

# Final TD Notice

January 5, 2012

## **VC #1-23H, Sections 23-T31S-R20W, Comanche County, KS**

API #1503321606-01-00

SL: 165' fnl & 880' fel of the NE/4

Approximate point of entry into Miss at: 660' fnl & 880' fel of the NE/4

BHL: 330' fsl & 880' fel of the SE/4

Spud 12/15/11; Rig –Lariat #38, Drilling Engineer –Marc Harvey

TMD reached @ 3:30 am, 1/4/12, TMD Driller @ 9,456' MD/5,085' TVD/-3,068' SS

Vertical E-logs –Gamma Ray, MWD –Wolverine Directional, LLC

Horizontal E-Logs –received @ 9:00 am, 1/5/12, TMD Logger @ 9,432' MD –Weatherford

Mudlogging by Mid-Continent MudLogging, Gaylon Miller and Blake Johnson

Datum 2,017' KB 1,997 GR	E-LOG TOPS Gamma Ray only		MUD LOG TOPS	
	MD/TVD	SUBSEA	MD/TVD	SUBSEA
FORMATION				
Base Anhydrite	NDA	NDA	2429'	-412'
Base Heebner	4129'	-2112'		
Lansing Ls/Shale Group	4302'/4301'	-2284'		
Oswego Ls Group	4915'/4813'	-2796'		
Cherokee Group	5131'/4964'	-2869'		
Miss Unconformity	5220'/4990'	-2973'		
Mississippi Lime	5285'/5016'	-2999'		

**Results** – Throughout the wellbore the mudlog rock cutting samples collected were a mixture of 30-60% cream and white to off-white dolostones (dolomites), 30-60% light tan to off-white to white limestones and traces-30% of off-white and opaque cherts. All samples were fine to very finely crystalline with good to poor hairline fractures and pin-point vugular porosity noted. The cherts, in part, appeared tripolitic. There was scattered to fair yellow fluorescence, good to no stream cut and residual ringing noted. Formation gas readings recorded were from 2-92 units. E-Log readings show porosities of 4-18% with resistivity readings of 6-300 ohm/meters. Average porosities throughout the limestones are at 6% with average resistivity readings @ 50 ohm/meters. Throughout the dolostones the average porosities are 10% with average resistivity readings @ 10 ohm/meters.

***This well is to be completed throughout the lateral in the designated section of Mississippian-aged carbonates.***

Feel free to call with questions/comments.

Best,

Kathy Gentry, Senior Geologist