

**OPERATOR**

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

Contact Geologist: TOM DENNING  
 Contact Phone Nbr: 785-259-3141  
 Well Name: L J # 1  
 Location: N2 SE SW SW Sec.13-15s-19w  
 Pool:  
 State: KANSAS

API: 15-051-26307-00-00  
 Field: UNNAMED  
 Country: USA



**TDI, Inc.**  
 1310 BISON ROAD  
 HAYS, KANSAS 67601  
 (785) 628-2593

Scale 1:240 Imperial

Well Name: L J # 1  
 Surface Location: N2 SE SW SW Sec.13-15s-19w  
 Bottom Location:  
 API: 15-051-26307-00-00  
 License Number: 4787  
 Spud Date: 7/19/2012 Time: 1:15 PM  
 Region: ELLIS COUNTY  
 Drilling Completed: 7/25/2012 Time: 4:42 AM  
 Surface Coordinates: 630' FSL & 990' FWL  
 Bottom Hole Coordinates:  
 Ground Elevation: 1992.00ft  
 K.B. Elevation: 2002.00ft  
 Logged Interval: 2900.00ft To: 3750.00ft  
 Total Depth: 3750.00ft  
 Formation: LANSING-KANSAS CITY  
 Drilling Fluid Type: FRESH WATER GEL/CHEMICAL

**SURFACE CO-ORDINATES**

Well Type: Vertical  
 Longitude: Latitude:  
 N/S Co-ord: 630' FSL  
 E/W Co-ord: 990' FWL

**LOGGED BY**

Company: SOLUTIONS CONSULTING  
 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

Rig Type: MUD ROTARY  
Spud Date: 7/19/2012  
TD Date: 7/25/2012  
Rig Release: 7/25/2012

Time: 1:15 PM  
Time: 4:42 AM  
Time: 11:30 PM

### ELEVATIONS

K.B. Elevation: 2002.00ft  
K.B. to Ground: 10.00ft

Ground Elevation: 1992.00ft

### NOTES

RECOMMENDATION TO RUN PRODUCTION CASING BASED ON FAVORABLE RESULTS OF DST # 1 AND HIGH STRUCTURAL POSITION ON STRUCTURE.

### FORMATION TOPS AND SUMMARY OF DAILY ACTIVITY

**LJ #1**  
**630' FSL & 990' FWL, SW/4**  
**Sec.13-15s-19w**  
**1992' GL 2002' KB**


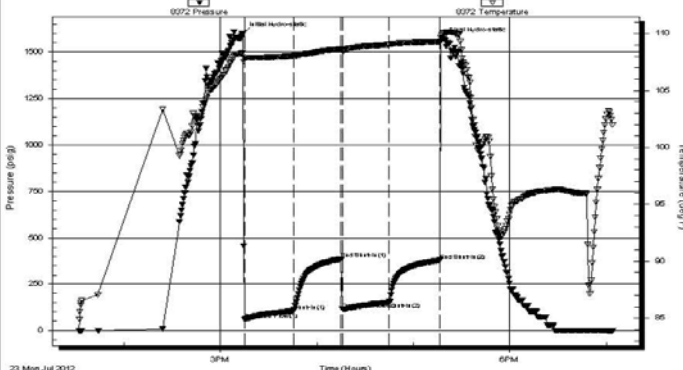
<u>FORMATION</u>	<u>SAMPLE TOPS</u>	<u>LOG TOPS</u>
Anhydrite	1182+ 820	1181+ 821
B-Anhydrite	1219+ 783	1217+ 785
Topeka	2965- 963	2964- 962
Heebner Shale	3247-1245	3245-1243
Toronto	3267-1265	3262-1260
LKC	3291-1289	3289-1287
BKC	3530-1528	3535-1533
Conglomerate Sand		3596-1594
Arbuckle	3613-1611	3608-1606
RTD	3750-1748	
LTD		3750-1747

7-19-12 RU, Spud 1:15PM  
7-20-12 1194', set 8 5/8" SP to 1193' w/375 sxs. SMD, Swift Ticket 22871,  
plug down 12:15PM, Slope 0 degrees, WOC 12 hrs.  
7-21-12 1445', drilling  
7-22-12 2570', drilling, displaced 2894'-2922'  
7-23-12 3280'. drilling. DST # 1 3276'-3329' (A. B. C). slope 3/4 degree

7-24-12 3485', drilling, DST # 2 3414'-3485' (H, I, J)

7-25-12 3750', RTD, Logs, lay down drill pipe, run casing, cement, cementing completed 11:15 PM, Swift Services. Slope 0 degrees

