



Empirica

Scale: 5" / 100'
Measured Depth Log

Well Name Windsor_LV_C_14-H_Horizontal

Location SEC.14-T6N-R67W

State Colorado

County Weld

Country USA

Rig Number H&P 319

API Number 051233816700

AFE # 14-754

Region DJ Basin

Field Wattenberg

Spud Date 12/8/2014

Drilling Completed 12/13/2014

Ground Elevation 4845'

K.B. Elevation 4895'

Logged Interval 5000' To 11478'

Total Depth 11478'

Formation Niobrara C

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

Other

Logging Start Date 12/10/2014

Zone Color Coding

 Oil
 Note
 Error

 Condensate
 Core
 Water

 Gas
 Pressure
 Seal

Rock Types

UNKNOWN	CHERT	SILTSTONE	IGNEOUS
ANHYDRITE	COAL	SANDSTONE	METAMORPHIC
GYPSUM	MARLSTONE	CONGLOMERATE	CEMENT
SALT	CHALK	BRECCIA	SILTY SH
SIDERITE or LIMONITE	SHALE	TILL	SHY SS
LIMESTONE	SHALE GRAY	BENTONITE	
DOLOMITE	SHALE COLORED	TUFF	

Accessories

Fossils	F FOSSIL	ARGILLACEOUS	GLAUCONITE
GASTROPOD	ARGILLITE GRAIN	GYPSIFEROUS	
OOLITE	BENTONITE	HEAVY MINERAL	
OSTRACOD	BITUMENOUS SUBSTANCE	KAOLIN	
BELEMNITE	BRECCIA FRAGMENTS	MARLSTONE	
BIOCLASTIC	CALCAREOUS	MINERAL CRYSTALS	
BRACHIOPOD	PISOLUTE	NODULES	
BRYOZOA	PLANT REMAINS	PHOSPHATE PELLETS	
CEPHALOPOD	PLANT SPORES	CHTDK	
CORAL	SCAPHOPOD	CHTLT	
CRINOID	STROMATOPOROID	COAL - THIN BEDS	
ECHINOID		DOLOMITIC	
FISH		FELDSPAR	
FORAMINIFERA		FERRUGINOUS PELLET	
		FERRUGINOUS	
		SILTY	
		TUFFACEOUS	
			SILTSTONE STRINGER

Stringer

Oil Show

ORGANIC	FAULT
PINPOINT	FORECAST

DEAD

VUGGY

GAS SHOW

EVEN

MINDEPTH

QUESTIONABLE

Engineering

NORMAL

SPOTTED STAINING

BIT

OIL SHOW

CASING

OVERTURE

Porosity

CONNECTION (LEFT)

REVERSE

E EARTHY

CONNECTION (RIGHT)

SIDEWALL

FENESTRAL

CONNECTION GAS

SIDEWALL

F FRACTURE

CG

SLIDE

INTERCRYSTALLINE

CORE - LOST

SURVEY

INTEROOLITIC

CORE - RECOVERED

TRIP GAS

MOLDIC

DST INTERVAL

WIRELINE

Other S

Symbols

 WIRELINE TESTED - RT **FX** FINELYXLN

 MINDEPTH **BS** GRAINSTONE

L LITHOGRAPHIC

MX MICROXLN

Rounding

A ANGULAR **MS** MUDSTONE

R ROUNDED **PS** PACKSTONE

S SUBANG **WS** WACKESTONE

F SUBRND

Sorting

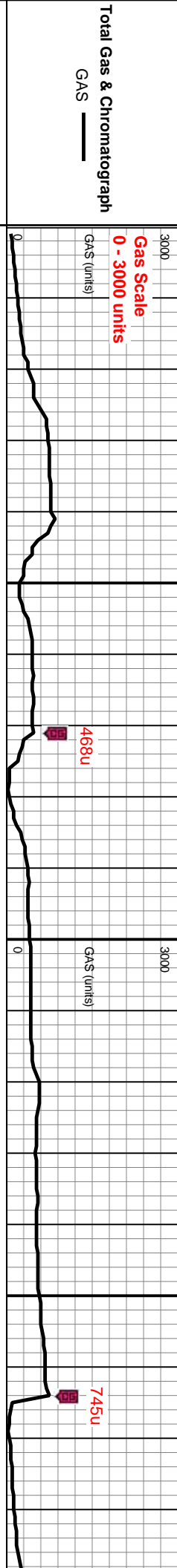
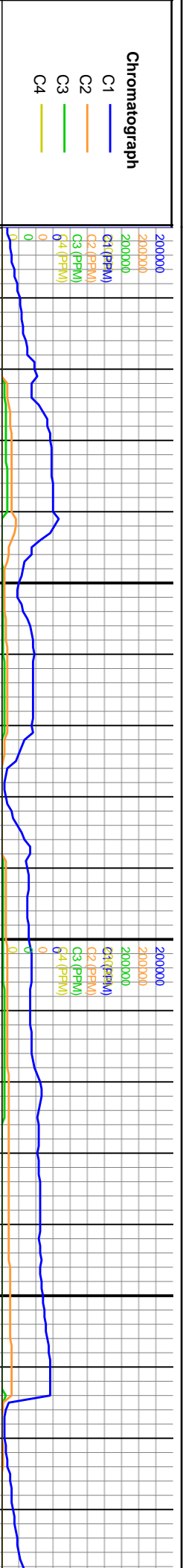
Textures
M MODERATE

P POOR

W WELL

CX CRYPTOXLN

E EARTHY

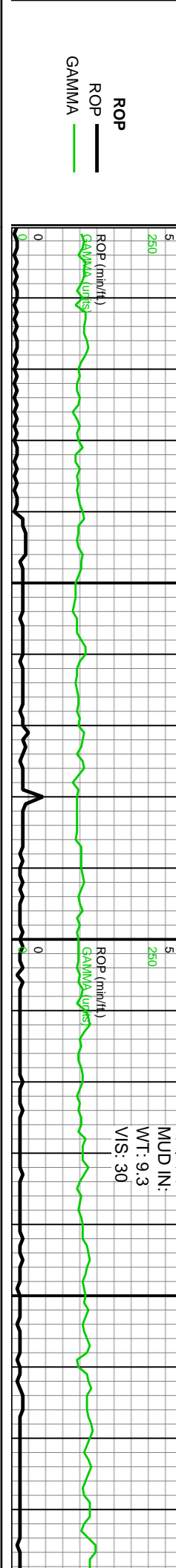
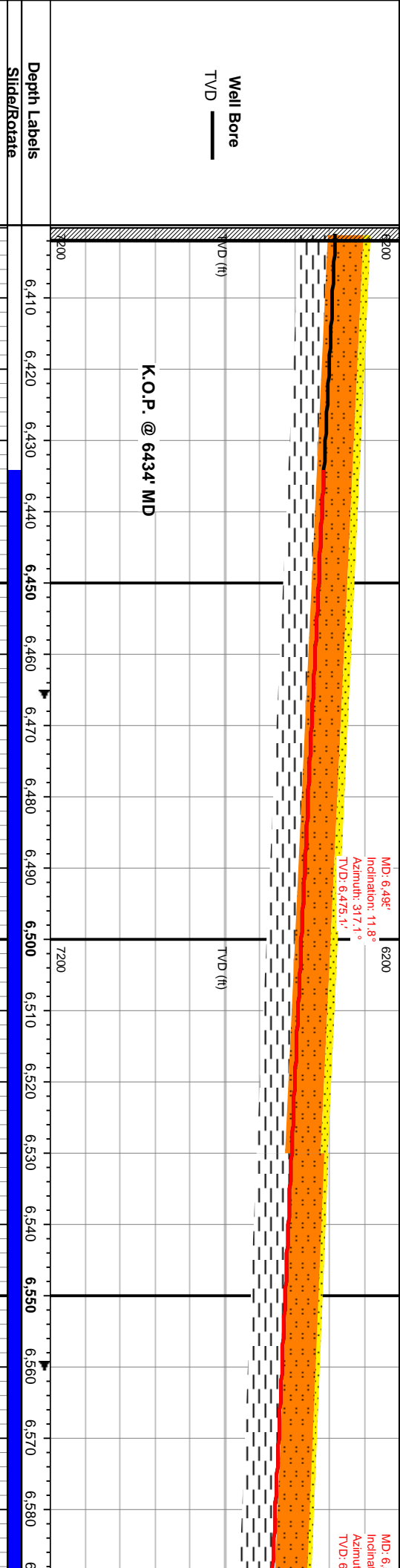


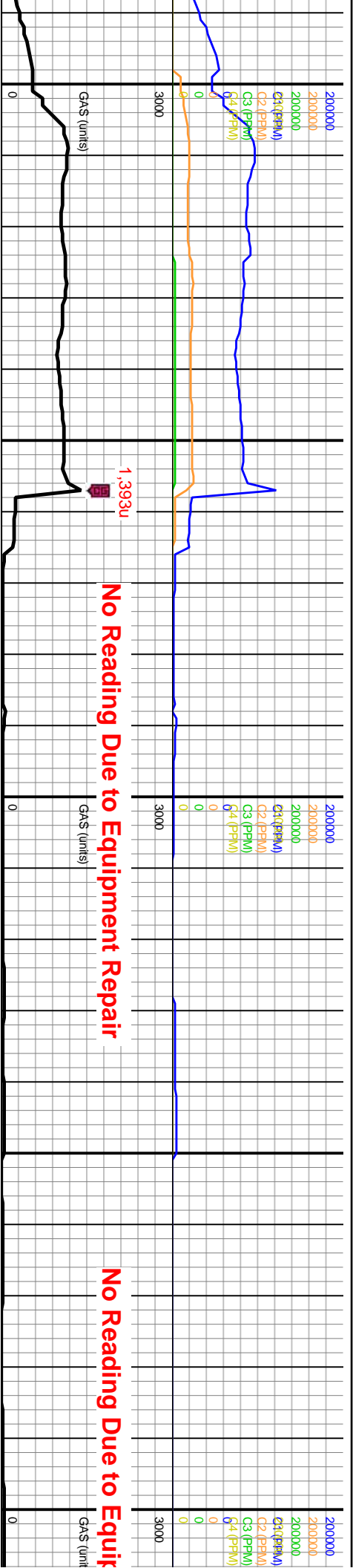
Lithology Descriptions

SLTST: GY - DK GY, PLTY - SB BLKY, MOD FRM - HRD, SLTY TXT, SL CALC. SH: DK GY - GY, MOD FRM - FRM, OCCLY BRIT, PREDY SB PLTY, F LAM. SD: LT GY, RR WH, PRED FRM, BRIT, VF - F GR, SB ANG - SB RND, P - MOD SRTD, ARG MTX, TR GLAU, SL CALC, TR FY DISSM PYR.

SLTST: GY - DK GY, PLTY - SB BLKY, MOD FRM - HRD, SLTY TXT, SL CALC. SH: DK GY - GY, MOD FRM - FRM, OCCLY BRIT, PREDY SB PLTY, F LAM. SD: LT GY, RR WH, PRED FRM, BRIT, VF - F GR, SB ANG - SB RND, P - MOD SRTD, ARG MTX, TR GLAU, SL CALC, TR FY DISSM PYR.

SLTST: GY - DK GY, PLTY - SB BLKY, MOD FRM - HRD, SLTY TXT, SL CALC. SH: DK GY - GY, MOD FRM - FRM, OCCLY BRIT, PREDY SB PLTY, F LAM. SD: LT GY, RR WH, PRED FRM, BRIT, VF - F GR, SB ANG - SB RND, P - MOD SRTD, ARG MTX, TR GLAU, SL CALC, TR FY DISSM PYR.





GY, PLTY - SB BLKY, MOD FRM - SLTST: GY - DK GY, PLTY - SB BLKY, MOD FRM - HRD, SLTY TXT, SL CALC. SH: DK GY - GY, MOD CLY BRIT, PREDY SB PLTY, SME SB FRM - FRM, OCCLY BRIT, PREDY SB PLTY, SME SB BLKY, F LAM, ABNT SLT. SD: LT GY, PRED FRM, BRIT, VF - F GR, SB ANG - SB RND, P - MOD SRTD, ARG MTX, TR GLAU, SL CALC, TR FY DISSM PYR.

SLTST: GY - DK GY, PLTY - SB BLKY, MOD FRM - HRD, SLTY TXT, SL CALC. SH: DK GY - GY, MOD FRM - FRM, OCCLY BRIT, PREDY PLTY - SB PLTY, SME SB BLKY, F LAM, ABNT SLT. RR SD: LT GY, PRED FRM, BRIT, VF - F GR, SB ANG - SB RND, P - MOD SRTD, ARG MTX, TR GLAU, SL CALC, TR FY DISSM PYR.

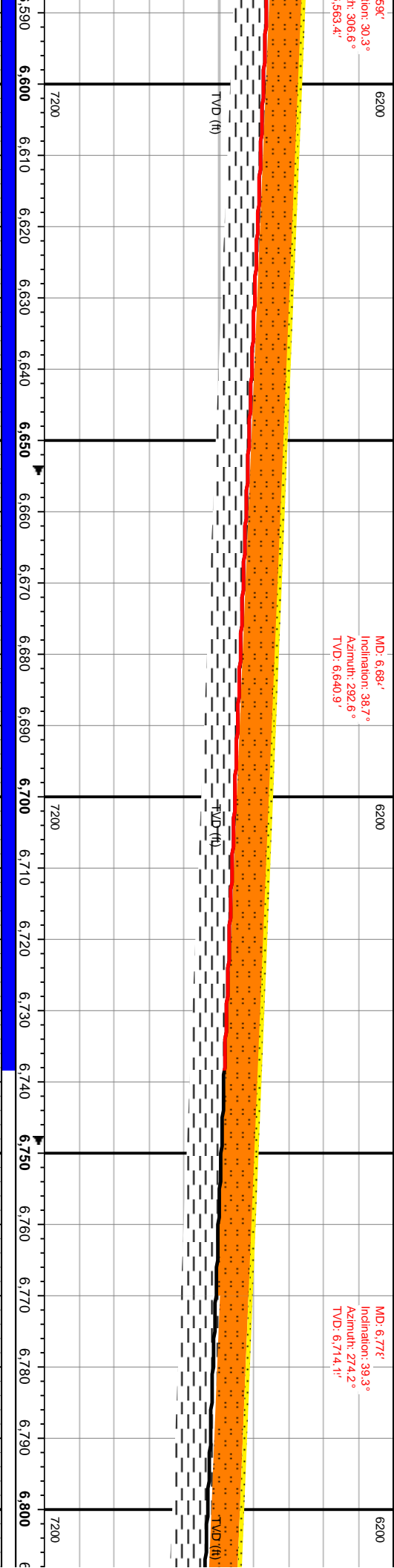
SLTST: GY - DK GY, OCC BLKY, MOD FRM - HRD, SLTY TXT, SL CALC. SH: DK GY - GY, MOD PLTY - SB PLTY, MOD FRM - LT GY, PRED FRM, BRIT, RND, P - MOD SRTD, ARG MTX, TR GLAU, SL CALC, TR FY DISSM PYR.



