

**OPERATOR**

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

Contact Geologist: TOM DENNING  
 Contact Phone Nbr: 785-628-2593  
 Well Name: DESMARTEAU # 1  
 Location: NE SW SE SW Sec.31-T11S-R18W  
 API: 15-051-26,808-00-00  
 Pool: WILDCAT  
 State: KANSAS  
 Field:  
 Country: USA



Scale 1:240 Imperial

Well Name: DESMARTEAU # 1  
 Surface Location: NE SW SE SW Sec.31-T11S-R18W  
 Bottom Location:  
 API: 15-051-26,808-00-00  
 License Number: 4787  
 Spud Date: 11/4/2015 Time: 7:00 PM  
 Region: ELLIS COUNTY  
 Drilling Completed: 11/10/2015 Time: 2:19 AM  
 Surface Coordinates: 400' FSL & 1800' FWL  
 Bottom Hole Coordinates:  
 Ground Elevation: 2114.00ft  
 K.B. Elevation: 2124.00ft  
 Logged Interval: 3050.00ft To: 3775.00ft  
 Total Depth: 3775.00ft  
 Formation: LANSING-KANSAS CITY  
 Drilling Fluid Type: CHEMICAL/FRESH WATER GEL

**SURFACE CO-ORDINATES**

Well Type: Vertical  
 Longitude: -99.364007  
 Latitude: 39.0460112  
 N/S Co-ord: 400' FSL  
 E/W Co-ord: 1800' 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: 11/4/2015 Time: 7:00 PM  
 TD Date: 11/10/2015 Time: 2:19 AM

**ELEVATIONS**

K.B. Elevation: 2124.00ft  
K.B. to Ground: 10.00ft

Ground Elevation: 2114.00ft

**NOTES**

RECOMMENDATION TO RUN PRODUCTION CASING BASED ON POSITIVE RESULTS OF DSTS AND LOG ANALYSIS.

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

	<b>DESMARTEAU # 1</b>	<b>HARMAN # 1</b>
	<b>NE SW SE SW</b>	<b>NW NW NW</b>
	<b>SEC.31-11S-18W</b>	<b>SEC.6-12-18W</b>
	<b>2124'KB</b>	<b>KB 2076'</b>
<u>FORMATION</u>	<u>LOG TOPS</u>	<u>LOG TOPS</u>
<b>Anhydrite-top</b>	<b>1458 +666</b>	<b>+662</b>
<b>Anhydrite-base</b>	<b>1492 +632</b>	<b>+625</b>
<b>Topeka</b>	<b>3136-1012</b>	<b>-1014</b>
<b>Heebner Shale</b>	<b>3361-1237</b>	<b>-1242</b>
<b>Toronto</b>	<b>3382-1258</b>	<b>-1262</b>
<b>LKC</b>	<b>3403-1279</b>	<b>-1284</b>
<b>BKC</b>	<b>3636-1512</b>	<b>-1516</b>
<b>Arbuckle</b>	<b>3684-1560</b>	<b>-1584</b>
<b>RTD</b>	<b>3775-1651</b>	<b>-1622</b>

**SUMMARY OF DAILY ACTIVITY**

**11-04-15** Spud 7:00 PM, set 8 5/8" surface casing to 215.44' w/150 sxs  
Common 2% Gel 3%CC, slope 1/2 degree

**11-05-15** 217', plug down 2:00 AM, WOC 8 hrs, drill plug 10:00AM

**11-06-15** 2030', drilling

**11-07-15** 2995', drilling, displace, CFS 3400', short trip

**11-08-15** 3455', CFS 3455', DST # 1 3360' – 3455' Tor-"C" LKC, CFS 3475',  
DST # 2 "D" LKC

**11-09-15** 3610', CFS 3615', DST #3 3554'-3615' "I" – "K" LKC, drilling

**11-10-15** 3775', RTD 3775' @2:19AM, CCH, TOWB, slope 1 degree, logs,  
TIWB, LDDP, run production casing and cement, RD



