

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: ALLENBAUGH #1
 Location: S2-NW-SW-SE Sec. 30-14S-19W API: 15-015-26,624-00-00
 Pool: WILDCAT Field: UNNAMED
 State: KANSAS Country: U.S.A.

Scale 1:240 Imperial

Well Name: ALLENBAUGH #1
 Surface Location: S2-NW-SW-SE Sec. 30-14S-19W
 Bottom Location:
 API: 15-015-26,624-00-00
 License Number: 33625
 Spud Date: 11/20/2013 Time: 1:00 PM
 Region: ELLIS COUNTY
 Drilling Completed: 11/24/2013 Time: 4:30 PM
 Surface Coordinates: 860' FSL & 2310' FEL
 Bottom Hole Coordinates:
 Ground Elevation: 2126.00ft
 K.B. Elevation: 2134.00ft
 Logged Interval: 3000.00ft To: 3833.00ft
 Total Depth: 3833.00ft
 Formation: LANSING - KANSAS CITY
 Drilling Fluid Type: CHEMICAL/FRESH WATER GEL

SURFACE CO-ORDINATES

Well Type: Vertical
 Longitude: -99.4744808 Latitude: 38.8005861
 N/S Co-ord: 860' FSL
 E/W Co-ord: 2310' FEL

LOGGED BY

Company: SOLUTIONS CONSULTING, INC
 Address: 108 W 35TH
 HAYS, KS 67601

Phone Nbr: 785-639-1337
 Logged By: Geologist Name: CHRIS NEELEY

CONTRACTOR

Contractor: DISCOVERY DRILLING
 Rig #: 1
 Rig Type: MUD ROTARY
 Spud Date: 11/20/2013 Time: 1:00 PM
 TD Date: 11/24/2013 Time: 4:30 PM
 Rig Release: 11/25/2013 Time: 4:15 PM

ELEVATIONS

K.B. Elevation: 2134.00ft Ground Elevation: 2126.00ft
 K.B. to Ground: 8.00ft

NOTES

DECISION TO PLUG WELL WAS BASED UPON LOW STRUCTURAL POSITION, LACK OF DEVELOPED RESERVOIRS AS INDICATED BY GEOPHYSICAL LOG, AND LACK OF A POSITIVE DRILL STEM TEST RESULTS

OPEN HOLE LOGGING PERFORMED BY NABORS COMPLETION AND PRODUCTION SERVICES CO.: MICRO LOG, DUAL INDUCTION LOG, NEUTRON/DENSITY POROSITY LOG

DRILL STEM TESTING BY TRILOBITE TESTING INC.: ONE (1) STRADDLE PERFORMED

FORMATION TOPS SUMMARY

FORMATION	ALLENBAUGH #1			PFEIFER EXPLORATIONS, LLC				PETROLEUM MANAGEMENT, INC.			ROSEN OIL COMPANY, INC.			
	GROSS #1			GROSS #1				LILLY JOHNSON #1			ROHR #1 OWWO			
	S2-NW-SW-SE Sec. 30, T14S, R19W			SE-NW-NE-SE Sec. 30, T14S, R19W				SE-SW-NE Sec. 30, T14S, R19W			C-NW-NW Sec. 30, T14S, R19W			
	KB 2134			KB 2134				KB 2149			KB 2161			
	LOG TOPS	SAMPLE TOPS	MICRO LOG		LOG		RAG LOG		LOG		RAG LOG		LOG	
	DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM	CORR.	DEPTH	DATUM	CORR.	DEPTH	DATUM	CORR.	
ANHYDRITE	1407	+727	1408	+726	1400	+734	-7	1420	+729	-2	1493	+668	+59	
ANHYDRITE BASE	1443	+691	1443	+691	1443	+691	+0	1456	+693	-2	1450	+711	+20	
TOPEKA	3129	-995	3128	-994	3122	-988	-7	3138	-989	+4	3148	-987	+8	
HEEBNER	3395	-1261	3392	-1258	3385	-1251	-10	3404	-1255	-6	3416	-1255	-6	
TORONTO	3418	-1284	3414	-1280	3409	-1275	-9	3432	-1283	-1	3440	-1279	-5	
LANSING K.C.	3439	-1305	3435	-1301	3431	-1297	-8	3451	-1302	-3	3460	-1299	-6	
K.C. BASE	3687	-1553	3685	-1551	3683	-1549	-4	3704	-1555	2	3716	-1555	+2	
MARMATON	3739	-1605	3738	-1604	3726	-1592	-13	3750	-1601	-4	3751	-1590	-15	
ARBUCKLE	3799	-1665	3793	-1659	3762	-1628	-37	3778	-1629	-36	3796	-1635	-30	
RTD			3833	-1699	3820	-1686		3790	-1641		3807	-1646		
LTD	3838	-1704			3822	-1688		3791	-1642		3806	-1645		

