

OPERATOR

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

Contact Geologist: TOM DENNING
 Contact Phone Nbr: 785-628-2593
 Well Name: MUNSCH # B-3
 Location: SW NE SE SW Sec 4-15s-18w
 Pool: IN FIELD
 State: KANSAS

API: 15-051-26,529-00-00
 Field: RUDER NORTHEAST
 Country: USA



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

Scale 1:240 Imperial

Well Name: MUNSCH # B-3
 Surface Location: SW NE SE SW Sec 4-15s-18w
 Bottom Location:
 API: 15-051-26,529-00-00
 License Number: 4787
 Spud Date: 5/31/2013 Time: 11:16 AM
 Region: ELLIS COUNTY
 Drilling Completed: 6/5/2013 Time: 4:28 PM
 Surface Coordinates: 725' FSL & 2075' FWL
 Bottom Hole Coordinates:
 Ground Elevation: 2013.00ft
 K.B. Elevation: 2023.00ft
 Logged Interval: 2900.00ft To: 3750.00ft
 Total Depth: 3750.00ft
 Formation: ARBUCKLE
 Drilling Fluid Type: CHEMICAL/FRESH WATER GEL

SURFACE CO-ORDINATES

Well Type: Vertical
 Longitude: Latitude:
 N/S Co-ord: 725' FSL
 E/W Co-ord: 2075' 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

Rig Type: MUD ROTARY
 Spud Date: 5/31/2013
 TD Date: 6/5/2013
 Rig Release: 6/6/2013

Time: 11:16 AM
 Time: 4:28 PM
 Time: 1:00 AM

ELEVATIONS

K.B. Elevation: 2023.00ft Ground Elevation: 2013.00ft
 K.B. to Ground: 10.00ft

NOTES

WELL DRILLED TO 3750' AND LOGGED. ARBUCKLE RAN LOWER THAN EXPECTED AND LKC ZONES NOT WELL DEVELOPED. DECISION MADE TO DEEPEN WELL AND RUN CASING FOR FUTURE SALT WATER DISPOSAL. WELL DEEPENED TO 3914' WHICH ENCOUNTERED 12' OF GRANITE WASH AND 2' OF SOLID GRANITE AT DDTD. VERY LITTLE IF ANY REAGAN SAND WAS NOTED IN THE SAMPLE EXAMINATION.

OPEN HOLE LOGGING BY PIONEER ENERGY SERVICES: DUAL INDUCTION LOG, DUAL COMPENSATED POROSITY LOG
 LOGGED INTERVAL FROM 2900' TO 3750'

NO DRILL STEM TESTS WERE RUN ON THIS WELL

FORMATION TOPS SUMMARY AND CHRONOLOGY OF DAILY ACTIVITY

MUNSCH # B-3
725' FSL & 2075' FWL, SW/4
Sec. 4-15s-18w
2013' GL 2023' KB

MUNSCH # B-1
NW SE SW
Sec 4-15s-18w
Reference Well




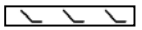











<u>FORMATION</u>	<u>SAMPLE TOPS</u>	<u>LOG TOPS</u>	<u>LOG TOPS</u>
Anhydrite	1205+ 818	1199+ 824	+ 825
B-Anhydrite	1237+ 786	1233+ 790	+ 786
Topeka	2995- 973	2994- 971	- 973
Heebner Shale	3271-1248	3267-1244	-1241
Toronto	3293-1270	3289-1266	-1265
LKC	3318-1295	3315-1292	-1291
BKC	3548-1525	3543-1520	-1517
Arbuckle	3640-1617	3645-1622	-1577
RTD	3750-1722		
LTD		3748-1720	
Granite Wash	3894-1871		
DDTD	3914-1891		

SUMMARY OF DAILY ACTIVITY

5-31-13 Spud 3:00 PM, set 8 5/8" surface pipe to 223.16' w/ 150 sxs common, 2%gel 3%CC, plug down 8:15 PM, slope 1/2 degree

