LOG created using LPLOT VH Version 3.0, July 07, 2013, Copyright (C) 1999-2009 Pason Systems Corp.

OPERATOR:	**NOBLE ENERGY INC**
WELL:	**WOLFPACK B02-64-1HN**
LOCATION:	**NWSW SEC2, T5N, R64W**
COUNTY:	**WELD**
STATE:	**COLORADO**
SPOT:	**1463' FSL, 170' FWL**
ELEVATION:	**GE: 4616', KB: 4632'**
FIELD:	**WATTENBERG**
SPUD DATE:	**06/29/2013**
TD DATE:	**07/07/2013**
DATES LOGGED:	**07/01/2013 - 07/07/2013**
DEPTHS LOGGED:	**1000' - 10853'**
LOGGERS:	**CHRIS WILLATT, TONY COX**
DRILLING FLUID:	**LSND**
DRILLING RIG:	**PRECISION 829**
API:	**05-123-37324**
LOG TYPE:	**VERTICAL**
SCALE:	**1:240 (5 inches per 100 feet)**
REMARKS:	**WELLSITE GEOLOGICAL SERVICES PROVIDED BY COLUMBINE LOGGING INC.**

LOG CONTINUES ON FILE: WOLFPACK B02-64-1HN HORIZ.lplot

LITHOLOGIES

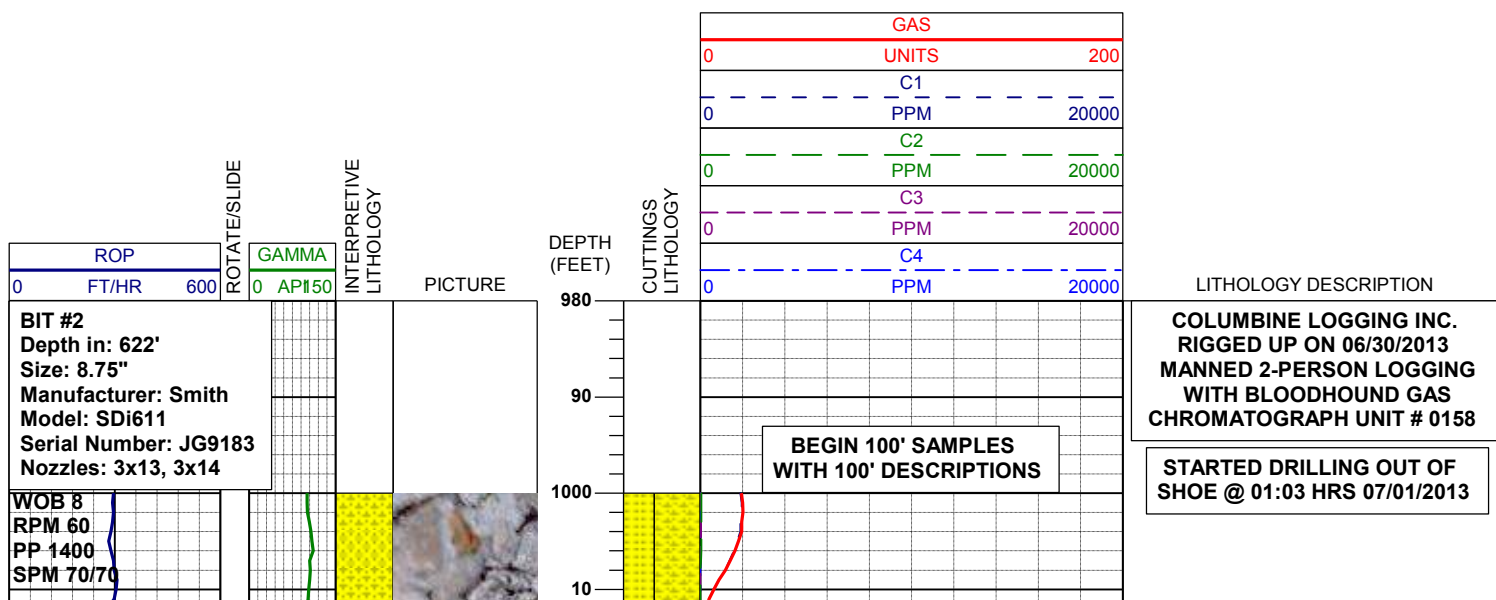|			
Sandstone	Shaly Sandstone	Shaly Siltstone	Silty Shale

ENGINEERING SYMBOLS

Connection	Connection Gas	Midnight Depth

GAS		
0	UNITS	200
	C1	
0	PPM	20000
	C2	
0	PPM	20000
	C3	
0	PPM	20000
	C4	
0	PPM	20000

ROP
0   FT/HR   600

ROTATE/SLIDE

GAMMA
0   API   150

INTERPRETIVE LITHOLOGY

PICTURE

DEPTH (FEET)

CUTTINGS LITHOLOGY

LITHOLOGY DESCRIPTION

BIT #2
Depth in: 622'
Size: 8.75"
Manufacturer: Smith
Model: SDi611
Serial Number: JG9183
Nozzles: 3x13, 3x14

WOB 8
RPM 60
PP 1400
SPM 70/70

980

90

1000

10

BEGIN 100' SAMPLES WITH 100' DESCRIPTIONS

COLUMBINE LOGGING INC. RIGGED UP ON 06/30/2013 MANNED 2-PERSON LOGGING WITH BLOODHOUND GAS CHROMATOGRAPH UNIT # 0158

STARTED DRILLING OUT OF SHOE @ 01:03 HRS 07/01/2013

60% SHYSS: vlt-mgy, trnsl- op, vf- ml, sbrndd, p-mod srt, sft -firm, arg mtx, p -mod cmt, sl calc, tr biot
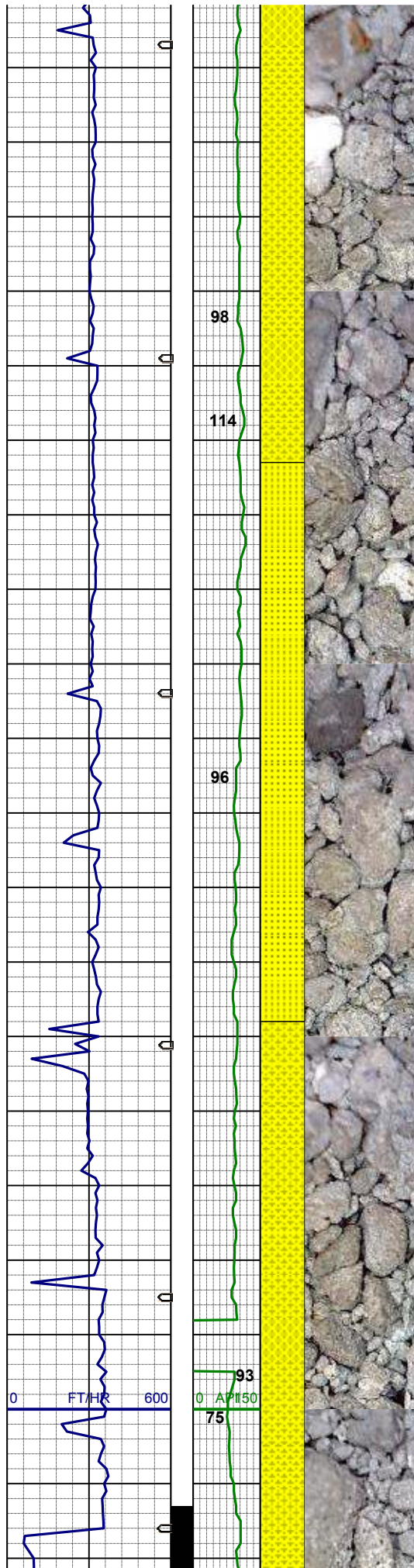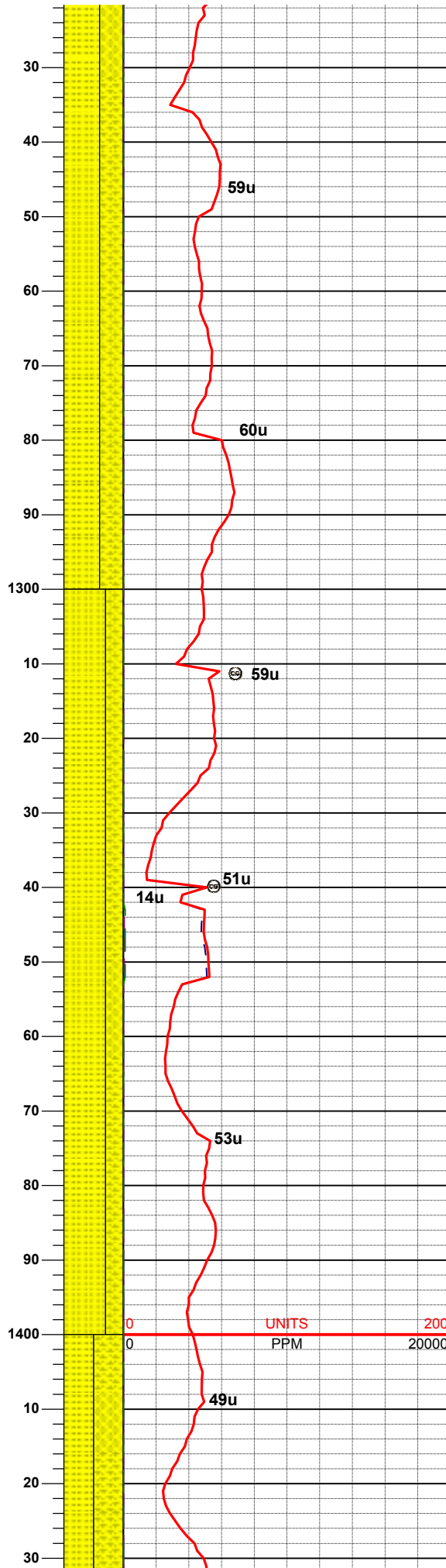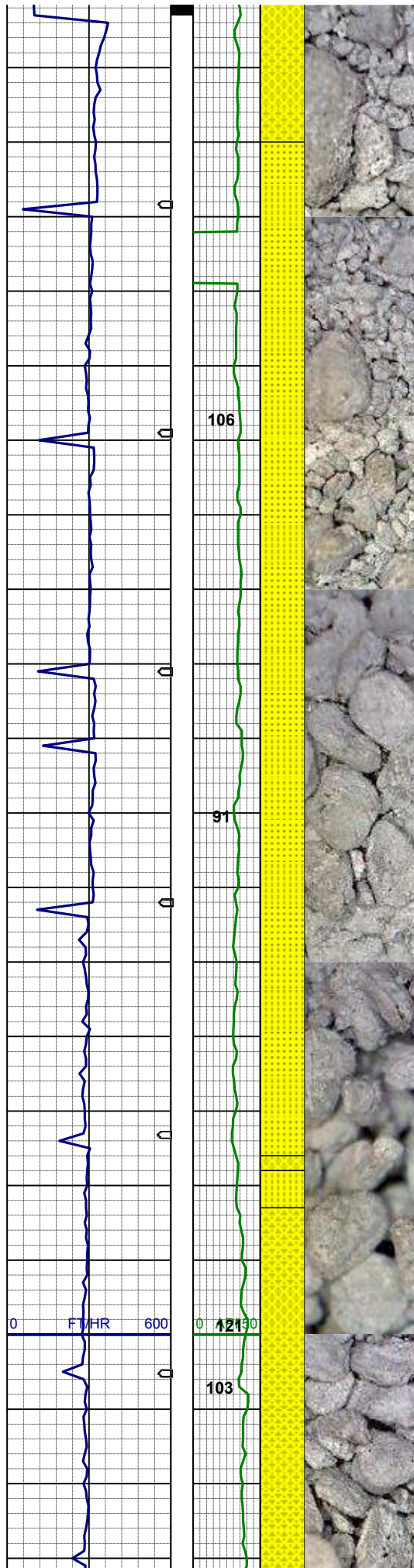40% SS: wh-mgy, clr- trnsl, f-mgr, mod srt, fri, p cmt, arg- sil mtx, sl calc, tr biot

50% SHYSS: vlt-mgy, trnsl- op, vf- ml, sbrndd, p-mod srt, sft -firm, arg mtx, p -mod cmt, sl calc, tr biot
50% SS: wh-mgy, clr- trnsl, f-mgr, mod srt, fri, p cmt, arg- sil mtx, sl calc, tr biot

MD   1164'
INC   1.00°
AZI   274.05°
TVD   1163.9'

WT 8.4 / VIS 28

Track annotations (depth log):
20u, 4u, 28u, 29u, 41u, 57u, 12u, 57u

98, 114, 96, 93, 75

0 FT/HR 600
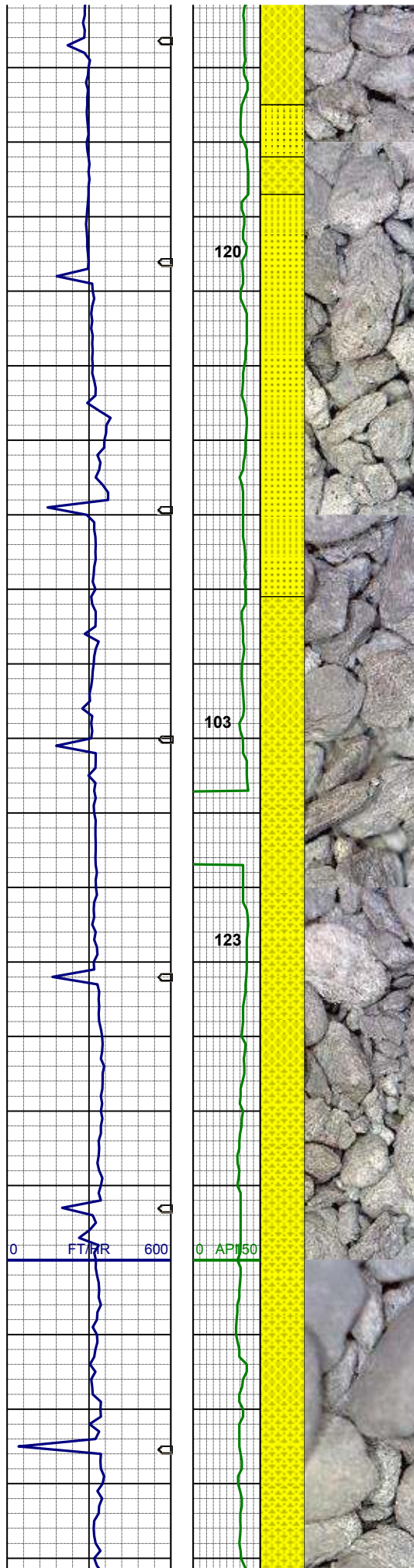0 API 50
0 UNITS 200
0 PPM 20000

60% SS: wh-mgy, clr- trnsl, f-mgr,
mod srt, fri, p cmt, arg- sil mtx, sl calc,
tr biot, tr glau
40% SHYSS: vlt-mgy, trnsl- op, vf- ml,
sbrndd, p-mod srt, sft -firm, arg mtx, p
-mod cmt, sl calc, tr biot

