HARDROCK
Consulting, Inc.

Geologic Report

Drilling Time and Sample Log

Operator Downing-Nelson Oil Co.

Lease Kramer Unit B **No.** 1-24

API # 15-023-21523-0000

Field Tovrea Northwest

Location 1298' FSL & 2562' FWL

Sec. 24 **Twp.** 5s **Rge.** 37w

County Cheyenne **State** Kansas

Elevation
KB 3261'
DF
GL 3253'

Casing Record
Surface 8 5/8" @ 474'
Production None

Electrical Surveys
None

Formation	Sample tops	Log Tops	Datum	Struct Comp
Anhydrite	2978'		+283	+289 -6
Base	3014'		+247	+255 -8
Topeka	3965'		-704	
Heebner	4094'		-833	-829 -4
Toronto	4134'		-873	-868 -5
Lansing	4148'		-887	-883 -4
Stark	4350'		-1089	-1085 -4
BKC	4431'		-1170	-1163 -7
Marmaton	4444'		-1183	-1175 -8
Pawnee	4538'		-1277	-1269 -8
Fort Scott	4594'		-1333	-1331 -2
Cherokee	4618'		-1357	-1355 -2
Morrow Shale	4753'		-1492	-1490 -2
Mississippian	4848'		-1587	-1579 -8
Total Depth	4865'		-1604	

Reference Well For Structural Comparison **Downing-Nelson Oil Co. Kramer Unit #1-24**
1085' FWL & 317' FSL Sec. 24 T5s R37w Cheyenne Co. Kansas

Drilling Contractor	Discovery Drilling Co. Inc. Rig #4		
Commenced	10-9-2019	Completed	10-18-2019
Samples Saved From	4050'	To	RTD
Drilling Time Kept From	3900'	To	RTD
Samples Examined From	4050'	To	RTD
Geological Supervision From	4050'	To	RTD
Displacement	3600'		
Mud Type	Chemical		

Summary and Recommendations

The location for the Kramer Unit B #1-24 was found via 3-D seismic sur The new well as expected via the survey. Two Drill Stem Tests were conducted, both of which were negative. After all gathered data had been examined the decision was made to plug and abandon the Kramer Unit B #1-24 well.

Respectfully Submitted,

Jason T Alm
Hard Rock Consulting, Inc.

rvey.

ROCK TYPES

🟪 Dolprim
▤ Lmst fw7>
🟩 shale, grn
▤ shale, gry
⬛ Carbon Sh
🟥 shale, red
🟨 Shcol
🟨 Ss
🟧 Slstt

ACCESSORIES

MINERAL
- ▲ Chert, dark
- ᔓ Glauconite
- P Pyrite
- ⁖ Varicolored chert
- △ Chert White

