

**OPERATOR**

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

Contact Geologist: TOM DENNING  
 Contact Phone Nbr: 785-628-2593  
 Well Name: MUNSCH # 7  
 Location: NW NE SE SE Sec.9-15s-18w  
 Pool: INFIELD  
 State: KANSAS  
 API: 15-051-26,589-00-00  
 Field: SCHOENCHEN  
 Country: USA



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

Scale 1:240 Imperial

Well Name: MUNSCH # 7  
 Surface Location: NW NE SE SE Sec.9-15s-18w  
 Bottom Location:  
 API: 15-051-26,589-00-00  
 License Number: 4787  
 Spud Date: 9/26/2013  
 Region: ELLIS COUNTY  
 Drilling Completed: 10/1/2013  
 Surface Coordinates: 1290' FSL & 605' FEL  
 Bottom Hole Coordinates:  
 Ground Elevation: 2029.00ft  
 K.B. Elevation: 2039.00ft  
 Logged Interval: 2900.00ft  
 Total Depth: 3750.00ft  
 Formation: ARBUCKLE  
 Drilling Fluid Type: CHEMICAL/FRESH WATER GEL  
 Time: 6:00 PM  
 Time: 4:45 PM  
 To: 3750.00ft

**SURFACE CO-ORDINATES**

Well Type: Vertical  
 Longitude: -99.3211198  
 N/S Co-ord: 1290' FSL  
 E/W Co-ord: 605' FEL  
 Latitude: 38.7584877

**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: 9/26/2013  
 TD Date: 10/1/2013  
 Rig Release: 10/2/2013  
 Time: 6:00 PM  
 Time: 4:45 PM  
 Time: 11:00 AM

**ELEVATIONS**

K.B. Elevation: 2039.00ft  
 K.B. to Ground: 10.00ft  
 Ground Elevation: 2029.00ft

**NOTES**

RECOMMENDATION TO RUN PRODUCTION CASING BASED ON FAVORABLE ARBUCKLE STRUCTURE 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: ONE (1) CONVENTIONAL TEST

**FORMATION TOPS SUMMARY AND CHRONOLOGY OF DAILY ACTIVITY**

**MUNSCH #7**  
**NW NE SE SE**  
**Sec. 9-15s-18w**  
**2029' GL 2039' KB**

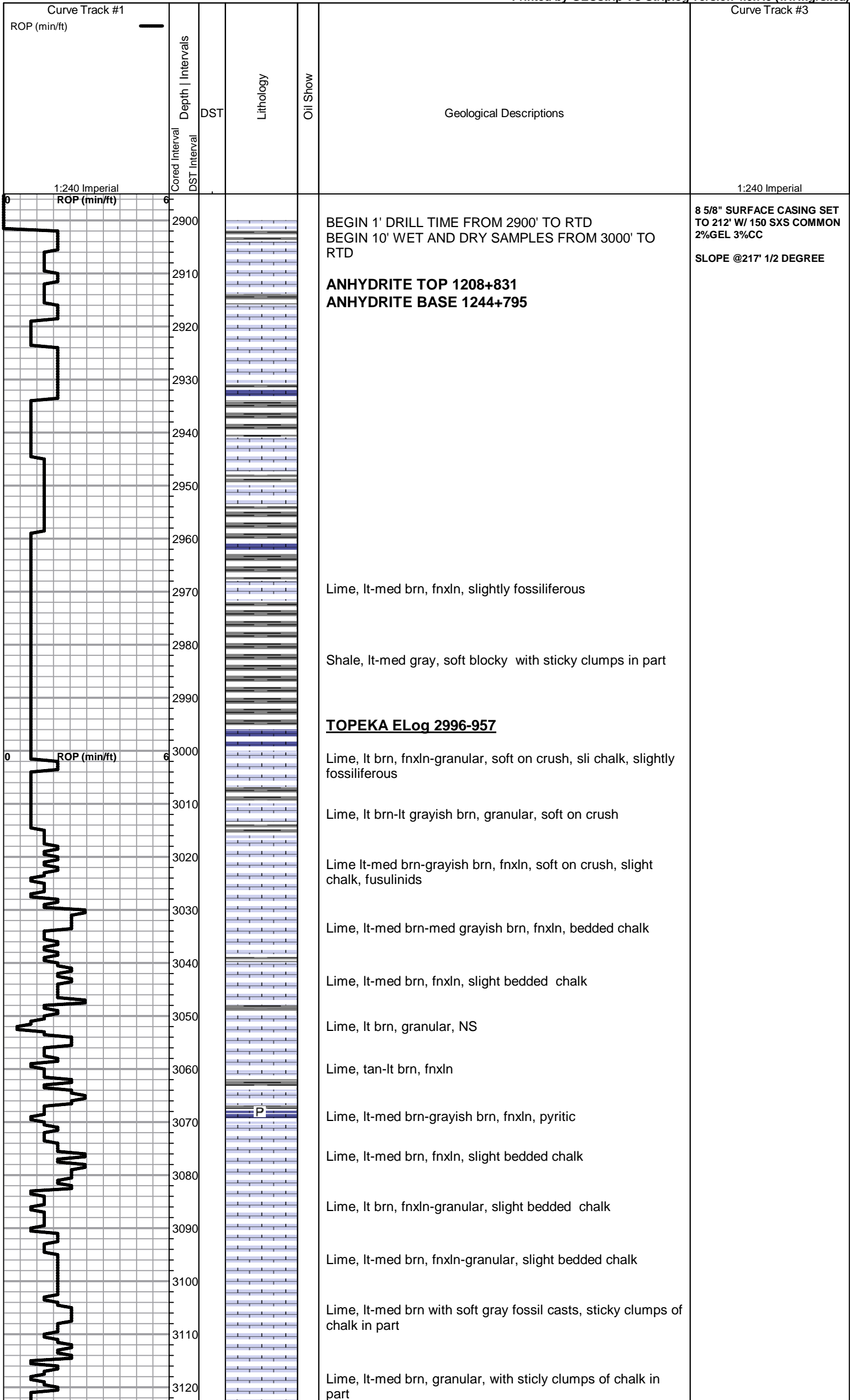
**MUNSCH # 3**  
**SW NE NE SE**  
**Sec. 9-15s-18w**  
**Reference Well**

