



GEOLOGIST'S REPORT

DRILLING TIME & SAMPLE LOG

COMPANY Berexco LLC
 LEASE Elsie NO. 2-17
 LOCATION 700' FSL & 1665' FWL
 SEC. 17 TWP. 26S RNG. 33 W
 COUNTY Finney, STATE Kansas
 FIELD Ivanhoe

ELEVATIONS

KB 2938
 DF 2936
 GL 2926

MEASUREMENTS ARE
 ALL FROM KB

CONTRACTOR Beredco Drlg. Rig #1
 COMM. 11-05-2014 COMP. 11-20-2014
 RTD 5410 LTD 5423

CASING RECORD
8 7/8" of 1792 w/ 715 SX.
 ___ of ___ w/ ___ SX.
 ___ of ___ w/ ___ SX.
 ___ of ___ w/ ___ SX.

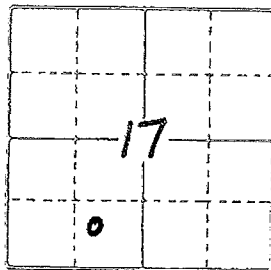
No. of DST'S Two No. of CORES None

EL. LOG Res. SP. GR
Den. Neut. GR. Caliper
ML Sonic Dipmeter

SAMPLES SAVED FROM 3800 TO TD
 DRILLING TIME KEPT FROM 3800 TO TD
 SAMPLES EXAMINED FROM 3800 TO TD
 GEOLOGICAL SUPERVISION FROM 3800 TO TD
 GEOLOGIST ON WELL Edwin H. Grieves

FORMATION TOPS

FORMATION	SAMPLE	LOG	SUBSEA
Base Heabnea	3934	3936	- 998
To Ronto	3949	3952	- 1014
Lansing Fm.	??	3981	- 1043
BKC	4519	4533	- 1595
Marmaton Fm	4540	4554	- 1616
Pawnee	4633	4640	- 1702
Ft. Scott	4670	4677	- 1739
Cherokee	4689	4694	- 1756
Morrow	4934	4940	- 2002
Chester	5076	5074	- 2136
St. Genevieve	5104	5122	- 2184
St. Louis	5154	5170	- 2232
TD	5410	5423	



API # 15-055-22356

REMARKS Earth-Tech had an unmanned gas detection trailer on this well from 3800 feet to total depth.

Note: Geolograph had a problem.

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 Berexco
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LITHOLOGY

	SANDSTONE
	LIMESTONE
	SHALE
	CHERT
	SILTSTONE
	DOLOMITE
	GRANITE WASH
	BARITE & GYP

CHROMATOGRAPH

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

HOT WIRE BY
 TOTAL GAS VOLUME

DRILL TIME
 SCALE

SAMPLE DESCRIPTION

GAS SCALE

LITHOLOGY



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

3800-3828 Lms. tan. H. gray. shaly & tan; crypto to v. fine sh.; tan sub-chk. trs. sub-sucro. packstn. + sub-lithog. dual. vel. fluor.; No cut; No vis. por.

3828-3920 Lms. h. gray. tan. to brown. wh. to cr. m. chlk. & tan; crypto. to v. fine sh. sub-chk. sub-sucro. to suc. po. and trs. packstn. dual. vel. to dual. H. vel. fluor. No cut; scattered trs. pr. micro. por.; w/ poss. inter. sh. por. IP's.

Lms. H. gray. shly. to gray. sh. to gray. sh. to v. fine sh.; sub-chk. to v. fine sh. No fluor.; No cut; No vis. por.
Sh. v. dk. gray to black-carb. lms. grayish. tan; crypto. to v. fine sh. & sub-lithog. dual. vel. fluor. No cut; No vis. por.

Sh. H. gray to H. green, silty IP's

3949 - ? Lms. H. gray; tanish gray. to grayish. tan; crypto. to v. fine sh.; sub-chk. to v. fine sh.; tan sub-sucro. & packstn. dual. vel. fluor. IP's; No cut; No vis. por.
P-3988 Lms. abn. wh. to cr. m. chlk. & tan crypto. to v. fine sh.; sub-chk. sub-sucro. to sucro. & trs. packstn.; dual. vel. to tan. vel. fluor. No cut; h. y. trs. to abn. pr. to tan. fl. micro. por.

