

AUSTIN B. KLAUS

Cell 785.650.3629
Work 785.483.3145
Ext 225

PO BOX 352
Russell, KS 67665
austin.klaus@johnofarmer.com

Scale 1:240 (5"=100') Imperial
Measured Depth Log

Well Name: Eulert 3-#3
Location: Russell County
License Number: API #15-167-24086
Spud Date: 12/13/18
Surface Coordinates: Section 3, Township 12 South, Range 15 West
500' FNL & 680' FWL
Bottom Hole Coordinates: Vertical well w/ minimal deviation, same as above
Ground Elevation (ft): 1,730' **K.B. Elevation (ft):** 1,738'
Logged Interval (ft): 2,300 **To:** RTD **Total Depth (ft):** 3,320
Formation: LKC-Arbuckle
Type of Drilling Fluid: Chemical (Andy's)

Region: Kansas

Drilling Completed: 12/20/18

Printed by STRIP.LOG from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR

Company: ESP Development, Inc.
Address: 1749B 250th Ave.
Hays, KS 67601

GEOLOGIST

Name: Austin Klaus
Company: John O. Farmer, Inc.
Address: 370 W. Wichita Ave.
Russell, KS 67665

Comments

The Eulert #3-3 well was drilled by Discovery Drilling Rig #1 (Tool Pusher: Cliff Mayfield).

The location for the Eulert #3-3 well was found via 3-D seismic survey. Geologic samples were collected and evaluated from 2,300'-3,250'.

Structurally, the Eulert #3-3 encountered the Topeka formation 3' low, in relation to the Eulert #3-2 (comparison well). Slight oil shows were noted in the Topeka zone. The Lansing formation was picked 6' low to the comparison well. Two bottom-hole tests were conducted: LKC A - LKC C & LKC H-K (see recovery below). Marginal thickening occurred in the lower Lansing; B/KC & Arbuckle formations were picked 8' & 7' low respectively.

The 3D seismic indicates this location to have complete closure (isolation from surrounding production), thus the low structural position cannot alone condemn the Arbuckle. It is advised that careful log evaluation to condemn all producing zones be completed prior to conversion to SWD. After all sample, log, and drill stem test data was gathered and evaluated, the decision was made to set 5 1/2" casing to potentially evaluate the Eulert #3-3 for oil production and utilize for SWD purposes if non-productive.

ROCK TYPES

	Anhy		Clyst		Gyp		Mrlst		Shgy
	Bent		Coal		Igne		Salt		Slstst
	Brec		Congl		Lmst		Shale		Ss
	Cht		Dol		Meta		Shcol		Till