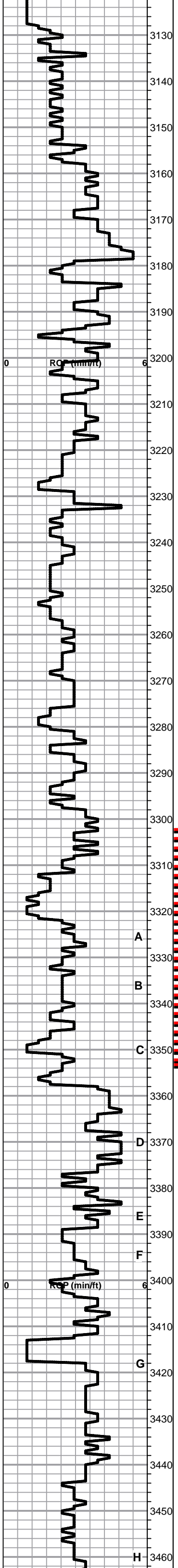


ROCK TYPES					
	Clystgy		Lmst fw<7		shale, grn
	Dolprim		Lmst fw7>		shale, gry
	Dol Lime		Lscongl		Carbon Sh
					shale, red
					Shcol

ACCESSORIES	
<b>MINERAL</b>	
▲	Chert, dark
≡	Nodules
P	Pyrite
•	Sandy
△	Chert White

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Shale, black carbonaceous

Shale, lt gray, soft sticky clumps  
Lime, lt-med brn, fnxln

Lime, crm, fn-vfxln, lithographic

Lime, lt gray tint, fnxln

lime, crm-tan, fnxln, slightly fossiliferous  
Chert, lt gray with fusulinids

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

Shale, med gray, calcareous in part

Lime, lt-med brn, fnxln-granular, trashy near shale boundary

Shale, black carbonaceous

Lime, lt-med brn-grayish brn, fnxln, soft on crush

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

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

Shale, med gray, soft slivers

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

Lime, lt-med brn, fnxln-granular, wide range of lime types and colors.

