Marc A. Downing

Consulting Petroleum Geologist

Geologic Report

Drilling Time and Sample Log

Operator **Downing-Nelson Oil Co., Inc.**

Lease **Joleen** No. **1-33**

API # **15-195-23074-0000**

Field **Wildcat**

Location **1162' FSL & 686' FWL**

Sec. **33-** Twp. **14s** Rge. **21w**

County **Trego** State **Kansas**

Elevation

KB **2103**
DF **2101**
GL **2095**

Casing Record

Surface
8 5/8" @ 222'
Production
5 1/2" @ 4088'

Electrical Surveys

CNDL, DIL
MEL, Sonic

Formation	Sample tops	Log Tops	Datum	Struct Comp
Top Anhydrite	1464	1462	+641	-13
Base Anhydrite	1505	1502	+601	-10
Topeka	3224	3224	-1121	-3
Heebner	3469	3469	-1366	-4
LKC	3510	3510	-1407	-4
BKC	3763	3763	-1660	-5
Pawnee	3850	3850	-1747	-11
Labette	3906	3905	-1802	-8
Fort Scott	3920	3920	-1817	-11
Cherokee Sh	3935	3936	-1833	-12
Cherokee "B" Sand	3948	3948	-1845	-10
Cherokee "C" Sand	3968	3968	-1865	-8
Kutina Sand	3974	3974	-1871	-5
Mississippi	4020	4021	-1918	-2
Total Depth	4090	4091	-1988	

Reference Well For Structural Comparison **Crawford Oil Co.**
Schuster #1-32_____330' FSL & 961' FEL_____Sec. 32-14s-21w

Drilling Contractor	**Discovery Drilling, Rig #4**		
Commenced	**10-30-18**	Completed	**11-5-18**
Samples Saved From	**3450**	To	**RTD**
Drilling Time Kept From	**3000**	To	**RTD**
Samples Examined From	**3450**	To	**RTD**
Geological Supervision From	**3450**	To	**RTD**

Summary and Recommendations

Due to structural position, DST recovery, and log evaluation, it was decid to set 5 1/2" production casing for completion.

Respectfully Submitted,

Marc A. Downing

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ROCK TYPES

△△△△△	Cht	▤	Lmst fw7>	▬	shale, gry	🟥	shale, red
△▲△▲△	Cht vari	🟩	shale, grn	■	Carbon Sh	🟨	Ss

ACCESSORIES

MINERAL
- ▲ Chert, dark
- △ Chert White

STRINGER
- ⋰ Sandstone
- ▬ Shale
- ▬ green shale
- ▬ red shale
- ═ carb shale

OTHER SYMBOLS

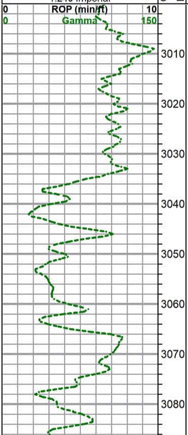
OIL SHOWS
- ● Even Stn
- ◕ Spotted Stn 50 - 75 %
- ◑ Spotted Stn 25 - 50 %
- ◔ Spotted Stn 1 - 25 %
- ○ Questionable Stn
- D Dead Oil Stn
- ■ Fluorescence

