

**OPERATOR**

Company: HERTEL OIL COMPANY, LLC  
 Address: 704 E 12TH STREET  
 HAYS, KANSAS 67601

Contact Geologist: DAVE HERTEL  
 Contact Phone Nbr: 785-628-2445  
 Well Name: R.C. UNIT # 1  
 Location: NE NW NW SW Sec 17-15s-19w      API: 15-051-26,459-00-00  
 Pool: WILDCAT      Field: UNNAMED  
 State: KANSAS      Country: USA



Scale 1:240 Imperial

Well Name: R.C. UNIT # 1  
 Surface Location: NE NW NW SW Sec 17-15s-19w  
 Bottom Location:  
 API: 15-051-26,459-00-00  
 License Number: 33625  
 Spud Date: 1/15/2013      Time: 2:30 PM  
 Region: ELLIS COUNTY  
 Drilling Completed: 1/20/2013      Time: 2:01 PM  
 Surface Coordinates: 2500' FSL & 550' FWL  
 Bottom Hole Coordinates:  
 Ground Elevation: 1978.00ft  
 K.B. Elevation: 1986.00ft  
 Logged Interval: 2800.00ft      To: 3665.00ft  
 Total Depth: 3665.00ft  
 Formation: REAGAN SAND  
 Drilling Fluid Type: CHEMICAL/FRESH WATER GEL

**SURFACE CO-ORDINATES**

Well Type: Vertical  
 Longitude:      Latitude:  
 N/S Co-ord: 2500' FSL  
 E/W Co-ord: 550' 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: DISCOVERY DRILLING INC.  
 Rig #: 4  
 Rig Type: MUD ROTARY  
 Spud Date: 1/15/2013      Time: 2:30 PM  
 TD Date: 1/20/2013      Time: 2:01 PM  
 Rig Release: 1/21/2013      Time: 3:00 AM

**ELEVATIONS**

**NOTES**

RECOMMENDATION TO PLUG AND ABANDON WELL DUE TO LOW STRUCTURE AND LACK OF DEVELOPMENT IN LKC AND LOW STRUCTURE OF BASAL SAND UNITS.

REFERENCE WELL USED FOR CORRELATION: # 1 PITTS 17 CD DRILLED BY RITCHIE EXPLORATION INC. LOCATED 2280' FSL AND 1260' FWL, SW/4 SEC 17-15S-19W

OPEN HOLE LOGGING BY PIONEER ENERGY SERVICES: RADIATION GUARD LOG

NO DRILL STEM TESTS WERE RAN

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

<b>R.C. UNIT # 1</b>	<b># 1 Pitts 17 CD</b>
<b>2500' FSL &amp; 550' FWL, SW/4</b>	<b>2280' FSL &amp; 1260' FWL</b>
<b>Sec. 17-15s-19w</b>	<b>Sec. 17-15s-19w</b>
<b>1978' GL 1986' KB</b>	<b>Reference Well</b>

<u>FORMATION</u>	<u>SAMPLE TOPS</u>	<u>LOG TOPS</u>	<u>LOG TOPS</u>
Anhydrite	1228+ 758	1230+ 756	+753
B-Anhydrite	1258+ 728	1262+ 724	+719
Topeka	2973- 987	2968- 982	- 978
Heebner Shale	3242-1256	3238-1252	-1249
Toronto	3262-1276	3258-1272	-1269
LKC	3286-1300	3283-1297	-1294
BKC	3530-1544	3528-1542	-1541
Marmaton	3568-1582	3566-1580	-1581
Conglomerate Sand	3616-1630	3618-1632	<i>Not found</i>
Arbuckle		None found	-1611
Reagan Sand	3641-1655	3640-1654	-1621
RTD	3665-1679		
LTD		3665-1679	-1627

