COLUMBINE LOGGING

Scale: 5" / 100'
Measured Depth Log

Well Name	EWS-4A
Location	S17 T2N R63W
State	Colorado
County	Weld
Country	USA
Rig Number	Ensign 121
API Number	05-123-44047
Field	Wattenberg
Geographic Region	DJ
Drilling Completed	2/4/2017
Spud Date	1/21/2017
Surface Coordinates	Sec 17 T2N R63W 40.139470/-104.463560 2232 FNL 2037FWL
Bottom Hole Coordinates	Sec 17 T2N R63W 40.139470/-104.463560 2232 FNL 2037FWL
Ground Elevation	4843'
K.B. Elevation	4856'
Logged Interval	112' **To** 10119'
Total Depth	10119'
Formation	Pierre to Fountain
Type of Drilling Fluid	Water Based Mud

Operator

Company Petrotek

Address 5935 S Zang St Ste 200
Littleton, CO 80127

Geologist

Name Arron Payne

Company Petrotek

Address 5935 S Zang St Ste 200
Littleton, CO 80127

Zone Color Coding

Oil	Condensate	Gas
Note	Core	Pressure
Error	Water	Seal

Other

Loggers on site Dennis C. Vertrees, Andrew Martens, Jay Thomas

Bloodhound & Computer# 313 & 52A

Rock Types

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

Accessories

Fossils

- ALGAE
- AMPHIPORA
- BELEMNITE
- BIOCLASTIC
- BRACHOIPOD
- BRYOZOA
- CEPHALOPOD
- CORAL
- CRINOID
- ECHINOID
- FISH
- FORAMINIFERA
- FOSSIL
- GASTROPOD
- INOCERAMUS
- OOLITE
- OSTRACOD
- PELECYPOD
- PELLET
- PISOLITE
- PLANT REMAINS
- PLANT SPORES
- SCAPHOPOD
- STROMATOPOROID

Minerals

- ANHYDRITIC
- ARGILLACEOUS
- ARGILLITE GRAIN
- BENTONITE
- BITUMENOUS SUBSTANCE
- BRECCIA FRAGMENTS
- CALCAREOUS
- CARBONACEOUS FLAKES
- CHTDK
- CHTLT
- COAL - THIN BEDS
- DOLOMITIC
- FELDSPAR
- FERRUGINOUS PELLET
- FERRUGINOUS
- GLAUCONITE
- GYPSIFEROUS
- HEAVY MINERAL
- KAOLIN
- MARLSTONE
- MICACEOUS
- MINERAL CRYSTALS
- NODULES
- PHOSPHATE PELLETS
- PYRITE
- SALT CAST
- SANDY
- SILICEOUS
- SILTY
- 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

- EARTHY
- FENESTRAL
- FRACTURE
- INTERCRYSTALLINE
- INTEROOLITIC
- MOLDIC
- ORGANIC
- PINPOINT
- VUGGY

Engineering

- BIT CHANGE
- CONNECTION (LEFT)
- CONNECTION (RIGHT)
- CONNECTION GAS
- TRIP GAS
- DOWN TIME GAS
- CORE - LOST
- CORE - RECOVERED
- DST INTERVAL
- FAULT
- FORMATION TOP
- GAS SHOW
- OIL SHOW
- MN DEPTH
- MN DEPTH (RIGHT)
- NORMAL FAULT
- OVERTURNED STRATA
- REVERSE FAULT
- CASING
- SIDEWALL CORE (LEFT)
- SIDEWALL CORE (RIGHT)
- SLIDE
- SURVEY
- DRILL STEM TEST
- WIRELINE TESTED - LEFT
- WIRELINE TESTED - RT

Rounding

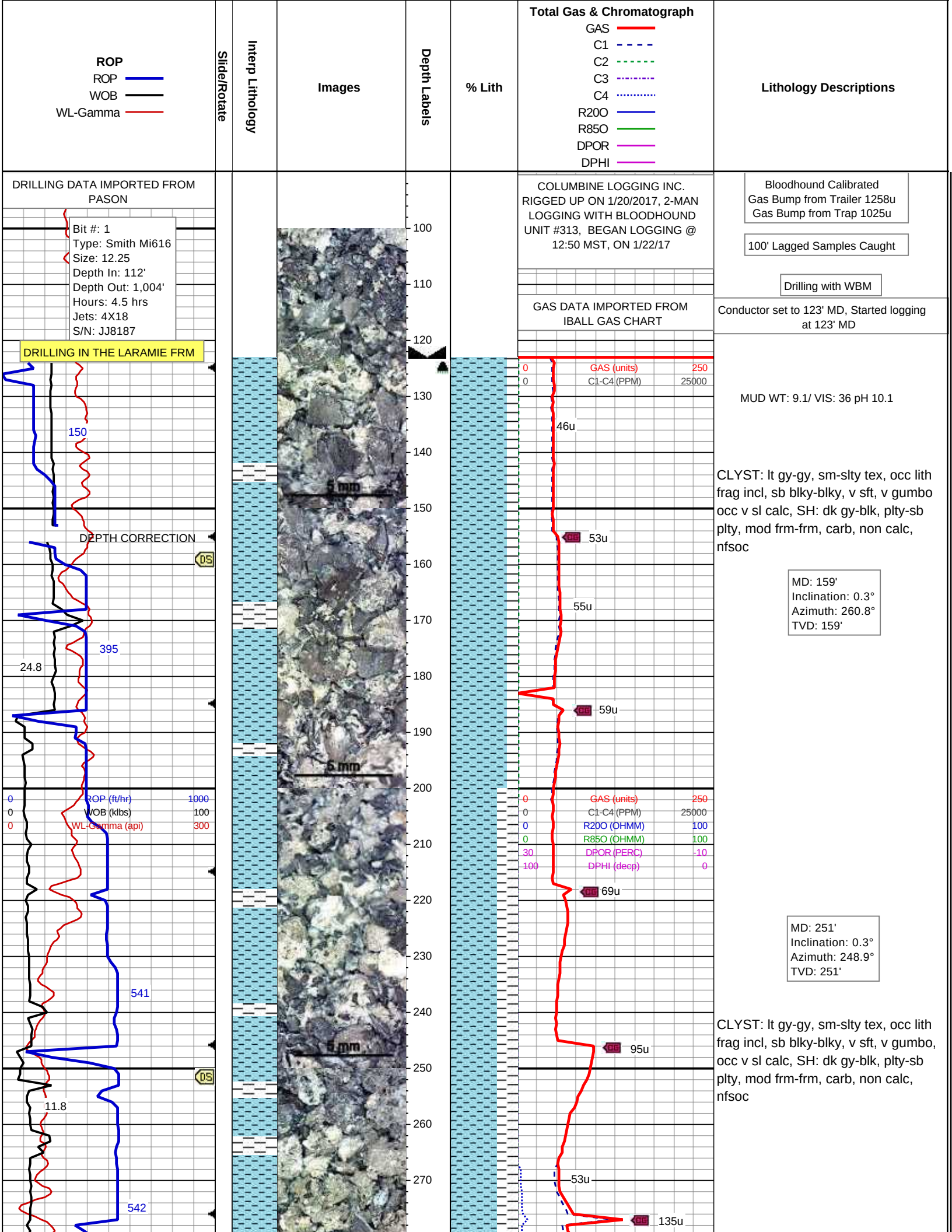
- ANGULAR
- ROUNDED
- SUBANG
- SUBRND

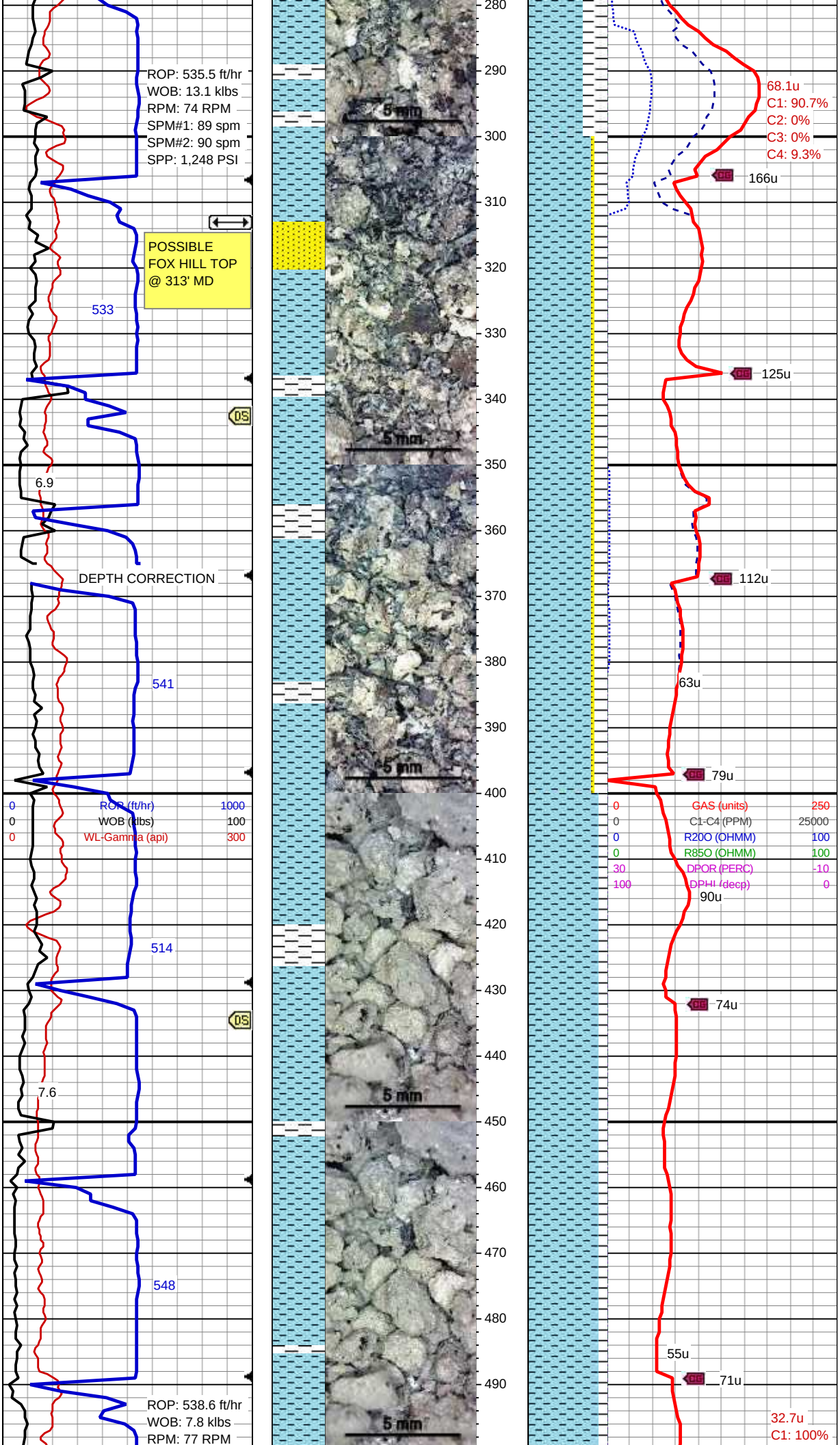
Textures

- BOUNDSTONE
- CHALKY
- CRYPTOXLN
- EARTHY
- FINELYXLN
- GRAINSTONE
- LITHOGRAPHIC
- MICROXLN
- MUDSTONE
- PACKSTONE
- WACKESTONE

Sorting

- MODERATE
- POOR
- WELL


ROP
ROP
WOB
WL-Gamma
Slide/Rotate
Interp Lithology
Images
Depth Labels
% Lith
Total Gas & Chromatograph
GAS
C1
C2
C3
C4
R20O
R85O
DPOR
DPHI
Lithology Descriptions
DRILLING DATA IMPORTED FROM PASON
Bit #: 1
Type: Smith Mi616
Size: 12.25
Depth In: 112'
Depth Out: 1,004'
Hours: 4.5 hrs
Jets: 4X18
S/N: JJ8187
DRILLING IN THE LARAMIE FRM
DEPTH CORRECTION
150
395
24.8
541
11.8
542
0 ROP (ft/hr) 1000
0 WOB (klbs) 100
0 WL-Gamma (api) 300
COLUMBINE LOGGING INC. RIGGED UP ON 1/20/2017, 2-MAN LOGGING WITH BLOODHOUND UNIT #313, BEGAN LOGGING @ 12:50 MST, ON 1/22/17
GAS DATA IMPORTED FROM IBALL GAS CHART
0 GAS (units) 250
0 C1-C4 (PPM) 25000
0 R20O (OHMM) 100
0 R85O (OHMM) 100
30 DPOR (PERC) -10
100 DPHI (decp) 0
46u
53u
55u
59u
69u
95u
53u
135u
Bloodhound Calibrated
Gas Bump from Trailer 1258u
Gas Bump from Trap 1025u
100' Lagged Samples Caught
Drilling with WBM
Conductor set to 123' MD, Started logging at 123' MD
MUD WT: 9.1/ VIS: 36 pH 10.1
CLYST: lt gy-gy, sm-slty tex, occ lith frag incl, sb blky-blky, v sft, v gumbo occ v sl calc, SH: dk gy-blk, plty-sb plty, mod frm-frm, carb, non calc, nfsoc
MD: 159'
Inclination: 0.3°
Azimuth: 260.8°
TVD: 159'
MD: 251'
Inclination: 0.3°
Azimuth: 248.9°
TVD: 251'
CLYST: lt gy-gy, sm-slty tex, occ lith frag incl, sb blky-blky, v sft, v gumbo, occ v sl calc, SH: dk gy-blk, plty-sb plty, mod frm-frm, carb, non calc, nfsoc
5 mm
100
110
120
130
140
150
160
170
180
190
200
210
220
230
240
250
260
270



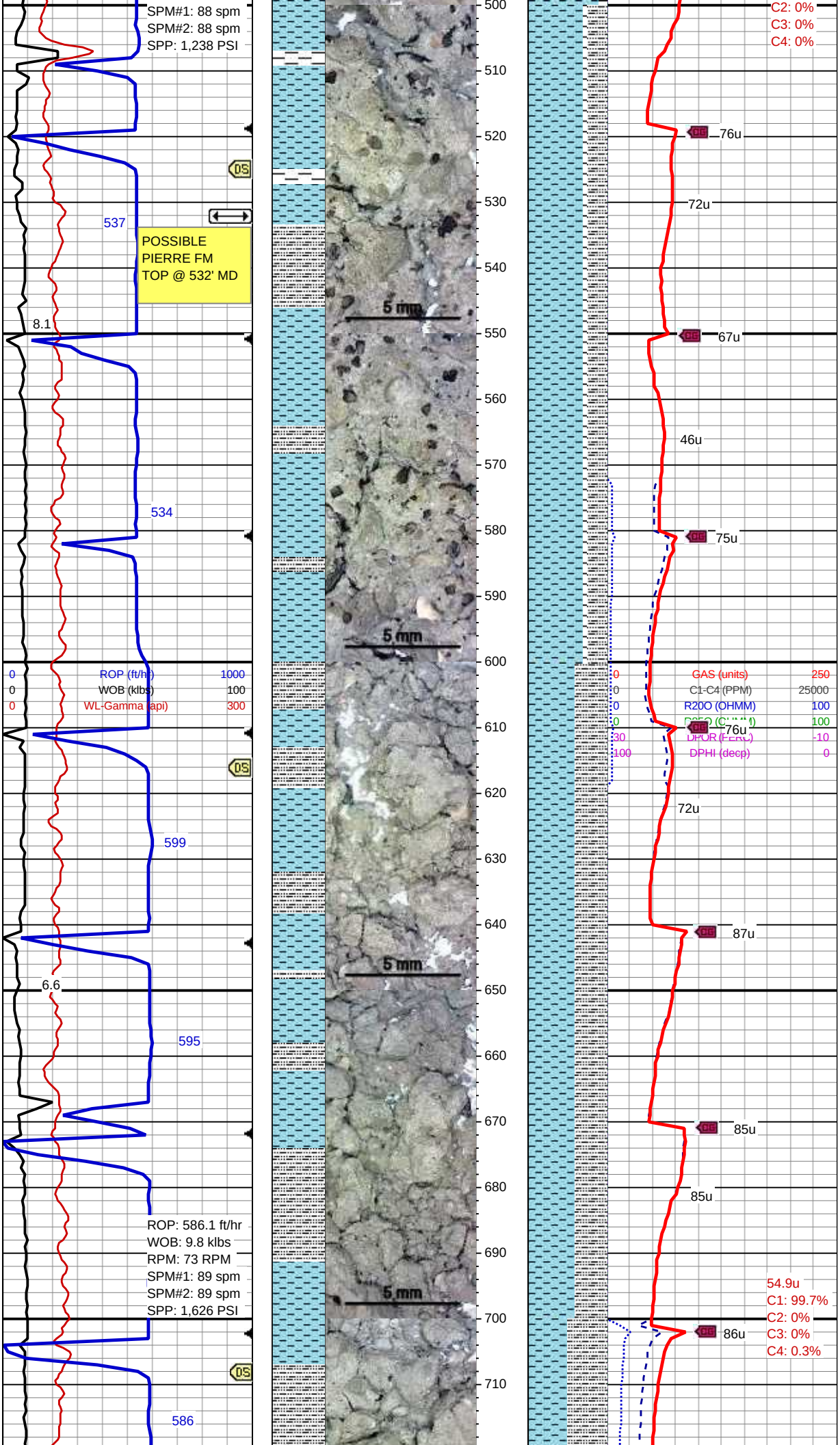
MUD WT: 9.0/ VIS: 36

MD: 342'
Inclination: 0.1°
Azimuth: 338°
TVD: 342'

CLYST: lt gy-gy, sm-slty tex, occ lith frag incl, sb blky-blky, v sft, v gumbo, occ v sl calc, SH: dk gy-blk, plty-sb plty, mod frm-frm, carb, non calc, SS: wh-lt gy, rr clr-trnsl, vf-f gr, mod sft, sb rnd-sb ang, slty-cly mtx, p por; nfsoc

MD: 434'
Inclination: 0.2°
Azimuth: 23.5°
TVD: 434'

CLYST: lt gy-gy, sm-slty tex, occ lith frag incl, sb blky-blky, v sft, v gumbo, occ v sl calc, SH: dk gy-blk, plty-sb plty, mod frm-frm, carb, non calc; nfsoc



MD: 525'
Inclination: 0.3°
Azimuth: 187.9°
TVD: 525'

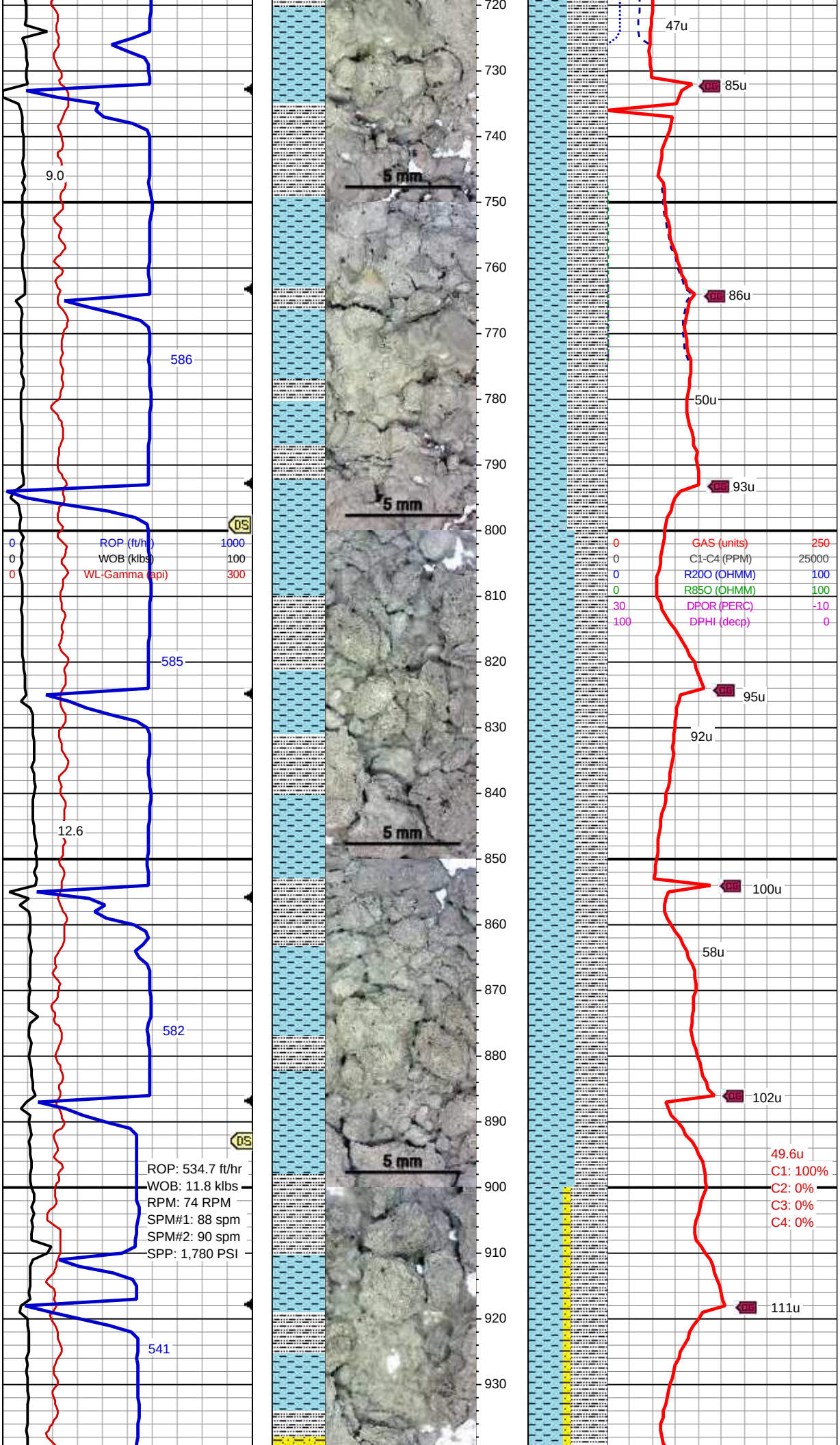
CLYST: lt gy-gy, sm-slty tex, occ lith frag incl, sb blky-blky, v sft, v gumbo, occ v sl calc, SH: dk gy-blk, plty-sb plty, mod frm-frm, carb, non calc, SLTY SH: gy-dk gy, sb plty-sb blky, mic gr, slty tex, mod frm; nfsoc

MUD WT: 9.1/ VIS: 37

MD: 616'
Inclination: 0.2°
Azimuth: 261.9°
TVD: 616'

CLYST: lt gy-gy, sm-slty tex, occ lith frag incl, sb blky-blky, v sft, v gumbo, occ v sl calc, SH: dk gy-blk, plty-sb plty, mod frm-frm, carb, non calc, SLTY SH: gy-dk gy, sb plty-sb blky, mic gr, slty tex, mod frm; nfsoc

MD: 708'
Inclination: 0.2°
Azimuth: 200.7°
TVD: 708'



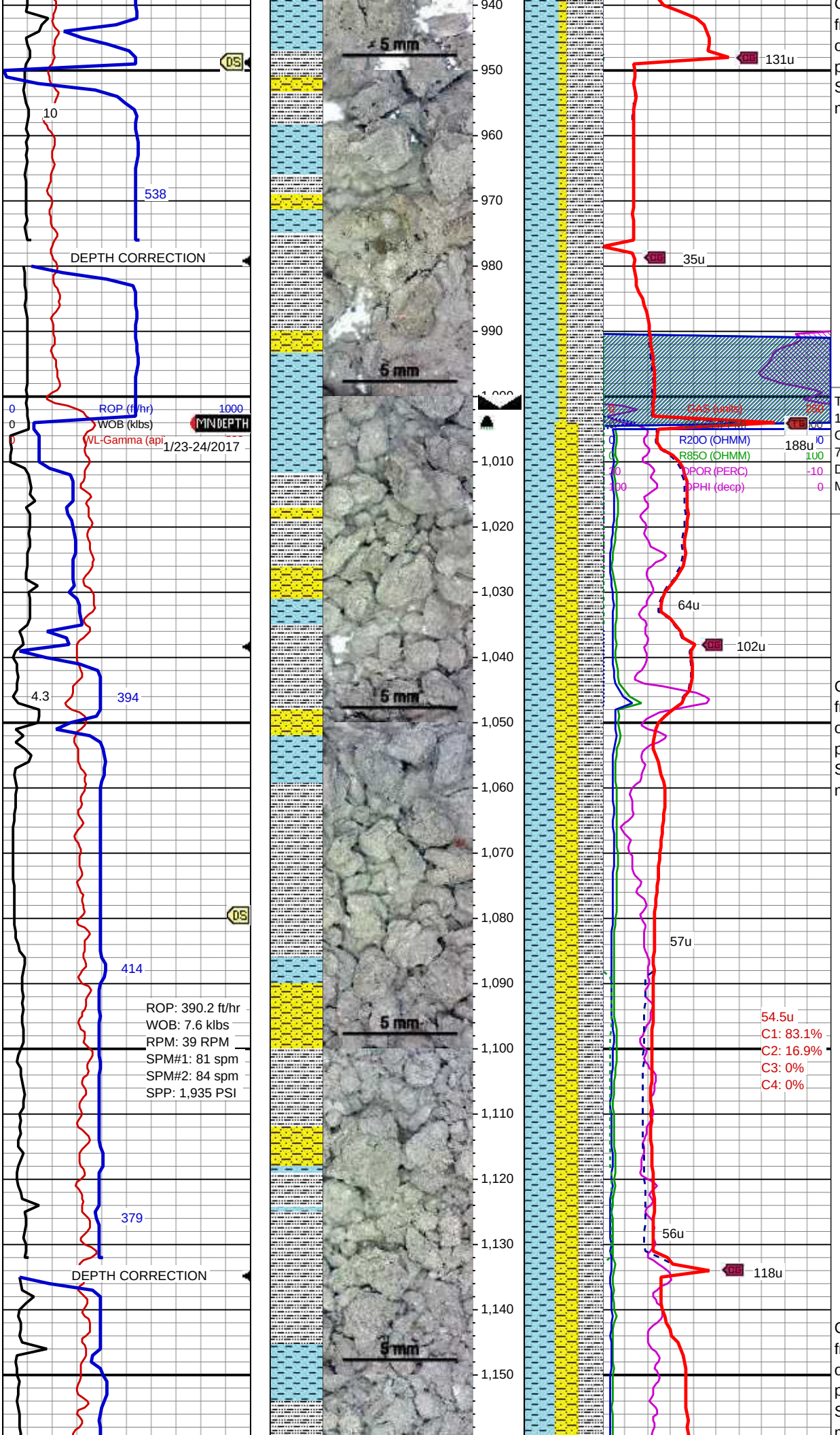
CLYST: lt gy-gy, sm-slty tex, occ lith frag incl, sb blky-blky, v sft, v gumbo, occ v sl calc, SH: dk gy-blk, plty-sb plty, mod frm-frm, carb, non calc, SLTY SH: gy-dk gy, sb plty-sb blky, mic gr, slty tex, mod frm; nfsoc

MD: 799'
Inclination: 0.4°
Azimuth: 209.2°
TVD: 798.99'

CLYST: lt gy-gy, sm-slty tex, occ lith frag incl, sb blky-blky, v sft, v gumbo, occ v sl calc, SH: dk gy-blk, plty-sb plty, mod frm-frm, carb, non calc, SLTY SH: gy-dk gy, sb plty-sb blky, mic gr, slty tex, mod frm; nfsoc

MD: 893'
Inclination: 0.4°
Azimuth: 228.1°
TVD: 892.99'

MD: 949'
Inclination: 0.4°
Azimuth: 212.9°
TVD: 948.99'



CLYST: lt gy-gy, sm-slty tex, occ lith frag incl, sb blky-blky, v sft, v gumbo, occ v sl calc, SLTY SH: gy-dk gy, sb plty-sb blky, mic gr, slty tex, mod frm; SHY SS: lt gy, vf-f gr, mod srt, v sft-fri, mod cmt; nfsoc

Depth: 1,004
Mud Weight: 9.3
Viscosity: 45
Yield Pt: 16
Filter Cake: 32
Solids: 7%
pH: 9.2
Chlorides: 8,100 mg/l

MUD WT: 9.1/ VIS: 38 IN
MUD WT: 9.2/ VIS: 42 OUT

TD SURFACE 1004' MD @ 16:51 MST on 1/22/2017. RAN 1002' OF 9 5/8" CASING, CEMENTED, TESTED BOP, MADE UP 7500' OF STANDS, RESMUMED DRILLING OF INTERMEDIATE @ 15:05 MST ON 1/24/2017.

