

GEOLOGIST'S REPORT
DRILLING TIME & SAMPLE LOG

COMPANY Berexco LLC

LEASE J-G Unit NO. 1-13

LOCATION 2521 FSL + 1085 FWL

SEC. 13 TWP. 22 S RANG. 39 W

COUNTY Hamilton STATE Kansas

FIELD Wildcat

CONTRACTOR Berexco Drilg. Rig #1

COMM. 8-17-13 COMP. 8-31-13

RTD 5425 LTD 5418

No. of DST'S One No. of CORES None

SAMPLES SAVED FROM 3500 TO TD

DRILLING TIME KEPT FROM 3500 TO TD

SAMPLES EXAMINED FROM 3500 TO TD

GEOLOGICAL SUPERVISION FROM 3500 TO TD

GEOLOGIST ON WELL Edwin H. Brieves

FORMATION TOPS

FORMATION TOPS	SAMPLE	LOG	SURSEA
<u>Base Heebner</u>	<u>3974</u>	<u>3972</u>	<u>534</u>
<u>Loronto</u>	<u>3987</u>	<u>3983</u>	<u>545</u>
<u>Lansing Fm.</u>	<u>4024</u>	<u>4018</u>	<u>580</u>
<u>Base KC</u>	<u>4500</u>	<u>4419</u>	<u>1083</u>
<u>Marxston</u>	<u>4545</u>	<u>4533</u>	<u>1095</u>
<u>Pawnee</u>	<u>4645</u>	<u>4627</u>	<u>1189</u>
<u>Ft Scott</u>	<u>4681</u>	<u>4671</u>	<u>1233</u>
<u>Cherokee</u>	<u>4689</u>	<u>4681</u>	<u>1243</u>
<u>Morrow Fm</u>	<u>4993</u>	<u>4975</u>	<u>1537</u>
<u>Mississippi</u>	<u>5112</u>	<u>5120</u>	<u>1781</u>
<u>TD</u>	<u>5425</u>	<u>5418</u>	



AP#15-075-20873

ELEVATIONS
KB 3438
DF 3435
GL 3425
MEASUREMENTS ARE ALL FROM KB

CASING RECORD
8 5/8" 1083 w/ 91.

EL. LOG A.C. Res. SPR
DEM-NET-GR. Caliper
ML. Sonic

REMARKS Earth-Tech had an unmanned gas detection trailer on this well from 3500 to total depth.

Hole has extreme wash outs, samples 10 to 20 feet late and string for 40 to 60 feet.

Note: E-log 7 to 10 ft high to Geological Log

*Thank you,
Edwin H. Brieves
Geologist*

LITHOLOGY

- SANDSTONE
- LIMESTONE
- SHALE
- CHERT

- SILTSTONE
- DOLOMITE
- GRANITE WASH
- ANY & GIP

CHROMATOGRAPH

HOT WIRE BY
TOTAL GAS VOLUME

- C1 = METHANE
- C2 = ETHANE
- C3 = PROPANE
- C4 = ISOBUTANE
- C5 = BUTANE
- C6 = ISOPENTANE
- C7 = PENTANE

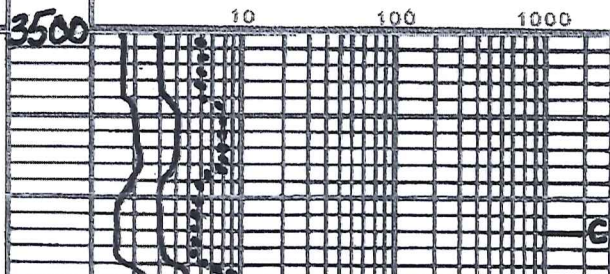
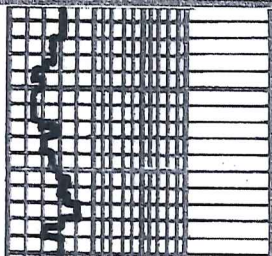
DRILL TIME SCALE

5 10 15

SAMPLE DESCRIPTION

GAS SCALE

10 100 1000



5 10 15

3500

10

100

1000

Note: 3500-3700
Samples ARE
Extremely POOR

Interbedded Thin Gradational
Limestones + Shales

3600

① Lms trs to 2bn wht to crm-chlk
IPs + CRM to TR; crypto to v. fr.
xln; sub-chlk, sub-sucra and
packstn; sl. to fdy. oolitic IP's
+ OR sl. to v. ool. castic IP's.;
dul. lt. to lt. yel. fluor.; No Lut;
IP's pr. fr. to good + TRS excel
oolitic POR + TRS w/ pr. to
fr. micro-por.

