



LOG created using Lplot VH Version 3.0, November 23, 2012, Copyright (C) 1999-2009 Pason Systems Corp.

OPERATOR: ENCANA OIL & GAS (USA), INC.
WELL: GURTLE 2B-30H
LOCATION: NWNW S30 T2N R64W
COUNTY: WELD
STATE: COLORADO
SPOT: 210' FNL, 841' FWL
ELEVATION: GL 4928', KB 4941'
FIELD: WATTENBERG
SPUD DATE: 11/08/2012
TD DATE: 11/22/2012
DATES LOGGED: 11/10/2012 - 11/22/2012
DEPTHS LOGGED: 1,150' - 14,103'
LOGGERS: RUSSELL FROMMER, ELIZABETH ERICKSON
DRILLING FLUID: H2O, LSND
DRILLING RIG: ENSIGN 124
API: 05-123-35981
LOG TYPE: VERTICAL
SCALE: 1:240 (5 inches per 100 feet)
REMARKS: ALL DEPTH MEASUREMENTS ARE FROM KELLY BUSHING AND ARE BASED OFF OF THE DRILLER'S PIPE TALLY; ROCK SAMPLES ARE DESCRIBED WHILE WET UNLESS OTHERWISE NOTED; COLORS ARE BASED ON THE GEOLOGICAL ROCK-COLOR CHART (ed. 2009) WITH STANDARDS SET BY GSA, AAPG & SPWLA. <<LOG CONTINUED ON GURTLE 2B-30H HORIZONTAL>> MUD LOGGING SERVICES PROVIDED BY COLUMBINE LOGGING, INC.

LITHOLOGIES



Sandstone



Shaly Sandstone



Siltstone



Silty Shale

MODIFIERS



Calcareous



Carbonaceous Flakes



Fossils



Glauconite



Micaceous



Pyrite



Sandstone Stringers



Sandy



Shale Laminae



Silt Stringers



Silty

ENGINEERING SYMBOLS



Connection



Gas Show



Midnight Depth

BAR SYMBOLS

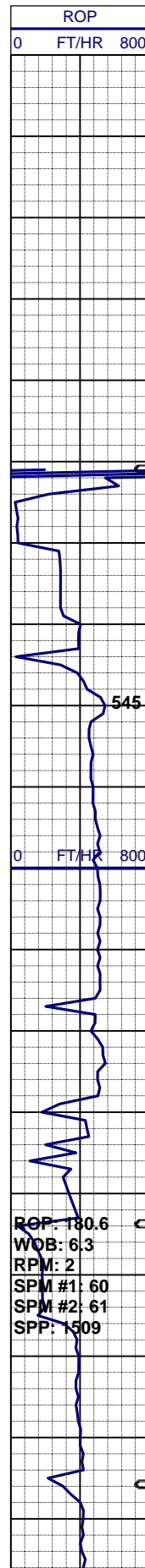


Rotating



Sliding

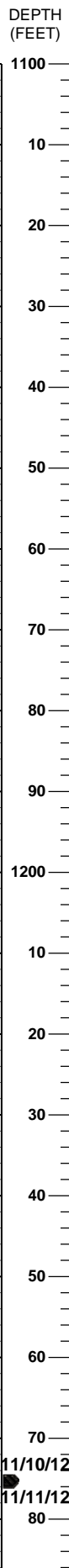
GAS		
0	UNITS	1000



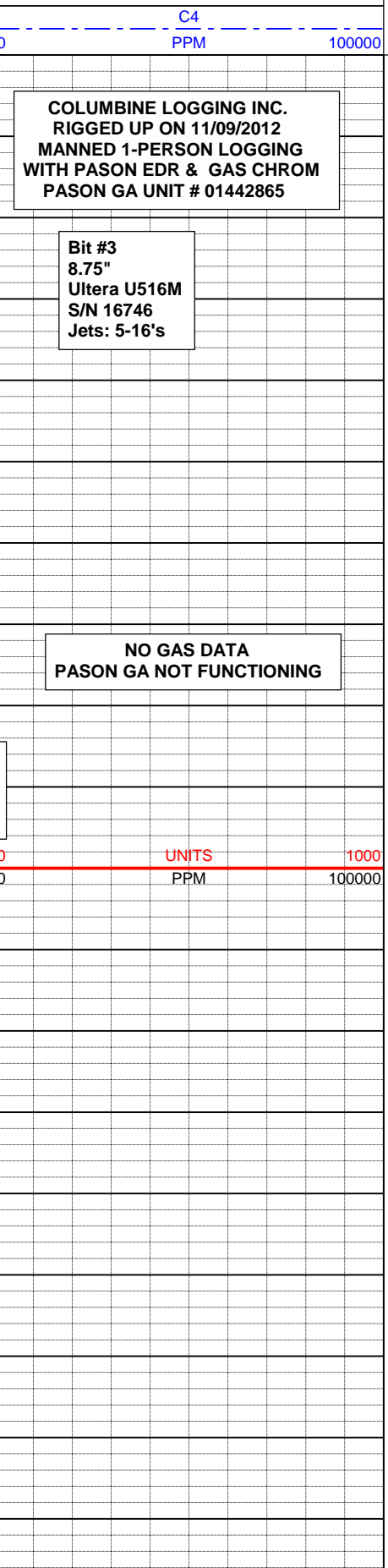
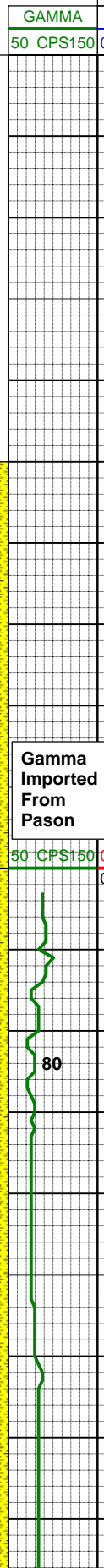
INTERPRETIVE LITHOLOGY



OIL SHOWS
TFG



CUTTINGS LITHOLOGY



LITHOLOGY DESCRIPTION

9-5/8" Surface Casing drilled and set @ 1142'

ROP & GAS DATA IMPORTED FROM PASON

LOGGING TOTAL GAS & CHROMAT FROM PASON

GAMMA DATA IMPORTED FROM PASON

SLTYSS: - SHYSS: wh, v lt gy, yel gy, sft - sl firm, fri, p ind, f - m gr, ang - sb rd, slty - sdy - cly rich mtz, mod - p srt, sb blk, tr glau, sme chlor alt mica frag, rr dism pyr, SLTST: lt gy - gy, lt olv gy, sft, v fri, mod mica, gt - cly mtz, scat ss strg, wk - mod calc, v cly rich

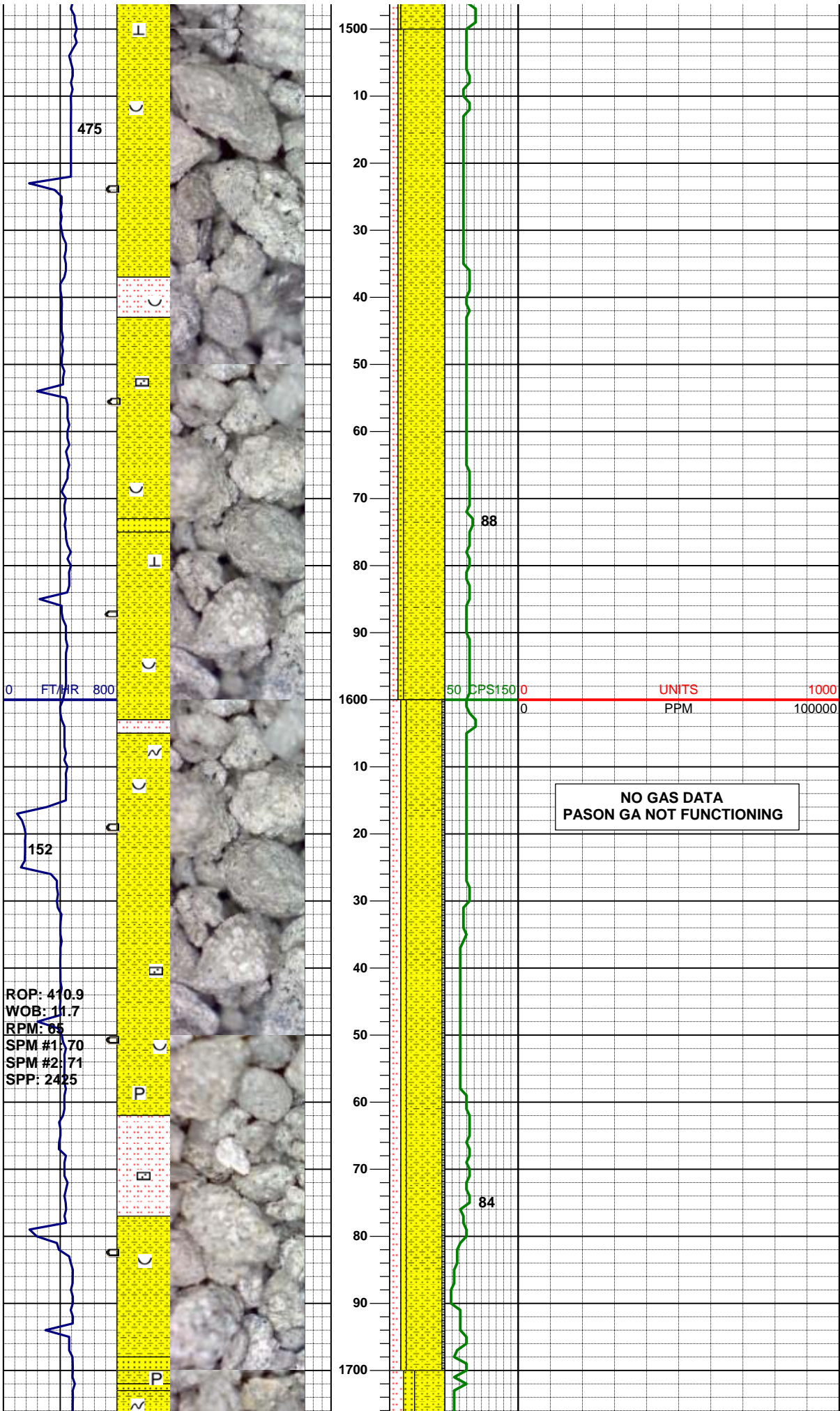
MD 1193' TVD 1188.537' INC 7.6° AZM 352.7°

MUD DATA (1150')
WT 8.65
FV 27
PV 2
YP 2
API Fil n/c
CK 1/32"
% Sol 0.5
Chl 800
pH 9.5

SS: - SHYSS: wh, v lt gy, yel gy, sft - sl firm, fri, p ind, f - m gr, ang - sb rd, slty - arg mtz, mod - p srt, sb blk, sme chlor alt mica frag, SLTST: lt gy - gy, lt olv gy, sft, v fri, mod moldable, mod mica, gt - cly mtz, scat ss strg, wk - mod calc, v cly rich, tr fos frag

MD 1286' TVD 1280.762'

SLIDE / ROTATE



MW IN 8.6/8.9 OUT
VIS IN 35/37 OUT

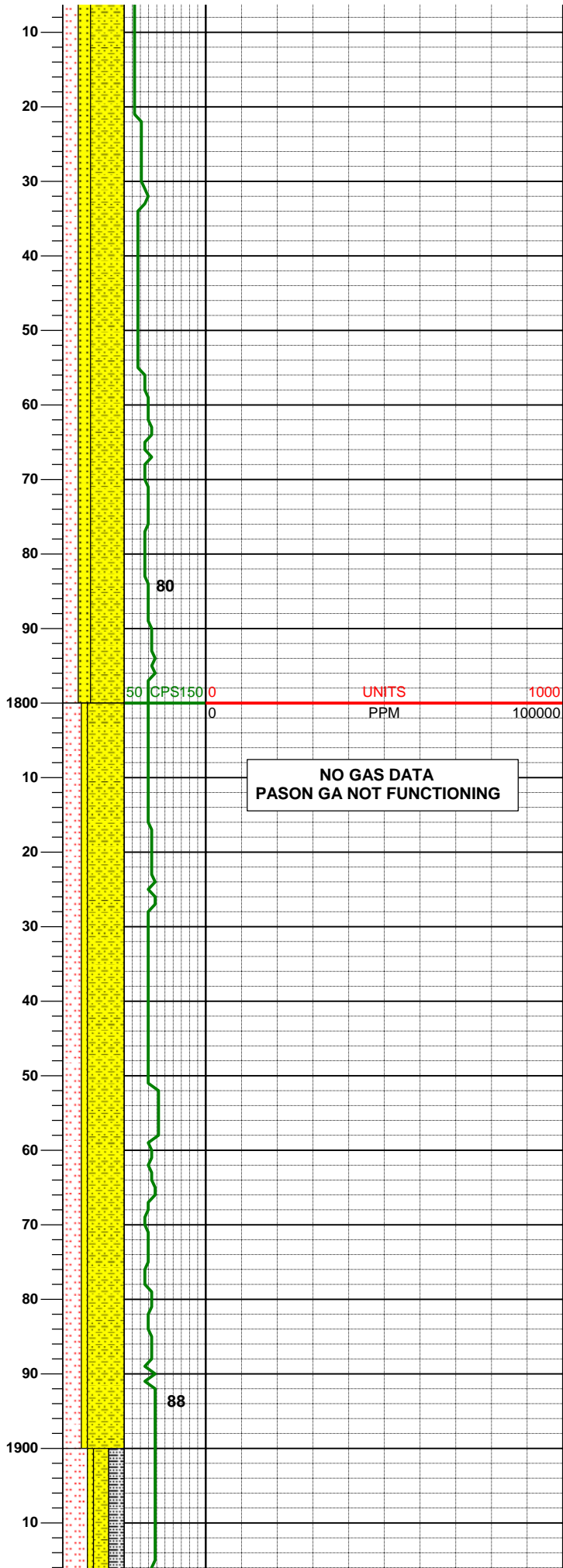
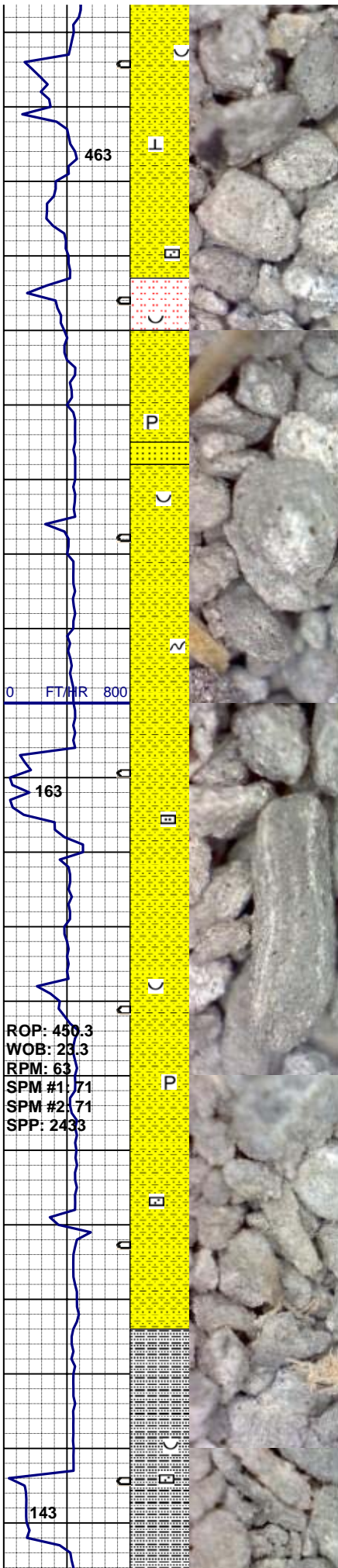
SS: - SHYSS: wh, v lt gy, sft - sl
firm, fri, p ind, f - m gr, ang - sb
rd, slty - arg mtx, mod - p srt, sb
blky, com chlor alt mica frag,
SLTST: lt gy - gy, lt brn gy - lt olv
gy, sft, v fri, mod moldable, mod
mica, gt - cly mtx, scat ss strg,
mod calc, v cly rich

MD 1568'
TVD 1560.225'
INC 8.4°
AZM 3.8°

SHYSS: wh, v lt gy, occ m gy, sft
- sl firm, fri, f - m gr, ang - sb rd,
slty - arg mtx, mod - p srt, sb
blky, sme chlor alt mica frag,
SLTST: lt gy - gy, lt brn gy - lt olv
gy, sft, v fri, mod moldable, mod
mica, gt - cly mtx, scat ss strg,
mod calc,
SS: wh, lt gy, s&p, sb rd, sil cmt,
vf gr, mod srt, sl hd, calc ip, tr
glau, v cly rich, tr pyr,

MD 1663'
TVD 1654.441'
INC 6.3°
AZM 357.8°

MW IN 8.7/8.7 OUT
VIS IN 39/43 OUT



SHYSS: wh, v lt gy, occ m gy, sft
- sl firm, fri, f - m gr, ang - sb rd,
sfty - arg mtx, mod - p srt, sb
blky, sme chlor alt mica frag,
SLTST: lt gy - gy, lt brn gy - lt olv
gy, sft, v fri, mod moldable, mod
mica, gt - cly mtx, scat ss strg,
mod calc,
SS: wh, lt gy, s&p, sb rd, sil cmt,
vf gr, mod srt, sl hd, calc ip, tr
glau, v cly rich, tr pyr,

