

**OPERATOR**

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

Contact Geologist: TOM DENNING  
 Contact Phone Nbr: 785-628-2593  
 Well Name: THOLEN # 13  
 Location: SW SW SE Sec.22-14s-16w  
 Pool: IN FIELD  
 State: KANSAS

API: 15-051-26,409-00-00  
 Field: DREILING  
 Country: USA



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

Scale 1:240 Imperial

Well Name: THOLEN # 13  
 Surface Location: SW SW SE Sec.22-14s-16w  
 Bottom Location:  
 API: 15-051-26,409-00-00  
 License Number: 4787  
 Spud Date: 10/26/2012 Time: 7:15 PM  
 Region: ELLIS COUNTY  
 Drilling Completed: 10/30/2012 Time: 10:45 PM  
 Surface Coordinates: 330' FSL & 2310' FEL  
 Bottom Hole Coordinates:  
 Ground Elevation: 1862.00ft  
 K.B. Elevation: 1872.00ft  
 Logged Interval: 2200.00ft To: 3500.00ft  
 Total Depth: 3500.00ft  
 Formation: ARBUCKLE  
 Drilling Fluid Type: CHEMICAL/FRESH WATER GEL

**SURFACE CO-ORDINATES**

Well Type: Vertical  
 Longitude: Latitude:  
 N/S Co-ord: 330' FSL  
 E/W Co-ord: 2310' FEL

**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: 10/26/2012  
TD Date: 10/30/2012  
Rig Release: 11/1/2012

Time: 7:15 PM  
Time: 10:45 PM  
Time: 3:30 AM

### ELEVATIONS

K.B. Elevation: 1872.00ft  
K.B. to Ground: 10.00ft

Ground Elevation: 1862.00ft

### NOTES

DECISION TO RUN PRODUCTION CASING BASED ON FAVORABLE STRUCTURE AND POSITIVE RESULTS OF DST # 1.

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

DRILL STEM TESTING BY TRILOBITE TESTERS, INC: ONE (1) STRADDLE TEST

### FORMATION TOPS SUMMARY AND CHRONOLOGY OF DAILY ACTIVITY

#### THOLEN # 13

330' FSL & 2310' FEL, SE/4

Sec. 22-14s-16w

1862' GL 1872' KB

<u>FORMATION</u>	<u>SAMPLE TOPS</u>	<u>LOG TOPS</u>
Anhydrite	950+ 922	956+ 916
B-Anhydrite	995+ 877	994+ 878
Topeka		2835- 963
Heebner Shale	3060-1188	3057-1185
Toronto	3080-1208	3078-1206
LKC	3109-1237	3109-1237
BKC	3340-1468	3340-1468
Arbuckle	3360-1488	3361-1489
RTD	3500-1628	
LTD		3497-1625

### SUMMARY OF DAILY ACTIVITY

10-26-12 Spud 7:15 PM, set 8 5/8" surface casing to 235' w/ 150 sxs common, 2%Gel, 3%CC, plug down 12:30AM on 10-27-12, WOC 8 hrs, slope ¾ degree


10-27-12 235', drill plug at 8:30 AM

10-28-12 1602', drilling

10-29-12 2405', drilling, displace 2736'-2768'

10-30-12 3150', drilling, RTD 3500' @ 10:45 PM, CCH 1 hr at RTD  
 10-31-12 3500', short trip, CCH 1 ½ hrs, logs, straddle test # 1 3320' – 3397',  
 LDDP  
 11-01-12 3500', finish running casing and cement, plug down 3:30AM, RD