Lime, crm-lt brn, fnxln, bedded chalk

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

Lime, crm-lt brn, fnxln

**HEEBNER SHALE ELog 3275-1236**  
Shale, black carbonaceous, fissile, blocky  
Lime, lt brn-lt gray, vfxln, hard on crush

Shale, dove gray-lime green, soft sticky clumps

**TORONTO ELog 3294-1255**

Lime, white-crm,fn-vfxln, compacted bedded chalk, NS

Lime, crm-tan, fnxln, NS

Shale, red-brn, soft blocky forming soft mud clumps in part

**LKC ELog 3320-1281**

○ Lime, crm-lt brn, fnxln, V Lt Odor, in thin zone with inter xln with scattered vuggy porosity, spotty stain, NFO

Lime, lt brn-gray, fnxln

● Lime, crm-tan, fnxln with oomoldic/fossil fragments in part, dark stain with saturated fresh oil stain in part, V Lt Odor

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

○ Lime crm-tan, fnxln with zone of oolitic/fossil fragment material with lt spotty stain V Lt Odor, NFO

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

Shale, black carbonaceous  
Lime, pale gray with green tint, fn-vfxln

○ Lime, crm-tan, fnxln with thin zone of fossil fragments with spotty stain, lt odor. Not well developed

Lime, crm-tan, fnxln with thin cemented oolitic beds, NS

Lime, tan-lt brn, fnxln with bedded chalk grading into oomoldic zone, no wet cut, barren

Lime, lt brn, fn-micro xln, slight bedded chalk

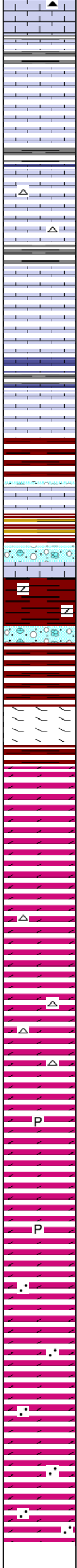
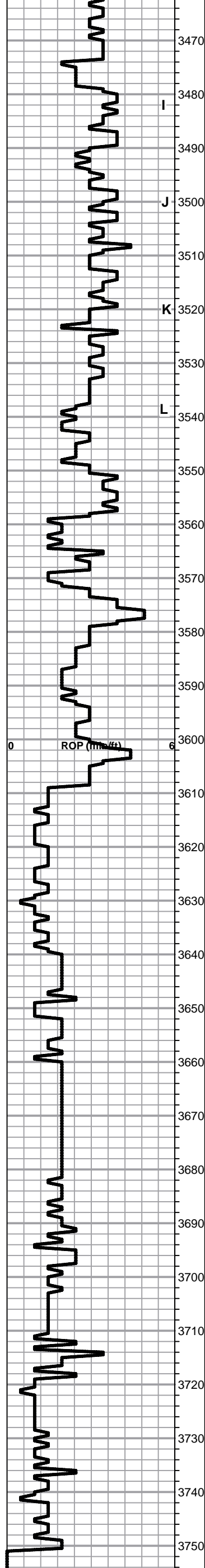
Lime, tan-lt brn, fn-vfxln, slight bedded chalk

Lime, lt brn, fn-vfxln

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

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

DST # 1 3302' TO 3355' SEE  
HEADER FOR TEST  
SUMMARY



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

Shale, lt gray-lime green, forming soft mud clumps  
Lime, tan, fn-vfxln, bedded chalk, NS

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

Shale, med -dark gray, firm blocky  
Lime, crm-lt brn, fn-micro xln, slight bedded chalk, white chert

Lime, crm-tan, fn-micro xln

Shale, med gray, soft-firm blocky

Lime, crm-tan, fn-micro xln, slight bedded chalk, NS

Lime, crm-tan, fn-micro xln, slight bedded chalk

Lime, lt-med brn, fnxln,  
Shale, med-dark gray-greenish gray, soft blocky

Lime, crm-lt brn, fnxln, slight bedded chalk

**BKC ELog 3544-1505**

Shale, lt red wash, soft blocky

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

Shale, gray, brn, maroon, soft-firm blocky

Lime, crm-lt brn, clastic mix with red shale staining

Shale, red wash, forming soft mud, dark chert nodules

Clastic lime mix

Shale, dark brn, soft-firm blocky

Lime, crm, fnxln, dolomitic with orange chert fragments  
Shale, lime green-red, soft sticky clumps

**ARBUCKLE ELog 3605-1566**

- Dolomite, crm-lt brn, med-cxln, sucrosic in part, lt odor with saturated staining
- Dolomite, crm-lt brn, fn-cxln sucrosic, good odor with saturated staining
- Dolomite, crm-lt brn, fn-cxln, F-G odor with saturated staining, less sucrosic with depth, good inter xln porosity
- Dolomite, ivory-crm, fn-cxln, opaque chert, lt sulfur odor with much staining.