② Lms. lt. to med gray; sl. to extrly
shly. gradng to extrly calc shs.;
crypto. to sl. trs. uv. fr. xln.
sub-chlk for shly; sl. trs. sub-sucra
+ packstn; No fluor.; No Lut; No vis por

③ Shs. med. gray; sl. to extrly calc.
gradng to shly. Lmsts. for
sl. to v. silty gradng to shly
siltstn. lt. to med gray

Note: No Samples From
3600 to 3680 while
Displacing Hole

3700

Trap Check

WOB 34000
RPM 80-85
SPM 60
PP 1000

3800

Sh. med to v. drk gray - calc to v. drk. gray to black - carb

Interbedded or Gradational Limestones + Shales Similar 3500-3876

Lms. tes. wht. to crn. - chlk + Tan. gray IP's crypto. to v. v. fn. xln; tes. sub. chlk; sub-sucro to v. sucro; phantom oolitic IP's dul. yel + dul. ft. to lt. yel. fluor; No cut 2bn. pr. to tr. + tes. qd. micro pp por + prob. 2bn. inter xln por

Lms similar 3921-3929 w/ not as much apparent porosity

Sh v. drk. gray to black - carb
Sh lt. gray, greenish IP's to lt. green; silty. IP's

Sh similar 3974-3987 becoming extly calc
Lms. tes. wht. to crn. - chlk + Tan; tes crypto to v. v. fn. xln; tes sub. chlk; sub-sucro to extly sucro. + tes. med to coarse, wht to clear calc. + tan. dul. ft. to lt. yel. fluor; No cut. tr. pr. to fr. micro-pp por + prob. inter xln por w/ tes. chert wht to lt. gray opque

4006-27 Interbedded Limestones
(1) Faster Dlg Lms similar 3991-4006
(2) Slower Dlg Lms lt. gray to tan; tes. to v. fn. xln; tes. sub. chlk; sub-sucro to v. sucro; phantom oolitic IP's dul. yel. fluor; IP's No cut; No vis. por
Sh med to v. drk gray to black
Lms. grayish. tan to tan; crypto. to v. v. fn. xln sub-sucro to v. sucro; dul. ft. to lt. yel. fluor; No cut; No vis. por.
Lms. tan; v. v. fn. to v. v. xln; sub-sucro to extly. sucro.; phantom oolitic to oolitic dul. yel. fluor; No cut; abn. ph. sic. to qd. micro-pp to inter xln por.

Lms. similar 4024-4033

Lms. tes. to hvy tes. wht. to crn. - chlk to lt. tan; crypto to v. v. fn. xln; sub. chlk sub-sucro to sucro; dul. ft. to lt. yel. fluor; No cut; 2bn. pr. to tr. + tes. qd. micro-pp por + prob. inter xln por w/ tes. chert wht to v. lt. gray; w/ tes. foss IP's; opque

Lms lt. gray, tanish IP's; crypto. to

3800

E2

12.4

3900

Com Gas 14.4

WOB 3000
RPM 85
SPM 60
PP 1000

TRAP CHECK

Base Heebner 3884-535

Toronto 3587-549

4000

Lansing Fm 4024-586

E2

12.4?

Lms. similar 4024-4033

Lms. tan. to hv. tan. wht. to cream-chlk to H. tan; crypto to v.v. fn. xln.; sub-chlk sub-sucro to sucro; dul. H. to H. yel. fluor.; No cut; 2 bu. pr. to tr. + trs. gd. micro-pp por + prob interxln. por lls w/tes chert wht. to v. H. gray, w/tes foss IP's; opaque

Lms. H. gray, tanish IP's; crypto. to v.v. fn. xln.; sub-sucro to packstn dul. yel. fluor. IP's; No cut; No vis for

Interbedded Limestones

4100

① Faster Drlg Lms. tan. wht to cream-chlk + tan; v.v. fn. to v. fn. xln.; sub-sucro to sucro; 2 bu. phantom oolitic to oolitic + tan. phantom oolitic; trs. foss. IP's dul. yel. to tes yel. fluor.; No cut; 2 bu. pr. to tr. + trs. gd. to excel. pp. micro-pp to interxln. for.

