

# GEOLOGIST'S REPORT

DRILLING TIME & SAMPLE LOG

COMPANY **BEREXCO LLC**

LEASE **RINEY** N. **L-21**

LOCATION **340FNL & 1650FEL**

SEC **21** TWP **18S** R1G **31W**

COUNTY **SCOTT** STATE **KANSAS**

FIELD **BECKLEY EAST**

ELEVATIONS  
KB **2949**  
OF **2947**  
TO **2937**  
WATER ELEMENTS ARE  
A. FROM **KB**

CASING RECORD  
8625' 491'

CONTRACTOR **BEREDCO DRLG. RIG NO. 1**

COMM **4-21-2011** DATE **5-4-2011**

RTD **4733** TD **4734**

No. of EST'S **2** No. of CORES **NONE**

SAMPLES SAVED FROM **3500** TD

DRILLING TIME KEPT FROM **3500** TD

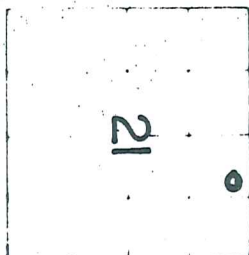
SAMPLES EXAMINED FROM **3500** TD

GEOLOGICAL SUPERVISION FROM **3500** TD

GEOLOGIST ON WELL **EDWIN H. GRIEVES**

**FORMATION TOPS**

FORMATION	SAMPLE	LOG	DEPTH
BASE HEEBNER	3868	3871	912
LANSING	3901	3911	962
MARMATON	4322	4329	1380
CHEROKEE	4446	4445	1476
MISSISSIPPI	4547	4533	1584
DOLOMITE	4634	4630	1681
TD	4733	4734	



EQUIPMENT  
DENNEUT-GR-CALIPER  
MILSONIC

REMARK *Ezoth-Tech had an unmanned gas detection trailer on this well from 2500 feet to total depth.*

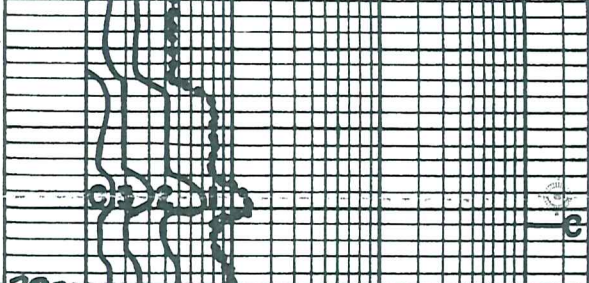
*Thank you,  
Edwin H. Grievess  
Geologist*

**LITHOLOGY** (CHROMATOGRAPH)

SANDSTONE	SILTSTONE	HOT WIRE BY TOTAL GAS VOLUME	C1 = METHANE
LIMESTONE	DOLOMITE		C2 = ETHANE
SHALE	GRANITE WASH		C3 = PROPANE
CHERT	ANHY & GYP		C4 = ISOBUTANE
			C5 = BUTANE
			C6 = ISOPENTANE
			C7 = PENTANE

<p>DRILL TIME SCALE</p>	<p>GAS SCALE</p>
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2900

3500

3600

Interbedded Limestones and Shales  
 ① Predominately Lms. lt. to med. gray, slt. to ext. calc. Shs.; crypto. to v.v. fn. xln.; sub-chlk. & for Shly, sub-sucro & packstn. No fluor.; No Cut; No Vis. Por.  
 ② hvy. tes. Lms. H. gray. to tan; crypto. to v.v. fn. xln.; sub-chlk. sub-sucro. + packstn.; tes. politic (tan to H. gray) dul. H. to H. yel. fluor.; No Cut; No Vis. Por.  
 ③ abn. scattered interbeds. Shales, med. gray; slt. to ext. calc. lps

Lms. H. gray. to tan; crypto. to v.v. fn. xln. sub-chlk. sub-sucro. + packstn; dul. yel. fluor.; No Cut; No Vis Por. w/ v. slt. tes. Lms. H. tan w/ dark tan sp. to even oil stn; v.v. fn. to v. xln. sub-sucro to sucro. H. yel. fluor. w/ flush to gd. strng cut; j. tes. pr. to f.r. micro-pp por. lps

