

LOG created using LPLOT VH Version 3.0, April 16, 2013, Copyright (C) 1999-2009 Pason Systems Corp.

**OPERATOR:** BILL BARRETT CORPORATION  
**WELL:** DUTCH LAKE 17-25H  
**LOCATION:** NWNW SEC 25-T6N-R62W  
**COUNTY:** WELD  
**STATE:** COLORADO  
**SPOT:** 501' FNL x 501' FWL  
**ELEVATION:** GL 4,671' / KB 4,686'  
**FIELD:** WILDCAT  
**SPUD DATE:** APRIL 6, 2013  
**TD DATE:** APRIL 16, 2013  
**DATES LOGGED:** APRIL 7, 2013 - APRIL 16, 2013  
**DEPTHS LOGGED:** 4,000' - 10,651'  
**LOGGERS:** J. ROUSE, A. SIMMONS AND C. TRODICK  
**DRILLING FLUID:** WATER BASED MUD  
**DRILLING RIG:** CADE 24  
**API:** 05-123-33406  
**LOG TYPE:** VERTICAL  
**SCALE:** 1:240 (5 inches per 100 feet)  
**REMARKS:** WELLSITE GEOLOGICAL SERVICES PROVIDED BY COLUMBINE LOGGING, INC.

### LITHOLOGIES



Sandstone



Shaly Sandstone



Shaly Siltstone



Siltstone

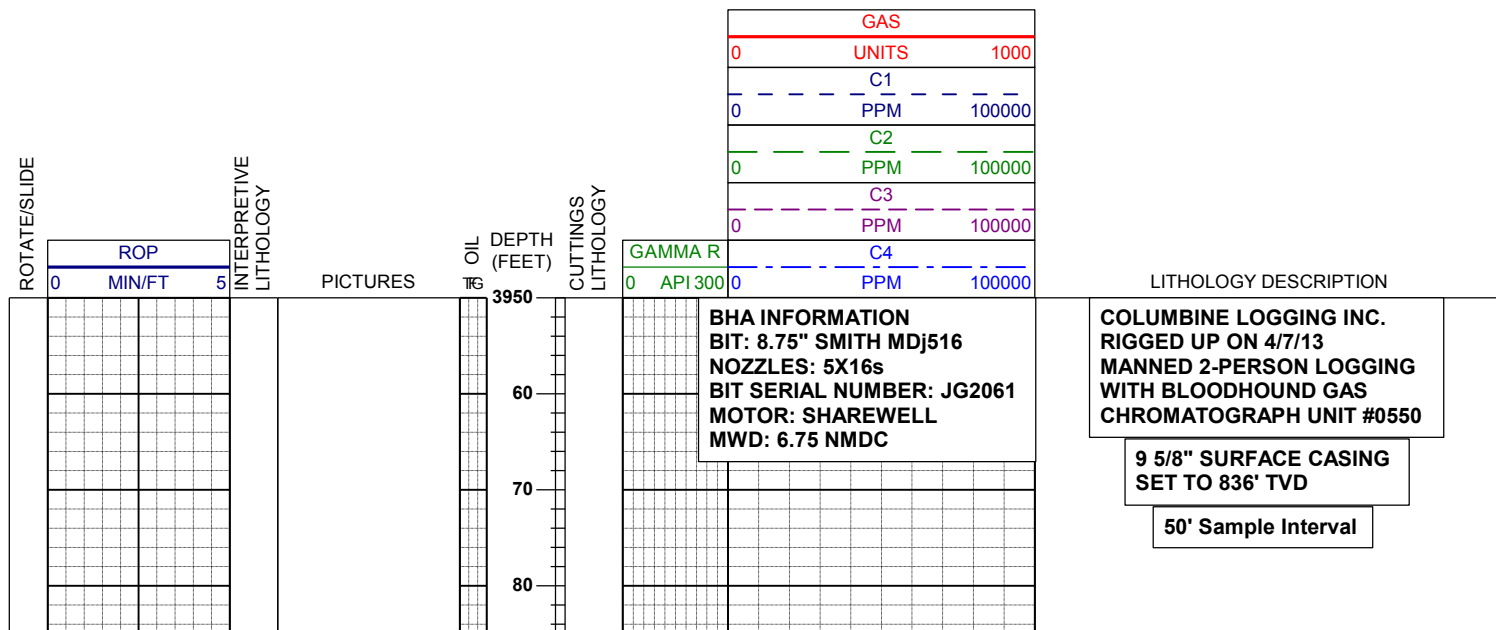
### ENGINEERING SYMBOLS



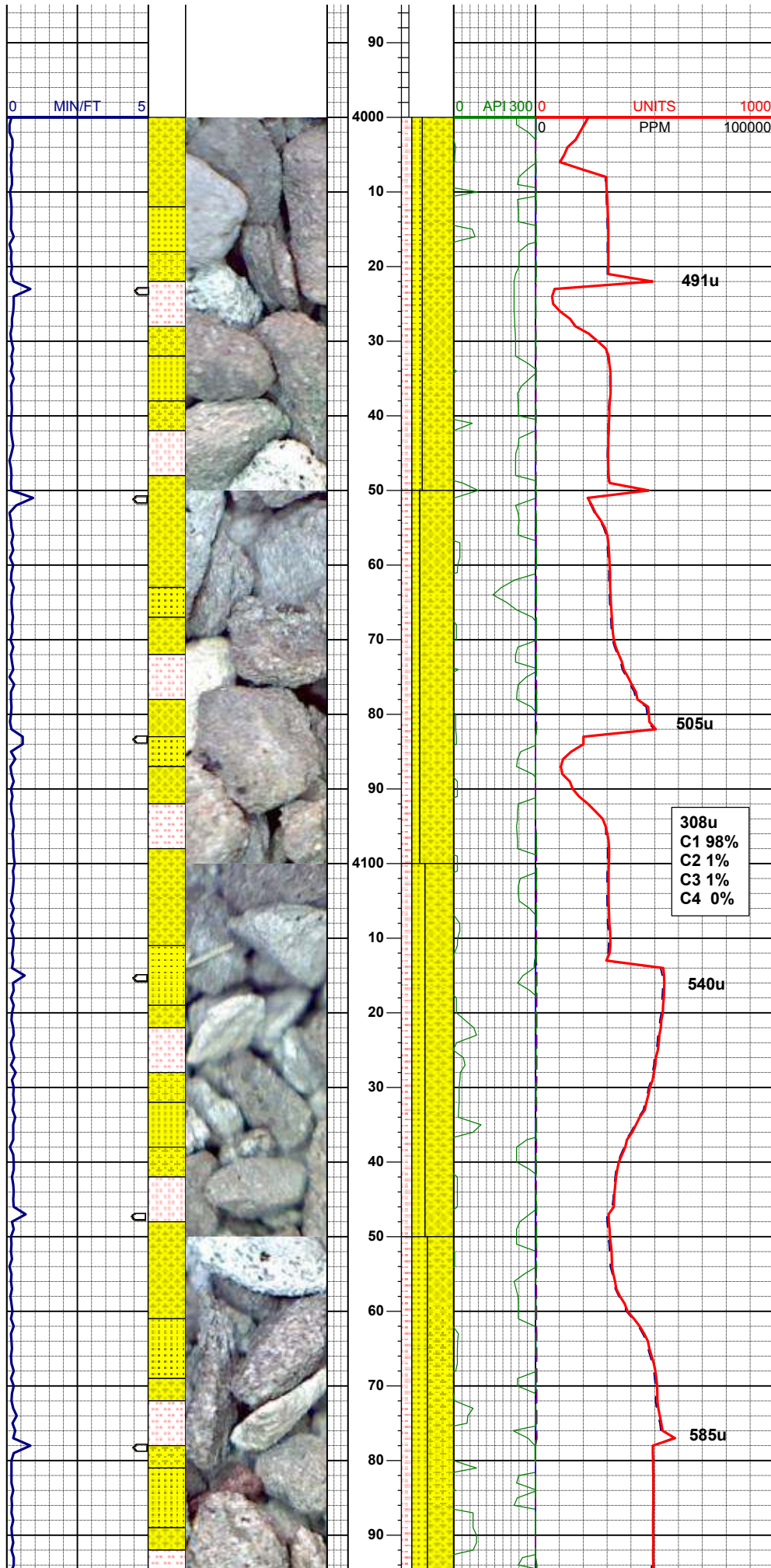
Connection



Midnight Depth



WT 9.6, VIS 44



60% SLTYSS: lt gy - m gy, sl mot, sme bnd, sft - frm, brit, blk - sbblky  
 20% SLTST: lt gy - bf, sbblky - blk, rthy, sft - frm  
 20% SS: wht - lt gy, sme buff, mod - w srt, rdd - sbrdd, hd, brit, f - m gr, tr glau, sme biot