Daily Activity Report

for


Allenbaugh #1

S2-NW-SW-SE of Section 30, Township 14 South, Range 19 West

11/20/13	Rig-up, Spud in: 1:00 pm, Slope: ¼° at 222', 8 5/8" surface casing set at: 222' with 150 sxs common 3% gel/2% CC, WOC
11/21/13	691' drilling
11/22/13	2228' drilling

11/22/13	2220 drilling
11/24/13	3647' drilling, RTD: 3833' at 3:30 pm and CFS, Short trip: 23 stands, CCH: 1 1/2 hours, Slope: 1 1/4°, Logging: Stack micro
11/25/13	Drill stem test #1: 3590'-3608' "I" zone, Well Plugged at 4:00pm

DST #1 3590' TO 3608' KANSAS CITY "I" ZONE

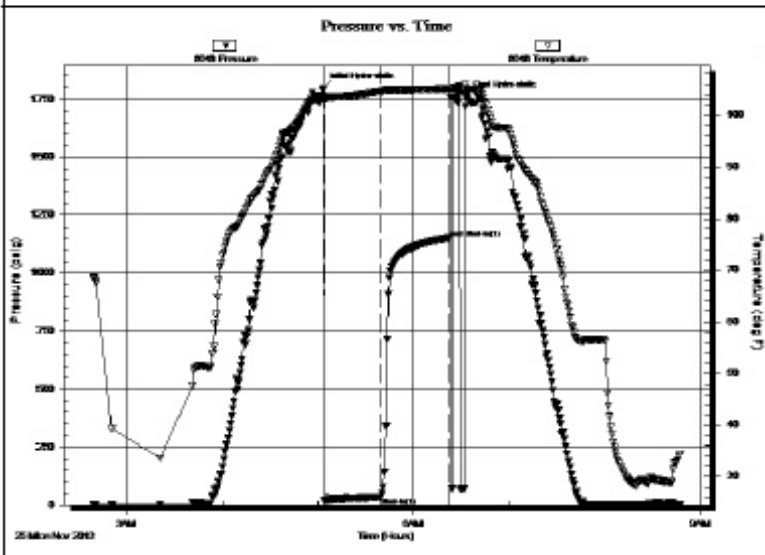
 TRILOBITE TESTING, INC.	DRILL STEM TEST REPORT	
	Hertel Oil Co Inc	30-14s-19w Ellis KS
	704 E 12th st Hays KS, 67601	Allenbaugh #1
ATTN: Chris Neeley	Job Ticket: 55359	DST#: 1
	Test Start: 2013.11.25 @ 02:39:00	

GENERAL INFORMATION:

Formation: LKC "I"	Test Type: Conventional Straddle (Initial)
Deviated: No Whipstock: ft (KB)	Tester: Cody Bloedorn
Time Tool Opened: 05:03:45	Unit No: 53
Time Test Ended: 08:47:30	
Interval: 3590.00 ft (KB) To 3608.00 ft (KB) (TVD)	Reference Elevations: 2128.00 ft (KB)
Total Depth: 3833.00 ft (KB) (TVD)	2123.00 ft (CF)
Hole Diameter: 7.88 inches Hole Condition: Fair	KB to GR/CF: 5.00 ft

Serial #: 8648	Outside		
Press@RunDepth: 35.39 psig @ 3591.00 ft (KB)	Capacity: 8000.00 psig		
Start Date: 2013.11.25	End Date: 2013.11.25	Last Calib.: 2013.11.25	
Start Time: 02:39:05	End Time: 08:47:29	Time On Btm: 2013.11.25 @ 05:03:30	
		Time Off Btm: 2013.11.25 @ 06:32:45	

TEST COMMENT: 45 - IF- 2 1/4" blow
 45 - IS- No return
 FF- Opened tool, lost mud in hole, pulled tool, reset tool and got 1/4" blow . pulled tool after 5 minutes.



