**Max R Lovely**

# GEOLOGIST'S REPORT

## DRILLING TIME AND SAMPLE LOG

COMPANY **Ritchie Exploration**
LEASE **Campas Trust #1**
FIELD **Wildcat**
LOCATION **NW NE SE**
SEC **33** TWSP **16** RGE **37W**
COUNTY **Wichita** STATE **KS**

ELEVATIONS
KB **3366**
DF
GL **3361**
Measurements Are All From **KB**

CONTRACTOR **WW #1**
SPUD **7-21-14** COMP **7-31-14**
RTD **5040** LTD **5044**
MUD UP **3412** TYPE MUD **Chem**

CASING
SURFACE 8 5/8" @ 263'
PRODUCTION 5 1/2"

ELECTRICAL SURVEYS
DUAL IND
COMP N/D

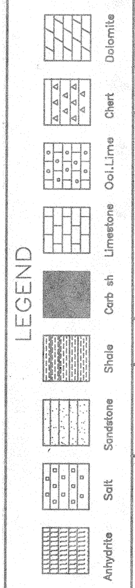
### FORMATION TOPS AND STRUCTURAL POSITION

| FORMATION | SAMPLE TOP | ELECTRIC LOG TOP | SUB-SEA DATUM | STRUCTURAL POSITION | | |
|---|---|---|---|---|---|---|
| | | | | A | B | C |
| Base Anhydrite | 2557 | 2557 | 809 | 804 | | |
| Stotler | 3628 | 3620 | -254 | -265 | | |
| Heebner | 4005 | 4008 | -642 | -643 | | |
| Lansing | 4051 | 4056 | -690 | -695 | | |
| Muncie | 4234 | 4237 | -871 | -879 | | |
| Stark | 4330 | 4336 | -970 | -975 | | |
| BKC | 4426 | 4429 | -1063 | -1076 | | |
| Marmaton | 4442 | 4446 | -1080 | -1124 | | |
| Altamont | 4493 | 4494 | -1128 | -1139 | | |
| Pawnee | 4580 | 4589 | -1223 | -1225 | | |
| Ft Scott | 4628 | 4631 | -1265 | -1278 | | |
| Cherokee | 4654 | 4657 | -1291 | -1305 | | |
| Johnson | 4742 | 4764 | -1398 | -1414 | | |
| Mississippi | 4910 | 4910 | -1544 | -1665 | | |

