



Empirica

Scale: 5" / 100'
Measured Depth Log

Well Name Windsor_LV_B_14-H_Horizontal

Location SEC.14-T6N-R67W

State Colorado

Country USA

API Number 051233816800

Region DJ Basin

Spud Date 12/15/2014

County Weld

Rig Number H&P 319

AFE # 14-753

Field Wattenberg

Drilling Completed 12/20/2014

Ground Elevation 4845'

K.B. Elevation 4895'

Logged Interval 6655' To 11,422'

Total Depth 4767'

Formation Codell

Type of Drilling Fluid WBM

Operator

Company Extraction Oil & Gas, LLC

Address 1888 Sherman St, Suite 200
Denver, Colorado 80203

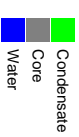
Geologist

Name Justin Perry & Geoff Sterling

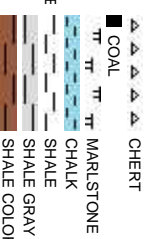
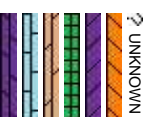
Company ALS Empirica

Address 6360 W Sam Houston Pkwy N
Suite 100
Houston, TX 77041

Zone Color Coding















































Rock Types



Accessories

Fossils

Fossils	
 FOSSIL	 ARGILLACEOUS
 GASTROPOD	 ARGILLITE GRAIN
 OOLITE	 BENTONITE
 OSTRACOD	 BITUMINOUS SUBSTANCE
 PELECYPOD	 BRECCIA FRAGMENTS
 PELLET	 CALCAREOUS
 PISOLITE	 CARBONACEOUS FLAKES
 PLANT REMAINS	 CHERT
 PLANT SPORES	 CHERT
 SCAPHOPOD	 COAL - THIN BEDS
 STROMATOPOROID	 DOLOMITIC
 FELDSPAR	 SILICEOUS
 FERRUGINOUS PELLET	 SILTY
 TUFFACEOUS	 HEAVY MINERAL
 KAOLIN	 GYPSIFEROUS
 MARLSTONE	 MINERAL CRYSTALS
 NODULES	 PHOSPHATE PELLETS
 PYRITE	 LIMESTONE STRINGER
 SALT CAST	 MARLSTONE (CALC) STRINGER
 SANDY	 MARLSTONE (DOL) STRINGER
 SHALE STRINGER	 SANDSTONE STRINGER
 SILTSTONE STRINGER	 SILTSTONE STRINGER












Minerals

Other Symbols










Oil Show

	ORGANIC		WIRELINE TESTED - RT		F _X FINELYXLN
	P PINPOINT		FORMATION TOP		G _S GRAINSTONE
	DEAD		GAS SHOW		L LITHOGRAPHIC
	EVEN		MINDEPTH MN DEPTH		M _X MICROXLN





Engineering

	QUESTIONABLE		MS MUDSTONE
	SPOTTED STAINING		MS PACKSTONE
	BIT		MS WACKESTONE
	CASING		
			
			
			

Porosity

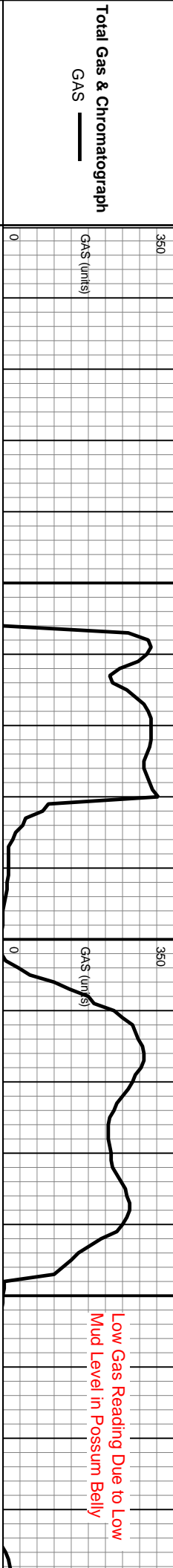
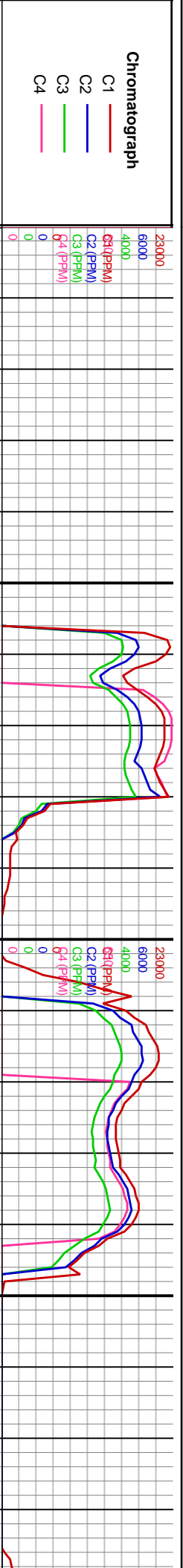
	FENESTRAL		CONNECTION GAS		SIDEWALL CORE (RIGHT)
	E EARTHY		CONNECTION (RIGHT)		SIDEWALL CORE (LEFT)
	Subrond		REVERSE FAULT		Moderate

Textures

Sorting

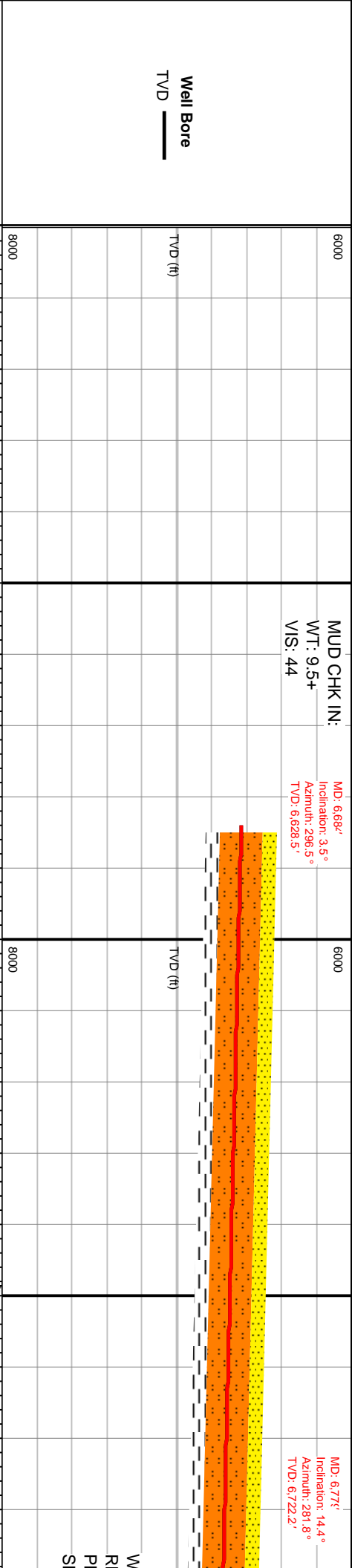
IGNEOUS
METAMORPHIC
CEMENT
SLTY SH
SHY SS



Lithology Descriptions

SH: GY - DK GY, PLTY - SB PLTY, MOD FRM - FRM, OCCLY BRIT, VF LAM. SLTST: LT GY - GY, SB PLTY - SB BLKY, FRM - SL HRD, SLTY TXT, ARG. SD: PREDY LT GY, SME OFF WH, RR TRNSL, SB BLKY - BLKY, SL HRD - HRD, BRIT, F - VF GR, ANG - SB ANG GRNS, P - MOD SRT, SME ARG MTX, WK CALC. TR F GR PYR.

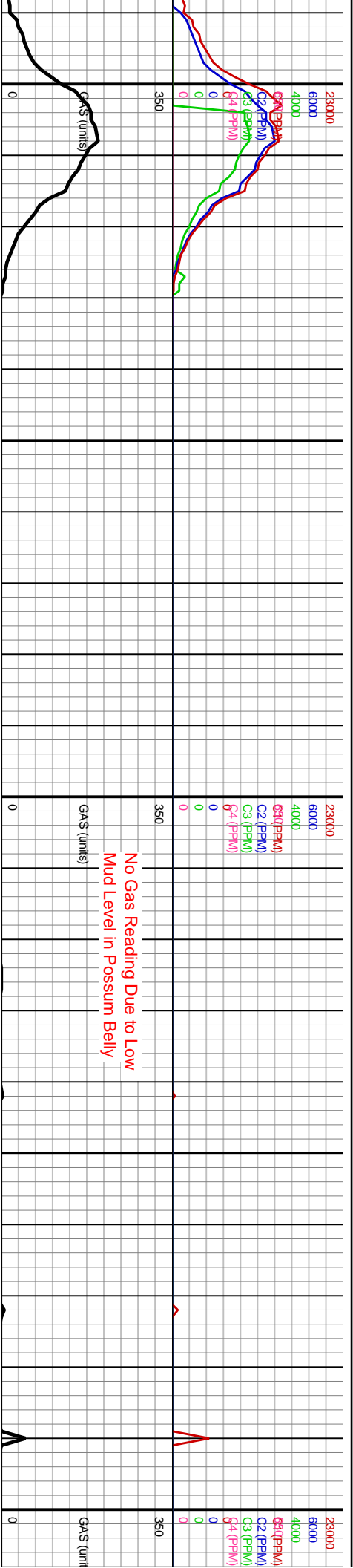
SH: GY - DK GY, PLTY - SB PLTY, MOD FRM - BRIT, VF LAM. SLTST: LT GY - GY, SB PLTY - SME HRD, SLTY TXT, ARG. SD: PREDY LT GY, SME TRNSL, SB BLKY - BLKY, SL HRD - HRD, BRIT SB ANG GRNS, P - MOD SRT, SME ARG MTX, GR PYR.



Depth Labels

Slide/Rotate





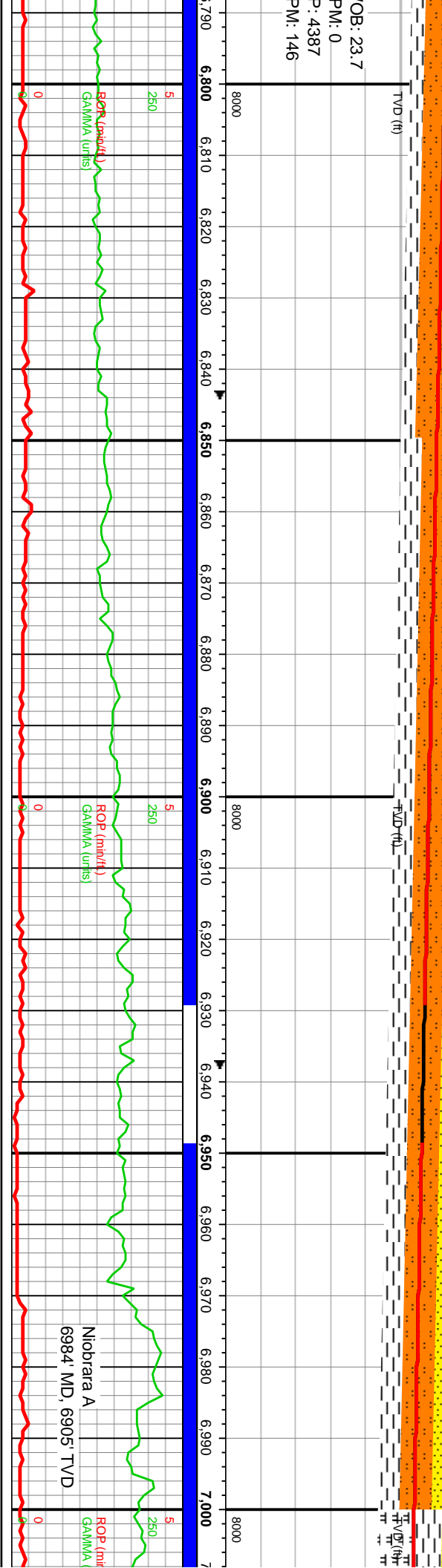
FRM, OCCLY
SB BLKY, FRM - SL
F - OFF WH, RR
F - VF GR, ANG -
WK CALC. TR F

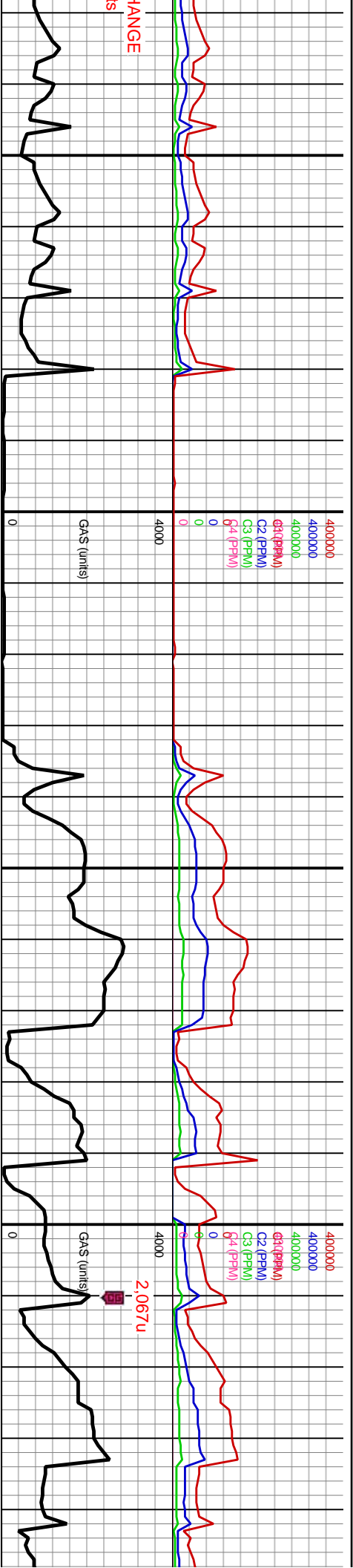
SH: GY - DK GY, PLTY - SB PLTY, MOD FRM - FRM, OCCLY
BRIT, VF LAM, SLTST: LT GY - GY, SB PLTY - SB BLKY, FRM
- SL HRD, SLTY TXT, ARG, SD: PREDY LT GY, SME OFF
WH, RR TRNSL, SB BLKY - BLKY, SL HRD - HRD, BRIT, F -
VF GR, ANG - SB ANG GRNS, P - MOD SRT, SME ARG MTX,
WK CALC. TR F GR PYR.