6-01-13 348', drilling
6-02-13 1889', drilling
6-03-13 2690', drilling, displace 2648'-2679'
6-04-13 3370', drilling, RTD 3750' @ 10:12PM, short trip, TOWB
6-05-13 3750', logs, decision to deepen well, DDTD 3914' @ 4:28PM, LDDP, run 5 1/2" production casing, cement bottom stage 150 sxs EA2
6-06-13 3914', finish cementing top stage production casing, plug down 12:45 AM

ROCK TYPES

 Clystgy	 Dolprim	 shale, gry	 Dol Lime
 Clystcol	 Lmst fw<7	 Carbon Sh	 Lscongl
 Congl	 Lmst fw>7	 shale, red	 Igne
 Chtcongl	 shale, grn	 Shcol	

ACCESSORIES

MINERAL

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

FOSSIL

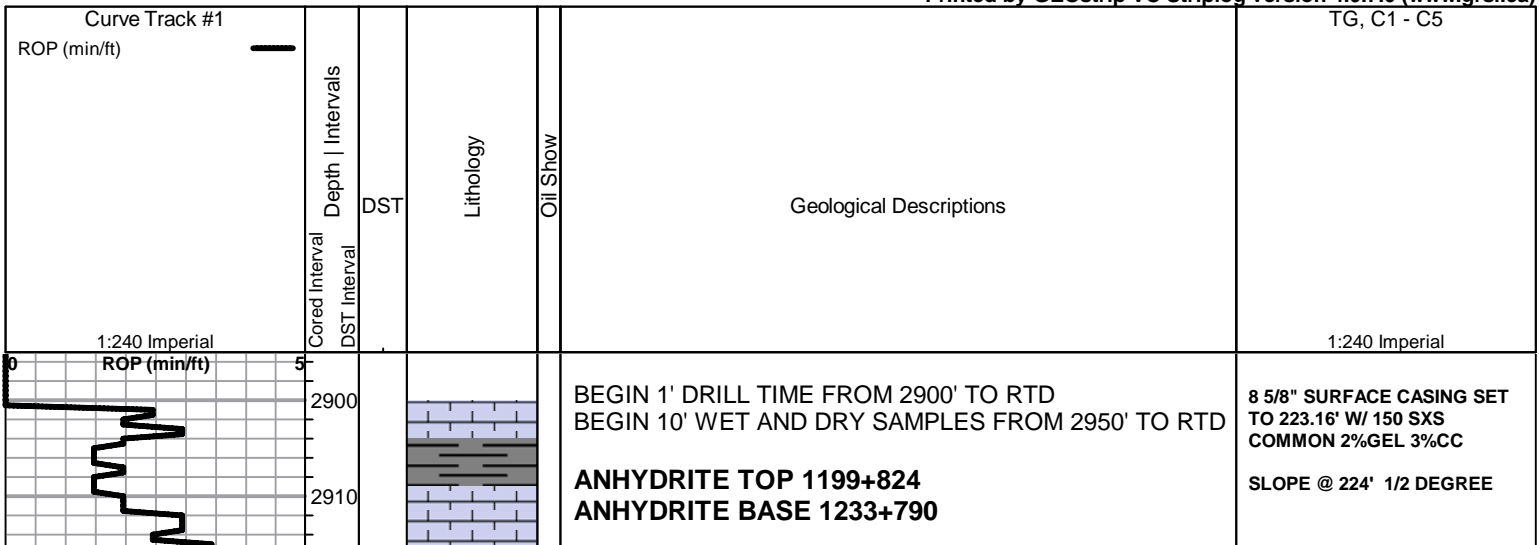
- F Fossils < 20%
- ⊕ Oolite
- ⊕ Oomoldic