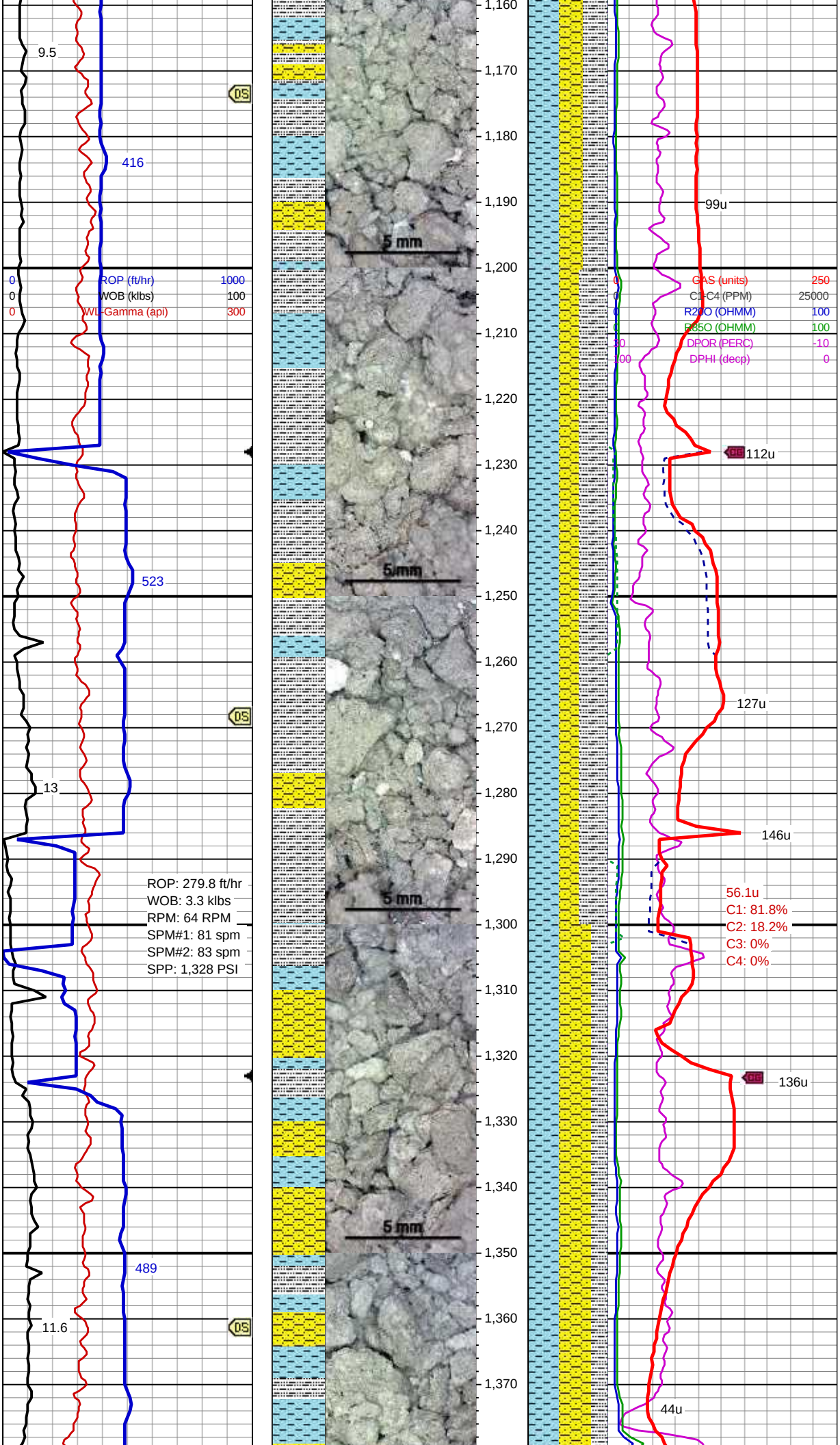
Bit #: 2
Type: Smith-KZ616
Size: 8.75
Depth In: 1,004'
Depth Out: 8,273'
Hours: 39.9 hrs
Jets: 2X14, 4X15
S/N: JK6194

CLYST: lt gy-gy, sm-slty tex, occ lith frag incl, sb blky-blky, v sft, v gumbo, occ v sl calc, SLTY SH: gy-dk gy, sb plty-sb blky, mic gr, slty tex, mod frm; SHY SS: lt gy, vf-f gr, mod srt, v sft-fri, mod cmt; nfsoc

MD: 1,079'
Inclination: 0.6°
Azimuth: 209.5°
TVD: 1,078.99'

MUD WT: 9.3/ VIS: 47 pH 9.2

CLYST: lt gy-gy, sm-slty tex, occ lith frag incl, sb blky-blky, v sft, v gumbo, occ v sl calc, SLTY SH: gy-dk gy, sb plty-sb blky, mic gr, slty tex, mod frm; SHY SS: lt gy, vf-f gr, mod srt, v sft-fri, mod cmt; nfsoc



mod cmt; nfsoc

MD: 1,173'
Inclination: 0.5°
Azimuth: 234.3°
TVD: 1,172.98'

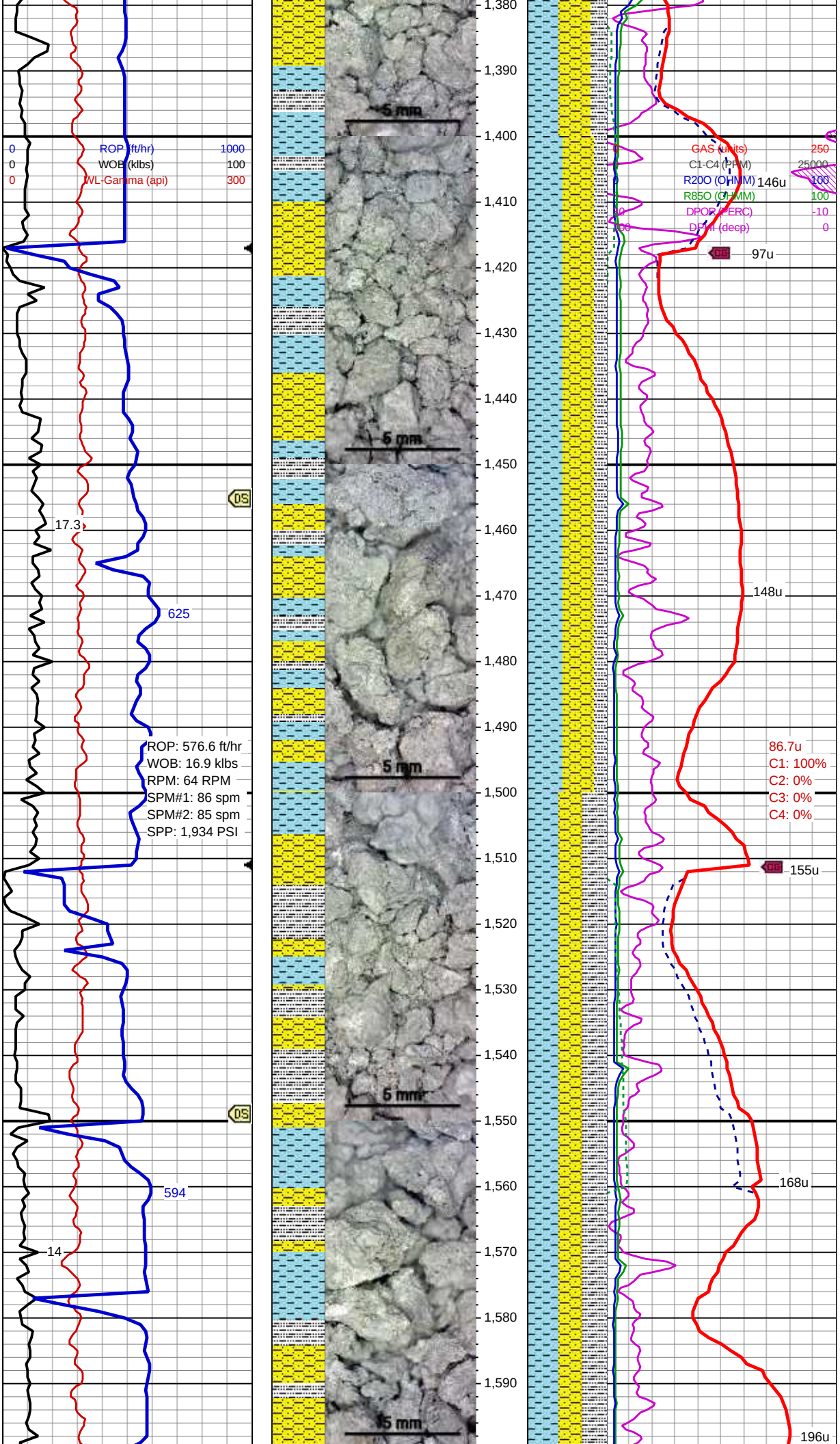
CLYST: lt gy-gy, sm-slty tex, occ lith frag incl, sb blky-blky, v sft, v gumbo, occ v sl calc, SLTY SH: gy-dk gy, sb plty-sb blky, mic gr, slty tex, mod frm; SHY SS: lt gy, vf-f gr, mod srt, v sft-fri, mod cmt; nfsoc

MD: 1,268'
Inclination: 0.4°
Azimuth: 212.7°
TVD: 1,267.98'

MUD WT: 9.2/ VIS: 46 IN
MUD WT: 9.2/ VIS: 42 OUT

CLYST: lt gy-gy, sm-slty tex, occ lith frag incl, sb blky-blky, v sft, v gumbo, occ v sl calc; SHY SS: lt gy, vf-f gr, mod srt, v sft-fri, mod cmt; SLTY SH: gy-dk gy, sb plty-sb blky, mic gr, slty tex, mod frm; nfsoc

MD: 1,361'
Inclination: 0.5°
Azimuth: 201.6°
TVD: 1,360.98'



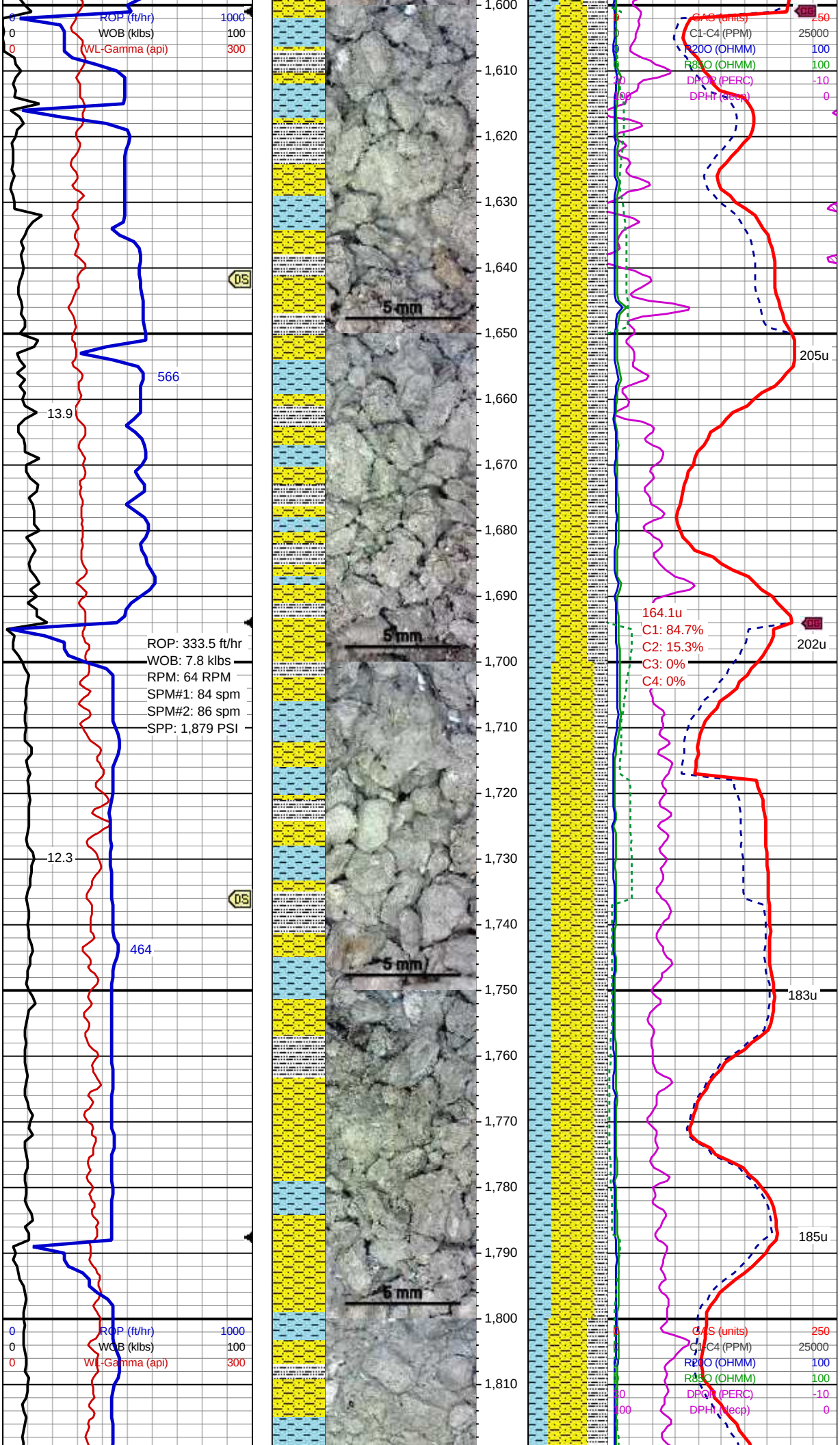
CLYST: lt gy-gy, sm-slty tex, occ lith frag incl, sb blky-blky, v sft, v gumbo, occ v sl calc; SHY SS: lt gy, vf-f gr, mod srt, v sft-fri, mod cmt; SLTY SH: gy-dk gy, sb plty-sb blky, mic gr, slty tex, mod frm; nfsoc

MD: 1,455'
Inclination: 0.5°
Azimuth: 205.6°
TVD: 1,454.97'

MUD WT: 9.1/ VIS: 44 IN
MUD WT: 9.1/ VIS: 46 OUT

MD: 1,549'
Inclination: 0.6°
Azimuth: 234°
TVD: 1,548.9'

CLYST: lt gy-gy, sm-slty tex, occ lith frag incl, sb blky-blky, v sft, v gumbo, occ v sl calc; SHY SS: lt gy, vf-f gr, mod srt, v sft-fri, mod cmt; SLTY SH: gy-dk gy, sb plty-sb blky, mic gr, slty tex, mod frm; nfsoc



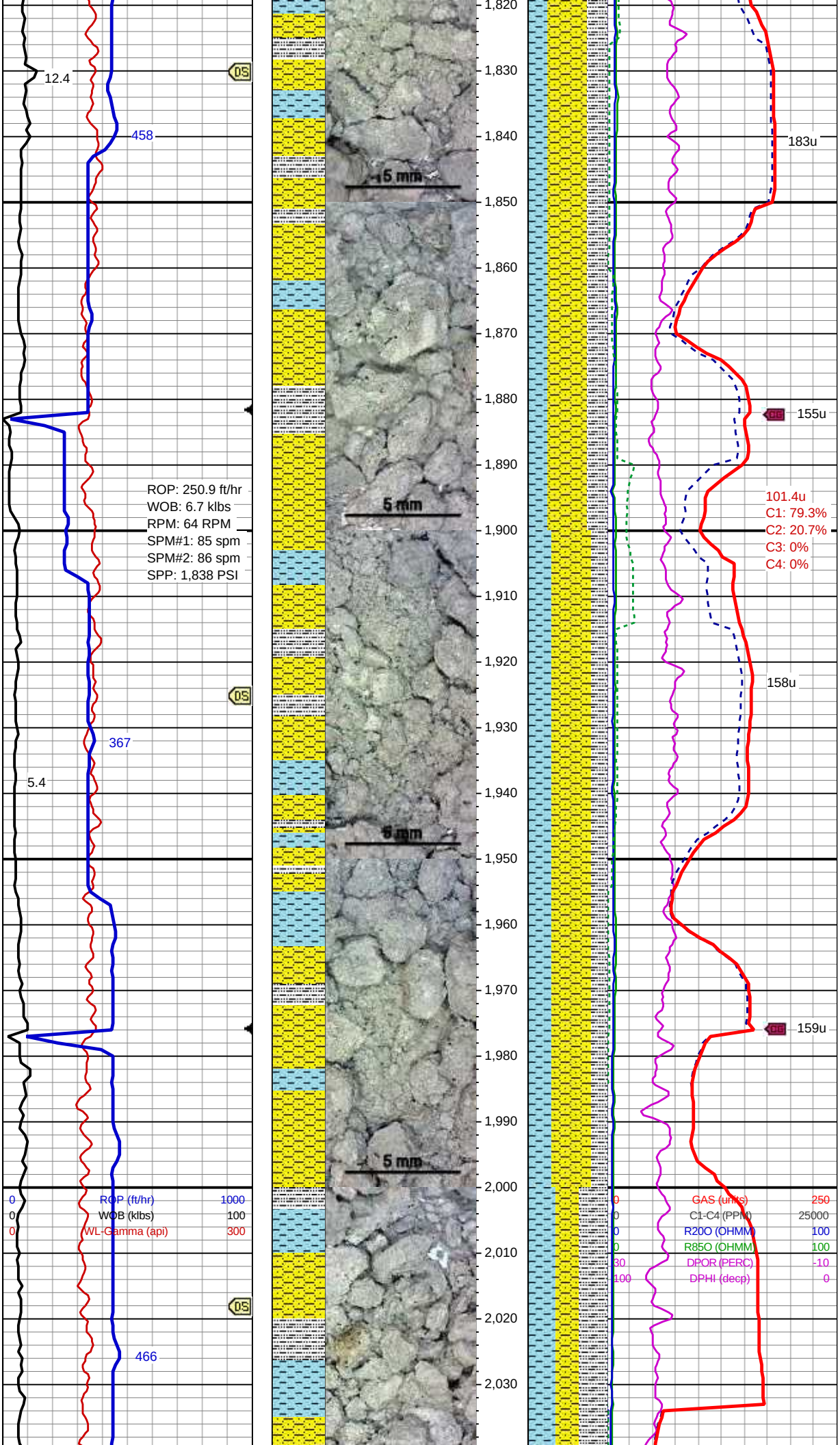
MD: 1,642'
Inclination: 0.9°
Azimuth: 234.8°
TVD: 1,641.96'

SHY SS: lt gy, vf-f gr, mod srt, sft-mod frm, mod cmt, occ glau incl; CLYST: lt gy-gy, sm-slty tex, occ lith frag incl, sb blky-blky, v sft, v gumbo, occ v sl calc; SLTY SH: gy-dk gy, sb plty-sb blky, mic gr, slty tex, mod frm; nfsoc

MD: 1,736'
Inclination: 0.8°
Azimuth: 227.1°
TVD: 1,735.95'

SHY SS: lt gy, vf-f gr, mod srt, sft-mod frm, mod cmt, occ glau incl; CLYST: lt gy-gy, sm-slty tex, occ lith frag incl, sb blky-blky, v sft, v gumbo, occ v sl calc; SLTY SH: gy-dk gy, sb plty-sb blky, mic gr, slty tex, mod frm; nfsoc

MUD WT: 9.1/ VIS: 46 IN
MUD WT: 9.1/ VIS: 44 OUT



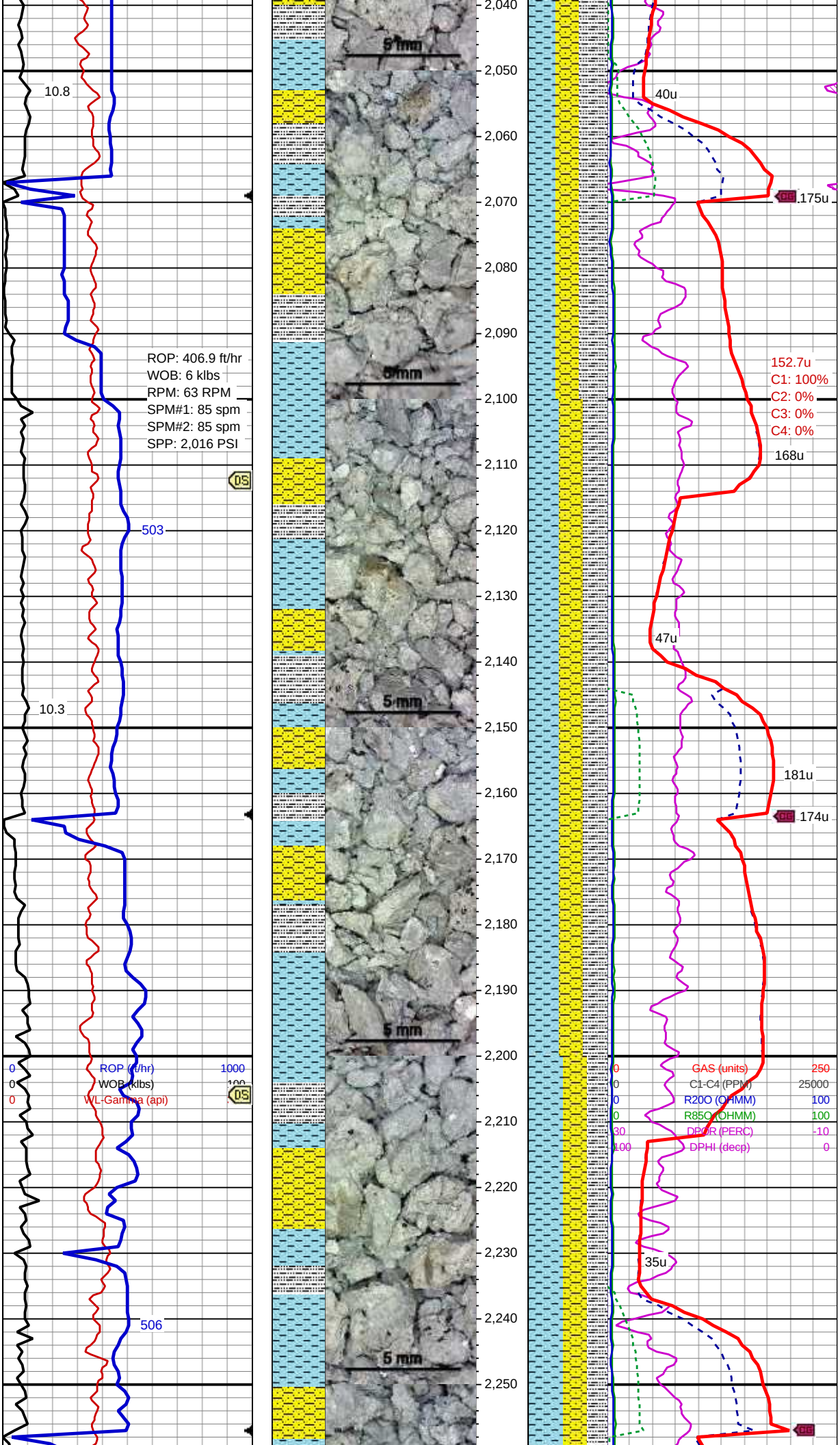
MD: 1,830'
Inclination: 0.8°
Azimuth: 235.7°
TVD: 1,829.94'

SHY SS: lt gy, vf-f gr, mod srt, sft-mod frm, mod cmt, occ glau incl; CLYST: lt gy-gy, sm-slty tex, occ lith frag incl, sb blky-blky, v sft, v gumbo, occ v sl calc; SLTY SH: gy-dk gy, sb plty-sb blky, mic gr, slty tex, mod frm; nfsoc

MD: 1,925'
Inclination: 0.9°
Azimuth: 240.8°
TVD: 1,924.93'

SHY SS: lt gy, vf-f gr, mod srt, sft-mod frm, mod cmt, occ glau incl; CLYST: lt gy-gy, sm-slty tex, occ lith frag incl, sb blky-blky, v sft, v gumbo, occ v sl calc; SLTY SH: gy-dk gy, sb plty-sb blky, mic gr, slty tex, mod frm; nfsoc

MD: 2,018'
Inclination: 0.7°
Azimuth: 243.3°
TVD: 2,017.92'



CLYST: lt gy-gy, sm-slty tex, occ lith frag incl, sb blky-blky, v sft, v gumbo, occ v sl calc, SLTY SH: gy-dk gy, sb plty-sb blky, mic gr, slty tex, mod frm; SHY SS: lt gy, vf-f gr, mod srt, v sft-fri, mod cmt; nfsoc

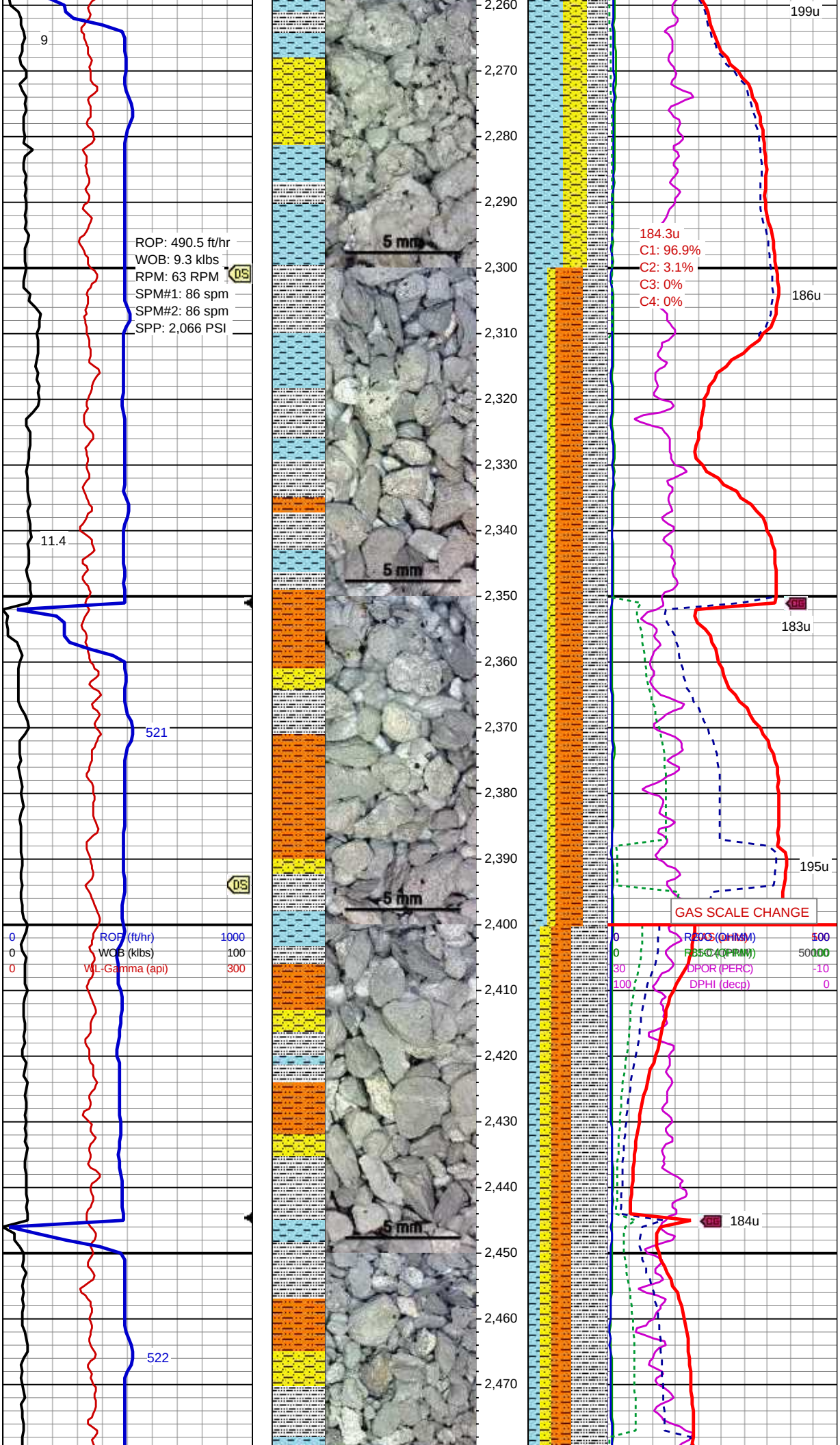
MUD WT: 9.1/ VIS: 44 IN
MUD WT: 9.1/ VIS: 46 OUT

MD: 2,112'
Inclination: 0.4°
Azimuth: 251°
TVD: 2,111.92'

CLYST: lt gy-gy, sm-slty tex, occ lith frag incl, sb blky-blky, v sft, v gumbo, occ v sl calc, SLTY SH: gy-dk gy, sb plty-sb blky, mic gr, slty tex, mod frm; SHY SS: lt gy, vf-f gr, mod srt, v sft-fri, mod cmt; nfsoc

MD: 2,206'
Inclination: 0.6°
Azimuth: 213.7°
TVD: 2,205.91'

CLYST: lt gy-gy, sm-slty tex, occ lith frag incl, sb blky-blky, v sft, v gumbo, occ v sl calc, SLTY SH: gy-dk gy, sb plty-sb blky, mic gr, slty tex, mod frm; SHY SS: lt gy, vf-f gr, mod srt, v sft-fri, mod cmt; nfsoc



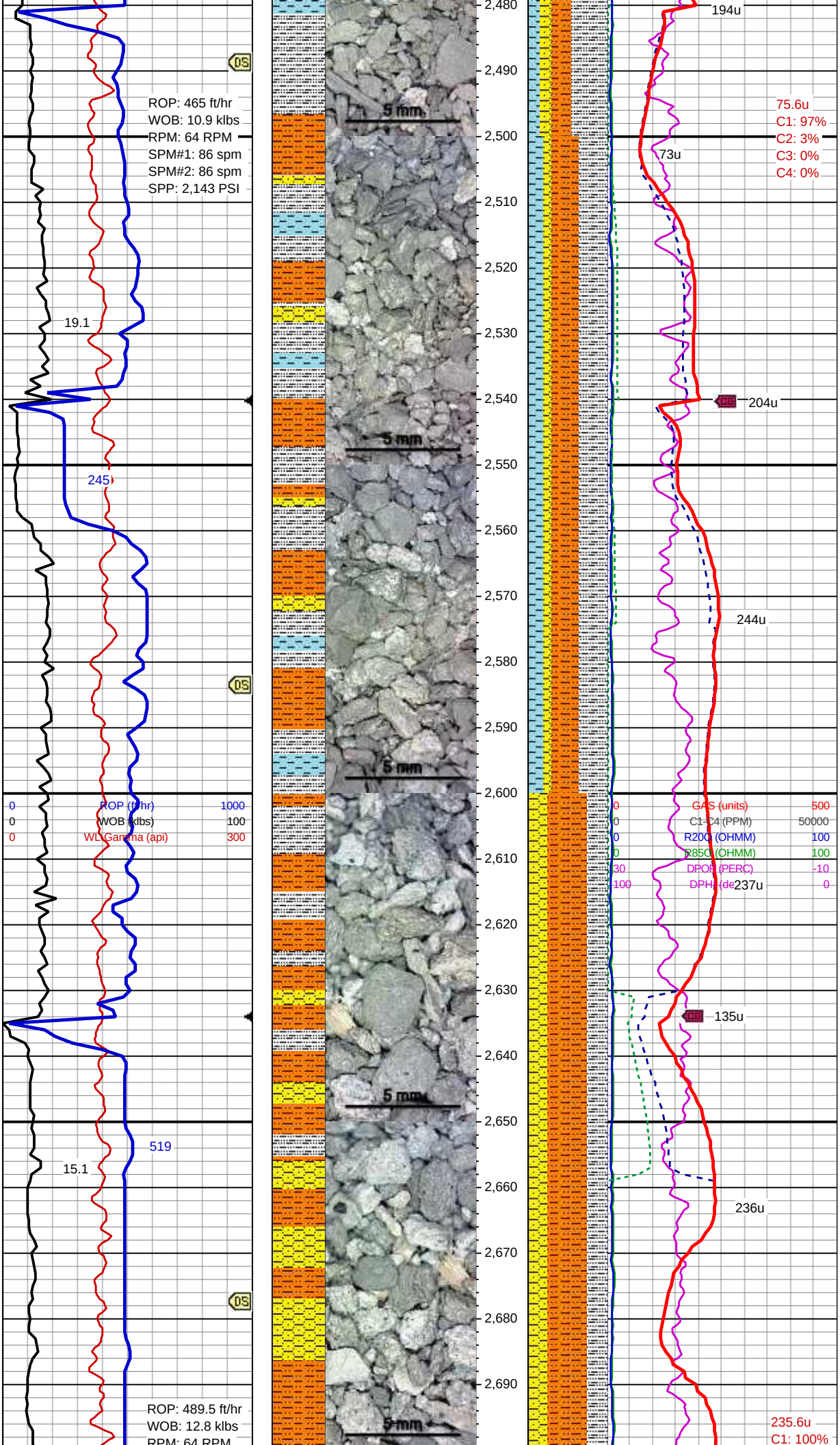
MD: 2,301'
Inclination: 0.8°
Azimuth: 206°
TVD: 2,300.91'

MUD WT: 9.0/ VIS: 46 IN MUD
WT: 9.0/ VIS: 48 OUT

SHY SLTST: lt gy- med gy, rthy- slty tex, sb plty- sb blky, occ plty, frm; SLTY SH: gy-dk gy, sb plty-sb blky, mic gr, slty tex, mod frm; SHY SS: lt gy, vf-f gr, mod srt, v sft-fri, mod cmt; CLYST: lt gy-gy, sm-slty tex, occ lith frag incl, sb blky-blky, v sft, v gumbo, occ v sl calc; nfsoc

MD: 2,394'
Inclination: 0.7°
Azimuth: 194.7°
TVD: 2,393.9'

SLTY SH: med-dk gy, sb plty- plty, occ sb blky, mod frm-frm, slty-gt tex, non calc; SHY SLTST: lt gy- med gy, rthy- slty tex, sb plty- sb blky, occ plty, frm; SHY SS: lt gy, vf-f gr, mod srt, v sft-fri, mod cmt; CLYST: lt gy-gy, sm-slty tex, occ lith frag incl, sb blky-blky, v sft, v gumbo, occ v sl calc; nfsoc



MD: 2,489'
Inclination: 0.7°
Azimuth: 202°
TVD: 2,488.89'