② Slower Drlg Lms. grayish-tan to tan; crypto. to v.v. fn. xln.; sub-sucro to packstn. dul. yel. fluor.; No cut No vis for

Lms. H. gray to tan; crypto. to v.v. fn. xln. tes. sub-sucro. + packstn.; sli. tes. med. wht. to clear calc. xls + frzgn. IP's; dul. H. to H. yel. fluor.; No cut; No vis for. w/tes chert wht to tan opaque

WOB 31000-36000
RPM 80-85
SRM 60
PP 1000

Interbedded Lms. + scattered thin Shs

4200

① Faster Drlg. Lms. tan, crypto. to v.v. fn. xln. sub-chlk, sub-sucro to sucro; dul. yel. to yel. fluor.; No cut; hv. tes. pr. to tes. tr. micro-pp por + poss interxln. por IP's

② Slower Drlg. Lms. grayish-tan to tan; crypto. to v.v. fn. xln.; sub-sucro + packstn. dul. yel. fluor.; No cut No vis for.

③ Prob. thin scattered Shs med. to dark gray; calc. IP's.

Sh med. to v. dark gray

Lms. similar #2 (4196-4254)
Lms. tes. wht to cream-chlk + tan; crypto. to v.v. fn. xln.; v. oolitic to sli. oolitic; matrix sub-chlk, sub-sucro + packstn. dul. H. to yel. fluor.; No cut; trs. pr. to sli. tes. fr. micro-pp. por.

Lms. tes. H. gray-chlk + grayish-tan to tan; crypto. to v.v. fn. xln.; tes. sub-chlk; sub-sucro + packstn. w/tes. sub-lithogr. phantom oolitic IP's; dul. H. to H. yel. fluor. No cut; No vis for. w/poss scattered thin Shs; med. to v. dark gray; calc. IP's

4300

Lms. tes. wht to cream-chlk + tan crypto to v.v. fn. xln.; sub-chlk sub-sucro to sucro; phantom oolitic IP's; dul. yel. fluor.; No cut; 2 bu. pr. to tr. + trs. gd. micro-pp to interxln. por

Lms. similar 4272-4321

Lms. grayish-tan to tan; crypto to v.v. fn. xln.; v. oolitic to sli. oolitic; matrix sub-sucro + packstn. dul. yel. to yel. fluor.; No cut; hv. tes. pr. oolitic, pp. + micro-pp por

Lms. tes. wht to cream-chlk + tan; crypto to v.v. fn. xln.; v. oolitic to sli. oolitic; matrix tes. sub-chlk; sub-sucro to sucro; 2 bu. pr. to tr. + trs. gd. to interxln. por

TRAP CHECK

IPs, dul. yel. fluor.; Nolcut, 2bn. pct to
+ tres. gl. MICRO-qa. to interxln. por
Lms. similar 4272-4321

Lms. grayish. tan to tan; crypto to
v. v. fn. xln.; v. oolitic for sl. oolitic;
matrix sub-sucro. packstn. dul yel. to
yel. fluor.; Nolcut; huy. tres. pr. oolitic, pp.
+ micro-pp por

Lms. fns. wht. to crm. sh. lgt tan; crypto to
v. v. fn. xln.; extly ool. castic for sl.
oolitic; matrix tres sub-chlk, sub-sucro
+ packstn. dul. H. yel. fluor.; Nolcut tres por

Lms. grayish. tan to tan; crypto to v. v. fn. xln.;
to packstn. v. dul. H. yel. fluor.; Nolcut
No Vis. Por w/ tres chert gray to tan; arguc
sh v. drk. gray to black - carb
sh med to v. drk. gray - sl. to extly calc

Interbedded for Gradational Limestn.
Lms. tan; crypto. to v. v. fn. xln.; sub-chlk,
sub-sucro, packstn. tres sub-lithogr
dul. H. yel. to dul yel. fluor.; Nolcut, No Vis. Por

Lms. lt. gray. to grayish tan; crypto to
v. v. fn. xln.; tres sub-chlk, sub-sucro
+ packstn.; dul. H. yel. fluor.; Nolcut
No Vis. Por.

