

COLUMBINE LOGGING

Scale: 5" / 100'
Measured Depth Log

Well Name NAKAGAWA B13-62-1HN

Location SWSW SECTION 13 T5N R64W

State COLORADO

County WELD

Country USA

Rig Number H&P 330

API Number 05-123-36377-0000

Region DJ BASIN

Field WATTENBERG

Spud Date 6/21/2013

Drilling Completed 6/29/2013

Ground Elevation 4570

Logged Interval 4500'

To 10994'

Total Depth 10994'

Type of Drilling Fluid LSND

Operator

Company NOBLE ENERGY, INC.

Geologist

Name TERESA MALESARDI

Company NOBLE ENERGY, INC.

Other

WELL-SITE GEOLOGISTS

RYAN SHILLING
MOHAMMED ALMUBARAK

Rock Types

Rock Types

UNKNOWN	COAL	METAMORPHIC	SHALY SILTSTONE
ANHYDRITE	CONGLOMERATE	NO SAMPLE	SILTSTONE
BENTONITE	DOLOMITE	SALT	SILTY SHALE
BRECCIA	GRANITE	SALT- PEPPER SAND	TILL
CEMENT	GYPSUM	SANDSTONE	TUFF
CHALK	IGNEOUS	SHALE	WELDED TUFF
CHERT	LIMESTONE	SHALE COLORED	
CLAY CHOKE SAND	SIDERITE or LIMONITE	SHALE GRAY	
CLAYSTONE	MARLSTONE	SHALY SANDSTONE	

Accessories

Fossils

- ALGAE
- AMPHIPORA
- BELEMNITE
- BIOCLASTIC
- BRACHIOPOD
- BRYOZOA
- CEPHALOPOD
- CORAL
- CRINOID
- ECHINOID
- FISH
- FORAMINIFERA

Fossils

- GASTROPOD
- INOCERAMUS
- LOOLITE
- OSTRACOD
- PELECYPOD
- PELLET
- PISOLITE
- PLANT REMAINS
- PLANT SPORES
- SCAPHOPOD
- STROMATOPOROID

Minerals

Accessories

- ANHYDRITIC
- ARGILLACEOUS
- ARGILLITE GRAIN
- BENTONITE
- BITUMENOUS SUBSTANCE
- BRECCIA FRAGMENTS
- CALCAREOUS
- CARBONACEOUS FLAKES
- CHTDK
- CHTLT
- COAL - THIN BEDS
- DOLOMITIC
- FELDSPAR
- FERRUGINOUS PELLET

Accessories

- FERRUGINOUS
- GLAUCONITE
- GYPSIFEROUS
- HEAVY MINERAL
- KAOLIN
- MARLSTONE
- MINERAL CRYSTALS
- NODULES
- PHOSPHATE PELLETS
- PYRITE
- SALT CAST
- SANDY
- SILICEOUS
- SILTY

Accessories

- TUFFACEOUS

Stringer

- ANHYDRITE STRINGER
- BENTONITE STRINGER
- COAL STRINGER
- DOLOMITE STRINGER
- GYPSUM STRINGER
- LIMESTONE STRINGER
- MARLSTONE (CALC) STRG
- MARLSTONE (DOL) STRG
- SANDSTONE STRINGER
- SHALE STRINGER
- SILTSTONE STRINGER

Other Symbols

Oil Show

- DEAD
- EVEN
- QUESTIONABLE
- SPOTTED STAINING

Porosity

- E EARTHY
- FENESTRAL
- FRACTURE
- INTERCRYSTALLINE
- INTEROOLITIC

Oil Show

- MOLDIC
- ORGANIC
- PINPOINT
- VUGGY

Engineering

- BIT
- CONNECTION (LEFT)
- CONNECTION (RIGHT)
- CONNECTION GAS
- CORE - LOST
- CORE - RECOVERED
- DST INTERVAL

Other Symbols

- FAULT
- FORMATION TOP
- GAS SHOW
- MN DEPTH
- NORMAL FAULT
- OIL SHOW
- OVERTURNED STRATA
- REVERSE FAULT
- SIDEWALL CORE (LEFT)
- SIDEWALL CORE (RIGHT)
- SLIDE
- SURVEY
- TRIP GAS

