Scale: 5" / 100'
Measured Depth Log

Well Name	Laramie Piceance 28 21M		
Location	Sec 28, T9S, R93W, 2433' FSL, 1596' FWL		
State	CO	**County**	MESA
Country	USA	**Rig Number**	PATTERSON 306
Region	PICEANCE BASIN	**Field**	VEGA
Spud Date	11/22/2014		
Surface Coordinates	39.247409431° N -107.7781192050° W		
Bottom Hole Coordinates	39° 46' 28.464" N -107° 46' 28.560" W		
Ground Elevation	7580' MSL	**K.B. Elevation**	7602' RKB
Logged Interval	1548' MD **To** XXXX' MD		
Formation	ROLLINS		
Type of Drilling Fluid	LSND		

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

Accessories

Fossils
- ALGAE
- AMPHIPORA
- BELEMNITE
- BIOCLASTIC
- BRACHOIPOD
- GASTROPOD
- INOCERAMUS
- OOLITE
- OSTRACOD
- PELECYPOD
- PELLET
- PISOLITE

- ARGILLITE GRAIN
- BENTONITE
- BITUMENOUS SUBSTANCE
- BRECCIA FRAGMENTS
- CALCAREOUS
- CARBONACEOUS FLAKES

- HEAVY MINERAL
- KAOLIN
- MARCASITE
- MARLSTONE
- MICACEOUS
- MINERAL CRYSTALS

Stringer
- ANHYDRITE STRINGER
- BENTONITE STRINGER
- COAL STRINGER
- DOLOMITE STRINGER

BRACHIOPOD
BRYOZOA
CEPHALOPOD
CORAL
CRINOID
ECHINOID
FISH
FORAMINIFERA
FOSSIL
OOLITE
PLANT REMAINS
PLANT SPORES
SCAPHOPOD
STROMATOPOROID

Minerals

ANHYDRITIC
ARGILLACEOUS
CHTLT
COAL - THIN BEDS
DOLOMITIC
FELDSPAR
FERRUGINOUS PELLET
FERRUGINOUS
GLAUCONITE
GYPSIFEROUS
NODULES
PHOSPHATE PELLETS
PYRITE
SALT CAST
SANDY
SIDERITE
SILICEOUS
SILTY
TUFFACEOUS
LIMESTONE STRINGER
MARLSTONE (CALC) STRG
MARLSTONE (DOL) STRG
SANDSTONE STRINGER
SHALE STRINGER
SILTSTONE STRINGER

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

Operator

Company Piceance Energy, LLC.

Address 1512 Larimer St. #1000
Denver, CO 80202

Geologist

Name Tom Lewis (Day), Chris Brown (Night)

Company Columbine Logging, Inc.

Address 602 S. Lipan St.
Denver, CO 80223

Zone Color Coding

Oil
Condensate
Gas
Note
Core
Pressure
Error
Water
Seal

ROP
ROP
GAMMA

Slide/Rotate

Interp Lithology

Images

Oil Show
G
M
F
T
ST
E

Depth Labels

% Lith

Total Gas & Chromatograph
GAS
C1
C2
C3
C4

Lithology Descriptions

0 ROP (min/ft.) 3

0 ROP (min/ft.) 3

Bit #: 1
Type: Hughs T505 PDC
Size: 8.75"
Depth In: 1,543'
Hours: 43.5 *hrs*
Jets: 06X11
S/N: 071255122

8 5/8" Surface Csg
- Set at 1543' MD
- J55, 24#

WOB: 20
PP: 1,193
SPM: 0/0
RPM: 0

0 ROP (min/ft.) 3
0 GAMMA (api) 100

0 GAS (units) 300
0 C1-C4 (PPM) 30000

1,500
1,510
1,520
1,530
1,540
1,550
1,560
1,570
1,580
1,590
1,600
1,610
1,620
1,630
1,640
1,650
1,660
1,670
1,680
1,690

Geologist
- Tom Lewis (Day)
- Chris Brown (Night)

COLUMBINE LOGGING, INC.

- Rigged Up on 11/22/2014
- BH #0055, Job #32
- On Site to log 11/XX/2014
- Start logging XXXX, 11/XX/2014

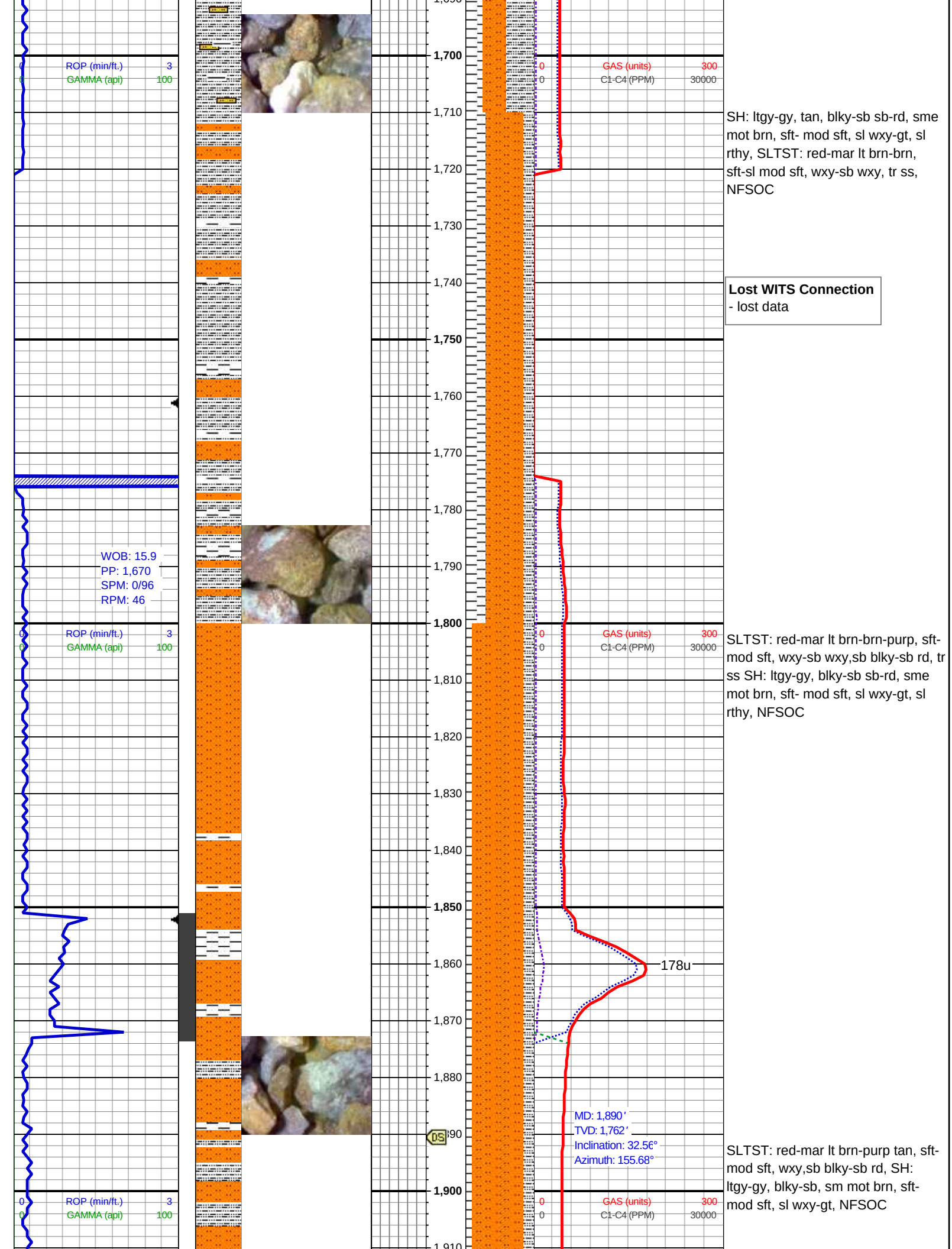
LSND Drilling Fluid

Collecting 90' samples at start

SH: ltgy-gy, tan, blky- sbrd, sft- mod sft, sl wxy-gt,sl rthy,
SLTST: red-mar lt-brn-brn,sft-sl mod sft, wxy-sb wxy ,NFSOC

Power Down
- lost data

SLTST: red-mar lt-brn-brn,sft-sl mod sft, wxy-sb wxy, SH: ltgy-gy, tan, blky- sbrd, sft- mod sft, sl wxy-gt,sl rthy, NFSOC

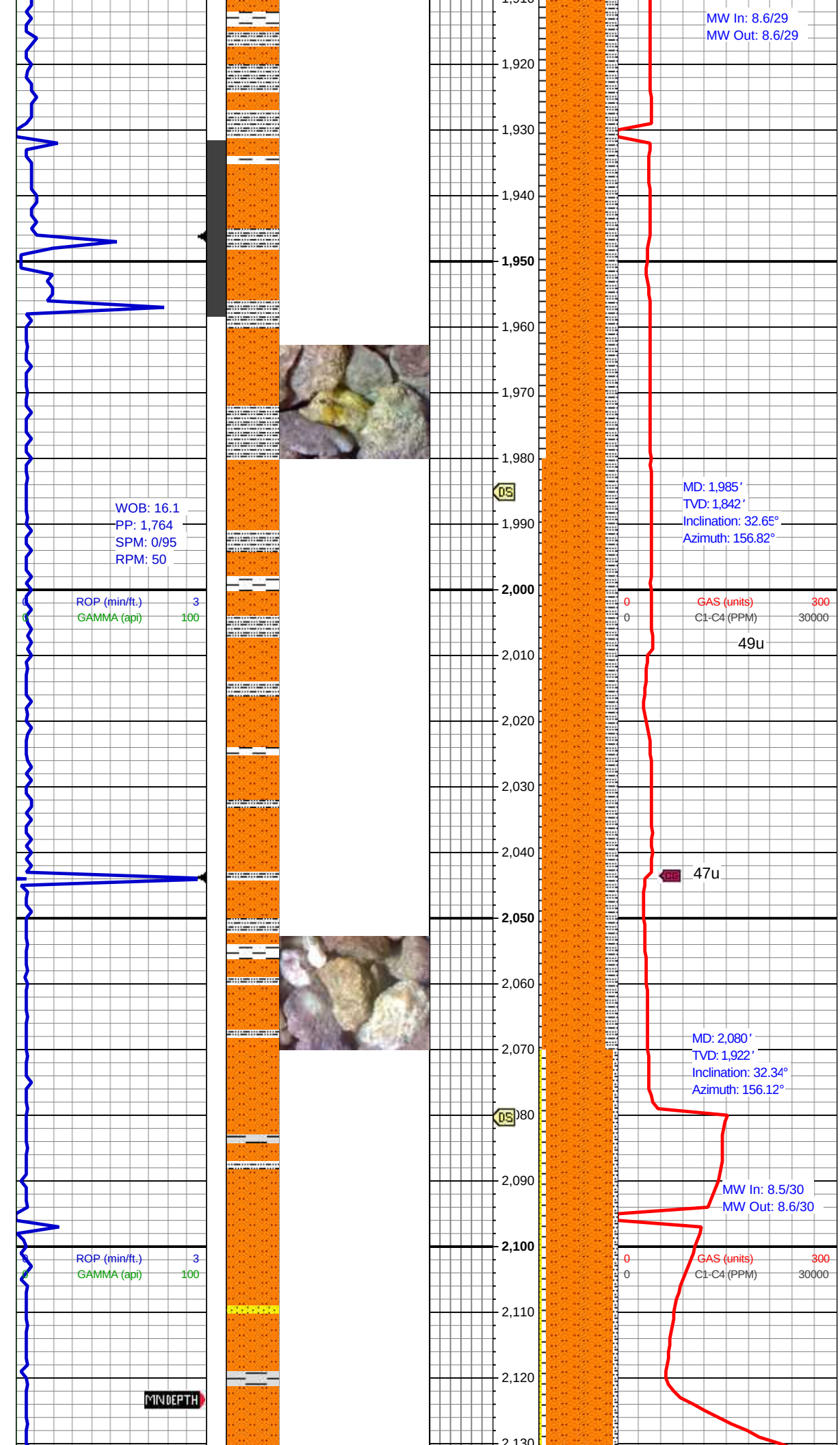


SH: ltgy-gy, tan, blky-sb sb-rd, sme mot brn, sft- mod sft, sl wxy-gt, sl rthy, SLTST: red-mar lt brn-brn, sft-sl mod sft, wxy-sb wxy, tr ss, NFSOC

Lost WITS Connection
- lost data

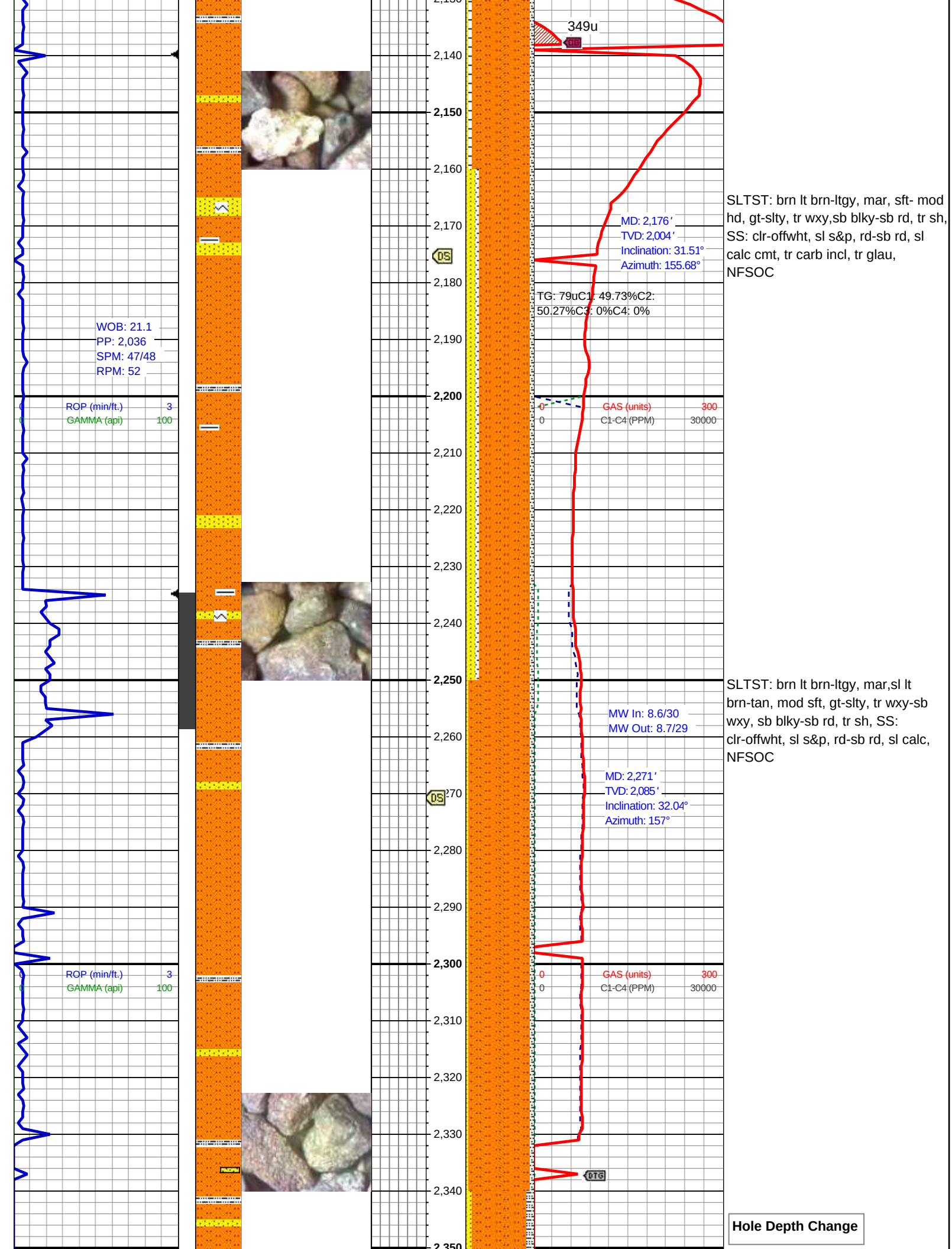
SLTST: red-mar lt brn-brn-purp, sft-mod sft, wxy-sb wxy,sb blky-sb rd, tr ss SH: ltgy-gy, blky-sb sb-rd, sme mot brn, sft- mod sft, sl wxy-gt, sl rthy, NFSOC

SLTST: red-mar lt brn-purp tan, sft-mod sft, wxy,sb blky-sb rd, SH: ltgy-gy, blky-sb, sm mot brn, sft-mod sft, sl wxy-gt, NFSOC



