GEOLOGIST'S REPORT

DRILLING TIME & SAMPLE LOG

WELL FILE

COMPANY Berexco LLC
LEASE Bailey OE NO 2-27
LOCATION 2260' FNL + 983' FWL
SEC. 27 TWP. 22S RNG. 34W
COUNTY Finney, STATE Kansas
FIELD Amazon Ditch East

ELEVATIONS
KB 2953
DF 2951
GL 2941
MEASUREMENTS ARE ALL FROM KB

CASING RECORD
8 5/8" at 1711 w/ ___ sx.
___ at ___ w/ ___ sx.
___ at ___ w/ ___ sx.
___ at ___ w/ ___ sx.

CONTRACTOR Beredco Drlg. Rig #1
COMM. 2-16-2015 COMP. 3-4-2015
RTD 4870 LTD 4877
No. of DST'S Six No. of CORES None

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

SAMPLES SAVED FROM 3600 TO TD
DRILLING TIME KEPT FROM 3600 TO TD
SAMPLES EXAMINED FROM 3600 TO TD
GEOLOGICAL SUPERVISION FROM 3600 TO TD
GEOLOGIST ON WELL Edwin H. Grieves

FORMATION TOPS

	SAMPLE	LOG	SUBSEA
Base Heebner	3746	3747	-794
Toronto	3758	3758	-805
Lansing Fm.	3796	3800	-847
Kansas City Fm	4120	4126	-1173
BKC	4241	4245	-1292
Marmaton	4263	4267	-1314
Pawnee	4345	4349	-1396
Ft Scott	4370	4376	-1423
Cherokee	4392	4403	-1450
Morrow	4595	4603	-1650
St. Genevieve	4658	4666	-1713
St Louis	4710	4714	-1761
TD	4870	4877	

27

API #15-055-22375

REMARKS Earth-Tech (1-888-543-8378) had an unmanned gas detection trailer on this well from 3600 to total depth.

LITHOLOGY: SANDSTONE, LIMESTONE, SHALE, CHERT, SILTSTONE, DOLOMITE, GRANITE WASH, ANHY & GYP

CHROMATOGRAPH
HOT WIRE BY TOTAL GAS VOLUME

C1 = METHANE
C2 = ETHANE
C3 = PROPANE
iC4 = ISOBUTANE
nC4 = BUTANE
iC5 = ISOPENTANE
nC5 = PENTANE

GAS SCALE 1 10 100 1000

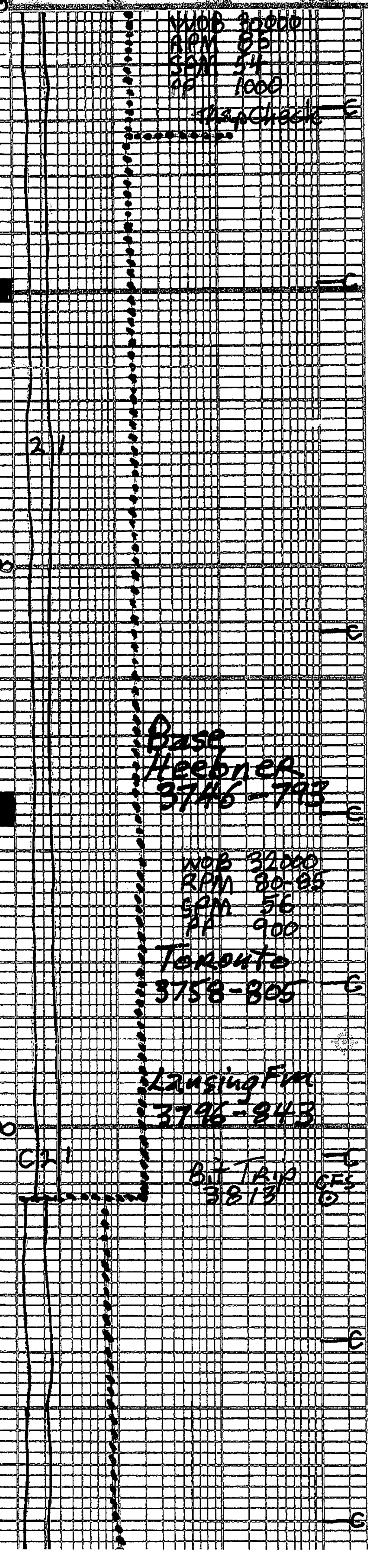
DRILL TIME | SAMPLE DESCRIPTION

3600

Lms. extn. abn. wht to crm-chlk tan to lt. Tan, crypto. to v.f.xln, xln, abn. w/ micro-oolites; sub-chlk, sub-sucro