70% SS: wh-mgy, clr- trnsl, f-mgr,
mod srt, fri, p cmt, arg- sil mtx, sl calc,
tr biot, tr glau
30% SHYSS: vlt-mgy, trnsl- op, vf- ml,
sbrndd, p-mod srt, sft -firm, arg mtx, p
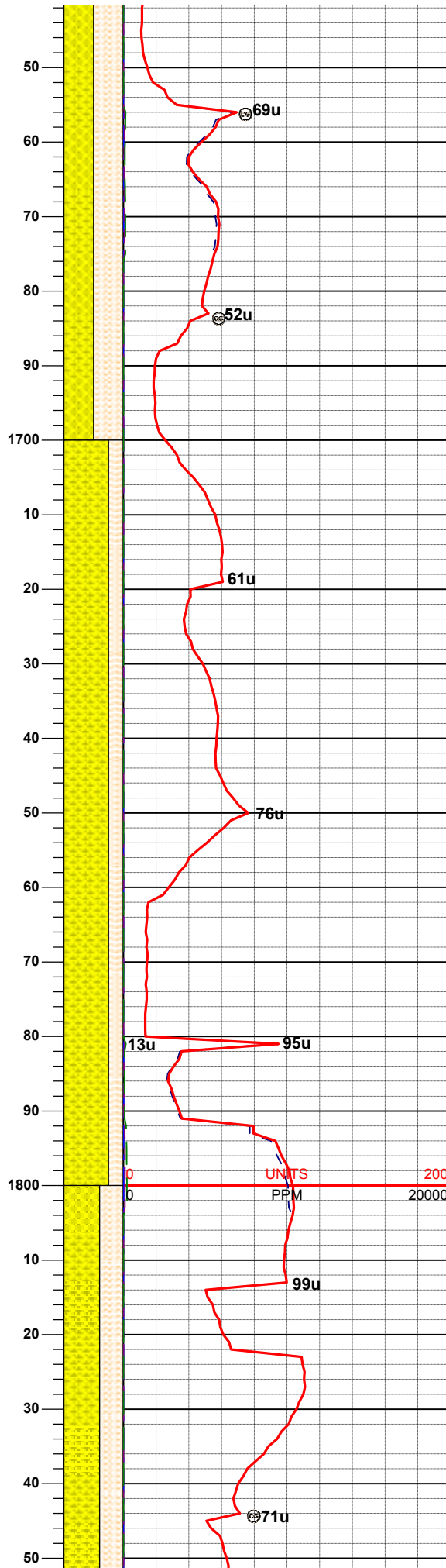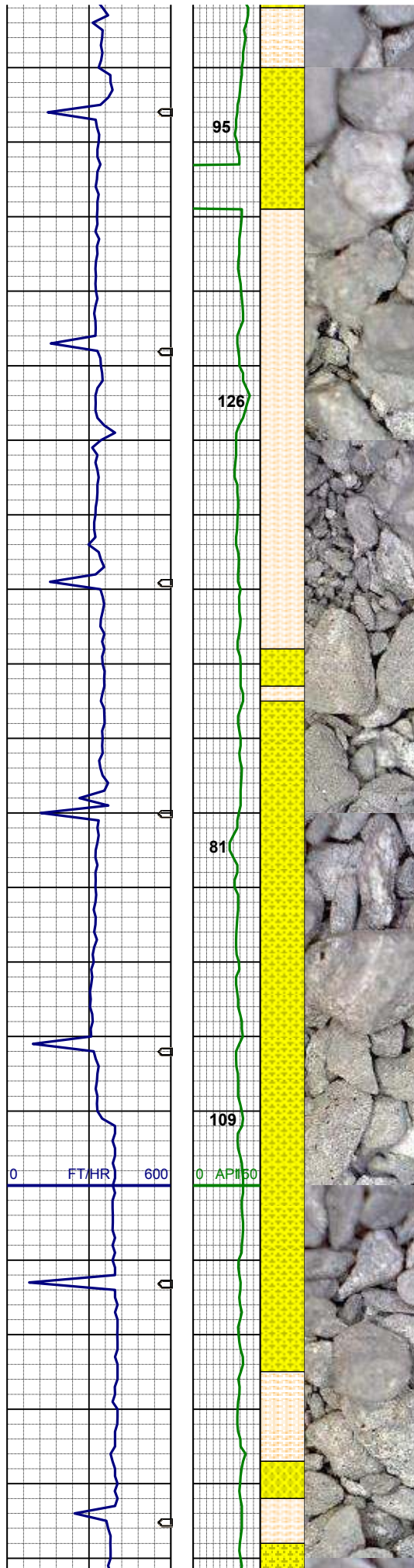-mod cmt, sl calc, tr biot

WT 8.4 / VIS 28

50% SS: wh-mgy, clr- trnsl, f-mlgr, mod srt, fri, p cmt, arg- sil mtx, sl calc, tr biot, tr glau

50% SHYSS: vlt-mgy, trnsl- op, vf- ml, sbrndd, p-mod srt, sft -firm, arg mtx, p -mod cmt, sl calc, tr biot

MD	**1450'**
INC	**1.10°**
AZI	**297.66°**
TVD	**1449.9'**

75% SHYSS: vlt-mgy, trnsl- op, vf- ml, sbrndd, p-mod srt, sft -firm, arg mtx, p -mod cmt, sl calc, tr biot

25% SS: wh-mgy, clr- trnsl, f-mlgr, mod srt, fri, p cmt, arg- sil mtx, sl calc, tr biot, tr glau

WT 8.4 / VIS 28

64u
24u
54u
74u
120
103
123
64u
23u
63u
57u
43u
11u

0 FT/HR 600
0 API 50
0 UNITS 200
0 PPM 20000

Track 1 (left): ROP curve
- Scale: 0 — FT/HR — 600

Track 2 (Gamma Ray / lithology):
- Scale: 0 — API — 150
- 95
- 126
- 81
- 109

Track 3 (depth / gas):
- Depth markers: 50, 60, 70, 80, 90, 1700, 10, 20, 30, 40, 50, 60, 70, 80, 90, 1800, 10, 20, 30, 40, 50
- 69u
- 52u
- 61u
- 76u
- 13u 95u
- 99u
- 71u
- UNITS scale: 0 — UNITS — 200
- PPM scale: 0 — PPM — 20000
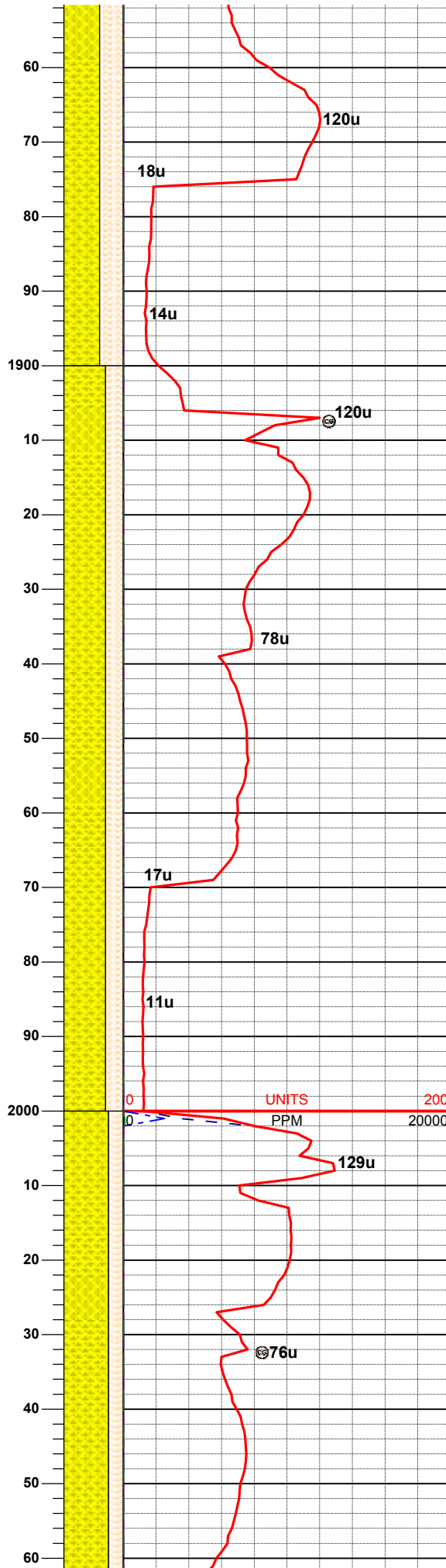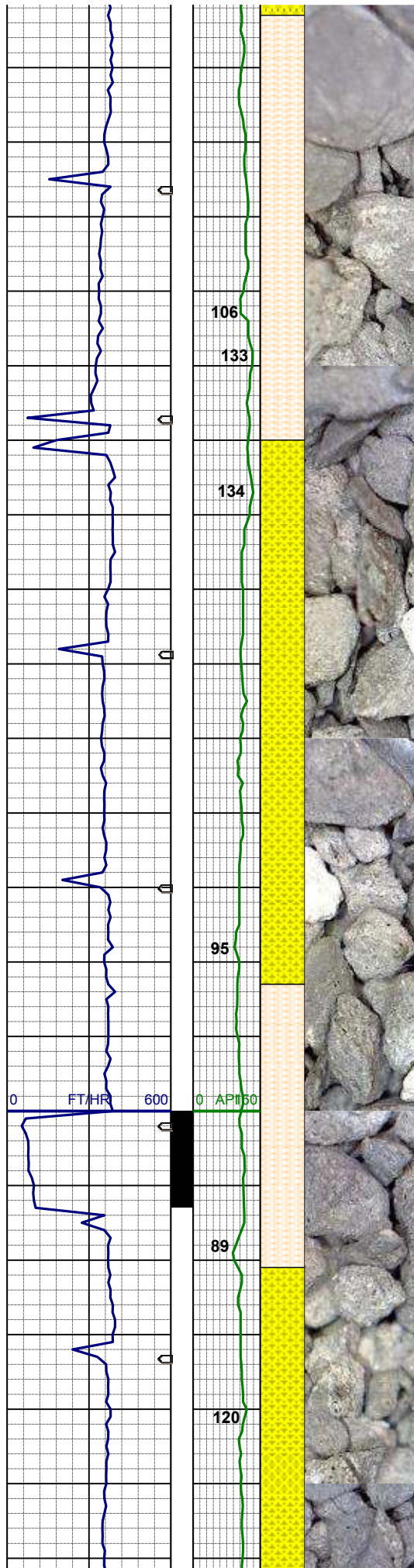
Lithology descriptions (right column):

50% SHYSS: vlt-mgy, trnsl- op, vf- f
gr, sbrndd, p-mod srt, sft -firm, arg
mtx, p-mod cmt, tr biot, tr glau
50% SHYSLTST: ltgy, sft- fri, sbblky-
sl sbplty, slty tex, tr biot incl

MD   1733'
INC   1.47°
AZI   314.24°
TVD   1732.8'

75% SHYSS: vlt-mgy, trnsl- op, vf- f
gr, sbrndd, p-mod srt, sft -firm, arg
mtx, p-mod cmt, tr biot, tr glau
25% SHYSLTST: ltgy, sft- fri, sbblky-
sl sbplty, slty tex, tr biot incl

WT 8.4 / VIS 28

60% SHYSS: vlt-mgy, trnsl- op, vf- f
gr, sbrndd, p-mod srt, sft -firm, arg
mtx, p-mod cmt, tr biot, tr glau

40% SHYSLTST: ltgy, sft- fri, sbblky-
sl sbplty, slty tex, tr biot incl

120u

18u
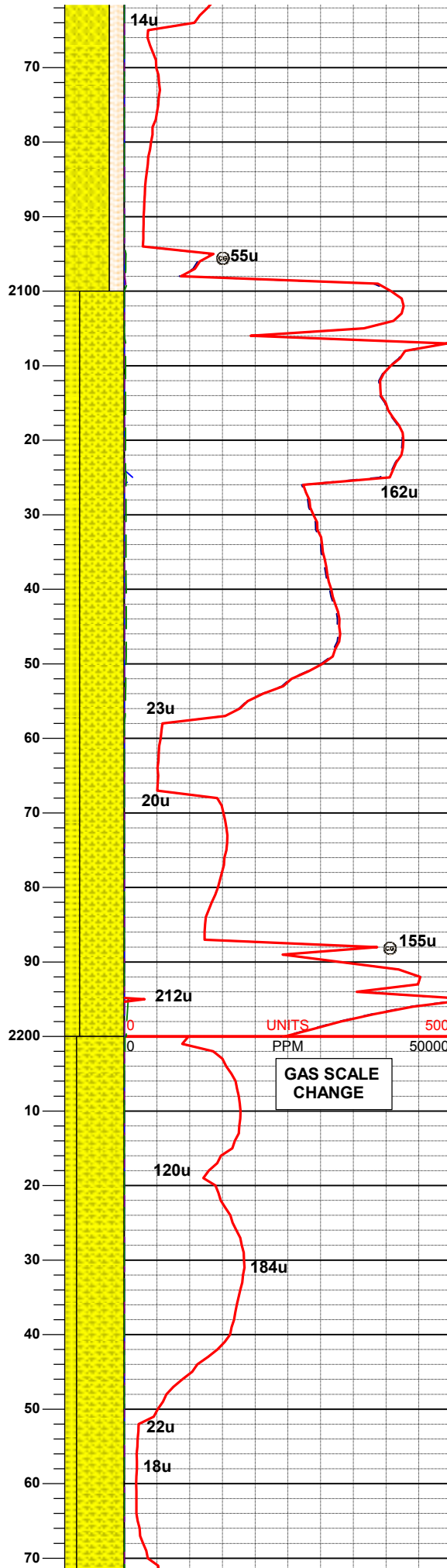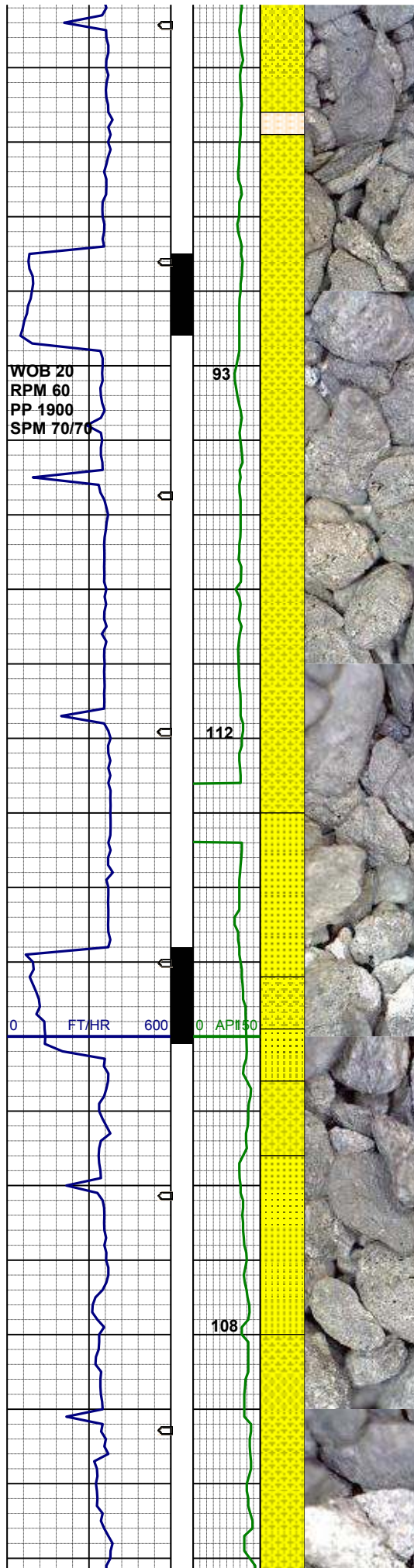
14u