**SURVEY**  
 MD 4027'  
 INC 11.9°  
 AZI 25.8°  
 TVD 3987.93'

65% SLTYSS: lt gy - m gy, sl mot, sme bnd, sft - frm, brit, blk - sbblky, v tr pyr  
 20% SLTST: lt gy - bf, sbblky - blk, rthy, sft - frm, grdg to sltyss ip  
 15% SS: wht - lt gy, sme buff, mod - w srt, rdd - sbrdd, hd, brit, f - m gr, tr-mod glau, tr-sme biot, tr phlog

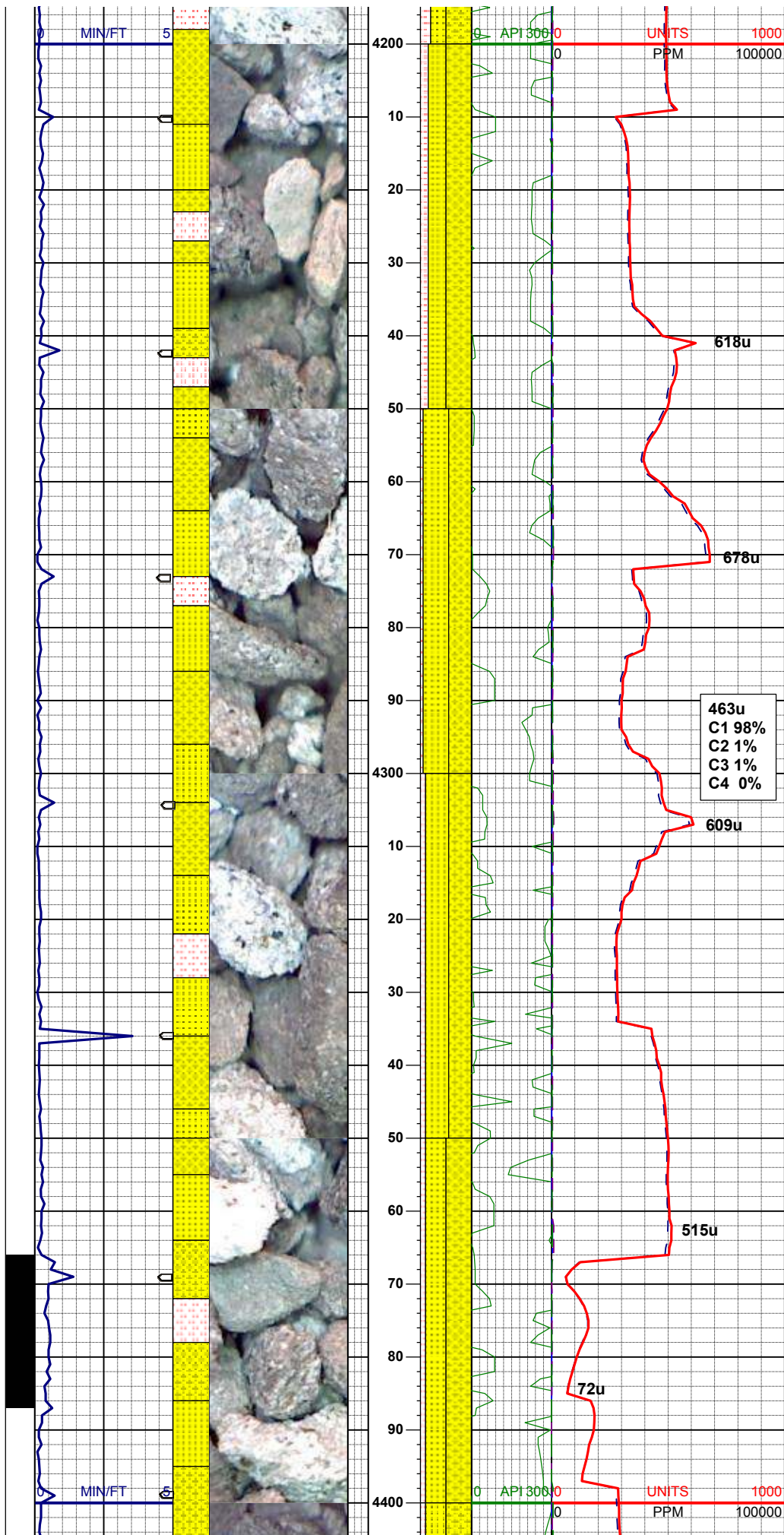
308u  
 C1 98%  
 C2 1%  
 C3 1%  
 C4 0%

55% SLTYSS: lt gy - m gy, sl mot, sme bnd, sft - frm, brit, blk - sbblky  
 25% SS: wht - lt gy, sme buff, mod - w srt, rdd - sbrdd, hd, brit, f - m gr, tr-mod glau, sme biot, tr phlog  
 20% SLTST: lt gy - bf, sbblky - blk, rthy, sft - frm

**SURVEY**  
 MD 4123'  
 INC 10.4°  
 AZI 24.6°  
 TVD 4082.11'

WT 9.6, VIS 51

50% SLTYSS: lt gy - m gy, sl mot, sme bnd, sft - frm, brit, blk - sbblky, v tr pyr  
 30% SS: wht - lt gy, sme buff, mod - w srt, rdd - sbrdd, hd, brit, f - m gr, tr glau, sme biot, tr phlog, grdg to sltyss ip  
 20% SLTST: lt gy - bf, sbblky - blk, rthy, sft - frm, grdg to shy sltst



**SURVEY**  
**MD 4218'**  
**INC 10.3°**  
**AZI 23.3°**  
**TVD 4175.57'**

50% SLTYSS: lt gy - m gy, sl mot, sme bnd, sft  
- frm, brit, blkly - sbblky, sme tr pyr  
35% SS: wht- lt gy, sme buff, mod - w srt, rndd  
-sbrndd, hd, brit, f - m gr, tr glau, sme biot,  
grdg to sltyss ip  
15% SLTST: lt gy - bf, sbblky - blkly, rthy, sft -  
frm, grdg to shy sltst

**LOGGER'S TOP**  
**SUSSEX SANDSTONE**  
**4240' MD, 4197' TVD**

50% SS: wht- lt gy, sme buff, mod - w srt, rndd  
-sbrndd, hd, brit, f - m gr, tr glau, sme biot,  
45% SLTYSS: lt gy - m gy, sl mot, sme bnd, sft  
- frm, brit, blkly - sbblky, sme tr pyr  
5% SLTST: lt gy - bf, sbblky - blkly, rthy, sft -  
frm, grdg to shy sltst

**WT 9.7, VIS 47**

**463u**  
**C1 98%**  
**C2 1%**  
**C3 1%**  
**C4 0%**

**SURVEY**  
**MD 4312'**  
**INC 9.9°**  
**AZI 24.1°**  
**TVD 4268.11'**

45% SLTYSS: lt gy - m gy, sl mot, sme bnd, sft  
- frm, brit, blkly - sbblky  
45% SS: wht- lt gy, sme buff, mod - w srt, rndd  
-sbrndd, hd, brit, f - m gr, mod glau, sme biot,  
tr phlog  
10% SLTST: lt gy - bf, sbblky - blkly, rthy, sft -  
frm, grdg to sltyss ip

50% SLTYSS: lt gy - m gy, sl mot, sme bnd, sft  
- frm, brit, blkly - sbblky, v tr pyr  
40% SS: wht- lt gy, sme buff, mod - w srt, rndd  
-sbrndd, hd, brit, f - m gr, mod glau, sme biot,  
sme phlog  
10% SLTST: lt gy - bf, sbblky - blkly, rthy, sft -  
frm, grdg to sltyss ip

**SURVEY**  
**MD 4408'**



INC 7.8°  
AZI 25.4°  
TVD 4362.96'

WT 9.7, VIS 78

50% SLTYSS: lt gy - m gy, sl mot, sme bnd, sft  
- frm, brit, blkly - sbblky, sme tr pyr  
40% SS: wht- lt gy, sme buff, mod - w srt, rndd  
-sbrndd, hd, brit, f - m gr, mod glau, sme biot,  
sme phlog  
10% SLTST: lt gy - bf, sbblky - blkly, rthy, sft -  
frm, grdg to sltyss ip

