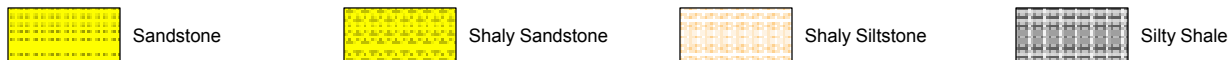


LOG created using LPLOT VH Version 3.0, October 31, 2012, Copyright (C) 1999-2009 Pason Systems Corp.

**OPERATOR:** NOBLE ENERGY INC.  
**WELL:** BOULTER STATE G16-75HN  
**LOCATION:** SW SE, SEC 16, T4N, R67W  
**COUNTY:** WELD  
**STATE:** COLORADO  
**SPOT:** 824' FSL, 1947' FEL  
**ELEVATION:** GL 4807' , KB 4831'  
**FIELD:** WATTENBURG  
**SPUD DATE:** 10/23/2012  
**TD DATE:** 10/31/2012  
**DATES LOGGED:** 10/24/2012 - 10/31/2012  
**DEPTHS LOGGED:** 1000' MD - 11589' MD  
**LOGGERS:** JOHN T. READY, CHRIS WILLATT  
**DRILLING FLUID:** WATER, WATER BASED MUD, POLY  
**DRILLING RIG:** H&P 323  
**API:** 05-123-35233  
**LOG TYPE:** VERTICAL  
**SCALE:** 1:240 (5 inches per 100 feet)  
**REMARKS:** WELLSITE GEOLOGIC SERVICES PROVIDED BY COLUMBINE LOGGING INC.

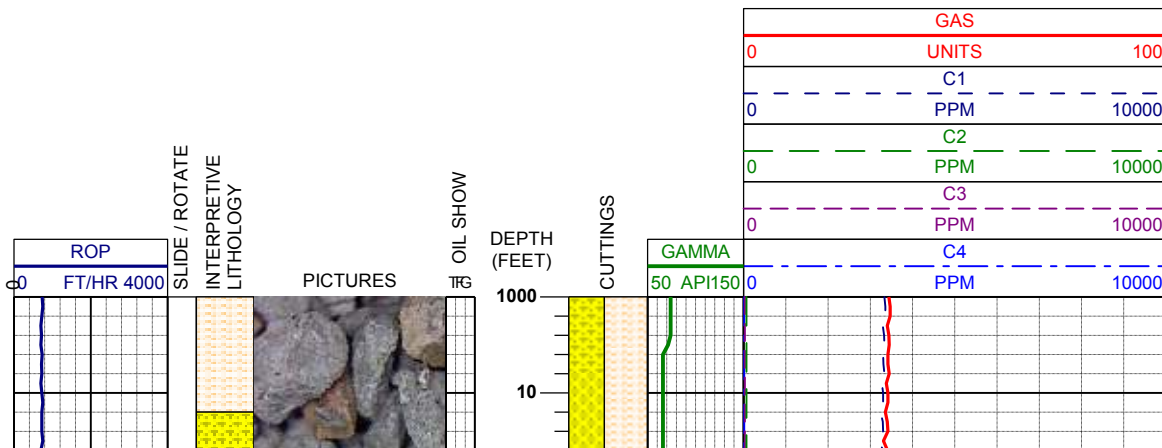
**LITHOLOGIES**



**MODIFIERS**

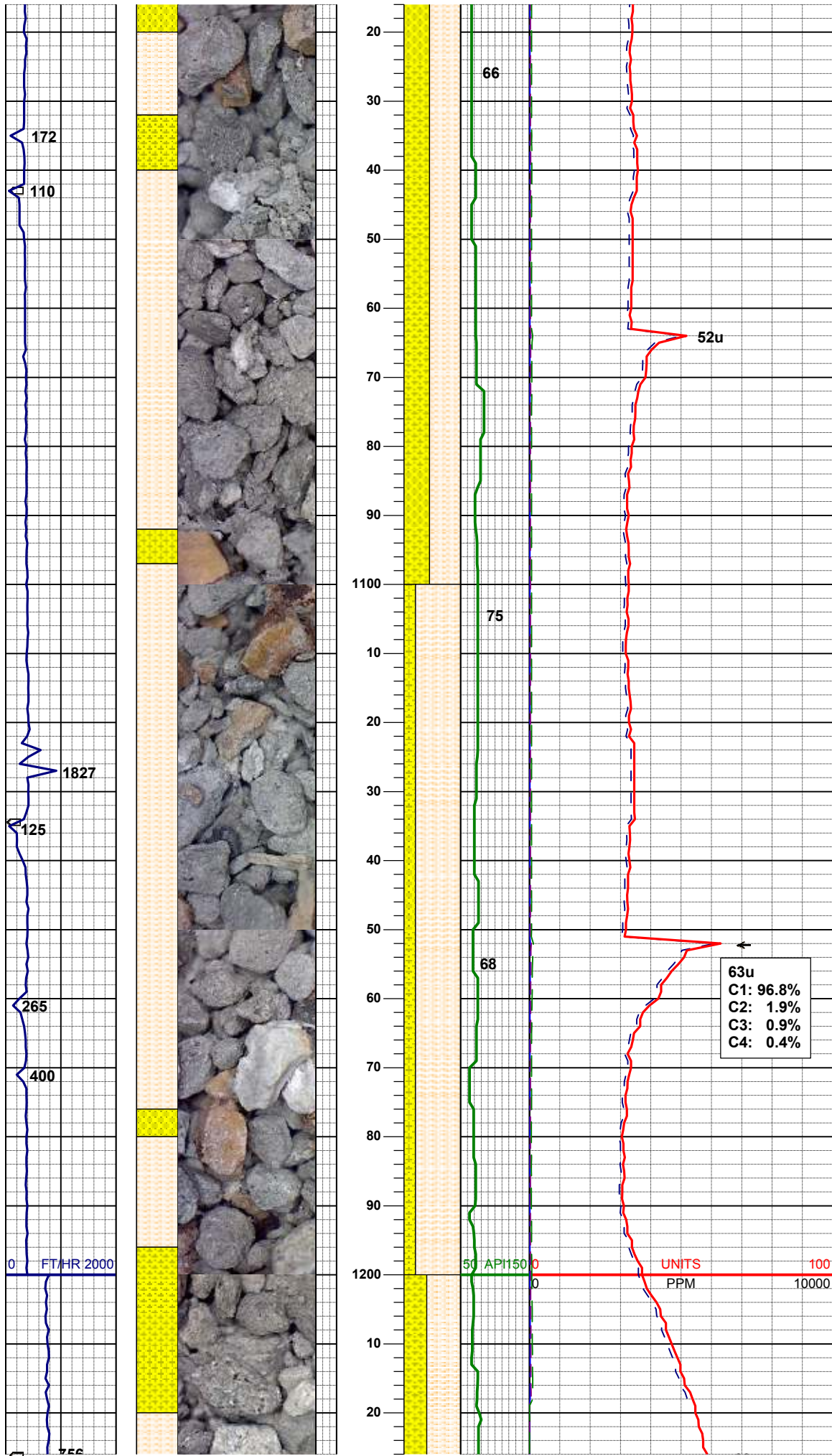


**ENGINEERING SYMBOLS**



LITHOLOGY DESCRIPTION  
**COLUMBINE LOGGING INC**  
**RIGGED UP ON 10/24/12**  
**MANNED 2-PERSON LOGGING**  
**WITH BLOODHOUND GAS**  
**CHROMATOGRAPH UNIT #0603**

Started Drilling Out of the Shoe at 11:22 hrs 10/24/12

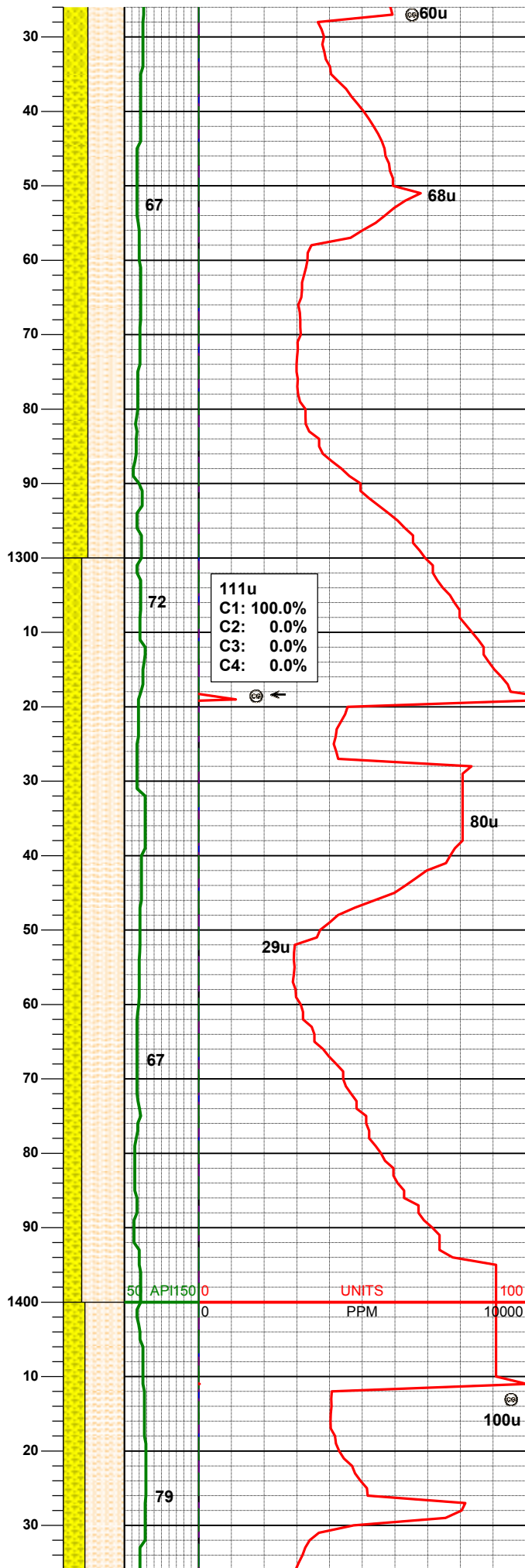
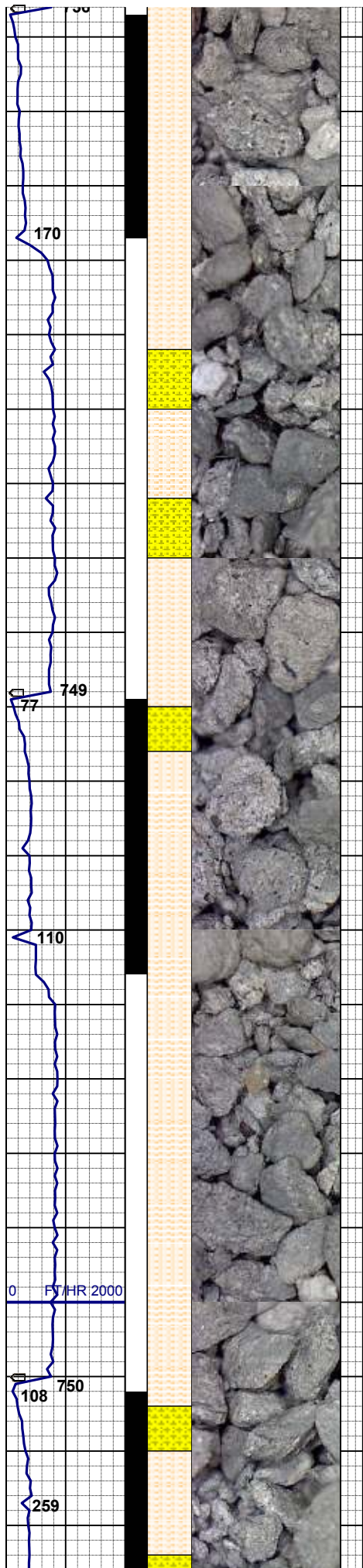


55% SHYSLTST: lt gy - dk gy, sbrd, silty tex, v sft - sft, sme glau  
 45% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt,

80% SHYSLTST: lt gy - dk gy, sbrd, silty tex, v sft - sft, v tr glau  
 20% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt,

63u  
 C1: 96.8%  
 C2: 1.9%  
 C3: 0.9%  
 C4: 0.4%

MD 1182'  
 INC 0.5°  
 AZI 131.1°  
 TVD 1181.99'



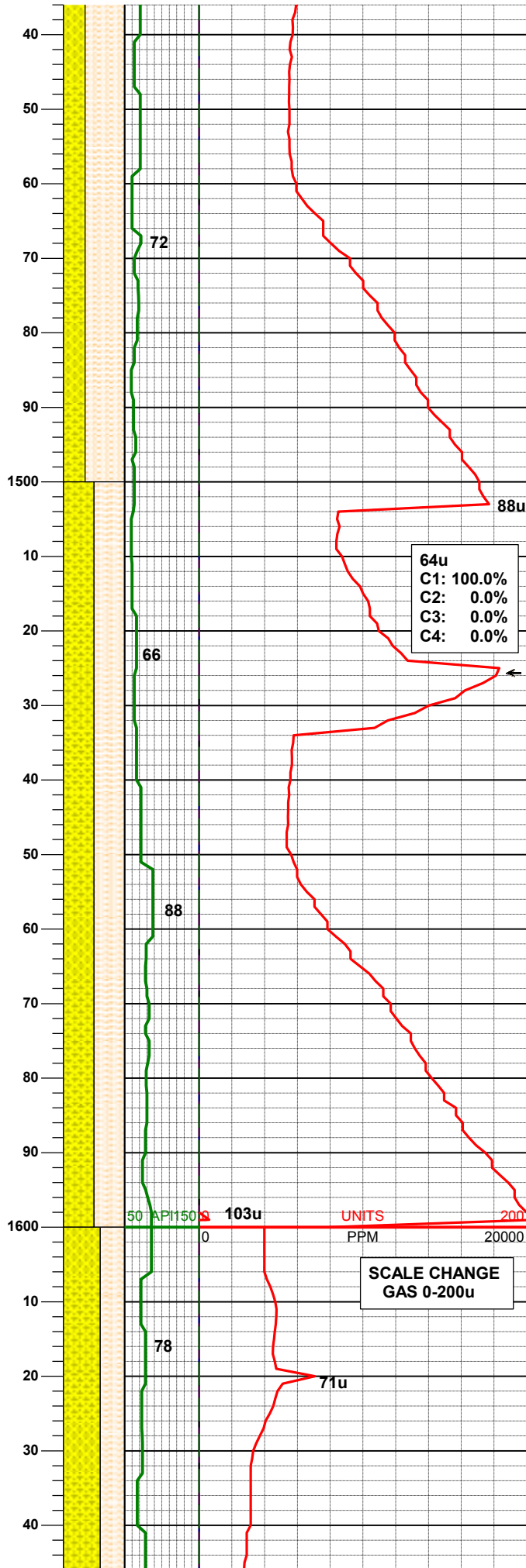
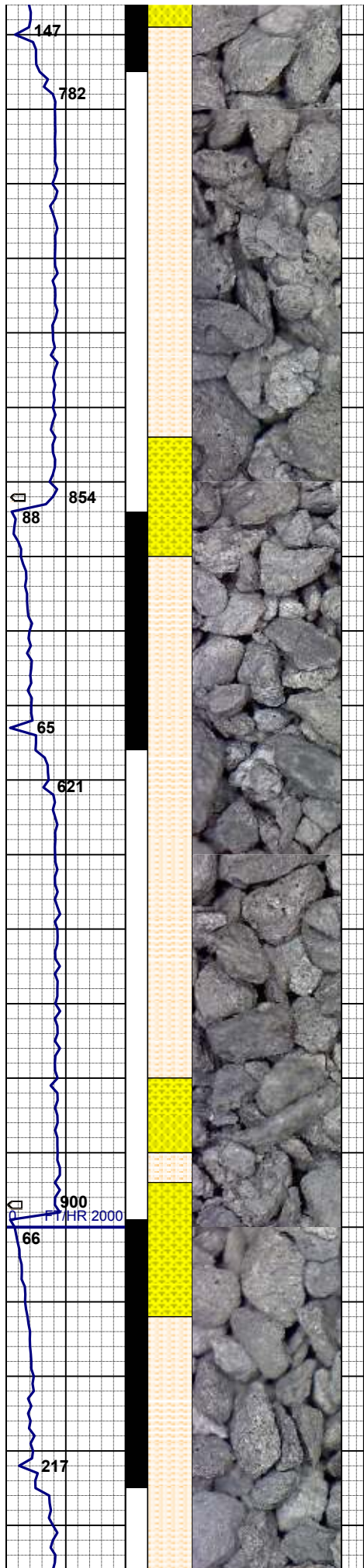
80% SHYSLTST: lt gy - dk gy, sbrd, slty tex, v sft - sft, non clac  
 20% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt,

**MD 1274'**  
**INC 1.7°**  
**AZI 213.7°**  
**TVD 1273.97'**

70% SHYSLTST: lt gy - dk gy, sbrd, slty tex, v sft - sft, non clac  
 30% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt,