SH: GY - DK GY, PLTY - SB PLTY, MOD FRM - FRM,
OCCLY BRIT, VF LAM, SLTST: LT GY - GY, SB PLTY -
SB BLKY, FRM - SL HRD, SLTY TXT, ARG, SD: PREDY
LT GY, SME OFF WH, RR TRNSL, SB BLKY - BLKY, SL
HRD - HRD, BRIT, F - VF GR, ANG - SB ANG GRNS, P -
MOD SRT, SME ARG MTX, WK CALC. TR F GR PYR.

MARL: GY-BRN G
HRD, SLTY, FY LA
GY-DK GY, PLTY,
SLTY. OCC SS: LT
FRM-SL HRD, ARG

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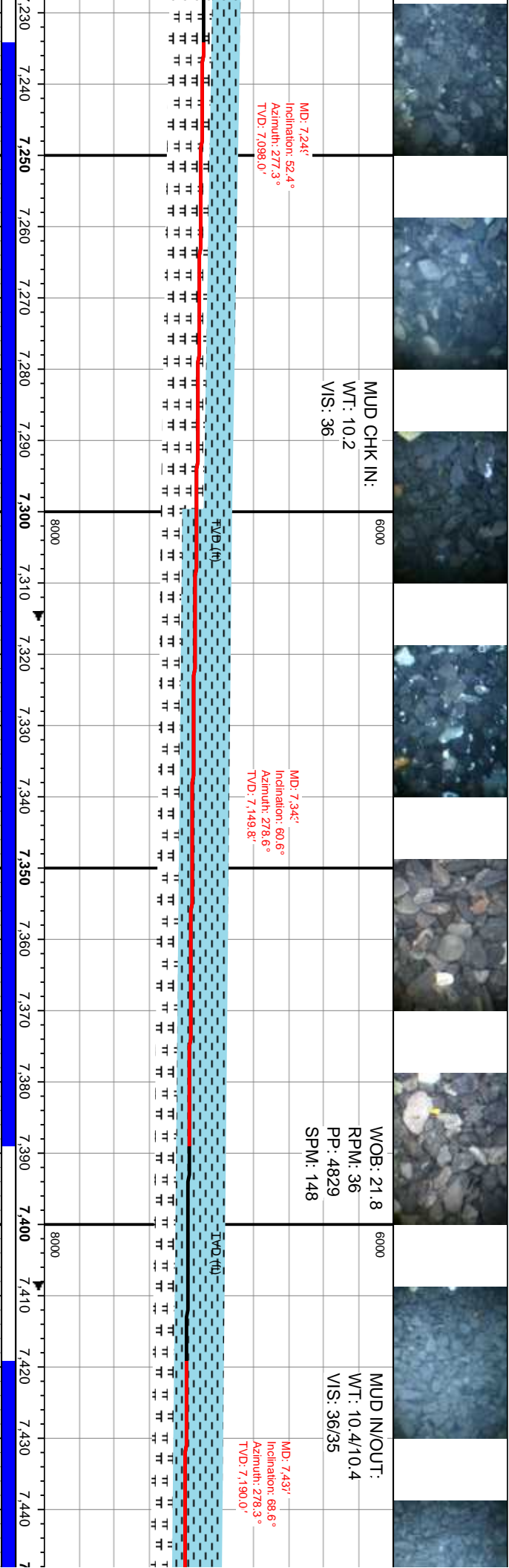


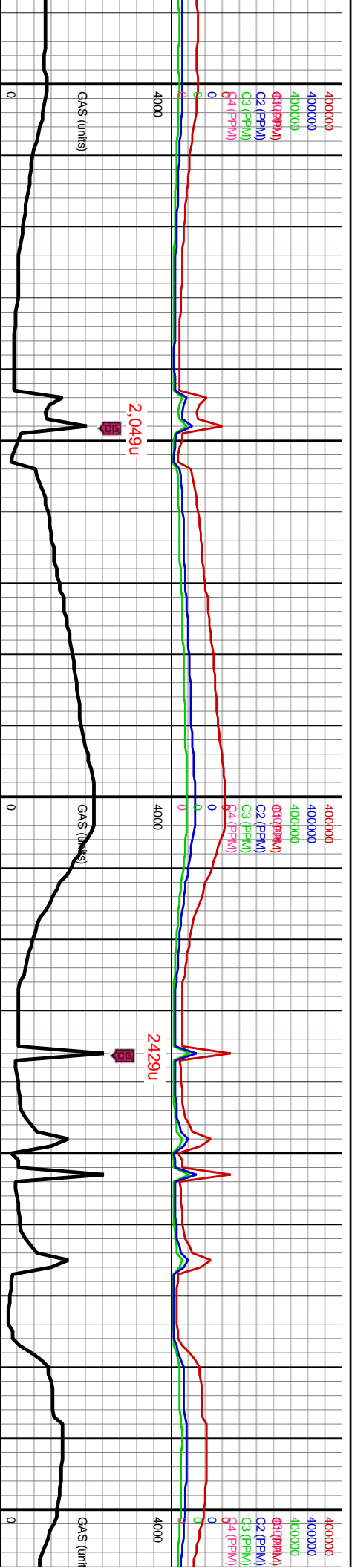
3 BLKY, MOD FRM-SL
& MTX, VF LAM, V CALC;
FRM-SL HRD, VF
DISSM PYR, MOD CALC;
SLTST: LT-MED GY, FRM-SL
HRD, BRIT, SB PLTY-SB BLKY, P-MOD SRTD,
MOD-ARG, V WK CALC.

CHK: OFF WH-LT GY, PLTY-SB BLKY, MOD FRM-SL
HRD, WI VF-F GR SLT TO ARG MTX, VF LAM, V CALC;
MARL: DK GY, PLTY-SB PLTY, FRM-SL HRD, VF
DISSM PYR, MOD CALC;
SLTST: LT-MED GY, FRM-SL
HRD, BRIT, SB PLTY-SB BLKY, P-MOD SRTD,
MOD-ARG, V WK CALC.

CHK: OFF WH-LT GY, PLTY-SB BLKY, MOD FRM-SL
HRD, WI VF-F GR SLT TO ARG MTX, VF LAM, V CALC;
MARL: DK GY, PLTY-SB PLTY, FRM-SL HRD, VF
DISSM PYR, MOD CALC;
SLTST: LT-MED GY, FRM-SL
HRD, BRIT, SB PLTY-SB BLKY, P-MOD SRTD,
MOD-ARG, V WK CALC.

CHK: OFF WH-LT GY, PLTY
HRD, WI VF-F GR SLT TO A
MARL: DK GY, PLTY-SB PL
DISSM PYR, MOD CALC;
SL
HRD, BRIT, SB PLTY-SB BL
MOD-ARG, V WK CALC.

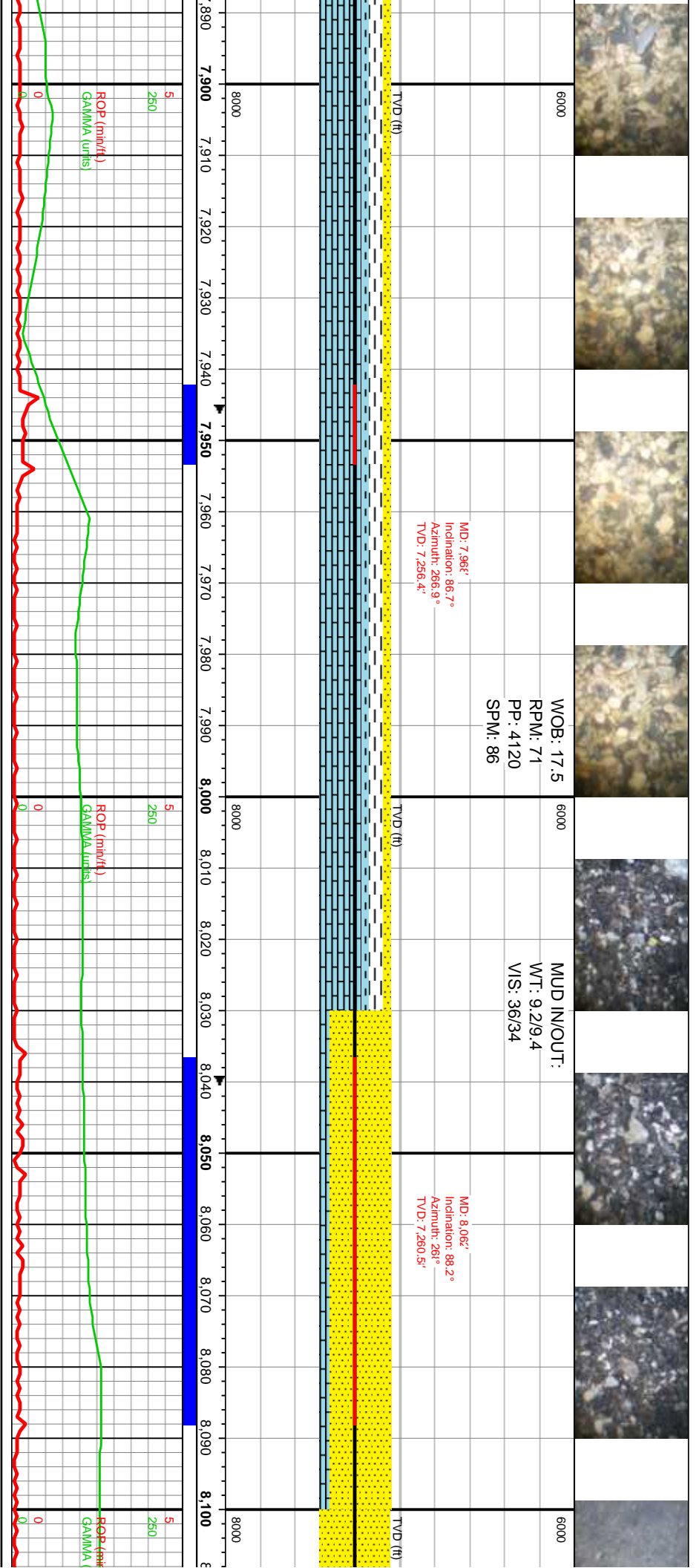


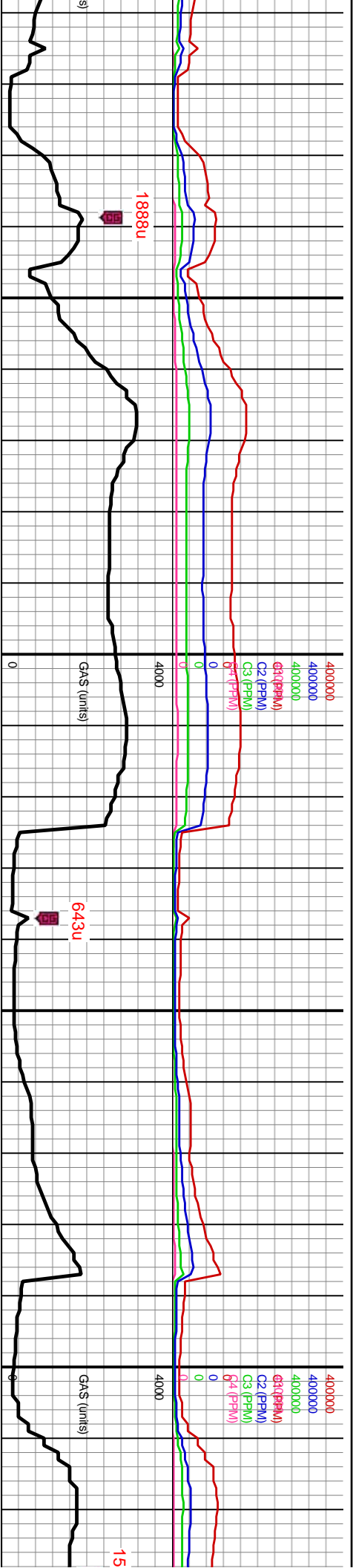


LS: WH - OFF WH, PLTY - SB PLTY, SME BLKY, FRM - HD, W SRTD; CHK: WH - OFF WH, OCCLY LT GY, PREDY PLTY - SB PLTY, SME SB BLKY, MOD FRM - SL HRD, VF SLT, CRPTXL, ARG MTX, STRONG HCL RXN. SLST: LT GY - GY, SME DK GY, FRM - SL HRD, BRIT, SB PLTY - SB BLKY, MOD SRT, V WK CALC; MRLST: DK GY, SB BLKY - SB PLTY, FRM - SL HRD, VF LAM, MOD CALC, TR VF DISS PYR.