### DST # 1 SUMMARY OF TEST RESULTS

	<b>DRILL STEM TEST REPORT</b>																																						
	TDI inc 1310 Bison rd Hays Ks. 67601 ATTN: Herb Deines	13-15s-19w Ellis  LJ #1 Job Ticket: 47900 Test Start: 2012.07.23 @ 13:32:05																																					
<b>GENERAL INFORMATION:</b>																																							
Formation: <b>LKC"A-C"</b>	Deviated: No Whipstock	ft (KB)	Test Type: Conventional Bottom Hole (Initial)																																				
Time Tool Opened: 15:15:00	Time Test Ended: 19:03:59		Tester: Andy Carreira																																				
Interval: <b>3276.00 ft (KB) To 3329.00 ft (KB) (TVD)</b>	Total Depth: 3329.00 ft (KB) (TVD)	Hole Diameter: 7.88 inches	Hole Condition: Poor																																				
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			1995.00 ft (CF)																																				
			KB to GR/CF: 7.00 ft																																				
<b>Serial #: 8372 Outside</b>																																							
Press@RunDepth: 152.78 psig @ 3288.00 ft (KB)	Start Date: 2012.07.23	End Date: 2012.07.23	Capacity: 8000.00 psig																																				
Start Time: 13:32:05	End Time: 19:03:59	Time On Btm: 2012.07.23 @ 15:13:40	Time Off Btm: 2012.07.23 @ 17:18:00																																				
<b>TEST COMMENT:</b> IF:(30min) BOB, 2 min ISl:(30min) No Return FF:(30min) BOB, 2 min. Gas To Surface 20 min. FSl:(30min) Return Blow Built to 6", Decreased to 1"																																							
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# DST # 1 EXPANDED CHART