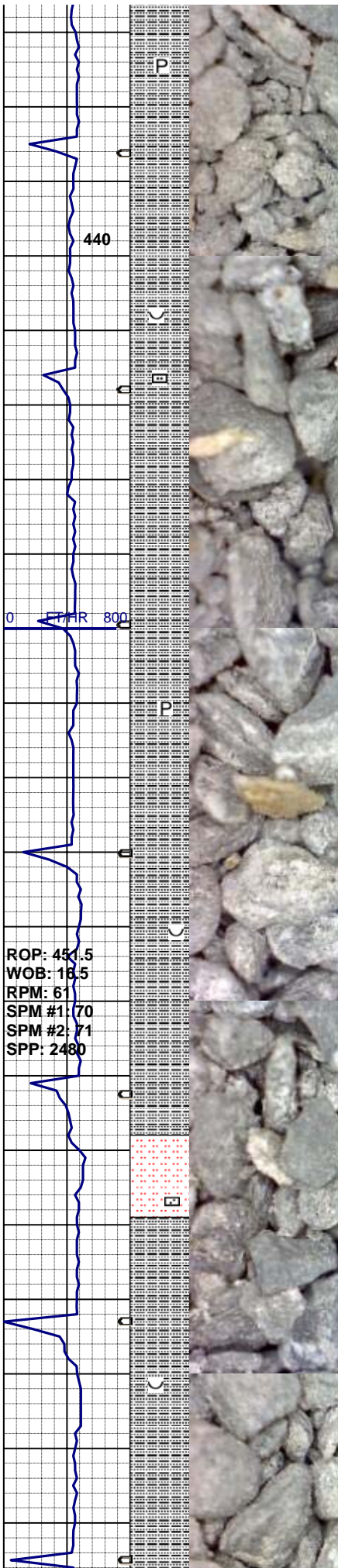
MD 1758'
TVD 1748.948'
INC 5.4°
AZM 347.4°

NO GAS DATA
PASON GA NOT FUNCTIONING

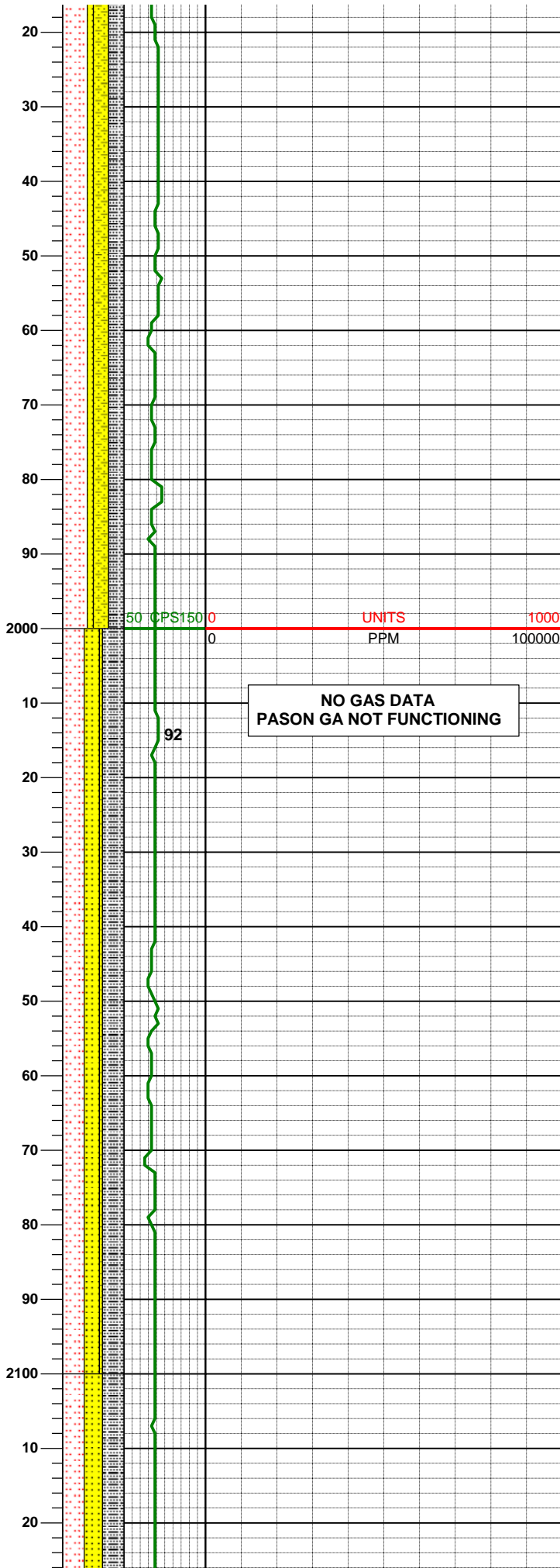
MD 1853'
TVD 1843.621'
INC 4.1°
AZM 336.9°

SHYSS: wh, v lt gy, occ m gy, sft
- sl firm, fri, vf gr, ang - sb rd, sfty
- arg mtx, mod - p srt, sb blky,
sme chlor alt mica frag,
SLTST: lt gy - gy, lt brn gy - lt olv
gy, sft, v fri, mod moldable, mod
mica, gt - cly mtx, scat ss strg,
mod calc,
SS: wh, lt gy, s&p, sb rd, sil cmt,
vf gr, mod srt, sl hd, calc ip, tr
glau, v cly rich, tr pyr,

MW IN 8.7/8.9 OUT
VIS IN 38/39 OUT



ROP: 431.5
WOB: 18.5
RPM: 61
SPM #1: 70
SPM #2: 71
SPP: 2480



MD 1948'
TVD 1938.49'
INC 1.8°
AZM 353.5°

SLTST: - SHYSS: wh, lt gy, s&p, vf gr, sbrd - sub ang, sil cmt, mod srt, mod hd - hd, fri - brit, mod calc ip, glau, tr mica, SLTY SH: lt gy - med gy, tr dk gy, sft, fri, sub blkly - sub plty, sm tex, scat mica par 's, n spl flor, v wk - n cut

MUD DATA (1990')
WT 8.8
FV 40
PV 6
YP 11
API Fil n/c
CK 1/32"
% Sol 0.5
Chl 1800
pH 11

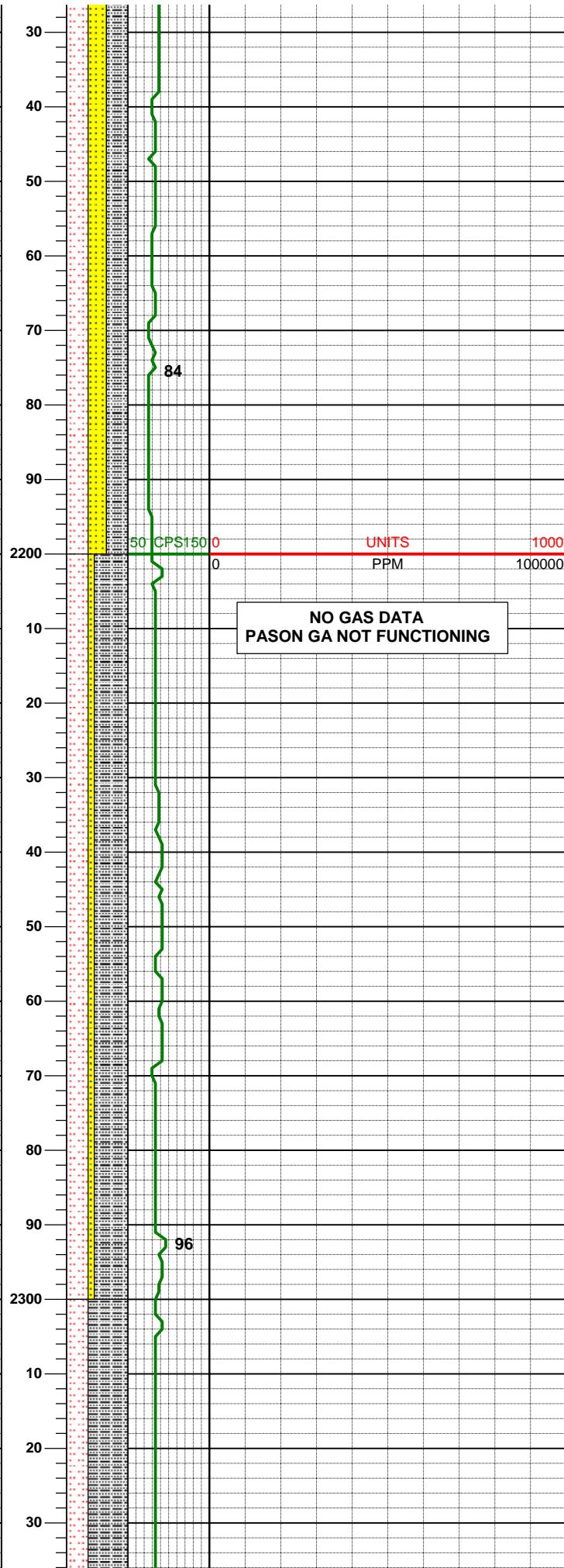
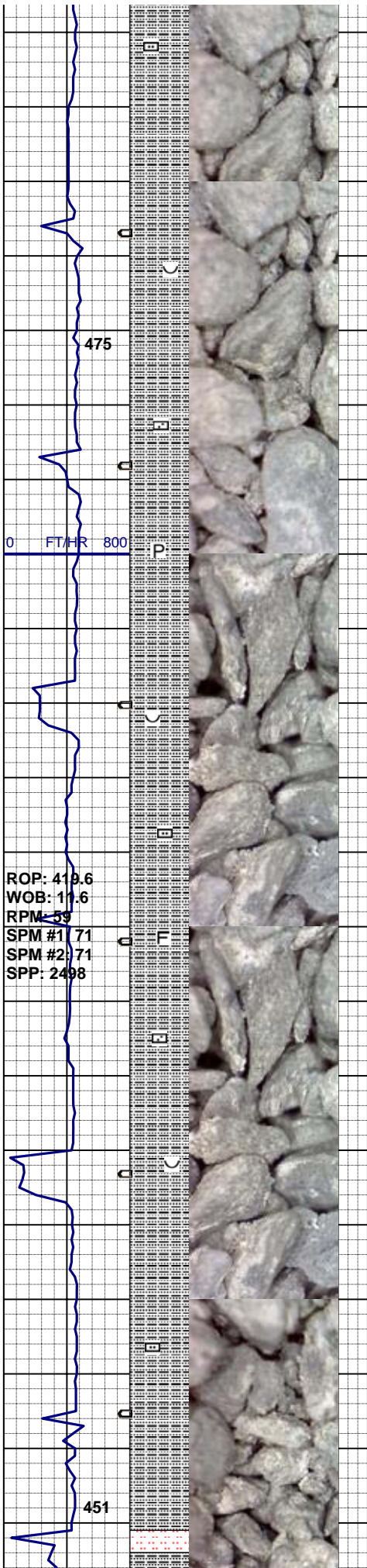
NO GAS DATA
PASON GA NOT FUNCTIONING

MD 2043'
TVD 2033.44'
INC 1.9°
AZM 5.6°

SLTST: - SS: wh, lt gy, s&p, vf gr, sbrd - sub ang, sil cmt, mod srt, mod hd - hd, fri - brit, smwt shy ip, mod calc ip, glau, tr mica, SLTY SH: lt gy - med gy, tr dk gy, sft, fri, sub blkly - sub plty, sm tex, scat mica par 's, mod - hi content CLY: lt - m lt gy, sft, mod - low solubility, w hydrated, mod - hi plac 'ity, mod 'ly cohesive, mod 'ly adhesive, silty, n spl flor, v wk - n cut

MW IN 8.8/8.8 OUT
VIS IN 40/38 OUT

MD 2420'



MD 2138'
TVD 2128.39'
INC 1.8°
AZM 20.6°

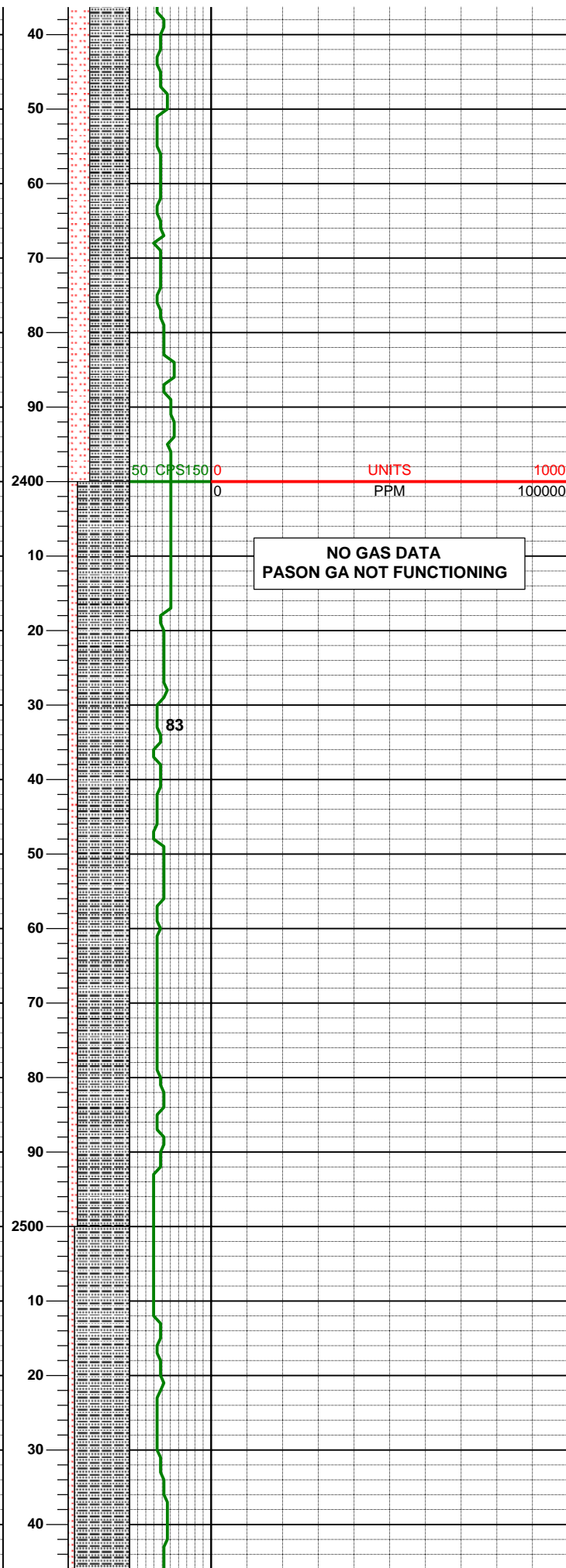
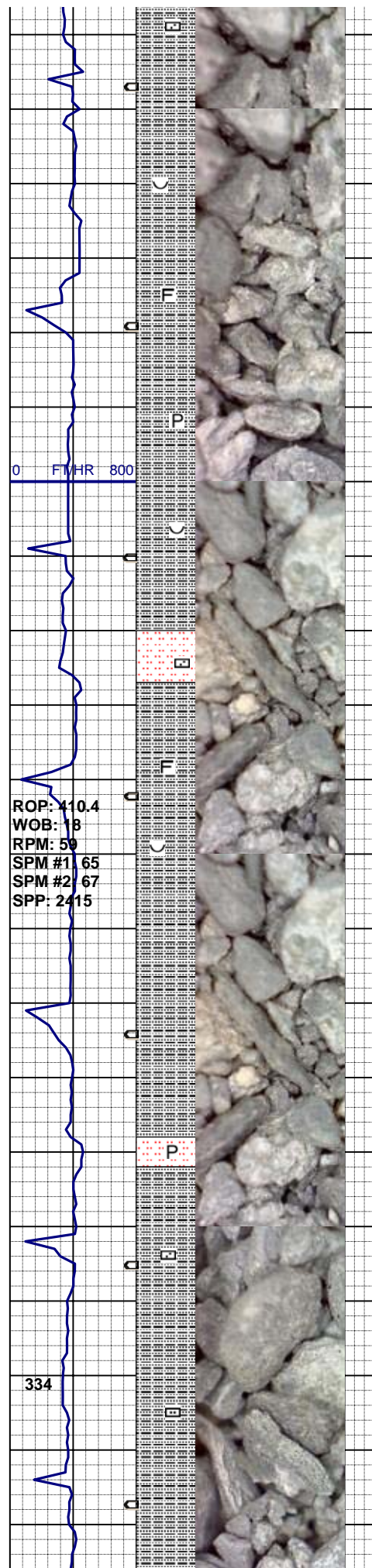
SLTST: - SS: wh, lt gy, s&p, vf gr, sbrd - sub ang, sil cmt, mod srt, mod hd - hd, fri - brit, mod calc ip, glau, tr mica, SLTY SH: lt gy - med gy, tr dk gy, sft, fri, sub blkly - sub plty, sm tex, scat mica par 's, mod - hi content CLY: lt - m lt gy, sft, low solubility, w hydrated, mod plac 'ity, mod 'ly cohesive, mod 'ly adhesive, silty, n spl flor, v wk cut

