

COLUMBINE LOGGING

Scale: 5" / 100'
Measured Depth Log

Well Name Heartland C30-79HN

Location SESE SEC25 T4N R65W

State COLORADO

County WELD

Country USA

Rig Number PRECISION 828

API Number 05-123-39556

AFE # 200367

Region DENVER-JULESBURG BASIN

Field WATTENBERG

Spud Date 8/9/2014

Drilling Completed 8/21/2014

Surface Coordinates 282' FSL, 343' FEL

Lat/Long: 40.27673/-104.60356

Ground Elevation 4844'

K.B. Elevation 4860'

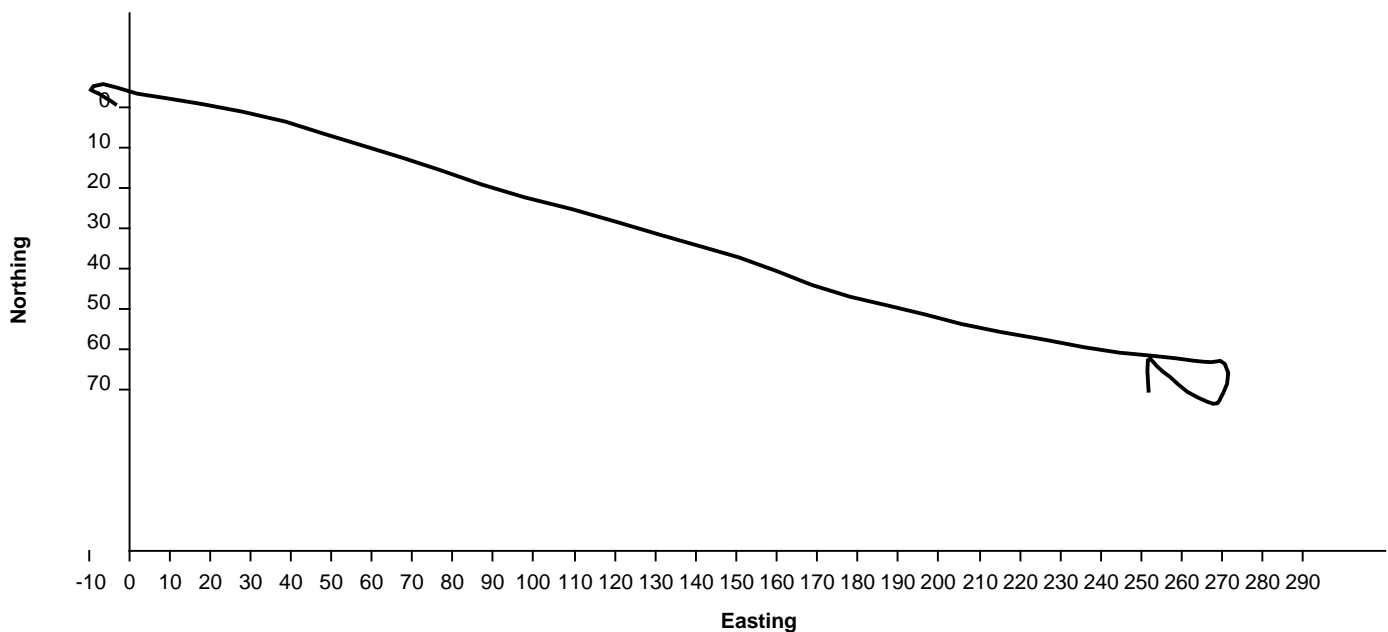
Logged Interval 723' **To** 6400'

Total Depth 16659'

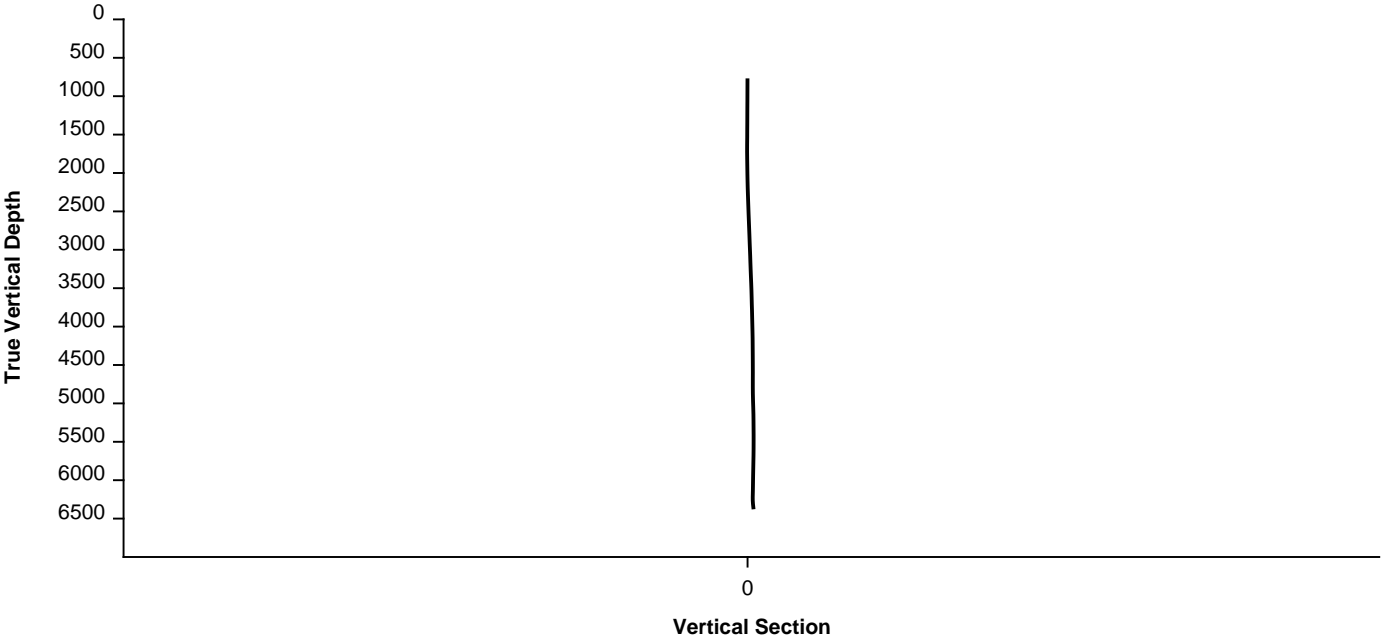
Formation FOX HILLS, PIERRE (PARKMAN, SUSSEX, SHANNON, TEEPEE BUTTES)

Type of Drilling Fluid FRESH WATER, LSND

Survey Plan



Survey Elevation




Other

WELLSITE GEOLOGISTS: GARY MYERS, ELIZABETH VAN DIEPEN
LOG CONTINUES ON FILE: Heartland C30-79HN Horiz.mplot
GEOLOGICAL SERVICES PROVIDED BY COLUMBINE LOGGING, INC.

Operator

Company NOBLE ENERGY INC.
Address 1625 Broadway
Denver, CO 80202



Rock Types

 SANDSTONE  SHALY SANDSTONE  SHALY SILTSTONE  SILTY SHALE

Geologist

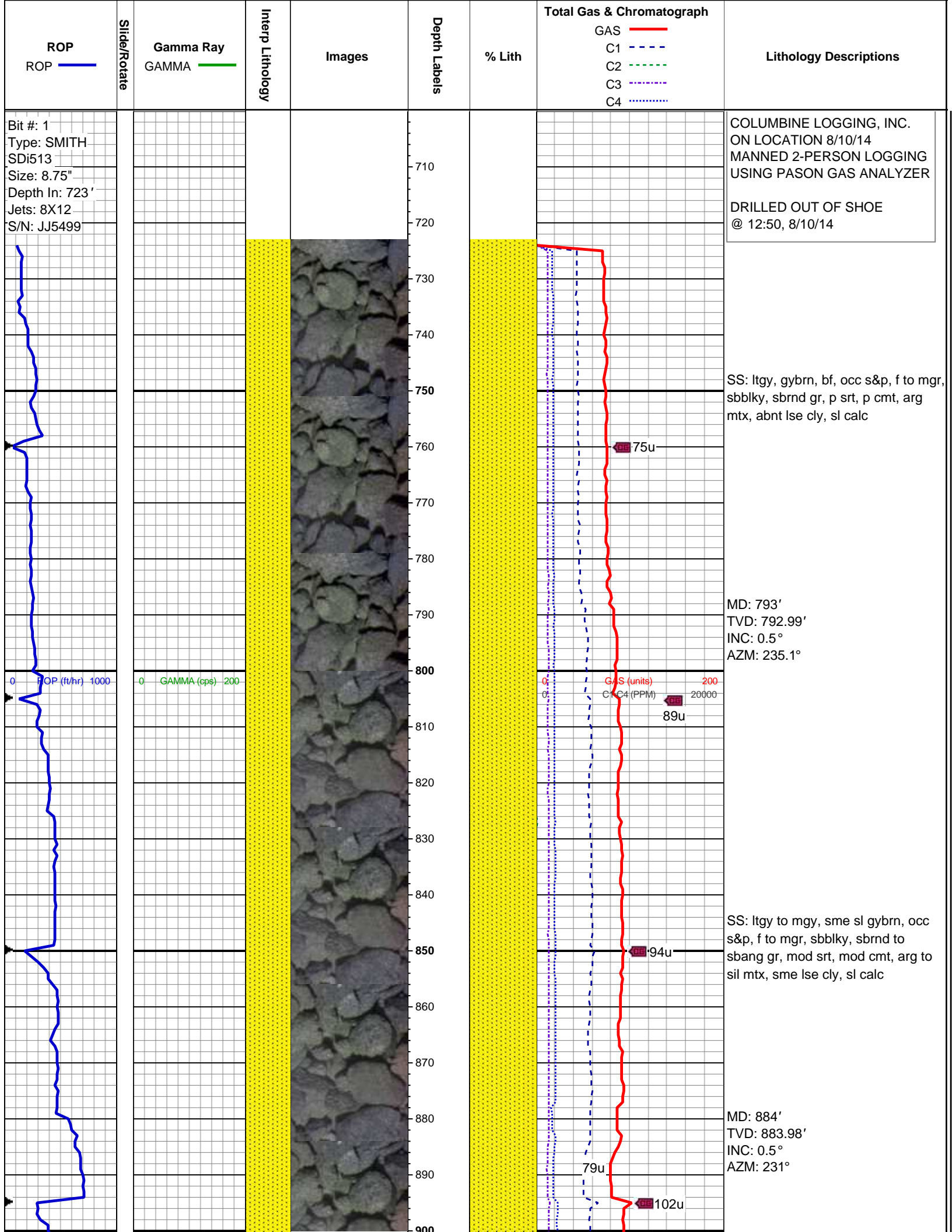
Name MELANIE PETERSON
Company NOBLE ENERGY, INC.

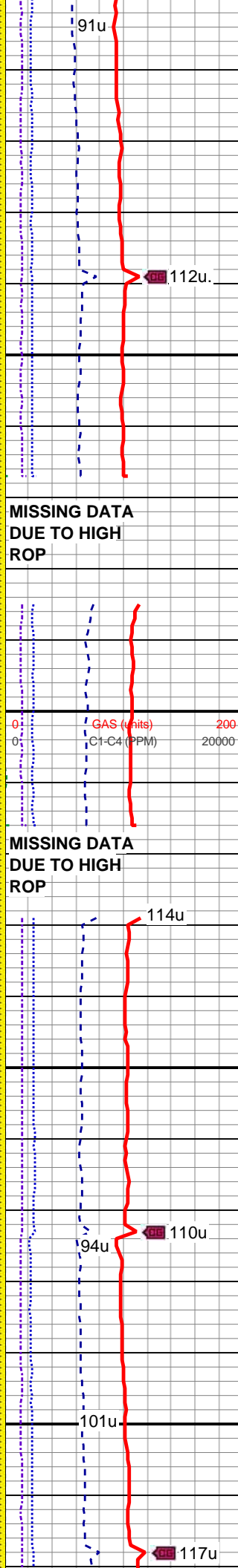
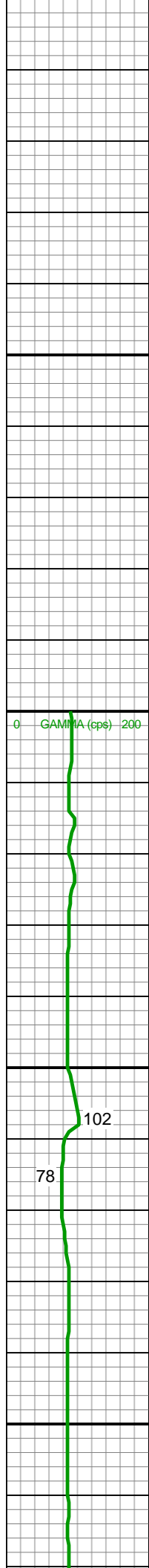
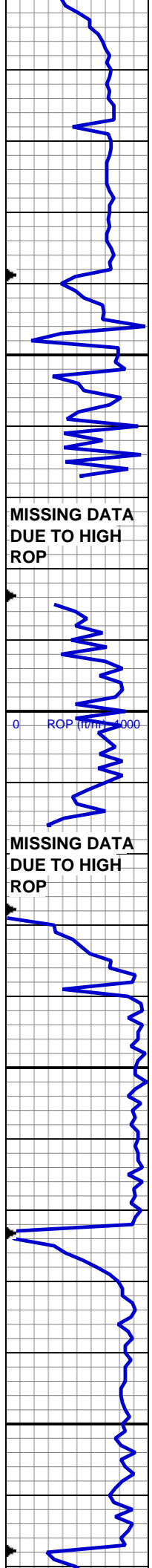
Other Symbols