SD: LT GY-LT BRN GY, TR LT BRN RESD IN INTR SPACE, MOT APPNC, TRNSL-TRNSP, SB ANG-SB RND, MOD SRT, QTZ ARENITE, FRI-SL FRI, OCCLY BRIT, MOD CAL CMT, TR VF DISS PYR.

SD: LT G INTR S SB ANG-FRI-SL F VF DISS



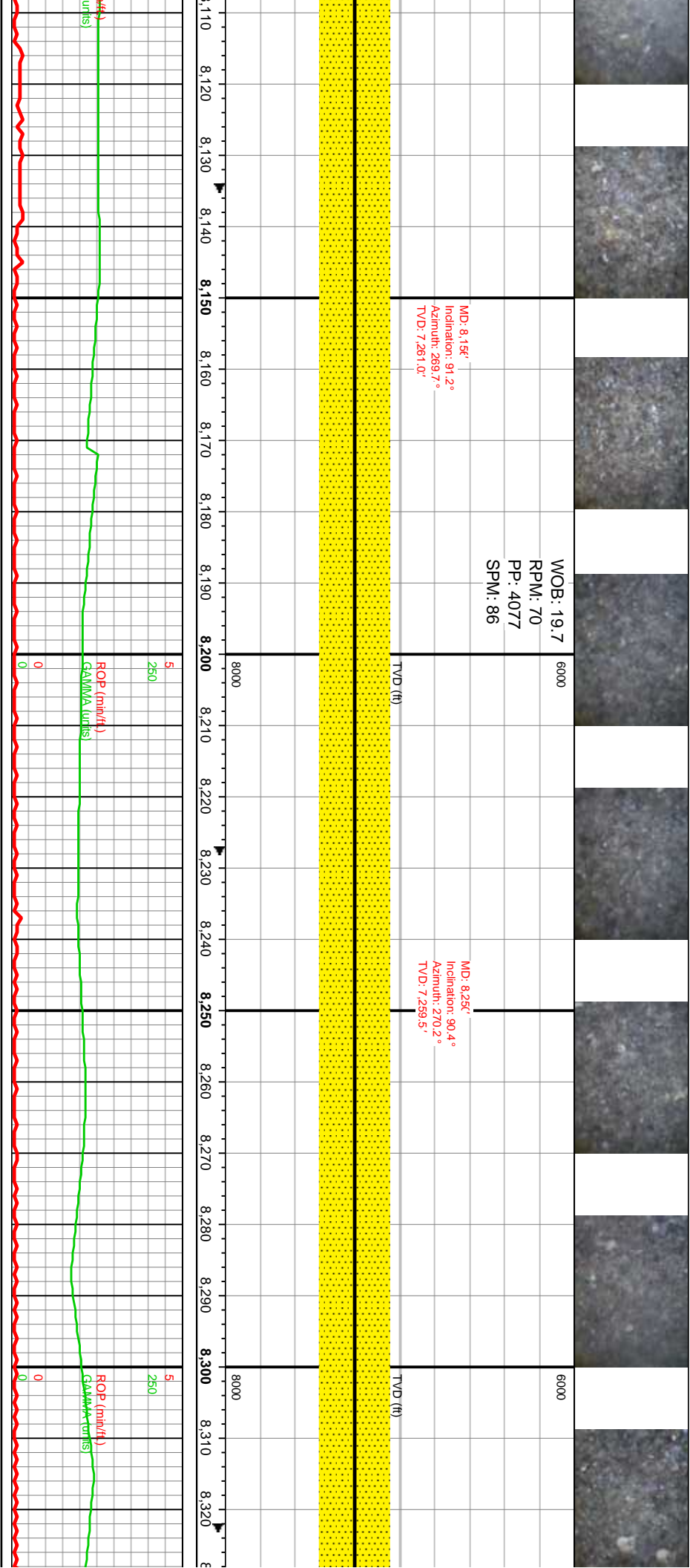


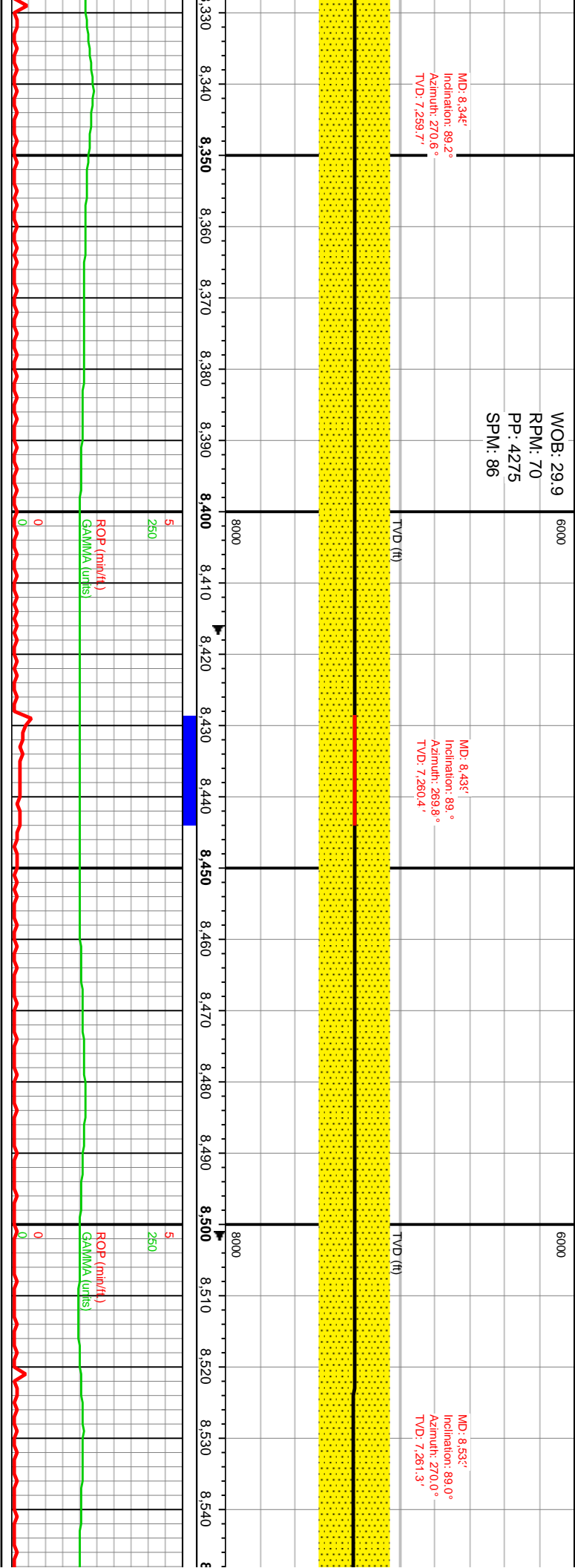
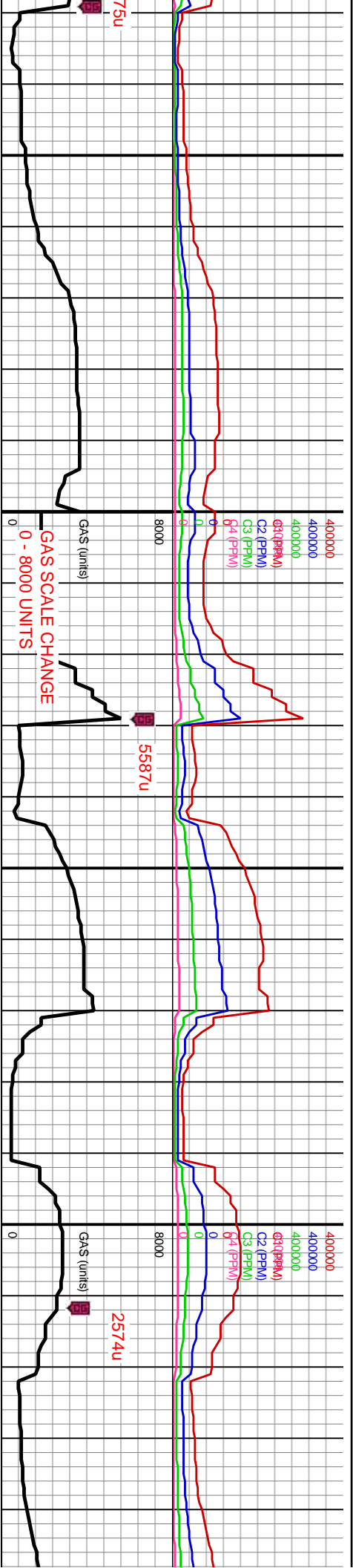
SD: LT BRN GY, TR LT BRN RESD IN
SPACE, MOT APPNC, TRNSL-TRNSP,
TRNSL-TRNSP, SB ANG-SB RND, MOD
SRT, QIZ ARENITE, FRI-SL FRI, OCCLY
BRIT, MOD CAL CMT, TR VF DISSM PYR.

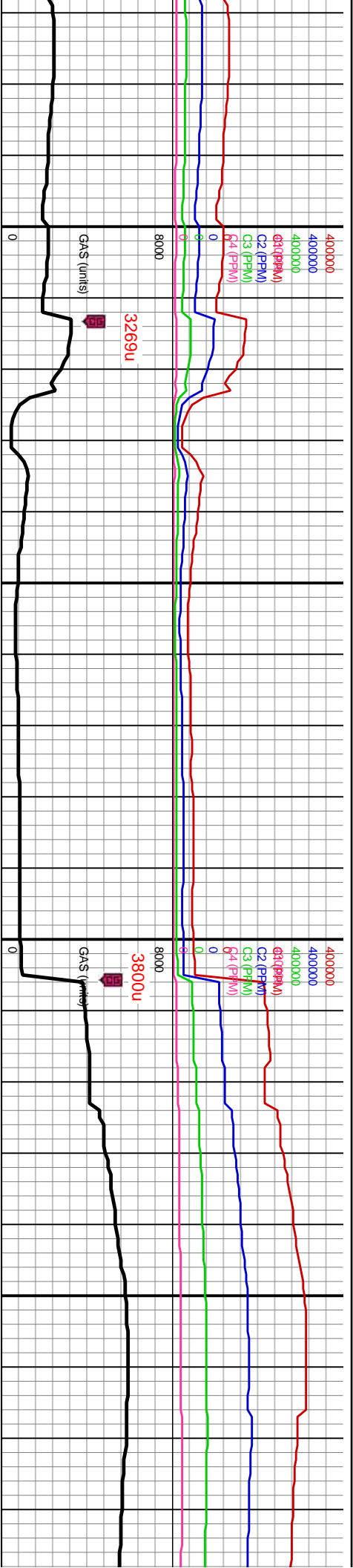
SD: LT GY-LT BRN GY, TR LT BRN RESD
IN INTGR SPACE, MOT APPNC,
TRNSL-TRNSP, SB ANG-SB RND, MOD
SRT, QIZ ARENITE, FRI-SL FRI, OCCLY
BRIT, MOD CAL CMT, TR VF DISSM PYR.

SD: LT GY - LT BRN GY, FRI - SL FRI, OCCLY
BRIT, TRNSL - TRNSP, MOT APPNC, TR LT
BRN RESD IN INTGR SPACE, QIZ ARENITE,
SB ANG - SB RND, MOD - W SRT, MOD CAL
CMT, TR VF DISSM PYR.

SD: LT GY - LT BRN GY, FRI - SL FRI, OC
BRIT, TRNSL - TRNSP, MOT APPNC, TR LT
BRN RESD IN INTGR SPACE, QIZ ARENITE,
SB ANG - SB RND, MOD - W SRT, MOD C
CMT, TR VF DISSM PYR.