**DST # 1 STRADDLE TEST**

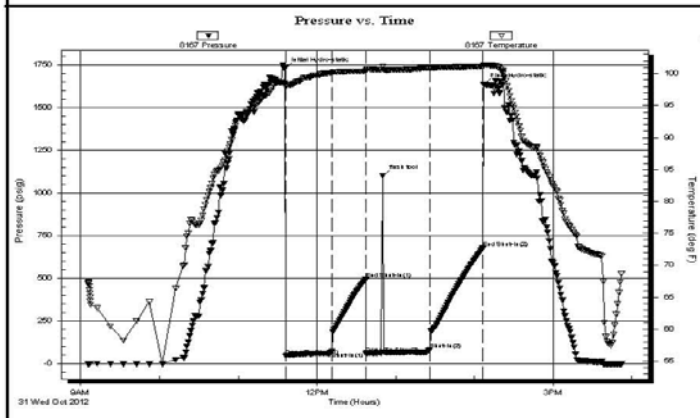
	<b>DRILL STEM TEST REPORT</b>	
	TDI Inc  ATTN: Tom Dennind	Sec 22 14s 16w Ellis KS  <b>Tholen #13</b> Job Ticket: 50804 <b>DST#: 1</b> Test Start: 2012.10.31 @ 09:05:26

**GENERAL INFORMATION:**

Formation: <b>Arbuckle</b>	Test Type: Conventional Bottom Hole (Initial)
Deviated: No Whipstock:                      ft (KB)	Tester: Paul Simpson
Time Tool Opened: 11:35:56	Unit No: 150
Time Test Ended: 15:52:26	Reference Elevations: 1872.00 ft (KB)
<b>Interval: 3320.00 ft (KB) To 3397.00 ft (KB) (TVD)</b>	1864.00 ft (CF)
Total Depth: 3500.00 ft (KB) (TVD)	KB to GR/CF: 8.00 ft
Hole Diameter: 7.88 inches Hole Condition: Fair	

<b>Serial #: 8167</b> <b>Inside</b>	Capacity: 8000.00 psig
Press@RunDepth: 85.08 psig @ 3387.00 ft (KB)	Last Calib.: 1899.12.30
Start Date: 2012.10.31      End Date: 2012.10.31	Time On Btm: 2012.10.31 @ 11:35:26
Start Time: 09:05:31      End Time: 15:52:25	Time Off Btm: 2012.10.31 @ 14:06:56

**TEST COMMENT:** tool slid 3' w hen opening IF 30- w eak surging blow built to 2.5"  
 ISI 30  
 FF- 45 no blow , flushed tool, w eak surface blow building to 1/8"  
 FSI 45



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1728.14	98.53	Initial Hydro-static
1	48.75	97.92	Open To Flow (1)
36	71.97	100.18	Shut-in(1)
62	494.48	100.41	End Shut-In(1)
62	62.59	100.47	Open To Flow (2)
75	1098.76	101.13	flush tool
111	85.08	100.90	Shut-in(2)
151	678.08	101.11	End Shut-In(2)
152	1633.92	101.37	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
20.00	HOCM 25% O 75 % M	0.28
25.00	SOCM 5% O 95 % M	0.35