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1795.70	103.26	Initial Hydro-static
1	18.91	102.81	Open To Flow (1)
37	35.39	104.71	Shut-In(1)
79	1151.28	105.18	End Shut-In(1)
90	1762.13	105.16	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
112.00	Mud, w ith spots of oil, 100%M	1.30

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

Trilobite Testing, Inc

Ref. No: 55359

Printed: 2013.11.25 @ 09:12:02

ROCK TYPES

Cht vari	Lmst fw7> shale, grn	Carbon Sh	Ss
Dolprim	shale, gry	shale, red	CglSandy
Dol Lime		Shcol	SsPebbley

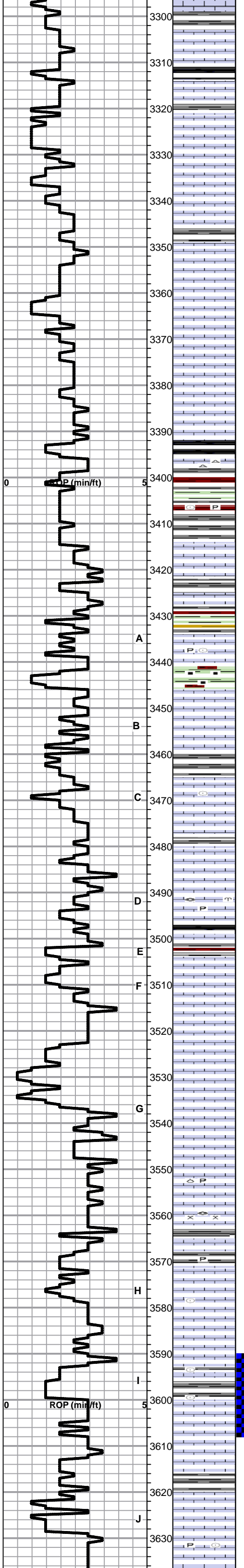
ACCESSORIES

MINERAL	FOSSIL	STRINGER
■ Carbonaceous Flakes	∧ Bioclastic or Fragmental	● Conglomerate
▲ Chert, dark	◇ Brachiopod	— green shale
∟ Dolomitic	∩ Bryozoa	— red shale
∩ Glauconite	○ Crinoids	— carb shale
P Pyrite	⊙ Gastropod	
* Sandy	⊙ Oolite	
△ Chert White	∩ Pelecypod	
Mc Mica	X Sponge Spicules	
	⊙ Fossiliferous	

