



Empirica

Scale: 5" / 100'
Measured Depth Log

Well Name Windsor_LV_E_14-H_Horizontal

State Colorado

County Weld

Country USA

Rig Number H&P 319

API Number 051233817900

AFE # 14-756

Region DJ Basin

Field Wattenburg

Spud Date 11/25/2014

Drilling Completed 11/30/2014

Ground Elevation 4846'

K.B. Elevation 4846'

Logged Interval 6287' To 11,482'

Total Depth 5195'

Formation Niobrara B

Type of Drilling Fluid WBM

Operator

Company Extraction Oil & Gas, LLC

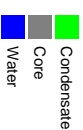
Geologist

Name Justin Perry & Geoff Sterling

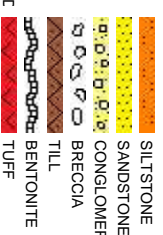
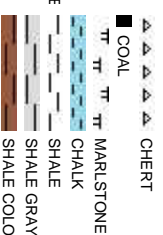
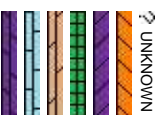
Company ALS Empirica

Address 600 17th Street, Suite 725S
Denver, CO 80202

Zone Color Coding



Rock Types

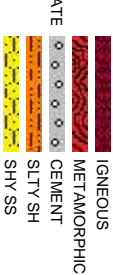


Accessories

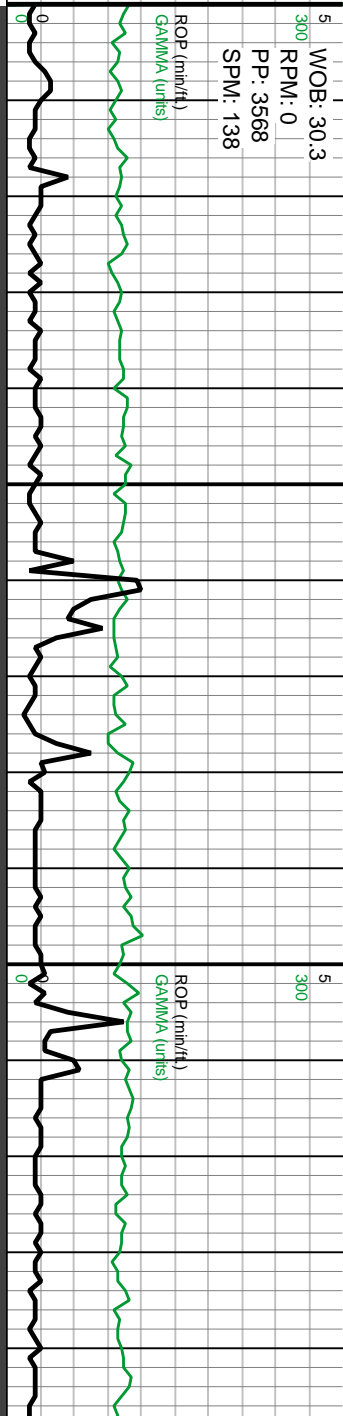
Fossils		Stringer	
F FOSSIL	— ARGILLACEOUS	↘ GLAUCONITE	
GASTROPOD	/ ARGILLITE GRAIN	≡ GYPSIFEROUS	
ALGAE	ⓑ BENTONITE	Ⓜ HEAVY MINERAL	— ANHYDRITE STRINGER
AMPHIRORA	ⓑ BITUMENOUS SUBSTANCE	Ⓚ KAOLIN	— BENTONITE STRINGER
BELEMNITE	ⓑ BRECCIA FRAGMENTS	Ⓜ MARLSTONE	— COAL STRINGER
BIOLASTIC	Ⓜ CALCAREOUS	Ⓜ MINERAL CRYSTALS	— DOLOMITE STRINGER
BRACHIOPOD	■ CARBONACEOUS FLAKES	Ⓜ NODULES	— GYPSUM STRINGER
BRIOZOA	Ⓜ CHTDK	Ⓜ PHOSPHATE PELLETT	— LIMESTONE STRINGER
CEPHALOPOD	Ⓜ CHTLT	Ⓜ PYRITE	— MARLSTONE (CALC) STRG
CORAL	— COAL - THIN BEDS	Ⓜ SALT CAST	— MARLSTONE (DOL) STRG
CRINOID	Ⓜ DOLOMITIC	Ⓜ SANDY	— SANDSTONE STRINGER
ECHINOID	+ FELDSPAR	↘ SILICEOUS	— SHALE STRINGER
Minerals			— SILTSTONE STRINGER
FISH	● FERRUGINOUS PELLETT	Ⓜ SILTY	
FORAMINIFERA	≡ ANHYDRITIC	↘ FERRUGINOUS	
		↘ TUFFACEOUS	