106

133

120u

134

78u

70% SHYSS: vlt-mgy, trnsl- op, vf- f
gr, sbrndd, p-mod srt, sft -firm, arg
mtx, p-mod cmt, tr biot, tr glau
30% SHYSLTST: ltgy, sft- fri, sbblky-
sl sbplty, slty tex, tr biot incl

MD	1953'
INC	1.62°
AZI	303.46°
TVD	1952.7'

17u

95

11u

0 FT/HR 600   0 API 150   0 UNITS 200
PPM
0   20000

WT 8.4 / VIS 28

129u

89

76u

120

MD	2047'
INC	2.95°
AZI	339.40°
TVD	2046.7'

75% SHYSS: vlt-mgy, trnsl- op, vf- f
gr, sbrndd, p-mod srt, sft -firm, arg
mtx, p-mod cmt, tr biot, tr glau
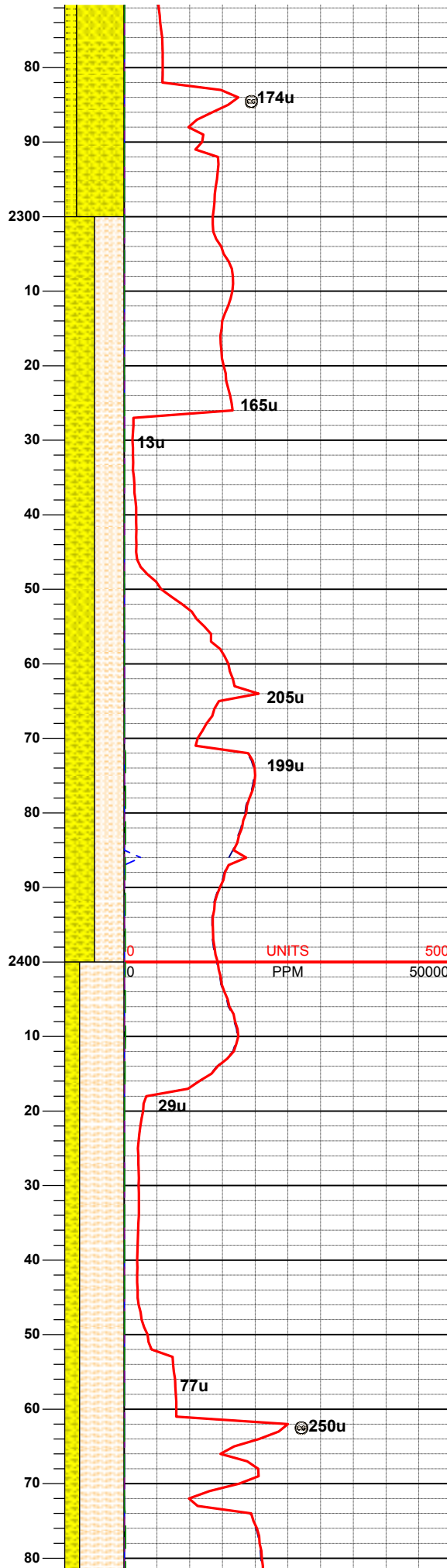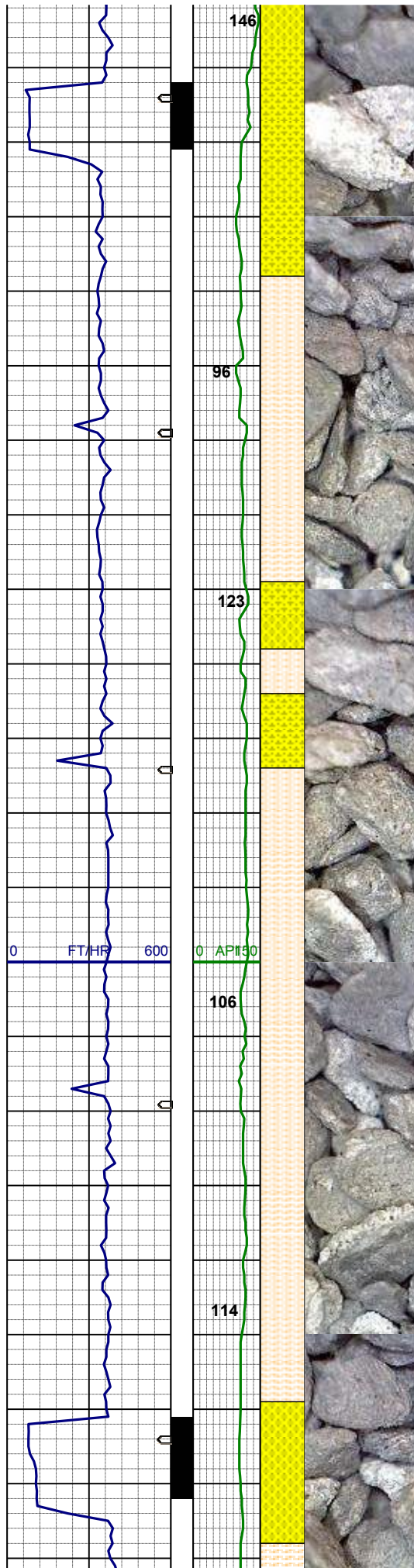25% SHYSLTST: ltgy, sft- fri, sbblky-

WOB 20
RPM 60
PP 1900
SPM 70/70

93

112

108

0   FT/HR   600

0   APIL50

14u

70

80

90

2100

10

20

30

40

50

60

70

80

90

2200

10

20

30

40

50

60

70

55u

162u

23u

20u

212u

155u

120u

184u

22u

18u

0   UNITS   500
0   PPM   50000

GAS SCALE CHANGE

sl sbplty, slty tex, tr biot incl

MD	**2141'**
INC	**4.73°**
AZI	**342.27°**
TVD	**2140.4'**

75% SHYSS: vlt-mgy, trnsl- op, vf- ml,
sbrndd, p-mod srt, sft -firm, arg mtx, p
-mod cmt, sl calc, tr biot
25% SS: wh-mgy, clr- trnsl, f-mgr,
mod srt, fri, p cmt, arg- sil mtx, sl calc,
tr biot, tr glau

MD	**2235'**
INC	**6.74°**
AZI	**342.50°**
TVD	**2234.0'**

80% SHYSS: vlt-mgy, trnsl- op, vf- ml,
sbrndd, p-mod srt, sft -firm, arg mtx, p
-mod cmt, sl calc, tr biot
20% SS: wh-mgy, clr- trnsl, f-mgr,
mod srt, fri, p cmt, arg- sil mtx, sl calc,
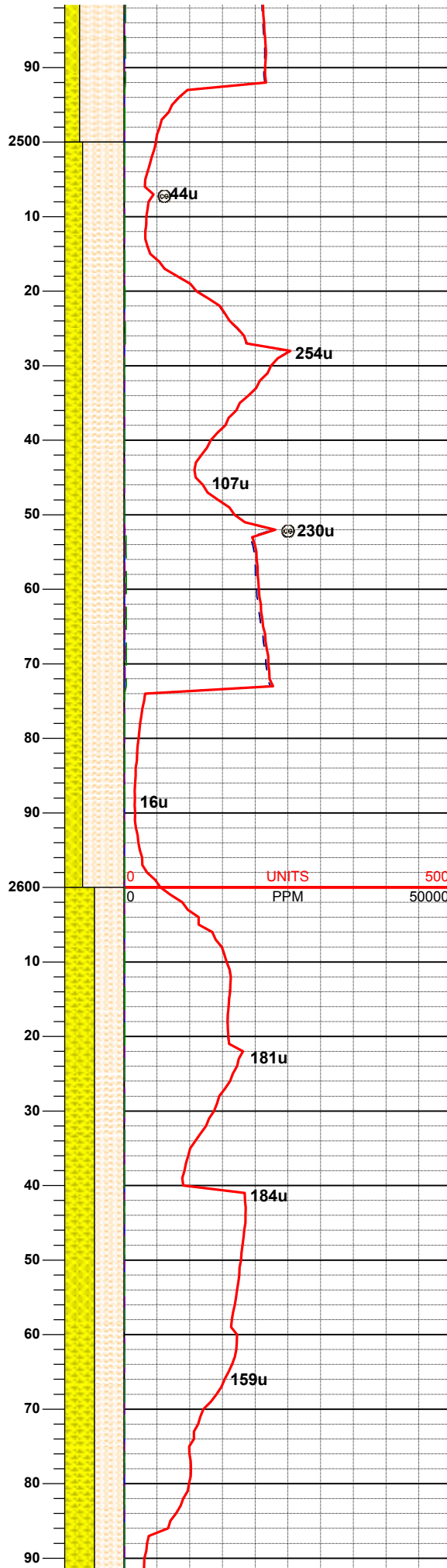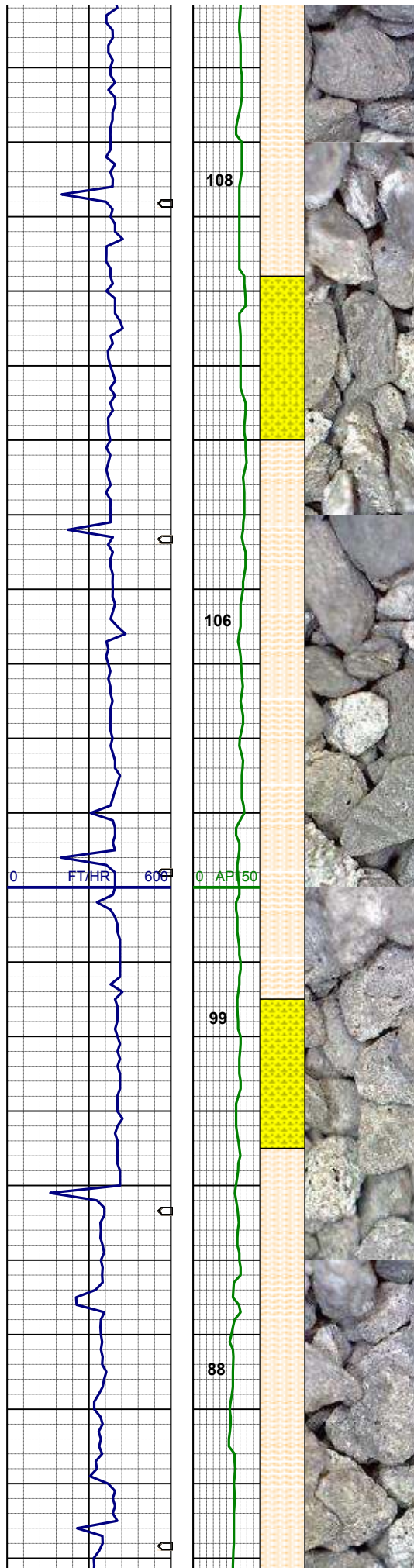tr biot, tr glau

146

96

123

106

114

174u

165u

13u

205u

199u

29u

77u

250u

80
2300
10
20
30
40
50
60
70
80
90
2400
10
20
30
40
50
60
70
80

90

0 FT/HR 600

0 API 150

0 UNITS 500
0 PPM 50000

MD 2325'
INC 8.33°
AZI 332.41°
TVD 2323.2'

50% SHYSLTST: ltgy, sft- fri, sbblky-
sl sbplty, slty tex, tr biot incl
50% SHYSS: vlt-mgy, trnsl- op, vf- ml
gr, sbrndd-sbang, p-mod srt, sft -firm,
arg mtx, p-mod cmt, tr biot, tr glau

MD 2415'
INC 7.80°
AZI 335.74°
TVD 2412.3'

75% SHYSLTST: ltgy, sft- fri, sbblky-
sl sbplty, slty tex, tr biot incl
25% SHYSS: vlt-mgy, trnsl- op, vf- ml
gr, sbrndd-sbang, p-mod srt, sft -firm,
arg mtx, p-mod cmt, tr biot, tr glau,
mod calc

MD 2504'
INC 10.04°
AZI 335.87°
TVD 2500.2'

MD 2594'
INC 9.92°
AZI 337.13°
TVD 2588.9'

MD 2684'
INC 10.67°
AZI 339.17°
TVD 2677.4'

70% SHYSLTST: ltgy, sft- fri, sbblky-
sl sbplty, slty tex, tr biot incl
30% SHYSS: vlt-mgy, trnsl- op, vf- ml
gr, sbrndd-sbang, p-mod srt, sft -firm,
arg mtx, p-mod cmt, tr biot, tr glau,
mod calc