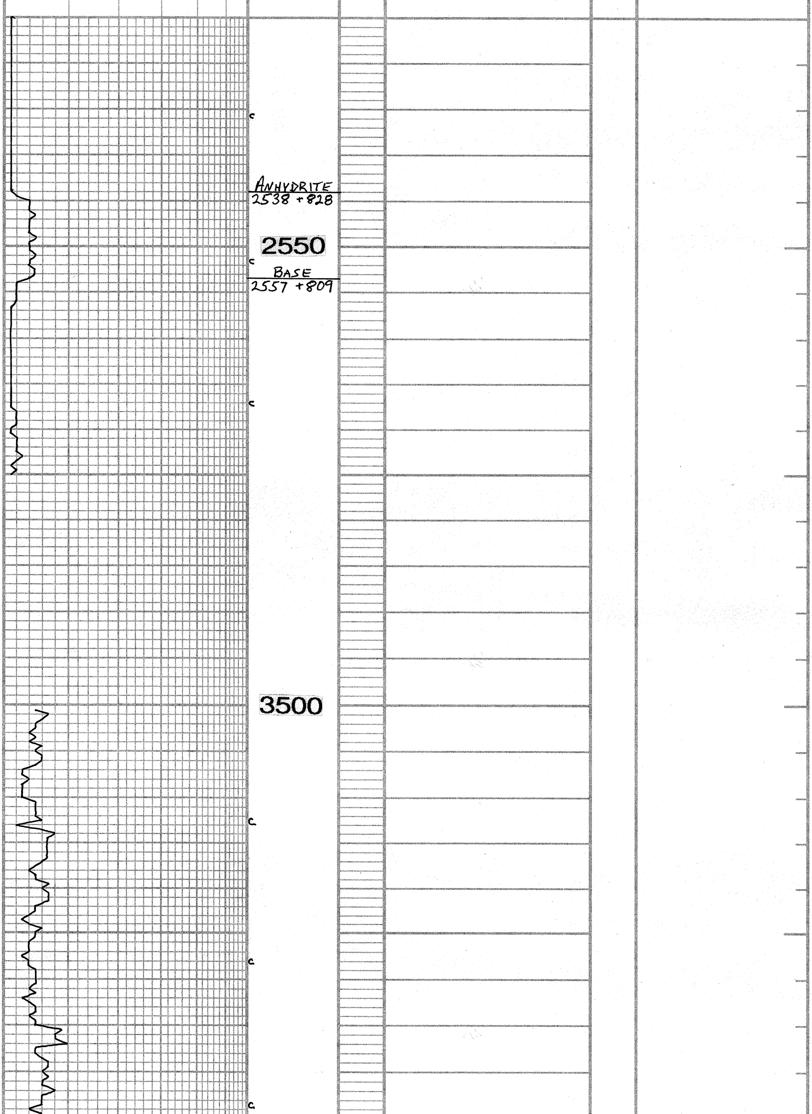
REFERENCE WELLS FOR STRUCTURE

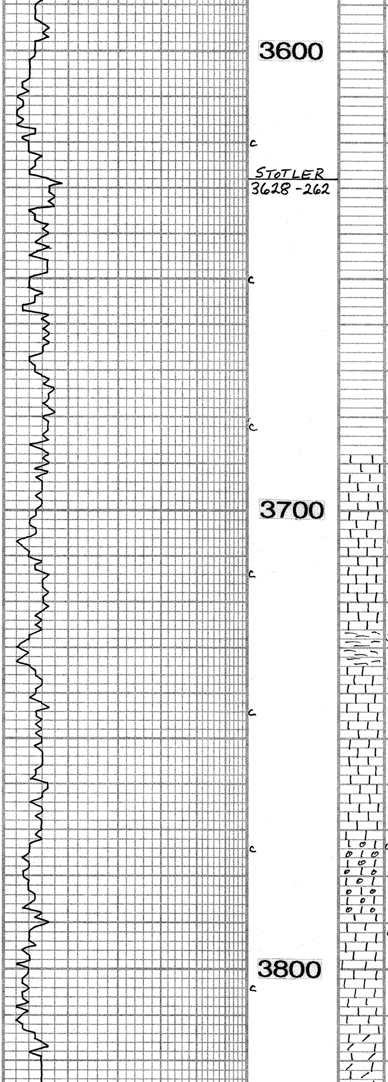
A **Shenandoah Oil#1Smith NW SW 28-16-37W**
B
C

REMARKS



| DRILLING TIME IN MINUTES PER FOOT<br>Rate of Penetration Decreases<br>5" 10" 15" 20" 25" | DEPTH | LITHOLOGY | SAMPLE DESCRIPTIONS | OIL SHOWS | REMARKS |
|---|---|---|---|---|---|





LS, WHT, TAN, FXTLN, HRD,
SL DNS, NO VIS FOSS, NO VIS Ø
NS

LS, TAN, F XTLN, HRD, SL DNS,
? PØ, NS

A.A.