**MD 1366'**  
**INC 3.9°**  
**AZI 228.5°**  
**TVD 1365.86'**

50 APM150 0 UNITS 100  
 0 PPM 10000



65% SHYSLTST: lt gy - dk gy, sbrd, slty tex, v sft - sft, non clac  
 35% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt,

**MD 1458'**  
**INC 5.8°**  
**AZI 233.3°**  
**TVD 1457.52'**

64u  
 C1: 100.0%  
 C2: 0.0%  
 C3: 0.0%  
 C4: 0.0%

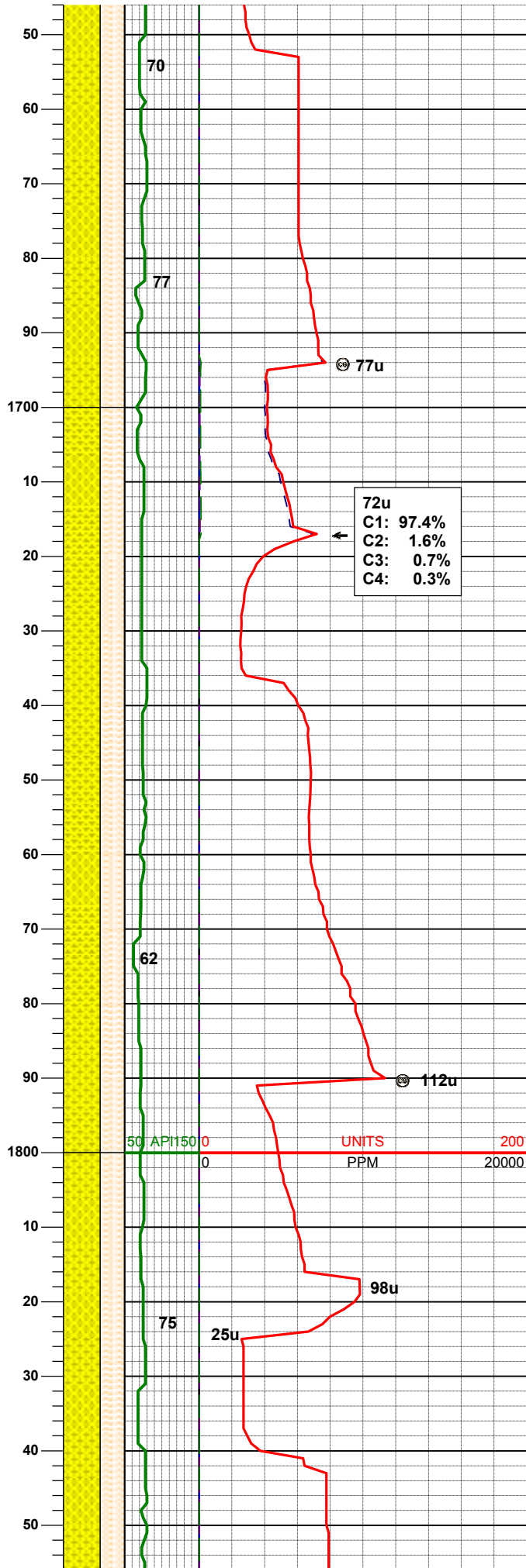
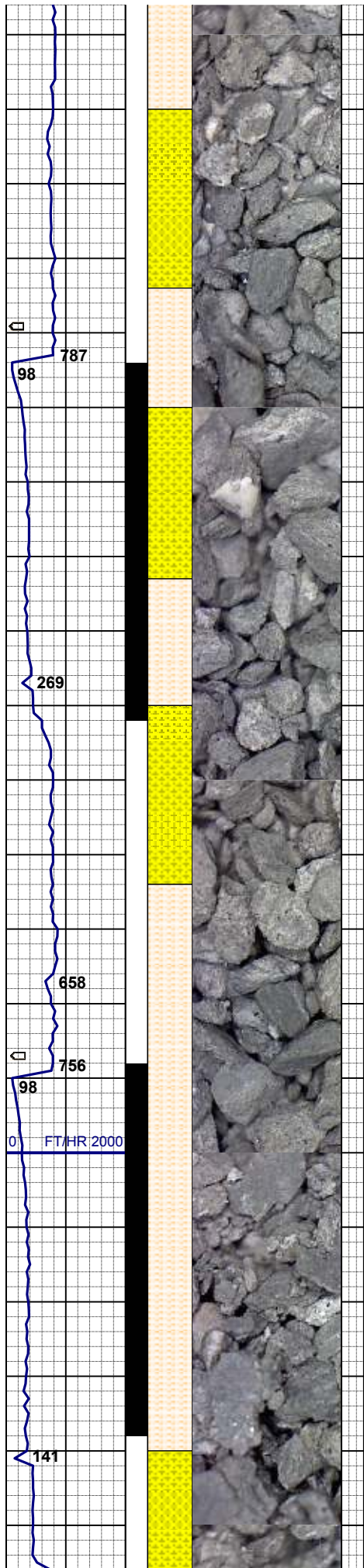
**MD 1553'**  
**INC 7.1°**  
**AZI 229.6°**  
**TVD 1646.12'**

50% SHYSLTST: lt gy - dk gy, sbrd, slty tex, v sft - sft, non clac  
 50% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt,

UNITS  
 PPM  
 0 20000

**SCALE CHANGE  
 GAS 0-200u**

**MD 1648'**  
**INC 7.8°**



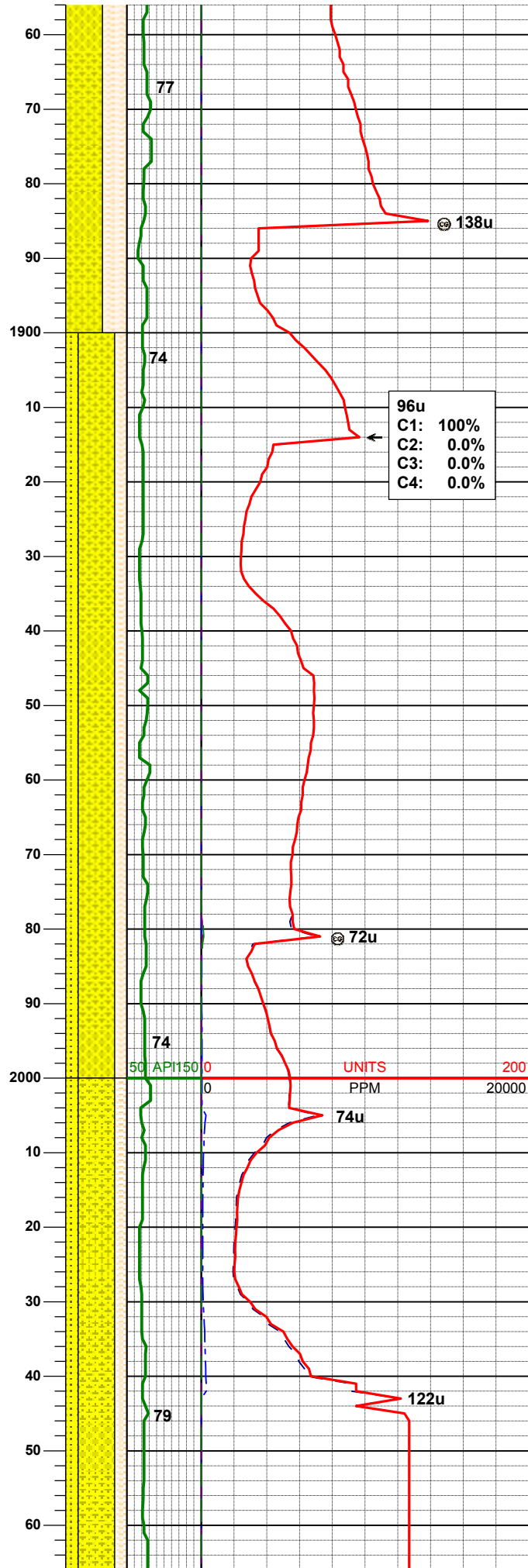
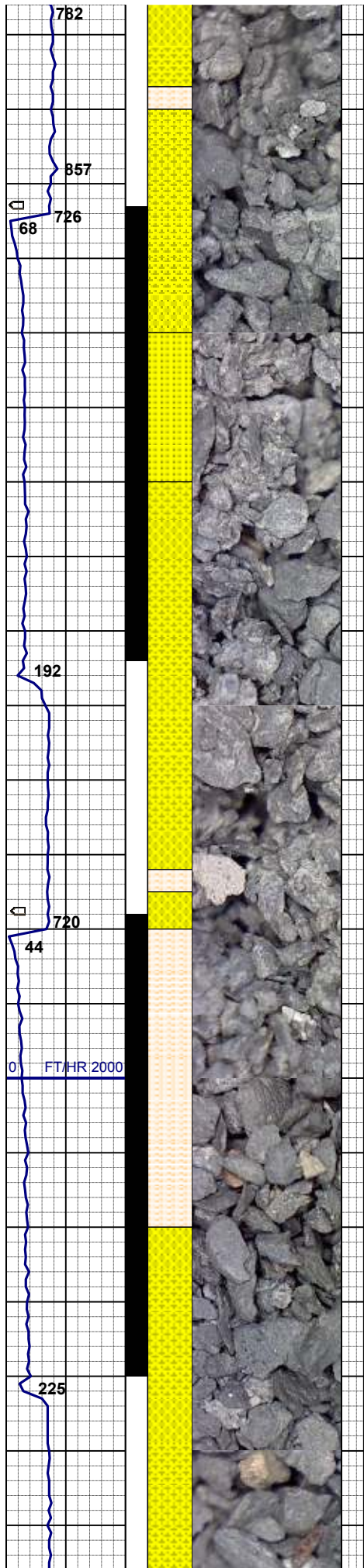
INC 7.0  
 AZI 229.6°  
 TVD 1646.12'

60% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt, 40% SHYSLTST: lt gy - dk gy, sbrd, silty tex, v sft - sft, non clac

MD 1740'  
 INC 9.6°  
 AZI 228.5°  
 TVD 1740.03'

60% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt, 40% SHYSLTST: lt gy - dk gy, sbrd, silty tex, v sft - sft, non clac

60% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt, 40% SHYSLTST: lt gy - dk gy, sbrd, silty tex, v sft - sft, non clac



MD 1838'  
 INC 11.6°  
 AZI 229.0°  
 TVD 1833.4'

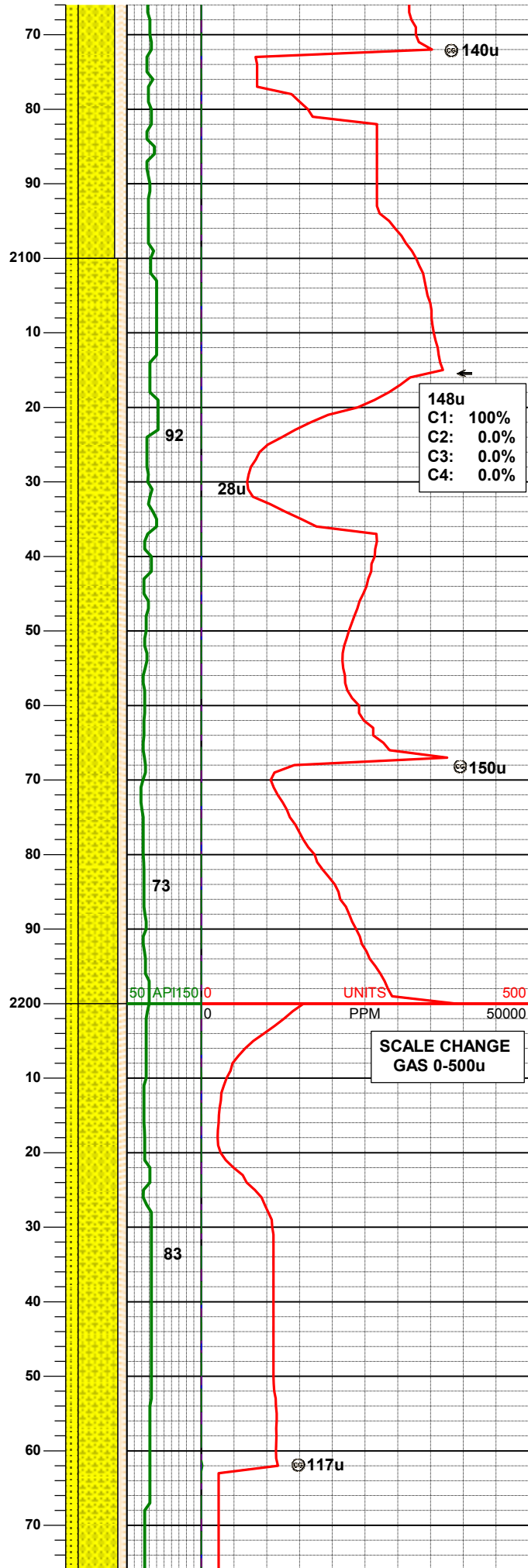
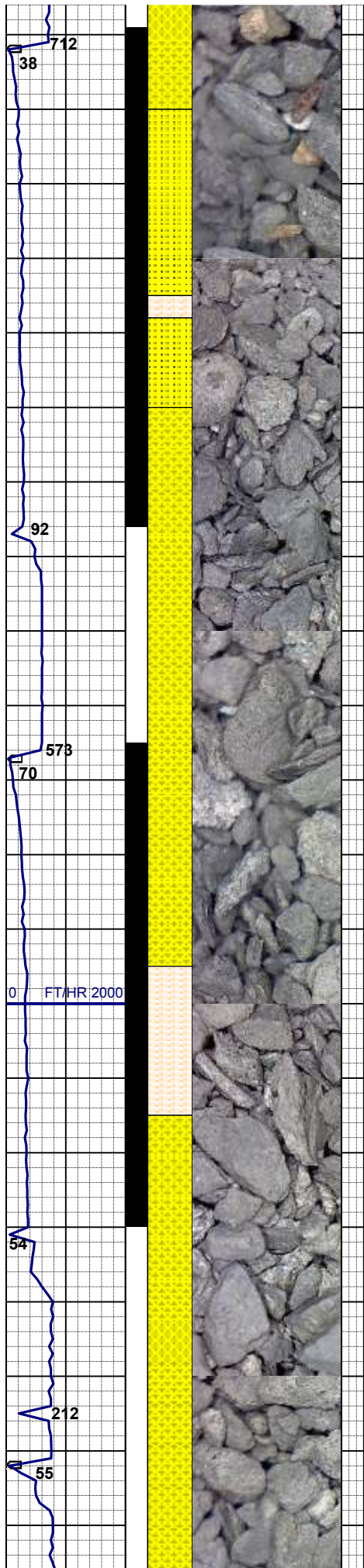
MD 1933'  
 INC 13.6°  
 AZI 226.1°  
 TVD 1926.1'

60% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt  
 20% SS: wh-lt gy, s&p, vf-mfgr, sbang-sbrd, mod srt, firm- mod firm, fri, arg cmt,  
 20% SHYSLTST: lt gy - dk gy, sbrd, slty tex, v sft - sft, non clac

MUD WT 8.8 VIS 28

MD 2028'  
 INC 15.1°  
 AZI 226.9°  
 TVD 2018.14'

60% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt  
 20% SS: wh-lt gy, s&p, vf-mfgr, sbang-sbrd, mod srt, firm- mod firm, fri, arg cmt  
 20% SHYSLTST: lt gy - dk gy, sbrd, slty tex, v sft - sft, slcalc, tr pyr



