106.07	Open To Flow (2)
94	38.36	106.36	Shut-In(2)
124	55.25	106.64	End Shut-In(2)
129	1723.40	107.37	Final Hydro-static

**Recovery**

Length (ft)	Description	Volume (bbl)
10.00	mud w/ show of oil in tool	0.14

**Gas Rates**

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



**TRILOBITE TESTING, INC.**

**DRILL STEM TEST REPORT**

TDI, Inc  
 1310 Bison Rd  
 Hays Ks 67601-9696  
 ATTN: Tom Denning, Herb Dei

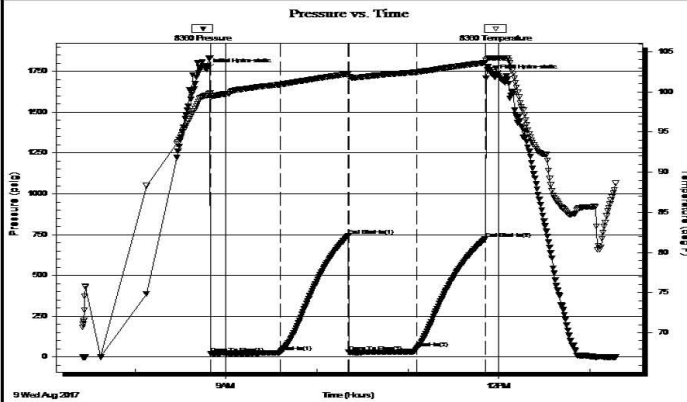
**4-15s18w Ellis**  
**Derrick #3**  
 Job Ticket: 63012 **DST#: 2**  
 Test Start: 2017.08.09 @ 07:25:19

**GENERAL INFORMATION:**

Formation: **Arbuckle**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 08:50:04  
 Time Test Ended: 13:17:19  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Ray Schwager  
 Unit No: 77  
 Interval: **3554.00 ft (KB) To 3646.00 ft (KB) (TVD)**  
 Total Depth: 3646.00 ft (KB) (TVD)  
 Reference Elevations: 2032.00 ft (KB)  
 2023.00 ft (CF)  
 Hole Diameter: 7.85 inches Hole Condition: Fair  
 KB to GR/CF: 9.00 ft

**Serial #: 8360 Inside**  
 Press@RunDepth: 52.04 psig @ 3578.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2017.08.09 End Date: 2017.08.09 Last Calib.: 2017.08.09  
 Start Time: 07:25:24 End Time: 13:17:18 Time On Btm: 2017.08.09 @ 08:47:19  
 Time Off Btm: 2017.08.09 @ 11:56:34

**TEST COMMENT:** 45\_IFP-w k bl thru-out 1/2" to 3" bl  
 45-ISIP-no bl  
 45-FFP-w k bl thru-out 1/4" to 1" bl  
 FSIP-no bl



**PRESSURE SUMMARY**

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1761.47	99.57	Initial Hydro-static
3	22.37	99.31	Open To Flow (1)
49	32.06	100.91	Shut-In(1)
94	743.62	102.24	End Shut-In(1)
94	31.82	101.83	Open To Flow (2)
139	52.04	102.47	Shut-In(2)
184	724.01	103.63	End Shut-In(2)
190	1724.06	104.24	Final Hydro-static

**Recovery**

Length (ft)	Description	Volume (bbl)
0.00	75'GIP	0.00
10.00	OO	0.14
35.00	OCM 25%O75	0.49

**Gas Rates**

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

\* Recovery from multiple tests

Trilobite Testing, Inc

Ref. No: 63012

Printed: 2017.08.09 @ 13:57:15

**ROCK TYPES**

Cht vari	Dolsec	Lmst fw7>	shale, gry
Chtcong1	Dol Lime	Lscong1	Carbon Sh
Dolprim	Lmst fw<7	shale, grn	shale, red