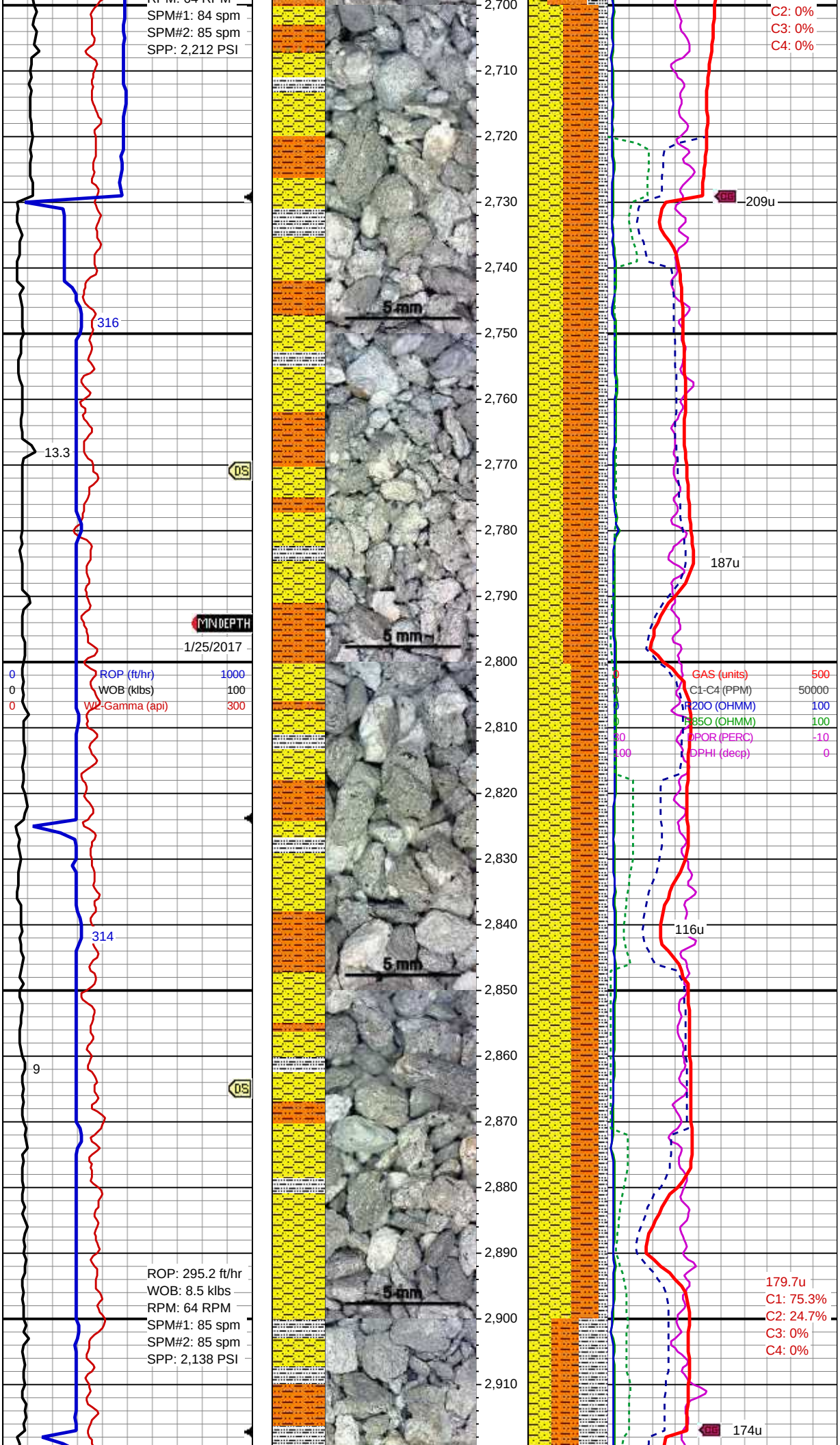
SHY SLTST: lt gy- med gy, rthy- slty tex, sb plty- sb blky, occ plty, frm; SLTY SH: gy-dk gy, sb plty-sb blky, mic gr, slty tex, mod frm; SHY SS: lt gy, vf-f gr, mod srt, v sft-fri, mod cmt; CLYST: lt gy-gy, sm-slty tex, occ lith frag incl, sb blky-blky, v sft, v gumbo, occ v sl calc; nfsoc

MUD WT: 9.0/ VIS: 48 IN
MUD WT: 9.0/ VIS: 50 OUT

MD: 2,583'
Inclination: 1°
Azimuth: 171.5°
TVD: 2,582.88'

SHY SLTST: lt gy- med gy, rthy- slty tex, sb plty- sb blky, occ plty, frm; SLTY SH: gy-dk gy, sb plty-sb blky, mic gr, slty tex, mod frm; SHY SS: lt gy, vf-f gr, mod srt, v sft-fri, mod cmt; nfsoc

MD: 2,677'
Inclination: 1.3°
Azimuth: 156.3°
TVD: 2,676.86'



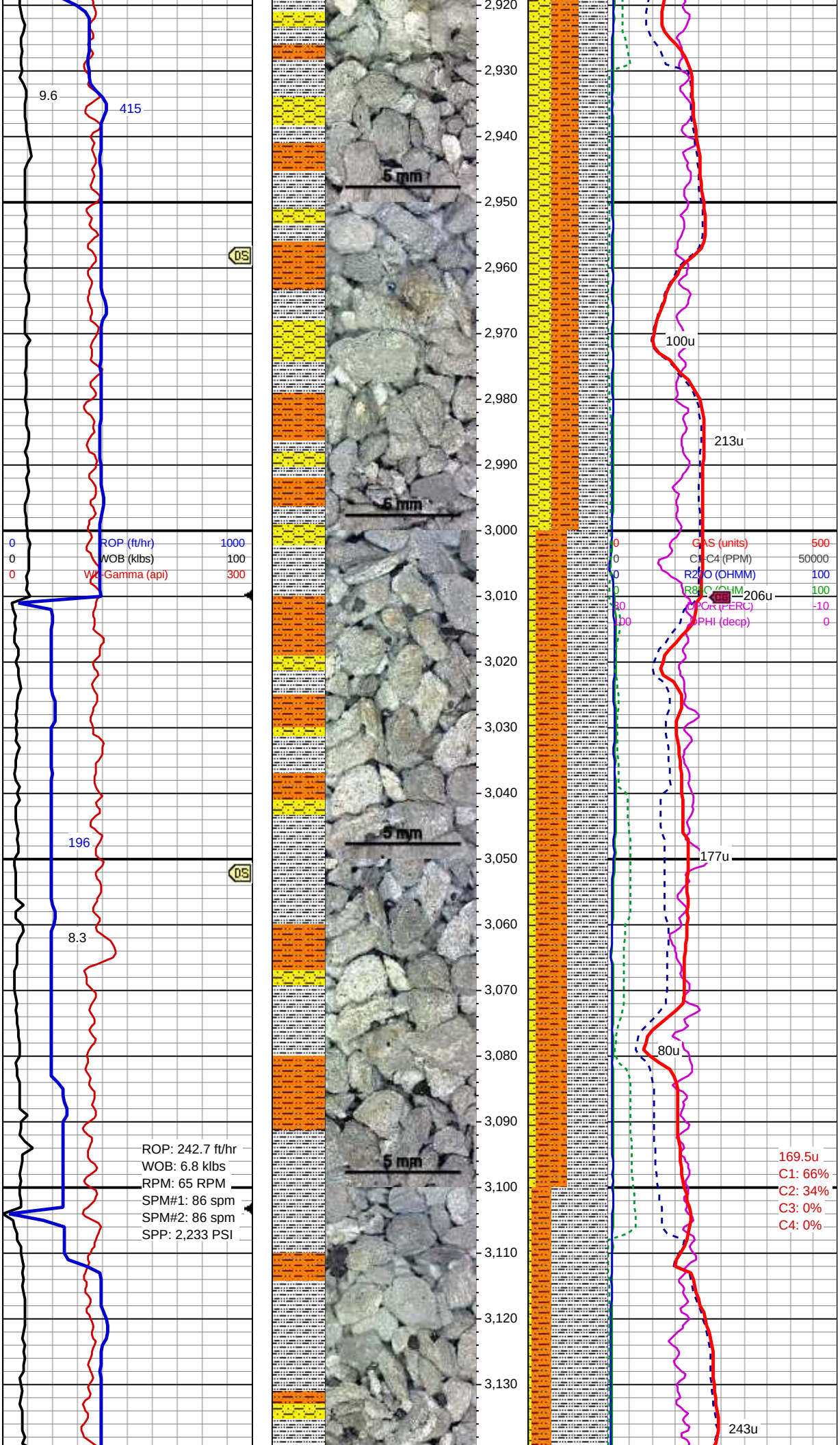
SHY SS: lt gy, s&p ip, vf-f gr, mod srt, v sft-fri, blk spec, mod cmt; SHY SLTST: lt gy- med gy, rthy- slty tex, sb plty- sb blky, occ plty, frm; SLTY SH: gy-dk gy, sb plty-sb blky, mic gr, slty tex, mod frm; nfsoc

MD: 2,769'
Inclination: 1.4°
Azimuth: 115.6°
TVD: 2,768.84'

MUD WT: 9.0/ VIS: 47 IN
MUD WT: 9.0/ VIS: 48 OUT

SHY SS: lt gy, s&p ip, vf-f gr, mod srt, v sft-fri, blk spec, mod cmt; SHY SLTST: lt gy- med gy, rthy- slty tex, sb plty- sb blky, occ plty, frm; SLTY SH: gy-dk gy, sb plty-sb blky, mic gr, slty tex, mod frm; nfsoc

MD: 2,865'
Inclination: 1.2°
Azimuth: 111.1°
TVD: 2,864.81'



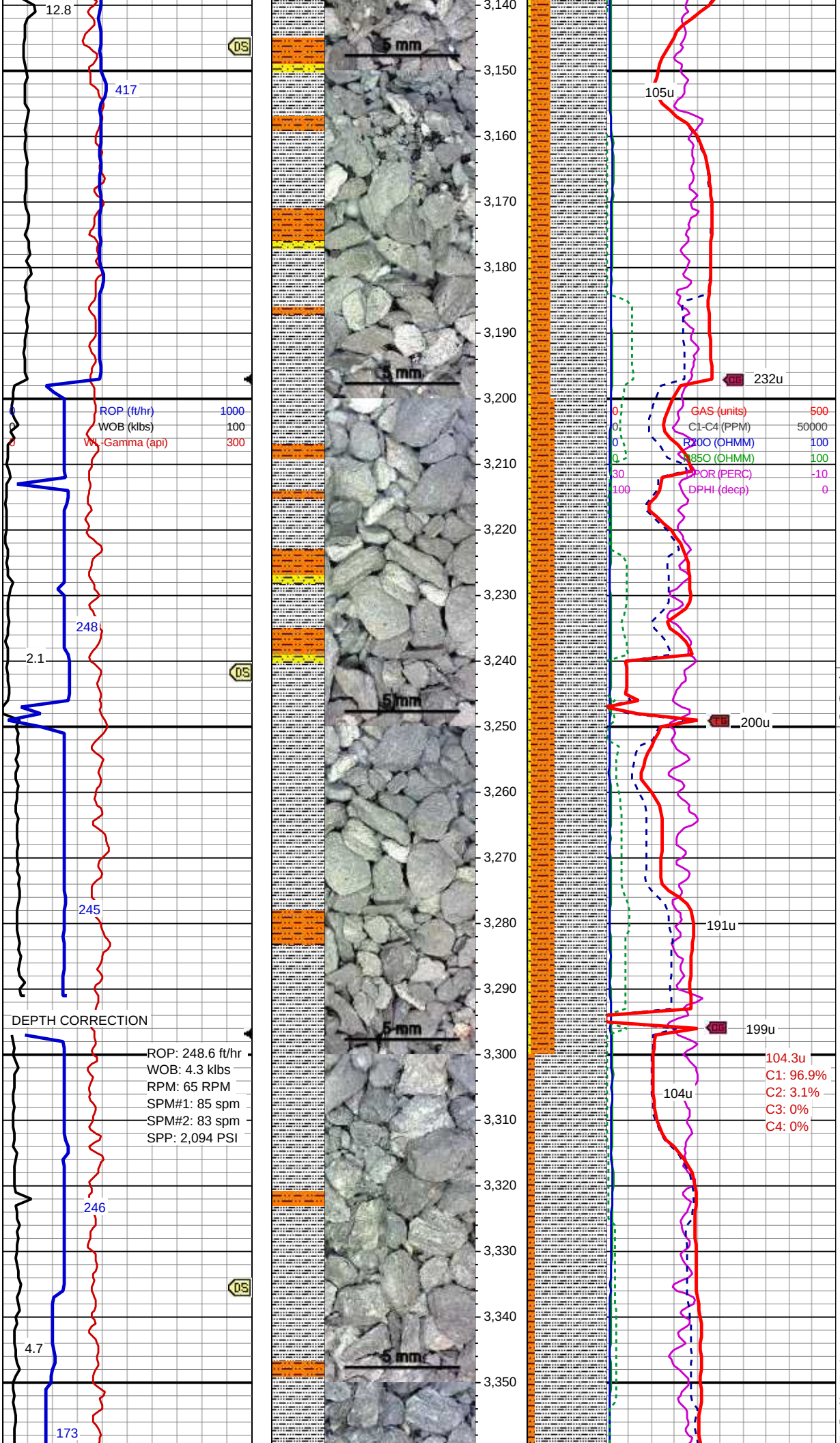
SLTY SH: gy-med gy, sb plty-sb blky, mic gr, slty tex, mod frm; SHY SLTST: lt gy- med gy, rthy- slty tex, sb plty- sb blky, occ plty, frm; SHY SS: lt gy, s&p ip, vf-f gr, mod srt, v sft-fri, blk spec, mod cmt; nfsoc

MD: 2,958'
Inclination: 1.6°
Azimuth: 100.5°
TVD: 2,957.79'

MUD WT: 9.0/ VIS: 48 IN
MUD WT: 9.0/ VIS: 47 OUT

SLTY SH: gy-med gy, sb plty-sb blky, mic gr, slty tex, mod frm; SHY SLTST: lt gy- med gy, rthy- slty tex, sb plty- sb blky, occ plty, frm; SHY SS: lt gy, s&p ip, vf-f gr, mod srt, v sft-fri, blk spec, mod cmt; nfsoc

MD: 3,052'
Inclination: 1.5°
Azimuth: 94.9°
TVD: 3,051.75'



MD: 3,146'
Inclination: 1.8°
Azimuth: 96.1°
TVD: 3,145.71'

SLTY SH: gy-med gy, sb plty-sb blky, mic gr, slty tex, mod frm; SHY SLTST: lt gy- med gy, rthy- slty tex, sb plty- sb blky, occ plty, frm, tr shy ss; nfsoc

Depth: 3,246
Mud Weight: 9.1
Viscosity: 53
Yield Pt: 17
Filter Cake: 5.6
Solids: 4%
pH: 9
Chlorides: 6,500 mg/l

MUD WT: 9.1/ VIS: 50 IN
MUD WT: 9.0/ VIS: 50 OUT

MD: 3,241'
Inclination: 1.8°
Azimuth: 93.7°
TVD: 3,240.67'

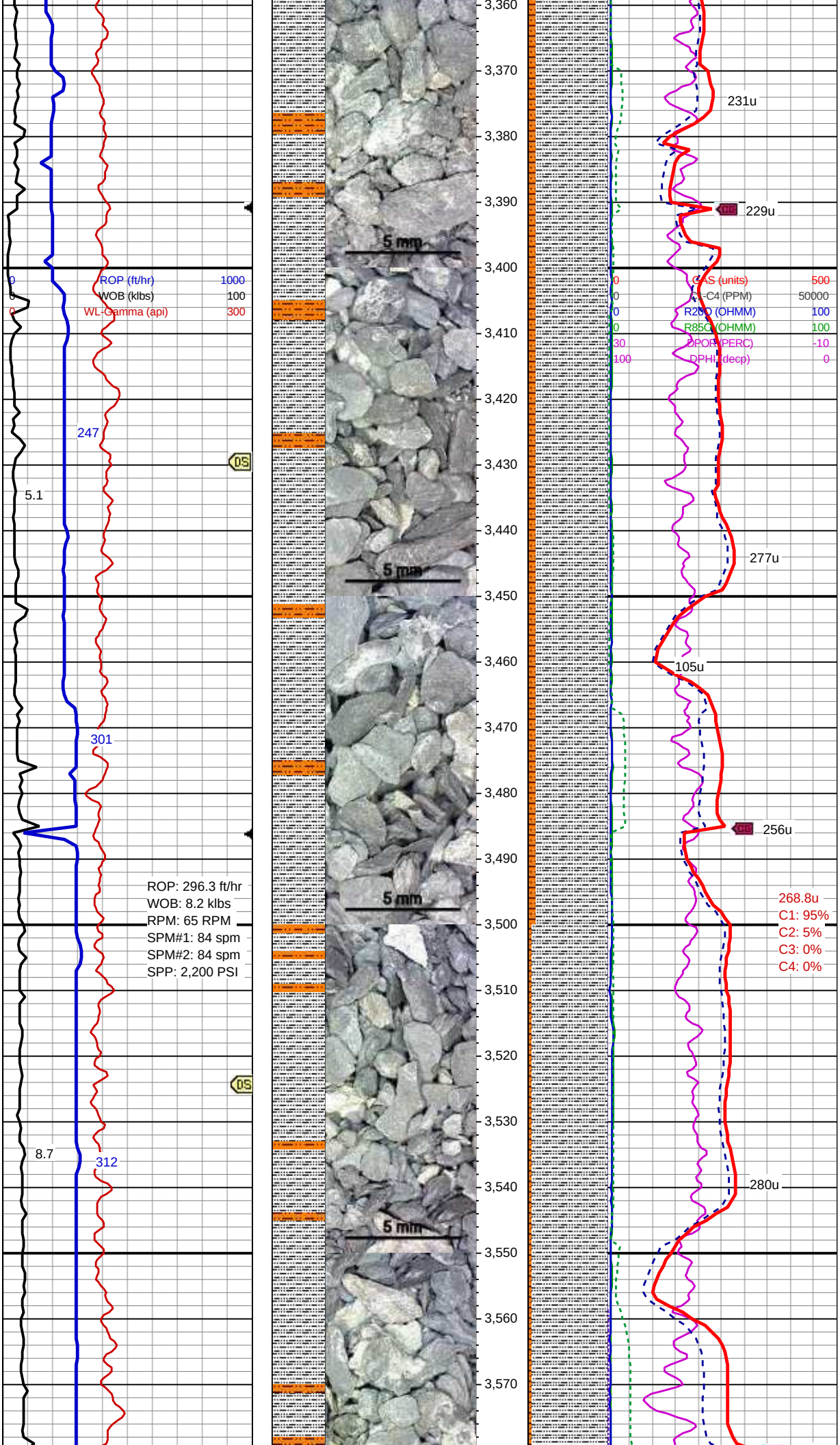
TOOH due to Tool failure 3246'MD @ 02:30 MST on 1/25/2017. Resumed drilling @ 07:43 MST on 1/25/2017.

SLTY SH: gy-med gy, sb plty-sb blky, mic gr, slty tex grdg to shy sltst, mod sft-mod frm, v sl calc; SHY SLTST: lt gy-med gy, rthy slty tex, sb plty-sb blky, occ plty, frm, occ shy ss; nfsoc

MUD WT: 9.1/ VIS: 46 IN
MUD WT: 9.1/ VIS: 45 OUT

MD: 3,335'
Inclination: 1.3°
Azimuth: 81.4°
TVD: 3,334.63'

SLTY SH: gy-med gy, sb plty-sb blky, mic gr, slty tex grdg to shy sltst, mod sft-mod frm, v sl calc; SHY SLTST: lt gy-med gy, rthy slty tex, sb plty-sb blky, mod frm-frm, tr shy ss; nfsoc



blky, mod frm-frm, tr shy ss, nsoc

MUD WT: 9.1/ VIS: 47 IN
MUD WT: 9.1/ VIS: 47 OUT

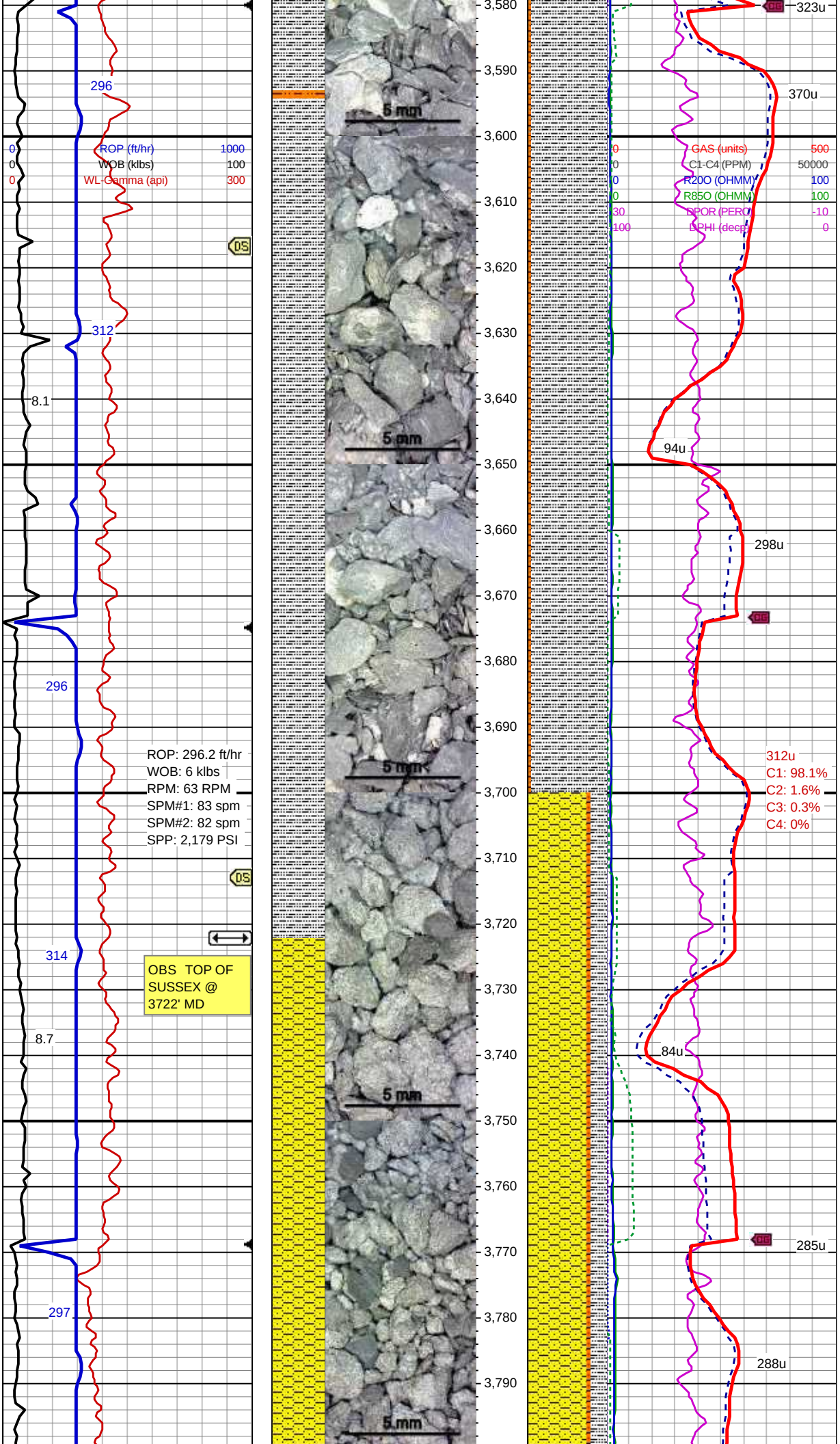
MD: 3,429'
Inclination: 1.5°
Azimuth: 82.2°
TVD: 3,428.6'

SLTY SH: gy-med gy, occ lt brn, sb plty-sb blky, mic gr, slty tex grdg to shy sltst, mod sft-mod frm, v sl calc; SHY SLTST: lt gy-med gy, rthy slty tex sb plty-sb blky, mod frm-frm, tr shy ss; tr fnt yel min flor, nsoc

MUD WT: 9.1/ VIS: 47 IN
MUD WT: 9.1/ VIS: 47 OUT

MD: 3,524'
Inclination: 1.6°
Azimuth: 84°
TVD: 3,523.57'

SLTY SH: gy-med gy, occ lt brn, sb plty-sb blky, mic gr, slty tex grdg to shy sltst, mod sft-mod frm, v sl calc; SHY SLTST: lt gy-med gy, rthy slty tex sb plty-sb blky, mod frm-frm, tr shy ss; tr fnt yel min flor, nsoc



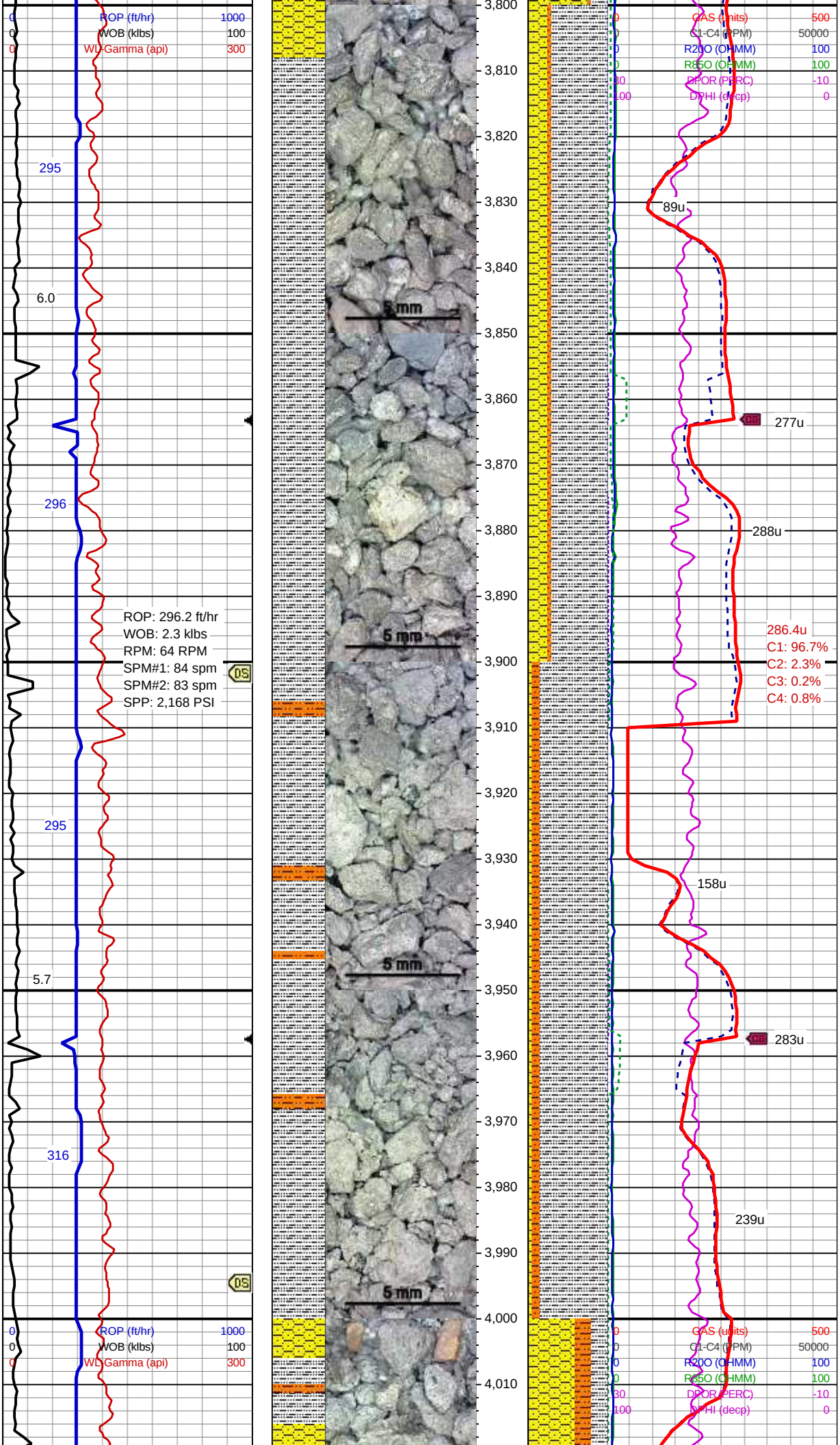
MD: 3,617'
Inclination: 1.1°
Azimuth: 76.3°
TVD: 3,616.54'

SLTY SH: gy-med gy, occ lt brn, sb plty-sb blky, mic gr, slty tex grdg to shy sltst, mod sft-mod frm, v sl calc; SHY SLTST: lt gy-med gy, rthy slty tex sb plty-sb blky, mod frm-frm, tr shy ss; tr fnt yel min flor, nsoc

MUD WT: 9.1/ VIS: 54 IN
MUD WT: 9.1/ VIS: 48 OUT

MD: 3,713'
Inclination: 0.9°
Azimuth: 37.4°
TVD: 3,712.53'

SLTY SH: gy-med gy, occ lt brn, sb plty-sb blky, mic gr, slty tex grdg to shy sltst, mod sft-mod frm, v sl calc; SHY SLTST: lt gy-med gy, rthy slty tex sb plty-sb blky, mod frm-frm, SHY SS: lt gy-lt brn, occ clr-s&p, vf-f gr, sb ang-sb rnd, mod-p srt, mod cmtd, cly mtx, p-mod p por, sl calc; rr fnt yel min flor, nsoc



SLTY SH: gy-med gy, occ lt brn, sb plty-sb blky, mic gr, slty tex grdg to shy sltst, mod sft-mod frm, v sl calc; SHY SLTST: lt gy-med gy, rthy slty tex sb plty-sb blky, mod frm-frm, SHY SS: lt gy-lt brn, occ clr-s&p, vf-f gr, sb ang-sb rnd, mod-p srt, mod cmtd, cly mtx, p-mod p por, sl calc; rr fnt yel min flor, nsoc

MD: 3,901'
Inclination: 1.1°
Azimuth: 357.5°
TVD: 3,900.5'