Other Symbols

- WIRELINE TESTED - LEFT
- WIRELINE TESTED - RT

Rounding

- ANGULAR
- ROUNDED
- SUBANG
- SUBRND

Textures

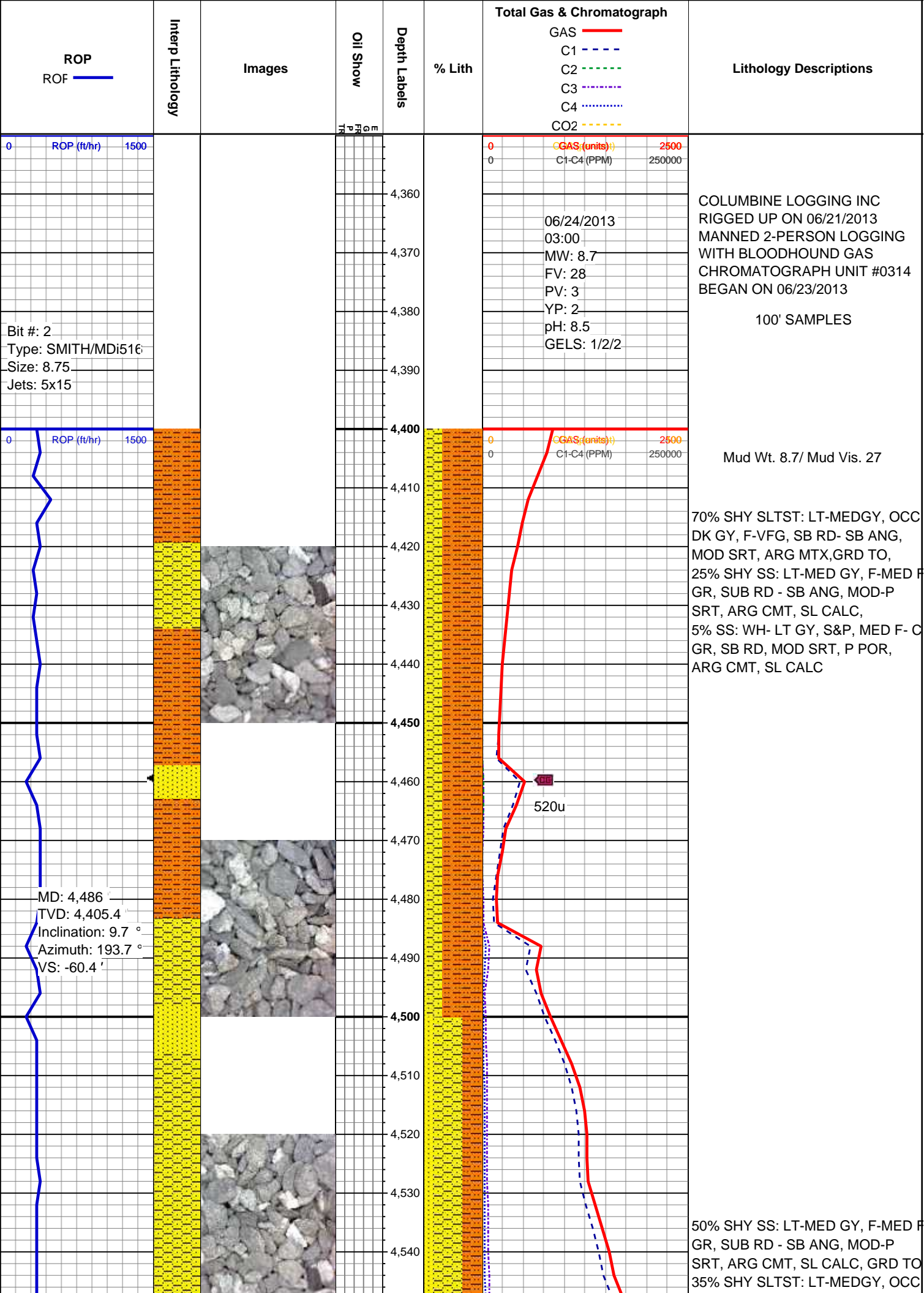
