HARDROCK
Consulting, Inc.

Geologic Report

Drilling Time and Sample Log

Operator **StrataKan Exploration, LLC.**

Lease **Gaskill Range-Bertrand Unit** No. **5-1**

API # **15-109-21524-0000**

Field **Wildcat**

Location **56' FSL & 2048' FWL**

Sec. **5** Twp. **12s** Rge. **33w**

County **Logan** State **Kansas**

Elevation
KB 3172'
DF
GL 3167'

Casing Record
Surface
8 5/8" @ 260'
Production
5 1/2" @ 4788'

Electrical Surveys
CNL/CDL, DIL
MEL, BHCS

Formation	Log Tops	Sample Tops	Struct Comp
Anhydrite	2656' +516	2660' +512	-1
Base	2679' +493	2680' +492	
Topeka	3848' -676	3848' -676	
Heebner	4071' -899	4073' -901	+2
Toronto	4096' -924	4099' -927	+4
Lansing	4109' -937	4112' -940	+4
BKC	4409' -1237	4411' -1239	
Marmaton	4445' -1273	4446' -1274	
Pawnee	4539' -1367	4539' -1367	+1
Fort Scott	4593' -1421	4597' -1425	+6
Cherokee	4622' -1450	4626' -1454	+7
Johnson	4666' -1494	4670' -1498	+7
Morrow	4716' -1554	4720' -1548	
Mississippian	4732' -1560	4736' -1564	+6
Total Depth	4789' -1617	4790' -1618	

Reference Well For Structural Comparison **Abercrombie Drilling Inc. Bertrand D #1**
330' FSL & 2310' FEL Sec. 5 T12s R33w Logan County, Kansas

Drilling Contractor	**WW Drilling, Inc. Rig #2**		
Commenced	**9-8-2017**	Completed	**9-18-2017**
Samples Saved From	**3700'**	To	**RTD**
Drilling Time Kept From	**3800'**	To	**RTD**
Samples Examined From	**3800'**	To	**RTD**
Geological Supervision From	**3850'**	To	**RTD**

Displacement **3650'** Mud Type **Chemical**

Summary and Recommendations

The location for the Gaskill Range-Bertrand Unit #5-1 was found via 3-D seismic survey. The new well ran structurally as expected via the survey. Three Drill Stem Tests were conducted, one of which recovered commercial amounts of oil from the Cherokee / Johnson Zone. After all gathered data had been examined the decision was made to run 5 1/2 inc production casing to further evaluate the Gaskill Range-Bertrand Unit # well.

Respectfully Submitted,

Jason T Alm
Hard Rock Consulting, Inc

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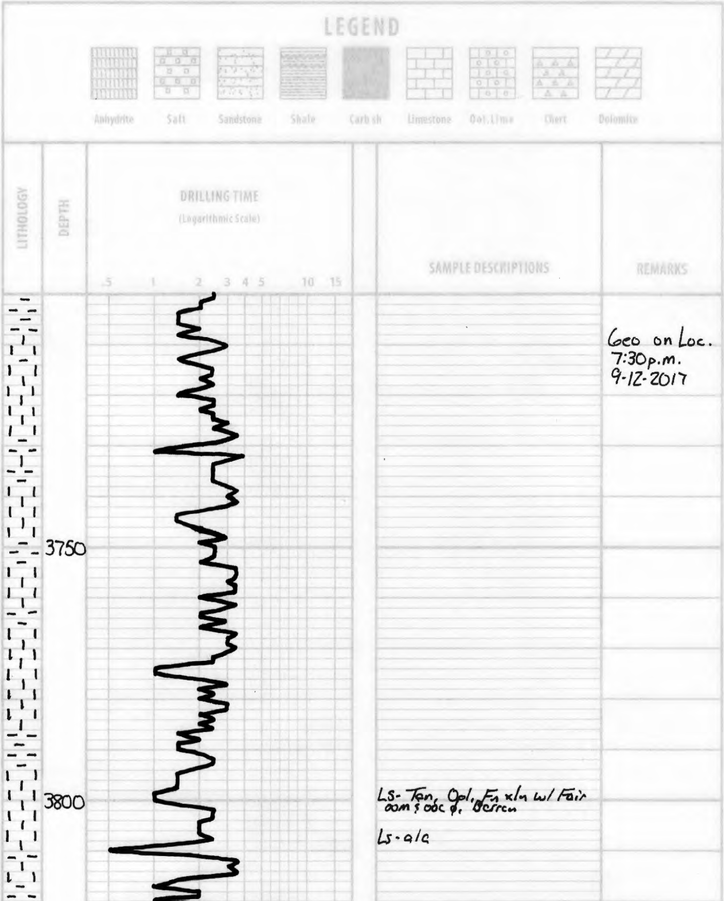
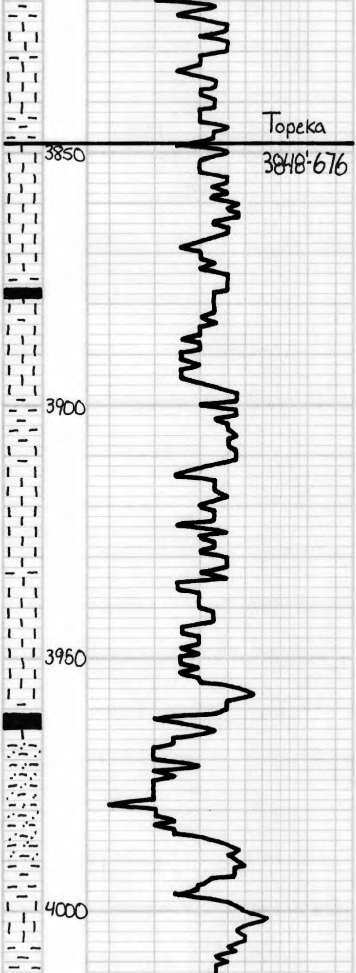
5-1