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

### DST # 1 EXPANDED CHART OF TEST INTERVAL

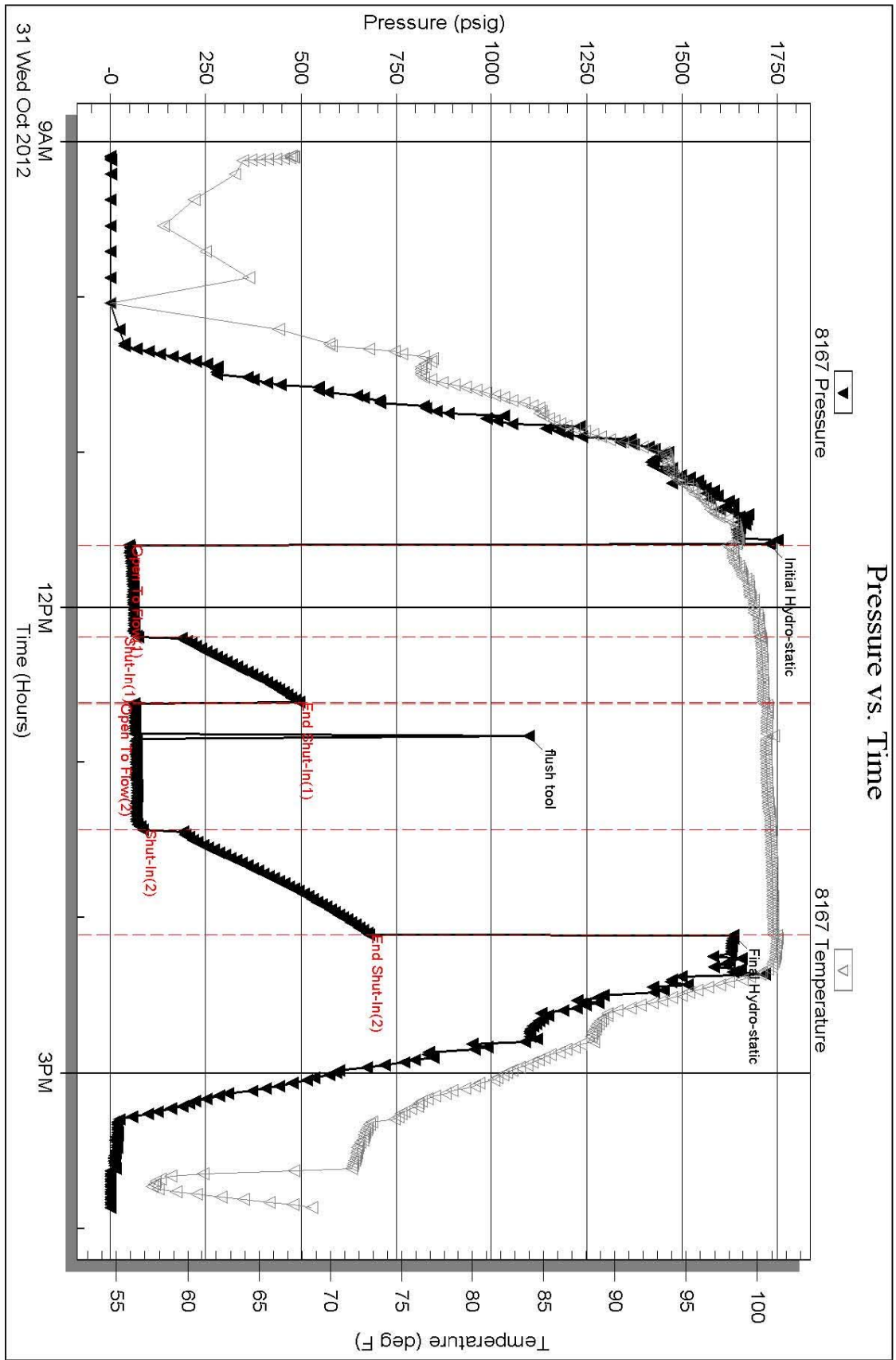
Serial #: 8167

Inside

TDI Inc

Tholen #13

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 50804

Printed: 2012.10.31 @ 16:22:35

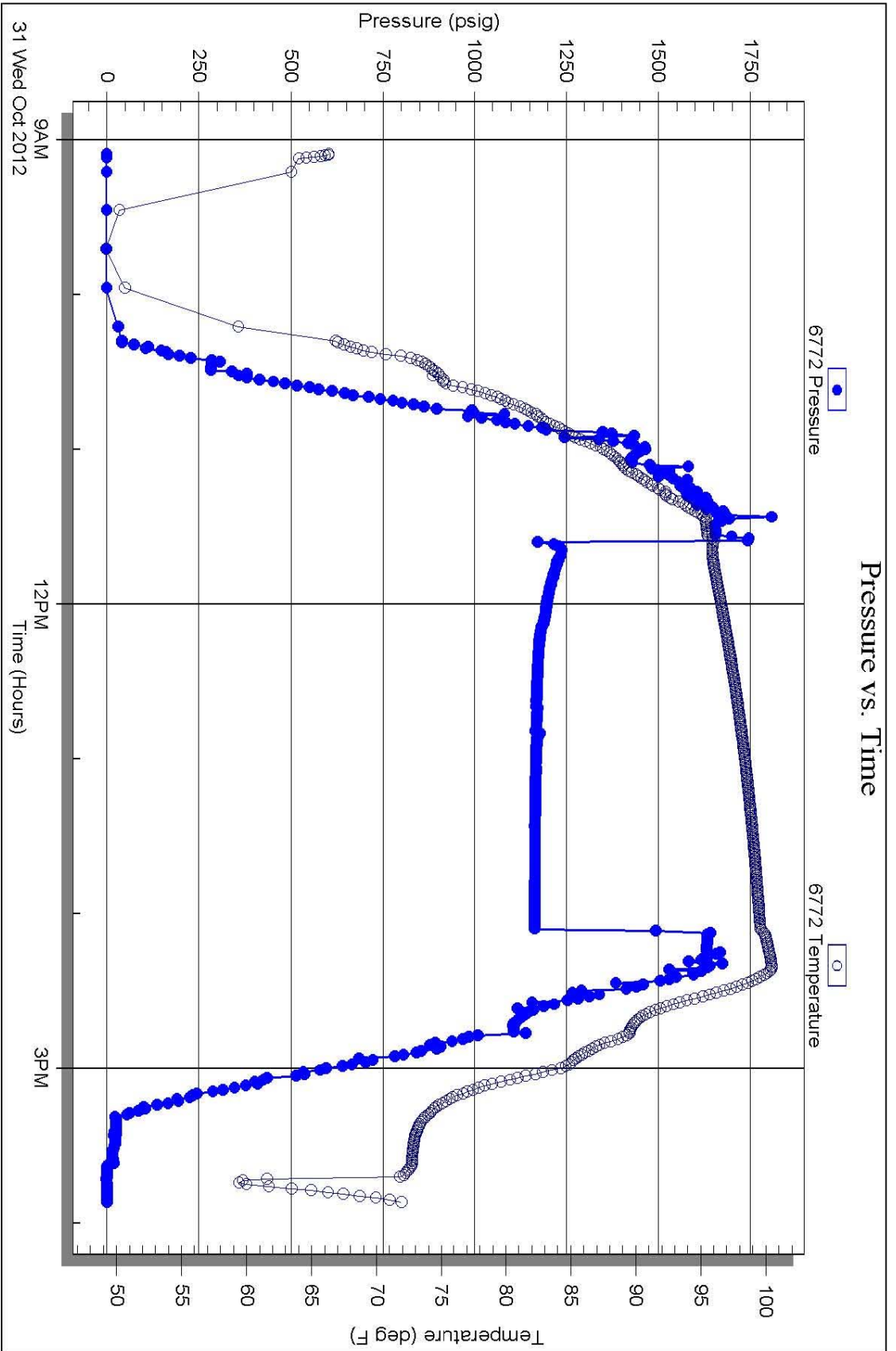
# DST # 1 BOTTOM PACKER CHART

Serial #: 6772

Below (Stratolite)

Tholen #13

DST Test Number: 1














Trilobite Testing, Inc

Ref. No: 50804

Printed: 2012.10.31 @ 16:22:36

### ROCK TYPES

 Cht vari	 Chtcongl	 Lmst fw>7	 Carbon Sh
 Clystgy	 Dolprim	 shale, grn	 shale, red
 Clystcol	 Lmst fw<7	 shale, gry	