- BOUNDSTONE
- CHALKY
- CRYPTOXLN

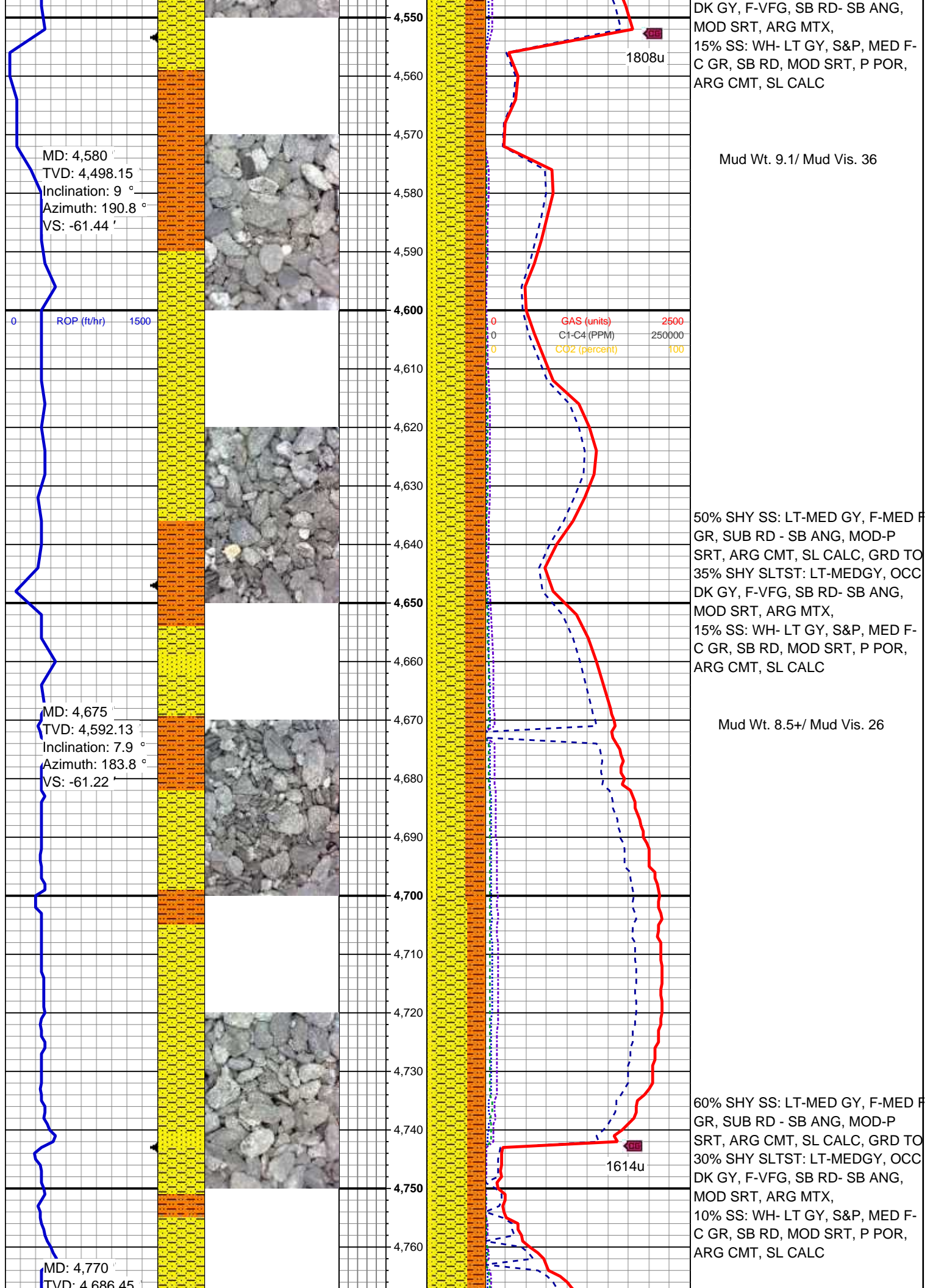
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