**ACCESSORIES**

MINERAL

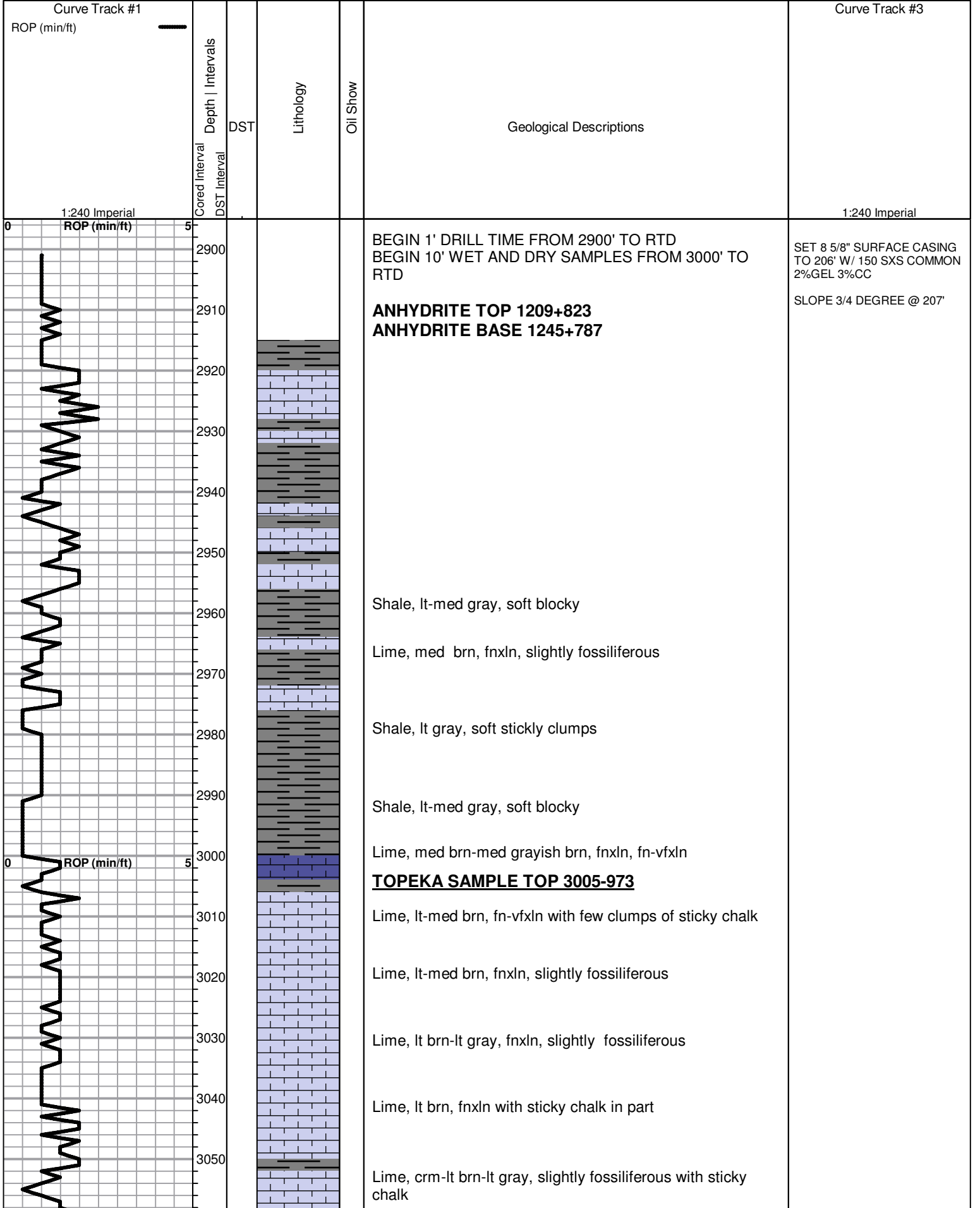
FOSSIL

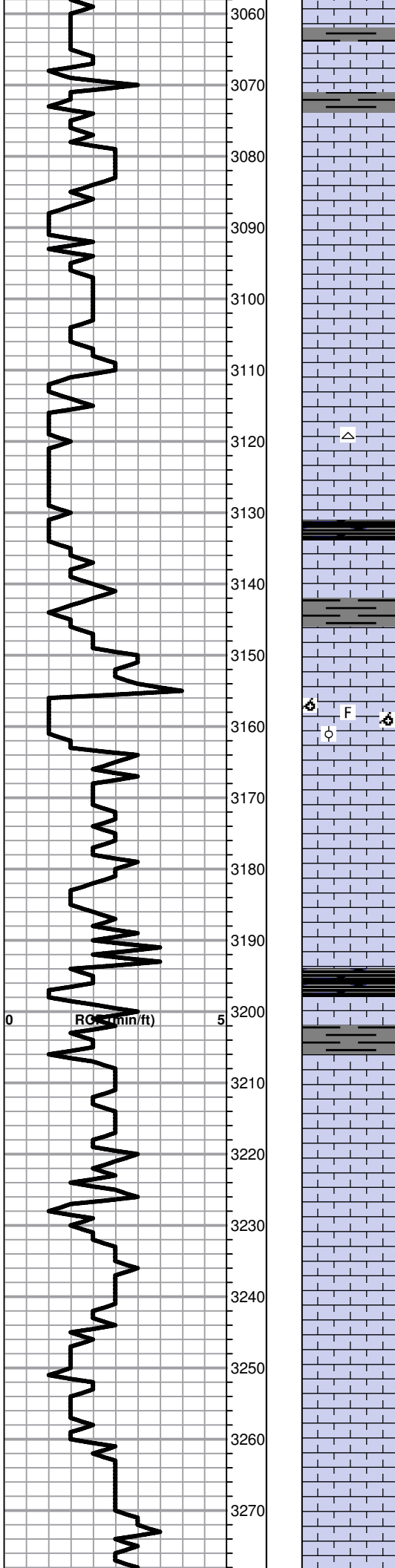
△ Chert White

F Fossils < 20%

○ Oolite

⊗ Oomoldic





Lime, lt brn-lt gray, fnxln, slight bedded chalk, fusulinids

Lime, tl brn-lt gray, fnxln with micro xln in part

Lime, lt-med brn-med grayish brn, fn-vfxln, slightly fossiliferous

Lime, lt-med brn, fnxln with bedded chalk in part

Lime, lt-med brn-lt grayish brn, fn-vfxln, fusulinids in part

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

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

Shale, black carbonaceous, blocky

Lime, lt-med brn, fnxln, slightly fossiliferous

Shale, lt gray, soft sticky clumping

Lime, crm, fn-micro xln

Lime, lt brn, granular with fossil fragments, NS,NFO, no wet cut

Lime, crm-lt brn, fn-vfxln, slight bedded chalk with lt white wash

Lime, crm-lt brn, fn-vfxln, slight bedded chalk and slightly fossiliferous

Lime, lt brn-lt gray, fn-vfxln

Shale, black carbonaceous, blocky

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

Lime, lt-med brn, fnxln with slight bedded chalk, NS