Other Symbols

Ⓜ ORGANIC	↘ FAULT	Ⓜ WIRELINE TESTED - RT	Ⓜ FINELYXLN
P PINPOINT	↔ FORMATION TOP	Ⓜ MN DEPTH	Ⓜ GRAINSTONE
D DEAD	↘ VUGGY	Ⓜ GAS SHOW	
EVEN		Ⓜ MINDEPTH MN DEPTH	
Engineering		Rounding	
Ⓜ QUESTIONABLE	Ⓜ BIT	Ⓜ NORMAL FAULT	Ⓜ ANGULAR
SPOTTED STAINING	Ⓜ CASING	↔ OVERTURNED STRATA	Ⓜ ROUNDED
	↔ CONNECTION (LEFT)	↔ REVERSE FAULT	Ⓜ SUBANG
	↔ CONNECTION (RIGHT)	Ⓜ SIDEWALL CORE (LEFT)	Ⓜ SUBRND
	Ⓜ FENESTRAL	Ⓜ CONNECTION GAS	Ⓜ SIDEWALL CORE (RIGHT)
F FRACTURE	Ⓜ CG	Ⓜ SLIDE	Ⓜ BOUNDSTONE
Ⓜ INTERCRYSTALLINE	Ⓜ CORE - LOST	Ⓜ SURVEY	Ⓜ POOR
Ⓜ INTEROOLITIC	Ⓜ CORE - RECOVERED	Ⓜ TRIP GAS	Ⓜ CHALKY
Ⓜ MOLDIC	Ⓜ DST INTERVAL	Ⓜ WIRELINE TESTED - LEFT	Ⓜ CRYPTOXLN
		Ⓜ E EARTHY	
Porosity		Textures	
			Ⓜ MODERATE
Sorting			



