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

Well Name:	McFarland SWD		
Location:	Graham County		
License Number:	API #15-065-24151-00-00	**Region:**	Kansas
Spud Date:	6/22/2018	**Drilling Completed:**	6/27/2018
Surface Coordinates:	Section 18, Township 9 South, Range 21 West 330' FNL & 330' FEL		
Bottom Hole Coordinates:	Vertical well w/ minimal deviation, same as above		
Ground Elevation (ft):	2,285	**K.B. Elevation (ft):**	2,290
Logged Interval (ft):	3,200 **To:** RTD	**Total Depth (ft):**	4,000
Formation:	LKC-Arbuckle		
Type of Drilling Fluid:	Chemical (K.D.T.)		

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OPERATOR

Company: American Oil, LLC
Address: 1200 Main, Suite 410
Hays, KS 67601

GEOLOGIST

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

Comments

The McFarland SWD well was drilled by WW Drilling Rig #8 (Toolpusher: Scot Piland).

The McFarland SWD was drilled primarily for use as a salt water disposal well, with the possibility of oil production. Rock samples were gathered and evaluated from 3,200'-4,000'. Oil shows were encountered in the LKC B,C, F, I, K and Arbuckle. Structurally, the Lansing top was picked 8' low to the comparison well, 660' to the south/southwest (McFarland #2 - 2018'). Structure remained consistent through the LKC and the B/KC was picked 10' low. Structural thickening occurred just above the Arbuckle, which resulted in an Arbuckle picked 19' low to the comparison well. After evaluation of all oil shows and electric logs, it was decided that 5 1/2" production casing be set to further evaluate the McFarland SWD for oil producion and utilize as a salt water disposal well if non-commercial.

ROCK TYPES

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

OTHER SYMBOLS

POROSITY
- E Earthy
- Fenest
- F Fracture
- Inter
- Moldic
- Organic
- P Pinpoint
- V Vuggy