Lime, lt-med brn, fnxln, NS

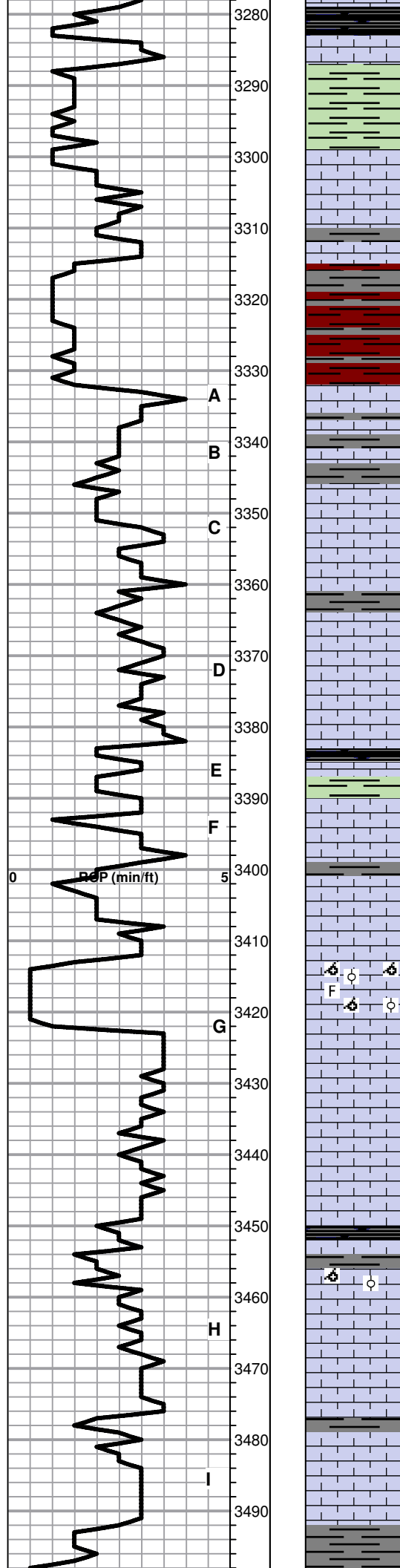
Lime, lt-med brn, fn-micro xln, slight fossiliferous

Lime, lt-med brn-med grayish brn, fn-vfxln

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

Lime, lt brn, fnxln, bedded chalk with lt white wash

HEEPNER SHALE SAMPLE TOP 3270 1247



**HEEBNER SHALE SAMPLE TOP 3279-1247**

Shale, black carbonaceous, fissile, blicky  
Lime, med brn, micro xln

Shale, dove gray-lime green, soft sticky mud

**TORONTO SAMPLE TOP 3299-1267**

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

Lime, crm-lt brn, fn-vfxln,

Shale, red soft mud - lt-med gray, soft

**LKC SAMPLE TOP 3332-1300**

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

Lime, med brn-lt gray, fn-vfxln

Lime, crm-lt brn, fnxln-granular in part, NS, no odor

Lime, crm-tan, fnxln, bedded chalk  
Shale, lt gray, soft blocky

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

Lime, lt brn, fn-micro xln

Shale, black carbonaceous  
Lime, lt grayish green, vfxln

Lime, crm, fnxln with scattered fossil casts and voids with lt spotty staining, very lt odor, NFO, not well developed