SHALE / CHERT / GRANITE WASH / ANHY & GYP — TOTAL GAS VOLUME — C6 = ISOPENTANE, C7 = PENTANE

DRILL TIME SCALE	SAMPLE DESCRIPTION		GAS SCALE 10 100 1000



3600

Lms. extr. abn. wht to crm-chlk + crm to lt. tan; crypto. to v.v.fn. xln.; abn. w/ micro-oolites; sub-chlk, sub-sucro to sucro.; dul. yel. fluor.; No Cut; trs v. poor micro-p.p. por.

Lms. hvy. trs. to abn. wht. to crm-chlk & lt. gry. to tan; crypto. to v.v. fn. xln.; sub-chlk, sub-sucro & trs. packstn.; dul. lt. yel. fluor.; No Cut; No Vis Por.

Sh. black-carb

Lms. similar 3600-3623

3700

Sh black-carb

Lms. tan; crypto xln; packstn to sub-lithogr.; dul. lt. yel. fluor.; No Cut; No Vis Por.

Sh lt. gry to lt. green

Lms. abn. wht. to crm-chlk + gryish. tan to tan; crypto to v.v. fn. xln.; gryish tan to tan; sub-chlk, sub-sucro, packstn & trs. sub-lithogr.; phantom oolitic lPs; dul. lt. yel. fluor.; No Cut; No Vis Por

3800

Interbedded Limestones w/ trs Chert

(1) Slower Drlg. Lms. tan, gryish. tan to trs. lt. gry.; crypto. to v.v. fn. xln. trs. sub-chlk, sub-sucro, packstn. & sli. trs. sub lithogr.; dul. lt. yel. to dul yel. fluor.; No Cut; No Vis Por.

(2) Faster Drlg. Lms. trs. wht to crm-chlk + crm. to tan; crypto to v.v. fn. xln.; sub-chlk, sub-sucro to trs. sucro & trs. packstn.; trs phantom oolitic to trs. oolitic; dul. lt. yel. to dul. yel. fluor; No Cut; trs poor to sli: trs fair micro-

(1) Faster Drlg. Lms. trs. wht to crm-chlk + crm. to tan; crypto to v.v. fn. xln.; sub-chlk, sub-sucro to trs. sucro + trs. packstn.; trs phantom oolitic to trs. oolitic; dul. lt. yel. to dul. yel. fluor. No Cut; trs poor to sl. trs fair micro pp por
(3) trs Chert wht. to gry.; opque to transl.

3900

3959-64 Lms. trs. wht. to crm-chlk + lt. tan, crypto. to v.v. fn. xln.; v. to extly oolicastic w/ trs sl. oolitic; matrix sub-sucro + packstn.; lemon yel. fluor.; No Cut fr., gd to excel. oolicastic por. Prob No Perm.

3964-3992 Lms. similar description #1 3796-3959

3992-4000 Lms. hvy trs. wht. to crm-chlk + tan w/ abn dark tan to lt. brn. sptd to even oil stn.; strong oil oder; v.v. fn to v. fn xln.; sub-sucro to v. sucro abn. phantom oolitic; yel. to gld. n. yel. fluor w/ flus to gd. Streming Cuts; abn. pr., fr. to gd + trs excel. p.p., micro pp + interxln por

4000

4000-23 Lms. trs. wht. to crm-chlk + v. lt. grayish tan to tan; crypto. to v.v. fn. xln.; trs sub-chlk, sub-sucro, packstn + trs sub-lithogr.; dul. yel. fluor.; No Cut No Vis Por

4023-27 Lms. trs. wht. to crm-chlk + tan w/ dk tan to lt. brn. sptd to even oil stn. w/ flt to fr. oil oder. v.v. fn. to trs v. fn xln. abn. phantom oolitic to trs phantom oolicastic; yel. to gldn. yel. fluor. w/ flush to gd. Streming cuts; abn. pr. fr. gd to trs excel micro-pp + interxln por.