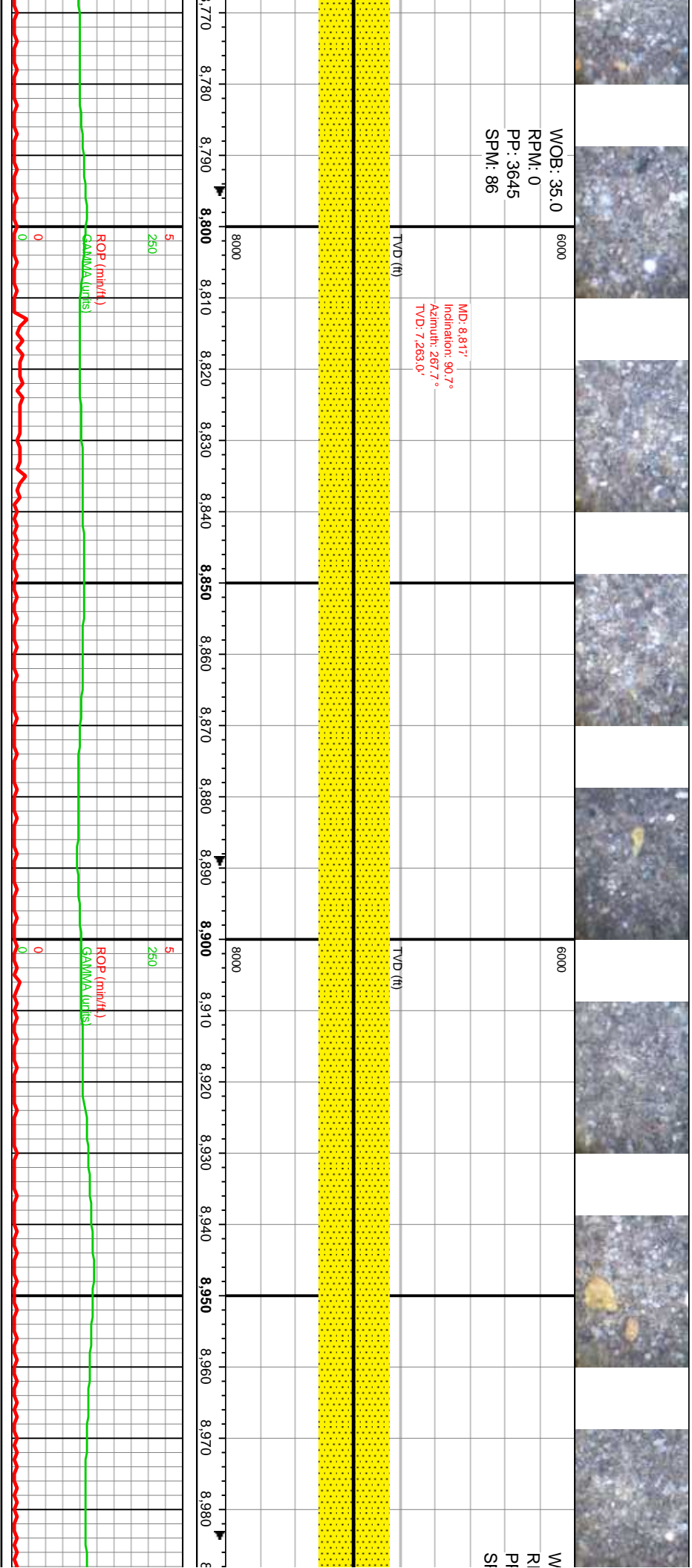


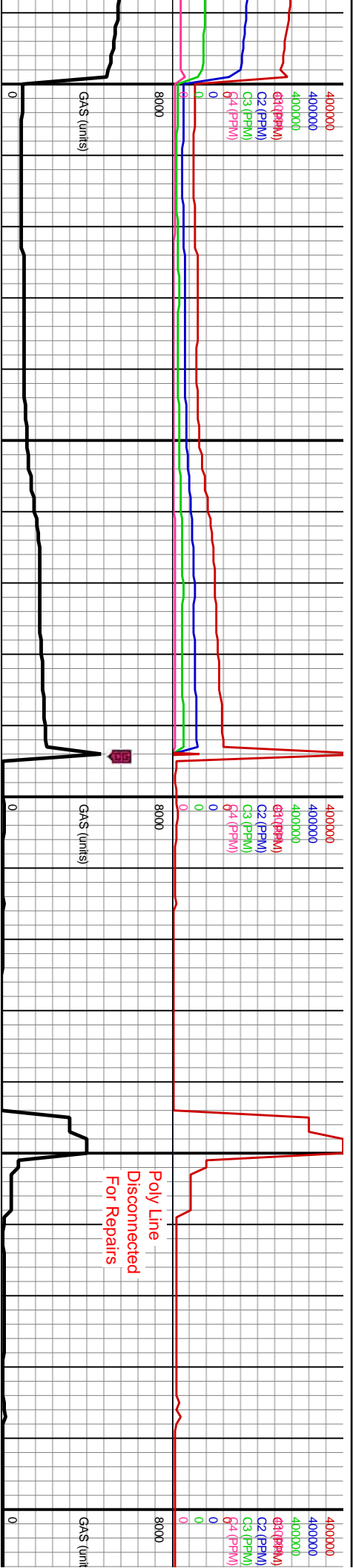
RI - SL FRI, OCCLY
APPNC, TRNSL -
IN INTGR SPACE, SB
SRT, WK - MOD CAL
DISSM PYR.

SD: LT GY - LT BRN GY, FRI - SL FRI, OCCLY
BRIT, QTZ ARENITE, MOT APPNC, TRNSL -
TRNSP, TR LT BRN RESD IN INTGR SPACE, SB
ANG - SB RND, MOD - W SRT, WK - MOD CAL
CMT, V TR GLAU, TR VF DISSM PYR.

SD: LT GY - LT BRN GY, FRI - SL FRI, OCCLY
BRIT, QTZ ARENITE, MOT APPNC, TRNSL -
TRNSP, TR LT BRN RESD IN INTGR SPACE, SB
ANG - SB RND, MOD - W SRT, WK - MOD CAL
CMT, V TR GLAU, TR VF DISSM PYR.

SD: PREDY LT BRN GY, SME LT GY,
OCCLY BRIT, QTZ ARENITE, MOT A
TRNSP, TR LT BRN RESD IN INTGR
- SB RND, MOD - W SRT, WK - MOD
GLAU, TR VF DISSM PYR. WK MLKY

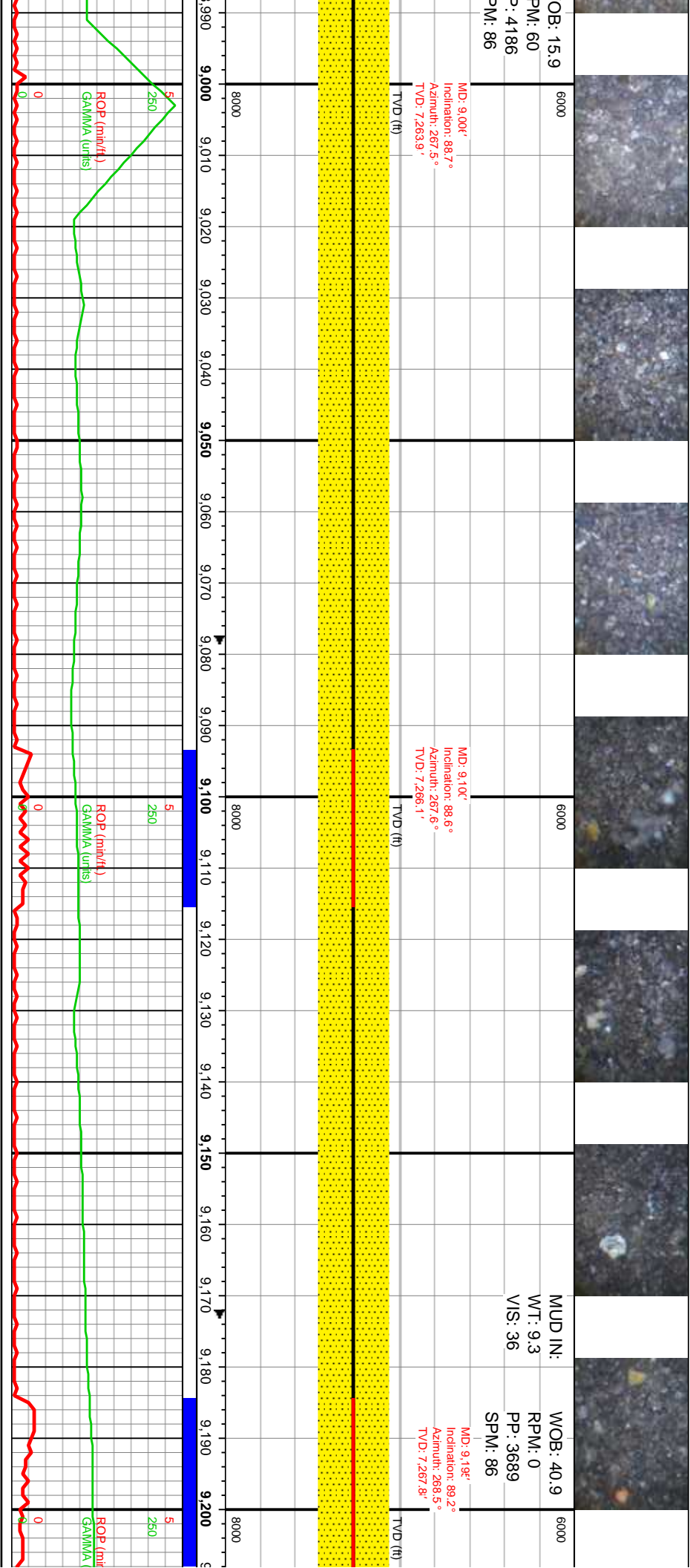


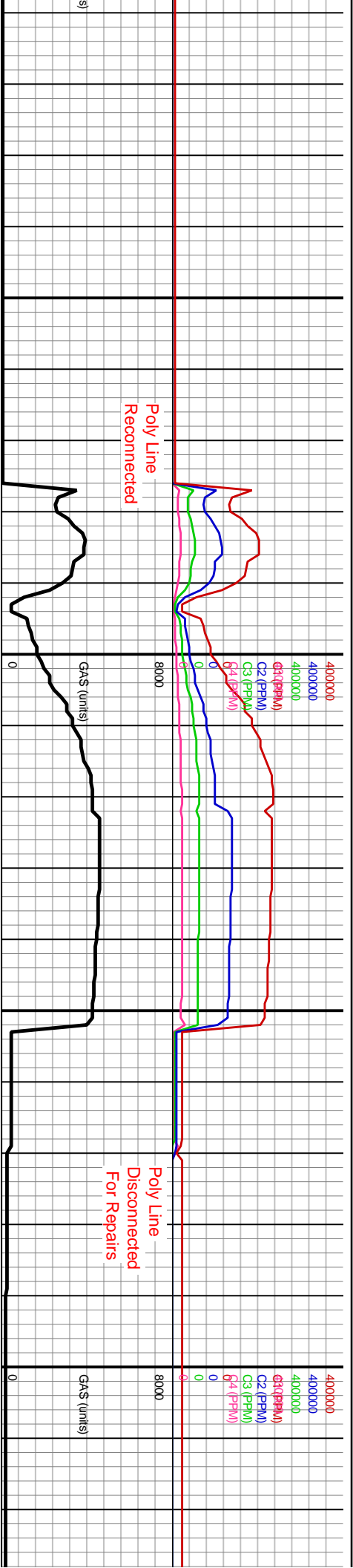


FRI - SL FRI, PPNC, TRNSL - SPACE, SB ANG CAL CMT, V TR RESDL RING.

SD: PREDY LT BRN GY, SME LT GY, FRI - SL FRI, OCCLY BRIT, QTZ ARENITE, MOT APPNC, TRNSL - TRNSP, TR LT BRN RESD IN INTGR SPACE, SB ANG - SB RND, MOD - W SRT, WK - MOD CAL CMT, V TR GLAU, TR VF DISSM PYR.

SD: PREDY LT BRN GY, SME LT GY, FRI - SL FRI, OCCLY BRIT, QTZ ARENITE, MOT APPNC, TRNSL - TRNSP, TR LT BRN RESD IN INTGR SPACE, SB ANG - SB RND, MOD - W SRT, WK - MOD CAL CMT, V TR GLAU, TR VF DISSM PYR.





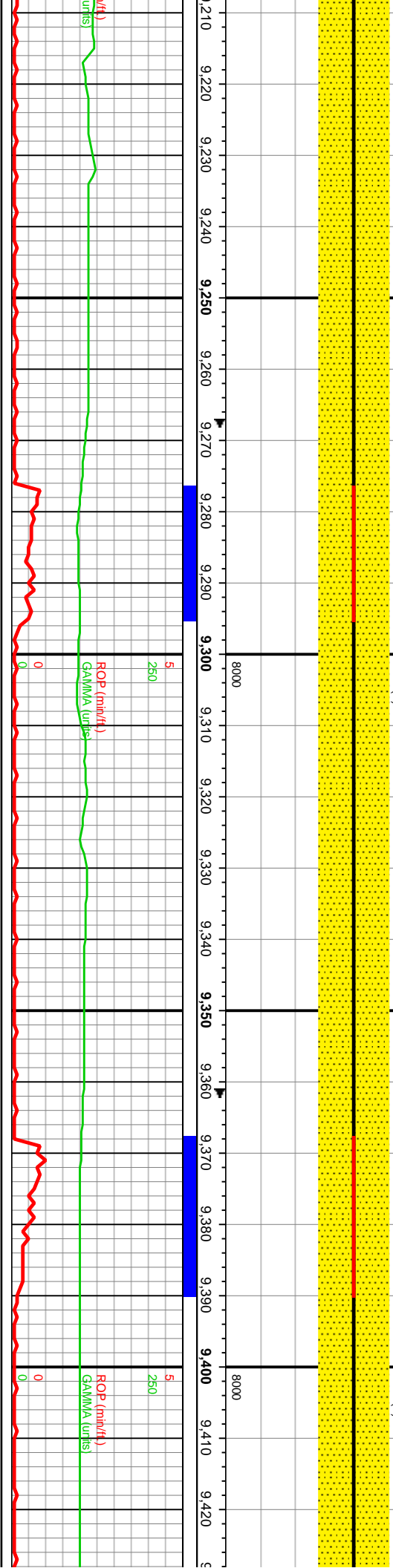
SD: PREDY LT BRN GY, SME LT GY, FRI - SL FRI,
OCCLY BRIT, TRNSL - TRNSP, MOT APPNC, TR
LT BRN RESD IN INTGR SPACE, QTZ ARENITE,
SB ANG - SB RND, MOD - W SRT, WK CAL CMT, V
TR GLAU, TR VF DISSM PYR.

