



W/OIL SPITS  
M, 60% W/  
DD PPM SYS: 2000

AUD

AUD

S. & DEV. SURVEYS

RAPS:

97 - 1.62 LING

ON SURVEYS:

5' - 3/4"  
7' - 1/4"  
5' - 3/4"

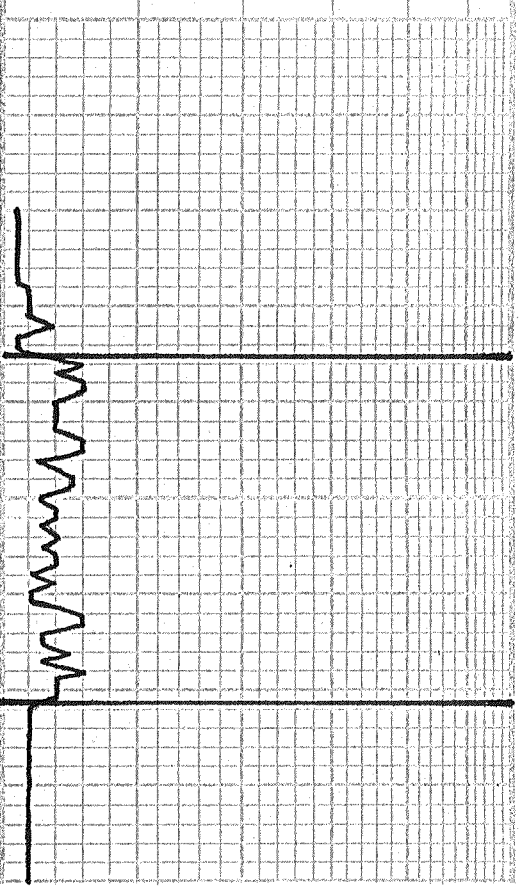
03	9/24	3#	1200
04	6/24	3#	2000
05	7/28	3#	2100
06	8/30	3#	2200

### LEGEND

Anhydrite	Salt	Sandstone	Shale	Carb sh	Limestone	Ool.Lime	Chert	Dolomite

DRILLING TIME IN MINUTES  
PER FOOT  
Rate of Penetration Decreases

5" 10" 15" 20" 25"



DEPTH

2250

60

70

80

90

2300

10

20

30

LITHOLOGY

SAMPLE DESCRIPTIONS

OIL SHOWS

REMARKS

**ANHYDRITE-TOP**  
2285 (+419)

**ANHYDRITE-BASE**  
2321 (+383)

3500

10

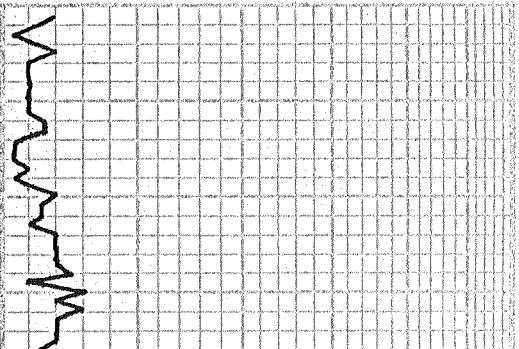
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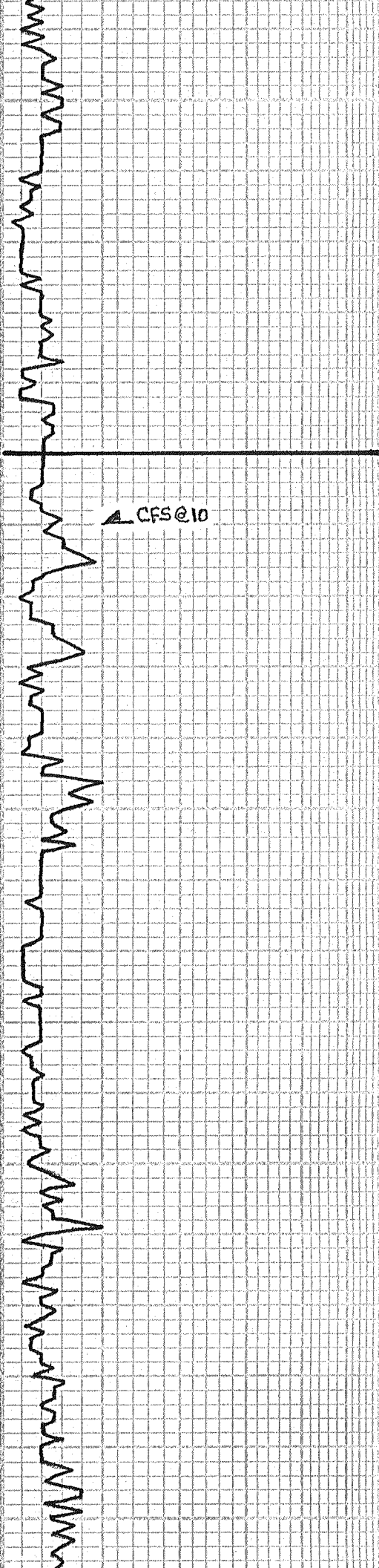
30