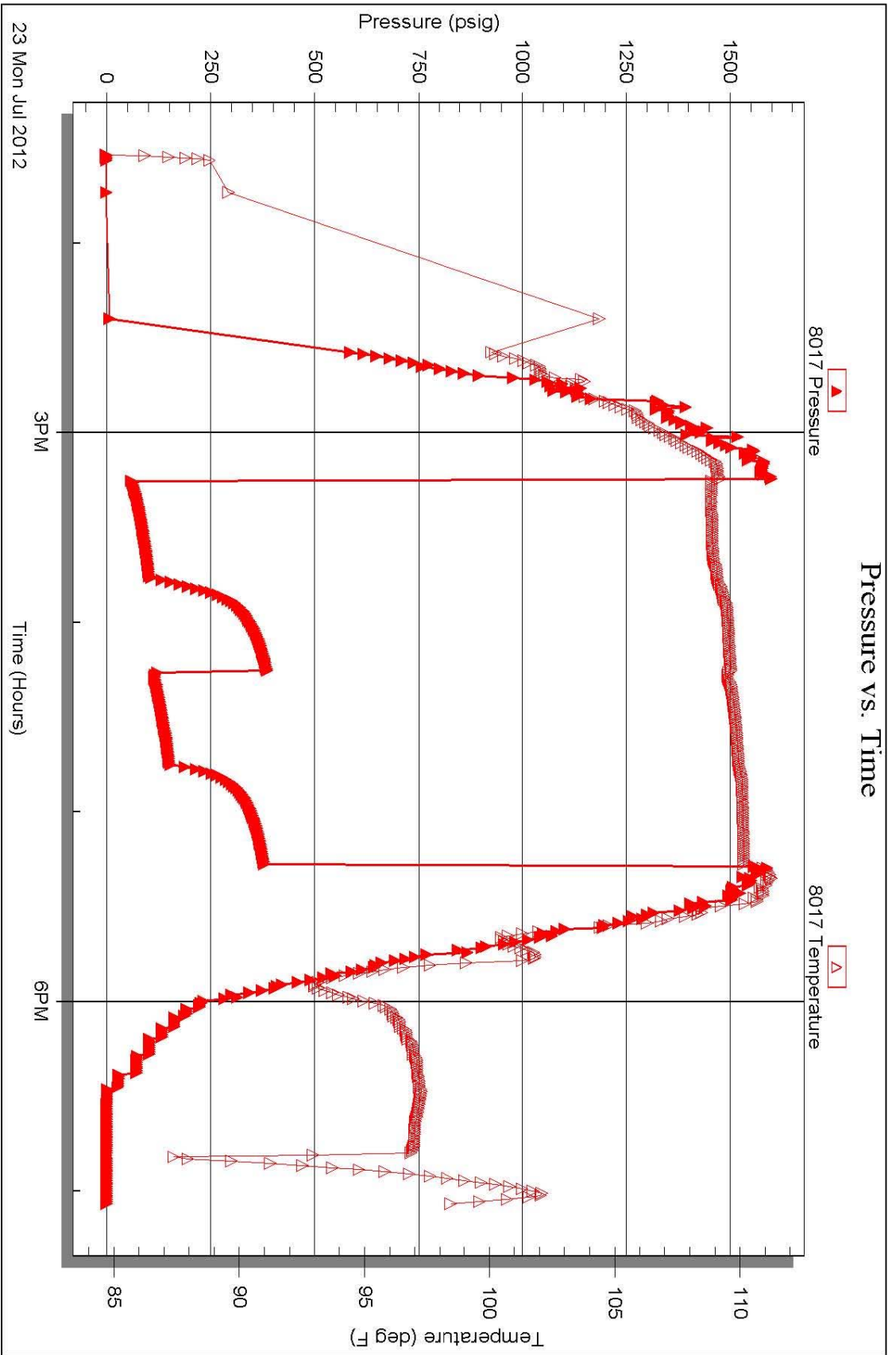
Serial #: 8017

Inside

TDI Inc

LJ#1

DST Test Number: 1


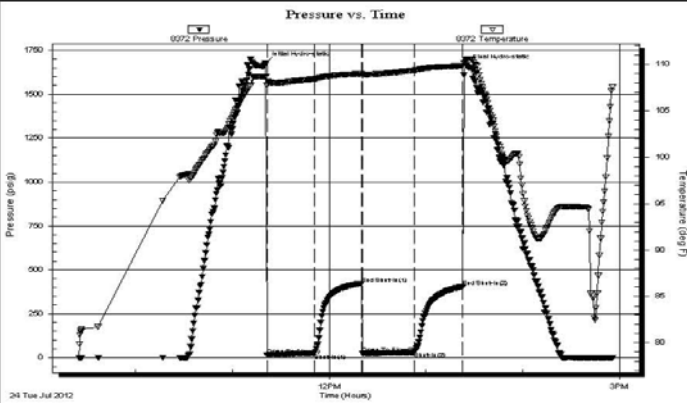


Trilobite Testing, Inc

Ref. No: 47900

Printed: 2012.07.24 @ 03:51:33

# DST # 2 SUMMARY OF TEST RESULTS

 <b>TRILOBITE TESTING, INC.</b>	<h2 style="margin: 0;">DRILL STEM TEST REPORT</h2> <p>TDI inc <span style="float: right;"><b>13-15s-19w Ellis</b></span></p> <p>1310 Bison rd <span style="float: right;"><b>LJ #1</b></span> Hays Ks. 67601</p> <p>ATTN: Herb Deines <span style="float: right;">Job Ticket: 47901 <b>DST#: 2</b></span></p> <p style="text-align: right;">Test Start: 2012.07.24 @ 09:25:05</p>																																									
<b>GENERAL INFORMATION:</b> Formation: <b>LKC"H,I,J"</b> Deviated: No Whipstock: ft (KB) Time Tool Opened: 11:21:30 Time Test Ended: 14:55:59 Test Type: Conventional Bottom Hole (Reset) Tester: Andy Carreira Unit No: 39 Interval: <b>3414.00 ft (KB) To 3485.00 ft (KB) (TVD)</b> Total Depth: 3485.00 ft (KB) (TVD) Reference Elevations: 2002.00 ft (KB) 1995.00 ft (CF) Hole Diameter: 7.88 inches Hole Condition: Poor KB to GR/CF: 7.00 ft																																										
<b>Serial #: 8372 Outside</b> Press@RunDepth: 30.56 psig @ 3421.00 ft (KB) Start Date: 2012.07.24 End Date: 2012.07.24 Start Time: 09:25:05 End Time: 14:55:59 Capacity: 8000.00 psig Last Calib.: 2012.07.24 Time On Btm: 2012.07.24 @ 11:20:20 Time Off Btm: 2012.07.24 @ 13:25:00																																										
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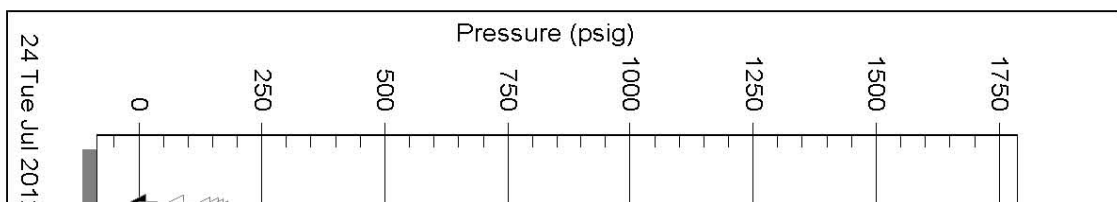
Trilobite Testing, Inc