Extraction Oil & Gas



Slide/Rotate

Depth Labels

Total Gas & Chromatograph

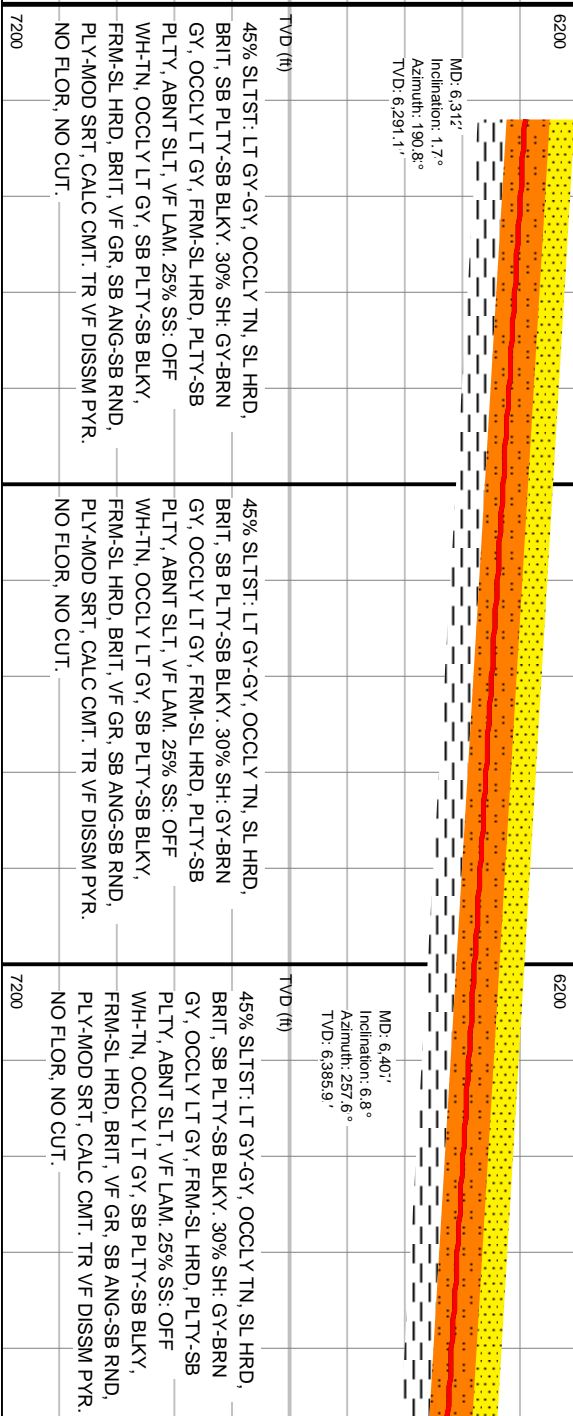
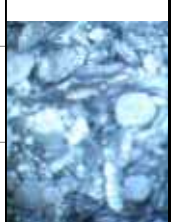
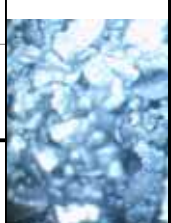
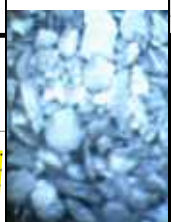
GAS
C1
C2
C3
C4