OTHER SYMBOLS

DST
■ DST Int
■ DST alt

Curve Track #1 ROP (min/ft)	Cored Interval Depth Intervals DST Interval	Lithology	DST	Oil Show	Geological Descriptions	Curve Track #3
<p>1:240 Imperial ROP (min/ft)</p>	<p>5 3000 3010 3020 3030 3040 3050 3060 3070 3080 3090 3100 3110 3120 3130 3140 3150 3160 3170 3180 3190 3200 3210 3220 3230 3240 3250 3260 3270 3280 3290</p>				<p>BEGIN 1' DRILL TIME 3000' TO RTD BEGIN 10' WET AND DRY SAMPLES FROM 3100' TO RTD <u>ANHYDRITE TOP 1408 (+726)</u> <u>ANHYDRITE BASE 1443 (+691)</u></p> <p>Shale- gray, argillaceous, micaceous, sticky</p> <p>Lime- dark gray to tan, fxln, fossiliferous, microporosity, brittle, sharp</p> <p>Lime- lt gray-tan, vfxln matrix, pisolitic packstone</p> <p>Shale- dark gray, hard, waxy, some dove gray and gray-green soft sticky wash</p> <p>Lime- dark brown, mottled, vfxln, trashy, well consolidated</p> <p>Shale- dark gray, thinly laminated, waxy, hard, micaceous, few chips of gray-green and red</p> <p><u>TOPEKA 3128 (-994)</u></p> <p>Lime- lt tan to cream, vfxln, fossiliferous in part, dissolution porosity backfilled with calcite</p> <p>Lime- lt gray to cream, chalky; lt brown and gray, vfxln to compact, scattered fossil frags, brittle, hard on crush, no visible porosity</p> <p>Lime- med to lt gray, vfxln to compact, hard on crush, slightly chalky margins in part</p> <p>A/A; lt gray to off-white, chalky w/chalky porosity</p> <p>Shale- gray, pyritic, thinly laminated</p> <p>Lime- tan, vfxln, consistent pinpoint porosity, soft on crush, NO SHOW, STAIN, OR ODOR</p> <p>Lime- medium gray, compact, very hard and consolidated; dark gray, moderately consolidated, contains fossils and light colored lime clasts</p> <p>Shale- dark gray with thinly laminated black</p> <p>Lime- lt gray to lt tan, compact, fossiliferous in part, very well consolidated, hard on crush</p> <p>Lime- lt brown to med gray, vfxln to compact, hard on crush</p> <p>Lime- lt gray-tan, grainstone, fxln, consistent pinpoint porosity, soft on crush, NO ODOR, OIL, OR STAIN</p> <p>Cherty gray mottled matrix, fossiliferous, calcite fossil frags Lime- A/A, less gritty, chalky</p> <p>Chalk- lt gray to off-white, sticky, some with clasts</p> <p>Lime- lt gray/tan mottled, grainy, fxln, fossiliferous, consistent pinpoint porosity, chaotic texture</p> <p>Chalk- significant increase in sticky clay balls</p> <p>Lime- lt to med brown, fxln, fair to good consistent pinpoint porosity</p> <p>Shale- black, carbonaceous, pyritic Lime- tan, vfxln to compact, hard on crush</p> <p>Lime- lt tan-gray, vfxln to compact, clean, tight, hard on crush</p> <p>Shale- dark gray, waxy, hard; few chips of red-orange</p> <p>Lime- tan, fxln, gritty, fossiliferous, consistent pinpoint porosity, moderate consolidation, NO SHOW</p> <p>A/A with lt/dark gray mottled, vfxln, grainy, chalky, soft on crush, chalky porosity</p>	<p>1:240 Imperial</p> <p>8 5/8" SURFACE CASING SET TO 222' W/150 SXS COMMON 3%CC2%GEL</p> <p>SLOPE AT 222': 1 1/4 DEGREE</p>



porosity
 Shale- dark gray with black stringers, few chips red
 Lime- lt gray, vfxln, soft on crush, consistent pinpoint porosity

Shale- black, hard, laminated, carbonaceous
 Lime- tan, vfxln to compact, very well indurated

Lime- tan, fxln, gritty, soft on crush, good pinpoint intergranular porosity, FEW DROPS FREE OIL FLOATING IN CUP, GOOD ODOR, QUESTIONABLE SHOW IN CUTTINGS

Lime- tan/gray, chalky, soft on crush, thinly bedded, slightly gritty; chalk wash

Lime- lt gray to cream, compact, tight, clean, very well compacted

Shale- dark gray

Lime- lt gray to cream, vfxln, consistent pinpoint porosity with scattered fair intergranular porosity, hard on crush, FAINT TO FAIR ODOR IN CUP, SCUM OIL FLOATING IN WATER, MINOR AMOUNT OF OIL ON CRUSH, SCATTERED LT BROWN STAINING IN POROSITY

Lime- lt brown w/reddish brown flecks, fxln, sparry, fossil frags, brittle, hard

Lime- gray and brown mottle, fxln, granular, soft on crush

HEEBNER 3392 (-1258)

Lime- lt gray, compact, some chalky margins, very hard
 Shale- few chips A/A; gray-green, sticky argillaceous, few chips hard red, blocky

Shale- brownish-red, ranges from hard and gritty to sticky clay wash

TORONTO 3414 (-1280)

Lime- cream, vfxln to compact, chert-like luster, angular pieces, very well consolidated, very hard, clean, barren

Lime- cream with some gray tint from shale boundary, compact, angular chips, very clean, barren, tight

LANSING/KANSAS CITY 3435 (-1301)

Lime- cream, vfxln, few chips sporadically fusumoldic, inter/intragranular porosity, DARK SPOTTY TO SATURATED STAIN, MIX OF LIVELY DARK OIL AND DEAD OIL IN TRAY/ON CRUSH, NO ODOR

Shale- green, hard, dark inclusions; sticky red, maroon, purple

Lime- dark gray/tan w/small lt gray ooids, grain supported, compact matrix, grading into vfxln to compact, dark gray, fossiliferous in part