MD: 6.594' Inclination: 30.3° Azimuth: 292.6° TVD: 6,563.4'

MD: 6.684' Inclination: 38.7° Azimuth: 292.6° TVD: 6,640.9'

MD: 6.776' Inclination: 39.3° Azimuth: 274.2° TVD: 6,714.1'

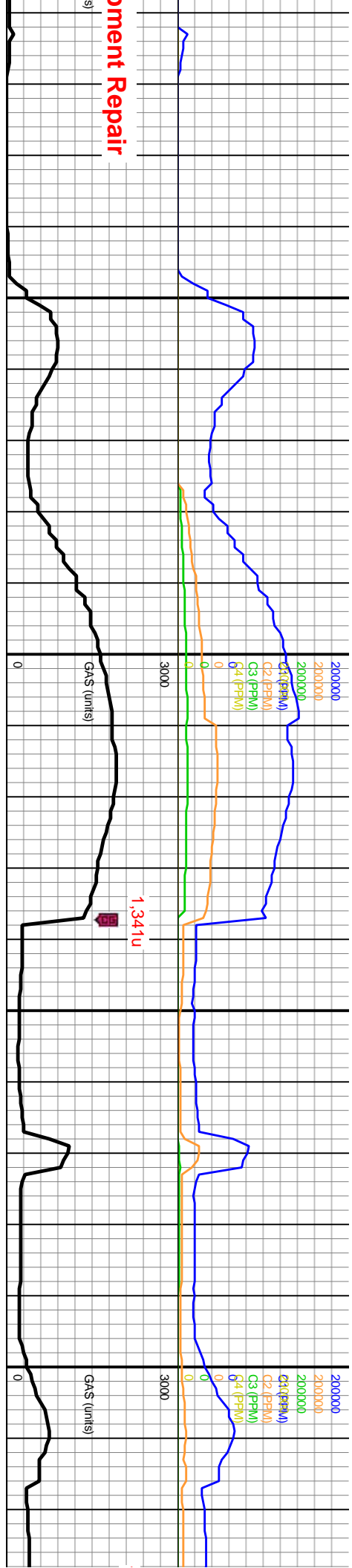


WOB: 36.1
RPM: 0
PP: 3963
ROP (m/hr) SPM: 149
GAMMA (units)

WOB: 36.1
RPM: 0
PP: 3963
ROP (m/hr) SPM: 149
GAMMA (units)

WOB: 36.1
RPM: 0
PP: 3963
ROP (m/hr) SPM: 149
GAMMA (units)

Document Repair



SLTST: GY - DK GY, OCCLY LT GY, PLTY - SB BLKY, MOD FRM - HRD, SLTY TXT, WK CALC. SH: DK GY - GY, MOD FRM - FRM, OCCLY BRIT, PREDY PLTY - SB PLTY, MOD FISS, F LAM, ABNT SLT. SD: LT GY, PRED FRM, BRIT, VF - F GR, SB ANG - SB RND, P - MOD SRD, ARG MTX, TR GLAU, SL CALC. TR FY DISSM PYR.

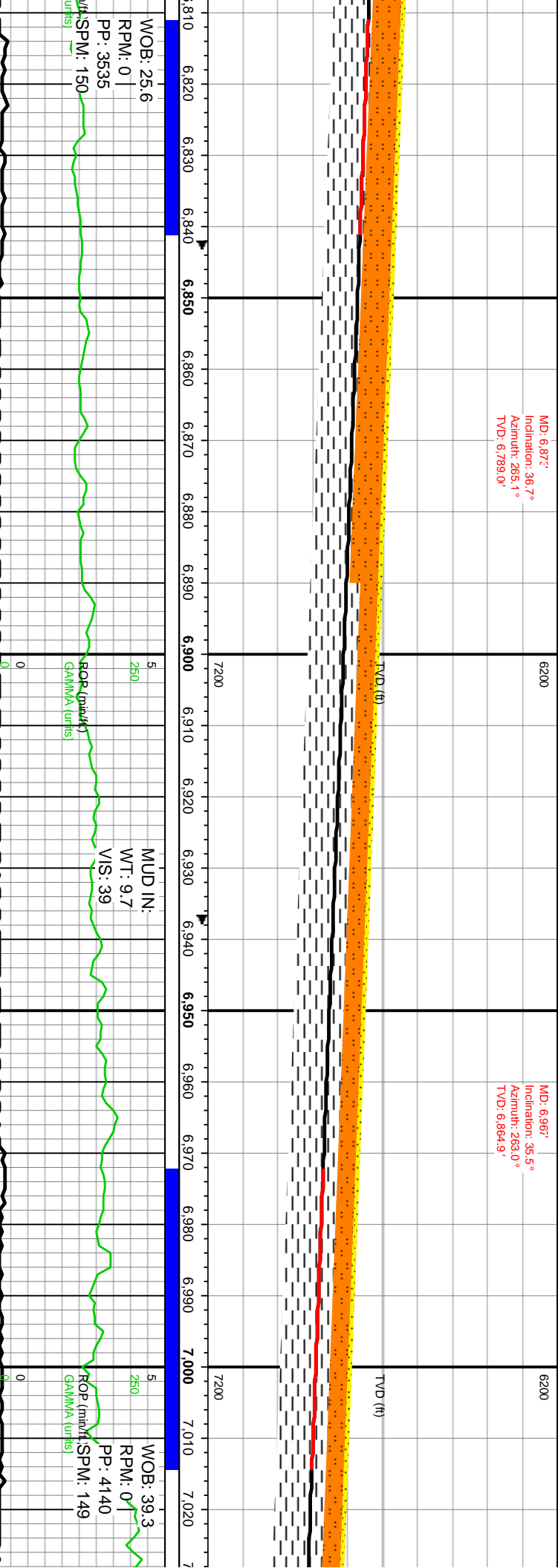
SLTST: DK GY - GY, PLTY - SB BLKY, MOD FRM - HRD, SLTY TXT. SH: DK GY - DK BRN GY, MOD FRM - FRM, OCCLY BRIT, PREDY PLTY - SB PLTY, MOD FISS, F LAM, ABNT SLT. RR SD: LT GY, PRED FRM, BRIT, VF - F GR, SB ANG - SB RND, P - MOD SRD, ARG MTX, TR GLAU. TR FY DISSM PYR.

SLTST: DK GY - GY, PLTY - SB BL HRD, SLTY TXT. SH: DK GY - DK FRM - FRM, OCCLY BRIT, PREDY MOD FISS, F LAM, ABNT SLT. RR FRM, BRIT, VF - F GR, SB ANG - SRD, ARG MTX, TR GLAU. TR F



MD: 6.872'
Inclination: 36.7°
Azimuth: 265.1°
TVD: 6.799.0'

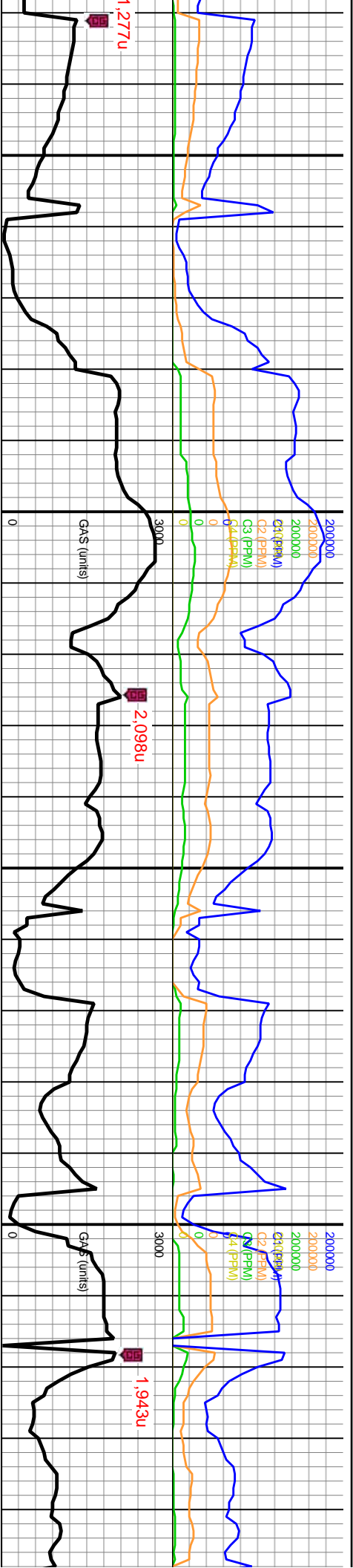
MD: 6.967'
Inclination: 35.5°
Azimuth: 263.0°
TVD: 6.864.9'



WOB: 25.6
RPM: 0
PP: 3535
SPM: 150
WOB: 39.3
RPM: 0
PP: 4140
SPM: 149

MD: 6.872'
Inclination: 36.7°
Azimuth: 265.1°
TVD: 6.799.0'

MD: 6.967'
Inclination: 35.5°
Azimuth: 263.0°
TVD: 6.864.9'



CHK: LT GY - GY, SB BLKY - SB PLTY, SFT - FRM, F LAM, MICROXLN, STRONGLY CALC. SLTST: GY - DK GY, SB PLTY, MOD FRM, SLTY TXT. SH: DK GY - DK BRN GY, MOD FRM, OCCLY BRIT, PREDY PLTY - SB PLTY, F LAM. RR SD: LT GY, PRED FRM, BRIT, VF - F GR, SB ANG - SB RND, P - MOD SRTD, TR GLAU. TR FY DISSM PYR.

MARL: MED-DK GY, OCCLY BRN-GY, MOD FRM - SL HRD, OCCLY BRIT, SB PLTY, SME SB BLKY, FY LAM, RAPID HCL RXN. CHK: GY BRN-DK GY, MOD FRM-FRM, PLTY - SB BLKY, RAPID HCL RXN. SH: MED - DK GY, MOD FRM, PLTY - SB PLTY, SL CALC. RR SLTST: GY, SB BLKY, FRM - SL HRD, VF GR. TR DISS VF PYR.

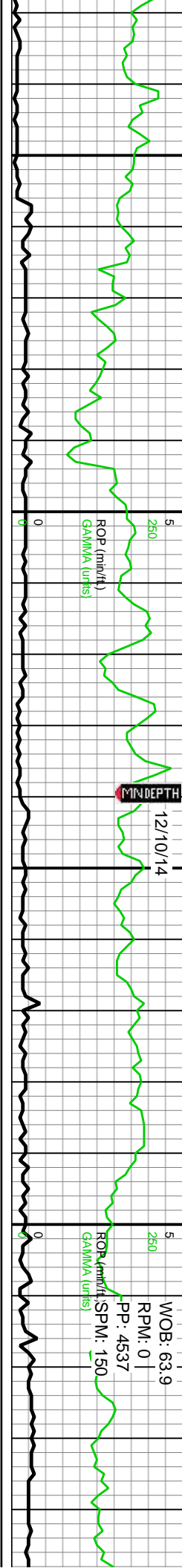
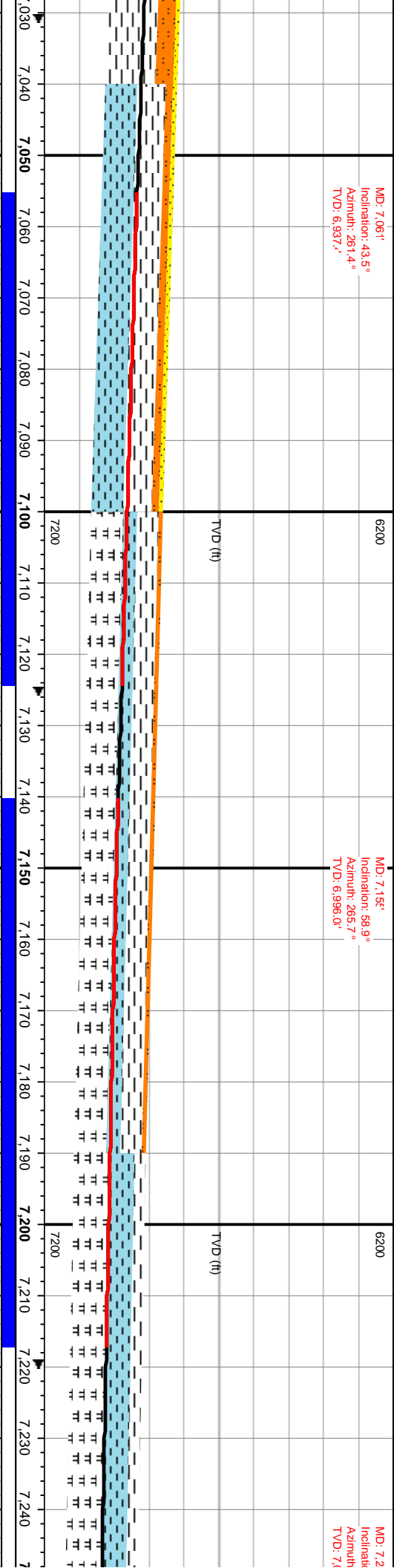
MARL: MED - DK GY, OCCLY BRN-GY, MC FRM - SL HRD, OCCLY BRIT, SB PLTY, SN SB BLKY, FY LAM, RAPID HCL RXN. CHK: BRN-DK GY, MOD SFT - FRM, SB BLKY, R HCL RXN. SH: MED - DK GY, MOD FRM, F SB PLTY, SL CALC. TR DISS VF PYR.

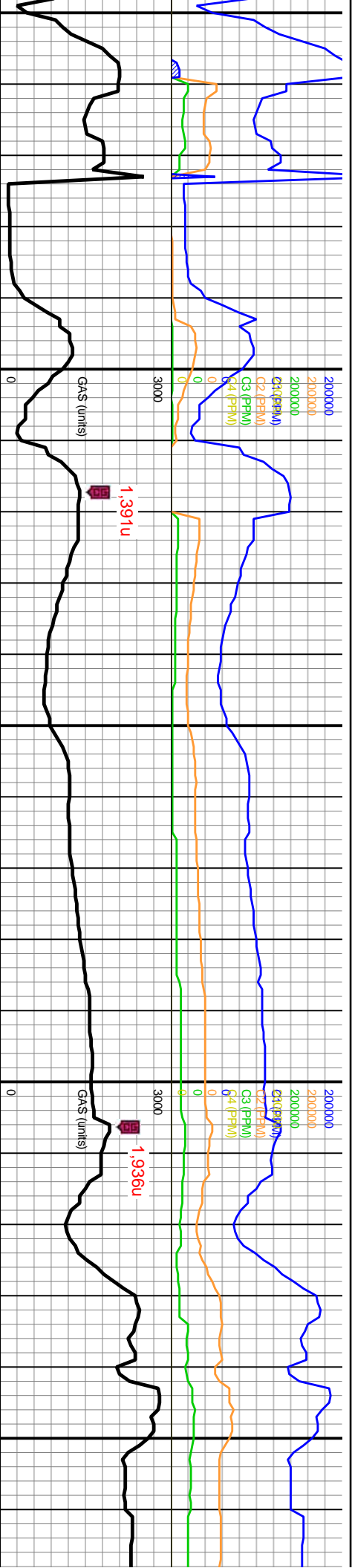


MD: 7.061°
Inclination: 43.5°
Azimuth: 261.4°
TVD: 6.937.1'

MD: 7.152°
Inclination: 58.9°
Azimuth: 265.7°
TVD: 6.996.0'

MD: 7.2°
Inclination: 74.2°
Azimuth: 265.7°
TVD: 7.0°





MARL: MED - DK GY, OCCLY BRN-GY, MOD FRM - SL HRD, OCCLY BRIT, SB PLTY - SB BLKY, FY LAM, RAPID HCL RXN. CHK: GY BRN-DK GY, MOD SFT - FRM, SB BLKY, WH ELG STRGS OF CHK, SLTY, RAPID HCL RXN. SH: MED - DK GY, MOD FRM, PLTY - SB PLTY, SL CALC. TR DISS VF PYR.

MARL: MED - DK GY, OCCLY BRN-GY, MOD FRM - SL HRD, OCCLY BRIT, SB PLTY - SB BLKY, FY LAM, RAPID HCL RXN. CHK: GY BRN-DK GY, MOD SFT - SL HRD, PREDY SB BLKY, WH ELG STRGS OF CHK, SLTY, RAPID HCL RXN. TR SH: MED - DK GY, MOD FRM, PLTY - SB PLTY, SL CALC. TR DISS VF PYR.