GAS (units)
C1-C4 (PPM)
Gas Scale =
0 - 6000 units

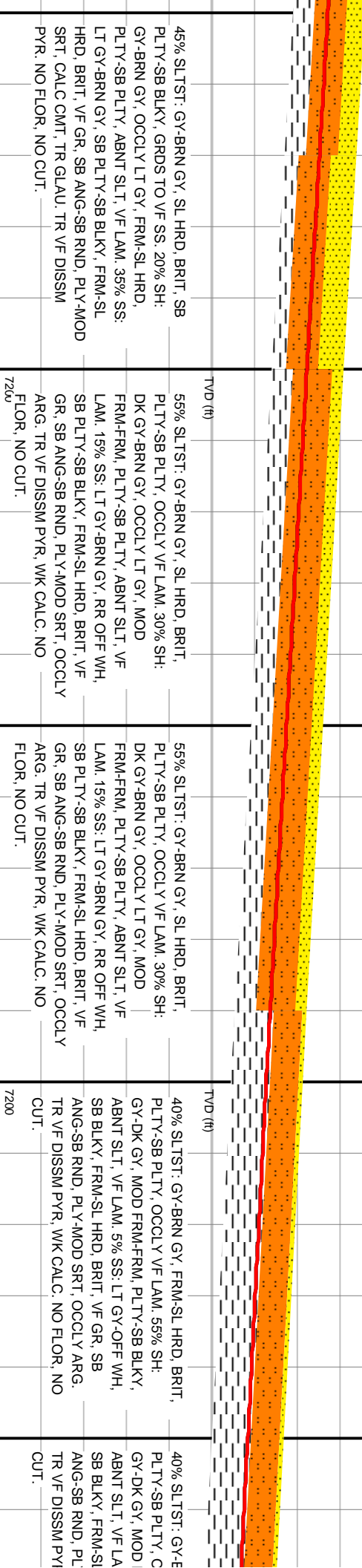
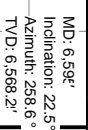
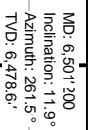
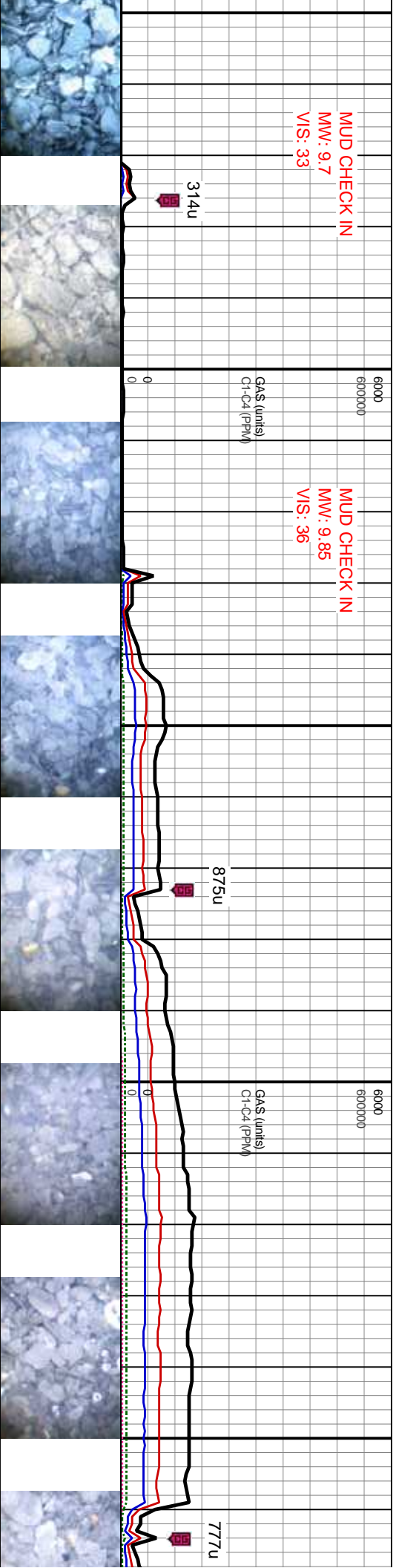
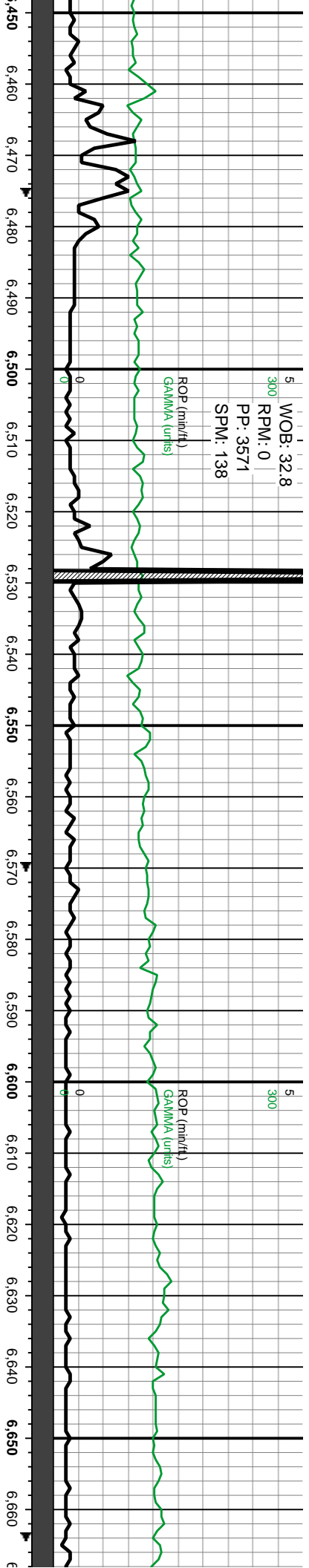
GAS (units)
C1-C4 (PPM)