4027-38 Lms w/ trs. wht. to crm-chlk + grayish tan to tan; crypto to v.v. fn xln sl. to extr. oolitic; matrix chlk, sub-chlk sub-sucro, + packstn.; dul. yel. fluor. No Cut, No Vis Por

4038-46 Lms. hvy trs. wht to crm-chlk + tan; crypto. to v.v. fn. xln.; oolitic to trs sl. oolicastic; matrix sub-chlk, sub-sucro to sucro + trs. packstn.; dul. yel. fluor. No cut; abn. v. pr. to pr. micro pp. + oolicastic por; Quest. Perm

4046-68 Lms similar 4027-4038

4068-4106 Lms. abn. wht. to crm-chlk and grayish tan to tan; v. to extly oolicastic + /or sl. to fnly oolitic IP's; matrix sub-sucro. to sl. trs sucro. & packstn.; dul. lt. yel. to dul. yel. fluor.; No cut; abn. fr. gd. to excel oolicastic por.; Prob No Perm

4100

Lms. lt. gry., grayish tan to tan; crypto to sl. trs. v.v. fn. xln.; sl. trs sub-sucro, packstn. + sub-lithogr.; dul. yel. fluor. No cut; No Vis Por

Sh. black-carb

Sh. med. to drk. gry. - calc IP's

4129-35 Lms. trs. wht. to crm-chlk + lt. gry-tan to tan; sl. to fnly oolicastic + /or fnly oolitic matrix sub-sucro to trs sucro. + packstn dul. yel. fluor. IP's; No cut abn. pr. to fr. + trs gd oolicastic por.; Quest. Perm

4135-4212 Lms. hvy trs. wht to crm-chlk

DST #1 See Below

Fishing For Tong Pin

DST #2 See Below

Clock Stopped On Chromatograph

CFS

Show 15U

Trip Gas 1934 CFS

C1 C2 C3 45321

Show 7U

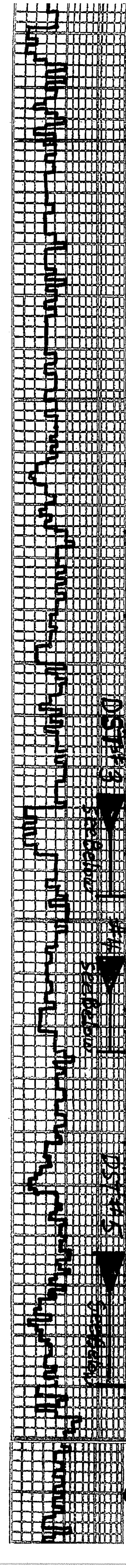
CFS

Trip Gas 25U CFS

WOB 30000-32000
RPM 75
SPM 54
PP 1000

Trap Check

Kansas City Fm
4120-4167



4129-35 Lms. tns. wht. to crm-chlk + lt. gry - to tan; sl. to fairly oolicastic & /or fairly oolitic matrix sub-sucro to trs sucro; to packstn dul. yel fluor. IP's; No cut; abn. pp to trs tns gd oolicastic por; Quest. Perm

4135-4212 Lms. hvy. trs. wht to crm-chlk IP's; + lt. gry to tan; crypto to v.v.fn. xln sub-chlk, sub-sucro & packstn; abn. sl. to v. oolitic; dul. lt. yel. fluor IP's; No cut scattered trs. v. poor micro-pp. por

4212-4225 Lms. similar 4135-4212 w/extr. abn. wht to crm-chlk

Lms. tanish gry. to lt gry.; crypto. xln sub-chlk. to packstn.; dul. yel. fluor IP's No cut; No Vis Por

Sh. med to dark gry.; sl. to extrly calc

Lms. lt. gry. to tan; crypto. to v.v.fn. xln sub-sucro to packstn.; dul. lt. yel. fluor IP's; No cut; No Vis Por