MARL: MED - DK GY, OCCLY BRN-GY, MOD FRM - SL HRD, OCCLY BRIT, SB PLTY - SB BLKY, FY LAM. CHK: GY BRN-DK GY, MOD SFT - SL HRD, PREDY SB BLKY, WH ELG STRGS OF CHK, SLTY, RAPID HCL RXN. TR SD: LT GY - GY, MOD FRM, SB BLKY, MOD SRTD, SB ANG, SL CALC, ARG MTX, TR GLAU. TR DISS VF PYR.

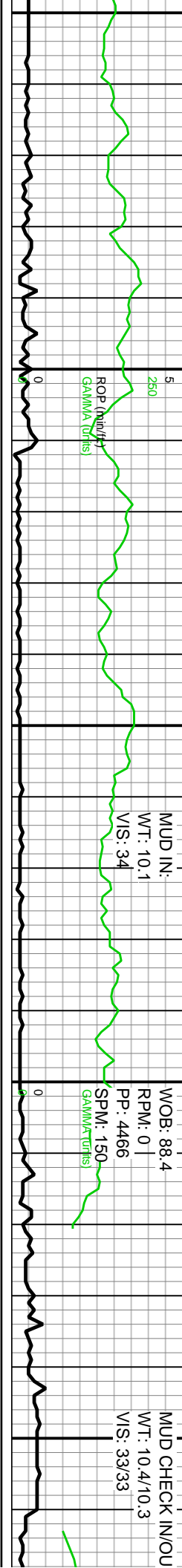
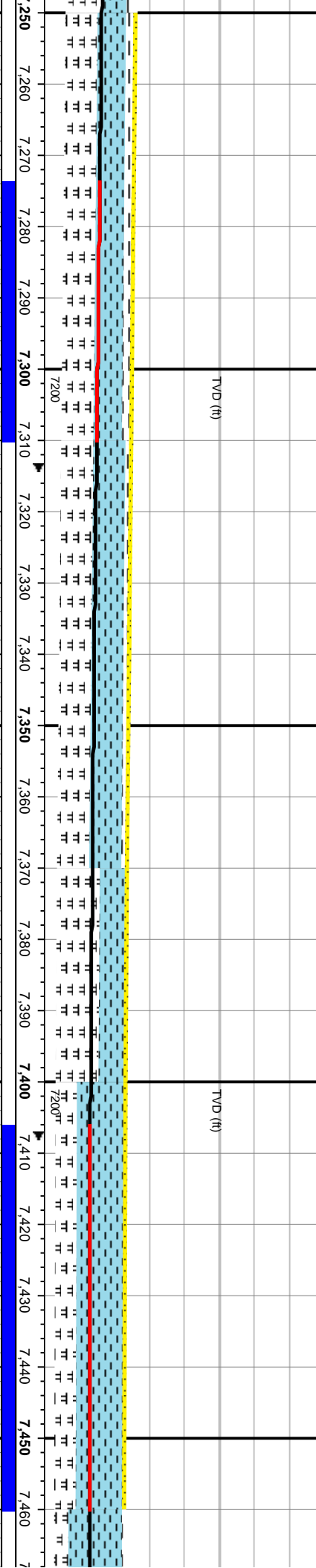
MARL: MED - DK GY, OCCLY BRN-GY, MOD FRM - SL HRD, OCCLY BRIT, SB PLTY - SB BLKY, FY LAM. CHK: GY BRN-DK GY, MOD SFT - SL HRD, PREDY SB BLKY, WH ELG STRGS OF CHK, SLTY, RAPID HCL RXN. TR SD: LT GY - GY, MOD FRM, SB BLKY, TR GLAU. TR DISS VF PYR.

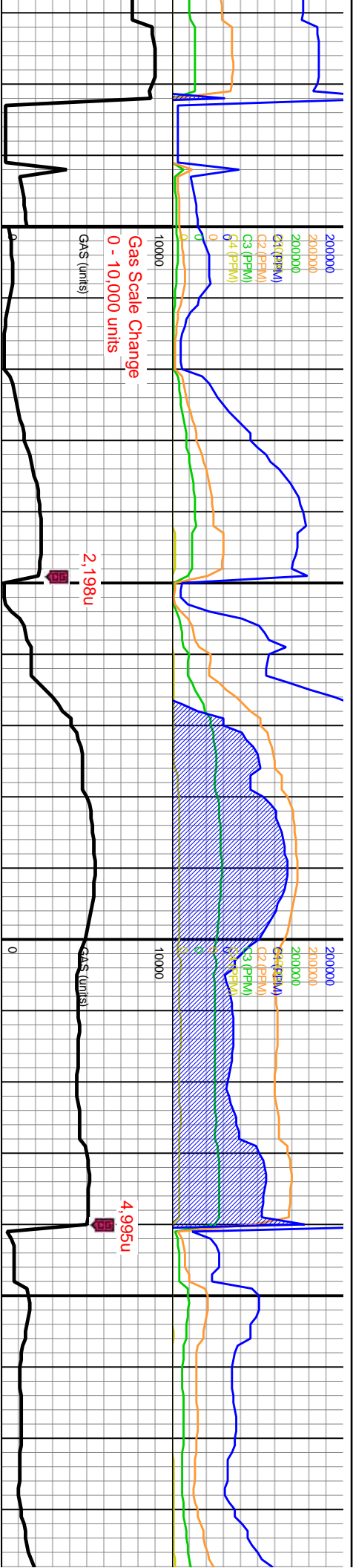


on: 72.5°
Azimuth: 289.1°
TVD: 7.34.6'

MD: 7.34.6'
Inclination: 79.3°
Azimuth: 270.9°
TVD: 7.057.4'

MD: 7.41.1'
Inclination: 81.5°
Azimuth: 270.5°
TVD: 7.068.6'



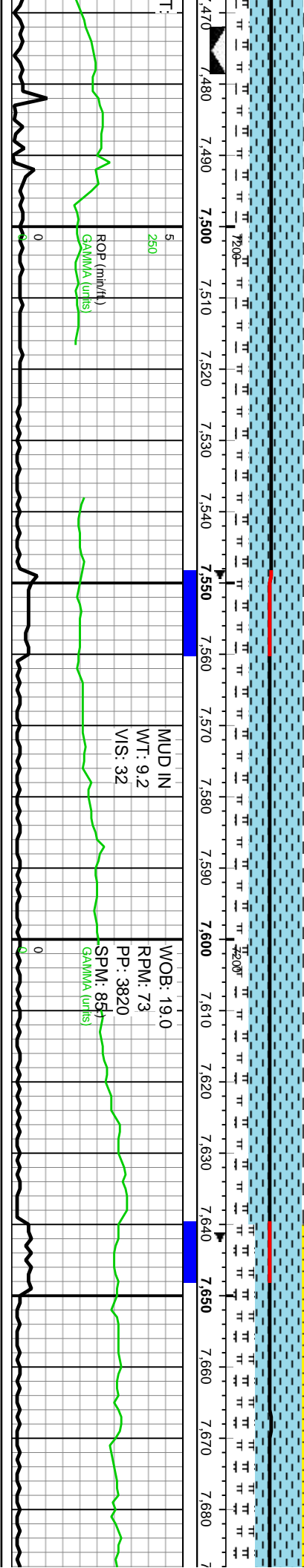
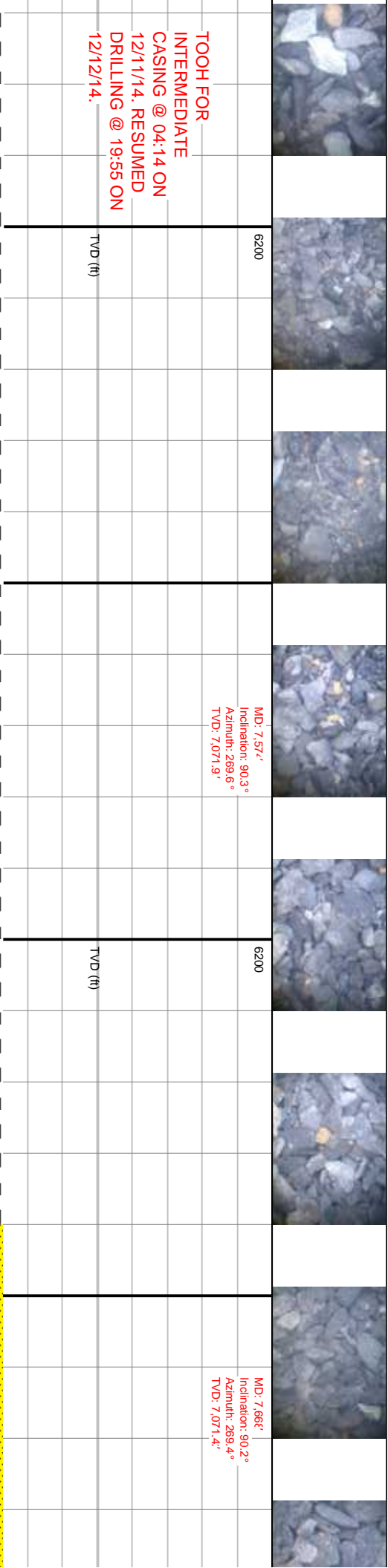


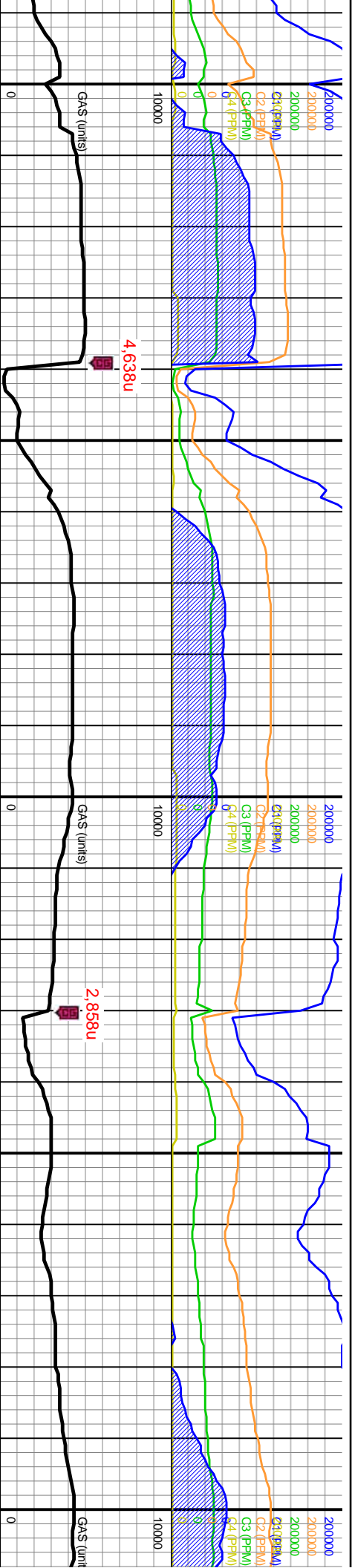
CK GY, OCCLY BRN-GY, MOD FRM - SL
RIT, SB PLTY - SB BLKY, RAPID HCL RXN
YY BRN-LT GY, MOD SFT - FRM, RR SL
3 BLKY, OCCLY SB PLTY, WH ELG STRGS
RAPID HCL RXN. TR SD: LT GY - GY, MOD
MOD SRTD, SB ANG, SL CALC, ARG MTX,
SS VF PYR.

MARL: GY TO DK GY, MOD FRM - SL HRD, BRIT, PLTY -
SB BLKY, RAPID HCL RXN, FY LAM, CHK: GY BRN,
OCCLY LT GY, MOD FRM - SL HRD, SB PLTY - SB BLKY,
SME WH ELG STRGS OF CHK, SLTY, RAPID HCL RXN.
TR SH: LT GY - GY, MOD FRM, SB BLKY, SL CALC, ARG
MTX, SLTY. TR DISS VF PYR.

MARL: GY TO DK GY, MOD FRM - SL HRD, BRIT, PLTY -
SB BLKY, RAPID HCL RXN, FY LAM, CHK: GY BRN,
OCCLY LT GY, MOD FRM - SL HRD, PREYD SB PLTY,
SME SB BLKY, SME WH ELG STRGS OF CHK, SLTY,
RAPID HCL RXN. TR SH: LT GY - GY, MOD FRM, PLTY, SL
CALC, ARG MTX, SLTY. TR DISS VF PYR. SCAT CMT.

MARL: MED - DK GY
PLTY - SB BLKY, RY
BRN-LT GY, MOD S
PLTY, WH ELG STR
TR SD: LT GY - OFF
GRND, MOD SRTD,
GLAU. TR DISS VF





FT - FRM, RR SL HRD, SB BLKY - SB
FT - FRM, RR SL HRD, SB BLKY - SB
WH, MOD FRM, BRIT, SB BLKY, F - VF
SB ANG, SL CALC, ARG MTX, TR
PYR.

MARL: MED - DK GY, FRM - SL HRD, OCCLY BRIT, SB
PLTY - SB BLKY, RAPID HCL RXN, FY LAM, SIL. CHK: GY
BRN-LT GY, MOD SFT - FRM, RR SL HRD, SB BLKY - SB
PLTY, WH ELG STRGS OF CHK, SLTY, RAPID HCL RXN.
RR SD: OFF WH, MOD FRM, BRIT, SB BLKY, F - VF GRND,
MOD SRD, SB ANG, SL CALC, ARG MTX, TR GLAU. TR
DISS VF PYR.

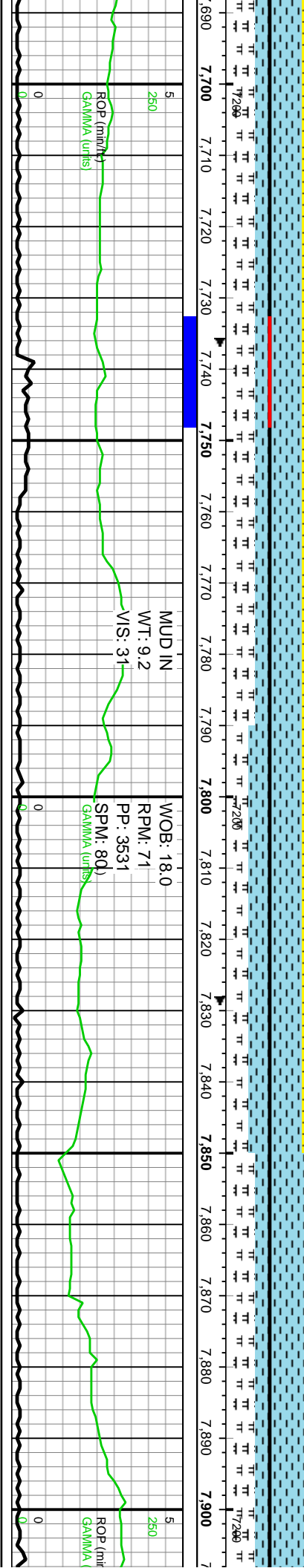
MARL: MED - DK GY, FRM - SL HRD, OCCLY BRIT, SB
PLTY - SB BLKY, RAPID HCL RXN, FY LAM, SIL. CHK:
LT GY - GY BRN, MOD SFT - FRM, RR SL HRD, SB
PLTY - SB BLKY, WH ELG STRGS OF CHK, SLTY,
RAPID HCL RXN. TR DISS VF PYR.