Geo on Loc.
7:30p.m.
9-12-2017

LS- Tan, Ool, Fn xln w/ Fair oom & obc φ, Barren

Ls - a/a



Ls- Tan-Lt. Gry, Subxln, DNS, Sl. Ool.

Ls- a/a

Sh- Gry-Brn

Ls- Tan-Lt. Gry, Subxln, DNS

Ls- a/a

Sh- Drk Gry

Ls- Tan, Fn xln, Ool. w/ Poor Ooin : ooc ϕ, Barren

Sh- Brn-Gry-Grn

Ls- Tan, Fn-Subxln, Ool. in Part w/ Poor ooc ϕ, V. Chalky

Sh- Drk Gry

Ls- Tan, Fn xln, Ool. w/ Poor-Fair interxln : ooc ϕ, Barren, Chalky

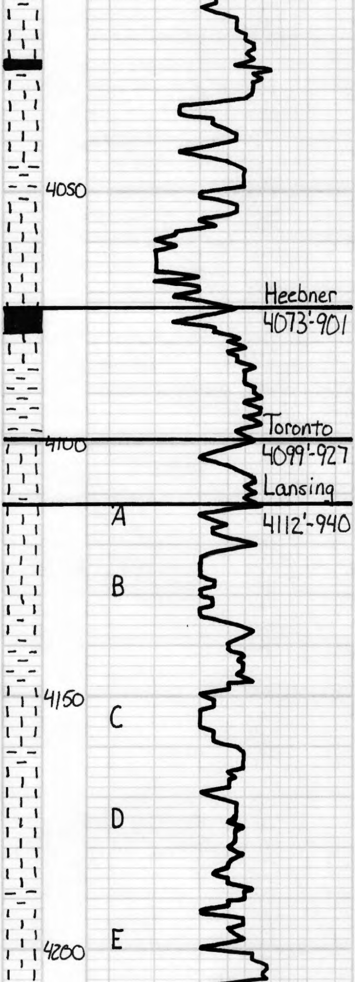
Sh- Drk Gry-Blk

Sh: Sltst Gry-Grn

Sh- Grn-Gry

Ls- Tan, Subxln, DNS

Sh- Gry-Brn



Ls- Tan, Subxln, DNS

Sh-Drk Gry- Blk

Ls- Tan, Fn-Subxln, Ool. w/ Poor-Fair oom : ooc φ, Barren, Chalky

Ls- Tan, Fn xln, Ool. w/ Fair oom : ooc φ, Barren

Sh- Blk, Carb.