Lime- medium brown, compact, scattered pinpoint to small-scale vuggy porosity, pores stained with lt brown oil, FEW DROPS OIL ON CRUSH, FAINT ODOR IN CUP, FAIR SHOW

Lime- lt tan-cream, compact matrix, well consolidated, oolitic to oolitic, sporadic intergranular porosity W/ LIGHT REDDISH-BROWN STAIN, FAINT ODOR, NO OIL ON CRUSH/NO FREE OIL

Lime- gray to cream with green tint on some chips, fxln to vfxln, sucrosic in part, most chips very well compacted

Lime- A/A

Shale- black, carbonaceous, blocky, slick, dark gray, splintery, waxy, few chips red, green wash

Lime- tan, vfxln to compact, sparry fill, hard, clean, barren

Lime- off-white, fxln to compact, sparry, grading into oolitic/oolitic with good intergranular porosity, some calcite backfill, some chips friable, DARK STAIN, FAIR ODOR, NO OIL ON CRUSH, SOME CHIPS PRODUCE ODOR ON CRUSH

Lime- off-white to lt gray, vfxln, hard, brittle, clean, barren, chalky in part- significant increase in chalk clusters

Lime- tan, fxln, oolitic to oomoldic, rotted appearance in part, clean

Lime- gray-tan, vfxln, clean, barren, tight

Lime- med gray-tan, vfxln to compact

Shale- black, carbonaceous, hard; gray, slivers

Chert- lt gray to dark gray, fossiliferous

Lime- tan to off-white, vfxln, chalky w/pinpoint porosity in part, oomoldic in part, mostly tight

Lime- tan, medfxln to vfxln, cherty in part, fossiliferous to oolitic/moldic, pinpoint to vuggy intergranular porosity, most chips well consolidated, few chips friable, MED BROWN SATURATED STAIN, GOOD ODOR/ODOR ON CRUSH

Shale- gray, thinly laminated, grey-green

Lime- gray, vfxln, tight

Lime- cream, vfxln matrix, cherty in part, oolitic/moldic, fair porosity, SPOTTY STAIN-FAIR TO GOOD, OIL ON CRUSH, GOOD ODOR

Lime- tan, vfxln, scattered pinpoint porosity, limited channel or fracture porosity, chalky in part, LIGHT SURFACE STAINING IN POROSITY, MINIMAL TO NO OIL ON CRUSH

Lime- lt gray to cream, fxln, oomoldic porosity, sucrosic in part, clean, barren

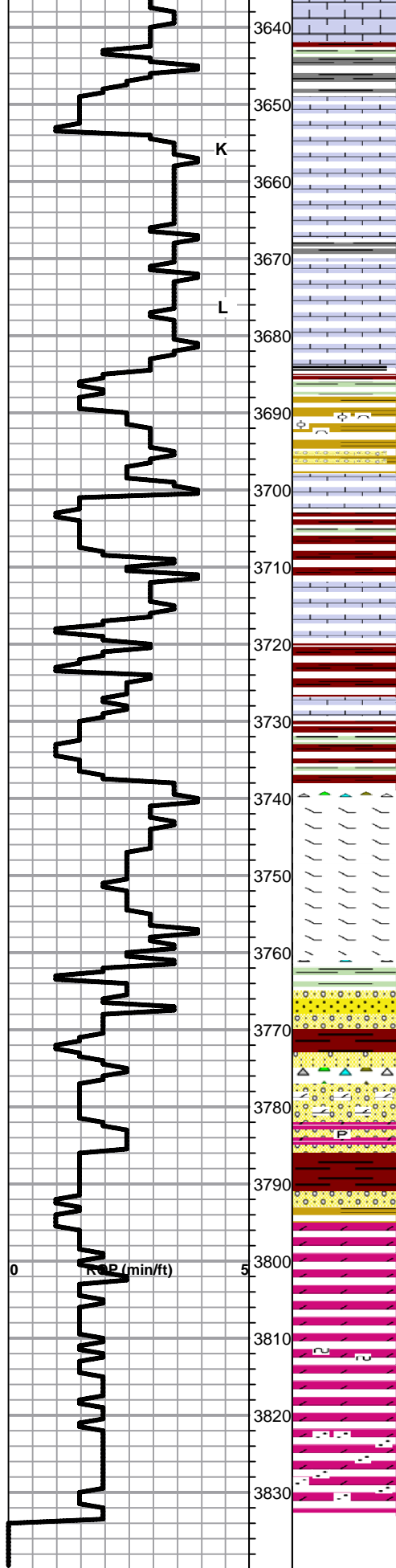
Lime- tan to cream, vfxln, tight and clean, limited backfilled fracture porosity, chalky in part, RARE LIGHT STAIN, NO ODOR, NO OIL ON CRUSH, NFO