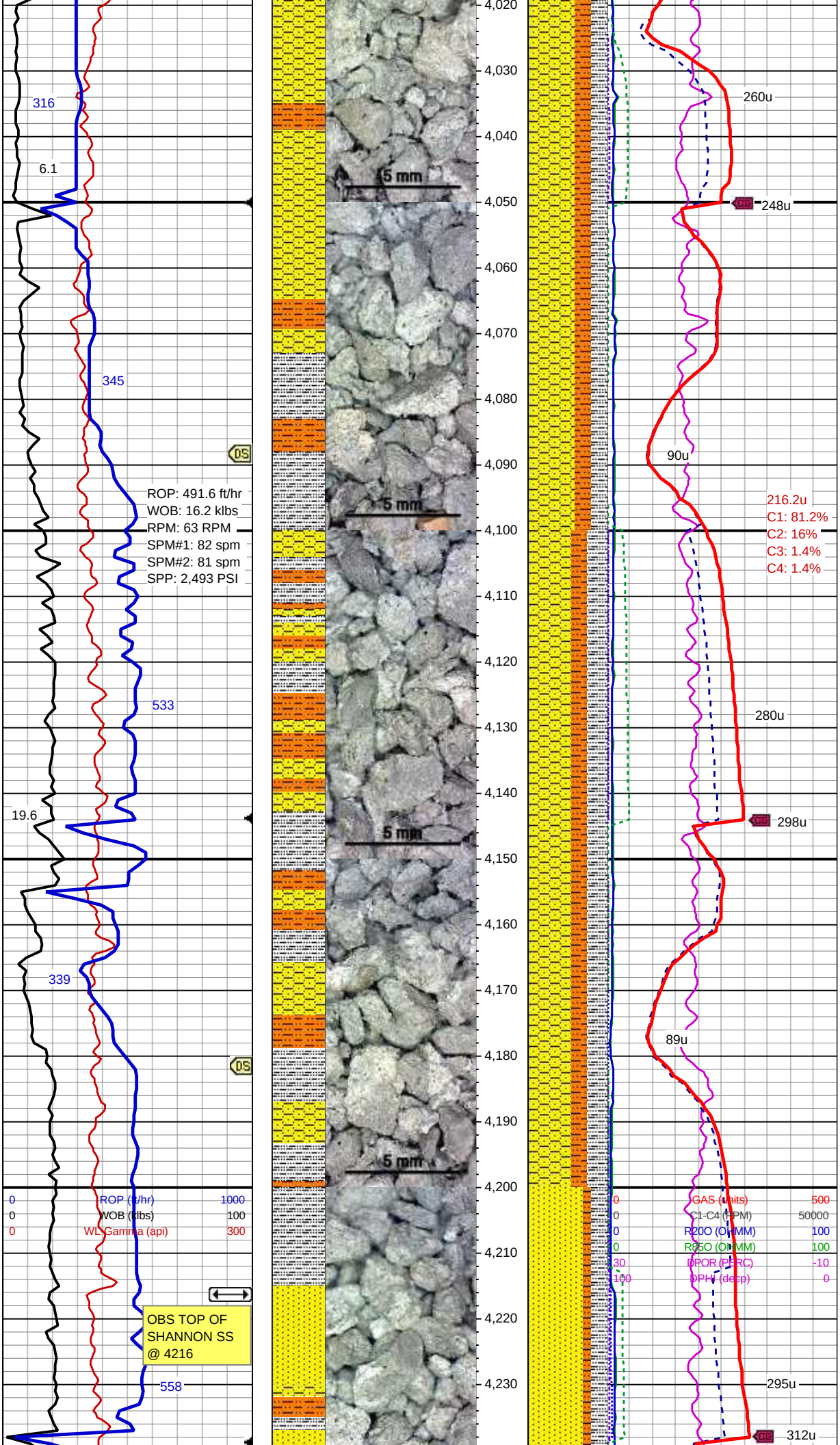
MUD WT: 9.2/ VIS: 50 IN
MUD WT: 9.2/ VIS: 50 OUT

SLTY SH: gy-med gy, occ lt brn, sb plty-sb blky, mic gr, slty tex grdg to shy sltst, mod sft-mod frm, v sl calc; SHY SLTST: lt gy-med gy, rthy slty tex sb plty-sb blky, mod frm-frm, SHY SS: lt gy-lt brn, occ clr-s&p, vf-f gr, sb ang-sb rnd, mod-p srt, mod cmtd, cly mtx, p-mod p por, sl calc; rr fnt yel min flor, nsoc

RIG REPAIR AT 3954' MD
@ 11:45 TO 12:45 MST

MUD WT: 9.2/ VIS: 50 IN
MUD WT: 9.3/ VIS: 56 OUT

MD: 3,994'
Inclination: 0.9°
Azimuth: 340.3°
TVD: 3,993.49'



SLTY SH: gy-med gy, occ lt brn, sb plty-sb blky, mic gr, slty tex grdg to shy sltst, mod sft-mod frm, v sl calc; SHY SLTST: lt gy-med gy, rthy slty tex sb plty-sb blky, mod frm-frm, SHY SS: lt gy-lt brn, occ clr-s&p, vf-f gr, sb ang-sb rnd, mod-p srt, mod cmtd, cly mtx, p-mod p por, sl calc; rr fnt yel min flor, v lt bl difse cut, no stn

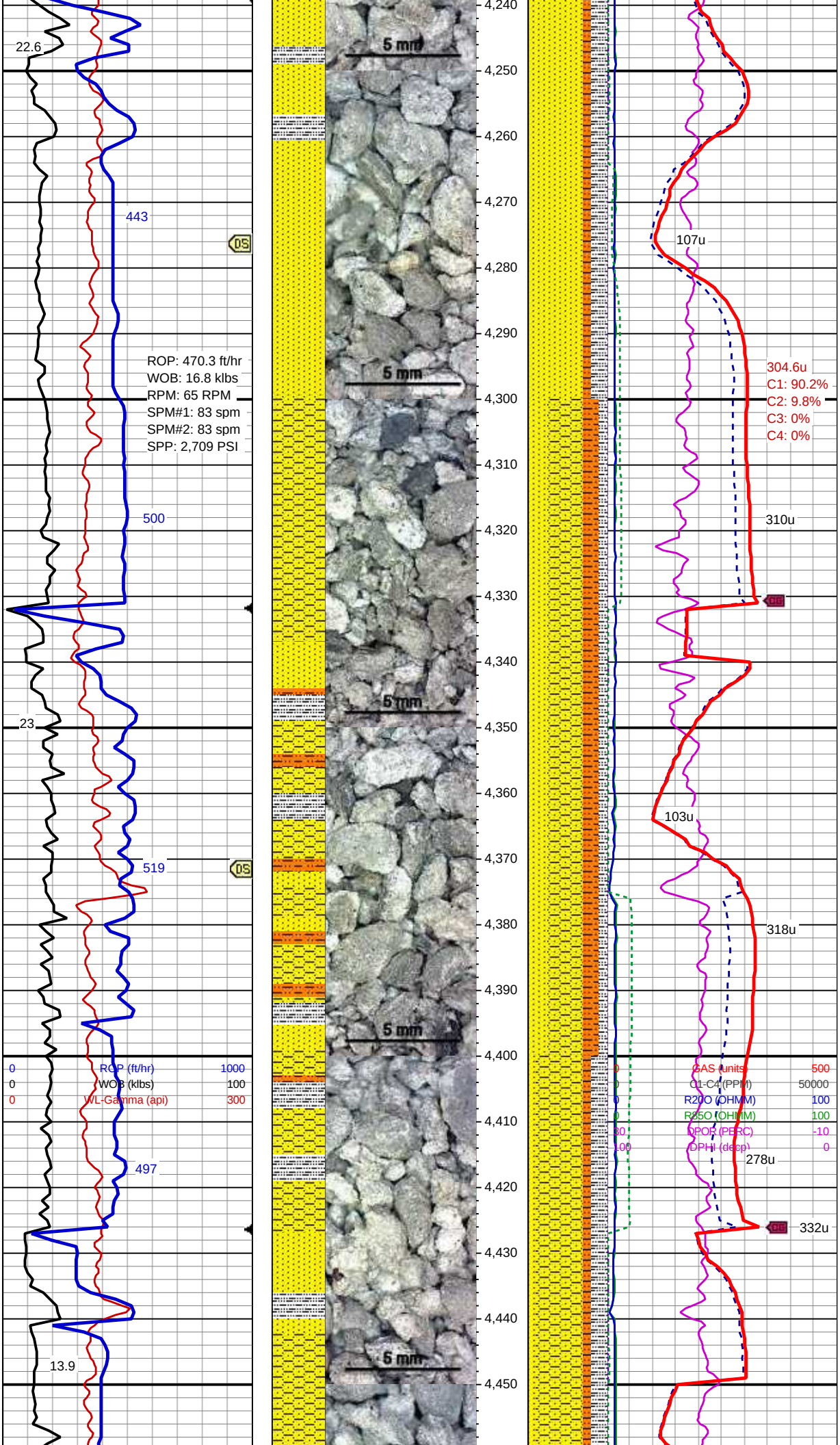
MD: 4,088'
Inclination: 0.6°
Azimuth: 338.9°
TVD: 4,087.48'

SLTY SH: gy-med gy, occ lt brn, sb plty-sb blky, mic gr, slty tex grdg to shy sltst, mod sft-mod frm, v sl calc; SHY SLTST: lt gy-med gy, rthy slty tex sb plty-sb blky, mod frm-frm, SHY SS: lt gy-lt brn, occ clr-s&p, vf-f gr, sb ang-sb rnd, mod-p srt, mod cmtd, cly mtx, p-mod p por, sl calc; rr fnt yel min flor, v lt bl difse cut, no stn

MD: 4,182'
Inclination: 0.9°
Azimuth: 319°
TVD: 4,181.47'

MUD WT: 9.3/ VIS: 56 IN
MUD WT: 9.3/ VIS: 56 OUT

SLTY SH: gy-med gy, occ lt brn, sb



plty-sb blky, mic gr, slty tex grdg to shy sltst, mod sft-mod frm, v sl calc; SHY SLTST: lt gy-med gy, rthy slty tex sb plty-sb blky, mod frm-frm, SS: wh-lt gy-lt brn, vf-f gr, sb ang-sb rnd, mod-p srt, mod cmtd, cly mtx, p-mod p por, sl calc; rr fnt yel min flor, v lt bl difse cut, no stn

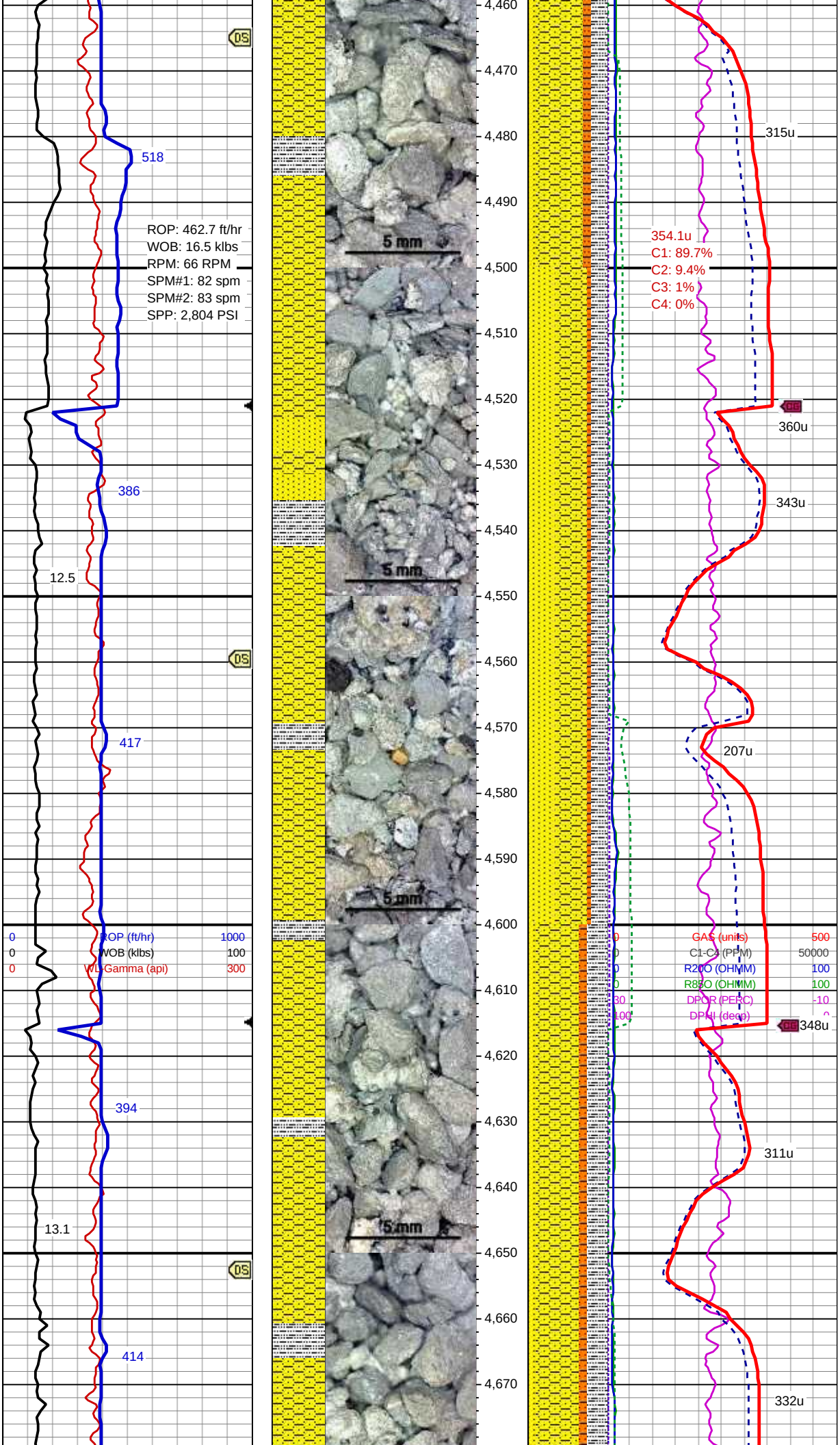
MD: 4,276'
Inclination: 1.3°
Azimuth: 302.2°
TVD: 4,275.46'

SHY SS: lt gy-lt brn, occ clr-s&p, vf-f gr, sb ang-sb rnd, mod-p srt, mod cmtd, cly mtx, p-mod p por, sl calc, SLTY SH: gy-med gy, occ lt brn, sb plty-sb blky, mic gr, slty tex grdg to shy sltst, mod sft-mod frm, v sl calc; SHY SLTST: lt gy-med gy, rthy slty tex sb plty-sb blky, mod frm-frm, SS: wh-lt gy-lt brn, vf-f gr, sb ang-sb rnd, mod-p srt, mod cmtd, cly mtx, p-mod p por, sl calc; rr fnt yel min flor, v lt bl difse cut, no stn

MD: 4,371'
Inclination: 1.3°
Azimuth: 291.8°
TVD: 4,370.43'

MUD WT: 9.3/ VIS: 52 IN
MUD WT: 9.3/ VIS: 60 OUT
WATER LOSS 5.6 / pH 10.37

SHY SS: lt gy-lt brn, occ clr-s&p, vf-f gr, sb ang-sb rnd, mod-p srt, mod cmtd, cly mtx, p-mod p por, sl calc, SLTY SH: gy-med gy, occ lt brn, sb plty-sb blky, mic gr, slty tex grdg to shy sltst, mod sft-mod frm, v sl calc; SHY SLTST: lt gy-med gy, rthy slty tex sb plty-sb blky, mod frm-frm, SS: wh-lt gy-lt brn, vf-f gr, sb ang-sb rnd,



mod-p srt, mod cmtd, cly mtx, p-mod p por, sl calc; rr fnt yel min flor, v lt bl difse cut, no stn

MD: 4,465'
Inclination: 1.8°
Azimuth: 300.9°
TVD: 4,464.4'

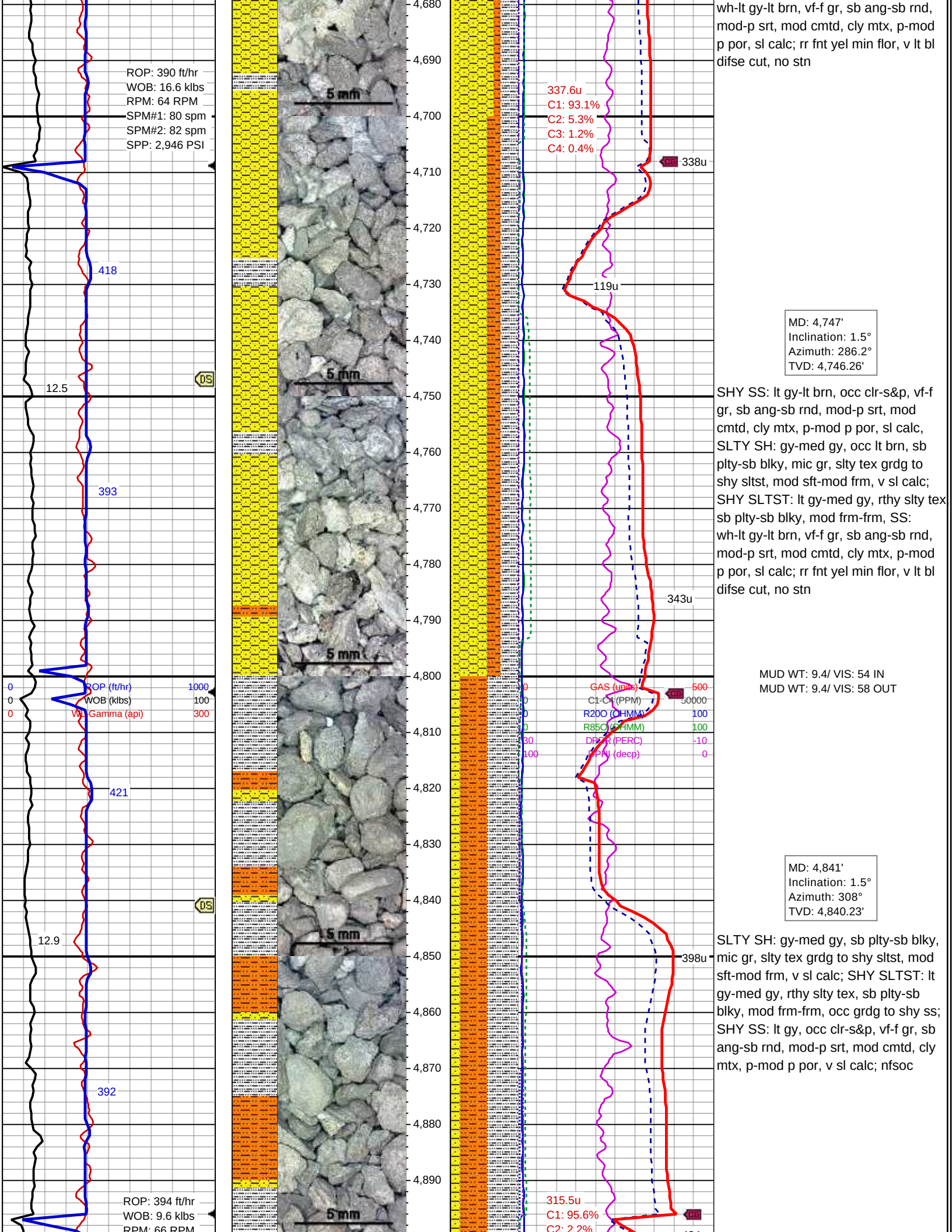
SHY SS: lt gy-lt brn, occ clr-s&p, vf-f gr, sb ang-sb rnd, mod-p srt, mod cmtd, cly mtx, p-mod p por, sl calc, SLTY SH: gy-med gy, occ lt brn, sb plty-sb blky, mic gr, slty tex grdg to shy sltst, mod sft-mod frm, v sl calc; SHY SLTST: lt gy-med gy, rthy slty tex sb plty-sb blky, mod frm-frm, SS: wh-lt gy-lt brn, vf-f gr, sb ang-sb rnd, mod-p srt, mod cmtd, cly mtx, p-mod p por, sl calc; rr fnt yel min flor, v lt bl difse cut, no stn

MD: 4,559'
Inclination: 1.8°
Azimuth: 286.7°
TVD: 4,558.35'

MUD WT: 9.4/ VIS: 55 IN
MUD WT: 9.4/ VIS: 54 OUT

MD: 4,653'
Inclination: 1.9°
Azimuth: 275.1°
TVD: 4,652.3'

SHY SS: lt gy-lt brn, occ clr-s&p, vf-f gr, sb ang-sb rnd, mod-p srt, mod cmtd, cly mtx, p-mod p por, sl calc, SLTY SH: gy-med gy, occ lt brn, sb plty-sb blky, mic gr, slty tex grdg to shy sltst, mod sft-mod frm, v sl calc; SHY SLTST: lt gy-med gy, rthy slty tex sb plty-sb blky, mod frm-frm, SS:



wh-lt gy-lt brn, vf-f gr, sb ang-sb rnd, mod-p srt, mod cmtd, cly mtx, p-mod p por, sl calc; rr fnt yel min flor, v lt bl difse cut, no stn

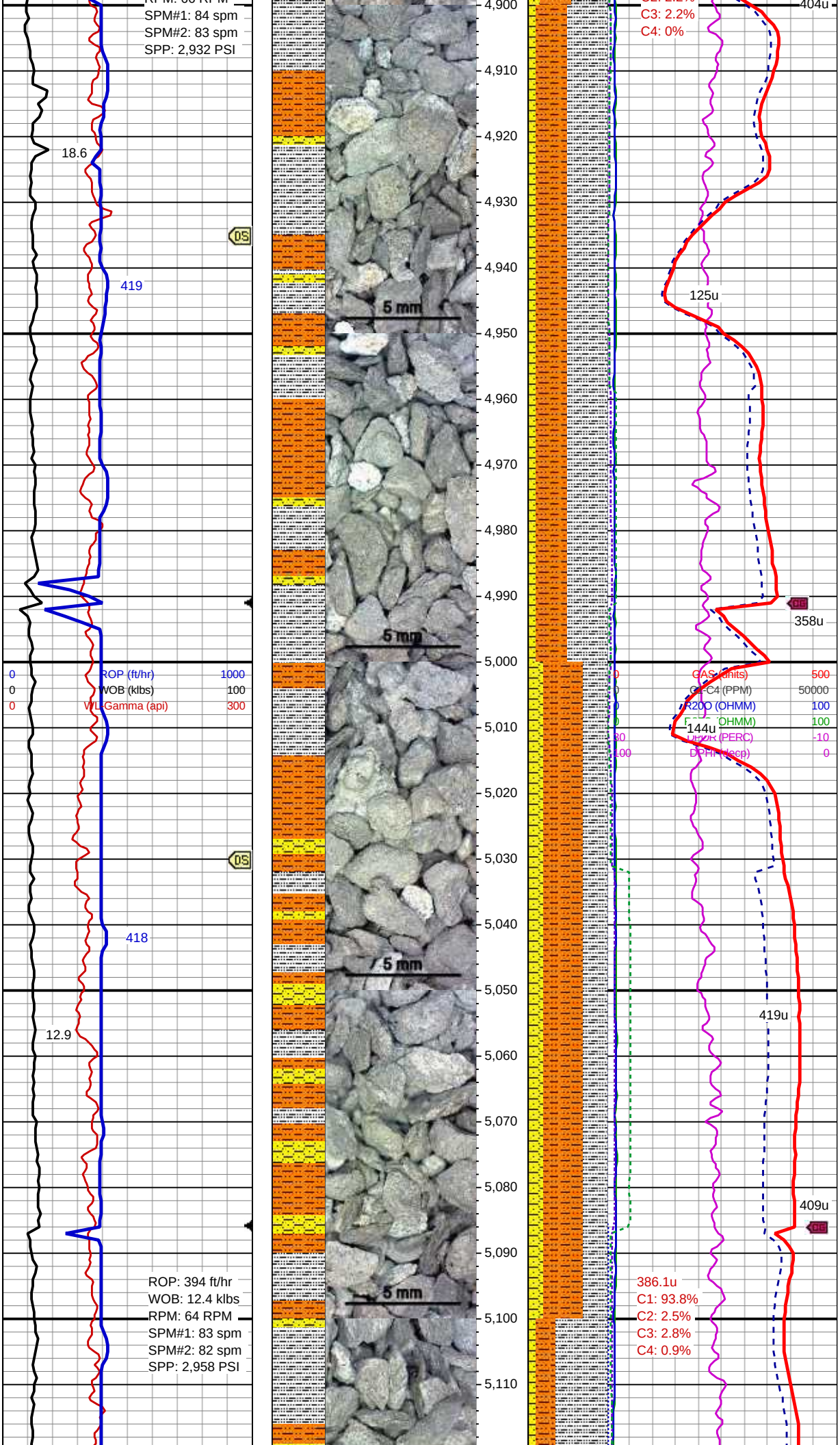
MD: 4,747'
Inclination: 1.5°
Azimuth: 286.2°
TVD: 4,746.26'

SHY SS: lt gy-lt brn, occ clr-s&p, vf-f gr, sb ang-sb rnd, mod-p srt, mod cmtd, cly mtx, p-mod p por, sl calc, SLTY SH: gy-med gy, occ lt brn, sb plty-sb blky, mic gr, slty tex grdg to shy sltst, mod sft-mod frm, v sl calc; SHY SLTST: lt gy-med gy, rthy slty tex sb plty-sb blky, mod frm-frm, SS: wh-lt gy-lt brn, vf-f gr, sb ang-sb rnd, mod-p srt, mod cmtd, cly mtx, p-mod p por, sl calc; rr fnt yel min flor, v lt bl difse cut, no stn

MUD WT: 9.4/ VIS: 54 IN
MUD WT: 9.4/ VIS: 58 OUT

MD: 4,841'
Inclination: 1.5°
Azimuth: 308°
TVD: 4,840.23'

SLTY SH: gy-med gy, sb plty-sb blky, mic gr, slty tex grdg to shy sltst, mod sft-mod frm, v sl calc; SHY SLTST: lt gy-med gy, rthy slty tex, sb plty-sb blky, mod frm-frm, occ grdg to shy ss; SHY SS: lt gy, occ clr-s&p, vf-f gr, sb ang-sb rnd, mod-p srt, mod cmtd, cly mtx, p-mod p por, v sl calc; nfsoc



MUD WT: 9.4/ VIS: 49 IN
MUD WT: 9.4/ VIS: 58 OUT

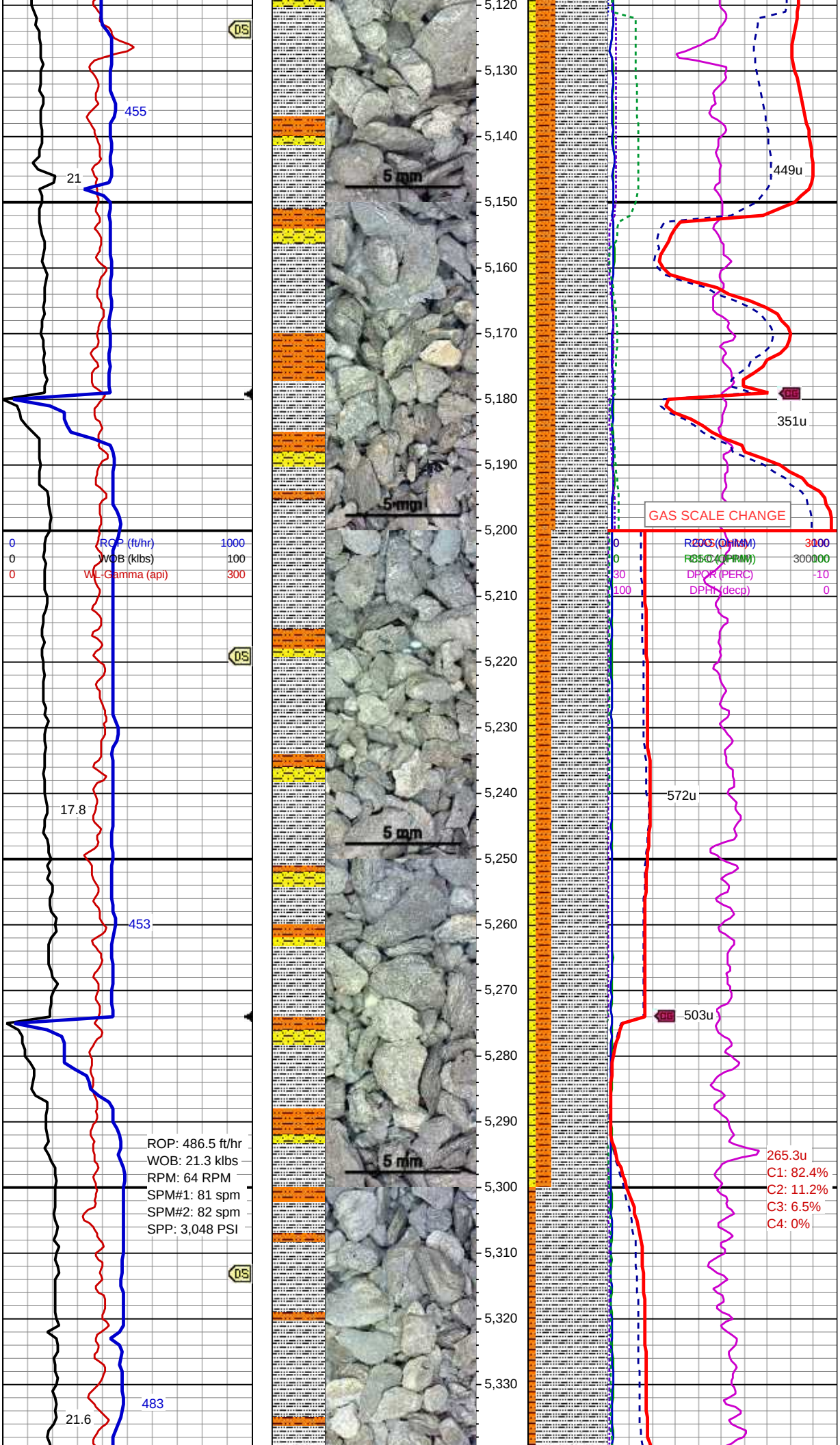
MD: 4,936'
Inclination: 1.8°
Azimuth: 321.8°
TVD: 4,935.19'

SLTY SH: gy-med gy, sb plty-sb blky, mic gr, slty tex grdg to shy sltst, mod sft-mod frm, v sl calc; SHY SLTST: lt gy-med gy, rthy slty tex, sb plty-sb blky, mod frm-frm, occ grdg to shy ss; SHY SS: lt gy, occ clr-s&p, vf-f gr, sb ang-sb rnd, mod-p srt, mod cmtd, cly mtx, p-mod p por, v sl calc; nfsoc

MD: 5,030'
Inclination: 1.8°
Azimuth: 326.6°
TVD: 5,029.14'

SHY SLTST: lt gy-med gy, slty-gt tex, sb plty-sb blky, mod frm-frm, occ grdg to shy ss; SLTY SH: gy-med gy, sb plty-sb blky, mic gr, slty tex grdg to shy sltst, mod sft-mod frm, v sl calc; SHY SS: lt gy, tr clr-s&p, vf-f gr, sb ang-sb rnd, mod-p srt, mod cmtd, cly mtx, p-mod p por, v sl calc; nfsoc

MD: 5,124'



MD: 5,124
Inclination: 1.7°
Azimuth: 319°
TVD: 5,123.1'

SLTY SH: gy-med gy, sb plty-sb blky, occ plty, mic gr, slty tex grdg to shy sltst, mod sft-mod frm, v sl calc; SHY SLTST: lt gy-med gy, slty-gt tex, sb plty-sb blky, mod frm-frm, occ grdg to shy ss; SHY SS: lt gy, tr clr-s&p, vf-f gr, sb ang-sb rnd, mod-p srt, mod cmtd, cly mtx, p-mod p por, v sl calc; nfsoc