**TRILOBITE TESTING, INC.**

**DRILL STEM TEST REPORT**

TDI Inc.  
1310 Bison Rd  
Hays KS 67601  
ATTN: Herb Dienes

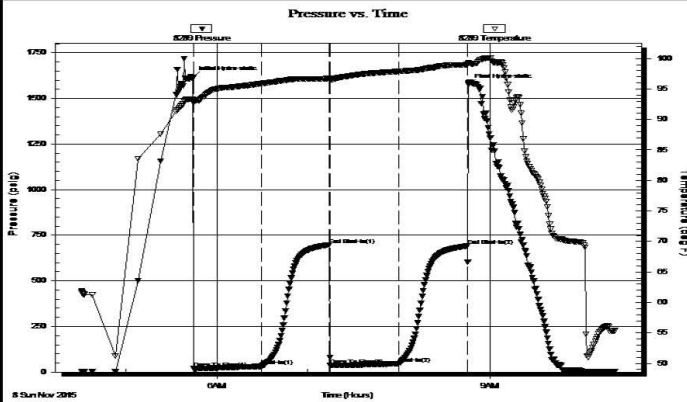
**31 11s 18w Ellis**  
**Desmarteau # 1**  
Job Ticket: 61669 **DST#: 1**  
Test Start: 2015.11.08 @ 04:31:00

**GENERAL INFORMATION:**

Formation: **Toronto - LKC " A- C**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 05:44:30  
Time Test Ended: 10:22:00  
Test Type: Conventional Bottom Hole (Initial)  
Tester: Jim Svaty  
Unit No: 76  
Interval: **3360.00 ft (KB) To 3455.00 ft (KB) (TVD)**  
Total Depth: 3455.00 ft (KB) (TVD)  
Reference Elevations: 2124.00 ft (KB)  
2119.00 ft (CF)  
Hole Diameter: 7.88 inches Hole Condition: Fair  
KB to GR/CF: 5.00 ft

**Serial #: 8289 Outside**  
Press@RunDepth: 46.19 psig @ 3364.00 ft (KB) Capacity: 8000.00 psig  
Start Date: 2015.11.08 End Date: 2015.11.08 Last Calib.: 2015.11.08  
Start Time: 04:31:02 End Time: 10:22:00 Time On Btm: 2015.11.08 @ 05:44:15  
Time Off Btm: 2015.11.08 @ 08:45:45

**TEST COMMENT:** 45-IF- Surface Blow Building to 1 1/4in. In 6min.  
45-ISI- No Blow  
45-FF- 2 1/4in. Blow in 1min. Died Back in 5min.  
45-FSI- No Blow



**PRESSURE SUMMARY**

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1613.65	93.36	Initial Hydro-static
1	18.58	92.76	Open To Flow (1)
46	31.41	95.90	Shut-In(1)
90	698.06	96.71	End Shut-In(1)
91	36.68	96.47	Open To Flow (2)
136	46.19	97.91	Shut-In(2)
181	691.73	98.98	End Shut-In(2)
182	1574.83	99.27	Final Hydro-static

**Recovery**

Length (ft)	Description	Volume (bbt)
67.00	OCM 30%o 70% m	0.94
0.00	120 GIP	0.00

**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  
ATTN: Herb Dienes

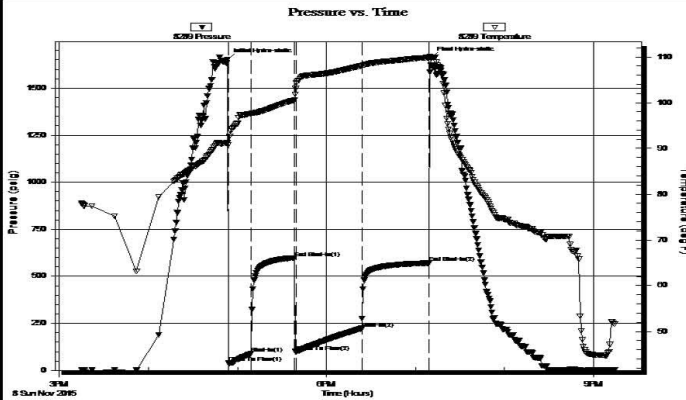
**31 11s 18w Ellis**  
**Desmarteau # 1**  
Job Ticket: 61670 **DST#: 2**  
Test Start: 2015.11.08 @ 15:15:00