40% SLTYSS: lt gy - m gy, sl mot, sme bnd, sft  
- frm, brit, blkly - sbblky  
40% SS: wht- lt gy, sme buff, mod - w srt, rndd  
-sbrndd, hd, brit, f - m gr, mod glau, mod biot,  
abnt phlog  
20% SLTST: lt gy - bf, sbblky - blkly, rthy, sft -  
frm, grdg to sltyss ip

386u  
C1 99%  
C2 0%  
C3 1%  
C4 0%

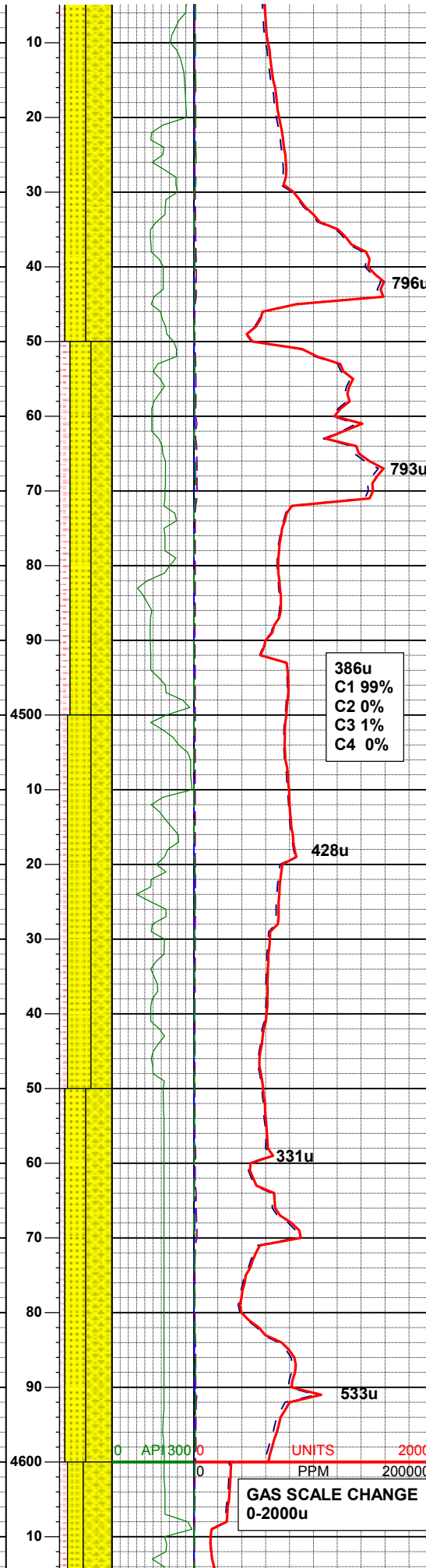
SURVEY  
MD 4503'  
INC 6.5°  
AZI 18.9°  
TVD 4457.22'

45% SS: wht- lt gy, sme buff, mod - w srt, rndd  
-sbrndd, hd, brit, f - m gr, tr glau, sme biot,  
mod phlog  
40% SLTYSS: lt gy - dk gy, sl mot, sme bnd,  
sft - frm, brit, blkly - sbblky, sme tr pyr,  
15% SLTST: lt gy - m gy, sme blgn, sbblky -  
blkly, rthy, sft - frm

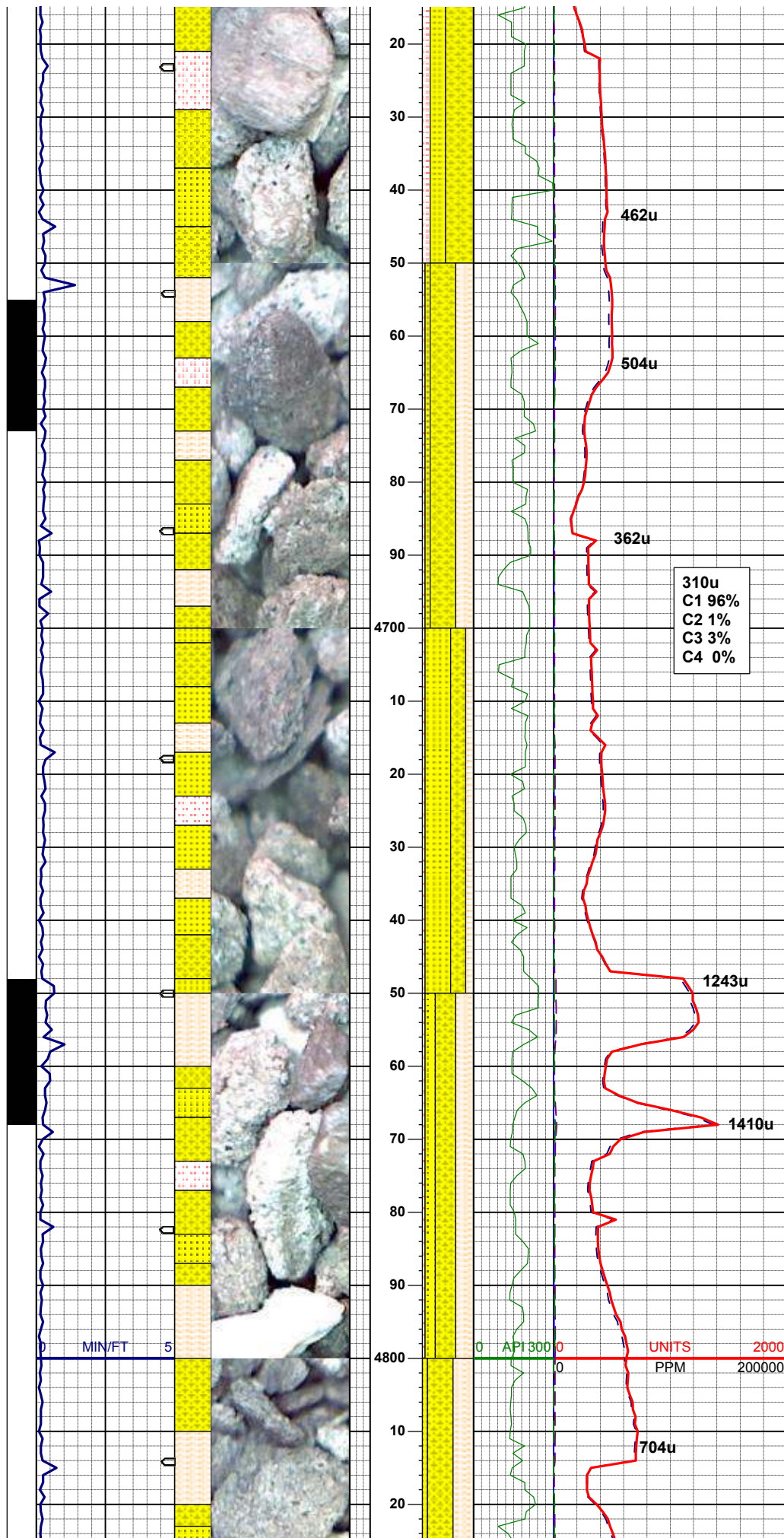
50% SLTYSS: lt gy - dk gy, sl mot, sme bnd,  
sft - frm, brit, blkly - sbblky, sme tr pyr, mod  
phlog  
40% SS: wht- lt gy, sme buff, mod - w srt, rndd  
-sbrndd, hd, brit, f - m gr, tr-mod glau, mod-  
abnt biot,  
10% SLTST: lt gy - m gy, sbblky - blkly, rthy, sft  
- frm

SURVEY  
MD 4598'  
INC 5.6°  
AZI 10.2°  
TVD 4551.70'

WT 9.8, VIS 43



GAS SCALE CHANGE  
0-2000u



55% SLTYSS: lt gy - dk gy, sl mot, sme bnd, sft - frm, brit, blkly - sbblky, sme tr pyr, 30% SS: wht- lt gy, sme buff, mod - w srt, rndd -sbrndd, hd, brit, f - m gr, tr glau, sme biot, tr pyr, mod-abnt phlog  
15% SLTST: lt gy - m gy, sbblky - blkly, rthy, sft - frm, tr vf pyr