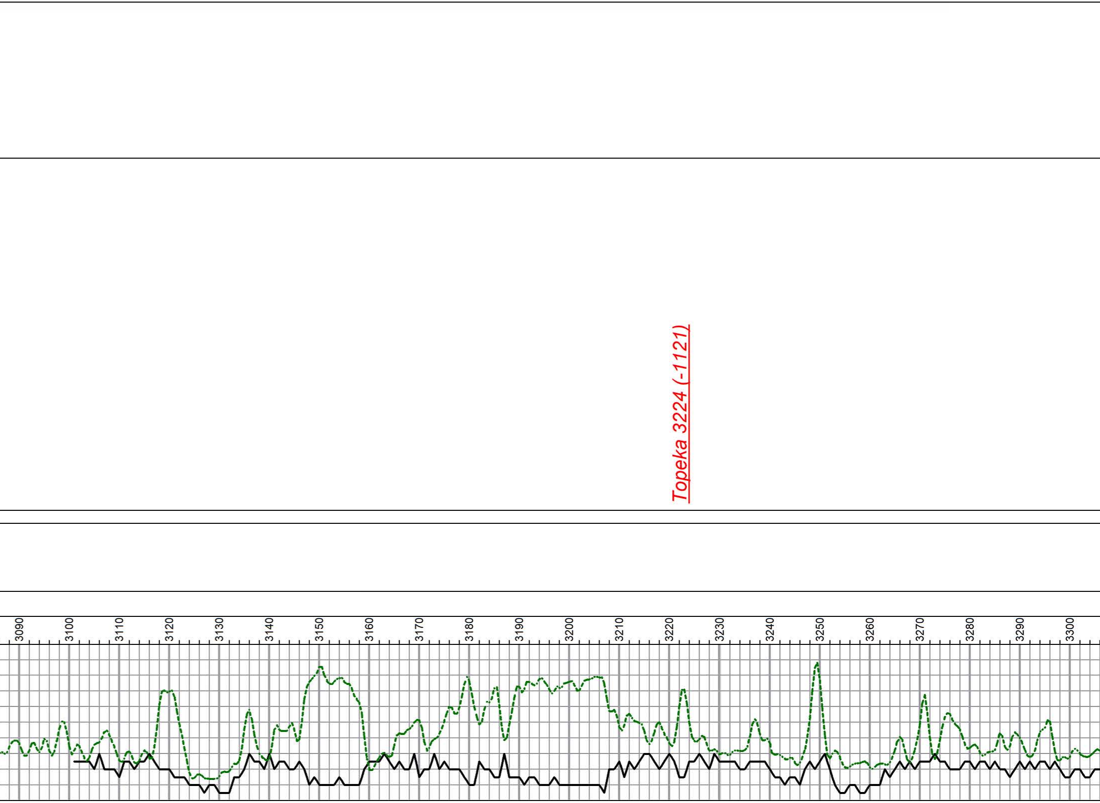
MISC
- DR Daily Report
- 📷 Digital Photo
- 🗎 Document
- 📁 Folder
- Link
- Vertical Log File
- Horizontal Log File
- Core Log File
- Drill Cuttings Rpt

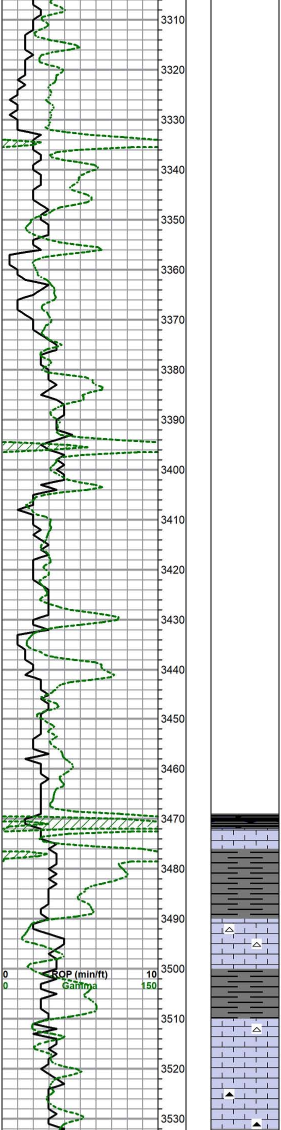
DST
- ■ DST Int
- ■ DST alt
- ■ Core
- ‖ tail pipe

Printed by GEOstrip VC Striplog version 4.0.8.15 (www.grsi.ca)

Curve Track #1 ROP (min/ft) Gamma 1:240 Imperial	Cored Interval | DST Interval Depth | Intervals	DST	Lithology	Oil Shows	Geological Descriptions	Comment







*NOTE:
GR has not been shifted

Heebner 3469 (-1366)

Sh: Black Carb

Sh: lt gry

Toronto 3490 (-1387)