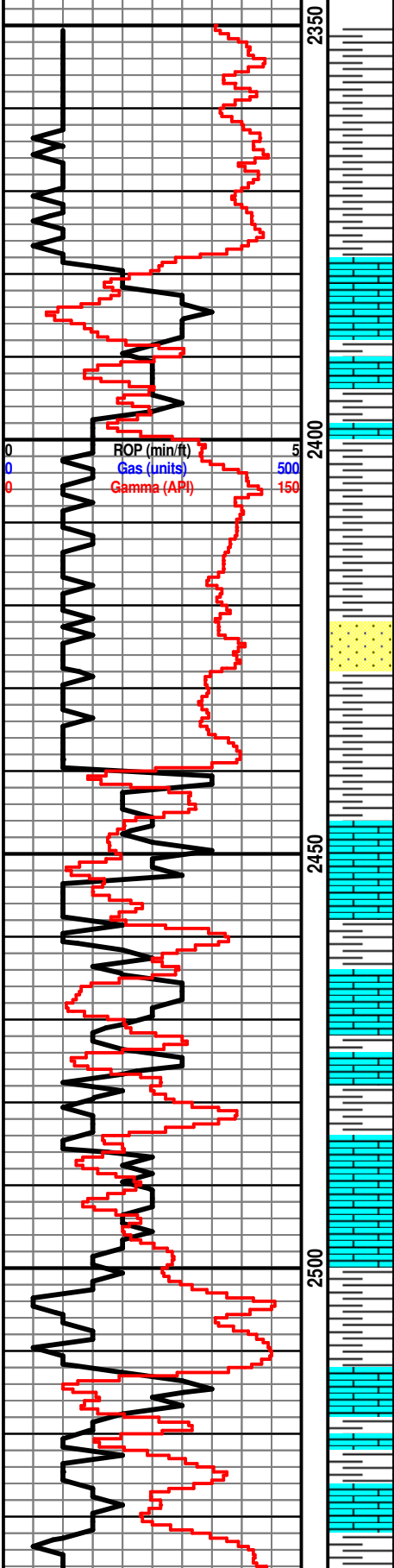
OTHER SYMBOLS

POROSITY	<input type="checkbox"/> Vuggy	ROUNDING	<input type="checkbox"/> Spotted	EVENT
<input type="checkbox"/> Earthy	SORTING	<input type="checkbox"/> Rounded	<input type="checkbox"/> Ques	<input type="checkbox"/> Rft
<input type="checkbox"/> Fenest		<input type="checkbox"/> Subrnd	<input type="checkbox"/> Dead	<input type="checkbox"/> Sidewall
<input type="checkbox"/> Fracture		<input type="checkbox"/> Subang	INTERVAL	
<input type="checkbox"/> Inter		<input type="checkbox"/> Angular	<input type="checkbox"/> Core	<input type="checkbox"/> Dst
<input type="checkbox"/> Moldic	<input type="checkbox"/> Well	OIL SHOW		
<input type="checkbox"/> Organic	<input type="checkbox"/> Moderate	<input type="checkbox"/> Even		
<input type="checkbox"/> Pinpoint	<input type="checkbox"/> Poor			

Curve Track 1	Depth	Lithology	Geological Descriptions	DST/Mud/Survey
ROP (min/ft) ——— Gas (units) - - - - - Gamma (API) ———				
0 ROP (min/ft) 5 0 Gas (units) 500 0 Gamma (API) 150	2300		The open-hole logging was performed by Mr. Casey Patterson with Gemini Wireline, LLC (Hays, KS). Logs included: Compensated Density/ Compensated Neutron, Dual Induction, and Micro Resistivity. Formation tops and datums from the open-hole logs include the following:	Tester: Benny Mulligan Mud Engineer: Aaron Blew
-12/13/18 Spud @ 5:30pm				
-12/14/18 Drilling, 560'				
-12/15/18 Drilling, 835'				
-12/16/18 Drilling, 1,780'				
-12/17/18 Drilling, 2,445'				
-12/18/18 DST #1, 2,953'				
-12/19/18 CFS, 3,130'				
-12/20/18 Logging, 3,320'				
-12/21/18 Completed @ 6:30pm				

Formation	E-Log	Datum
Tarkio	2378	-639
Topeka	2630	-891
Heebner	2919	-1180
Toronto	2871	-1132
Lansing	2902	-1163
B/KC	3160	-1421

Arbuckle	3218	-1479
LTD	3322	-1583



Sh: lt-drk gry

Sh: lt-drk gry

Tarkio 2379' (-640)

Ls: tan-gry, fn-sub xln, mostly DNS, NSFO

Sh: lt-drk gry

Sh: ala

Ss: qtz, lt gry, fn-vry fn grn, well sorted, poor int grn porosity, fair rnd, vry lt odor, NSFO

Sh: lt-drk gry

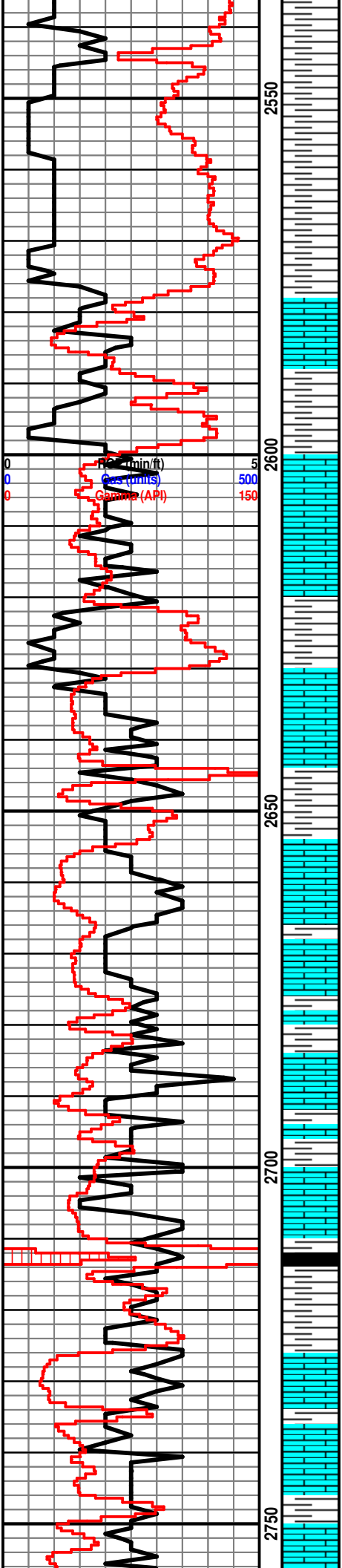
Ls: tan-gry, fn-sub xln, mostly DNS, NSFO