Ref. No: 47901

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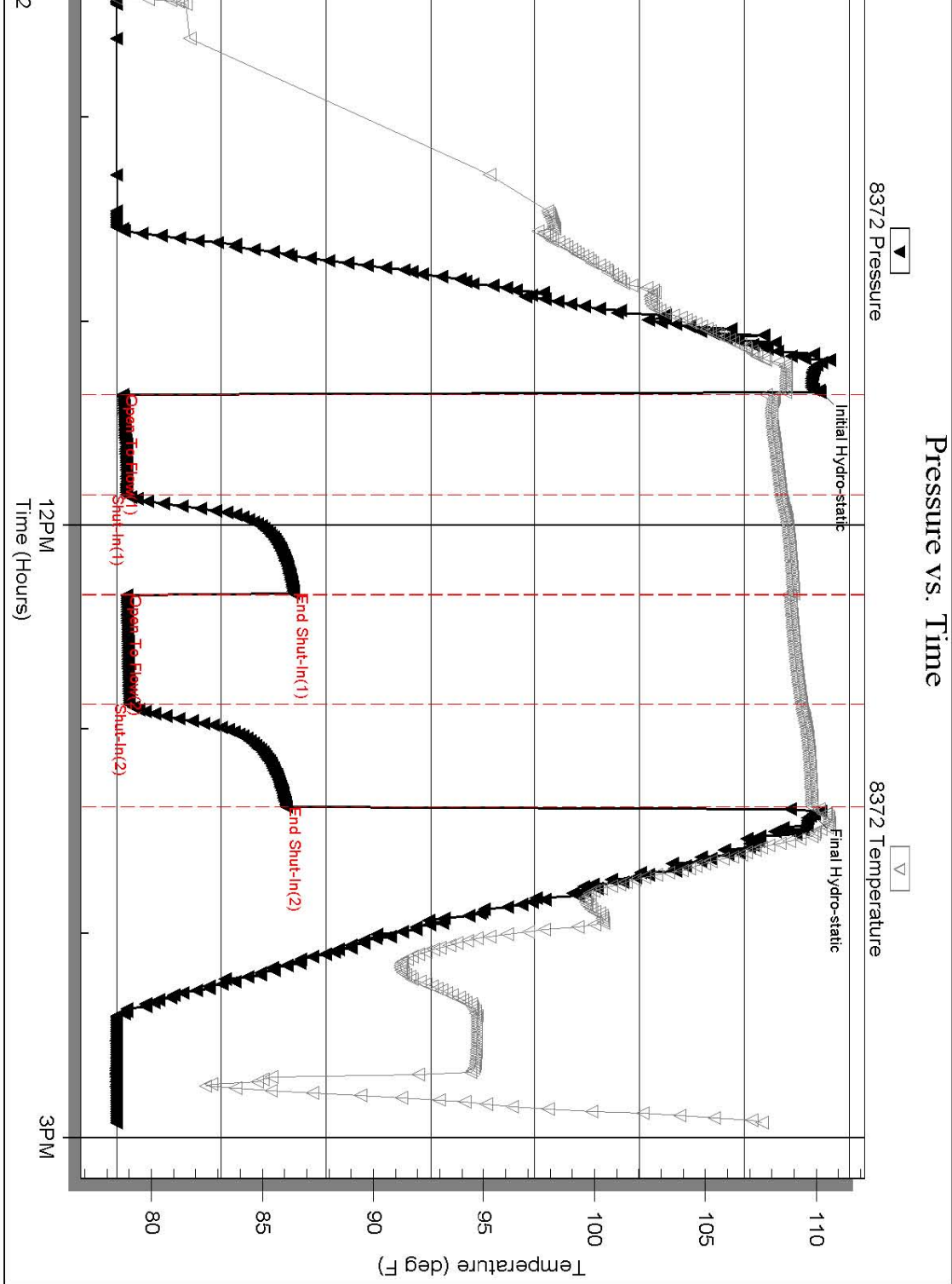
## DST # 2 EXPANDED CHART