SLTST: red-mar-purp tan-sl ltgy, sft-mod sft, wxy,sb blky-sb rd,tr sh, NFSOC

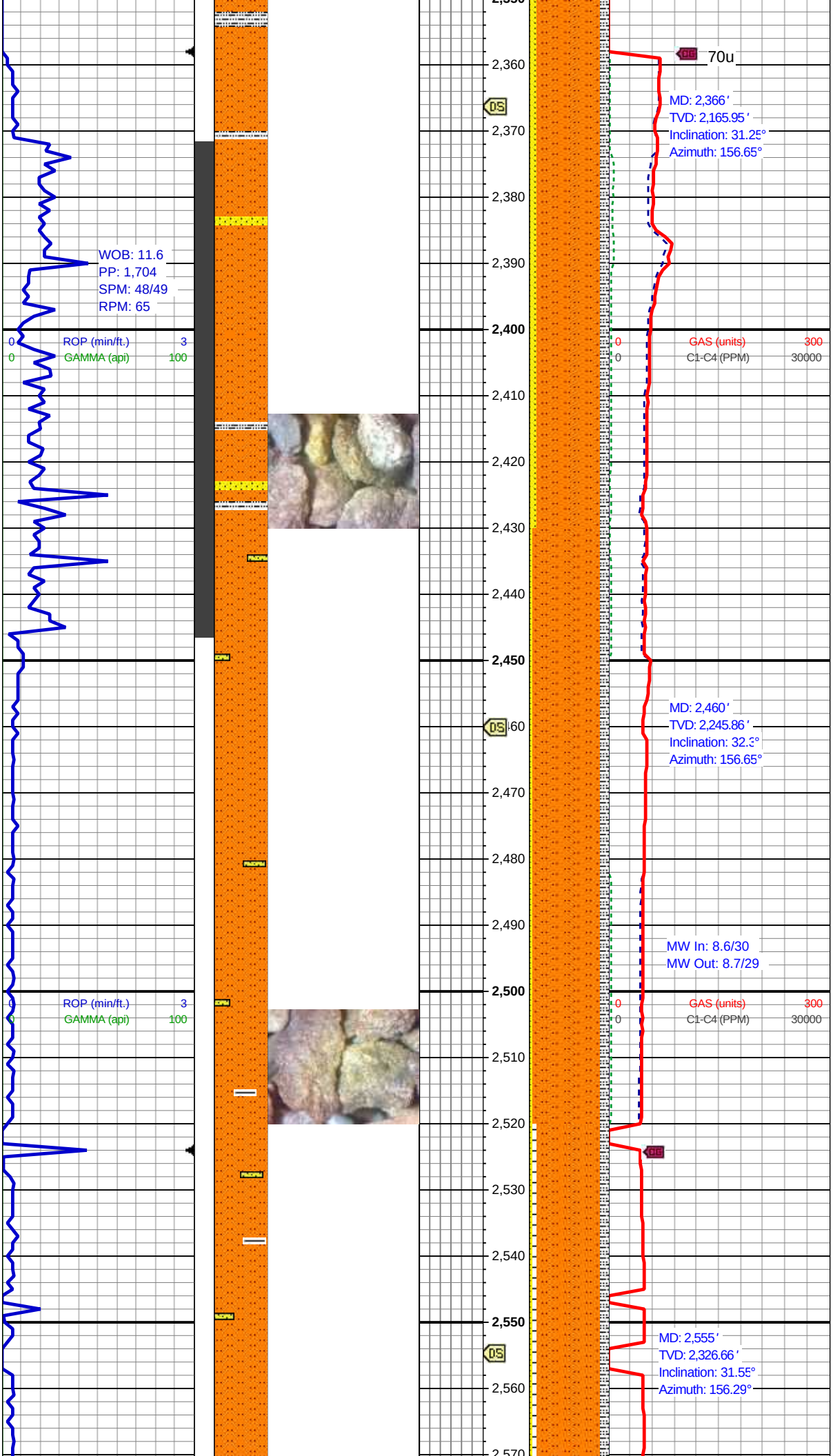
SLTST: brn lt brn-tan-ltgy mar, sft-mod sft, gt-sl rthy, tr wxy,sb blky-sb rd, SH: ltgy-gy, blky-sb, sm mot brn, sft- mod sft, sl wxy-gt,tr ss clr-offwht, rd calc cmt, NFSOC



SLTST: brn lt brn-ltgy, mar, sft- mod hd, gt-slty, tr wxy,sb blky-sb rd, tr sh, SS: clr-offwht, sl s&p, rd-sb rd, sl calc cmt, tr carb incl, tr glau, NFSOC

SLTST: brn lt brn-ltgy, mar,sl lt brn-tan, mod sft, gt-slty, tr wxy-sb wxy, sb blky-sb rd, tr sh, SS: clr-offwht, sl s&p, rd-sb rd, sl calc, NFSOC

Hole Depth Change



SLTST: brn lt brn-tan, mar, mod sft-hd, gt-v sdy, tr sb wxy,sb blky-sb rd, SS: clr-offwht, s&p,f-mod f gr, rd-sb rd, tr carb incl, tr glau, sl calc, NFSOC

SLTST: brn lt brn-tan, mar, mod sft-hd, gt-v sdy, tr sb wxy,sb blky-sb rd, SS: clr-offwht, s&p, f-mod f gr, rd-sb rd, tr carb incl, tr glau, sl calc, NFSOC

SLTST: brn lt brn-tan, mar, mod sft-hd, gt-v sdy, tr sb wxy,sb blky-sb rd, SS: clr-offwht, s&p, f-mod f gr, rd-sb rd, tr carb incl, tr glau, sl calc,SH: dk gy, m sft, brit, sb blky-sb

calc,SH: dk gy, m sft, brit, sb blky-sb plty, sl calc, NFSOC

WOB: 18
PP: 1,853
SPM: 47/47
RPM: 18

ROP (min/ft.) 0 3
GAMMA (api) 0 100

GAS (units) 0 300
C1-C4 (PPM) 0 30000

2,580
2,590
2,600
2,610
2,620
2,630
2,640
2,650
2,660
2,670
2,680
2,690
2,700
2,710
2,720
2,730
2,740
2,750
2,760
2,770
2,780
2,790

DS

MD: 2,650'
TVD: 2,407.58'
Inclination: 32.04°
Azimuth: 165.73°

SLTST: brn lt brn-tan, mar, mod sft-hd, gt-v sdy, tr sb wxy,sb blky-sb rd, SS: clr-offwht, s&p, f-mod f gr, rd-sb rd, tr carb incl, tr glau, sl calc,SH: dk gy, sme rd-brn, m sft, brit, sb blky-sb plty, sl calc, sl tr pale yel flor, sl tr dull bl slw mky cut, sl tr dul yel flor rng, n resdl rng

MW In: 8.7/32
MW Out: 8.8+/30

ROP (min/ft.) 0 3
GAMMA (api) 0 100

GAS (units) 0 300
C1-C4 (PPM) 0 30000

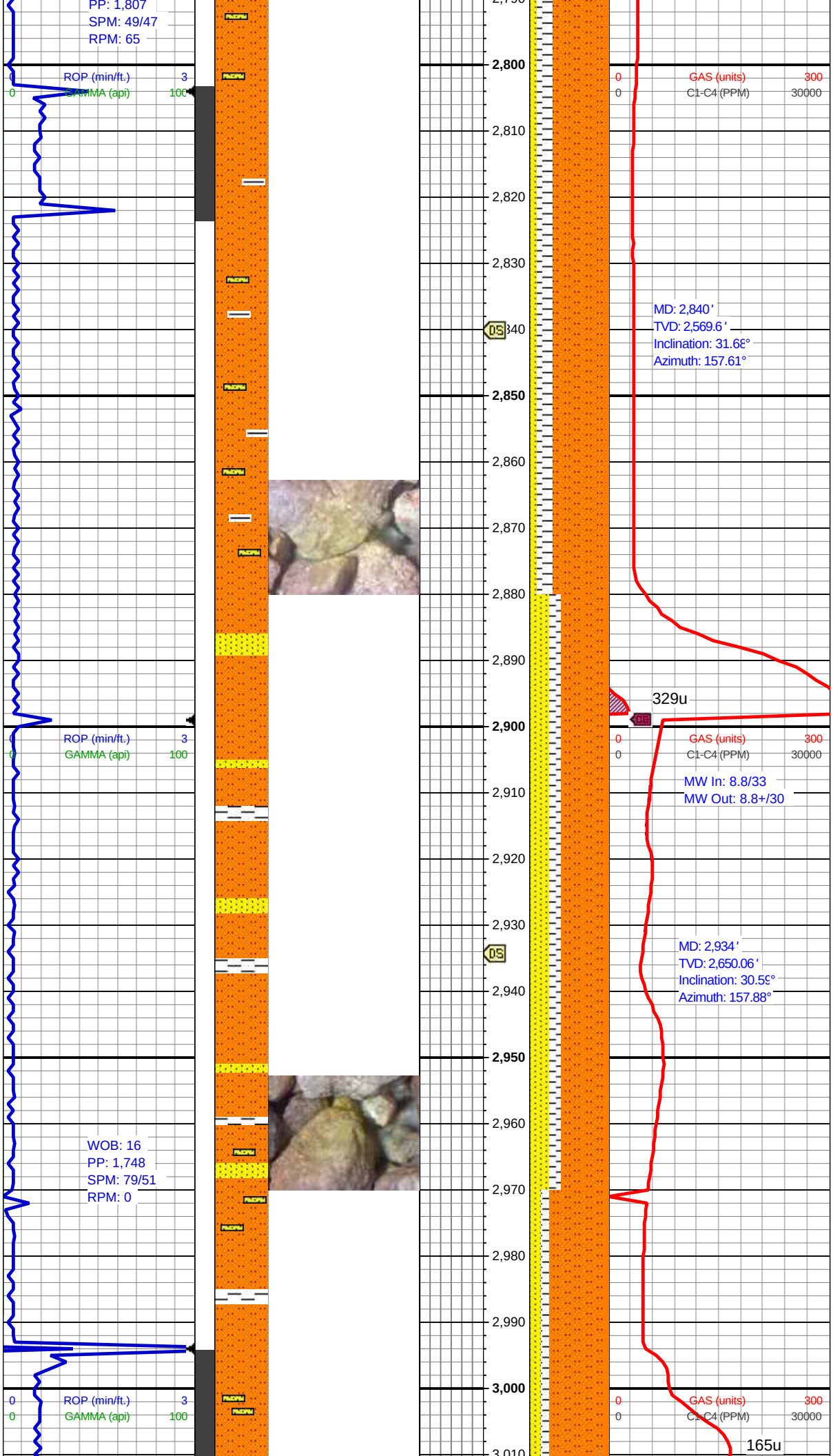
SLTST: brn lt brn-tan, mar, mod sft-hd, gt-v sdy, tr sb wxy,sb blky-sb rd, SS: clr-offwht, s&p, f-mod f gr, rd-sb rd, tr carb incl, tr glau, sl calc,SH: dk gy, sme rd-brn, m sft, brit, sb blky-sb plty, sl calc, NFSOC

DS

MD: 2,745'
TVD: 2,488.51'
Inclination: 31.11°
Azimuth: 157°

WOB: 9.3

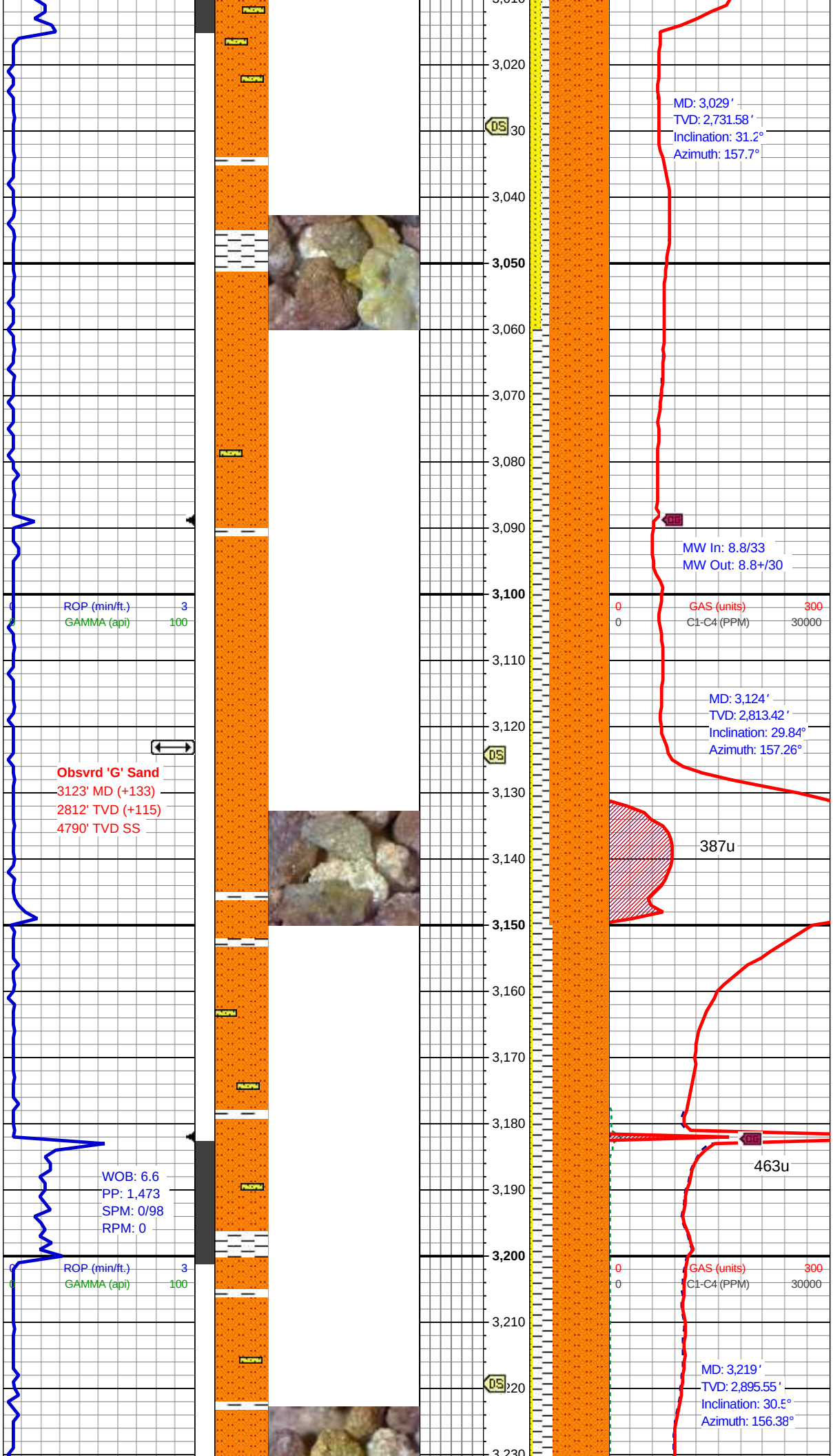
SLTST: brn lt brn-tan, mar, mod sft-hd, gt-v sdy, tr sb wxy,sb blky-sb rd, SS: clr-offwht, s&p, f-mod f gr, rd-sb rd, tr carb incl, sl



rd-sb rd, tr carb incl, tr glau, sl calc,SH: dk gy, sme rd-brn, m sft, brit, sb blky-sb plty, sl calc, NFSOC

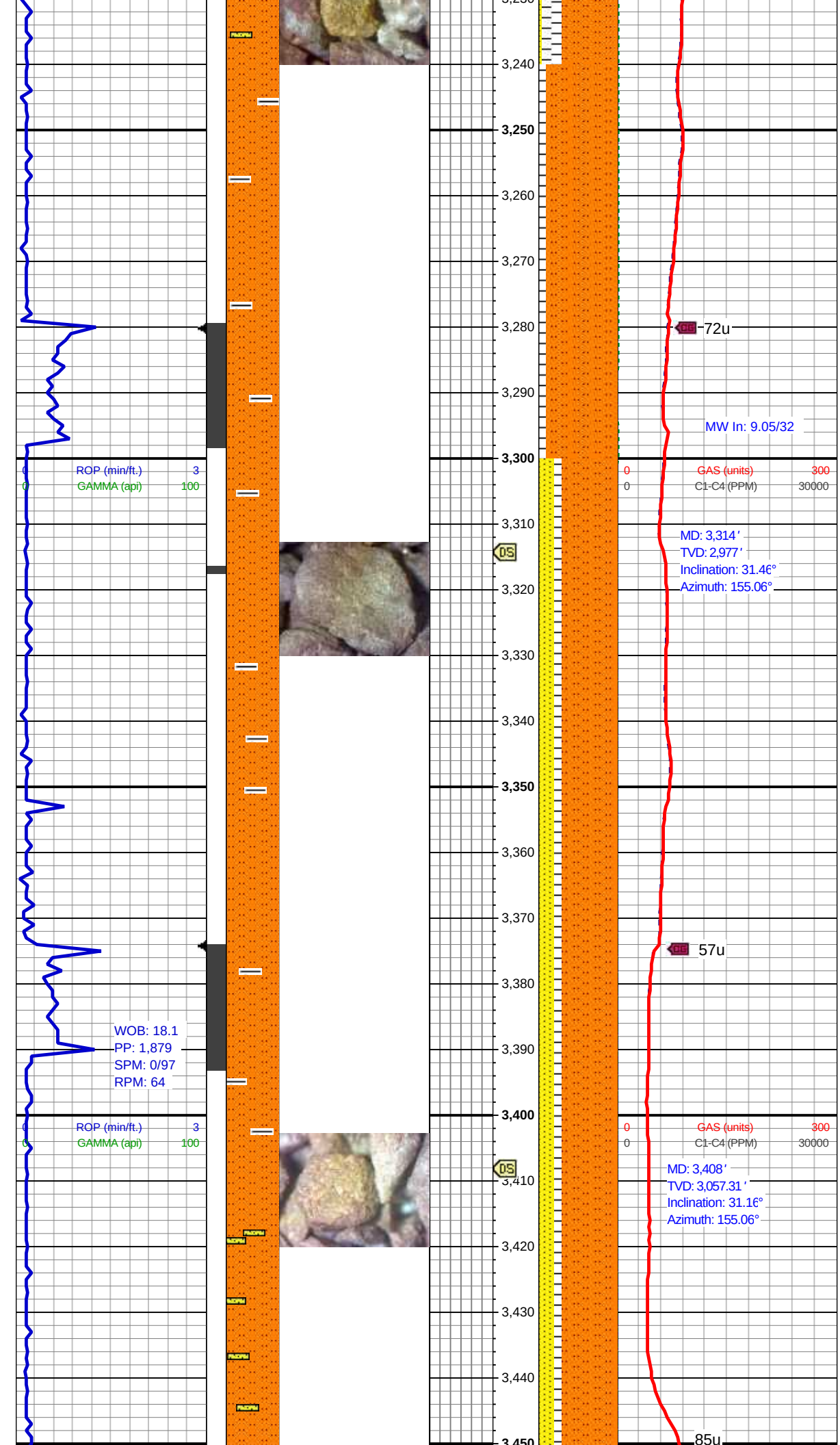
SLTST: brn lt brn-tan, mar, mod sft-hd, gt-v sdy, tr sb wxy,sb blky-sb rd, SS: clr-offwht, s&p, f-mod f gr, rd-sb rd, tr carb incl, tr glau, sl calc,SH: dk gy, sme rd-brn, m sft, brit, sb blky-sb plty, sl calc, NFSOC