**GENERAL INFORMATION:**

Formation: **LKC " D "**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 16:54:00  
Time Test Ended: 21:14:00  
Test Type: Conventional Bottom Hole (Reset)  
Tester: Jim Svaty  
Unit No: 76  
Interval: **3450.00 ft (KB) To 3475.00 ft (KB) (TVD)**  
Reference Elevations: 2124.00 ft (KB)  
Total Depth: 3475.00 ft (KB) (TVD) 2119.00 ft (CF)  
Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 5.00 ft

**Serial #: 8289 Outside**  
Press@RunDepth: 223.35 psig @ 3452.00 ft (KB) Capacity: 8000.00 psig  
Start Date: 2015.11.08 End Date: 2015.11.08 Last Calib.: 2015.11.08  
Start Time: 15:15:02 End Time: 21:14:15 Time On Btm: 2015.11.08 @ 16:53:30  
Time Off Btm: 2015.11.08 @ 19:10:15

**TEST COMMENT:** 15-IF- BOB in 2min.  
30-ISI- Weak Surface Blow  
45-FF- BOB in 6min.  
45-FSI- Surface Blow Building to 6 1/4in. In 16min.



**PRESSURE SUMMARY**

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1653.50	91.20	Initial Hydro-static
1	38.75	90.79	Open To Flow (1)
16	89.14	97.59	Shut-In(1)
45	598.12	100.56	End Shut-In(1)
46	98.68	103.07	Open To Flow (2)
91	223.35	108.05	Shut-In(2)
136	570.47	109.84	End Shut-In(2)
137	1659.67	109.92	Final Hydro-static

**Recovery**

Length (ft)	Description	Volume (bbl)
137.00	Oil Speck MCW 5% m 95% w	1.92
113.00	GWMCO 15% w 15% m 30% g 40% o	1.59
250.00	CO 100%	3.51
0.00	935 GIP	0.00

\* Recovery from multiple tests

**Gas Rates**

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

Trilobite Testing, Inc

Ref. No: 61670

Printed: 2015.11.08 @ 22:47:30



**TRILOBITE TESTING, INC.**

**DRILL STEM TEST REPORT**

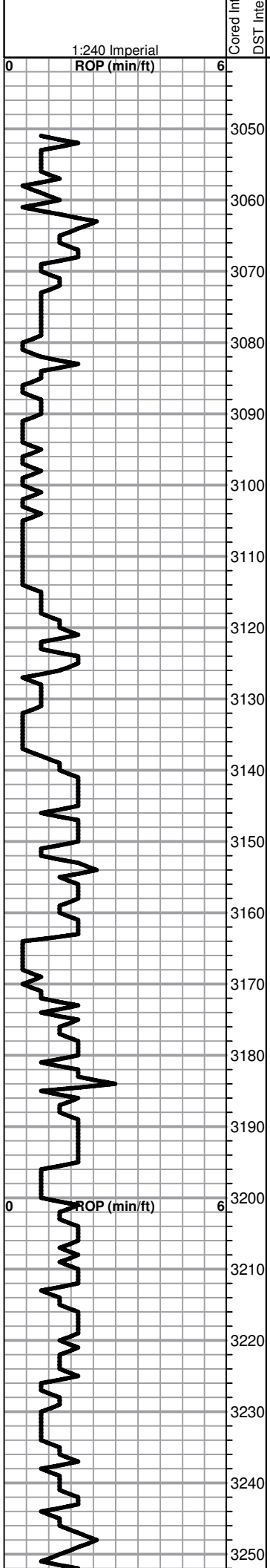
TDI Inc.  
1310 Bison Rd  
Hays KS 67601  
ATTN: Herb Dienes