Trilobite Testing, Inc



Serial #: 8372

### Pressure vs. Time



Ref. No: 47901

Printed: 2012.07.24 @ 16:51:08

#### ROCK TYPES

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

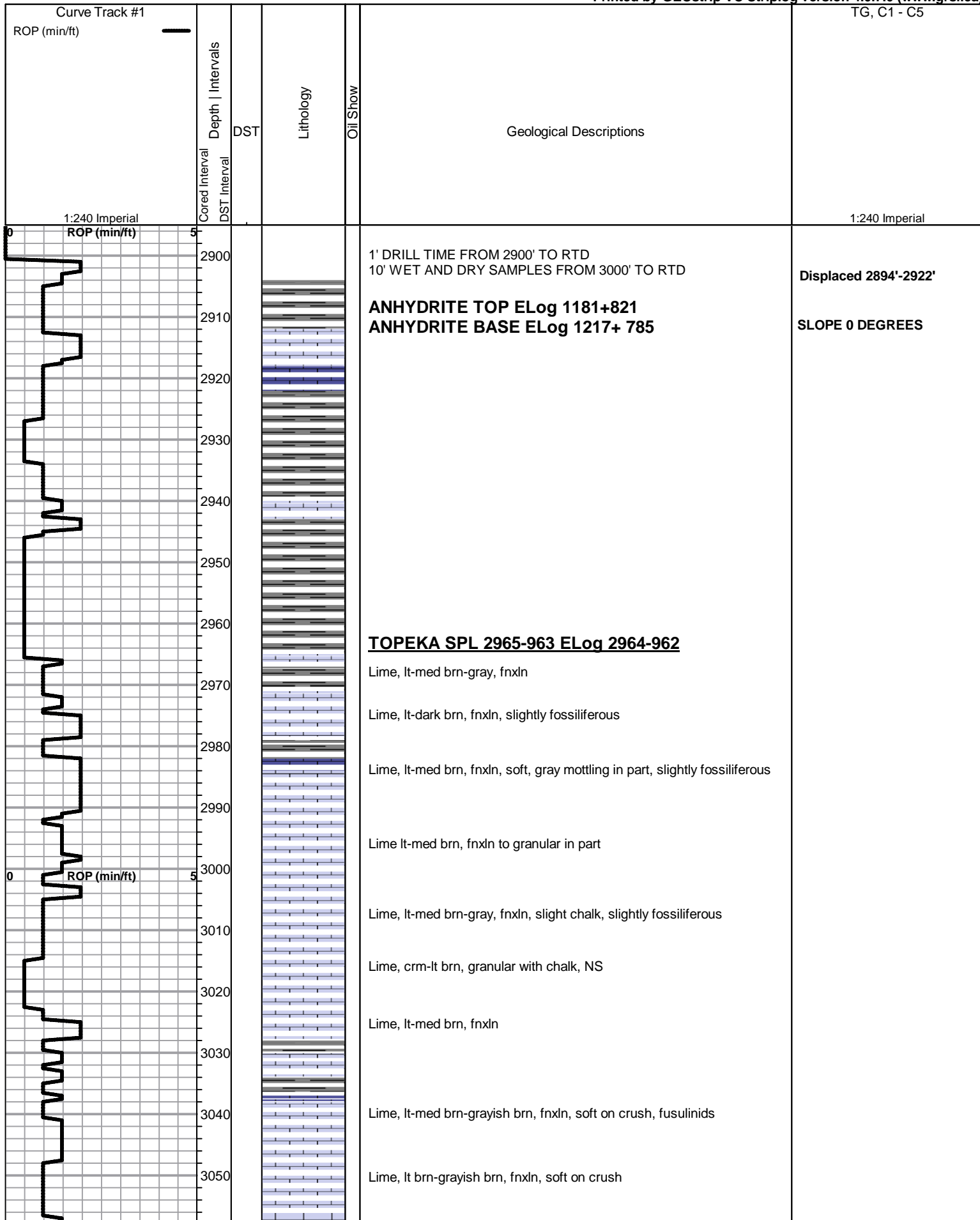
#### ACCESSORIES

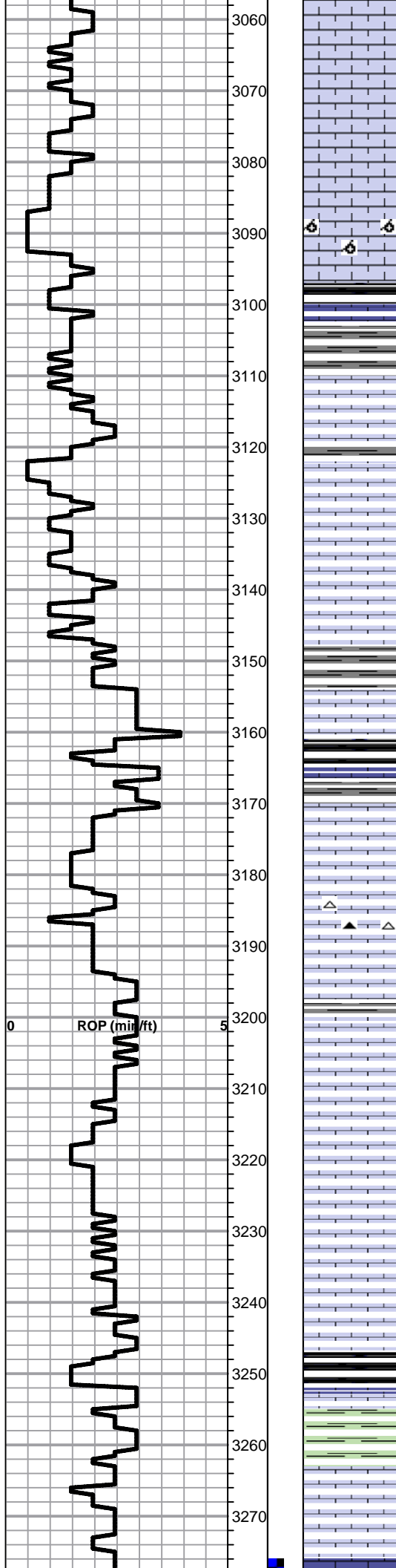
- MINERAL**
- ▲ Chert, dark
  - ∩ Glauconite
  - P Pyrite
  - Sandy
  - △ Chert White

- FOSSIL**
- ⊕ Oolite
  - ⊕ Oomoldic

OTHER SYMBOLS

- DST Int
- DST alt
- Core





Lime, lt-med brn, fnxln, slightly fossiliferous

Lt brn-lt grayish brn, fnxln, soft on crush

Lime, lt-med brn-lt gray, fnxln-granular, slight chalk in part

Fine oolmoldic in part, NS

Shale, gray to black carbonaceous  
Lime, lt-med brn, fnxln

Lime, crm-lt brn, fnxln

Lime, crm, fn-crypto xln, scattered bedded chalk in part

Lime, lt-med brn, granular, NS

Lime, crm-lt brn, fnxln-granular

Lime, lt-med brn, fnxln

Shale, lt-med gray, fissile, slivers

Lime, lt-med brn, fnxln

Shale, black carbonaceous

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

Lime, lt-med brn, fnxln-granular  
Chert, wht-lt gray fossiliferous

Lime, lt-med brn, fnxln

Lime, lt-med brn, fnxln, slightly fossiliferous

Lime, crm-lt brn, fnxln-granular, slight chalk in part

Lime, lt-med brn, fnxln

Lime, lt-med brn, fnxln

**HEEBNER SHALE SPL 3247-1245 ELog 3245-1243**

Shale, black carbonaceous, fissile  
Lime, lt-med brn, fnxln, slightly fossiliferous  
Shale, lt grayish green, soft blocky