SORTING
- W Well
- M Moderate
- P Poor

ROUNDING
- R Rounded
- r Subrnd
- a Subang
- A Angular

OIL SHOW
- Even

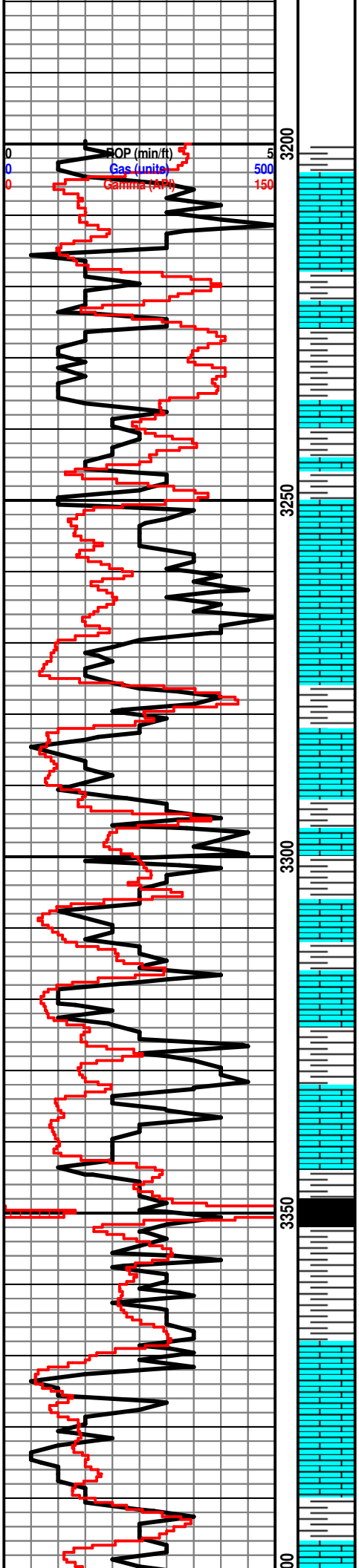
- Spotted
- Ques
- D Dead

INTERVAL
- Core
- Dst

EVENT
- Rft
- Sidewall

Curve Track 1 (ROP (min/ft) ——— ; Gas (units) - - - - - - - ; Gamma (API) ———)	Depth	Lithology	Oil Shows	Geological Descriptions	DST/Mud/Survey
0 ROP (min/ft) 5 0 Gas (units) 500 0 Gamma (API) 150	31 3150			**The open-hole logging was performed by Mr. Casey Patterson with Gemini Wireline, LLC (Hays, KS). Logs included: Compensated Density Neutron & Dual Induction.** **Formation tops and datums from the open-hole logs include the following:**	**Mud Engineer:** Chris Keyes Wt: 8.4 Vis: 60

Formation	E-Log	Datum
Anhydrite	1782	508
Topeka	3251	-961
Heebner	3462	-1172
Toronto	3487	-1197
Lansing	3501	-1211
B/KC	3715	-1425
Arbuckle	3816	-1526
LTD	4000	-1710



Sh: gry, blk

Ls: off wh-gry, fn xln, scat foss, scat chalk

Sh: gry, brn

Sh: gry-brn

Topeka 3251' (-961)

Ls: off wh, fn xln, poor int part & scat pp vuggy porosity, NSFO, scat chalk

Ls: ala

Sh: gry

Ls: buff, fn xln, ool, scat fair int xln & ool porosity, scat dead oil stn, scat pyrite

Sh: lt-drk gry

Ls: ala

Sh: drk gry-blk

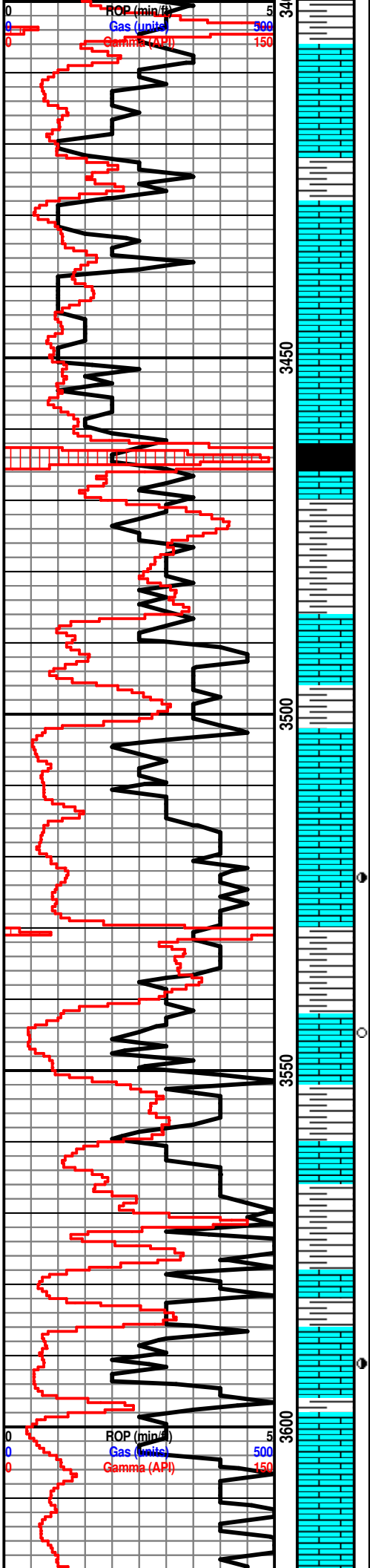
Ls: off wh-tan, fn xln, poor-fair int xln porosity, scat dead oil stn, vry lt odor, scat chert-off wh

Sh: drk gry-blk

Sh: drk gry

Ls: off wh-buff, fn xln, NSFO, scat chalk

Ls: off wh, fn xln, chalky



Sh: lt gry

Ls: buff, fn xln, poor-fair int part porosity, NSFO, scat chert

Wt: 8.8
Vis: 50

Sh: drk gry-brn, soft

Ls: buff, fn xln, poor-fair vuggy porosity, NSFO

Ls: off wh-tan, fn xln, fair int xln & scat vuggy porosity, NSFO, scat chalk

Heebner 3462' (-1172)