**31 11s 18w Ellis**  
**Desmarteau # 1**  
Job Ticket: 61671 **DST#: 3**  
Test Start: 2015.11.09 @ 11:02:00

**GENERAL INFORMATION:**

Formation: **LKC " I - K "**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 12:44:15  
Test Type: Conventional Bottom Hole (Reset)  
Tester: Jim Svaty





BEGIN 1' DRILL TIME FROM 3050' TO RTD  
 BEGIN 10' WET AND DRY SAMPLES FROM 3100' TO RTD

**ANHYDRITE TOP 1458+666**  
**ANHYDRITE BASE 1492+632**

Lime, lt-med grayish brn, fnxln, fossiliferous

Shale, lt-med gray, soft-firm blocky

Shale, lt gray, soft sticky  
 Lime, med brn, fnxln, soft on crush

Shale, lt gray, soft mud to soft sticky clumps

Lime, crm, fnxln with soft chalk

Shale, med gray, firm blocky, calcareous in part

**TOPEKA SPL 3137-1013 ELog 3136-1012**

Lime, med brn-med grayish brn, fn-micro xln

Lime, lt brn-lt grayish brn, fn-micro xln

Lime, lt brn-lt grayish brn, fnxln

① Lime, tan, granular, fine grained, NS, No Odor, Scattered fine pinpoint vugs with spotty staining.

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

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

Lime, lt gray-lt brn, fnxln-granular with bedded chalk, slightly fossiliferous

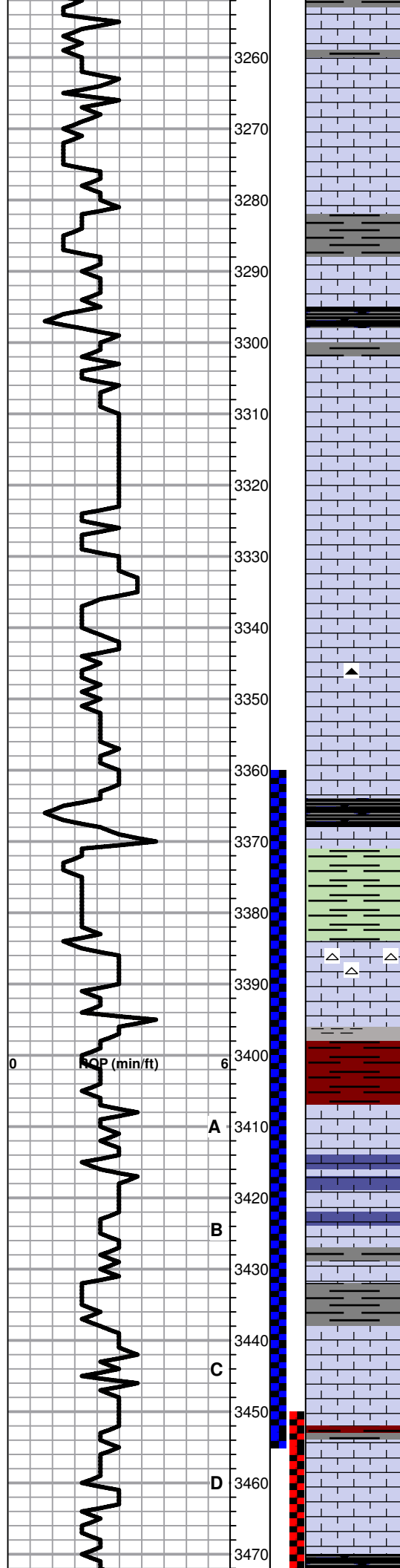
Lime, lt gray, fnxln-granular in part with increasing bedded chalk content

Lime, lt grayish brn, fnxln-granular, slightly fossiliferous, lt bedded chalk in chalky matrix

Lime, tan-lt brn, granular with bedded chalk with sticky clumping in part

Shale, black carbonaceous, fissile, blocky  
 Lime, tan-lt brn, fn-vfxln

1:240 Imperial  
 8 5/8" SURFACE CASING SET TO 215.44' W/ 150 SXS COMMON 2%GEL 3%CC  
 SLOPE 1/2 DEGREE @217'