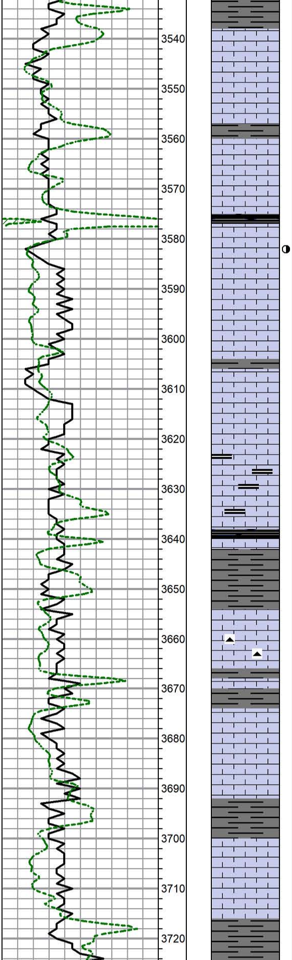
LS: wht, fn-vfn xln, subxln-chlky in prt. Scat shp wht cht, all NS.

Sh: gry-lt gry

LKC 3510 (-1407)

LS: wht, vfn xln, mostly pr por and dns. Few sub xln rx trn fn-md xln. Totally barren.

LS: wht-lt tan, fn-md xln, pr por. Scat tan cht, foss in prt.



Sh: gry w/ brn

LS: lt tan-wht, fn xln, suc in prt, few ool. Scat fr-gd int xln and vug por, totally barren, no od.

LS: trng pr por and dns, all NS.

Sh: gry

LS: wht-tan, fn xln, suc in prt. Mostly pr por and dns, all NS, no od.

Sh: Black Carb

LS: wht, md xln, few foss and ool. Scat rx w/ pr-fr uneven stn w/ sptd SFO in pr pp por. Fr amt barren chlky rx, lt od.

LS: wht, fn-vfn xln, trng pr por and dns, all NS.

Sh: gry

LS: wht, fn xln, scat gd vug por, fr amt subxln-chlky rx. All totally barren w/ no od.

LS: wht, fn-md xln, fr stn and sptd SFO in pp por. Scat fr barren ooc por. Trng dns, fnt-lt od. Fr amt drk gry shales.

LS: Mostly pr por and dns, fr amt drk gry shales.

Sh: Black Carb

Sh: gry

LS: wht-tan, fn-md xln. Moslty dns, all NS. Scat tan-brn foss cht.

Sh: drk gry-blk

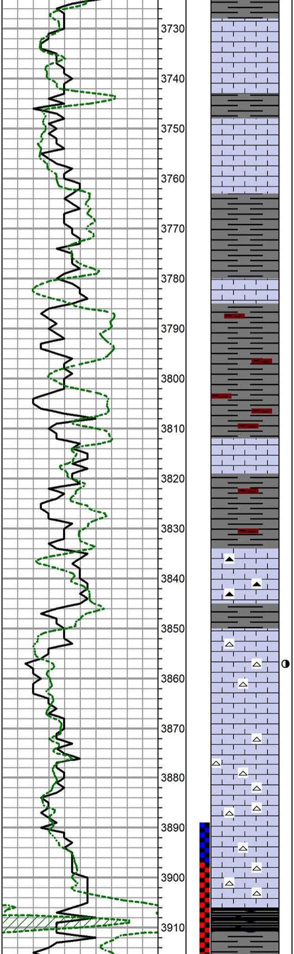
Sh: gry

LS: wht-tan, md xln, few frag foss. Scat int xln por, few sml vugs. Scat sub xln rx. All totally barren w/ no od. Trng v dns w/ no vis por.

Sh: gry-drk gry

LS: wht-tan, mostly fn-md xln, suc in prt. Scat pr vug por, all NS.

Sh: some drk gry-blk, trng brn



LS: wht-tan, md xln, some tot foss. Scat gd int foss and vug por, many v chlky rx. Totally barren, no od.

Sh: gry w/ drk gry

LS: wht, fn xln, foss in prt. Scat subxln-chlky rx, trng mostly v dns w/ no vis por. All NS.

BKC 3763 (-1660)

Sh: gry

LS: wht, fn xln, no vis por

Sh: brn w/ some red

Sh: brn w/ more red

LS: ala

Sh: gry w/ brn

LS: wht-tan, fn xln. Scat-fr amt org shp cht. NS

Pawnee 3850 (-1747)

LS: wht-lt tan, fn xln, suc in prt, chty. Fr-gd intxln and pp por, fr lt brn sat stn w/ sptd SFO, lt-fr od. Fr amt shp wht-lt tan cht.