3988 - 4018

Interbedded Lmsts & Shs
A) Lmsts. similar 3949-?
B) Sh med to dk. gray; v. to ext. pale.

4018 - ? Lms. abn. wh. to cr. m. chlk. & H. gray. to tan; crypto. to v. fine sh.; sub-chk. sub-sucro. to sucro. & trs. packstn.; dual. vel. to vel. fluor. No cut; abn. pr. to fr. micro. por. & prob. inter. sh. por.

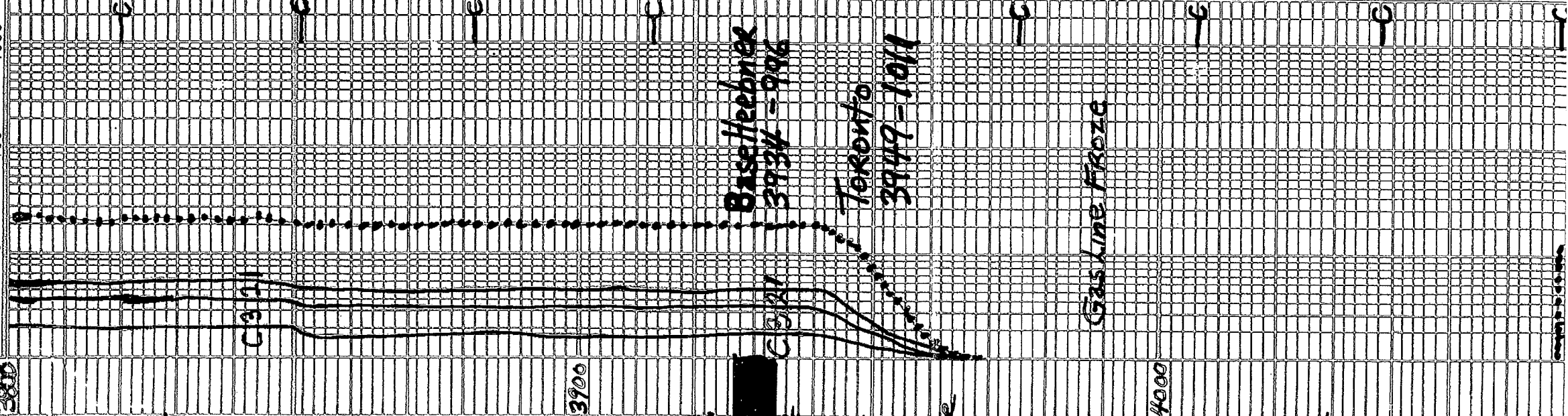
?-4055 Lms. similar 3949-?

3800

3900

4000

GAS SCALE
10 100 1000



!-4055 Lms. Similar 3949-5

No Drilling

4055-? Lms. abn. wht. to cream-alk & tan; v. u. fn. clay; sub-sucro to silt. succo.; yel. fluor. No cut abn. pr. fr. to g. micro-pp per & prob. interstr. per.

4100

?-4180 Inteebedded lms w/ scattered thin shales
① Faster. D. lg. similar 4055-?
② Slower. D. lg. similar 3949-?
③ Sh. med. to v. dek. gray calc & tan. v. dek. gray. to black

No Drilling

4180-4202 Lms. tan. wht. to cream-alk & lt. gray. to grayish. Fr. v. calc. to v. wht. v. to grayish. oolitic. No v. to ext. oolitic; matrix sub-sucro to tan. succo. & packed. to d. lt. yel. fluor.; No cut. abn. pr. to fr. to g. oolitic per 4055 interstr. per. 1 P

4200

4202-4230 Lms. similar 4180-4202 w/ much less oolitic & much more oolitic; without abn. pr. to tan. fr. oolitic per