FOSSIL
- ○ Crinoids
- ϕ Oolite

STRINGER
- ~~~ Chert
- ▨ Sandstone
- ▨ Shale
- ▬ green shale
- ▬ red shale

TEXTURE
- C Chalky

OTHER SYMBOLS

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

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

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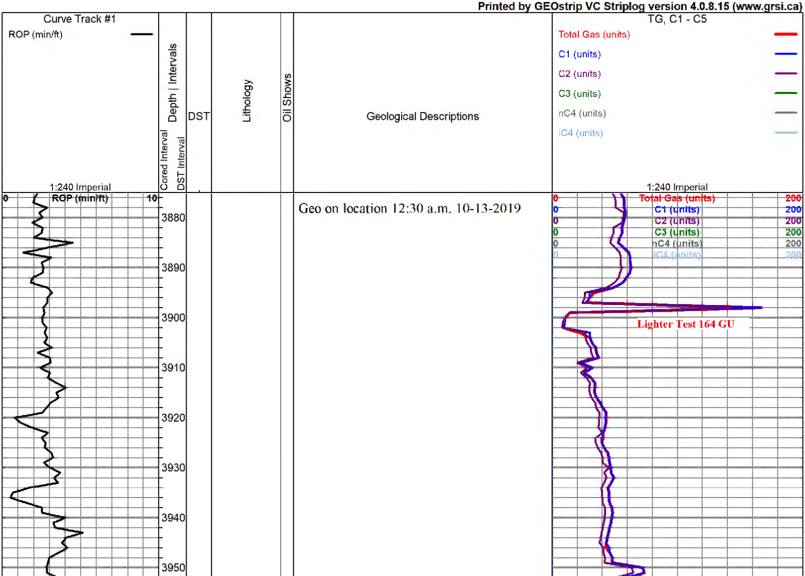
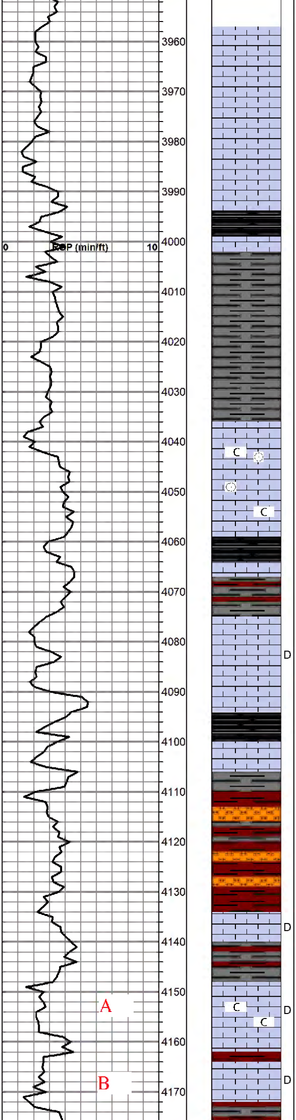


Geo on location 12:30 a.m. 10-13-2019



Topeka 3957' -696

Ls - Tan, fn-subxln, sl fossil, dns, chalky

Sh - Blk, carb

Sh - Gry-brn, few pcs dns sltst

Ls - Offwh, fn xln w/ fair-good interxln por, few rxs w/ scat dead tarry st, nsfo, mostly barren

Heebner 4094' -833

Sh - Blk, carb

Ls - Tan, fn-subxln, mostly dns

Sh - Gry-brn, heavy gry-brn sltst, soft

Sh - Brn, sltst ala

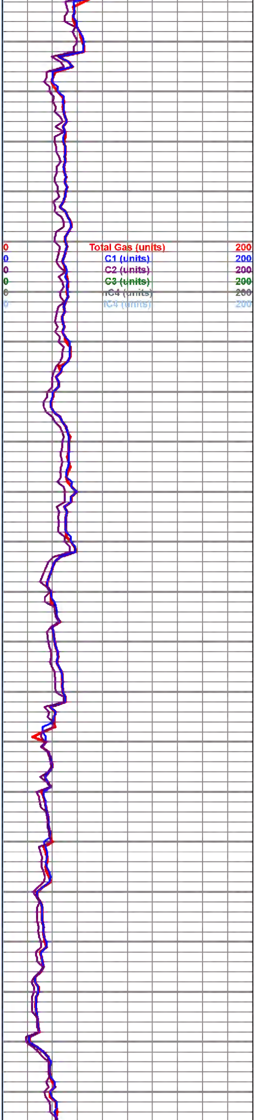
Toronto 4134' -873

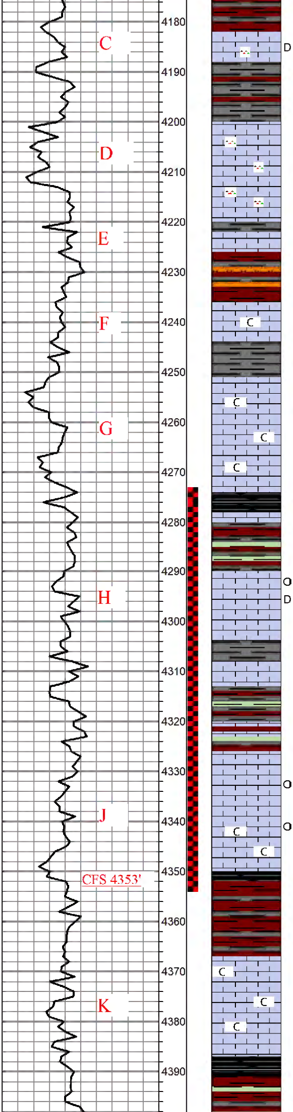
Ls - Wht-offwh, fn xln w/ poor scat interxln por, scat tarry dead oil st in por, nsfo, mostly barren

Lansing 4148' -887

Ls - Offwh-tan, fn xln w/ poor interxln por, few pcs w/ tarry dead st, mostly barren, very chalky

Ls - Offwh-lt gry, fn xln, sucrosic in part w/ poor-scat fair interxln por, few pcs w/ very lt tarry dead st, nsfo, mostly barren





Sh - Brn-gry

Ls - Tan, fn xln w/ very poor scat interxln por, few pcs w/ very lt spot tarry dead oil st, mottled w/ gry-wht chert

Sh - Gry-brn

Ls - Offwh-lt gry, fn xln, ool in part w/ poor scat ooc & interxln por, barren, heavy multicolored chert

Ls - ala, dns

Sh - Brn-gry, sl silty