MD 2233'
TVD 2223.35'
INC 1.8°
AZM 19.5°

MW IN 8.9/8.9 OUT
VIS IN 41/38 OUT

SLTYSH: lt gy - med gy, tr dk gy, sft, fri, sub blkly - sub plty, sm tex, scat mica par 's, SLTST: - SS: wh, lt gy, s&p, vf gr, sbrd - sub ang, sil cmt, mod srt, mod hd - hd, fri - brit, mod calc ip, glau, tr mica, com ss strg 's, tr dism pyr, rr fos frag 's, mod - hi content CLY: lt - m lt gy, sft, low solubility, w hydrated, mod plac 'ity, mod 'ly cohesive, mod 'ly adhesive, silty, n spl flor, v wk cut

MD 2328'
TVD 2318.32'
INC 0.6°
AZM 61.5°



SLTYSH: lt gy - med gy, tr dk gy, sft, fri, sub blkly - sub plty, sm tex, scat mica par 's, SLTST: wh, lt gy, s&p, vf gr, sbrd - sub ang, sil cmt, mod srt, mod hd - hd, fri - brit, mod calc ip, glau, tr mica, com ss strg 's, tr dism pyr, rr fos frag 's, mod content CLY: lt - m lt gy, sft, mod solubility, w hydrated, mod plac 'ity, mod 'ly cohesive, mod 'ly adhesive, silty, n spl flor, v wk cut

Slight Decrease in Clay Content

MW IN 8.9/9.1 OUT
VIS IN 33/35 OUT

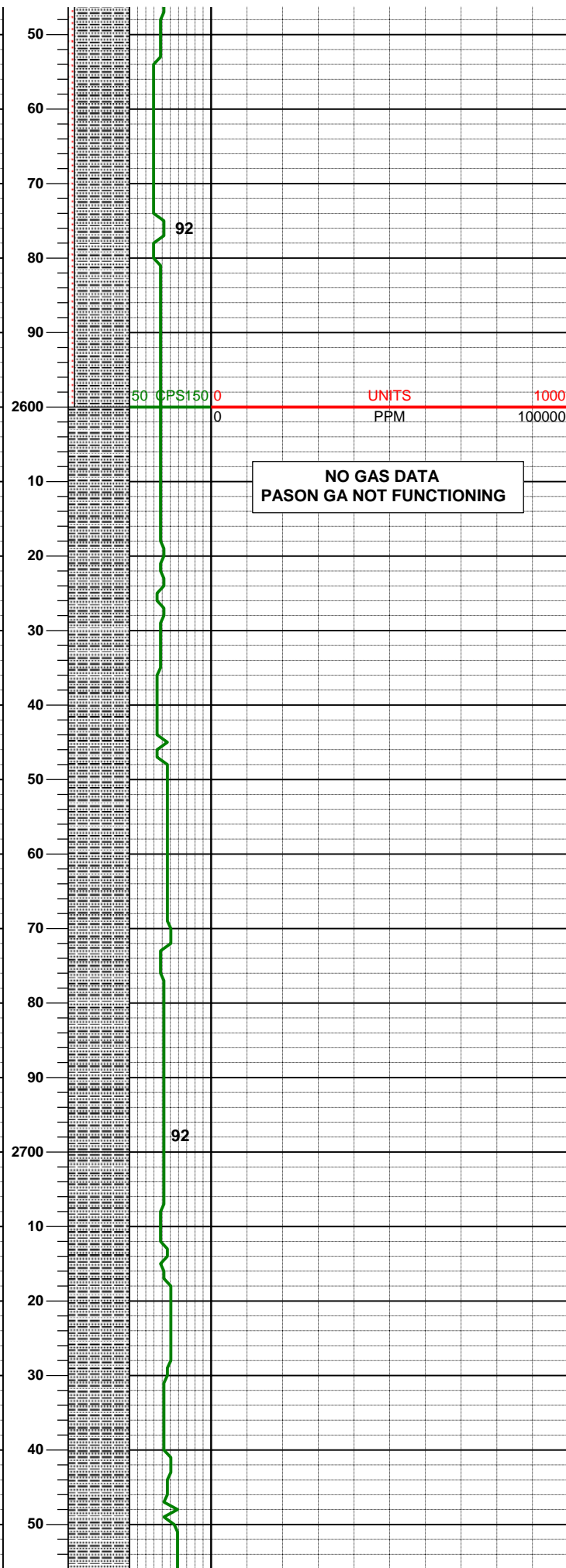
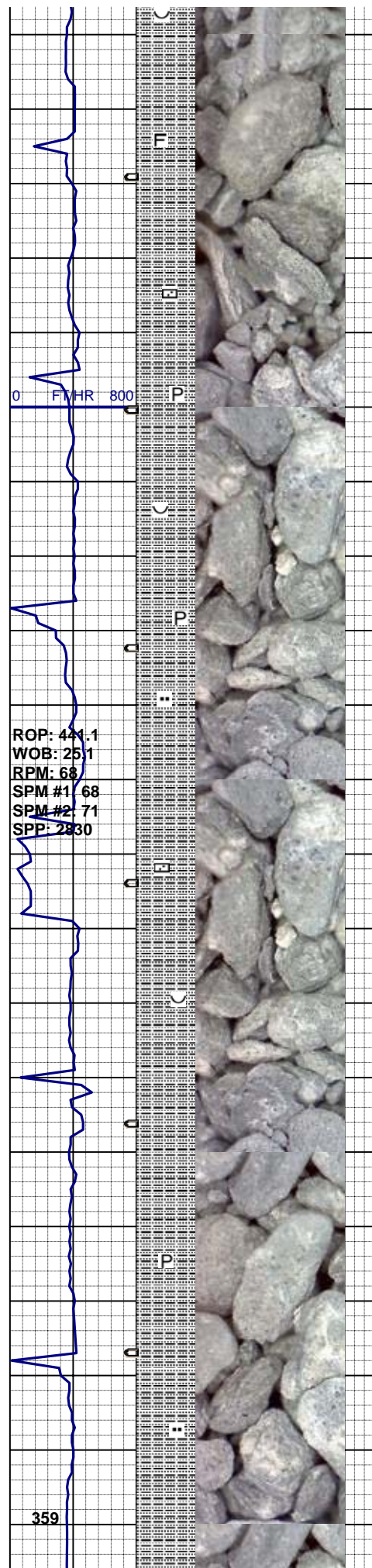
MD 2424'
TVD 2414.32'
INC 1.0°
AZM 117.0°

SLTYSH: gy 'ish brn, lt - m lt gy, mod firm, fri, sbplty - sbbkly, occ bld, arg - slty mttx, pr 'ly fis, v thn 'ly lam, com - abnt sltst strg 's, SLTST: - SS: lt gy - gy, lt brn, s&p, mod firm, fri, vf - f gr, w srt, sb rd - sb ang, sbbkly, arg - slty mttx, sil cmt, sl calc, tr dism pyr thru, scat mica frag thru, v rr fos frag 's, v rr dul gold & dk brn 'ish gn spl flor, v sl stmg, v slow. diffuse dul gn mky cut, n stn or od

Moderate Clay Content

MD 2519'
TVD 2509.30'
INC 0.9°
AZM 119.0°

SLTYSH: gy 'ish brn, lt - m lt gy, mod firm, fri, sbplty - sbbkly, occ bld, arg - slty mttx, pr 'ly fis, v thn 'ly lam, com - abnt sltst strg 's, SLTST: - SS: lt gy - gy, lt brn,



s&p, mod firm, fri, vf - f gr, w srt, sb rd - sb ang, sbbly, arg - slty mtz, sil cmt, sl calc, tr dism pyr thru w/ sme v mnr mic vn 'ing, scat mica frag thru, v rr fos frag 's, v rr dul gold & dk brn 'ish gn spl flor, v sl stmg, v slow. diffuse dul gn mky cut, n stn or od

MW IN 9.0/9.1 OUT
VIS IN 34/35 OUT

MD 2614'
TVD 2604.28'
INC 1.4°
AZM 137.5°

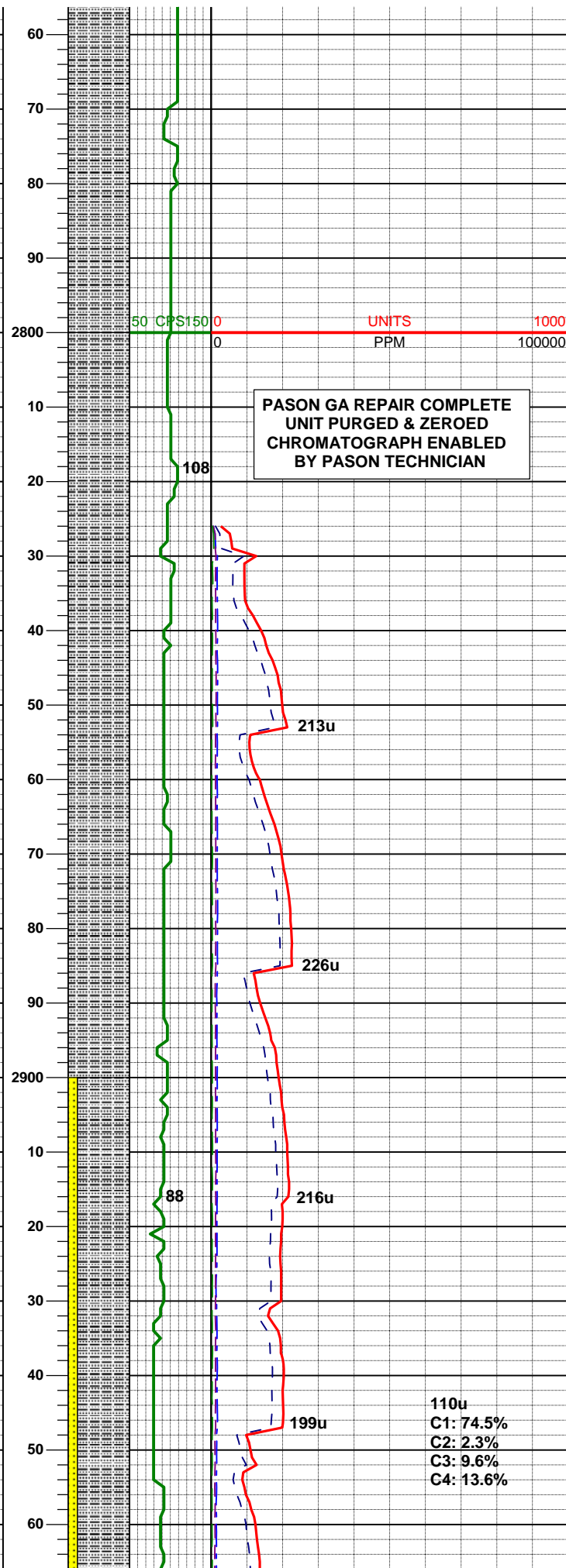
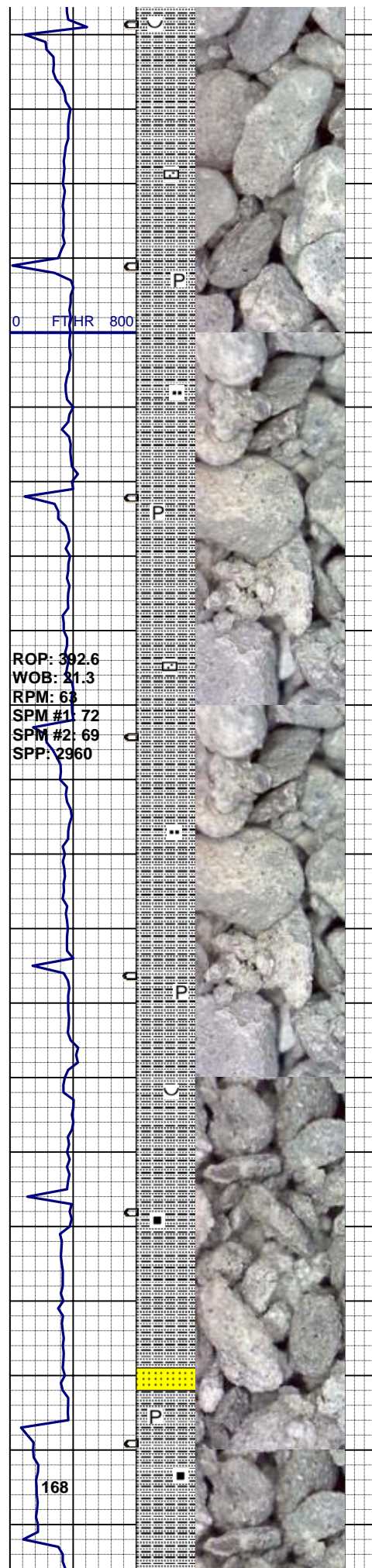
SLTYSH: lt - m gy, lt brn 'ish gy, sft, brit - fri, p fis, sb blk, arg - slty tex, tr pyr, mod 'ly mica thru, v rr dul gold & dk brn 'ish gn spl flor, v sl stmg, v slow. diffuse dul gn mky cut, n stn or od, mod content CLY: lt - m lt gy, sft, mod solubility, w hydrated, mod plac 'ity, mod 'ly cohesive, mod 'ly adhesive, silty

MW IN 9.1/9.1 OUT
VIS IN 35/35 OUT

MD 2709'
TVD 2699.27'
INC 0.9°
AZM 203.6°

Moderate Clay Content

SLTYSH: lt - mod brn 'ish gy, lt - m gy, ly olv gy, sft - sb firm, brit - fri, v thn 'ly lam, p 'ly fis, sb blk, arg mtz, sl slty tex, tr pyr, mod 'ly mica thru, v rr dul gold & dk brn 'ish gn spl flor, v sl stmg, v slow. diffuse dul gn mky cut, n stn or od, mod content CLY: lt - m lt gy



od, mod content CLY: lt - m lt gy, sft, mod solubility, w hydrated, mod plac 'ity, mod 'ly cohesive, mod 'ly adhesive, silty

MD 2804'
TVD 2794.26'
INC 0.8°
AZM 253.3°

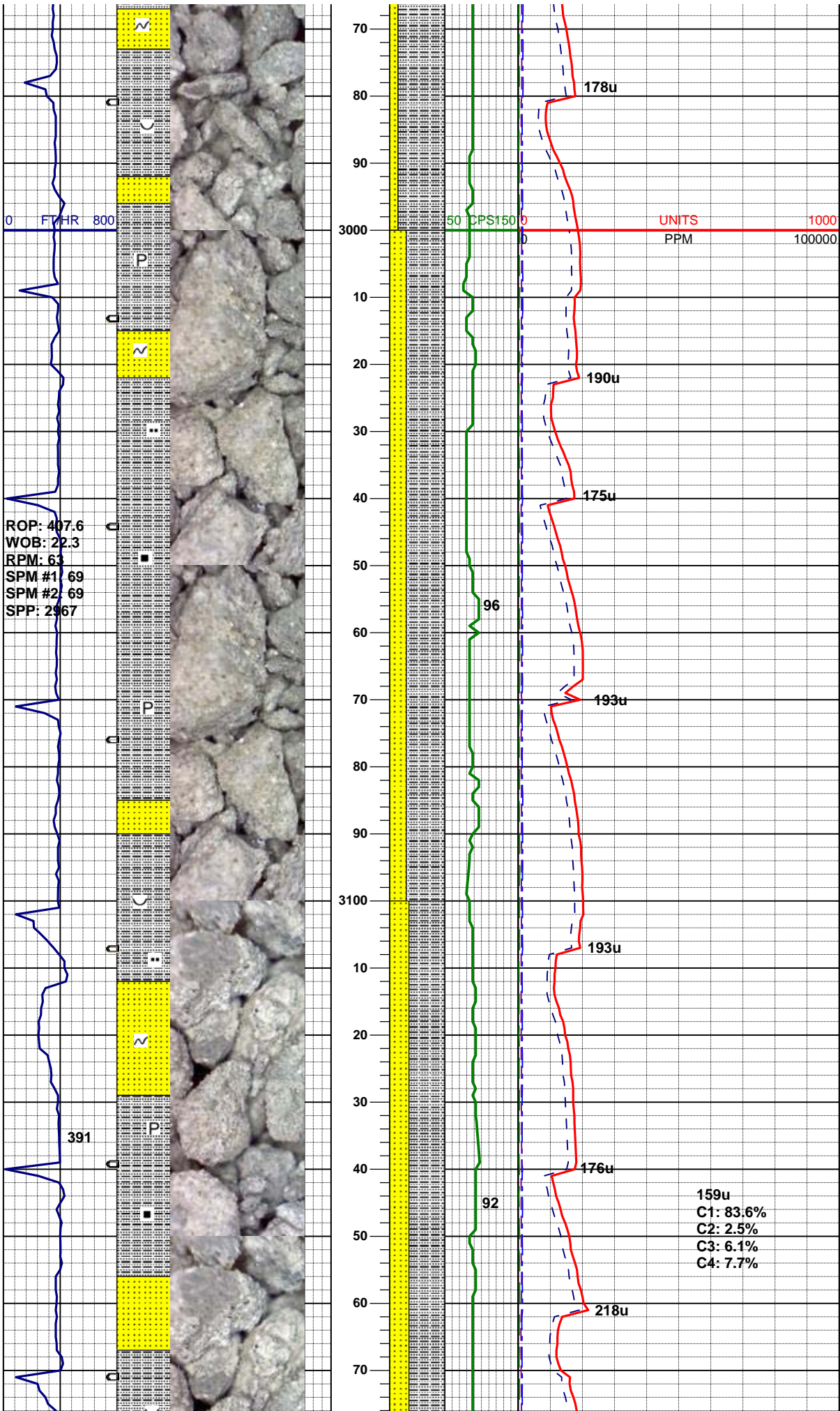
SLTYSH: lt - mod brn 'ish gy, lt - m gy, ly olv gy, sft - sb firm, brit - fri, v thn 'ly lam, p 'ly fis, sb blk, arg mtx, sl slty tex, tr pyr, mod 'ly mica thru, v rr dul gold & dk brn 'ish gn spl flor, v sl strng, v slow. diffuse dul gn mky cut, n stn or od, mod content CLY: lt - m lt gy, sft, mod solubility, w hydrated, mod plac 'ity, mod 'ly cohesive, mod 'ly adhesive, silty