SH, GRY, SLTY

LS. CRM, TAN, S → HARD, PCS PØ
NS

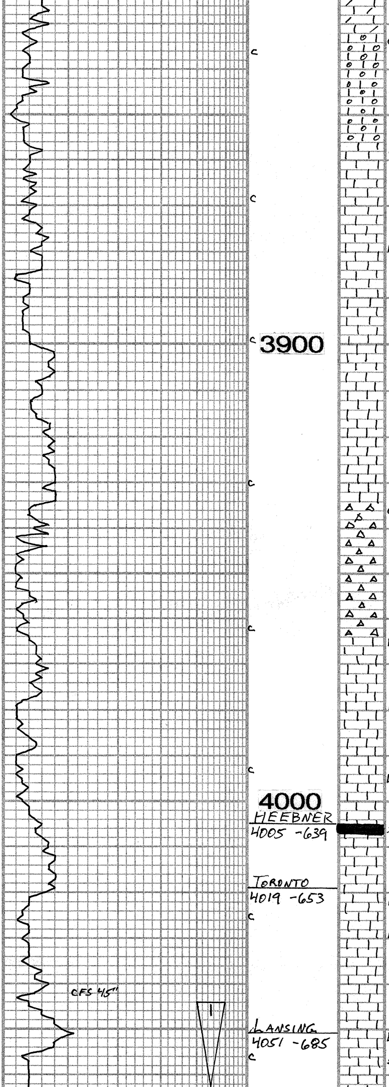
LS. CRM, TAN, FXTLN, M HRD,
ABUN S → MED FOSS, PØ. NS

CHALK

LS, GRY, F XTLN, M HRD, SL FOSS,
VPØ. NS

A.A.

LS, DOLO, BUFF, F → SL SUCR,
HRD. NO VIS Ø. NS



CHALK, SL LMY

MUD CHECK
VIS: 58 WT: 8.8
CHLOR: 4,000 LCM: 1
FILT: 8.0

LS. BOFF, F XTLN, HRD, ABUN FOSS, VP FOSS Ø, NS

LS, TAN, SOFT, F XTLN, SL CHLKY, NS

A.A.

7:AM 7-25-14
DRLG @ 3895'

LS, WHT, VF XTLN, V DNS, V HRD, TITE, NS

LS. CRM, GRY/TAN, VF XTLN, HRD, ABUN FOSS, SCT OOL, TITE, NS

CHT, WHT, ORNG, OPAQ, FRESH, NS

A.A.

LS. TAN, GRY, F XTLN, SOFT, NS

LS, WHT/GRY, F XTLN, SOFT, DK GRY MINS W/N, NO VIS Ø. NS

LS. TAN, GRY, F XTLN, SOFT, SL CHLKY, NS

36 STND SHORT TRIP

DST #1 4044-4080
30·45·30·45
IF: BOB 1½ MIN ISI: NR
FF: BOB 2 MIN FSI: NR
REC: 1990' SMCW - 97% W
36,000 CHLOR
FP: 200-627, 646-900
SIP: 1116 - 1118
HP: 2018 - 2017