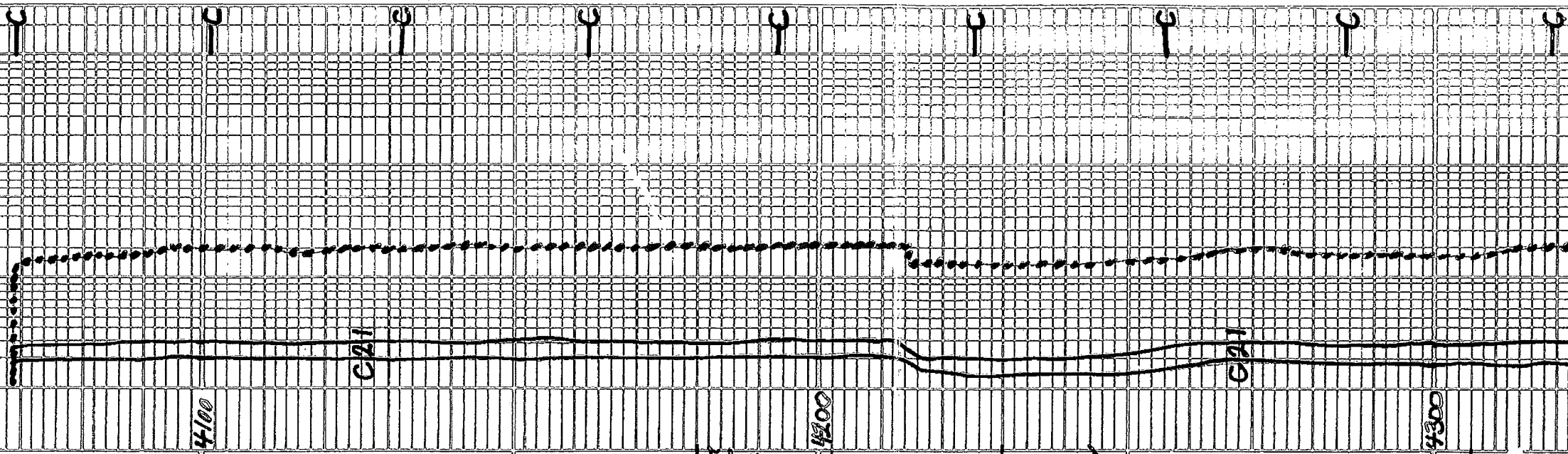
No Drilling

4230-4306 Interbedded lms & scattered thin shales
① Lms. tan. to wht. tan. wht. to cream-alk & lt. gray. to tan - Sh. 1 P sub-alk. wht. sub-sucro & pr. calc. to yel. to d. No cut. No v. fluor. 1 P; No cut. No v. fluor.

② Sh. med. to v. dk. gray. - calc to v. dek. gray. to black

4300

4306 - ? Lms. tan. to abn. wht to cream-alk & lt. gray. tanish gray. to grayish. tan. calc. to v. u. tan. wht. to v. micro-oolitic & tan. to v. micro-oolitic; matrix sub-sucro. to tan. succo. & packed. to d. yel. to d. lt. yel. fluor. No cut. abn. pr. to fr. to g. micro-oolitic; No cut.



teq. to v. micro-oolitic, v. to
fely. to v. micro-oolitic; a variety
sub. succro. to totas succro. and
packs stajidul. yel. to adul. H. yel
fluor. j. No cut; a bu. pr. fr. to
gd. micro-oolitic, por.

? - ? Sh. v. dek. grey to black-crab

? - 4579

Interbedded lamsts & shs
① Faster Delg. lms. tes. wht. to cream-
chlk & H. grey. to tan, crypto. to
v.u. to xln. j. tes. sub-chlk, sub-succro
to succro. i. adul. yel. to adul. H. yel
fluor. j. No cut; tes. pr. to sil. tes. fr.
micro-pp. por. 1P2

② Slower Delg. lms. H. to med. grey.
sl. to fely. 5 hly 1P2; crypto. to v. u.
xln. j. sub-chlk & a Shly. sub-succro.
& P2 chks in; No fluor. Ad cut
No vis. for.