Engineering
 CONNECTION (RIGHT)
 CONNECTION GAS

Address 1625 Broadway
Denver, CO 80202

 CONNECTION GAS
 MINDEPTH MN DEPTH



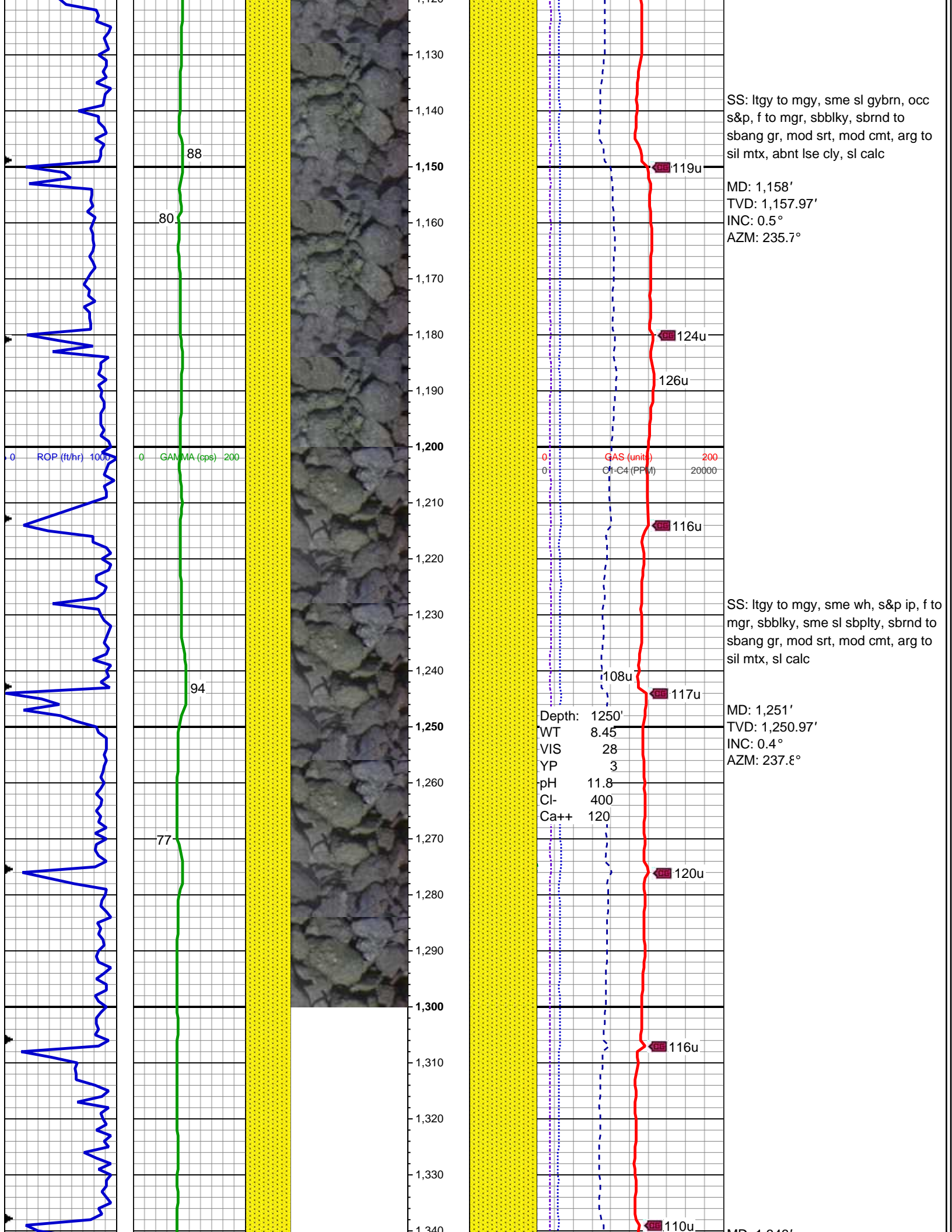


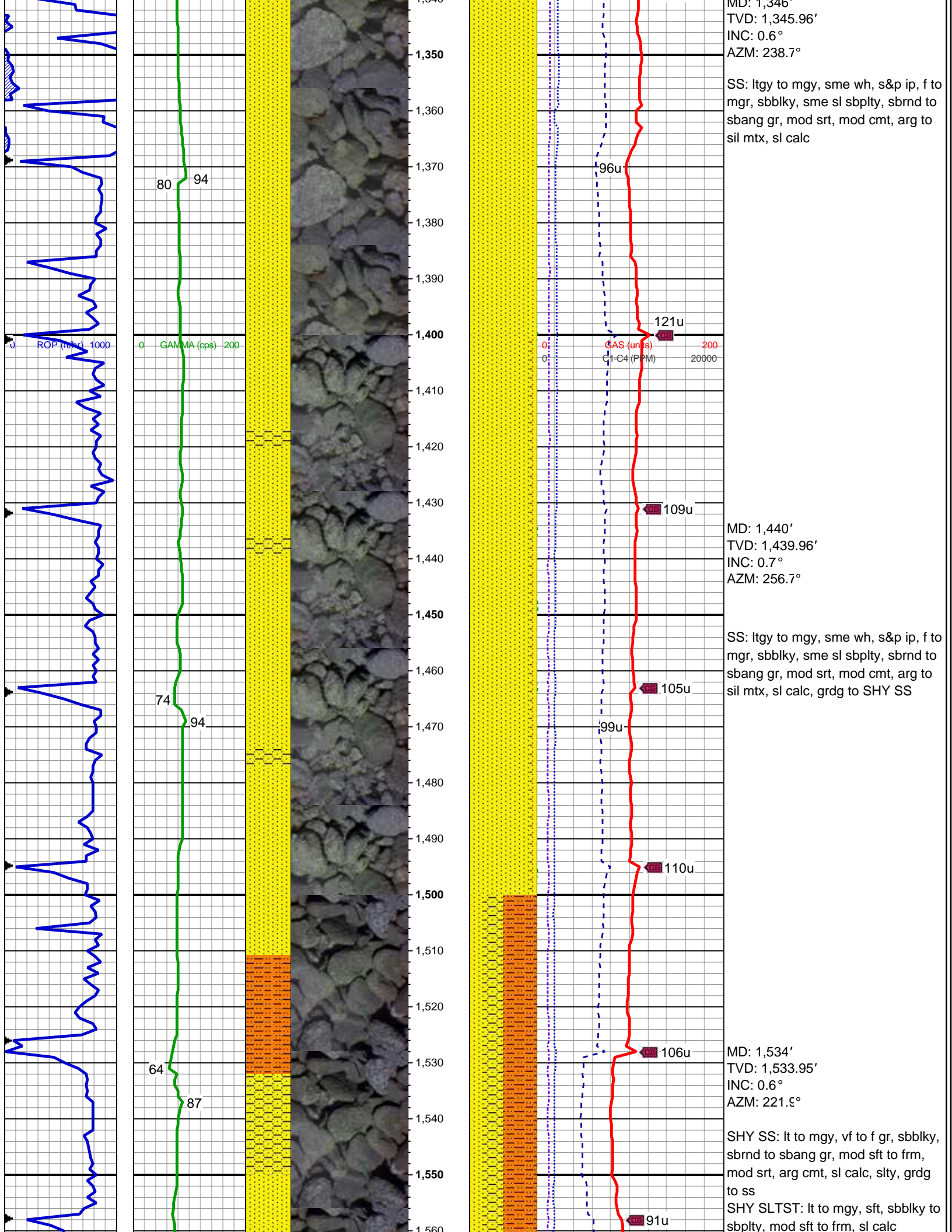
SS: ltgy to mgy, sme sl gybrn, occ s&p, f to mgr, sbblky, sbrnd to sbang gr, mod srt, mod cmt, arg to sil mtx, sme lse cly, sl calc

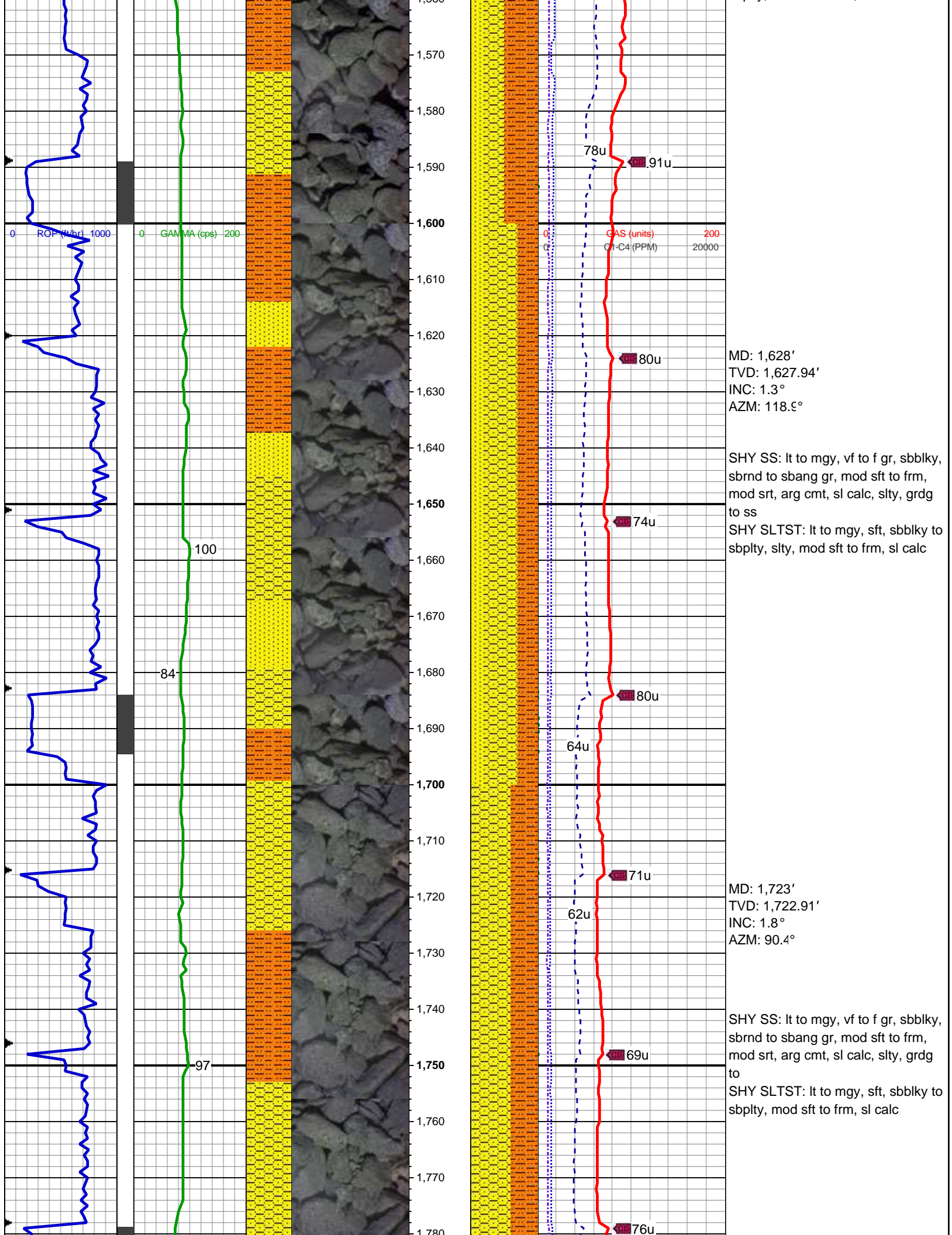
MD: 973'
TVD: 972.98'
INC: 0.5°
AZM: 241.5°