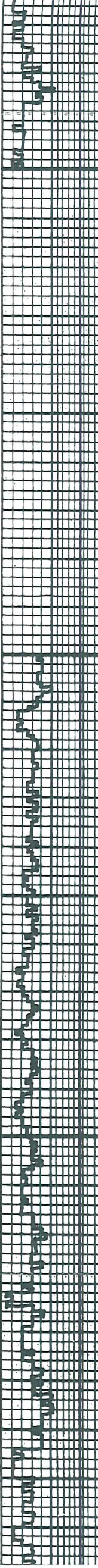
Interbedded Limestones w/ scattered Shs  
 ① Faster Dalg. Lms. tes. to abn. wht.

C13 C12 C11

C13 C12 C11

DISPLACED MUD SYSTEM AT 3607

TRAP CHECK



to crm.-chlk and H. tan totan;  
 crypto. to v.v. fn. xln; sub-chlk,  
 sub-sucro to sli. trs. sucro. and  
 packstn.; dul. H. to trs. H. yel. fluor.  
 scattered trs. poor micro-pp  
 por. and poss. interxln por. IP's

① Slower Drlg. Lms. H. tan totan gray  
 IP's; crypto. to v.v. fn. xln; trs. sub-chlk  
 sub-sucro + packstn.; dul. H. yel.  
 fluor.; No Cut; No Vis. Por.

② scattered Shales med. gray-  
 calc IP's to drk + trs v. drk. gry.

3700

C1

3800

Limestones w/scattered thin Shales

① Lms. trs. to abn. wht. to crm.-chlk. and  
 H. gray totan; crypto. to v.v. fn. xln;  
 sub-chlk, sub-sucro, packstn + sub-lithogr.;  
 dul. H. to H. yel. fluor.; No Cut; No Vis Por

② scattered thin shales med. gray.  
 calc. IP's and drk to v. drk gray  
 to trs black

C1

Sh. v. drk. gray to blk-carb  
 Lms. gray totan; crypto. to v.v. fn. xln  
 sub-chlk, packstn; dul. H. to H. yel. fluor.  
 No Cut; No Vis Por

Sh. H. gray. totan. H. green, s. Hy IP's

Lms. gray totan; crypto. to v.v. fn. xln; sub-chlk  
 sub-sucro, packstn. + trs sub-lithogr.; dul. H.  
 to H. yel. fluor.; No Cut; No Vis Por

Base Heebner  
 3868 - 919

TRAP CHECK

LANSING  
 3901 - 952

TRAP CHECK

3900

TRAP CHECK

Lms. H. tan, v.v. fn. xln; sub-sucro to sucro.;  
 H. yel. fluor.; No Cut; abn. pr. to trs  
 micro-pp. to interxln por.

Lms. trs. wht. to crm.-chlk and H. tan  
 to tan; crypto. to v.v. fn. xln; sub-chlk,  
 sub-sucro, packstn + trs sub-lithogr.;  
 trs to hvy. trs phantom oolitic to oolitic;  
 dul. H. to trs. H. yel. fluor.; No Cut;  
 No Vis Por

Lms. H. tan; crypto. to v.v. fn. xln; chlk,  
 sub-chlk, sub-sucro to sucro. and  
 packstn.; abn. phantom oolitic to trs  
 oolitic; dul. H. to H. yel. fluor.; No Cut  
 hvy. trs. pr. to fr. micro-pp por. and  
 poss. interxln por.