4278-87 Lms. hvy. trs. wht. to crm-chlk. + tan w/abn dark tan to lt. brn spotd to even oil stn.; faint oil oder; crypto to v.v.fn. xln; v. to extrly. oolicastic &/or sl. to v. oolitic, matrix abn. sub-sucro + sucro w/majority packstn.; gldn. yel. fluor; w/flush to gd strmg cuts; fr. gd to excel oolicastic por; abn. pp to fair trs gd micro-pp + prob. inter xln por Quest. Perm IP's

4287-4317 Lms. similar 4263-78 v. Shly. IP's

4317-21 Lms. lt. tan to tan w dark. tan to lt. brn. spotd to even oil stn.; faint oil oder crypto. to v.v.fn. xln.; sub-sucro. to v. sucro + hvy trs packstn.; phantom oolicastic IP's phantom. oolitic IP's to trs oolitic gldn. yel. fluor. w/flush to gd. strmg cuts; abn. pr. to fr. + trs gd. to excel pp. micro-pp + inter xln. por.

4321-42 Lms. similar 4263-4278 Shly. IP's

Sh. black-carb

Lms similar 4263-4278

4347-52 Lms. tan w/dark. tan to lt. brn. spotd to even. oil stn.; faint oil oder; crypto. to v.v.fn. xln.; phantom oolitic to oolitic w/trs. phantom oolicastic; matrix sub-sucro to v. sucro + trs packstn gldn. yel. fluor. w/flush to gd. strmg cuts abn. pr. fr. gd. to excel. vug., pp, micro-pp to inter xln. por

Sh blk-carb

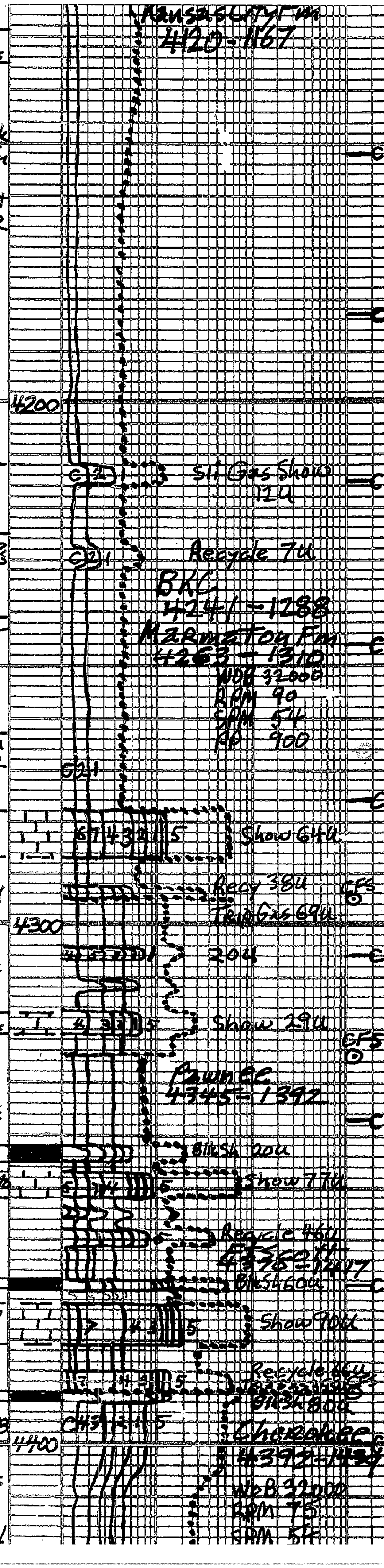
Lms. similar 4263-4278

4373-81 Lms. abn. wht. to crm-chlk + tan w/ v. abn. dark. tan to lt. brn even to sptd oil stn v. strng oil oder; sl. to v. oolitic, matrix sub-sucro to v. sucro + sl. trs packstn. yel. to gldn. yel. fluor w/ flush to excl strmg cuts abn. pr. fr. gd. + trs excel. pp, micro-pp + inter xln por