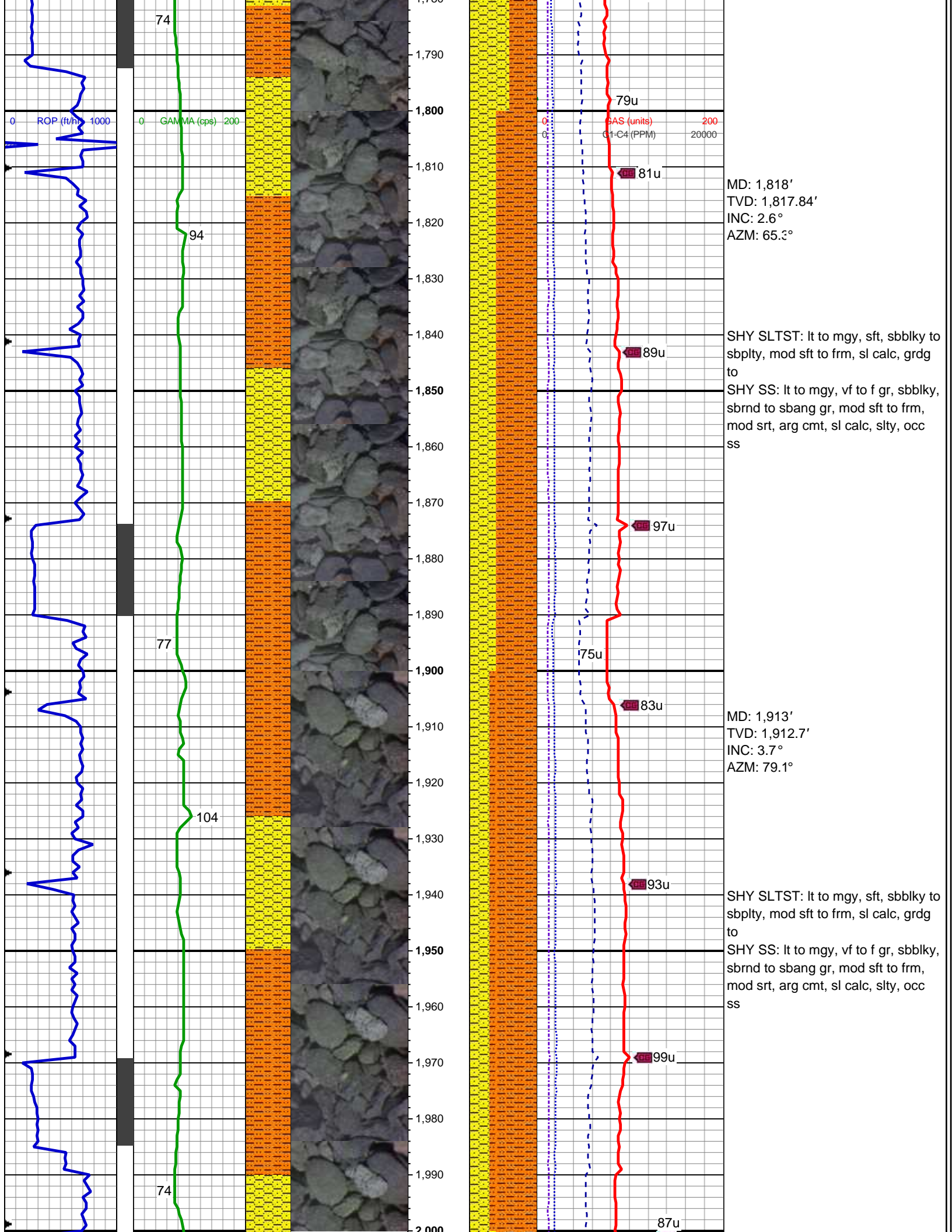
SS: ltgy to mgy, sme sl gybrn, occ s&p, f to mgr, sbblky, sbrnd to sbang gr, mod srt, mod cmt, arg to sil mtx, abnt lse cly, sl calc

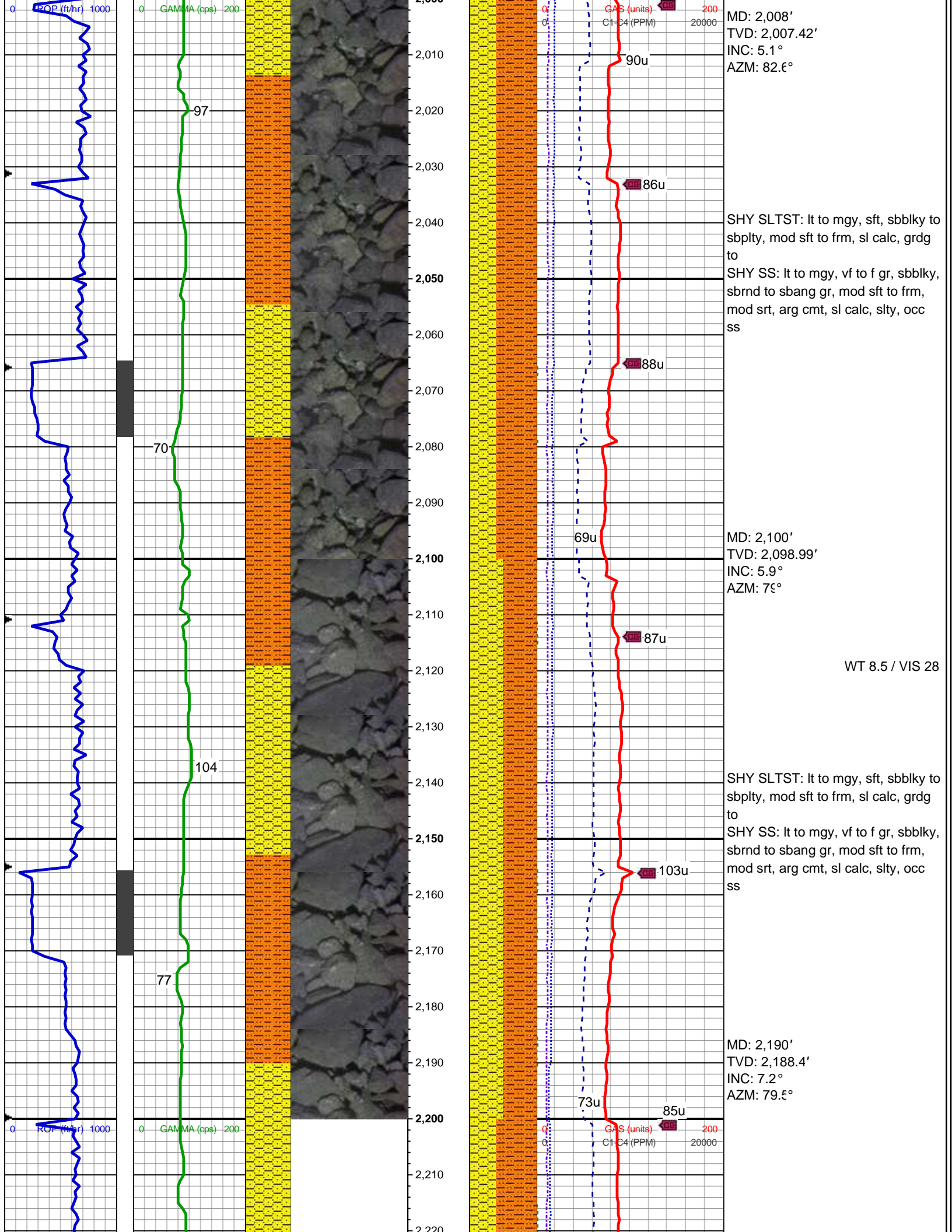
MD: 1,063'
TVD: 1,062.98'
INC: 0.6°
AZM: 240.5°