### ACCESSORIES

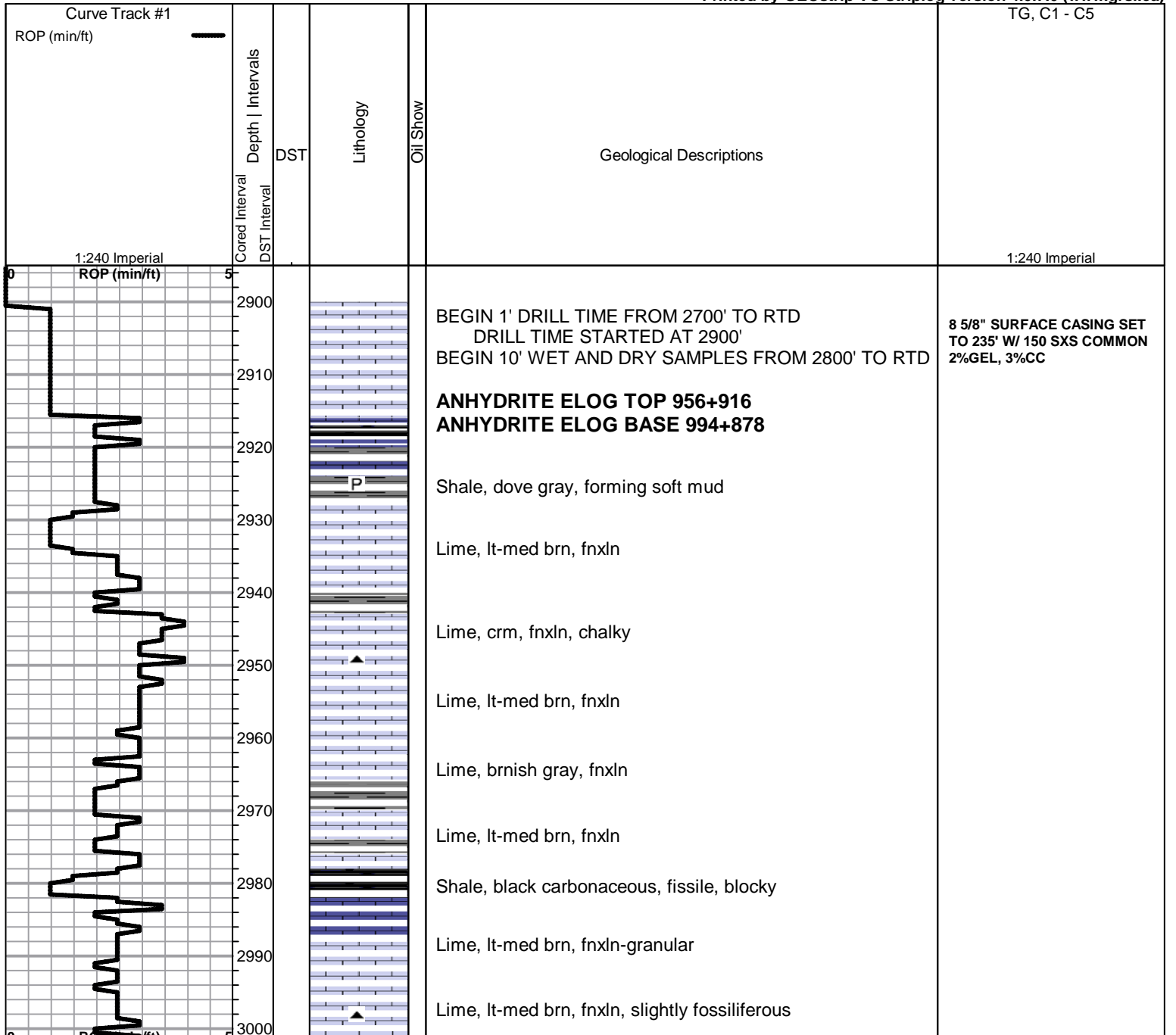
**MINERAL**  
 ▲ Chert, dark  
 P Pyrite