MW IN 9.1/9.1+ OUT
VIS IN 35/38 OUT

MD 2899'
TVD 2889.22'
INC 2.2°
AZM 258.8°

Moderate Clay Content

SLTYSH: lt - mod brn 'ish gy, lt - m gy, scat lt olv gy, sb firm - sb hd, fri, sb plty - sb blk, arg mtx, slty - sdy tex, SS: s&p, wh, lt gy, brn, firm, fri, vf - m l sz gr, sb rd - sb ang, w srt, sb blk, sil mtx, com sltst strg 's thru, v wk 'ly calc, tr pyr, mica thru, tr sltst, abnt dul yel - gold 'ish yel ss spl flor, v wk v pale cut, n stn or od



MD 2994'
TVD 2984.20'
INC 1.0°
AZM 11.5°

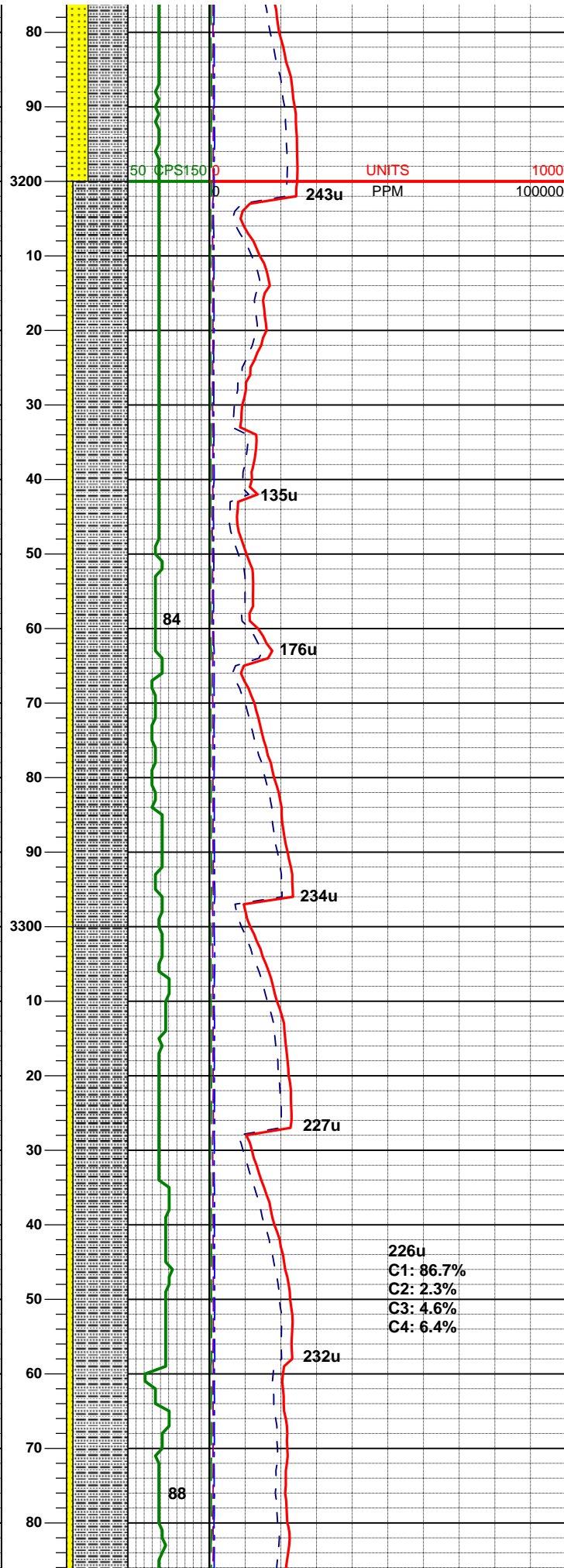
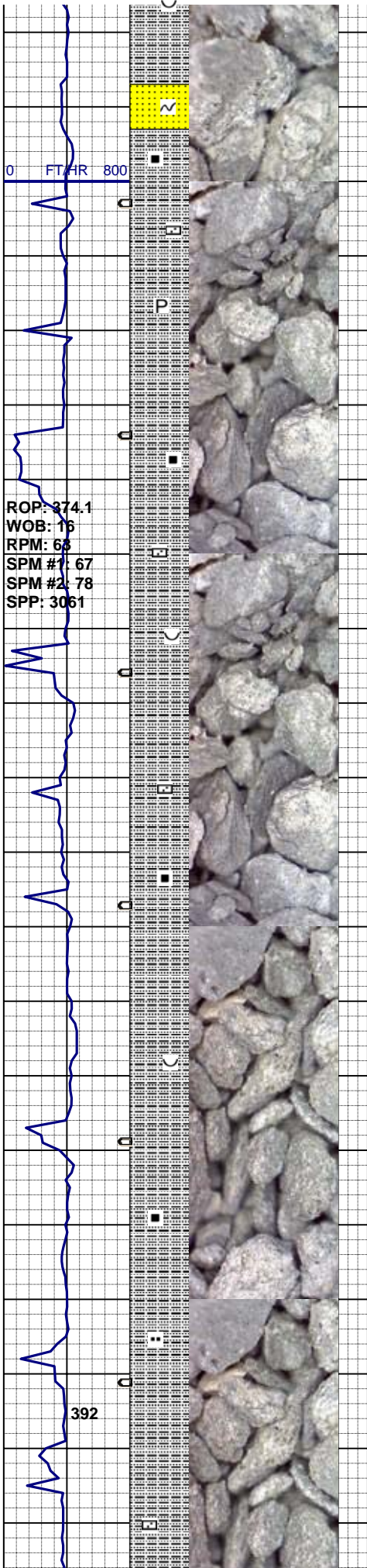
MW IN 9.1/9.2 OUT
VIS IN 37/41 OUT

SLTYSH: lt - mod brn 'ish gy, lt - m gy, scat lt olv gy, sb firm - sb hd, fri, sb plty - sb blk, arg mt, slty - sdy tex, SS: s&p, wh, lt gy, brn, firm, fri, vf - m l sz gr, sb rd - sb ang, w srt, sb blk, sil mt, com sltst strg 's thru, v wk 'ly calc, tr pyr, mica thru sme frag 's alt - chlor, rr carb frag 's thru, rr sltst, tr dul yel - gold 'ish yel ss spl flor, v wk v pale brn 'ish gn cut, n stn or od

MD 3089'
TVD 3079.18'
INC 1.4°
AZM 21.4°

Moderate Clay Content

SLTYSH: lt - mod brn 'ish gy, lt - m gy, scat lt olv gy, sb firm - sb hd, fri, sb plty - sb blk, arg mt, slty - sdy tex, SS: s&p, wh, lt gy, brn, firm, fri, vf - m l sz gr, sb rd - sb ang, w srt, sb blk, sil mt, com sltst strg 's thru, v wk 'ly calc, tr pyr, mica thru sme frag 's alt - chlor, rr carb frag 's thru, rr sltst, tr dul yel - gold 'ish yel ss spl flor, v wk v pale brn 'ish gn cut, n stn or od, CLY: lt - m lt gy, sft, mod solubility, w hydrated, mod plac 'ity, mod 'ly cohesive, mod 'ly adhesive, silty



MD 3184'
TVD 3174.14'
INC 1.7°
AZM 20.4°

Light Clay Content

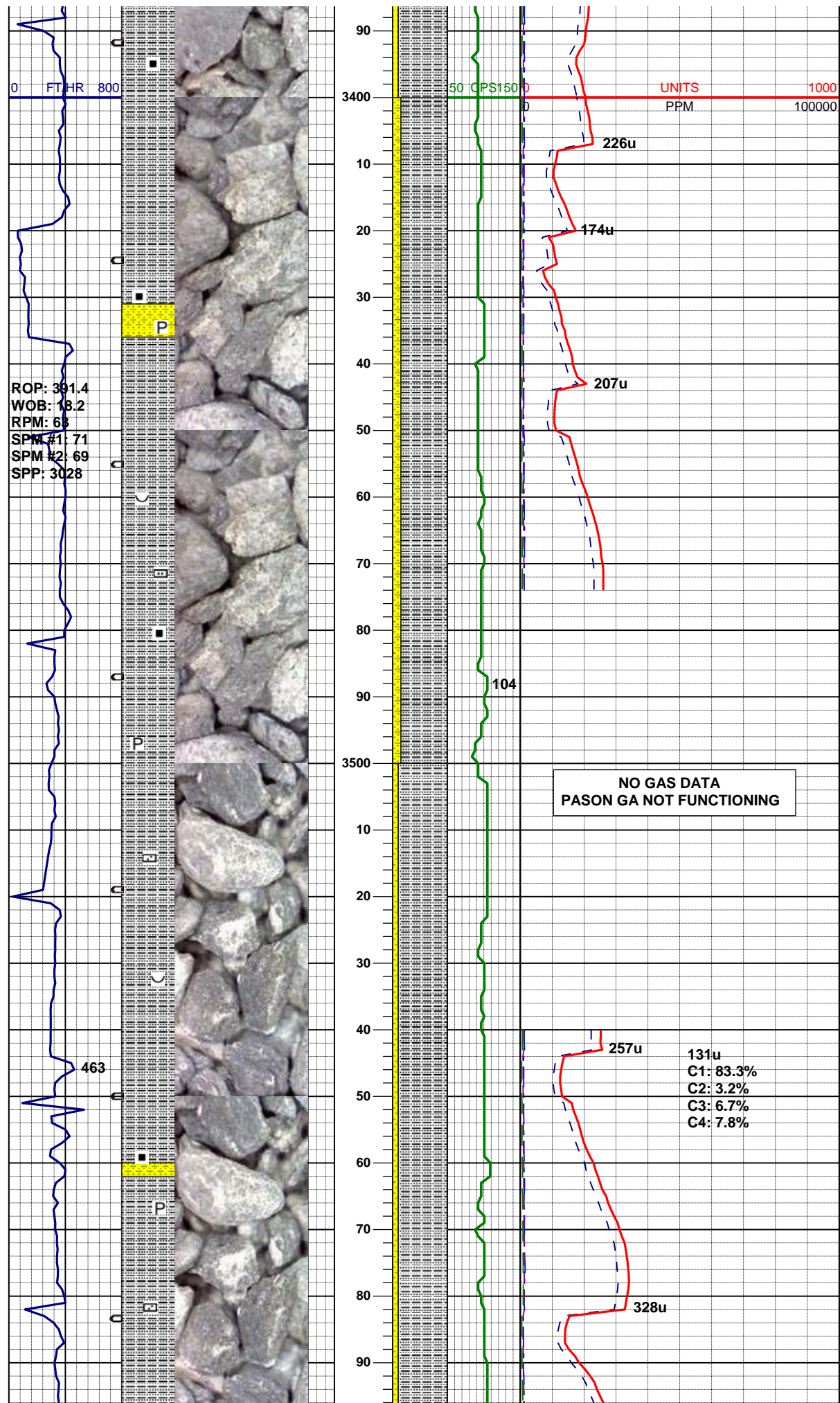
MW IN 9.1/9.2 OUT
VIS IN 36/40 OUT

SLTYSH: mod brn 'ish gy, m lt - m gy, lt olv gy, sb firm - sb hd, fri, sb plty - sb blk, arg mt, slty - sdy tex, SS: s&p, wh, lt gy, brn, firm, fri, vf - m l sz gr, sb rd - sb ang, w srt, sb blk, sil mt, com sltst strg 's thru, v wk 'ly calc, tr pyr, mica thru sme frag 's alt - chlor, rr carb frag 's thru, rr sltst, tr dul yel - gold 'ish yel ss spl flor, v wk v pale brn 'ish gn cut, n stn or od, CLY: lt - m lt gy, sft, mod - hi 'ly solubility, v w hydrated, mod - low. plac 'ity, low. - mod 'ly cohesive, low. - mod 'ly adhesive, silty - sdy

MD 3279'
TVD 3269.11'
INC 1.3°
AZM 10.1°

SLTYSH: mod brn 'ish gy, m lt - m gy, lt olv gy, sb firm - sb hd, fri, sb plty - sb blk, arg mt, slty - sdy tex, SS: s&p, wh, lt gy, brn, firm, fri, vf - m l sz gr, sb rd - sb ang, w srt, sb blk, sil mt, com sltst strg 's thru, v wk 'ly calc, tr pyr, mica thru sme frag 's alt - chlor, rr carb frag 's thru, rr sltst, mod - low. cly content, rr dul yel - gold 'ish yel ss spl flor, v wk v pale brn 'ish gn cut, n stn or od

MD 3374'
TVD 3364.09'
INC 1.4°
AZM 10.8°



MW IN 9.1/9.1 OUT
VIS IN 37/39 OUT

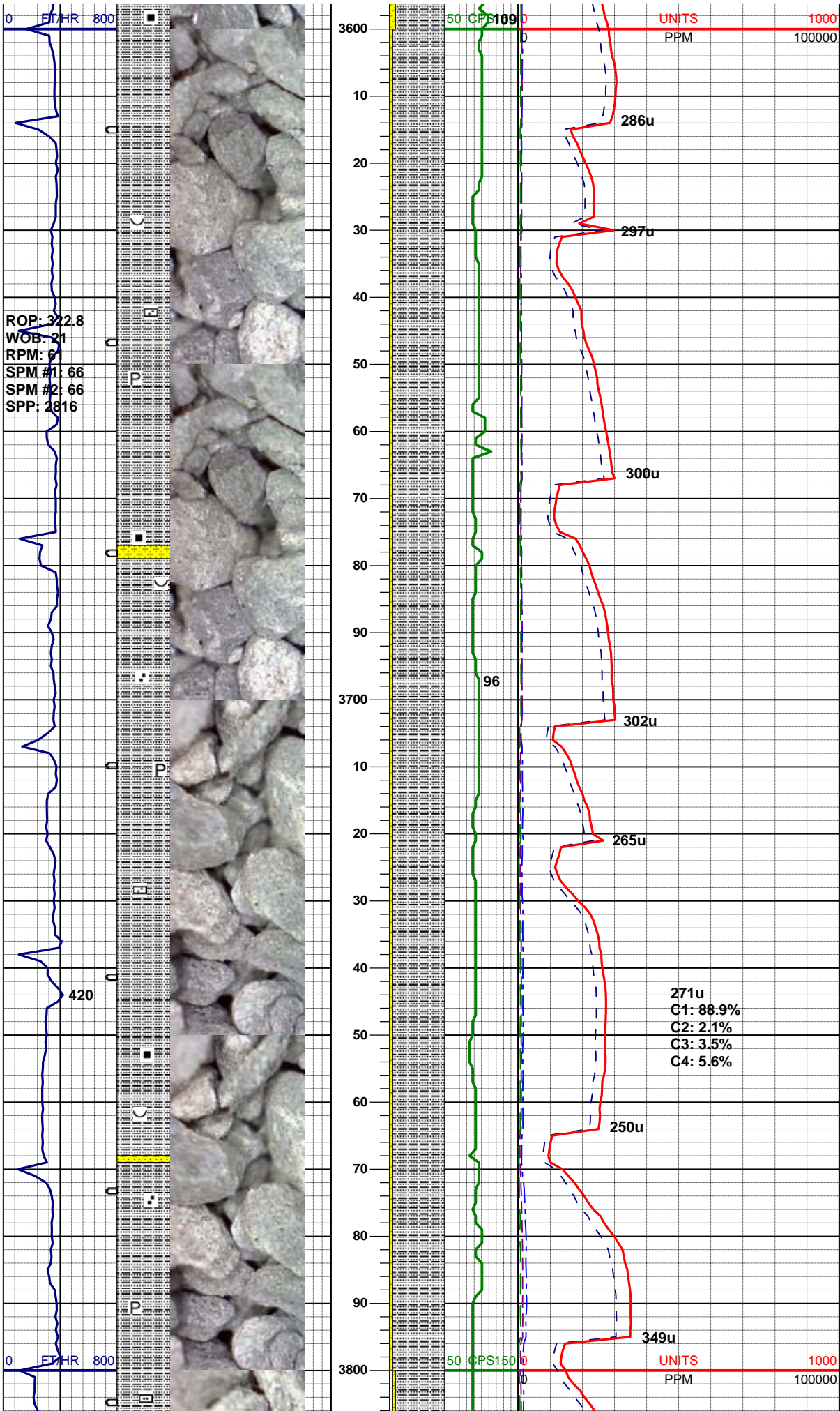
SLTYSH: m brn gy, m lt - m gy, lt
olv gy, sb firm - sb hd, fri, sb plty
- sb blk, arg mt, slty - sdy tex,
SHYSS: s&p, wh, lt gy, brn, firm,
fri, vf - m gr, sb rd - sb ang, w srt,
sb blk, sil mt, com sltst strg
thru, v wk calc, tr dism pyr, mica
thru sme frag alt - chlor, rr carb
frag thru, rr sltst, mod - ltl cly
content, v dul yel spl flor, n cut, n
stn, n od