MARL: MED - DK
PLTY - SB BLKY
LT GY - GY BRN
PLTY - SB BLKY
RAPID HCL RXN

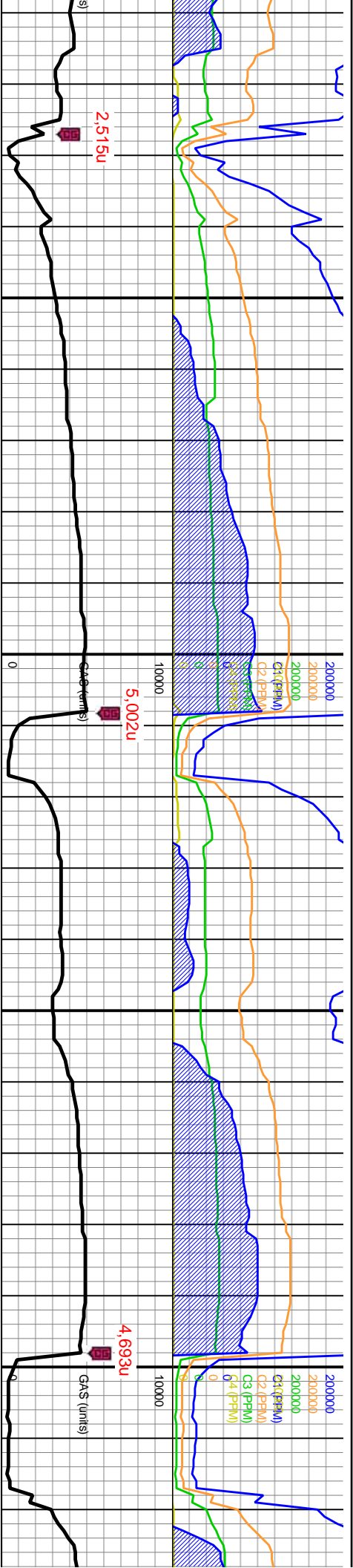


MD: 7.763'
Inclination: 88.9°
Azimuth: 270.2°
TVD: 7.072.1'

MD: 7.857'
Inclination: 89.3°
Azimuth: 270.3°
TVD: 7.073.5.1'



MUD IN
WT: 9.2
VIS: 31
WOB: 18.0
RPM: 71
PP: 3531
SPM: 80

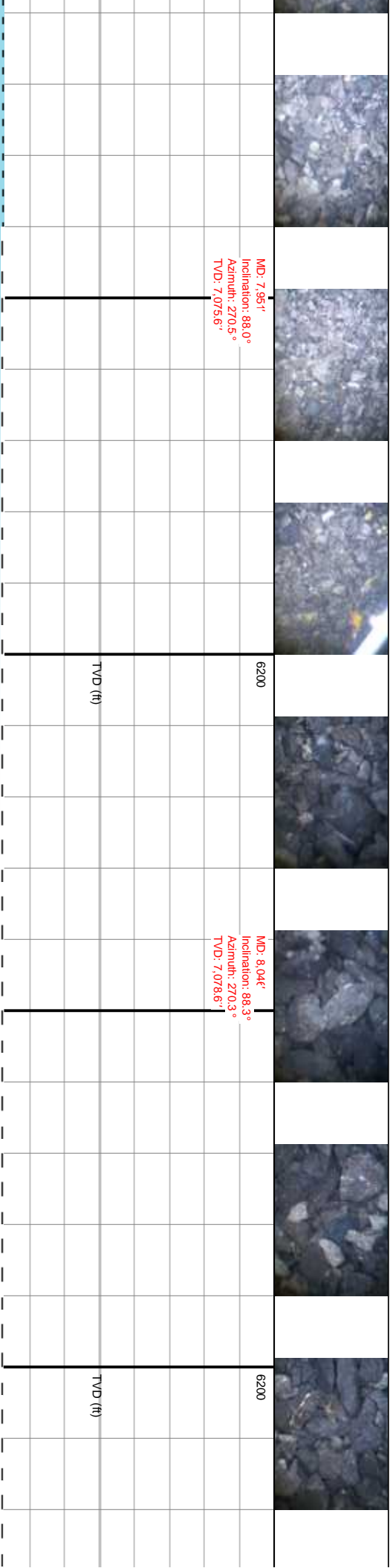


DK GY, FRM - SL HRD, OCCLY BRIT, SB
BRIT, RAPID HCL RXN, FY LAM, SIL. CHK:
MOD SFT - FRM, RR SL HRD, SB
WH ELG STRGS OF CHK, SLTY,
TR DISS VF PYR.

MARL: MED - DK GY, FRM - SL HRD, OCCLY
BRIT, SB PLTY - SB BLKY, RAPID HCL RXN, FY
LAM, SIL. CHK: LT GY - GY BRN, FRM - SL HRD,
SB PLTY - SB BLKY, SLTY, RAPID HCL RXN. TR
DISS VF PYR.

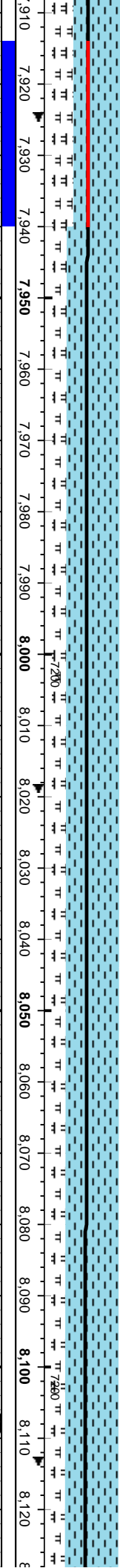
MARL: MED - DK GY, FRM - SL HRD, OCCLY BRIT, SB
PLTY - SB BLKY, RAPID HCL RXN, V FY LAM, SIL. CHK:
GY BRN - DK GY, SME GY, FRM - SL HRD, SB BLKY -
SB PLTY, SLTY, RR WH CHK CTGS, RAPID HCL RXN.
TR DISS VF PYR.

MARL: MED - DK GY, FRM - SL HRD, OCCLY BRIT, SB
PLTY - SB BLKY, RAPID HCL RXN, V FY LAM, SIL. CHK:
GY BRN - DK GY, SME GY, FRM - SL HRD, SB BLKY -
SB PLTY, SLTY, RR WH CHK CTGS, RAPID HCL RXN.
TR DISS VF PYR.



MD: 7.951'
Inclination: 88.0°
Azimuth: 270.5°
TVD: 7.075.6'

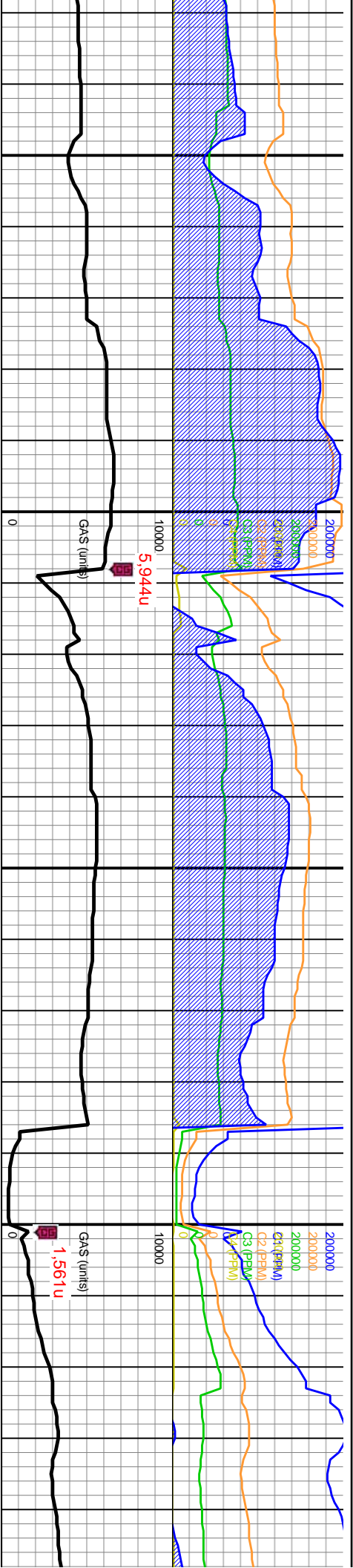
MD: 8.046'
Inclination: 88.3°
Azimuth: 270.3°
TVD: 7.078.6'



MUD IN
WT: 9.1
VIS: 33

WOB: 18.3
RPM: 71
PP: 3715
SPM: 85
GAMMA (units)

ROP (in/hr)
GAMMA (units)
12/13/14



M - SL HRD, OCCLY BRIT, SB
HCL RXN, V FY LAM, SIL. CHK:
Y, FRM - SL HRD, SB BLKY -
CHK CTGS, RAPID HCL RXN.

MARL: MED - DK GY, FRM - SL HRD, OCCLY BRIT, SB
PLTY - SB BLKY, RAPID HCL RXN, FY LAM, SIL. CHK: GY
BRN - LT GY, FRM - SL HRD, SB BLKY - SB PLTY, SLTY, F
LAM, RAPID HCL RXN. RR SH: LT GY, MOD FRM, SB
BLKY, F - VF GRND, ARG MTX, SLTY. TR DISS VF PYR.

MARL: MED - DK GY, FRM - SL HRD, OCCLY BRIT, SB
PLTY - SB BLKY, RAPID HCL RXN, FY LAM, SIL. CHK: GY
BRN, SME LT GY, FRM - SL HRD, PREDY SB BLKY, SME
SB PLTY, F LAM, SLTY, CLEAN RAPID HCL RXN. RR SH:
LT GY, MOD FRM, SB BLKY, F - VF GRND, ARG MTX, SLTY.
TR DISS VF PYR.

MARL: MED - DK GY, FF
PLTY - SB BLKY, RAPID
BRN, SME LT GY, FRM -
SB PLTY, F LAM, SLTY,
LT GY, MOD FRM, SB B
TR DISS VF PYR.

MD: 8.14'
Inclination: 88.6°
Azimuth: 270.5°
TVD: 7.081.1'

MD: 8.23'
Inclination: 89.3°
Azimuth: 270.0°
TVD: 7.082.8'

MD: 8.32'
Inclination: 90.0°
Azimuth: 269.9°
TVD: 7.083.3'

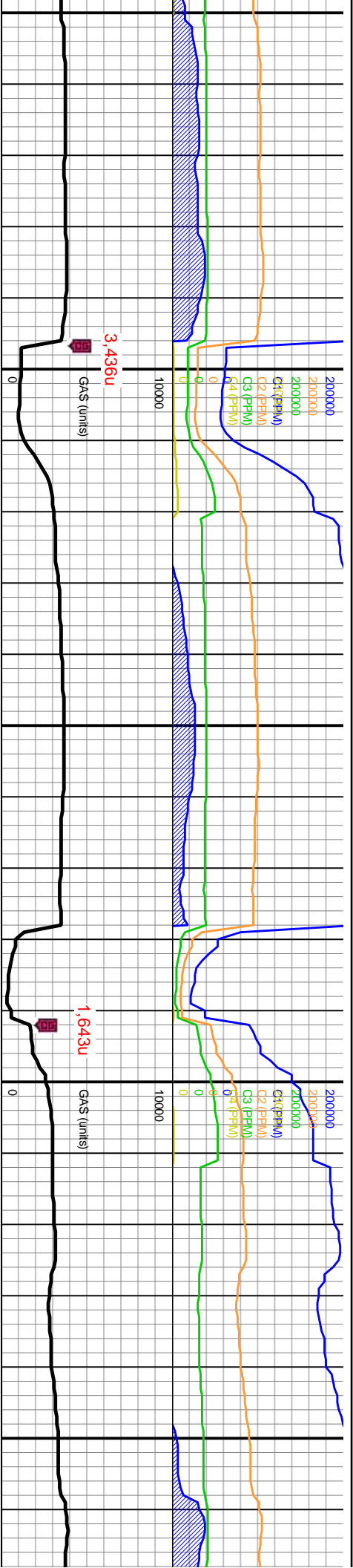
TVD (ft)

TVD (ft)

MUD IN
WT: 9.1
VIS: 34

5WOB: 11.9
2RPM: 61
PP: 3243
FSPM: 85
GAMMA (units)

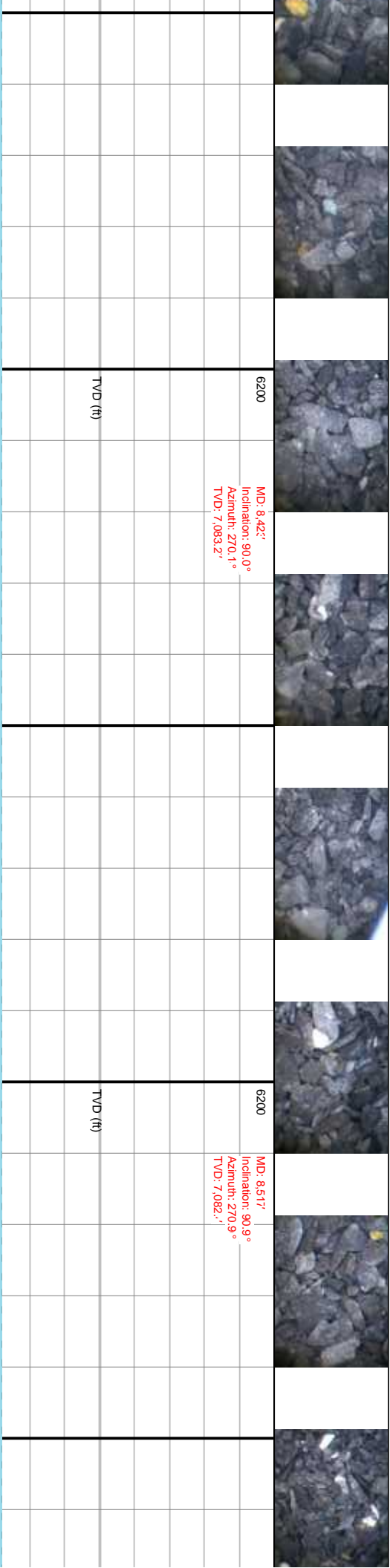
5
250
ROP (in./ft)
GAMMA (units)



SL HRD, OCCLY BRIT, SB
HCL RXN, FY LAM, SIL. CHK: GY
SL HRD, PREDY SB BLKY, SME
CLEAN RAPID HCL RXN. RR SH:
F - VF GRND, ARG MTX, SLTY.

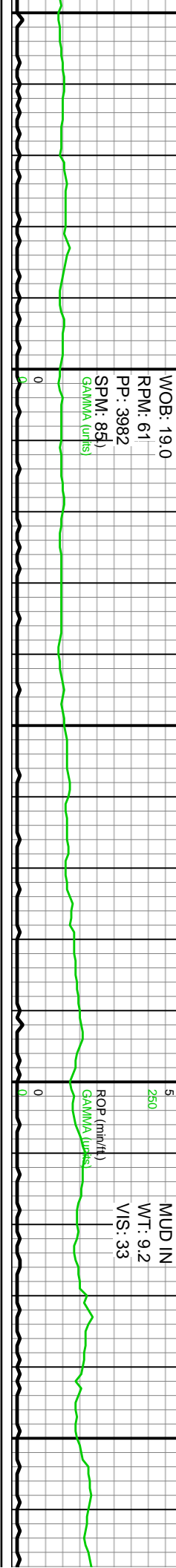
CHK: GY BRN, SME LT GY, FRM - SL HRD, PREDY SB
BLKY, SME SB PLTY, F LAM, SLTY, RR WH ELG CHK
STRG AND CTGS, CLEAN RAPID HCL RXN. SCAT MARL:
MED - DK GY, FRM - SL HRD, OCCLY BRIT, SB PLTY - SB
BLKY, RAPID HCL RXN, FY LAM, SIL. TR DISS VF PYR.