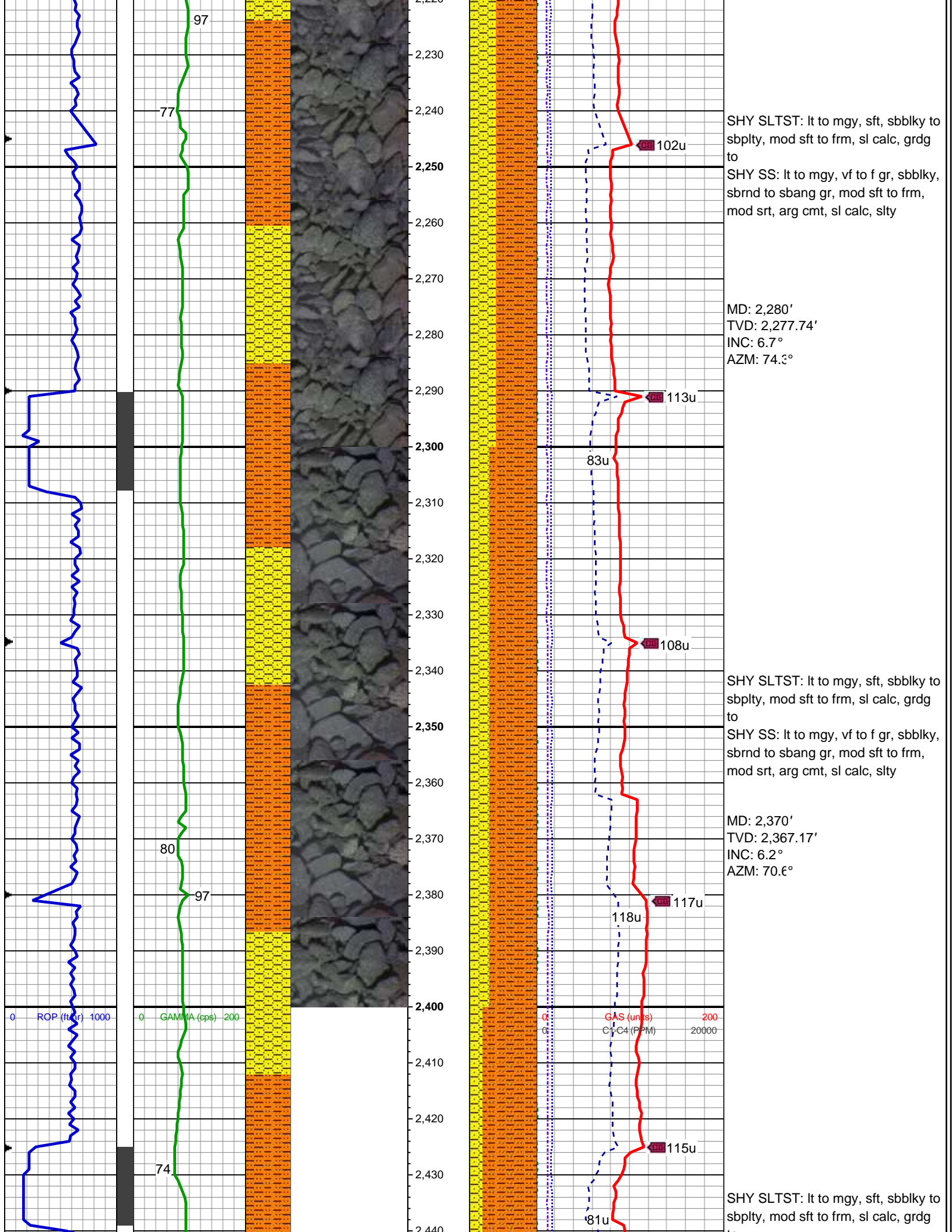


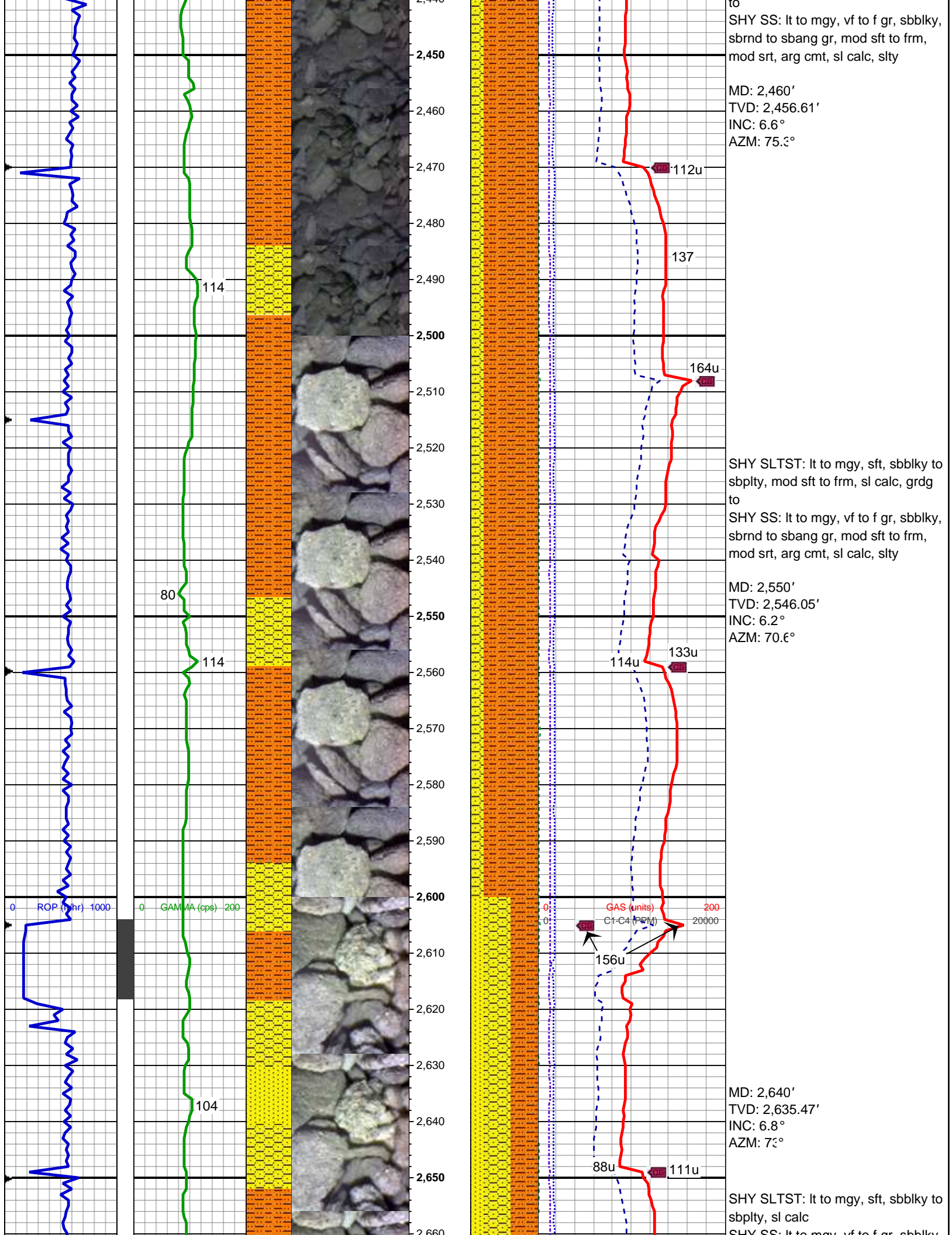


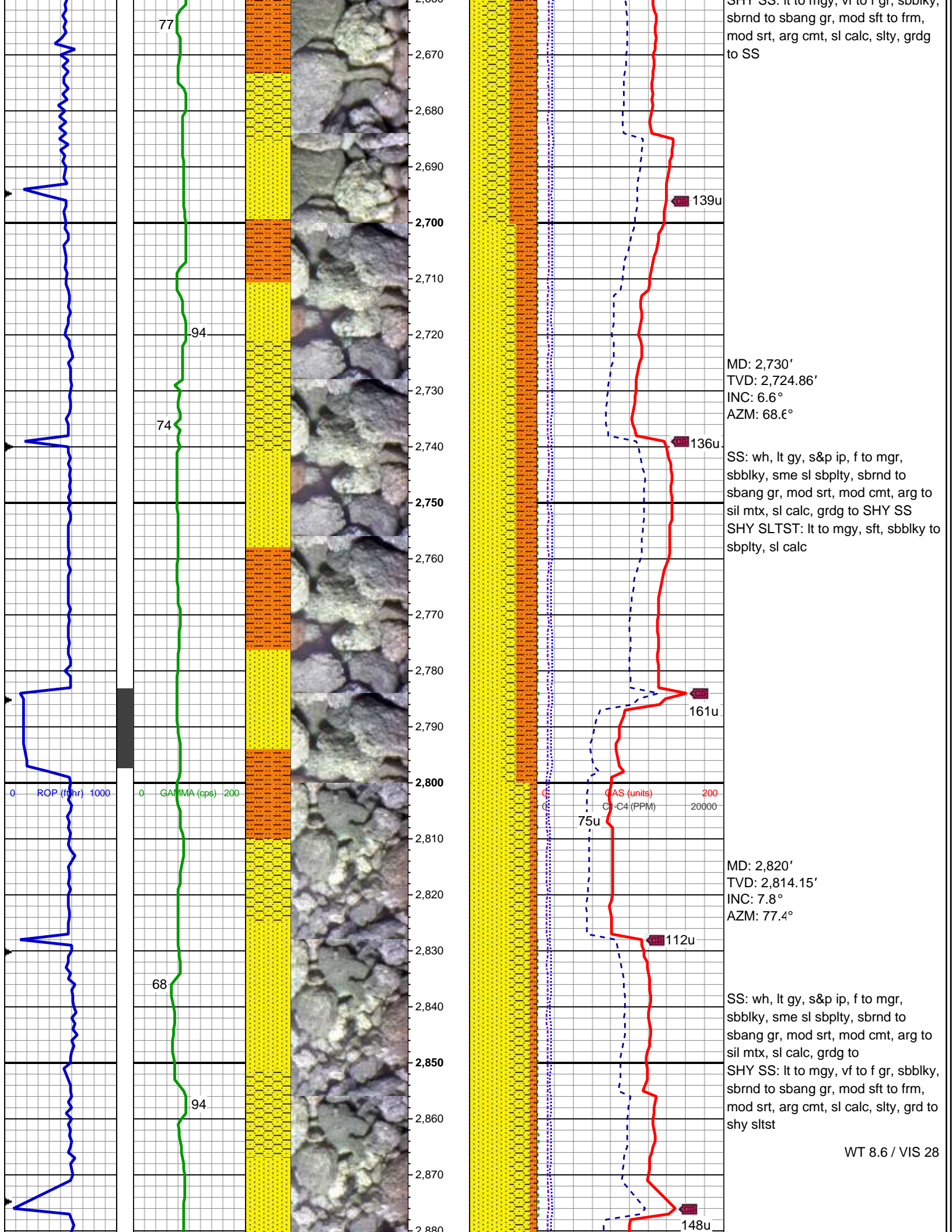


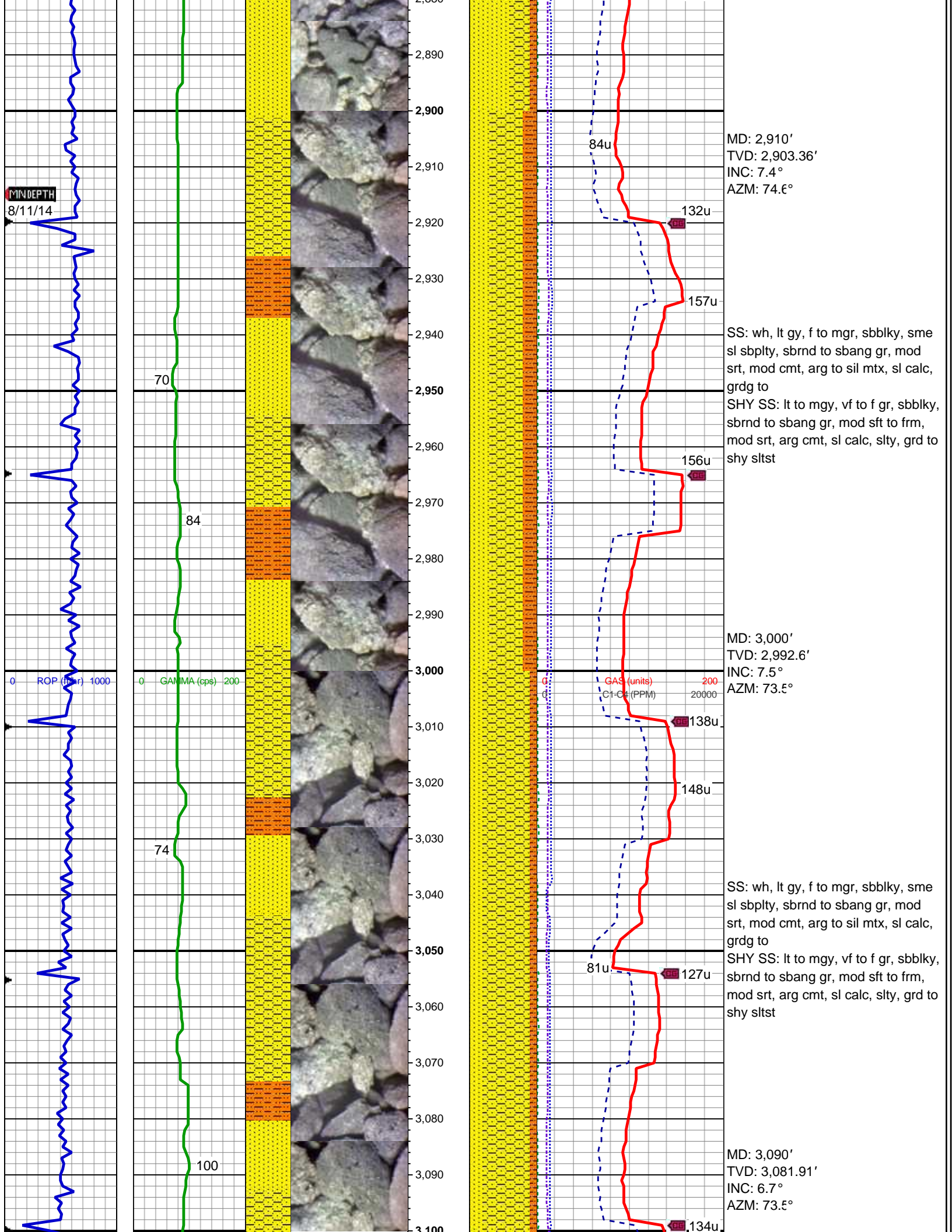


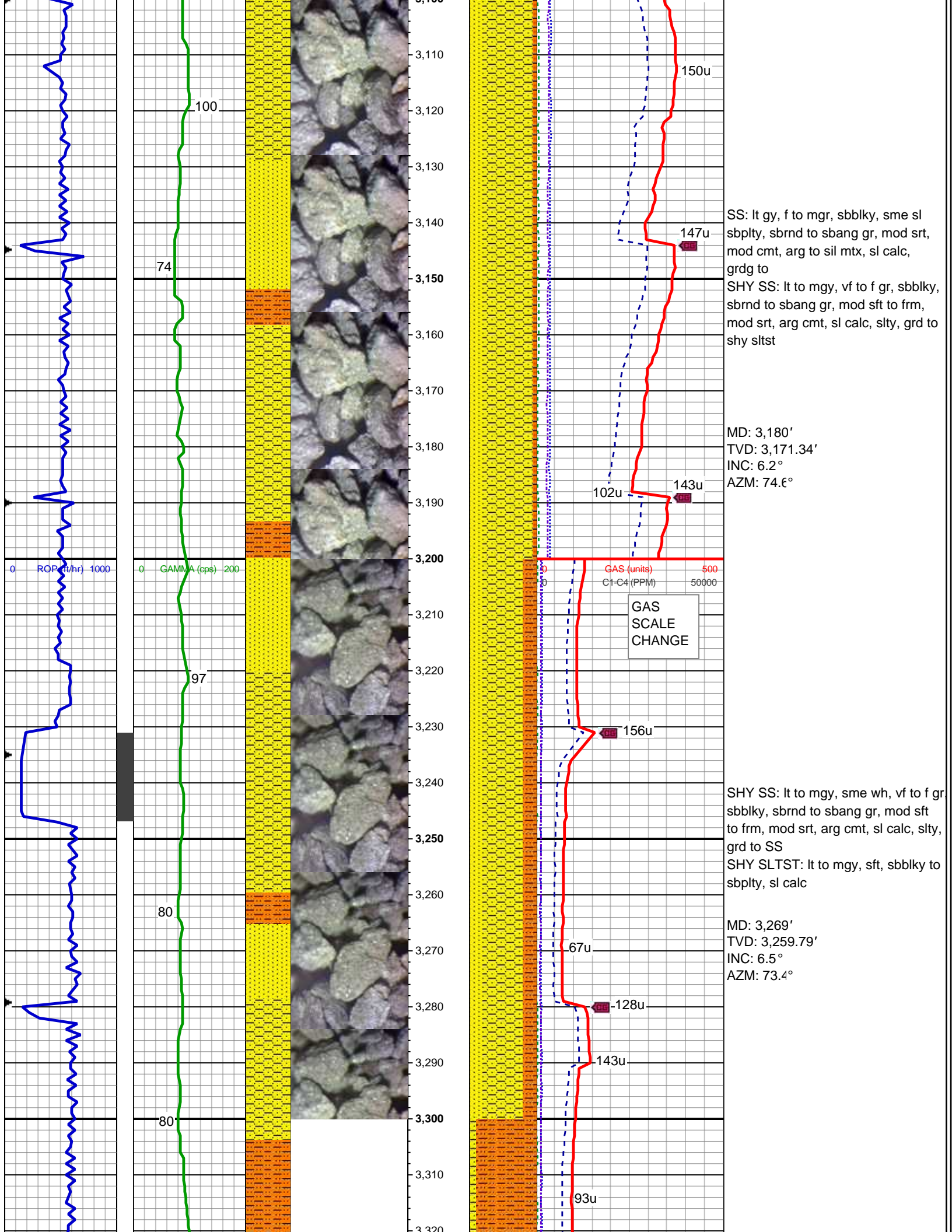


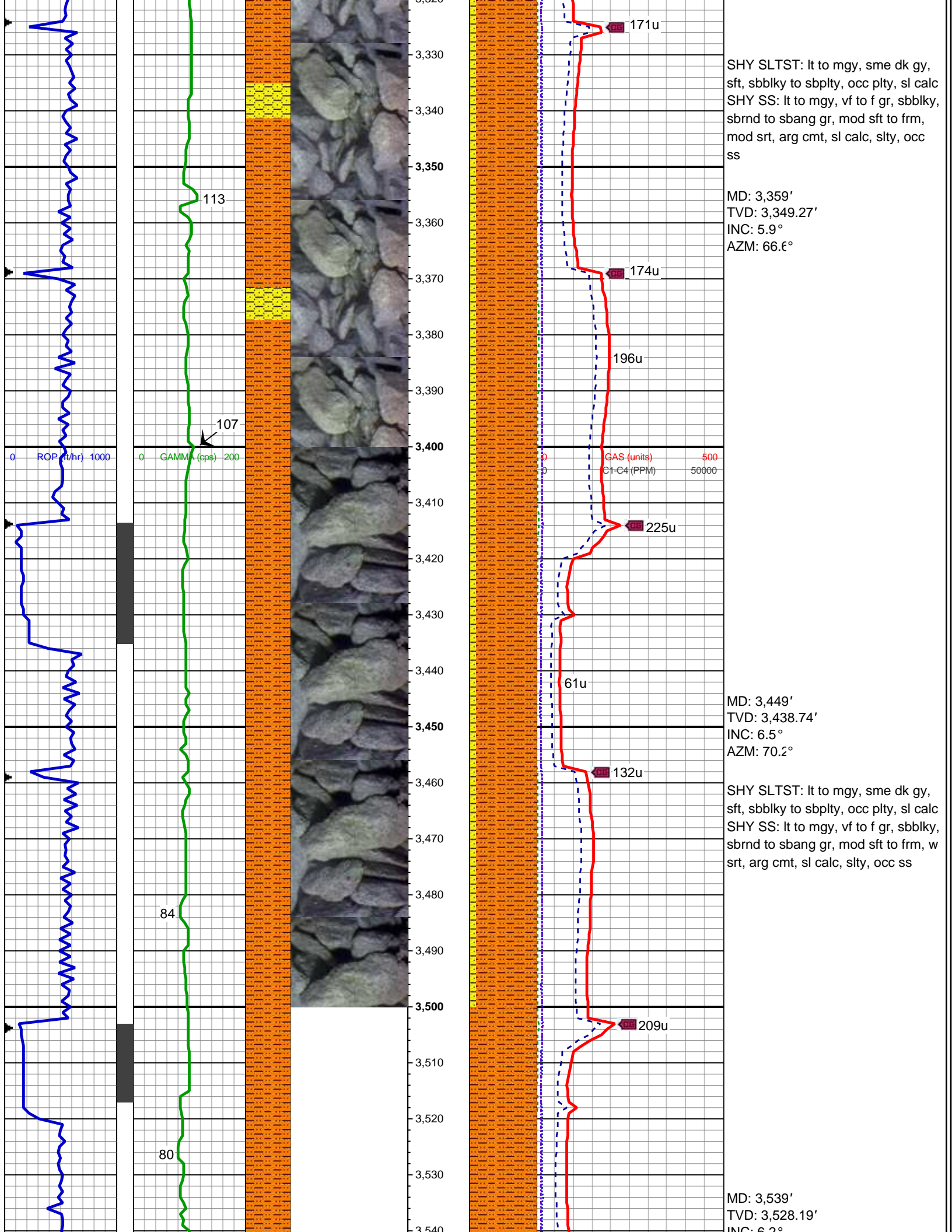


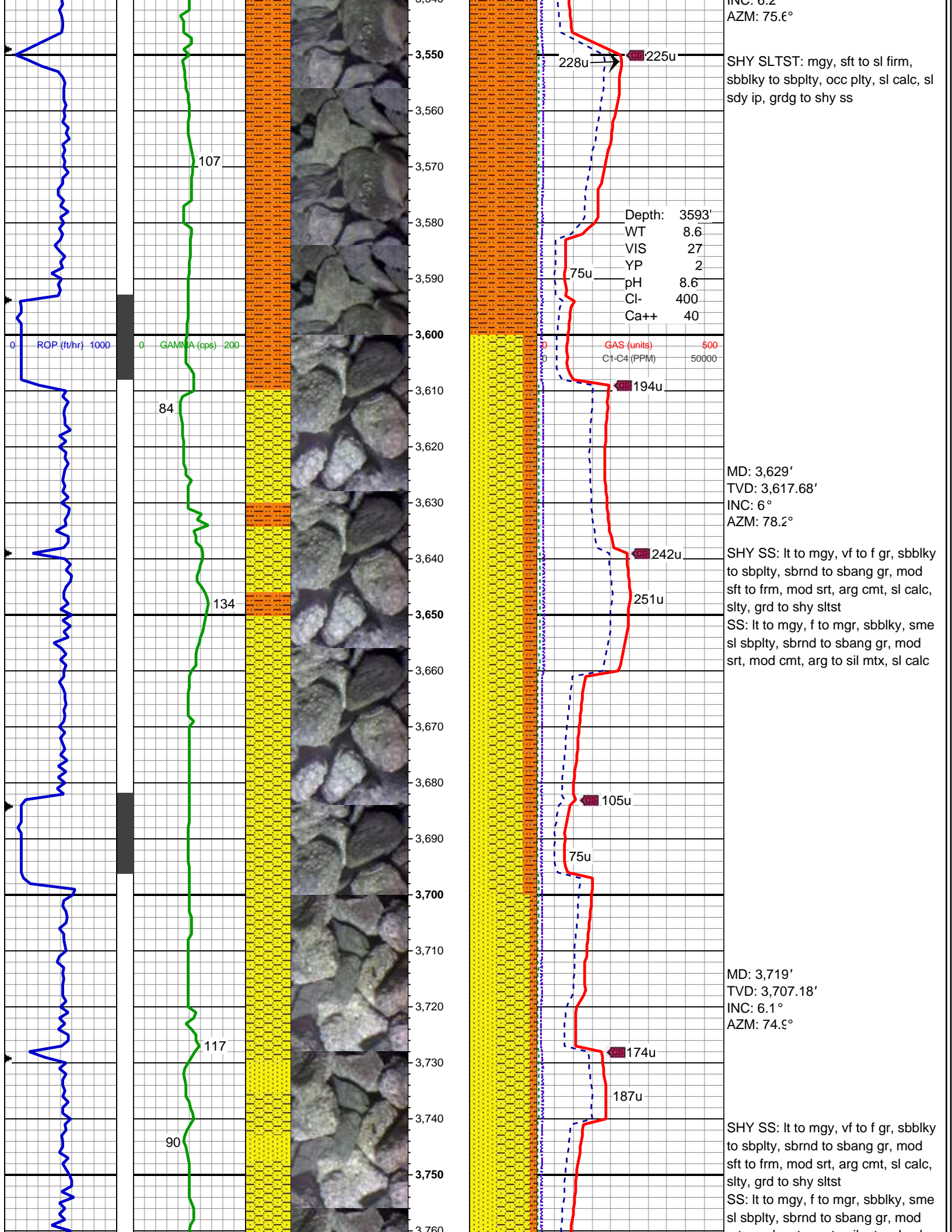