SLTST: brn lt brn-tan, mar, mod sft-hd, gt-v sdy, tr sb wxy,sb blky-sb rd, SS: clr-offwht, s&p, f-mod f gr, rd-sb rd, tr carb incl, tr glau, sl calc,SH: dk gy, sme rd-brn, m sft, brit, sb blky-sb plty, sl calc, NFSOC



SLTST: brn lt brn-tan, mar, mod sft-hd, gt-v sdy, tr sb wxy,sb blky-sb rd, SS: clr-offwht, s&p, f-mod f gr, rd-sb rd, tr carb incl, tr glau, sl calc,SH: dk gy, sme rd-brn, m sft, brit, sb blky-sb plty, sl calc, NFSOC

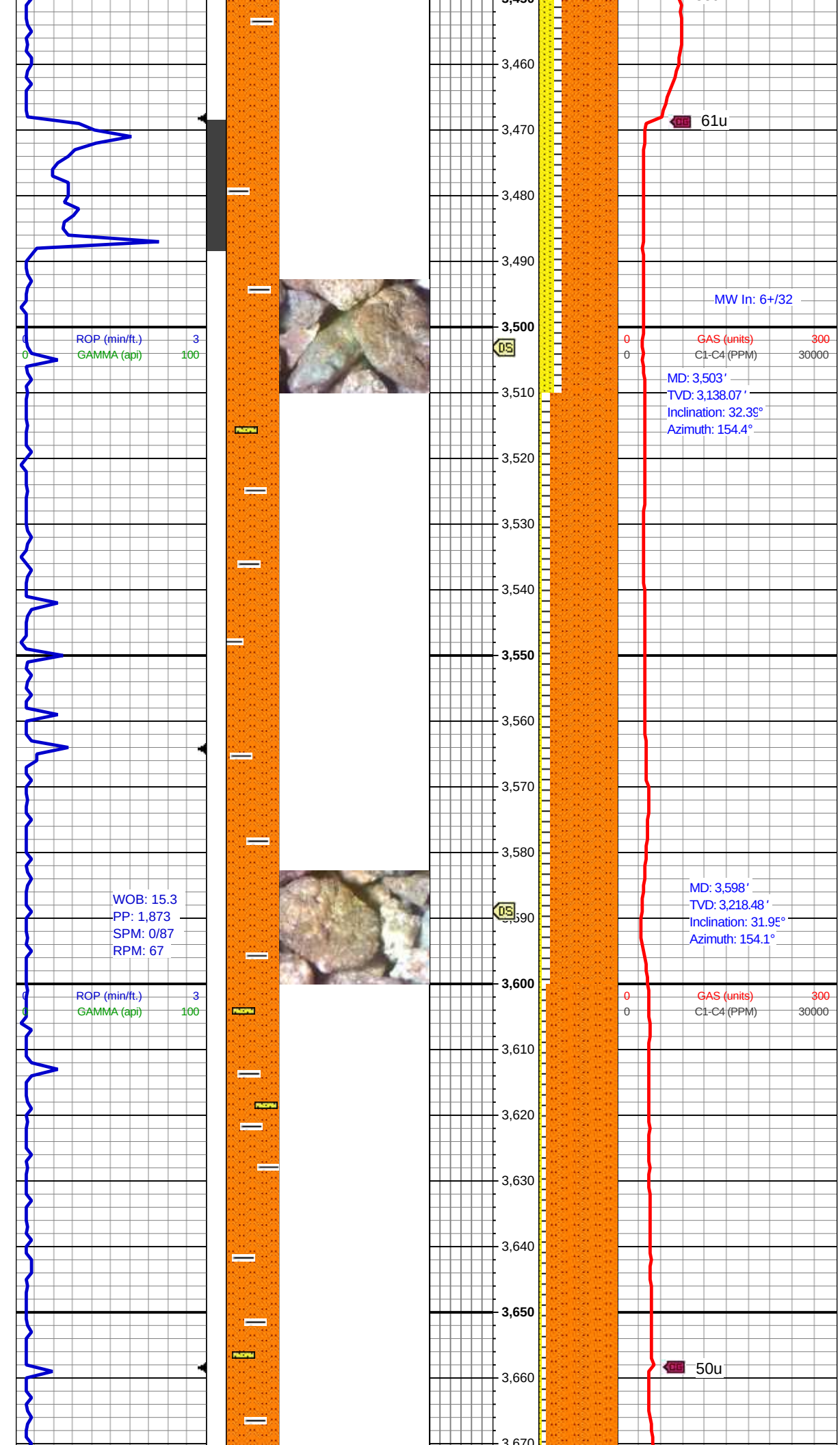
SLTST: brn lt brn-tan, mar, mod sft-hd, gt-v sdy, tr sb wxy,sb blky-sb rd, SS: clr-offwht, s&p, f-mod f gr, rd-sb rd, tr carb incl, tr glau, sl calc,SH: dk gy, sme rd-brn, m sft, brit, sb blky-sb plty, sl calc, NFSOC



SLTST: brn lt brn-tan, mar, sme m gy, mod sft-hd, gt-v sdy, sl calc, tr sb wxy,sb blky-sb rd, SH: dk gy, sme rd-brn, m sft, brit, sb blky-sb plty, sl calc, tr ss, NFSOC

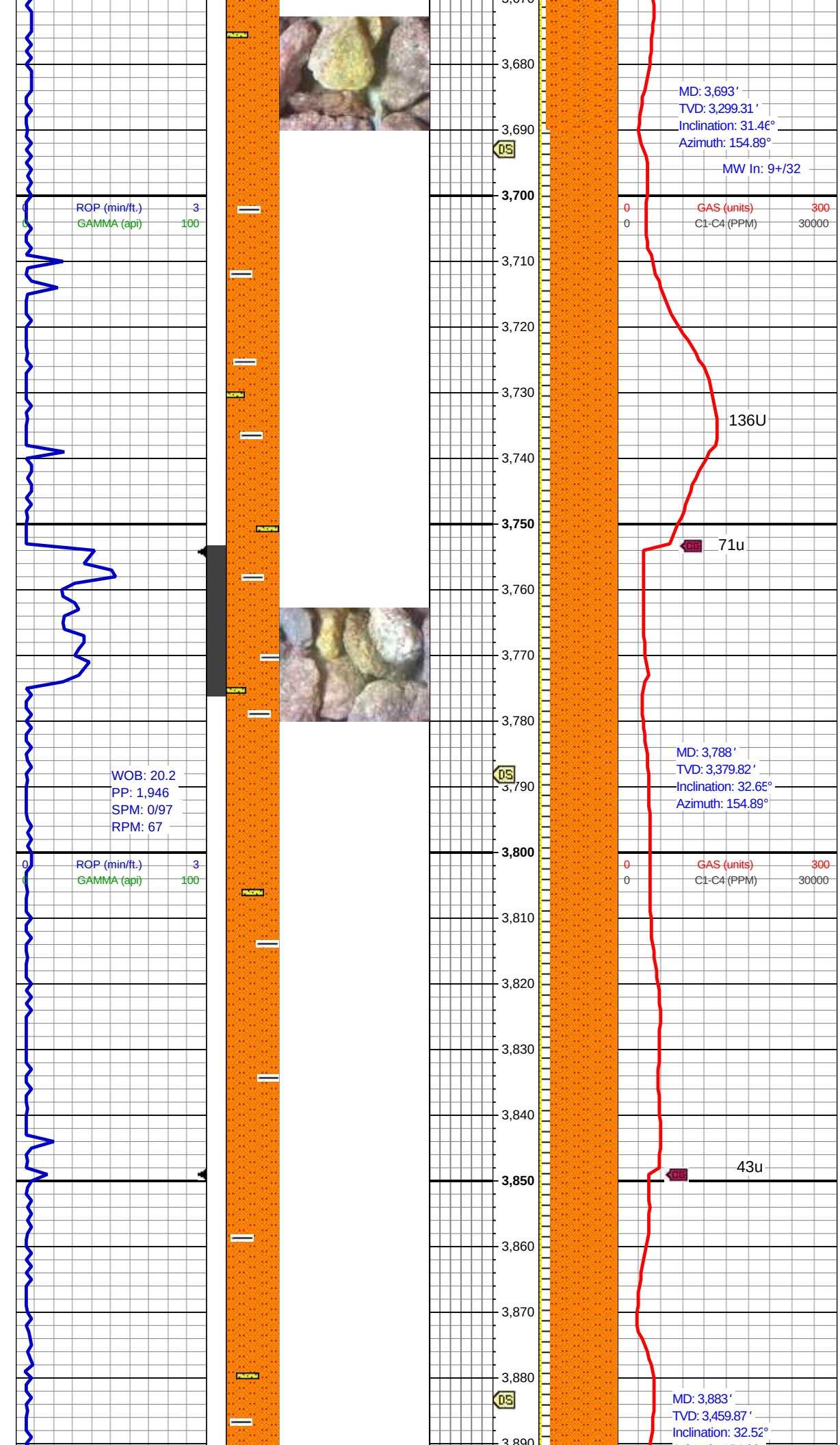
SLTST: brn lt brn-tan, mar, mod sft-hd, gt-v sdy, tr sb wxy,sb blky-sb rd, SS: clr-offwht, s&p, f-mod f gr, rd-sb rd, tr carb incl, tr glau, sl calc,SH: dk gy, sme rd-brn, m sft, brit, sb blky-sb plty, sl calc, NFSOC

SLTST: brn lt brn-tan, mar, mod sft-hd, gt-v sdy, tr sb wxy,sb blky-sb rd, SS: clr-offwht, s&p, f-mod f gr, rd-sb rd, tr carb incl, tr glau, sl calc, SH: dk gy, sme rd-brn, m sft, brit, sb blky-sb plty, sl calc, NFSOC



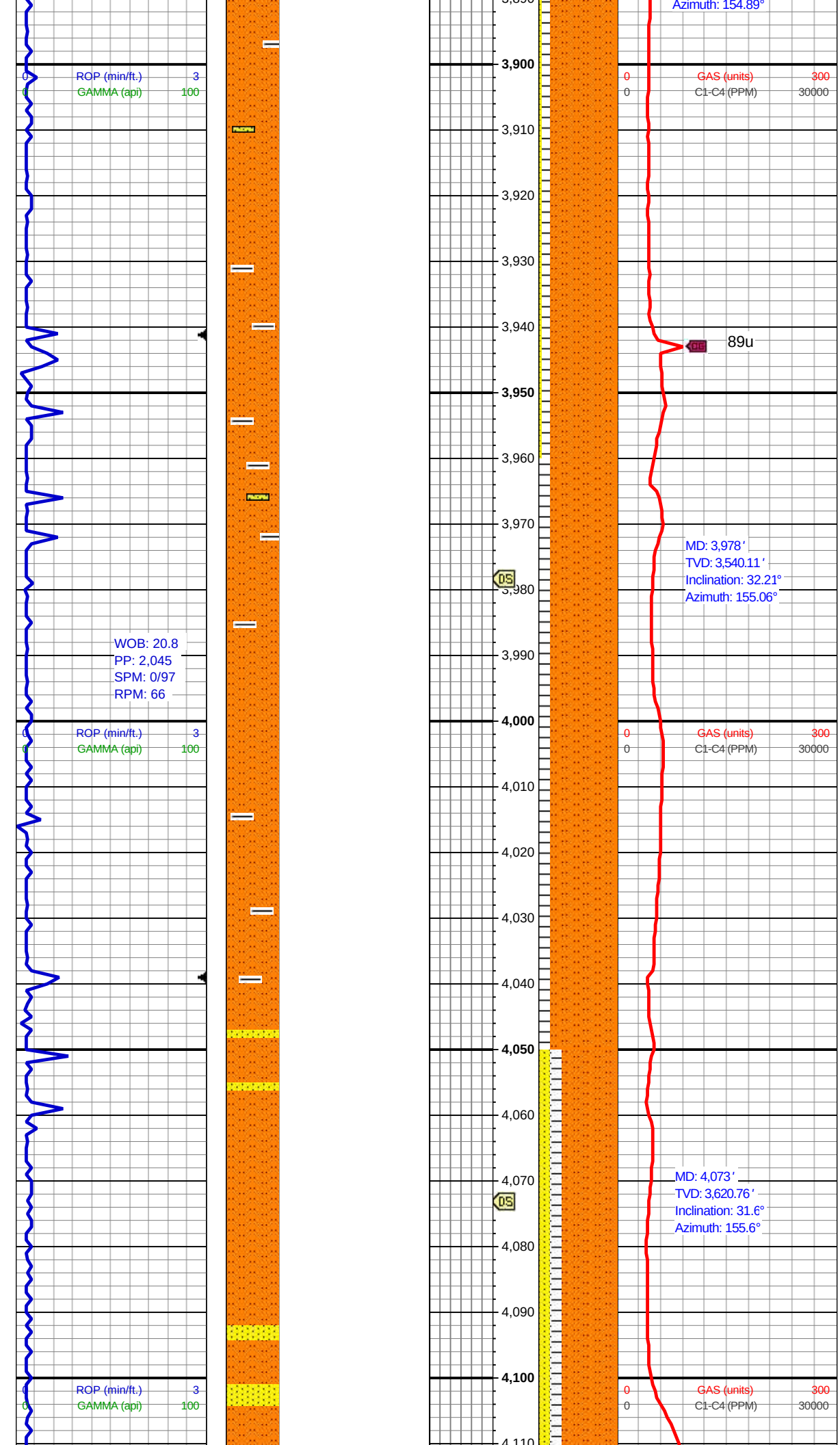
SLTST: brn lt brn-tan, mar, mod sft-hd, gt-v sdy, tr sb wxy,sb blky-sb rd, SH: dk gy, sme rd-brn, m sft, brit, sb blky-sb plty, sl calc, SS: clr-offwht, s&p, f-mod f gr, rd-sb rd, tr carb incl, tr glau, sl calc, NFSOC

SLTST: brn lt brn-tan, mar, mod sft-hd, gt-v sdy, tr sb wxy,sb blky-sb rd, SH: dk gy, sme rd-brn, m sft, brit, sb blky-sb plty, sl calc, SS: clr-offwht, s&p, f-mod f gr, rd-sb rd, tr carb incl, tr glau, sl calc, NFSOC



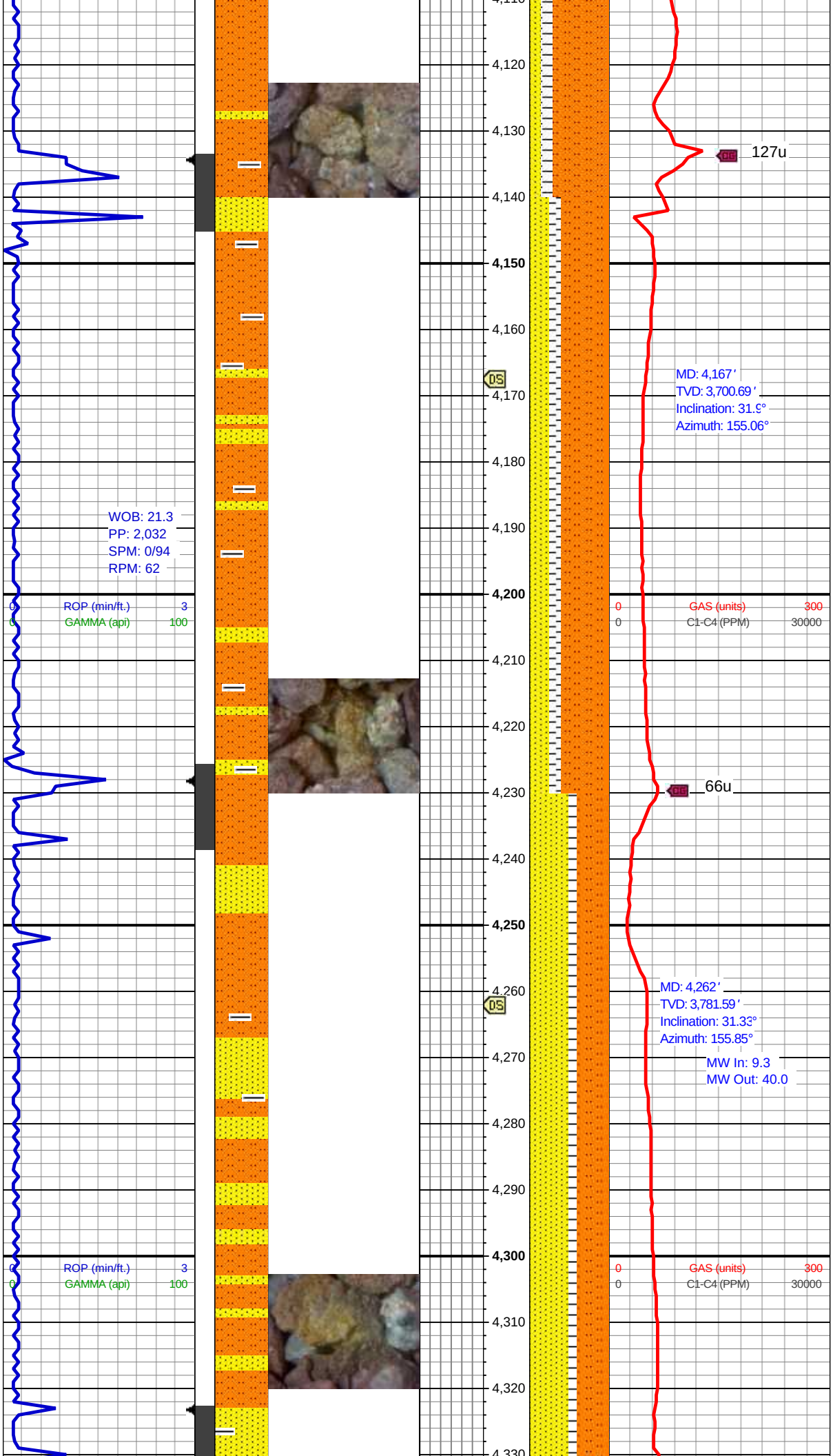
SLTST: brn lt brn-tan, mar, mod sft-hd, gt-v sdy, tr sb wxy,sb blky-sb rd, SH: dk gy, sme rd-brn, m sft, brit, sb blky-sb plty, sl calc, SS: clr-offwht, s&p, f-mod f gr, rd-sb rd, tr carb incl, tr glau, sl calc, NFSOC