SH, BLK

LS, GRY, F → M XTLN, HRD, SL DNS, V FEW SML FOSS, NO Ø. NS

LS. BRN, TAN, GRY, F XTLN, M HRD, FOSS, NO APP Ø, NS

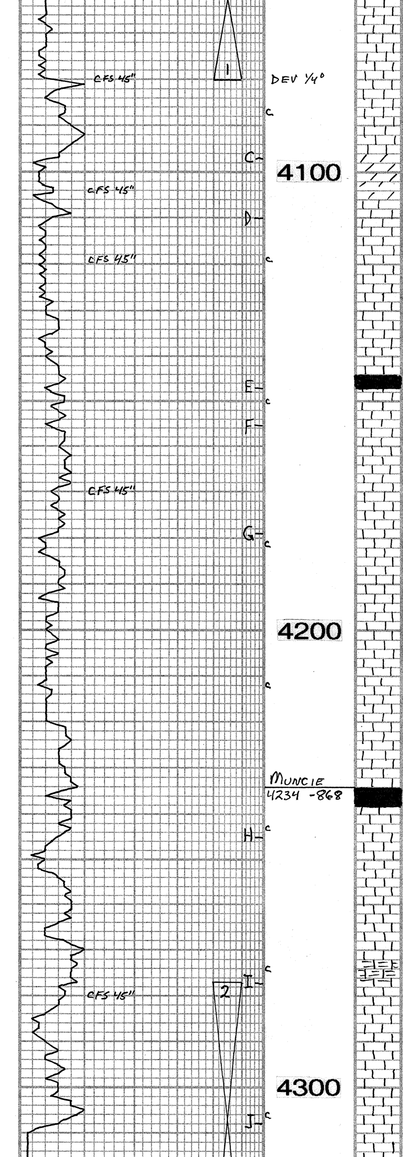
LS, WHT, CRM, VF XTLN, SOFT, CHLKY, PCS SCT FOSS, PCS W/SML VUGY Ø, NS

AA. FEW SCT FRESH WHT CHT

LS. WHT, CRM, VF XTLN, SOFT, SCT HVY BLK OIL FILL VUGS

20" 2 PCS SHO - G INTXTLN Ø, FEW FO ON BRK

NO ODOR
RAINBOW
7 SHO PCS



MUD CHECK
VIS:56 WT: 9.2
CHLOR: 5,300 LCM:1
FILT:8.8

LS.CRM / WHT, VF XTLN, SOFT, NO VIS Ø. NS

7:AM 7-26-14
DST #1 @ 4080'

STRAP: 4087.28
BOARD: 4087.83
short .55

LS.TAN, BUFF, VFXTLN, HRD, ABUN W CMT'D FOSS, TITE, NS

DOLO, CRM, SUCR, SOFT, VGRNY, G RNLR Ø, NS

LS.CRM, BUFF, F XTLN, Pcs BRTTL, M HRD, SCT LG FOSS, SCT LG XTLN Ø, NS

LS. WHT, CRM, F XTLN, SOFT, BRTTL, SL CHLKY ON BRK, P→F Ø. NS

SH

LS. LT GRY, VF XTLN, DNS, HRD, TITE, NS

LS. TAN, F XTLN, M HRD, V FOSS, Pcs BRTTL, PØ. NS

LS. WHT, VFXTLN, DNS, HRD, TITE, NS

LS. LTGRY, VF XTLN, DNS, HRD, TITE, NS

LS. AA.

LS. LTGRY, VFXTLN, DNS. HRD, TITE NS

SH, GRY, BLK

LS. CRM, TAN, F XTLN. HRD, SCT WHT CHT, NS

LS. WHT, F XTLN, DNS, HRD. TITE, NS

DST #2 4277-4337
30·45·45·60
IF: BOB 10 MIN ISI: NR
FF: BOB 12 MIN FSI: NR
REC: 815' MCW - 90% W
OIL SPTS THROUGHOUT
39,000 CHLOR
FP: 94-235, 222-416
SIP: 1237-1233
HP: 2195-2045

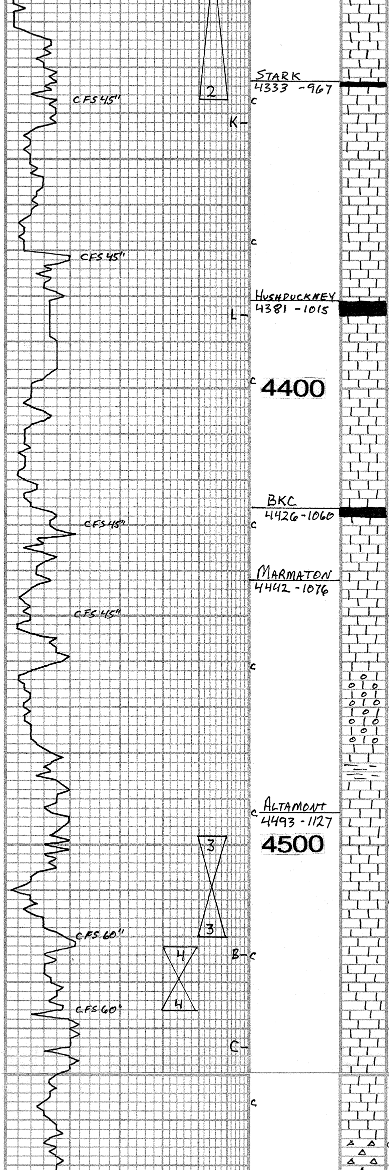
LS. GRY, F XTLN → MED XTLN, SCT SOFT → V HRD, PØ. NS