50% SHYSLTST: ltgy, sft- fri, sbblky-
sl sbplty, slty tex, tr biot incl
50% SHYSS: vlt-mgy, trnsl- op, vf- ml
gr, sbrndd-sbang, p-mod srt, sft -firm,
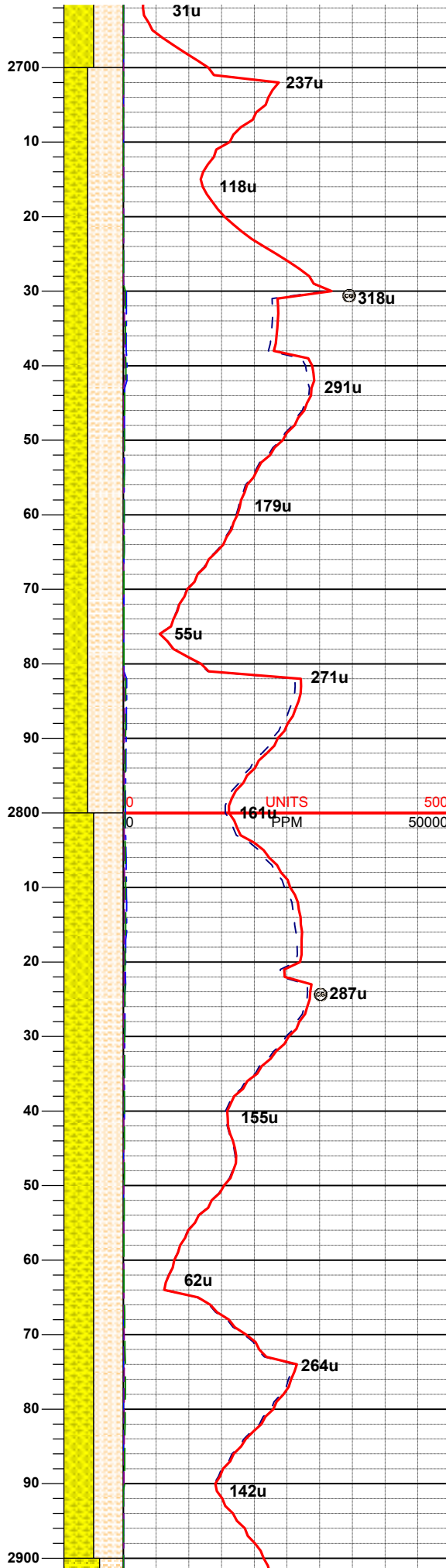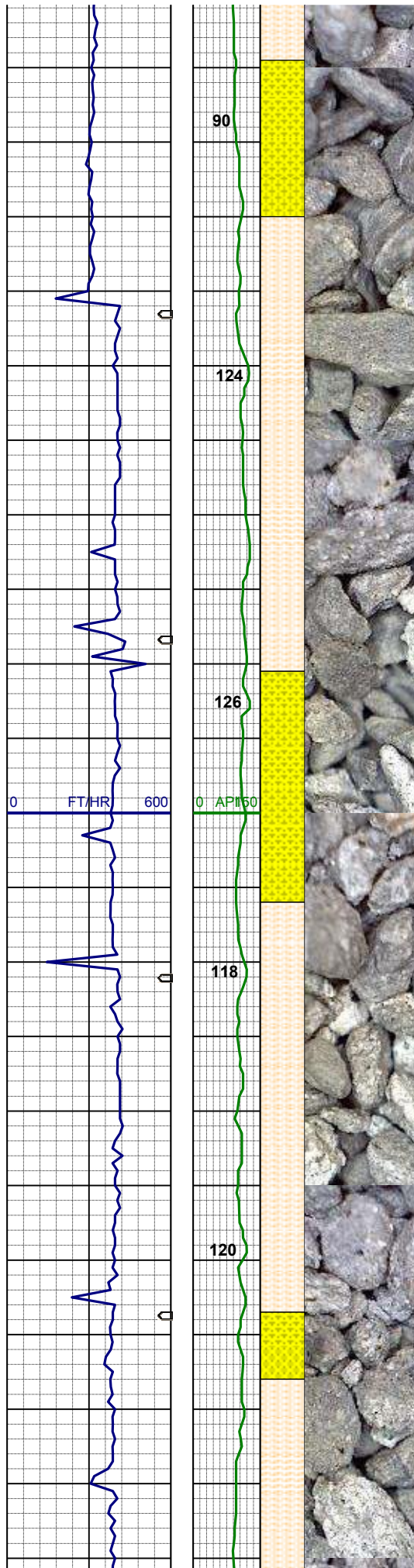arg mtx, p-mod cmt, tr biot, tr glau,
mod calc

108

106

99

88

44u
254u
107u
230u
16u
181u
184u
159u

0 FT/HR 600
0 API 50
0 UNITS 500
0 PPM 50000

This is a well log with multiple data tracks (depth log). The tracks contain:

Track 1 (ROP): Scale 0 to 600 FT/HR (dark blue curve)

Track 2 (Gamma Ray): Scale 0 to 150 API (green curve), with lithology values: 90, 124, 126, 118, 120

Track 3 (Lithology/Cuttings): yellow and cross-hatched lithology column with cuttings photo

Track 4 (Gas - UNITS/PPM): Scale 0 to 500 UNITS, 0 to 50000 PPM (red curve)

Depth scale: 2700 to 2900

Gas readings (units):
- 31u
- 237u
- 118u
- 318u
- 291u
- 179u
- 55u
- 271u
- 161u
- 287u
- 155u
- 62u
- 264u
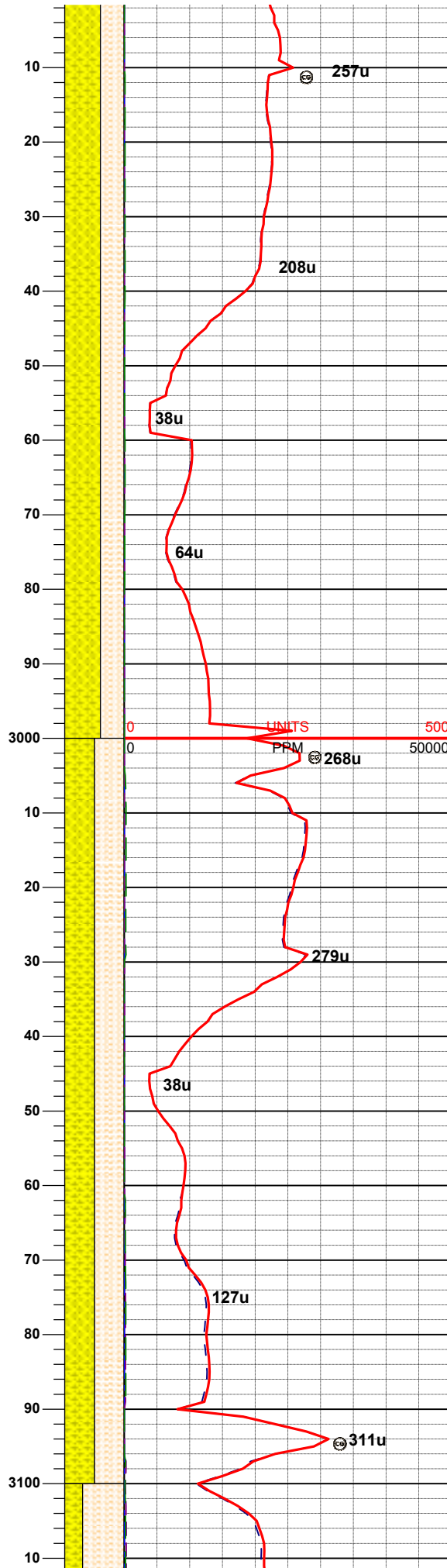- 142u

Annotations (right side):

WT 8.4 / VIS 28

60% SHYSLTST: pred lt gy, sft-firm, sbblky, sb plty, slty tex
40% SHYSS: off wh - lt gy, trnsl - op, vf - f gr, sb ang, sb rndd, mod srt, sft - frm, arg mtx, tr glau, sl calc

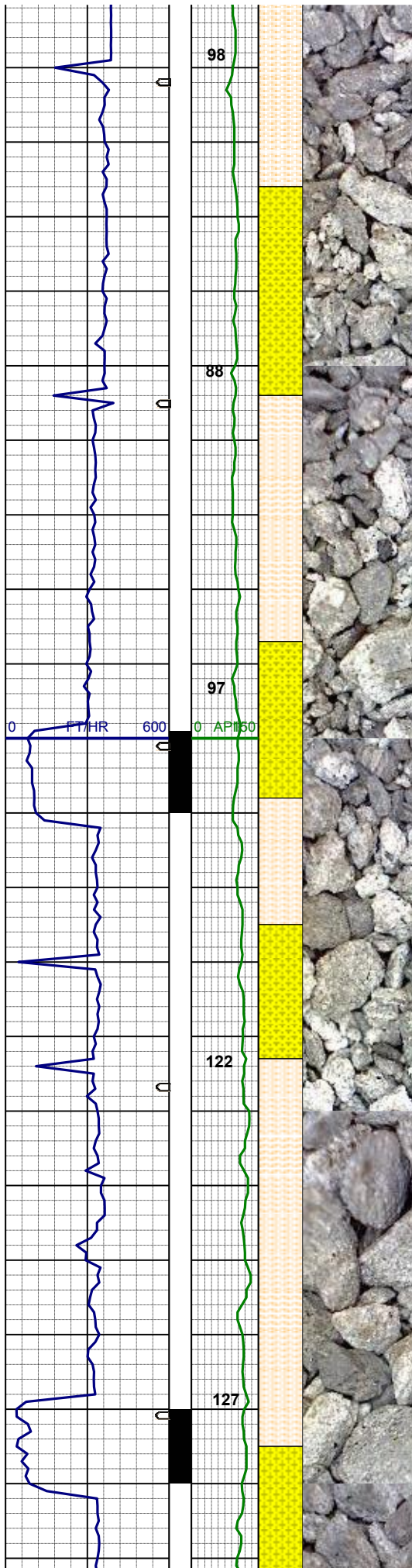| MD	2773'
INC	10.74°
AZI	337.41°
TVD	2764.9'

50% SHYSLTST: pred lt gy, sft-firm, sbblky, sb plty, slty tex
50% SHYSS: off wh - lt gy, trnsl - op, vf - f gr, sb ang, sb rndd, mod srt, sft - frm, arg mtx, tr glau, sl calc

MD	2863'
INC	10.77°
AZI	338.88°
TVD	2853.3'

WT 8.4 / VIS 28

Track labels and curve values:

98

88

97

122

127

0 FT/HR 600

0 API 150

10
20
30
40
50
60
70
80
90
3000
10
20
30
40
50
60
70
80
90
3100
10

0 UNITS 500
0 PPM 50000

257u

208u

38u

64u

268u

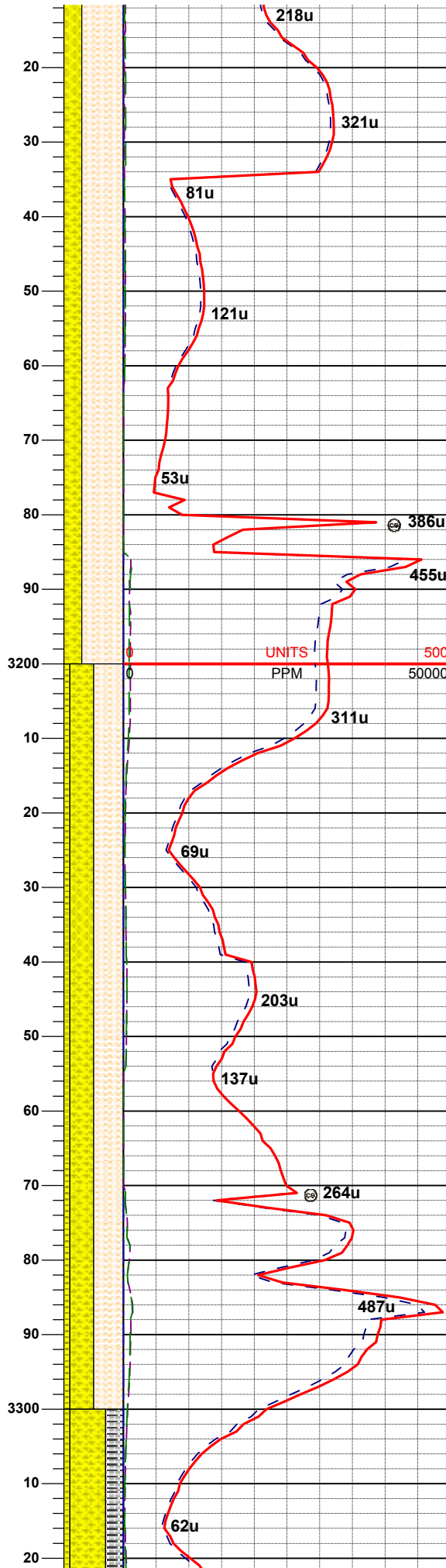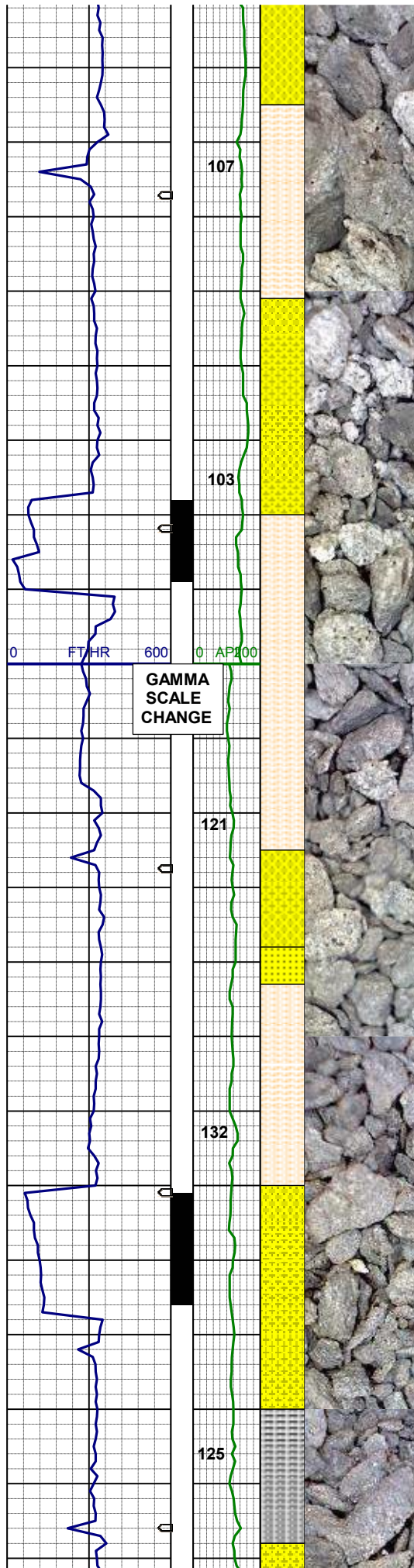279u

38u

127u

311u

MD   2952'
INC   10.58°
AZI   339.40°
TVD   2940.7'

60% SHYSS: off wh - lt gy, trnsl - op,
vf - f gr, sb ang, sb rndd, mod srt, sft -
frm, arg mtx, tr glau, sl calc
40% SHYSLTST: pred lt gy, sft-firm,
sbblky, sb plty, slty tex

MD   3042'
INC   8.46°
AZI   336.09°
TVD   3029.5'

50% SHYSLTST: pred lt gy, sft-firm,
sbblky, sb plty, slty tex
50% SHYSS: off wh - lt gy, trnsl - op,
vf - f gr, sb ang, sb rndd, mod srt, sft -
frm, arg mtx, tr glau, sl calc

WT 8.4 / VIS 28

Depth track (center): 20, 30, 40, 50, 60, 70, 80, 90, 3200, 10, 20, 30, 40, 50, 60, 70, 80, 90, 3300, 10, 20

Left track (FT/HR / GAMMA):
0 FT/HR 600
0 AP 100

GAMMA
SCALE
CHANGE

Lithology/depth markers: 107, 103, 121, 132, 125

Gas curve annotations (UNITS):
218u
321u
81u
121u
53u
386u
455u

0 UNITS 500
PPM
0 50000

311u
69u
203u
137u
264u
487u
62u

Right column descriptions:
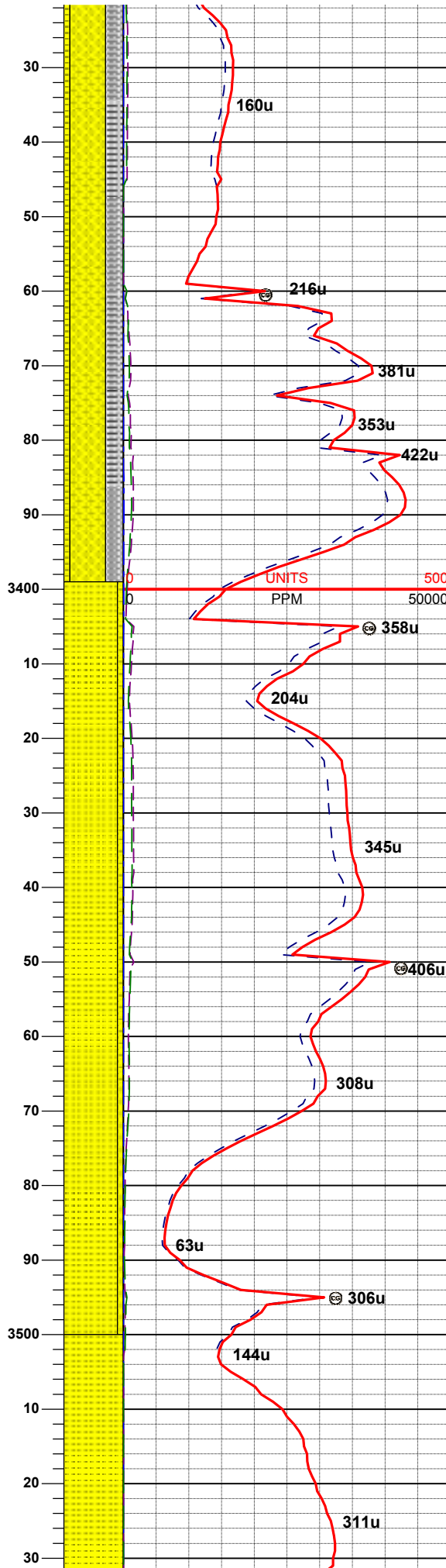
MD   3132'
INC   6.25°
AZI   337.92°
TVD   3118.7'