SLTST: brn lt brn-tan, mar, mod sft-hd, gt-v sdy, tr sb wxy,sb blky-sb rd, SH: dk gy, sme rd-brn, m sft, brit, sb blky-sb plty, sl calc, SS: clr-offwht, s&p, f-mod f gr, rd-sb rd, tr carb incl, tr glau, sl calc, NFSOC



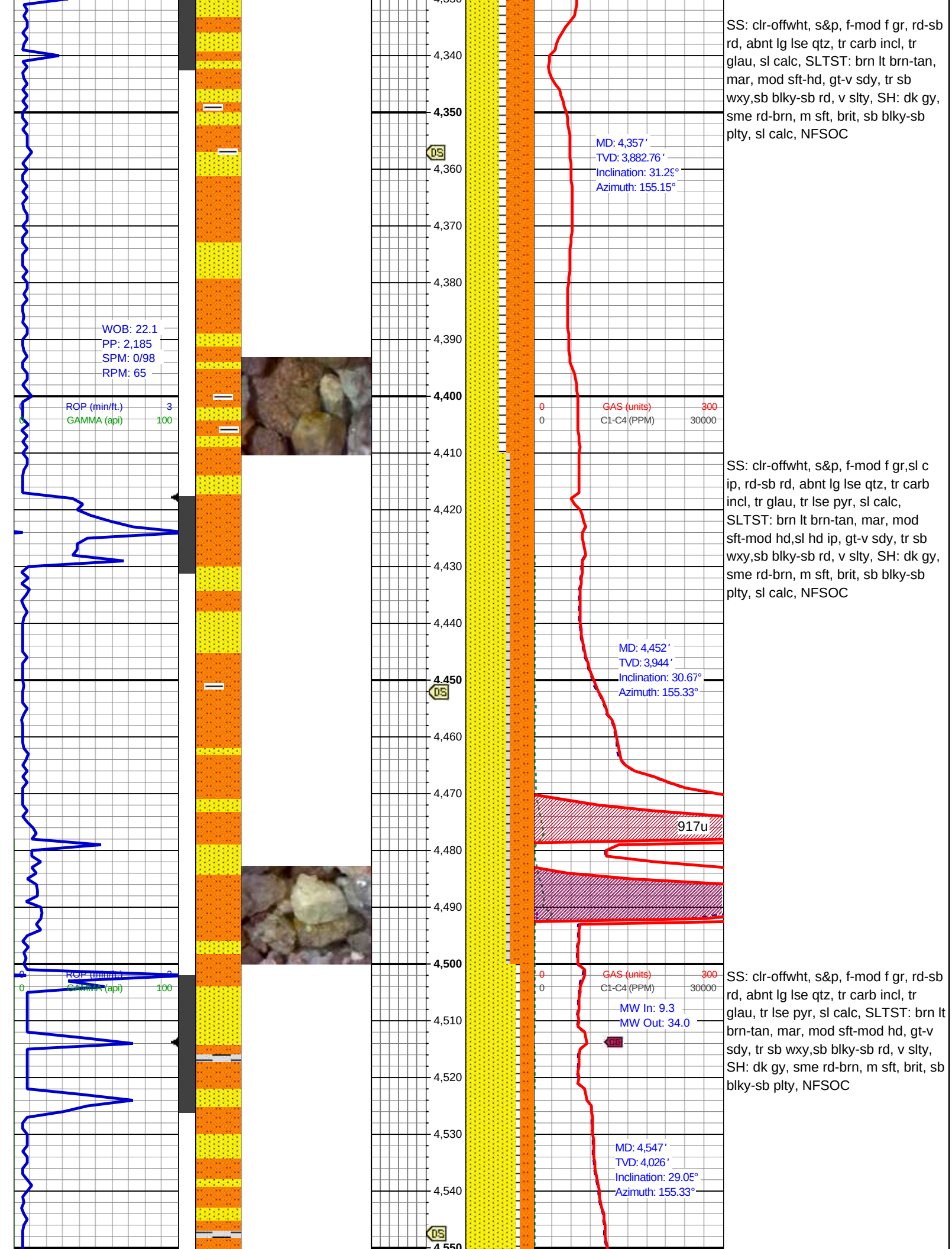
SLTST: brn lt brn-tan, mar, mod sft-hd, gt-v sdy, tr sb wxy,sb blky-sb rd, SH: dk gy, sme rd-brn, m sft, brit, sb blky-sb plty, sl calc, SS: clr-offwht, s&p, f-mod f gr, rd-sb rd, tr carb incl, tr glau, sl calc, NFSOC

SLTST: brn lt brn-tan, mar, mod sft-hd, gt-v sdy, tr sb wxy,sb blky-sb rd, v slty, SH: dk gy, sme rd-brn, m sft, brit, sb blky-sb plty, sl calc, tr ss, NFSOC



SLTST: brn lt brn-tan, mar, mod sft-hd, gt-v sdy, tr sb wxy,sb blky-sb rd, v slty, SH: dk gy, sme rd-brn, m sft, brit, sb blky-sb plty, sl calc, NFSOC

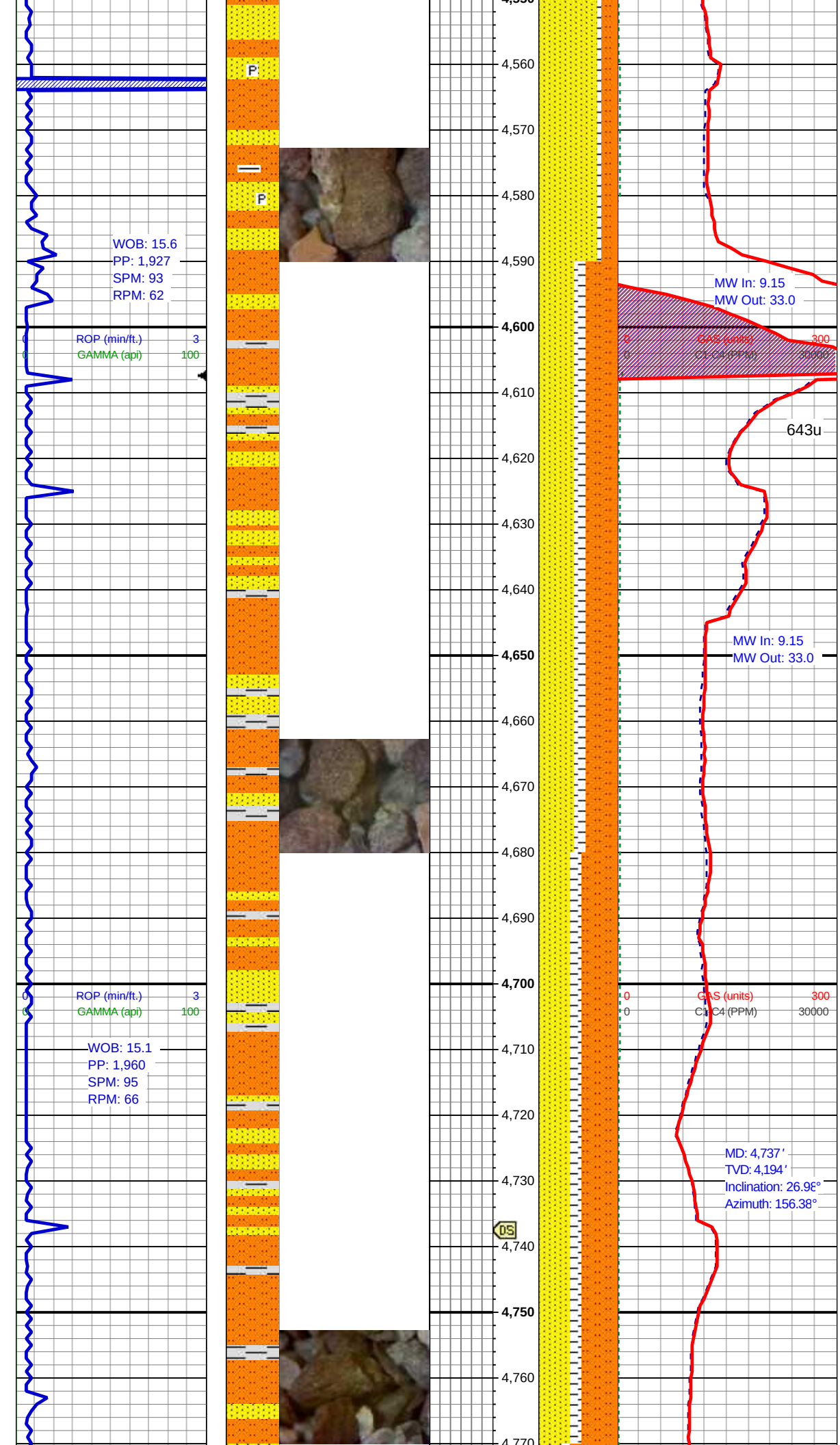
SS: clr-offwht, s&p, f-mod f gr, rd-sb rd, abnt lg lse qtz, tr carb incl, tr glau, sl calc, SLTST: brn lt brn-tan, mar, mod sft-hd, gt-v sdy, tr sb wxy,sb blky-sb rd, v slty, SH: dk gy, sme rd-brn, m sft, brit, sb blky-sb plty, sl calc, NFSOC



SS: clr-offwht, s&p, f-mod f gr, rd-sb rd, abnt lg lse qtz, tr carb incl, tr glau, sl calc, SLTST: brn lt brn-tan, mar, mod sft-hd, gt-v sdy, tr sb wxy,sb blky-sb rd, v slty, SH: dk gy, sme rd-brn, m sft, brit, sb blky-sb plty, sl calc, NFSOC

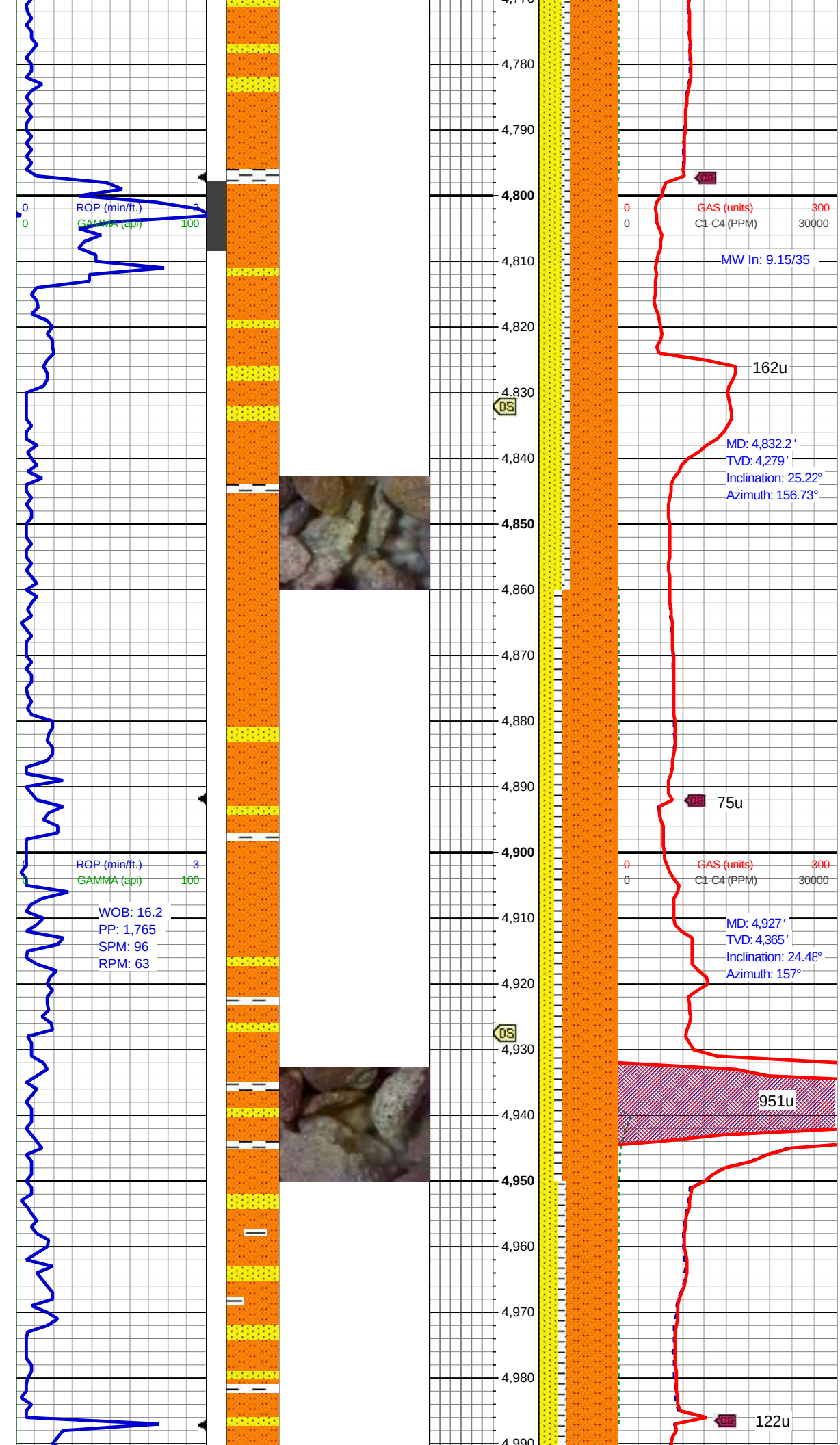
SS: clr-offwht, s&p, f-mod f gr,sl c ip, rd-sb rd, abnt lg lse qtz, tr carb incl, tr glau, tr lse pyr, sl calc, SLTST: brn lt brn-tan, mar, mod sft-mod hd,sl hd ip, gt-v sdy, tr sb wxy,sb blky-sb rd, v slty, SH: dk gy, sme rd-brn, m sft, brit, sb blky-sb plty, sl calc, NFSOC

SS: clr-offwht, s&p, f-mod f gr, rd-sb rd, abnt lg lse qtz, tr carb incl, tr glau, tr lse pyr, sl calc, SLTST: brn lt brn-tan, mar, mod sft-mod hd, gt-v sdy, tr sb wxy,sb blky-sb rd, v slty, SH: dk gy, sme rd-brn, m sft, brit, sb blky-sb plty, NFSOC



SLTST: brn lt brn-tan, mar, mod sft-mod hd, gt-v sdy, tr sb wxy,sb blky-sb rd, v slty, SS: clr-offwht, s&p, f-mod f-c gr, rd-sb rd, abnt lg lse qtz, tr carb incl, tr glau, sl calc, SH: dk gy-gy, sme rd-brn, m sft, brit, sb blky-sb plty, NFSOC

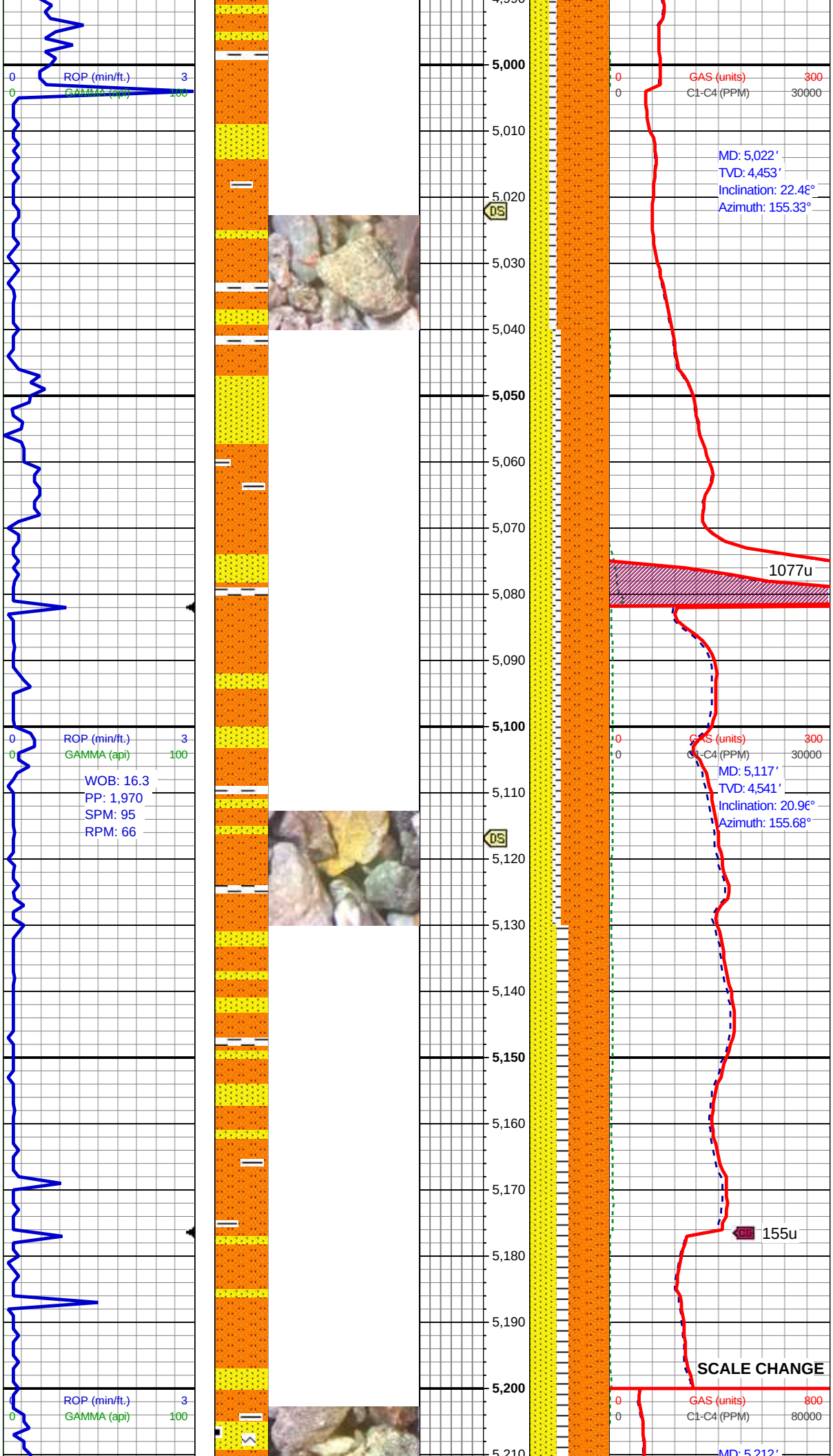
SLTST: brn-lt brn-tan, mar, mod hd, sl cmtd, gt-v sdy, tr sb wxy,sb blky-sb rd, v slty, SS: clr-offwht, s&p, f-mod f-c gr, rd-sb rd, abnt lg lse qtz, tr carb incl, tr glau, sl calc, SH: dk gy-gy, sme rd-brn, m sft-sft,wxy, sb blky, NFSOC