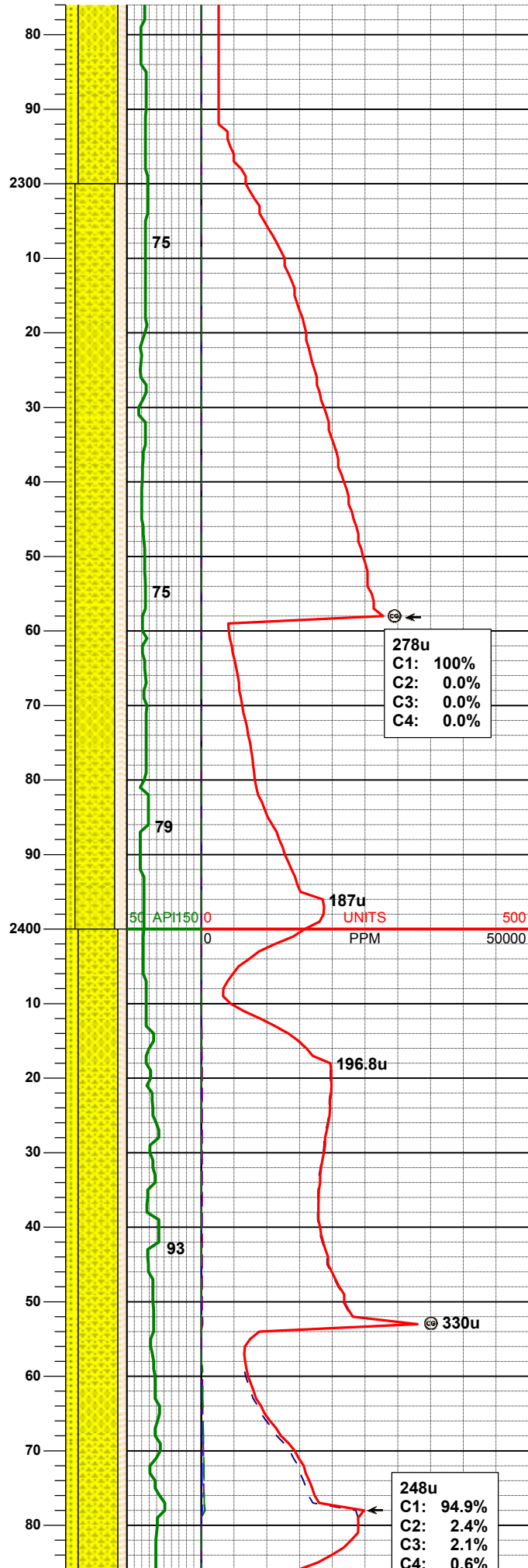
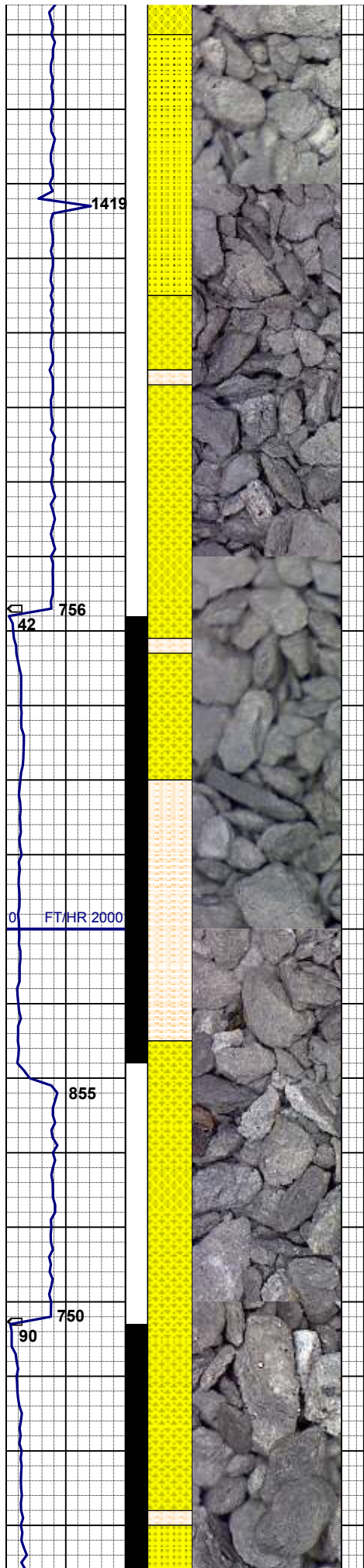
MD 2123'  
INC 16.2°  
AZI 227.3°  
TVD 2109.61'

65% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt  
20% SS: wh-lt gy, s&p, vf-mfgr, sbang-sbrd, mod srt, firm- mod firm, fri, arg cmt  
15% SHYSLTST: lt gy - dk gy, sbrd, slty tex, v sft - sft, slcalc, tr pyr

MUD WT 8.8 VIS 28

MD 2218'  
INC 18.5°  
AZI 228.3°  
TVD 2200.29'

65% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt  
20% SS: wh-lt gy, s&p, vf-mfgr, sbang-sbrd, mod srt, firm- mod firm, fri, arg cmt  
15% SHYSLTST: lt gy - dk gy, sbrd, slty tex, v sft - sft, slcalc, tr pyr



MD 2313'  
 INC 15.4°  
 AZI 228.9°  
 TVD 2293.39'

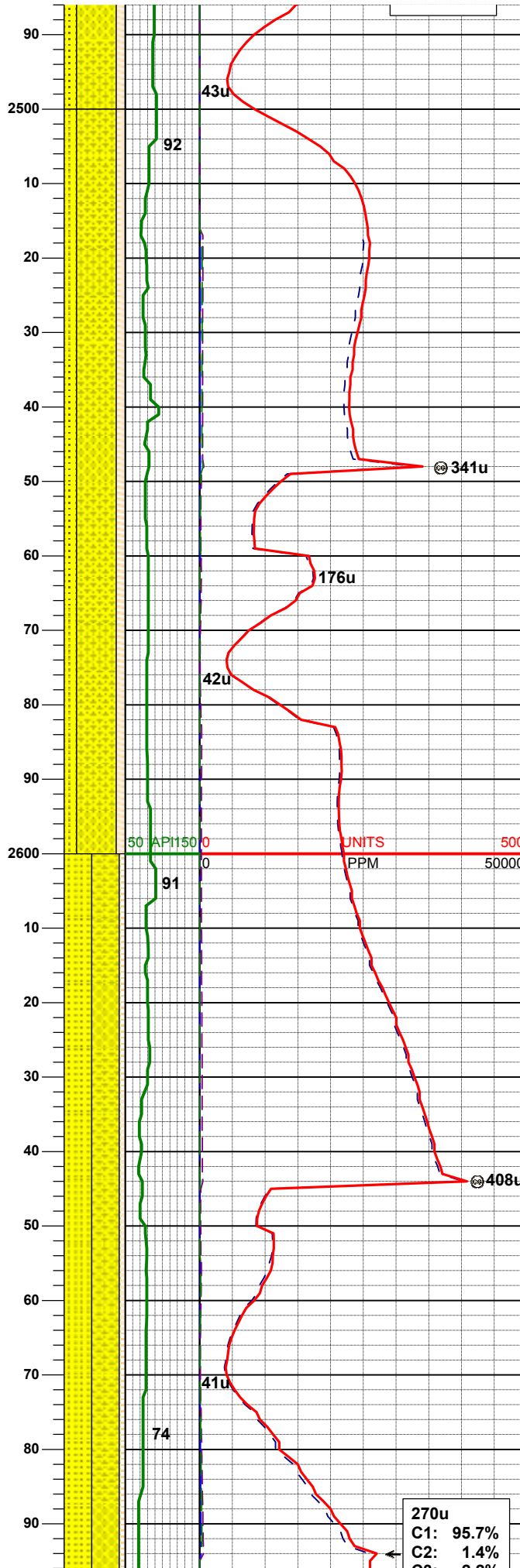
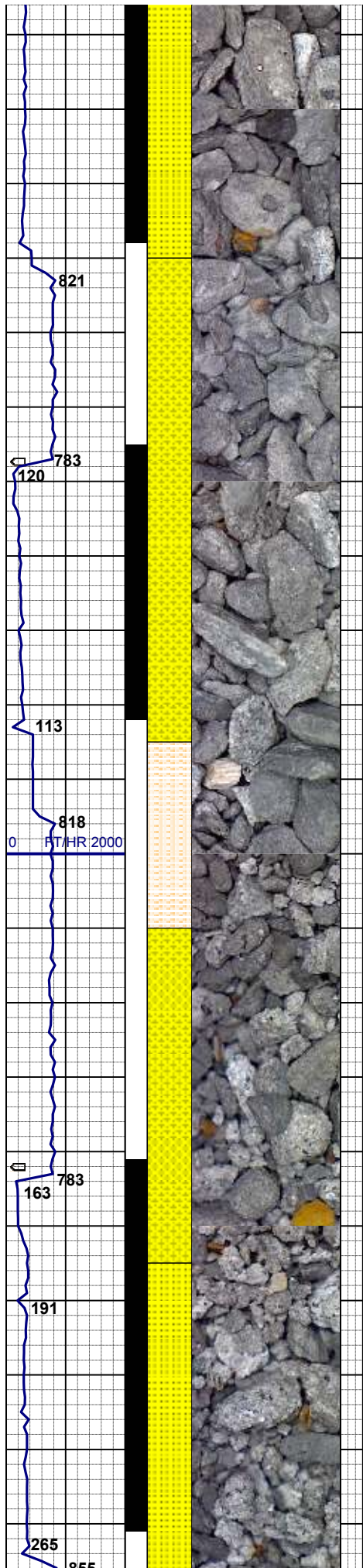
65% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt  
 15% SS: wh-lt gy, s&p, vf-mfgr, sbang-sbrd, mod srt, firm- mod firm, fri, arg cmt  
 20% SHYSLTST: lt gy - dk gy, sbrd, slty tex, v sft - sft, scalc

278u  
 C1: 100%  
 C2: 0.0%  
 C3: 0.0%  
 C4: 0.0%

MD 2408'  
 INC 15.8°  
 AZI 232°  
 TVD 2382.65'

65% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt  
 20% SS: wh-lt gy, s&p, vf-mfgr, sbang-sbrd, mod srt, firm- mod firm, fri, arg cmt  
 15% SHYSLTST: lt gy - dk gy, sbrd, slty tex, v sft - sft, scalc

248u  
 C1: 94.9%  
 C2: 2.4%  
 C3: 2.1%  
 C4: 0.6%



MD 2503'  
 INC 17.5°  
 AZI 232.5°  
 TVD 2473.66'

65% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt  
 20% SS: wh-lt gy, s&p, vf-mfgr, sbang-sbrd, mod srt, firm- mod firm, fri, arg cmt  
 15% SHYSLTST: lt gy - dk gy, sbrd, slty tex, v sft - sft, slcalc

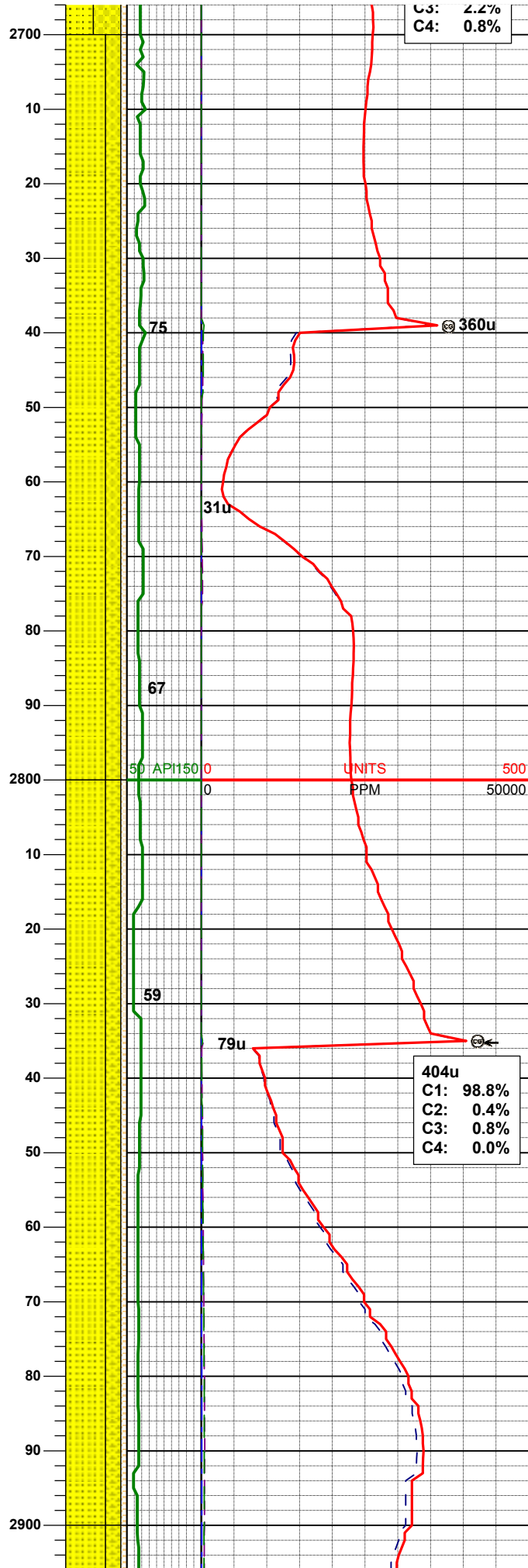
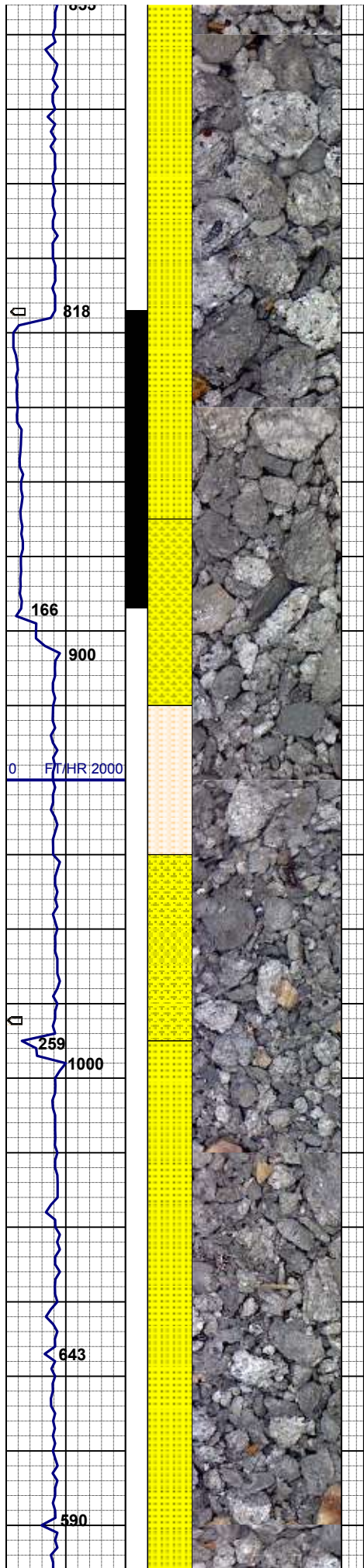
MUD WT 8.8 VIS 29

MD 2598'  
 INC 17.0°  
 AZI 229.9°  
 TVD 2564.39'

45% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt  
 45% SS: wh-lt gy, s&p, vf-mfgr, sbang-sbrd, mod srt, firm- mod firm, fri, arg cmt  
 10% SHYSLTST: lt gy - dk gy, sbrd, slty tex, v sft - sft, slcalc

270u  
 C1: 95.7%  
 C2: 1.4%

MD 2693'  
 INC 17.9°  
 AZI 232.5°  
 TVD 2673.66'



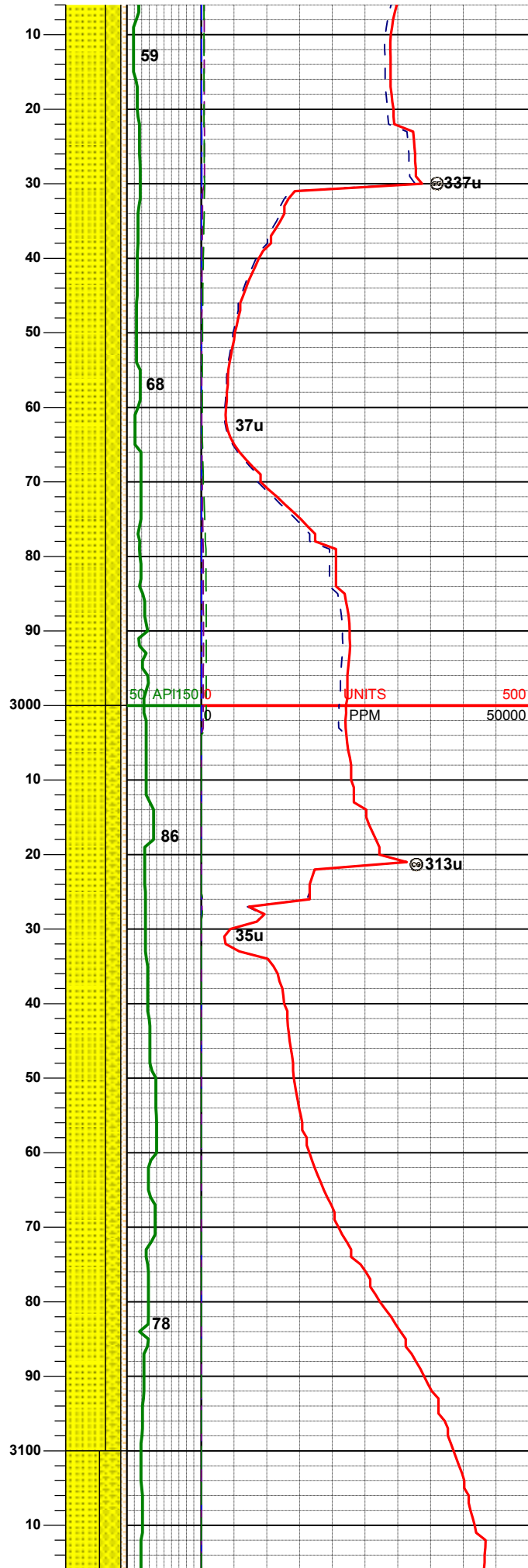
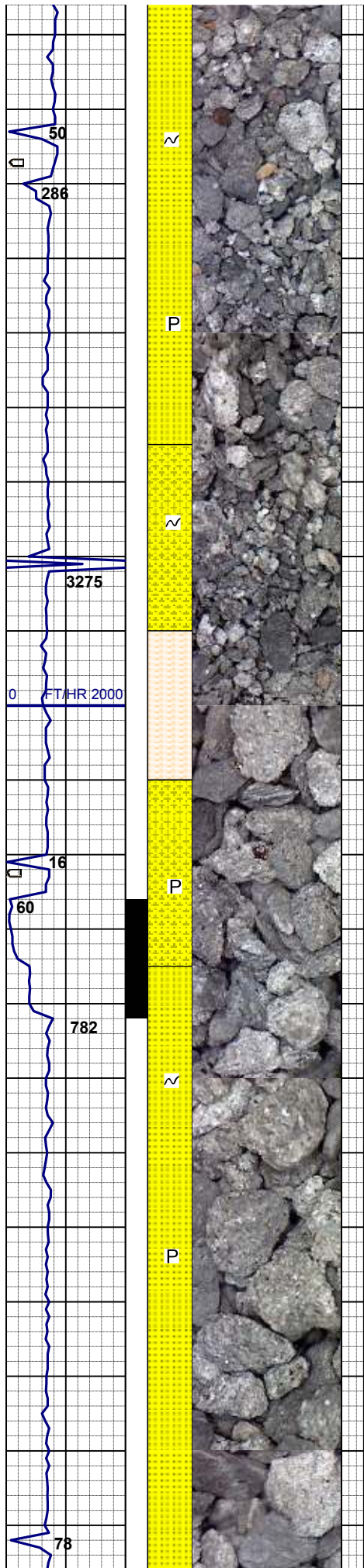
AZI 226.9  
TVD 2655.02'