③ Sh. med to v. fl. h. grey; sl. to
very calc. 1P2

4579 - 4540 Sh. med. to dek. grey.
v. to extal. calc. grading to
v. shly lamsts

4540 - 4548 Lms. tes. wht. to cream-
chlk & tan to H. grey; crypto. to
v.u. En. xln. j. sub-succro, packst
& sub-lithog. j. adul. H. yel. fluor
No cut; No vis. for

4548 - 55 Lms. tan w/ med. to dek
tan sp. oil stain; v. u. f. xln. j.
sub-succro. to v. succro. adul
gd. yel. fluor w/ flust to ad
strong cuts; a bu. pa. to fely
tes. gd. micro-pp. por. & por
not ex. in. por. w/ te. to h. yel. tes
Chert; wht. grey to tan; tears to
op. 48

4555 - 4598 Lms. H. grey, tanish grey to
greyish. tan, crypto. to v. u. f. xln. j.
sub-chlk & a Shly. sub-succro, to succro
P2 chks in. tes. sub-lithog. adul.
H. yel. fluor. 1P2 No cut. No vis. for

4598 - 4608 Lms. h. yel. to tan wht
to cream-chlk greyish tan to tan;

CRYP to to v. u. f. xln. j. 31. to v. u. oolitic
m. to xln. sub-chlk, sub-succro, to succro
& packst in; adul. yel. to yel. fluor
No cut; h. y. tes. pr. to fl. micro-pp
por. 1P2 No show

4608 - 4626 Lms. similar 4555 - 4598

4400

21

4500

21

4600

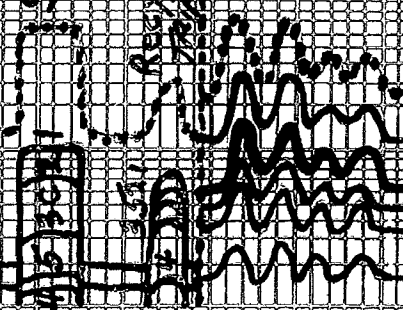
by Repam 45

BKC 4579
- 1581

MARMA TARE
4540 - 1602

Shore 64 U

May 31 U
T. P. 31 U



PAWNER
4608 - 1695

to cream - chalk grayish tan to tan;
CRYP TO. TO V. V. F. X. L. J. SLIT TO UNCOATED;
MATERIALS SUB CHALK, SUB SUCCO TO SUCCO
+ P. A. C. S. T. J. D. W. Y. E. L. TO Y. E. L. F. L. O. R. E.
No sect. by T. R. S. P. R. TO F. R. M. I. C. R. O. P. P.
P. O. R. I. P. S. No Show

4608-4626 Lms. similar 4555-4598

Sh v. drk gray. to black - carb.

Lms similar 4555-4598

Lms. H. gray. crypt. to v. sh. x. l. m
v. s. m. to m. i. a. o. - b. o. l. i. c. a. s. t. i. c. e. v. o. r. u. s. u. t. o
m. i. c. r. o. - o. o. l. i. t. i. c. m. a. t. e. l. y. s. u. b. s. u. c. c. o. t. o
s. u. c. c. o. + p. a. c. h. s. t. j. d. w. y. e. l. f. l. o. r. e. j. M. o. l. e. t.
i. n. p. e. r. l. e. t. o. g. d. b. o. l. i. c. a. s. t. i. c. p. o. r.
Q. u. e. s. t. p. e. r. m

4656-68 Lms similar 4555-4598

Sh v. drk gray. to black - carb.

4670-86 Lms similar 4555-4598

Sh v. drk gray to black - carb

4689-4774 Interbedded Lmsts + Shs
D Lms H. to med. gray - slit to v. shly
and H. gray to grayish tan crypt to
to v. v. shly; sub chalk to a shly IP3;
sub-succopporachant sl. ties.
sub-lithogr. f. gal. it. yel. fluore
No cut; No Vis por.

② Shs med. to v. drk. gray. - sl.
to extaly calc. IP3 grading to
extaly. Shly. Lmsts

Sh v. drk gray to black - carb.

4778-4804 Interbedded Lmsts + Shs
similar 4689-4774 w/ ties
oolitic and an increase in
Sub-lithogr.

4804-4880 Interbedded Lmsts
+ scattered thin Shs

① Lms. grayish tan to tan crypt to
v. v. shly; sub chalk, sub-succo.
P. a. c. h. s. t. j. d. w. y. e. l. f. l. o. r. e. j.
M. o. l. e. t. H. to ties. H. yel. Fluore, Nolcut;
No Vis por.