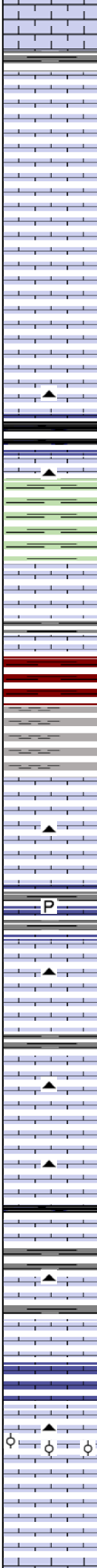
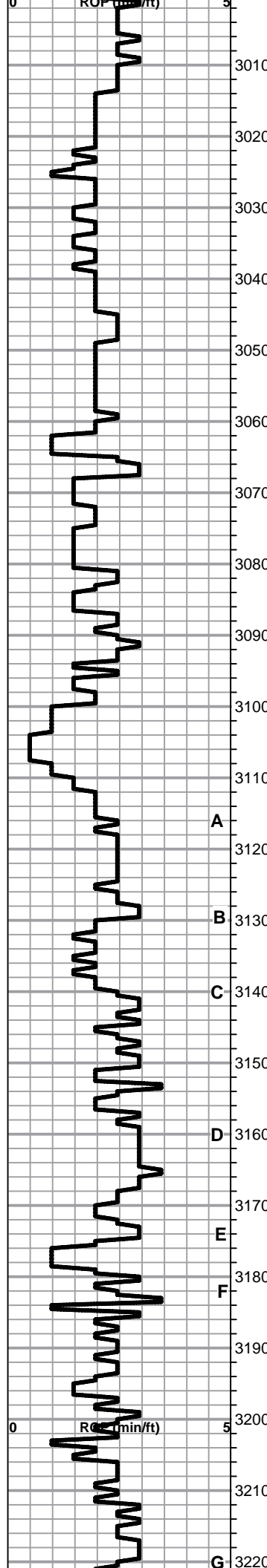
**FOSSIL**  
 ◊ Oolite

### OTHER SYMBOLS

**DST**  
 DST Int  
 DST alt  
 Core

Printed by GEOstrip VC Striplog version 4.0.7.0 (www.grsi.ca)





Lime, med brn fnxln

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

Lime, tan-lt brn, fnxln, bedded chalk, NS

Lime, tan-lt brn, fnxln, bedded chalk in part, slightly fossiliferous - fusulinids

Lime, crm-lt brn, fnxln, bedded chalk in part

**HEEBNER SHALE SPL 3060-1188 ELog 3057-1185**  
 Shale, black carbonaceous, fissile, blocky  
 Lime, lt brn, fn-vfxln

Shale, dove gray-lime green, soft forming soft mud

**TORONTO SPL 3080-1208 ELog 3078-1206**  
 Lime, white-crm, fnxln, bedded chalk in part, NS

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

Shale, lt red wash with soft mud grading into soft, blocky

**LKC SPL 3109 SPL 3109-1237 ELog 3109-1237**  
 Lime, tan-lt brn, mostly fnxln with few chips with fine vuggy porosity, lt scattered stain, NFO, No Odor

A

Lime, crm-tan, mostly fnxln

B

P

Lime, lt brn, fnxln

C

Lime, lt brn, fnxln, scattered vuggy porosity with sheen of hydrocarbon mixed in sample.