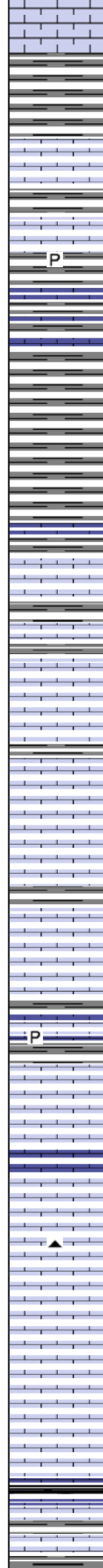
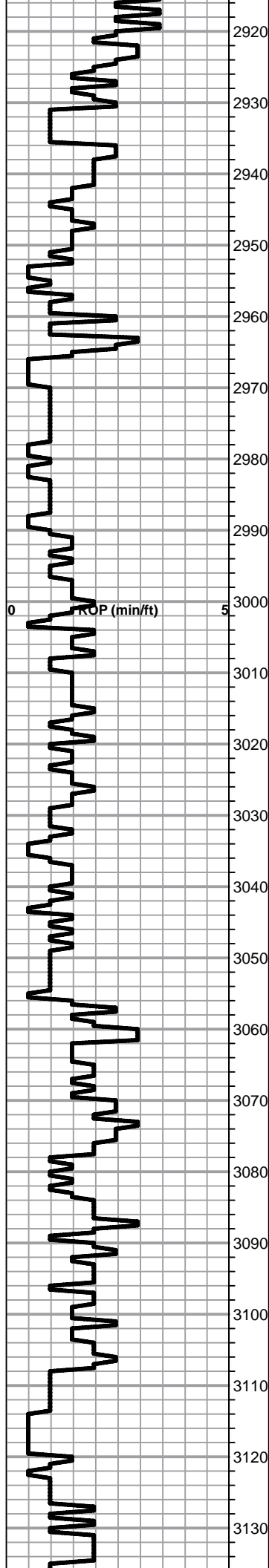
OTHER SYMBOLS

DST

- DST Int
- DST alt
- Core

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

Shale, lt gray forming soft mud

Lime, lt-med brn, fnxln, fossiliferous

Lime, med brn-med grayish brn, fnxln

P

Shale, med gray, soft blocky, pyrite clusters

Lime, med brn-med grayish brn, fnxln

Lime, dark brn, fnxln, fossiliferous

Shale, med gray, soft-firm blocky

TOPEKA 2994-971

Lime, crm-lt brn, fnxln-granular

Lime, crm-med brn, fnxln, slightly fossiliferous

Lime, crm-lt brn, fnxln

Lime, lt-med brn-grayish brn, fnxln

Lime, lt-med brn-grayish brn, fnxln

Lime, lt-med brn, fnxln-granular, slight chalk w sticky clumps of chalk in part

Lime, lt-med brn, granular, slight chalk, NS

P

Lime, med gray, fnxln, gray fossil mottling

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

Lime, lt-med brn-grayish brn, fnxln-granular, NS

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

▲

Lime, lt-med brn, fnxln, slightly fossiliferous

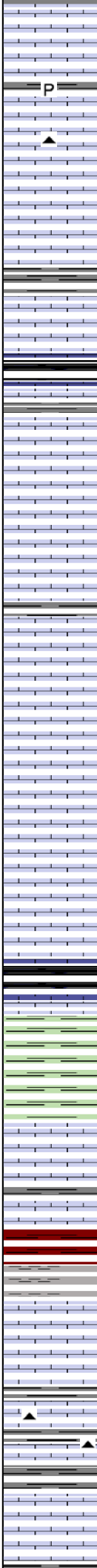
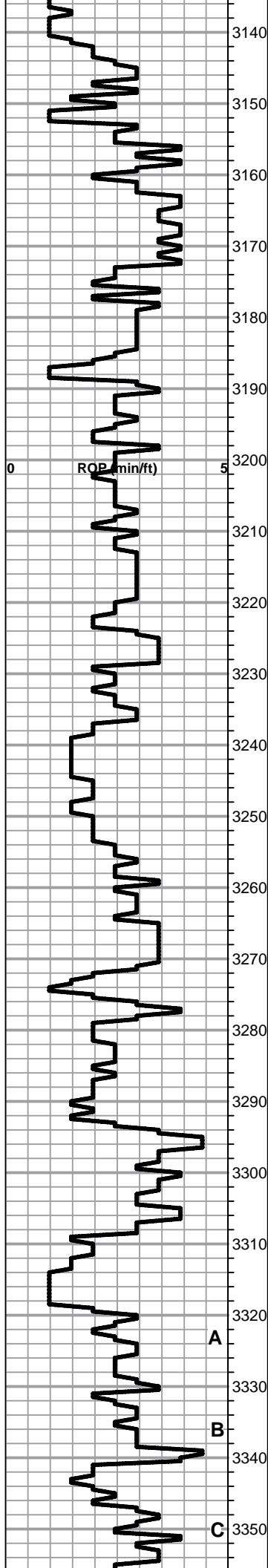
Lime, lt-med brn-grayish brn, fnxln-slightly granular, slight chalk in part, slightly fossiliferous