DRILL STEM TEST #1
 3590-3608
 45-45

IFP: 18-35
 ISIP: 1151

RECOVERY
 112' MUD

WEAK SURFACE BLOW ON FIRST OPEN. NO BLOW ON SECOND OPEN, FLUSHED TOOL AND PACKER FAILED. DECISION TO PULL TOOL



Shale- red, green, gray

Lime- cream, vfxln, oolitic with oomoldic porosity in part, clean, NO SHOW

Lime- brownish-tan, mxln, cherty in part, significant calcite backfill, consistent pinpoint porosity, some grains are very small oolites

Lime- gray, fxln to vfxln, tight, well compacted, sharp angular chips

Lime- cream to white, fxln to vfxln, fossiliferous in part, brittle, chalky in part, clean, barren

Lime- A/A

BASE KANSAS CITY 3685 (-1551)

Shale- black carbonaceous, red-orange, gray, green, maroon

Lime- gray to lt tan, oolitic and speckled in part, brecciated or conglomeritic in part, fossiliferous, occasional vuggy porosity, mostly tight

Lime- off-white, compact, pinpoint porosity along margins, LT BROWN STAIN IN PORES, NO OIL

Abundant red sticky clay wash, increase in conglomeritic, sandy lime

Lime- oolitic grain supported packstone, tan oolites in brown cement, very compacted, fractures across grains, no visible porosity

Lime- cream with slight red tint, sandy, clear quartz grains, oolitic, mud supported

MARMATON 3738 (-1604)

cherty lime- orange, bedded with flesh colored, fxln, sucrosic

Chert- orange, brown, tan, white, bedded, fractured, secondary mineralization, very well consolidated, pinpoint porosity in some chips, DARK STAIN, LIGHT LIVELY OIL ON CRUSH, OIL IN CUP

Lime- tan, fxln, good consistent pinpoint porosity, cherty, grading into cryptoxn chert, also tan, SHOWS A/A in a few chips

Sand- quartz, mxln, clear, subangular, well sorted, moderate sphericity, moderate clear cementation, friable, few pink/dark clasts, little to no shale, chalk or clay, CONSIDERABLE AMOUNT OF FREE OIL BLEEDING FROM SAND, FAINT ODOR, TOTAL SATURATION BY DARK STAIN, LIVELY OIL ON CRUSH/PRESSURE

CONGLOMERATE SAND 3768 (-1634)

Sand- peach, white cement, less mature than above, flaky dead oil more abundant, strong Ar buckle-like odor

Sand- dolomitic, white to tan, mxln, sucrosic, BLACK, STICKY, DEAD OIL STAIN, LIVELY OIL ON CRUSH

ARBUCKLE 3795 (-1661)

Dol- tan, mxln, sucrosic, subhedral, clean, hard, NO STAIN/OIL

Dol-A/A

A/A- no observed change in lithology

Dol- slightly darker than above-lt gray-tan, sandy bimodal grain size, clear quartz grains, glauconitic

RTD 3833 (-1699)

LTD 3838 (-1704)

STAINING WAS NOTED IN A NUMBER OF LKC CARBONATE BENCHES BUT THE MICROLOG SHOWED NO PERMEABILITY IN ANY OF THE BENCHES.

MICROLOG SHOWED POOR PERMEABILITY DEVELOPMENT IN THIS SAND SECTION

1ST PLUG @3780' W/50 SXS
2ND PLUG @1420' W/25 SXS
3RD PLUG @680' W/100 SXS
4TH PLUG @280' W/40 SXS
5TH PLUG @ 40' W/10 SXS
RATHOLE W/30 SXS
MOUSEHOLE W/15 SXS

SLOPE AT RTD: 1 1/4 DEGREE