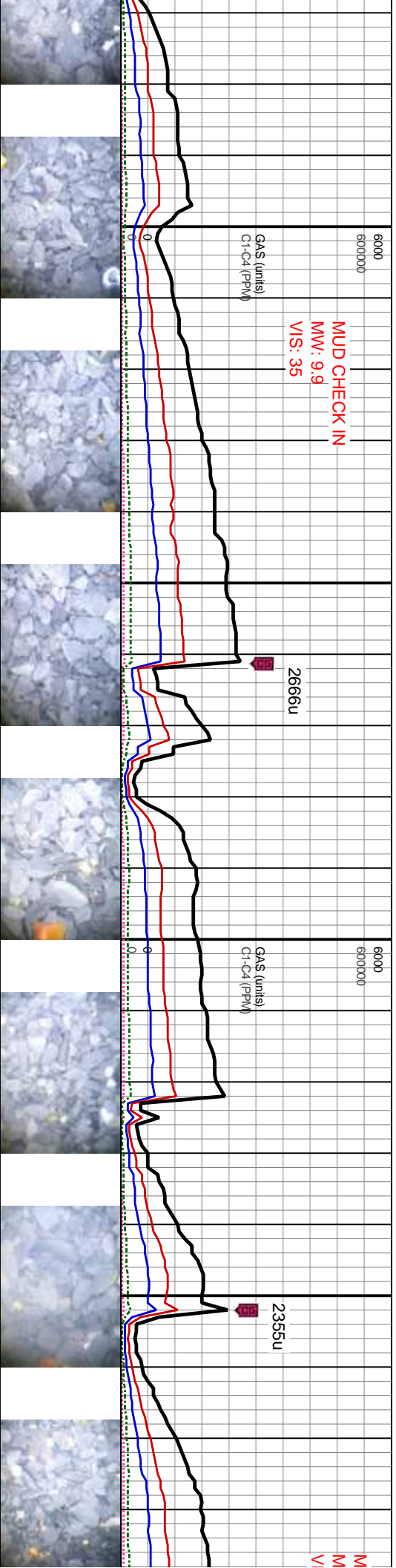
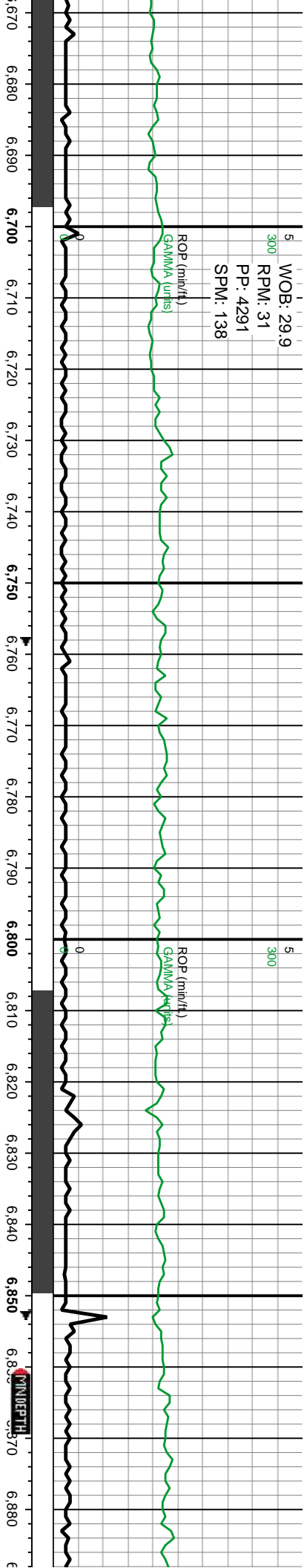
No Gas Readings Due to Equipment Repairs