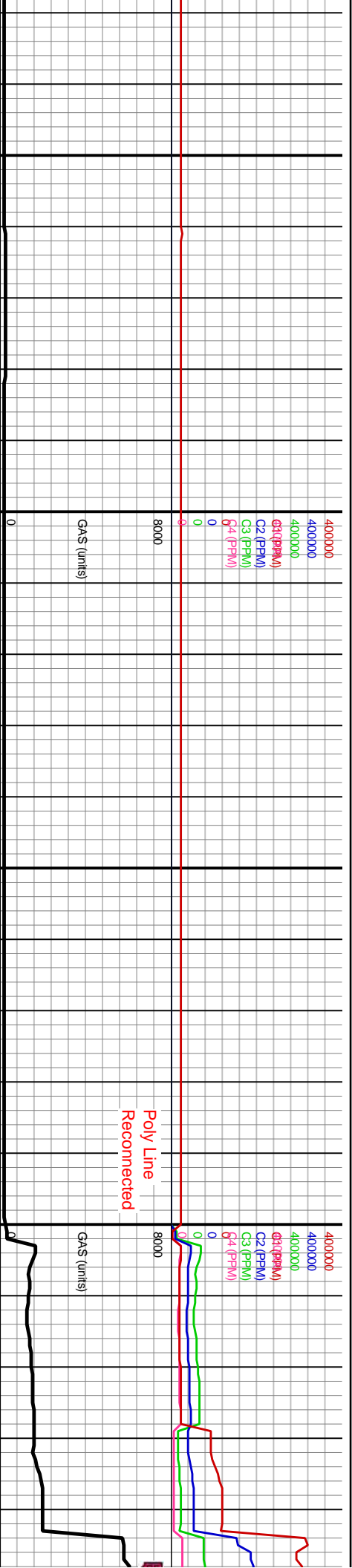


MD: 9,286'
Inclination: 90.1°
Azimuth: 270.1°
TVD: 7,268.3'

WOB: 17.2
RPM: 60
PP: 4302
SPM: 86

MD: 9,384'
Inclination: 91.7°
Azimuth: 269.8°
TVD: 7,266.7'



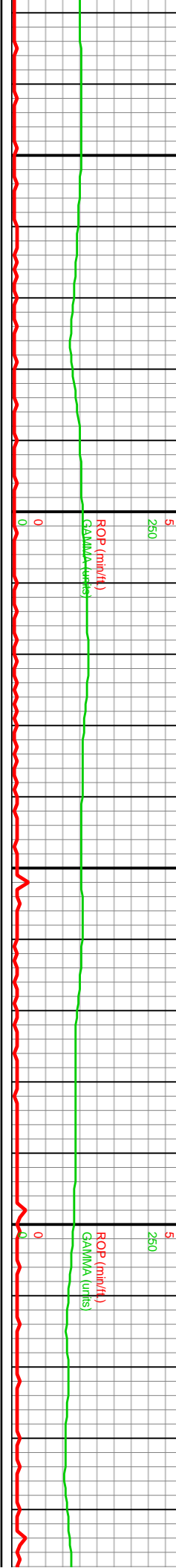
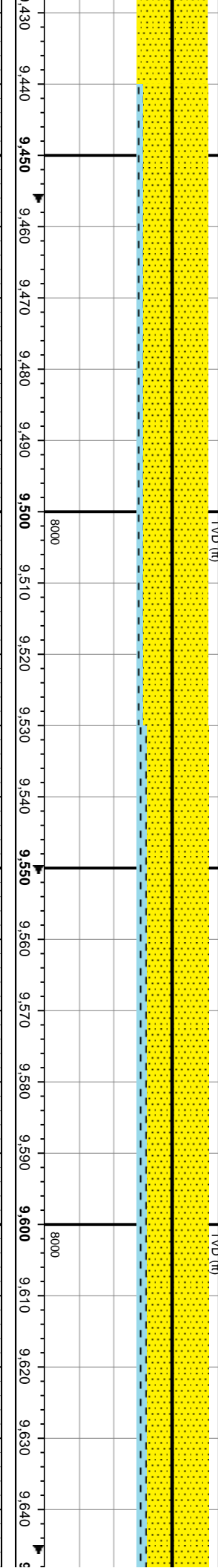


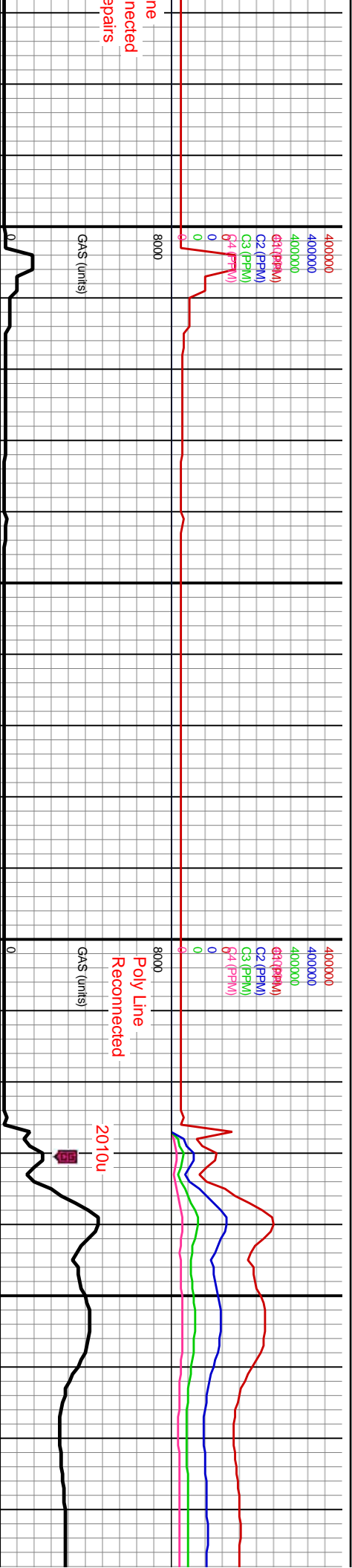
SD: PREDY LT BRN GY, SME LT GY, FRI - SL FRI, OCCLY BRIT, TRNSL - TRNSP, MOT APPNC, TR LT BRN RESD IN INTGR SPACE, QIZ ARENITE, SB ANG - SB RND, MOD - W RND, MOD - W SRT, MOD CAL CMT, V TR GLAU, TR VF DISSM PYR, CHK: DISSM PYR, CHK: OFF WH - TN, PLTY - SB PLTY, FRM - HD, ABNT SLT TO SD, MOD - STRONG HCL RXN.



MD: 9.476' Inclinaton: 91.3° Azimuth: 289.8° TVD: 7.264.1'

WOB: 21.8 RPM: 66 PP: 4749 SPM: 86

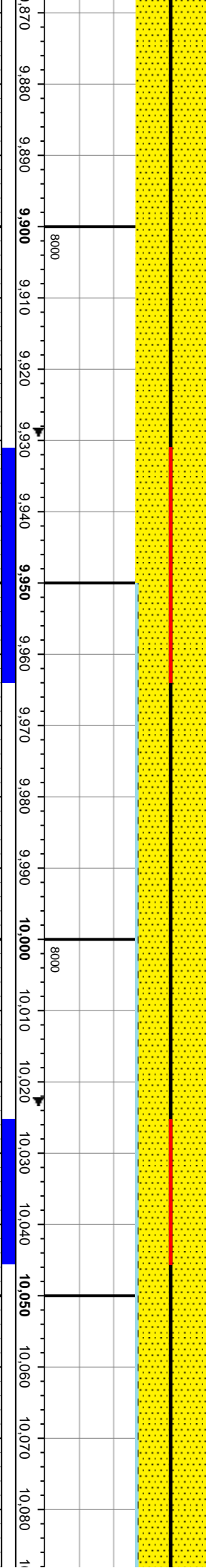


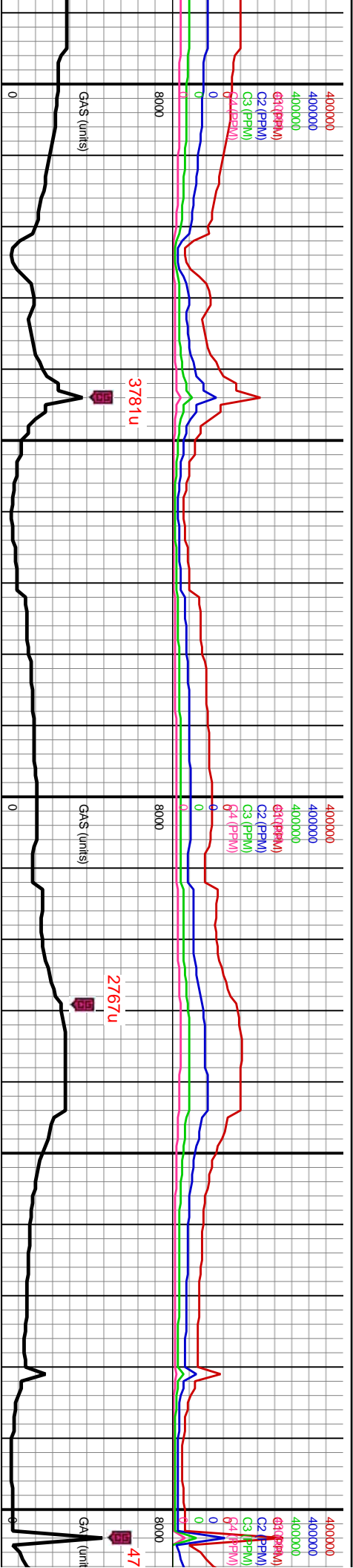


SD: LT BRN GY, SME LT GY, TRNSL - TRNSP, FRI - SL FRI, OCCLY BRIT, QTZ ARENITE, MOT APPNC, TR LT BRN RESD IN INTGR SPACE, SB ANG - SB RND, MOD - W SRT, MOD CAL CMT, TR GLAU, TR VF DISSM PYR. ABNT SLT TO SD, MOD - STRONG HCL RXN.



6000	WOB: 26.2 RPM: 60 PP: 4625 SPM: 86	6000	MUD IN: WT: 9.5 VIS: 35
MD: 9.95'	Inclination: 88.7° Azimuth: 267.7° TVD: 7.275.1'	MD: 10.04'	Inclination: 90.1° Azimuth: 269.5° TVD: 7.276.2'