Ls: ala

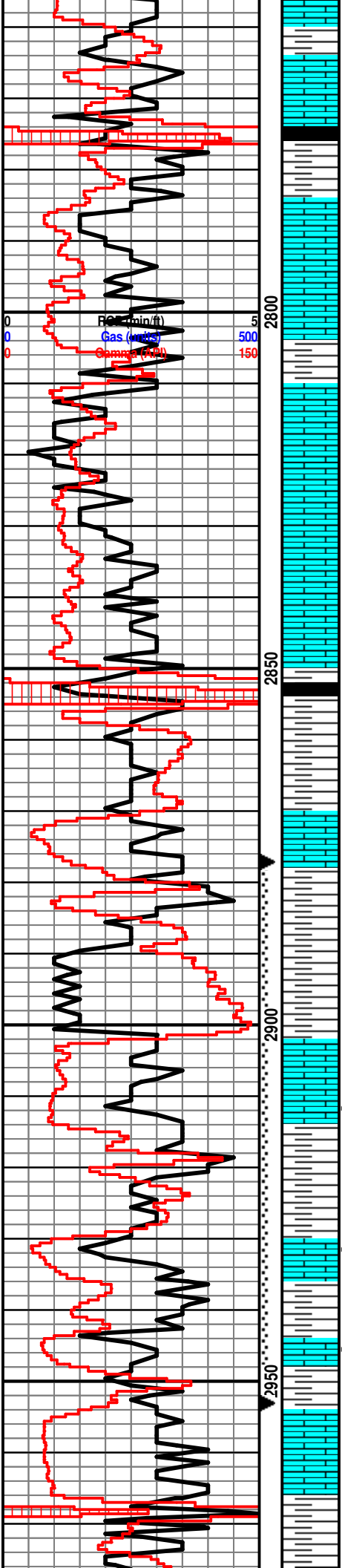
Sh: lt-drk gry-brn

Ls: tan-gry, fn xln, scat foss, poor int xln porosity, scat chalk

Wt: 8.7
Vis: 54



Sh: lt-drk gry
 Sh: ala
 Ls: tan-gry, fn-sub xln, mostly DNS, NSFO
 Ls: ala
 Sh: lt-drk gry
Topeka 2631' (-892)
 Ls: tan-gry, fn xln, scat fair int xln & vuggy porosity, scat dead oil stn, NSFO
 Sh: lt gry
 Ls: off wh-tan-gry, fn xln, poor int xln porosity, scat vuggy porosity, scat dead oil stn, VSSFO, sl-fair odor
 Ls: tan-gry, fn-sub xln, mostly DNS, scat foss
 Sh: lt-drk gry
 Sh: ala
 Ls: tan-gry, fn-sub xln, mostly DNS, scat chert-off wh
 Ls: ala
 Sh: lt-drk gry



Ls: tan-gry, fn xln, scat foss, poor int foss porosity, NSFO

Sh: lt gry

Ls: tan-gry, fn xln, poor int xln porosity, scat dead oil stn

Ls: off wh-tan, fn xln, poor-fair int xln porosity, scat oil stn in porosity, VSSFO, sl odor

Ls: tan-gry, fn xln, foss, poor int xln & scat int foss porosity, scat-fair oil stn, VSSFO, sl odor

Heebner 2849' (-1110)

Sh: blk, carb, fissile

Sh: lt-drk gry-brn

Toronto 2871' (-1132)

Ls: off wh-tan, fn xln, poor int xln porosity, scat dead oil stn, NSFO

Sh: drk gry-grn

Lansing 2901' (-1162)

Ls: off wh-tan, fn xln, poor int xln & scat pp porosity, NSFO

Ls: off wh-tan, fn xln, poor-scat fair int xln & pp vuggy porosity, scat oil stn, sl odor

Sh: lt-drk gry

Ls: off wh-tan, fn xln, few rxs ool, poor int xln porosity, lt oil stn in porosity, VSSFO, sl odor