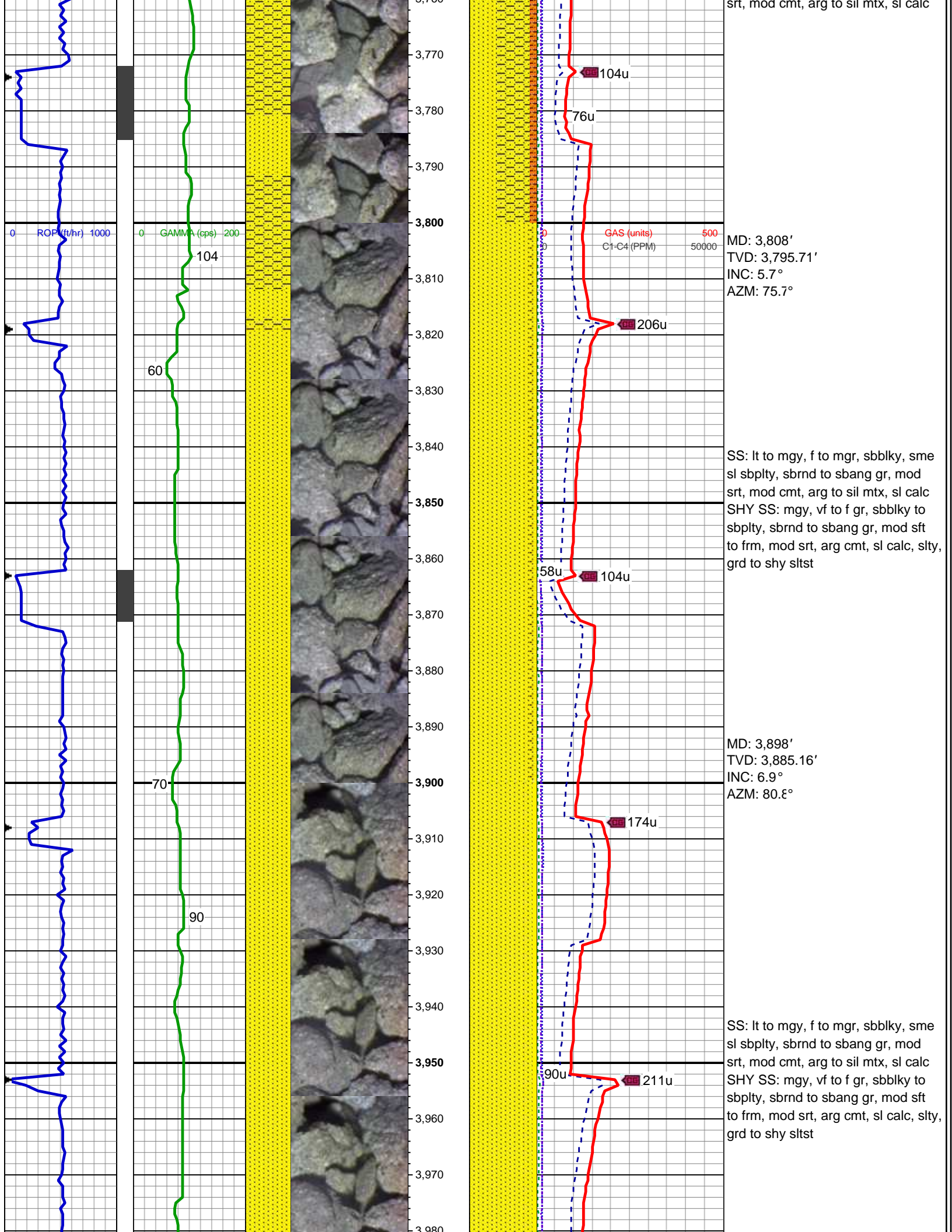


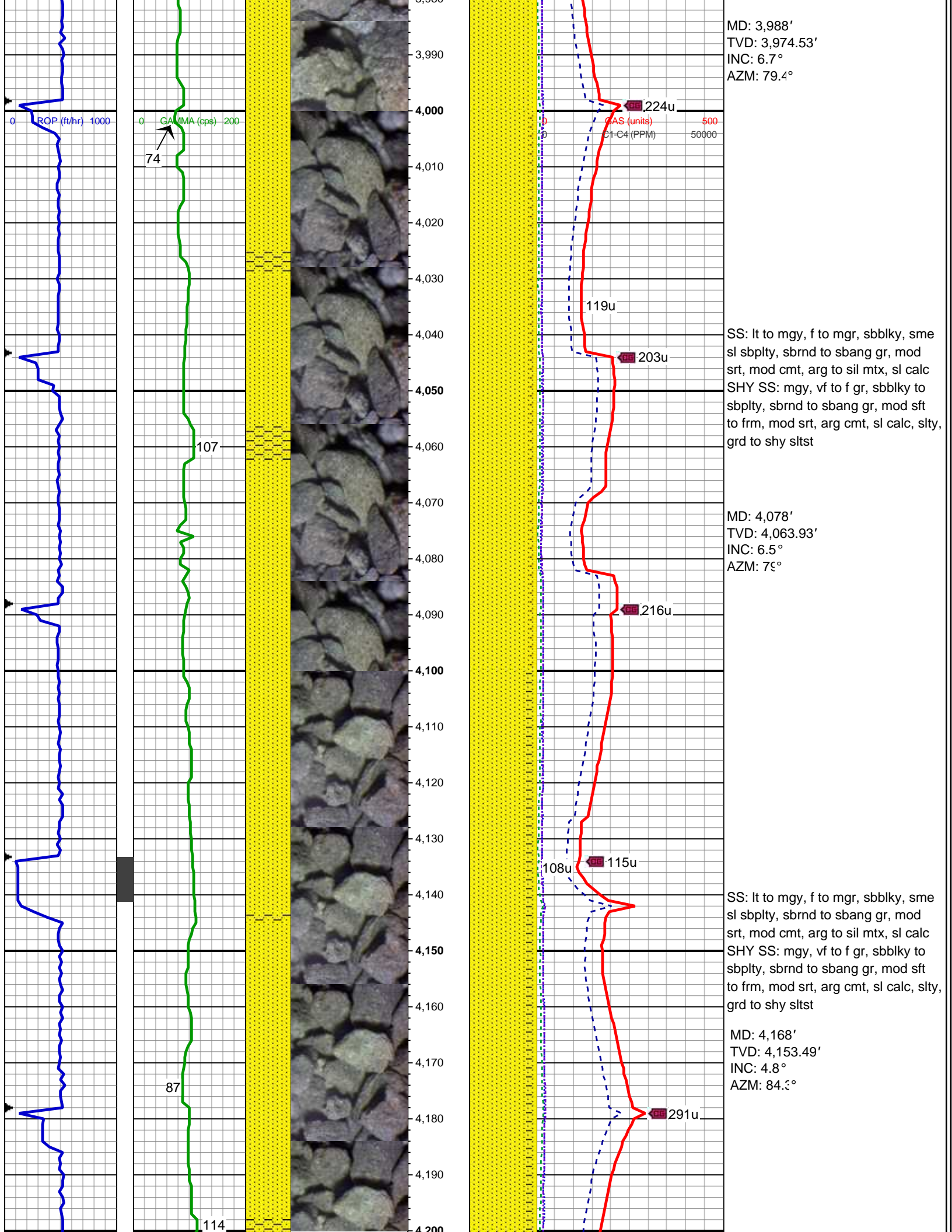


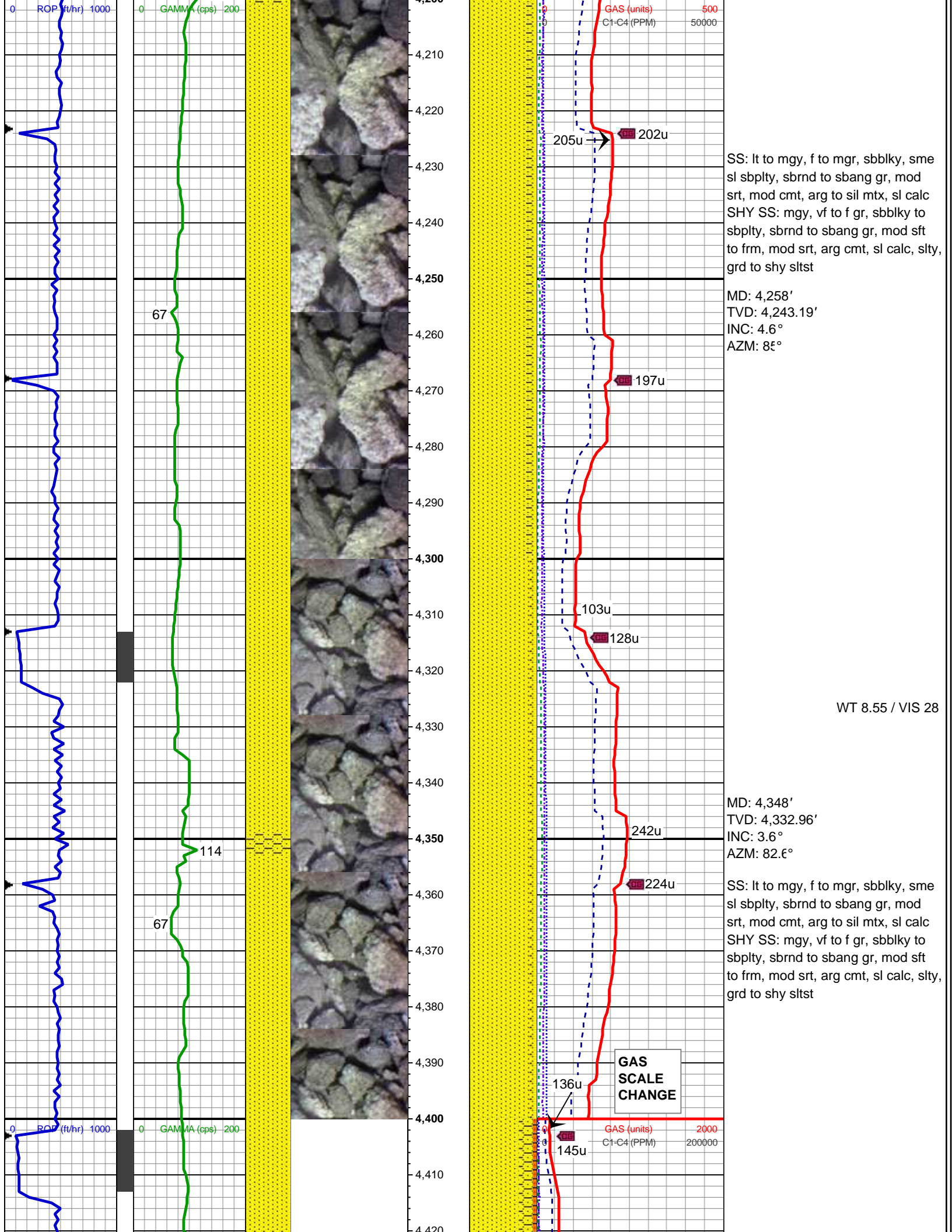


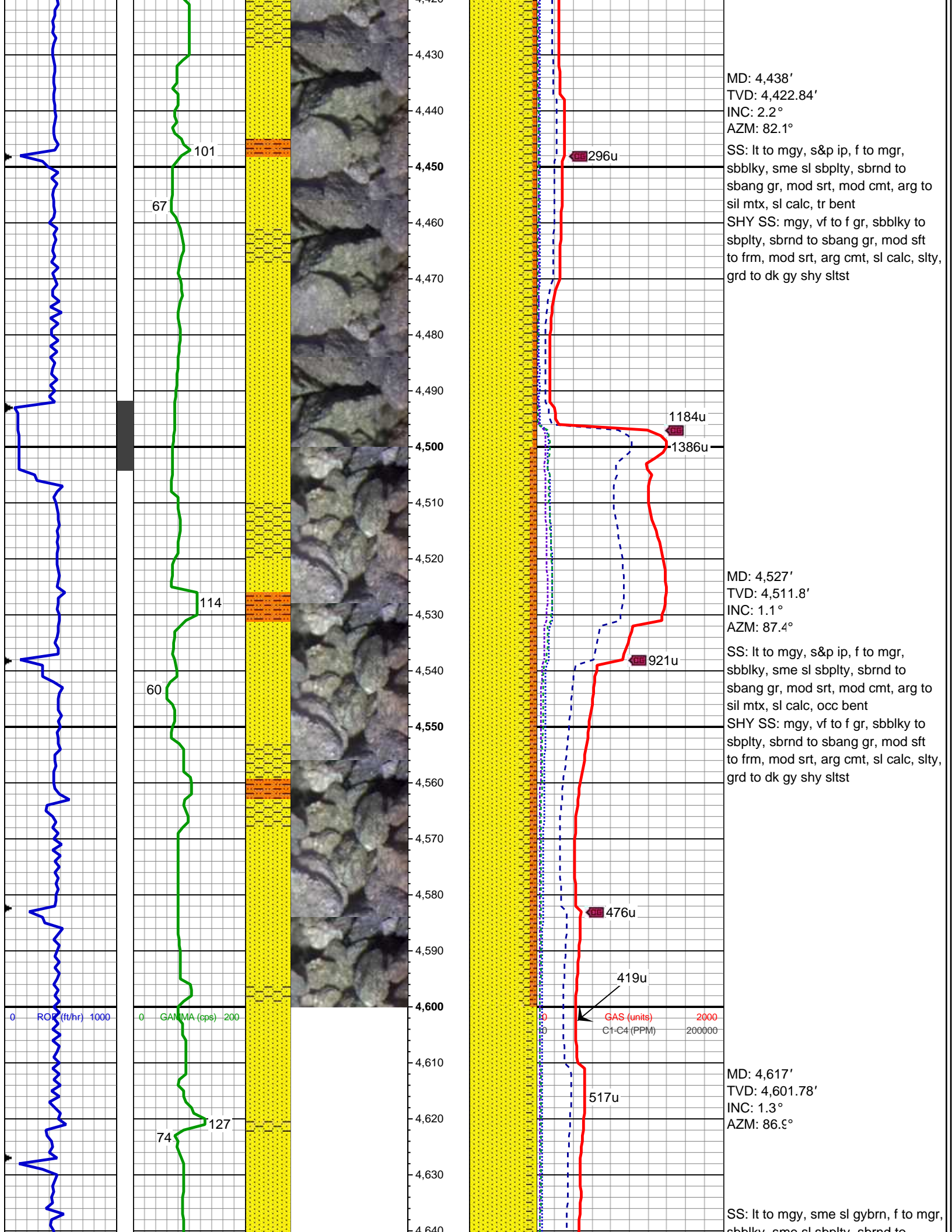


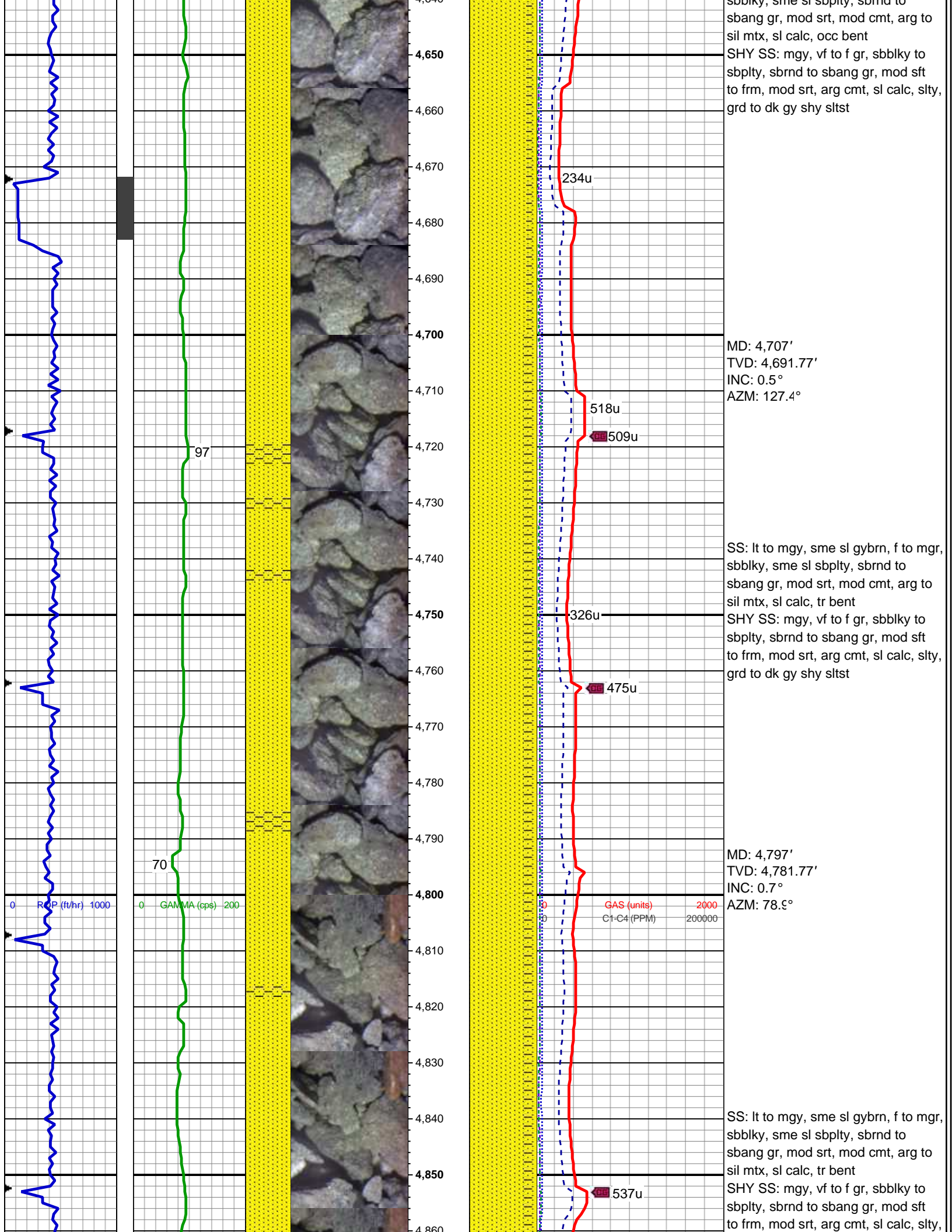


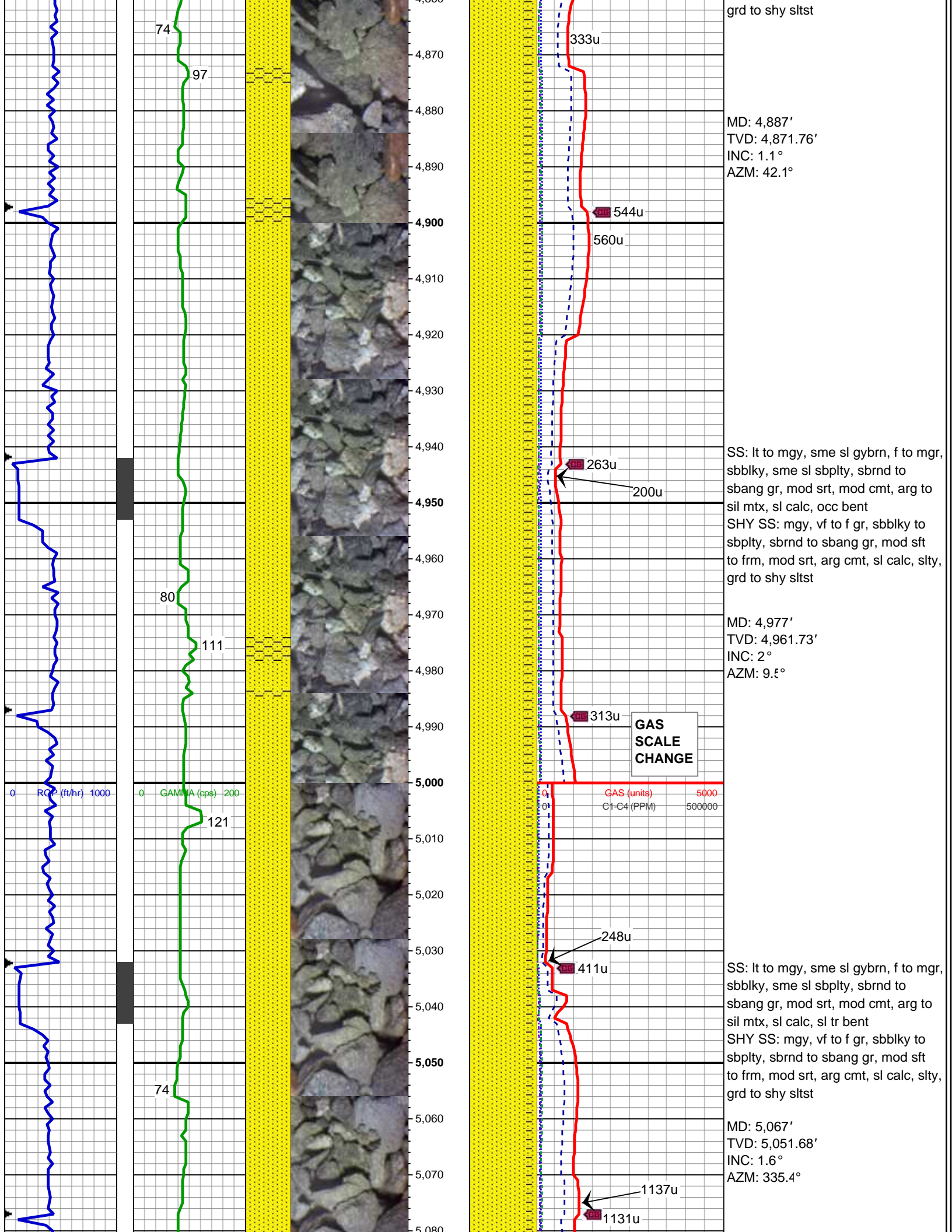


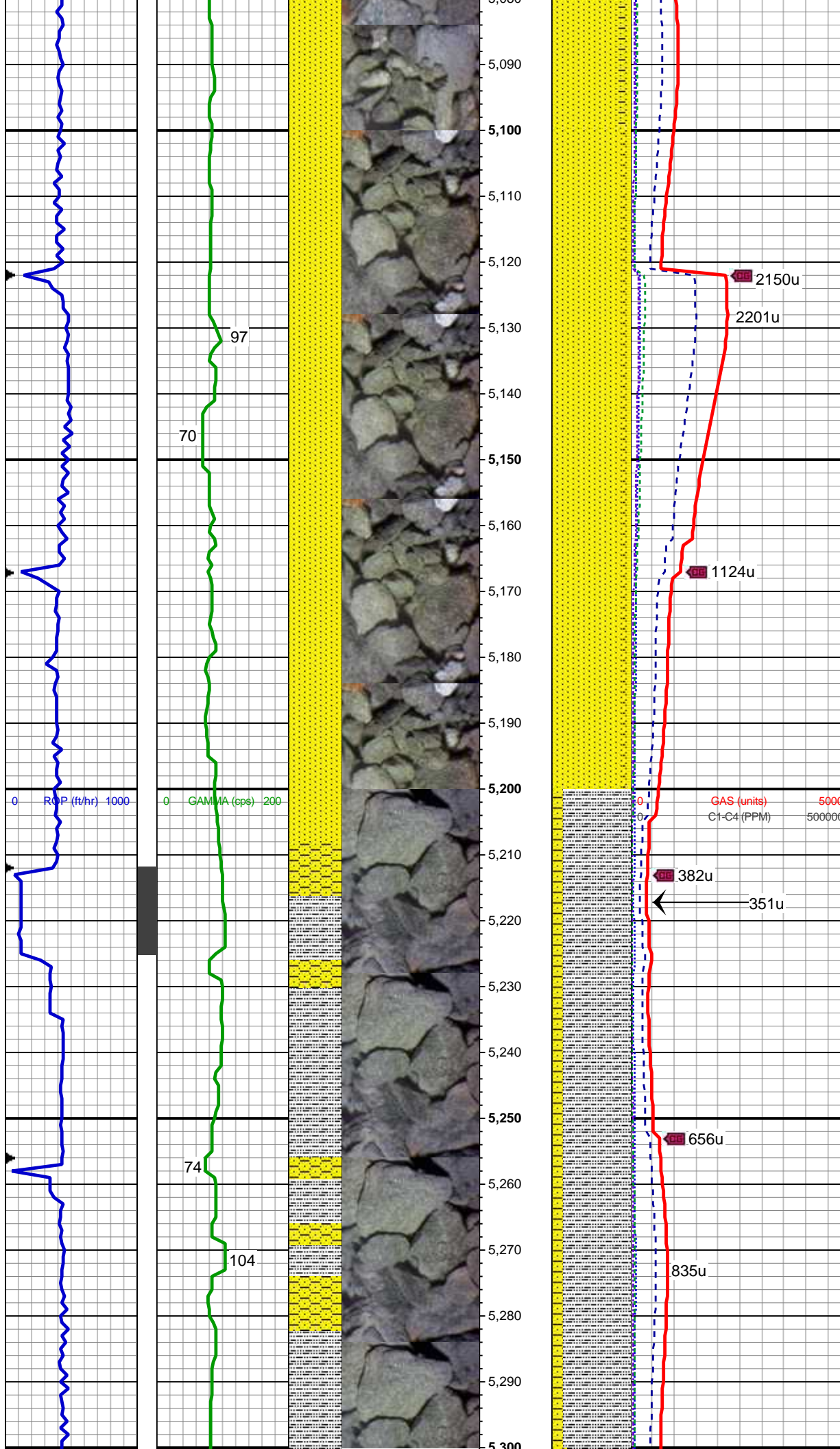