Images



Well Bore
TVD

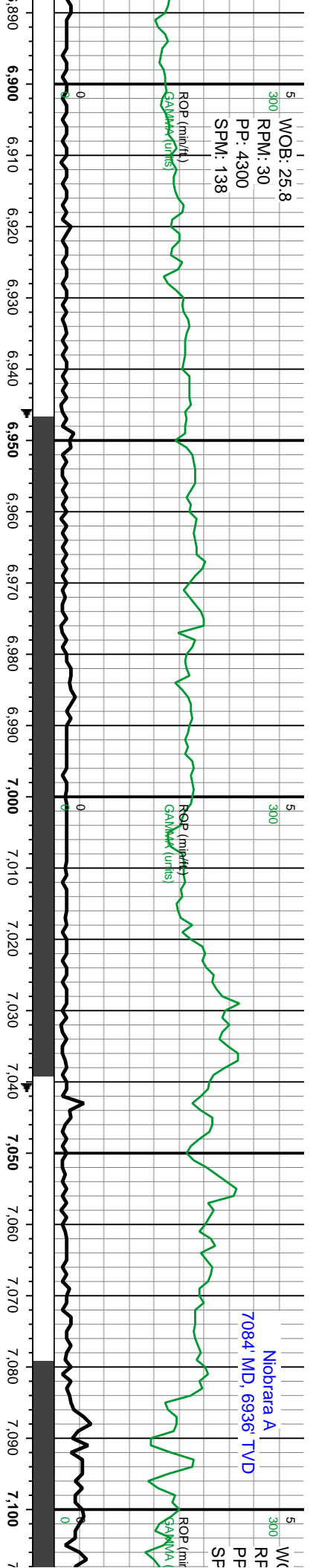




MD: 6.69C' Inclination: 37.3° Azimuth: 260.3° TVD: 6.650, 3'	6200	45% SLTST: GY-BRN GY, FRM-SL HRD, BRIT, PLTY-SB PLTY, OCCLY VF LAM. 50% SH: GY-DK GY, MOD FRM, PLTY-SB PLTY, MOD FISS, ABNT SLT, VF LAM. 5% SS: LT GY-OFF WH, SB BLKY, FRM-SL HRD, BRIT, VF GR, SB ANG-SB RND, PLY-MOD SRT, OCCLY ARG. TR VF DISSM PYR, V WK CALC. NO FLOR, NO CUT.	6200	45% SLTST: GY-BRN GY, FRM-SL HRD, BRIT, PLTY-SB PLTY, OCCLY VF LAM. 50% SH: GY-DK GY, MOD FRM, PLTY-SB PLTY, MOD FISS, ABNT SLT, VF LAM. 5% SS: LT GY-OFF WH, SB BLKY, FRM-SL HRD, BRIT, VF GR, SB ANG-SB RND, PLY-MOD SRT, OCCLY ARG. TR VF DISSM PYR, V WK CALC. NO FLOR, NO CUT.	MD: 6.87C' Inclination: 43.2° Azimuth: 267.4° TVD: 6.797, 1'
MD: 6.69C' Inclination: 37.3° Azimuth: 260.3° TVD: 6.650, 3'	7200	45% SLTST: GY-BRN GY, FRM-SL HRD, BRIT, PLTY-SB PLTY, OCCLY VF LAM. 50% SH: GY-DK GY, MOD FRM, PLTY-SB PLTY, MOD FISS, ABNT SLT, VF LAM. 5% SS: LT GY-OFF WH, SB BLKY, FRM-SL HRD, BRIT, VF GR, SB ANG-SB RND, PLY-MOD SRT, OCCLY ARG. TR VF DISSM PYR, V WK CALC. NO FLOR, NO CUT.	7200	45% SLTST: GY-BRN GY, FRM-SL HRD, BRIT, PLTY-SB PLTY, OCCLY VF LAM. 50% SH: GY-DK GY, MOD FRM, PLTY-SB PLTY, MOD FISS, ABNT SLT, VF LAM. 5% SS: LT GY-OFF WH, SB BLKY, FRM-SL HRD, BRIT, VF GR, SB ANG-SB RND, PLY-MOD SRT, OCCLY ARG. TR VF DISSM PYR, V WK CALC. NO FLOR, NO CUT.	MD: 6.87C' Inclination: 43.2° Azimuth: 267.4° TVD: 6.797, 1'