Lime, lt-med brn, fnxln-granular, slight chalk w sticky clumps

Lime, med brn, granular w slight bedded chalk, stickly in part

Shale, gray-black carbonaceous, fissile, blocky

Lime, crm-lt brn, fnxln, lithographic in part



Lime, crm-lt brn, fnxln

Lime, lt-med brn, mostly fnxln, slight chalk

Lime, lt-med brn, fnxln

Lime, lt-med brn, fnxln

Shale, lt gray-lime green, forming soft mud

Lime, lt-med brn, fnxln, slightly fossiliferous

Shale, black carbonaceous, fissile, blocky

Lime, med-dark brn, fnxln, slightly fossiliferous

Lime, lt-med brn, fnxln, slightly fossiliferous

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

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

Lime, lt-med brn, fnxln

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

Lime, crm-lt brn, fnxln-granular

Lime, crm-lt brn, fnxln

Lime, lt-med brn, fnxln

HEEBNER SHALE SPL 3271-1248

Shale, black carbonaceous, fissile, blocky

Lime, med brn, fn-vfxln, hard on crush

Shale, lime green, soft forming sticky clumps

TORONTO SPL 3293-1270

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

Lime, crm-lt brn, fn-micro xln

Lime, lt-med brn, fn-micro xln

Shale, lt red, firm blocky with lt red wash with depth

LKC SPL 3318-1295

Lime, crm-lt brn, fn-micro xln

Lime, med brn-med grayish brn, fnxln, appears reworked in part near shale boundaries

Lime, crm-tan-med brn, fn-micro xln, slightly fossiliferous

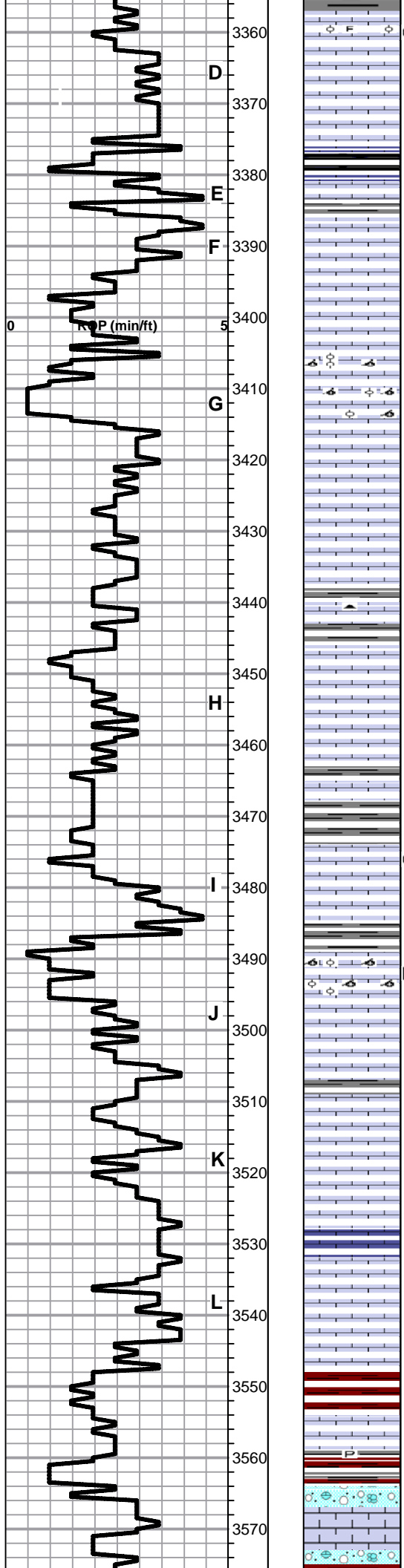
Shale, lt-med gray, soft blocky

Lime, crm-lt brn, fn-micro xln, slight chalk, NS

A

B

C



Lime, crm-tan, fnxln, thin bed of oolitic/fossil fragment material, trace of spotty stain, NFO, No Odor