Lime, crm-lt brn, fnxln, bedded chalk in part

D

Lime, crm-lt brn, fnxln, no shows or staining noted

D

Lime, crm-tan, fn-crypto xln, slightly chalk in part, slightly fossiliferous

E

Shale, gray-black carbonaceous  
 Lime, lt gray-pale green tint, fnxln

F

Lime, crm, fnxln, fossiliferous but tightly cemented, NS

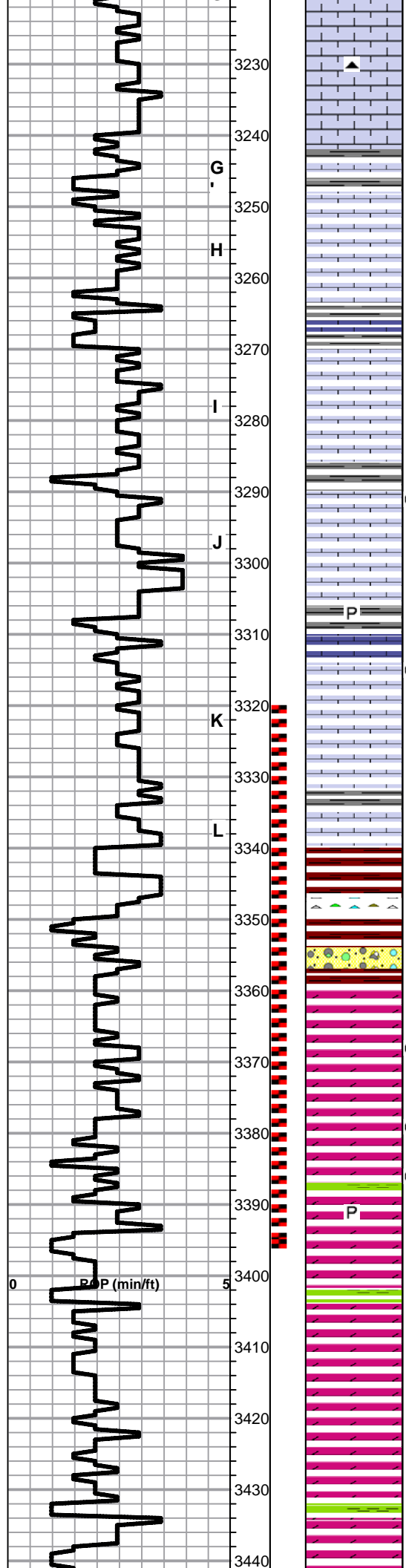
Lime, crm-tan, fnxln, bedded chalk, NS

Lime, fnxln with scattered oolitic and vuggy chips with light sheen mixed in samples, No Odor.

G

Lime, crm, fn-vfxln, slight chalk in part

Lime, crm-tan, fn-vfxln, slight bed chalk in part



Lime, crm-tan, fn-fxl, slight bed chalk in part

Lime, lt grading to dark brn, fxl

Lime, crm-lt brn, fxl, bedded chalk, NS

Lime, crm-lt brn, fxl, slight chalk in part

Lime, crm- fxl, bedded chalk, NS

Lime, crm-tan, fn-fxl, bedded chalk

Lime, crm-tan, fn-fxl, few chips with granular, fn-med interxl porosity with scattered stain, NFO, No Odor

Lime, crm-lt brn, fxl, slight chalk in part

Lime, crm-tan, fxl, bedded chalk in part

Shale, lt gray, slivers

Lime, crm, mostly fxl, bedded chalk, few chips with scattered stain, NFO, No Odor

Lime, crm-tan, fn-fxl, bedded chalk in part

Lime, crm-tan, fxl, bedded chalk, slightly fossiliferous

**BKC SPL 3340-1468 ELog 3340-1468**

Shale, red wash-soft blocky  
Clastic limestone mix in part

Shale, red wash to soft mud

**ARBUCKLE SPL 3360-1488 ELog 3361-1489**

Dolomite, lt brn, granular with med-cxl in part, friable clusters, lt odor and lt scattered staining

Dolomite, fn-cxl, sucrosic in part, lt odor, lt staining

Dolomite, white-crm-lt brn, fxl with sucrosic in part, lt odor, scattered staining

Dolomite, crm-lt brn, fn-cxl, very lt odor,

Dolomite, ivory-tan, fxl, crystalline pyrite growth with scattered quartz crystals., very lt to no detectable odor.

Dolomite, ivory with pale green tint in part, fn-cxl

Dolomite, ivory-crm, fxl with med-cxl in part

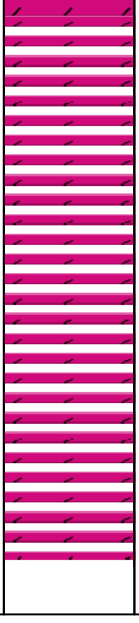
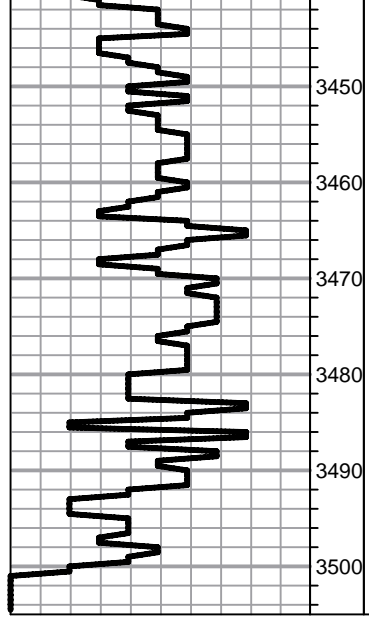
Dolomite, ivory-crm, fn-cxl