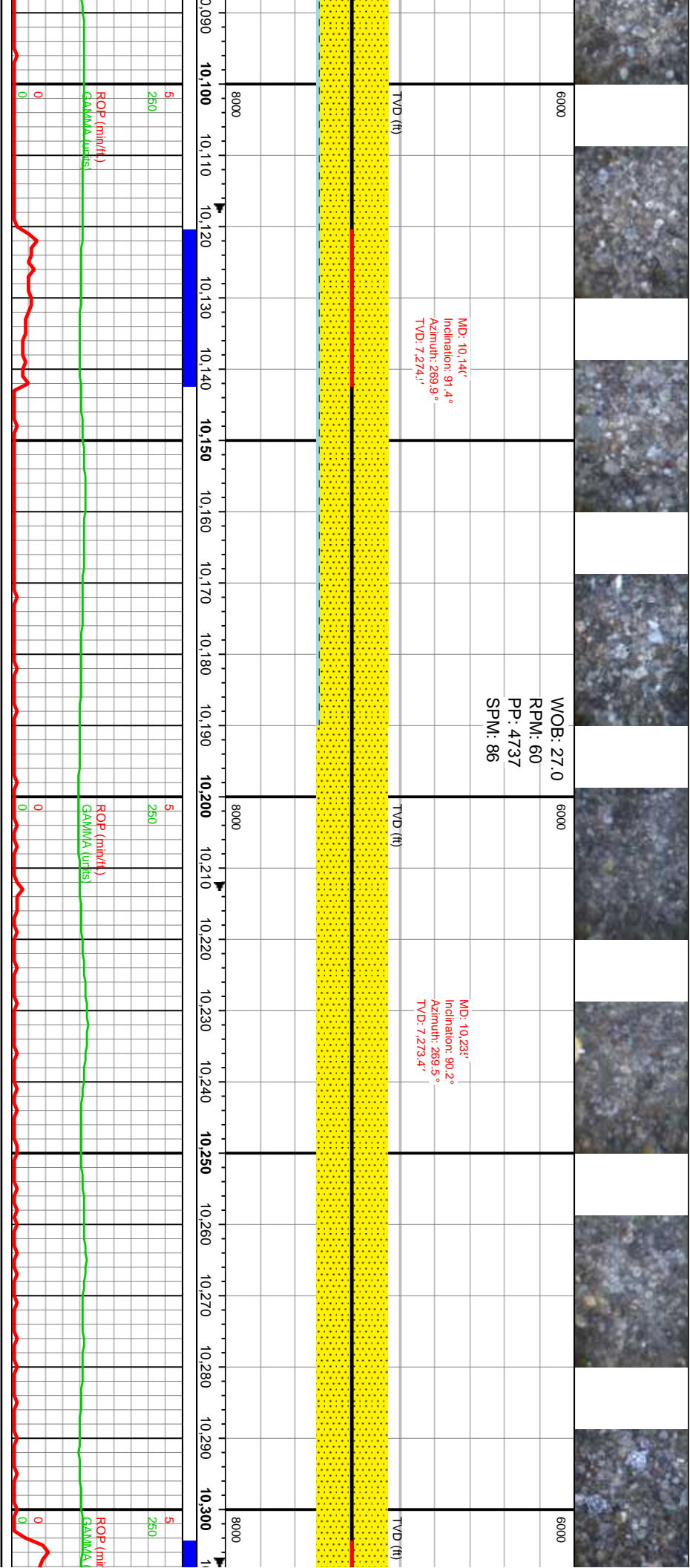


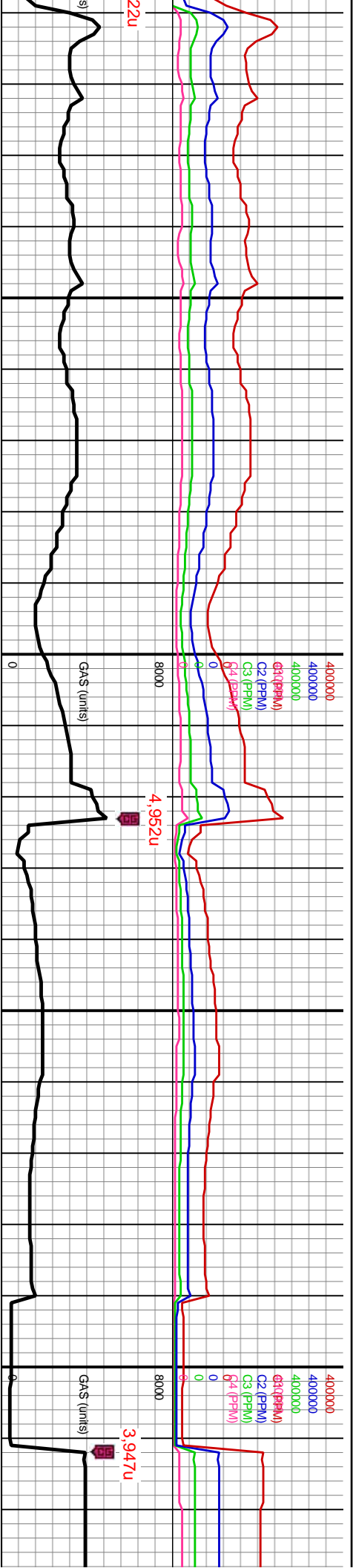


SD: LT BRN GY - LT GY, TRNSL - TRNSP, FRI - SL FRI, OCCLY BRIT, QITZ ARENITE, MOT APPNC, TR LT BRN RESD IN INTGR SPACE, SB ANG - SB RND, MOD - W SRT, MOD CAL CMT, TR VF DISSM PYR. TR CHK: OFF WH - TN, PLTY - SB PLTY, FRM - HD, ABNT SLT TO SD, MOD - STRONG HCL RXN.

SD: LT BRN GY - LT GY, TRNSL - TRNSP, FRI - SL FRI, OCCLY BRIT, QITZ ARENITE, MOT APPNC, TR LT BRN RESD IN INTGR SPACE, SB ANG - SB RND, MOD - W SRT, MOD CAL CMT, TR VF DISSM PYR.

SD: LT BRN GY - LT GY, TRNSL - TRNSP, FRI - SL FRI, OCCLY BRIT, QITZ ARENITE, MOT APPNC, TR LT BRN RESD IN INTGR SPACE, SB ANG - SB RND, MOD - W SRT, MOD CAL CMT, TR VF DISSM PYR.





SD: LT BRN GY - LT GY, TRNSL - TRNSP,
FRI - SL FRI, OCCLY BRIT, QTZ ARENITE,
MOT APPNC, TR LT BRN RESD IN INTGR
SPACE, SB ANG - SB RND, MOD - W SRT,
MOD CAL CMT, TR VF DISSM PYR.

SD: PREDY LT BRN GY, SME LT GY, FRI - SL
FRI, OCCLY BRIT, TRNSL - TRNSP, MOT
APPNC, TR LT BRN RESD IN INTGR
SPACE, QTZ ARENITE, SB ANG - SB RND,
MOD - W SRT, WK CAL CMT, V TR GLAU, TR
VF DISSM PYR.

SD: PREDY LT BRN GY, SME LT GY, FRI
- SL FRI, OCCLY BRIT, TRNSL - TRNSP,
MOT APPNC, TR LT BRN RESD IN
INTGR SPACE, QTZ ARENITE, SB ANG -
SB RND, MOD - W SRT, WK CAL CMT, V
TR GLAU, TR VF DISSM PYR.

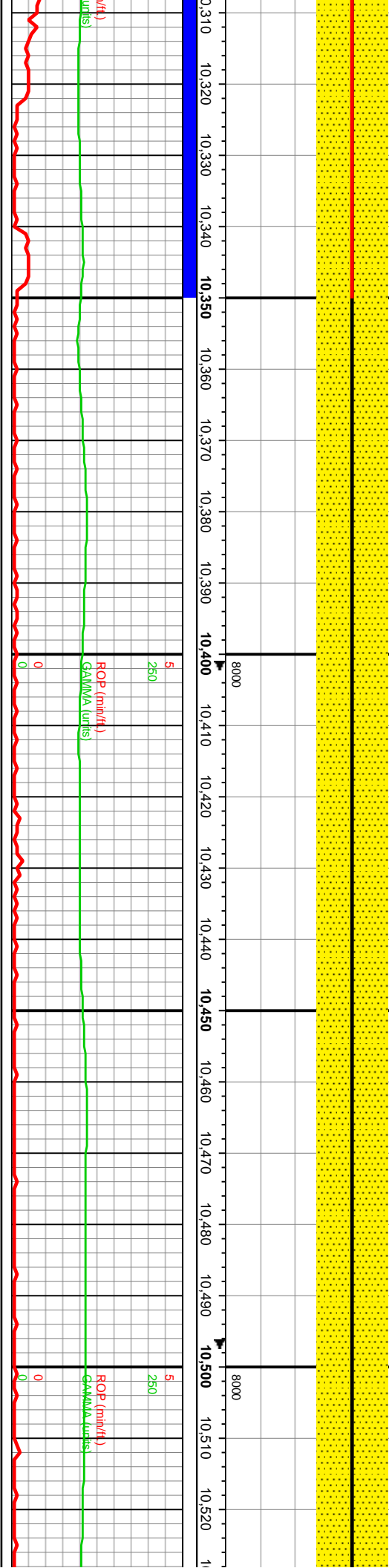
SD: PREDY LT BRN GY, SME LT
OCCLY BRIT, TRNSL - TRNSP, LT
LT BRN RESD IN INTGR SPACE
SB ANG - SB RND, MOD - W SR
TR GLAU, TR VF DISSM PYR.

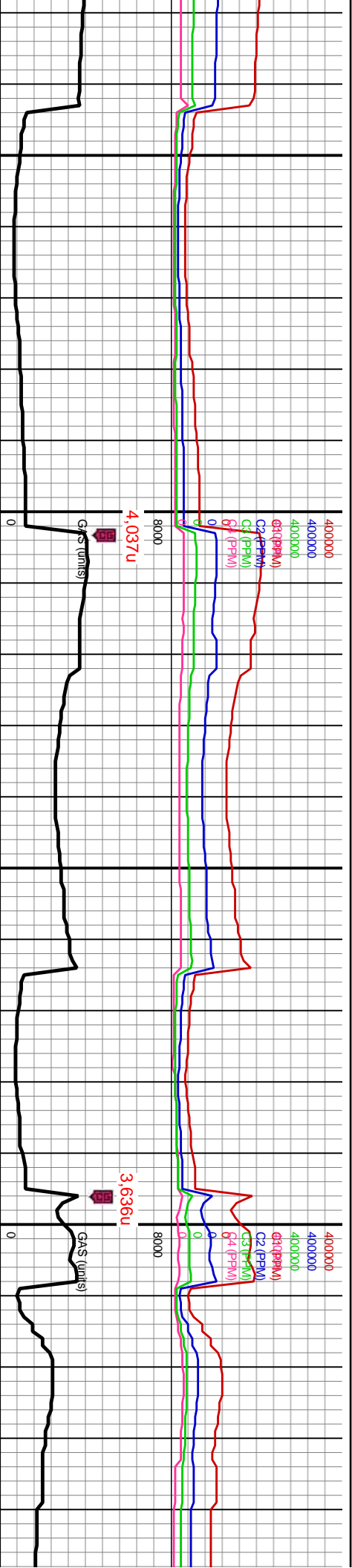


WOB: 28.1
RPM: 60
PP: 4718
SPM: 86

MD: 10.42°
Inclination: 90.4°
Azimuth: 268.9°
TVD: 7.272.3°

MD: 10.51°
Inclination: 89.5°
Azimuth: 268.8°
TVD: 7.272.3°

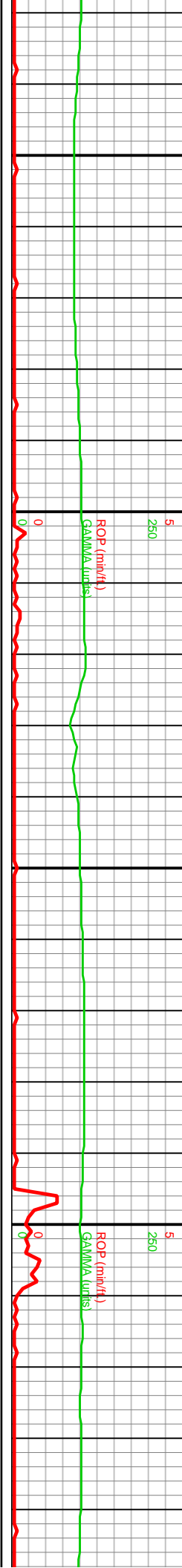
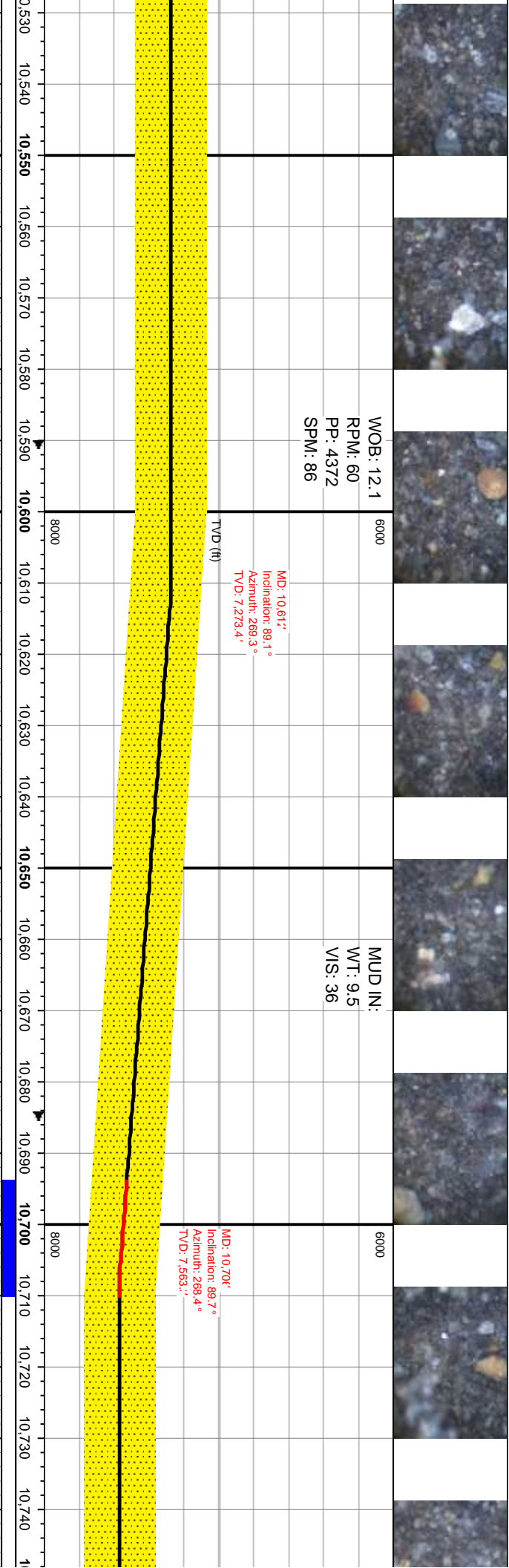


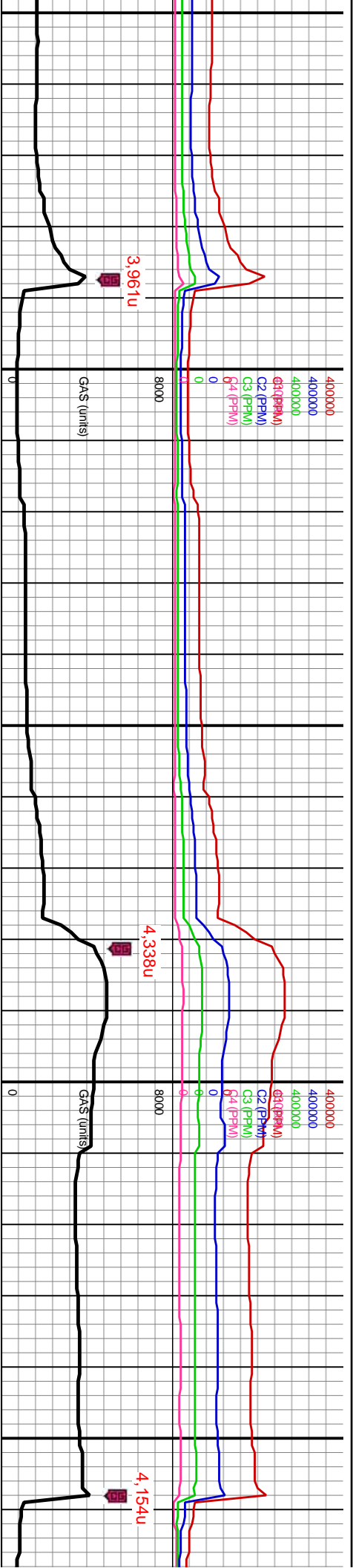


GY, FRI - SL FRI, MOT APPNC, TR, QTZ ARENITE, V TR GLAU, TR VF DISSM PYR.