MD 3469'
TVD 3459.08'
INC 0.4°
AZM 186.3°

MD 3564'
TVD 3554.075'
INC 0.6°
AZM 261.4°

SLTYSH: m brn gy, m lt - m gy, lt
olv gy, occ lt brn wh, sb firm - sb
hd, fri, sb plty - sb blk, arg mt,
slty - sdy tex,
SHYSS: s&p, wh, lt gy, brn, firm,
fri, vf - m gr, sb rd - sb ang, w srt,
sb blk, sil mt, com sltst strg
thru, v wk calc, tr dism pyr, mica
thru sme frag alt - chlor, rr carb
frag thru, rr sltst, mod - ltl cly
content, v dul yel spl flor, n cut, n
stn, n od

MUD DATA (3549')
WT 9.1
FV 35
PV 6
YP 11
API Fil 16.4
CK 1/32"
% Sol 3.0

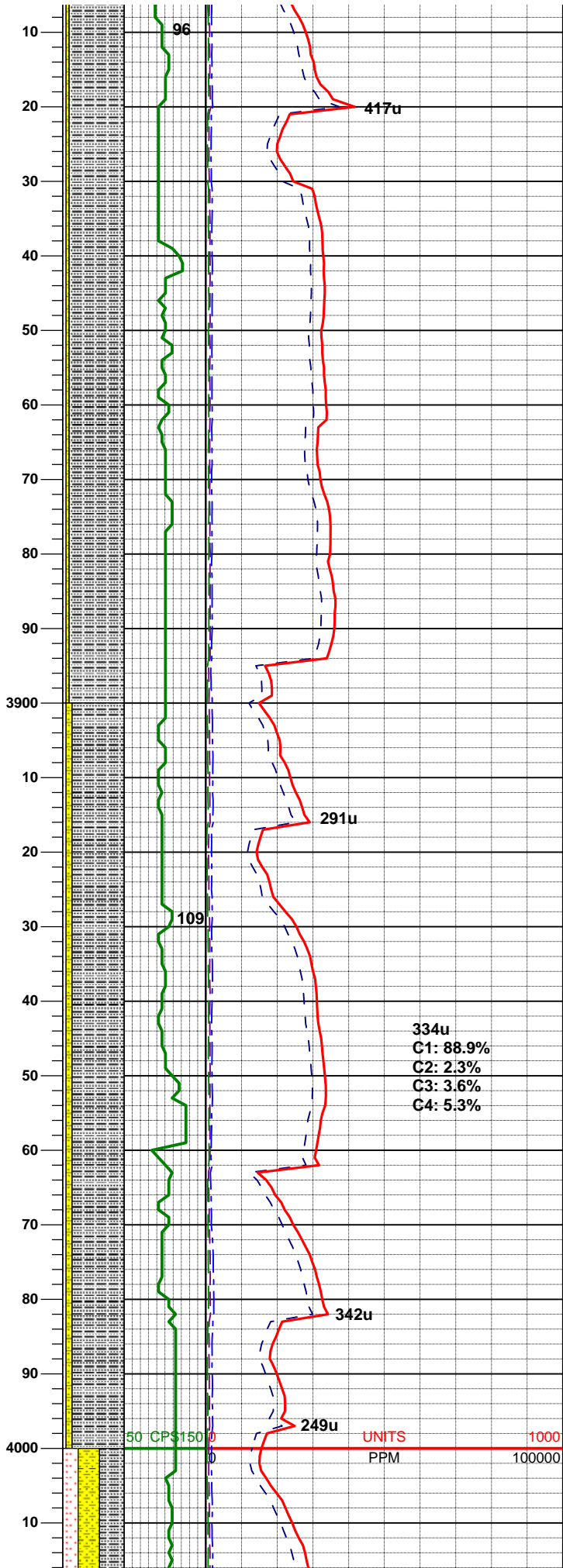
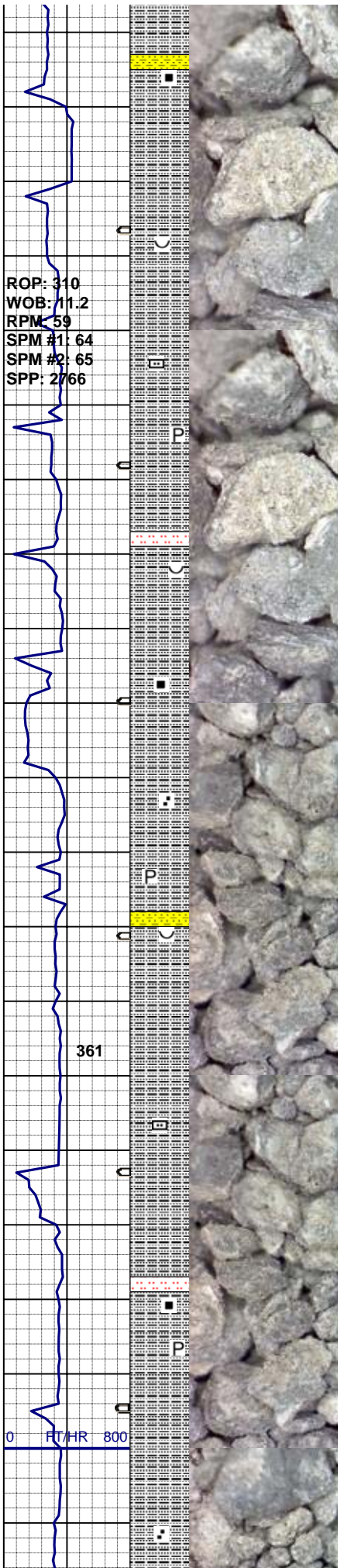


SLTYSH: m brn gy, m lt - m gy, lt olv gy, occ lt brn wh, sb firm - sb hd, fri, sb plty - sb blk, arg mtx, slty - sdy tex,
SHYSS: s&p, wh, lt gy, brn, firm, fri, vf - m gr, sb rd - sb ang, w srt, sb blk, sil mtx, com sltst strg thru, v wk calc, tr dism pyr, mica thru sme frag alt - chlor, rr carb frag thru, rr sltst, mod - ltl cly content, v dul yel spl flor, n cut, n stn, n od

MD 3658'
TVD 3648.07'
INC 0.5°
AZM 264.9°

SLTYSH: m brn gy, m lt - m gy, lt olv gy, occ lt brn wh, sb firm - sb hd, fri, sb plty - sb blk, arg mtx, slty - sdy tex,
SHYSS: s&p, wh, lt gy, brn, firm, fri, vf - m gr, sb rd - sb ang, w srt, sb blk, sil mtx, com sltst strg thru, v wk calc, tr dism pyr, mica thru sme frag alt - chlor, rr carb frag thru, rr sltst, mod - ltl cly content, v dul yel spl flor, n cut, n stn, n od

MW IN 8.9/9.1 OUT
VIS IN 35/39 OUT



MD 3848'
TVD 3838.026'
INC 1.8°
AZM 279°

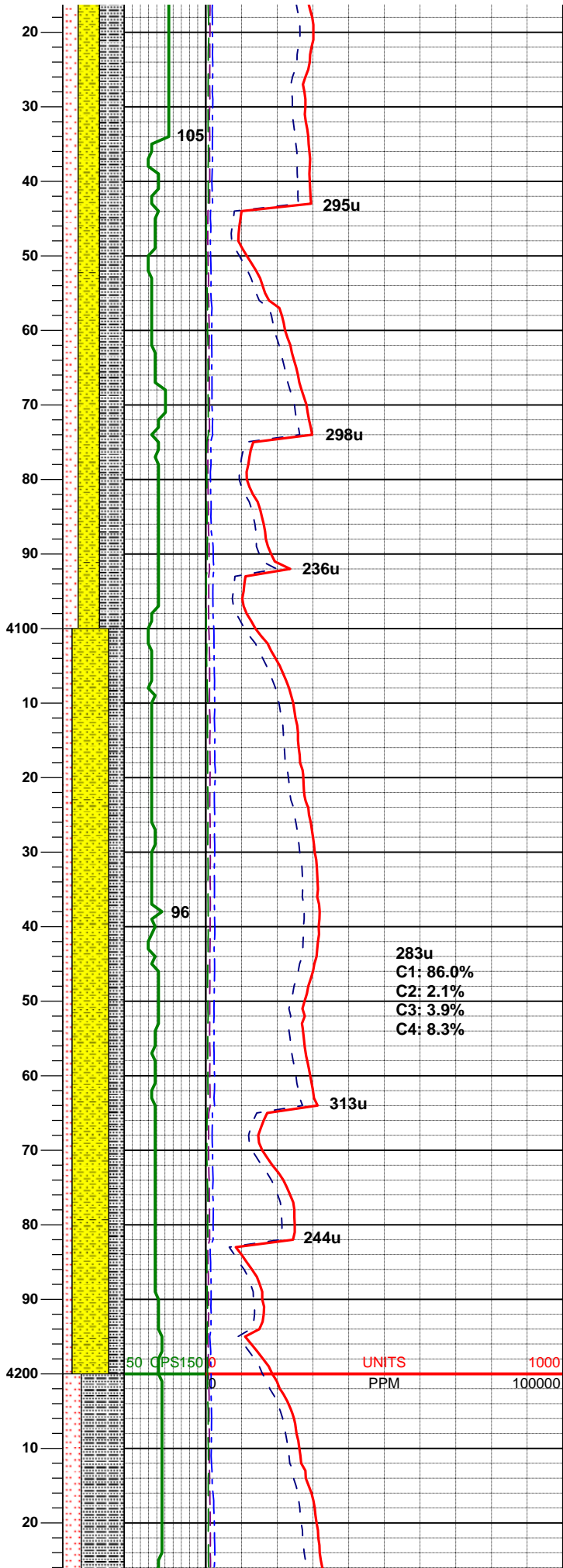
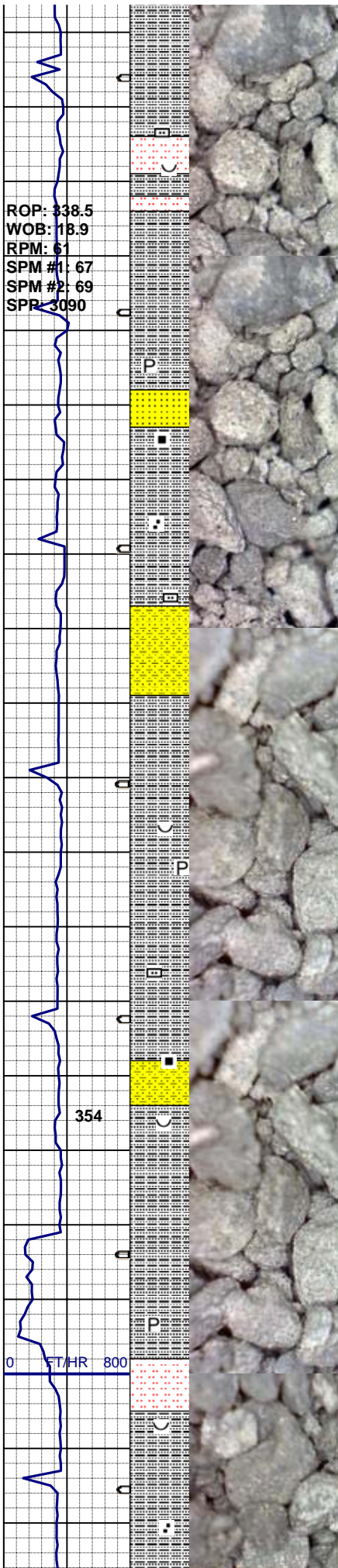
SLTYSH: m brn gy, m lt - m gy, lt olv gy, occ lt brn wh, sb firm - sb hd, fri, sb plty - sb blk, arg mtx, slty - sdy tex,
SHYSS: s&p, wh, lt gy, brn, firm, fri, vf - m gr, sb rd - sb ang, w srt, sb blk, sil mtx, com sltst strg thru,
SLTST: lt - m gy, occ wh, occ lt olv gn, sft, fri, sb blk, gt txt, occ sm, mod srt, sub ang, vf gr, v wk calc, tr dism pyr, mica thru sme frag alt - chlor, rr carb frag thru, rr sltst, mod - ltl cly content, v dul yel spl flor, n cut, n stn, n od

MW IN 9/9 OUT
VIS IN 35/36 OUT

MD 3943
TVD 3932.993'
INC 1.3°
AZM 247.2°

SLTYSH: m brn gy, m lt - m gy, lt olv gy, occ lt brn wh, sb firm - sb hd, fri, sb plty - sb blk, arg mtx, slty - sdy tex,
SHYSS: s&p, wh, lt gy, brn, firm, fri, vf - m gr, sb rd - sb ang, w srt, sb blk, sil mtx, com sltst strg thru,
SLTST: lt - m gy, occ wh, occ lt olv gn, sft, fri, sb blk, gt txt, occ sm, mod srt, sub ang, vf gr, v wk calc, tr dism pyr, mica thru sme frag alt - chlor, rr carb frag thru, rr sltst, mod - ltl cly content, v dul yel spl flor, n cut, n stn, n od

Significant Decrease
in Clay Content



MD 4038'
TVD 4027.967'
INC 1.4°
AZM 254.1°

SLTYSH: m brn gy, m lt - m gy, lt
olv gy, occ lt brn wh, sb firm - sb
hd, fri, sb plty - sb blk, arg mtx,
slty - sdy tex,
SHYSS: s&p, wh, lt gy, brn, firm,
fri, vf - m gr, sb rd - sb ang, w srt,
sb blk, sil mtx, com sltst strg
thru,
SLTST: lt - m gy, occ wh, occ lt
olv gn, sft, fri, sb blk, gt txt, occ
sm, mod srt, sub ang, vf gr, v wk
calc, tr dism pyr, mica thru sme
frag alt - chlor, rr carb frag thru,
mod - ltl cly content, v dul yel spl
flor, n cut, n stn, n od

MW IN 9/9 OUT
VIS IN 36/36 OUT

No Clay in Samples

MD 4133'
TVD 4122.932'
INC 1.7°
AZM 267.3°

SHYSS: s&p, wh, lt gy, brn, firm,
fri, vf - m gr, sb rd - sb ang, w srt,
sb blk, sil mtx, com sltst strg
thru,
SLTYSH: m brn gy, mlt - m gy, lt
olv gy, occ lt brn wh, sb firm - sb
hd, fri, sb plty - sb blk, arg mtx,
slty - sdy tex,
SLTST: lt - m gy, occ wh, occ lt
olv gn, sft, fri, sb blk, gt txt, occ
sm, mod srt, sub ang, vf gr, v wk
calc, tr dism pyr, mica thru sme
frag alt - chlor, rr carb frag thru,
mod - ltl cly content, v dul yel spl
flor, n cut, n stn, n od