**TORONTO SPL 3267-1265 ELog 3262-1260**

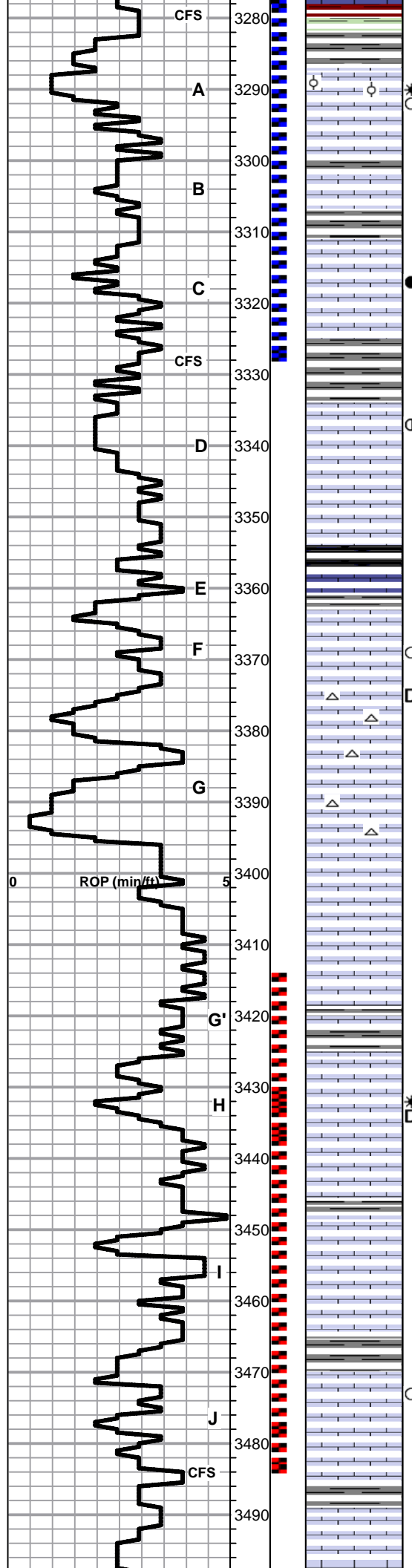
Lime, whit-crm, fnxln, bedded chalk, NS



Shale, med gray-greenish gray soft

**LKC SPL 3291-1289 ELog 3289-1287**

DST #1 3276'-3329'  
SEE HEADER FOR TEST  
DETAIL



Lime, lt brn, mostly fnxn, few pieces oolitic with sparry backfill, vit odor, Microlog shows very thin, tight zone.

Lime, lt-med brn, fnxn

Lime, lt-med brn, mix of fossil fragments and oolitic material, saturated staining, lt odor, NFO

Shale, gray, blocky and fissile in part

Lime, crm-lt brn, fnxn with trace of scattered staining, lt odor in fine vuggy porosity

Lime, crm-tan, fnxn

Shale, black carbonaceous  
Lime, lt gray, fnxn

Lime, crm-tan, fnxn with scattered staining in fossiliferous lime,

Lime, crm, fnxn, chalky with scattered gilsonitic staining, NFO, white fresh, sharp chert

Lime, crm-tan, granular, barren, chalk in part

Lime, crm, fn-vfxln

Lime, crm, fn-vfxln

Shale, gray, calcareous  
Lime, crm-lt brn, fnxn

Lime, crm, fnxn, gilsonitic deposits in granular oolitic interval, vit odor, microlog shows interval to impermeable and poorly developed

Lime, crm, fnxn

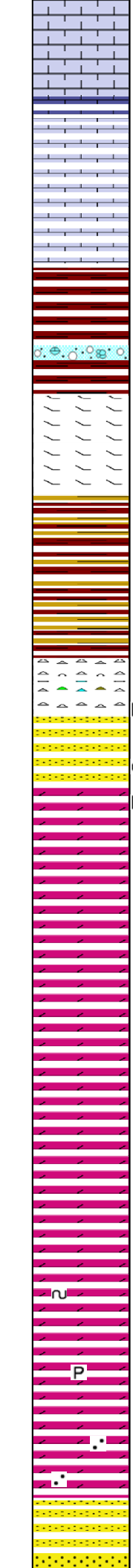
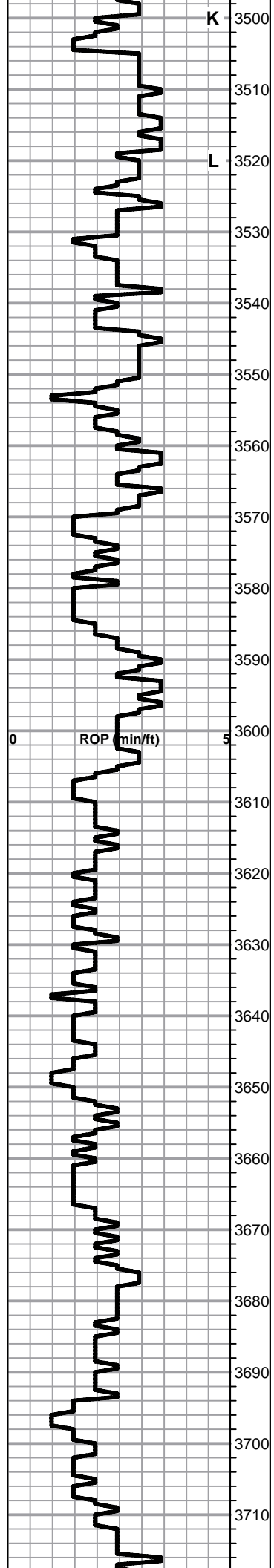
Lime, wht-crm, slightly dolomitic, scattered vuggy porosity in vfxln matrix, scattered globules of floating oil, scattered staining. Microlog shows no development in this zone