50% SLTYSS: lt gy - dk gy, sl mot, sme bnd, sft - frm, brit, blkly - sbblky, tr intbd pyr  
35% SHYSLTST: m gy-dk gy, vf gr- f gr, sme fri, sme fis, rthy, plty - sbplty, mod sft- mhd, w srt, grdg to sh  
10% SS: wht- lt gy, sme buff, mod - w srt, rndd -sbrndd, hd, brit, f - m gr, tr glau, sme biot, tr pyr  
5% SLTST: lt gy, sme bf, blkly, vsft - sft, intbd w/ sh, tr dism pyr, m tr sec calc

**SURVEY**  
**MD 4693'**  
**INC 4.3°**  
**AZI 355.80°**  
**TVD 4646.34'**

**WT 9.7, VIS 42**

**LOGGER'S TOP**  
**SHANNON SANDSTONE**  
**4725' MD, 4678' TVD**

50% SS: wht- lt gy, sme buff, mod - w srt, rndd -sbrndd, hd, brit, f - m gr, tr glau, sme biot, tr pyr  
30% SLTYSS: lt gy - dk gy, sl mot, sme bnd, sft - frm, brit, blkly - sbblky, tr intbd pyr  
15% SHYSLTST: m gy-dk gy, vf gr- f gr, sme fri, sme fis, rthy, plty - sbplty, mod sft- mhd, w srt, grdg to sh  
5% SLTST: lt gy, sme bf, blkly, vsft - sft, intbd w/ sh, tr dism pyr, m tr sec calc

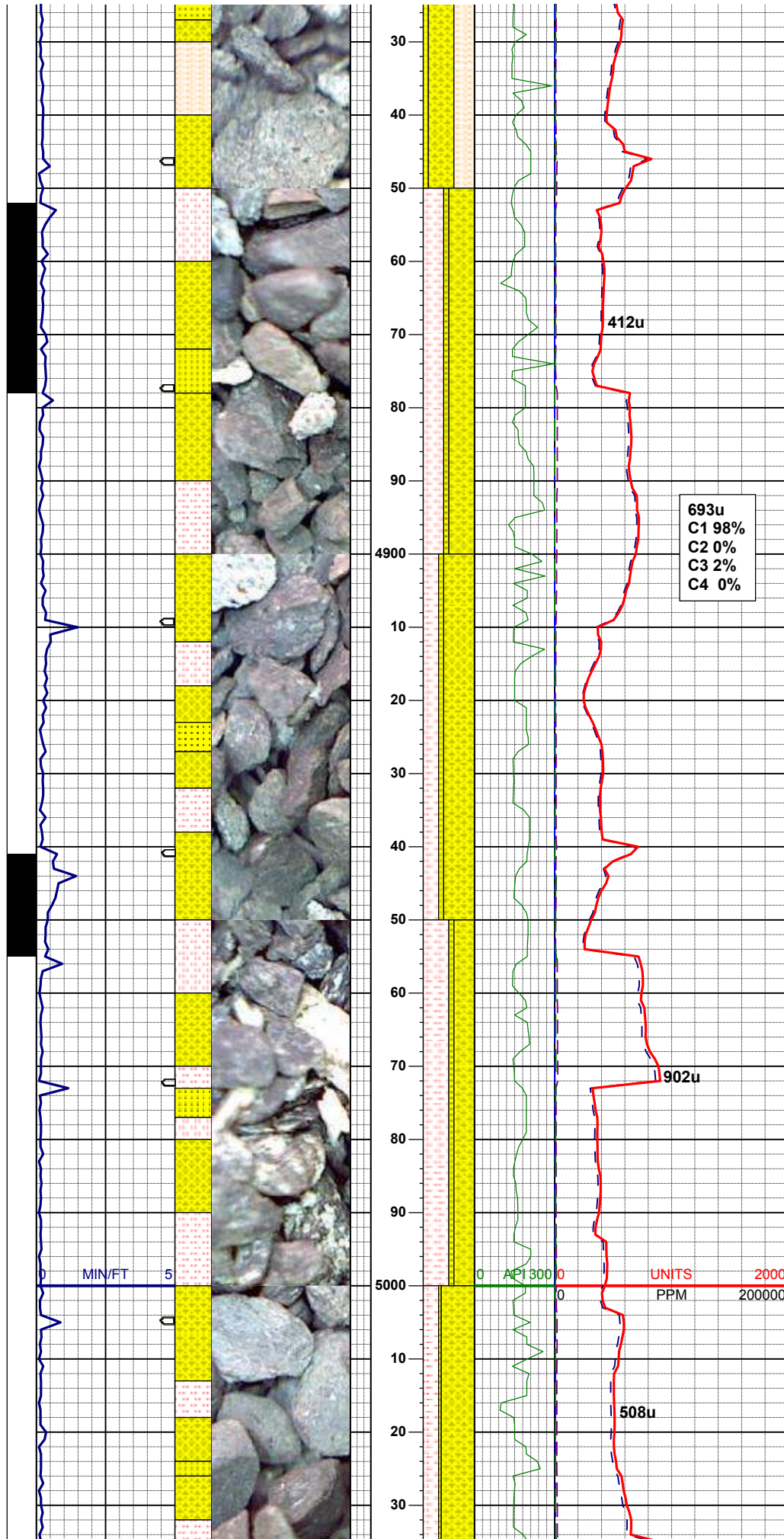
40% SLTYSS: lt gy - dk gy, sl mot, sme bnd, sft - frm, brit, blkly - sbblky, tr intbd pyr  
35% SHYSLTST: m gy-dk gy, vf gr- f gr, sme fri, sme fis, rthy, plty - sbplty, mod sft- mhd, w srt, grdg to sh  
20% SS: wht- lt gy, sme buff, mod - w srt, rndd -sbrndd, hd, brit, f - m gr, tr glau, sme biot, tr phlog  
5% SLTST: lt gy, sme bf, blkly, vsft - sft, intbd w/ sh, tr dism pyr, tr sec calc

**SURVEY**  
**MD 4789'**  
**INC 3.6°**  
**AZI 358.60°**  
**TVD 4742.12'**

**WT 9.8, VIS 51**

50% SLTYSS: lt gy - dk gy, sl mot, sme bnd, sft - frm, brit, blkly - sbblky, tr intbd pyr  
40% SHYSLTST: m gy-dk gy, vf gr- f gr, sme





fri, sme fis, rthy, plty - sbplty, mod sft- mhd, w srt, grdg to sh  
10% SS: wht- lt gy, sme buff, mod - w srt, rndd -sbrndd, hd, brit, f - m gr, tr glau, sme biot, tr phlog

50% SLTYSS: lt gy - dk gy, sl mot, sme bnd, sft - frm, brit, blkly - sbblky, tr intbd pyr  
40% SLTST: lt gy, sme bf, blkly, vsft - sft, intbd w/ sh, tr dism pyr, tr sec calc  
10% SS: wht- lt gy, sme buff, mod - w srt, rndd -sbrndd, hd, brit, f - m gr, tr glau, sme biot, tr phlog

