

Robert L. Milford

PETROLEUM GEOLOGIST
Wichita, Kansas

GEOLOGISTS REPORT

DRILLING TIME AND SAMPLE LOG

OPERATOR: **Murfin Drilling Company, Inc.**

LEASE: **Delay #1-21**

LOC SPOT: **140'S of C SE NE SE**

LOC FOOTAGE: **1510' FSL 330' FEL**

SEC: **21** TWP: **15** RANG: **38W**

COUNTY: **Cheyenne** STATE: **KANSAS**

API: **15-023-21408-00-00**

CONTRACTOR: **Murfin Drilling Co., Inc.** RIG NO.: **7**

DRILLING STARTED: **8-24-2014** COMPLETED: **9-2-2014**

MUD DISPLAYED: **3229** MUD TYPE: **Chemical**

DRILLING TIME KEPT FROM: **3,480'** TO: **RTD**

SAMPLES SAVED FROM: **3,480'** TO: **RTD**

SAMPLES EXAMINED FROM: **3,480'** TO: **RTD**

GEOLOGICAL SUPERVISION FROM: **3,480'** TO: **RTD**

MEASUREMENTS FROM: **KB**

ELEVATIONS
KB: **3,199'**

CL: **3,194'**

CASING RECORD

Consider

Surface: **8.5' @ 218'**

w/ 200' sands cement

Production: **1.12" @ 4741'**

w/ 155' sands cement

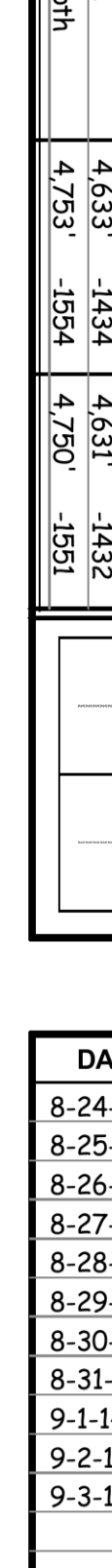
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FORMATION NAME	LOG	TOP	DATUM	SAMPLE	TOP	DATUM
Stone Corral	3,143'	+56'	3,147'	+52'		
Neva	3,591'	-392'	3,590'	-391'		
Topeka	3,930'	-731'	3,930'	-731'		
Oread	4,070'	-871'	4,070'	-871'		
Lansing	4,141'	-942'	4,141'	-942'		
Stark	4,366'	-1167'	4,366'	-1167'		
B/KC	4,425'	-1226'	4,425'	-1226'		
Pawnee	4,546'	-1347'	4,544'	-1345'		
Cherokee	4,633'	-1434'	4,631'	-1432'		
Cherokee	4,733'	-1554'	4,730'	-1551'		



DATE	7:00 AM DEPTH	REMARKS
8-24-14	0'	Spud @ 12:30 pm. Plug down @ 5:30 pm. Drilled out @ 1:30 am on 8-25-14 w/ PDC bit
8-25-14	640'	Cut 640' in last 24 hrs.
8-26-14	2,640'	Cut 2,640' in last 24 hrs; 22:25 hrs drlg. Bit trip @ 3480' (ran button bit)
8-27-14	3,780'	Cut 500' in last 24 hrs; 16:5 hrs drlg. DST #1 @ 3968'
8-28-14	3,968'	Cut 188' in last 24 hrs; 9 hrs drlg. DST #2 @ 4095'
8-29-14	4,095'	Cut 127' in last 24 hrs; 7:25 hrs drlg. DST #3 @ 4220'
8-30-14	4,220'	Cut 125' in last 24 hrs; 7 hrs drlg. DST #4 @ 4310'
8-31-14	4,310'	Cut 90' in last 24 hrs; 4:75 hrs drlg. DST #5 @ 4430'
9-1-14	4,430'	Cut 120' in last 24 hrs; 7 hrs drlg. DST #6 @ 4570'
9-2-14	4,570'	Cut 140' in last 24 hrs; 8:5 hrs drlg. RTD 4750' @ 11:39 pm
9-3-14	4,750'	Cut 180' in last 24 hrs; 9:25 hrs drlg. Ran production casing.