Sh: lt-drk gry-brn

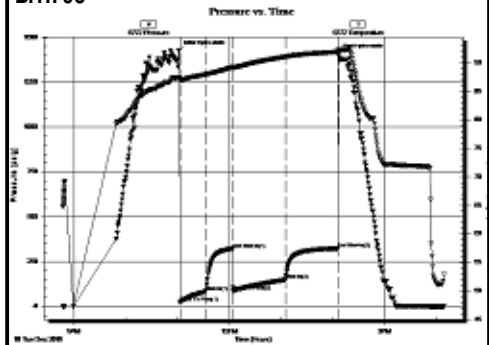
Ls: off wh-tan, fn xln, scat ool, fair oom & scat pp vuggy porosity, scat-fair oil stn, S-VSSFO, sl odor

Ls: off wh-tan, fn xln, poor int xln porosity, mostly DNS, NSFO, scat chert-off wh

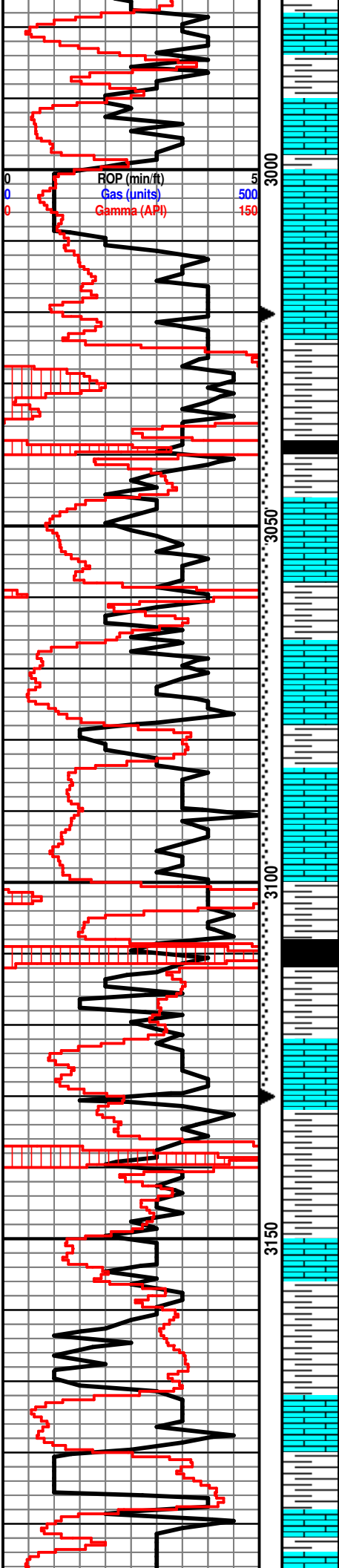
Sh: drk gry-brn

**DST #1 Lansing A-C
30"-30"-60"-60"**

IF: BOB in 26 minutes, no blow back
 FF: Weak blow, built to 7.5", no blow back
 Rec: 180' WCM (5% W, 95% M), 120' MW (20% M, 80% W)
 FP: 21-82, 85-148#
 SIP: 322-322#
 HP: 1427-1410#
 BHT: 93



Wt: 8.8
 Vis: 57



Ls: off wh-tan, fn xln, scat foss, poor int xln & scat int foss porosity, NSFO

Sh: lt-drk gry

Ls: off wh-tan, fn xln, foss, poor-fair int xln & scat int foss porosity, sl oil stn, vry lt odor

Ls: off wh-tan, fn xln, ool, fair oom porosity, most rxn barren, few w/ scat oil stn

Ls: off wh-tan, fn xln, poor int xln & scat pp vuggy porosity, barren, scat chert-off wh

Sh: drk gry-brn

Sh: drk gry-blk

Ls: off wh-tan, fn xln, poor int xln & scat vuggy porosity, lt oil stn, fnt odor, scat chert-off wh

Sh: lt-drk gry

Ls: off wh-tan, fn xln, poor-fair int xln porosity, lt oil stn, sl odor

Sh: lt-drk gry

Ls: off wh-tan, fn xln, poor-fair int xln & pp vuggy porosity, few pcs w/ SSFO, fair odor

Ls: off wh-tan, fn xln, poor int xln & vuggy porosity, scat oil stn, fnt odor, scat chert-off wh

Sh: drk gry-blk

Sh: lt-drk gry

Ls: off wh-tan, fn-sub xln, mostly DNS, NSFO, scat chert-off wh

Sh: lt-drk gry

Sh: ala

Ls: tan-lt gry, fn-sub xln, mostly DNS, NSFO

B/KC 3161' (-1422)