Lms. extra abn. wht. crm. totan-chlk + H. tan  
 crypto. to v.v. fn. xln; hvy. trs. phantom  
 oolitic for hvy. trs. oolitic; sub-chlk,  
 sub-sucro, to sucro + packstn. dul. H.  
 to trs. brt. H. yel. fluor.; No Cut; hvy. trs. pr.  
 to gd. p.p., micro-pp. and prob.  
 interxln por. IP's

C1

4000

Lms. grayish. tan totan; crypto. to v.v. fn. xln;  
 sub-chlk, sub-sucro to trs. sucro +  
 packstn.; trs. phantom oolitic, IP's

dul. lt. to res. lt. yel. + fluor.; No cut; No Vis Por. w/ prob scattered thin sh. med to v. drk. gray - calc to res. black

Lms. tan to hv. tan. wht. to cream chalk and lt. tan to tan, crypto to v. v. fl. xln.; sub-chlk sub-sucro. to sucro. + pachstu; abu phantom oolitic + oolitic; dul. lt. to lt. yel. fluor. No cut; res. poor micro-pp por + poss interbed por

Lms. grayish. tan to tan; crypto. to v. v. fl. xln.; sub-chlk, sub-sucro + pachstu; dul. lt. yel. to lt. yel. fluor.; No cut; No Vis Por

Lms. similar 4025-4056

Lms. similar 4056-4065  
Sh. med to v. drk. gray calc to black-carb  
Interbedded lms + scattered thin sh

① Lms. tan to abu. wht. to cream chalk + lt. tan to tan; crypto. to v. v. fl. xln.; sub-chlk, sub-sucro + pachstu; tan to abu. phantom oolitic; oolitic; dul. lt. to lt. yel. fluor.; No cut; res. pa. micro-pp. por. IP's

② Lms. lt. gray, grayish to tan; crypto to v. v. fl. xln.; sub-chlk, sub-sucro, and pachstu; phantom oolitic IP's; dul. lt. to lt. yel. fluor.; No cut; No Vis Por

③ Sh. med to v. drk. gray - calc. to v. drk. gray to black-carb

4166-4178 Lms. tan. wht. to cream chalk + lt. tan to tan w/ hv. tan sli. drk. tan oil str to res. live brn. oil.; crypto. to v. v. fl. xln.; sl. tan oolitic IP's; for sl. to tan oolitic IP's; matrix sub-sucro. to sucro + abu. pachstu; strong oil odor w/ sl. sulfur overtones; dul. gl. to gl. yel. fluor w/ flush to gl. strong cuts; abu. pr. fia

gd to excel. oolitic sparse hv. tan parts fa. micro-pp. and poss. interbed. por. Quest. Perm IP's

4178-85 Lms. lt. gray, grayish to tan; crypto to v. v. fl. xln.; sub-chlk, sub-sucro + pachstu; dul. yel. fluor. No cut; No Vis Por; res. chert

Sh. med to v. drk. gray - calc + v. drk. gray to blk carb

Lms w/ chert. similar 4178-4185

4194-97 Lms. tan, v. v. fl. xln.; sub-sucro to sucro + pachstu; phantom oolitic; fe. oil odor; spiderweb to lt. ben oil sl. gl. yel. fluor. flush to gl. strong cuts; res. pr. to tr. micro-pp + poss. interbed. por

Interbedded Limestones

① Fastea Dolg. Lms. tan. wht. to cream chalk + lt. tan to tan; crypto. to v. v. fl. xln.; phantom oolitic IP's to oolitic IP's; dul. lt. to yel. fluor.; No cut; res. pa. micro-pp. por. IP's

② Slower Dolg. Lms. lt. gray to tan; crypto. to v. v. fl. xln.; sub-chlk, sub-sucro, pachstu + res. sub-lithog. dul. lt. yel. to yel. fluor. IP's; No cut; No Vis Por

Sh. drk. gray. to black-carb

4234-39 Lms. tan. wht. to cream chalk + tan; crypto. to v. v. fl. xln.; sub-chlk, sub-sucro, pachstu; phantom oolitic; hv. tan sli. drk. tan oil str; faint oil odor; scattered res. sli. to even brn. oil str. y. gl. yel. fluor. flush to gl. strong cuts; scattered res. pa. micro-pp. por + poss. interbed. por IP's; v. lust. Perm. sli. drk. gray to tan, qg