Interbedded for Gradational Limests
similar 4380-4416 w/ huy
tres to v. zbn. lt. gray, crm. to
tan-chlk

Sh H, med to drk gray; sl. to extly
calc grading to shly l msts;
very silty IP's

Lms. lt. to tres med gray, tanish IP's
to tres tan; crypto to v. v. fn. xln.;
tres. sub-sucro., packstn. to
zbn. sub-lithogr.; huy. tres.
dul. H. yel. fluor.; Nolcut
No Vis Por

TRAP CHECK

BLK SH THK

Base Kansas City
4500-1062

Marmaton
4545-1107

TRAP CHECK

WOB 36000
RPM 80
SPM 60
PP 1000

(2)

WOB 35000
RPM 90
SPM 60
PP 1000

Sh med. to v. drk gray - sh. to fely calc. TP3

PAWNEE
4645-1207 = C

Lms. similar 4545-4640

FISCOIT
4681-1243

Sh v. drk. gray to black - carb.

BLK SH 126

Lms similar 4545-4640

Sh v. drk gray to black - carb.

BLK SH 116
Cherokee Fm
4689-1257

4700

Interbedded or Gradational
Limestones & Shales

4800

① Lms grayish tan to tan; crypto to v. v. fu. xln.; trs. sub-chlk, sub-succo pckstn & trs. sub-lithogr.; dul H. yel to dul. yel. fluor; No Cut; No Vis For.

② Lms H. gray to tan med gray - sh. to fely shly.; crypto to v. v. fu. xln.; trs. sub-chlk for shly.; pckstn & sub-lithogr.; v. sh. trs. sub-succo.; No fluor; No Cut No Vis For.

③ Sh med to v. drk gray - sh. to extly. calc.

④ Sh v. drk gray to black - carb
Note V. Abu Red & Green Shales in Samples Prob. From Above

4900

4900

MORROW FM
4993-1555

Sh. v. drk gry. to black-carb

WOB 35000
RPM 70-75
SEM 54
PP 800

5000

Shale med. gry to drk gry splintery
greenish lps to trs H green and
olive grn w/ sl. trs Sdst v.v. fine
ang w/ med gry sh. filling &
sl. trs Sdst. trn; v.v. fine, ang.
v. to extra clay filled; w/ drk gry
mineral qns lps + huy. finely
disseminated muscovite micz;
No fluor; No cut; No vis pore

Sh med. gry-trs w/ silky luster
and drk gry-splintery;
sl. to very pyritic

Lms. H. to med gry totan; crypto. to
v.v. fine. xlu; huy. trs to abn Lm trs
+ foss frags w/ trs oolites;
matrix trs chlk, sub-chlk,
pach. trn. + trs, sub-lithogr.
trs. dul. H. vel. fluor; No cut; No vis pore
Sample 97 to MORROW Sh !!

Interbedded Shs & Limestones
① Shs similar 5029-5055
② Lms similar 5055-5077

5100

Lms. similar 5055-5077

Shales w/ prob thin interbeds
Limestones
① Shs similar 5029-5055
② Lms similar 5055-5077

DS
T
#



Sdst Qtz wht to off wht v.v. fine to fine
w/ trs med to coarse carb

5200

Can Gas
600

#2 Lms similar 5055-5077

SdSt Qtz wht to off wht v.v. fn to fn. gr
w/ tr med. to coarse gas, aug. j
v. poorly to fr. trs good sort
zbn. clay filling; sl. trs glauc. IPS
No fluor; No cut; trs fr. good rate gr.
POR; hv trs loose Qtz gas, aug. etc
to sl. frosted

Lms tan; crypto. to v.v. fn. xln
frly to extly oolitic (sm, med + lg)
matrix trs sub-chalk, sub-sucro
+ packstn; du. Hye/ to du. yel
fluor; No cut; No vis POR