② Lms. H. to med. gray - slit to v. shly;
CRYP TO. X. L. J. SUB-LITHOGR. SHLY;
P. a. c. h. s. t. j. d. w. y. e. l. f. l. o. r. e. j. M. o. l. e. t.
Yel. Fluore; Nolcut; No Vis por

③ scattered thin Shs med. to
v. drk. gray; abn - slit to v. calc.

4800-4934 Tan to black Lmsts + Shs

FAVINEE
4693-1695
Blk. Shabba

Recycled

FITSCOTT
4670-1925
Blk. Sh 7400

CHEBROK
4689-1751
Blk Sh 7000

Recycled

NOB 3000-4000
MFM 60-65
SPM 850
PP 850

Blk Sh 4000

2377

2797

4800

Sh 9

GASLINE FLOOR OFF

Gas Line Floor OFF

4880-4934 Interbedded ls. & shs
similar 4804-4880 w/ abn
additional interbeds shs. v. deb
gray to black - carb

4934-55 Sh. med. to dk. gray,
ext. calc. N. g. arg. to ext. shly
shly ls.

4955-4961 Lms. st. lt. gray to tan
w/ sh. deker. tan spots oil stain
u. v. to coarse gr. (composed
largely of fossiliferous ls. & arg.
to u. v. in matrix) sub-succat
pale stn. w/ sh. tes sub-chalky dol. sh.
to gl. yel. sh. w/ flash to pale sh. gray
ch. ls., scattered tes. permico. appear
west. Perm

4961-64 similar to 4955-58
No stn. No cut. No ls. for w/ ins. to w/ y
tan glauc. chlorite

4970-4978 Sh. med. to dk. gray w/ tes. lms
lt. gray - shly to tan; crypt. sh.
sub-chalky to sh. sub-pale stn. No floor

4978-5018 Interbedded Qtz. ls. & shales
Qtz. ls. tan to ben. from oil stn. faint to
fair oil ad. v. u. g. to tes. v. fine gr. arg.;
fine gr. arg. scattered tes. to arg. tes.
glauc. to chlorite. dk. gl. tan to dk. gray
cl. w/ flash to gl. sh. med. to dk. v. pale
p. to dk. arg. micaceous. arg. to pale
in tan. arg. p. to arg. ls. & sh. & pale
Sh. similar 4964-4978

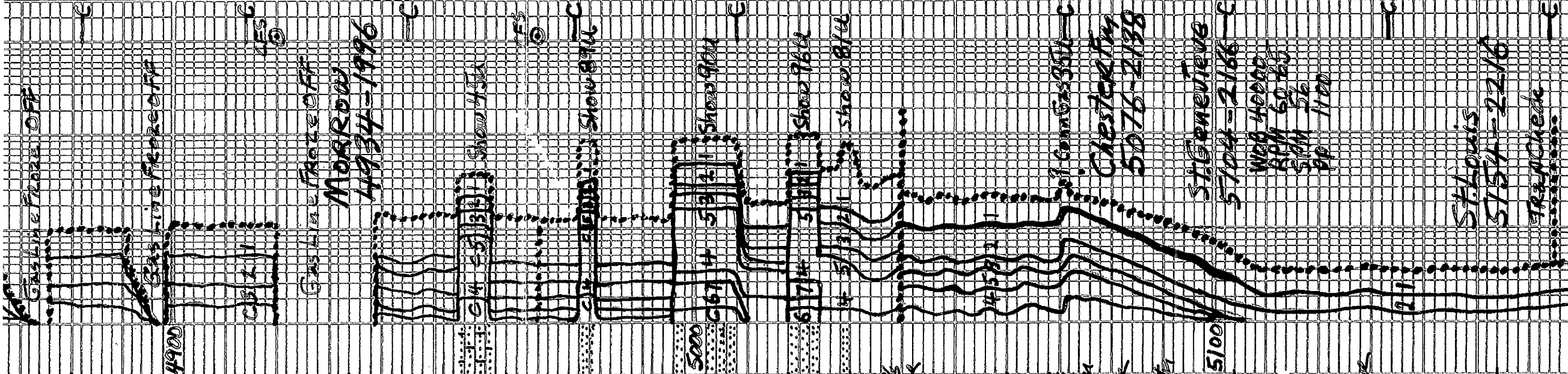
5018-30 Interbedded Qtz. ls. & shs
similar 4978-5018 w/ Qtz. ls. & shs
having ben. to blk oil stn. w/ arg. tes. p. to
the micro-pp. for & arg. intergr. arg. ls. & sh.
has abn. clay filling