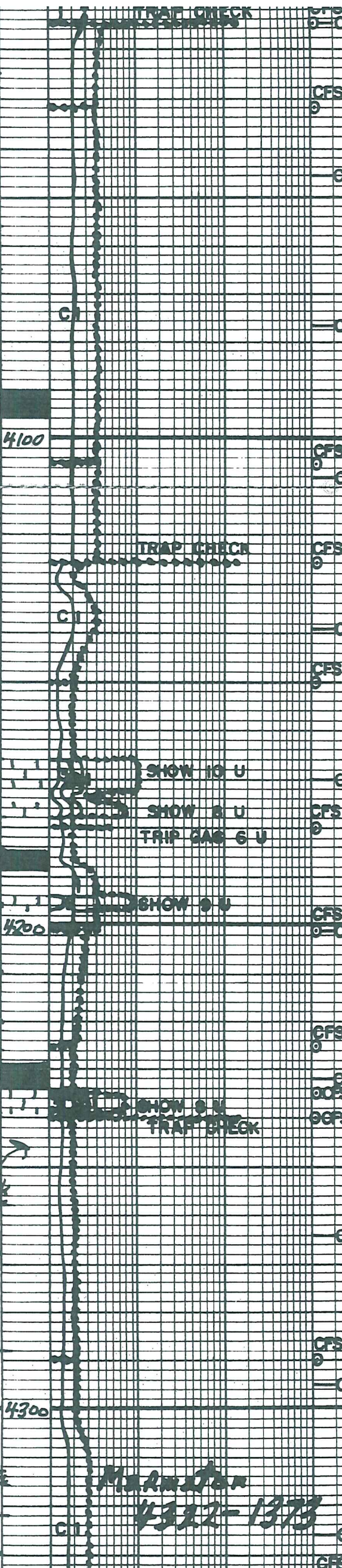
4239-4258 Lms. tan. wht. to cream chalk + tan, grayish. IP's; crypto to v. v. fl. xln.; sub-chlk sub-sucro + pachstu; tan to abu. phantom oolitic; dul. yel. fluor. No cut; No Vis Por

4258-88 Lms. lt. gray to tanish gray; crypto to v. v. fl. xln.; sub-chlk, sub-sucro + pachstu; dul. yel. fluor.; No cut; No Vis Por. w/ prob thin interbeds sh. med to drk. gray - calc

Lms. similar 4258-88 w/ abu Lms tan, crypto. xln.; sub-lithographic brn. yel. fluor.; No cut; No Vis Por. w/ prob scattered thin interbeds sh. med to drk. gray - calc

Lms + sh. ; Lms. lt. med gray; v. to extaly. shly; crypto. to v. v. fl. xln.; sub-chlk + for shly; sub-sucro + pachstu; j. dul. yel. fluor. IP's; No cut; No Vis Por + sh. med to drk. gray. - sl. to v. calc

4322-4374 Lms. lt. gray. to tan; crypto. to v. v. fl. xln.; sub-chlk, sub-sucro to v. v. fl. res. IP's



4322-1373



Dolomites + Limestones  
 ① Faster Dalg. Dolo. tan to H. gray;  
 v.v. fu. xln.; sub-succo to v. succo. j  
 sli. to faly. calc. iPs; v. dul. yel. fluor  
 No cut; abu. pr. fr. to gd. micro-pp  
 + prob. interxln. por.  
 ② Slower Dalg. Lmsts. sli to v. dolomitic  
 iPs; gray to tan; cryp. to v. ufu. xln  
 track, sub-chlk, sub-succo + p. d. st. j  
 2bu. p. ant. oolitic to abu. oolitic  
 (gray + tan) (sny. nat + gyp) v. dul. yel.  
 fluor. j No cut; No vis for  
 ③ scattered frag. chert wht. to GRM  
 + H. gray; opaque to transl.