Lime, crm-tan, fn-micro xln, slight chalk, slightly fossiliferous

Shale, gray-black carbonaceous
Lime, brnsh gray, fnxln, hard on crush, slightly fossiliferous

Lime, crm-tan, fnxln-granular, lt white chalk wash, NS

Lime, white-tan, fnxln-granular, white chalk wash, NS

Lime, lt brn, fnxln grading into oolitic/oomoldic section, NS

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

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

Lime, lt brn-lt gray, fn-vfxln

Lime, crm, fn-micro xln, bedded chalk

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

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

Lime, tan-lt brn, fnxln, bedded chalk, few chips specks of spotty stain, NFO, No Odor

Lime, lt-med brn, fnxln grading into oolitic/oomoldic, NS, NFO, No Odor

Lime, tan-lt gray, fnxln, chalk in part, few chips with dead oil stain

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

Lime, crm-lt brn, fnxln, bedded chalk

Shale, lt grayish green, soft blockyy
Lime, crm-lt brn, fnxln, slight chalk in part

Lime, white-crm, fn-micro xln, slight chalk

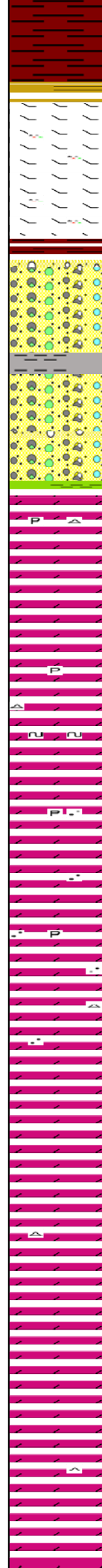
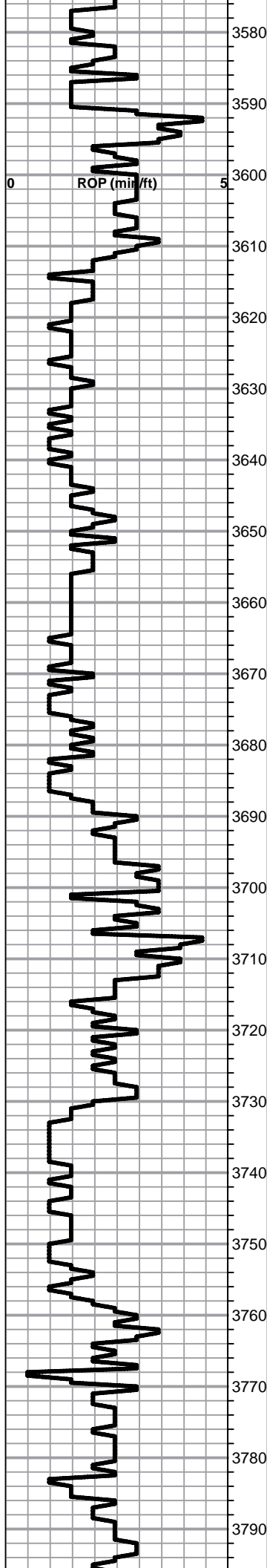
BKC SPL 3548-1525

Shale, red, firm blocky

Lime, crm, fnxln, hard on crush

Shale, reds, brns, gray, pyritic

Lime, clastic mix, fnxln



Shale, red, firm blocky grading into vari colored shales

MARMATON SPL 3590-1567

Lime, crm-tan, fnxln, hard on crush, dolomitic, orange chert, scattered specks of heavy dark oil,

Lime, crm-tan, fnxln, dolomitic

Shale, red wash, vari colored cherts

Vari colored cherts

Clay, white, sticky clumps

Chert, vari color with vari color shales

ARBUCKLE ELOG 3645-1622

Dolomite, ivory, fn-med xln, very Lt Odor, few specks of free oil, traces of gilsonite in med-cxln