65% SS: wh-lt gy, s&p, vf-mfgr, sbang-sbrd, mod srt, firm- mod firm, fri, arg cmt  
 25% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt  
 10% SHYSLTST: lt gy - dk gy, sbrd, slty tex, v sft - sft, slcalc, tr pyr, tr glau

MD 2788'  
INC 19.9°  
AZI 228.9°  
TVD 2744.89'

65% SS: wh-lt gy, s&p, vf-mfgr, sbang-sbrd, mod srt, firm- mod firm, fri, arg cmt  
 25% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt  
 10% SHYSLTST: lt gy - dk gy, sbrd, slty tex, v sft - sft, slcalc, tr pyr, tr glau

MD 2883'  
INC 20.2°  
AZI 228.0°  
TVD 2834.14'



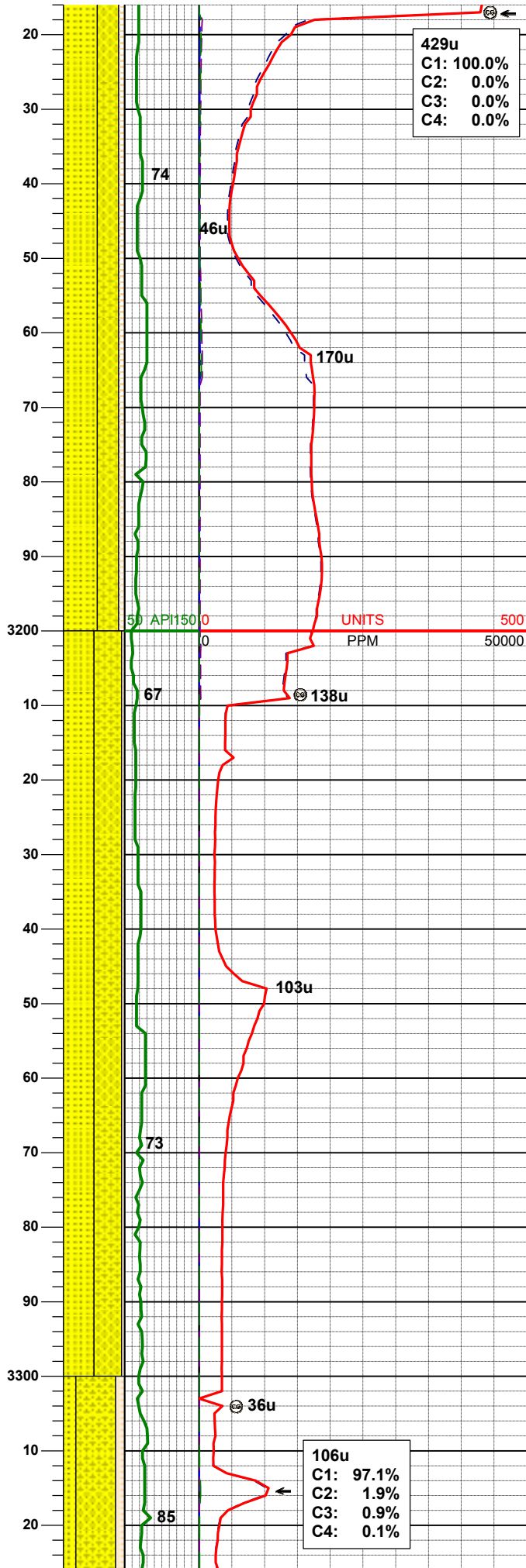
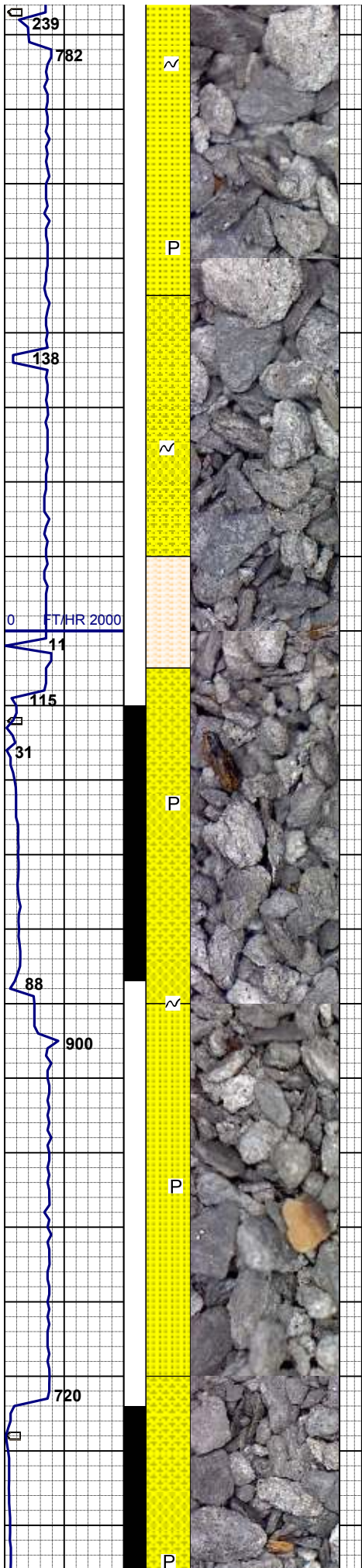
65% SS: wh-lt gy, s&p, vf-mgr, sbang-sbrd, mod srt, firm- mod firm, fri, arg cmt  
 25% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt  
 10% SHYSLTST: lt gy - dk gy, sbrd, slty tex, v sft - sft, slcalc, tr pyr, tr glau

**MD 2978'**  
**INC 20.8°**  
**AZI 226.9°**  
**TVD 2923.124'**

**MUD WT 8.9+ VIS 29**

65% SS: wh-lt gy, s&p, vf-mgr, sbang-sbrd, mod srt, firm- mod firm, fri, arg cmt  
 25% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt  
 10% SHYSLTST: lt gy - dk gy, sbrd, slty tex, v sft - sft, slcalc, tr pyr, tr glau

**MD 3073'**  
**INC 16.9°**  
**AZI 226.1°**  
**TVD 3013.01'**



55% SS: wh-lt gy, s&p, vf-mfgr, sbang-sbrd, mod srt, firm- mod firm, fri, arg cmt  
 35% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt  
 10% SHYSLTST: lt gy - dk gy, sbrd, silty tex, v sft - sft, sicalc, tr pyr, tr glau

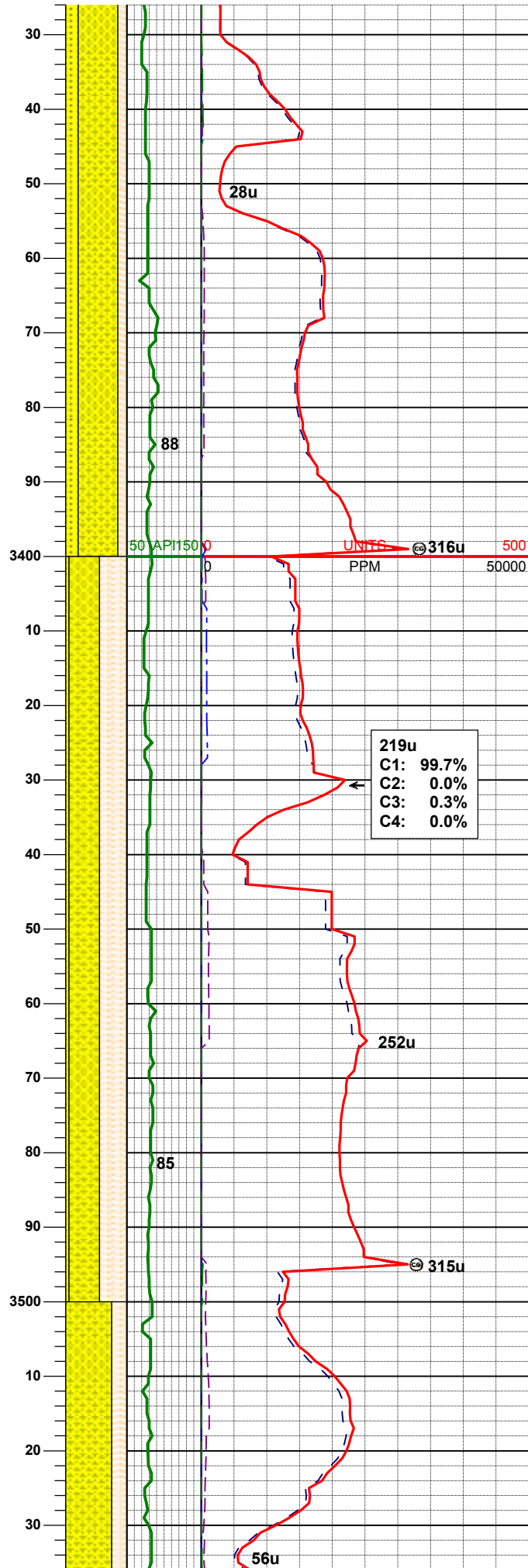
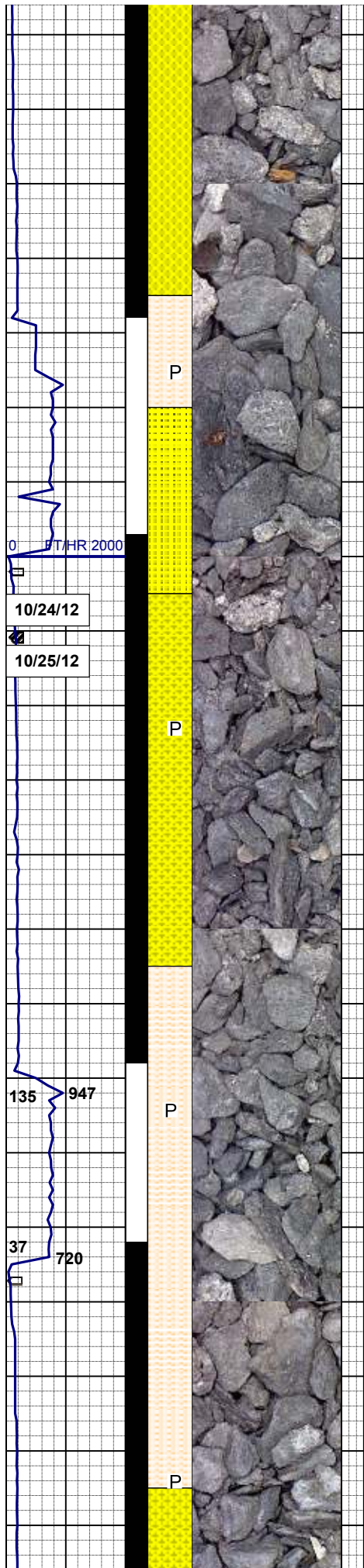
**MD 3168'**  
**INC 16.0°**  
**AZI 224.3°**  
**TVD 3104.12'**

**MUD WT 8.9+ VIS 28**

50% SS: wh-lt gy, s&p, vf-mgr, sbang-sbrd, mod srt, firm- mod firm, fri, arg cmt  
 45% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt  
 5% SHYSLTST: lt gy - dk gy, sbrd, silty tex, v sft - sft, sicalc, tr pyr, tr glau

**MD 3263'**  
**INC 15.7°**  
**AZI 224.1°**  
**TVD 3195.51'**

**MUD WT 8.9+ VIS 28**



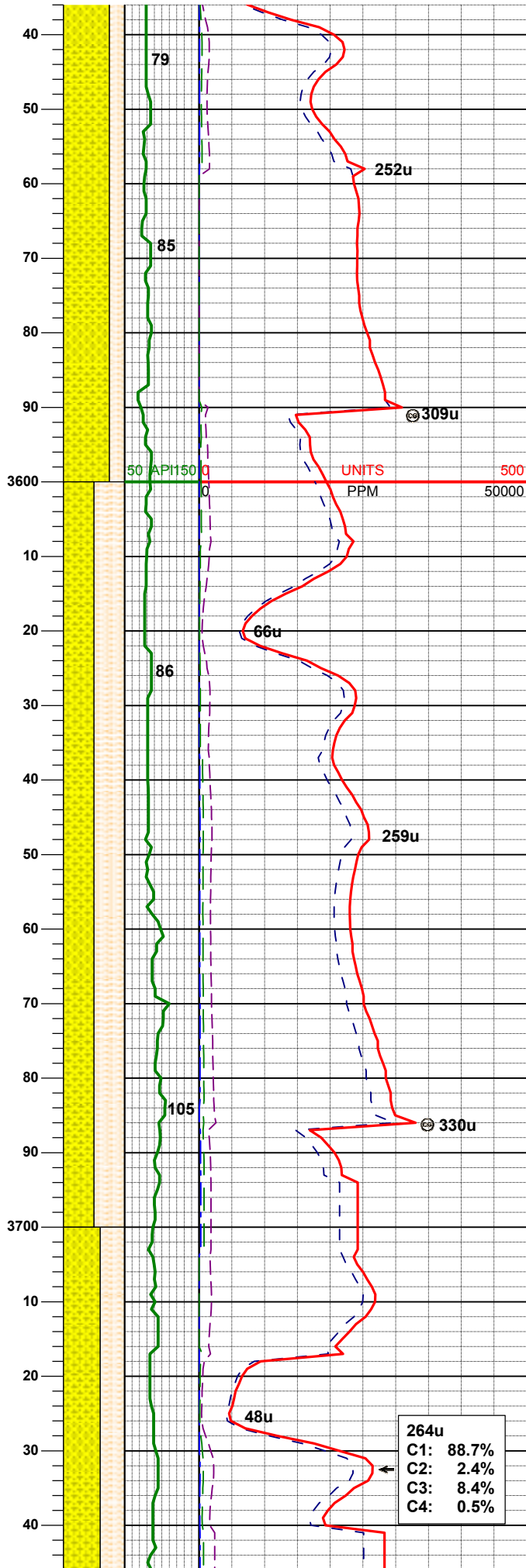
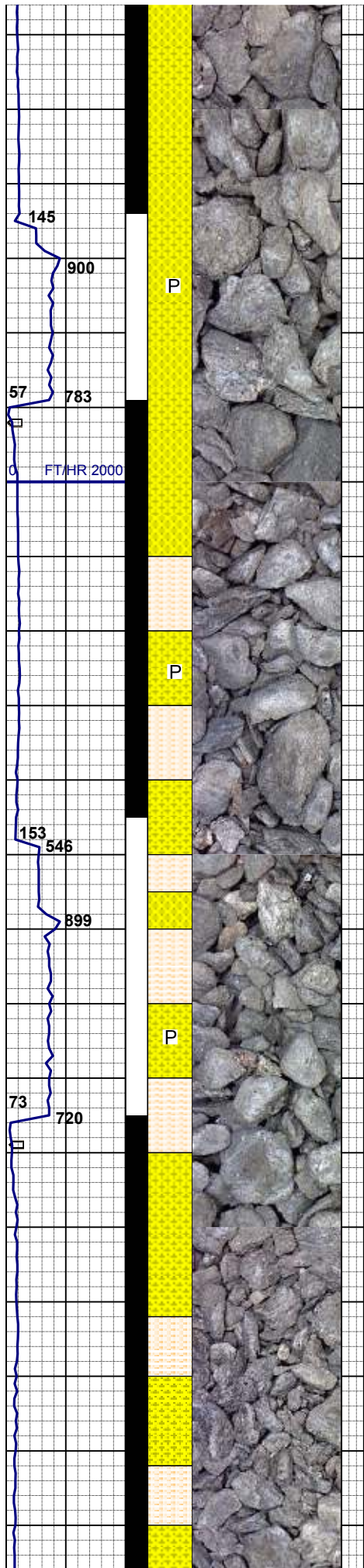
65% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt  
 20% SS: wh-lt gy, s&p, vf-mgr, sbang-sbrd, mod srt, firm- mod firm, fri, arg cmt  
 15% SHYLTST: lt gy - dk gy, sbrd, slty tex, v sft - sft, slcalc, tr pyr