sample mostly orange, rust,  
grey, green

ls: tan, grey, fn-med xtn, foss  
scat pr interxtn  $\phi$ , N.S

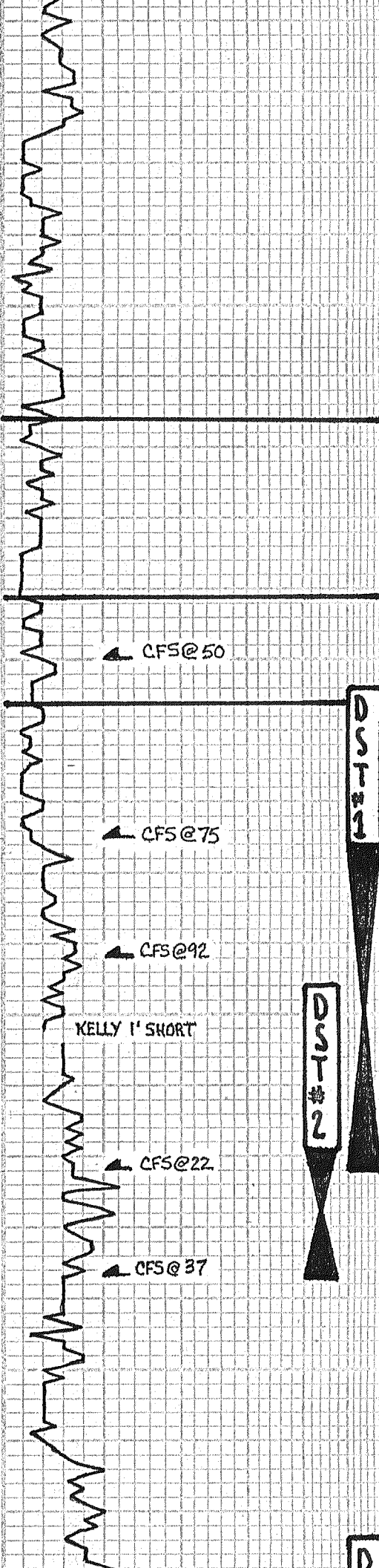
sh: grey  
ls: tan, brown fn-med xtn, slit foss  
no vis  $\phi$ , NS