Sh: drk gry-brn

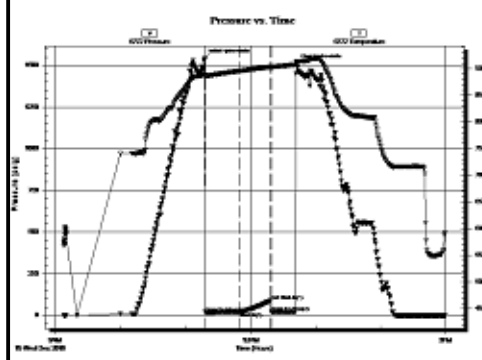
Ls: tan-gry, fn-sub xln, mostly DNS, NSFO, scat chalk

Sh: lt gry-brn-rd

Ls: tan-gry, fn-sub xln, mostly DNS, NSFO, scat

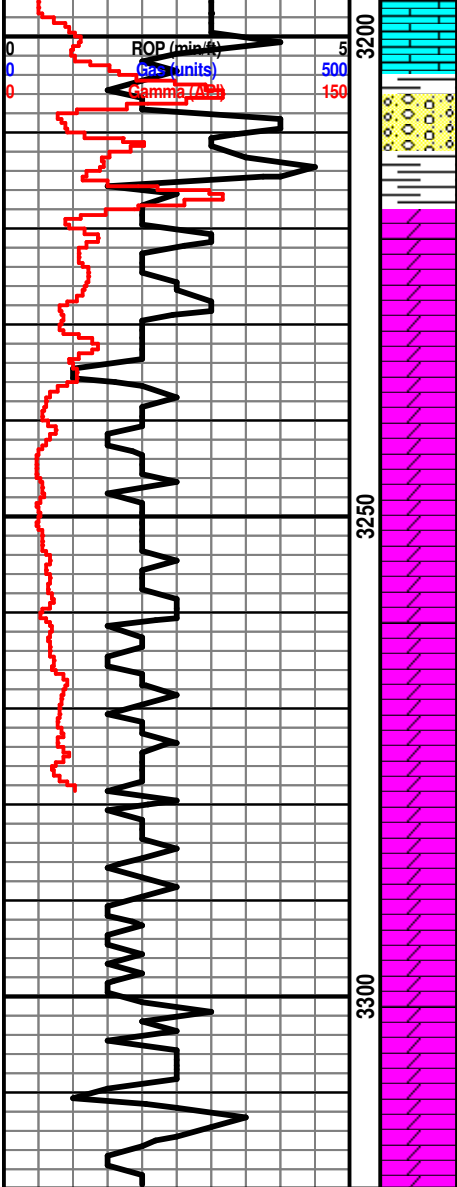
**DST #2 Lansing H-K
30"-30"-15"-Pull**

IF: Weak blow, built to 1/2"
 FF: No blow, pulled tool
 Rec: 10' Mud
 FP: 18-20, 20#
 SIP: 90#
 HP: 1541-1507#
 BHT: 91



Wt: 8.9
 Vis: 55

Wt: 8.8
 Vis: 54



chert-off wh, scat sh: rd

Ss: qtz, fn grn, fair rnd, poor-fair int grn porosity, sl oil sat, fnt odor

Arbuckle 3217' (-1478)

Dolo: off wh-tan, fn xln, fair int xln porosity, fair oil sat, SSFO, fair odor, scat chert-off wh

Dolo: off wh-tan, fn-md xln, fair-good int xln porosity, fair-good oil sat, SSFO, fair-good odor

Dolo: off wh, fn-md xln, fair-good int xln porosity, fair oil sat, VSSFO, sl odor, scat chert-off wh

Dolo: off wh-tan, fn-md xln, fair-good int xln porosity, fair oil sat, VSSFO, sl-fair odor, scat chert-off wh

Dolo: off wh-tan-gry, fn-md xln, poor int xln porosity, few rxn w/ scat oil stn, VSSFO, fnt odor

Dolo: ala

Dolo: off wh-tan-gry, md-crs xln, poor int xln porosity, DNS, NSFO, scat chert-off wh

Dolo: ala

Dolo: tan-brn, fn-md xln, poor int xln porosity, mostly DNS, NSFO, scat chert-off wh

Dolo: off wh-tan-brn, fn-md xln, poor int xln porosity, DNS, NSFO, hvy chert-off wh