

Jeff Christian

PETROLEUM GEOLOGIST
Wichita, Kansas

GEOLOGICAL REPORT

DRILLING TIME AND SAMPLE LOG

OPERATOR **NORTHERN LIGHTS OIL CO.**
LEASE **VOLANDIA # 1**
LOCATION **582 FSL & 1708' FEL**

SEC. **15** TWP. **17 S** R. **20 W**
COUNTY **RUSH** STATE **KANSAS**
FIELD **WILD CAT**

API **15-165-22149-00-00**
CONTRACTOR **SOUTHWIND** RIG NO. **3**
DRILLING STARTED **08/15/2017** COMPLETED **08/21/2017**
MUD DISPLACED **3150** MUD TYPE **CHEMICAL**
DRILLING TIME KEPT FROM **3200** TO **RTD**
SAMPLES SAVED FROM **3200** TO **RTD**
SAMPLES EXAMINED FROM **3200** TO **RTD**
GEOLOGICAL SUPERVISION FROM **3228** TO **RTD**

MEASUREMENTS FROM KB
CASING RECORD
CONDUCTOR NONE
Surface **8.5/8' @ 250'**
W/ **160 SX**
Production NONE

ELEVATIONS
KB **2130'**
GL **2122'**

FORMATION NAME
TOP LOG DATUM TOP DATUM
SAMPLE

ANHYDRITE	1363'	(+767)	1367'	(+763)
BASE ANHYDRITE	1394'	(+736)	1398'	(+732)
HEEBNER	3500'	(-1370)	3506'	(-1376)
LANSING	3844'	(-1414)	3549'	(-1419)
BKC	3814'	(-1684)	3818'	(-1688)
PAWNEE	3904'	(-1774)	3913'	(-1783)
LABETTE SH	3954'	(-1824)	3965'	(-1835)
CHEROKEE SD	3981'	(-1851)	3987'	(-1857)

TOTAL DEPTH	4012'	(-1882)	4015'	(-1885)
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DATE	7:00 AM DEPTH	REMARKS
8/15/17	MIRT	SPUD
8/16/17	250'	WOC dev. 0 deg.
8/17/17	1910'	DRLG
8/18/17	2830'	DRLG
8/19/17	3510'	DRLG
8/20/17	3944'	DRLG
8/21/17	3990'	OB w/ DST # 2, RTD 4015' @ 11:30 am, dev. 1 deg. @ 3983'
		Finish logging 5:00 pm

Remarks
The Volandia # 1 was declared dry and abandoned.
Electric log measurements correlate about 5' to 6' high compared to drilling measurements.
Samples delivered to the Kansas Geological Survey in Wichita, KS.
Respectfully Submitted,
Jeff Christian
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