40		sh: grey, green-grey, sli sandy, in part
3550		ls: tan, brown, brown-grey, fn-medxtln, sli dol, sli foss, scat pr interxtln $\emptyset$ , no st, cut, odor
60		ls: as above
70		sh: grey, green-grey, calc in pt.
80		sh: as above, scat foss frags; few clusters brown, fn grained, well-sorted, firm ss: no vis $\emptyset$ N.S.
90		ls: brown, grey, fn-medxtln, foss, calcitic in part, v. scat pr interxtln $\emptyset$ , N.S.
3600		sh: grey, grey-green, mica. in part w/ ls: tan, brown, fn-medxtln, sli. foss, no vis $\emptyset$ , no show
10	CFS@10	ls: tan, brown, grey, fn-medxtln, sli. foss, scat sli. sandy, few pcs w/ pr interxtln $\emptyset$ , no show
20		ls: tan, brown, v. fn - some medxtln, dense; no vis $\emptyset$ , no show sh: grey, purple
30		ls: off-wh, tan, fn-medxtln, sli foss, calcitic, app pr tr fr interxtln & vuggy (isolated) $\emptyset$ , no show sh: grey, green-grey
40		ls: tan, grey-tan, fn. some medxtln, sli. foss, granular, scat calcite, app pr interxtln $\emptyset$ ; no show ls: as above; no vis $\emptyset$ ; no show
3650		sh: grey, silty - sli. sandy, calc in part.
60		ls: tan, lt. brown, fn-medxtln, sli. dol & foss, app pr interool $\emptyset$ , & pr some fr interxtln $\emptyset$ ; no show
70		ls: tan, lt. brown, fn-medxtln, granular, sli foss, scat pr vuggy & interxtln $\emptyset$ ; no show
80		ls: as above; no show
90		ls: tan, greyish-tan, fn-medxtln, granular, some reworked, foss; pr-fr vuggy $\emptyset$ , v. scat fr foss $\emptyset$ ; no show
3700		ls: tan, grey, fnxtln, dense
10		few pcs blk carb sh
20		ls: grey, brown, dk brown, fn-medxtln, granular, mottled in part, scat pr interxtln/granular $\emptyset$ ; no show
30		sh: grey, pale grey, silty - sandy ss: brown, fn grained, calc (dol) - no vis $\emptyset$ ; no show
40		ls: lt. brown, brown, mostly fn - some medxtln, sli. foss, no vis $\emptyset$ , no show
3750		ls: as above; no vis $\emptyset$ ; no show ss: lt. grey, silty - sli. sandy; dol: grey, v. fn. fnxtln, dense

**TOPEKA**  
3600 (-896)



3800

3850

3900

3950

ls: tan, lt. brown, fn-med xtn, sli. foss; granular in part; epl pcs w/ pr interxtn  $\phi$ ; mostly dense; no show  
 few pcs blk carb sh & emerald grn sh  
 ls: brown, tan, grey fn-med xtn, drs

ls: tan, lt. grey, fn-med xtn, foss, granular, calcite infill, scat app pr interxtn  $\phi$ ; no show

ls: grey, micro xtn, dense; ls: tan, fn xtn, chalky in part; no vis  $\phi$ ; no show; considerable sh: grey, green-grey, some calc  
 ls: as above; no show

ls: grey, fn xtn, dense

sh: blk, carb

ls: tan, vfn-fn xtn, drs

sh: grey, calc in part

sh: grey, grey-green, sli silty, calc in part

ls: off-wh, tan, fn-med xtn, some granular in part; few pcs w/ app pr interxtn  $\phi$ ; no show  
 sh: grey, lt. grey, sli mica.

ls: off-wh, tan, lt. brown, fn-med xtn, sli foss, sli ool, calcite in part; scat pr interxtn  $\phi$ ; pr. tr fr vuggy  $\phi$ ; few pcs w/ pr interod. drs; no show

ls: as above; no show, w/ ls: wh fn xtn, chalky  $\rightarrow$  wh chalk

sh: grey, green-grey, calc in part  
 ls: wh, off-wh, fn xtn, ool, pr inter-ool  $\phi$ , most w/ calcite cement, few pcs w/ ss hvy, dk, inert/tarry oil, scat spotty blk hvy st; NS liveoil  
 sh: grey, lt. grey, sli calc

ls: lt. grey, some tan, fn-med xtn, granular in part, sli foss, app pr - tr fr ppt vuggy  $\phi$ , scat isolated larger vugs, pr interxtn  $\phi$ , few pcs w/ minor bleed natural, ss ppts FO, epl pcs FSP, pr. tr fr med brown  $\rightarrow$  blk st w/ spotty sat, v ft odor after break

sh: grey, green, few pcs brown-rust

ls: off-wh, tan, lt. grey, fn-med xtn, epl pcs ool & v sli. ool, tr foss, scat pr vuggy  $\phi$ , interxtn  $\phi$ ; epl pcs pr interool  $\phi$ , vss ppts FO on break; pr spotty dk. brown st; no odor

ls: beige, tan, fn-med xtn, sli ool & ool, scat pr interxtn  $\phi$ , pr scat ool  $\phi$ , no show

ls: tan, beige, fn-med xtn, sli ool & ool, scat pr - froc  $\phi$ , pr vuggy  $\phi$ , no show

ls: tan, lt brown, fn-med xtn, few pcs w/ pr interxtn  $\phi$ , no show w/ ls: gry, micro-vfn xtn, dense

ls: tan, lt grey, vfn-fn xtn, dense; w/ shale grey, calc in part, few pcs blk carb shale