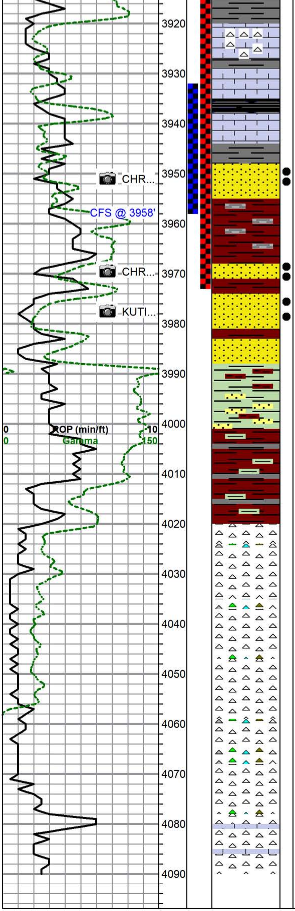
LS: wht w/ some tan, fn-vfn xln. Trng mostly pr por and dns, scat-fr amt wht and tan cht. Few rx w/ show ala, poss carry.

LS: much ala, trng more tan. Fr amt shp cht, tan, wht, some org. All NS.

Labette 3906 (-1803)

Sh: Black Carb

Vis: 55 Wt: 9.0
DST #1
3932-3958
30-30-30-30
I.F. - 1"
F.F. - Surf, flush, surf
IFP: 36-38
FFP: 44-74
SIP: 365-359
HP: 2000-1966
Rec:
100' OCM (5% o)
BHT: 107 G = 30
*NOTE:



Fort Scott 3920 (-1817)

LS: wht-tan, fn xln. Much shp wht and tan cht, scat chlky ls. All totally barren, no od.

Cherokee Sh 3935 (-1832)

Sh: Black Carb

LS: wht-tan, fn-md xln, pr por, dns.

Cherokee Sand 3948 (-1845)

SS: wht-clr, fn-vfn grain, well rnd, well sort. Scat fr IG por, frly friable, some sltly tight. Fr lt brn sat stn w/ fr-gd SFO when broken (high G?), 1-2 gas bubbles. Fnt od

Cherokee "C" Sand 3968 (-1865)

SS: gry-wht, sltly darker than above. Vfn-fn grain, well rnd, well sort, fr-gd IG por, fairly friable, sltly tight. Gd sat w/ gd SFO, darker than above, some sltly gssy when broken. Vfnt-no od.

Kutina Sand 3974 (-1871)

SS: wht-lt gry, lighter than above. Fn grain, well rnd, well sort, gd IG por, friable. Fr-gd sat stn, vgd SFO when broken, some sltly gssy. No od.

SS: clr-wht, md grain, sub-rnd, fr sort, scat lrg qtz grains. Fr IG por, pr friable, tight. All NS, no od. Scat shp wht cht.

SS: green-tourq, fr amt glauconite, fn-md grain. Fr rnd, well sort, pr por, tight, well cemented. All NS.

Sh: brn, gry, some grn.

Mississippi 4020 (-1917)

Cht: mostly wht, some yel, tan, gry. Mostly shp and fresh, fr amt weath, trip. Scat foss and ool. Gd frac por, toally barren.

Cht: ala

Cht: ala

Cht: some ala, scat dns LS, pr por. All NS, no od.

RTD 4090 (-1987)

Losing mud past packer on initial open.

DST #2
3897-3973
Packer Failure - Possible tool problem

DST #3
3889-3973
15-30-15-30
I.F. - BOB 2 min / No SIB
F.F. - BOB 5 min / No SIB

IFP:	81-172
FFP:	178-222
SIP:	308-307
HP:	1991-1951

Rec:
333' GIP
428' GMO (20% g, 70% o)
127' GOCM (20% g, 10% o)
BHT: 114 G = 32
*Note
Packer did not hold on first try, pick up tool, refill hole, set again w/ 45,000 lbs, held.