MD 4228'
TVD 4217.908'
INC 0.9°

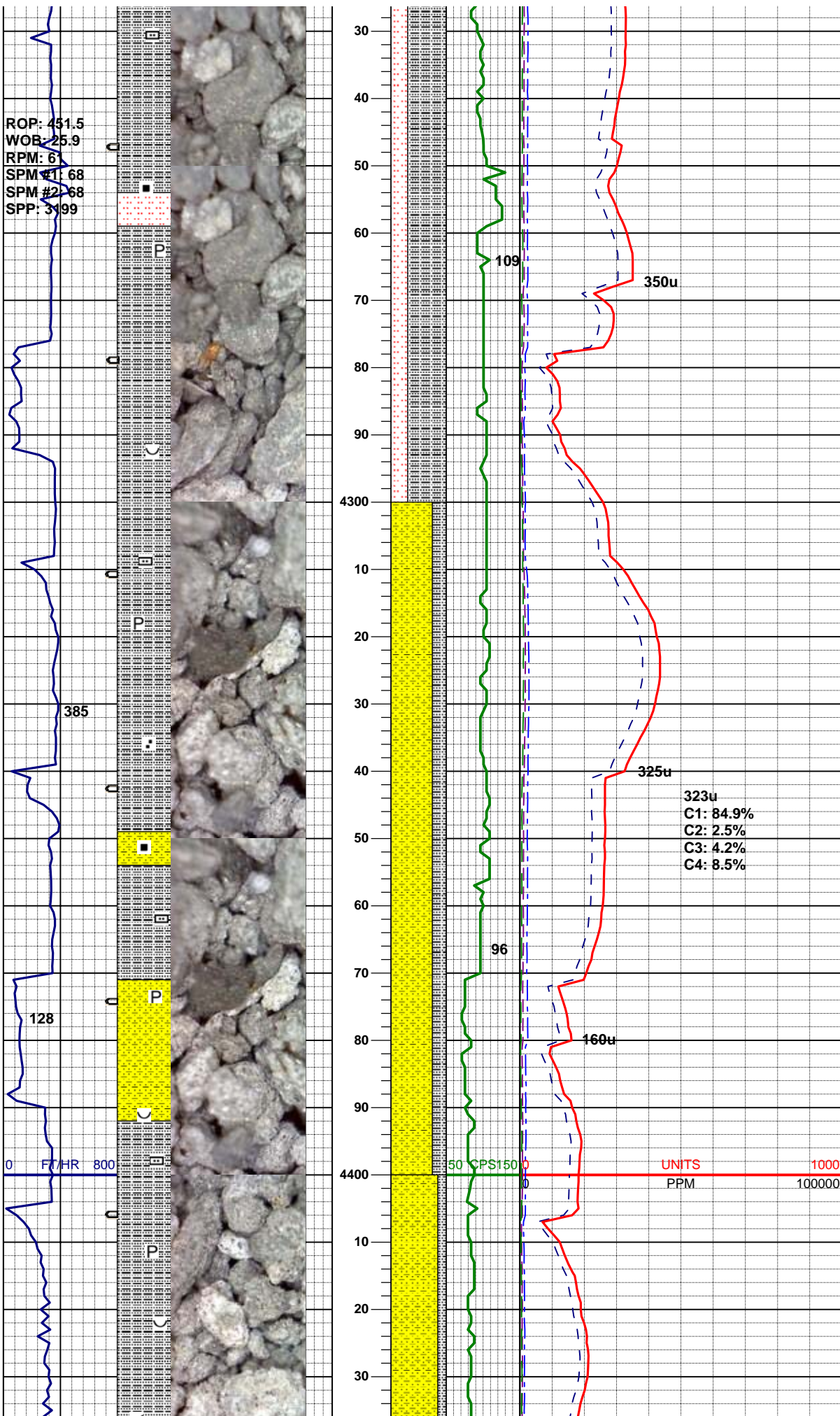
MW IN 9.1/9.1 OUT
VIS IN 37/38 OUT

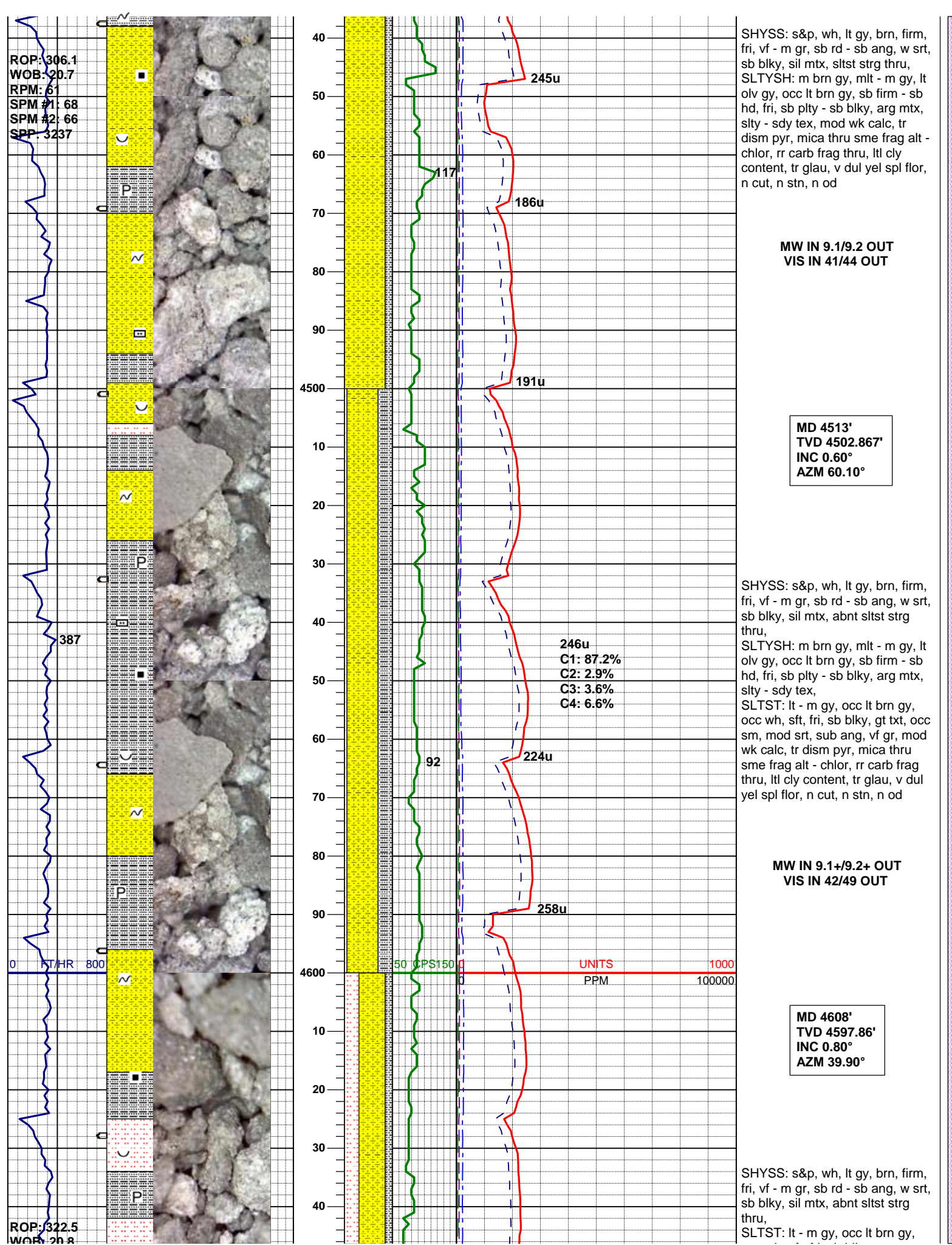
MD 4323'
TVD 4312.885'
INC 1.60°
AZM 213.30°

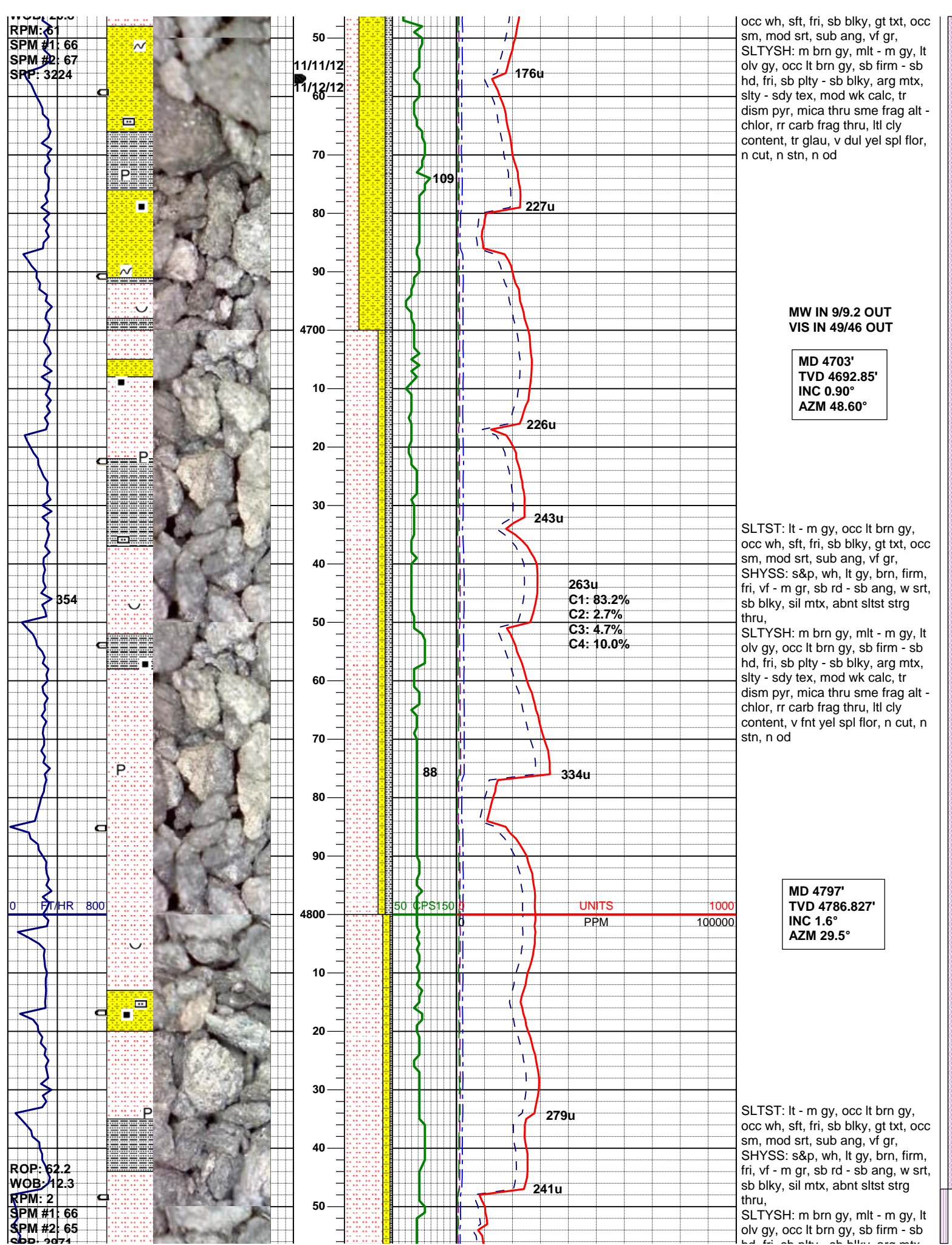
MW IN 9.2/9.1+ OUT
VIS IN 38/42 OUT

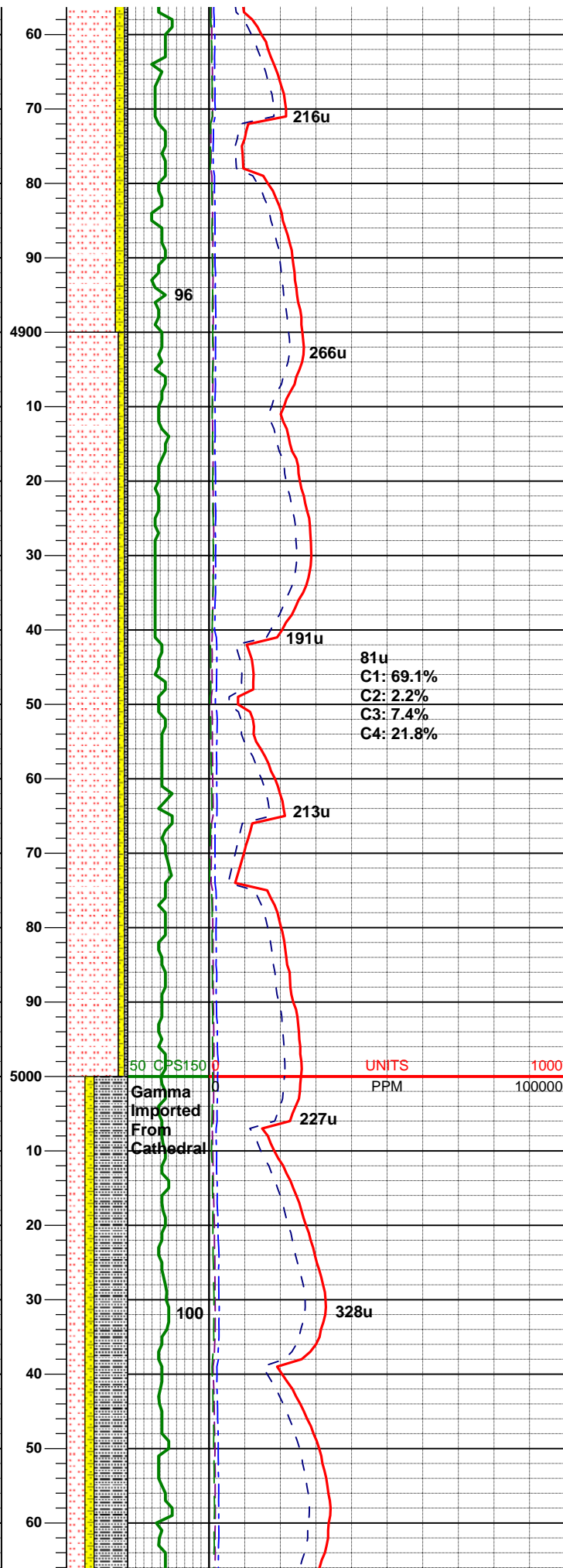
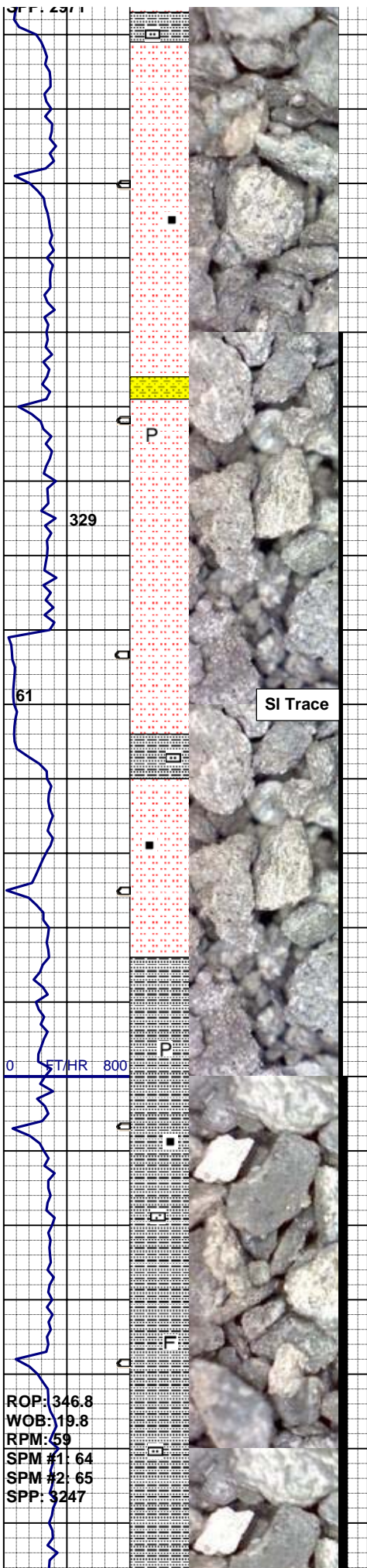
MD 4418'
TVD 4407.873'
INC 0.70°
AZM 100.10°

Sussex Logger
Top ~4438' MD









nd, m, sb ply - sb blk, arg mx, slty - sdy tex, mod wk calc, rr dism pyr, rr carb frag thru, ltl cly content, v fnt yel spl flor, n cut, n stn, n od

MD 4892'
TVD 4881.782'
INC 2.0°
AZM 55.1°

Oil Cuts Performed
From 5,000' - TD

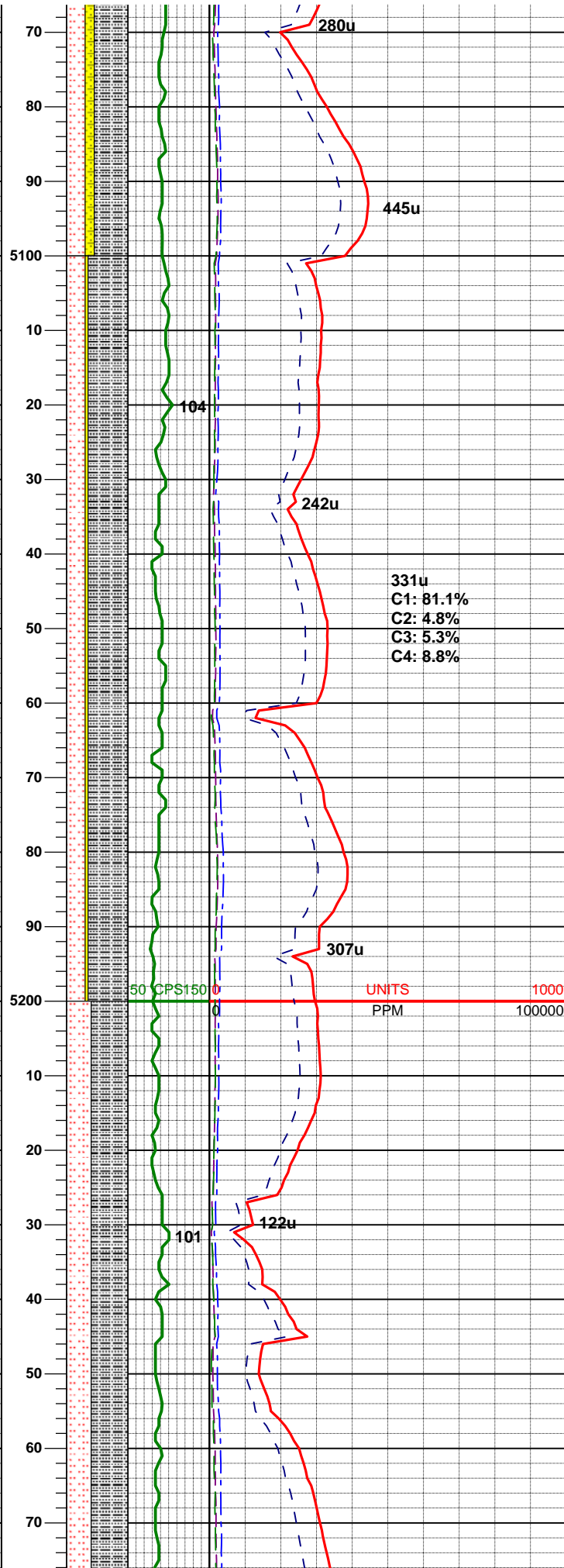
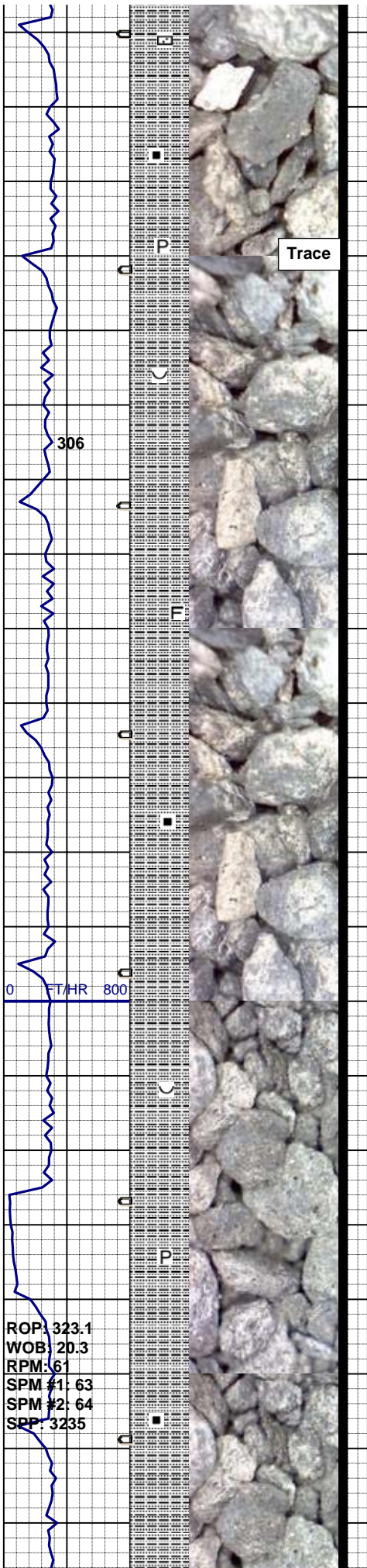
MW IN 9.2+/9.2+ OUT
VIS IN 35/40 OUT