SHLY, GRY, GRN

LS. CRM, TAN, F XTLN, HRD. NO VIS Ø. NS

LS. WHT, V GRNLR, SOFT, G DK OIL FILL INT GRNLR Ø, G FO ON BRK, NO FLUOR VG ODOR

LS. TAN, VF XTLN. HRD, BRTTL, GOOD M Ø. NS



LS, CRM, WHT, F XTLN, HRD, SCT OOC Ø, ABUN FOSS + OOLS, G Ø NS

SH, BLK, SNDY

LS, BUFF, CRM, F XTLN, M XTLS W/N, HRD, VP Ø, NS

LS, BUFF, CRM, F XTLN, SOFT, SL CHLKY, FAIR Ø, NS

LS, BUFF, F XTLN, BRTTL, V FOSS, FEW PCS W/SCT VUG Ø, NS

LS, BUFF, CRM, F XTLN, SOFT, SCT CHLK, F Ø, NS

SH, DK GRY

LS, GRY, BRN, F→M XTLN, V HRD, FOSS, NO APP Ø, NS

LS, LT GRY, F XTLN, HRD, FOSS, TITE, NS

LS, WHT, CRM, F XTLN, SOFT, CHLKY, NS

A.A.

SH, GRY

LS, GRY, F XTLN, HRD, PCS SOFT, SOFT PCS W/G INT XTLN Ø, NS

LS, TAN, F XTLN, BRTTL, ABUN FOSS + FRAGS, M HRD, NS

LS, CRM, F XTLN, V HRD, SL ALGAL, NO VIS Ø, NS

CHALK

SH, GRN

LS, BRN, F→M XTLN, GRNLR TXT, HRD, P PP Ø, SCT GRY + WHT CHT

LS, WHT, VF XTLN W/G WEA STRKS, HRD, DK OIL FILL STNG, SCT FO ON BRK — NO ODOR 1PC

LS, TAN/WHT, F XTLN W/ MED XTLS W/N, S→M HRD, F PP→V SML VUG Ø, SCT BRN STNG, F SHO PP BRN FO ON BRK, VSL DULL FLUOR STNG — 8PCS NO ODOR