Lime, crm-tan, mostly fnxn, trace of staining in few pieces,

Lime, crm-lt gray, crypto xln, slight chalk in part

Lime, crm, fn-vfxln

DST #2 3414'-3485'  
SEE HEADER FOR TEST  
DETAILS



3500 Lime, crm, fn-vfxln, slight chalk, NS

3510 Lime, crm-tan, fnxln, bedded chalk

3520 Lime, crm-tan, fn-vfxln, slight chalk

3530 Lime, crm-tan, fn-vfxln, slight chalk

**BKC ELog 3535-1533**

3540 Shale, reddish brn-grayish brn, soft blocky

3550 Shale, red wash

3560 Lime, dolomitic, crm-lt brn, fnxln

3570 Shale, vari colored

3580 Shale, vari colored

3590 Chert, light gray, fresh sharp, bedded

**CONGLOMERATE SAND ELog 3596-1594**

3600 Sandstone, lt brn, poorly sorted, sat stain, good wet cut

**ARBUCKLE ELog 3608-1606**

3610 Dolomite, wht, fnxln, soft on crush, finely scattered dead staining, NFO, No Odor

3620 Dolomite, crm, fn-mdxln, granular

3630 Dolomite, whit-crm, fn-mdxln, granular

3640 Dolomite, crm, fn-med xln, granular

3650 Dolomite, crm, fnxln-granular

3660 Dolomite, crm, fnxln-granular

3670 Dolomite, crm, fnxln-granular, scattered specks of glauconite

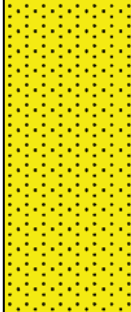
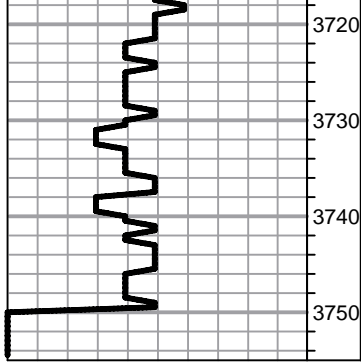
3680 Dolomite, crm, fnxln, hard on break,

3690 Dolomite, crm, fnxln, scattered crystalline pyrite

3700 Dolomite, crm, fnxln with quartz grain inclusions

**REAGAN SAND ELog 3709**

3710 Sandstone, quartz, coarse grained, well sorted, clusters of fused sand



grains, NS, No staining

AA

AA

**RTD 3750-1748 LTD 3749-1747**

**Slope 0 degrees**

**JOB LOG**

**SWIFT Services, Inc.**

DATE 7-20-12 PAGE NO. 1

CUSTOMER T.D.I. Petroleum WELL NO. #1 LEASE L & J JOB TYPE Cement Surface TICKET NO. 22817

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		TD 1194'	DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING		
	0630					23#/ft.	85/8		Do loc w/ F.E. - (R <sub>5</sub> Short Trip)
	0850								Start 85/8" - 23#/ft casing to 1193' (29' ST)
									Cent 1-3-14 - Battelite 1 <sup>st</sup> Coloi @ 1164
	1050								Fin running casing
	11:00								Start cir - casing
	11:30								Fin cir - Hook to Swift truck
		5					150		Pump 500 gal Mud Flush
		5					150		Pump 20 BBL KCL Flush
		5					150		Start 100 STS SMD @ 11.8 #/gal 47 BBL
		5	47				150		Start 100 STS SMD @ 12.5 #/gal 38 BBL
		5	85				150		Start 100 STS SMD @ 13.0 #/gal 34 BBL
		4 1/2	119				100		Start 75 STS SMD @ 14.5 #/gal 20 BBL
		4	139				100		Fin cent - Release Top Plug
		5					150		Start H <sub>2</sub> O Displ 74 BBL
		5	35				200		Cent cir -
	1215	4 1/2	74				350		Fin Displ - Plug Down
							450		Close in 200'
							200'		50 STS cir to Pit
									Job Complete
									Thanks Washup/Rackup
									Alan, Brent & T.J.

JOB LOG

SWIFT Services, Inc.

DATE 7-25-12 PAGE NO. 7

CUSTOMER TOT WELL NO. #1 LEASE LJ JOB TYPE Long String TICKET NO. 21916

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
	1930							On Loc.
	1950							Run 5 1/2" 14# Csg. Insert Float Shoe Latch down Baffle Cent. #1, 3, 5, 7, 9, 10, 12 Basket #3, #13 Set Pipe 3746'
	<del>2100</del> 2100							Drop Ball Tag Bottom Pickup 1'
	2135							Circulate + Rotate Csg.
	2235							Plug R.H. M.H. 30sk + 25sk Pump 500gal Mud Flush 20sk RCL Flush MIX 125sk EA 2 Cnd. Finish mixing Wash out Pump + Line
		4.5	12 20					
		6						Displ. Latch down Plug
	2320					1500		Plug Down 1500 PSE holding Release Dried up wash + Rack up tool Jas Complete

*Handwritten signature*

Roger Dowe E. Rob Dowe A.