**SURVEY**  
**MD 4884'**  
**INC 1.6°**  
**AZI 42.70°**  
**TVD 4837.02'**

**693u**  
**C1 98%**  
**C2 0%**  
**C3 2%**  
**C4 0%**

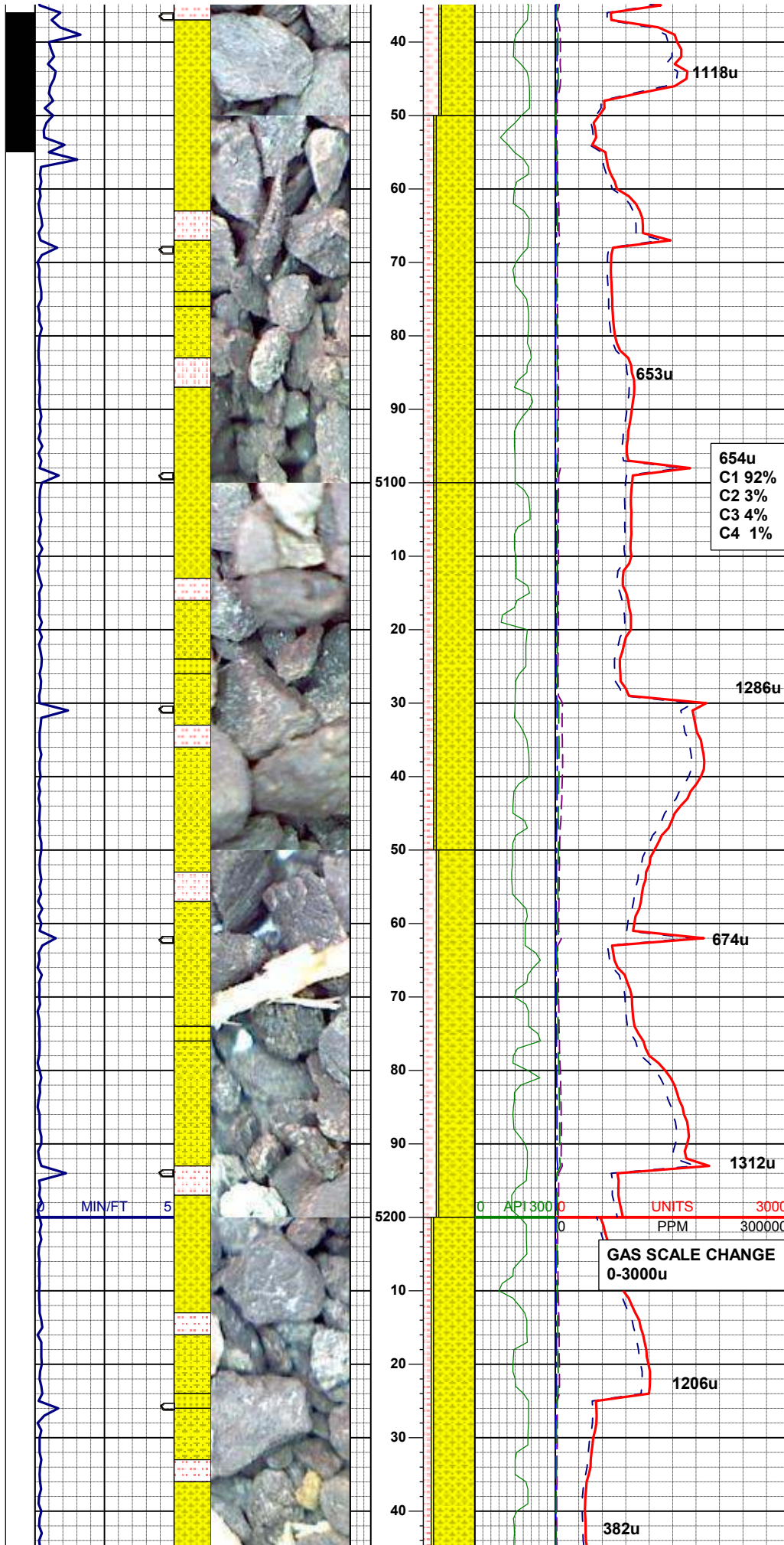
60% SLTYSS: lt gy - dk gy, sl mot, sme bnd, sft - frm, brit, blkly - sbblky, tr intbd pyr  
30% SLTST: lt gy, sme bf, blkly, vsft - sft, intbd w/ sh, tr dism pyr, tr sec calc  
10% SS: wht- lt gy, sme buff, mod - w srt, rndd -sbrndd, hd, brit, f - m gr, tr glau, sme biot, tr phlog

**WT 9.9, VIS 52**

**SURVEY**  
**MD 4979'**  
**INC 19.0°**  
**AZI 88.6°**  
**TVD 4931.98'**

40% SLTYSS: lt gy - dk gy, sl mot, sme bnd, sft - frm, brit, blkly - sbblky, tr intbd pyr  
50% SLTST: lt gy, sme bf, blkly, vsft - sft, intbd w/ sh, tr dism pyr, tr sec calc  
10% SS: wht- lt gy, sme buff, mod - w srt, rndd -sbrndd, hd, brit, f - m gr, tr glau, sme biot, tr phlog

65% SLTYSS: lt gy - dk gy, sl mot, sme bnd, sft - frm, brit, blkly - sbblky, tr intbd pyr  
30% SLTST: lt gy, sme bf, blkly, vsft - sft, intbd w/ sh, tr dism pyr, tr sec calc  
5% SS: wht- lt gy, sme buff, mod - w srt, rndd -sbrndd, hd, brit, f - m gr, tr glau, sme biot, tr phlog



**SURVEY**  
**MD 5074'**  
**INC 1.1°**  
**AZI 116.60°**  
**TVD 5026.95'**

75% SLTYSS: lt gy - dk gy, sl mot, sme bnd, sft - frm, brit, blkly - sbbkly, tr intbd pyr  
20% SLTST: lt gy, sme bf, blkly, vsft - sft, intbd w/ sh, tr dism pyr, tr sec calc  
5% SS: wht- lt gy, sme buff, mod - w srt, rddd-sbrnnd, hd, brit, f - m gr, tr glau, sme biot, tr phlog

**WT 10.1, VIS 51**

**654u**  
**C1 92%**  
**C2 3%**  
**C3 4%**  
**C4 1%**

75% SLTYSS: lt gy - dk gy, sl mot, sme bnd, sft - frm, brit, blkly - sbbkly, tr intbd pyr  
20% SLTST: lt gy, sme bf, blkly, vsft - sft, intbd w/ sh, tr dism pyr, tr sec calc  
5% SS: wht- lt gy, sme buff, mod - w srt, rddd-sbrnnd, hd, brit, f - m gr, tr glau, sme biot, tr phlog

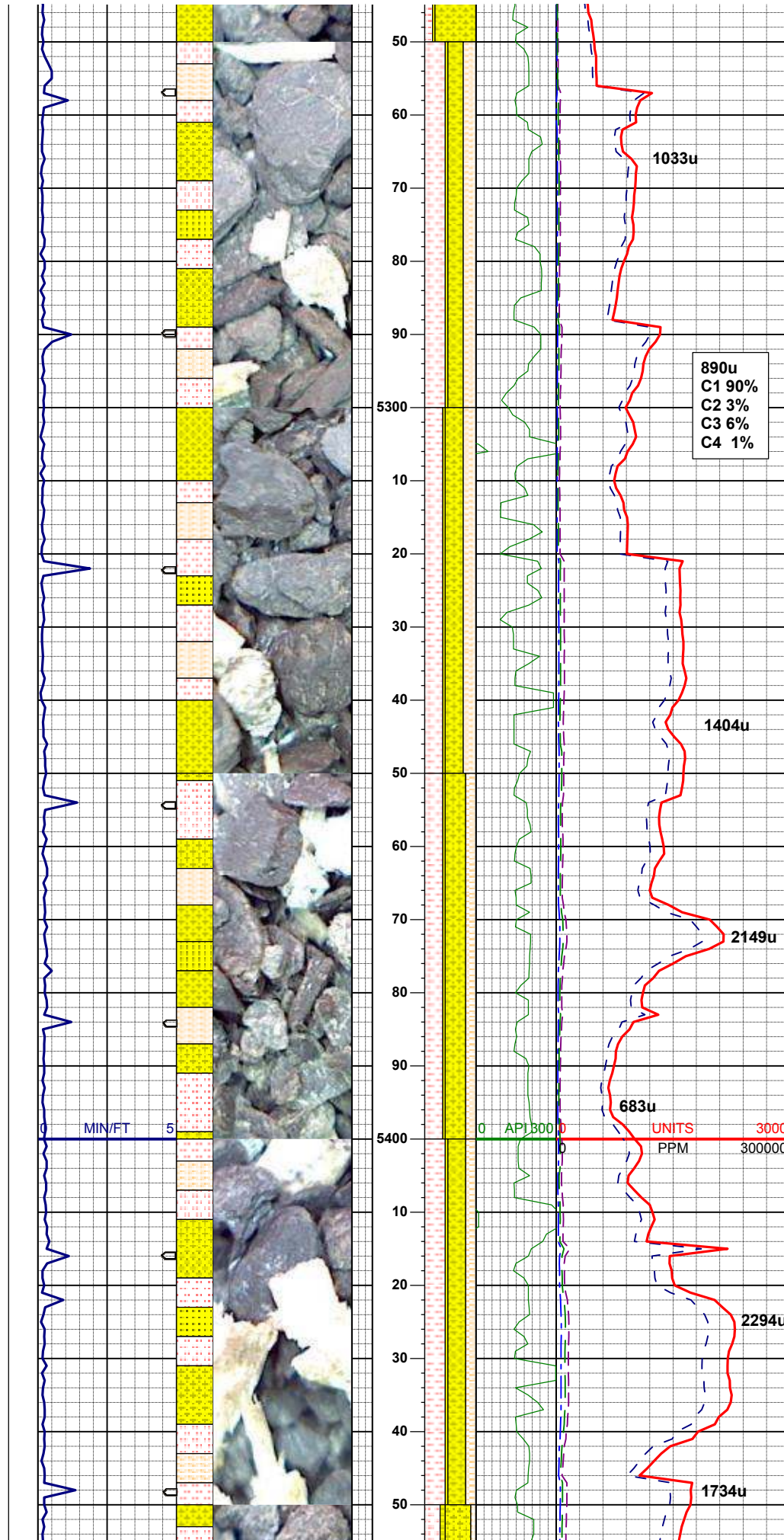
**SURVEY**  
**MD 5169'**  
**INC 0.5°**  
**AZI 80.9°**  
**TVD 5121.94'**