**HEEBNER SH.**

3816 (-1112)

**TORONTO**

3841 (-1137)

**LANSING**

3856 (-1152)

**DST #1**  
 (3876 - 3922)  
 30" - 60" - 60" - 90"  
 IFP: 1/2" BLOW BLDG TO 3"  
 ISIP: NO BLOW  
 FFP: SURF BLOW BLDG TO 2 1/4"  
 ISIP: NO BLOW  
**RECOVERY:**  
 140' MW w/ ALL SPOTS  
 CHL: 62000 PPM SYS: 2000 PPM  
 HSP: 1865# - 1814#  
 FP: 21#-44# / 45#-75#  
 SIP: 1138# - 1129#  
 BMT: 120° F

**DST #2**  
 (3919 - 3937)  
 30" - 60" - 30" - 60"  
 IFP: SURF BLOW BLDG TO 3/4"  
 FFP: NO BLOW  
**RECOVERY:**  
 5' MUD  
 HSP: 1956# - 1801#  
 FP: 14#-14# / 14#-15#  
 SIP: 820# - 805#



ST #3

4000

10  
20  
30

40  
4050

60  
70

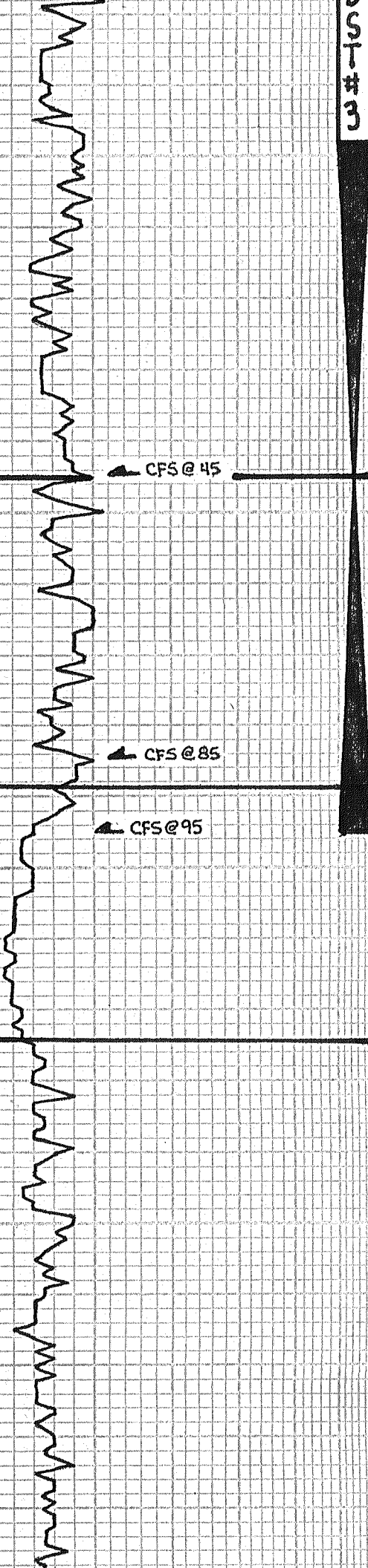
80  
90  
4100

10  
20

30  
40  
4150

60  
70  
80

90  
4200



ls: tan, lt. brown, fn-medxtln, no vis  $\phi$ , w/ sh: lt. grey, green-gry, purple

ls: tan lt. brown fn-medxtln, col in part, some calcite cement w/ tr pr interxtln  $\phi$ , no st, NSO

ls: lt. grey, grey, micro-fnxtln, dense; few pcs tan, fn-medxtln, sli chalky no vis  $\phi$

ls: as above w/ sh: grey, green, tr purple, calc in part

ls: tan, brown, grey mostly micro-fnxtln, dense, few tan, fn-medxtln sli col, no vis  $\phi$  NS: w/ sh: grey

greenish-grey, some brown, sli silty  $\rightarrow$  sli sandy in part

ls: tan, lt brown, fn-medxtln, sli col & foss, chalky in part, scat vpr-pr interxtln & ppt vuggy  $\phi$ , no show

sh: black, carb.