MUD WT: 9.4/ VIS: 47 IN
MUD WT: 9.4/ VIS: 49 OUT

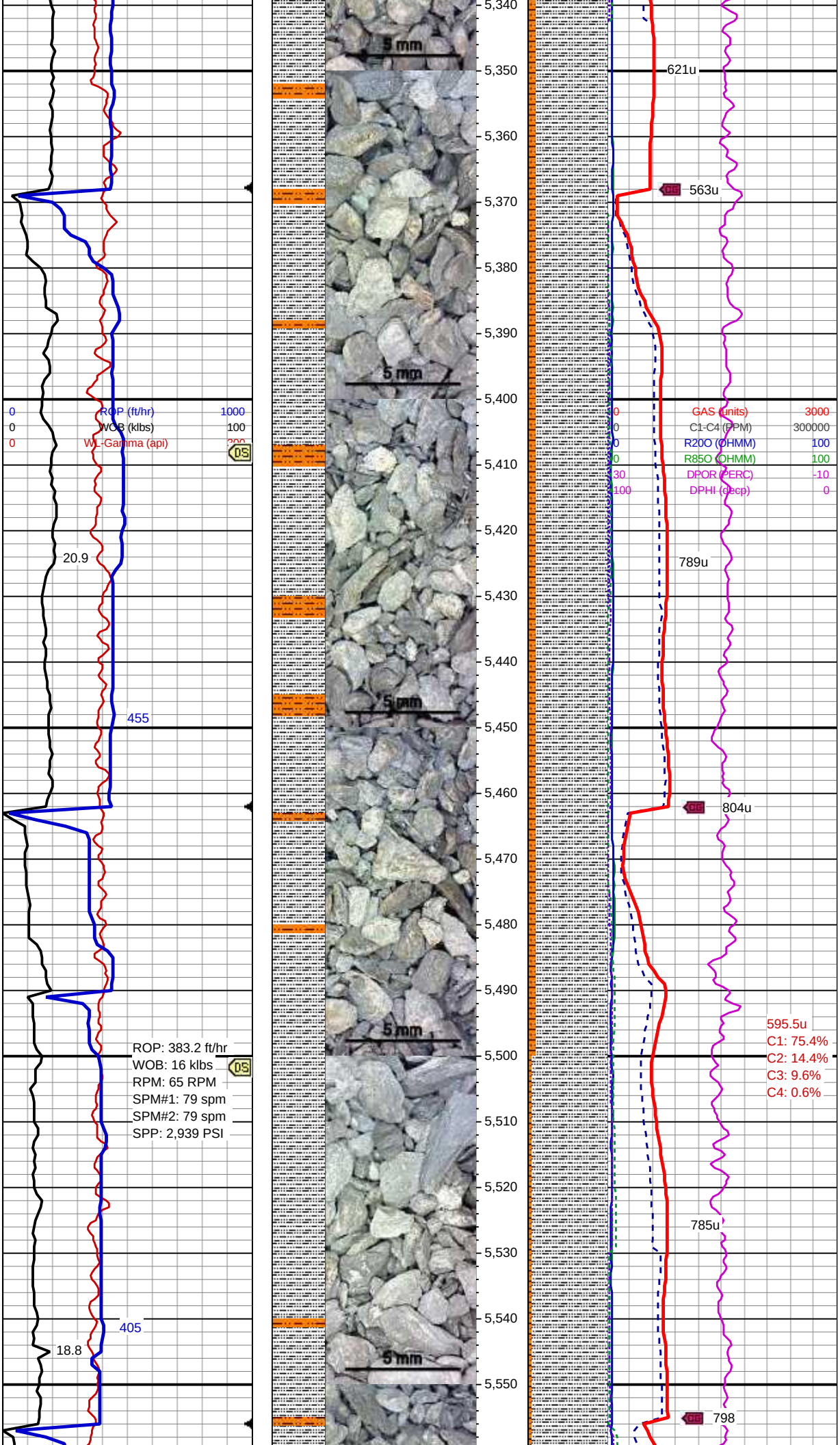
MD: 5,219'
Inclination: 1.2°
Azimuth: 317.4°
TVD: 5,218.07'

SLTY SH: gy-med gy, sb plty-sb blky, occ plty, mic gr, slty tex grdg to shy sltst, mod sft-mod frm, v sl calc; SHY SLTST: lt gy-med gy, slty-gt tex, sb plty-sb blky, mod frm-frm, occ grdg to shy ss; SHY SS: lt gy, tr clr-s&p, vf-f gr, sb ang-sb rnd, mod-p srt, mod cmtd, cly mtx, p-mod p por, tr glau incl, v sl calc; nfsoc

MUD WT: 9.4/ VIS: 45 IN
MUD WT: 9.4/ VIS: 46 OUT

MD: 5,313'
Inclination: 0.5°
Azimuth: 300°
TVD: 5,312.06'

SLTY SH: gy-med gy, sb plty-sb blky, occ plty, mic gr, slty tex grdg to shy sltst, mod sft-mod frm, v sl calc; SHY SLTST: lt gy-med gy, slty-gt tex, sb plty-sb blky, mod frm-frm, occ grdg to shy ss; SHY SS: lt gy, tr clr-s&p, vf-f gr, sb ang-sb rnd, mod-p srt, mod cmtd, cly mtx, p-mod p por, v sl calc; nfsoc



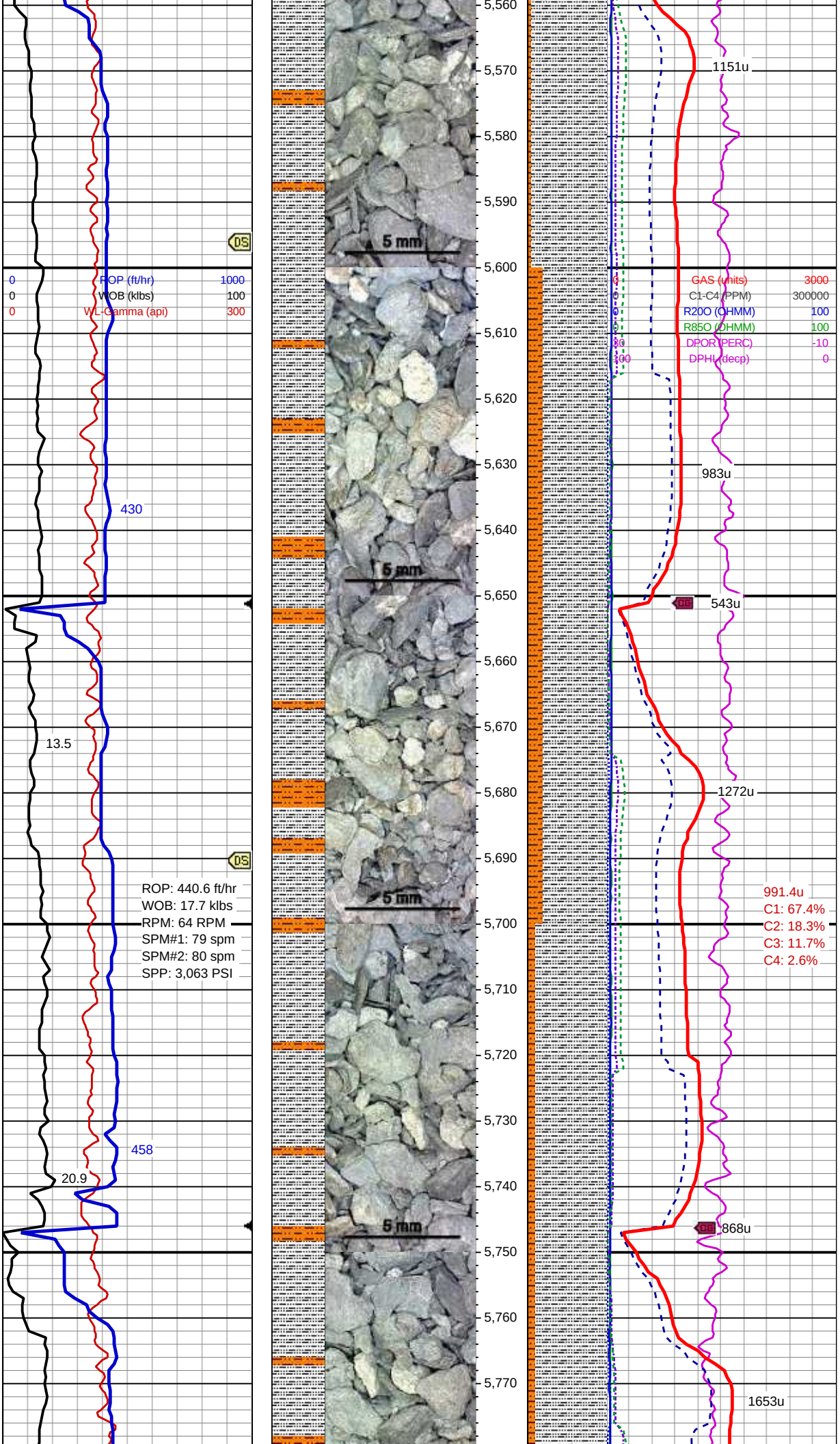
SLTY SH: gy-med gy, sb plty-plty, mic gr, slty tex grdg to shy sltst, mod sft-mod frm, v sl calc; SHY SLTST: lt gy-med gy, slty-gt tex, sb plty-sb blky, mod frm-frm, tr shy ss; nfsoc

MD: 5,408'
Inclination: 0.2°
Azimuth: 2.1°
TVD: 5,407.06'

SLTY SH: gy-med gy, sb plty-occ plty, mic gr, slty tex grdg to shy sltst, mod sft-mod frm, v sl calc; SHY SLTST: lt gy-med gy, slty-gt tex, sb plty-sb blky, mod frm-frm; nfsoc

MD: 5,502'
Inclination: 0.3°
Azimuth: 216°
TVD: 5,501.06'

SLTY SH: gy-med gy, sb plty-occ plty, mic gr, slty tex grdg to shy sltst, mod sft-mod frm, v sl calc; SHY SLTST: lt gy-med gy, slty-gt tex, sb plty-sb blky, mod frm-frm; nfsoc



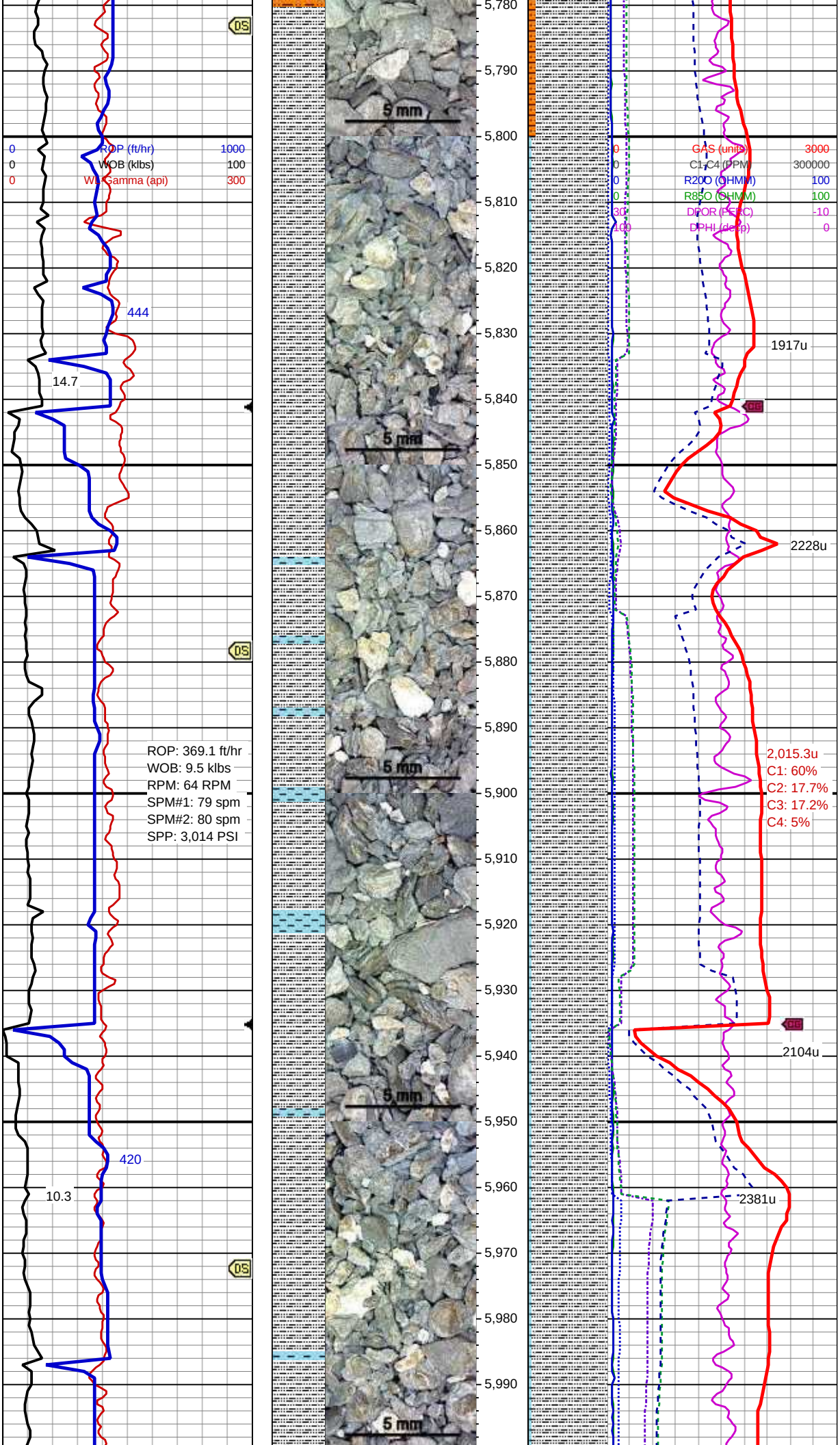
MD: 5,596'
Inclination: 0.3°
Azimuth: 217.4°
TVD: 5,595.05'

MUD WT: 9.3/ VIS: 47 IN
MUD WT: 9.3/ VIS: 49 OUT

SLTY SH: gy-med gy, sb plty-occ plty, mic gr, slty tex grdg to shy sltst, mod sft-mod frm, v sl calc; SHY SLTST: lt gy-med gy, slty-gt tex, sb plty-sb blky, mod frm-frm, tr shy ss, tr cly; nfsoc

MD: 5,690'
Inclination: 0.6°
Azimuth: 167.5°
TVD: 5,689.05'

SLTY SH: gy-med gy, sb plty-occ plty, mic gr, slty tex grdg to shy sltst, mod sft-mod frm, v sl calc; SHY SLTST: lt gy-med gy, slty-gt tex, sb plty-sb blky, mod frm-frm, tr shy ss, tr cly; nfsoc



MD: 5,783'
Inclination: 1.1°
Azimuth: 143.1°
TVD: 5,782.04'

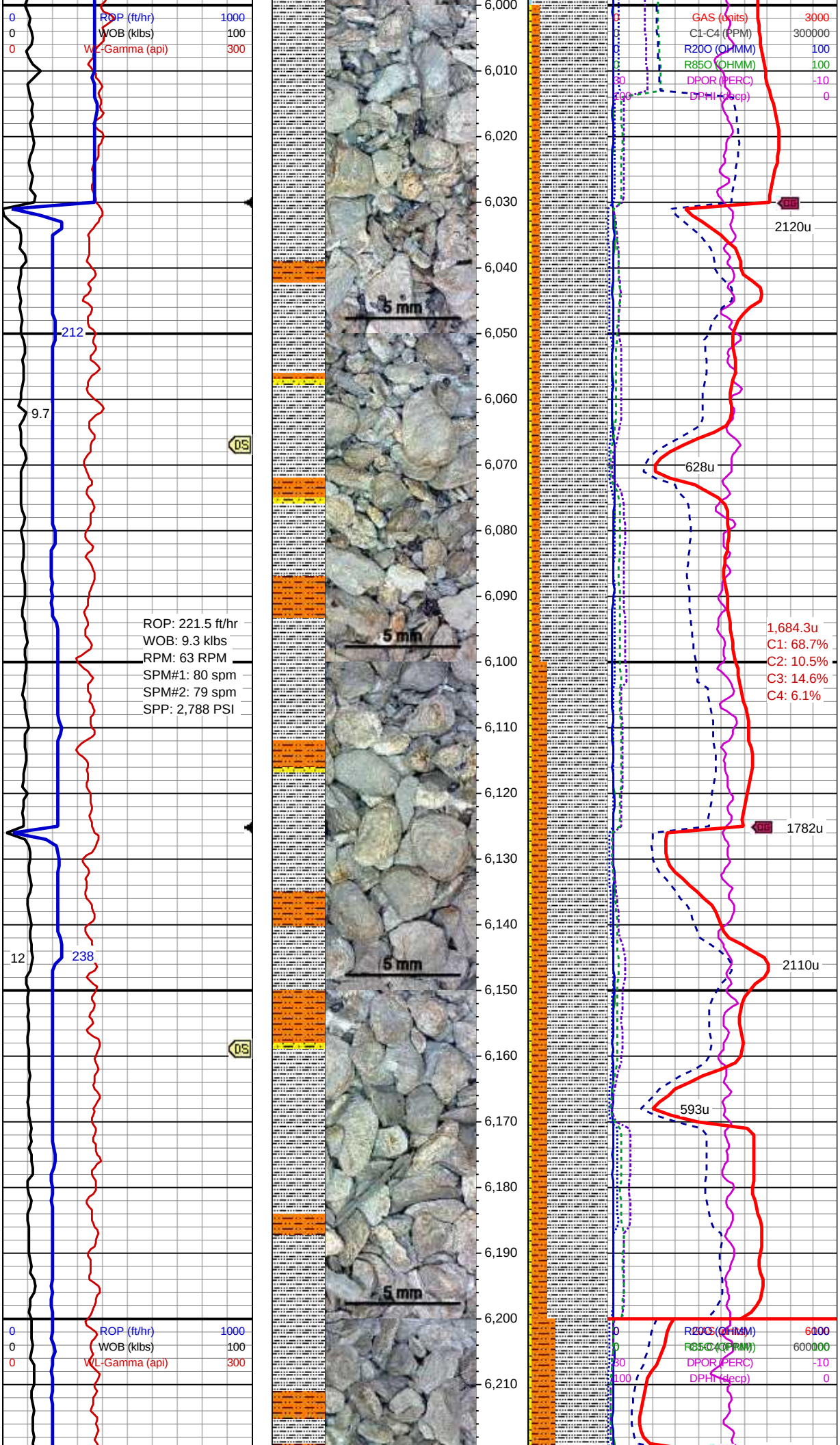
MUD WT: 9.3/ VIS: 46 IN
MUD WT: 9.4/ VIS: 49 OUT

SLTY SH: gy-dk gy, sb plty-occ plty, mic gr, slty tex grdg to shy sltst, mod sft-mod frm, v sl calc, tr shy sltst, tr shy ss, tr cly; nfsoc

MD: 5,878'
Inclination: 1.8°
Azimuth: 139.6°
TVD: 5,877.01'

SLTY SH: gy-dk gy, sb plty-occ plty, mic gr, slty tex grdg to shy sltst, mod sft-mod frm, v sl calc, tr shy sltst, tr shy ss, tr cly; nfsoc

MD: 5,972'
Inclination: 2.1°
Azimuth: 145°
TVD: 5,970.96'



MUD WT: 9.4/ VIS: 46 IN
MUD WT: 9.4/ VIS: 46 OUT

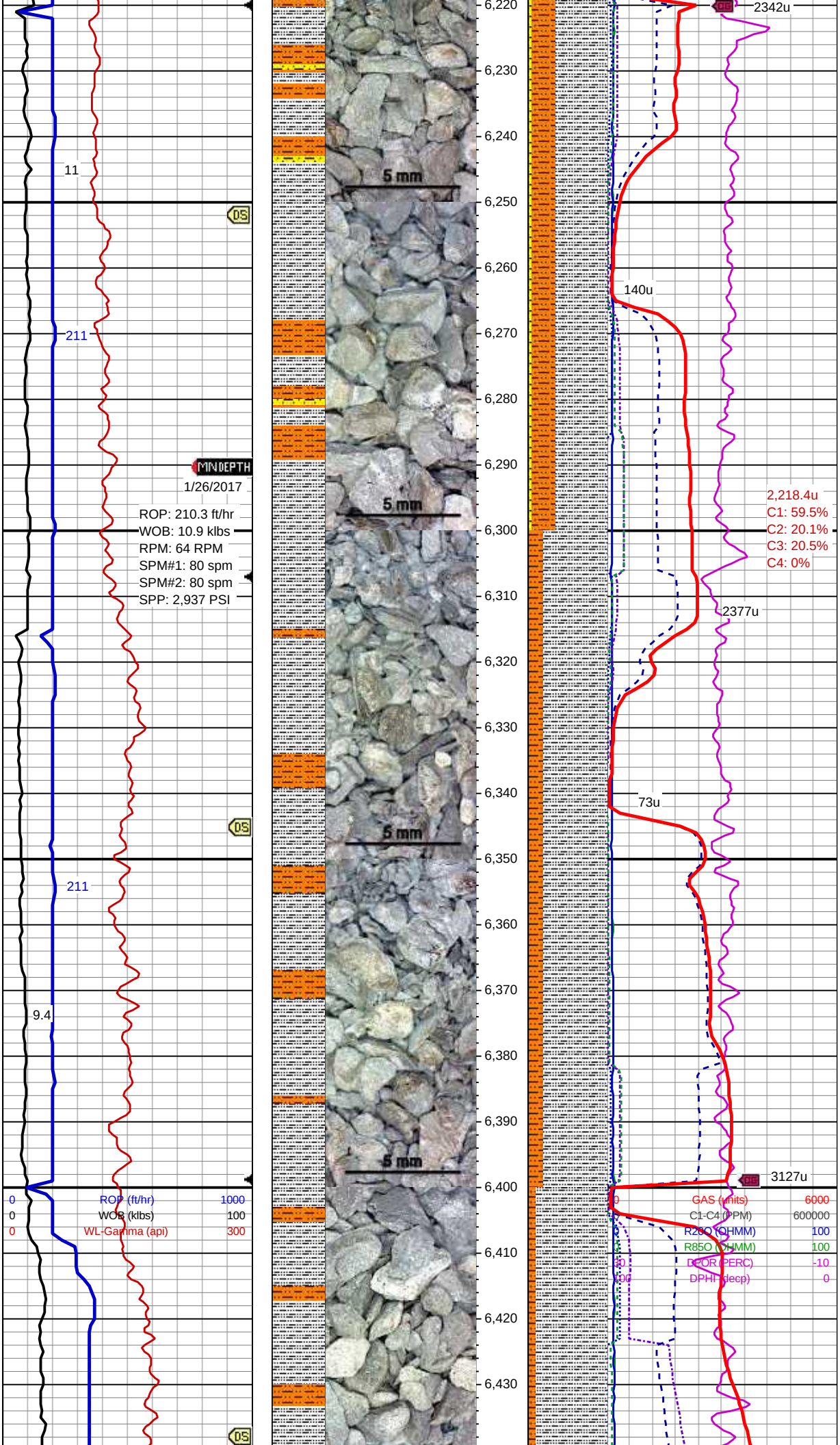
SLTY SH: gy-med gy, sb plty-occ plty, mic gr, slty tex, grdg to shy sltst, mod sft-mod frm, v sl calc; SHY SLTST: lt gy-med gy, slty-gt tex, sb plty-sb blky, mod frm-frm, tr shy ss, tr cly; nfsoc

MD: 6,067'
Inclination: 2.3°
Azimuth: 149.4°
TVD: 6,065.89'

SLTY SH: gy-med gy, sb plty-occ plty, mic gr, slty tex, grdg to shy sltst, mod sft-mod frm, v sl calc; SHY SLTST: lt gy-med gy, slty-gt tex, sb plty-sb blky, mod frm-frm, tr shy ss, tr cly; nfsoc

MD: 6,159'
Inclination: 2.6°
Azimuth: 144.1°
TVD: 6,157.8'

MUD WT: 9.5/ VIS: 46 IN
MUD WT: 9.5/ VIS: 48 OUT



SLTY SH: gy-med gy, sb plty-plty, mic gr, slty tex, grdg to shy sltst, mod sft-mod frm, v sl calc; SHY SLTST: lt gy-med gy, slty-gt tex, sb plty-sb blky, mod frm-frm, occ grdg to shy ss; nfsoc

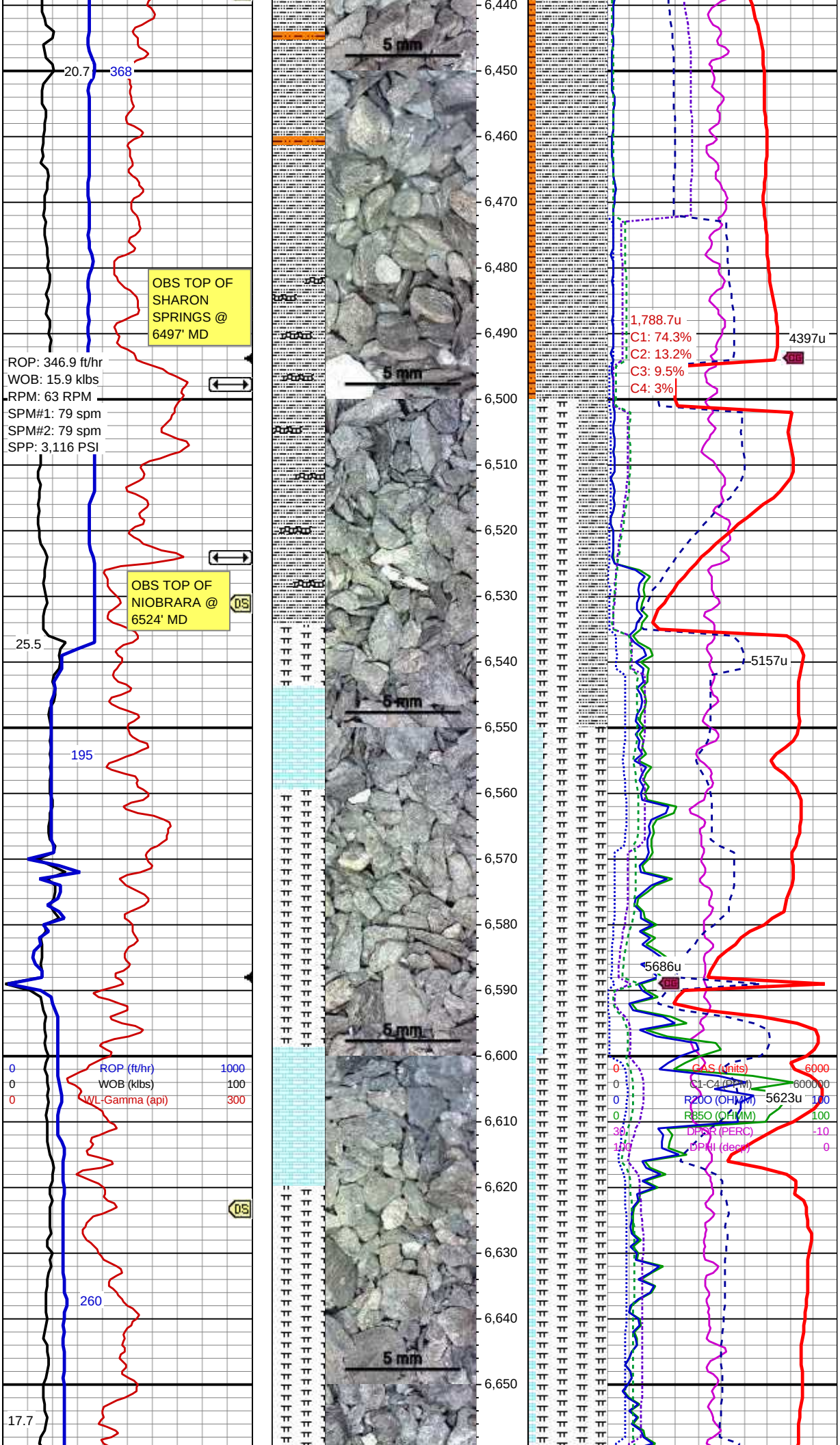
MD: 6,252'
Inclination: 1.8°
Azimuth: 159.9°
TVD: 6,250.73'

MUD WT: 9.5/ VIS: 45 IN
MUD WT: 9.4/ VIS: 49 OUT

MD: 6,345'
Inclination: 1.3°
Azimuth: 159.2°
TVD: 6,343.7'

SLTY SH: gy-med gy, sb plty-plty, mic gr, slty tex, grdg to shy sltst, mod sft-mod frm, v sl calc; SHY SLTST: lt gy-med gy, slty-gt tex, sb plty-sb blky, mod frm-frm, occ grdg to shy ss; nfsoc

MD: 6,438'
Inclination: 1.5°



Azimuth: 161.5°
TVD: 6,436.67'

SLTY SH: gy-med gy, sb plty-plty, mic gr, slty tex, grdg to shy sltst, mod sft-mod frm, v sl calc; SHY SLTST: lt gy-med gy, slty-gt tex, sb plty-sb blky, mod frm-frm, occ grdg to shy ss, mod abnt bent; bri yel min flor, mod bri difse, mod stmg, mod show

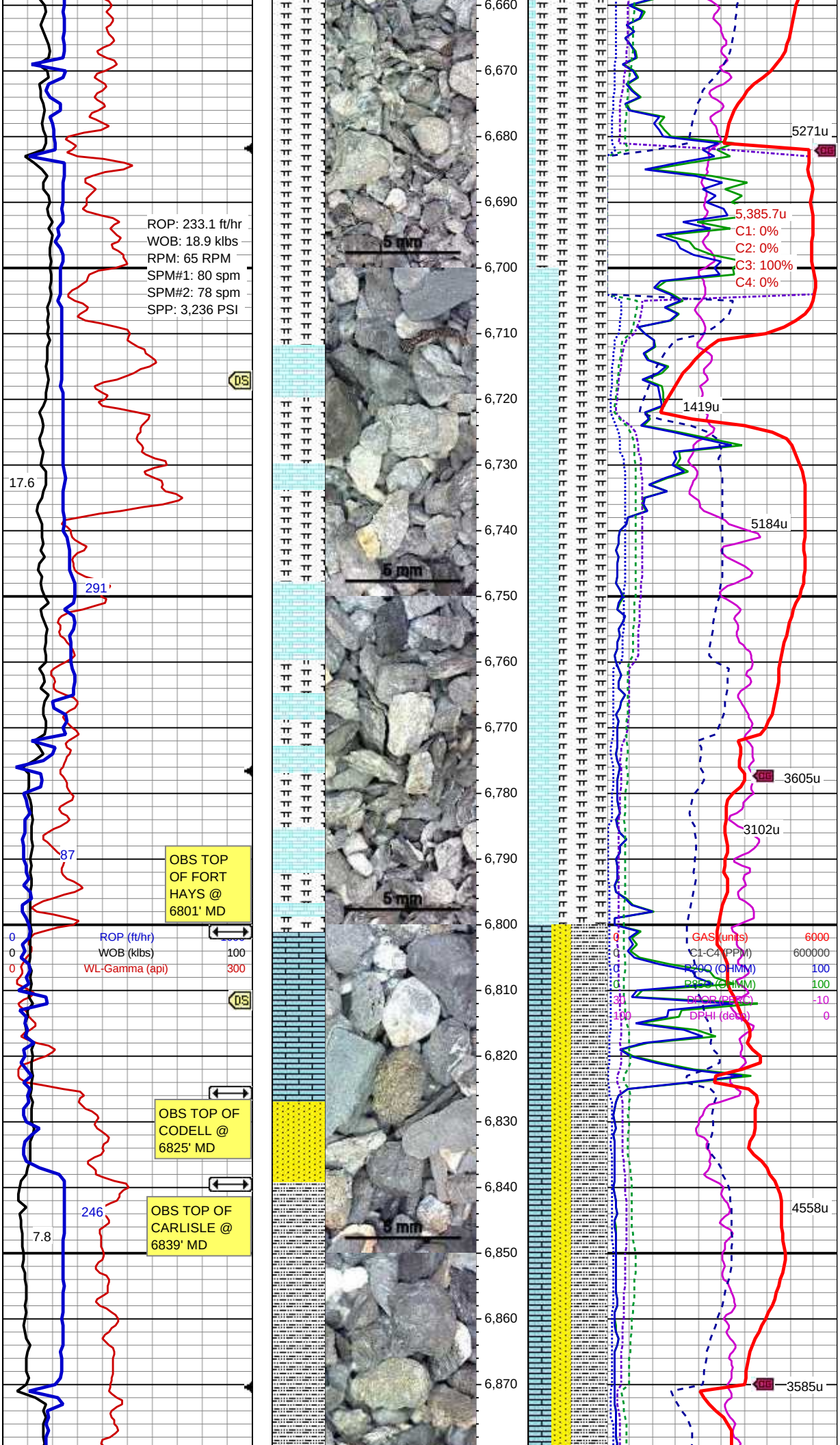
MD: 6,531'
Inclination: 1.5°
Azimuth: 168.7°
TVD: 6,529.64'