70% SLTYSS: lt gy - dk gy, sl mot, sme bnd, sft - frm, brit, blkly - sbbkly, tr intbd pyr  
25% SLTST: lt gy, sme bf, blkly, vsft - sft, intbd w/ sh, tr dism pyr, tr sec calc  
5% SS: wht- lt gy, sme buff, mod - w srt, rddd-sbrnnd, hd, brit, f - m gr, tr glau, sme biot, tr phlog

**GAS SCALE CHANGE**  
**0-3000u**

**WT 10.2, VIS 44**





**SURVEY**  
**MD 5265'**  
**INC 1.1°**  
**AZI 115.60°**  
**TVD 5217.93'**

30% SLTYSS: lt gy - dk gy, sl mot, sme bnd, sft - frm, brit, blkly - sbblky, tr intbd pyr  
40% SLTST: lt gy, sme bf, blkly, vsft - sft, intbd w/ sh, tr dism pyr, tr sec calc  
25% SHYSLTST: m gy-dk gy, vf gr- f gr, sme fri, sme fis, rthy, plty - sbplty, mod sft- mhd, w srt, grdg to sh  
5% SS: wht- lt gy, sme buff, mod - w srt, rndd-sbrnnd, hd, brit, f - m gr, tr glau, sme biot, tr phlog

**890u**  
**C1 90%**  
**C2 3%**  
**C3 6%**  
**C4 1%**

**WT 10.2, VIS 45**

35% SLTYSS: lt gy - dk gy, sl mot, sme bnd, sft - frm, brit, blkly - sbblky, tr intbd pyr  
35% SLTST: lt gy, sme bf, blkly, vsft - sft, intbd w/ sh, tr dism pyr, tr sec calc  
25% SHYSLTST: m gy-dk gy, vf gr- f gr, sme fri, sme fis, rthy, plty - sbplty, mod sft- mhd, w srt, grdg to sh  
5% SS: wht- lt gy, sme buff, mod - w srt, rndd-sbrnnd, hd, brit, f - m gr, tr glau, sme biot, tr phlog

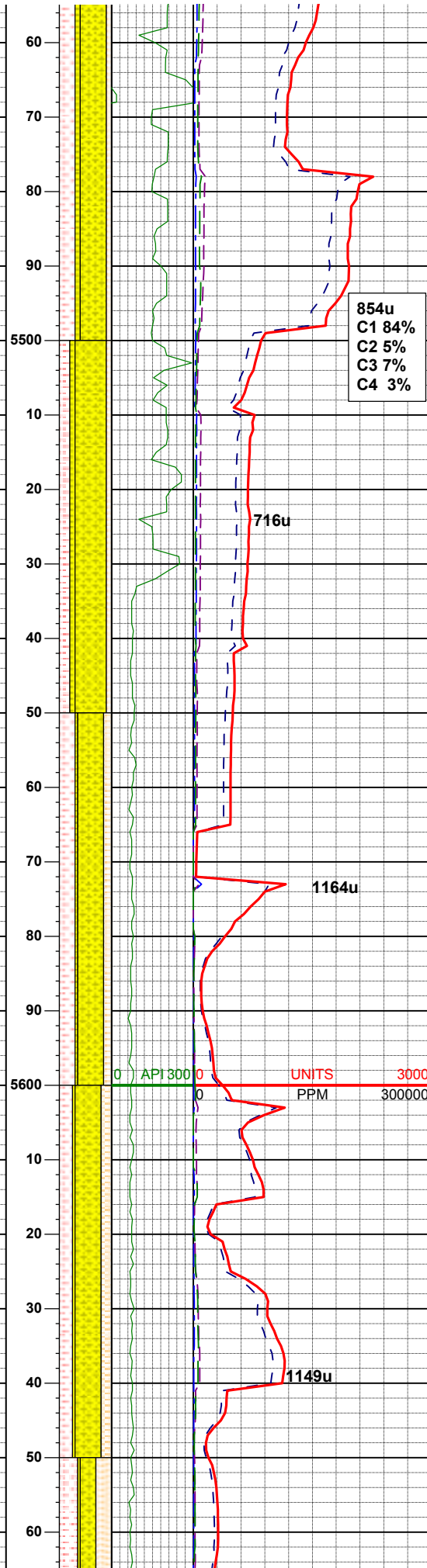
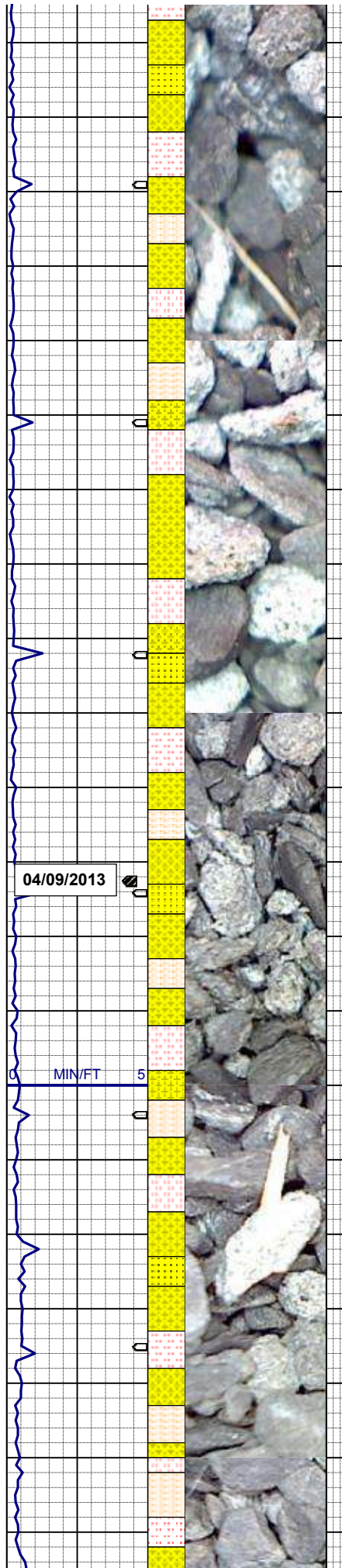
**SURVEY**  
**MD 5359'**  
**INC 1.2°**  
**AZI 134.70°**  
**TVD 5311.91'**

40% SLTYSS: lt gy - dk gy, sl mot, sme bnd, sft - frm, brit, blkly - sbblky, tr intbd pyr  
35% SLTST: lt gy, sme bf, blkly, vsft - sft, intbd w/ sh, tr dism pyr, tr sec calc  
20% SHYSLTST: m gy-dk gy, vf gr- f gr, sme fri, sme fis, rthy, plty - sbplty, mod sft- mhd, w srt, grdg to sh  
5% SS: wht- lt gy, sme buff, mod - w srt, rndd-sbrnnd, hd, brit, f - m gr, tr glau, sme biot, tr phlog

**SURVEY**  
**MD 5454'**  
**INC 1.1°**  
**AZI 124.70°**

35% SLTYSS: lt gy - dk gy, sl mot, sme bnd, sft - frm, brit, blkly - sbblky, tr intbd pyr  
40% SLTST: lt gy, sme bf, blkly, vsft - sft, intbd w/ sh, tr dism pyr, tr sec calc  
20% SHYSLTST: m gy-dk gy, vf gr- f gr, sme fri, sme fis, rthy, plty - sbplty, mod sft- mhd, w srt, grdg to sh  
5% SS: wht- lt gy, sme buff, mod - w srt, rndd-sbrnnd, hd, brit, f - m gr, tr glau, sme biot, tr phlog





API 124.70  
TVD 5406.89'

50% SLTYSS: lt gy - dk gy, sl mot, sme bnd, sft - frm, brit, blkly - sbblky, tr intbd pyr  
30% SLTST: lt gy, sme bf, blkly, vsft - sft, intbd w/ sh, tr dism pyr, tr sec calc  
10% SHYSLTST: m gy-dk gy, vf gr- f gr, sme fri, sme fis, rthy, plty - sbplty, mod sft- mhd, w srt, grdg to sh  
10% SS: wht- lt gy, sme buff, mod - w srt, rndd -sbrndd, hd, brit, f - m gr, tr glau, sme biot, tr phlog