Sh: blk, carb, fissile

Sh: drk gry-brn

Toronto 3487' (-1197)

Ls: buff, fn xln, poor int part porosity, mostly DNS, NSFO

Lansing 3506' (-1216)

Ls: off wh-buff, fn xln, fair int xln & scat pp vuggy porosity, chalky, scat chert-off wh

Sh: drk gry-brn

Ls: off wh, fn xln, ool, poor int part porosity, scat oil stn, VSSFO, fnt odor, scat chert-off wh

Sh: drk gry-brn

Ls: off wh, fn xln, poor-fair int xln porosity, vry lt oil stn, VSSFO, fnt odor, scat chert-off wh

Sh: drk gry-brn

Ls: off wh, fn xln, scat foss, poor int part & scat int foss porosity, scat oil stn, NSFO

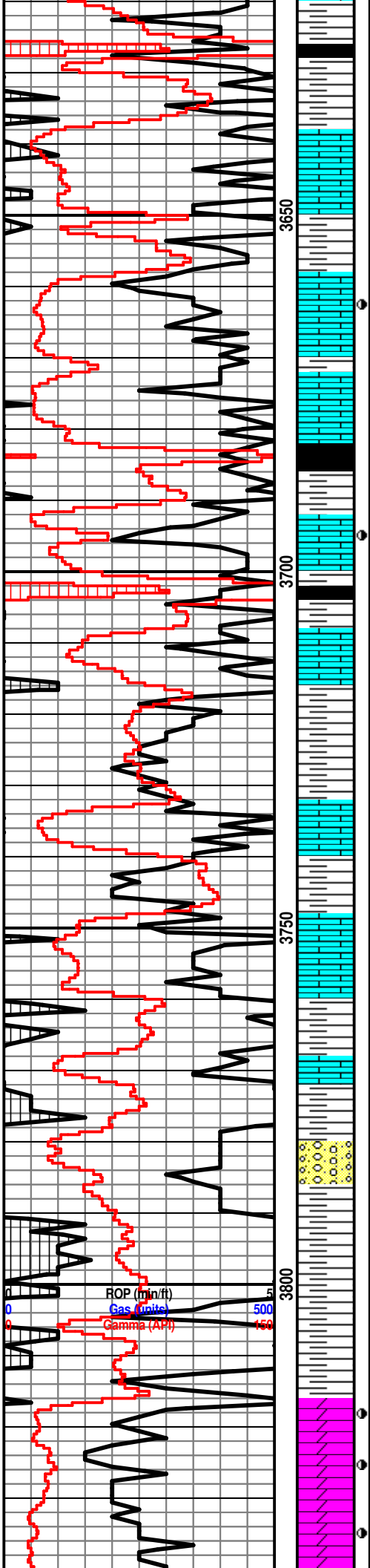
Ls: off wh, fn xln, foss, poor-fair int part porosity, fair oil stn, VSSFO, fnt odor, chalky

Sh: drk gry

Ls: off wh-buff, fn xln, fair int xln & vuggy porosity, fair oil stn in porosity, SSFO, sl odor

Ls: tan-gry, fn xln, fair int xln & scat vuggy porosity, NSFO, scat chert

Ls: off wh-tan, fn xln, mostly DNS



Sh: drk gry, blk

Ls: buff, fn xln, NSFO, chalky

Sh: drk gry

Ls: off wh, fn xln, foss, poor-fair int part & scat int foss porosity, fair oil stn, VSSFO, fnt odor

Ls: off wh-tan, fn xln, vry poor int xln porosity, mostly DNS, barren

Sh: drk gry-blk

Ls: off wh, fn xln, foss, poor int part porosity, sl-fair oil stn, VSSFO, fnt odor, scat chert-off wh

Sh: drk gry-brn

Ls: buff, fn xln, chalky, scat chert-off wh

B/KC 3717' (-1427)