Ls- Tan, Subxln, DNS

Sh- Brn - Grn

Ls- Tan, Fn xln, Ool. w/ Poor-Fair oom φ, Barren

Ls- Tan, Fn- Subxln, Ool w/ Poor oom : ooc φ, Barren

Ls- Tan - Offwh, Fn xln, Ool. PKST w/ Poor - Fair scat oom : ooc φ, Barren

Sh- Brn- Gry

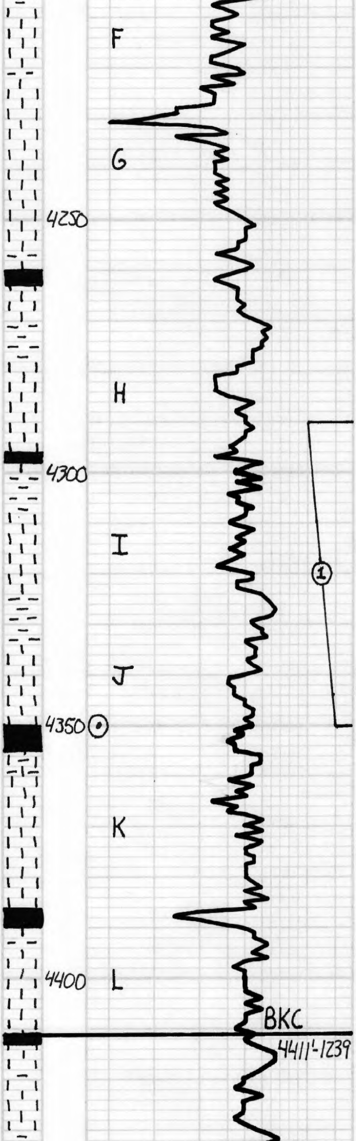
Ls- Tan, Fn- Subxln, Ool w/ Poor-Fair oom : ooc φ. Barren. Chalky

Sh- Brn

Ls- Offwh- Tan, Fn-Subxln, Sl. Ool w/ Poor Scat oom φ. Barren, Chalky

8 Ls- Tan, Fn xln, Ool w/. Poor oom φ; Lt Scat oil St in φ, NSFO, No Odor, Sl. Chalky

4 Ls- Tan, Fn-Subxln w/ Scat. Poor vugsy φ, Lt tarry oil st in φ. Mostly Barren



Ls- Tan-Offwh, Fn x/n, Ool. w/ Poor-Fair oom φ, Few Pcs w/ Terry oil st in ool, Mostly Barren

Ls- Offwh- Wht, Fn x/n, Ool PKST w/ Good oom φ. Barren

Ls- Offwh- Tan, Fn-Subx/n, Ool PKST in Part, DNS

Ls- a/a

Sh- Blk, Carb.

Ls- Tan- Lt. Gry- Sl. Mottled, Fn-Subx/n, DNS

Sh- Brn- Gry- Grn

Ls- Tan, Fn x/n, Ool. w/ Poor Scat. oom φ. Barren, Δ- Tan- Wht

Ls- a/a, DNS

Sh- Drk Gry

Sh- Brn- Grn

● 20 Ls- Offwh, Fn x/n, Ool. w/ Poor ooc φ, Lt-Fair spt oil stn in φ, NSFO, No Odor, Dull Yel Fluor. Few Vis Gas Bubbles

Sh- Brn- Gry

● 19 Ls- Offwh- Tan, Fn x/n, Ool. w/ Scat. Poor oom φ, Lt Brn oil stn φ, Sl. SFO when broken, Dull Yel Fluor.

32 Sh- Blk, Carb.

Ls- Tan, Fn-Subx/n, Ool. in Part w/ Poor ooc φ, Barren

Ls- Tan- Lt. Gry- Mottled, Subx/n DNS

6 Sh- Blk, Carb.

Ls- Lt. Gry- Tan, Fn-Subx/n, DNS, Sl. Ool.

Ls- a/a

Sh- Drk Gry- Blk

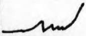
Ls- Brn- Lt. Gry, Subx/n, DNS

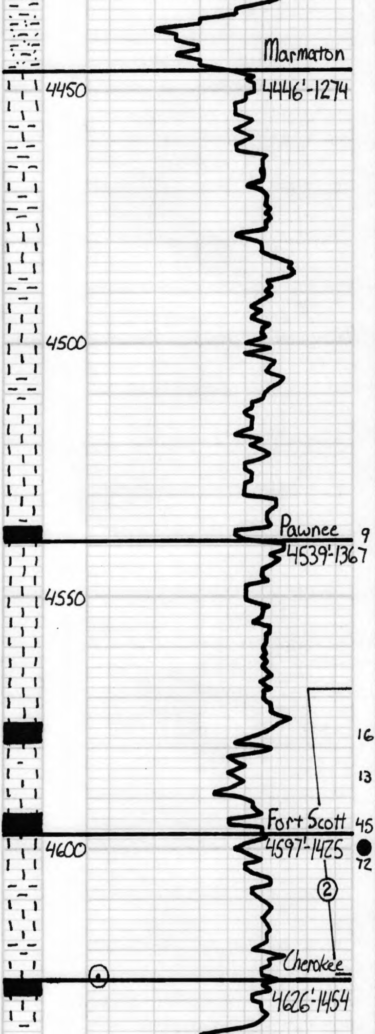
DST #1

LKC "I-J"
4290'-4350'
30"-30"-30"-30"

IH	2142#
IF	17-17# Built to 1/2
ISI	125# Dead
FF	17-40# Dead
FSI	308# Dead
FH	2112#
BHT	117°F

Recovery:
10' Mud





Sh- Gry-Grn

Sh- Brn-Gry, V. Fn Gr. Sltst

Ls- Lt. Gry-Tan, Sl. Mottled w/ Gry-Grn sh

Sh- Brn

Ls- Offwh-Lt. Gry, Subxln, DNS

Sh- Brn

Ls- Tan-Offwh, Fn-Subxln, DNS, Sl. Ool.