SLTST: brn-lt brn, mar-red brn, mod hd, sl cmtd, gt-v gt,mod sdy,sb blky-sb rd, v slty, mics, SS: clr-offwht, s&p, f-mod f-c gr, rd-sb rd, lg lse qtz, tr carb incl, tr glau, sl calc, SH: dk gy-gy, sme rd-brn, m sft-sft,wxy, sb blky, NFSOC

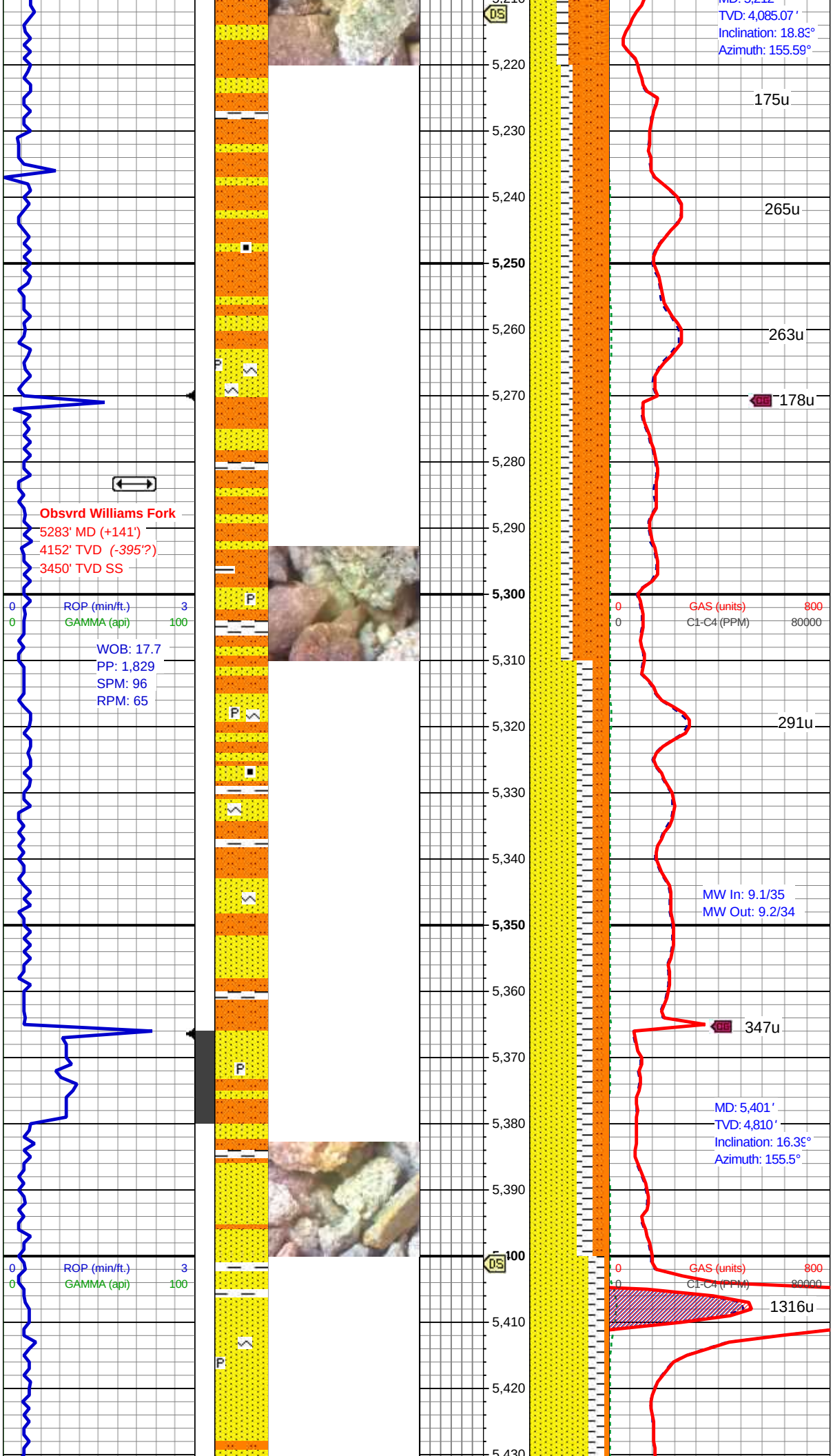
SLTST: brn-lt brn, red brn, mod hd-mod sft, sl cmtd, gt-v gt,mod sdy,sb blky-sb rd, v slty, mics, SS: clr-offwht, s&p, mod f-c gr, rd-sb rd, lg lse qtz, tr carb incl, tr glau, sl calc, SH: dk gy-gy, sme rd-brn, m sft-sft,wxy, blky-sb blky, NFSOC

SLTST: red brn, brn, mod hd-mod sft, sl cmtd, gt-v gt,mod sdy,sb blky-sb rd, v slty, mics, SS: clr-offwht, s&p, mod f-c gr, rd-sb rd, lg lse qtz, carb incl, glau, sl calc, SH: dk gy-gy, m sft-sft,wxy, blky-sb blky, NFSOC



SLTST: red brn, brn, mar, mod hd-mod sft,sl hd ip, sl cmtd, gt-v gt,mod sdy,sb blky-sb rd, slty, mics, SS: clr-offwht, s&p, mod f-c gr, rd-sb rd, tr lse qtz, glau, sl calc, SH: dk gy-gy, m sft-sft,wxy, blky-sb blky, n o flor, n cut, dul yel v ptch fnt flor rng, n resdl stn

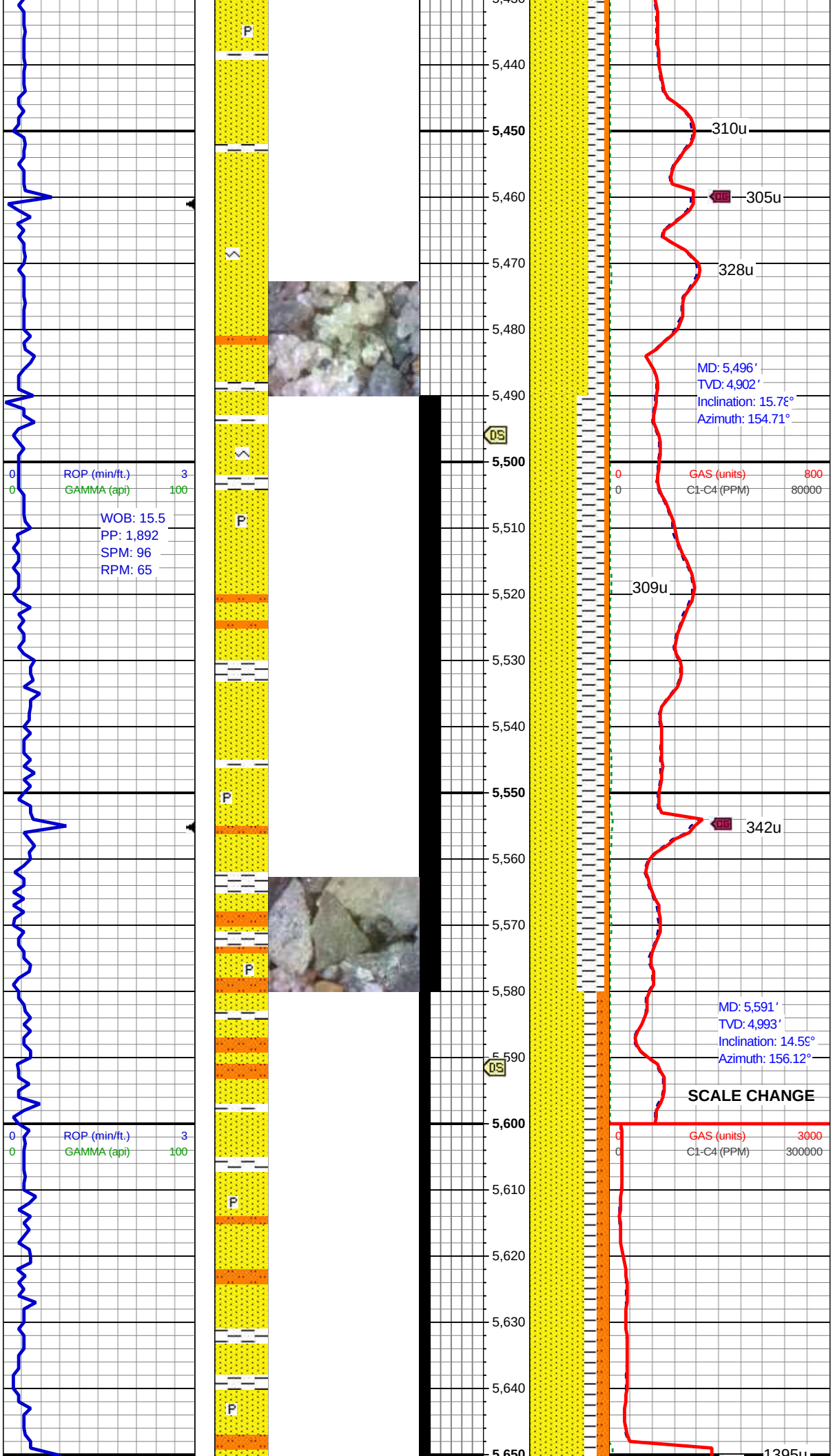
SLTST: brn, mar, mod hd-mod sft, sl cmtd, gt-v gt,sb blky-sb rd, slty-sdy, mics, SS: clr-offwht, s&p, mod f-c gr, rd-sb rd, tr lse qtz, glau, tr pyr,carb incl, sl calc, SH: dk gy-gy, m sft-sft,wxy, blky-sb blky, NFSOC



SLTST: brn, mar, mod hd-mod sft, sl cmtd, gt-v gt,sb blky-sb rd, slty-sdy, mics, SS: clr-offwht, s&p, mod f-c gr, rd-sb rd, tr lse qtz, glau, tr pyr,carb incl, sl calc, n o fl, n cut, dul yel ptch fnt flor rng, n resdl stn

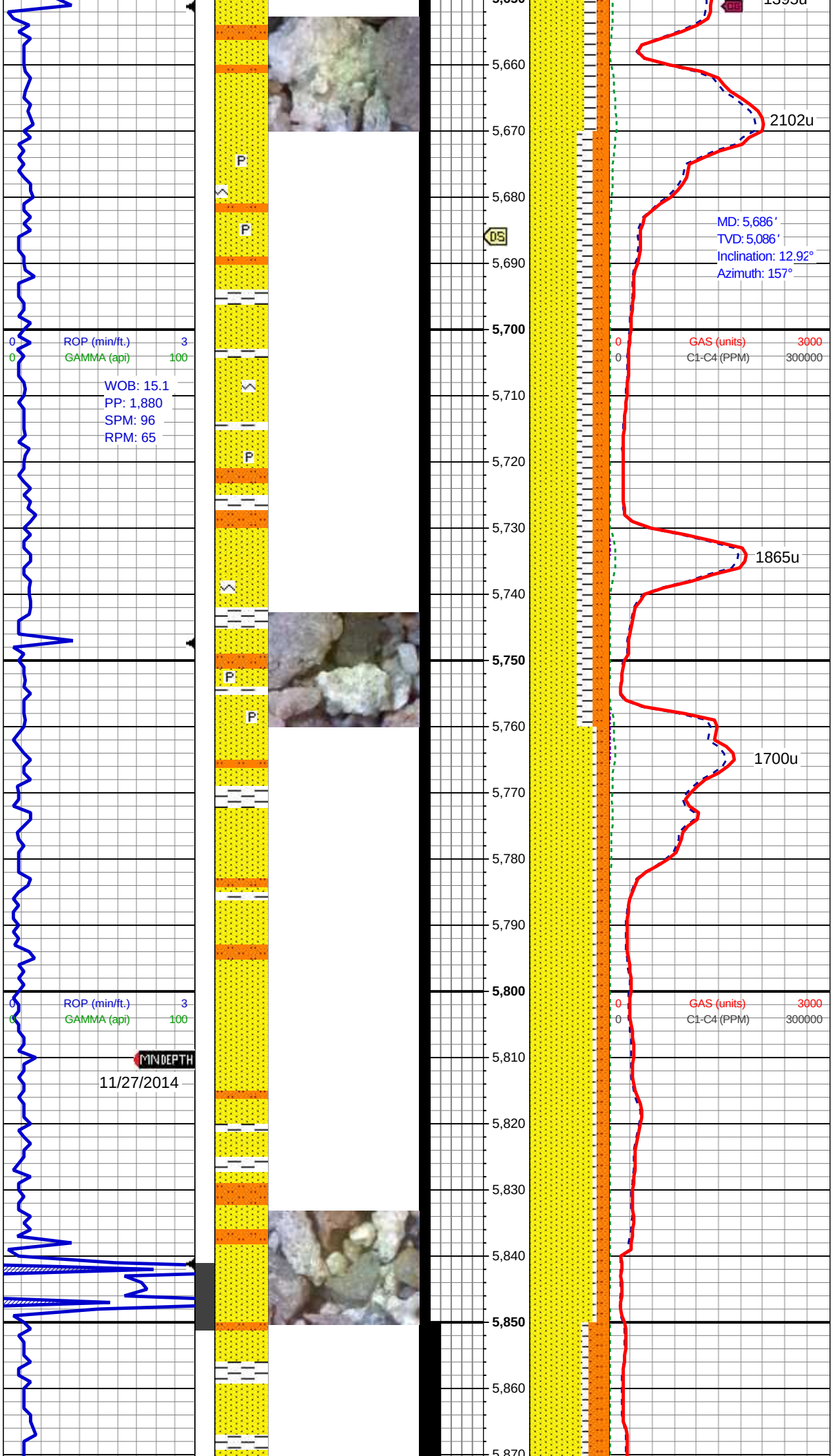
SS: clr-offwht, s&p, mod f-c gr, rd-sb rd, lse qtz, glau, tr pyr,carb incl, sl calc,SLTST: brn, mar, mod hd-mod sft, sl cmtd, gt-v gt,sb blky-sb rd, slty-sdy, mics, SH: dk gy-gy, m sft-sft, sb wxy, blky-sb blky, n o fl, n cut, dul yel ptch fnt flor rng, n resdl stn

SS: clr-offwht, sl ltgy, s&p, mod f-c gr,tr f gr ip, rd-sb rd, lse qtz, tr glau, tr pyr,carb incl, sl-mod calc, SLTST: brn, mar, mod hd-mod sft, sl cmtd, gt-v gt,sb blky-sb rd, slty-sdy, mics, SH: dk gy-gy, m sft-sft, sb wxy, blky-sb blky, n o fl, n cut, dul yel ptch fnt flor rng, n resdl stn



SS: clr-offwht, sl ltgy, s&p, mod f-c gr,tr f gr ip, rd-sb rd, lse qtz, tr glau, tr pyr,carb incl, sl-mod calc, SH: dk gy-gy,sl ltgy, mod sft-sft, sb wxy, blky-sb blky, SLTST: brn-lt brn, mod hd-mod sft, sl cmtd, gt-v gt,sb blky-sb rd, slty-sdy, mics, tr dul yel sl mky cut, tr dul yel fnt sm flor ring, n resdl stn

SS: clr-offwht, trnsl-op, sl ltgy, s&p, mod f-c gr, rd-sb rd, lse qtz, tr glau, tr pyr, carb incl,tr cht, sl-mod calc, SH: dk gy-gy,sl ltgy, mod sft-sft, sb wxy, sb blky, SLTST: brn-lt brn, mod hd-mod sft, sl cmtd, gt-v gt,sb blky-sb rd, slty-sdy, sl tr dul yel sl mky cut, sl tr dul yel ptch-sm flor rng, n resdl stn



SS: clr-offwht-trnsl-op, s&p, f-c gr, rd-sb rd, sme lse qtz, tr glau, tr lse pyr, carb incl, tr cht, sl-mod calc, SH: dk gy-gy,sl ltgy, mod sft-sft, sb blky, SLTST: brn-lt brn, mod hd-mod sft, sl cmtd, gt-v gt,sb blky-sb rd, sl tr dul yel sl mky cut, sl tr dul yel ptch flor rng,n resdl stn

SS: clr-offwht-trnsl-op, s&p, f-c gr, rd-sb rd, tr, tr pyr, carb incl, sl-mod calc, SH: dk gy-gy, ltgy, mod sft-sft, sl wxy, sb blky, SLTST: brn-lt brn-tan, mod hd-mod sft, sl cmtd, gt-v gt,sb blky-sb rd, sl tr dul yel sl mky cut, sl tr dul yel ptch flor rng, n resdl stn