Ls - Offwh-tan, fn-subxln, sl ool in part, dns, chalky

Sh - Gry

Ls - Offwh-lt gry, fn xln, ool pkst in part w/ fair scat ooc & int-ool por, barren, very chalky

Ls - ala, poor por, barren

Sh - Blk, carb

Sh - Brn-gry-grn

Ls - Tan, fn-subxln, ool w/ poor scat ooc por, lt spot dead oil st, nsfo, no odor, very poor yel fluor, lt stream cut

Ls - ala, tan-lt gry, dns

Sh - Gry-brn

Sh - Brn-gry-grn, much dns gry Ls

Ls - Tan, fn-subxln, ool in part w/ poor pinpoint ooc por, lt brn oil st in por, sl sfo when broken, dull yel fluor, lt stream cut, no odor, mostly dns, chalky towards base

Stark 4350' -1089

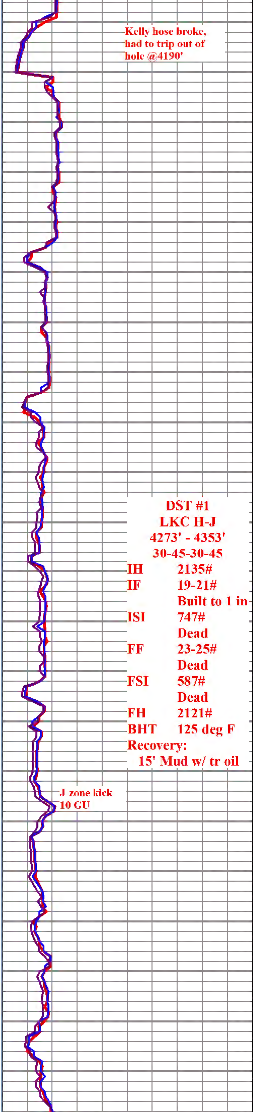
Sh - Blk-drk gry

Sh - Brn-red

Ls - Tan, fn-subxln, ool in part w/ scat poor pinpoint ooc por, barren, very chalky

Sh - Blk, carb

Sh - Brn-grn-gry



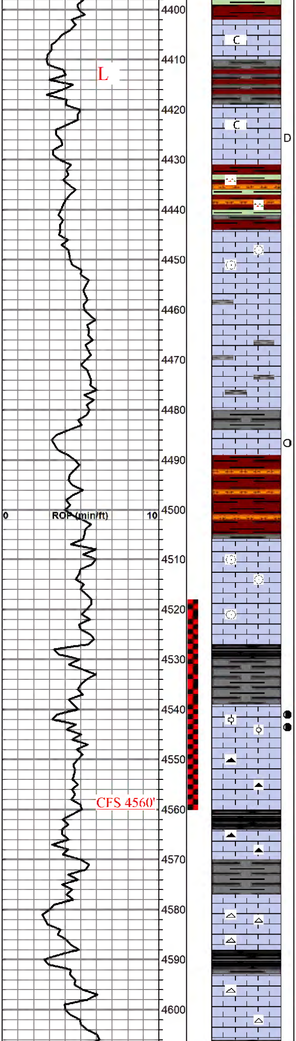
Kelly hose broke, had to trip out of hole @4190'

DST #1
LKC H-J
4273' - 4353'
30-45-30-45

IH	**2135#**
IF	**19-21#**
	Built to 1 in
ISI	**747#**
	Dead
FF	**23-25#**
	Dead
FSI	**587#**
	Dead
FH	**2121#**
BHT	**125 deg F**

Recovery:
15' Mud w/ tr oil

J-zone kick
10 GU



Ls - Tan, fn-subxln w/ scat poor pinpoint interxln por, barren, chalky

Sh - Gry-brn

Ls - Offwh-tan, fn xln w/ poor scat intcrxln por, lt tarry dead oil st in a few rxs, mostly barren, nsfo, no odor, sl chalky,

BKC 4431' -1170

Sh - Red-brn-grn, clr-orange chert, scat dns sltst

Marmaton 4444' -1183

Ls - Lt gry-tan, subxln, dns, sl fossil in part