5030-53 Sh. med. gray - silty. luster. ls. to
dk. gray - splinter. ls. sh. to ext. silty. ls.
arg. to sh. in lt. gray; Qtz. sub. ls. w/ arg.
arg. arg. arg. to arg. arg. arg. arg. arg. arg.
yellow w/ g. arg. arg. arg. arg. arg. arg. arg.
med. arg. arg. arg. arg. arg. arg. arg. arg.

Shs & silty sh. similar 5030-5053 w/ abn
Frag. lms.; highly weathered gray to tan
v. tan to coarse gr. composed largely of
foss. arg. arg. to v. arg. arg. arg. arg. arg.
ch. sub-chalky sub-succat & pale stn. arg. arg.
ls.; scattered arg. arg. arg. arg. arg. arg. arg.
scattered tes. to blk (dead) arg. arg. arg. arg.
dk. yel. to arg. arg. arg. arg. arg. arg. arg.
stn arg. arg.; scattered tes. to arg. arg.

5076-5104 Lms. H. to med. gray. v. to ext. shly
shly; crypt. sh. sub-chalky to shly & pale stn.
No floor; No cut. No Vis. for

5104-5154 Lms. tes. whit. to succat
(w/ micaceous ls. oolites (ps) to tan &
lt. gray) greenish (ps); crypt. to v. arg.
shly. v. to arg. micaceous. arg. arg. arg.
shly to v. arg. shly. - v. arg. arg. - arg.;
matrix tes. chalk, tes. sub-chalk
sub-succat to arg. arg.; dk. lt. yel. floor
No cut. No Vis. for



1900
5100
1917
Block 5030

DTL 5154-2216

Track Check

5154-5279 lms. tes to hvy tes wht to
CRM - Chlk w/ chlkoolites lps & tan
grayish. lps. crypto. to v.v. tan. xln.
v. to extraly oolitic (sm, med to lg)
matrix chlk, sub-chlk, sub-succo
palestn. d. w/ vel. to d. w. h. vel. blue
Noct. Noct. Noct. w/ sl. tes to tes
Chert gray tan to orange; opque
to trans.

5100

Dolomite H gray. w. tan. xln. d. w/ vel. to d. w/ vel.
glau. vel. chert. Noct. Noct. Noct.

5300

5284 - 5344 lms. tes. wht to CRM
Chlk + tan, crypto. to tan. xln. yln.
sub-chlk, sub succo. lps. tes to
sub-lithog. tes to xln. sl. tes to
hvy tes. sl. to fely dolomitic. tes to
d. w/ vel. fluor. Noct. Noct. Noct. Noct.
w/ tes. Chert. gray to tan, trans. to
opque

5344-5410 Lms. Sl. tes. wht to CRM
Chlk; tes sl. to fely dolomitic lps
tan to grayish. tan crypto to sl. tes
v.v. tan. sl. tes sub succo,
Pack stu + sub lithographic.
tes v. d. w/ vel. to sl. tes d. w/ vel.
Fluor. Noct. Noct. Noct. Noct.
w/ tes Chert wht, gray to tan
transl to opque

5400

TD 5410

- 7 7/8 inch Bit Info:
#1 New Smith FH: 184
#2 Relun Smith F27I
in 1792 out 5040
in 5040 out 5410 TD
- Dev. Sure
1. 1787 10
2. 1792 10
3. 2327 10
4. 4569 3/40
5. 5040

1. 787 1°
2. 1792 1°
3. 2327 1°
4. 4569 3/4°
5. 5040 1°

6 5410 1 1/2° TD

Circ Points:

1. 4506
 2. 4569
 3. 4920
 4. 4970
5. 5040
6. 5285
7. 5410 TD

DST #1 Maxmaton 4545-4569

10 weak surf. blow built to 3/4 inch

FD weak surf. blow built to 1/2 inch

Rec 15 ft 51 oil Col Mud 120 oil 99% Mud

Tool Sample 8 oil 92% mud

IHP 2198 # 14 30 min
IFP 13-20 # 14 60 min
ISIP 1078 # 14 60 min
FFP 24-35 # 14 60 min
FSIP 319 # 14 120 min
FHP 2136 # 14 120 min