**SUMMARY OF DAILY ACTIVITY**

- 1-15-13 RU, spud 2:30 pm
- 1-16-13 953', drilling, set 8 5/8" to 1230' w/ 450 sxs Common, 2%Gel, 3%CC, plug down 10:15PM, slope 1 degree, WOC 12 hrs
- 1-17-13 1230', WOC, drill plug at 10:15 am
- 1-18-13 2303', drilling
- 1-19-13 3101', drilling

1-20-13 3573', drilling, short trip 26 stands @ 3573', RID 3665' 2:01 pm, logs  
 1-21-13 3665', finish laying down drill pipe and plugging , RD

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**ROCK TYPES**

	Cht vari		Lmst fw<7		Carbon Sh		Arg/Shale
	Clystgy		Lmst fw7>		shale, red		Dol Lime
	Congl		shale, grn		Shcol		Lscongl
	Chtcongl		shale, gry		Ss		CglSandy

**ACCESSORIES**

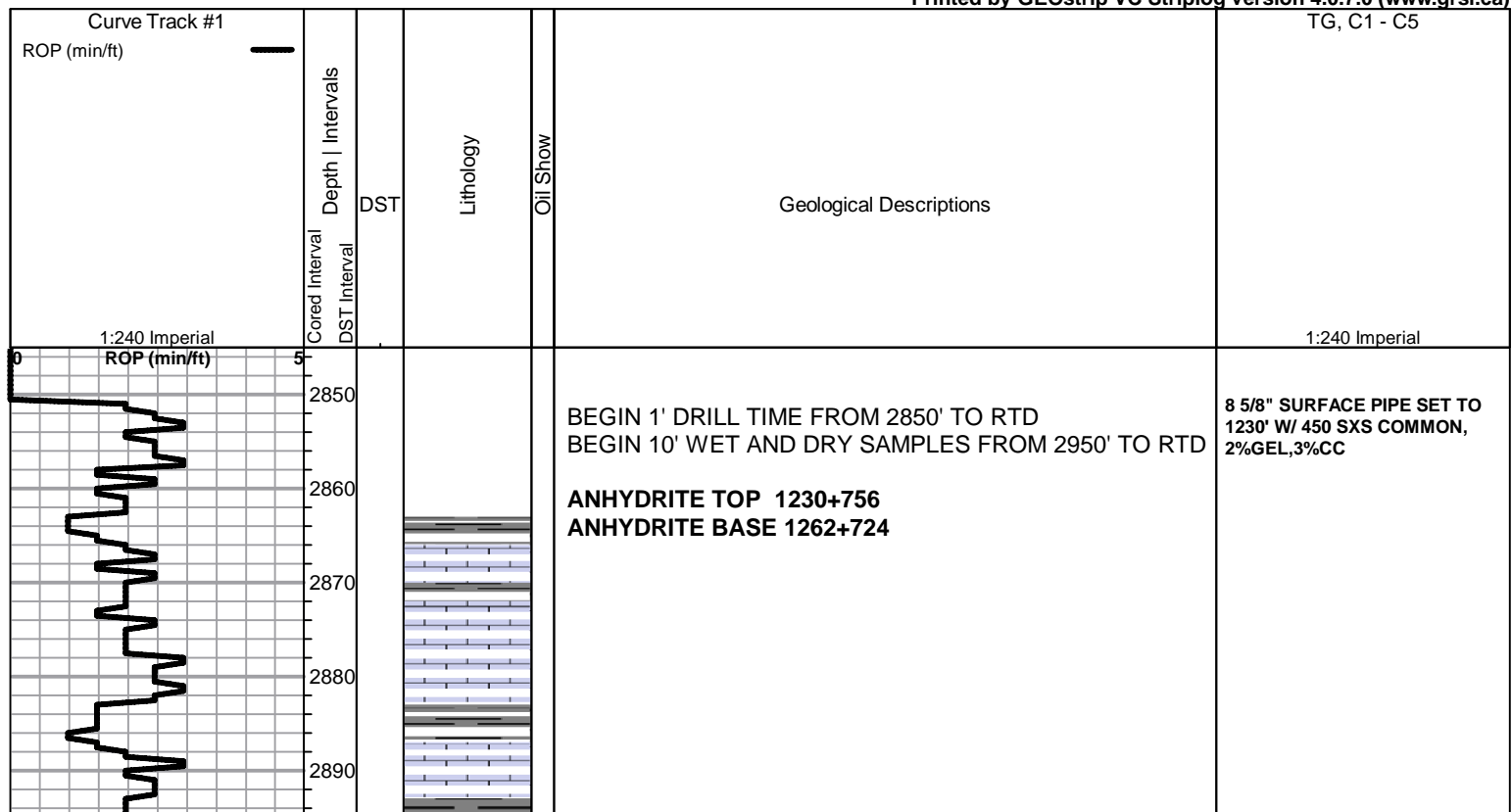
<b>MINERAL</b>	<b>FOSSIL</b>
▲ Chert, dark	○ Oolite
∩ Glauconite	⊕ Oomoldic
P Pyrite	
⬢ Varicolored chert	
△ Chert White	