SLTST: lt - m gy, occ lt brn gy, occ wh, sft, fri, sb blk, gt txt, occ sm, mod srt, sub ang, vf gr, SHYSS: s&p, wh, lt gy, brn, firm, fri, vf - m gr, sb rd - sb ang, w srt, sb blk, sil mtx, abnt sltst strg thru, SLTYSH: m brn gy, mlt - m gy, lt olv gy, occ lt brn gy, sb firm - sb hd, fri, sb ply - sb blk, arg mt, slty - sdy tex, mod wk calc, rr dism pyr, rr carb frag thru, ltl cly content, v fnt yel spl flor, n cut, n stn, n od

MD 4987'
TVD 4976.764'
INC 0.40°
AZM 179.90°

Shannon Logger Top
~5005' MD/~4994.77' TVD

SLTYSH: m - lt gy, lt olv gy, mod firm - smwt hd, sb blk - sb ply, occ 'ly bld, sm tex, mod calc, scat mica frag 's w/sme alt - chlor, mn carb mat, SLTST: lt - med gy, gy 'ish - dusky yel gn, tr wh, mod hd - firm, sl fri, vf gr, w srt, sb blk, occ sb ply, arg - slty mt, sl calc, com mica par 's, v rr fos frag 's, v rr pale - dul gn spl flor, n stn, n od



MW IN 9.2+9.2 OUT
VIS IN 36/42 OUT

MD 5082'
TVD 5071.76'
INC 1.3°
AZM 317.0°

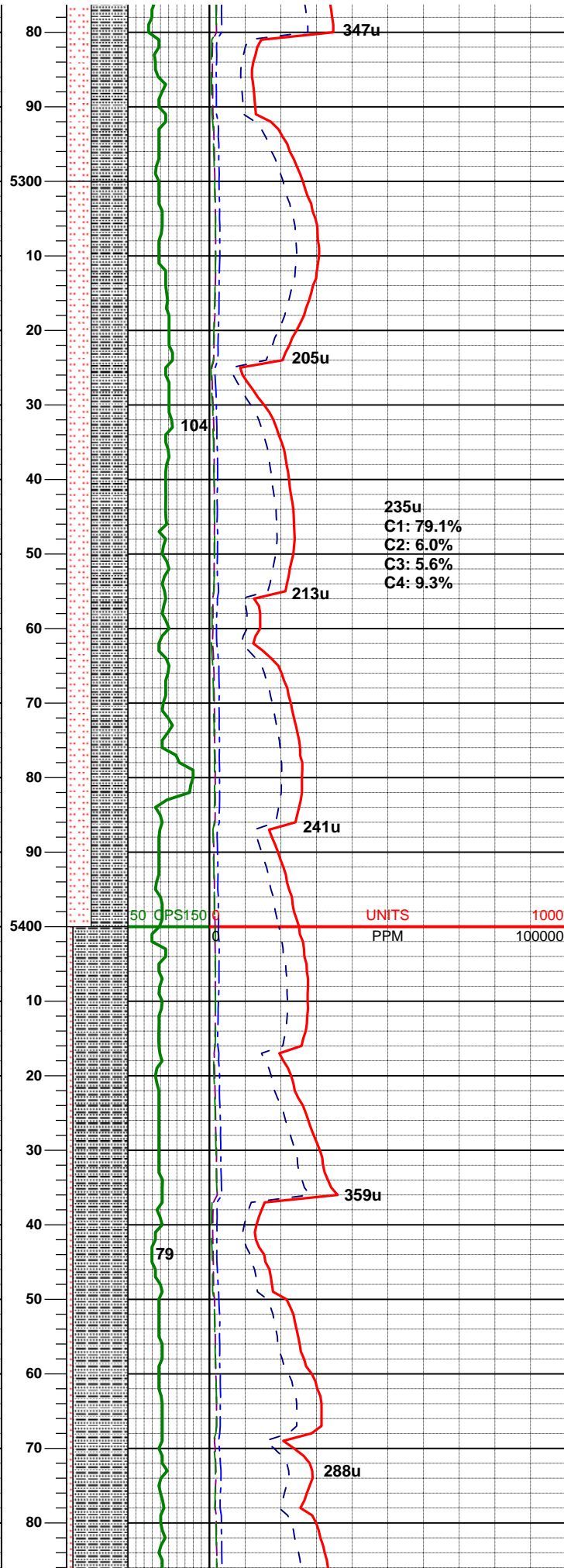
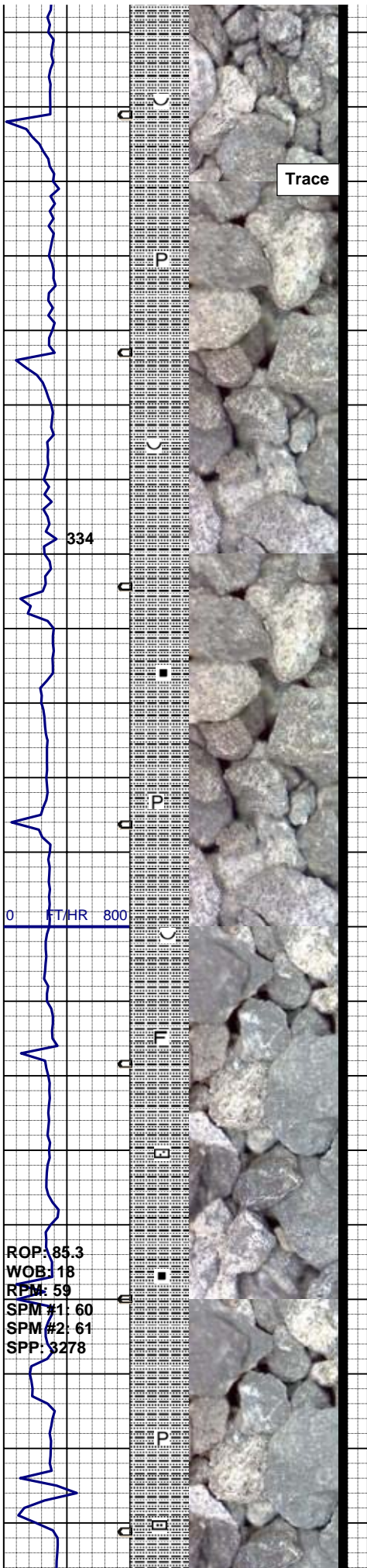
MUD DATA (5130')
WT 9.3
FV 35
PV 8
YP 10
API Fil 16.4
CK 1/32"
% Sol 5.0
Chl 1600
pH 9.1

SLTYSH: lt - mod brn 'ish gy, lt
gy-m gy, lt olv gy, firm, sbplty -
sbbkly, gt tex, slty - arg mtx,
mica, SLTST: lt gy-gy, sdy ip, hd,
bri-smwt fri, vf gr, mod srt,
sbbkly, arg mtx, tr intbd ss, occ
pyr, mica, sl calc ip, v rr fos frag
's, v rr dul gn spl flor, slow.
diffuse v dul bl mky cut, n stn or
od

MD 5177'
TVD 5166.72'
INC 2.0°
AZM 322.1°

MW IN 9.2/9.2 OUT
VIS IN 35/44 OUT

SLTYSH: lt - mod brn 'ish gy, lt
gy-m gy, lt olv gy, firm, sbplty -
sbbkly, gt tex, slty - arg mtx,
mica, SLTST: lt gy-gy, sdy ip, hd,
bri-smwt fri, vf gr, mod srt,
sbbkly, arg mtx, tr intbd ss, rr
dism pyr, mica, sl calc ip, n flor,
slow. diffuse v dul bl mky cut, n
stn or od



MD 5273'
TVD 5262.69'
INC 0.5°
AZM 7.5°

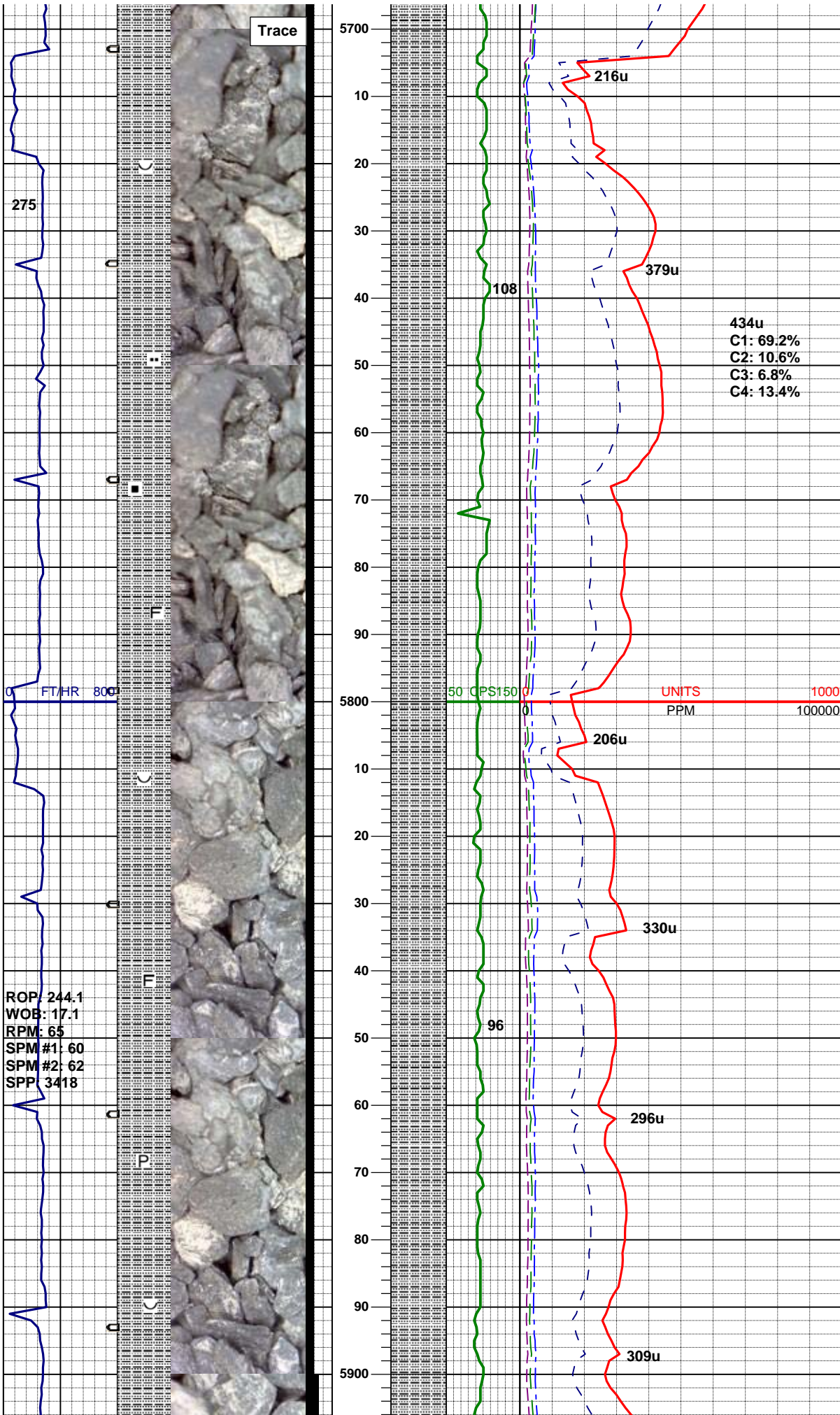
SLTYSH: lt-mod brn 'ish gy, lt - m gn gy, gy 'ish yel gn, pale yel gn, sb hd, brit - fri, sb blk, gt slty tex, arg mtx rthy, v f mica par, SLTST: lt gy - gy, m gn gy, dusky yel gn, hd, vfl - f gr, sb ang - sb rd gr, mod - w srt, smwt sdy, sb blk, sacc tex, arg mtx, tr pyr, mica, v rr glau, v sl calc cmt, v rr lt gn spl flor, quick sl stmg bri mky cut, n stn, n od

MD 5368'
TVD 5357.69'
INC 0.9°
AZM 57.3°

MW IN 9.2/9.3 OUT
VIS IN 40/45 OUT

SLTYSH: lt - mod brn 'ish gy, lt - m gn 'ish gy, gy brn, m lt - m gy, firm, brit - fri, sb ply, arg mtx, slty - sl sdy tex, scat mica frag thru, occ sltst & ss strg 's, tr fos frag 's, tr dism pyr thru, sl calc, n spl flor, n cut, n stn or od

MD 5463'
TVD 5462.67'
INC 1.3°
AZM 55.4°



SLTYSH: lt brn 'ish gy, m lt - m gy, lt olv gy, firm, brit - fri, sb blk - sb plty, gt - slty tex, rthy, sm, arg mtx, rr v f mica par 's, rr sltst strg 's, sme v thn lam bdg, p fis, v loc sacc tex, tr dism pyr w/ sme mnv vn 'ing, v sl calc, v rr fos frag, rr lt gn spl flor, v sl stmg slow. brn 'ish - gn 'ish mky wh cut, n stn n od