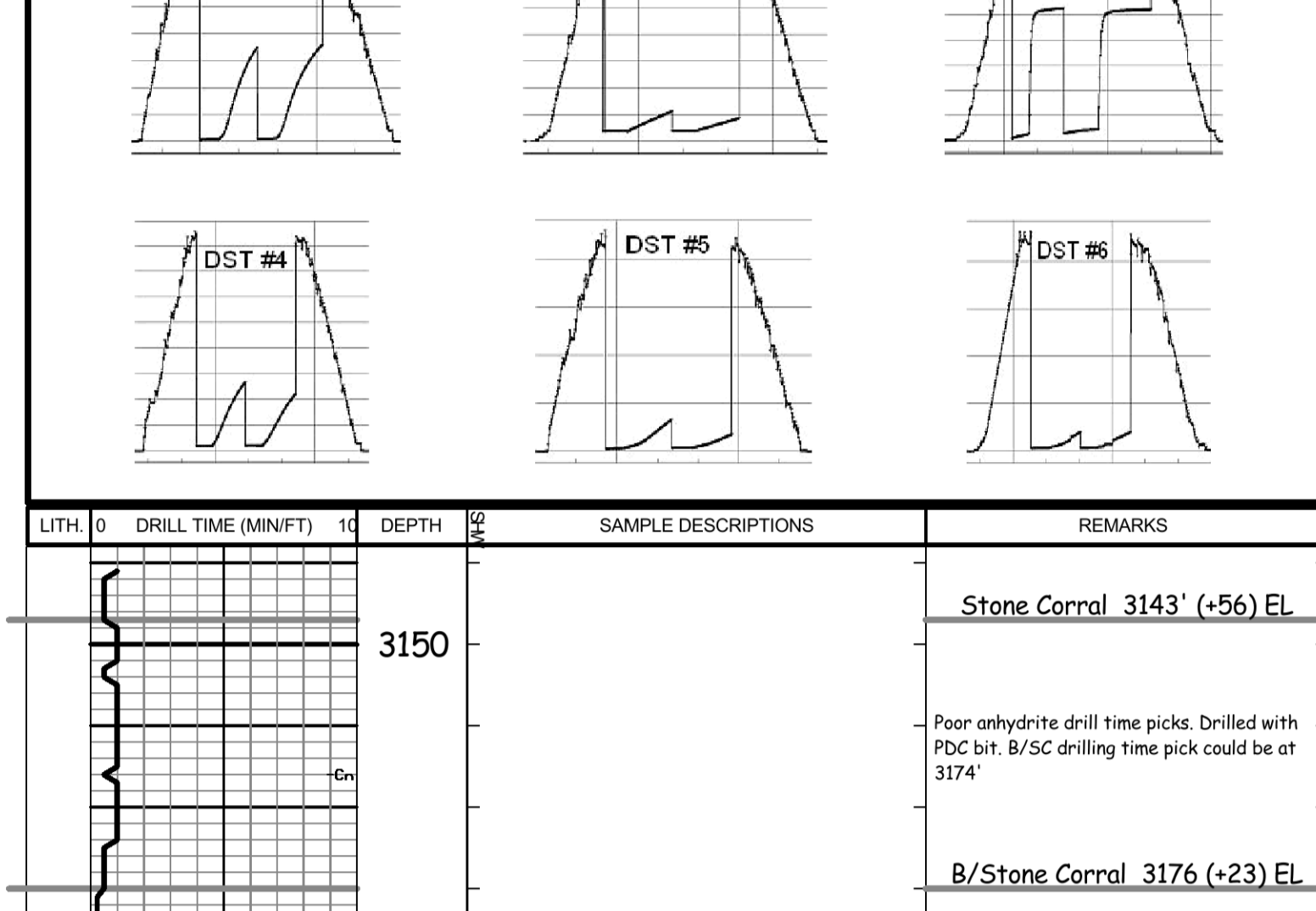
The electric log measurements correlate from even to 2' lower to the drilling measurements from 3,480' to RTD.

Formation tops and lithology on this report have been corrected to the electric log.

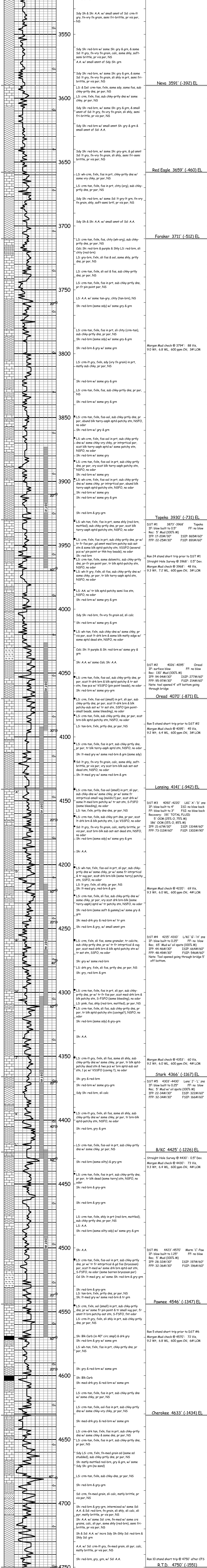
The drilling samples were deposited at the Kansas Geological Survey office in Wichita.

Respectfully submitted,

Robert L. Milford



LITH	DRILL TIME (MIN/FT)	DEPTH	SAMPLE DESCRIPTIONS	REMARKS
		3150		Stone Corral 3143' (+56) EL
				Poor anhydrite drill time picks. Drilled with PDC bit. B/SC drilling time pick could be at 3174'
		3200		B/Stone Corral 3176 (+23) EL



Ran 10 stand short trip @ 4750' after CFS

R.T.D. 4750' (-1551)

L.T.D. 4753' (-1554)

Straight Hole Survey @ 4750': 0.75" Dev.