MRLST: gy-dk gy, mot, sb blky-sb plty, occ plty, mod sft-mod frm, calc-v calc
CHK: lt-med gy, sb blky-blky, mod sft, sm-wxy tex, v calc
SLTY SH: gy brn-dk gy, lt gy-gy ip, sb plty-sb blky, mod frm-frm, mic gr, slty tex, calc, com bent; tr yel-orng min flor, mod bri bl difse cut, mod show

MUD WT: 9.6/ VIS: 48 IN
MUD WT: 9.5/ VIS: 49 OUT

MD: 6,623'
Inclination: 1.8°
Azimuth: 173.8°
TVD: 6,621.6'

MRLST: gy-med gy, mot, sb blky-sb plty, occ plty, mod sft-mod frm, mot ip, calc-v calc; CHK: med gy, occ lt gy, sb blky-blky, mod sft, sm-wxy tex, v calc, com inoc frags, tr pyr; mod bri bl difse



cut, mod show

MUD WT: 9.6/ VIS: 48 IN
MUD WT: 9.5/ VIS: 52 OUT

Depth: 6,682
Mud Weight: 9.6
Viscosity: 58
Yield Pt: 23
Filter Cake: 32
Solids: 10%
pH: 9
Chlorides: 5,000 mg/l

MD: 6,717'
Inclination: 2.6°
Azimuth: 181.9°
TVD: 6,715.53'

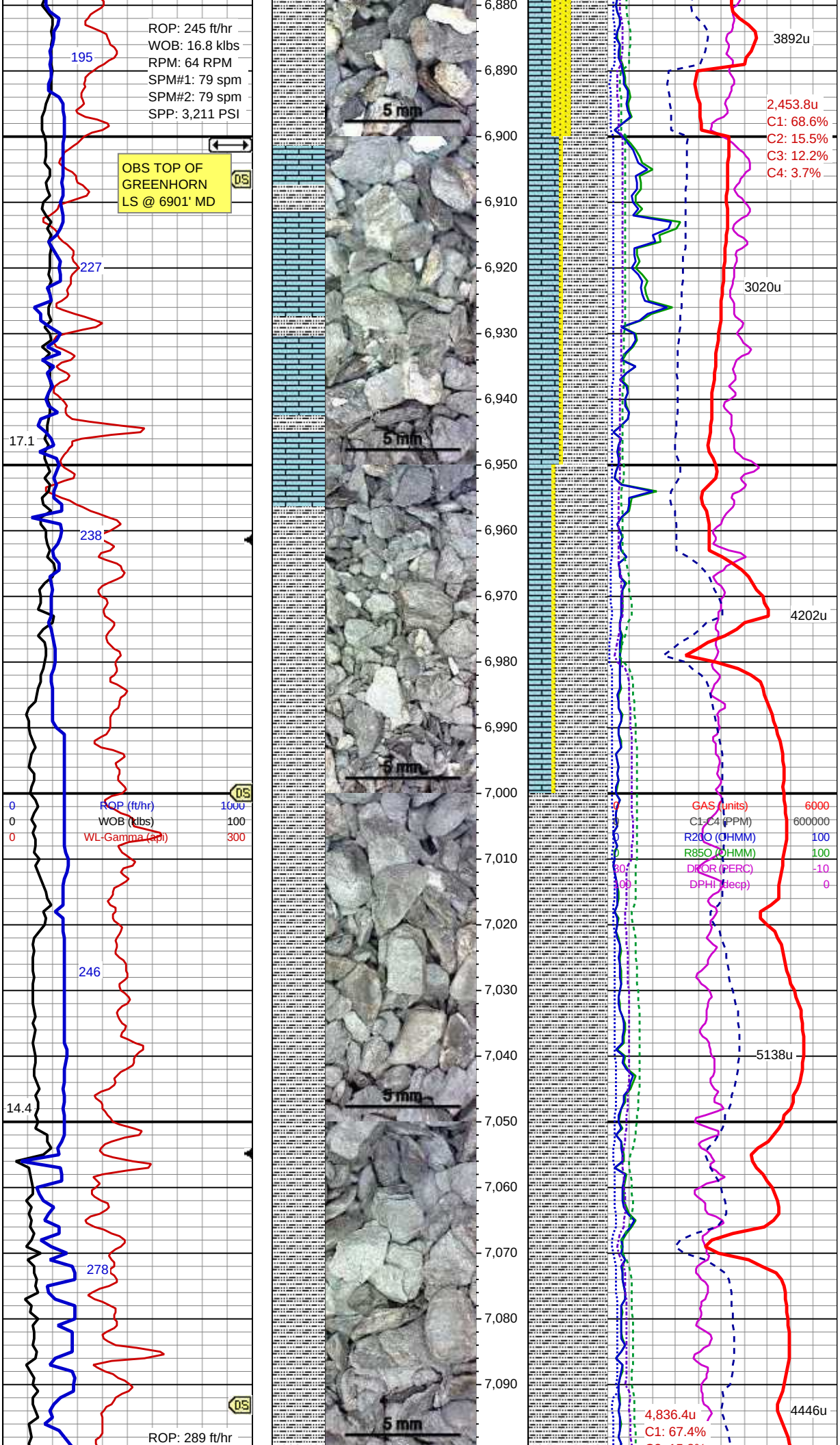
MRLST: gy-med gy, mot, sb blky-sb plty, occ plty, mod sft-mod frm, mot ip, calc-v calc; CHK: med gy, occ lt gy, sb blky-blky, mod sft, sm-wxy tex, v calc, com inoc frags, tr pyr; scat bri yel min flor, mod bri bl difse stmg cut, mod show

MUD WT: 9.8/ VIS: 49 IN
MUD WT: 9.8/ VIS: 49 OUT

MD: 6,812'
Inclination: 1.5°
Azimuth: 180.5°
TVD: 6,810.47'

LS: lt gy-gy, brn-bf, sb blky-sb plty, mod frm-frm, wxy-mcxln tex, v calc, SS: gy-brn, v f-f gr, sb rnd-sb ang, ply srt, pred cons, uncons ip, brit clus, mod g-g por, occ grdg to shy ss, sl calc, SLTY SH: med- dk gy, sb plty-plty, fis ip, slty tex, mod frm-frm, sl calc; scat bri yel min flor, mod bri bl difse stmg cut, mod show

MUD WT: 9.8/ VIS: 45 IN
MUD WT: 9.8/ VIS: 47 OUT



MD: 6,906'
Inclination: 1.1°
Azimuth: 191.8°
TVD: 6,904.45'

SLTY SH: med-dk gy, sb plty-plty, occ mot, slty tex, mod frm-frm, mod calc, mod abnt cal incl, SS: gy-brn, v f-f gr, sb rnd-sb ang, ply srt, pred cons, uncons ip, brit clus, mod g-g por, occ grdg to shy ss, sl calc, LS: brn-gy brn, occ bf, sb blky, mod frm-v sft, mcxln-wxy-sm tex, occ grdg to chk, v calc, tr inoc frags; scat bri yel min flor, lt bl difse stmg cut, no show

RIG REPAIR AT 6964' MD
@ 06:13 TO 08:20 MST

MUD WT: 9.8/ VIS: 47 IN
MUD WT: 9.7/ VIS: 49 OUT

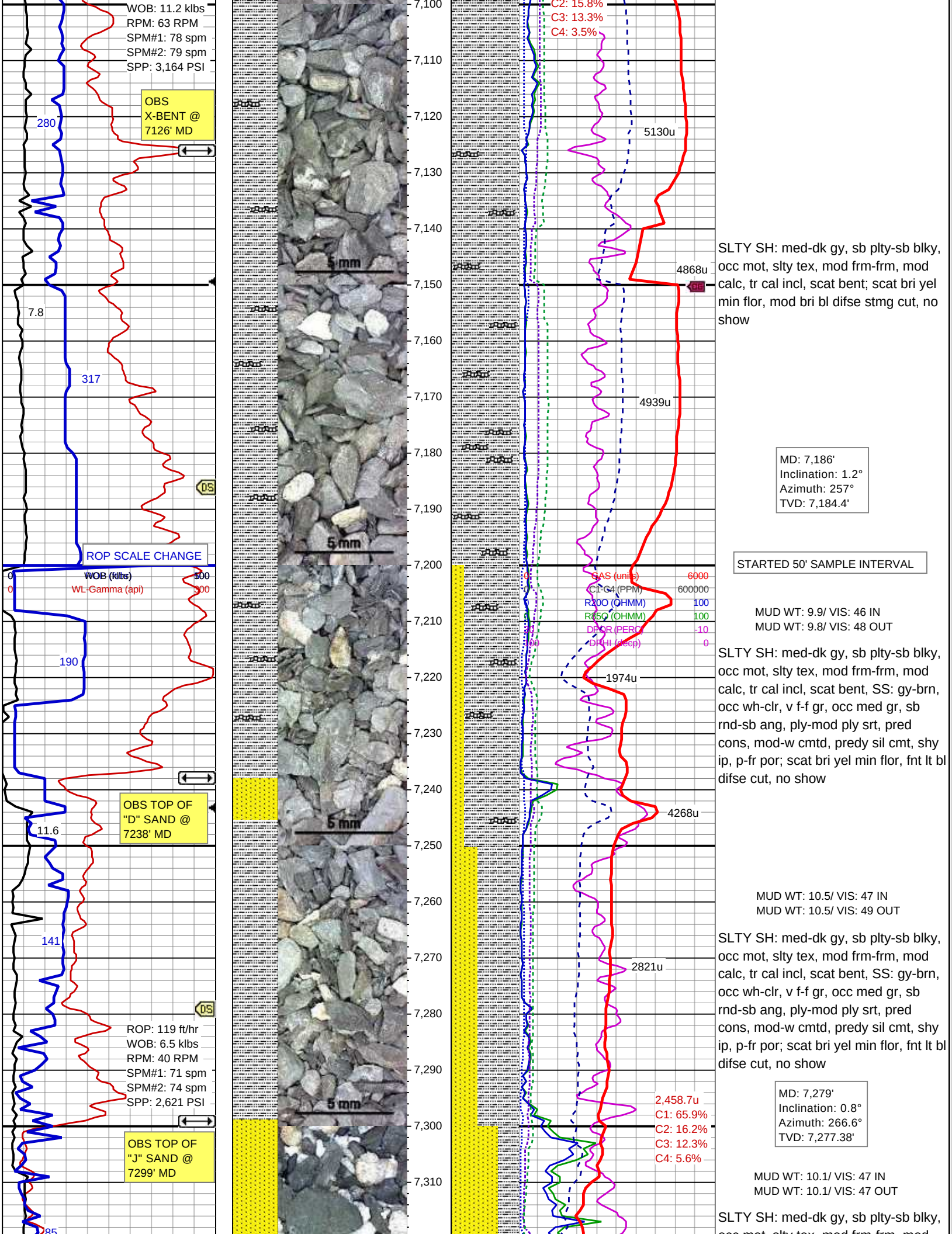
SLTY SH: med-dk gy, sb plty-plty, occ mot, slty tex, mod frm-frm, mod calc, mod abnt cal incl, SS: gy-brn, v f-f gr, sb rnd-sb ang, ply srt, pred cons, uncons ip, brit clus, mod g-g por, occ grdg to shy ss, sl calc, LS: brn-gy brn, occ bf, sb blky, mod frm-v sft, mcxln-wxy-sm tex, occ grdg to chk, v calc, tr inoc frags; scat bri yel min flor, lt bl difse stmg cut, no show

MD: 7,000'
Inclination: 0.8°
Azimuth: 216.9°
TVD: 6,998.43'

SLTY SH: med-dk gy, sb plty-sb blky, occ mot, slty tex, mod frm-frm, mod calc, tr cal incl, scat bent; scat bri yel min flor, mod bri bl difse stmg cut, no show

MUD WT: 9.8/ VIS: 47 IN
MUD WT: 9.7/ VIS: 52 OUT

MD: 7,093'
Inclination: 1°
Azimuth: 236.9°
TVD: 7,091.41'



SLTY SH: med-dk gy, sb plty-sb blky, occ mot, slty tex, mod frm-frm, mod calc, tr cal incl, scat bent; scat bri yel min flor, mod bri bl difse stmg cut, no show

MD: 7,186'
Inclination: 1.2°
Azimuth: 257°
TVD: 7,184.4'

STARTED 50' SAMPLE INTERVAL

MUD WT: 9.9/ VIS: 46 IN
MUD WT: 9.8/ VIS: 48 OUT

SLTY SH: med-dk gy, sb plty-sb blky, occ mot, slty tex, mod frm-frm, mod calc, tr cal incl, scat bent, SS: gy-brn, occ wh-clr, v f-f gr, occ med gr, sb rnd-sb ang, ply-mod ply srt, pred cons, mod-w cmtd, predy sil cmt, shy ip, p-fr por; scat bri yel min flor, fnt lt bl difse cut, no show

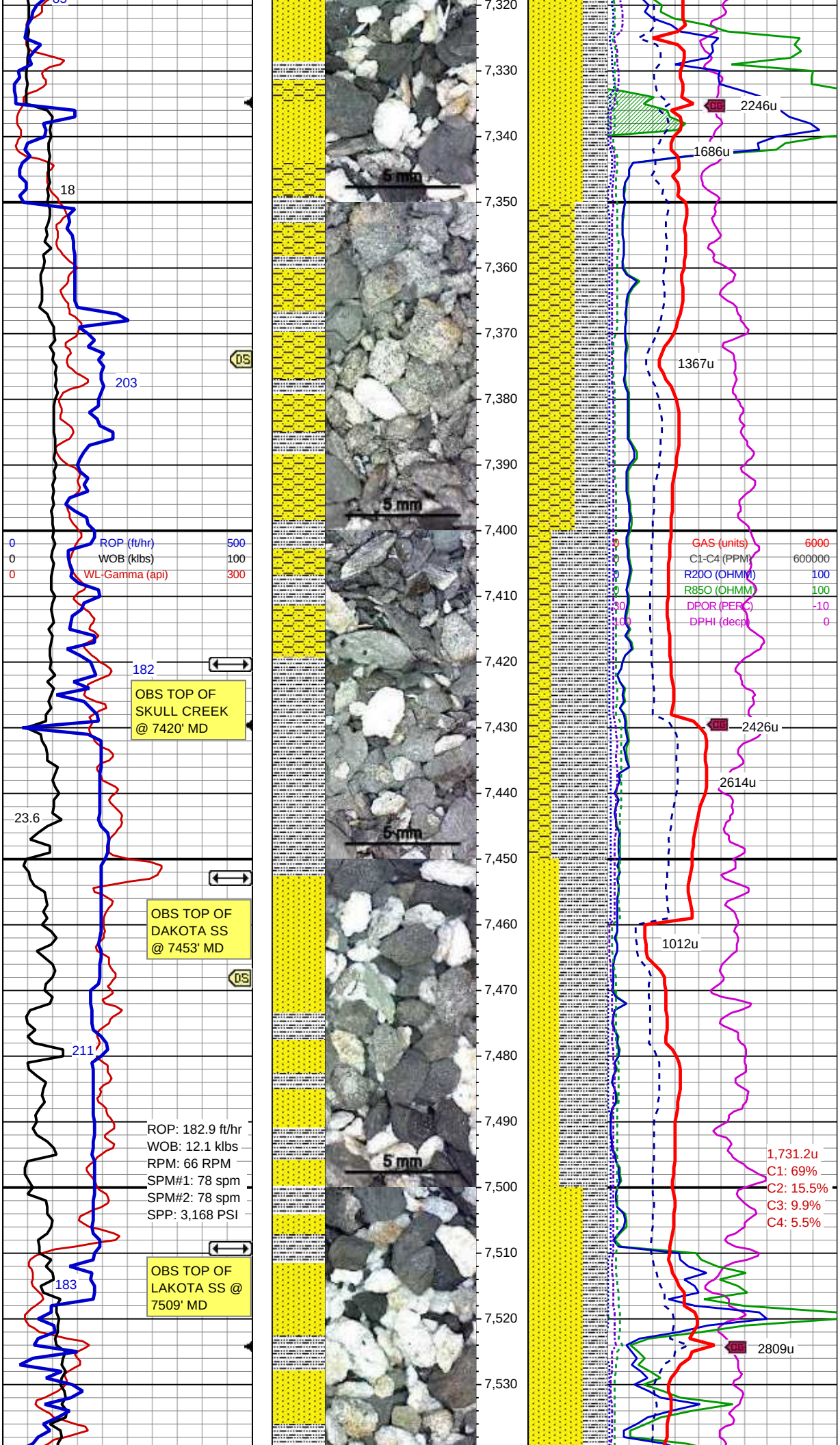
MUD WT: 10.5/ VIS: 47 IN
MUD WT: 10.5/ VIS: 49 OUT

SLTY SH: med-dk gy, sb plty-sb blky, occ mot, slty tex, mod frm-frm, mod calc, tr cal incl, scat bent, SS: gy-brn, occ wh-clr, v f-f gr, occ med gr, sb rnd-sb ang, ply-mod ply srt, pred cons, mod-w cmtd, predy sil cmt, shy ip, p-fr por; scat bri yel min flor, fnt lt bl difse cut, no show

MD: 7,279'
Inclination: 0.8°
Azimuth: 266.6°
TVD: 7,277.38'

MUD WT: 10.1/ VIS: 47 IN
MUD WT: 10.1/ VIS: 47 OUT

SLTY SH: med-dk gy, sb plty-sb blky,



occ mot, slty tex, mod frm-frm, mod calc, tr cal incl, scat bent, SS: wh-lt brn, brn-dk brn ip, f-med gr, occ v f gr, sb rnd-sb ang, ply-mod ply srt, pred cons, mod-w cmtd, predy sil cmt, shy ip, p-fr por; scat bri yel min flor, lt bl difse cut, tr dd o in sample

MUD WT: 10.0/ VIS: 47 IN
MUD WT: 10.0/ VIS: 49 OUT

SLTY SH: med-dk gy, sb plty-sb blky, occ mot, slty tex, mod frm-frm, mod calc, slty-sdy ip, tr bent, sl calc, SS: lt brn-brn-dk brn, vf-f gr, occ med gr, sb rnd-sb ang, ply srt, pred cons, mod cmtd, sil-arg cmt, shy ip, p por, v sl calc; tr bri yel min flor, lt bl difse cut, no show

MD: 7,374'
Inclination: 0.4°
Azimuth: 289.7°
TVD: 7,372.38'

MUD WT: 9.9/ VIS: 45 IN
MUD WT: 9.9/ VIS: 48 OUT

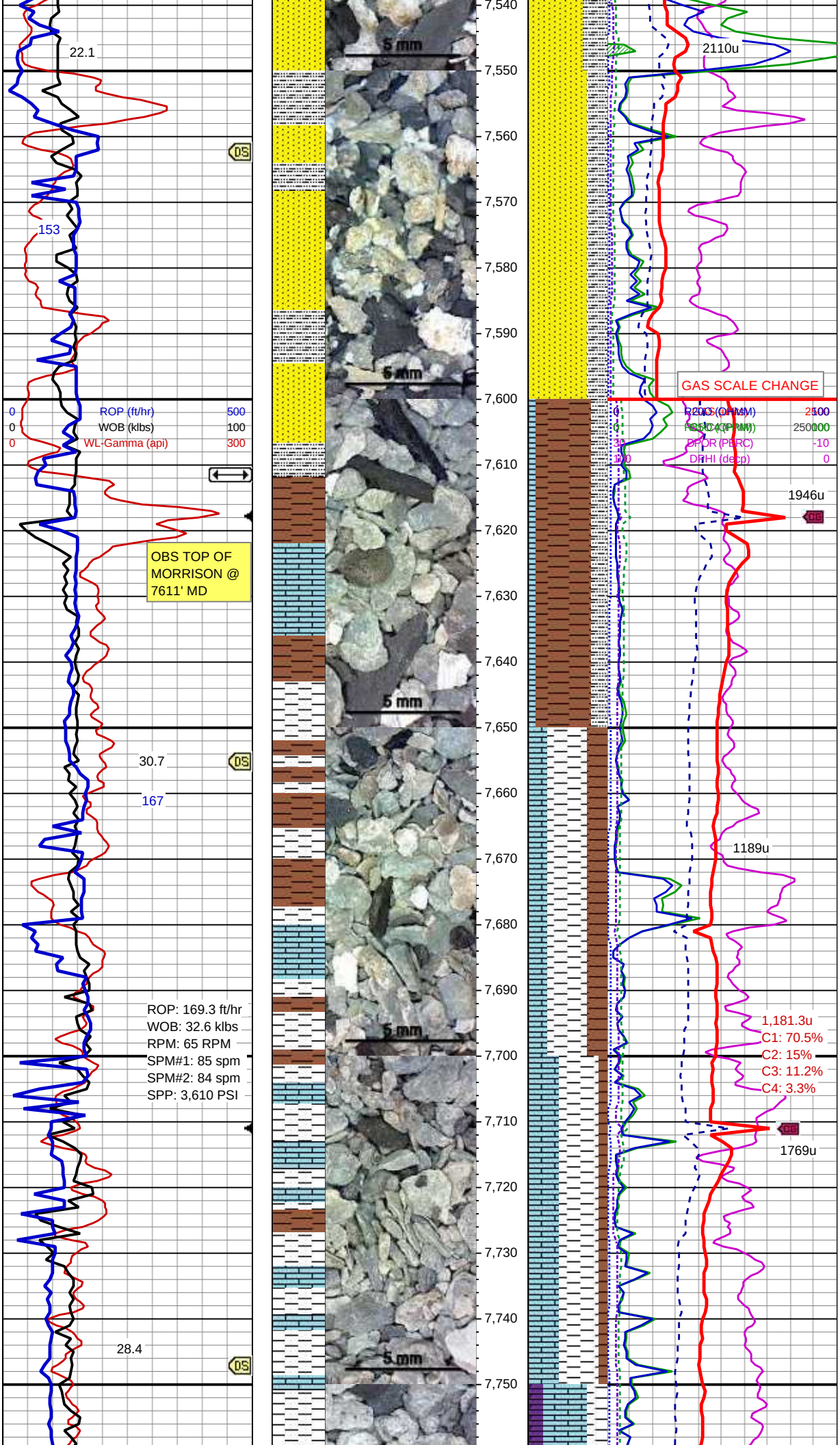
SLTY SH: med-dk gy, sb plty-sb blky, occ mot, slty tex, mod frm-frm, mod calc, slty-sdy ip, tr bent, sl calc, SS: lt brn-brn-dk brn, vf-f gr, occ med gr, sb rnd-sb ang, ply srt, pred cons, mod cmtd, sil-arg cmt, shy ip, p por, v sl calc; tr bri yel min flor, lt bl difse cut, no stn

MD: 7,468'
Inclination: 0.4°
Azimuth: 254.3°
TVD: 7,466.38'

SLTY SH: med-dk gy, sb plty-sb blky, occ mot, slty tex, mod frm-frm, mod calc, tr cal incl, scat bent, SS: wh-cl, lt brn ip, f-med gr, occ vf gr, sb rnd-sb ang, ang ip, mod ply srt, pred cons, mod-w cmtd, predy sil cmt, p-fr por; scat bri yel min flor, lt bl difse stmg cut, occ o stn in samples

MUD WT: 9.9/ VIS: 45 IN
MUD WT: 9.8/ VIS: 49 OUT

SS: wh-cl, lt brn ip, f-med gr, occ vf gr, sb rnd-sb ang, ang ip, mod ply srt, pred cons, mod-w cmtd, predy sil cmt, p-fr por; SLTY SH: med-dk gy, sb plty-sb blky, occ mot, slty tex, mod frm-frm, mod calc, tr cal incl, scat bent; scat bri yel min flor, fnt lt bl difse



stmg cut, no stn

MUD WT: 9.9/ VIS: 46 IN
MUD WT: 9.8/ VIS: 48 OUT

MD: 7,562'
Inclination: 0.2°
Azimuth: 226.2°
TVD: 7,560.37'

SS: wh-cl, lt brn ip, f-med gr, occ vf gr, sb rnd-sb ang, ang ip, mod ply srt, pred cons, mod-w cmtd, predy sil cmt, p-fr por; SLTY SH: med-dk gy, sb plty-sb blky, occ mot, slty tex, mod frm-frm, mod calc, tr cal incl, abnt bent; abnt bri yel min flor, fnt lt bl difse stmg cut, no stn

MUD WT: 10/ VIS: 45 IN
MUD WT: 10/ VIS: 48 OUT

SH: lt gy- gy/bl, plty- sb plty, fis ip, wxy tex, sl calc; LS: lt gy- wh off wh, occ brn, plty-sb plty, mod frm-frm, mcxln-cyxln tex, occ dolc; SLTY SH: med-dk gy, sb plty-sb blky, occ mot, slty tex, mod frm-frm, mod calc; nfsoc

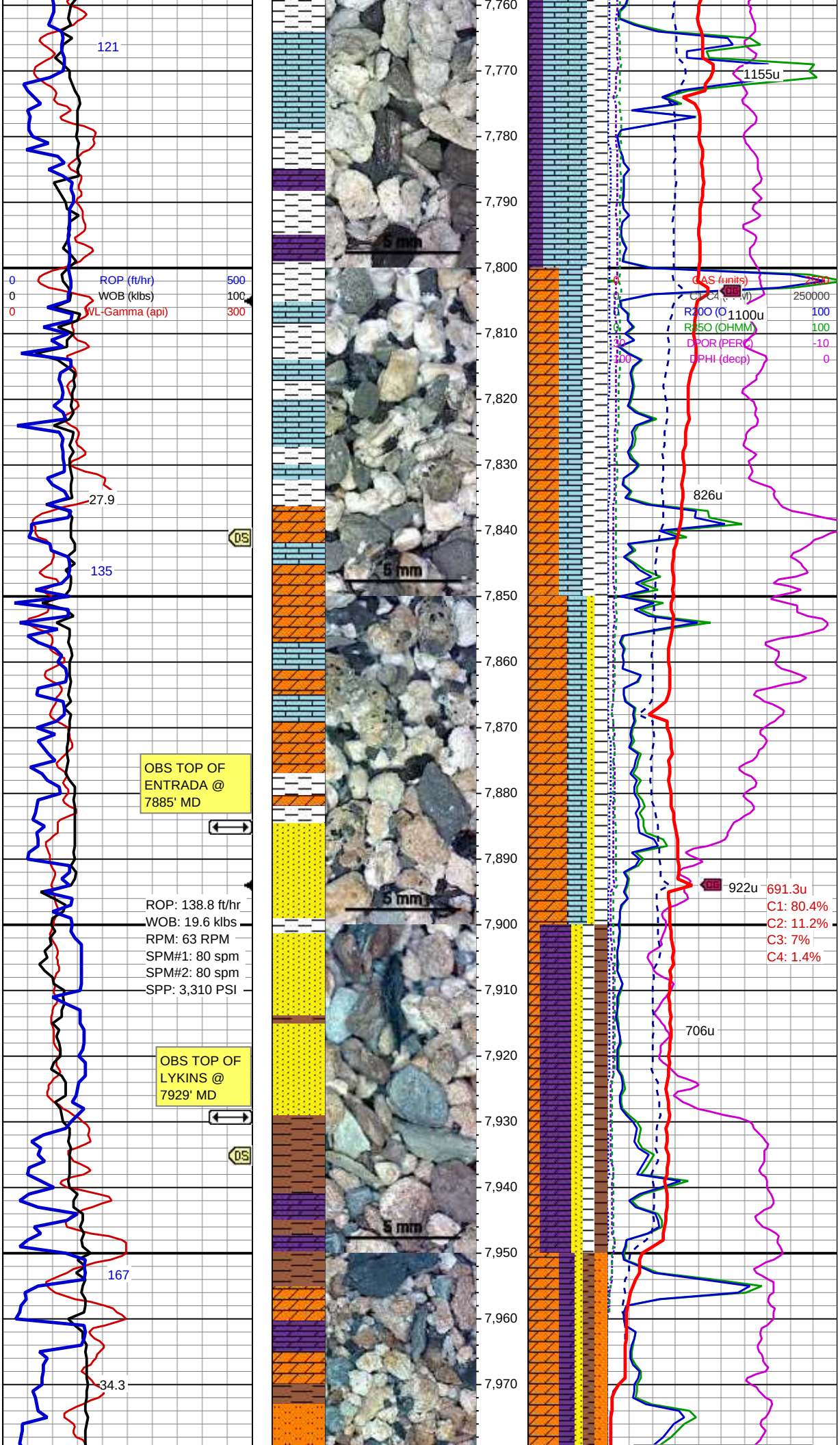
MD: 7,655'
Inclination: 0.4°
Azimuth: 218.1°
TVD: 7,653.37'

SH: lt gy- gy/bl, plty- sb plty, fis ip, wxy tex, sl calc; LS: lt gy- wh off wh, occ brn, plty-sb plty, mod frm-frm, mcxln-cyxln tex, occ dolc, tr slty sh, tr chk; nfsoc

MUD WT: 9.9/ VIS: 45 IN
MUD WT: 9.9/ VIS: 48 OUT

SH: lt gy- gy/bl, plty- sb plty, fis ip, wxy tex, sl calc; LS: lt gy- wh off wh, occ brn, plty-sb plty, mod frm-frm, mcxln-cyxln tex, occ dolc, tr slty sh; nfsoc

MD: 7,747'
Inclination: 0.7°
Azimuth: 194°
TVD: 7,745.37'



SH: lt gy, occ gy/bl, plty- sb plty, fis ip, wxy tex, sl calc; LS: lt gy- wh off wh, occ brn, plty-sb plty, mod frm-frm, mcxln- cyxln tex; DOL: wh-clr, blky, mod frm, cyxln, suc tex, sl calc; scat bri yel min flor, nsoc

MUD WT: 9.9/ VIS: 45 IN
MUD WT: 9.9/ VIS: 47 OUT

ANHY: wh-lt bf/brn, blky-amor, mas, v sft- mod frm, mcxln, non calc; LS: lt gy- wh off wh, occ brn, plty-sb plty, mod frm-frm, mcxln- cyxln tex; SH: lt gy- med gy, occ lt gy/bl, plty- sb plty, fis ip, wxy tex, sl calc; scat bri yel min flor, nsoc

MD: 7,841'
Inclination: 1.1°
Azimuth: 210.9°
TVD: 7,839.36'