Lime, crm, fn-vfxln, sub lithographic

Lime, crm-tan, fnxln-granular in part, slight bedded chalk

Lime, crm-lt brn, fnxln

Shale, lt gray, soft mud

Shale, black carbonaceous, fissile, blocky

○ Lime, lt brn, fnxln, granular in part with scattered pinpoint vugs and fossil casts with lt fresh oil staining, no detectable odor, NFO

Lime, crm, vfxln-micro, slightly fossiliferous

○ Lime, lt-med brn, fn-vfxln with thin oolitic zone with spotty staining and lt odor, NFO

Lime, crm-tan, fnxln

▲ Lime, gray, fnxln, shaley, trashy

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

**HEEBNER SHALE SPL 3364-1240 ELog 3361-1237**  
 Shale, black carbonaceous, fissile, blocky  
 Lime, crm-lt brn, fn-vfxln

Shale, lime green, soft sticky

○ **TORONTO SPL 3384-1260 ELog 3382-1258**  
 Lime, white-crm, fn-micro xln with white fresh chert, few chips with specks of staining in oolite casts, NFO, no odor

Lime, lt brn, fn-micro xln

Shale, red wash, soft mud

**LKC SPL 3407-1283 ELog 3403-1279**

Lime, white, fn-vfxln, NS, No staining

Lime, tan-lt gray, fnxln, NS

Lime, lt brn-med gray, fnxln, trashy mix with gray shale

Shale, med gray, soft blocky, calcareous in part

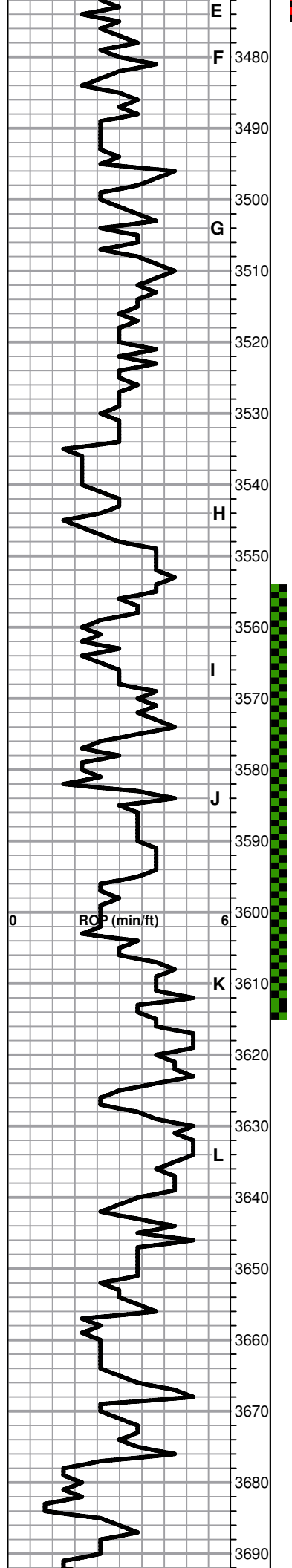
○ Lime, tan, fn-micro xln with thin oolitic-oomoldic zone, spotty stain, very lt odor, NFO

○ Lime, crm, fn-vfxln with oolitic zone, interoolitic porosity, lt odor, scat-sat staining, NFO