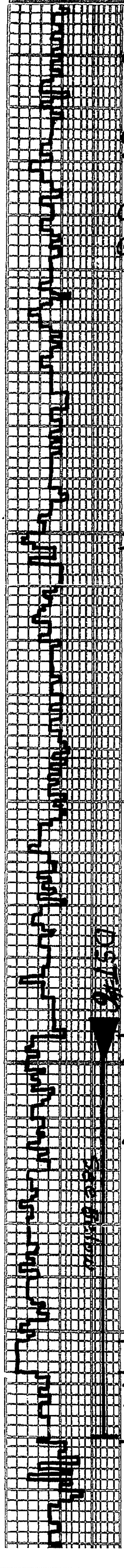
4381-4390 Lms similar 4263-4278

Sh. v. dark gry to black - carb

4392-4500 Interbedded Lms + Shs
(1) Lms. lt. gry. to greyish tan; crypto. to v.v.fn. xln.; sub-chlk; sub-sucro.; packstn. + trs. sub-lithogr.; dul. lt. yel



4381-4390 Lms similar 4263-4278
Sh. v. drk gry to black - carb



4392-4500 Interbedded Lmsts + Shs
(1) Lms. lt. gry. to greyish tan; crypto. to v.v.fn. xln.; sub-chlk; sub-sucro; packstn. & trs. sub-lithogr.; dul. lt. yel fluor. 1P's; No Cut; No Vis Por
(2) Lms. med. to drk. gry. v. to highly Shly grdng. to extrly. calc Shs; cryptoxln sub-chlk & or Shly. & packstn.; trs. dul. yel. fluor.; No Cut; No Vis. Por
(3) Sh. med to v. drk gry - sli. to extrly calc. 1P's
(4) scattered Shs v. drk. gray to black - carb

4500-03 Lms. brn from oil stn.; v.v. fn. xln.; v. sucro; gldn yel fluor w/flush to excel strmng cuts pr. to fr. micro pp por and prob. interxln por

4503-4595
Interbedded Lmsts & Shales similar 4392-4500

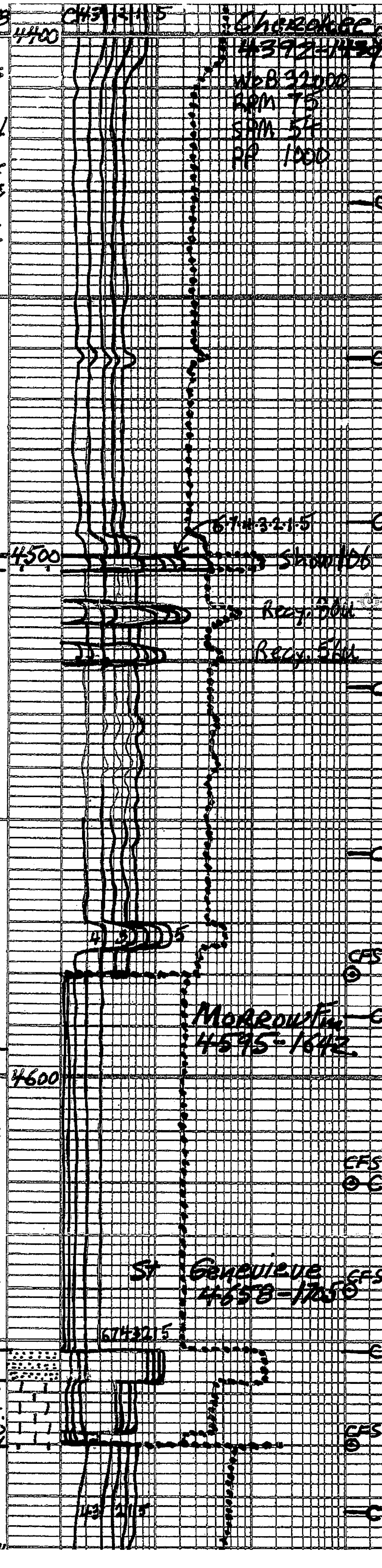
Sh med to drk gry w/trs olive green to lt. green & Lmsts lt. gry to tanish gry; crypto to v.v. fn. xln, sub-chlk, sub-sucro & packstn dul. lt. yel. fluor. 1P's; No Cut; No Vis Por.