60" LS, BRN, WHT, F→M XTLN, M HRD, G OIL SAT PP + XTLN Ø, FLUOR STNG + FO, BRN→AMBER FO ON BRK + TRAY, SL GSY — G ODOR

LS, BRN/WHT, M XTLN, HRD, G STRKY STNG, FAIR FO ON BRK, F XTLN Ø, ?, FLUOR FO N TRAY - uphole? — V LT ODOR 7PCS

LS, DK GRY/BRN, VF XTLN, DNS, V HRD, TITE, NS

LS, BRN, VF XTLN, V HRD, V DNS, TITE, NS

LS, WHT, SOFT, F XTLN, CHLKY, LG XTLS W/N, NS

CHT, BLK, WHT, BLK OOLS + FOSS, VW CMT'D FOSS, FRESH

MUD CHECK
VIS: 57 WT: 9.1
CHLOR: 8,300 LCM: 2
FILT: 9.6

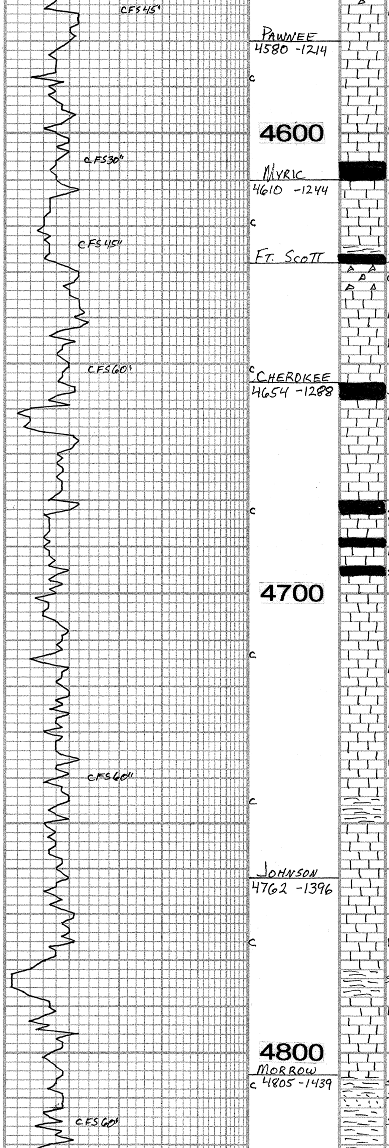
7:AM 7-27-14
DST #2 @ 4337'

DST #3 4498-4520
30·45·45·60
IF: BOB 4 MIN ISI: 5" BB
FF: BOB 3 MIN FSI: 3½"→2"
REC: 180' GO · 30% G, 70% O
515' GO · 35% G, 65% O
160' GMCO
35% G, 45% O, 25% M
1200' GIP 29° API
FP: 74-177, 197-334
SIP: 1256-1238
HP: 2275-2253

DST #4 4522-4536
30·30·30·30
IF: surf blo, died 3 min
FF: dead, flush, dead
REC: 3' M
FP: 14-17, 15-17
SIP: 22-17
HP: 2321-2091

7:AM 7-28-14
DST #3 @ 4520'
MUD CHECK
VIS: 60 WT: 9.3
CHLOR: 9,100 LCM: 2
FILT: 10.4

7:AM 7-29-14
GIH W/ BIT @ 4536'