Dolomite, ivory, fn-med xln, interxln porosity with fine sucrosic in part

Dolomite, ivory-crm, med-cxln, interxln porosity, pyritic in part

Dolomite, ivory, fn-cxln, scattered specks of glauconite

Dolomite, ivory-crm, fn-cxln, scattered xln pyrite

Dolomite, ivory-crm, fnxln with quartz grain inclusions

Dolomite, crm-tan, fnxln with quartz grain inclusions

Dolomite, tan-lt salmon, fnxln-sucrosic in part

Dolomite, crm-tan, fn-cxln, quartz grains forming clusters and fused chips

Dolomite, crm-tan, md-cxln, sucrosic in part

Dolomite, crm-tan, md-cxln, sucrosic in part

RTD 3750-1727 LTD 3750-1727

Dolomite, ivory-crm, fnxln-granular

Dolomite, ivory-crm, fnxln

Dolomite, ivory-crm, fnxln-granular in part

Dolomite, ivory-crm, fnxln-granular in part

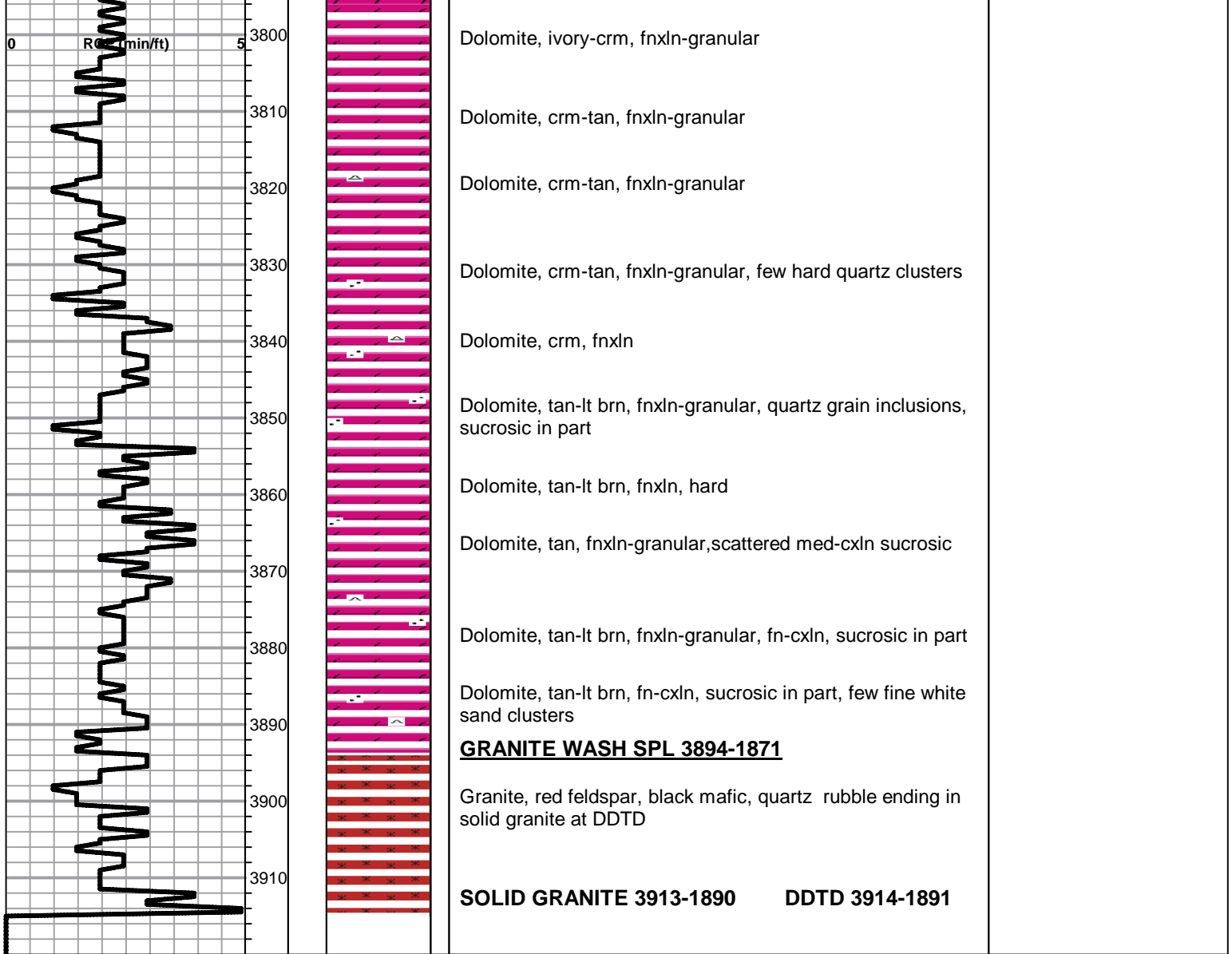
TOP OF ARBUCKLE
ENCOUNTERED AT OIL/WATER
CONTACT

RAN 14# 5 1/2" PRODUCTION
CASING SET TO 3710' W/ 150
SX EA2, DV @ 1172' W/ 350
SXS SMD

WELL DRILLED TO 3750' AND
LOGGED. DEEPENED FOR
SALT WATER DISPOSAL
AFTER LOGS

SLOPE @3750' 1 DEGREE

RAN OLD BIT WITH 145 HRS
TO DEEPEN WELL



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. 6943

Date	S-31-13	Sec.	4	Twp.	15	Range	18	County	ELLIS	State	KS	On Location		Finish	8.15 PM
Lease	Munsch B			Well No.	3			Owner	Minto						
Contractor	Southward A							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.							
Type Job	Surface							Charge To	TDI						
Hole Size	12 1/4			T.D.	225			Street							
Csg.	8 3/8			Depth	223			City	State						
Tbg. Size				Depth				The above was done to satisfaction and supervision of owner agent or contractor.							
Tool				Depth				Cement Amount Ordered	150 3/100 2/10 gel						
Cement Left in Csg.	15 FT			Shoe Joint	15 FT										
Meas Line				Displace	13 BBL										
EQUIPMENT								Common	150						
Pumptrk	5	No.	Cementer	Mitt				Poz. Mix							
			Helper					Gel.	3						