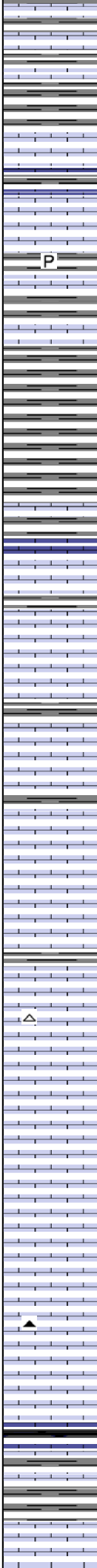
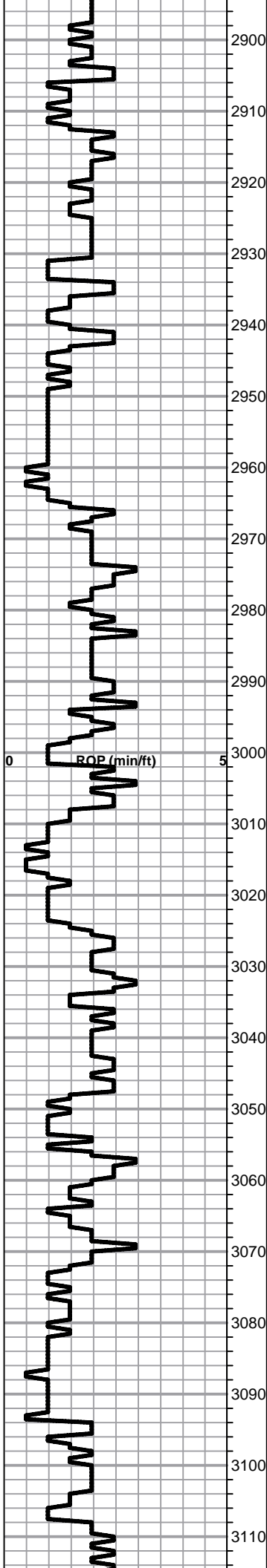
**OTHER SYMBOLS**

**DST**

	DST Int
	DST alt
	Core

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Lime, lt brn-lt-med gray, fnxln-granular, fossiliferous in part with fusulinids, shaley in part

Lime, gray-med brn, fnxln, slightly fossiliferous, micro size pyrite crystal inclusions in lime near facies boundary  
 Shale, lt-med gray, soft mud-soft blocky

Shale, lt-med gray, soft mud to soft blocky in part

**TOPEKA SPL 2973-987**

Lime, tan-lt brn, fnxln, hard on crush, slight bed chalk in part

Lime, tan-med brn, fnxln, chalky matrix in part with thin beds of fusulinids

Lime, lt-med brn, fnxln, chalky matrix in part with sticky clumps of soft chalk

Lime, lt-med brn, fnxln-granular, scattered beds of chalk, NS

Lime, lt brn, fnxln-granular, chalk matrix with sticky clumps of soft chalk, NS

Lime, granular-fnxln, med brn-med grayish brn, thin fossil beds in part, shaley in facies boundary