Dolomite, ivory-crm, fn-cxln

Dolomite, ivory-crm, fn-cxln

Dolomite, ivory-crm, fn-cxln

Dolomite, ivory, fn-cxln

Dolomite, ivory-lt steel gray with lt green tint, micro pyrite crystalline inclusions

Dolomite, crm-ivory, fnxln

Dolomite, crm-ivory, fnxln with increasing quartz grain inclusions

Dolomite, ivory-crm, fn-cxln, quartz grain inclusions with few fused quartz clusters.

Dolomite, ivory-crm, fnxln-granular, hard on crush

Dolomite, crm-ivory, fnxln-granular

RTD 3750-1711 LTD 3752-1713

SLOPE @3750' 1 DEGREE

# 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. **7872**

Date	9-26-13	Sec.	91	Twp.	15	Range	18	Called Out		On Location		Job Start	10:15pm	Finish	11:30pm
Lease	Munsch	Well No.	#7	Location	Hays 75 1/4 Winto	County	Ellis	State	KS						
Contractor	Southwind	Owner	T.D.I.												
Type Job	Surface	To Quality Oilwell Cementing, Inc. You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.													
Hole Size	12 1/4	T.D.	218'												
Csg.	8 5/8	Depth	212'	Charge To	T.D.I.										
Tbg. Size		Depth		Street											
Drill Pipe		Depth		City	Hays	State	Kansas								
Tool		Depth		The above was done to satisfaction and supervision of owner agent or contractor.											
Cement Left in Csg.	20ft.	Shoe Joint	20 ft.												
Press Max.		Minimum													
Meas Line		Displace	12 1/4 BBL												
Perf.		<b>CEMENT</b>													
<b>EQUIPMENT</b>				Amount Ordered	150 com	3% cc	2% gel								
Pumptrk	5	No.	Cement Helper	Matt	Consisting of										
Bulktrk	14	No.	Driver	Lonnie W	Common 150										
Bulktrk	PU	No.	Driver	Lonnie M	Poz. Mix										
<b>JOB SERVICES &amp; REMARKS</b>				Gel.	3										
Pumptrk Charge	Surface			Chloride	5										
Mileage				Hulls											
Footage				Salt											
Total				Flowseal											
Remarks:				Cement did Circulate!											
				Sales Tax											
				Handling	158										
				Mileage	8										
				Sub Total											
				Total											
				Floating Equipment & Plugs											
				Squeeze Manifold											
				Rotating Head											
				Tax											
				Discount											
X Signature				Total Charge											

JOB LOG

SWIFT Services, Inc.

DATE 10-2-13 PAGE NO.

CUSTOMER		WELL NO.		LEASE		JOB TYPE		TICKET NO.	
TOE		7		Munsch		5 1/2 Two Stage		25206	
CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS	
				T	C	TUBING	CASING		
	0730								on location
									TD 5751 SS 42
									TP 3547 Insert 3705
									DV top 60 1195'
									Centralizers 1, 3, 5, 6, 8, 10, 12, 59
									Baskets 3, 13, 60, 75
	0930								Start casing
	1100								Drop Ball Break circulation Rotate
	1205	5	12		✓		300		Start Mud flush
		5	20		✓		300		Start KCL Flush
	1215	5	36		✓		200		Start EA-2 Cement 150 sks
	1225								Drop Plug
									wash out Pump + Lines
	1226	6.5					200		Start Displacement
			70		✓				Start KCL Flush
	1240		90.4		✓		700/1500		land Plug
	1245								Drop open Plug
	1250		7/8						Plug RH 30 sks MH 20 sks
	1305				✓		1100		open DV
	1306	5	59		✓		300		Start SMO 125 @ 11.7 gpl
		5	7		✓				Bring weight up to 13.5 gpl
									wash out Pump + Lines
	1330								Drop Closing Plug
					✓				Start Displacement
	1345		29.1		✓		400/1520		land Plug
									close DV
									circulated 15 sks no pit
									wash up Rack up
	1430								Job Complete
									Thank You
									Josh, Brian Isaac