ls: grey brown vfn-fnxtln dense w/ sh: grey, green-grey, calc in part, few pcs purple

ls: off-wh, tan, lt. grey, fn-medxtln, v sli col, scat pr interxtln & ppt vuggy  $\phi$ , PS blk hvy oil, 2-3 pcs/tray w SS ppts, FO on brk, scat pr spotty dk brwn/blk st, scat dd oil residue.

ls: grey, brown, micro-fnxtln dense w/ sh: grey, calc in part

ls: off-wh tan lt. grey fnxtln, vpr interxtln & ppt vuggy  $\phi$  scat dd oil residue, apl spots blk hvy immobile oil/tar, NS live oil @ CFS 85

ls: tan, grey, vfn-medxtln, dense sh: grey, green, brown, rust, calc in part

sh: mostly grey, some green, brwn rust; some silty  $\rightarrow$  sli sandy, few clusters lt grey, fngrained, shaley ss: no show

sh: as above w/ brown, rust, silty  $\rightarrow$  sandy shale; few clusters brown, red fngrained shaley ss; no show

ls: lt. grey, grey vfn-fnxtln, dense

ls: tan, fn-medxtln, dense

sh: grey, some w/ ls/foss frags included; sh: grey, mica, some brown, silty, sandy

sh: as above w/ few clusters ss: grey, brown, fngrained, shaley

ls: grey, medxtln, mottled in part, dense; few pcs tan, fn-medxtln, dense; considerable grey, brwn sh

sh: grey, purple, calc (dolo), brown, w/ ls: grey, tan, fnxtln dense; few pcs grey, fnxtln, shaley dolo.

ls: off wh, tan, grey, fn-medxtln, sli sandy, no vis  $\phi$ ; no show; sh: brown, grey, silty

sh: grey, greyish-purple dolomitic to dolo: grey, purple, vfn-fnxtln shaley; ls: tan, grey, fnxtln, dense

sh: brown, rust-brown, silty  $\rightarrow$  sli. sandy in part

sh, dolo & ls; as above

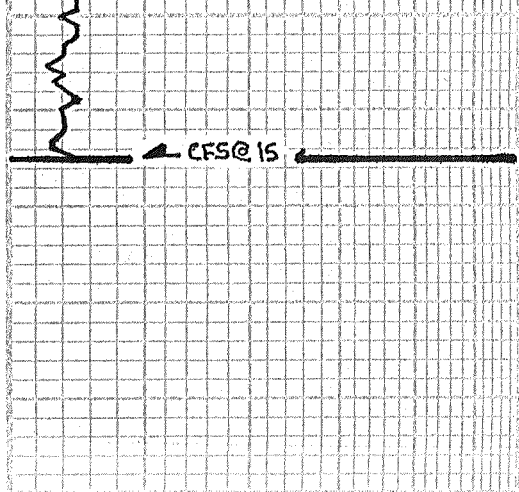
BHT: 110° F

**DST #3**  
**(3998 - 4095)**  
**30" - 60" - 60" - 90"**  
 IFF: WK BLOW BLDG TO 2 1/4"  
 FFP: SURF BLOW DIED IN 5"  
**RECOVERY:**  
**10' MUD**  
**HSP: 1950# - 1894#**  
**FP: 32# - 34# / 36# - 37#**  
**SIP: 595# - 720#**  
**BHT: 115° F**

**STARK**  
**4045 (-1341)**

**BKC**  
**4089 (-1385)**

**MARMATON**  
**4124 (-1420)**



5" 10" 15" 20" 25"  
 DRILLING TIME Minutes/Foot

Rate of Penetration Decreases

4200

10



LITHOLOGY

mostly sh: brown, rust-brown,  
 purple, some grey, green w/ l  
 ls: off-wh, tan, brown, fr-med xtn,  
 v sh cal, seat chalky, sandy, tr  
 v pr-pr interxtn  $\phi$ ; no show

SAMPLE DESCRIPTIONS

UPPER PAWNEE 4208 (?)

RTD 4215 (-1511)

LTD 4213 (-1509)

SHAHS TID

REMARKS