Lime, lt-med brn, fnxln, chalk matrix in part, mix of fusulinids and micro fossil fragments, soft sticky clumps of chalk in part

Lime, tan-lt brn, granular with beds of chalk, NS

Lime, lt-med brn, fnxln, slightly fossiliferous with thin beds of chalk in chalky matrix in granular mix

Lime, lt-med brn, fnxln-granular, chalky matrix, NS

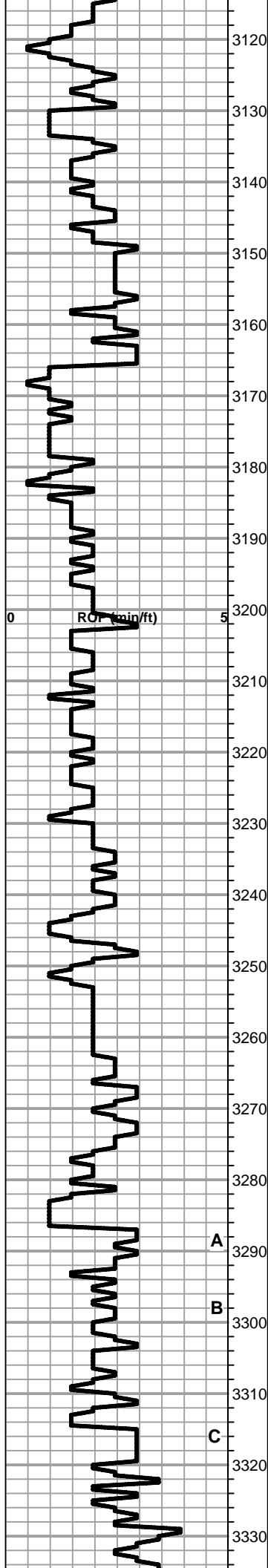
Lime, lt-med brn, granular, chalk matrix in part with light gray fresh, sharp chert in part

Lime, lt brn grading into grayish brn, granular-fnxln

Shale, gray-black carbonaceous, blocky

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

Lime, lt brn, fn-micro xln, hard on crush, slightly fossiliferous



Lime, lt brn, fnxln-granular, bed chalk in part, NS

Lime, lt-med brn, fnxln-granular, bedded chalk in part with sticky clumps, scattered fusulinids

Lime, lt brn-lt gray near facies boundary, fnxln-granular, slightly fossiliferous

Shale, gray-black carbonaceous

Lime, brn-gray, fnxln, bed chalk in part

○ Lime, lt brn, granular, few chips with trace of spotty stain with very lt odor on crush, scattered staining in intergranular porosity. Not deemed commercial.

Lime, lt brn, granular with bed chalk

Lime, lt brn, granular with chalky matrix, scattered fnxln in part

Lime, lt-med brn, fnxln, with lt brn, fossiliferous chert in part

Lime, lt brn-lt grayish brn, fnxln, bed chalk in part

Lime, lt brn, fnxln

**HEEBNER SHALE SPL 3242-1256**

Shale, black carbonaceous, fissile, blocky  
Lime, lt-med brn, fn-vfxln, hard on crush

Shale, lt gray-lime green, soft blocky-soft mud

**TORONTO SPL 3262-1276**

Lime, white-cream, fnxln, bed chalk, NS

Shale, dove gray, soft, sticky clumps  
Lime, cream-lt brn, fn-microxln, hard on crush

Shale, lt red wash-lt gray, soft blocky to soft mud

**LKC SPL 3286-1300**

Lime, lt brn-lt grayish brn, fnxln

Lime, lt-med brn, fnxln, slightly fossiliferous with sparry calcite backfill in part, NS

Shale, grayish green, soft-firm blocky, w/ pyrite clusters

○ Lime, lt brn, fnxln, few chips oolitic-oolimoldic, gilsonite traces between oolites, NFO, No Odor,