Dolomite, Ivory-crm, fn-cxl

Dolomite, ivory-crm, fxl with scattered large rhombic crvstalline development.



crystalline development



Dolomite, ivory-crm, fnxln with scattered sucrosic in part

Dolomite, ivory-crm, fn-cxln-granular

Dolomite, ivory-crm, fnxln-granular

Dolomite, ivory-crm, fnxln-granular

Dolomite, ivory-crm, fnxln, hard on crush

**RTD 3500-1628 LTD 3497-1625**

# QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025  
Cell 785-324-1041

Home Office P.O. Box 32 Russell, KS 67665

No. 5397

10-27-12

Date	10-26-12	Sec.	22	Twp.	14	Range	16	County	Ellis	State	KS	On Location		Finish	12:30AM
Lease	Tholen		Well No.	13		Location Walker, KS - 45 to Munjoc Rd.									
Contractor	Southwind #1					Owner 1/2 W N Into									
Type Job	Surface					To Quality Oilwell Cementing, Inc.									
Hole Size	12 1/4"		T.D.	237'		You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.									
Csg.	8 5/8"		Depth	<del>235'</del> 235'		Charge To TDI Inc.									
Tbg. Size			Depth			Street									
Tool			Depth			City State									
Cement Left in Csg.	15'		Shoe Joint	15'		The above was done to satisfaction and supervision of owner agent or contractor.									
Meas Line			Displace	14 BUS		Cement Amount Ordered 150 ex Common 3% CC									

**EQUIPMENT**

Pumptrk	5	No.	Cementer	Brett
			Helper	
Bulktrk	14	No.	Driver	Lonnie M.
			Driver	
Bulktrk	p.u.	No.	Driver	Rick
			Driver	

2 1/2 Gal  
Common 150  
Poz. Mix  
Gel. 3  
Calcium 5

**JOB SERVICES & REMARKS**

Remarks: Cement did Circulate

Rat Hole	
Mouse Hole	
Centralizers	
Baskets	
D/V or Port Collar	

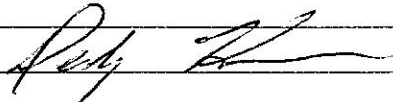
Hulls  
Salt  
Flowseal  
Kol-Seal  
Mud CLR 48  
CFL-117 or CD110 CAF 38

Sand  
Handling 158  
Mileage

**FLOAT EQUIPMENT**

Guide Shoe  
Centralizer  
Baskets  
AFU Inserts  
Float Shoe  
Latch Down

Pumptrk Charge Surface  
Mileage 17

X Signature 

Tax  
Discount  
Total Charge

JOB LOG

SWIFT Services, Inc.

DATE 10-31-12 PAGE NO.

CUSTOMER **T D I** WELL NO. **#13** LEASE **Thales** JOB TYPE **2-Stage** TICKET NO. **21956**

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
	2130							on loc w/ FE
								RTD 3500' LTD3497'
								5 1/2" x 14" x 3495' x 42'
								Lost 1, 3, 5, 8, 8, 10, 12, 5-9
								Back 2, 13, 60, 73
								DV 60 @ 944'
	2325							start FE
	0105							Break Circ
	0200	5	0			200		Start Mudflush 500 gal
		5	12/0			200		Start KCL flush 20 bbl
		5	20/0			200		Start 150 sks EA-2 Cement
	0220		36					End Cement
								Wash P/L
								Drop L D Plug
	0225	6	0			200		Start Displacement
	0235	5	58			250		Catch Cement / start KCL flush
	0241		84					Land Plug
								Release Pressure / Float Hold
	0245							Drop Opening Plug
	0250	2.5	7/4					Plug RH + MH 30/15 sks SMD
	0300					1100		Open DV
	0305	5	0			200		Start Cement 130 sks SMD
	0320		72					End Cement
								Drop Closing Plug
	0325	5	0			200		Start Displacement
		4	7			250		Circ Cement
	0330		23			450 / 1500		Land Plug
								Close DV
								Release Pressure / DV Closed
								circ 25 sks top it
								Thank you
								Nick, David E, + Sereniy