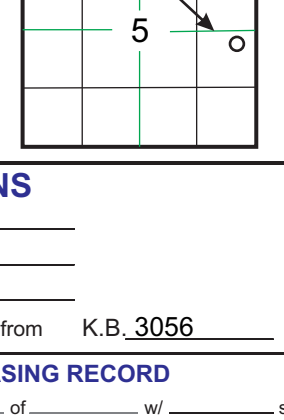


GEOLOGICAL REPORT

Larry A. Nicholson

NAD 83
38.951515
-100.890410

COMPANY Murfin Drilling Company, Inc.
API # 15-109-21340
LEASE Vanava #3-5 SW NE NE SE
LOCATION 2260 FSL 410' FEL SW NE NE SE
SURVEY 2260 FSL 410' FEL
SECTION 5 **TWP** 13S **RGE** 32W
COUNTY Logan **STATE** Kansas



CONTRACTOR Murfin Drilling Company, Inc. Rig # 21.
SPUD 9-24-14 5:45 pm **COMP** K.B. 3056
RTD 4775 2:00 pm 10/03/2014 **LTD** 4769'
MUD UP AT 3500 **D.F.**
MUD TYPE Chemical Morgan Mud **G.L.** 3045
SAMPLES SAVED FROM 3700 TO RTD
DRILLING TIME FROM 3700 TO RTD
SAMPLES EXAMINED FROM 3700 TO RTD
GEOLOGICAL SUPERVISION FROM 3700 TO RTD
WELLSITE GEOLOGIST LARRY A. NICHOLSON

ELEVATIONS
K.B. 3056
D.F.
G.L. 3045
 All measurements from K.B. 3056

ELECTRICAL SURVEYS Pioneer, Den, Neu, Du, Micro, Sublic

FORMATION TOPS & STRUCTURAL POSITION

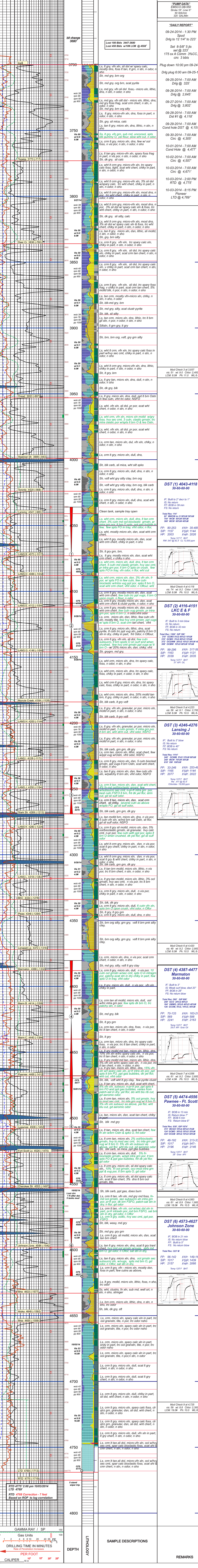
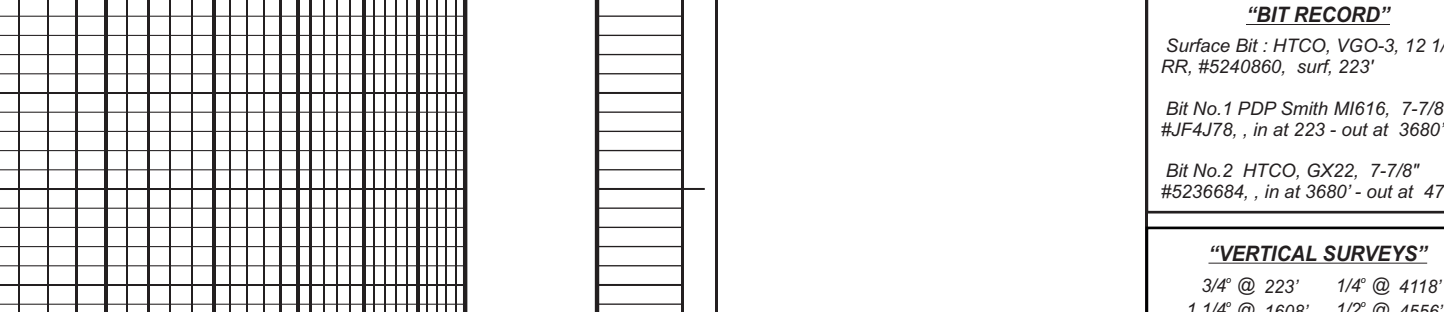
FORMATION	SAMPLE TOPS	SUBSURFACE NATUM	ELECTROLOG TOPS	SUBSURFACE NATUM	REFERENCE WELL
Anhydrite	2540	+516	2534	+522	2528 +516 +6
B/Anhydrite	2564	+492	2558	+498	2549 +495 +3
Topeka	3781	-725	3773	-717	3768 -724 +7
Heebner Sh	4007	-951	3999	-943	3995 -951 +8
Lansing	4049	-993	4041	-985	4037 -993 +8
Stark Sh	4275	-1219	4269	-1213	4266 -1222 +9
Pawnee	4478	-1422	4468	-1412	4470 -1426 +14
Cherokee Sh	4602	-1506	4553	-1497	4554 -1513 +13
Johnson Zone	4568	-1552	4598	-1542	4597 -1553 +11
Mw	4656	-1600	4633	-1577	4645 -1601 +24
Miss	4662	-1606	4655	-1599	4680 -1636 +37
RTD	4675	-1719	4775	-1719	4740
LTD			4769	-1713	4741

REFERENCE WELLS:
A: Murfin Drilling Company Vanava #1-5, 2310' fsl 1800' fel, Sec 5 T13S R32W KB 3044
B:

REMARKS & RECOMMENDATIONS:
 Based on dst results and sample shows 51/2 csq was set.
 After logs it was determined the rig ROP should be corrected up 7 feet.
 ROP, Samples, Connection, dsts, cfs, logs were moved up 7 feet to match log.

LAN 792, Modified 5/05, 11/11, 4/12 Hanover, KS 66645 1inch = 25.4mm 1/8" = 97.5 216 mm x 2460 mm

LEGEND



COMPANY Murfin Drilling Company, Inc. **ELEVATIONS** K.B. 3056
LEASE Vanava #3-5 SW NE NE SE **D.F.**
LOCATION 2260 FSL 410' FEL **SEC.** 5 **TWP** 13S **RGE** 32W **G.L.** 3045
COUNTY Logan **STATE** Kansas **All measurements from** K.B. 3056