4700

CFS  
9

TD 4733

7 7/8 inch Bit Info: in out TD  
 #New HTC GX22S 491

Cir Points

- |         |          |
|---------|----------|
| 1. 3900 | 11. 4225 |
| 2. 3910 | 12. 4235 |
| 3. 3950 | 13. 4240 |
| 4. 4015 | 14. 4290 |
| 5. 4032 | 15. 4335 |
| 6. 4105 | 16. 4615 |
| 7. 4126 | 17. 4620 |
| 8. 4150 | 18. 4630 |

- |          |             |
|----------|-------------|
| 9. 4180  | 19. 4639    |
| 10. 4201 | 20. 4733 TD |

Dev. SURV

- |         |         |
|---------|---------|
| 1. 504  | 1/2°    |
| 2. 1522 | 1 1/2°  |
| 3. 2519 | 1°      |
| 4. 4180 | 3/4°    |
| 5. 4733 | 1/4° TD |

Daily Dalg Progress:

- |       |             |         |
|-------|-------------|---------|
| .3500 | At 11:58 PM | 4-26-11 |
| 3614  | At 7:00 AM  | 4-27-11 |
| 4013  | At 7:00 AM  | 4-28-11 |
| 4180  | At 7:00 AM  | 4-29-11 |
| 4225  | At 7:00 AM  | 4-30-11 |
| 4240  | At 7:00 AM  | 5-1-11  |
| 4489  | At 7:00 AM  | 5-2-11  |
| 4733  | At 6:05 AM  | 5-3-11  |
| 4733  | At 7:00 AM  | 5-3-11  |

DST #1 Lansing "J" 4165-4180

10 weak to good BOB 6 1/2 min  
 FO weak to good BOB 8 1/2 min  
 Rec 1444 Total fluid BHT 135°F  
 10ft Clean Oil 33 Gravel @ 60°F  
 50ft SOCMW 22074% W 242 M  
 744ft SOCMW 22096% W 22 M  
 640ft SOCMW 22094% W 42 M  
 Chl 28500 ppm Pit 1800 ppm  
 pH 8.10  
 Rw .18 @ 80°  
 Tool Samp 42% oil 74% water 18% mud  
 IHP 1986 #  
 IEP 15-368 # in 30 min.  
 ISIP 886 # in 60 min.  
 FFP 370-633 # in 60 min.  
 FSIP 885 # in 120 min.  
 FHP 1970 #

DST #2 Kansas City "B" 4228-4240

10 Weak surface Blow died 7 min  
 FO No Blow  
 Rec 5 Mud w/few speck oil  
 Tool sample 19% oil 69% mud

DST #2 Kansas City "B" 4228-4240  
 10 Weak surface Blow died 7 min  
 FO No Blow  
 Rec 5 Mud w/few speck oil  
 Tool sample 1% oil 99% Mud  
 Max Temp 121°F  
 IHP 1996#  
 IFF 5-6# in 15 min.  
 ISIP 887# in 30 min.  
 FFP 6-8# in 30 min.  
 FSIP 916# in 60 min.  
 FHP 1995#

Mud Info:

Date	4-25 10:30A	4-26 7:05P	4-27 11:10A	4-28 12:45P	4-29 7:10A	5-1 7:40A	5-2 7:30A	5-3 7:10A
Depth	2734	3296	3698	4062	4180	4229	4245	4733
WT.	9.3	9.3	8.9	9.2	9.1	9.2	9.2	9.2
Vis	30	32	44	39	55	45	55	49
PV	-	-	11	7	16	15	16	15
YP	-	-	12	12	20	17	21	19
GS	-	-	10/32	7/22	14/40	13/32	14/40	15/35
WL	N/C	N/C	9.6	11.2	8.0	8.0	8.0	7.6
cake	-	-	1/32	1/32	1/32	1/32	1/32	1/32
pH	7.0	7.0	10.5	10.0	11.0	10.5	10.0	10.5
Chl	54000	32000	3500	2200	1800	1600	1800	400
Ca	Huy	Huy	20	20	40	40	40	40
LCM	1	2	TR.	TR.	TR.	0	1/2	3

OPERATOR BEREXCO LLC LOCATION 340FNL 8 1650FEL  
 LEASE RINEY NO. 1-21 SEC. 21 TWP. 18S Rng. 31W  
 ELEVATION 2949 KB RTD 4733 COUNTY SCOTT STATE KANSAS