MD 5748'
TVD 5737.59'
INC 1.7°
AZM 97.8°

Minor Clay Content
Highly Soluble

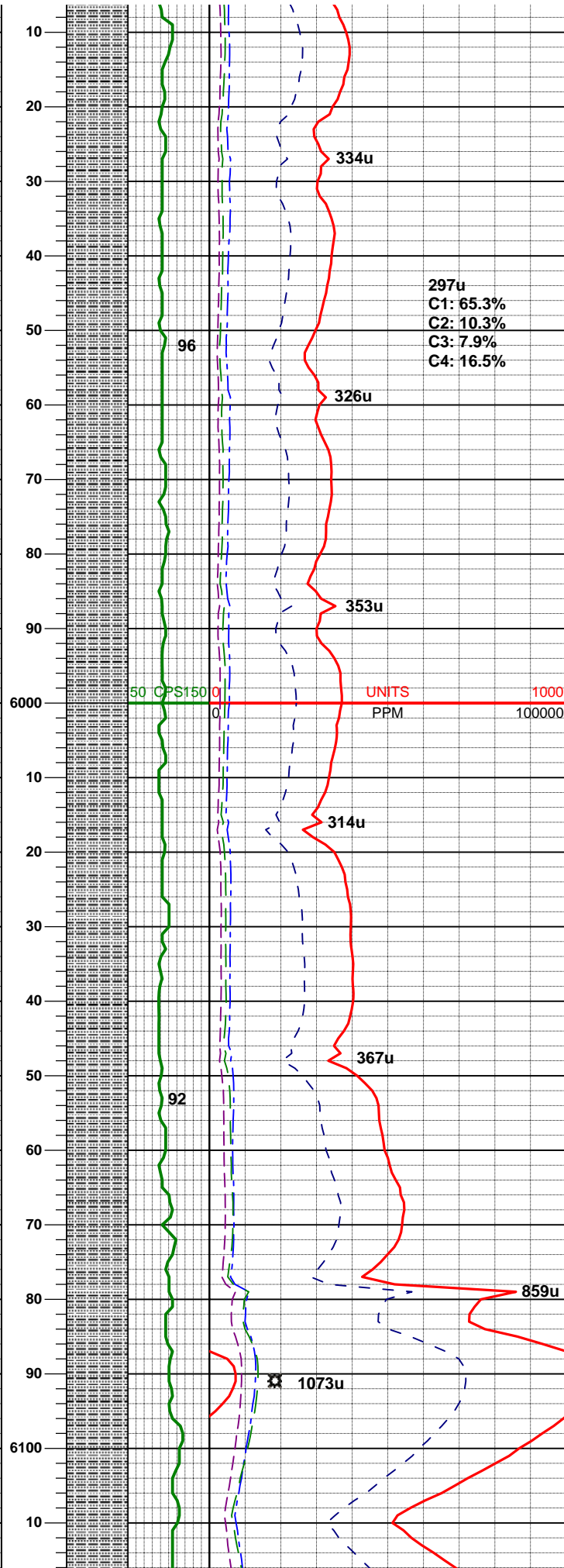
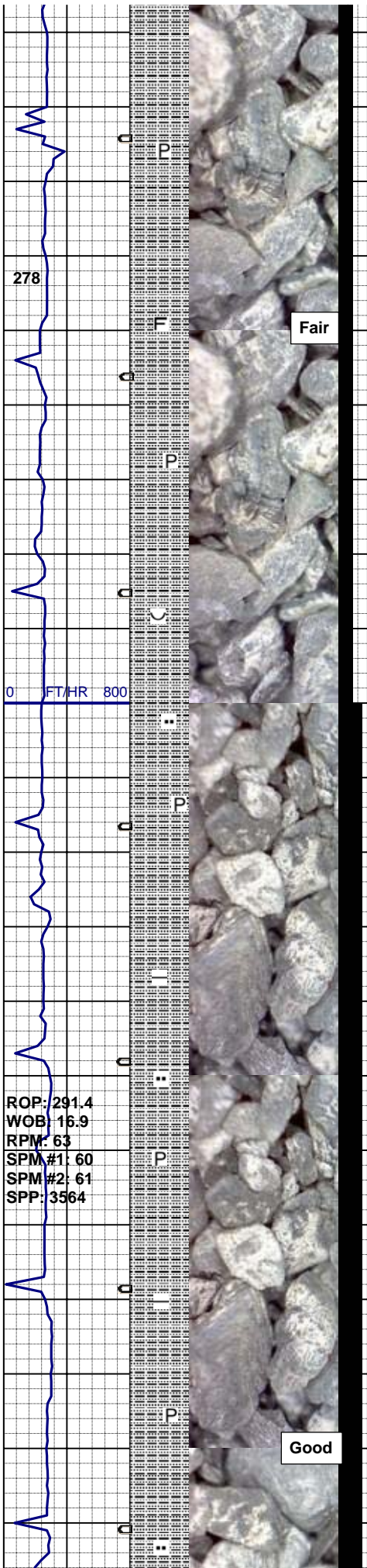
MW IN 9.4/9.3 OUT
VIS IN 44/46 OUT

MD 5843'
TVD 5832.56'
INC 1.1°
AZM 148.3°

SLTYSH: mod brn 'ish gy, m lt - m gy, olv gy, sb firm - firm, brit - fri, sb blk - sb plty, gt - slty tex, rthy, sm, arg mtx, rr v f mica par 's, v rr sltst strg 's, scat dism pyr w/ sme mnv vn 'ing, v wk 'ly - non calc, v rr fos frag, n spl flor, v sl stmg v slow. brn 'ish - gn 'ish mky wh cut, n stn n od

MW IN 9.3+/9.3 OUT
VIS IN 40/45 OUT

Very Slight Clay Content



Highly Soluble

MD 5938'
TVD 5927.55'
INC 1.1°
AZM 139.0°

SLTYSH: mod brn 'ish gy, m lt - m gy, olv gy, sb firm - firm, brit - fri, sb blkly - sb plty, gt - slty tex, rthy, sm, arg mtx, rr v f mica par 's, v rr sltst strg 's, scat dism pyr w/ sme mnv vn 'ing, v wk 'ly - non calc, v rr fos frag, n spl flor, v sl stmg v slow. brn 'ish - gn 'ish mky wh cut, n stn n od

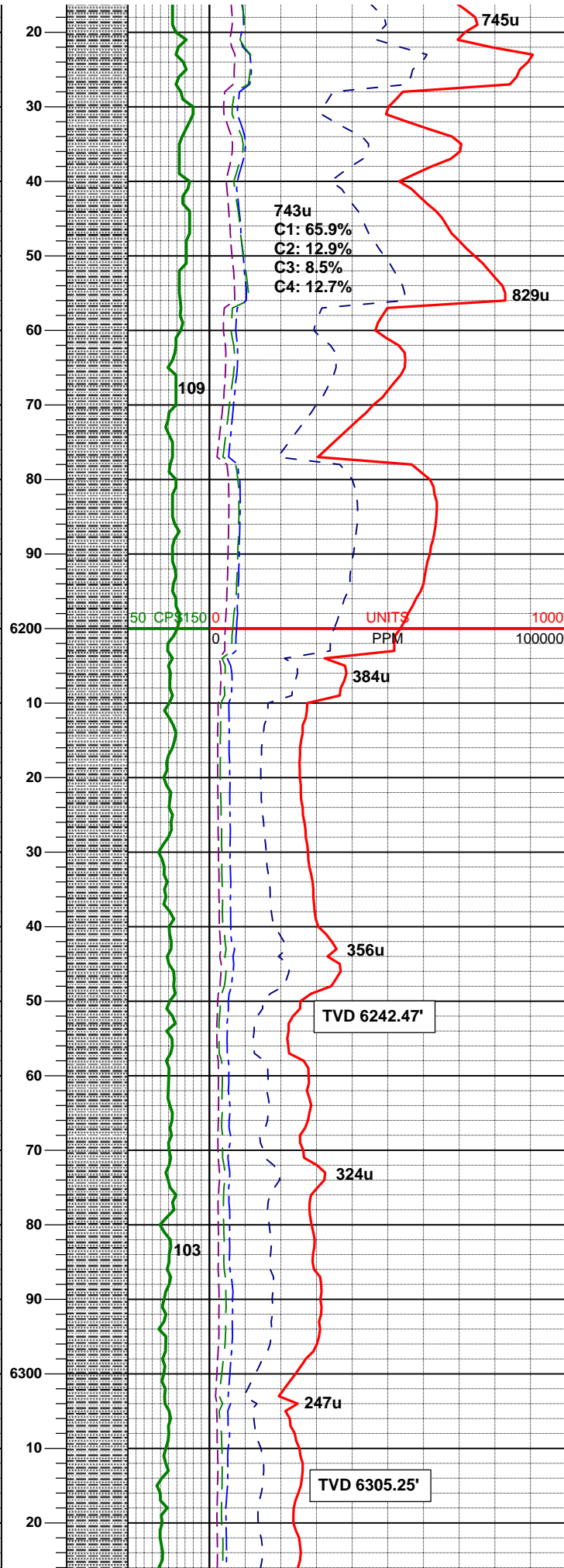
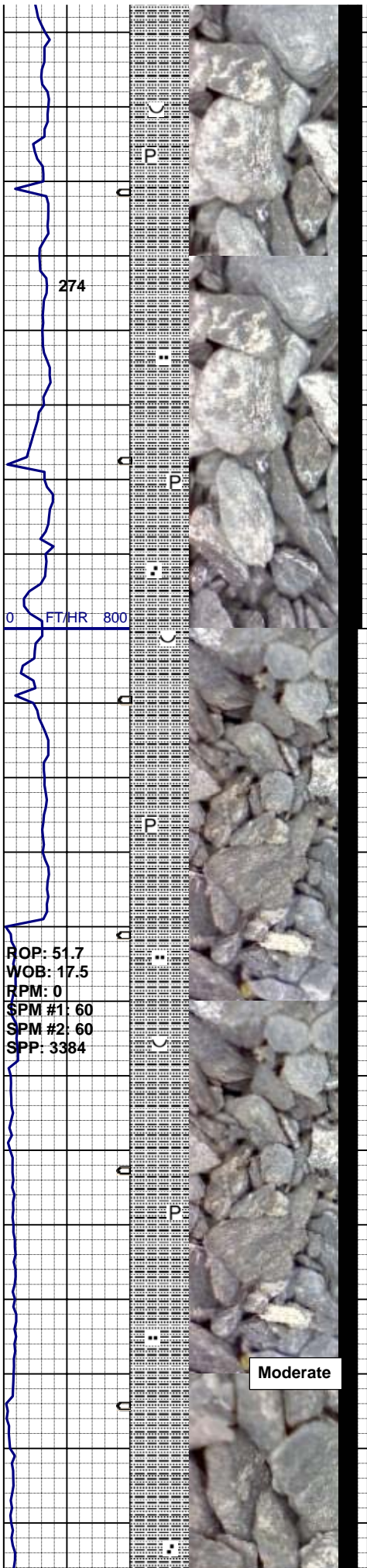
MW IN 9.4/9.4 OUT
VIS IN 40/47 OUT

MD 6032'
TVD 6021.53'
INC 1.1°
AZM 149.0°

SLTYSH: mod brn 'ish gy, olv gy, lt - m gn 'ish gy, m lt - m gy, sb firm - firm, brit - fri, sb blkly - sb plty, occ 'ly bld, slty tex, rthy, sm, arg mtx, hom overall, v thn 'ly lam ip, p 'ly fis, rr v f mica par 's, scat dism pyr w/ sme mnv vn 'ing, v wk 'ly - non calc, n spl flor, sl stmg fast mod mky wh cut, n stn n od

MW IN 9.5+/9.4 OUT
VIS IN 39/50 OUT

Teepee Buttes Logger Top
~6116' MD / ~6079.52' TVD



MD 6127'
TVD 6116.51'
INC 1.4°
AZM 164.8°

SLTYSH: mod brn 'ish gy, olv gy, lt - m gn 'ish gy, m lt - m gy, sb firm - firm, brit - fri, sb blkly - sb plty, mod 'ly slty tex, rthy, sl arg mtx, mod 'ly hom overall, v thn 'ly lam ip, p 'ly fis, scat sltst & vf ss strg 's, rr v f mica par 's, scat dism pyr w/ sme mnr vn 'ing, v wk 'ly - non calc, n spl flor, sl stmg fast mod mky wh cut, n stn n od

MD 6221'
TVD 6210.49'
INC 0.9°
AZM 170.2°

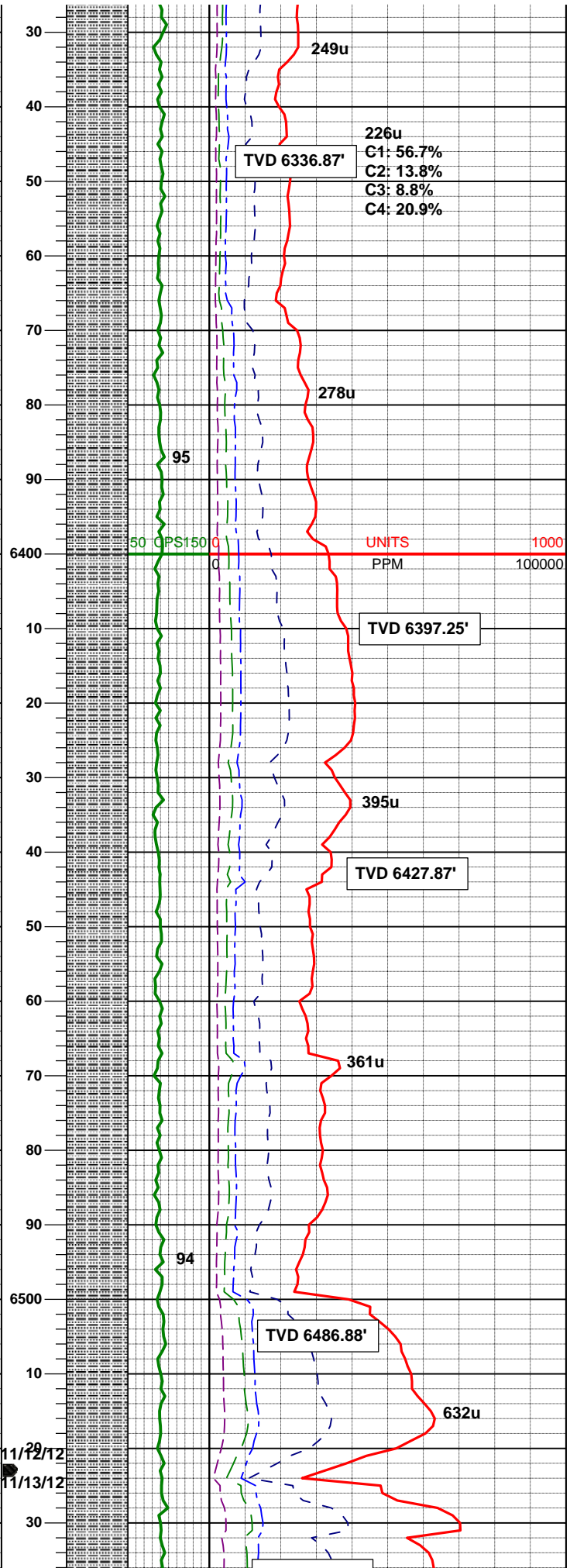
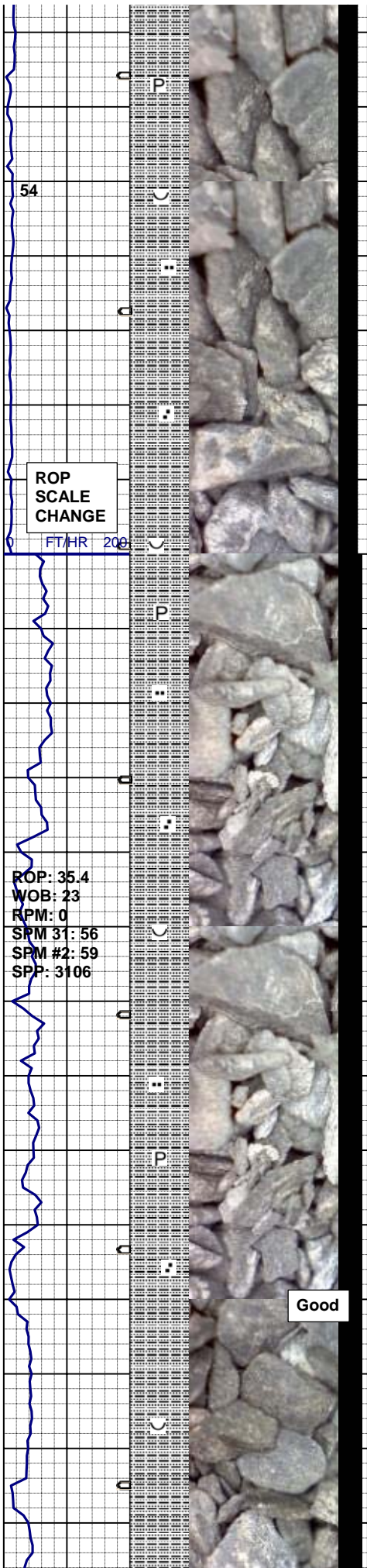
MW IN 9.5/9.4+ OUT
VIS IN 40/50 OUT

Start 8° build

SLTYSH: m brn gy, mlt - m gy - olv gy, sb firm - firm, occ mod sft, brit - fri, sb blkly - sb plty, mod slty tex, rthy, sl arg mtx, hom - occ thn lam ip, p fis, tr scat sltst & vf gr ss strg, rr vf mica par, scat dism pyr, vwk calc, n spl flor, sl stmg fast, mod mky wh cut, n stn, n od

MD 6284'
TVD 6273.42'
INC 4.4°
AZM 173.2°

MUD DATA (6300')
WT 9.4
FV 43
PV 12
YP 15
API Fil 9.2
CK 1/32"
% Sol 7.45
Chl 1600
SH 8.4



SLTYSH: m brn gy, mlt - m gy, mlt olv gy, sb firm - firm, occ mod sft, brit - fri, sb blk - sb plty, mod slty tex, rthy, sl arg mtx, hom - occ thn lam ip, p fis, tr scat sltst & vf gr ss strg, rr vf mica par, scat dism pyr, vwlc calc, fnt yel gn spl flor, sl stmg fast, mod mky wh cut, n stn, n od

MD 6379'
TVD 6367.22'
INC 12.9°
AZM 178.7°

MW IN 9.9/9.7 OUT
VIS IN 40/46 OUT

SLTYSH: m brn gy, mlt - m gy, mlt olv gy, sb firm - firm, occ mod sft, brit - fri, sb blk - sb plty, slty tex, rthy, sl arg mtx, hom - occ thn lam ip, p fis, sme scat sltst & fgr ss strg, rr vf mica par, scat dism pyr, vwlc - non calc, fnt yel gn spl flor, sl stmg fast, mod mky wh cut, n stn, n od

MD 6474'
TVD 6458.08'
INC 20.40°
AZM 185.00°

MW IN 9.8/9.8 OUT
VIS IN 40/46 OUT