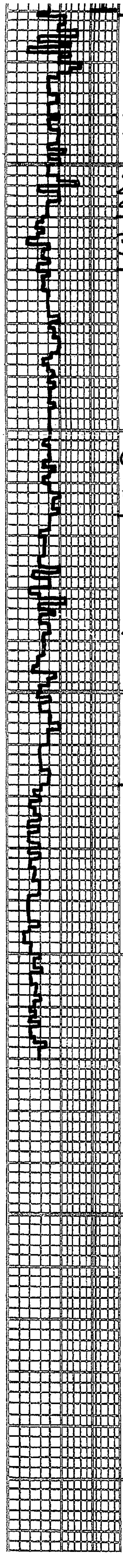
4652-4658 Qtz Sdst brn. from oil stn; fr. oil oder; v.v. fn. gr. ang. to sub-ang.; gldn. yel. fluor w/flush to excel. strmng cuts pr. to fr. micro-pp por & prob gd. to excel intergr. por. v. to extrly. friable 1P's oil on washwater

← some loose Qtz grs →

Lms. tan w/v. abndnt. drk. tan to brn sptd to even oil stn; crypto. xln oolites matrix v.v. fn to v. fn xln; extrly micro-oolitic & sli. to extrly. Qtz Sdy - v.v. fn gr. ang.; matrix sub-sucro to sucro. gldn yel. fluor. w/flush to gd strmng cuts abn. pr. to fr. thruytes. gd micro pp to interxln. por.; the better the stn the better the por.; some loose oolites

4671-4710 Lms ...





matrix sub-sucro to sucro. gld. yel. fluor. w/flush to gd strmng cuts abn. pp to fr. thuy tres. gd micro pp to inter xln. por.; the better the stn the better the por.; some loose oolites

4671-4710 Lms. huy. tres. wht. to crm-chlk + grayish tan to tan, crypto. to v.v. fn xln.; extrly micro-oolitic + sli to frly

Qtz sdy - vv fn gr - ang.; matrix chlk, sub-chlk, sub-sucro to sucro. dul. lt. to lt. yel. fluor.; No cut; No Vis Por

4710-20 Lms. tres. wht. to crm-chlk + crm to lt. tan w/ v. abn. drk. tan to brn. oil stn. faint oil odor; crypto xln oolites (sm to med.) Rexlzed IP's to xln lumps + oolites IP's Rexlzed to sucro; phantom oolites IP's; matrix sucro. to v. sucro; gld. to brt. gld. yel fluor. w/ flush to excel strmng cuts abn. pp. fr. to gd thuy tres excel. pp; micro pp + inter xln. por. tres. inter oolitic por.; huy tres to abn. loose oolites (sm to med.)

4720-4766 Interbedded Limestones
① Lms. tres to huy tres. wht. to crm-chlk + grayish tan to tan; crypto. to v.v. fn. xln.; v. to extrly oolitic (sm, med + tres lg.) matrix chlk, sub-chlk, sub-sucro + packstn; dul. yel. fluor.; No cut; No Vis Por
② Lms. grayish tan to tan; crypto to v.v. fn. xln.; sub-sucro, packstn. + tres sub-lithogr. dul. yel. fluor.; No cut; No Vis Por

4766-4818 Interbedded Lmsts Similar 4720-4766 becoming sl. dolomitic IP's

4818-4870 Lms. lt. gray to tan; crypto to tres. v.v. fn. xln.; sub-sucro. to packstn w/ tres. oolites IP's + v. abn. sub-lithogr.; sl. to frly dolomitic IP's; dul. lt. yel. fluor. IPs No Cut; No Vis Por.