Ls - Lt gry, sub-microxln, very dns, sl mottled w/ gry sh in part

Ls - ala

Sh - Gry-brn

Ls - Offwh-tan, fn-sublxln, ool in part w/ poor scat ooc por, 1 pc w/ very lt brn oil st, nsfo, no odor, mostly barren

Sh - Red-brn-gry, much sltst mottled w/ brn-red shale

Ls - Tan-lt gry, subxln, dns, sl fossil in part

Ls - ala

Sh - Blk, carb

Sh - Gry

Pawnee 4538' -1277

Ls - Offwh, fn xln, ool pkst in part w/ poor-scat fair ooc por, lt-fair oil st in por, few spots lt sat, fsfo, many gas bubbles, gsfo on cup, lt-fair odor, good yel fluor, good cut

Ls - Tan-lt gry, subxln, dns, much fossil chert-tan-gry

Sh - Blk carb

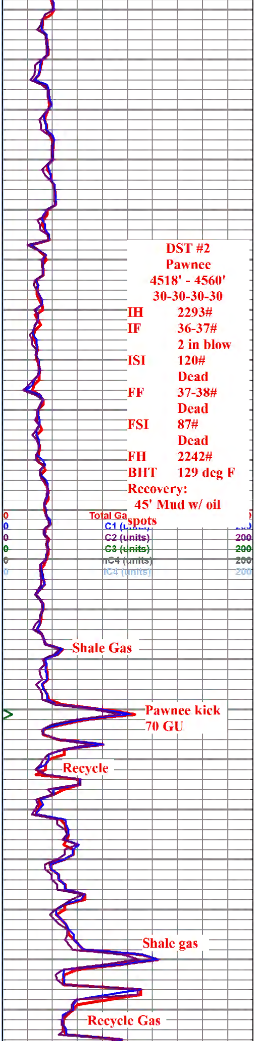
Ls - Offwh-tan, fn xln w/ poor interxln por, barren, heavy blk chert

Ls - Tan, fn-subxln, ool in part w/ poor scat interxln por, barren, heavy lt gry-wht chert

Sh - Blk. carb

Fort Scott 4594' -1333

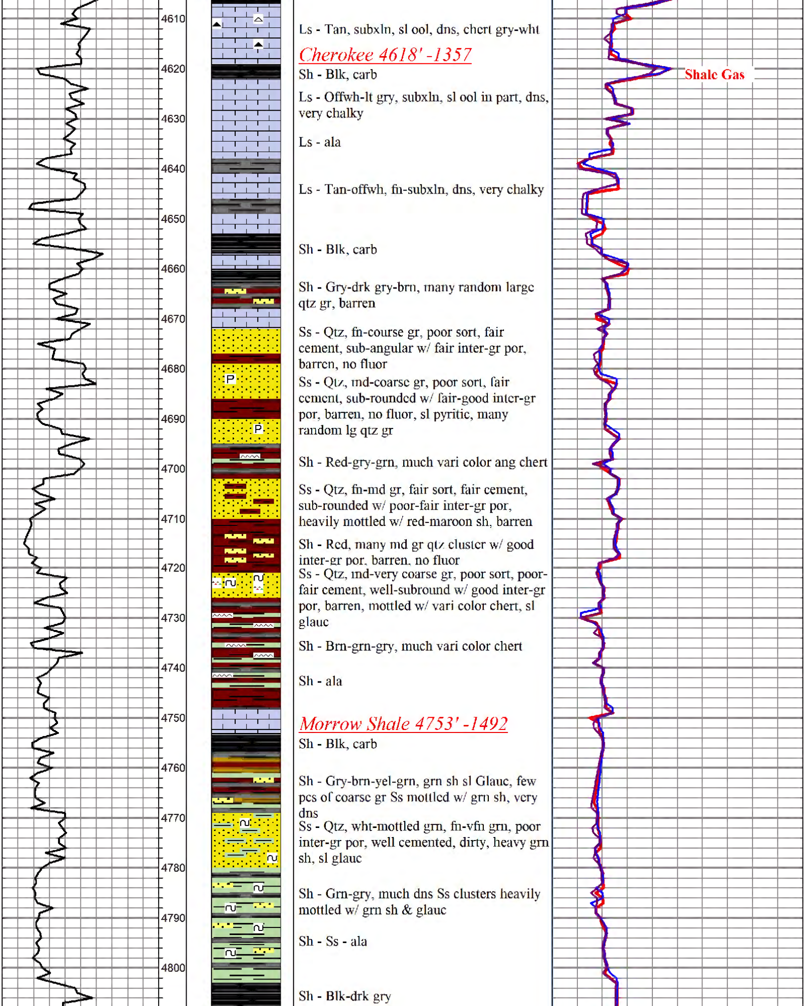
Ls - Tan, subxln, ool in part, dns, chert-gry-drk gry



DST #2
Pawnee
4518' - 4560'
30-30-30-30

IH	**2293#**
IF	**36-37#**
	2 in blow
ISI	**120#**
	Dead
FF	**37-38#**
	Dead
FSI	**87#**
	Dead
FH	**2242#**
BHT	**129 deg F**

Recovery:
45' Mud w/ oil spots



Ls - Tan, subxln, sl ool, dns, chert gry-wht

Cherokee 4618' -1357

Sh - Blk, carb

Ls - Offwh-lt gry, subxln, sl ool in part, dns, very chalky

Ls - ala

Ls - Tan-offwh, fn-subxln, dns, very chalky

Sh - Blk, carb

Sh - Gry-drk gry-brn, many random large qtz gr, barren

Ss - Qtz, fn-course gr, poor sort, fair cement, sub-angular w/ fair inter-gr por, barren, no fluor