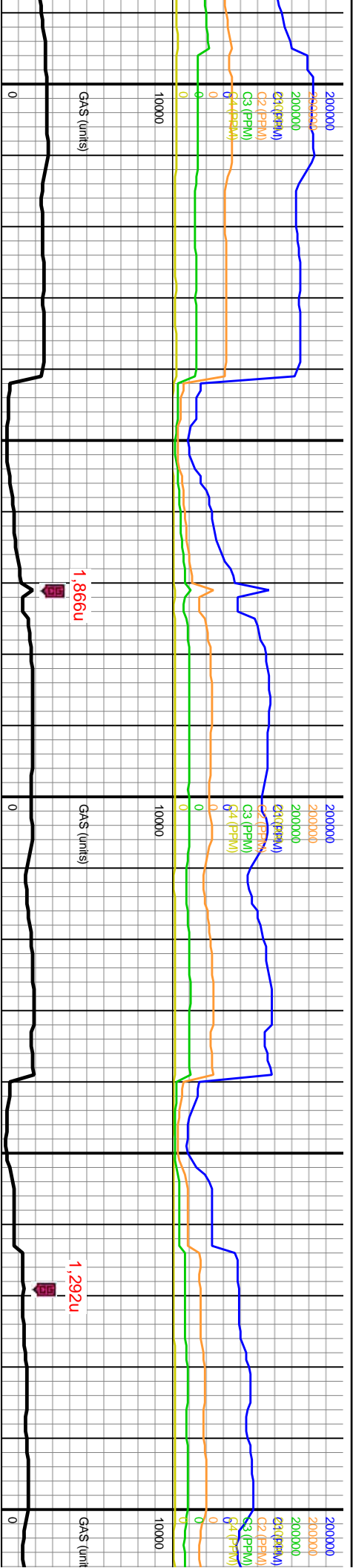
CHK: GY BRN - :
PLTY, SME SB E
STRG AND CTG
MED - DK GY, F
SB BLKY, FY LA



MD: 8.42°
Inclination: 90.0°
Azimuth: 270.1°
TVD: 7.063.2°

MD: 8.51°
Inclination: 90.9°
Azimuth: 270.9°
TVD: 7.082.7°

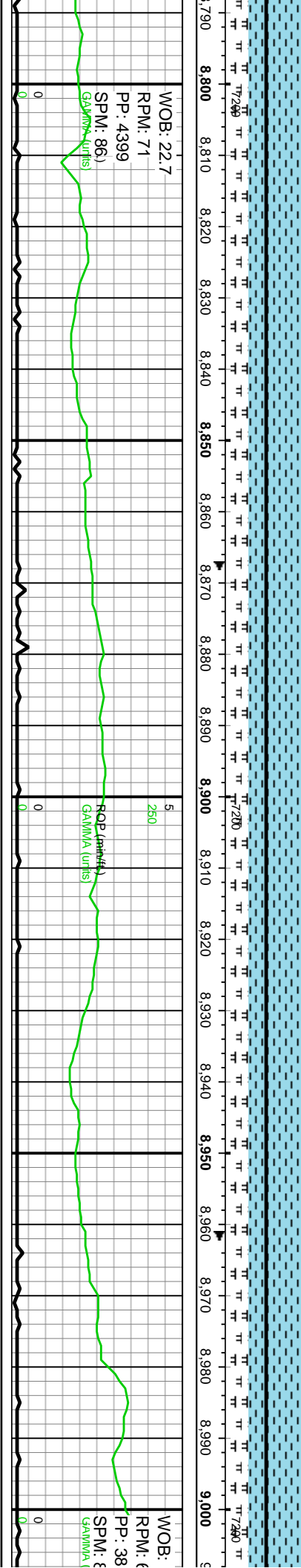
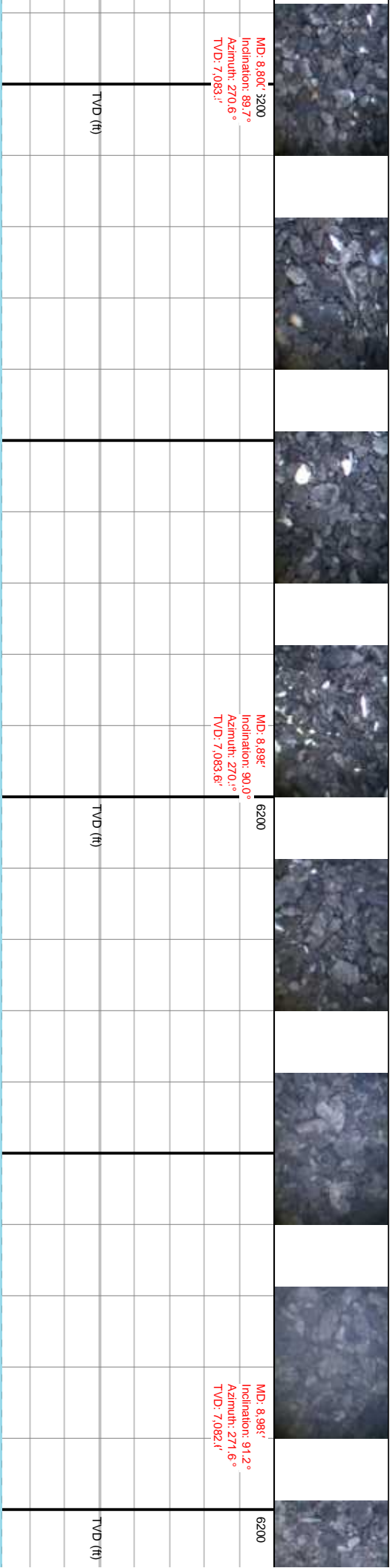


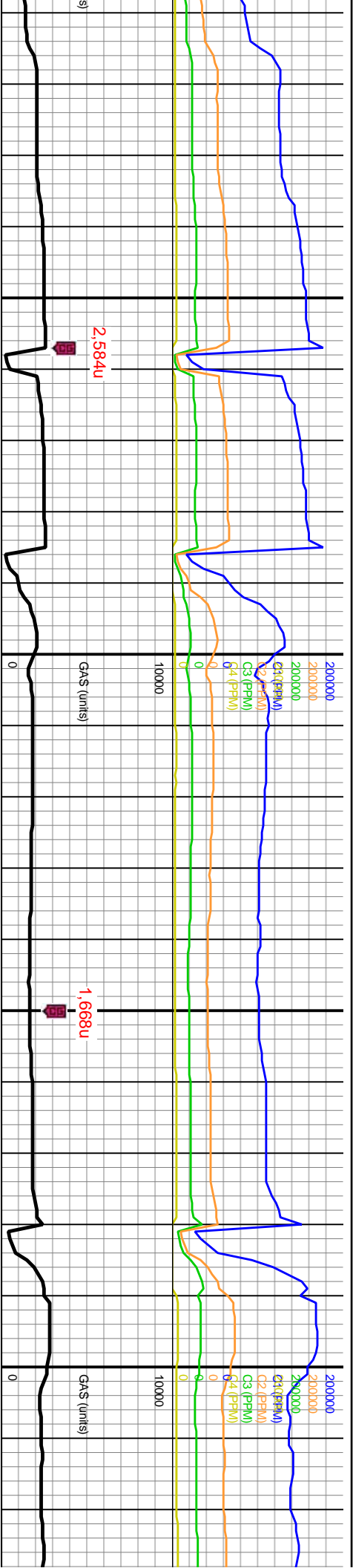


GY, FRM - SL HRD, BRIT, PREDY SB PLTY, F LAM, SLTY, RR WH ELG CHK STRG AND CTGS, CLEAN RAPID HCL RXN. MARL: MED - DK GY, FRM - SL HRD, BRIT, SB PLTY - SB BLKY, FY LAM, RAPID HCL RXN. TR DISS VF PYR.

CHK: GY BRN - SME LT GY, MOD FRM - SL HRD, BRIT, PREDY SB PLTY, SME SB BLKY, SLTY, F LAM, RR WH ELG CHK STRG AND CTGS, CLEAN RAPID HCL RXN. MARL: MED - DK GY, FRM - SL HRD, BRIT, SB PLTY - SB BLKY, FY LAM, RAPID HCL RXN. TR DISS VF PYR.

CHK: GY BRN - SME LT GY, MOD FRM - SL HRD, BRIT, PREDY SB PLTY, SME SB BLKY, SLTY, F LAM, RR WH ELG CHK STRG AND CTGS, CLEAN RAPID HCL RXN. MARL: MED - DK GY, FRM - SL HRD, BRIT, SB PLTY - SB BLKY, FY LAM, RAPID HCL RXN. TR DISS VF PYR.



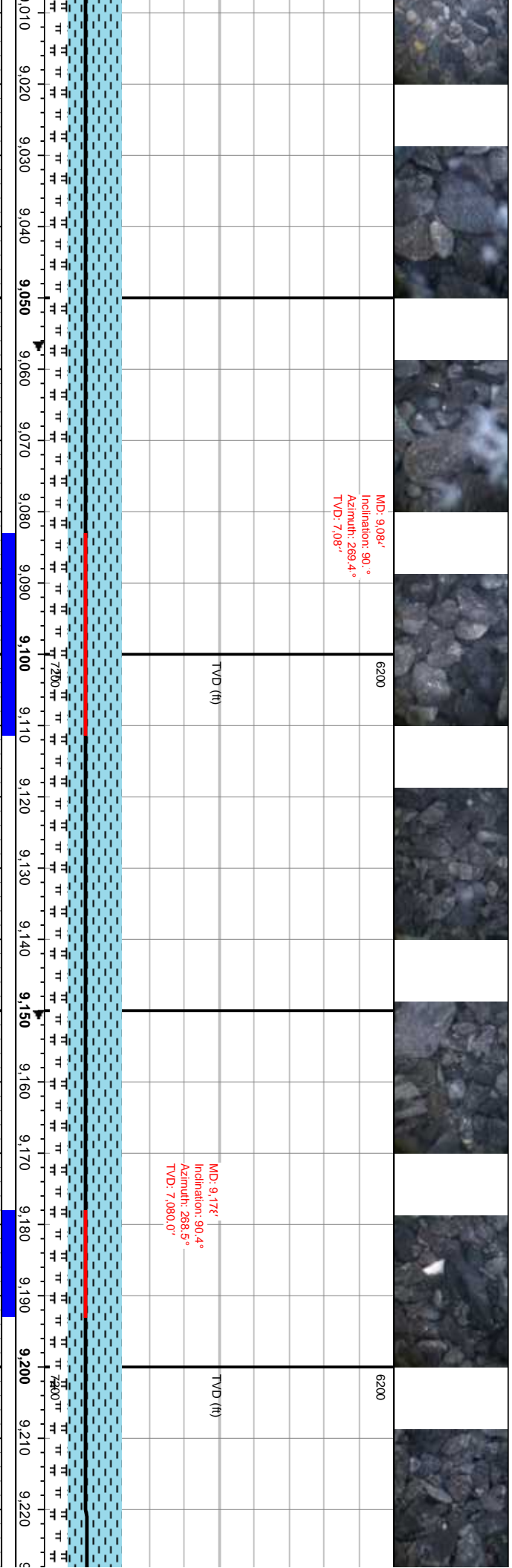


LT GY, MOD FRM - SL HRD, BRIT,
ME SB BLKY, SLTY, F LAM, RR WH
CTGS, CLEAN RAPID HCL RXN.
FRM - SL HRD, BRIT, SB PLTY -
RAPID HCL RXN. TR DISS VF PYR.

CHK: GYBRN - SME LT GY, MOD FRM - SL HRD, BRIT
PREDY SB PLYT, SME SB BLKY, SLTY, F LAM, RR WH
ELG CHK STRG AND CTGS, CLEAN RAPID HCL RXN.
MARL: MED - DK GY, FRM - SL HRD, BRIT, SB PLYT -
SB BLKY, FY LAM, RAPID HCL RXN. TR DISS VF PYR.

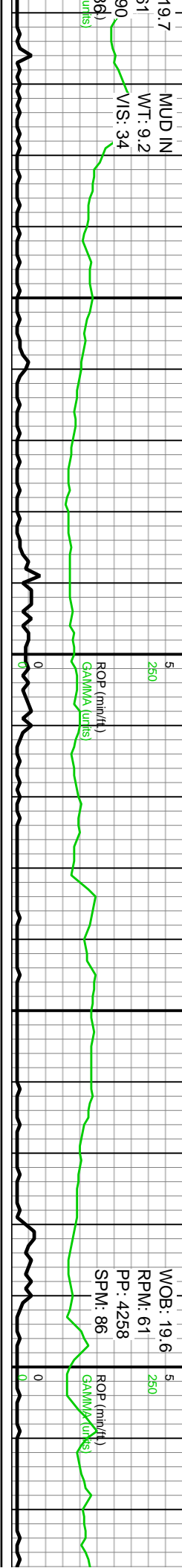
CHK: GY BRN - SME LT GY, MOD FRM - SL HRD, BRIT,
PREDY SB PLTY, SME SB BLKY, SLTY, F LAM, RR WH
ELG CHK STRG AND CTGS, CLEAN RAPID HCL RXN.
MARL: MED - DK GY, FRM - SL HRD, BRIT, SB PLTY -
SB BLKY, FY LAM, RAPID HCL RXN, TR DISS VF PYR.

CHK: GY BRN - SI
PRE DY SB PLTY,
ELG CHK STRG A
MARL: MED - DK
SB BLKY, FY LAM



MD: 9,08'
Inclination: 90.°
Azimuth: 269.4°
TVD: 7,08'

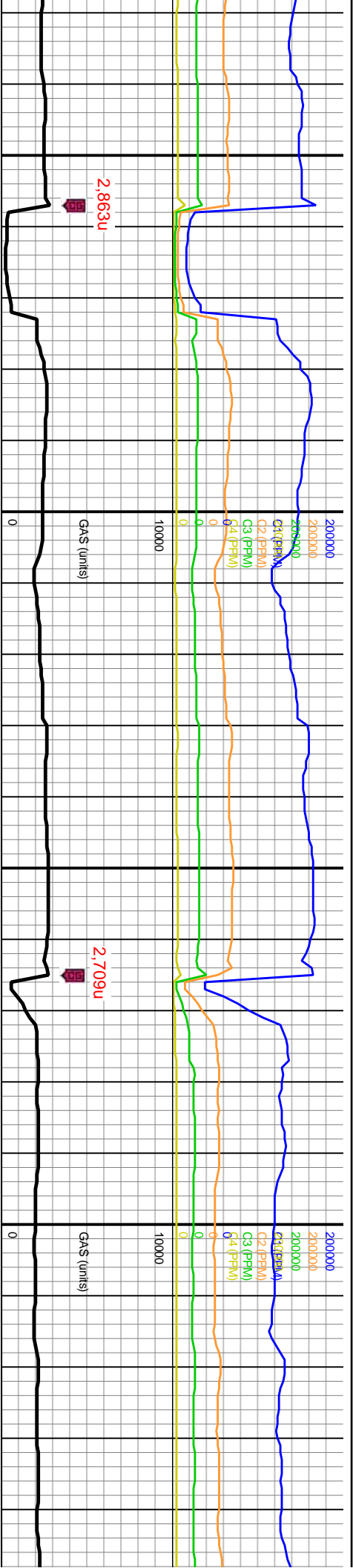
MD: 9,17€
Inclination: 90.4°
Azimuth: 268.5°
TVD: 7,080.0"



MUD IN
WT: 9.2
VIS: 34

WOB: 19
RPM: 61
PP: 4258
SPM: 86

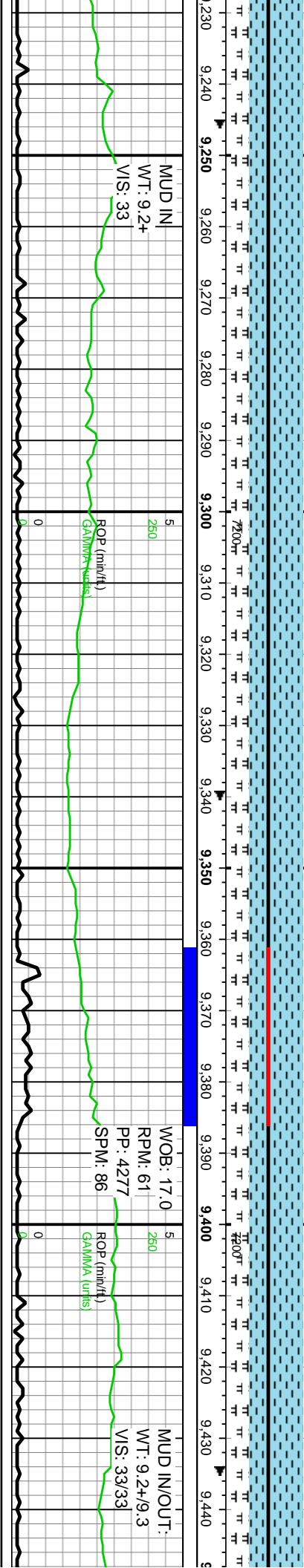
ROP (min/ft)
GAMMA (units)