**MD 3358'**  
**INC 15.6°**  
**AZI 229.4°**  
**TVD 3286.99'**

50% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt  
 45% SHYLTST: lt gy - dk gy, sbrd, slty tex, v sft - sft, slcalc  
 5% SS: wh-lt gy, s&p, vf-mfgr, sbang-sbrd, mod srt, firm- mod firm, fri, arg cmt, tr pyr

**MD 3453'**  
**INC 15.6°**  
**AZI 227.6°**  
**TVD 3378.49'**

**MUD WT 8.8 VIS 28**



MD 3548'  
 INC 16.4°  
 AZI 226.4°  
 TVD 3469.81'

75% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt  
 25% SHYSLTST: lt gy - dk gy, sbrd, slty tex, v sft - sft, slcalc, tr pyr, tr ss

MUD WT 8.9 VIS 30

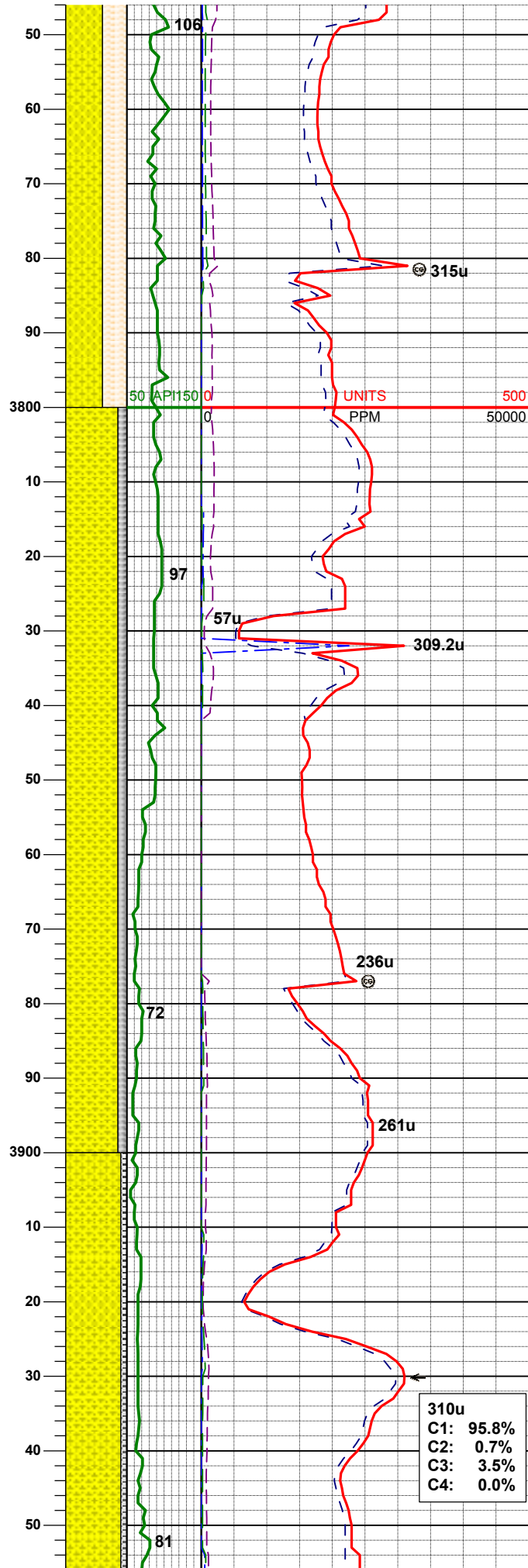
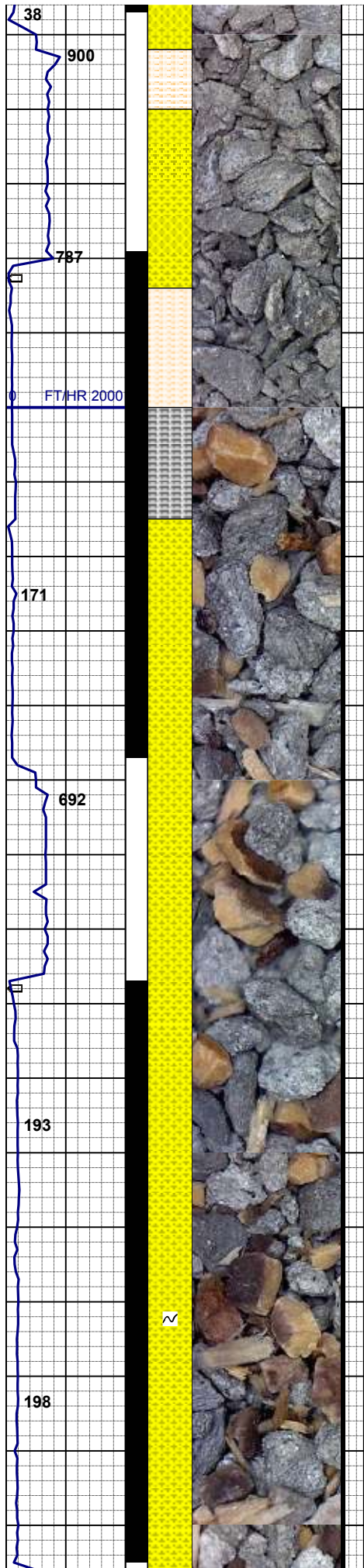
MD 3643'  
 INC 16.2°  
 AZI 224.5°  
 TVD 3560.99'

75% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt  
 25% SHYSLTST: lt gy - dk gy, sbrd, slty tex, v sft - sft, slcalc, tr pyr, tr ss

MUD WT 8.9+ VIS 29

MD 3738'  
 INC 15.2°  
 AZI 229.7°  
 TVD 3652.45'

264u
C1: 88.7%
C2: 2.4%
C3: 8.4%
C4: 0.5%



60% SHYSS: lt gy-m gy, s&p, vr-fgr, sbrd, mod srt, mod firm, fri, arg cmt  
 40% SHYSLTST: lt gy - dk gy, sbrd, silty tex, v sft - sft, slcalc, tr ss

**MUD WT 9.1 VIS 29**

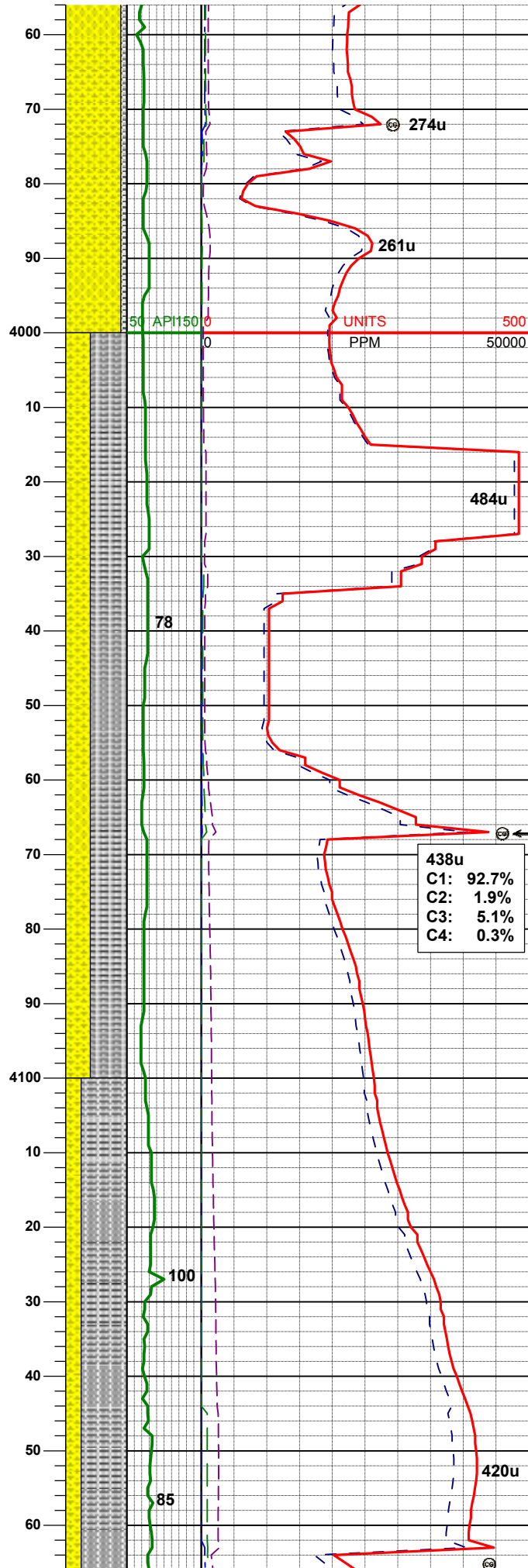
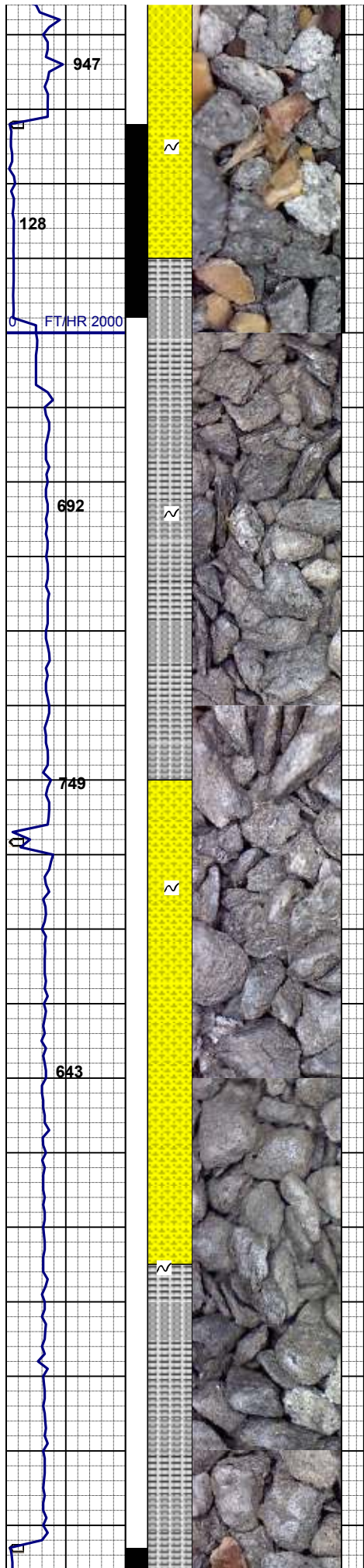
**MD 3833'**  
**INC 14.4°**  
**AZI 230.4°**  
**TVD 3744.30'**

85% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt  
 15% SLTYSH: m gy, occ lt - dk gy, blk-y-sbbkly, occ sbplty, sft- mod firm, fri, rthy - sl silty tex,

**MD 3928'**  
**INC 17.3°**  
**AZI 225.5°**  
**TVD 3835.68'**

<b>310u</b>
<b>C1: 95.8%</b>
<b>C2: 0.7%</b>
<b>C3: 3.5%</b>
<b>C4: 0.0%</b>

90% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt, tr glau  
 10% SLTYSH: m gy, occ lt - dk gy,



blky-sbblky, occ sbplty, sft- mod firm, fri, rthy - sl slty tex,

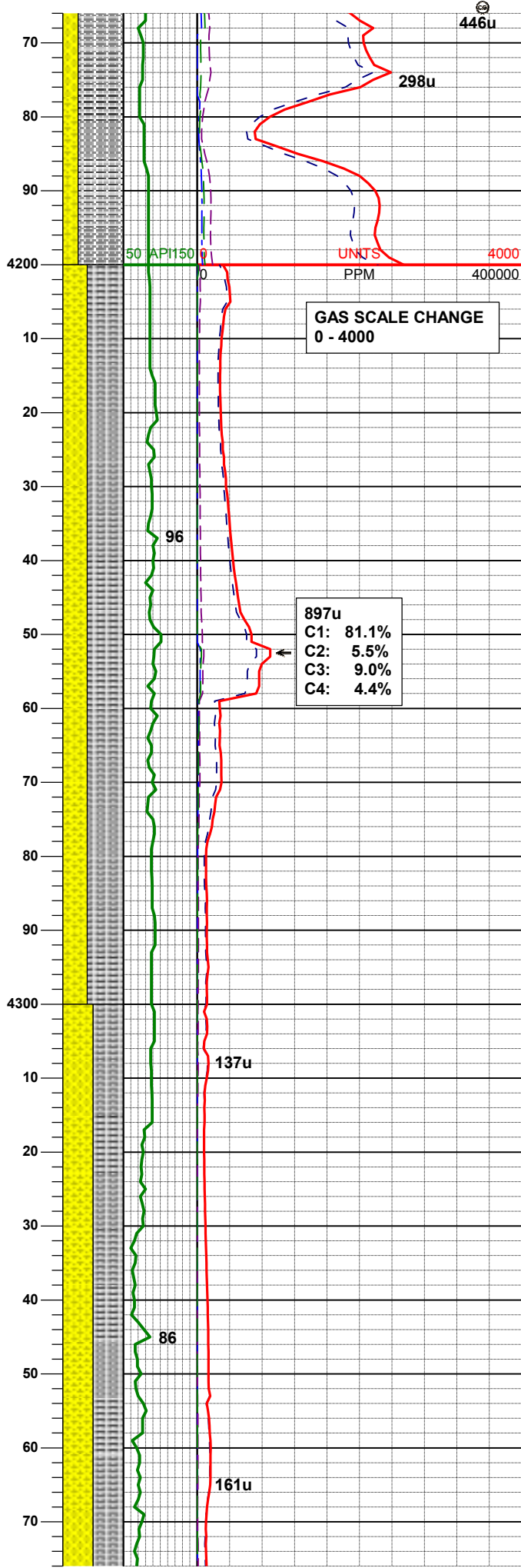
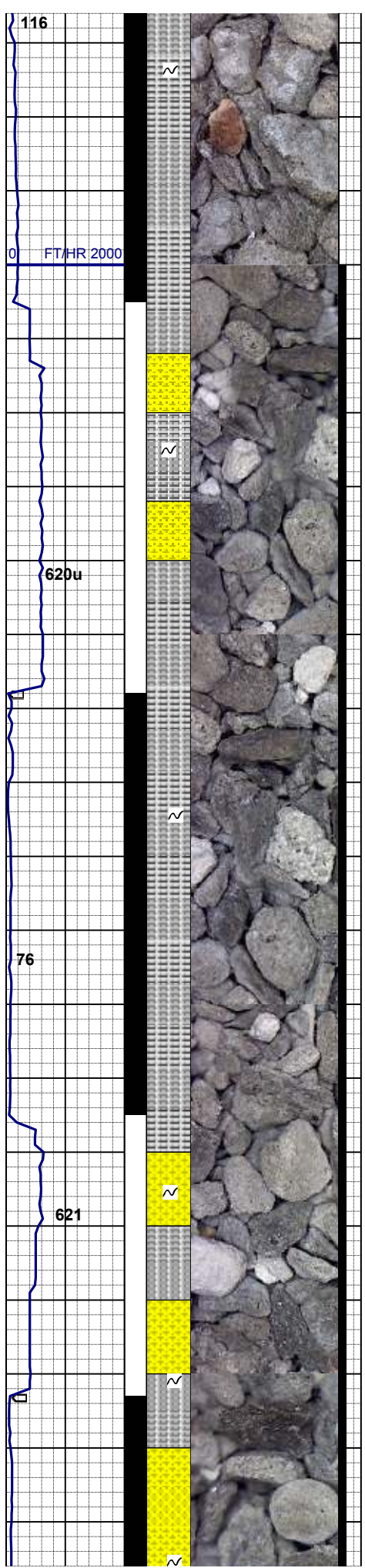
**MD 4024'**  
**INC 19.3°**  
**AZI 221.5°**  
**TVD 3926.83'**

60% SLTYSH: m gy, occ lt - dk gy, blky-sbblky, occ sbplty, sft- mod firm, fri, rthy - sl slty tex,  
 40% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt, tr glau

438u
C1: 92.7%
C2: 1.9%
C3: 5.1%
C4: 0.3%

**MD 4119'**  
**INC 18.2°**  
**AZI 220.1°**  
**TVD 4016.78'**

75% SLTYSH: m gy, occ lt - dk gy, blky-sbblky, occ sbplty, sft- mod firm, fri, rthy - sl slty tex,  
 25% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt, tr glau