WT 10.2, VIS 45

SURVEY  
MD 5517'  
INC 1.0°  
AZI 105.30°  
TVD 5469.88'

60% SLTYSS: lt gy - dk gy, sl mot, sme bnd, sft - frm, brit, blkly - sbblky, tr intbd pyr  
20% SLTST: lt gy, sme bf, blkly, vsft - sft, intbd w/ sh, tr dism pyr, tr sec calc  
10% SHYSLTST: m gy-dk gy, vf gr- f gr, sme fri, sme fis, rthy, plty - sbplty, mod sft- mhd, w srt, grdg to sh  
10% SS: wht- lt gy, sme buff, mod - w srt, rndd -sbrndd, hd, brit, f - m gr, tr glau, sme biot, tr phlog

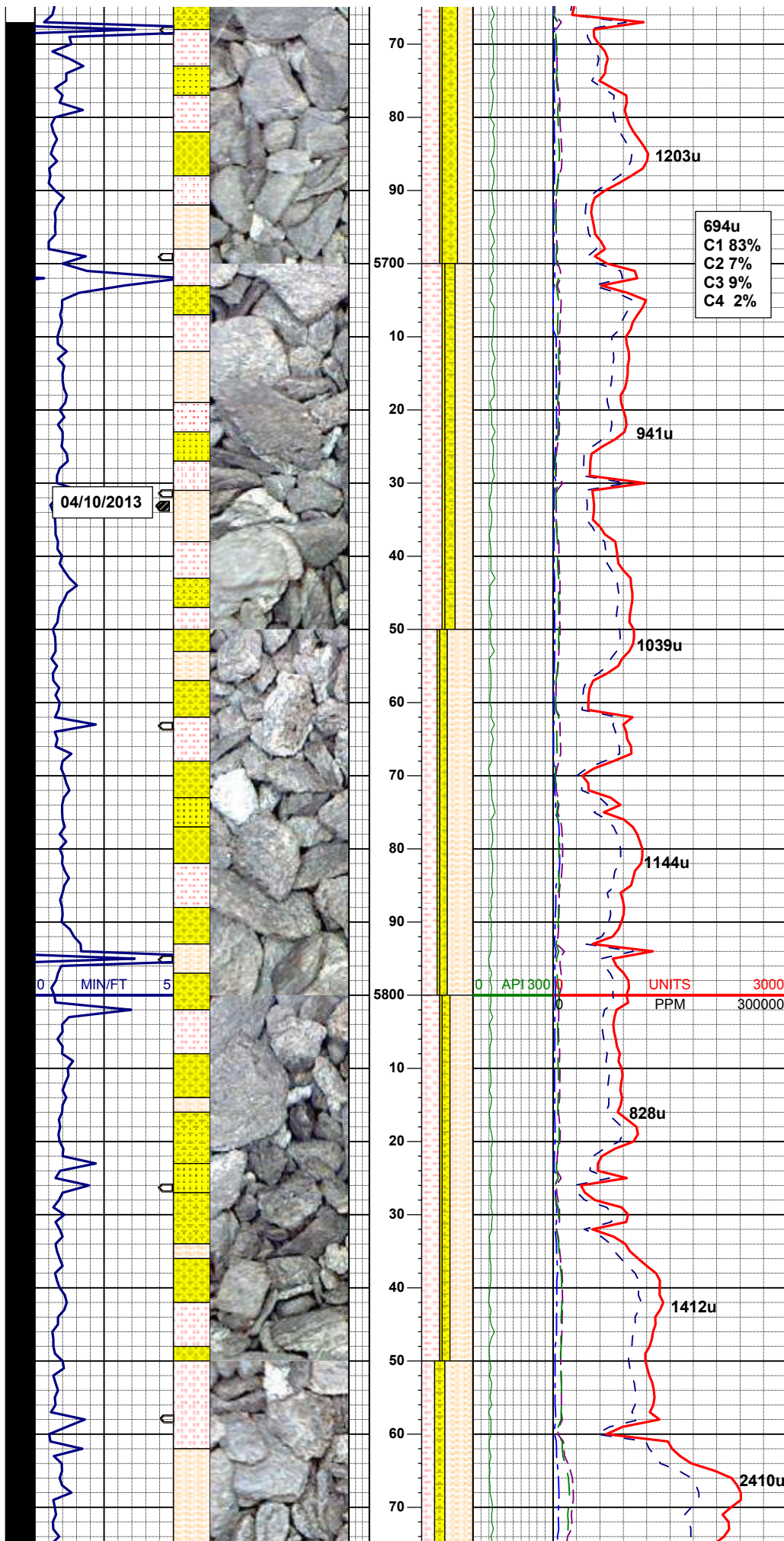
50% SLTYSS: lt gy - dk gy, sl mot, sme bnd, sft - frm, brit, blkly - sbblky, tr intbd pyr  
30% SLTST: lt gy, sme bf, blkly, vsft - sft, intbd w/ sh, tr dism pyr, tr sec calc  
15% SHYSLTST: m gy-dk gy, vf gr- f gr, sme fri, sme fis, rthy, plty - sbplty, mod sft- mhd, w srt, grdg to sh  
5% SS: wht- lt gy, sme buff, mod - w srt, rndd -sbrndd, hd, brit, f - m gr, tr glau, sme biot, tr phlog

BHA INFORMATION  
BIT: 8.75" PDC FXD 55  
NOZZLES: 5X16s  
BIT SERIAL NUMBER: 12038503  
MOTOR: SHAREWELL  
MWD: 6.75 NMDC

50% SLTYSS: lt gy - dk gy, sl mot, sme bnd, sft - frm, brit, blkly - sbblky, tr intbd pyr  
25% SLTST: lt gy, sme bf, blkly, vsft - sft, intbd w/ sh, tr dism pyr, tr sec calc  
20% SHYSLTST: m gy-dk gy, vf gr- f gr, sme fri, sme fis, rthy, plty - sbplty, mod sft- mhd, w srt, grdg to sh  
5% SS: wht- lt gy, sme buff, mod - w srt, rndd -sbrndd, hd, brit, f - m gr, tr glau, sme biot, tr phlog

SURVEY  
MD 5620'  
INC 0.8°  
AZI 102.5°  
TVD 5572.87'

30% SLTYSS: lt gy - dk gy, sl mot, sme bnd, sft - frm, brit, blkly - sbblky, tr intbd pyr  
35% SLTST: lt gy, sme bf, blkly, vsft - sft, intbd w/ sh, tr dism pyr, tr sec calc  
30% SHYSLTST: m gy-dk gy, vf gr- f gr, sme fri, sme fis, rthy, plty - sbplty, mod sft- mhd, w srt, grdg to sh



srt, grdg to sh  
5% SS: wht- lt gy, sme buff, mod - w srt, rmd-  
sbrnnd, hd, brit, f - m gr, tr glau, sme biot, tr  
phlog

**SURVEY**  
**MD 5651'**  
**INC 0.7°**  
**AZI 92.60°**  
**TVD 5603.87'**

**SURVEY**  
**MD 5683'**  
**INC 2.8°**  
**AZI 221.60°**  
**TVD 5635.85'**

20% SLTYSS: lt gy - dk gy, sl mot, sme bnd,  
sft - frm, brit, blkly - sbbkly, tr intbd pyr  
40% SLTST: lt gy, sme bf, blkly, vsft - sft, intbd  
w/ sh, tr dism pyr, tr sec calc  
35% SHYSLTST: m gy-dk gy, vf gr- f gr, sme  
fri, sme fis, rthy, plty - sbplty, mod sft- mhd, w  
srt, grdg to sh  
5% SS: wht- lt gy, sme buff, mod - w srt, rmd-  
sbrnnd, hd, brit, f - m gr, tr glau, sme biot, tr  
phlog