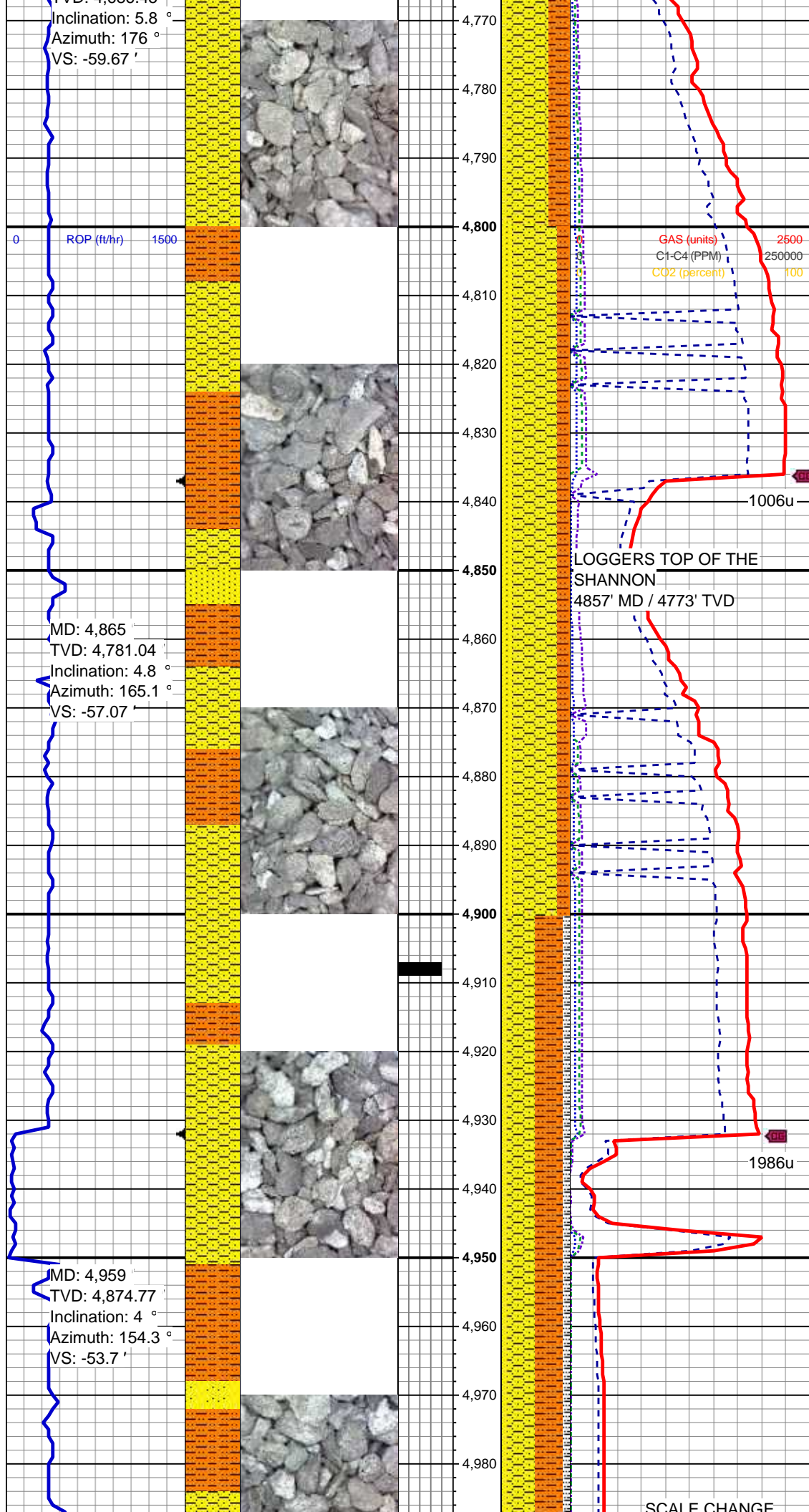
- E EARTHY
- FINELYXLN
- GRAINSTONE
- L LITHOGRAPHIC
- MIX MICROXLN
- MS MUDSTONE
- PS PACKSTONE
- WS WACKESTONE