SS: lt to mgy, sme sl gybrn, f to mgr, sbbiky, sme sl sbply, sbrnd to sbang gr, mod srt, mod cmt, arg to sil mtx, sl calc, sl tr bent

SHY SS: mgy, vf to f gr, sbbiky to sbply, sbrnd to sbang gr, mod sft to frm, mod srt, arg cmt, sl calc, slty, grd to slty sh

MD: 5,157'

TVD: 5,141.65'

INC: 1.5°

AZM: 339.2°

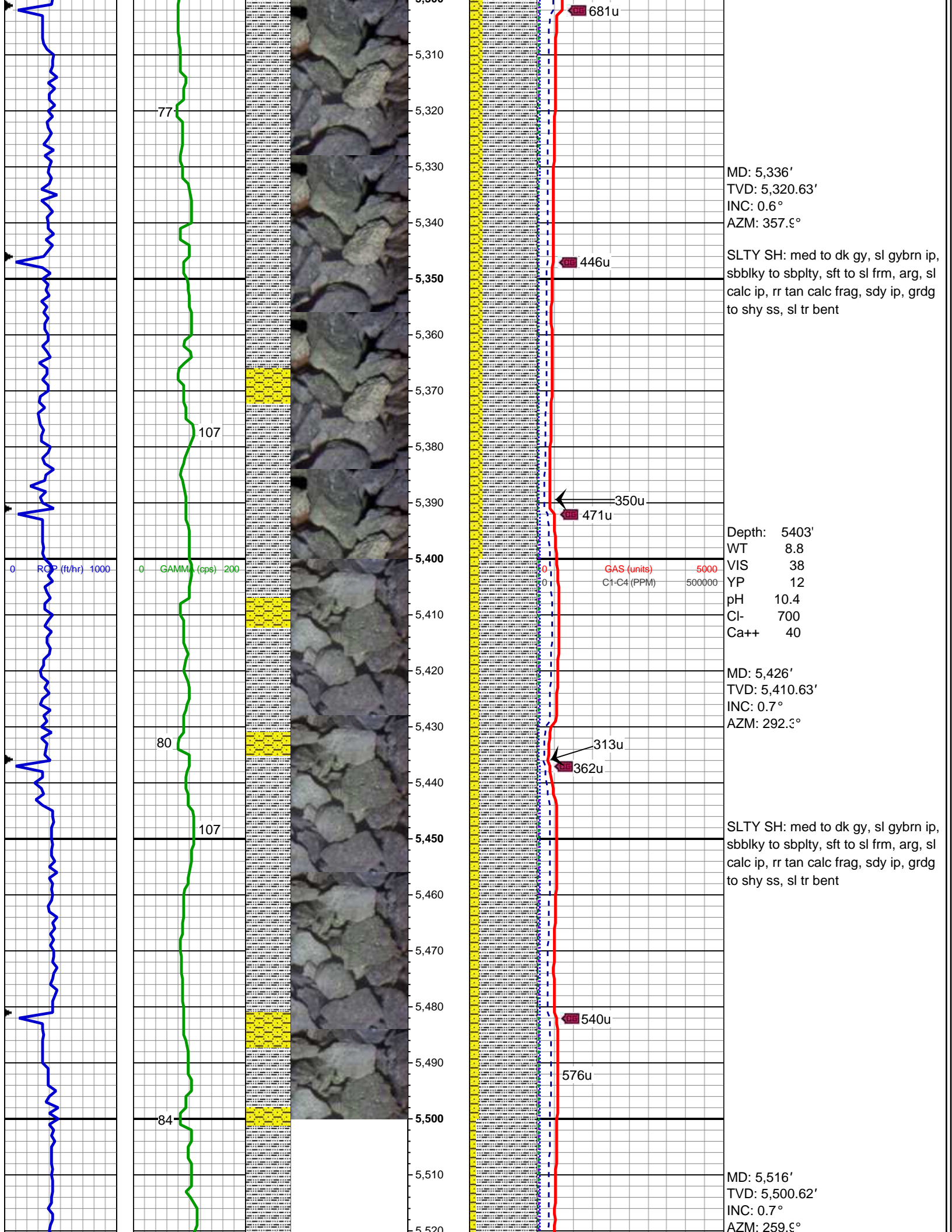
MD: 5,246'

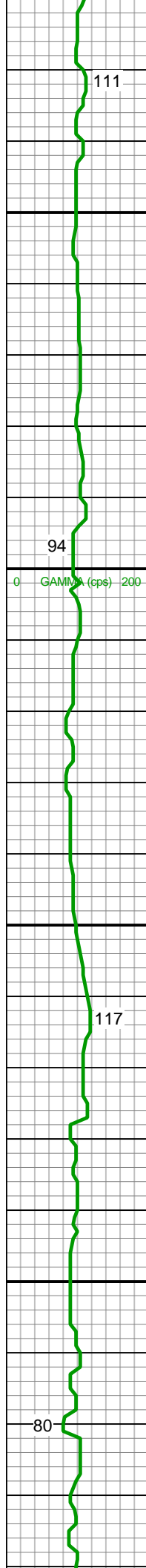
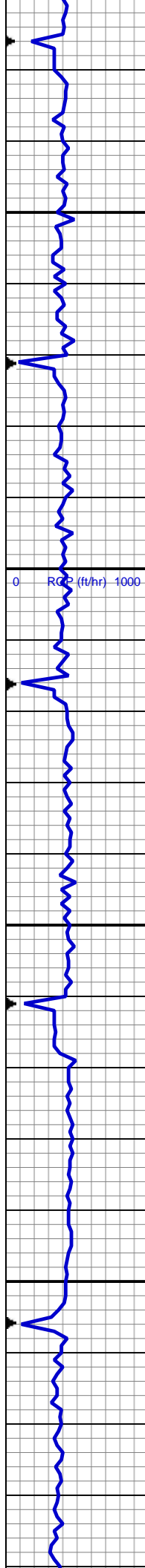
TVD: 5,230.64'

INC: 0.4°

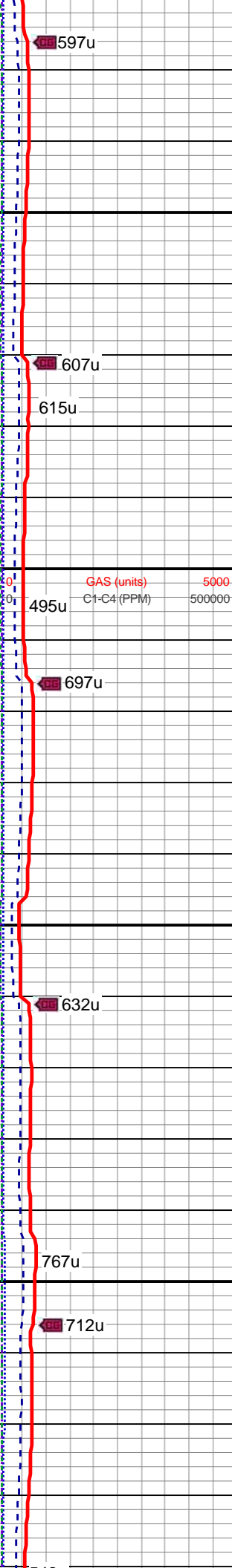
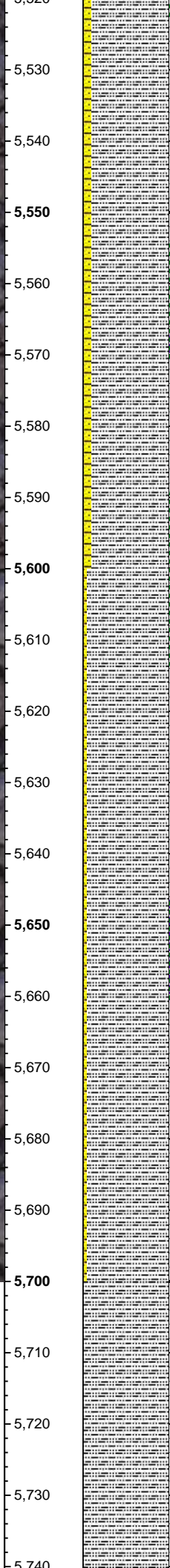
AZM: 305°