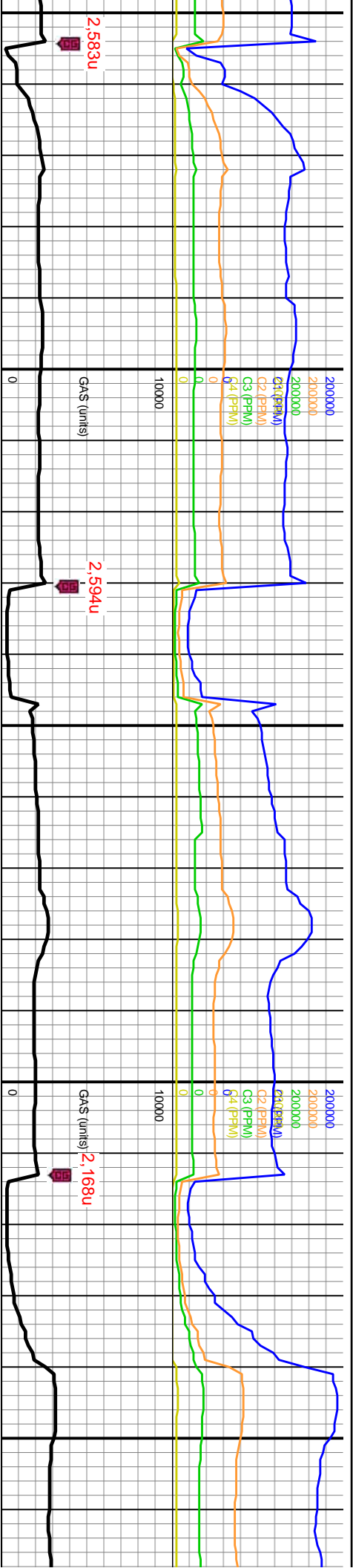


CHK: GY BRN - SWE LT GY, MOD FRM - SL HRD, BRIT, PREDY SB PLTY, SWE SB BLKY, SLTY, F LAM, RR WH ELG CHK STRG AND CTGS, CLEAN RAPID HCL RXN. MARL: MED - DK GY, FRM - SL HRD, BRIT, SB PLTY - SB BLKY, FY LAM, RAPID HCL RXN. TR DISS VF PYR.

CHK: GY BRN - SWE LT GY, MOD FRM - SL HRD, BRIT, PREDY SB PLTY, SWE SB BLKY, SLTY, F LAM, RR WH ELG CHK STRG AND CTGS, CLEAN RAPID HCL RXN. MARL: MED - DK GY, FRM - SL HRD, BRIT, SB PLTY - SB BLKY, FY LAM, RAPID HCL RXN. TR DISS VF PYR.

CHK: GY BRN - SWE LT GY, MOD FRM - SL HRD, BRIT, PREDY SB PLTY, SWE SB BLKY, SLTY, F LAM, RR WH ELG CHK STRG AND CTGS, CLEAN RAPID HCL RXN. MARL: MED - DK GY, FRM - SL HRD, BRIT, SB PLTY - SB BLKY, FY LAM, RAPID HCL RXN. TR DISS VF PYR.



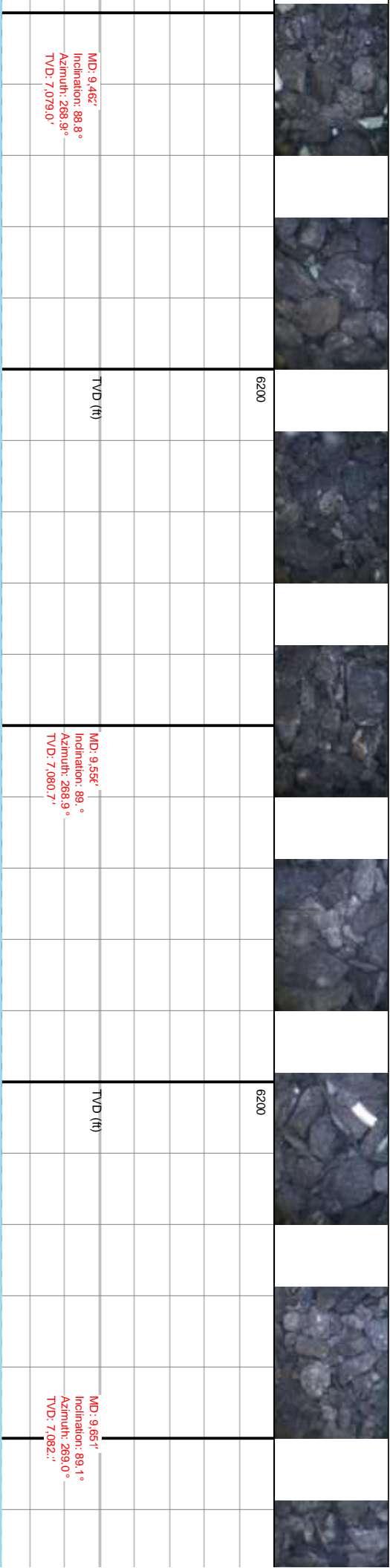


T GY, MOD FRM - SL HRD, BRIT,
SB BLKY, SLTY, F LAM, RR WH
CTGS, CLEAN RAPID HCL RXN.
FRM - SL HRD, BRIT, SB PLTY -
PHD HCL RXN. TR DISS VF PYR.

CHK: GY BRN - SME LT GY, MOD FRM - SL HRD, BRIT,
PREDY SB PLTY, SME SB BLKY, SLTY, F LAM, RR WH
ELG CHK STRG AND CTGS, CLEAN RAPID HCL RXN.
MARL: MED - DK GY, FRM - SL HRD, BRIT, SB PLTY -
SB BLKY, FY LAM, RAPID HCL RXN. TR DISS VF PYR.

CHK: GY BRN - SME LT GY, MOD FRM - SL HRD, BRIT,
PREDY SB PLTY, SME SB BLKY, SLTY, F LAM, RR WH
ELG CHK STRG AND CTGS, CLEAN RAPID HCL RXN.
MARL: MED - DK GY, FRM - SL HRD, BRIT, SB PLTY -
SB BLKY, FY LAM, RAPID HCL RXN. TR DISS VF PYR.

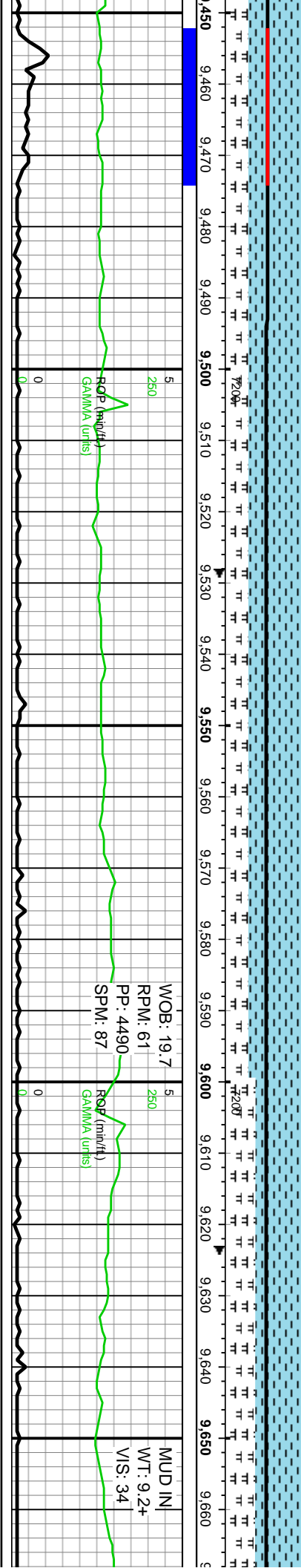
CHK: GY BRN - SME LT GY, MOD FRM - SL HRD, BRIT,
PREDY SB PLTY, SME SB BLKY, SLTY, F LAM, RR WH
ELG CHK STRG AND CTGS, CLEAN RAPID HCL RXN.
MARL: MED - DK GY, FRM - SL HRD, BRIT, SB PLTY -
SB BLKY, FY LAM, RAPID HCL RXN. TR DISS VF PYR.



MD: 9.462°
Inclination: 88.8°
Azimuth: 288.9°
TVD: 7.079.0°

MD: 9.556°
Inclination: 89°
Azimuth: 285.9°
TVD: 7.080.7°

MD: 9.651°
Inclination: 89.1°
Azimuth: 289.0°
TVD: 7.082.7°

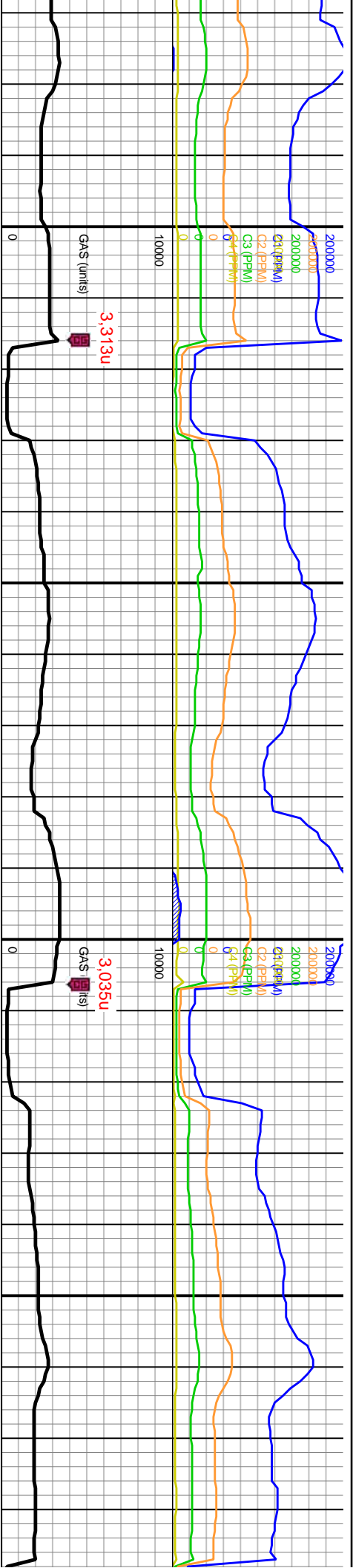


ROP (min/ft)
GAMMA (units)

WOB: 19.7
RPM: 61
PP: 4490
SPM: 87

ROP (min/ft)
GAMMA (units)

MUD IN
WT: 9.2+
VIS: 34

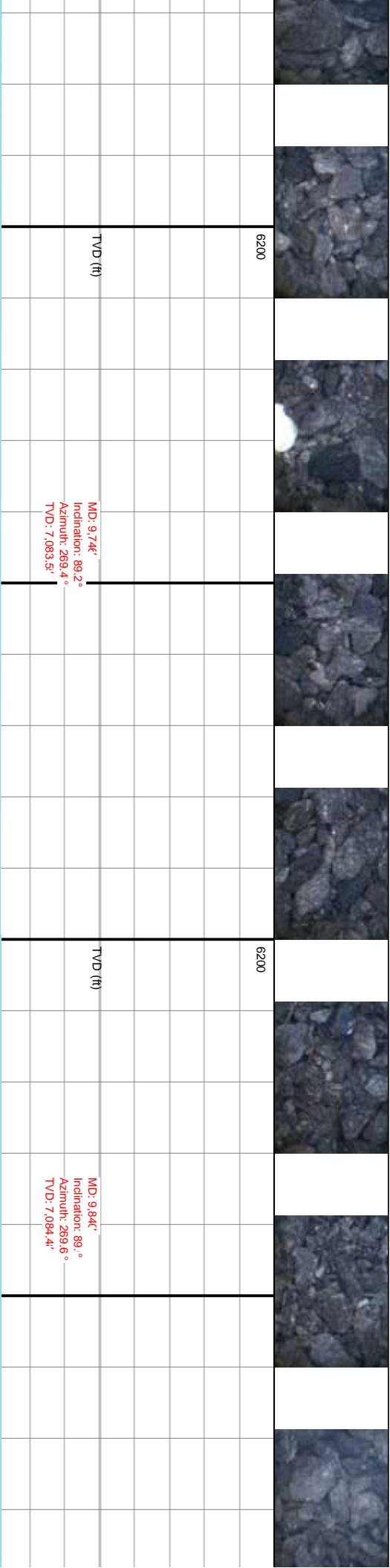


ME LT GY, MOD FRM - SL HRD, BRIT,
SME SB BLKY, SLTY, F LAM, RR WH
AND CTGS, CLEAN RAPID HCL RXN.
MARL: FRM - SL HRD, BRIT, SB PLTY -
RAPID HCL RXN. TR DISS VF PYR.

CHK: GY BRN - SME LT GY, MOD FRM - SL HRD, BRIT,
PREDY SB PLTY, SME SB BLKY, SLTY, F LAM, RR WH
ELG CHK STRG AND CTGS, CLEAN RAPID HCL RXN.
MARL: MED - DK GY, FRM - SL HRD, BRIT, SB PLTY -
SB BLKY, FY LAM, RAPID HCL RXN. TR DISS VF PYR.

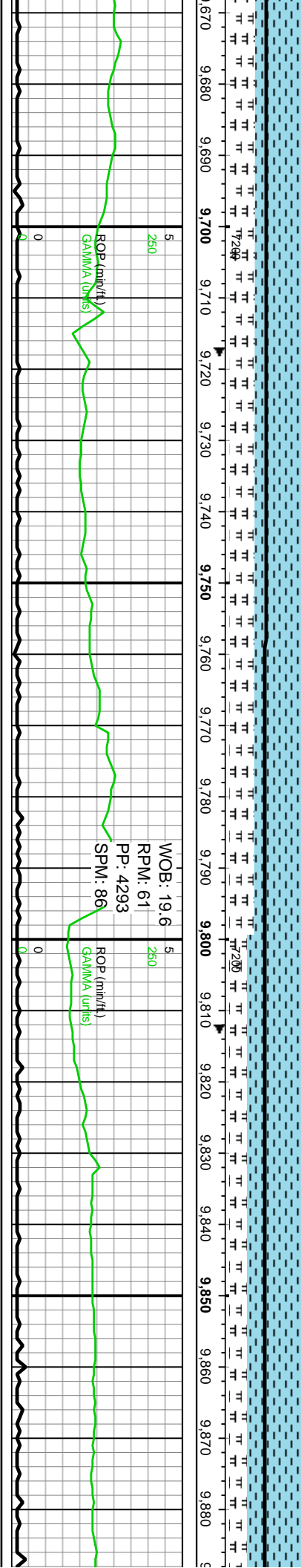
CHK: GY BRN - SME LT GY, MOD FRM - SL HRD, BRIT,
PREDY SB PLTY, SME SB BLKY, SLTY, F LAM, RR WH
ELG CHK STRG AND CTGS, CLEAN RAPID HCL RXN.
MARL: MED - DK GY, FRM - SL HRD, BRIT, SB PLTY -
SB BLKY, FY LAM, RAPID HCL RXN. TR DISS VF PYR.