Lime, lt-med brn, fnxln

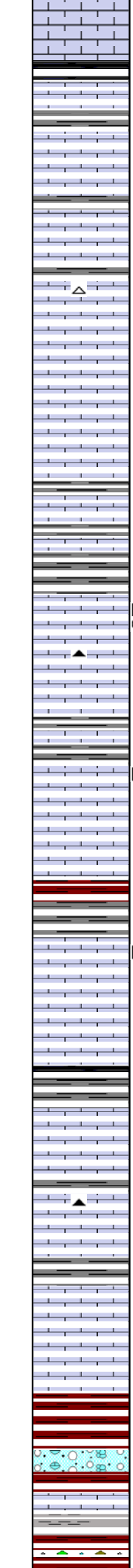
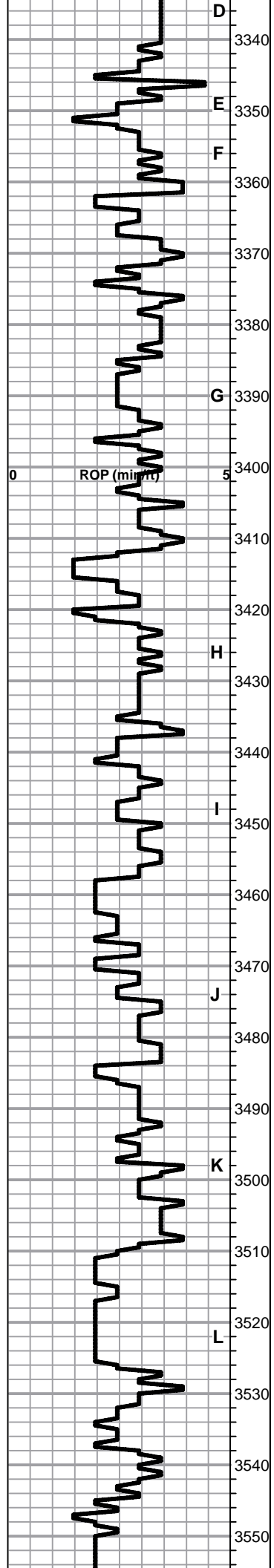
Shale, med gray, soft blocky

○ Lime, cream-lt brn, fnxln, trace of lt stain in few fossiliferous

ZONE LOW TO OFFSET WELL WHICH RECOVERED SALT WATER ON DST OF THIS ZONE

CFS @ 3322'

ZONE LOW TO OFFSET WELL WHICH RECOVERED MUD ON



chips, NFO, No Odor

3340

Shale, gray-black carbonaceous, blocky  
Lime, med brn, vfxln

3350

3360

Lime, tan-lt brn, fnxln, scattered granular, NS, No Staining

Lime, tan-lt brn, fnxln, well cemented oolitic in part, bedded  
chalk in part, NS

3370

3380

Lime, crm-lt brn, fnxln, slight bed chalk in part, white chert

Lime, crm-tan-lt brn, fn-vfxln, hard on crush

3390

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

3400

Lime, lt grayish brn, fn-micro xln  
Shale, gray-black carbonaceous

3410

Lime, brn, fnxln, fossiliferous  
Shale, med gray, firm blocky

3420

Lime, lt brn, fnxln, few chips with trace of spotty staining, V  
Lt Odor, NFO

3430

Lime, lt brn-lt grayish brn, fnxln, hard on crush, bed chalk in  
part, tan-brn chert, fresh, sharp

3440

Shale, med gray, firm blocky with imbedded fossil  
fragments, calcareous in part

3450

Lime, tan-lt brn, fn-micro xln, hard on crush, few chips with  
gilsonitic staining in poorly developed zone, NFO, No Odor

Lime, lt brn-gray, frnxln

3460

Shale, red wash grading into soft dove gray mud

3470

Lime, crm-tan, mostly fnxln, scattered ppt porosity in part  
with gilsonitic stain, NFO, No Odor