SS: offwht-trnsl-op, s&p, c gr, rd-sb rd, tr pyr, carb incl, sl-mod calc, SLTST: brn-tan, mod hd-mod sft, sl cmtd, gt-v gt,sb blky-sb rd, SH: dk gy-gy, ltgy, mod sft-sft, sl wxy, sb blky, tr dul yel sl mky cut, sl tr dul yel ptch-sm flor rng, n resdl stn

yel ptch-sm flor rng, n resdl stn

MW In: 9.2,35
MW Out: 9.2/33

0 ROP (min/ft.) 3
0 GAMMA (api) 100

WOB: 18.9
PP: 1,787
SPM: 96
RPM: 66

0 GAS (units) 3000
0 C1-C4 (PPM) 300000

632u

669u

SS: offwht-trnsl-op-clr, s&p, c gr,tr m-mod f gr, rd-sb rd, tr pyr, carb incl, sl calc, SLTST: brn-tan,orng-mar, mod hd-mod sft, gt, sb blky-sb rd, SH: dk gy-gy, ltgy, mod sft-sft, sl wxy, sb blky, tr dul yel sl mky cut, sl tr dul yel ptch flor rng, n resdl stn

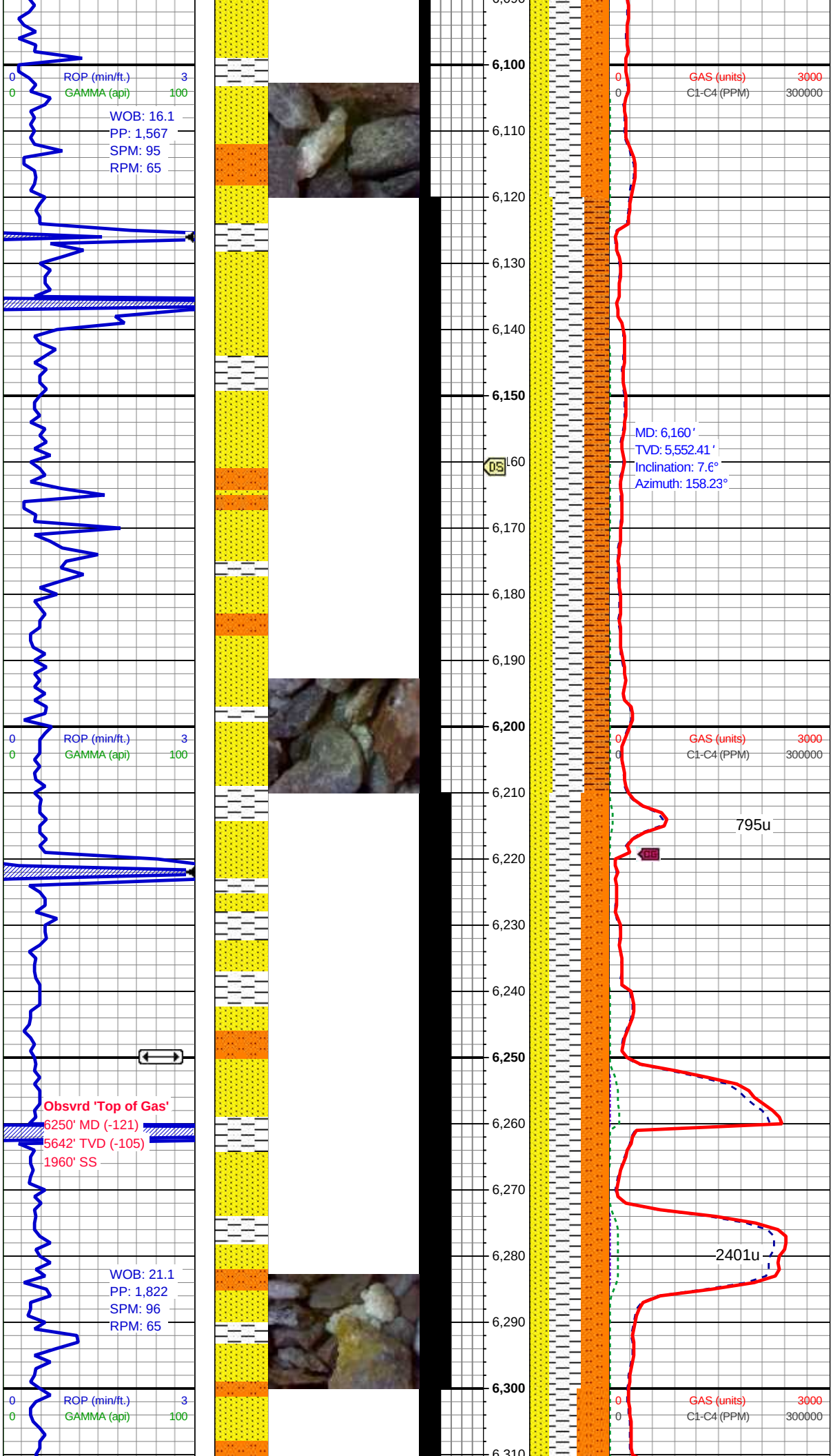
MD: 5,971 '
TVD: 5,365 '
Inclination: 10.02°
Azimuth: 157.88°

0 ROP (min/ft.) 3
0 GAMMA (api) 100

0 GAS (units) 3000
0 C1-C4 (PPM) 300000

828u

SH: dk gy-gy, ltgy, sme rd brn, mod sft-sft, sl wxy, sb blky,SS: offwht-trnsl-op-clr, s&p, c gr, w srtd, cons, tr m-mod f gr, rd-sb rd, tr pyr, carb incl, sl calc, SLTST: brn-tan,mod hd-mod sft, gt, sb blky-sb rd, sl tr dul yel sl mky cut, sl tr dul yel ptch flor rng, n resdl stn



SH: dk gy-gy, ltgy, sme rd brn, mod sft-sft, sl wxy, sb blky,SS: offwht-trnsl-op-clr, s&p, c gr, w srtd, cons, tr m-mod f gr, rd-sb rd, tr pyr, carb incl, sl calc, SLTST: brn-tan, mod hd-mod sft, gt, sb blky-sb, tr dul yel slw mky cut, tr dul yel sm flor rng, n resdl stn

SH: dk gy-gy, ltgy, sme rd brn, mod sft-sft, sl wxy, sb blky,SS: offwht-trnsl-op-clr, s&p, c gr, w srtd, cons, tr m-mod f gr, rd-sb rd, tr pyr, carb incl, sl calc, SLTST: brn-tan, mod hd-mod sft, gt, sb blky-sb, fr bi wh bl m fst stmg cut, fr dul dul-bri yel sm flor rng,

SH: dk gy-gy, ltgy, sme rd brn, mod sft-sft, sl wxy, sb blky,SS: offwht-trnsl-op-clr, s&p, c gr, w srtd,

cons, tr m-mod f gr, rd-sb rd, tr pyr, carb incl, sl calc, SLTST: brn-tan, mod hd-mod sft, gt, sb blky-sb, tr wh bl slw stmg cut, sl tr dul yel ptch flor rng, n resdl stn

SS: offwht-trnsl-op-clr, s&p, c gr, w srtd, pred lse gr, sme cons, tr m-mod f gr, rd-sb rd, tr pyr, carb incl, sl calc, SH: dk gy-gy, ltgy, sme rd brn, mod sft-sft, sl wxy, sb blky,, SLTST: brn-tan, mod hd-mod sft, gt, sb blky-sb, tr wh bl slw stmg cut, sl tr dul yel ptch flor rng, n resdl stn

SS: offwht-op, s&p, c-mod f gr, mod srtd, tr lse gr, sme cons, rd-sb rd, tr pyr, carb incl, sl calc, SH: dk gy-gy, ltgy, mod sft-sft, sl wxy, sb blky,, SLTST: brn-tan,sl orng, mod hd-mod sft, gt, sb blky-sb, tr-fr wh bl slw stmg cut, sl tr dul yel ptch flor rng, n resdl stn

1111U

Mud Report #: 2
6,300 ′ *MD*
Wt: 9
Vis: 30
pH: 9.4
cl: 110
ca: 850

MD: 6,350 ′
TVD: 5,741.03 ′
Inclination: 6.0€°
Azimuth: 162.97°

MD: 6,445 ′
TVD: 5,835 ′
Inclination: 5.05°
Azimuth: 162.53°

MW In: 8.8+/31

0 ROP (min/ft.) 3
0 GAMMA (api) 100

0 GAS (units) 3000
0 C1-C4 (PPM) 300000

WOB: 23.4
PP: 1,547
SPM: 0
RPM: 64

6,320
6,330
6,340
6,350
6,360
6,370
6,380
6,390
6,400
6,410
6,420
6,430
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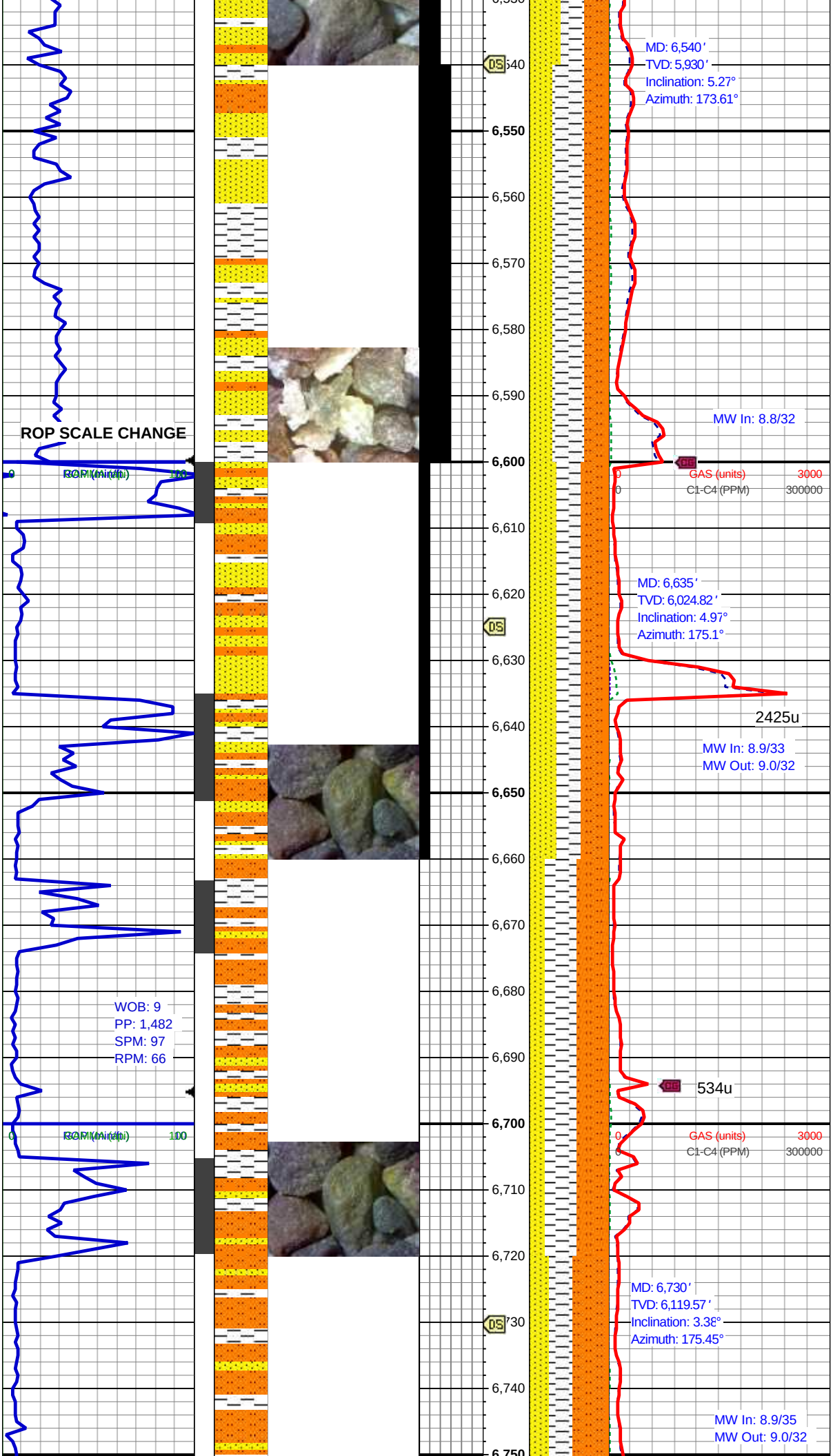
6,480
6,490
6,500
6,510
6,520
6,530

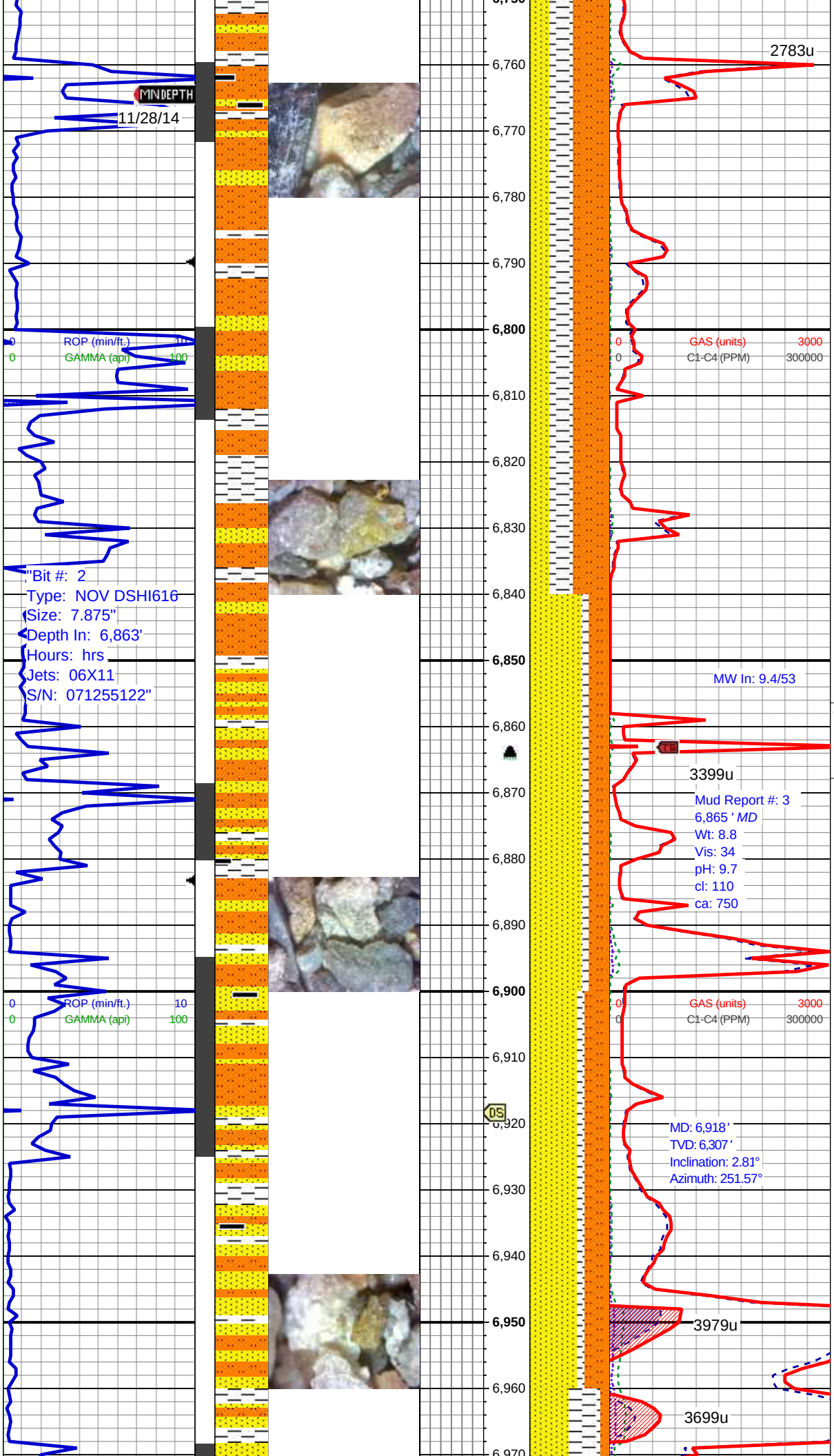


SH: dk gy-gy, ltgy, mod sft-sft sl mod hd ip, sl wxy, sb blky-blky, SS: offwht-op, s&p, c-mod f gr, mod srtd, predy cons,tr uncons, rd-sb rd, tr pyr, carb incl, sme lse coal, sl calc, SLTST: brn-tan,sl orng, mod hd-mod sft, gt, sb blky-sb, fr wh bl m fst stmg cut, mod dul yel sm flor rng, n resdl stn

SH: dk gy-gy-ltgy, mod sft-sft, sl wxy-gt, sb blky-blky, SS: offwht-op, s&p, c-mod f gr, mod srtd, predy cons,tr uncons, rd-sb rd, tr pyr, sl calc, SLTST: brn-tan,sl orng, mod hd-mod sft, gt-sl sdy, sb blky, sl tr wh bl slw mky cut, tr dul yel sm-ptch flor rig, n resdl stn

SH: dk gy-gy-ltgy, mod sft-sft, sl wxy-gt, sb blky-blky, SS: offwht-op, s&p, c-mod f gr, mod srtd, predy cons, rd-sb rd, carb incl, sl calc, SLTST: brn-tan,sl orng-lt brn, mod hd-mod sft, gt-sl sdy, sb blky

SLTST: brn-tan, orng-lt brn, mar, mod hd-mod sft, gt-sl sdy, sb blky, SH: dk gy-gy-ltgy, mod sft, sl gt, sb