70% SHYSLTST: pred lt gy, sft-firm,
sbblky, sb plty, slty tex
30% SHYSS: off wh - lt gy, trnsl - op,
vf - f gr, sb ang, sb rndd, mod srt, sft -
frm, arg mtx, tr glau, sl calc
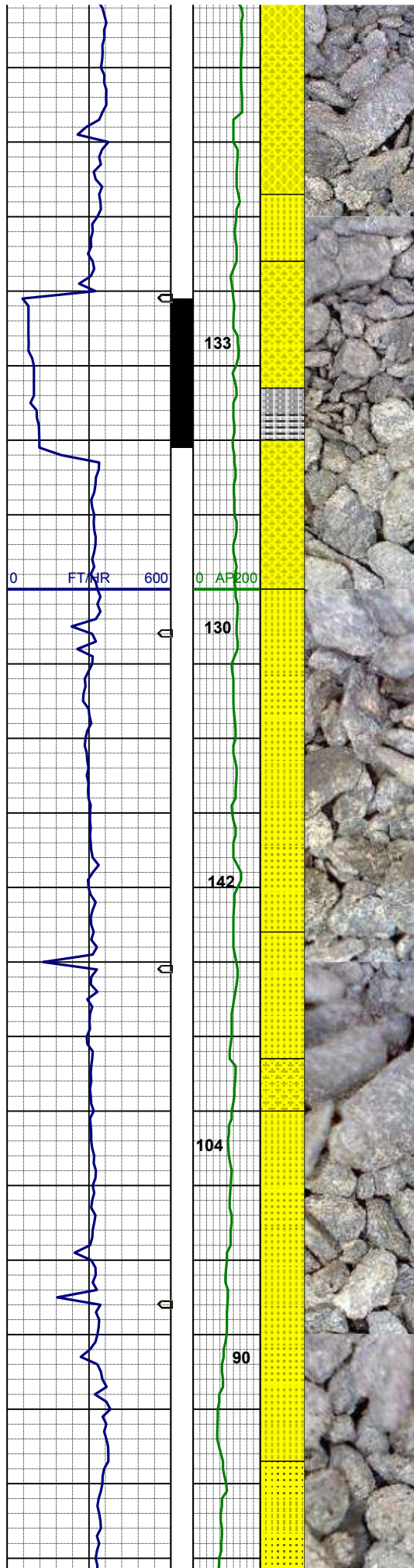
MD   3221'
INC   4.65°
AZI   337.63°
TVD   3207.3'

50% SHYSLTST: pred lt gy, sft-firm,
sbblky, sb plty, slty tex
40% SHYSS: off wh - lt gy, trnsl - op,
vf - f gr, sb ang, sb rndd, mod srt, sft -
frm, arg mtx, tr glau, sl calc
10% SS: wh - lt gy, trnsl, vf-f gr, w occ
lse trnsl gr, sb ang, sbrondd-rndd, por
-mod srt, pred firm, sil-arg mtx, tr
glau, sl - mod calc

WT 8.45 / VIS 28

MD   3311'
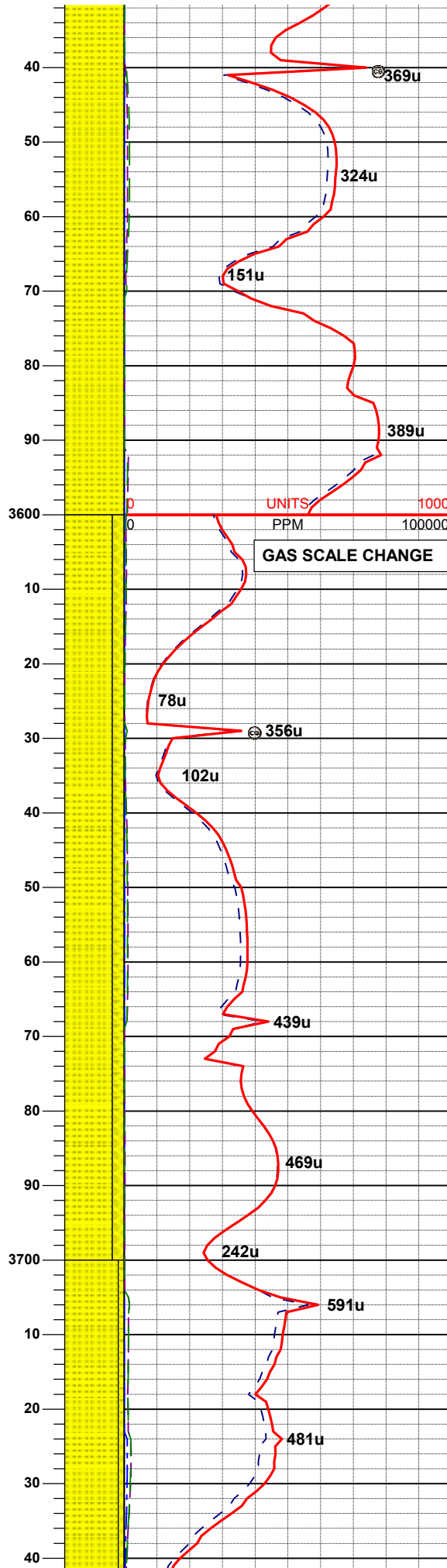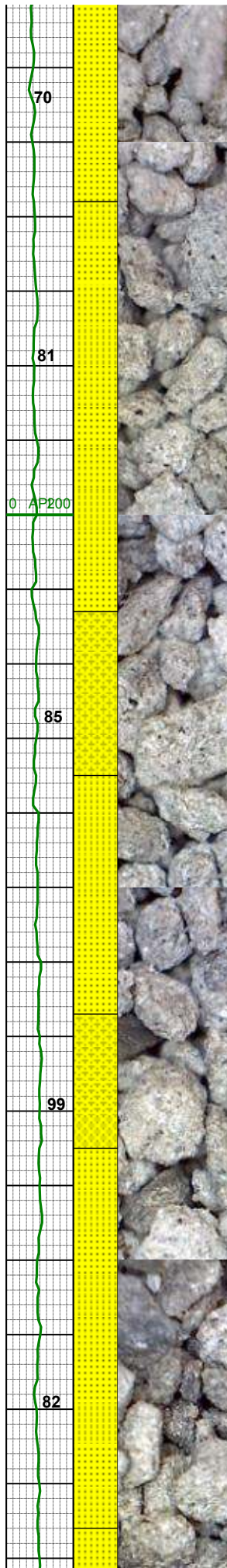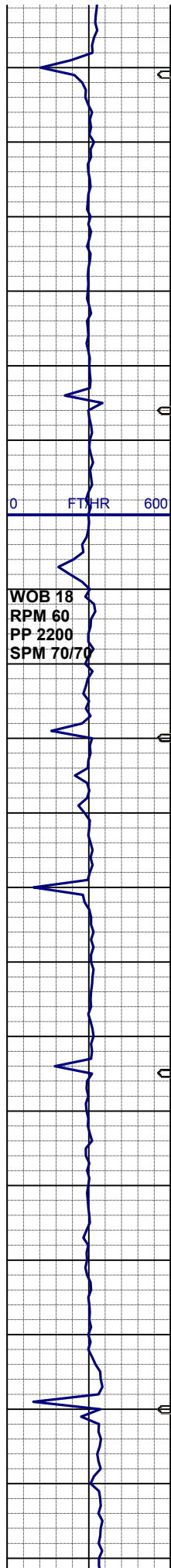INC   3.57°
AZI   298.14°
TVD   3297.1'

160u

60% SHYSS: ltgy-tr s&p, vf-fgr, sbrd -
sbang, mod srt, firm- fri, p por, arg
cmt, mod biot, tr glau
30% SLTYSH: mgy- gybrn, sft- mod
firm, sbrndd- sbplty, occ sbblky, shy
tex
10% SS: wh, op, trnsl, vf- f gr, occ m
gr, mod srt, sbrndd, sbang, pred firm,
occ fri clus, sil mtx, non calc, tr glau

216u
381u
353u
422u

0	FT/HR	600
0	AP200	

0 UNITS 500
0 PPM 50000

133

130

142

104

90

358u
204u
345u

90% SS: wh, op, trnsl, vf- f gr, occ m
gr, mod srt, sbrndd, sbang, pred firm,
occ fri clus, sil mtx, non calc, tr glau
10% SHYSS: off wh - lt gy, trnsl - op,
vf - f gr, sb ang, sb rndd, mod srt, sft -
frm, arg mtx, tr glau, sl calc

406u
308u

WT 8.45 / VIS 28

63u
306u
144u

311u

MD	3401'
INC	0.55°
AZI	168.23°
TVD	3387.1'

MD	3491'
INC	0.86°
AZI	181.99°
TVD	3477.1'

Track 1 (ROP):
0 FT/HR 600

WOB 18
RPM 60
PP 2200
SPM 70/70

Track 2 (Gamma):
0 AP200

70
81
85
99
82

Depth track:
40
50
60
70
80
90
3600
10
20
30
40
50
60
70
80
90
3700
10
20
30
40

Gas track:
0 UNITS 1000
0 PPM 100000

GAS SCALE CHANGE

369u
324u
151u
389u
78u
356u
102u
439u
469u
242u
591u
481u

Descriptions:

100% SS: wh, op, trnsl, vf- f gr, occ m gr, mod srt, sbrndd, sbang, pred firm, occ fri clus, sil mtx, non calc, tr glau

80% SS: wh, op, trnsl, vf- f gr, occ m gr, mod srt, sbrndd, sbang, pred firm, occ fri clus, sil mtx, non calc, tr glau
20% SHYSS: off wh - lt gy, trnsl - op, vf - f gr, sb ang, sb rndd, mod srt, sft - frm, arg mtx, tr glau, sl calc

WT 8.45 / VIS 28

90% SS: wh, op, trnsl, vf- f gr, occ m gr, mod srt, sbrndd, sbang, pred firm, occ fri clus, sil mtx, non calc, tr glau
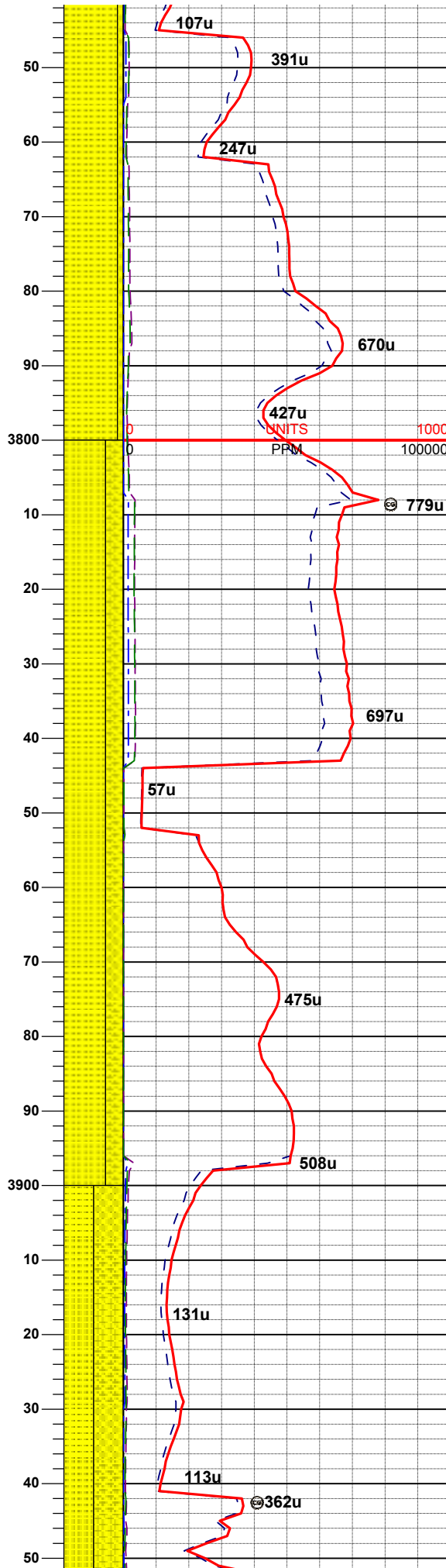10% SHYSS: off wh - lt gy, trnsl - op, vf - f gr, sb ang, sb rndd, mod srt, sft - frm, arg mtx, tr glau, sl calc

MD   3760'
INC   0.19°
AZI   122.84°
TVD   3746.1'