3480

Lime, crm-lt brn, fn-vfxln, bed chalk in part

3490

Shale, med gray-black carbonaceous, firm, blocky

Lime, crm-lt brn, fnxln

3500

Lime, crm-lt brn, fn-vfxln, scattered bed chalk

Lime, tan-lt brn, fnxln

3510

Shale, med grayish green, soft blocky

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

3520

Lime, lt-med brn, fn-vfxln  
**BKC SPL 3530-1544**

3530

Shale, lt red wash, reddish brn, soft blocky

3540

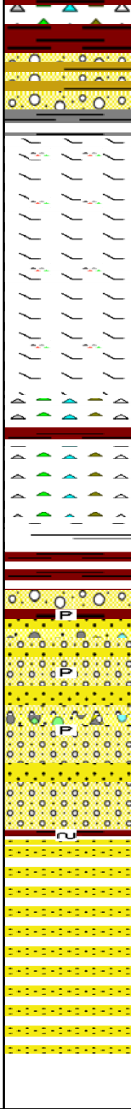
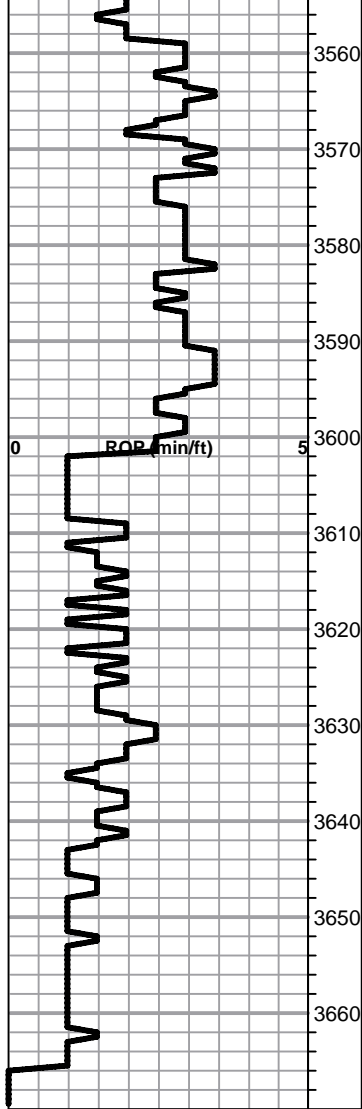
Shale with clastic lime mix in part

Lime, tan, fnxln

3550

Shale, dove gray, soft mud grading into reddish brn

CFS @ 3350'



**MARMATON SPL 3568-1582**

Chert, vari colored with vari color shales

Lime, dolomitic, lt-med brn, fnxln with chips of orange chert

Lime, dolomitic, crm-tan, cherty, gilsonitic stain, NFO, No Odor in very fine intergranular porosity

Lime, dolomitic, crm-lt brn, fnxln, cherty

Mix of vari colored cherts, shales and cemented sandstone clusters, NS, No Odor

Shales AA, white sticky clumps of fine clay

Shale, lt red wash, vari colored cherts, NS, No Odor

**CONGLOMERATE SAND 3616-1630**

Scattered sand clusters, poor-fair sorting, scattered lt stain w/ very lt detectable odor, few with heavy oil globules on crush mixed with vari color cherts, bedded pyrite w/ quartz grain inclusions

**REAGAN SAND SPL 3641-1655**

Sandstone, white, fine grained, well sorted, topped with green glauconite stain in contact with conglomerate section

**RTD 3665-1679 LTD 3665-1679**

SHORT TRIP 26 STDS@ 3573'

CFS @ 3600' -1614

CFS @ 3605' -1619

CFS @ 3610 -1624

CFS @ 3616 --1630

ZONE LOW TO OFFSET WELL WHICH TESTED TO -1631 AND RECOVERED SALT WATER WITH A VERY LT TRACE OF OIL

ARBUCKLE COMPLETELY ERODED OFF IN THIS WELL. CONGLOMERATE SAND SECTION SITS ON TOP OF REAGAN SAND SECTION