**MD 4214'**  
**INC 17.2°**  
**AZI 218.0°**  
**TVD 4107.29'**

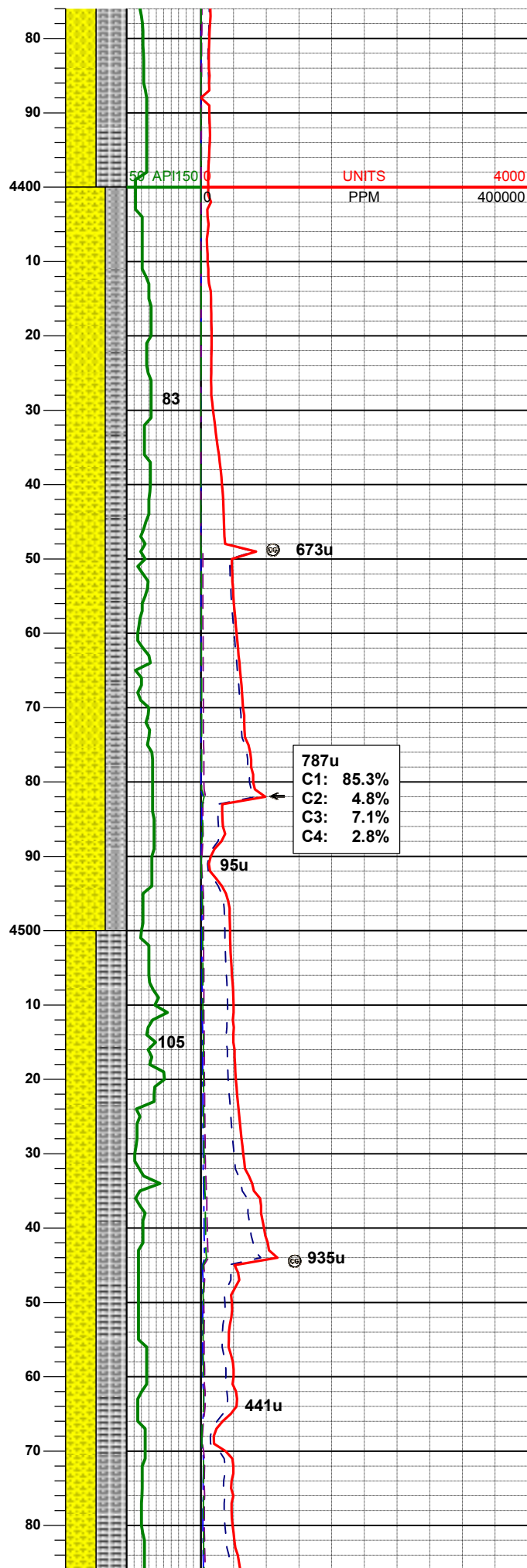
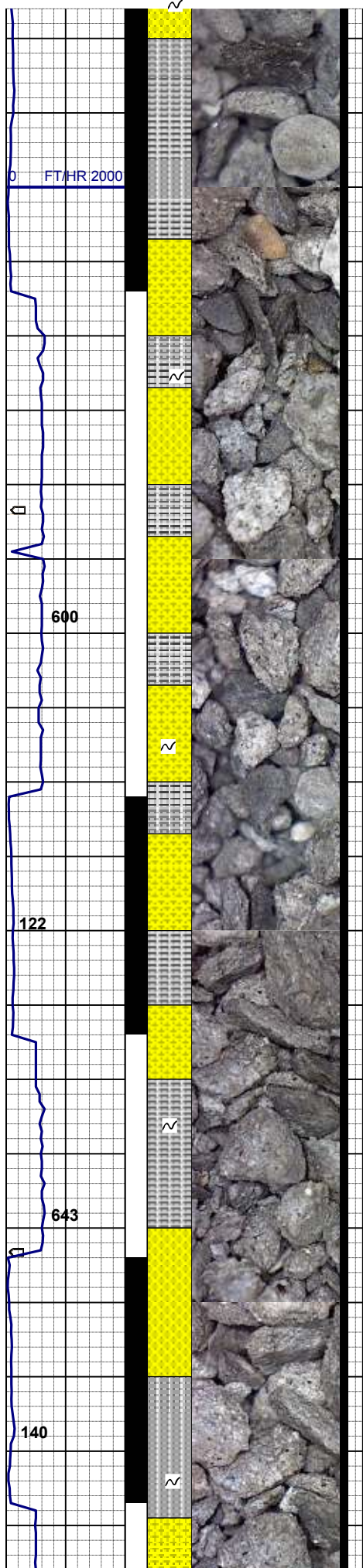
60% SLTYSH: m gy, occ lt - dk gy, blkly-sbblky, occ sbplty, sft- mod firm, fri, rthy - sl slty tex,  
 40% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt, tr glau

**MUD WT 9.3 VIS 28**

**MD 4309'**  
**INC 17.1°**  
**AZI 216.7°**  
**TVD 4198.06'**

50% SLTYSH: m gy, occ lt - dk gy, blkly-sbblky, occ sbplty, sft- mod firm, fri, rthy - sl slty tex,  
 50% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt, sme glau

**MUD WT 9.3 VIS 32**



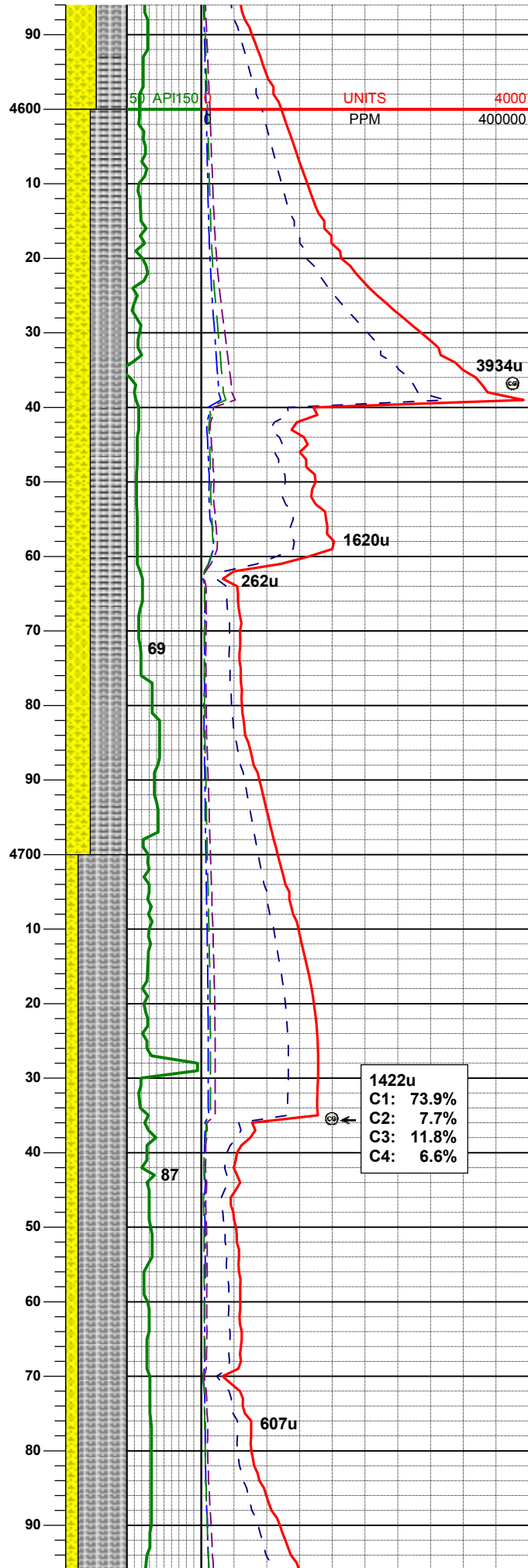
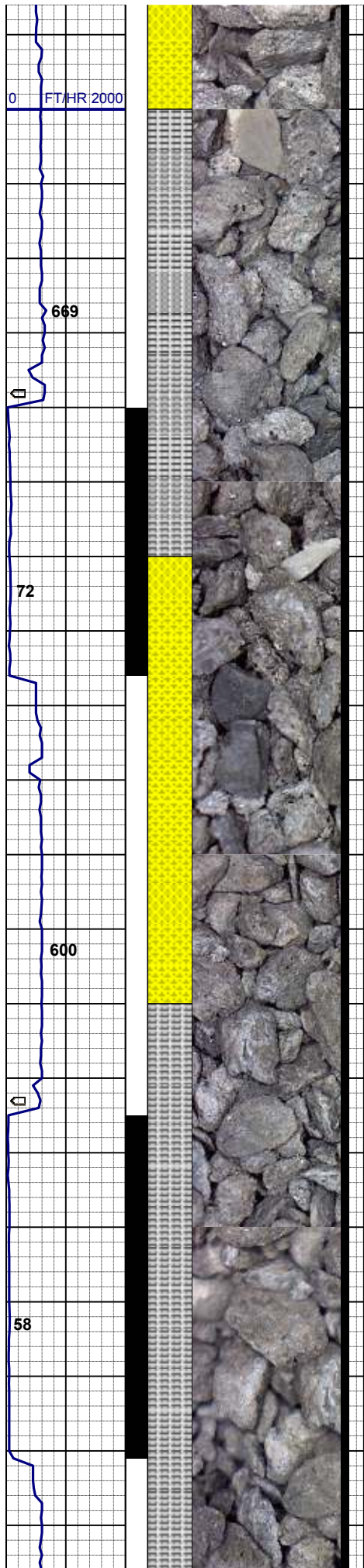
**MD 4404'**  
**INC 18.9°**  
**AZI 219.9°**  
**TVD 4288.41'**

65% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt, sme glau, tr biot  
 35% SLTYSH: m gy, occ lt - dk gy, blk-y-sbblky, occ sbplty, sft- mod firm, fri, rthy - sl slty tex,

**MD 4499'**  
**INC 18.0°**  
**AZI 223.1°**  
**TVD 4378.53'**

50% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt, sme glau, tr biot  
 50% SLTYSH: m gy, occ lt - dk gy, blk-y-sbblky, occ sbplty, sft- mod firm, fri, rthy - sl slty tex,

**MUD WT 9.3 VIS 32**



MD 4594'  
 INC 18.0°  
 AZI 226.8°  
 TVD 4468.88'

60% SLTYSH: m gy, occ lt - dk gy,  
 blk-y-sbbkly, occ sbplty, sft- mod firm,  
 fri, rthy - sl slty tex  
 40% SHYSS: lt gy-m gy, s&p, vf-fgr,  
 sbrd, mod srt, mod firm, fri, arg cmt

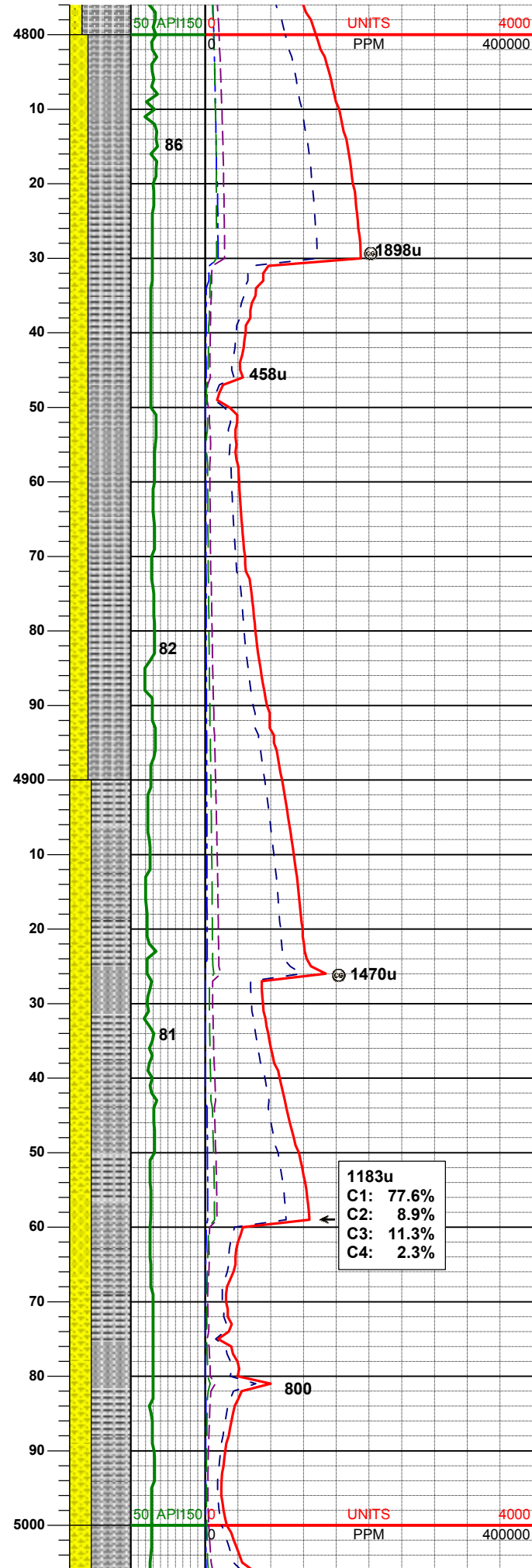
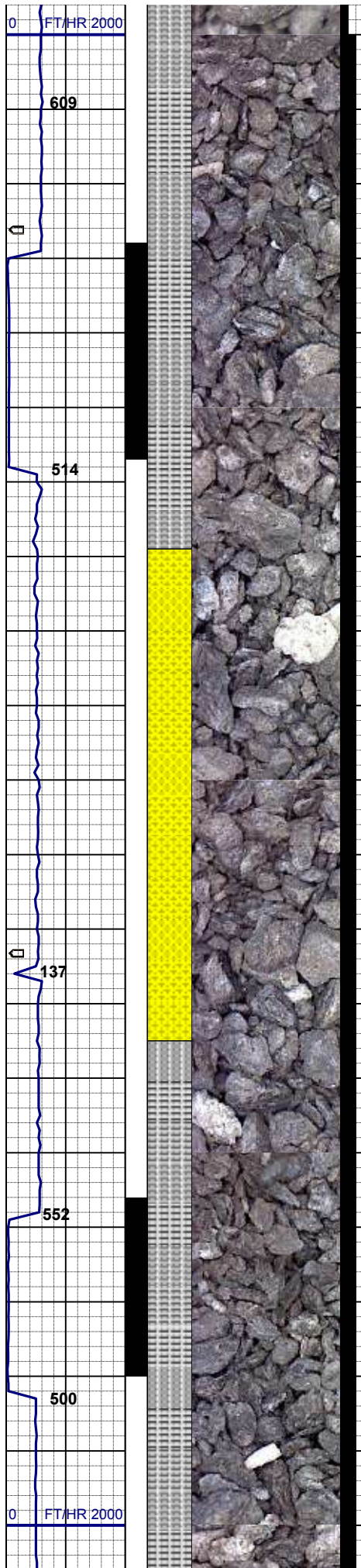
MD 4689'  
 INC 17.9°  
 AZI 224.5°  
 TVD 4559.24'

1422u  
 C1: 73.9%  
 C2: 7.7%  
 C3: 11.8%  
 C4: 6.6%

80% SLTYSH: m gy, occ lt - dk gy,  
 blk-y-sbbkly, occ sbplty, sft- mod firm,  
 fri, rthy - sl slty tex  
 20% SHYSS: lt gy-m gy, s&p, vf-fgr,  
 sbrd, mod srt, mod firm, fri, arg cmt

**MUD WT 9.1 VIS 30**

MD 4783'  
 INC 17.3°  
 AZI 227.6°  
 TVD 4648.86'

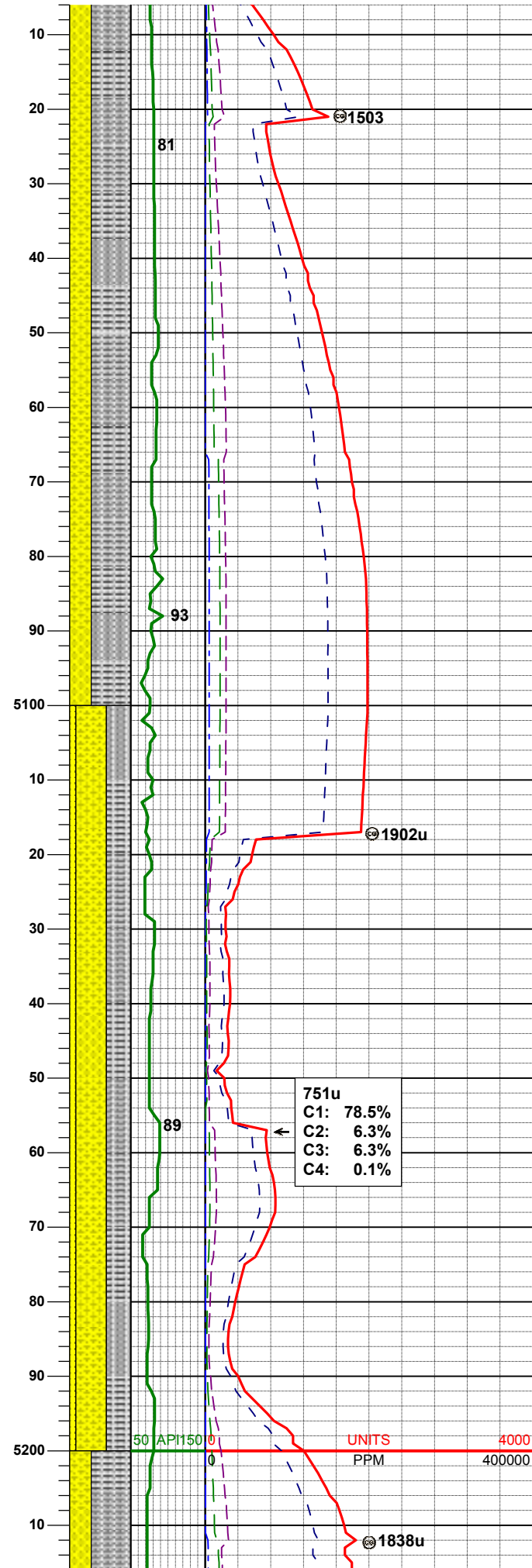
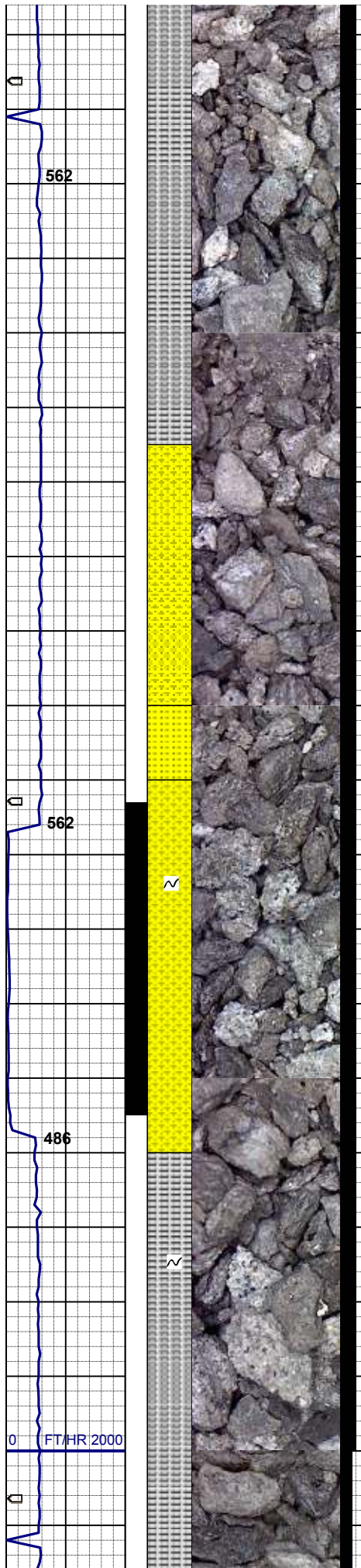