70% SS: wh, op, trnsl, vf- f gr, occ m gr, mod srt, sbrndd, sbang, pred firm, occ fri clus, sil mtx, non calc, tr glau
30% SHYSS: off wh - lt gy, trnsl - op, vf - f gr, sb ang, sb rndd, mod srt, sft - frm, arg mtx, tr glau, sl calc
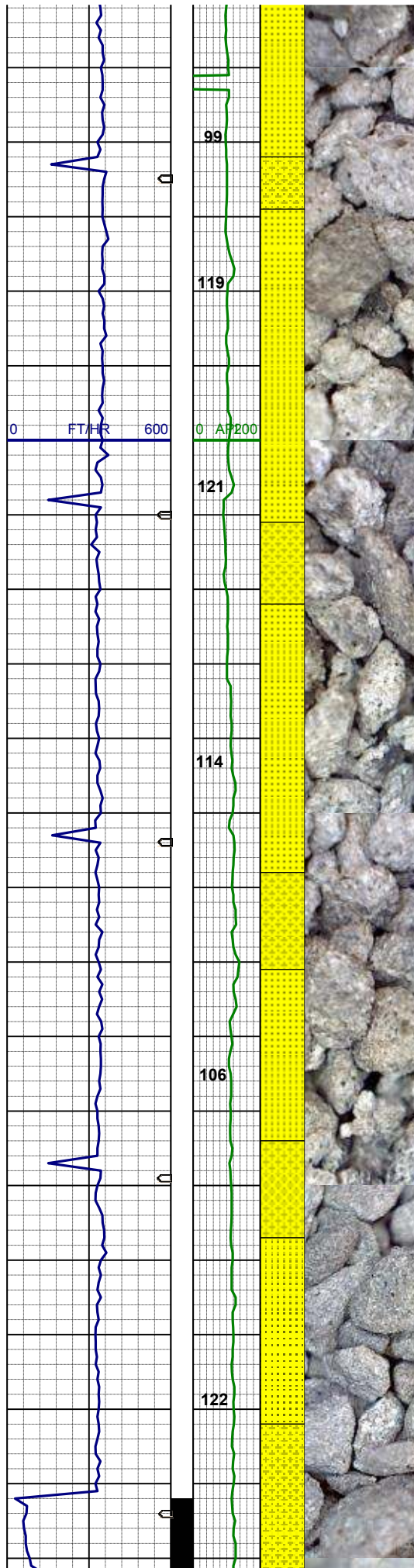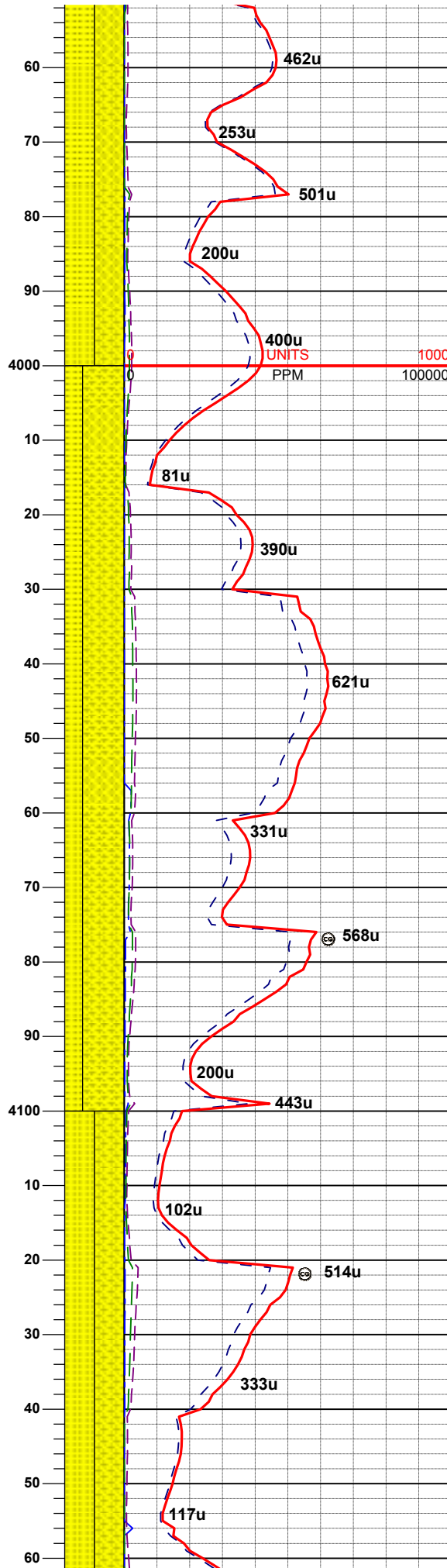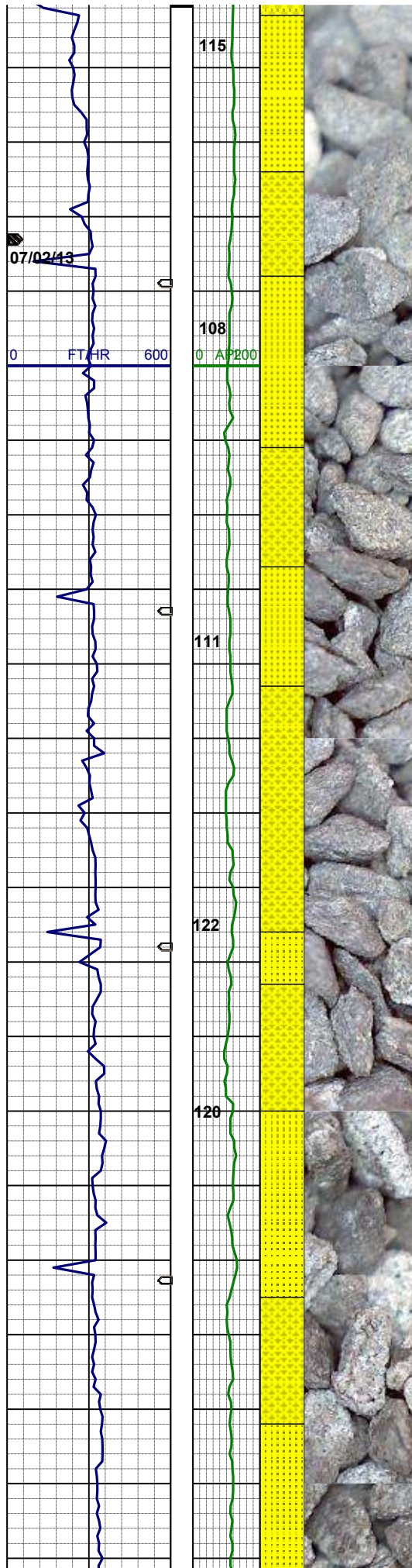
WT 8.4/ VIS 28

50% SS: wh, op, trnsl, vf- f gr, occ m gr, mod srt, sbrndd, sbang, pred firm, occ fri clus, sil mtx, non calc, tr glau
50% SHYSS: off wh - lt gy, trnsl - op,

107u
391u
247u
670u
427u
779u
697u
57u
475u
508u
131u
113u
362u

99
119
121
114
106
122

0   FT/HR   600
0   AP200
0   UNITS   1000
PPM   100000

3800
3900

vf - f gr, sb ang, sb rndd, mod srt, sft - frm, arg mtx, tr glau, sl calc

115

462u

253u

501u

07/02/13

108

0   FT/HR   600   0   AP 200

200u

400u

4000   0   UNITS   1000
PPM   100000

81u

390u

MD   4028'
INC   0.65°
AZI   331.38°
TVD   4014.0'

111

621u

70% SHYSS: off wh - lt gy, trnsl - op, vf - f gr, sb ang, sb rndd, mod srt, sft - frm, arg mtx, tr glau, sl calc
30% SS: wh, op, trnsl, vf- f gr, occ m gr, mod srt, sbrndd, sbang, pred firm, occ fri clus, sil mtx, non calc, tr glau

331u

122

568u

200u

443u

120

WT 8.45 / VIS 28

102u

514u

333u

50% SS: wh, op, trnsl, vf- f gr, occ m gr, mod srt, sbrndd, sbang, pred firm, occ fri clus, sil mtx, non calc, tr glau
50% SHYSS: off wh - lt gy, trnsl - op, vf - f gr, sb ang, sb rndd, mod srt, sft - frm, arg mtx, tr glau, sl calc

117u

Track 1 (ROP): 0 FT/HR 600

Track 2 (Gamma): 0 API 200

Sample depth markers (Track 2):
- 129
- 141
- 85
- 117
- 98
- 89
- 133

Gas track: UNITS 0 — 1000 / PPM 100000

Gas readings:
- 751u
- 109u
- 742u
- 353u
- 815u
- 558u
- 114u
- 152u
- 133u
- 611u
- 347u

Depth markers: 70, 80, 90, 4200, 10, 20, 30, 40, 50, 60, 70, 80, 90, 4300, 10, 20, 30, 40, 50, 60, 70

Lithology description (upper):

60% SS: wh, op, trnsl, vf- f gr, occ m gr, mod srt, sbrndd, sbang, pred firm, occ fri clus, sil mtx, non calc, tr glau

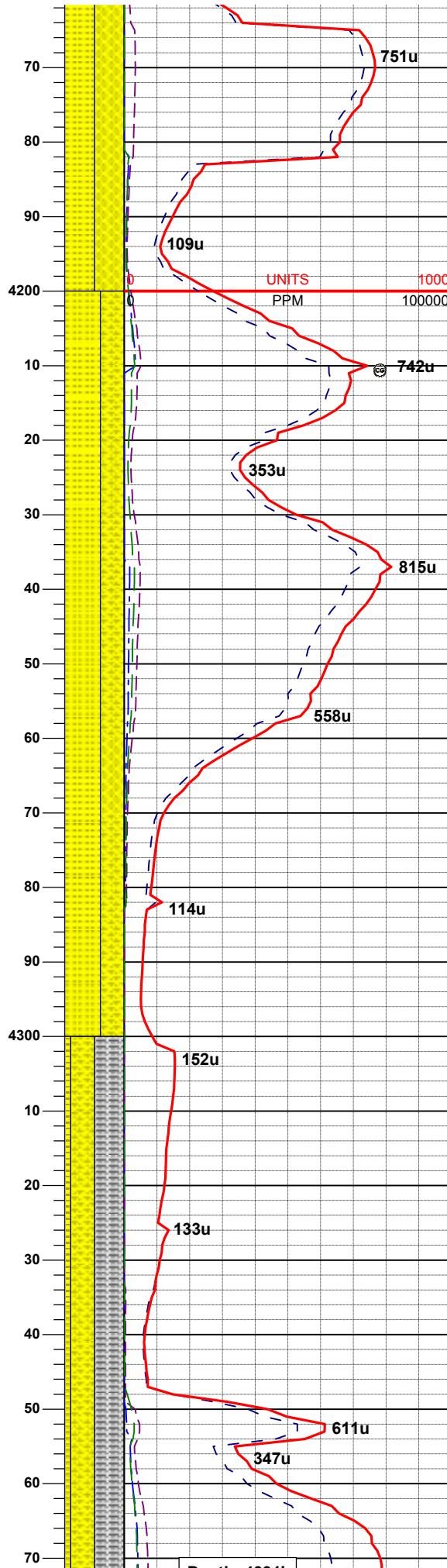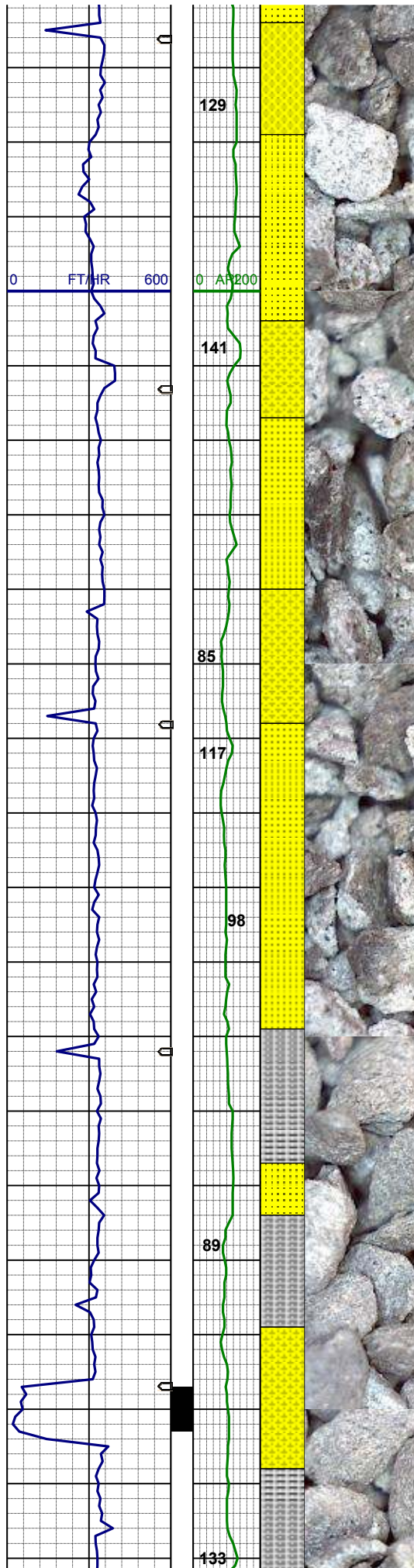40% SHYSS: off wh - lt gy, trnsl - op, vf - f gr, sb ang, sb rndd, mod srt, sft - frm, arg mtx, tr glau, sl calc

Survey data:

MD   4297'
INC   1.25°
AZI   315.08°
TVD   4283.0'

WT 8.4 / VIS 27

Lithology description (lower):

50% SLTYSH: mgy- dkgy, mod- firm, sbrndd- sbplty, occ sbblky, shy-slty tex

40% SHYSS: wh - lt gy, trnsl - op, vf - f gr, sb ang, sb rndd, mod srt, sft - frm, arg mtx, tr glau, sl calc

10% SS: wh, op, trnsl, vf- f gr, occ m gr, mod srt, sbrndd, sbang, pred firm, occ fri clus, sil mtx, non calc, tr glau

Track 1 (Rate of Penetration):
0   FT/HR   600

WOB 20
RPM 60
PP 2500
SPM 70/70

Track 2 (Gas/Gamma):
0   AP200
93
126
114
98

Depth / Mud Data:
Depth: 4391
WT	8.4
VIS	2
YP	1
pH	8.5
Cl-	600
Ca++	360

Gas Track:
0   104u   UNITS   1000
0   PPM   100000

798u
828u
193u
319u
69u
726u
433u
86u
228u

Depth scale: 4400 — 4500

Lithology descriptions:

45% SHYSS: wh - lt gy, trnsl - op, vf - f gr, sb ang - sb rndd, mod-p srt, sft - frm, arg mtx, tr glau, sl calc
35% SLTYSH: mgy- dkgy, mod- firm, sbrndd- sbplty, occ sbblky, shy-slty tex
20% SS: wh, op, trnsl, vf- f gr, occ m gr, mod srt, sbrndd, sbang, pred firm, occ fri clus, sil mtx, non calc, tr glau