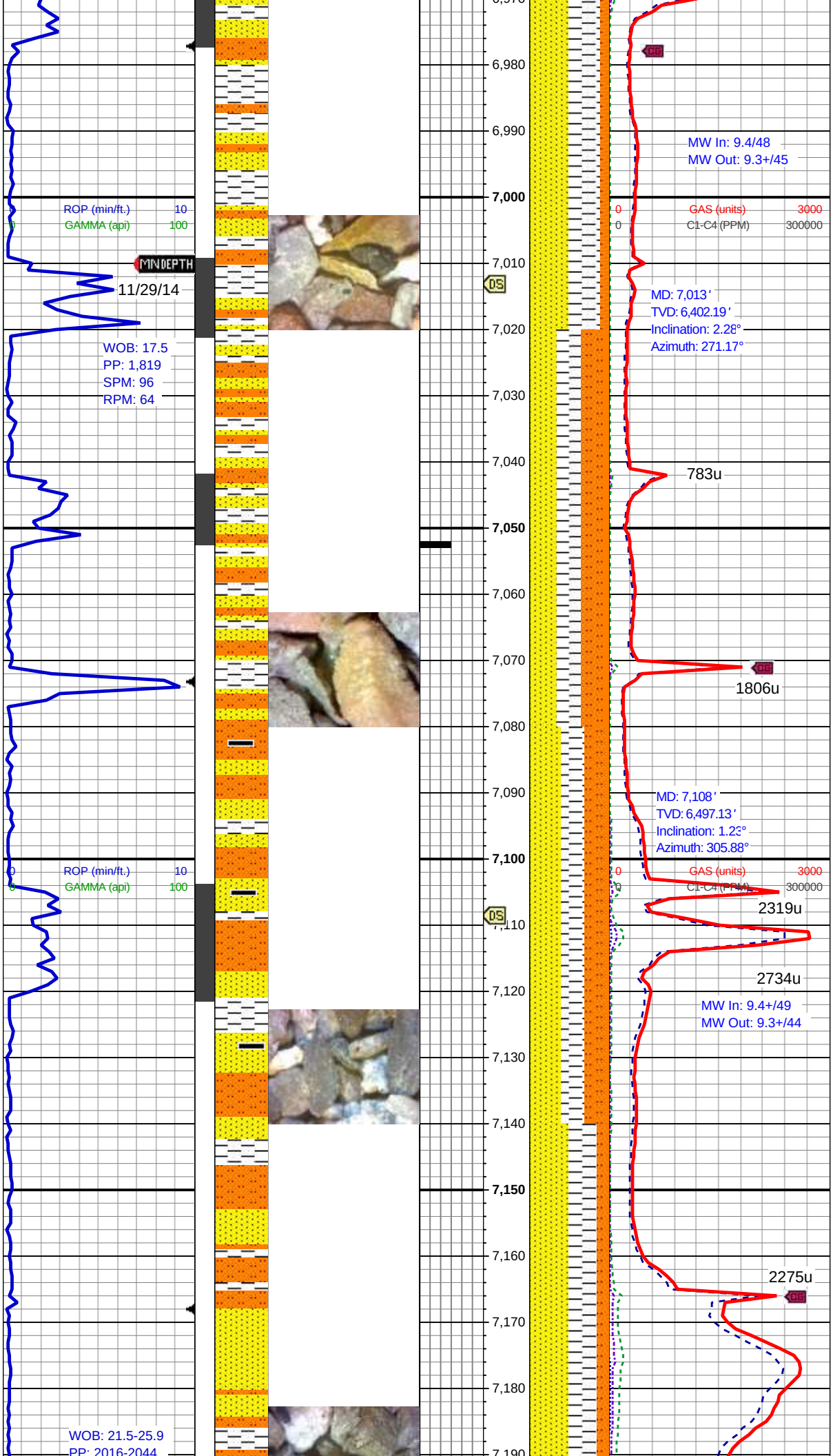


blky-blky, SS: offwht-op, s&p, mod c gr, mod srtd, predy cons, rd-sb rd, carb incl, sl calc, tr lse coal

TOOH for Tooling
- 6863' MD, 0930, 11/28/2014
- BOB & Drilling, 1950, 11/28/2014

SS: offwht-op, s&p, mod c gr, mod srtd, predy cons, rd-sb rd, carb incl, sl calc, SLTST: brn-tan, orng-lt brn, mod hd-mod sft, gt-sl sdy, sb blky, SH: dk gy-gy-ltgy, mod sft, sl gt, sb blky-blky, tr lse coal vis degas,

SS: offwht-wh, op-clr trnsl, s&p, mod c gr, mod srtd, predy cons, rd-sb rd, sl calc, SLTST: brn-tan, orng-lt brn, mod hd-mod sft, gt-sl sdy, sb blky, SH: dk gy-gy-ltgy, sl bl gy, mod sft-sft, sb blky-blky, tr lse coal vis degas,

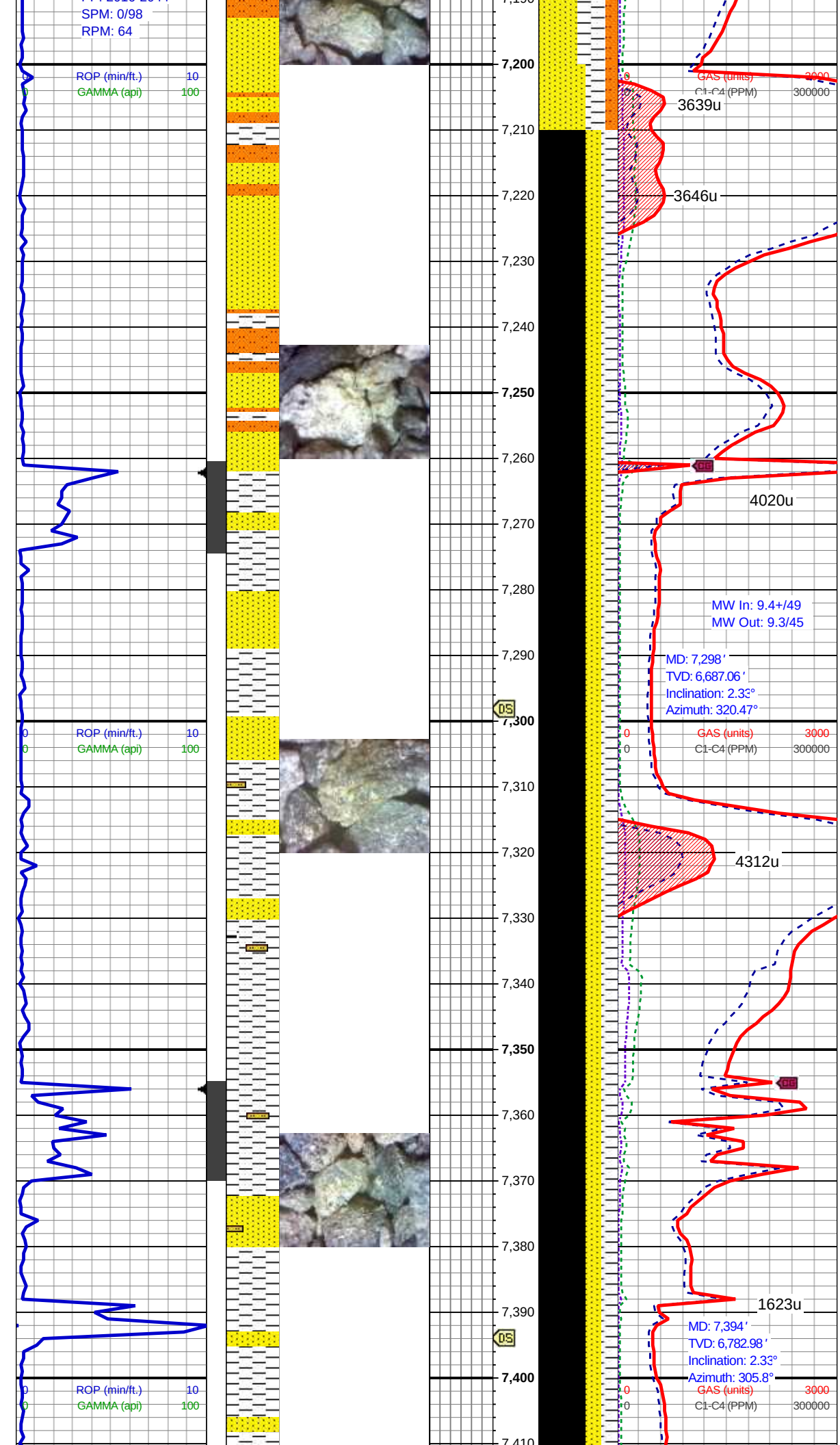


SH: dk gy-gy-ltgy, sl bl gy, tr lt brn, mod sft-mod hd, sb blky-blky, sl brit, SS: offwht-wh, op-clr trnsl, s&p, mod c gr, mod srtd, predy cons, tr uncons lse qtz gr, rd-sb rd, sl calc, tr carb incl, SLTST: brn-tan, orng-lt brn, mod hd-mod sft, gt-sl sdy, sb blky,

SS: offwht, op-clr trnsl, s&p, mod c gr, mod srtd, predy cons, tr uncons, rd-sb rd, sl calc, carb incl, SLTST: brn-tan, orng-lt brn, mod hd-mod sft, gt-sl sdy, sb blky, SH: gy-ltgy, sl bl gy, tr lt brn, mod sft-mod hd, sb blky-blky, sl brit,

SS: offwht, op-clr trnsl, s&p, mod c gr, mod srtd, predy cons, abnt uncons, rd-sb rd, sl calc, carb incl, SLTST: brn-tan, orng-lt brn, mod hd-mod sft, gt-sl sdy, sb blky, SH: gy-ltgy, sl bl gy, tr lt brn, mod sft-mod hd, sb blky-blky, sl brit, sme coal

SS: offwht, op-clr trnsl, s&p, mod c gr, mod srtd, predy cons, abnt uncons, rd-sb rd, sl calc, carb incl, SLTST: brn-tan, orng-lt brn, mod hd-mod sft, gt-sl sdy, sb blky, SH: gy-ltgy, sl bl gy, tr lt brn, mod sft-mod hd, sb blky-blky, sl brit, tr coal

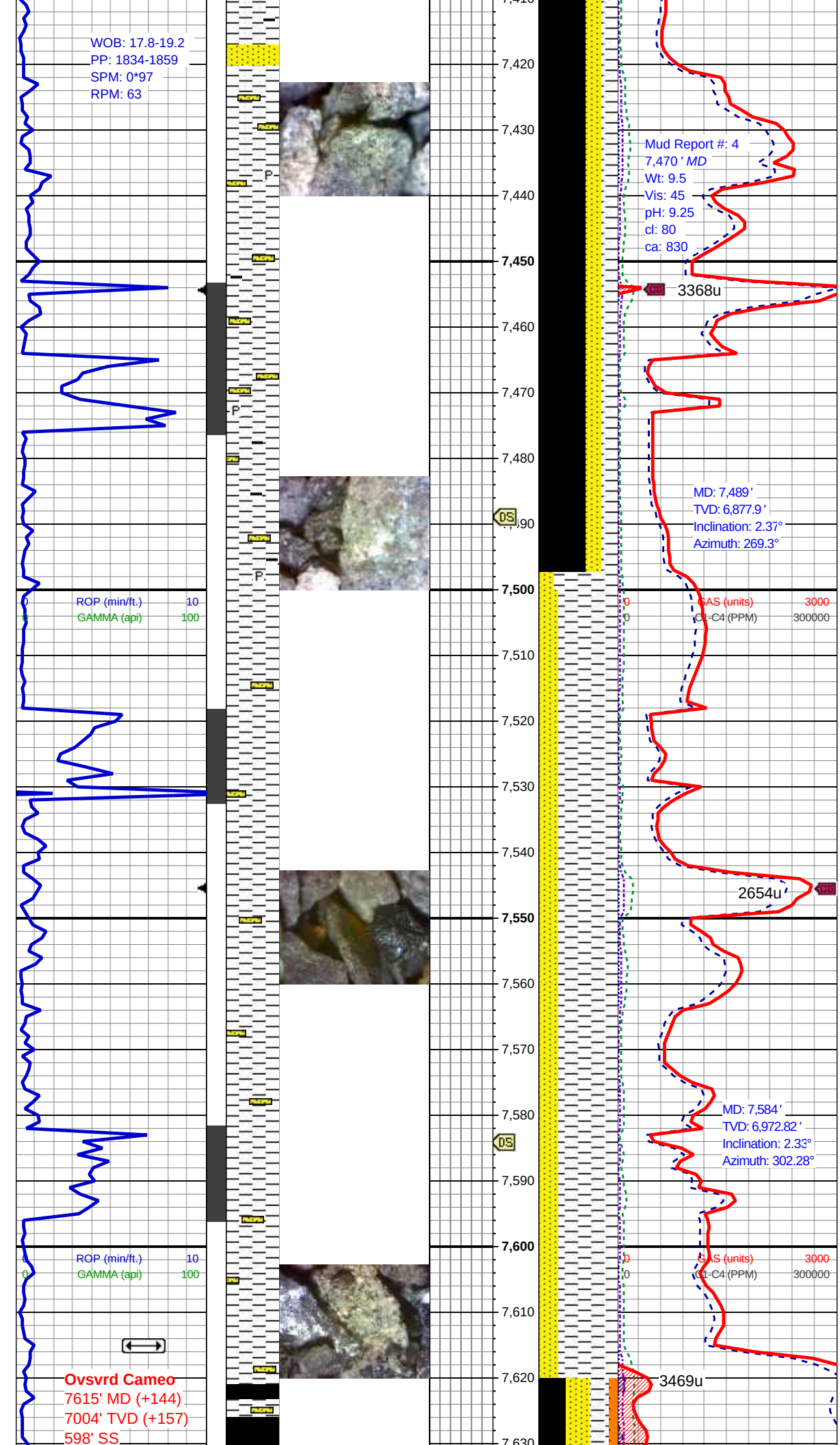


SS: offwht, op-clr trnsl, s&p, mod c gr, mod srtd, predy cons, abnt uncons, rd-sb rd, sl calc, carb incl, SLTST: brn-tan, orng-lt brn, mod hd-mod sft, gt-sl sdy, sb blky, SH: gy-ltgy, sl bl gy, tr lt brn, mod sft-mod hd, sb blky-blky, sl brit, tr coal

SH: gy-ltgy, sl bl gy, tr lt brn, mod sft-mod hd, sb blky-blky, sl brit, tr coal, SS: offwht, op-clr trnsl, s&p, mod c gr, mod srtd, predy cons, sme uncons, rd-sb rd, sl calc, carb incl, SLTST: brn-tan, orng-lt brn, mod hd-mod sft, gt-sl sdy, sb blky,

SH: gy-ltgy, sl bl gy, tr lt brn, mod sft-mod hd, sb blky-blky, sl brit, tr coal, SS: offwht, op-clr trnsl, s&p, mod c gr, mod srtd, predy cons, sme uncons, rd-sb rd, sl calc, carb incl, SLTST: brn-tan, orng-lt brn, mod hd-mod sft, gt-sl sdy, sb blky,

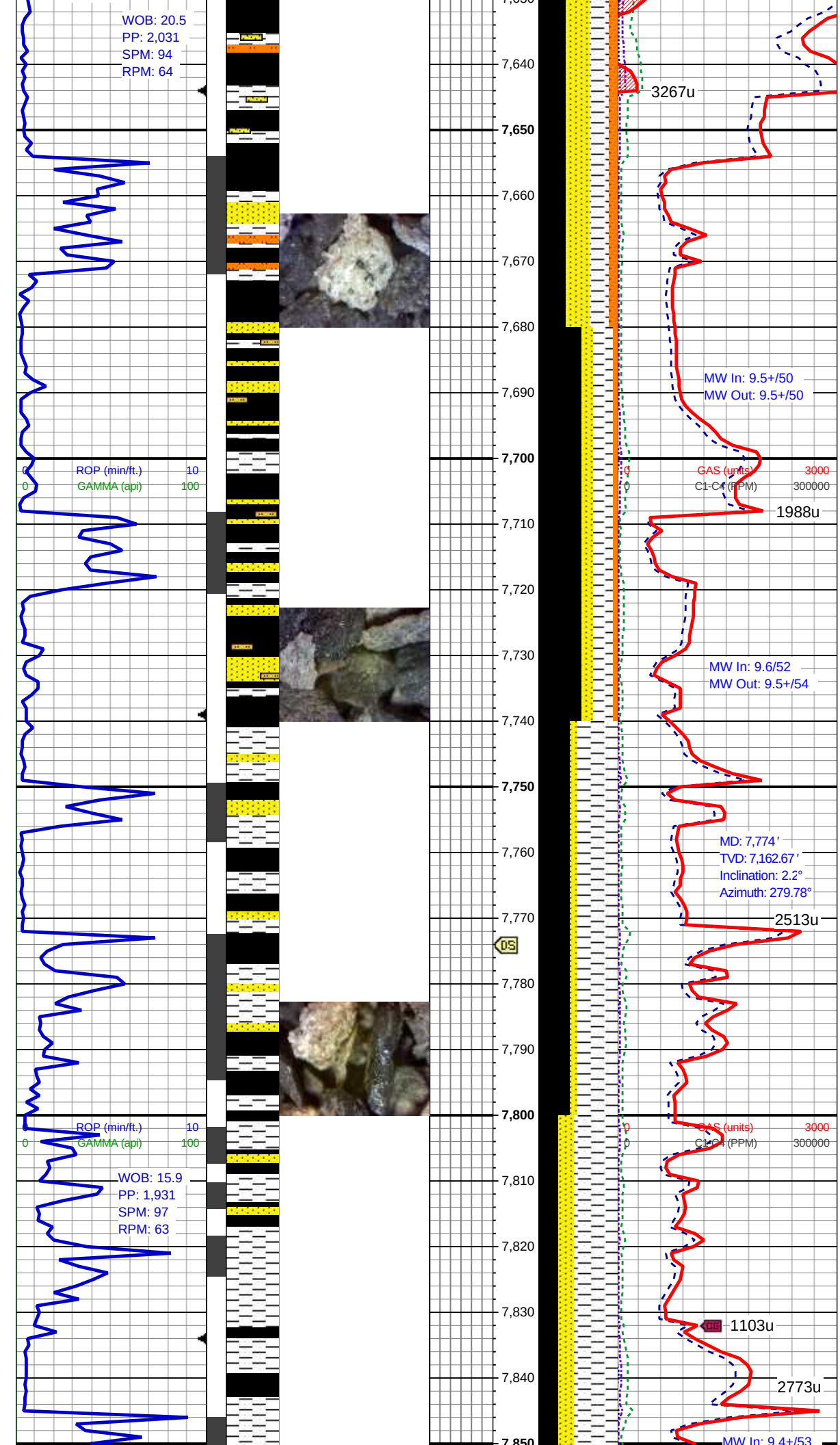
SH: gy-ltgy, sl bl gy, tr lt brn, mod sft-mod hd, sb blky-blky, sl brit, tr coal, SS: offwht, op-clr trnsl, s&p, mod c gr, mod srtd, predy cons, sme uncons, rd-sb rd, sl calc, carb incl,tr dissm pyr