**SURVEY**  
**MD 5715'**  
**INC 7.4°**  
**AZI 223.30°**  
**TVD 5667.72'**

**SURVEY**  
**MD 5747'**  
**INC 11.80°**  
**AZI 220.80°**  
**TVD 5699.26'**

50% SHYSLTST: m gy-dk gy, vf gr- f gr, sme  
fri, sme fis, rthy, plty - sbplty, mod sft- mhd, w  
srt, grdg to sh  
30% SLTST: lt gy, sme bf, blkly, vsft - sft, intbd  
w/ sh, tr dism pyr, tr sec calc  
15% SLTYSS: lt gy - dk gy, sl mot, sme bnd,  
sft - frm, brit, blkly - sbbkly, tr intbd pyr  
5% SS: wht- lt gy, sme buff, mod - w srt, rmd-  
sbrnnd, hd, brit, f - m gr, tr glau, sme biot, tr  
phlog

**SURVEY**  
**MD 5778'**  
**INC 16.00°**  
**AZI 220.40°**  
**TVD 5729.35'**

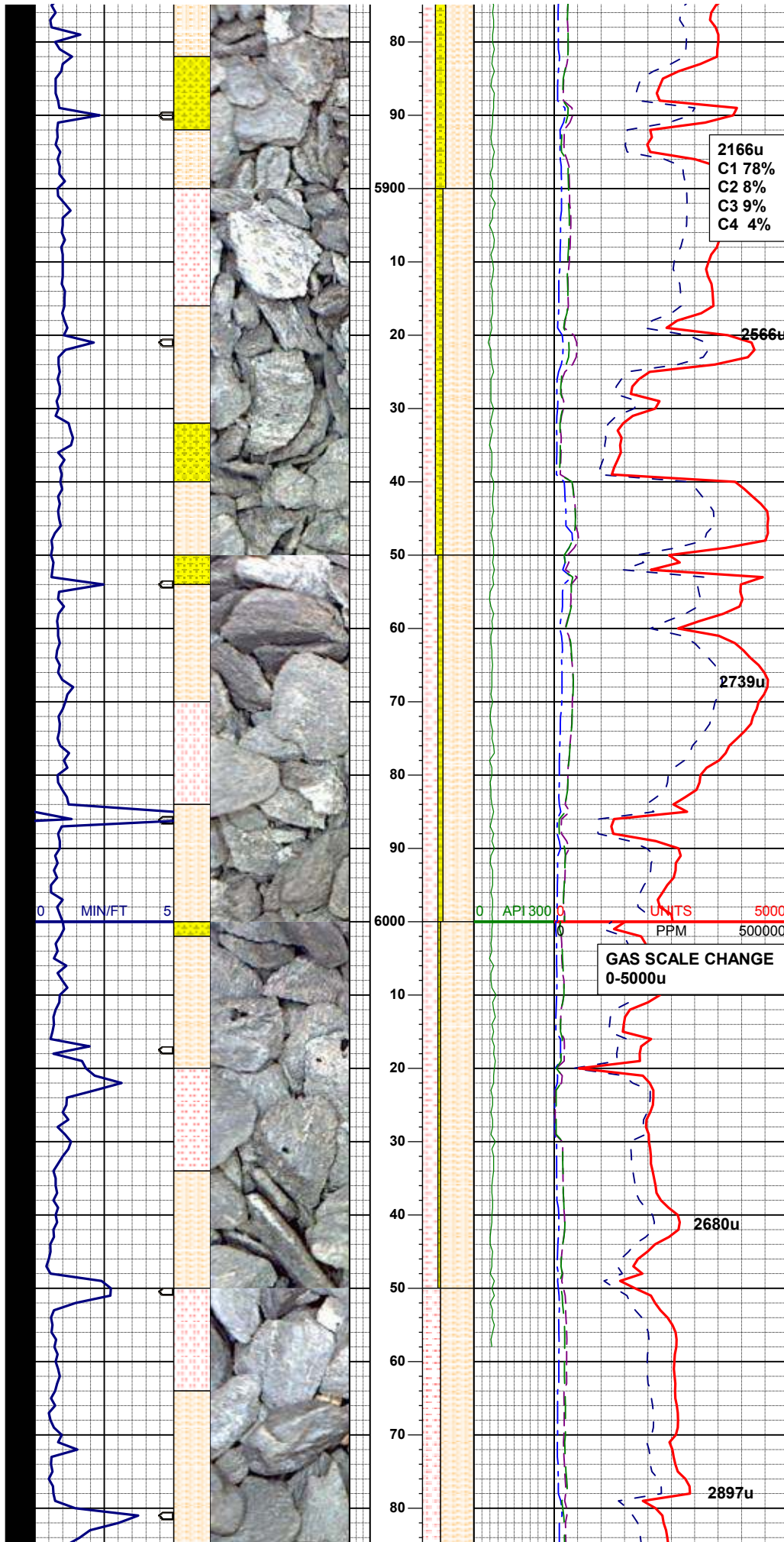
**SURVEY**  
**MD 5810'**  
**INC 20.30°**  
**AZI 219.60°**  
**TVD 5759.75'**

45% SHYSLTST: m gy-dk gy, vf gr- f gr, sme  
fri, sme fis, rthy, plty - sbplty, mod sft- mhd, w  
srt, grdg to sh  
35% SLTST: lt gy, sme bf, blkly, vsft - sft, intbd  
w/ sh, tr dism pyr, tr sec calc  
15% SLTYSS: lt gy - dk gy, sl mot, sme bnd,  
sft - frm, brit, blkly - sbbkly, tr intbd pyr  
5% SS: wht- lt gy, sme buff, mod - w srt, rmd-  
sbrnnd, hd, brit, f - m gr, tr glau, sme biot, tr  
phlog

**SURVEY**  
**MD 5842'**  
**INC 24.40°**  
**AZI 216.90°**  
**TVD 5789.34'**

55% SHYSLTST: lt gy-dk gy, vf gr- f gr, sme  
fri, sme bnd, sme fis, mod sft- mhd, w srt, sme  
dism pyr, grdg to sltysh  
25% SLTST: lt - med gy, sme tan - gy, vf gr- f  
gr, msft- mhd, w srt, sme bnnd  
20% SLTYSS: lt gy - dk gy, mot, sme bnd, m -





frm, brit, sme tr dism pyr, tr biot

**SURVEY**  
MD 5873'  
INC 27.70°  
AZI 210.90°  
TVD 5817.19'

**WT 10, VIS 36**

**SURVEY**  
MD 5905'  
INC 30.9°  
AZI 204.10°  
TVD 5845.1'

60% SHYSLTST: lt gy-dk gy, vf gr- f gr, sme fri, sme bnd, sme fis, mod sft- mhd, w srt, sme dism pyr, grdg to sltysh  
25% SLTST: lt - med gy, sme tan - gy, vf gr- f gr, msft- mhd, w srt, sme bnnd  
15% SLTYSS: lt gy - dk gy, mot, sme bnd, m - frm, brit, sme tr dism pyr, tr biot

**SURVEY**  
MD 5937'  
INC 34.9°  
AZI 203.5°  
TVD 5871.96'

**SURVEY**  
MD 5969'  
INC 39.3°  
AZI 205.6°  
TVD 5897.5'

60% SHYSLTST: lt gy-dk gy, vf gr- f gr, sme fri, sme bnd, sme fis, mod sft- mhd, w srt, sme dism pyr, grdg to sltysh  
30% SLTST: lt - med gy, sme tan - gy, vf gr- f gr, msft- mhd, w srt, sme bnnd  
10% SLTYSS: lt gy - dk gy, mot, sme bnd, m - frm, brit, sme tr dism pyr, tr biot, tr glau

**WT 10.1, VIS 40**

**SURVEY**  
MD 6001'  
INC 43.9°  
AZI 204.2°  
TVD 5921.4'

65% SHYSLTST: lt gy-dk gy, vf gr- f gr, sme fri, sme bnd, sme fis, mod sft- mhd, w srt, tr dism pyr, grdg to sltysh  
30% SLTST: lt - med gy, sme tan - gy, vf gr- f gr, msft- mhd, w srt, sme bnnd  
5% SLTYSS: lt gy - dk gy, mot, sme bnd, m - frm, brit, tr biot, tr glau

**SURVEY**  
MD 6032'  
INC 47.3°  
AZI 199.3°  
TVD 5943.1'

**SURVEY**  
MD 6064'  
INC 51.2°  
AZI 195.4°  
TVD 5964.0'

65% SHYSLTST: gy-dk gy, sme lt gy, vf-f gr, mod hd, sme bnnd, brit, sme fis, sbblky-sbply, v sl calc, tr dism pyr, v tr glau, intbd w/ shyss, grdg to shysltst ip  
35% SLTST: med gy-dk gy, sme tan - gy, vf gr- f gr, msft- mhd, w srt, sme bnnd