SLTY SH: med to dk gy, sl gybrn ip, sbbiky to sbply, sft to sl frm, arg, sl calc ip, sdy ip, grdg to shy ss, sl tr bent





111
94
117
80



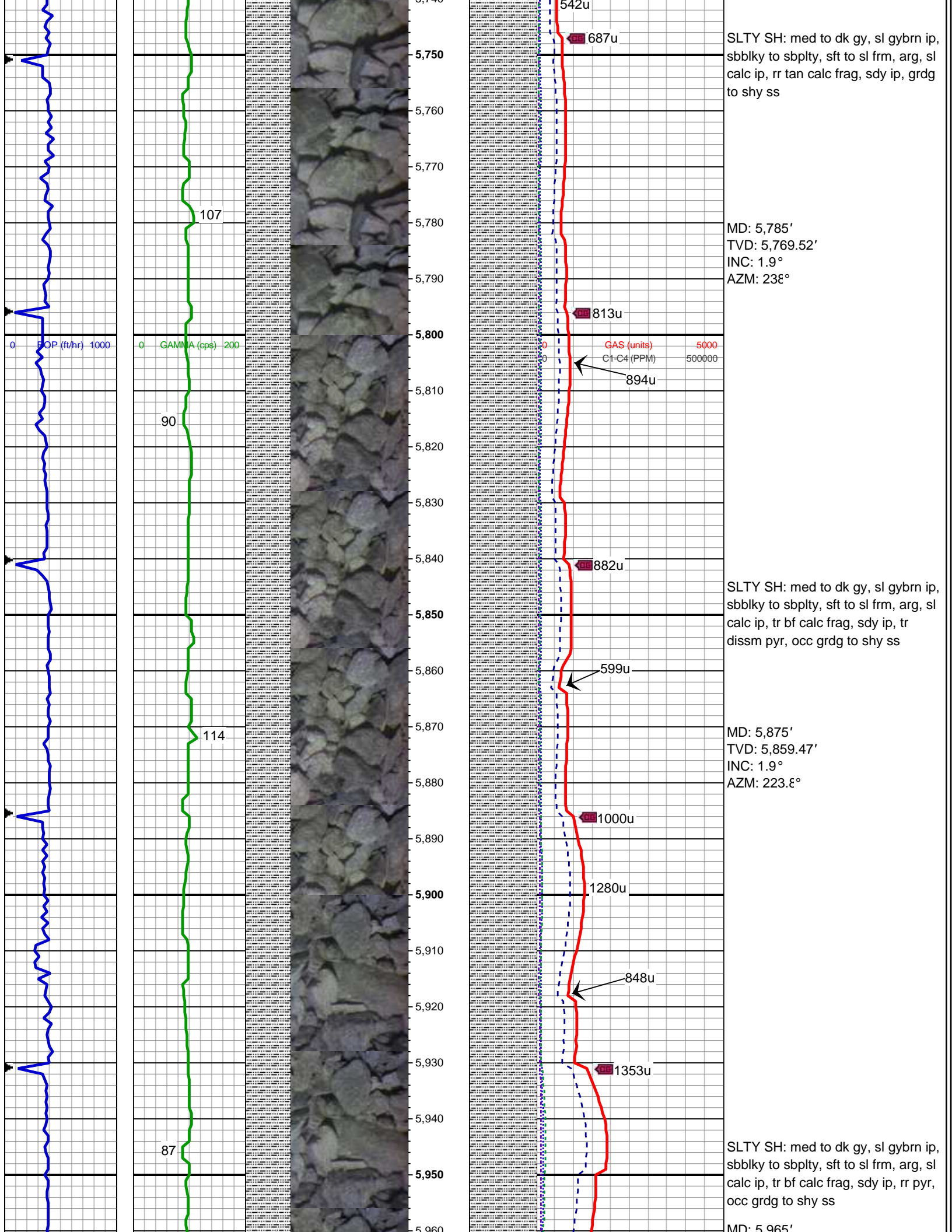
SLTY SH: med to dk gy, sl gybrn ip, sbblky to sbplty, sft to sl frm, arg, sl calc ip, rr tan calc frag, sdy ip, grdg to shy ss

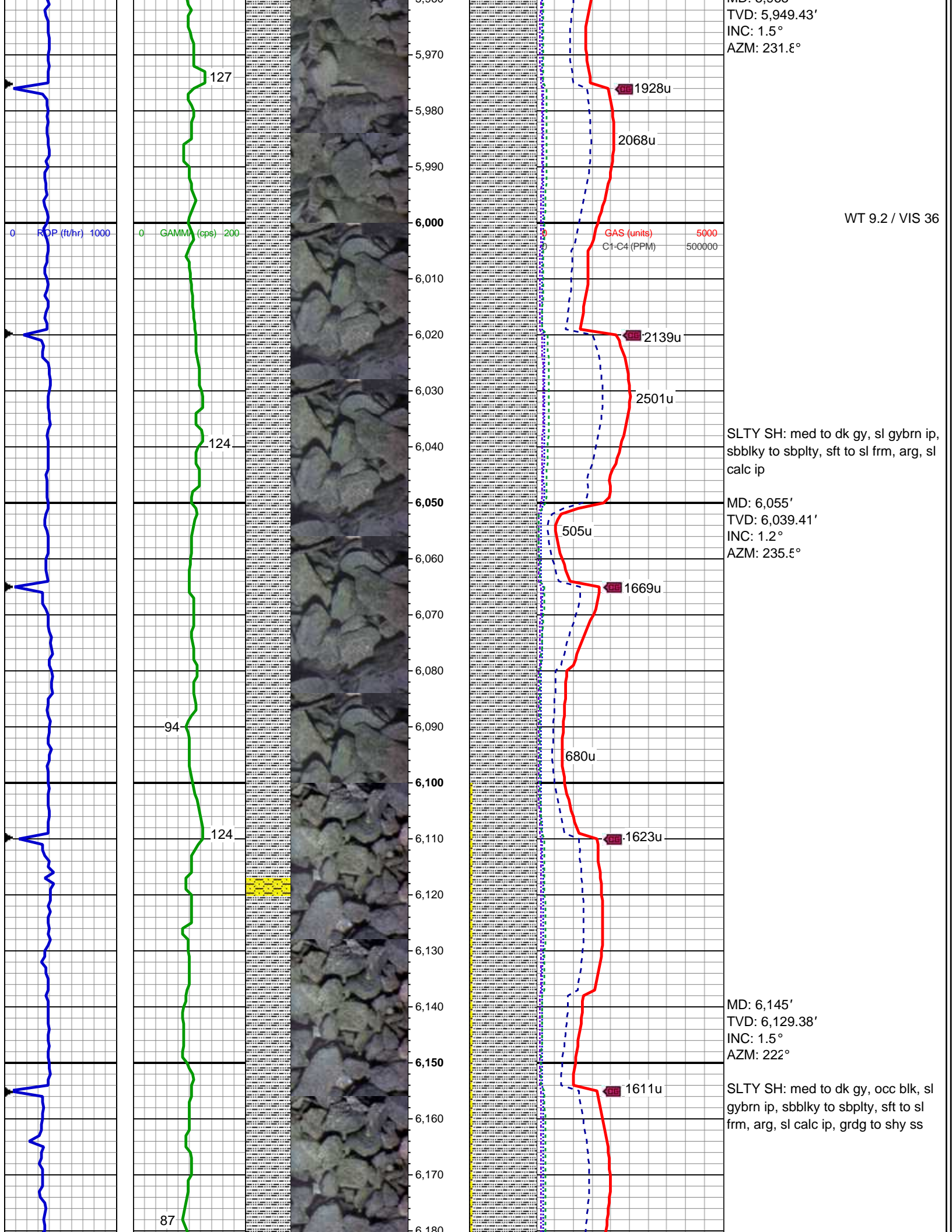
MD: 5,606'
TVD: 5,590.61'
INC: 1.2°
AZM: 246.6°

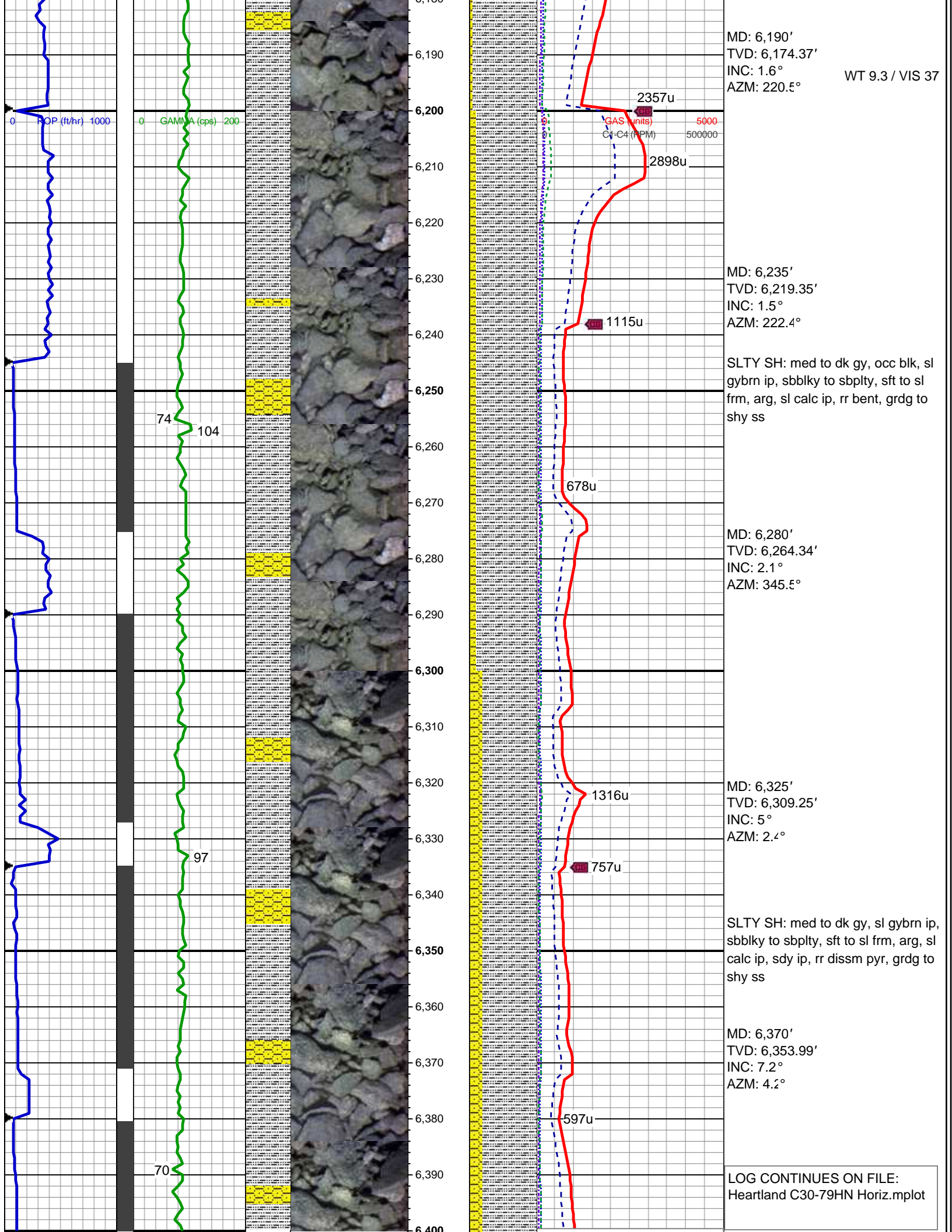
WT 9.0 / VIS 38

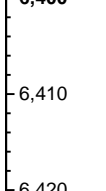
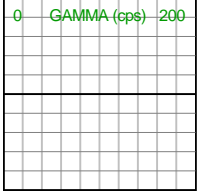
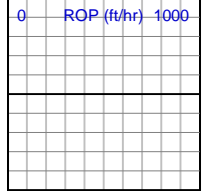
SLTY SH: med to dk gy, sl gybrn ip, sbblky to sbplty, sft to sl frm, arg, sl calc ip, rr tan calc frag, sdy ip, grdg to shy ss

MD: 5,695'
TVD: 5,679.58'
INC: 2°
AZM: 245.3°









THANK YOU FOR CHOOSING
COLUMBINE LOGGING, INC.