Lms trs sl. to fully dolomitic; tanto
drk. tan, grayish IPS; crypto to
v.v. fn. xln; zbn oolitic (sm, med + lg)
to phantom oolitic ledites revbeds
matrix trs. sub-chalk, sub-sucro
+ packstn; hv trs to zbn du. yel
fluor; No cut; No vis POR; v. sl. trs
chert gray to tan, opaque

Lms H. gray to drk. tan; crypto. to
trs. v.v. fn. xln; trs sub-sucro,
packstn. to sub-lithographic;
v. sl. trs du. yel. fluor; No cut;
No vis POR

TD 5425

7 7/8 inch Bit Info: in out
@ New Smith F124 1083 5299
@ ReRun Smith F27IV 5299 5425 TD

Cir. Points:
1. 4970 4. 5015 7. 5220
2. 4990 5. 5030 8. 5299
3. 5000 6. 5050 9. 5425

Dev. Surv:
1 1080 3/4 3. 3929-10 5. 5425 1/2 TD
2 2516 1/2 4. 5299-10

Daily Drilg. Progress:
1. 3337 At 7:00 AM 8-24-13
2. 3500 At 1:44 PM 8-24-13
3. 3925 At 7:00 AM 8-25-13

5200

5300

5400

Mississippi
5212 - 1974 - C

TRAP CHECK CFS

DST Lower Mord. Sd.
Straddle test 5190-5196
Flow depth 5172-5188
to Bob 2 min. Sp. = C
Flow to Bob 3 min. Strong
Flow
Total Rec. 2330 CF
170 MW. sl. to ool. chert
90% w/ 10% mud
530 MW. sl. to ool. chert
95% w/ 5% mud
530 MW. sl. to 15% mud
40% F124 F10 170 160
Ch 2300 100 100 350
HP 2720 #
100 177 to 758 in 30 min
151P 1236 # 100 min
Bit Trap #
5299 #
FEP 781-102353D = C
F1P 1238 # 100 min
FHP 2504 #

CFS

v. 21. TRS v. 21. TRS
No Vis POR

5400

TD 5425

7 7/8 inch Bit Info: in
 @ New Smith F124 1083 5299
 @ ReRun Smith F271YV 5279 5425 TD

Cir. Points:
 1. 4970 4. 5015 7. 5220
 2. 4990 5. 5030 8. 5299
 3. 5000 6. 5050 9. 5425

Dev. Surv:
 1. 1080-3/4 3. 3929-10 5. 5425 1/2 TD
 2. 2516 1/2 4. 5299-10

Daily Drig. Progress:
 1. 3337 At 7:00 AM 8-24-13
 2. 3500 At 1:44 PM 8-24-13
 3. 3905 At 7:00 AM 8-25-13
 4. 4313 At 7:00 AM 8-26-13
 5. 4709 At 7:00 AM 8-27-13
 6. 5000 At 7:00 AM 8-28-13
 7. 5241 At 7:00 AM 8-29-13
 8. 5388 At 7:00 AM 8-30-13
 9. 5425 At 7:00 AM 8-31-13

Mud Info:

Date	8-23 7:20A	8-24 12:45A	8-25 12:15P	8-26 11:30A	8-27 11:00A	8-28 11:30A	8-29 8:55A	8-30 8:30
Depth	2863	3470	4001	4395	4762	5019	5272	5425
Wt.	9.6	9.7	9.0	9.2	9.4	9.4	9.5	9.5
Vis	33	31	60	54	51	55	56	47
PV	-	-	18	17	16	17	17	15
YP	-	-	22	21	19	21	21	18
GS	-	-	16/45	14/40	14/37	15/40	16/42	12/35
WL	-	-	7.2	8.8	8.0	8.0	8.0	8.8
cake	-	-	1/32	1/32	1/32	1/32	1/32	1/32
pH	7.0	7.0	10.5	11.0	10.5	11.5	10.5	10.5
Chl	4000	23000	3000	4000	3800	3600	3400	3500
Ca	Huy	Huy	40	40	40	40	40	40
LCM	2	1	3	3	3	3	2	2

OPERATOR BEREXCO LLC LOCATION 2521' FSL + 1885' FWL
 LEASE J-G Unite NO. 1-13 SEC. 13 TWP. 22S RANG. 39W
 ELEVATION 3438 KB RTD 5425 COUNTY Hamilton STATE Kansas