Sh: drk gry-brn

Ls: off wh, fn xln, ool, scat int part porosity, scat oil stn, VSSFO, fnt odor

Sh: drk gry-brn, soft

Ls: buff, fn xln, scat foss, chert

Sh: drk gry-brn, scat chert

Ls: tan-gry, fn xln, DNS, NSFO, hvy chert-off wh, cong: off wh-rd, DNS

Wt: 9.1
Vis: 51

Sh: brn-rd, soft

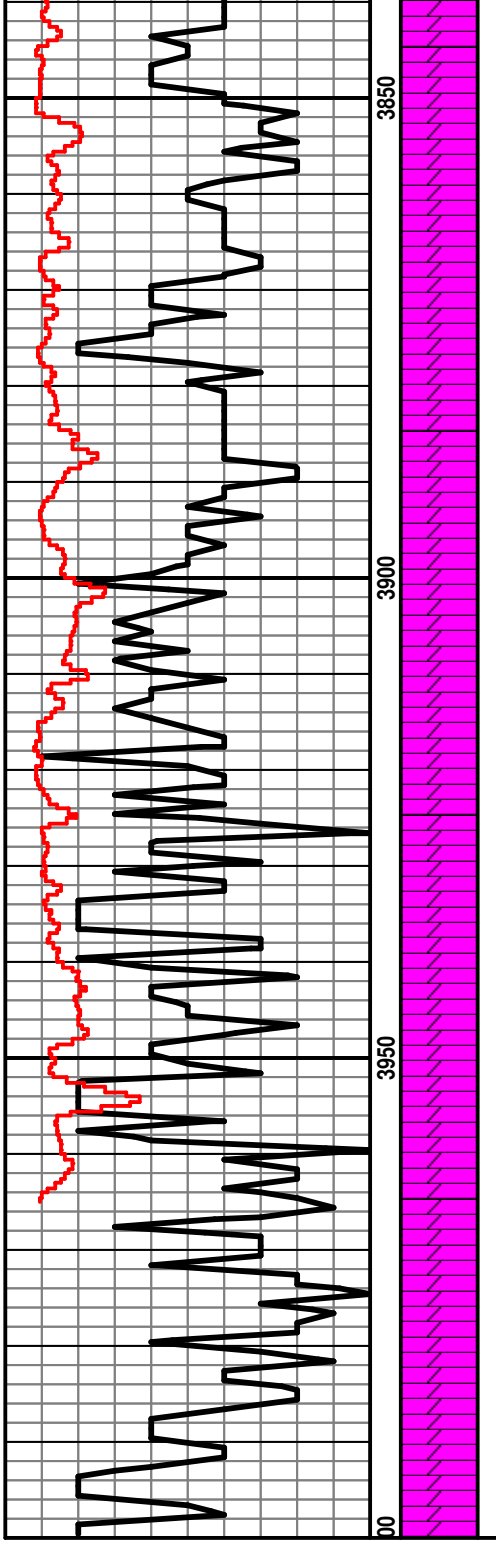
Sh: gry-grn

Arbuckle 3815' (-1525)

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

Dolo: off wh-tan, fn-md xln, fair-good sucrosic xln porosity, fair-good oil sat, FSFO, good odor, scat sh

Dolo: buff-tan, fn-md xln, poor-fair int xln porosity, fair oil stn in porosity, S-FSFO, fair-good odor



Dolo: buff, fn-md xln, fair-good int xln & scat int part porosity, scat oil stn, mostly barren, fair odor

Dolo: off wh-buff, fn-md xln, poor int xln porosity, barren

Dolo: off wh-tan, fn-md xln, fair-good int xln porosity, scat ool, foss, NSFO

Dolo: off wh-tan, fn xln, ool, fair-good oom porosity, barren, scat chert-off wh

Dolo: off wh-lt gry, fn-md xln, fair-good int xln porosity, barren, scat chert-off wh, scat sh: gry

Dolo: ala

Dolo: tan-gry, fn xln, fair int xln porosity, barren, hvy sh: wht, soft, chalk

Dolo: tan-lt gry, fn-md xln, fair int xln porosity, barren, scat chert-off wh, chalky

Dolo: ala

Dolo: lt gry, fn-md xln, poor-fair int xln porosity, barren