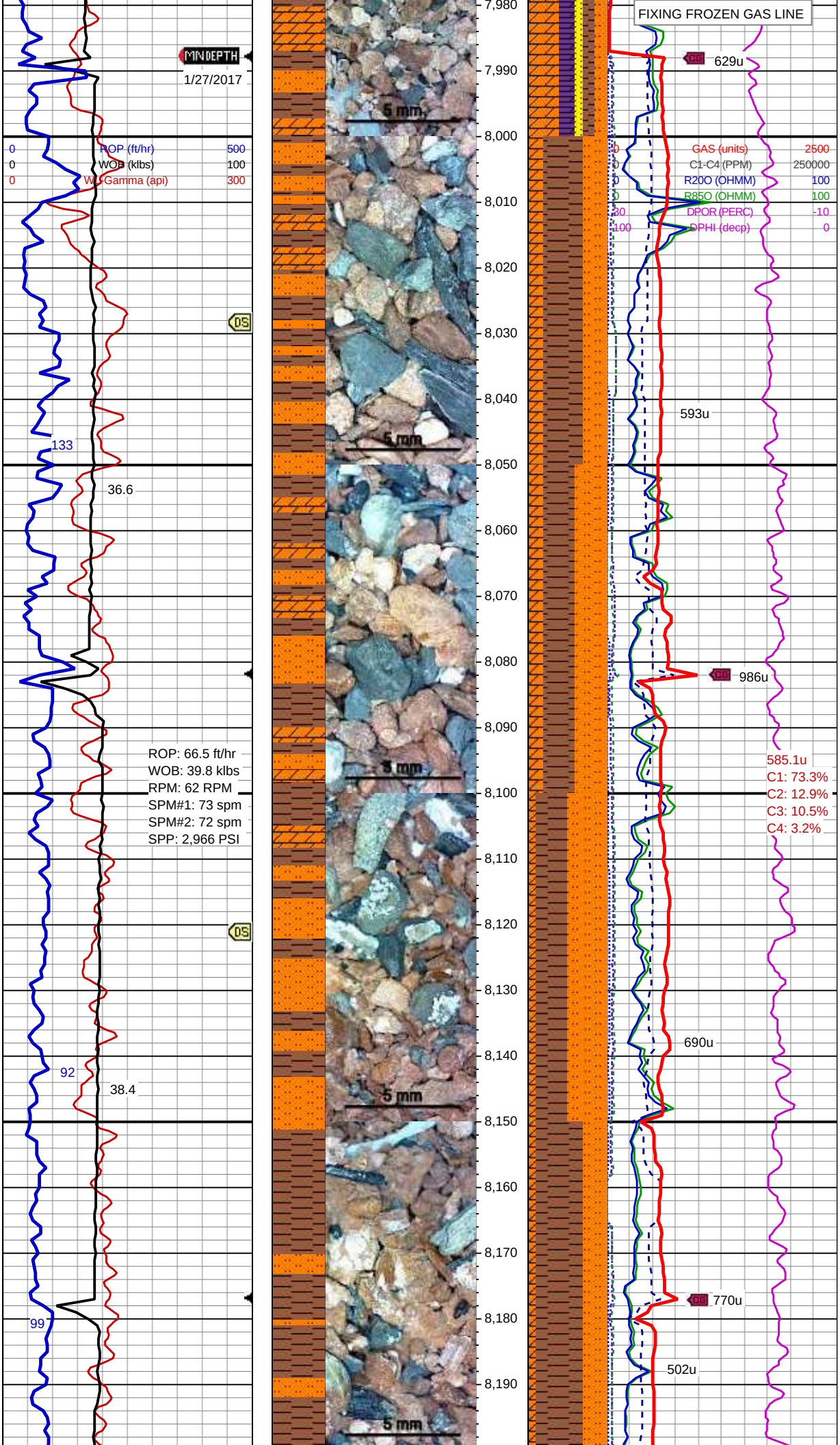
ANHY: wh-lt bf/brn, blky-amor, mas, v sft- mod frm, mcxln, non calc; LS: lt gy- wh off wh, occ brn, plty-sb plty, mod frm-frm, mcxln- cyxln tex, occ dolc; SH: lt gy-dk gy, plty- sb plty, wxy tex, sl calc; SS: red/brn- lt orng, occ clr, vf-med gr, sb rnd-sb ang, mod frm clus, w cmt, mod srt, p por; scat bri yel min flor, nsoc

MUD WT: 9.8/ VIS: 46 IN
MUD WT: 9.8/ VIS: 49 OUT

DOL: red/brn, sb blky, cyxln, suc tex ip, frm-hd, sl calc; SS: red/brn- lt orng, occ clr, vf-med gr, sb rnd-sb ang, mod frm clus, w cmt, mod srt, p por; ANHY: wh-lt bf/brn, blky-amor, mas, v sft- mod frm, mcxln, non calc; SH: lt gy- gy brn, occ lt gy/bl, plty- sb plty, wxy tex, sl calc; scat bri yel min flor, nsoc

MUD WT: 9.8/ VIS: 50 IN
MUD WT: 9.8/ VIS: 53 OUT

ANHY: lt bf/brn, blky-amor, mas, v sft- mod frm, mcxln, non calc; DOL: red/brn, sb blky, cyxln, suc tex ip, frm-hd, sl calc; SS: red/brn- lt orng, occ clr, vf-med gr, sb rnd-sb ang, mod frm clus, w cmt, mod srt, p por;



SH: red-red/brn, occ lt gy- lt gy/bl, plty-sb plty, slty tex, sl calc; SLTST: red/brn, sb plty-sb blky, gt tex, mod frm-brit, non calc; abnt bri yel min flor, nsoc

MUD WT: 9.8/ VIS: 47 IN
MUD WT: 9.8/ VIS: 61 OUT

SH: red-red/brn, occ lt gy- lt gy/bl, plty-sb plty, slty tex, sl calc; SLTST: red/brn, sb plty-sb blky, gt tex, mod frm-brit, non calc; ANHY: lt bf/brn, blky-amor, mas, v sft- mod frm, mcxln, non calc; scat bri yel min flor, nsoc

MD: 8,028'
Inclination: 1.1°
Azimuth: 249.8°
TVD: 8,026.32'

MUD WT: 9.7/ VIS: 47 IN
MUD WT: 9.7/ VIS: 50 OUT

SH: red-red/brn, occ lt gy- lt gy/bl, plty-sb plty, slty tex, sl calc; SLTST: red/brn, sb plty-sb blky, gt tex, mod frm-brit, non calc; ANHY: lt bf/brn, blky-amor, mas, v sft- mod frm, mcxln, non calc; scat bri yel min flor, nsoc

MUD WT: 9.7/ VIS: 46 IN
MUD WT: 9.7/ VIS: 49 OUT

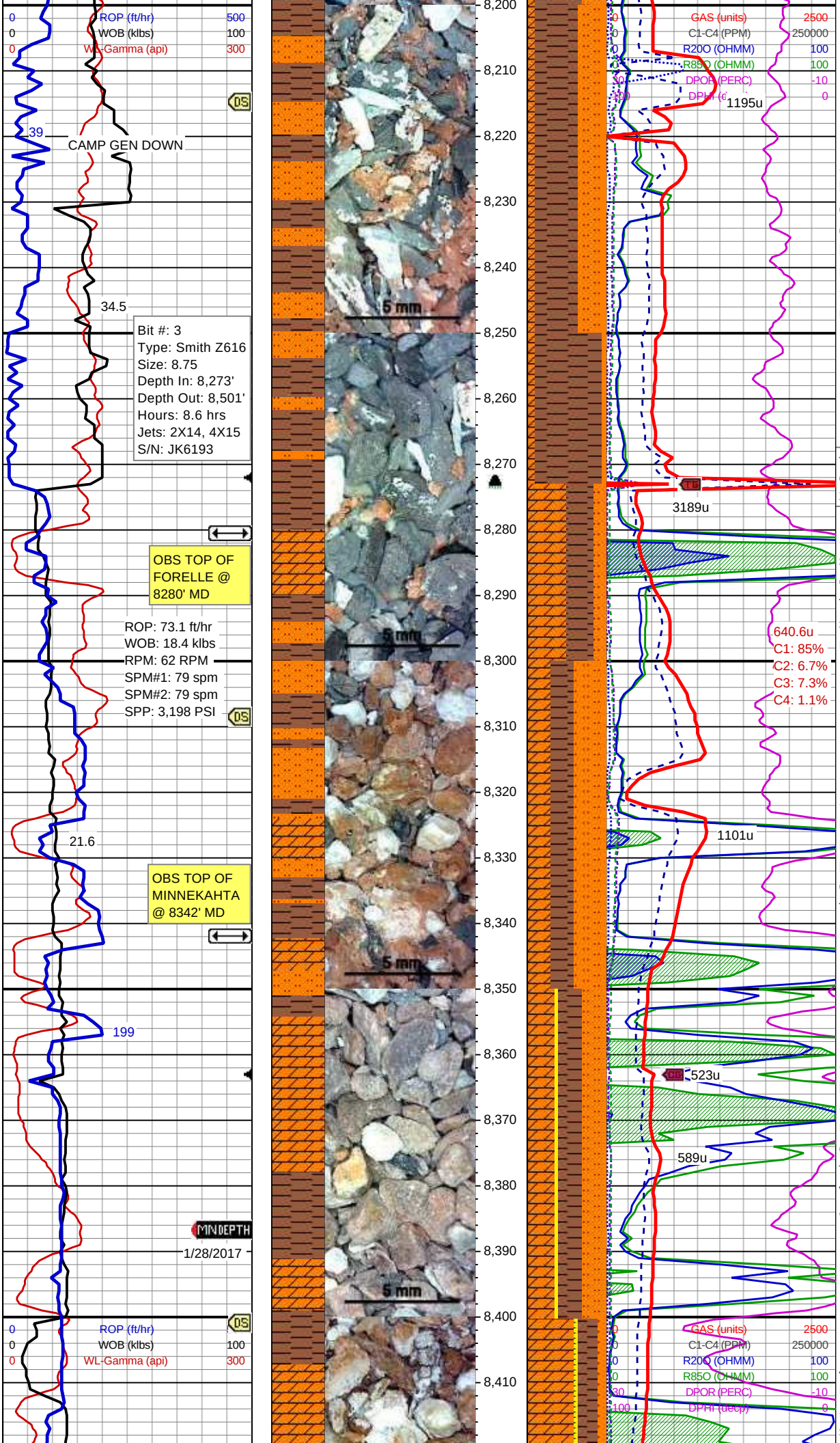
MD: 8,121'
Inclination: 0.9°
Azimuth: 229.7°
TVD: 8,119.31'

SLTST: red/brn, sb plty-sb blky, gt-slty tex, mod frm-brit, non calc; SH: red-red/brn, occ lt gy- lt gy/bl, plty- sb plty, slty tex, sl calc; ANHY: lt bf/brn, blky-amor, mas, v sft- mod frm, mcxln, non calc; scat bri yel min flor, nsoc

Depth: 8,140
Mud Weight: 9.7
Viscosity: 52
Yield Pt: 22
Filter Cake: 32
Solids: 10%
pH: 8.2
Chlorides: 3,200 mg/l

SH: red-red/brn, occ lt gy-lt gy/bl, plty-sb plty, slty tex, sl calc; SLTST: red/brn, sb plty-sb blky, gt tex, mod frm-brit, non calc; ANHY: lt bf/brn, blky-amor, mas, v sft- mod frm, mcxln, non calc; scat bri yel min flor, nsoc

MUD WT: 9.7/ VIS: 47 IN
MUD WT: 9.7/ VIS: 53 OUT



LARGE AMOUNT OF UP HOLE SLOUGHING COMING OVER SHALE SHAKER

MD: 8,215'
Inclination: 0.6°
Azimuth: 242.9°
TVD: 8,213.3'

SH: red-red/brn-orng, gy-blk, abnt bent, plty-sb plty, slty tex, sft-frm, sl calc; SLTST: red/brn, sb plty-sb blky, gt tex, mod frm-brit, non calc; ANHY: lt bf/brn, blky-amor, mas, v sft-mod frm, mcxln, non calc; abnt bri yel min flor, nsoc NOTE: gy, blk & bent are from up hole.

MUD WT: 9.9/ VIS: 53 IN
MUD WT: 9.9/ VIS: 59 OUT

Sample at 8250-8273' MD was 95% up hole sloughing of gray to black shales and bentonite.

TOOH FOR BIT 8273' MD @ 09:35MST ON 1/27/2017. RESUMED DRILLING @ 22:34 MST ON 1/27/17.

SH: red-red/brn, occ lt gy- lt gy/bl, plty-sb plty, slty tex, sl calc; ANHY: wh- lt orng/brn, blky-amor, mas, v sft- mod frm, mcxln, non calc; SLTST: red/brn, sb plty-sb blky, gt tex, mod frm-brit, non calc; nfsoc

MD: 8,308'
Inclination: 0.9°
Azimuth: 203.4°
TVD: 8,306.29'

SLTST: red/brn, sb plty-sb blky, gt tex, mod frm-brit, non calc; SH: red-red/brn, occ lt gy- lt gy/bl, plty- sb plty, sm-slty tex, sl calc; ANHY: wh- lt orng/brn, blky-amor, mas, v sft- mod frm, mcxln, non calc; nfsoc

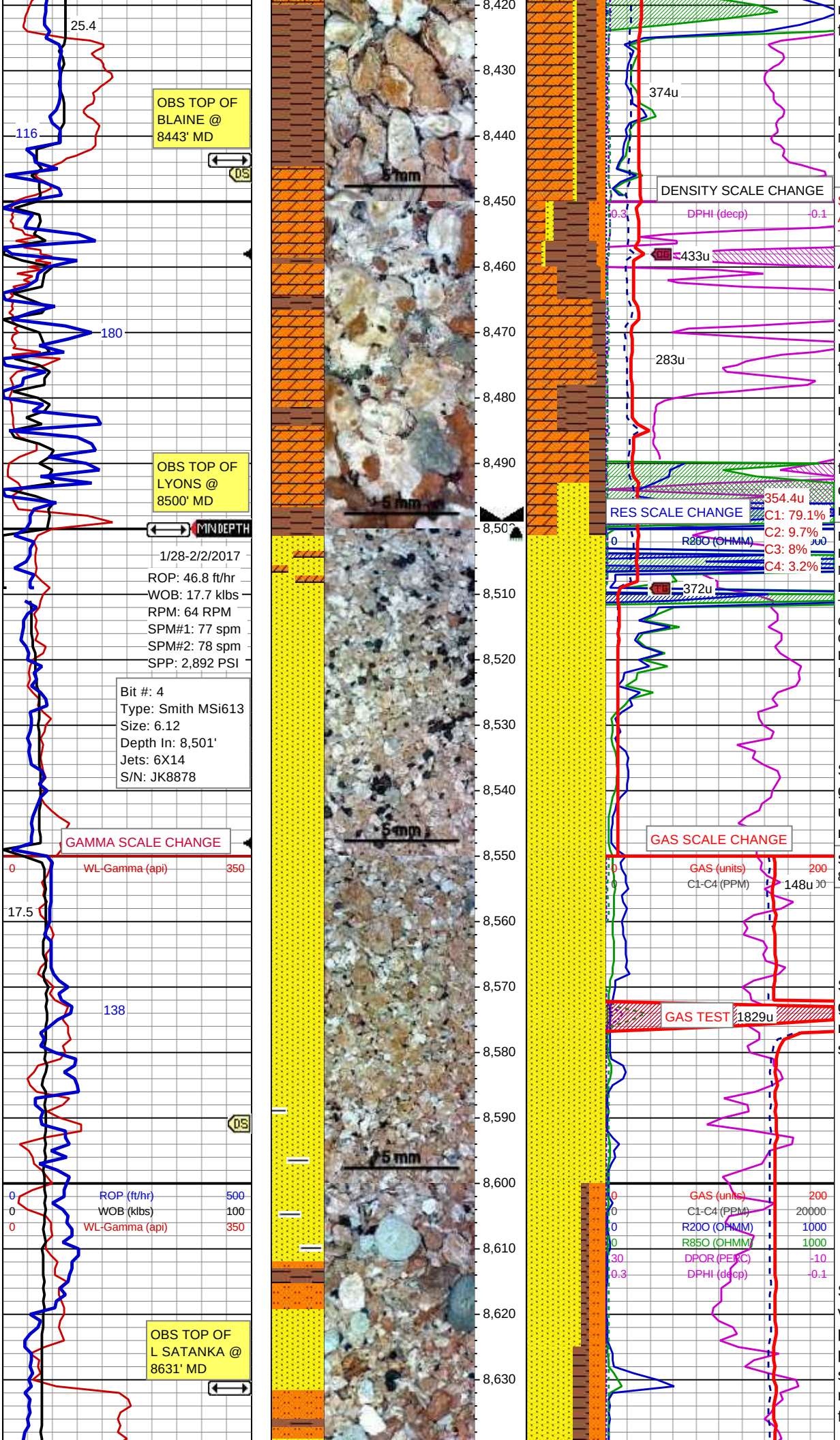
MUD WT: 9.8/ VIS: 47 IN
MUD WT: 9.8/ VIS: 46 OUT

SH: red-red/brn, occ lt gy- lt gy/bl, plty-sb plty, sm-slty tex, sl calc; SLTST: red/brn, sb plty-sb blky, gt tex, mod frm-brit, non calc; ANHY: wh- lt orng/brn, blky-amor, mas, v sft-mod frm, mcxln, non calc; SS: lt pnk-clr, vf-f, mod-w srt, sb rnd, aren, gr sup, arkc, mod por; nfsoc

MUD WT: 9.7/ VIS: 45 IN
MUD WT: 9.8/ VIS: 50 OUT

MD: 8,401'
Inclination: 1.4°
Azimuth: 172.8°
TVD: 8,399.28'

ANHY: wh- off wh, bf-brn, blky-amor, mas, v sft- mod frm, mcxln, non calc; SH: red-red/brn, occ lt gy-lt gy/bl, plty-sb plty, sm-slty tex, sl calc; SLTST:



red/brn, sb plty-sb blky, gt tex, mod frm-brit, non calc; SS: lt pnk-clr, vf-f, mod-w srt, sb rnd, aren, gr sup, arkc, mod por, tr sa; nfsoc

MUD WT: 9.9/ VIS: 50 IN
MUD WT: 9.9/ VIS: 53 OUT

MD: 8,446'
Inclination: 1.4°
Azimuth: 167.7°
TVD: 8,444.26'

STARTED DRILLING 5' TO 8' SECTIONS AND CIRCULATING BOTTOMS UP, FOR THE LYONS SS

ANHY: wh- off wh, bf-brn, blky-amor, mas, v sft-mod frm, mcxln, non calc; SH: red-red/brn, occ lt gy- lt gy/bl, plty-sb plty, sm-slty tex, sl calc; SLTST: red/brn, sb plty-sb blky, gt tex, mod frm-brit, non calc, SS: lt pnk-clr, vf-f, mod-w srt, sb rnd, aren, gr sup, arkc, mod por, tr sa; nfsoc

SS: lt pnk-clr-red, vf-f, occ med gr, fr-mod srt, sb rnd-sb ang, p-mod cmtd, predy cly mtx, tt-p por, non calc; nfsoc

REACHED INTERMEDIATE CASING POINT OF 8501' MD (LYONS SS) @ 08:40 MST ON 1/28/17. TOOH, RAN WIRE LINE LOGS, TIH TO CLEAN UP TIGHT SPOTS, TOOH LAYING DOWN 4.5" PIPE, RAN 7" CASING AND SET AT 8499' MD, CEMENTED CASING IN TWO STAGES, BUILT 4" STANDS, TIH RESUMED DRILLING @ 16:58 MST ON 2/2/17.

MUD WT: 9.1/ VIS: 31, pH 9.0 IN
MUD WT: 9.4/ VIS: 34, pH 9.1 OUT

SS: lt pnk- clr, occ wh, vf-f gr, occ med gr, sb rnd-rnd, mod srt, pred cons, uncons ip, mod por, non calc, tr anhy; nfsoc

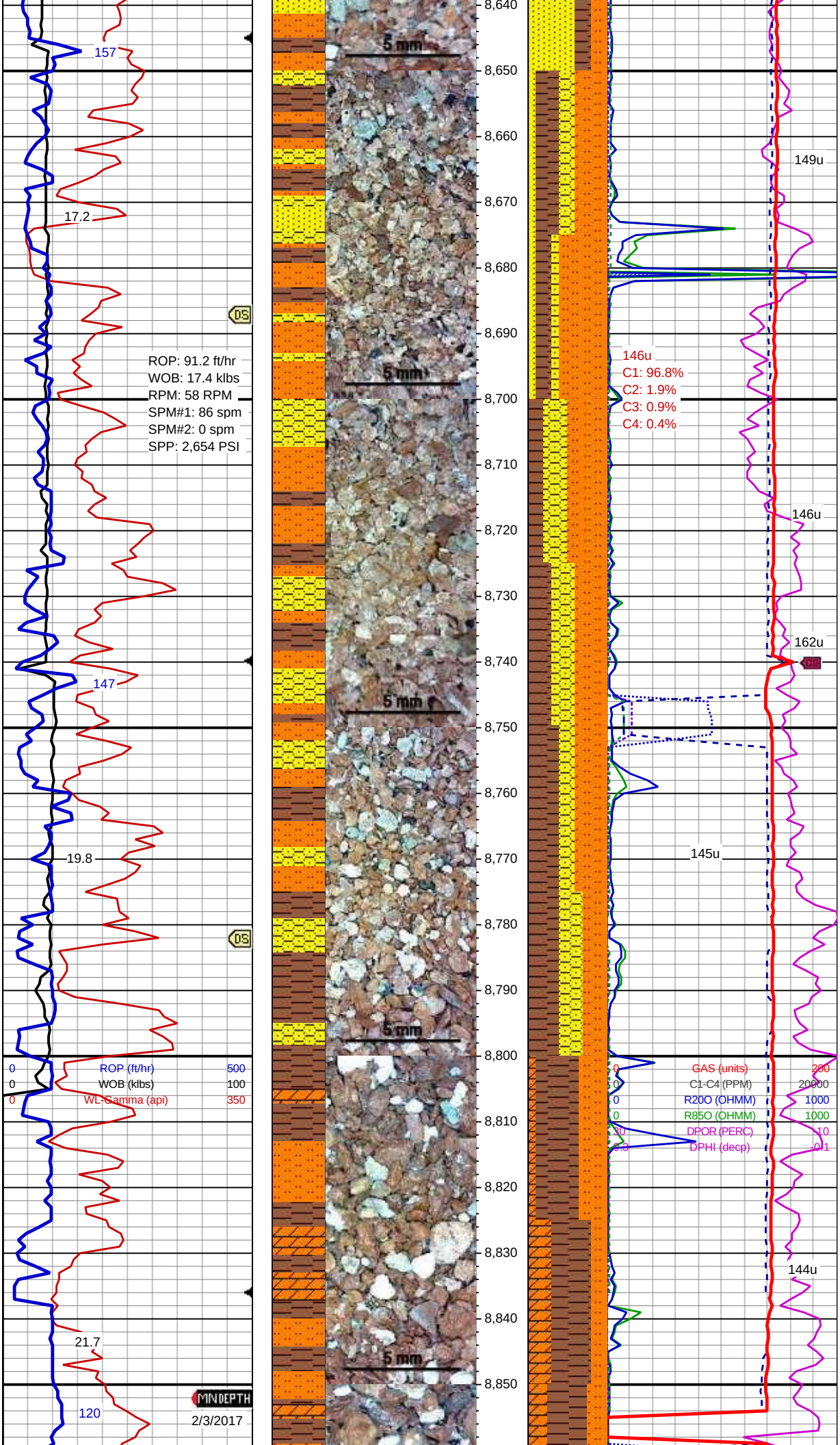
STARTED 25' SAMPLE INTERVAL @ 8525' MD

MUD WT: 9.0/ VIS: 33 IN
MUD WT: 9.1/ VIS: 33 OUT
pH 9.2

SS: pred clr/trnsl, occ lt pnk-wh, vf-f gr, sb rnd-rnd, pred uncons, mod-mod g por, non calc, tr anhy, tr shy strgs; nfsoc

MD: 8,591'
Inclination: 1.5°
Azimuth: 156.4°
TVD: 8,589.22'

SS: pred lt pnk/orng-wh, occ clr/trnsl, vf-f gr, sb rnd-rnd, pred cons, mod por, non calc; SLTST: red/orng, sb plty-sb blky ip, slty tex, occ grdg to slty sh, non-sl calc; SH: red/orng-brn/orng, sb plty-plty, mod frm, sm-rthy tex, non calc; nfsoc



MUD WT: 9.0/ VIS: 33 IN
MUD WT: 9.1/ VIS: 33 OUT
pH 9.1

SLTST: red/orng, sb plty-sb blky ip, slty tex, occ grdg to slty sh, non-sl calc; SH: red/orng-brn/orng, sb plty-plty, mod frm, sm-rthy tex, non calc; SHY SS: pnk/lt red, vf gr, sb rnd-sb ang, lam, mod srt, tt, non calc; SS: pred lt pnk/orng-wh, occ clr/trnsl, vf-f gr, sb rnd-rnd, pred cons, mod por, non calc; nfsoc

MD: 8,687'
Inclination: 1.3°
Azimuth: 155°
TVD: 8,685.19'

MUD WT: 8.9/ VIS: 34 IN
MUD WT: 9.0/ VIS: 33 OUT
pH 9.0

SLTST: red/orng, sb plty-sb blky ip, slty tex, occ grdg to slty sh, non-sl calc; SH: red/orng-brn/orng, sb plty-plty, mod frm, sm-rthy tex, non calc; SHY SS: pnk/lt red, vf gr, sb rnd-sb ang, lam, mod srt, tt, non calc, occ grdg to ss; nfsoc

MUD WT: 9.0/ VIS: 36 IN
MUD WT: 9.0/ VIS: 34 OUT
pH 9.0

SLTST: red/orng, sb plty-sb blky ip, slty tex, occ grdg to slty sh, non-sl calc; SH: red/orng-brn/orng, sb plty-plty, mod frm, sm-rthy tex, non calc; SHY SS: pnk/lt red, vf gr, sb rnd-sb ang, lam, mod srt, tt, non calc, occ grdg to ss; nfsoc

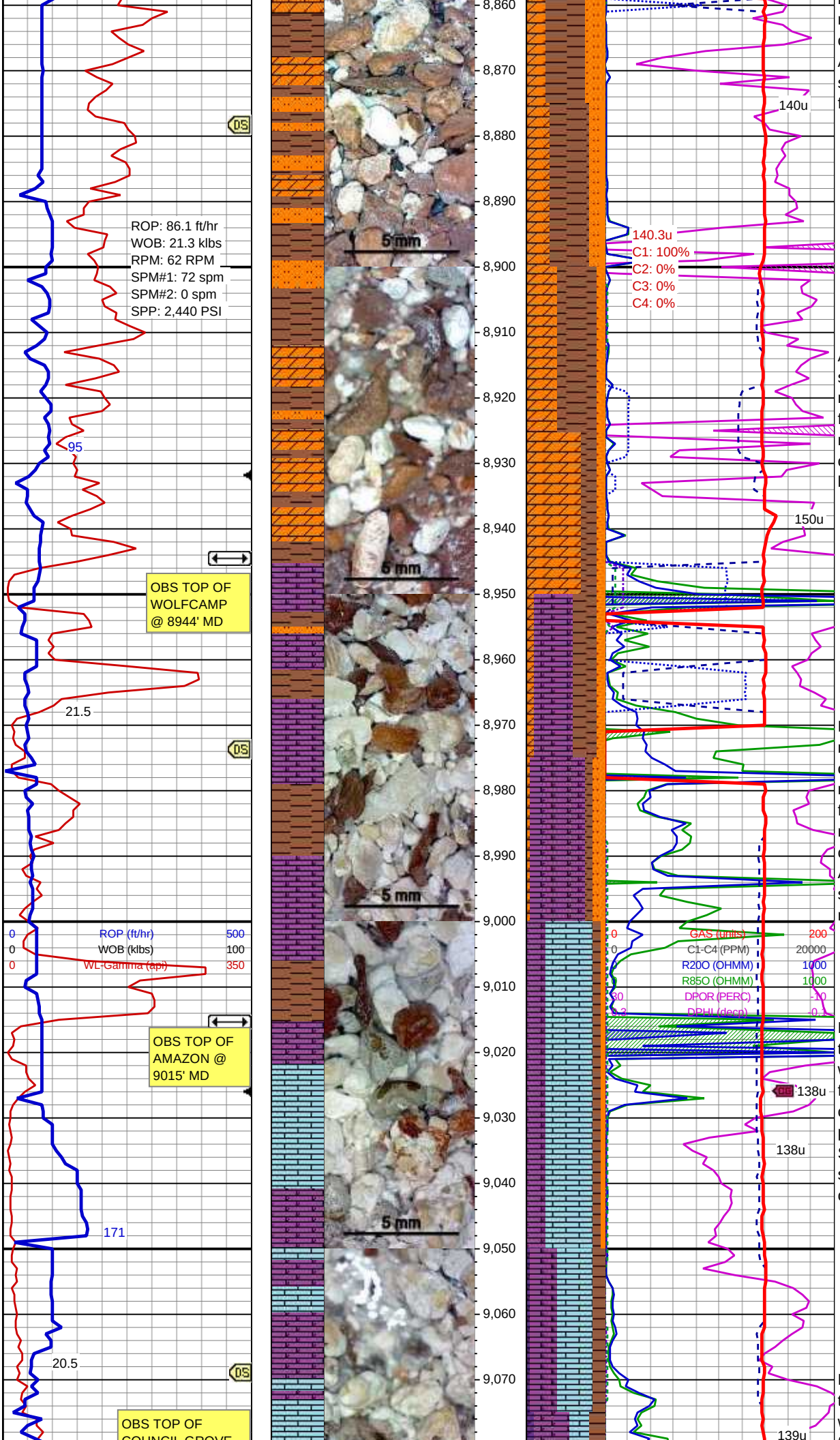
MD: 8,782'
Inclination: 0.9°
Azimuth: 159.2°
TVD: 8,780.17'

MUD WT: 9.0/ VIS: 39 IN
MUD WT: 9.0/ VIS: 36 OUT
pH 8.9

SH: red/orng-brn/orng, sb plty-plty, mod frm, rthy tex, non calc; SLTST: red/orng, sb plty-sb blky ip, slty tex, occ grdg to slty sh, non-sl calc; ANHY: wh-lt orng/brn, amor, v sft, sm-rthy tex, non calc; nfsoc

MUD WT: 8.9/ VIS: 39 IN
MUD WT: 8.9/ VIS: 36 OUT
pH 8.7

SH: red/orng-brn/orng, sb plty-plty, mod frm, rthy tex, non calc; SLTST:



red/orng, sb plty-sb blky ip, slty tex, occ grdg to slty sh, non-sl calc; ANHY: wh-lt orng/brn, amor, v sft, sm-rthy tex, non calc, tr dol; lt yel min flor, nsoc

MD: 8,878'
Inclination: 0.7°
Azimuth: 156.8°
TVD: 8,876.16'

ANHY: wh-lt orng/brn, amor, v sft, sm-rthy tex, non calc; SH: red/orng-brn/orng, sb plty-plty, mod frm, rthy tex, non calc; SLTST: red/orng, sb plty-sb blky ip, slty tex, occ grdg to slty sh, non-sl calc, tr dol; lt yel min flor, nsoc

MUD WT: 9.0/ VIS: 40 IN
MUD WT: 9.0/ VIS: 40 OUT
pH 8.7

MD: 8,973'
Inclination: 0.7°
Azimuth: 93.1°
TVD: 8,971.15'

DOLC LS: wh-off wh, sb blky, mcxln-cyxln, mod frm-frm, sm-wxy tex, occ mot, sl- v calc; SH: red/orng-brn/orng, sb plty-plty, mod frm, rthy tex, non calc; SLTST: red/orng, sb plty-sb blky ip, slty tex, occ grdg to slty sh, non-sl calc; ANHY: wh-lt orng/brn, amor, v sft, sm-rthy tex, non calc; lt yel min flor, nsoc