Ss - Qtz, md-coarse gr, poor sort, fair cement, sub-rounded w/ fair-good inter-gr por, barren, no fluor, sl pyritic, many random lg qtz gr

Sh - Red-gry-grn, much vari color ang chert

Ss - Qtz, fn-md gr, fair sort, fair cement, sub-rounded w/ poor-fair inter-gr por, heavily mottled w/ red-maroon sh, barren

Sh - Red, many md gr qtz cluster w/ good inter-gr por, barren, no fluor

Ss - Qtz, md-very coarse gr, poor sort, poor-fair cement, well-subround w/ good inter-gr por, barren, mottled w/ vari color chert, sl glauc

Sh - Brn-grn-gry, much vari color chert

Sh - ala

Morrow Shale 4753' -1492

Sh - Blk, carb

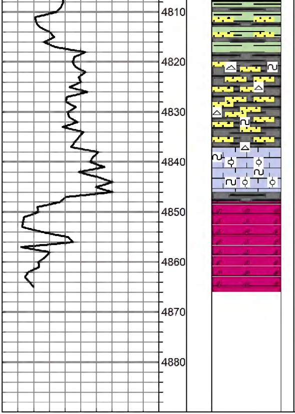
Sh - Gry-brn-yel-grn, grn sh sl Glauc, few pcs of coarse gr Ss mottled w/ grn sh, very dns

Ss - Qtz, wht-mottled grn, fn-vfn grn, poor inter-gr por, well cemented, dirty, heavy grn sh, sl glauc

Sh - Grn-gry, much dns Ss clusters heavily mottled w/ grn sh & glauc

Sh - Ss - ala

Sh - Blk-drk gry



Sh - Grn-gry, many coarse gr Ss clusters w/ fair inter-gr por, Ss is mottled w/ grn sh, friable in part

Sh - Gry-grn, much dirty-shaly Ss, Ss clusters are heavily mottled w/ gry-grn sh, barren, glauc in part, heavy clr-orange chert

Sh - Ss - ala

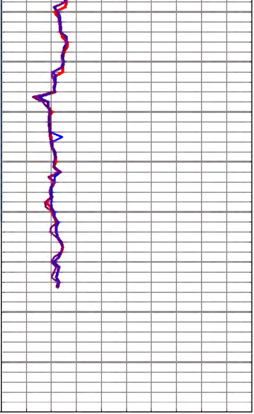
Ls - Tan-lt gry, fn-subxln, ool in part, glauc, very dns

Mississippian 4848' -1587

Dolo - Offwh-lt gry, fn suc xln in part w/ fair-good interxln por, barren

Dolo - ala

Total Depth 4865' -1604

Respectfully Submitted,
Jason T Alm
10-18-2019
AAPG #10134582