Shale, gray-black carbonaceous

DST # 1 3360' TO 3455' SEE HEADER FOR TEST SUMMARY

DST # 2 3450' TO 3475' SEE HEADER FOR TEST SUMMARY

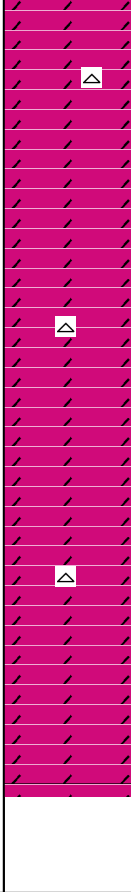
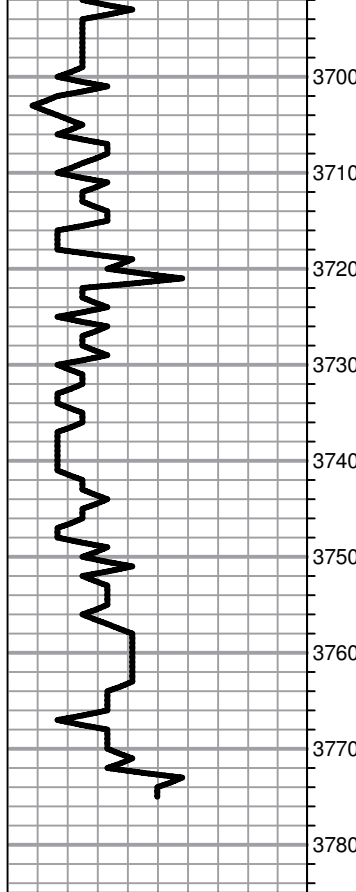


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Lime, med brn-med gray, fn-vfxln  
 Lime, tan, fnxln with thin zone of fine, granular with interxln porosity. Lt spotty staining, NFO, No Odor, chalky white wash in part  
 Lime, white, oolitic-oomoldic with interoolitic porosity, spotty fresh oil staining, NFO, No odor  
 Lime, crm-tan, mostly vfxln, lt white chalky wash  
 Lime, crm, fn-vfxln, sublithographic  
 Lime, crm-lt brn, fn-micro xln  
 Shale, gray-black carbonaceous  
 Lime, lt brn with lt gray tinting, fnxln  
 Shale, dove gray, soft mud  
 Lime, crm, fnxln-granular, few chips with lt specks of staining, NFO, No odor  
 Lime, white-crm, fn-micro xln  
 Shale, lt gray with green tinting, firm blocky, calcareous in part  
 Lime, tan-lt brn, fnxln-granular with oolites and fossil fragments, lt spotty staining, NFO, No odor  
 Lime, white-crm, fn-micro xln  
 Lime, tan, oolitic-oolmoldic, scattered to saturated staining in small chips, lt odor, SFO on crush  
 Lime, crm-offwhite, fn-vfxln  
 Shale, black carbonaceous, fissile, blocky  
 Lime, crm-offwhite, fnxln, NS  
 Lime, crm-offwhite, fn-micro xln  
 Lime, white-offwhite, fn-micro xln  
 Shale, black carbonaceous, fissile, blocky  
 Lime, offwhite-crm, fn-micro xln, slightly chalky  
**BKC SPL 3639-1515 ELog 3636-1512**  
 Shale, lt gray, sticky clumping  
 Lime, clastic mix, fn-vfxln  
 Shale, deep red wash, soft mud  
 Lime, crm-brn, fnxln with clastic content, slight bedded chalk in part  
 Lime, as above  
 Shale, blue green, waxy, blocky  
**ARBUCKLE SPL 3684-1560 ELog 3684-1560**  
 Dolomite, tan-lt brn, fnxln-granular, sucrosic in part, lt odor, dark, saturated staining, some bleeding chips with SO

DST # 3 3554' TO 3615' SEE  
 HEADER FOR TEST  
 SUMMARY





● Dolomite, lt-med brn, granular, rhombic, sucrosic, saturated staining, F-G odor, free oil on crush, few oolmoldic chips

○ Dolomite, lt-med brn, granular-fnxln, decreasing odor, heavy, dark oil staining with gilsonite in part

D Dolomite, crm-tan, fnxln-granular, dark flaky gilsonite in part

Dolomite, crm-tan, fnxln-granular

Dolomite, as above

Dolomite, as above

Dolomite, as above

Dolomite, as above

Dolomite, as above

**RTD 3775-1651 LTD 3773-1649**

SET 15.5# 5.5" CASING TO 3767' W/ 150 SXS EA2, DV AT 1437' W/ 375 SXS SMD, 30 SXS RATHOLE, 20 SXS MOUSEHOLE.

SLOPE 1 DEGREE @ RTD