70% SLTYSH: m gy, occ lt - dk gy, blk-y-sbbkly, occ sbplty, sft- mod firm, fri, rthy - sl slty tex  
 30% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt

**MD 4879'**  
**INC 14.8°**  
**AZI 229.2°**  
**TVD 4741.11'**

65% SLTYSH: m gy, occ lt - dk gy, blk-y-sbbkly, occ sbplty, sft- mod firm, fri, rthy - sl slty tex  
 35% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt

**MD 4974'**  
**INC 11.9°**  
**AZI 230.4°**  
**TVD 4833.54'**



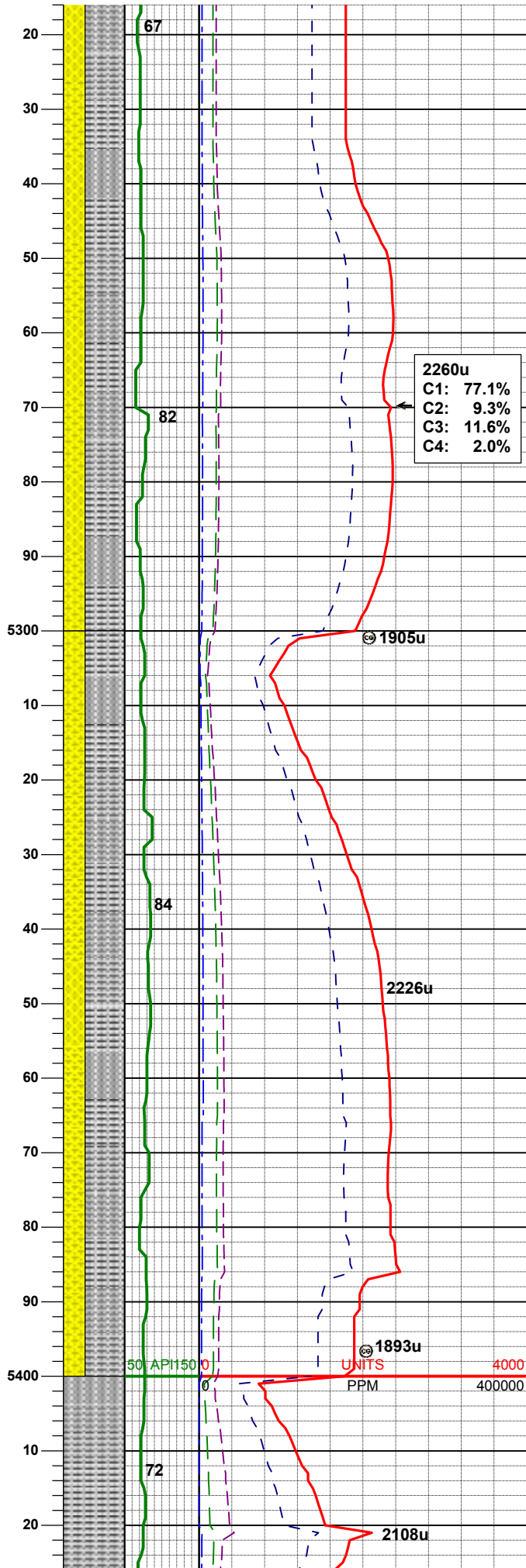
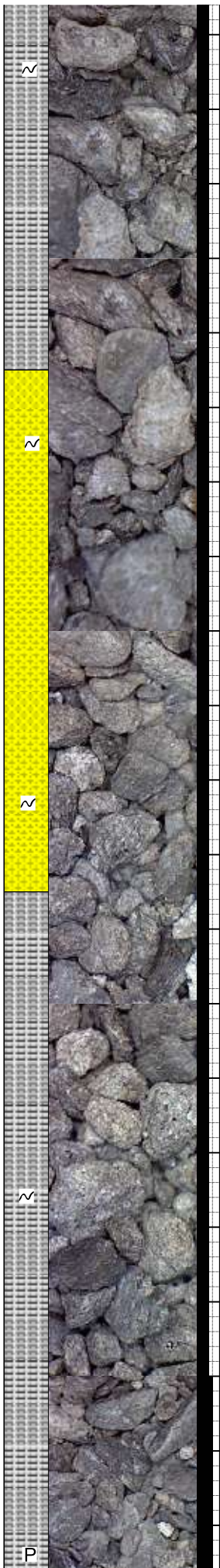
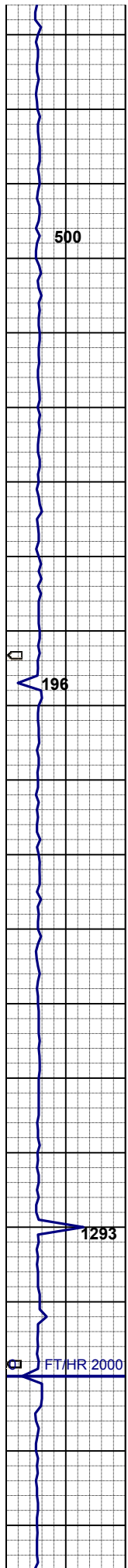
65% SLTYSH: m gy, occ lt - dk gy, bkly-sbblky, occ sbplty, sft- mod firm, fri, rthy - sl slty tex  
 35% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt

**MD 5069'**  
**INC 8.4°**  
**AZI 228.7°**  
**TVD 4927.04'**

50% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt  
 40% SLTYSH: m gy, occ lt - dk gy, bkly-sbblky, occ sbplty, sft- mod firm, fri, rthy - sl slty tex  
 10% SS: clr, ltgy-gy, s&p, vf-mfgr, sbang-sbrd, mod srt, firm- mod firm, fri, arg cmt, tr glau

**MD 5164'**  
**INC 8.4°**  
**AZI 226.6°**  
**TVD 5021.02'**

**MUD WT 9.1 VIS 30**



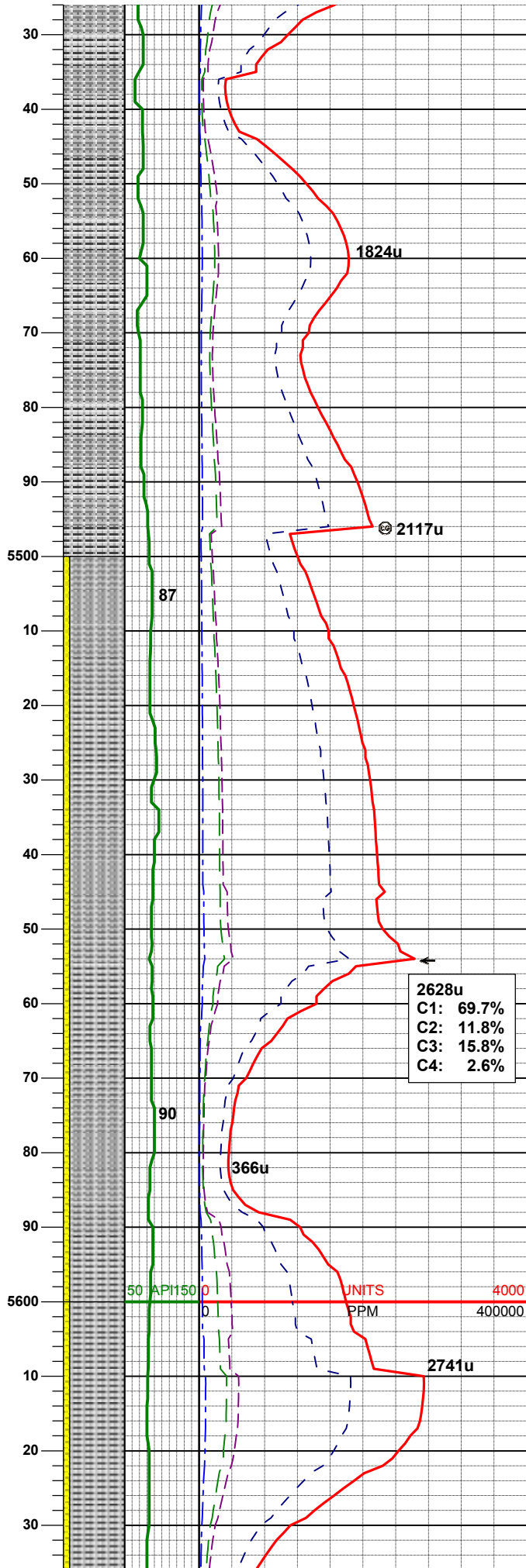
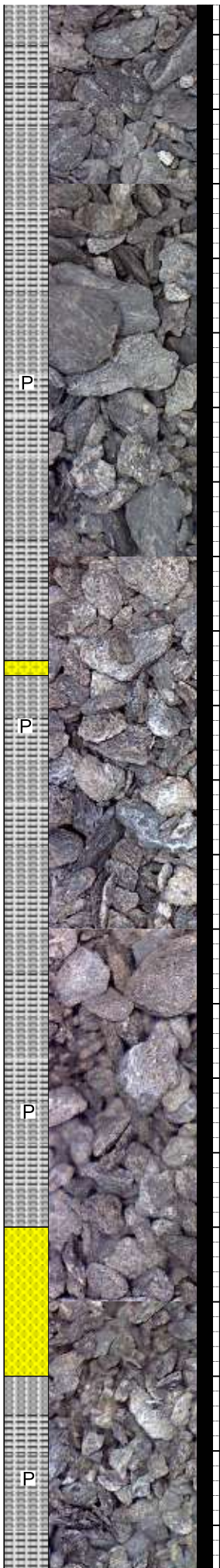
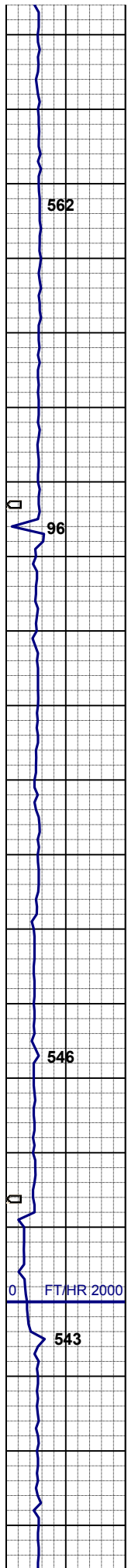
2260u  
 C1: 77.1%  
 C2: 9.3%  
 C3: 11.6%  
 C4: 2.0%

65% SLTYSH: m gy, occ lt - dk gy, blk- sbbkly, occ sbplty, sft- mod firm, fri, rthy - sl slty tex  
 35% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt, tr glau, tr ss

**MD 5259'**  
**INC 7.4°**  
**AZI 225.4°**  
**TVD 5115.11'**

**MD 5354'**  
**INC 5.0°**  
**AZI 223.1°**  
**TVD 5209.55'**

65% SLTYSH: m gy, occ lt - dk gy, blk- sbbkly, occ sbplty, sft- mod firm, fri, rthy - sl slty tex  
 35% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt, tr glau, tr ss



100% SLTYSH: mgy-dkgy, occ lt - dk gy, blkly-sbbkly, occ sbppty, sft- msft, fri, rthy - sl slty tex, tr pyr, tr shyss

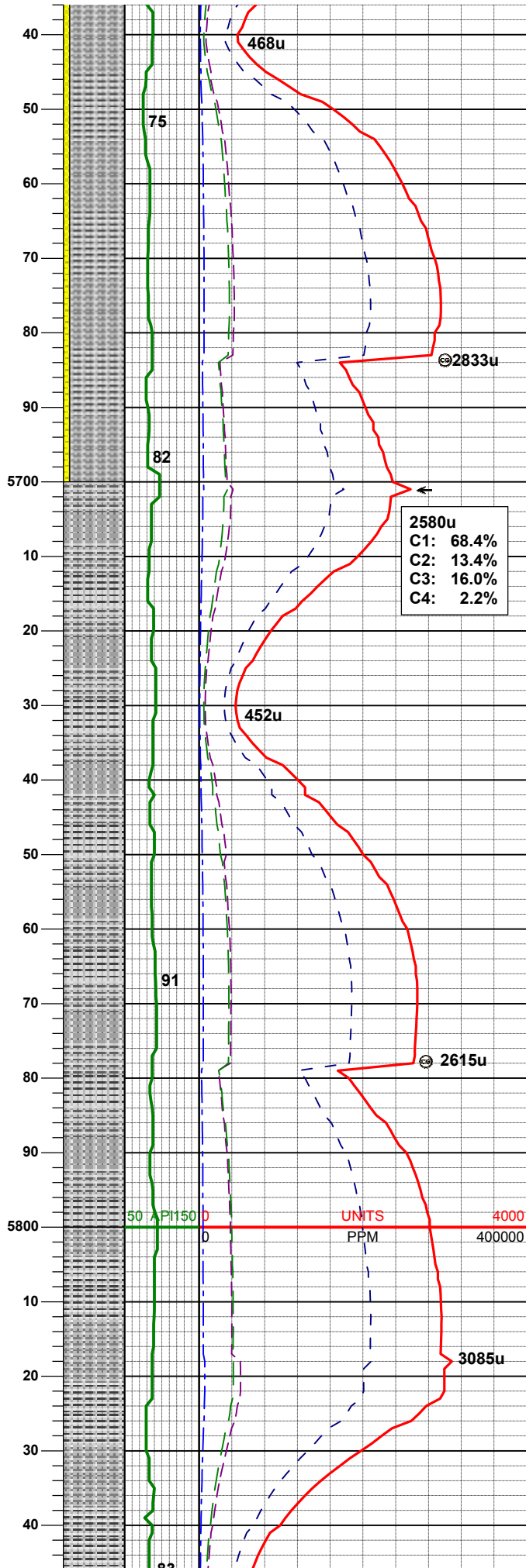
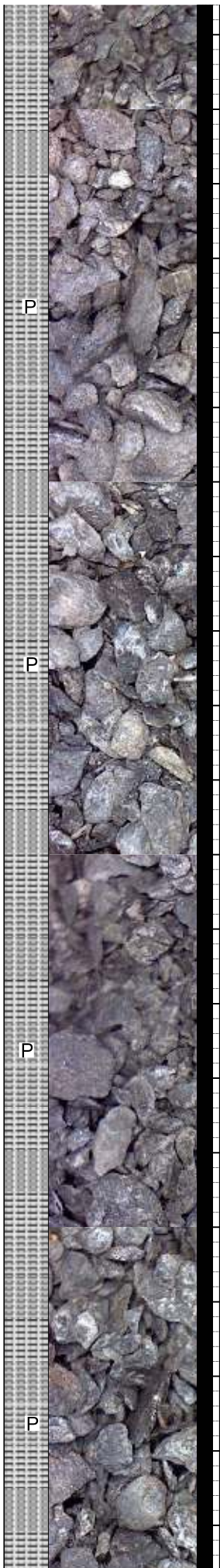
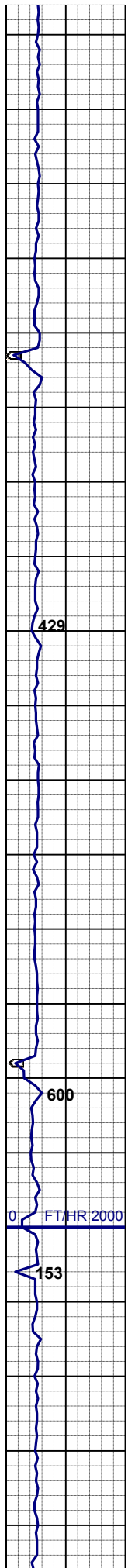
**MD 5493.1'**  
**INC 3.3°**  
**AZI 215.3°**  
**TVD 5304.3'**