TD 4870

7 7/8 inch Bit Info:
#1 Smith TC New HR; 23 VHYPS in 1711 out 3813
#2 Smith TC New HR; 23 VHYPS in 3813 out 4870 TD

Cir Points:

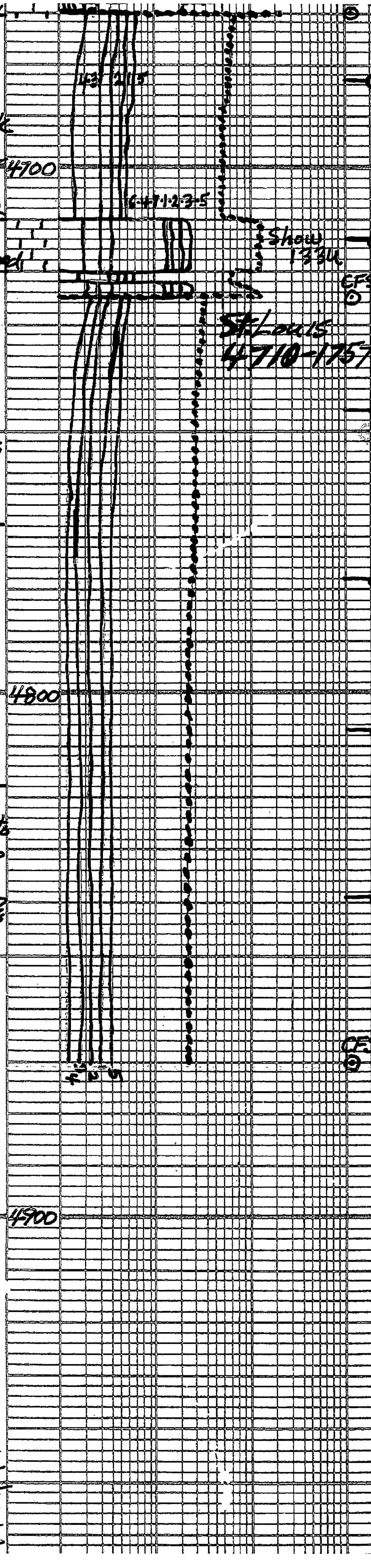
1. 3813	8. 4390
2. 3990	9. 4580
3. 4010	10. 4620
4. 4036	11. 4640
5. 4046	12. 4670
6. 4295	13. 4725
7. 4325	14. 4870 TD

Dev. Surv.:

1. 511 3/4°	4. 3813 3/4°
2. 1001 3/4°	5. 4295 3/4°
3. 1655 3/4°	6. 4670 1°
	7. 4870 2 1/4° TD

Daily Drlg. Progress:

1.	3600	12:28 PM	2-21-2015
2.	3828	7:00 AM	2-22-2015
3.	4010	7:00 AM	2-23-2015
4.	4010	7:00 AM	2-24-2015
5.	4046	7:00 AM	2-25-2015
6.	4295	7:00 AM	2-26-2015



1.	3828	12:20 PM	2-21-2015
2.	3828	7:00 AM	2-22-2015
3.	4010	7:00 AM	2-23-2015
4.	4010	7:00 AM	2-24-2015
5.	4046	7:00 AM	2-25-2015
6.	4295	7:00 AM	2-26-2015
7.	4325	7:00 AM	2-27-2015
8.	4390	7:00 AM	2-28-2015
9.	4390	7:00 AM	3-1-2015
10.	4657	7:00 AM	3-2-2015
11.	4670	7:00 AM	3-3-2015
12.	4870	7:00 AM	3-4-2015

DST #1 Lansing "G" 3986-4010
IO weak blow incr. to 2 inches
FO weak blow incr. to 7 inches
Rec: 100ft Fluid 150ft GIP
60' Clean oil 100% oil
40' Oily Mud 35% oil/65% Mud
Grav. 41.5@60°F Max Temp 99°F
IHP 1894 #
IFP 8 to 23 # in 30 min
ISIP 372 # in 60 min
FFP 27 to 47 # in 60 min
FSIP 369 # in 120 min
FHP 1893 #

DST #2 Lansing "H" 4020-4032
IO weak blow incr. to 3 inches
FO weak blow incr. to 4.5 inches
Rec 150' SMCW 89% wtr 11% Mud
Chl 30000 ppm Rw. 32 ohm @ 50°F
Pit Chl 2900 PH 9.0 Max Temp 98°F
IHP 1861 #
IFP 8 to 35 # in 30 min
ISIP 806 # in 60 min
FFP 37 to 82 # in 60 min
FSIP 779 # in 120 min
FHP 1860 #