SD: PREDY LT BRN GY, SME LT GY, FRI - SL FRI, OCCLY BRIT, TRNSL - TRNSP, MOT APPNC, TR LT BRN RESD IN INTGR SPACE, QTZ ARENITE, SB ANG - SB RND, MOD - W SRT, WK CAL CMT, V TR GLAU, TR VF DISSM PYR.

SD: PREDY LT BRN GY, SME LT GY, FRI - SL FRI, OCCLY BRIT, TRNSL - TRNSP, MOT APPNC, TR LT BRN RESD IN INTGR SPACE, QTZ ARENITE, SB ANG - SB RND, MOD - W SRT, WK CAL CMT, V TR GLAU, TR VF DISSM PYR.

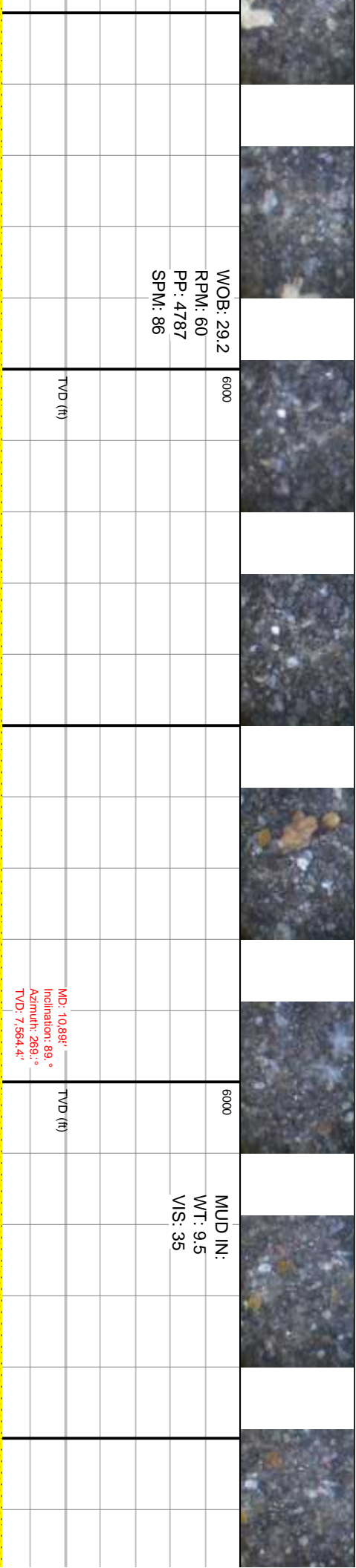




SD: PREDY LT BRN GY, SME LT GY, FRI - SL
FRI, OCCLY BRIT, TRNSL - TRNSP, MOT
APPNC, TR LT BRN RESD IN INTGR SPACE,
QIZ ARENITE, SB ANG - SB RND, MOD - W
SRT, WK CAL CMT, V TR GLAU, TR VF DISSM
PYR.

SD: PREDY LT BRN GY, SME LT GY, FRI - SL FRI,
OCCLY BRIT, TRNSL - TRNSP, MOT APPNC, TR LT
BRN RESD IN INTGR SPACE, QIZ ARENITE, SB
ANG - SB RND, MOD - W SRT, WK CAL CMT, V TR
GLAU, TR VF DISSM PYR.

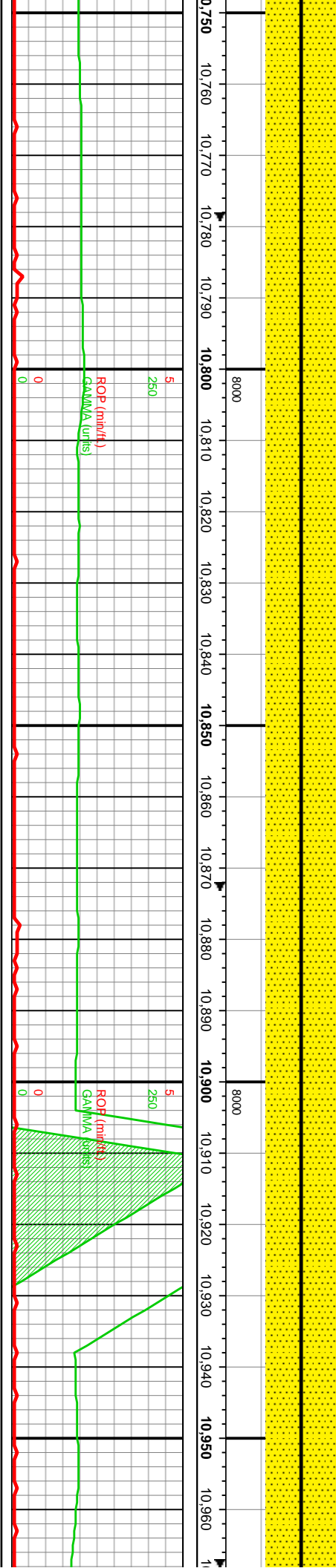
SD: PREDY LT BRN GY, SME LT GY, FRI - SL FRI,
OCCLY BRIT, TRNSL - TRNSP, MOT APPNC, TR
LT BRN RESD IN INTGR SPACE, QIZ ARENITE,
SB ANG - SB RND, MOD - W SRT, WK CAL CMT,
V TR GLAU, TR VF DISSM PYR.

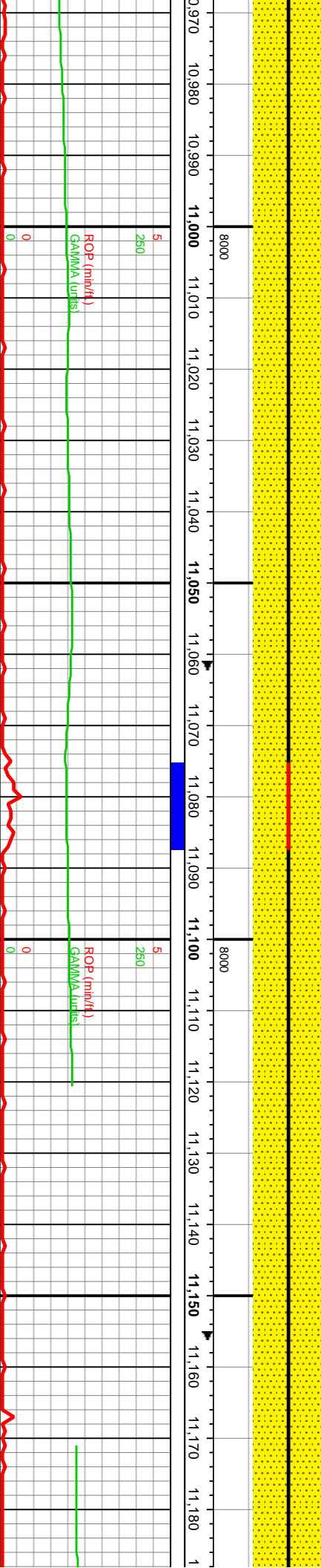
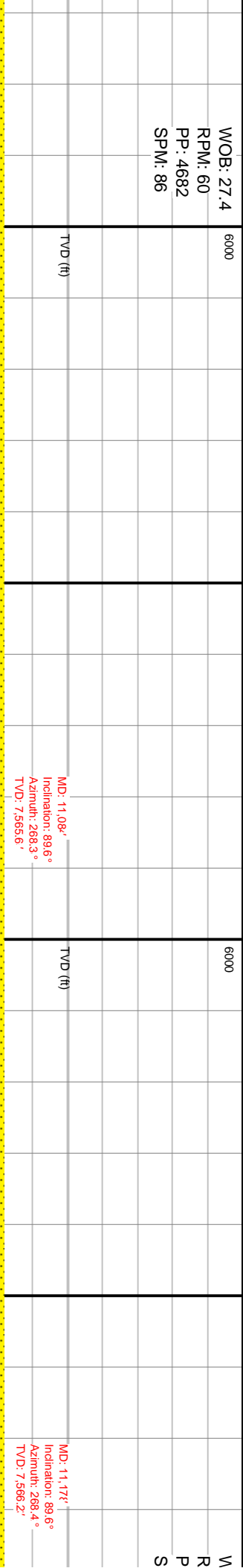
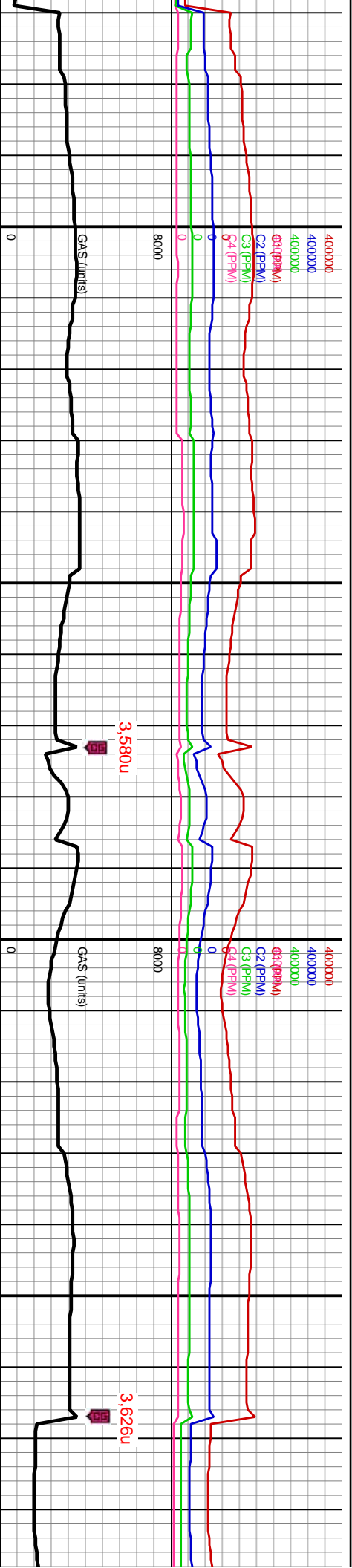