DST #2 Morrow 4997-5040

10 weak surf. blow built to 3/4 inch

FD No blow built to weak surf. blow

Rec 78 ft 1395 12 oil 98% Mud

Tool Sample 20 gas 30 oil 68% Mud

IHP 2392 # 14 30 min
IFP 16-27 # 14 30 min
ISIP 509 # 14 60 min
FFP 34-45 # 14 60 min
FSIP 481 # 14 120 min
FHP 2382 # 14 120 min

Daily Prod Progress:

1	3800	11:02 PM	11-11-14
2	3995	7:00 AM	11-12-14
3	4476	7:00 AM	11-13-14
4	4569	7:00 AM	11-14-14
5	4659	7:00 AM	11-15-14
6	4920	7:00 AM	11-16-14
7	5040	7:00 AM	11-17-14
8	5151	7:00 AM	11-18-14
9	5335	7:00 AM	11-19-14
10	5410 TD	7:00 AM	11-20-14

Mud Info:

DATE	11-11	11-11	11-12	11-13	11-14	11-15	11-16	11-17
Wt	9.5	8.6	9.15	9.2	9.3	9.2	9.2	9.2
Vis	29	48	45	47	47	40	44	50
PV	2	15	13	14	10	15	14	16
YP	2	16	14	15	12	10	16	18
GS	3/3	1448	1440	1445	1456	1932	1940	1942
WL	M/C	8.4	8.4	8.8	8.0	8.0	6.4	6.4
Cake	-	1/32	1/32	1/32	1/32	1/32	1/32	1/32
pH	7.0	11.0	10.5	11.0	10.0	10.5	11.0	10.5
Chl	9300	2600	2700	2100	1300	2500	3200	3000
Ca	MVY	20	20	20	40	40	40	60
LCM	1/2	2	1	1 1/2	1	1	1	1 1/2

Date 11-18 11-19

Depth 5109 5389

Wt. 9.25 9.2

1 3800 11:02 PM 11-11-14
 2 3995 7:00 AM 11-12-14
 3 4476 7:00 AM 11-13-14
 4 4569 7:00 AM 11-14-14
 5 4659 7:00 AM 11-15-14
 6 4920 7:00 AM 11-16-14
 7 5040 7:00 AM 11-17-14
 8 5151 7:00 AM 11-18-14
 9 5335 7:00 AM 11-19-14
 10 5410 TD 7:00 AM 11-20-14

Mud Info:

Date	11-11	11-12	11-13	11-14	11-15	11-16	11-17
Date	11-11	11-12	11-13	11-14	11-15	11-16	11-17
Depth	3568	3577	4086	4506	4569	4920	5040
WT	9.2	8.6	9.15	9.2	9.3	9.2	9.3
Vis	29	48	45	47	42	44	50
PV	2	15	13	14	10	14	16
YP	2	16	14	15	12	10	18
GS	3/3	1/48	1/40	1/45	1/36	1/32	1/40
WL	N/C	8.4	8.4	8.8	8.0	6.4	6.4
Cake	-	1/32	1/32	1/32	1/32	1/32	1/32
pH	7.0	11.0	10.5	11.0	10.0	11.0	10.5
Chl	3300	2600	2700	2100	2300	2500	3000
Ca	AVY	20	20	20	40	40	60
LCM	1/2	2	1	1 1/2	1	1	1 1/2

Date	11-18	11-19
Date	11-18	11-19
Depth	5109	5389
WT	9.25	9.2
Vis	50	60
PV	16	22
YP	18	20
GS	15/47	18/55
WL	8.8	7.6
Cake	1/32	1/32
pH	10.5	10.5
Chl	2700	1900
Ca	20	20
LCM	2	2

OPERATOR Berexco LLC LOCATION 700' FSL + 1665' FWL
 LEASE Elsie NO. 2-17 TWP. 26S RANG. 33W
 ELEVATION 2938 KB ATD 5410 COUNTY Finney STATE Kansas