Sh- Brn-Gry

Ls- Offwh-Tan, Subxln, DNS

Ls- a/a

9 Sh- Dk Gry- Blk

Ls- Offwh-Lt. Gry, Subxln, DNS
Δ- Wht-Lt. Gry

Ls- a/a

16 Sh- Blk, Carb.

13 Ls- Offwh-Lt. Gry, Fn-Subxln, Δ- Wht- Blk, Few Pcs w/ lt Yel Fluor, No Oil Shows, DNS

45 Sh- Blk, Carb.

● Ls- Tan, Fn xln, Ool, PKST w/
72 Poor- Fair ooc Ø Lt-Fair oil St- Sat in Ø, Sl SFO when broken, Few Gas Bubbles on break Lt-Good Yel Fluor, Good Cut

Ls- Tan, Fn-Subxln, Ool, in part, DNS, Δ- Dol- Wht-Gry-Blk

Ls- a/a

Sh- Blk, Carb.

Ls- Tan, Subxln, Ool. DNS

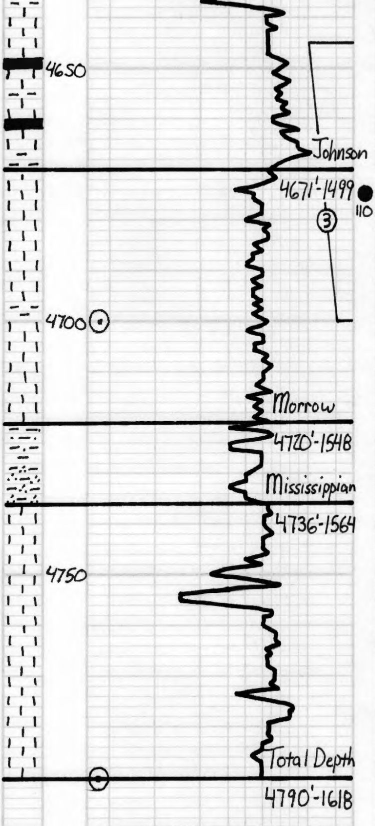
DST#2

Fort Scott/Myrick
4568'-4625'
30"-30"-30"-30"

IH	2316#
IF	15-18# Built to 1in
ISI	61# Dead
FF	19-23# S.B.
FSI	42# Dead
FH	2281#
BHT	121°F

Recovery:
16' OCM
10% Oil

DST#3



Ls- Tan, Subxln, Ool. PKST, DNS

Sh- Blk, Carb.

Sh- a/a

Sh- Brn-Grn

Ls- Tan, Fn-Subxln w/ Poor-Scat Fair Vugy ϕ, Lt-Fair Oil St w/ Few Pcs w/ Good Sat, SFO on cup, Lt Odor, Good Yel Fluor, Good Cut

Ls- a/a, Muchless ϕ, Still has shows

Ls- a/a, Few Rxs w/ Good sat, Mostly DNS

Ls- Offwh-Tan, Subxln, DNS Sl. Mottled w/ Gry Sh

Sh- Grn-Gry, Few Dirty Ss clusters, Barren, Glauc in Part

Ss- Qtz, Clr, Fn-V. Fn Gr, Heavily Mottled w/ Gry-Grn Sh, Glauc.

Ls- Offwh-Tan, Subxln, Sl. Dol., DNS

Ls- Offwh, Fn-Subxln, Ool. PKST w/ Poor-Fair oom ϕ, Barren, No Odor, No Fluor.

Ls- Offwh-Tan, Subxln, Sl. Dol. DNS

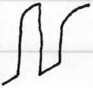
Ls- a/a w/ Poor oom ϕ, Barren

Ls- a/a

Johnson
4645'-4700'
30"-45"-45"-60"

IH	2352#
IF	61-178# BOB 3 min
ISI	1038# BOB 15 min
FF	203-314# BOB on open
FSI	1014# BOB 40 min
FH	2295#
BHT	131°F

Recovery:
GTS on FSI
780' GCO 27°
120' GOCM
25% O.



Respectfully,
9-18-2017