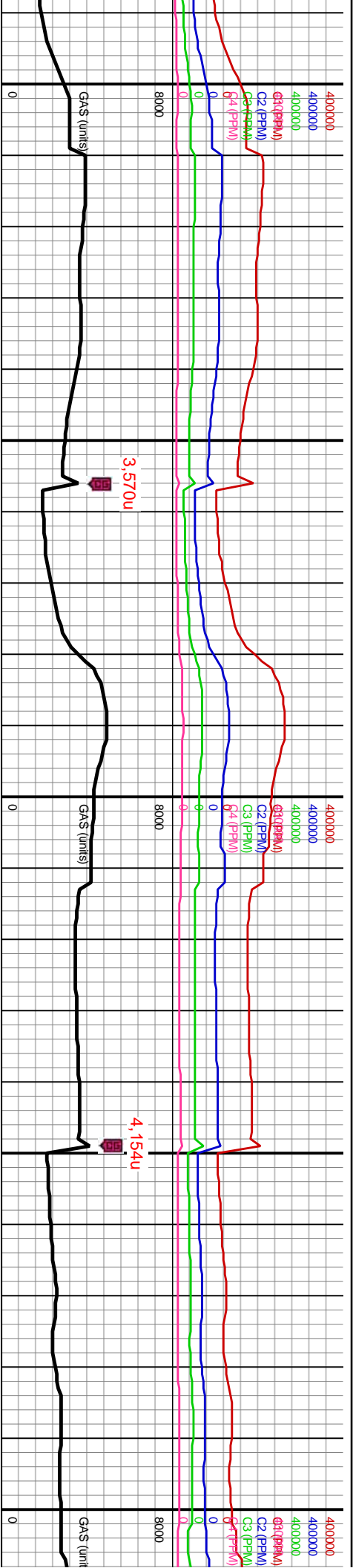
WOB: 29.2
RPM: 60
PP: 4787
SPM: 86

MD: 10.89°
Inclination: 89.°
Azimuth: 269.°
TVD: 7.564.4°

MUD IN:
WT: 9.5
VIS: 35





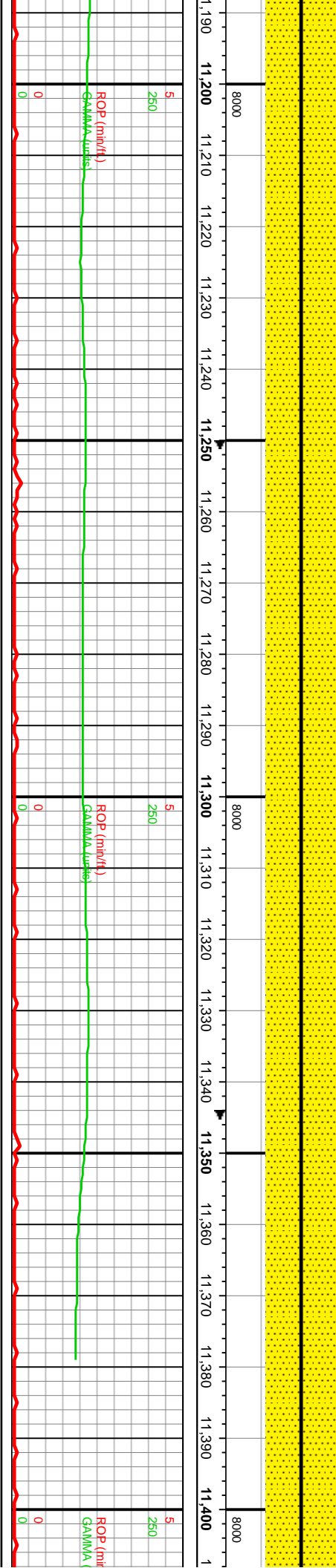
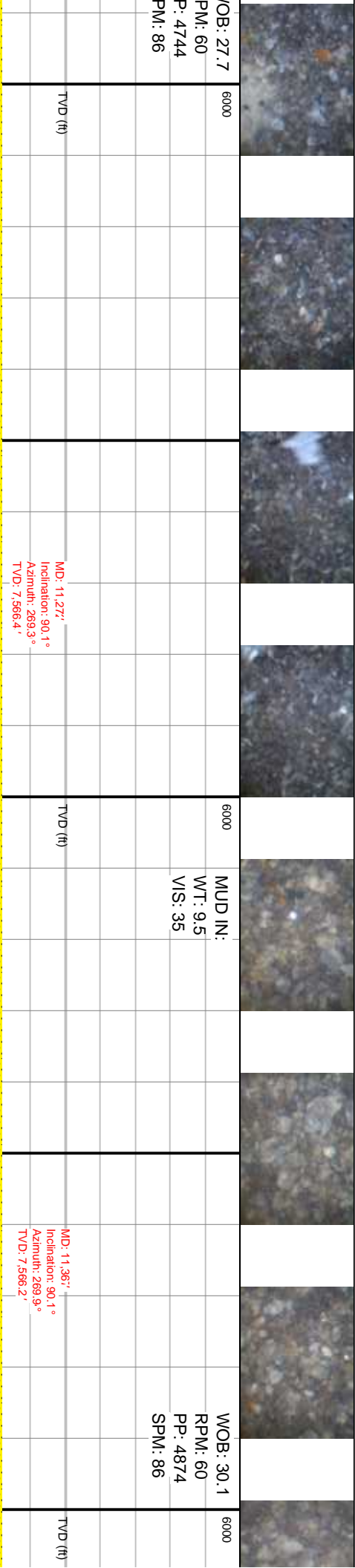


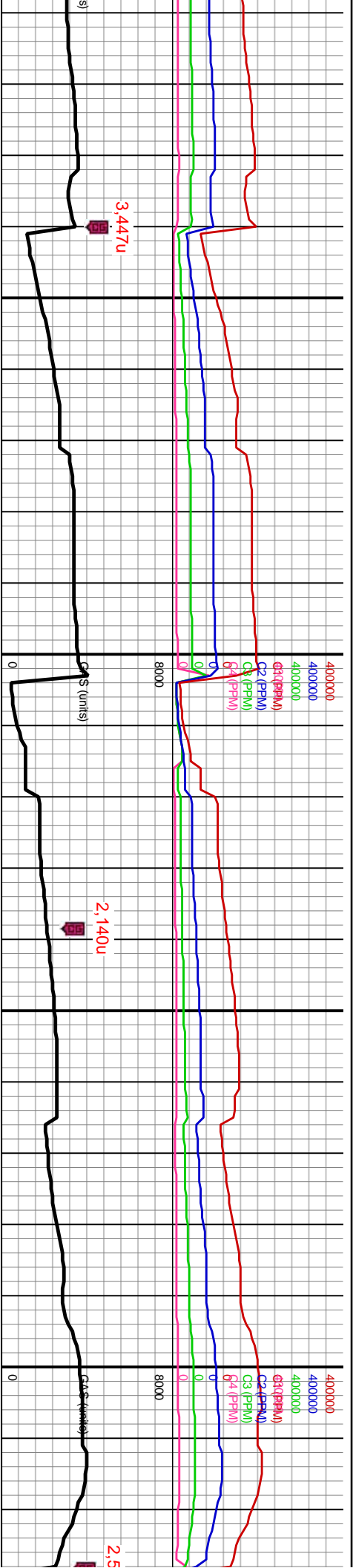
GY, SME LT GY, FRI - SL FRI,
- TRNSP, MOT APPNC, TR
GR SPACE, QTZ ARENITE,
MOD - W SRT, WK CAL CMT, V
SMP PYR.

SD: PREDY LT BRN GY, SME LT GY, FRI -
SL FRI, OCCLY BRIT, TRNSL - TRNSP,
MOT APPNC, TR LT BRN RESD IN INTGR
SPACE, QTZ ARENITE, SB ANG - SB RND,
MOD - W SRT, WK CAL CMT, V TR GLAU,
TR VF DISSM PYR.

SD: PREDY LT BRN GY, SME LT GY, FRI - SL FRI,
OCCLY BRIT, TRNSL - TRNSP, MOT APPNC, TR
LT BRN RESD IN INTGR SPACE, QTZ ARENITE,
SB ANG - SB RND, MOD - W SRT, WK CAL CMT,
V TR GLAU, TR VF DISSM PYR.

SD: PREDY LT BRN GY, SME LT GY, FRI - SL FRI,
FRI, OCCLY BRIT, TRNSL - TR
APPNC, TR LT BRN RESD IN INTGR
SPACE, QTZ ARENITE, SB ANG - SB RND,
MOD - W SRT, WK CAL CMT, V TR GLAU, TR
VF DISSM PYR.

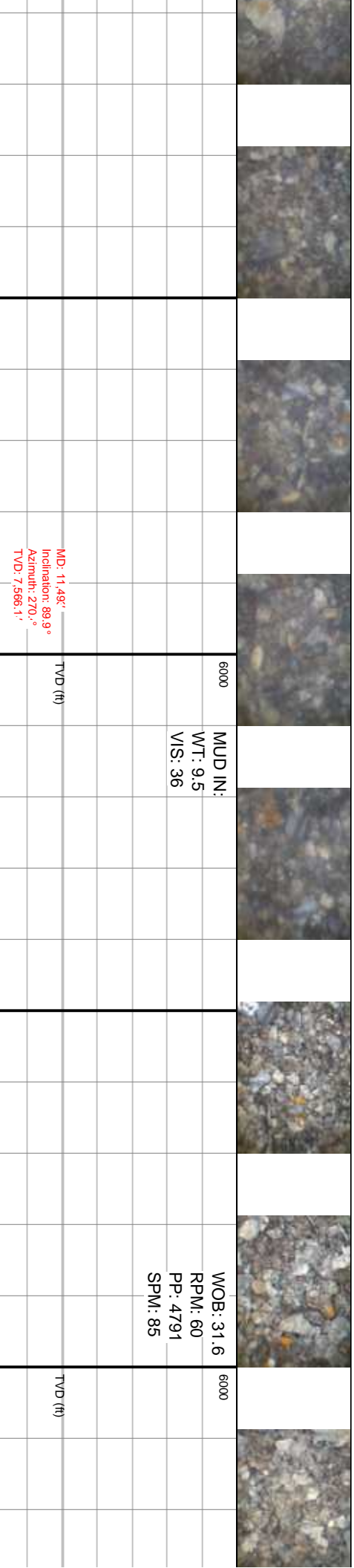




SD: PREDY LT BRN GY, SME LT GY, FRI - SL
FRI, OCCLY BRIT, TRNSL - TRNSP, MOT
APPNC, TR LT BRN RESD IN INTGR SPACE,
QIZ ARENITE, SB ANG - SB RND, MOD - W SRT,
WK CAL CMT, V TR GLAU, TR VF DISSM PYR.

SD: PREDY LT BRN GY, SME LT GY, FRI - SL
FRI, OCCLY BRIT, TRNSL - TRNSP, MOT
APPNC, TR LT BRN RESD IN INTGR SPACE,
QIZ ARENITE, SB ANG - SB RND, MOD - W SRT,
WK CAL CMT, V TR GLAU, TR VF DISSM PYR.

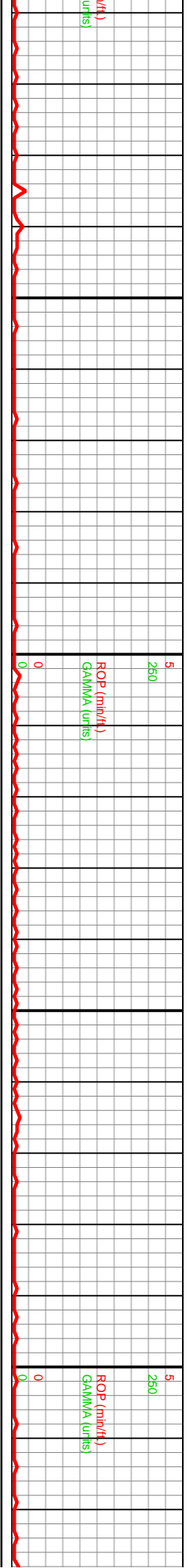
SD: PREDY LT BRN GY, SME LT GY, FRI - SL
FRI, OCCLY BRIT, TRNSL - TRNSP, MOT
APPNC, TR LT BRN RESD IN INTGR SPACE,
QIZ ARENITE, SB ANG - SB RND, MOD - W SRT,
WK CAL CMT, V TR GLAU, TR VF DISSM PYR.

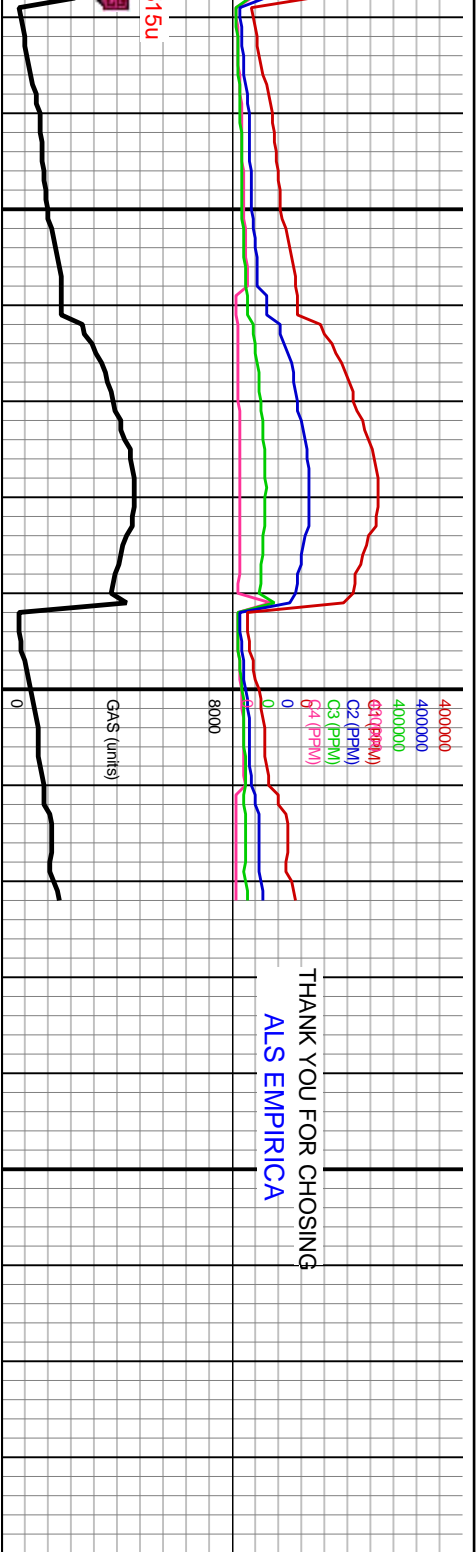


MD: 11.48°
Inclination: 89.9°
Azimuth: 270.°
TVD: 7,566.1'

MUD IN:
WT: 9.5
VIS: 36

WOB: 31.6
RPM: 60
PP: 4791
SPM: 85





SD: PREDY LT BRN GY, SME LT GY, FRI - SL FRI, OCCLY
BRIT, TRNSL - TRNSP, MOT APPNC, TR LT BRN RESD IN
INTGR SPACE, QIZ ARENITE, SB ANG - SB RND, MOD -
W SRT, WK CAL CMT, V TR GLAU, TR VF DISSM PYR.
R.

TD at 11,722' MD at
10:43 on 12/20/2014

