GEOLOGICAL REPORT

Larry A. Nicholson

NAD 83
39.9156390
-98.6897900

COMPANY: Murfin Drilling Company, Inc.
LEASE: 15-060-Grieb Unit #1 Geoland West
WELL: Abell Ranch "B"
LOCATION: E2 NE SW NW
ELEVATION: 1950 FNL 1160 FWL
SECTION: 31 TWP: 12S RGE: 30W
COUNTY: Gove STATE: Kansas
CONTRACTOR: Murfin Drilling Company, Inc. Rig #21
SPUD: 5/30/2018 COMP: 6/3/2018
RTD: 4630' ft 10am 01/06/2015 LTD: 4631'
MUD CO-P: 3011 MUD TYPE: Chemical, Morgan Mud
SAMPLE SAVED: From 3600 to 4630 RTD
DRILLING TIME: From 3600 to 4630 RTD
ELECTRICAL SURVEY: From 3600 to 4630 RTD
GEOLOGICAL SUPERVISOR: From 3600 to 4630 RTD
WELLSITE GEOLOGIST: LARRY A. NICHOLSON

COMPANY'S WELL: Murfin Drilling Company, Inc. Abell Ranch "B" #31-31
LOCATION: 1950 FNL 1160 FWL E2 NE SW NW
SEC: 31 TWN: 12S RGE: 30W
ELEVATION: KB: 2893 DF: 2891 GL: 2881
COUNTY: Gove STATE: Kansas

ELEVATIONS

KB: 2893
D.F.: 2891
G.L.: 2881
All measurements from: KB

CASING RECORD

	Size	Weight	Depth	Cement	Type
Conductor:					
Surface:	8 5/8	23#	221'	170	60/40 Poz
Production:					

ELECTRICAL SURVEYS

Pioneer, Dec. Sec. Dual, Micro, Sonic

FORMATION TOPS & STRUCTURAL POSITION

FORMATION	DEPTH	SUBSEA DATUM	DEPTH	SUBSEA DATUM	REFERENCE WELL: Murfin Drilling Abell Ranch "B" #31-31	REFERENCE WELL: Murfin Drilling Abell Ranch "B" #31-31
Anhydrite	2380	+513	2380	+513	2395	+512
B/Anhydrite	2408	+485	2408	+485	2421	+486
Topeka	3650	-756	3650	-756	3703	-796
Heebner Sh	3910	-1017	3910	-1017	3963	-1016
Lansing	3954	-1061	3954	-1061	4004	-1057
Stark Sh	4176	-1283	4176	-1283	4228	-1281
Marmaton	4306	-1413	4306	-1413	4358	-1410
Fort Scott Ls	4523	-1630	4523	-1630	4444	-1537
Johnson Zone	4491	-1606	4499	-1606	4514	-1607
Miss	4516	-1623	4516	-1623	4531	-1624
Miss Dol	4527	-1629	4527	-1629	4546	-1639
RTD	4630	-1737			4625	-1718
LTD			4631	-1737	4627	-1720

REFERENCE WELLS: Murfin Drilling Abell Ranch "B" #31-31 , 300' FNL 330' FWL, Sec 31 T12S R30W, KB 2907

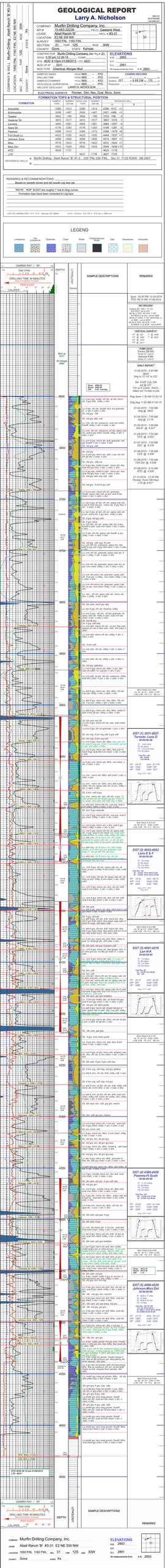
REMARKS & RECOMMENDATIONS

Based on sample shows and drill results cap was set.

"NOTE: RDP & DST are mostly 1 low to wing curves.

Formation tops have been corrected to log tops.

LAS FILE: Modified 0.05, 1111, 4612 Hairsine, KS 38940 Track = 25.4mm 6.1 8.3 0.3 2.76 mm = 2400 mm

LEGEND

Limestone, Oolitic Limestone, Dolomite, Chert, Shale, Carbonaceous Shale, Salt, Sandstone, Anhydrite