SH: gy-ltgy, sl bl gy, tr lt brn, mod sft-mod hd, sb blky-blky, sl brit, sme coal, SS: offwht, op-clr trnsl, s&p, mod c gr, mod srtd, predy cons, sme uncons, rd-sb rd, sl calc, carb incl, tr dissm pyr

SH: gy-ltgy, sl bl gy, tr lt brn, mod sft-mod hd, sb blky-blky, sl brit, SS: offwht, op-clr trnsl, s&p, mod c gr, mod srtd, predy cons, sme uncons, rd-sb rd, sl calc, carb incl,tr sltst

SH: gy-ltgy, sl bl gy, tr lt brn, mod sft-mod hd, sb blky-blky, sl brit, SS: offwht, op-clr trnsl, s&p, mod c gr, mod srtd, predy cons, sme uncons, rd-sb rd, sl calc, carb incl,tr sltst

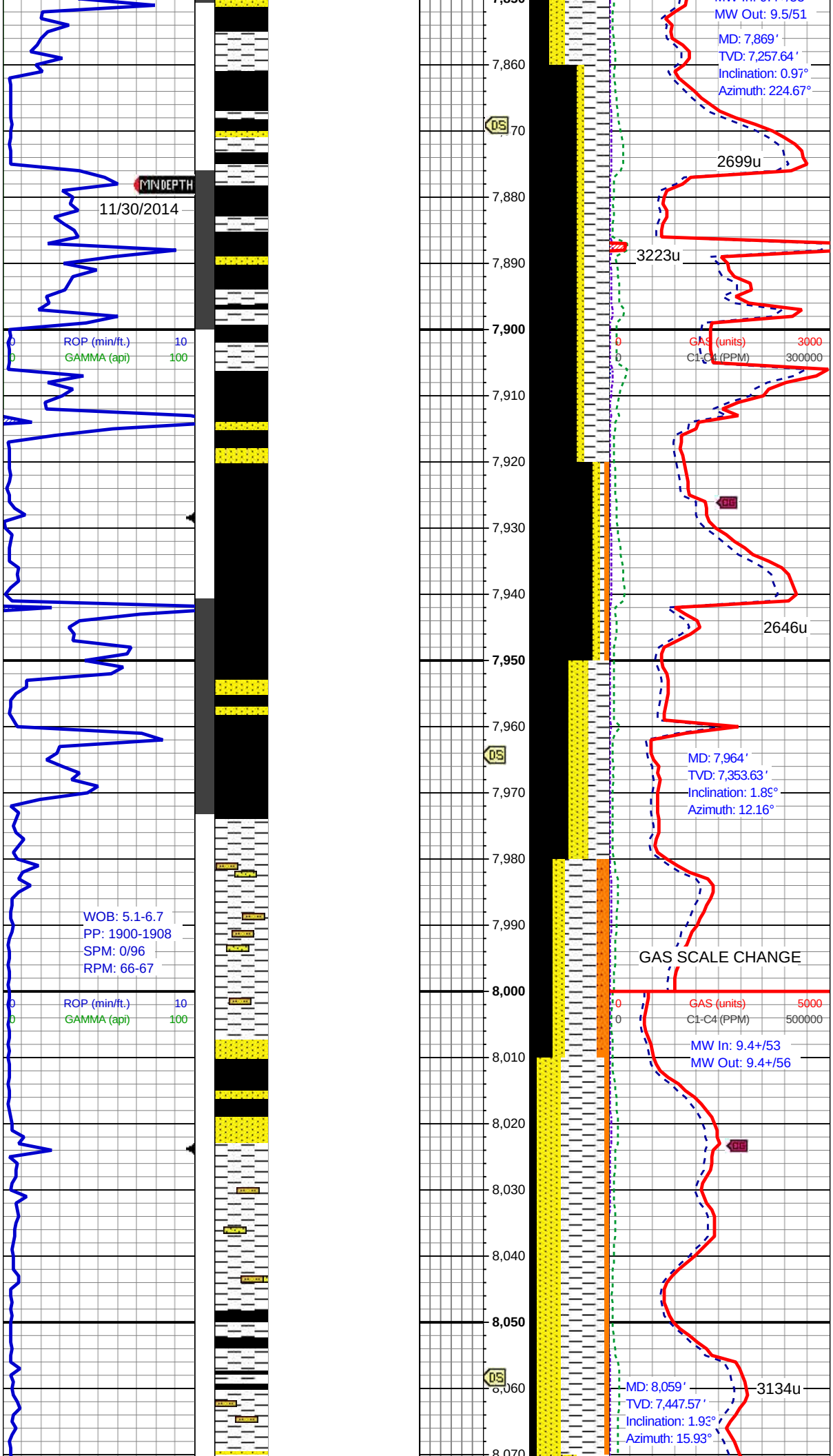


COAL: blk tr dk brn, glsy-tr rthy, hd-brit, tr mod hd-mod sft, tr conch frac, SS: offwht, op-clr trnsl,mod-v carb, mod c gr, mod srtd, predy cons, sme uncons, rd-sb rd, sl calc, SH: gy-ltgy, sl bl gy, mod sft-mod hd, sb blky-blky, sl brit, tr sltst,

COAL: blk, dk brn-brn, glsy-rthy, hd-brit, mod hd-mod sft, tr conch frac, SS: offwht-lt brn, sl op-clr trnsl,mod-v carb, mod c-mod f gr, mod srtd, predy cons, rd-sb rd, sl calc, SH: gy-ltgy, mod sft-mod hd, sb blky-blky, sl brit, tr sltst,

SH: dk gy-gy-ltgy, mod sft-mod hd, sb blky-blky, sl brit, COAL: blk, dk brn-brn, glsy-rthy, hd-brit, mod hd-mod sft, tr conch frac, SS: offwht-lt brn, sl op-clr trnsl,mod-v carb, mod c-mod f gr, mod srtd, predy cons, rd-sb rd, sl calc,

SH: dk gy-gy, mod sft-mod hd, sb blky-blky, sl brit, COAL: blk, dk brn-brn, glsy-rthy, hd-brit, mod hd-mod sft, tr conch frac, SS: offwht-lt brn, sl op-clr trnsl,mod-v carb, mod c-mod f gr, mod srtd, predy cons, rd-sb rd

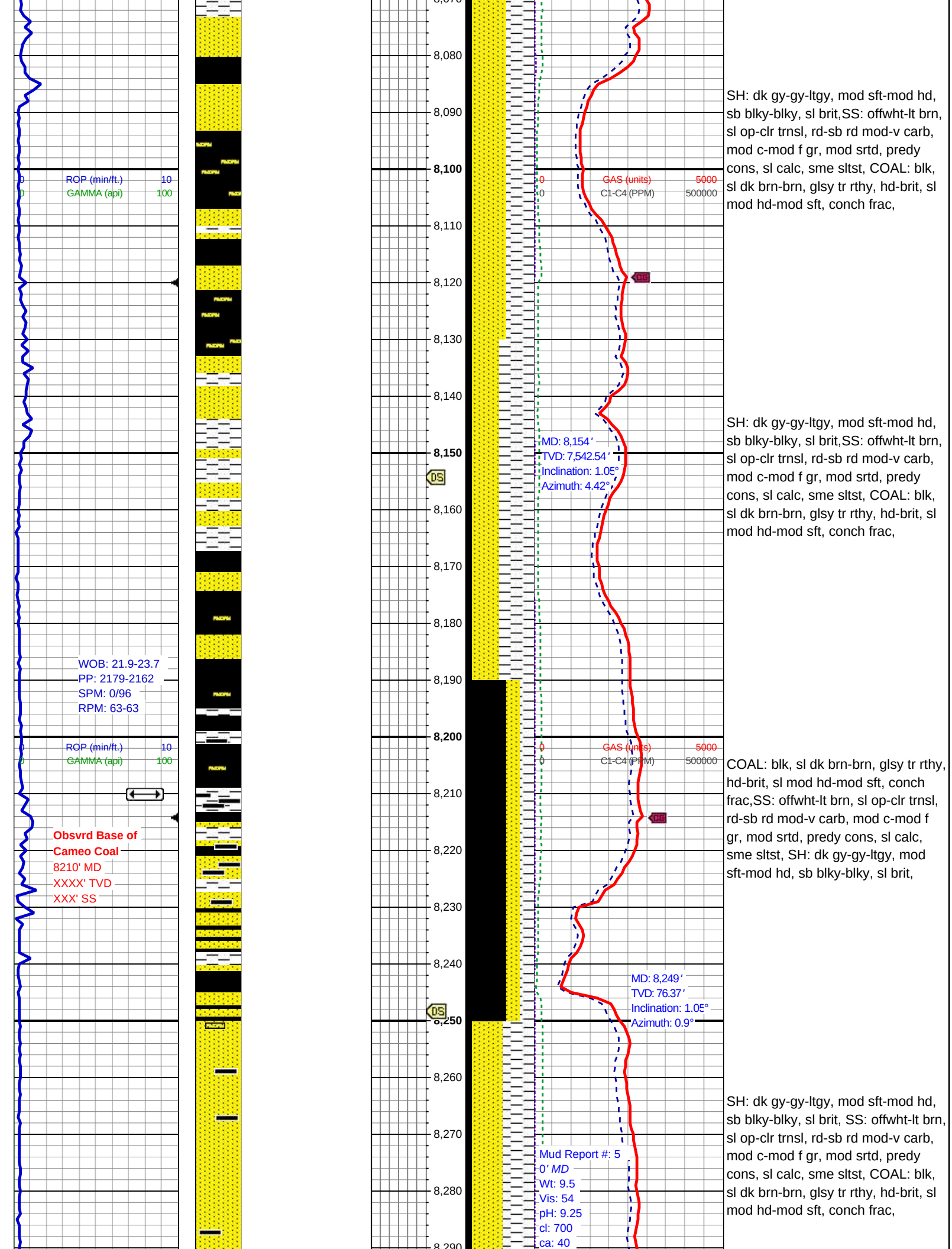


COAL: blk, sl dk brn-brn, glsy tr rthy, hd-brit, sl mod hd-mod sft, conch frac, SH: dk gy-gy, mod sft-mod hd, sb blky-blky, sl calc, sl brit, SS: offwht-lt brn, sl op-clr trnsl, rd-sb rd mod-v carb, mod c-mod f gr, mod srtd, predy cons, sl calc,

COAL: blk, sl dk brn-brn, glsy tr rthy, hd-brit, sl mod hd-mod sft, conch frac, SH: dk gy-gy, mod sft-mod hd, sb blky-blky, sl calc, sl brit, SS: offwht-lt brn, sl op-clr trnsl, rd-sb rd mod-v carb, mod c-mod f gr, mod srtd, predy cons, sl calc,

SH: dk gy-gy-ltgy, mod sft-mod hd, sb blky-blky, sl brit, COAL: blk, sl dk brn-brn, glsy tr rthy, hd-brit, sl mod hd-mod sft, conch frac, SS: offwht-lt brn, sl op-clr trnsl, rd-sb rd mod-v carb, mod c-mod f gr, mod srtd, predy cons, sl calc, SLTST: brn-tan, orng-lt brn, mod hd-mod sft, gt-sl sdy, sb blky, SH: gy-ltgy, sl bl gy, tr lt brn, mod sft-mod hd, sb blky-blky, sl brit,

SH: dk gy-gy-ltgy, mod sft-mod hd, sb blky-blky, sl brit,SS: offwht-lt brn, sl op-clr trnsl, rd-sb rd mod-v carb, mod c-mod f gr, mod srtd, predy cons, sl calc, SLTST: brn-tan, orng-lt brn, mod hd-mod sft, gt-sl sdy, sb blky, COAL: blk, sl dk brn-brn, glsy tr rthy, hd-brit, sl mod hd-mod sft, conch frac,

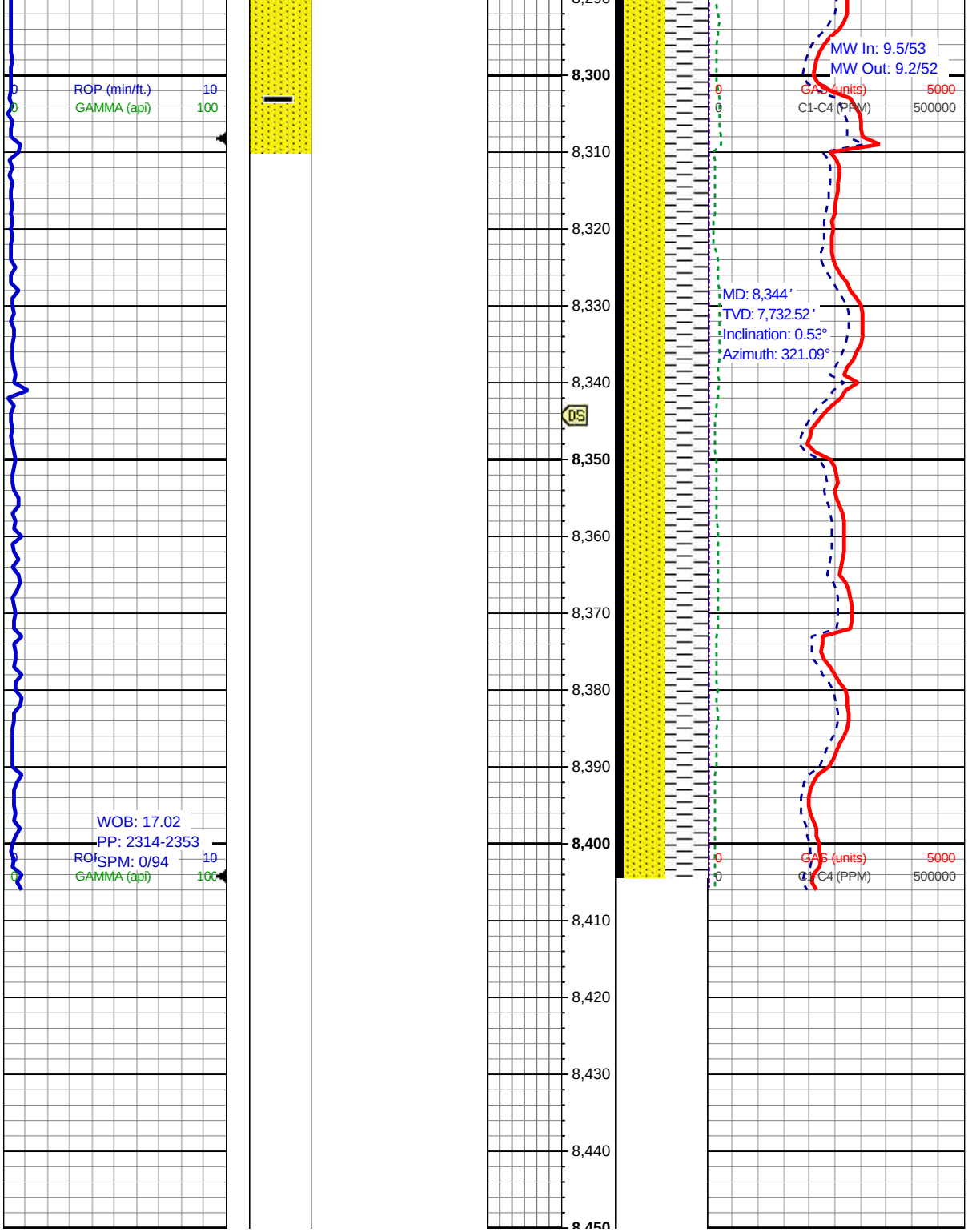


SH: dk gy-gy-ltgy, mod sft-mod hd, sb blky-blky, sl brit,SS: offwht-lt brn, sl op-clr trnsl, rd-sb rd mod-v carb, mod c-mod f gr, mod srtd, predy cons, sl calc, sme sltst, COAL: blk, sl dk brn-brn, glsy tr rthy, hd-brit, sl mod hd-mod sft, conch frac,

SH: dk gy-gy-ltgy, mod sft-mod hd, sb blky-blky, sl brit,SS: offwht-lt brn, sl op-clr trnsl, rd-sb rd mod-v carb, mod c-mod f gr, mod srtd, predy cons, sl calc, sme sltst, COAL: blk, sl dk brn-brn, glsy tr rthy, hd-brit, sl mod hd-mod sft, conch frac,

COAL: blk, sl dk brn-brn, glsy tr rthy, hd-brit, sl mod hd-mod sft, conch frac,SS: offwht-lt brn, sl op-clr trnsl, rd-sb rd mod-v carb, mod c-mod f gr, mod srtd, predy cons, sl calc, sme sltst, SH: dk gy-gy-ltgy, mod sft-mod hd, sb blky-blky, sl brit,

SH: dk gy-gy-ltgy, mod sft-mod hd, sb blky-blky, sl brit, SS: offwht-lt brn, sl op-clr trnsl, rd-sb rd mod-v carb, mod c-mod f gr, mod srtd, predy cons, sl calc, sme sltst, COAL: blk, sl dk brn-brn, glsy tr rthy, hd-brit, sl mod hd-mod sft, conch frac,



SH: dk gy-gy-ltgy, mod sft-mod hd, sb blky-blky, sl brit, SS: offwht-lt brn, sl op-clr trnsl, rd-sb rd mod-v carb, mod c-mod f gr, mod srtd, predy cons, sl calc, sme sltst, COAL: blk, sl dk brn-brn, glsy tr rthy, hd-brit, sl mod hd-mod sft, conch frac,

SH: dk gy-gy-ltgy, mod sft-mod hd, sb blky-blky, sl brit, SS: offwht-lt brn, sl op-clr trnsl, rd-sb rd mod-v carb, mod c-mod f gr, mod srtd, predy cons, sl calc, sme sltst, COAL: blk, sl dk brn-brn, glsy tr rthy, hd-brit, sl mod hd-mod sft, conch frac,

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