CHK: GY BRN - SME LT GY, MOD FRM - SL HRD, BRIT,
PREDY SB PLTY, SME SB BLKY, SLTY, F LAM, RR WH
ELG CHK STRG AND CTGS, CLEAN RAPID HCL RXN.
MARL: MED - DK GY, FRM - SL HRD, BRIT, SB PLTY -
SB BLKY, FY LAM, RAPID HCL RXN. TR DISS VF PYR.

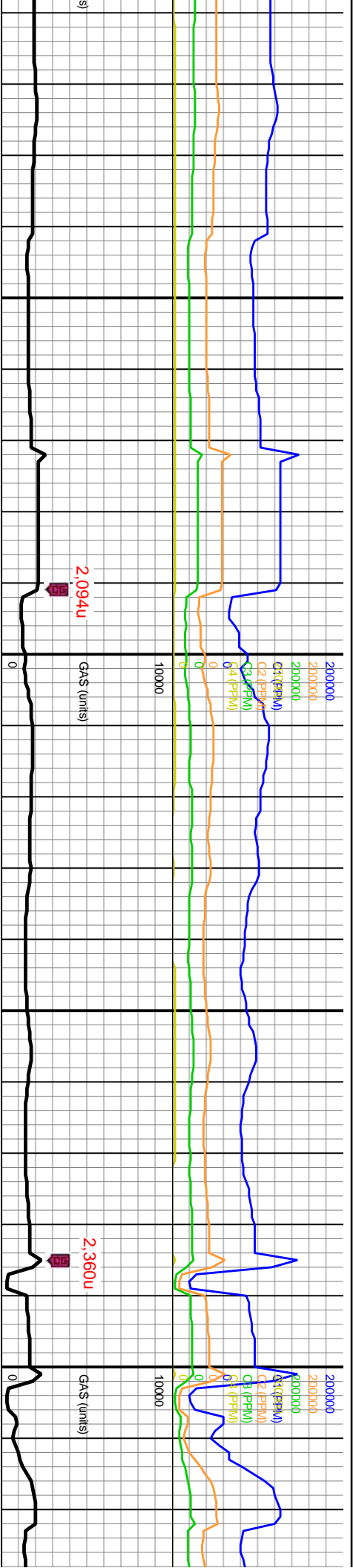


MD: 9,746'
Inclination: 89.2°
Azimuth: 269.4°
TVD: 7,083.5'

MD: 9,846'
Inclination: 89.°
Azimuth: 269.6°
TVD: 7,084.4'



WOB: 19.6
RPM: 61
PP: 4293
SPM: 86

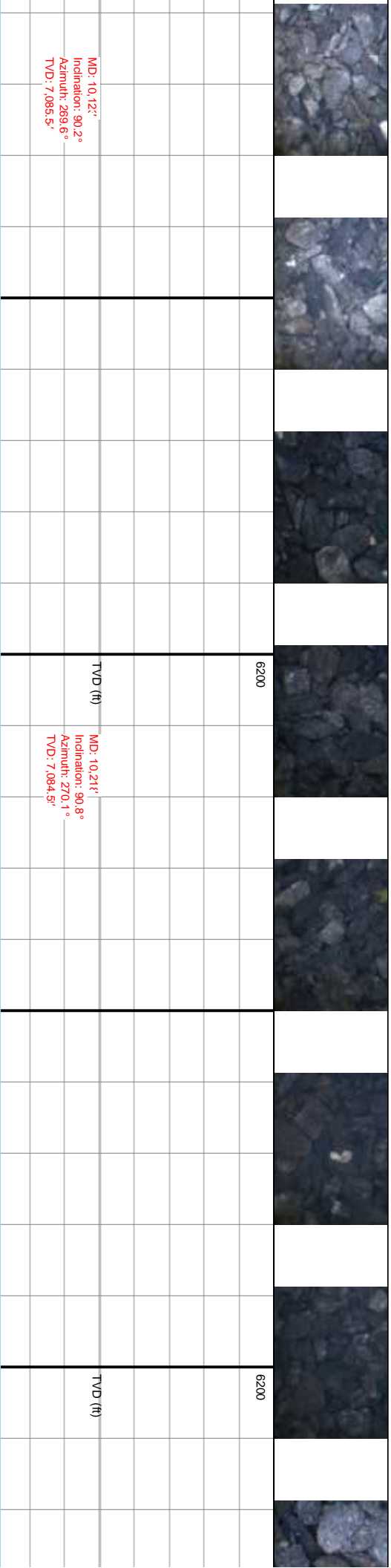


ME LT GY, MOD FRM - SL HRD, BRIT,
SME SB BLKY, SLTY, F LAM, RR WH
AND CTGS, CLEAN RAPID HCL RXN.
GY, FRM - SL HRD, BRIT, SB PLTY -
I, RAPID HCL RXN. TR DISS VF PYR.

CHK: GY BRN - SME LT GY, MOD FRM - SL HRD, BRIT,
PREDY SB PLTY, SME SB BLKY, SLTY, F LAM, RR WH
ELG CHK STRG AND CTGS, CLEAN RAPID HCL RXN.
MARL: MED - DK GY, FRM - SL HRD, BRIT, SB PLTY -
SB BLKY, FY LAM, RAPID HCL RXN. TR DISS VF PYR.

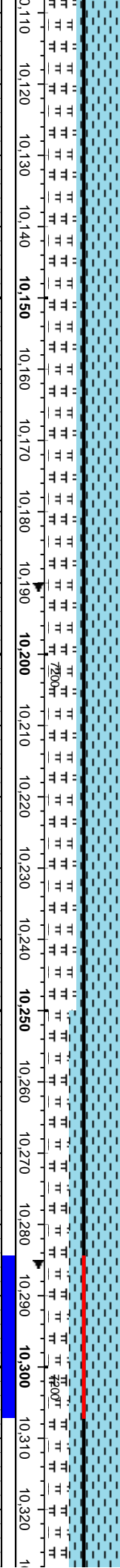
CHK: GY BRN - SME LT GY, MOD FRM - SL HRD, BRIT,
PREDY SB PLTY, SME SB BLKY, SLTY, F LAM, RR WH
ELG CHK STRG AND CTGS, CLEAN RAPID HCL RXN.
MARL: MED - DK GY, FRM - SL HRD, BRIT, SB PLTY -
SB BLKY, FY LAM, RAPID HCL RXN. TR DISS VF PYR.

CHK: GY B
PREDY SB
ELG CHK S
MARL: MEI
SB BLKY, I



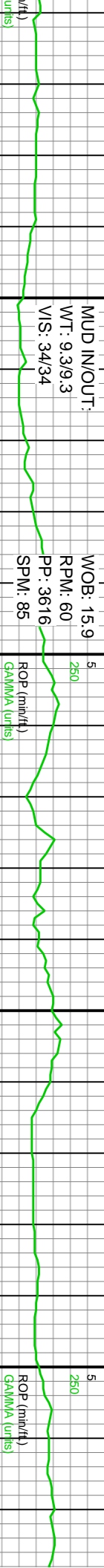
MD: 10.12°
Inclination: 90.2°
Azimuth: 269.6°
TVD: 7.085.5°

MD: 10.21°
Inclination: 90.8°
Azimuth: 270.1°
TVD: 7.084.5°



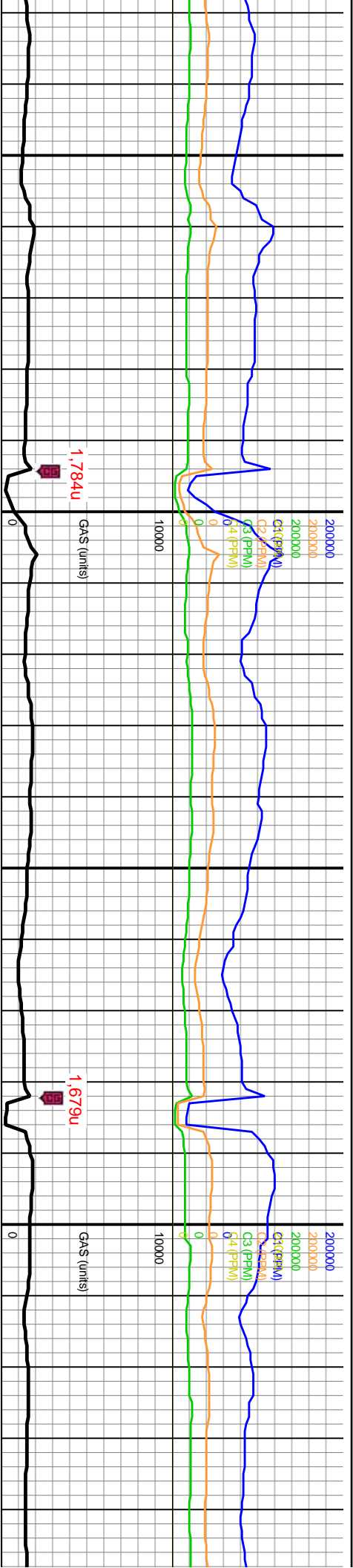
MUD IN/OUT:
WT: 9.3/9.3
VIS: 34/34

WOB: 15.9
RPM: 60
PP: 3616
SPM: 85



ROP (min/ft)
GAMMA (units)

ROP (min/ft)
GAMMA (units)

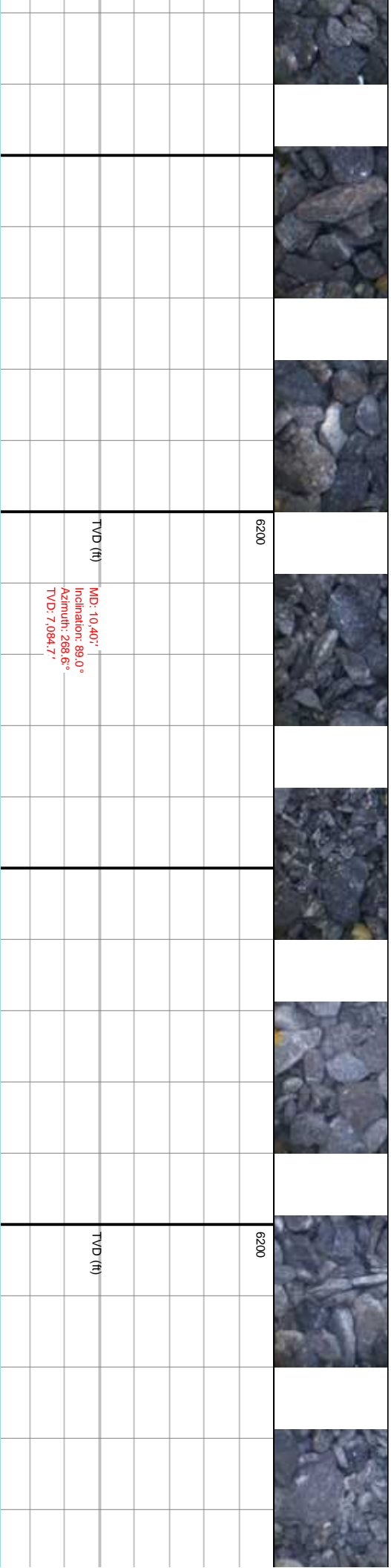


SRN - SME LT GY, MOD FRM - SL HRD, BRIT, PLTY, SME SB BLKY, SLTY, F LAM, RR WH STRG AND CTGS, CLEAN RAPID HCL RXN.

CHK: GY BRN - SME LT GY, MOD FRM - SL HRD, BRIT, PREDY SB PLTY, SME SB BLKY, SLTY, F LAM, RR WH ELG CHK STRG AND CTGS, CLEAN RAPID HCL RXN. MARL: MED - DK GY, FRM - SL HRD, BRIT, SB PLTY - SB BLKY, FY LAM, RAPID HCL RXN. TR DISS VF PYR.

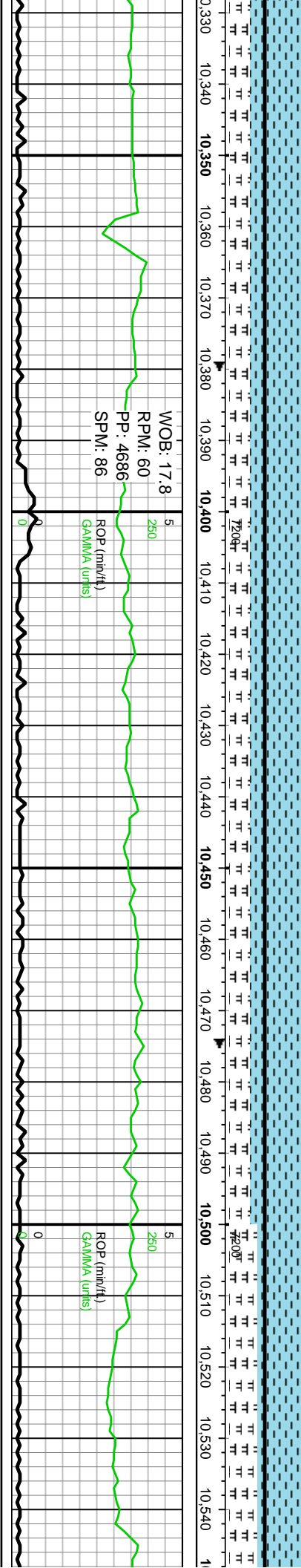
CHK: GY BRN - SME LT GY, MOD FRM - SL HRD, BRIT, PREDY SB PLTY, SME SB BLKY, SLTY, F LAM, RR WH ELG CHK STRG AND CTGS, CLEAN RAPID HCL RXN. MARL: MED - DK GY, FRM - SL HRD, BRIT, SB PLTY - SB BLKY, FY LAM, RAPID HCL RXN. TR DISS VF PYR.

CHK: GY BRN - SME LT GY, MOD FRM - SL HRD, BRIT, PREDY SB PLTY, SME SB BLKY, SLTY, F LAM, RR WH ELG CHK STRG AND CTGS, CLEAN RAPID HCL RXN. MARL: MED - DK GY, FRM - SL HRD, BRIT, SB PLTY - SB BLKY, FY LAM, RAPID HCL RXN. TR DISS VF PYR.



TVD (ft)
MD: 10.40°
Inclination: 89.0°
Azimuth: 288.6°
TVD: 7,084.7'

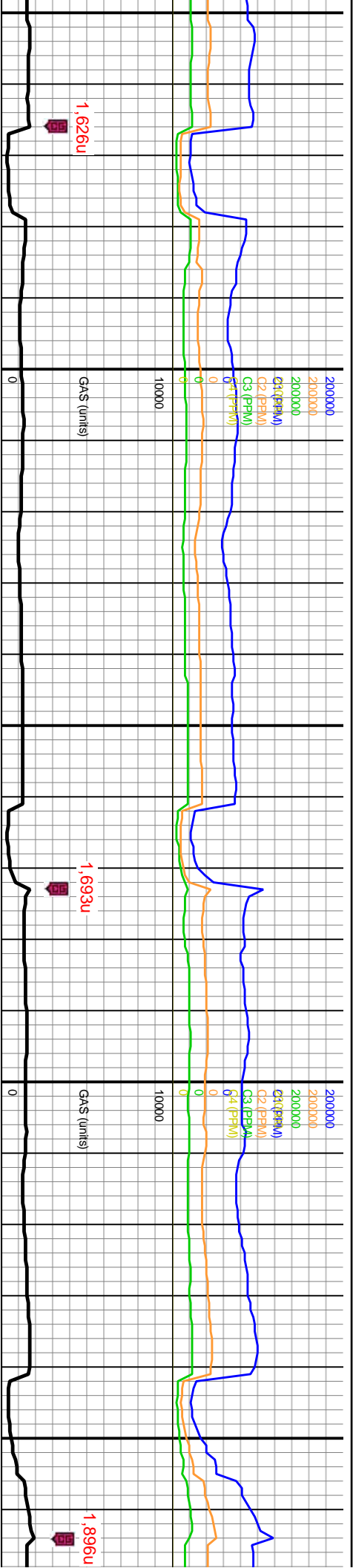
TVD (ft)



WOB: 17.8
RPM: 60
PP: 4686
SPM: 86

ROP (min/ft)
GAMMA (units)

ROP (min/ft)
GAMMA (units)



CH: GY BRN - SME LT GY, MOD FRM - SL HRD, BRIT, PREDY SB PLTY, SME SB BLKY, SLTY, F LAM, RR WH ELG CHK STRG AND CTGS, CLEAN RAPID HCL RXN. MARL: MED - DK GY, FRM - SL HRD, BRIT, SB PLTY - SB BLKY, FY LAM, RAPID HCL RXN. TR DISS VF PYR.