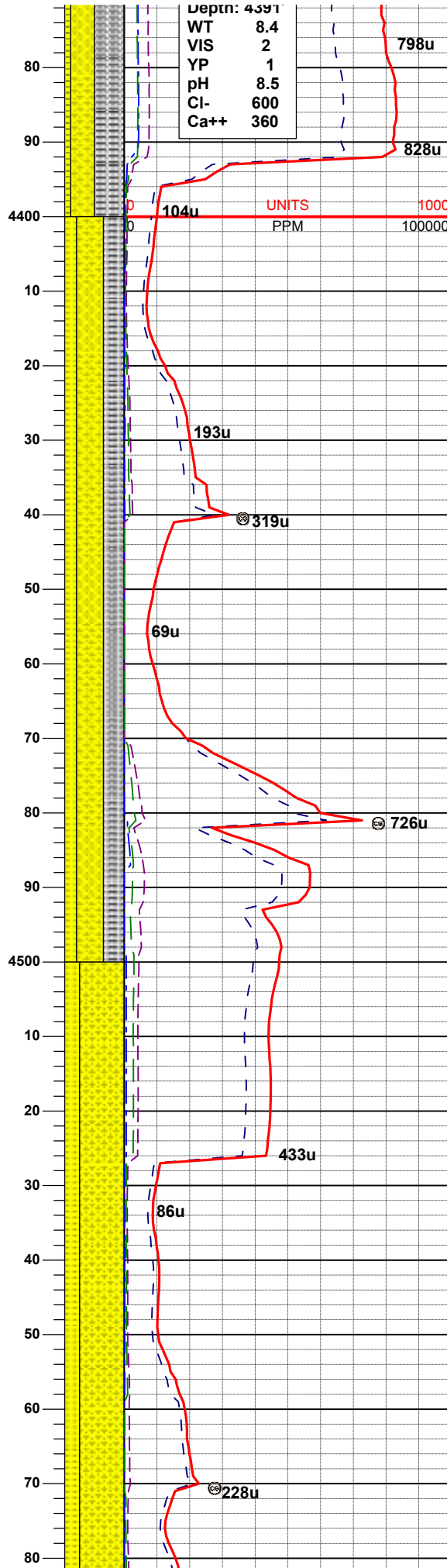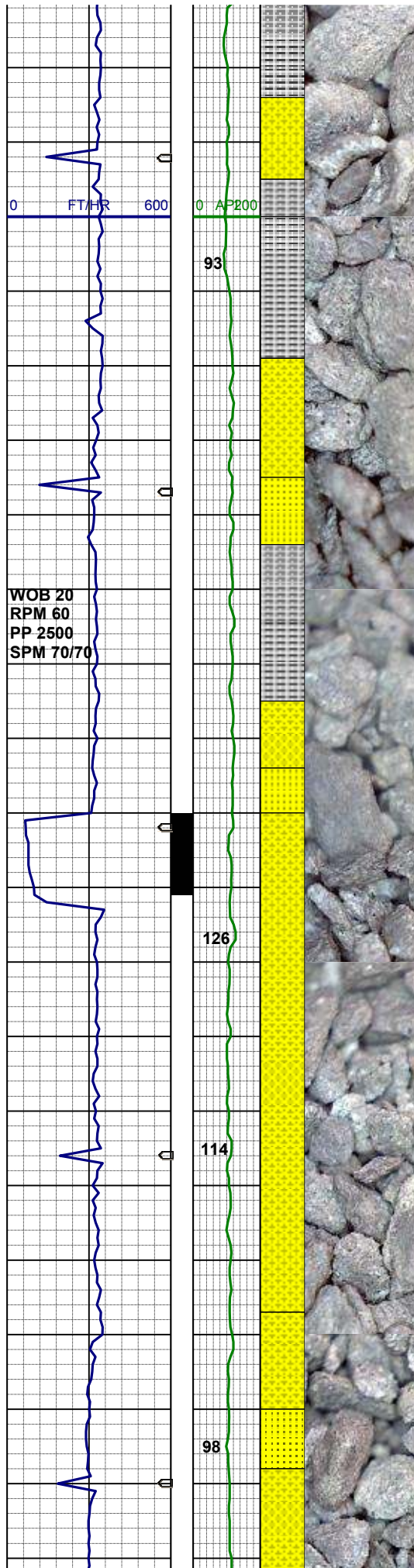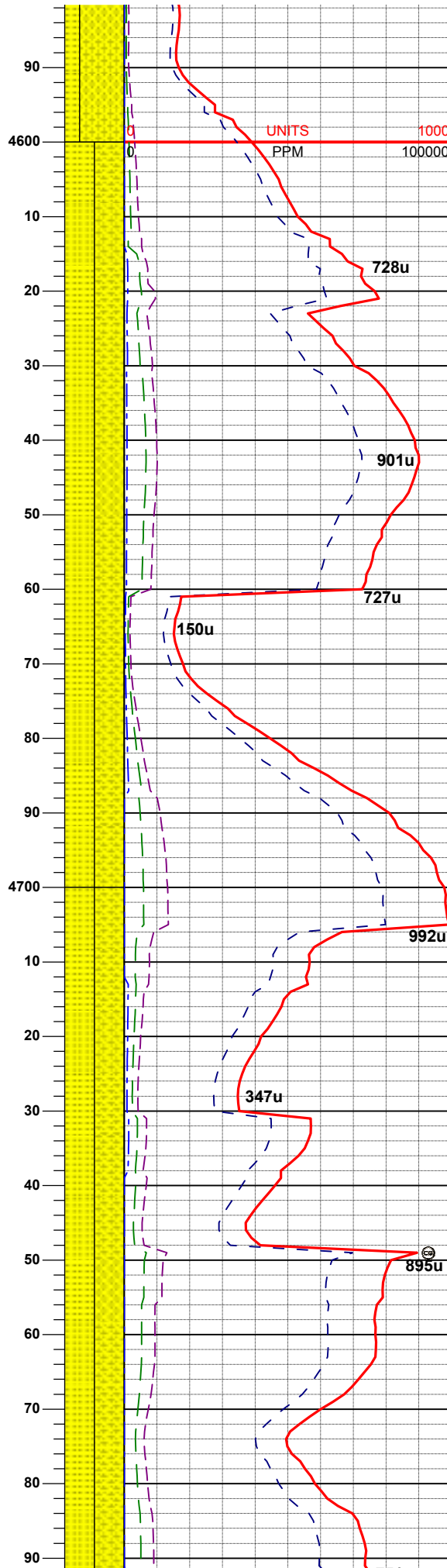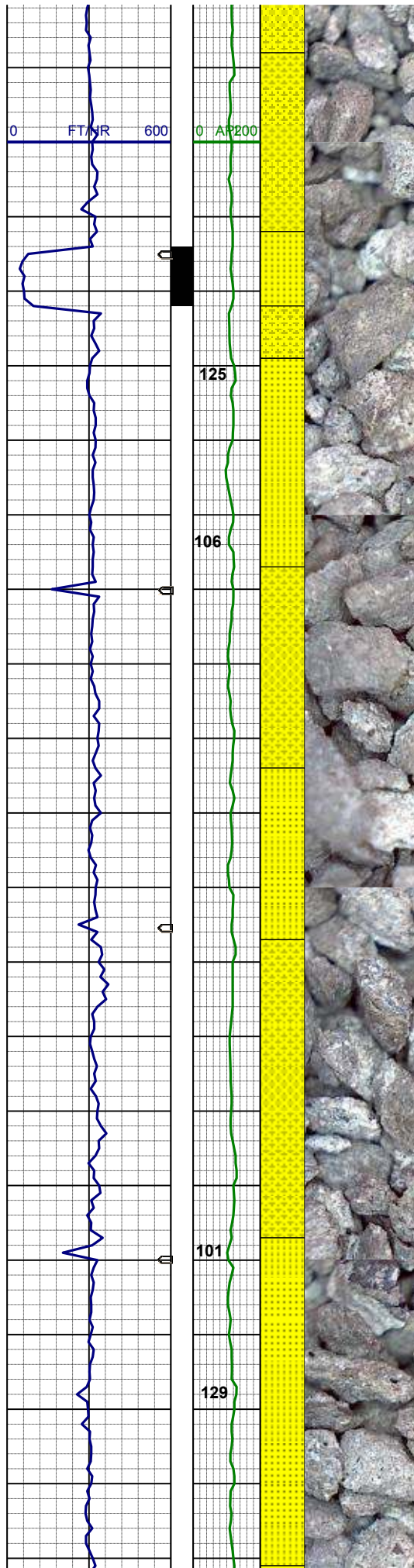75% SHYSS: wh - lt gy, trnsl - op, vf - f gr, sb ang - sb rndd, mod-p srt, sft - frm, arg mtx, tr glau, sl calc
25% SS: wh, op, trnsl, vf- f gr, occ m gr, mod srt, sbrndd, sbang, pred firm, occ fri clus, sil mtx, non calc, tr glau

MD	4566'
INC	1.86°
AZI	36.82°
TVD	4551.9'

Depth track labels (left): 0 FT/HR 600; 0 AR 200

Log values: 125, 106, 101, 129

Gas show annotations: 728u, 901u, 727u, 150u, 992u, 347u, 895u

PPM scale: 0 UNITS 1000 / PPM 0 100000

Depth marks: 4600, 10, 20, 30, 40, 50, 60, 70, 80, 90, 4700, 10, 20, 30, 40, 50, 60, 70, 80, 90

50% SHYSS: wh - lt gy, trnsl - op, vf - f gr, sb ang - sb rndd, mod-p srt, sft - frm, arg mtx, tr glau, sl calc
50% SS: wh, op, trnsl, vf- f gr, occ m gr, mod srt, sbrndd, sbang, pred firm, occ fri clus, sil mtx, non calc, tr glau

WT 8.6 / VIS 30

50% SHYSS: lt gy - dk gy, trnsl - op, vf - f gr, sb ang - sb rndd, mod-p srt, sft - frm, arg mtx, tr glau, sl calc
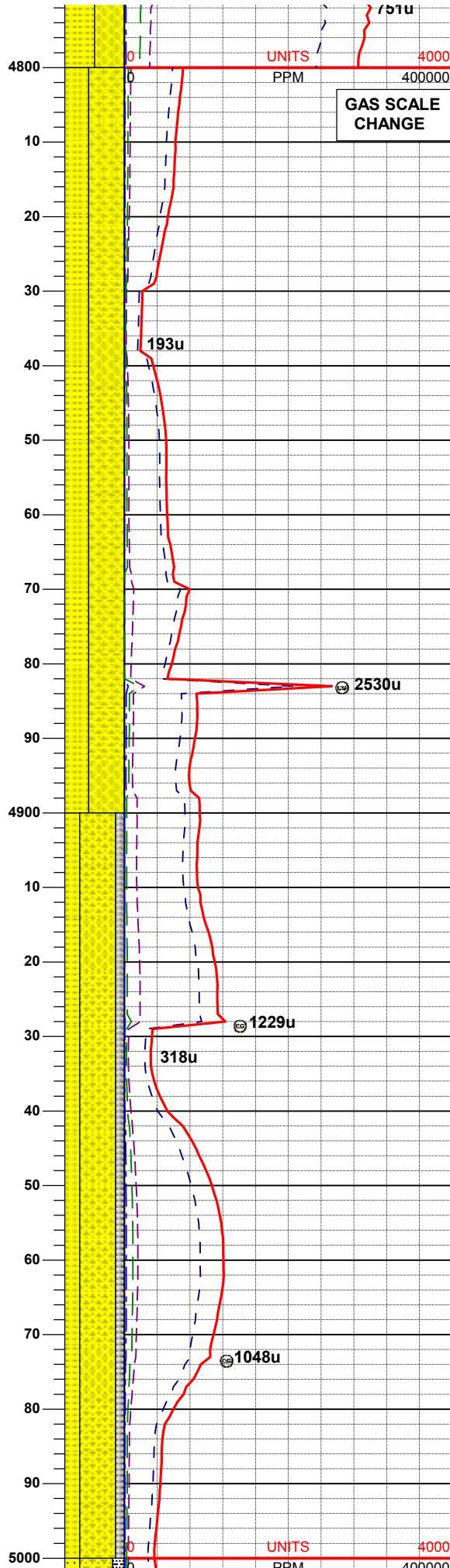50% SS: wh, op-trnsl, vf- f gr, occ ml gr, mod srt, sbrndd-sbang, pred firm, occ fri clus, sil mtx, non calc, tr glau

Track 1 (ROP)
0   FT/HR   600

Track 2 (Gamma)
0   AP 200

Values: 135, 86, 86, 168

Depth track
4800
10
20
30
40
50
60
70
80
90
4900
10
20
30
40
50
60
70
80
90
5000

Gas track
0   UNITS   4000
PPM   400000

751u

GAS SCALE CHANGE

193u

2530u

1229u

318u

1048u

0   UNITS   4000
PPM   400000

Right column

MD   4835'
INC   0.64°
AZI   185.95°
TVD   4820.9'

60% SHYSS: lt gy - dk gy, trnsl - op,
vf - f gr, sb ang - sb rndd, mod-p srt,
sft - frm, arg mtx, tr glau, sl calc
40% SS: wh, op-trnsl, vf- f gr, occ ml
gr, mod srt, sbrndd-ang, pred firm,
occ fri clus, sil mtx, non calc, tr glau

60% SHYSS: lt gy - dk gy, trnsl - op,
vf - f gr, sb ang - sb rndd, mod-p srt,
sft - frm, arg mtx, tr glau, sl calc
25% SS: wh, op-trnsl, vf- f gr, occ ml
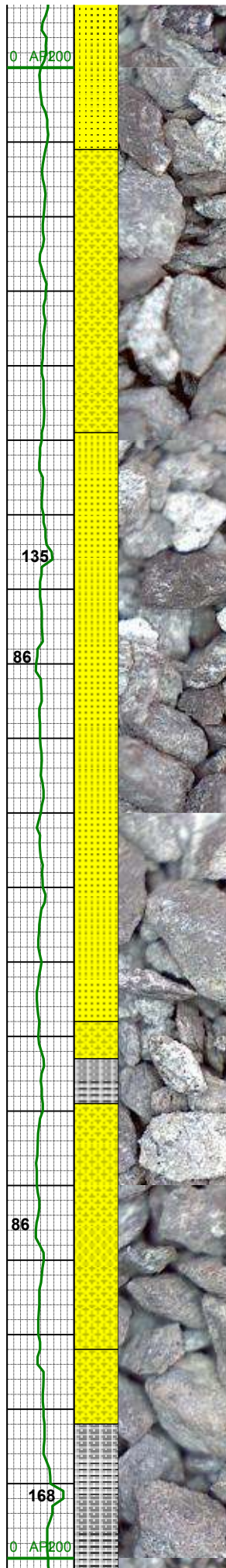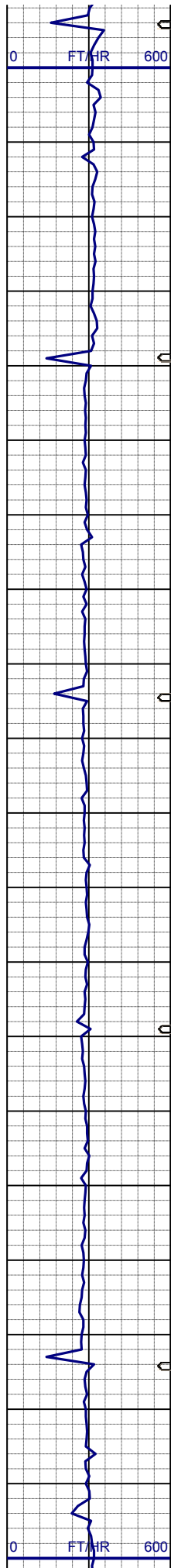gr, mod srt, sbrndd-ang, pred firm,
occ fri clus, sil mtx, non calc, tr glau
15% SLTYSH: mgy- dkgy, mod- firm,
fis, sbplty-sbblky, shy-slty tex, mod
calc