Sorting

- M MODERATE
- P POOR
- W WELL

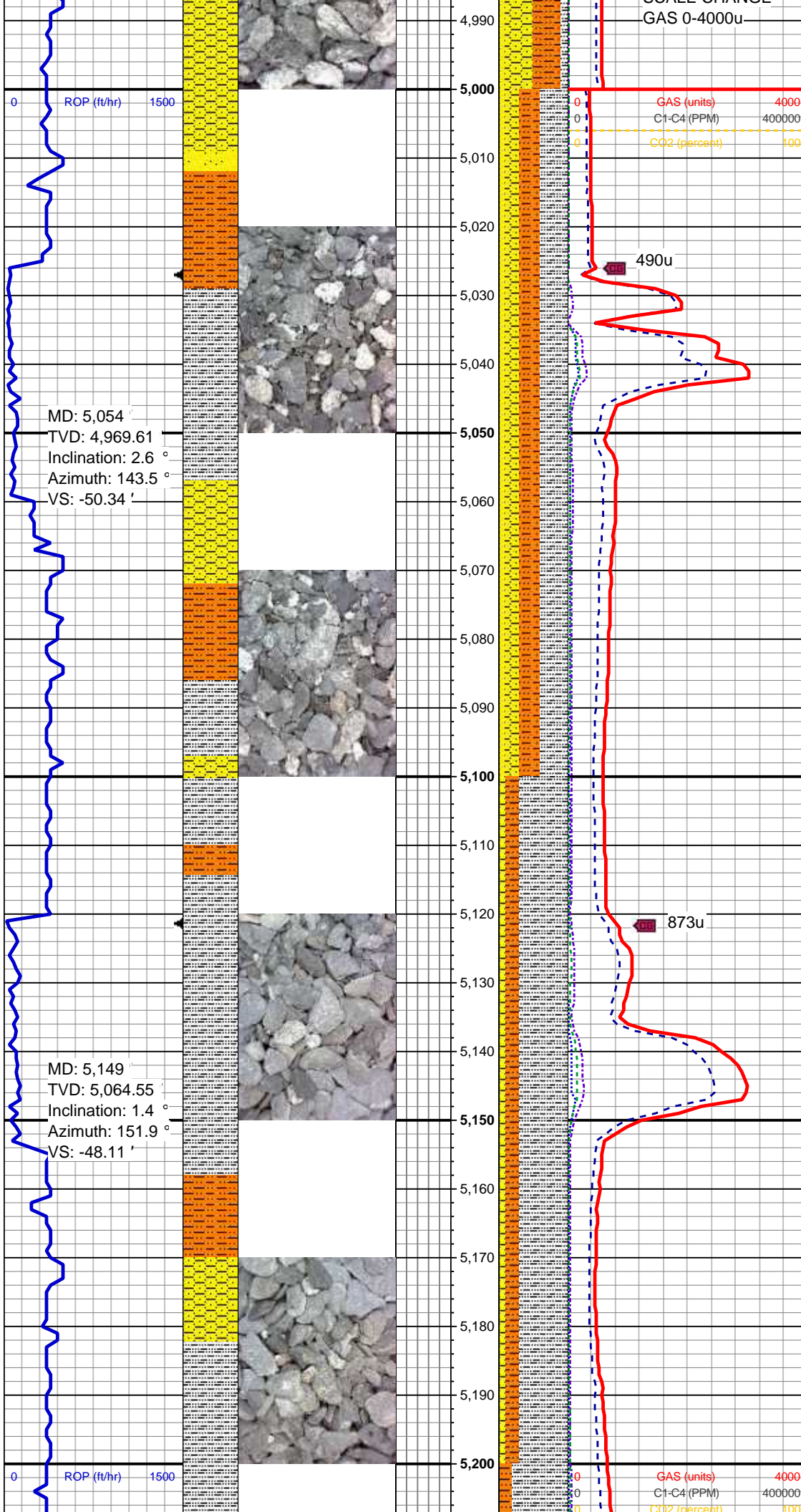






50% SHY SLTST: LT-MEDGY, OCC
DK GY, F-VFG, SB RD- SB ANG,
MOD SRT, ARG MTX,GRD TO,
40% SHY SS: LT-MED GY, F-MED F
GR, SUB RD - SB ANG, MOD-P
SRT, ARG CMT, SL CALC,
10% SS: WH- LT GY, S&P, MED F-
C GR, SB RD, MOD SRT, P POR,
ARG CMT, SL CALC, TR SH

40% SHY SLTST: LT-MEDGY, OCC
DK GY, F-VFG, SB RD- SB ANG,
MOD SRT, ARG MTX,GRD TO,
40% SHY SS: LT-MED GY, F-MED F
GR, SUB RD - SB ANG, MOD-P
SRT, ARG CMT, SL CALC,
10% SS: WH- LT GY, S&P, MED F-
C GR, SB RD, MOD SRT, P POR,
ARG CMT, SL CALC,
10% SLTY SH: MED - DK GY, OCC
TAN, V F GR, FRI- BRIT, SUB PLTY
SUB BLKY, SL CALC



COAL CHANCE
GAS 0-4000u

0 1500 ROP (ft/hr)

0 4000 GAS (units)
0 400000 C1-C4 (PPM)
0 100 CO2 (percent)