LS, TAN, VF XTLN, VW CMT'D, OOL + FRAGS, V HRD, TITE, NS

LS. WHT, GRY, VF XTLN, V HRD, LG XTLS W/N, TITE, NS

LS, BRN, TAN, F XTLN, LG XTLS W/N, V HRD, DNS, TITE, NS

SH, BLK

LS. TAN, CRM, BRTTL, M XTLN, SL CHLKY ON BRK, NS

SH, GRN
SH, BLK

CHT, GRNSH GRY, ABUN FOSS + FRAGS, FRESH

LS, TAN, VF XTLN, DNS, HRD, TITE NS

LS, CRM, WHT, F XTLN, LG XTLS + FOSS W/N, BRTTL, NS

SH, BLK

LS, WHT, F XTLN, SOFT, BRTTL, LG XTLS W/N, NS

LS, GRY, F XTLN, HRD, FOSS, TITE, NS

SH, GRN, GRY

LS, WHT, F XTLN, BRTTL, S → M HRD, NO VIS Ø, NS

LS. WHT / GRY, F XTLN, M XTLS W/N, SOFT, NS

SH

LS, WHT / GRY, F XTLN, SL DNS, HRD, NO VIS Ø, NS

LS, GRY / TAN, VF XTLN, DNS, HRD, SCT SML FOSS, NO VIS Ø, NS

LS. CRM, BRN, GRY, F XTLN, HRD, DNS, ABUN VARI SIZE FOSS, NO VIS Ø, NS

LS. GRY, BLK, VF XTLN, V DNS, V HRD, SCT SML FOSS W/N, TITE CHTY - ROOT BEER, FRESH, NS

LS, CRM, BRN, TAN, F XTLN, SCT MED XTLS W/N, BRTTL, HRD, NO VIS Ø, NS

SH, GRY, GRN

LS. BRN, TAN, GRY, VF XTLN, V DNS, V HRD, FEW SCT BRN OPAQ CHT NS

LS. WHT, TAN, VF XTLN, V DNS, V HRD, BLOCKY, TITE, NS

LS, CRMY/TAN, VF XTLN, V DNS, V HRD, BLOCKY, SML FOSS, TITE NS

SH, GRY, GRN

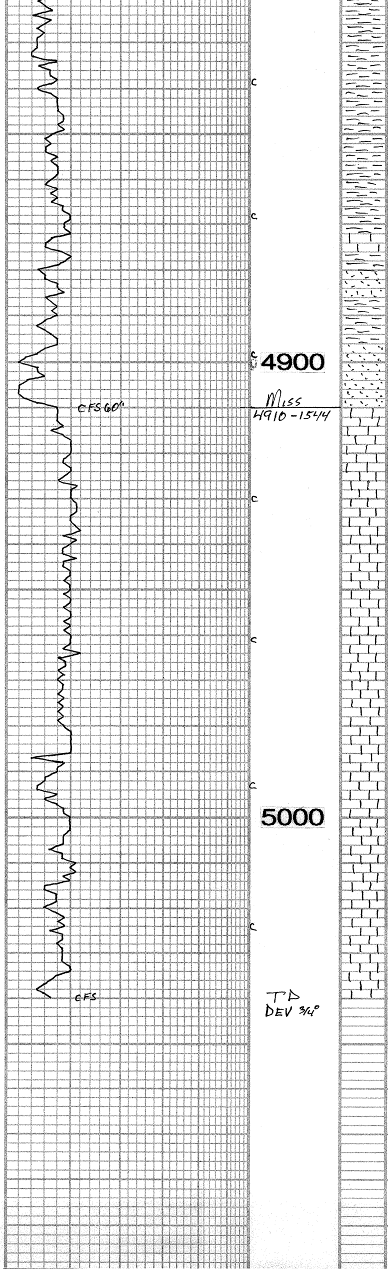
LS, WHT, F XTLN, M HRD → V HRD, FOSS, TITE, NS

SH, VARICOLOR

SS, CLR, ANG, FINE, LT GRY CMT, HRD, W SORT, F Ø, NS

SH, BLK, GRY, GRN, BURG

7:AM 7-30-14
DRLG @ 4777'
MUD CHECK
VIS: 67 WT: 9.3
CHLOR: 9,500 LCM: 2
FILT: 10.4



A.A.

SH, GRY, SLTY

SH, A.A.

SH, GRY, SL SNDY

A.A.

LS. TAN, F→M XTLN, HRD, FEW FOSS, SCT TAN FOSS CHT, NS

SH, GRY, SLTY, GRN

SS, CLR GRNS, SUBANG, P→F SORT, PCS JADE GRN SHLY CMT, G φ. NS

SH, GRY

SS. CLR GRNS, P SORT, CLR CMT, V HRD, V W CMT'D, S→MED GRNS P φ, NS

SS. CLR GRNS, LG ANG, P SORT, SOFT, VG φ. NS

LS. CRM, BRN. WHT, FOSS. HRD, NO VIS φ, NS
WHT + TAN PCS → GRNY TXT

← SD + SH FLOOD

LS, GRY, F XTLN, M HRD, TITE NS

ABUN SH SLUFF

WORK ON RIG

LS. WHT, CRM, F→M XTLN, HRD, BRTTL, NS

LS. BUFF, VF XTLN, V DNS, V HRD, SCT SML FOSS THRUOUT, TITE NS

A.A.

A.A.

LS. WHT, F XTLN, FEW LG SURF XTLS, MOSTLY TITE, HRD. NS

LS, BRN/GRY, VF→LG XTLS, V HRD, ? P XTLN φ. NS

LS. WHT, F XTLN, V HRD, FOSS, NO APP φ. NS

LS. WHT, F→M XTLN, M HRD, SCT P XTLN φ. NS

LS, A.A.

LS. WHT, F XTLN, LG XTLS W/N, CHLKY, SOFT, BRTTL, NS

7:AM 7-31-14
DRLG @ 5036'

10 STND SHORT TRIP
COND^N 1½ HRS
SUPERIOR LOGGING

MUD CHECK
VIS: 64 WT: 9.3
CHLOR: 9,000 LCM: 2
FILT: 9.6