DST #3 Marmaton "B" 4276-4295
IO Blow incr. to BOB 13 min No Blow Back
FO Blow incr to 8.5 inches No Blow Back
Rec 130 ft Fluid Max Temp 103°F
40 ft SOCWCM 4% oil 28% wtr 68% mud
90 ft MW 72% wtr 28% mud
5 To ft Gas in Pipe
Chl 55000 ppm Rw. 14 ohm @ 70°F
PH 8.0 Max Temp 103°F
IHP 2007 #
IFP 15 to 46 # in 30 min
ISIP 331 # in 60 min
FFP 50 to 85 # in 60 min
FSIP 331 # in 120 min
FHP 2006 #

DST #4 Novinger 4307-4325
ID surf. Blow incr to .25 inches
FO No Blow
Rec 5 ft Drlg Mud
IHP 2025 #
IFP 10 to 11 # in 30 min
ISIP 59 # in 60 min
FFP 11 to 11 # in 30 min
FSIP 33 # in 60 min
FHP 2021 #

DST #5 Ft Scott 4364-4390
ID Blow incr. to 2 inches
FO Blow incr. to 6 inches
Rec 60 ft GCHOCM 10% gas 30% oil 60% mud
150 ft Gas in pipe Max Temp 104°F
IHP 2004 #
IFP 9-19 # in 30 min
ISIP 1069 # in 60 min
FFP 29-37 # in 60 min
FSIP 1080 # in 120 min
FHP 1999 #

DST #6 Morrow 4592-4670
ID weak blow incr. to 1.5 inches
FO weak surf. blow throughout
Rec 30 ft SOSM 1% oil 99% mud
Max Temp 106°F
IHP 2143 #

DST #6 Morrow 4592-4670
ID weak blow inc. to 1.5 inches
FD weak surf. blow throughout
Rec 30 ft sosm <1% oil 799% mud
Max Temp 106°F
IHP 2170#
IFP 13-20# in 30 min
ISIP 284# in 60 min
FFP 23-29# in 60 min
FSIP 367# in 120 min
FHP 2167#

Mud Info:

Date	2-21 10:45A	2-22 4:35A	2-23 9:50A	2-24 10:45A	2-25 9:50A	2-26 11:30A	2-27 4:10A	2-28 6:50A
Depth	3519	3906	4010	4044	4146	4295	4325	4390
Wt.	8.6	8.7+	8.9	8.7+	8.7+	9.0	9.0	9.0
Vis	66	45	46	51	52	44	44	50
PV	19	13	14	16	15	12	13	16
YP	19	14	13	17	16	13	14	17
GS	16/48	14/43	13/42	17/48	14/43	12/31	10/34	13/36
WL	7.2	9.2	8.0	8.8	8.8	7.2	7.2	7.2
Cake	1/32	1/32	1/32	1/32	1/32	1/32	1/32	1/32
pH	11.0	10.5	10.0	10.0	9.5	9.5	10.0	10.0
Cl	1900	2600	2400	2900	3300	3100	3300	
Ca	20	20	20	20	20	20	40	
LCM	1½	3	3	3	3½	3	4	

Date	3-1 6:30A	3-2 6:30A	3-3 6:00A	3-4 8:35A				
Depth	4390	4640	4670	4870				
Wt.	8.9	9.2+	9.2+	9.25				
Vis	56	48	52	51				
PV	17	15	16	15				
YP	19	17	19	17				
GS	14/40	13/34	14/38	16/44				
WL	7.2	8.0	7.2	7.2				
Cake	1/32	1/32	1/32	1/32				
pH	10.0	10.0	10.5	10.0				
Cl	3000	3000	3100	2100				
Ca	40	40	40	20				
LCM	4.0	4.0	4.0	4.0				

OPERATOR BeRexco LLC LOCATION 2260' FNL & 983' FWL
LEASE Bailey NO. 2-27 SEC 27 TWP. 22S RNG. 34W
ELEVATION 2953 KB RTD 4870 COUNTY Finney STATE Kansas