**MD 5544'**  
**INC 2.0°**  
**AZI 203.7°**  
**TVD 5399.2'**

90% SLTYSH: mgy-dkgy, occ lt - dk gy, blkly-sbbkly, occ sbppty, sft- msft, fri, rthy - sl slty tex  
 10% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt, tr pyr

<b>2628u</b>
<b>C1: 69.7%</b>
<b>C2: 11.8%</b>
<b>C3: 15.8%</b>
<b>C4: 2.6%</b>

**MD 5639'**  
**INC 1.73°**



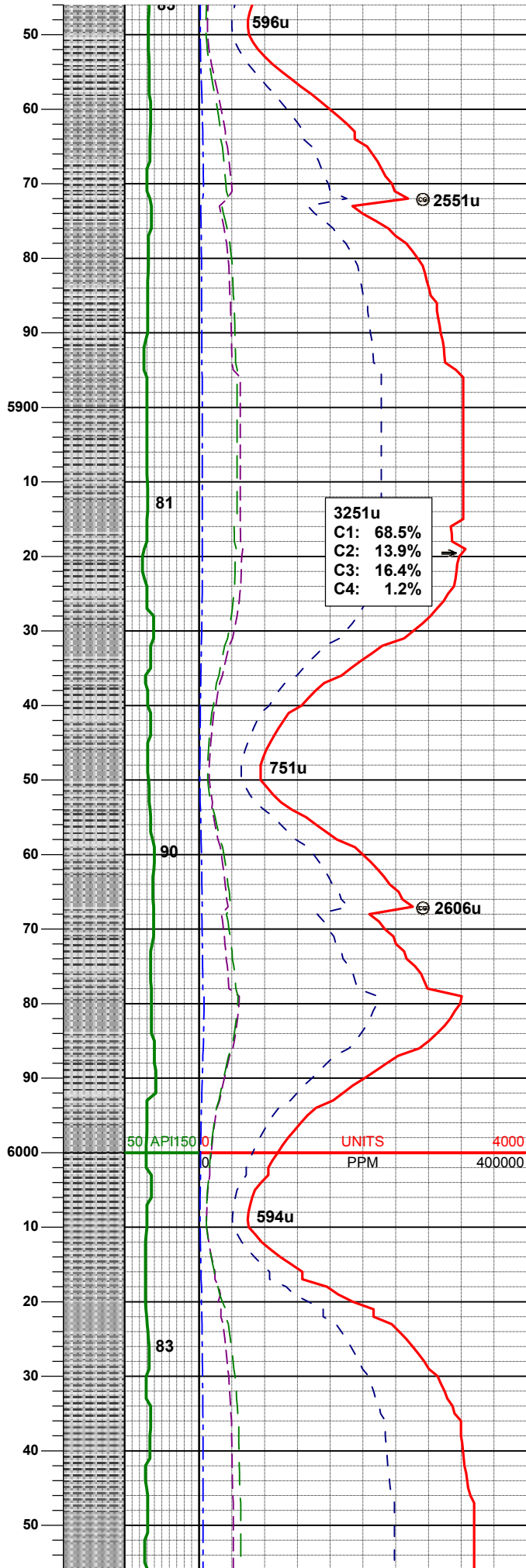
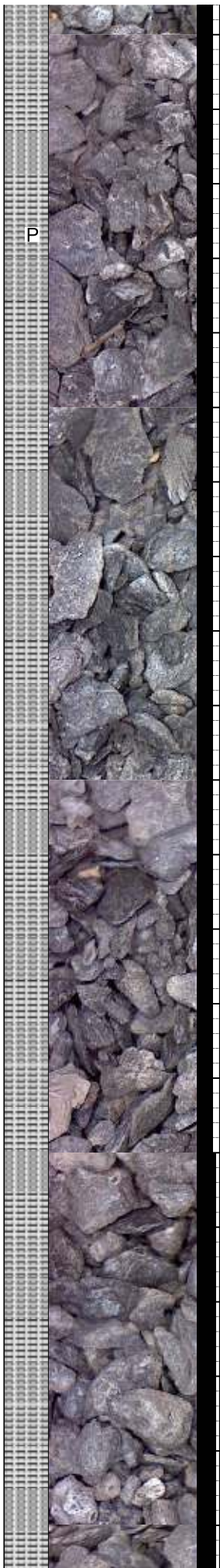
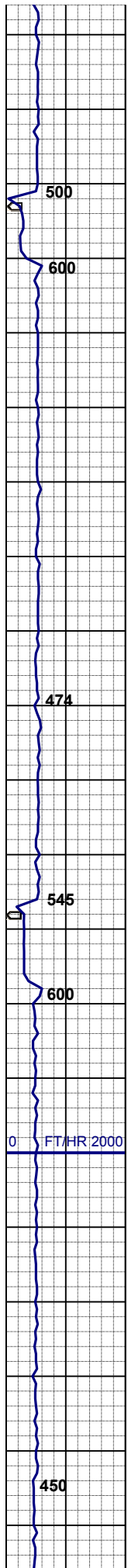
**AZI 200.7°  
TVD 5494.15'**

90% SLTYSH: mgy-dkgy, occ lt - dk gy, blkly-sbbkly, occ sbpity, sft- msft, fri, rthy - sl slty tex  
10% SHYSS: lt gy-m gy, s&p, vf-fgr, sbrd, mod srt, mod firm, fri, arg cmt, tr pyr

**MD 5734'  
INC 1.1°  
AZI 184.7°  
TVD 5589.12'**

**MUD WT 9.3 VIS 31**  
100% SLTYSH: mgy-dkgy, occ lt - dk gy, blkly-sbbkly, occ sbpity, sft- msft, fri, rthy - sl slty tex, tr pyr, tr shyss

**MD 5829'  
INC 1.1°  
AZI 161.0°  
TVD 5684.10'**



100% SLTYSH: mgy-dkgy, occ lt - dk gy, blk-sbblky, occ sbply, sft- msft, fri, rthy - sl slty tex, tr pyr, tr shyss

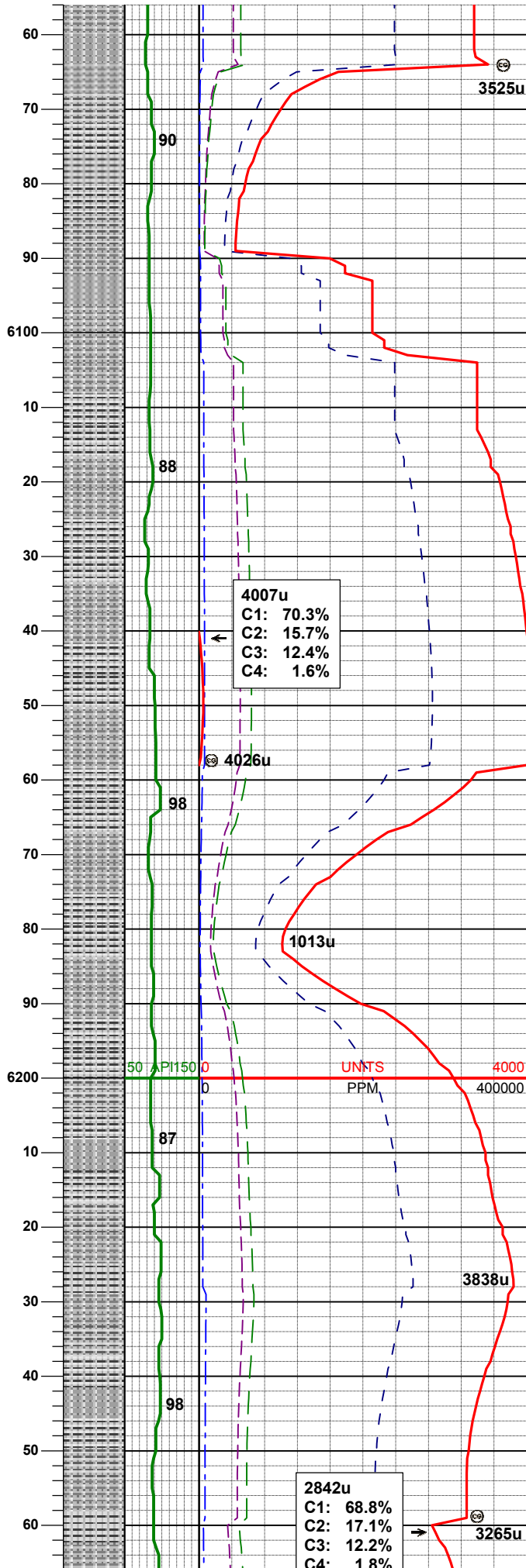
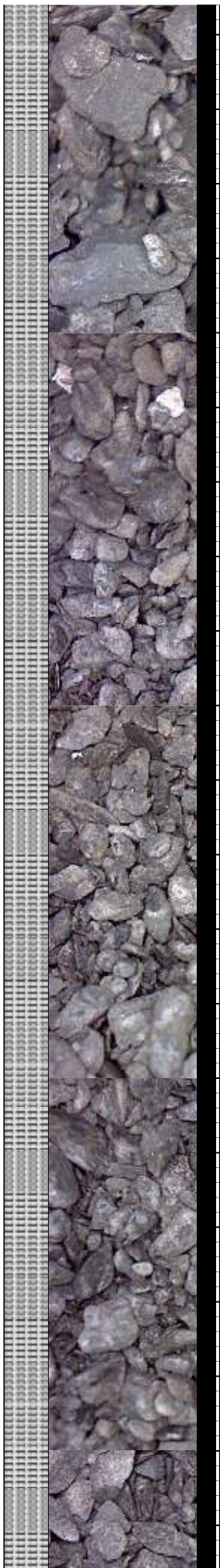
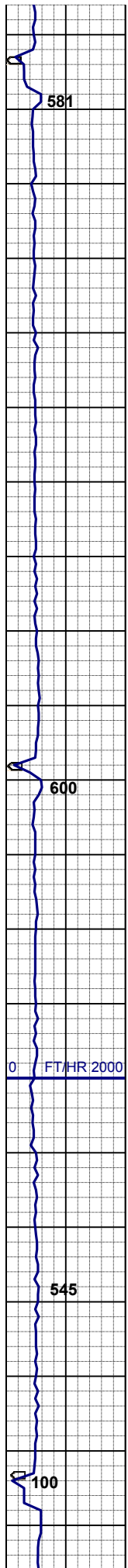
MD 5924'  
 INC 1.6°  
 AZI 135.7°  
 TVD 5779.08'

100% SLTYSH: mgy-dkgy, occ lt - dk gy, blk-sbblky, occ sbply, sft- msft, fri, rthy - sl slty tex, tr shyss

MUD WT 9.3 VIS 32

MD 6019'  
 INC 0.8°  
 AZI 139.6°  
 TVD 5874.05'

100% SLTYSH: mgy-dkgy, occ lt - dk gy, blk-sbblky, occ sbply, sft- msft, fri, rthy - sl slty tex, tr shyss

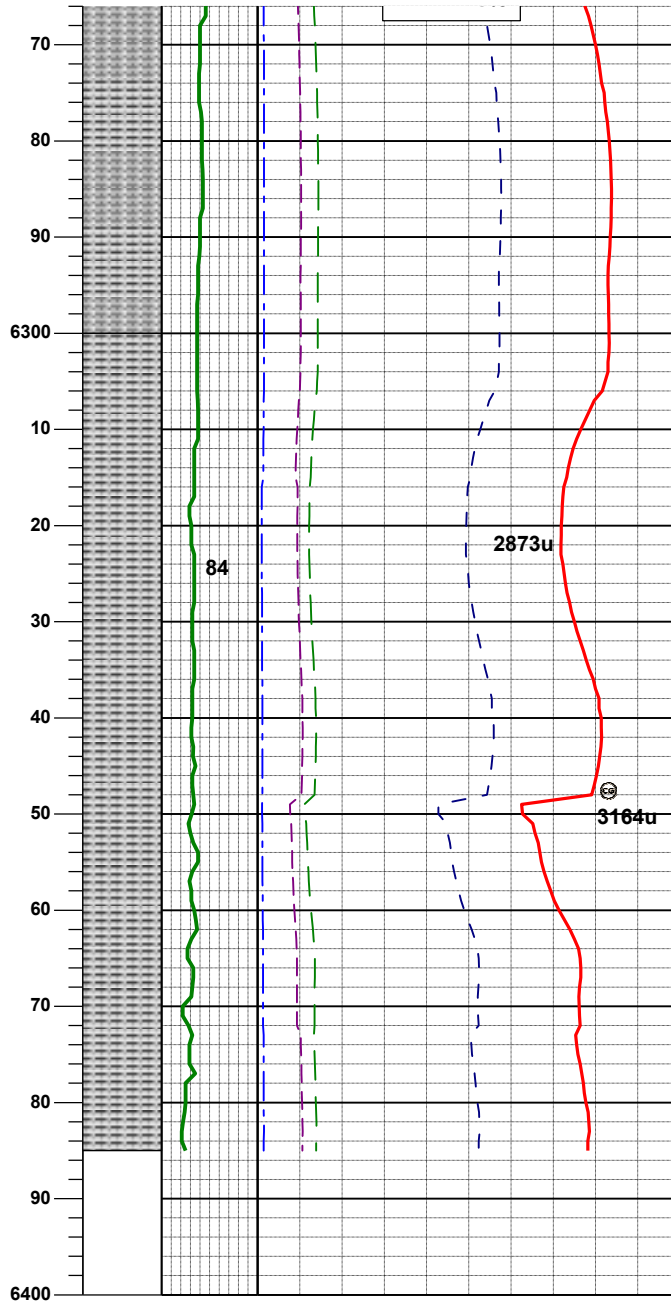
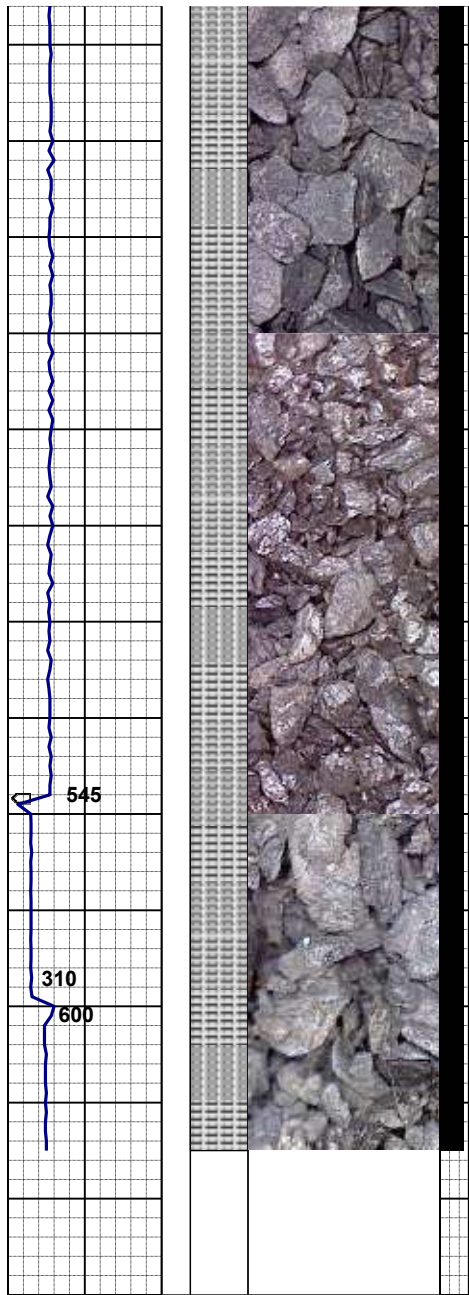


MD 6114'  
 INC 0.5°  
 AZI 145.0°  
 TVD 5969.05'

100% SLTYSH: mgy-dkgy, occ lt - dk gy, blkyy-sbbkly, occ sbpity, sft- msft, fri, rthy - sl slty tex, tr shyss

MD 6209'  
 INC 0.5°  
 AZI 159.3°  
 TVD 6064.04'

100% SLTYSH: mgy-dkgy, occ lt - dk gy, blkyy-sbbkly, occ sbpity, sft- msft, fri, rthy - sl slty tex, tr shyss



MUD WT 9.2+ VIS 32

MD 6304'  
 INC 0.9°  
 AZI 168.9°  
 TVD 6159.04'

MD 6341'  
 INC 1.0°  
 AZI 154.7°  
 TVD 6196.03'

100% SLTYSH: mgy-dkgy, occ lt - dk gy, blk-sbblk, occ sbply, sft-msft, fri, rthy - sl slty tex, tr shyss

TD Vertical @ 6383.3' MD  
 @ 21:42 MST 10/25/12

LOG CONTINUES ON  
 BOULTER\_STATE  
 G16\_75HN(HORZ)

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 Columbine Logging Inc.