Lime, crm-lt brn, fn-vfxln

Lime, crm-tan, fn-micro xln

Lime, crm, oolmoldic

Lime, crm-lt brn, fn-vfxln

Lime, crm, fn-vfxln, slight bedded chalk

Lime, crm-lt brn-lt gray, fn-vfxln  
Shale, gray-black carbonaceous, blocky

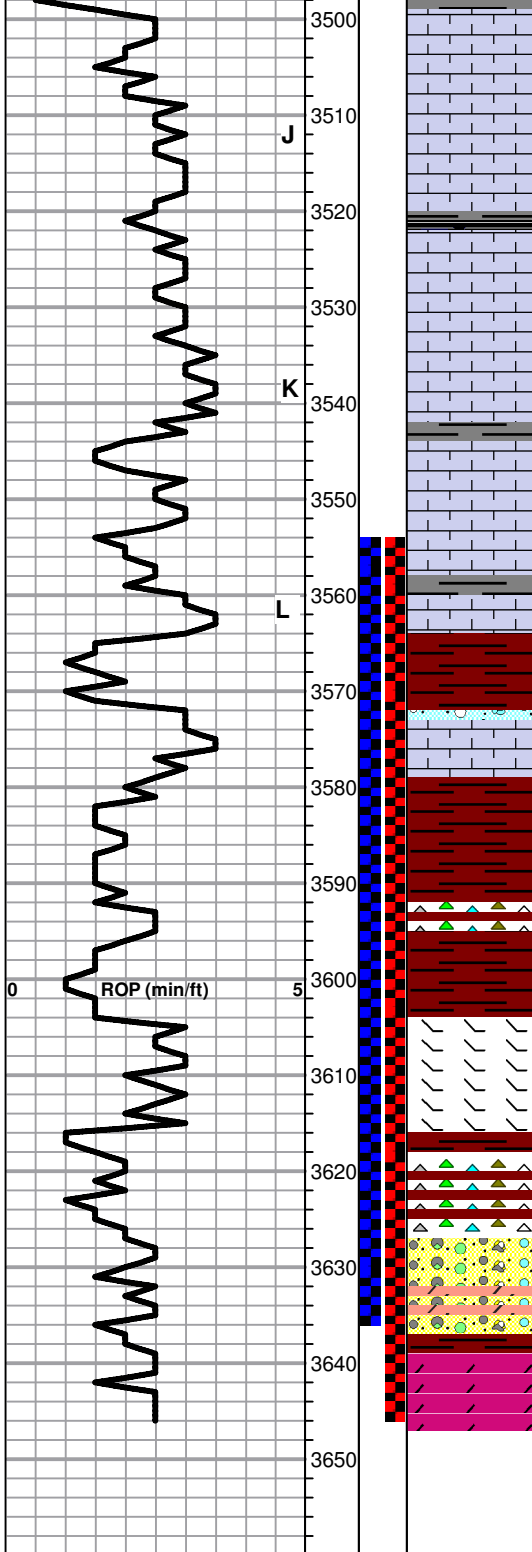
Lime, crm, fn-vfxln, few oomoldic chips with no staining or SFO

Lime, crm-lt brn, fn-vfxln

Shale, gray-black, blocky  
Lime, offwhite-crm, fn-micro xln NS

Lime, crm, fn-micro xln

Shale, med gray, soft-firm blocky, calcareous in part



Lime, crm, fn-micro xln, NS

Lime, crm-tan, fn-micro xln

Lime, crm-med brn, fn-micro xln  
 Shale, gray-black carbonaceous, blocky

Lime, crm-lt brn, fn-micro xln

Lime, crm-lt brn, fn-micro xln

Lime, crm-lt brn, fn-micro xln

Lime, crm-lt brn, fn-micro xln

**BKC SAMPLE TOP 3564-1532**

Shale, red mudo reddish brn, soft blocky

Lime, lt brn-lt grayish brn, fn-micro xln, some clastics in part

Shale, red, soft mud with red wash

Shale, red, soft mud with red wash

Lime, crm, fn-vfxln, few chips of orange chert

Shale, red-white, soft sticky clumps, vari color cherts

**REWORKED ARBUCKLE SAMPLE TOP 3626-1594**

Mix of chert and fresh dolomite chips, ivory, granular, lt odor and scattered staining

**ARBUCKLE SAMPLE TOP 3638-1606**

Dolomite, ivory-crm, fnxln-coarse granular, rhombic in part, fair odor and staining

**RTD 3646-1614**

DST # 1 3554' TO 3636' SEE  
 HEADER FOR TEST  
 SUMMARY

DST # 2 3554' TO 3646' SEE  
 HEADER FOR TEST  
 SUMMARY