Bulktrk	8	No.	Driver	Brett				Calcium	5						
			Driver					Hulls							
Bulktrk	pu	No.	Driver	Chad				Salt							
			Driver					Flowseal							
JOB SERVICES & REMARKS								Kol-Seal							
Remarks:								Mud CLR 48							
Rat Hole	Munsch 5 1/2"							CFL-117 or CD110 CAF 38							
Mouse Hole								Sand							
Centralizers								Handling	150						
Baskets								Mileage							
D/V or Port Collar								FLOAT EQUIPMENT							
Cement did								Guide Shoe							
Circulate								Centralizer							
								Baskets							
								AFU Inserts							
								Float Shoe							
								Latch Down							
								Pumptrk Charge	Surface						
								Mileage	7						
								Tax							
								Discount							
								Total Charge							
X Signature	Derek														

JOB LOG

SWIFT Services, Inc.

DATE 6-5-13 PAGE NO. 1

CUSTOMER TDI WELL NO. #3 LEASE Munsch "B" JOB TYPE 2-stage TICKET NO. 24286

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
	2100							on loc w/ FE
								RTD 3910'
								5 1/2" x 14" x 3710' x 42'
								Cent 1, 5, 9, 8, 10, 91, 60
								Bank 4, 13, 61, 78
								DV 61 @ 1172'
	2110							Start FE
	2230					1000		Break Circ + Set Pk + Shoe
	2330	5	0			200		Start 500 gal Mud flush
		5	12/6			200		Start KCL flush
		5	20/0			200		Start 150 sks EA-2 Cement
	2345		36					End Cement
								Wash Pk
								Drop LD Plug
	2350	6	0			150		Start Displacement
	0000	5	61			200		Catch cement KCL in last 20 bbl
	0005		89.5			900 / 1500		Land Plug
								Drop Opening Plug
	0010	2.15	7/4					Plug RH/MA 38/15 sks SMD
	0020					1100		Open DV
	0021	5	0			150		Start SMD Cement 165 sks
	0038		86					End Cement
								Drop Closing Plug
	0042	5	0			150		Start Displacement
	0045	4	12			250		Circ Cement
	0050		28.5			450 / 1500		Land Plug
								Release Pressure
								Float Held
								circ 30 sks to pit
								Thank you
								Nick, David E, & Doug