490u

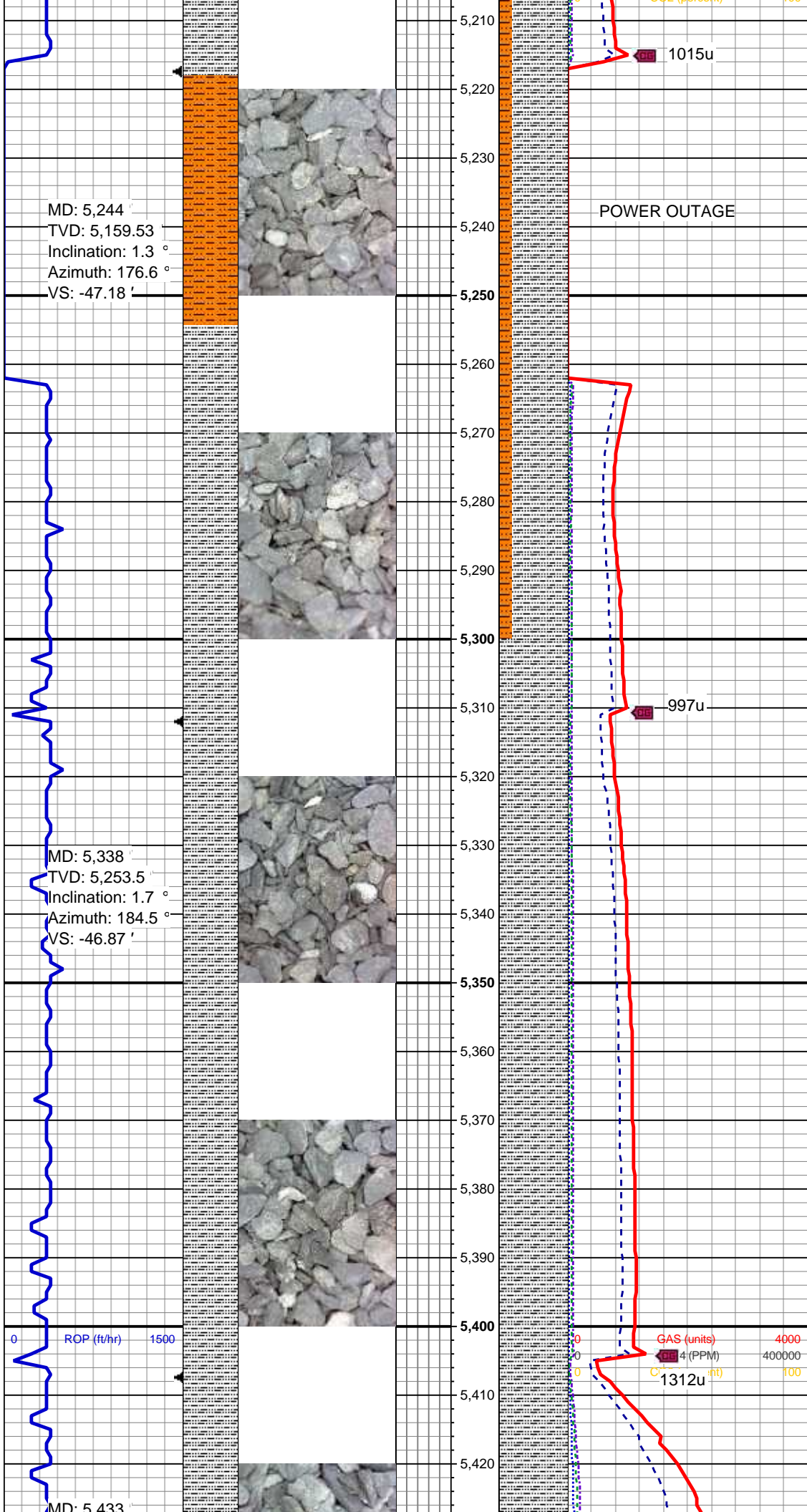
873u

40% SLTY SH: MED - DK GY, OCC TAN, V F GR, FRI- BRIT, SUB PLTY SUB BLKY, SL CALC, GRD TO 30% SHY SLTST: LT-MEDGY, OCC DK GY, F-VFG, SB RD- SB ANG, MOD SRT, ARG MTX, 20% SHY SS: LT-MED GY, F-MED F GR, SUB RD - SB ANG, MOD-P SRT, ARG CMT, SL CALC, 10% SS: WH- LT GY, S&P, MED F- C GR, SB RD, MOD SRT, P POR, ARG CMT, SL CALC

70% SLTY SH: MED - DK GY, OCC TAN, V F GR, FRI- BRIT, SUB PLTY SUB BLKY, SL CALC, GRD TO 20% SHY SLTST: LT-MEDGY, OCC DK GY, F-VFG, SB RD- SB ANG, MOD SRT, ARG MTX, 10% SHY SS: LT-MED GY, F-MED F GR, SUB RD - SB ANG, MOD-P SRT, ARG CMT, SL CALC, TR SS