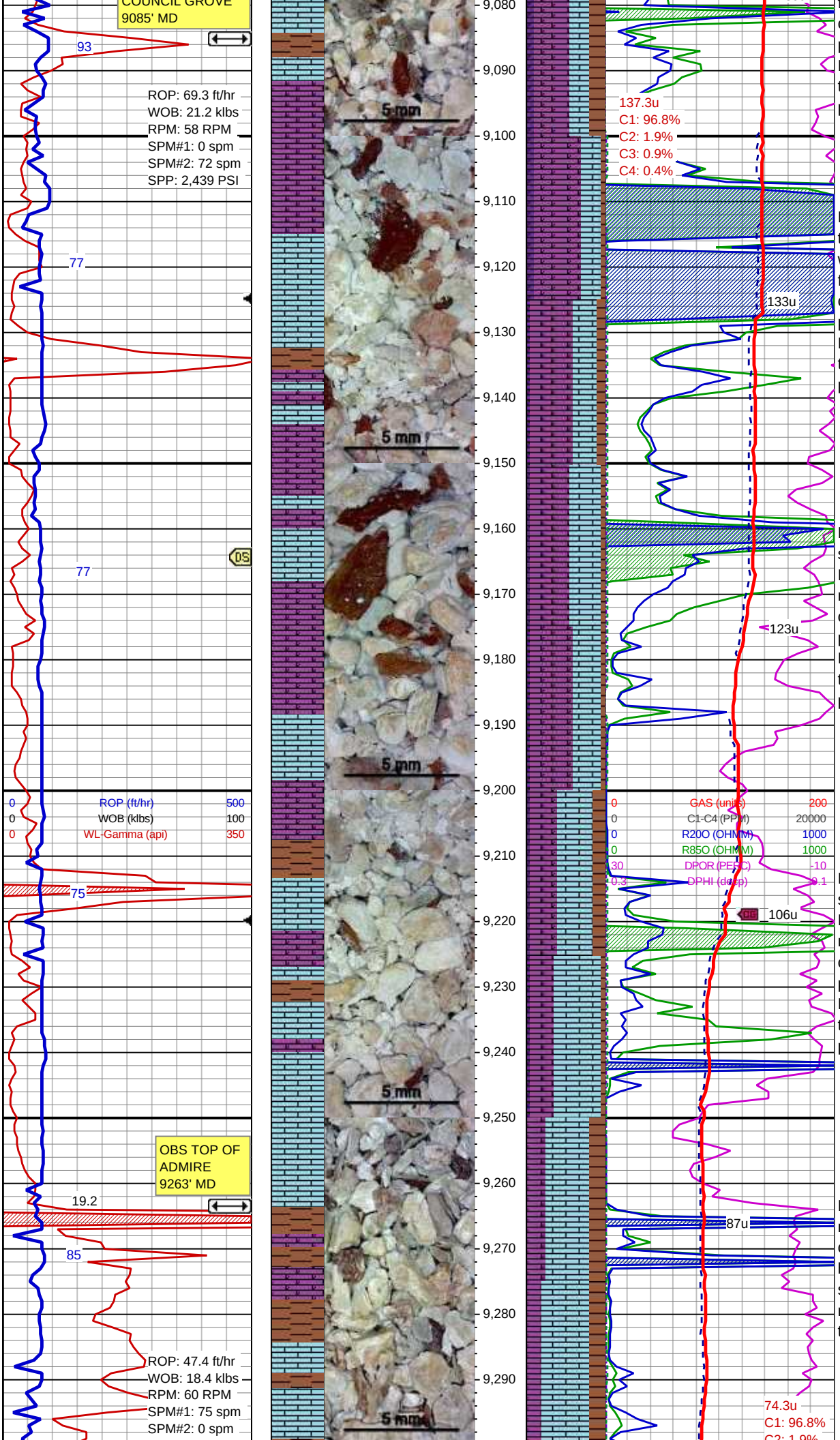
MUD WT: 8.9/ VIS: 42 IN
MUD WT: 8.9/ VIS: 40 OUT
pH 8.4

LS: wh-off wh, occ crm, mcxln, sm tex, sft-mod sft, v calc, DOLC LS: wh-off wh, sb blky, mcxln-cyxln, mod frm-frm, sm-wxy tex, occ mot, sl- v calc, SH: red/orng-brn/orng, sb plty-plty, mod frm, rthy tex, non calc, SLTST: red/orng, sb plty-sb blky ip, slty tex, occ grdg to slty sh, non-sl calc; nfsoc

MD: 9,069'
Inclination: 0.8°
Azimuth: 69.8°
TVD: 9,067.15'

Depth: 9,011
Mud Weight: 8.9
Viscosity: 46
Yield Pt: 16
Filter Cake: 0
Solids: 3.6%
pH: 8.7
Chlorides: 2,700 mg/l

LS: wh-off wh, occ crm, mcxln, sm tex, sft-mod sft, v calc; DOLC LS: wh-off wh, sb blky, mcxln-cyxln, mod



frm-frm, sm-wxy tex, occ mot, sl-v calc; SH: red/orng-brn/orng, sb plty-plty, mod frm, rthy tex, non calc; DOL: mky wh-wh, occ purp, pred suc tex, cyxln, frm-mod hd, plty-sb plty, p por, sl calc; nfsoc

MUD WT: 9.2/ VIS: 42 IN
MUD WT: 9.1/ VIS: 42 OUT
pH 8.6/8.4

LS: wh-off wh, occ crm, mcxln, sm tex, sft-mod sft, v calc; DOLC LS: wh-off wh, sb blky, mcxln-cyxln, mod frm-frm, sm-wxy tex, occ mot, sl-v calc; SH: red/orng-brn/orng, sb plty-plty, mod frm, rthy tex, non calc; DOL: mky wh-wh, occ purp, pred suc tex, cyxln, frm-mod hd, plty-sb plty, p por, sl calc; nfsoc

MD: 9,164'
Inclination: 0.7°
Azimuth: 87.2°
TVD: 9,162.14'

LS: wh-lt pnk, occ off wh-crm, mcxln, sm tex, sft-mod sft, sb blky, v calc; DOLC LS: wh-off wh-lt pnk, sb blky, mcxln-cyxln, mod frm-frm, sm-wxy tex, occ mot, sl-v calc; SH: red/orng, sb plty-plty, mod frm, rthy tex, non calc; DOL: mky wh-wh, occ purp, pred suc tex, cyxln, frm-mod hd, plty-sb plty, p por, sl calc; nfsoc

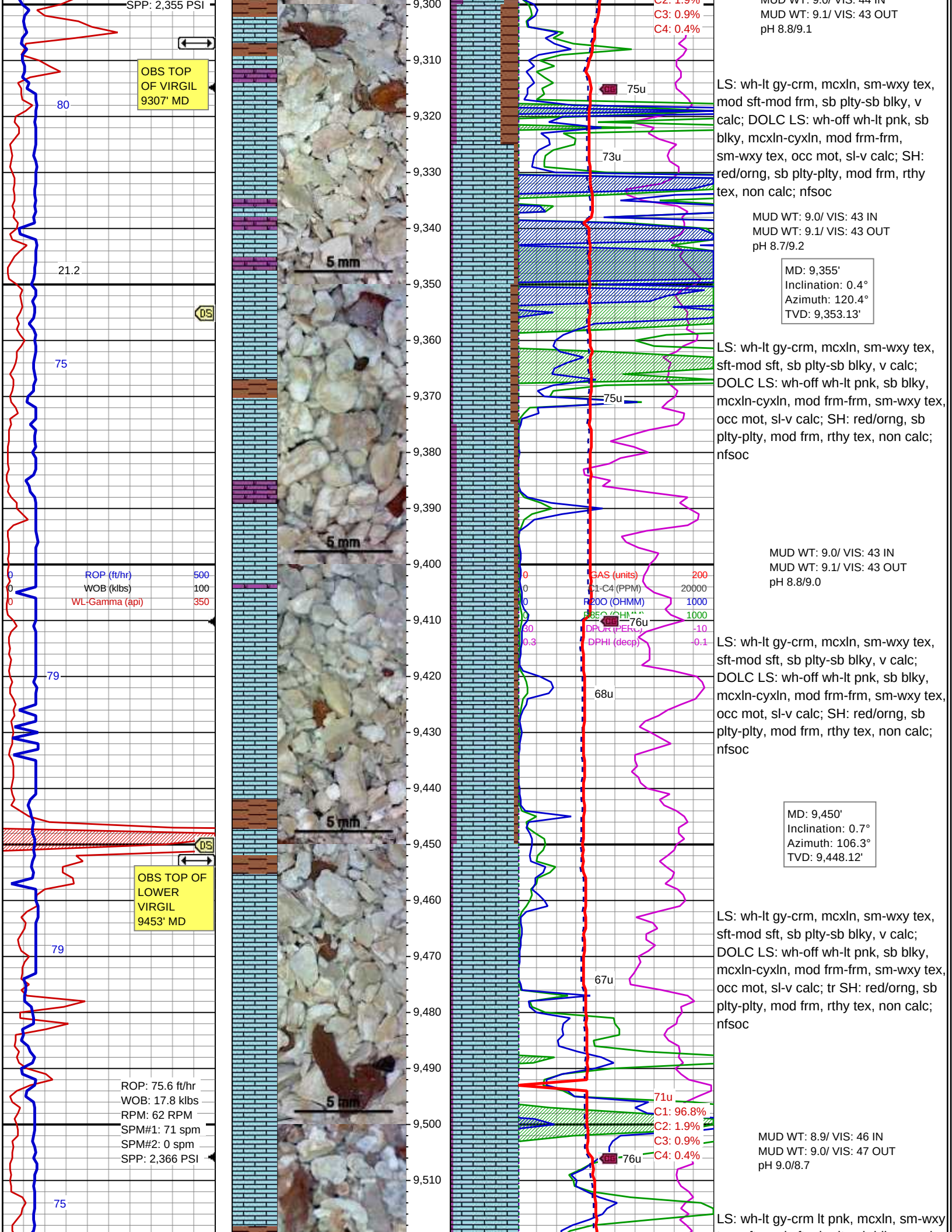
MUD WT: 8.9/ VIS: 44 IN
MUD WT: 9.1/ VIS: 42 OUT
pH 8.8/8.4

LS: wh-lt pnk, occ off wh-crm, mcxln, sm tex, sft-mod sft, sb blky, v calc; DOLC LS: wh-off wh-lt pnk, sb blky, mcxln-cyxln, mod frm-frm, sm-wxy tex, occ mot, sl-v calc; SH: red/orng, sb plty-plty, mod frm, rthy tex, non calc; DOL: mky wh-wh, occ purp, pred suc tex, cyxln, frm-mod hd, plty-sb plty, p por, sl calc; nfsoc

MUD WT: 9.0/ VIS: 43 IN
MUD WT: 9.0/ VIS: 44 OUT
pH 8.8/9.0

LS: wh-lt gy-crm, mcxln, sm-wxy tex, mod sft-mod frm, sb plty-sb blky, v calc; DOLC LS: wh-off wh-lt pnk, sb blky, mcxln-cyxln, mod frm-frm, sm-wxy tex, occ mot, sl-v calc; SH: red/orng, sb plty-plty, mod frm, rthy tex, non calc; nfsoc

MUD WT: 9.0/ VIS: 44 IN



MUD WT: 9.1/ VIS: 43 OUT
pH 8.8/9.1

LS: wh-lt gy-crm, mcxln, sm-wxy tex, mod sft-mod frm, sb plty-sb blky, v calc; DOLC LS: wh-off wh-lt pnk, sb blky, mcxln-cyxln, mod frm-frm, sm-wxy tex, occ mot, sl-v calc; SH: red/orng, sb plty-plty, mod frm, rthy tex, non calc; nfsoc

MUD WT: 9.0/ VIS: 43 IN
MUD WT: 9.1/ VIS: 43 OUT
pH 8.7/9.2

MD: 9,355'
Inclination: 0.4°
Azimuth: 120.4°
TVD: 9,353.13'

LS: wh-lt gy-crm, mcxln, sm-wxy tex, sft-mod sft, sb plty-sb blky, v calc; DOLC LS: wh-off wh-lt pnk, sb blky, mcxln-cyxln, mod frm-frm, sm-wxy tex, occ mot, sl-v calc; SH: red/orng, sb plty-plty, mod frm, rthy tex, non calc; nfsoc

MUD WT: 9.0/ VIS: 43 IN
MUD WT: 9.1/ VIS: 43 OUT
pH 8.8/9.0

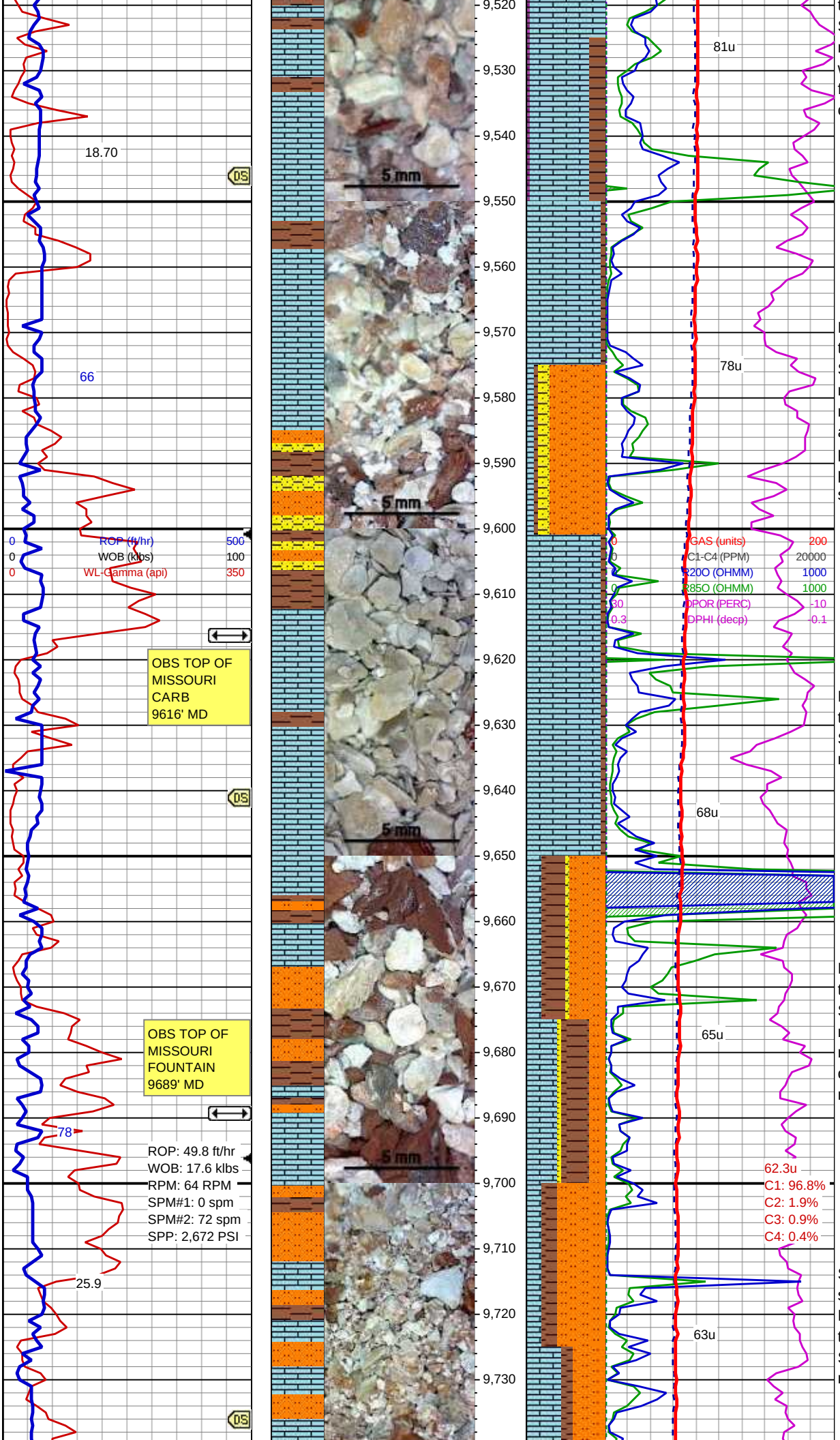
LS: wh-lt gy-crm, mcxln, sm-wxy tex, sft-mod sft, sb plty-sb blky, v calc; DOLC LS: wh-off wh-lt pnk, sb blky, mcxln-cyxln, mod frm-frm, sm-wxy tex, occ mot, sl-v calc; SH: red/orng, sb plty-plty, mod frm, rthy tex, non calc; nfsoc

MD: 9,450'
Inclination: 0.7°
Azimuth: 106.3°
TVD: 9,448.12'

LS: wh-lt gy-crm, mcxln, sm-wxy tex, sft-mod sft, sb plty-sb blky, v calc; DOLC LS: wh-off wh-lt pnk, sb blky, mcxln-cyxln, mod frm-frm, sm-wxy tex, occ mot, sl-v calc; tr SH: red/orng, sb plty-plty, mod frm, rthy tex, non calc; nfsoc

MUD WT: 8.9/ VIS: 46 IN
MUD WT: 9.0/ VIS: 47 OUT
pH 9.0/8.7

LS: wh-lt gy-crm lt pnk, mcxln, sm-wxy



tex, sft-mod sft, sb plty-sb blky, v calc; SH: red/orng, sb plty-plty, mod frm, rthy tex, non calc; DOLC LS: wh-off wh-lt pnk, sb blky, mcxln-cyxln, mod frm-frm, sm-wxy tex, occ mot, sl-v calc; nfsoc

MD: 9,546'
Inclination: 0.7°
Azimuth: 101.8°
TVD: 9,544.12'

LS: wh-lt gy-crm lt pnk, mcxln, sm-wxy tex, sft-mod sft, sb plty-sb blky, v calc; SH: red/orng, sb plty-plty, mod frm, rthy tex, non calc; SHY SS: lt pnk/orng red/brn, tr cl, vf-med gr, sb rnd-sb ang, p srt, mod cmtd, calc-arg cmt, p por, arkc ip, calc, SLTST: red/orng, sb plty-sb blky ip, slty tex, occ grdg to slty sh, sl calc; nfsoc

MUD WT: 8.9/ VIS: 46 IN
MUD WT: 9.0/ VIS: 46 OUT
pH 9.5/8.9

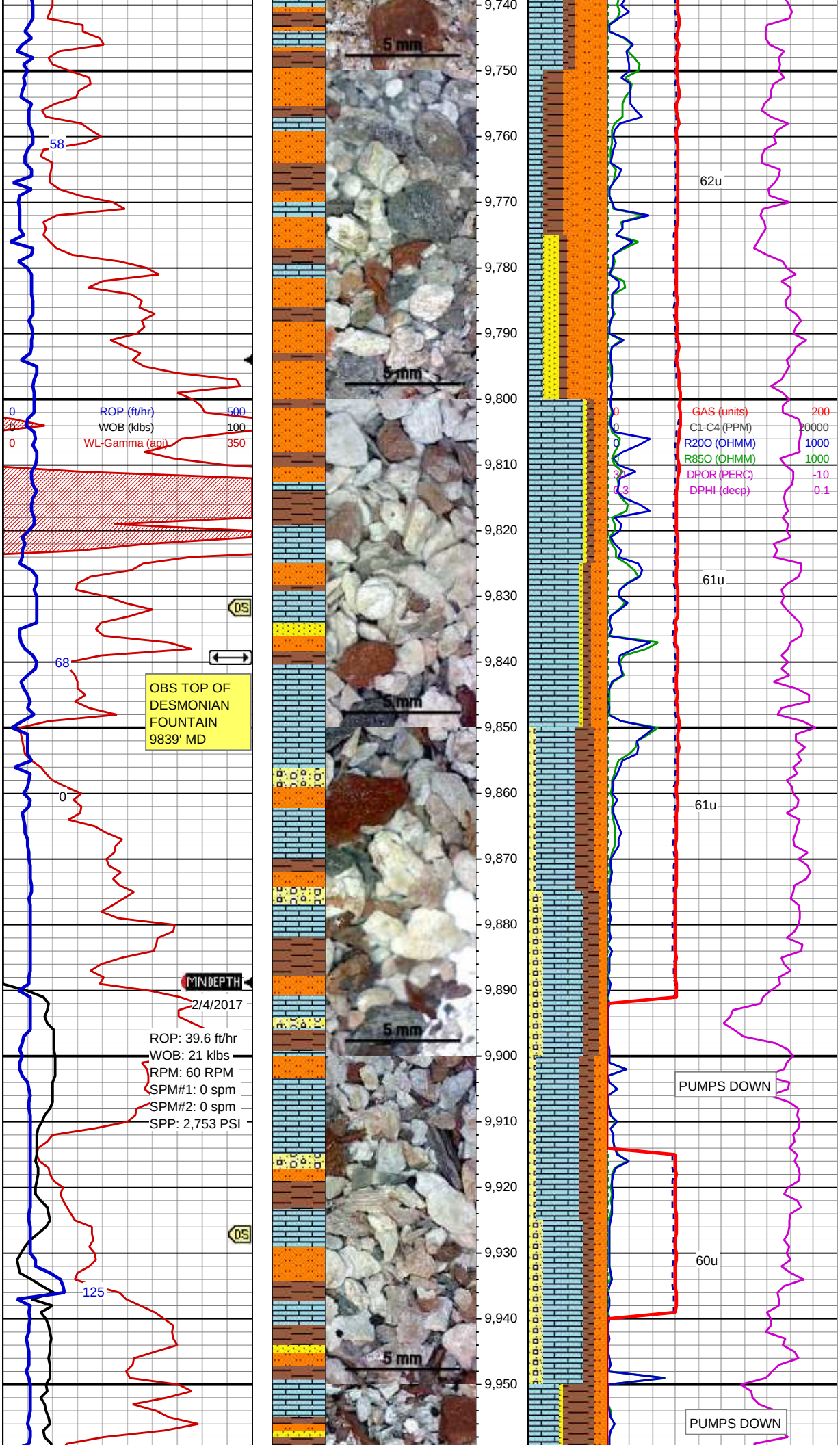
LS: wh-lt gy-crm lt pnk, mcxln, sm-wxy tex, sft-mod sft, sb plty-sb blky, v calc; SH: red/orng, sb plty-plty, mod frm, rthy tex, non calc; nfsoc

MD: 9,641'
Inclination: 0.8°
Azimuth: 139.2°
TVD: 9,639.11'

LS: wh-lt gy-crm lt pnk, mcxln, sm-wxy tex, sft-mod sft, sb plty-sb blky, v calc; SH: red/orng, sb plty-plty, mod frm, rthy tex, non calc, tr cal; SLTST: red/orng, sb plty-sb blky ip, slty tex, occ grdg to slty sh, sl calc, tr shy ss; nfsoc

SLTST: red/orng, sb plty-sb blky ip, slty tex, occ grdg to slty sh, sl calc; LS: wh-lt gy-crm lt pnk, mcxln, sm-wxy tex, sft-mod sft, sb plty-sb blky, v calc; SH: red/orng, sb plty-plty, mod frm, rthy tex, non calc, tr cal; nfsoc

MD: 9,736'
Inclination: 0.9°



Azimuth: 129.4°
TVD: 9,734.1'

MUD WT: 8.9/ VIS: 46 IN
MUD WT: 8.9/ VIS: 46 OUT
pH 9.3/9.1

SLTST: red/orng, gy-med gy, sb plty-sb blky ip, blky ip slty tex, occ grdg to slty sh, sl calc; SS: wh-let gy, occ clr, vf -med gr, ply srt, sb rnd-rnd, tr cgl, slty mtx, p por; LS: wh-lt gy-crm lt pnk, mcxln, sm-wxy tex, sft-mod sft, sb plty-sb blky, v calc; SH: red/orng, sb plty-plty, mod frm, rthy tex, non calc, tr cal; nfsoc

LS: wh-off wh, lt gy-bf, sb plty-plty, mod frm, mcxln, wxy tex, v calc; SLTST: brn-brn/red, vf gr, lam ip, sb blky, occ grdg to shy sltst, sl- non calc; SH: red- red/orng, mic gr, sb plty-plty, occ grdg to shy ss, non-sl calc; SS: wh-clr, occ s&p, vf gr, mod srt, mod por, gr sup mtx, v sl calc; lt yel min flor, nsoc

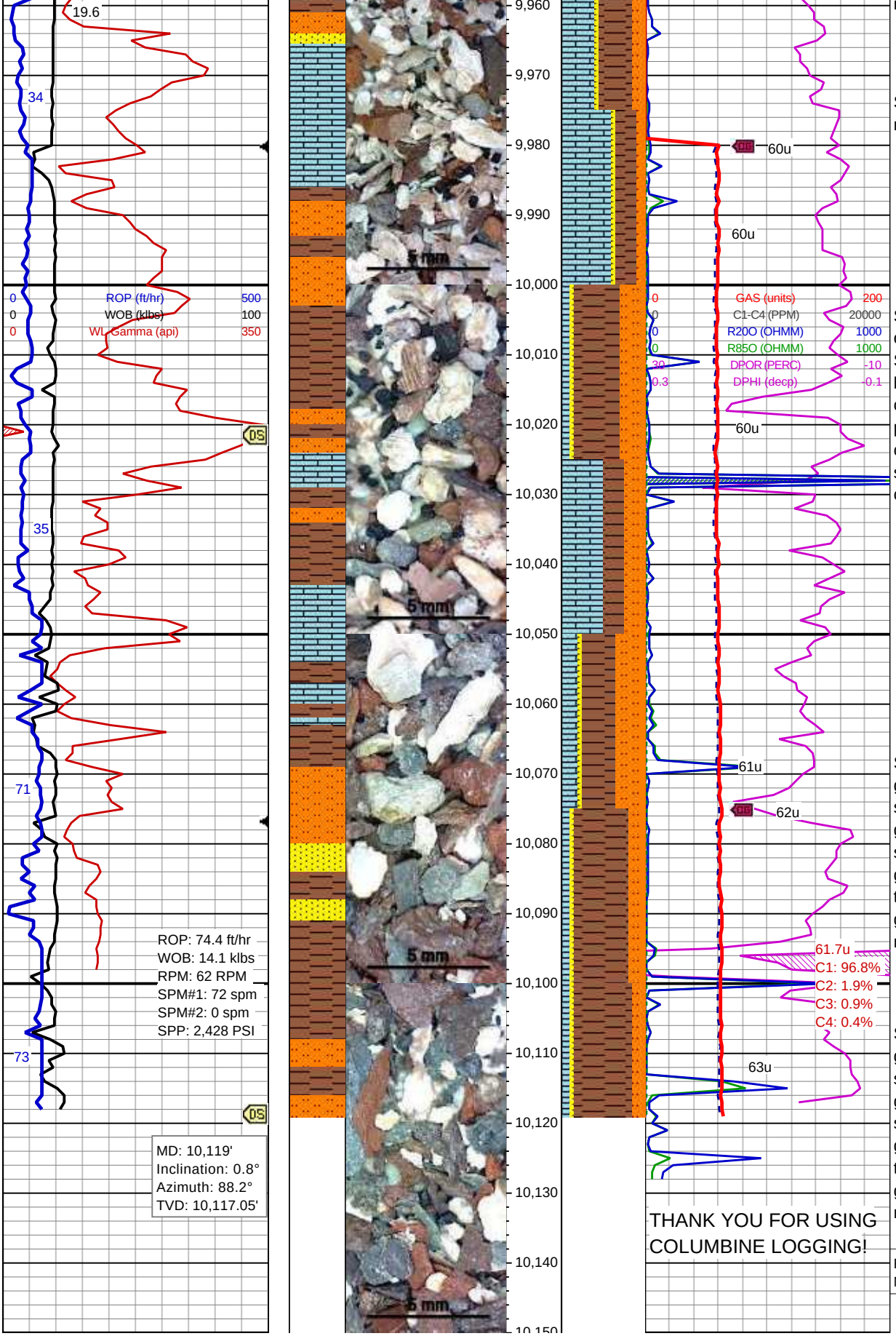
MD: 9,832'
Inclination: 1.1°
Azimuth: 108.8°
TVD: 9,830.08'

LS: wh-off wh, lt gy-bf, sb plty-plty, mod frm, mcxln, wxy tex, v calc; SLTST: brn-brn/red, vf gr, lam ip, sb blky, occ grdg to shy sltst, sl- non calc; SH: red- red/orng, mic gr, sb plty-plty, occ grdg to shy ss, non-sl calc; CGL: brn- red/brn, occ lt gy-med gy, vf-c gr, ply srt, mod por, gr sup mtx, v sl calc; lt yel min flor, nsoc

MUD WT: 8.9/ VIS: 47 IN
MUD WT: 8.9/ VIS: 50 OUT
pH 8.9

MD: 9,927'
Inclination: 0.9°
Azimuth: 78.6°
TVD: 9,925.07'

LS: wh-off wh, lt gy-bf, sb plty-plty, mod frm, mcxln, wxy tex, v calc; SLTST: brn-brn/red, vf gr, lam ip, sb blky, occ grdg to shy sltst, sl- non calc; SH: red- red/orng, mic gr, sb plty-plty, occ grdg to shy ss, non-sl calc; CGL: brn- red/brn, occ lt gy-med gy, vf-c gr, ply srt, mod por, gr sup



mtx, v sl calc; lt yel min flor, nsoc

SS: wh-clr, occ s&p, vf gr, mod srt, mod por, gr sup mtx, v sl calc

MUD WT: 8.9/ VIS: 51 IN
MUD WT: 8.9/ VIS: 50 OUT
pH 9.0/8.7

SH: red- red/orng, mic gr, sb plty-plty, occ grdg to shy ss, non-sl calc; SLTST: brn-brn/red, vf gr, lam ip, sb blky, occ grdg to shy sltst, sl- non calc; LS: wh-off wh, lt gy-bf, sb plty-plty, mod frm, mcxln, wxy tex, v calc; SS: wh-clr, occ s&p, vf gr, mod srt, mod por, gr sup mtx, v sl calc, tr cht; tr lt yel min flor, nsoc

Depth: 10,021
Mud Weight: 8.9
Viscosity: 53
Yield Pt: 31
Filter Cake: 6.8
Solids: 3.6%
pH: 8.9
Chlorides: 2,800 mg/l

MD: 10,022'
Inclination: 0.8°
Azimuth: 91.9°
TVD: 10,020.06'

MUD WT: 8.9/ VIS: 53 IN
MUD WT: 8.9/ VIS: 54 OUT
pH 8.7/8.5

SH: dk red-red/orng, bl/gn-lt gy, mic gr, sb plty-plty, occ grdg to shy ss-slty sh, non-sl calc; SLTST: brn-brn/red, vf gr, lam ip, sb blky, occ grdg to shy sltst, sl- non calc; LS: wh-off wh, lt gy-bf, sb plty-plty, mod frm, mcxln, wxy tex, v calc; SS: wh-clr, occ lt red, vf-f gr, occ med gr, mod srt, f-p por, cly mtx, v sl calc; nfsoc

MUD WT: 8.9/ VIS: 49 IN
MUD WT: 9.0/ VIS: 51 OUT
pH 8.8/9.1

SH: dk red-red/orng, bl/gn-lt gy, mic gr, sb plty-plty, occ grdg to shy ss-slty sh, non-sl calc; SLTST: brn-brn/red, vf gr, lam ip, sb blky, occ grdg to shy sltst, sl- non calc; LS: wh-off wh, lt gy-bf, sb plty-plty, mod frm, mcxln, wxy tex, v calc; SS: wh-clr, occ lt red, vf-f gr, occ med gr, mod srt, f-p por, cly mtx, v sl calc; nfsoc

REACHED TD OF 10119' MD @ 07:05 MST ON 2/4/2017.