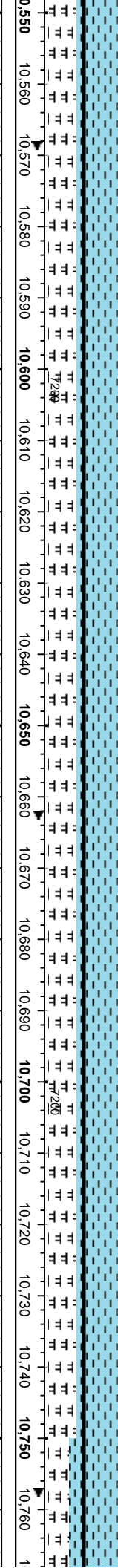
CH: GY BRN - SME LT GY, MOD FRM - SL HRD, BRIT, PREDY SB PLTY, SME SB BLKY, SLTY, F LAM, RR WH ELG CHK STRG AND CTGS, CLEAN RAPID HCL RXN. MARL: MED - DK GY, FRM - SL HRD, BRIT, SB PLTY - SB BLKY, FY LAM, RAPID HCL RXN. TR DISS VF PYR.

CH: GY BRN - SME LT GY, MOD FRM - SL HRD, BRIT, PREDY SB PLTY, SME SB BLKY, SLTY, F LAM, RR WH ELG CHK STRG AND CTGS, CLEAN RAPID HCL RXN. MARL: MED - DK GY, FRM - SL HRD, BRIT, SB PLTY - SB BLKY, FY LAM, RAPID HCL RXN. TR DISS VF PYR.

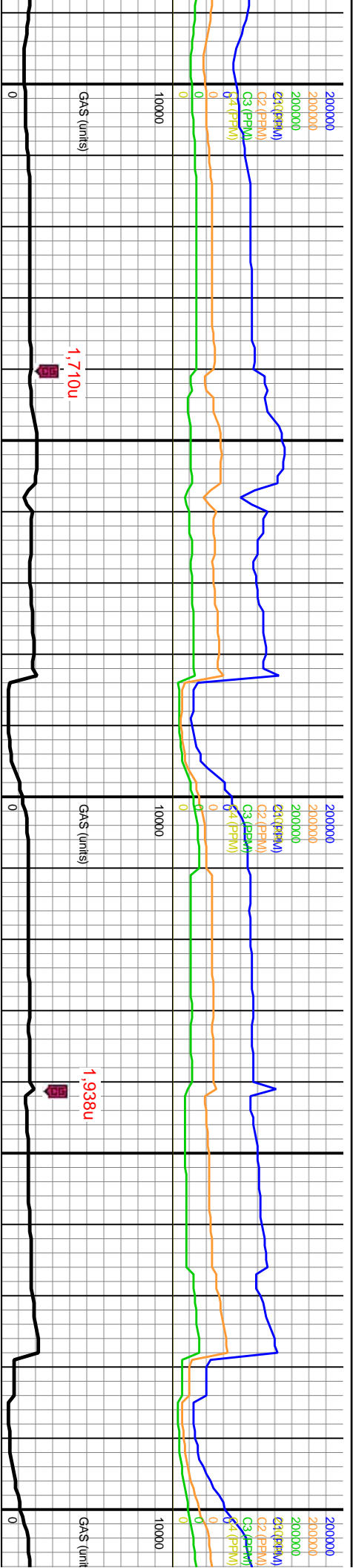


MD: 10,594'
Inclination: 89.8°
Azimuth: 268.3°
TVD: 7,086.6'

MD: 10,691'
Inclination: 90.1°
Azimuth: 268.2°
TVD: 7,086.6'



MUD IN/OUT:
WT: 9.4/9.4
VIS: 36/36
WOB: 14.9
RPM: 61
PP: 4193
SPM: 86
ROP (min/ft)
GAMMA (units)



CHK: GY BRN - SME LT GY, PREDY SB PLTY, SME SB BLKY, MOD FRM - SL HRD, BRIT, SLTY, F LAM, CLEAN RAPID HCL RXN, RR WH ELG CHK STRG AND CTGS. MARL: MED - DK GY, SB PLTY - SB BLKY, FRM - SL HRD, BRIT, RAPID HCL RXN, FY LAM. TR DISS VF PYR.

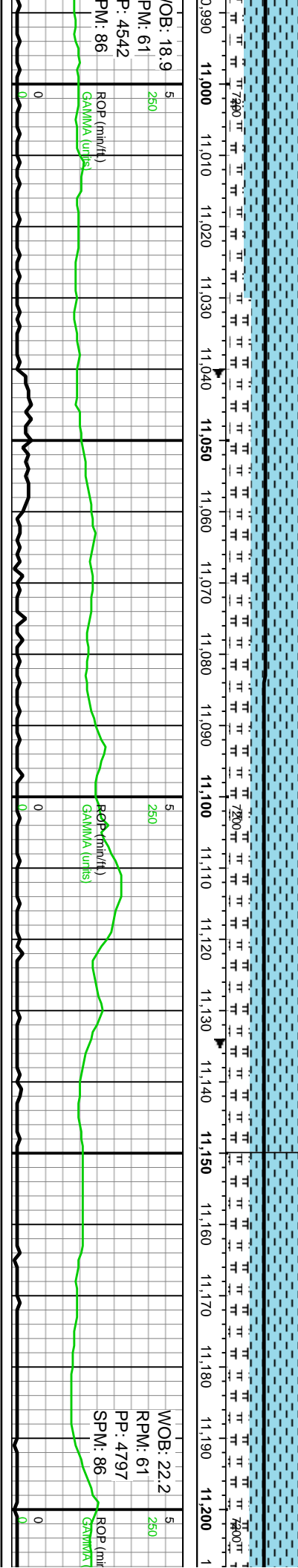
CHK: GY BRN - SME LT GY, PREDY SB PLTY, SME SB BLKY, MOD FRM - SL HRD, BRIT, SLTY, F LAM, CLEAN RAPID HCL RXN, RR WH ELG CHK STRG AND CTGS. MARL: MED - DK GY, SB PLTY - SB BLKY, FRM - SL HRD, BRIT, RAPID HCL RXN, FY LAM. TR DISS VF PYR.

CHK: PREDY GY BRN, SME LT GY, PREDY SB PLTY, SME SB BLKY, MOD FRM - SL HRD, BRIT, SLTY, F L RR WH ELG CHK STRG AND CTGS, CLEAN RAPID HCL RXN. MARL: MED - DK GY, SB PLTY - SB BLKY FRM - SL HRD, BRIT, RAPID HCL RXN, FY LAM. TR DISS VF PYR.



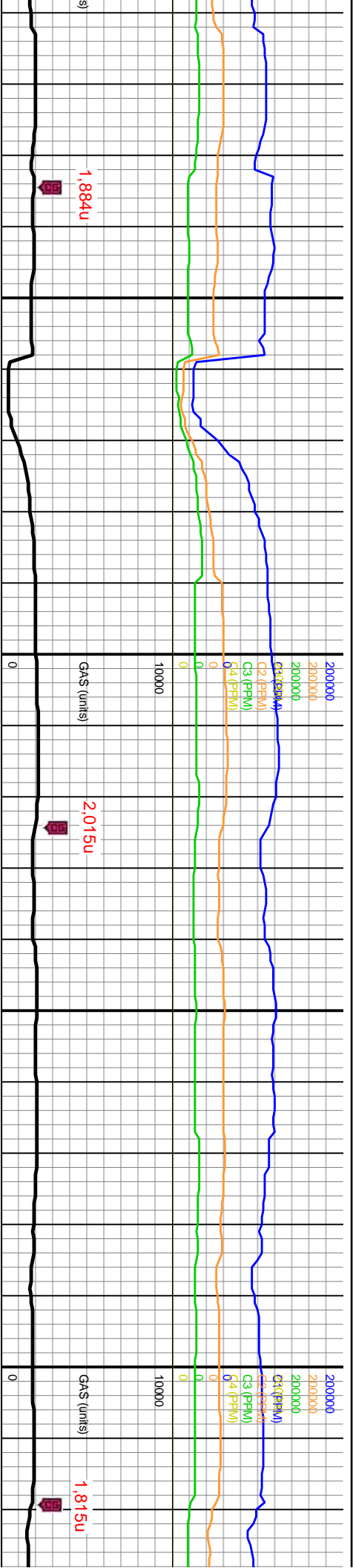
MD: 11.06°
Inclination: 88.1°
Azimuth: 267.1°
TVD: 7.087.2'

MD: 11.16°
Inclination: 88.4°
Azimuth: 268.1°
TVD: 7.090.1'



OB: 18.9
PM: 61
P: 4542
PM: 86

WOB: 22.2
RPM: 61
PP: 4797
SPM: 86



CHK: PREDY GY BRN, SME LT GY, PREDY SB PLTY, SME SB BLKY, MOD FRM - SL HRD, BRIT, SLTY, F LAM, RR WH ELG CHK STRG AND CTGS, CLEAN RAPID HCL RXN. MARL: MED - DK GY, SB PLTY - SB BLKY, FRM - SL HRD, BRIT, RAPID HCL RXN, FY LAM. TR DISS VF PYR.

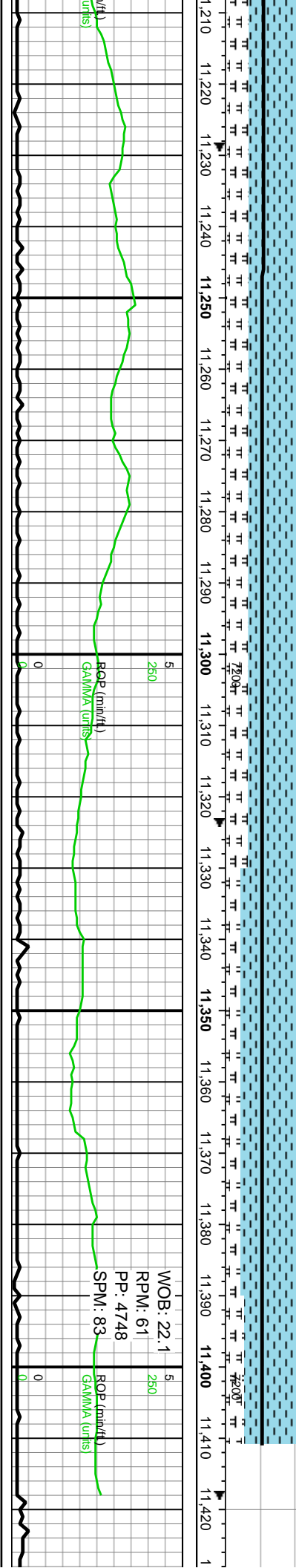
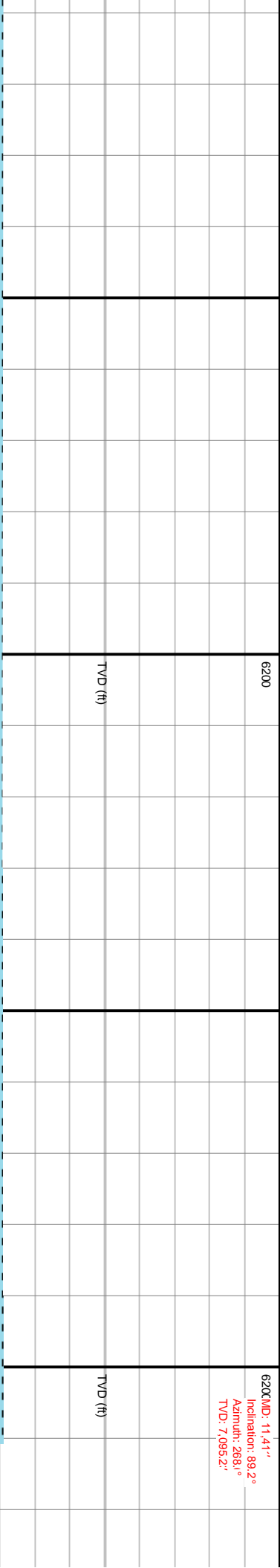
CHK: GY BRN - LT GY, PREDY SB PLTY, SME SB BLKY, MOD FRM - SL HRD, BRIT, F LAM, RR WH ELG CHK STRG AND CTGS, SLTY, CLEAN RAPID HCL RXN. MARL: MED - DK GY, SB PLTY - SB BLKY, FRM - SL HRD, BRIT, FY LAM, RAPID HCL RXN. TR DISS VF PYR.

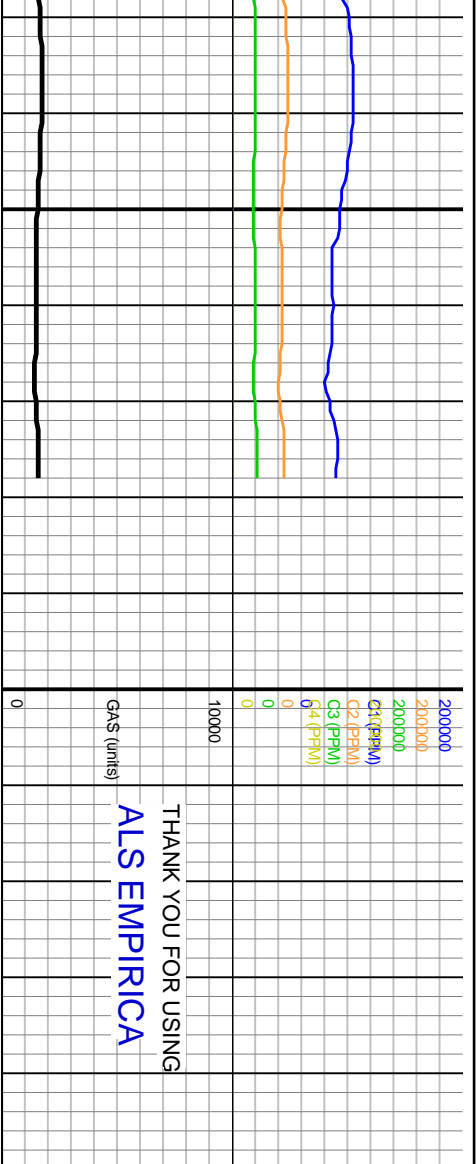
CHK: GY BRN - LT GY, SB PLTY - SB BLKY, MOD FRM - SL HRD, BRIT, F LAM, RR WH ELG CHK STRG AND CTGS, SLTY, CLEAN RAPID HCL RXN. MARL: MED - DK GY, SB PLTY - SB BLKY, FRM - SL HRD, BRIT, FY LAM, RAPID HCL RXN. TR DISS VF PYR.

CHK: BLK ELG HCL FRM DIS



MD: 11.41°
Inclination: 89.2°
Azimuth: 268.1°
TVD: 7.085.2°





CGY BRN - LT GY, PREDY SB PLTY, SME SB
GY, MOD FRM - SL HRD, BRIT, F LAM, RR WH
CHK STRG AND CTGS, SLTY, CLEAN RAPID
RXN. MARL: MED - DK GY, SB PLTY - SB BLKY,
4 - SL HRD, BRIT, FY LAM, RAPID HCL RXN. TR
S VF PYR.

REACHED TD OF
11,478' MD @ 19:15
ON 12/13/2014