WT 8.8 / VIS 44

129

109

113

140

1169u

1299u

392u

264u

1474u

1269u

10
20
30
40
50
60
70
80
90
5100
10
20
30
40
50
60
70
80
90
5200
10

0   F PHR   600
0   AP 200
0   UNITS   4000
0   PPM   400000

55% SHYSS: lt gy - dk gy, trnsl - op,
vf - f gr, sb ang - sb rndd, mod-p srt,
sft - frm, arg mtx, tr glau, sl calc
25% SS: wh, op-trnsl, vf- f gr, occ ml
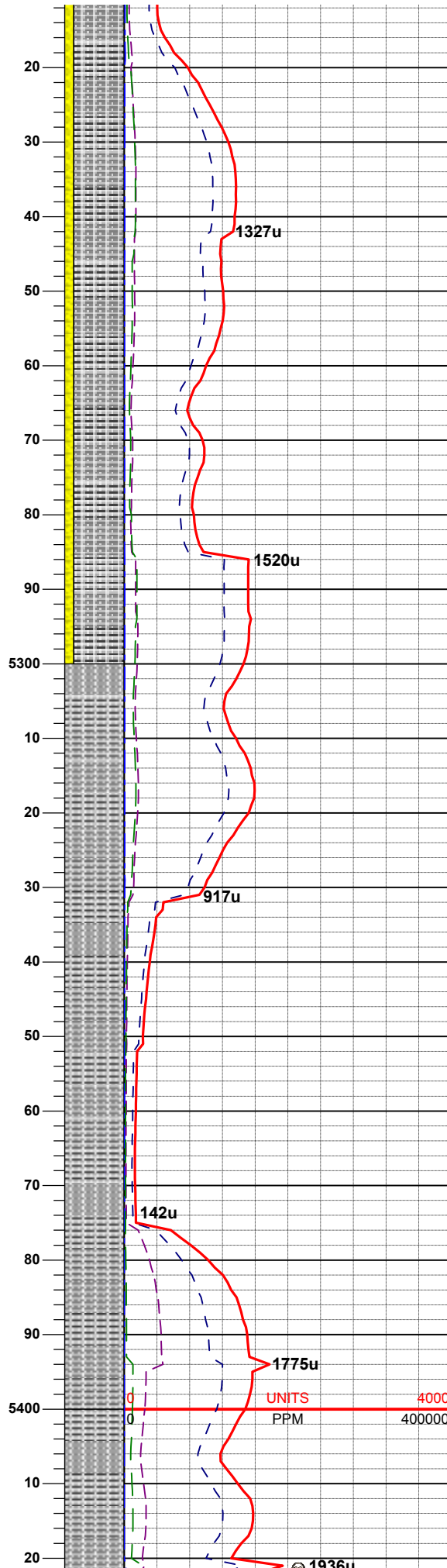gr, mod srt, sbrndd-ang, pred firm,
occ fri clus, sil mtx, non calc, tr glau
20% SLTYSH: mgy- dkgy, mod- firm,
fis, sbplty-sbblky, shy-slty tex, mod
calc

MD   5104'
INC   1.12°
AZI   172.37°
TVD 5089.9'

WT 9.1 / VIS 36

50% SHYSS: lt gy - dk gy, trnsl - op,
vf - f gr, sb ang - sb rndd, mod-p srt,
sft - frm, arg mtx, tr glau, sl calc
25% SS: wh, op-trnsl, vf- f gr, occ ml
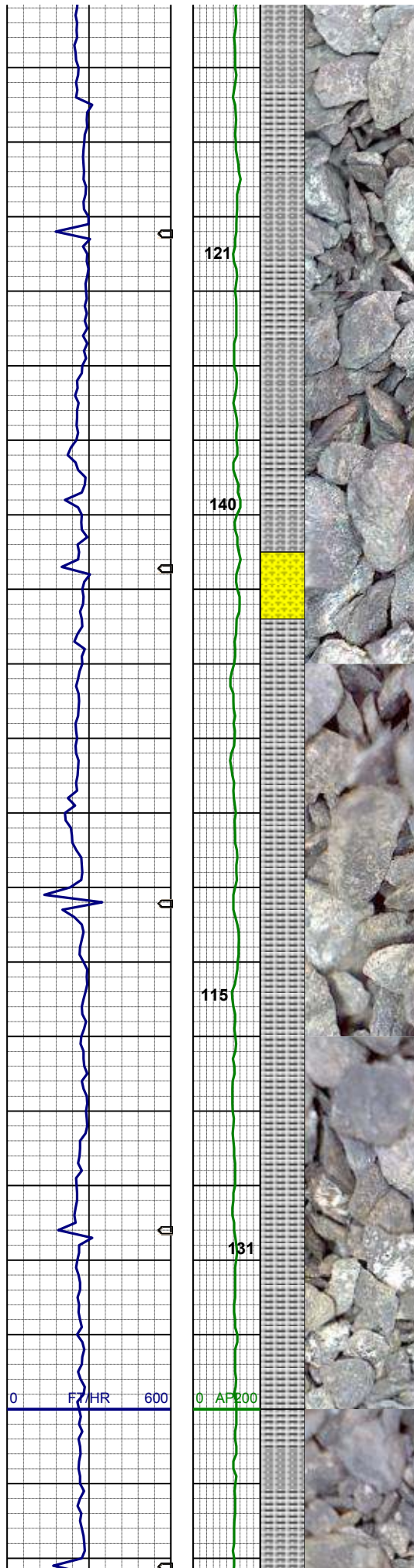gr, mod srt, sbrndd-ang, pred firm,
occ fri clus, sil mtx, non calc, tr glau
25% SLTYSH: mgy- dkgy, mod- firm,
fis, sbplty-sbblky, shy-slty tex, mod
calc

WT 9.3 / VIS 37

85% SLTYSH: mgy- dkgy, mod- firm, fis, sbplty-sbblky, shy-slty tex
15% SHYSS: lt gy - dk gy, mod trnsl, vf - f gr, sbang - sbrndd, mod-p srt, sft -frm, arg mtx, tr glau, tr biot, mod calc

WT 9.5 / VIS 38

100% SLTYSH: mgy- dkgy, sft-mod firm, sme fis, sbplty-sbblky, shy-slty tex

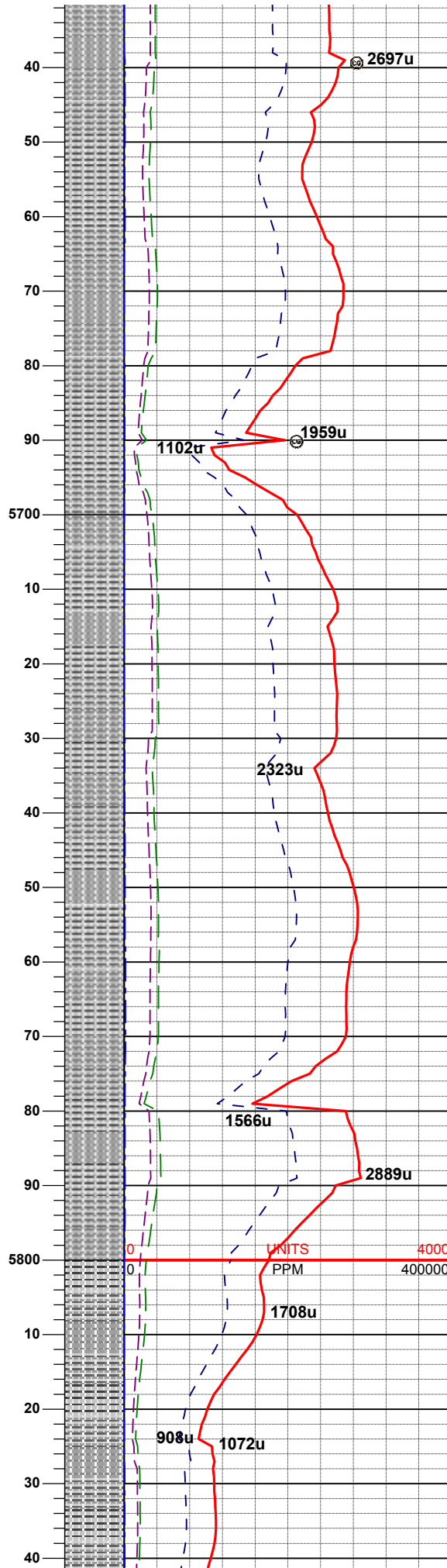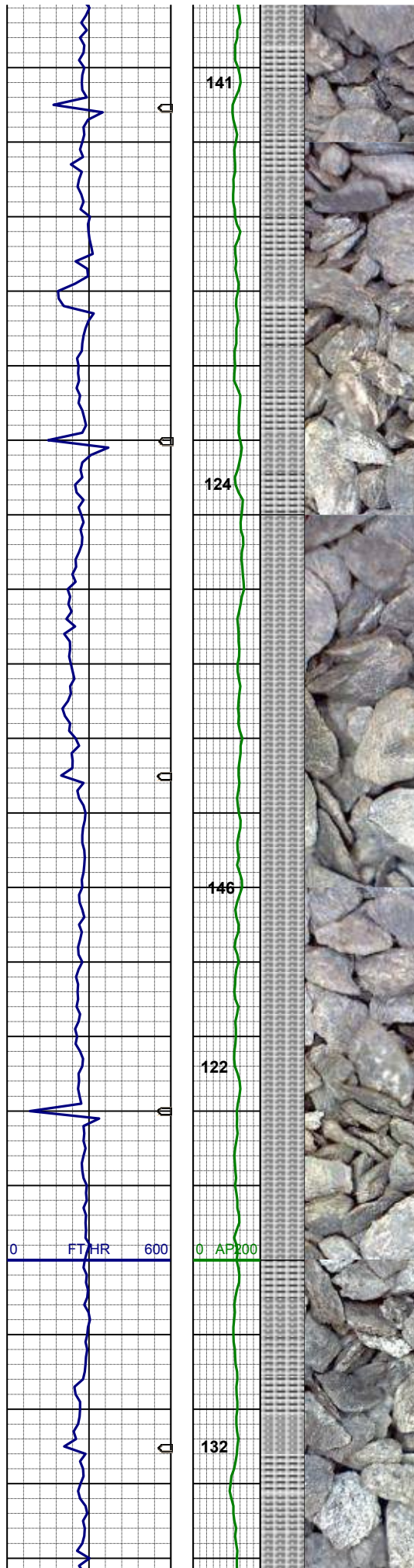**MD   5372'**
INC   1.01°
AZI   142.45°
TVD   5357.8'

1327u
1520u
917u
142u
1775u
1936u

121
140
115
131

0   FT/HR   600
0   AP 200
0   UNITS   4000
0   PPM   400000

20
30
40
50
60
70
80
90
5300
10
20
30
40
50
60
70
80
90
5400
10
20

WOB 25
RPM 60
PP N/A
SPM 70/70

131

114

114

133

| 0 | FVHR | 600 |
| 0 | AR200 | |

30
40
50
60
70
80
90
5500
10
20
30
40
50
60
70
80
90
5600
10
20
30

497u   1820u

966u

596u

2260u
3354u

991u

| 0 | UNITS | 4000 |
| 0 | PPM | 400000 |

100% SLTYSH: mgy- dkgy, sft-mod firm, sme fis, sbplty-sbblky, shy-slty tex

WT 9.5 / VIS 38

100% SLTYSH: ltgy- mgy, sft-mod firm, sme fis, sbplty-sbblky, shy-slty tex, tr dism pyr

Depth track values (right track):

- 2697u
- 1102tr
- 1959u
- 2323u
- 1566u
- 2889u
- 1708u
- 908u
- 1072u

Lithology track labels: 141, 124, 146, 122, 132

Scale headers (bottom):
- 0 FT/HR 600
- 0 API 200
- 0 UNITS 4000
- 0 PPM 400000

Depth markers: 40, 50, 60, 70, 80, 90, 5700, 10, 20, 30, 40, 50, 60, 70, 80, 90, 5800, 10, 20, 30, 40
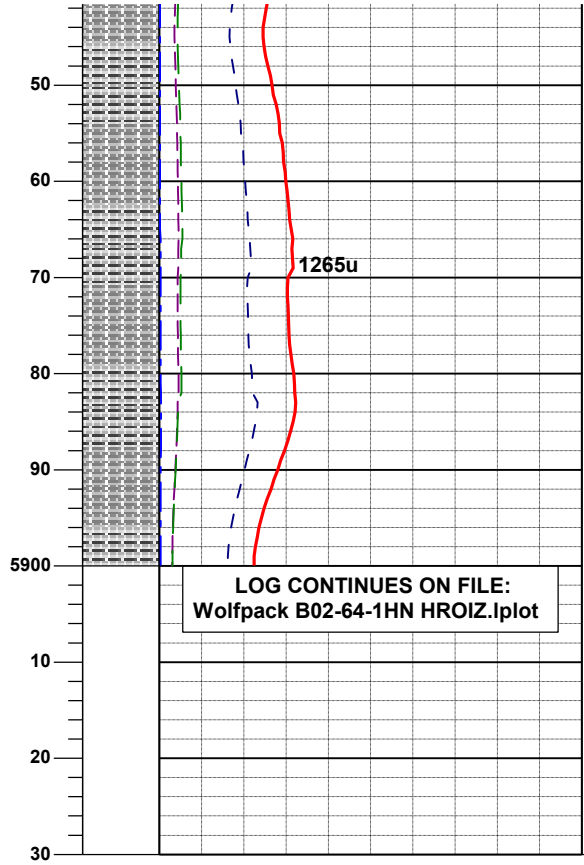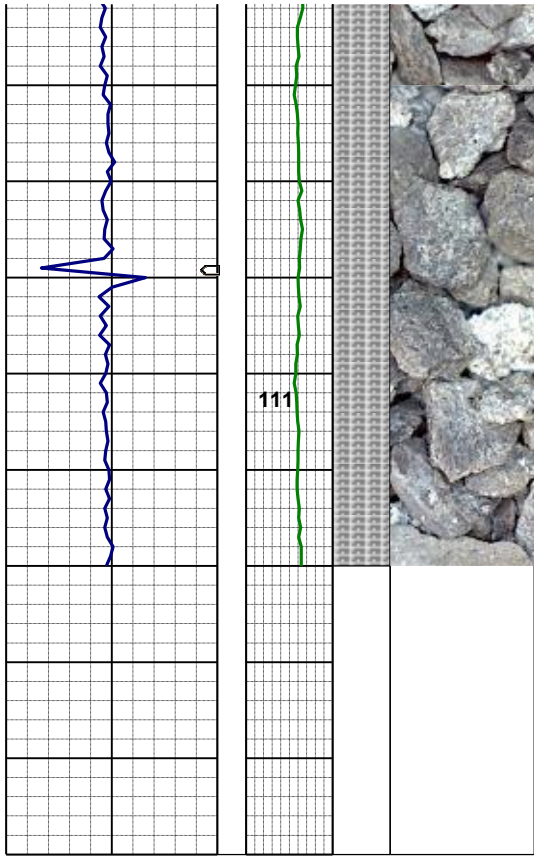
Right margin:

MD 5641'
INC 0.23°
AZI 349.31°
TVD 5626.8'

100% SLTYSH: ltgy- mgy, sft-mod firm, sme fis, sbplty-sbblky, shy-slty tex, tr dism pyr

100% SLTYSH: ltgy- mgy, sft-mod firm, sme fis, sbplty-sbblky, shy-slty tex

MD 5820'
INC 0.55°
AZI 94.93°
TVD 5805.8'

Depth markers (center track)

Depth
50
60
70
80
90
5900
10
20
30

111

1265u

100% SLTYSH: ltgy- mgy, sft-mod firm, sme fis, sbplty-sbblky, shy-slty tex

LOG CONTINUES ON FILE:
Wolfpack B02-64-1HN HROIZ.lplot

WT 9.7 / VIS 38

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