

# Jeff Christian

PETROLEUM GEOLOGIST  
Wehita, Kansas

## GEOLOGISTS' REPORT

DRILLING TIME AND SAMPLE LOG

OPERATOR	MURFIN DRILLING COMPANY	ELEVATIONS	
LEASE	LOPER TRUST # 1-1	WB	3554'
LOCATION	1320' FSI & 1980' FWL	GL	3249'
SEC	1 TWP	3 S	RNG 36 W
COUNTY	RAWLINS	STATE	KANSAS
FIELD	WILD CAT	CONTRACTOR	COMPANY TOOLS
DATE	15-153-20992	DRILLING STARTED	03/04/2014
APR	15-153-20992	MUD DISPLACED	3470'
CONTRACTOR	COMPANY TOOLS	DRILLING THE KEPT FROM	3860'
DRILLING STARTED	03/04/2014	COMPLETED	03/13/2014
MUD DISPLACED	3470'	MUD TYPE	CHEMICAL
DRILLING THE KEPT FROM	3860'	TO RTD	
SAMPLES SAVED FROM	3860'	TO RTD	
SAMPLES EXAMINED FROM	3860'	TO RTD	
SAMPLES SAVERED FROM	3860'	TO RTD	
GEOLOGICAL SUPERVISION FROM	3884'	TO RTD	
FORMATION	NAME	LOG	TOP DATUM
ANHYDRITE	3986'	(1618)	3081' (1717)
BASE ANHYDRITE	3126'	(1226)	3123' (1311)
TOPEKA	3976'	(1223)	3973' (1719)
LANSING	4182'	(1928)	4180' (1926)
STARKE	4401'	(1147)	4398' (1144)
BKC	4448'	(1194)	4448' (1194)
PAWNEE	4577'	(1323)	4571' (1317)
CHEROKEE	4649'	(1389)	4647' (1393)
MISSISSIPPIAN	4846'	(1592)	4843' (1589)
TOTAL DEPTH	4890'	(1638)	4890' (1636)

DATE	7:00 AM DEPTH	REMARKS
3/4/14	MIRT	SPUD 4:00 pm
3/5/14	350'	WOC dev. 3/4 deg.
3/6/14	2860'	DRL6.
3/7/14	3700'	DRL6. dev. 1/2 deg. @ 3588'
3/8/14	4180'	DRL6.
3/9/14	4248'	TOH for DST # 2
3/10/14	4430'	TOH w/ DST # 3
3/11/14	4430'	TOH after DST # 4 dev. 1/8 deg.
3/12/14	4686'	TOH for DST # 5
3/13/14	4890'	RTD 4890' @ 6:00 am CTCH dev. 3/4 deg. FINISH LOGGING @

**Remarks**

5 1/2" production casing set to further test the Lansing / Kansas City and Pawnee formations.

Electric log measurements correlate about 2' deep compared to rotary measurements.

Samples deposited at the Kansas Geological Survey.

Respectfully,  
*Jeff Christian*  
Jeff Christian