Mud Wt. 8.5+/ Mud Vis. 26

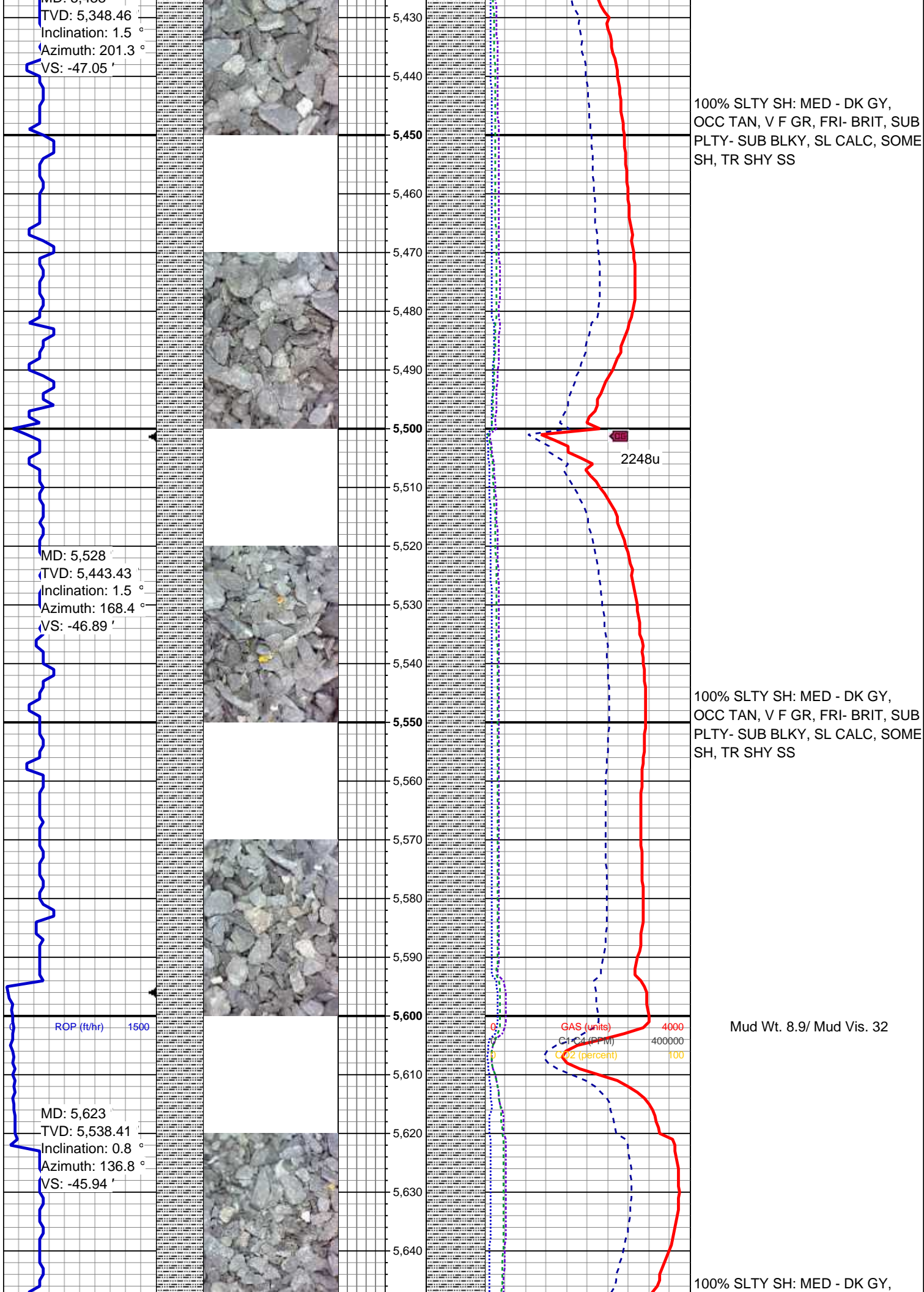
Mud Wt. 8.7/ Mud Vis. 28

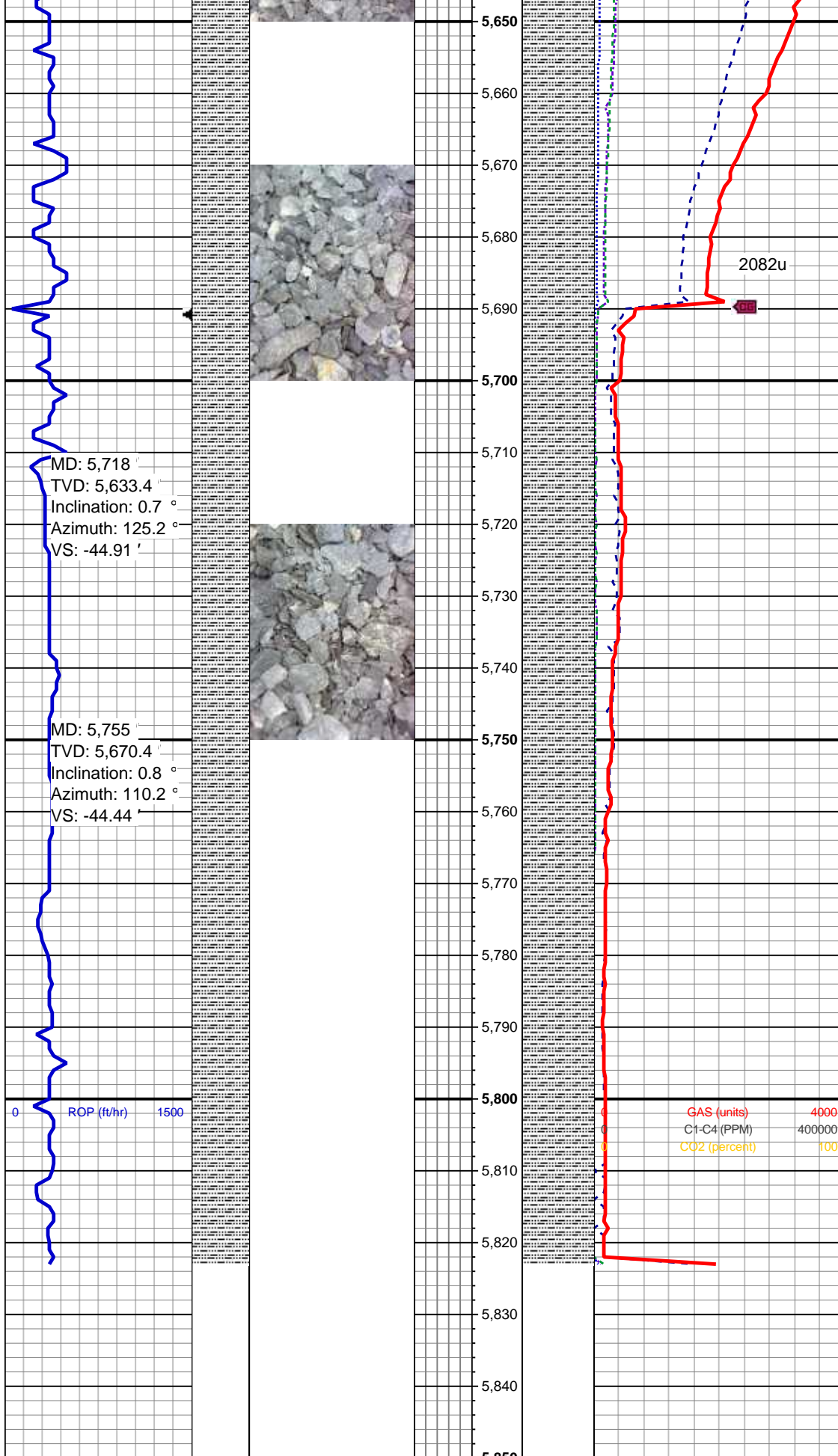


80% SLTY SH: MED - DK GY, OCC TAN, V F GR, FRI- BRIT, SUB PLTY SUB BLKY, SL CALC, GRD TO 20% SHY SLTST: LT-MEDGY, OCC DK GY, F-VFG, SB RD- SB ANG, MOD SRT, ARG MTX, SOME SHY SS, TR SS, TR LSE FOS

100% SLTY SH: MED - DK GY, OCC TAN, V F GR, FRI- BRIT, SUB PLTY- SUB BLKY, SL CALC, SOME SH, TR SS, TR SHY SS

Mud Wt. 8.8/ Mud Vis. 30





MD: 5,718 '
TVD: 5,633.4 '
Inclination: 0.7 °
Azimuth: 125.2 °
VS: -44.91 '

MD: 5,755 '
TVD: 5,670.4 '
Inclination: 0.8 °
Azimuth: 110.2 °
VS: -44.44 '

OCC TAN, V F GR, FRI- BRIT, SUB
PLTY- SUB BLKY, SL CALC, SOME
SH, TR SHY SS

100% SLTY SH: MED - DK GY,
OCC TAN, V F GR, FRI- BRIT, SUB
PLTY- SUB BLKY, SL CALC, SOME
SH, SOME SHY SS

Mud Wt. 8.9+/- Mud Vis. 35

GAS (units) 4000
C1-C4 (PPM) 400000
CO2 (percent) 100

THANK YOU FOR USING
COLUMBINE LOGGING INC.

TD VERTICAL @ 5823' MD
06/24/2013 13:03 MST

LOG CONTINUES ON MPlot
NAKAGAWA B13-62-1HN
HORIZONTAL