WOB: 25.8
RPM: 30
PP: 4300
SPM: 138

Niobrara A
7084' MD, 6936' TVD

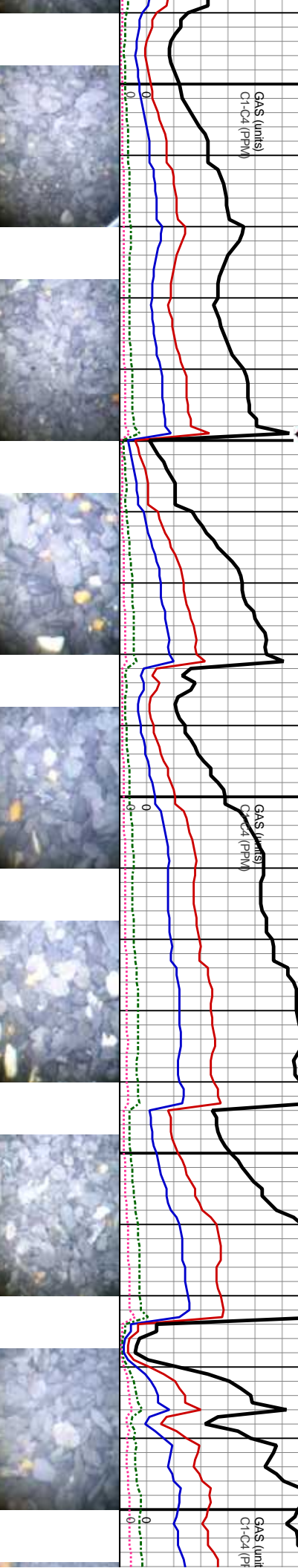


UD CHECK IN 1000
W: 9.9
S: 35

3768u

MUD CHECK IN
MW: 10.0
VIS: 35

WOB: 25.8
RPM: 30
PP: 4300
SPM: 138



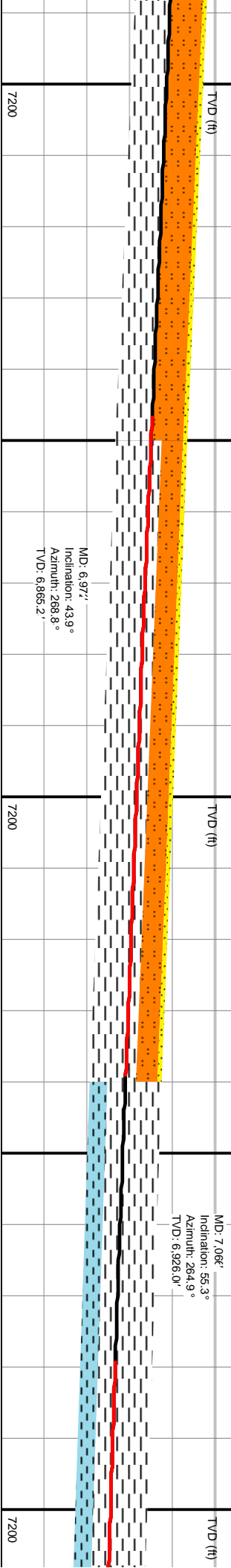
45% SLTST: GY, MOD FRM-SL HRD, BRIT, PLTY-SB PLTY, OCCLY VF LAM, 50% SH: GY-DK GY, MOD FRM, PLTY-SB PLTY, MOD FISS, ABNT SLT, VF LAM, 5% SS: LT GY-OFF WH, OCCLY TAN, SB PLTY-SB BLKY, FRM, BRIT, V-F GR, SB ANG-SB RND, MOD SRT, TR GLAU, TR VF DISSM PYR, V WK CALC, NO FLOR, NO CUT.

30% SLTST: GY-DK GY, MOD FRM-SL HRD, BRIT, PLTY-SB PLTY, OCCLY VF LAM, 65% SH: GY-DK GY, MOD FRM, PLTY-SB PLTY, MOD FISS, CARB, VF LAM, 5% SS: LT GY-OFF WH, OCCLY TAN, SB PLTY-SB BLKY, FRM, BRIT, V-F GR, SB ANG-SB RND, MOD SRT, TR VF DISSM PYR, V WK CALC, NO FLOR, NO CUT. ABNT BENT.

30% SLTST: GY-DK GY, MOD FRM-SL HRD, BRIT, PLTY-SB PLTY, OCCLY VF LAM, 65% SH: GY-DK GY, MOD FRM, PLTY-SB PLTY, MOD FISS, CARB, VF LAM, 5% SS: LT GY-OFF WH, OCCLY TAN, SB PLTY-SB BLKY, FRM, BRIT, V-F GR, SB ANG-SB RND, MOD SRT, TR VF DISSM PYR, V WK CALC, NO FLOR, NO CUT. ABNT BENT.

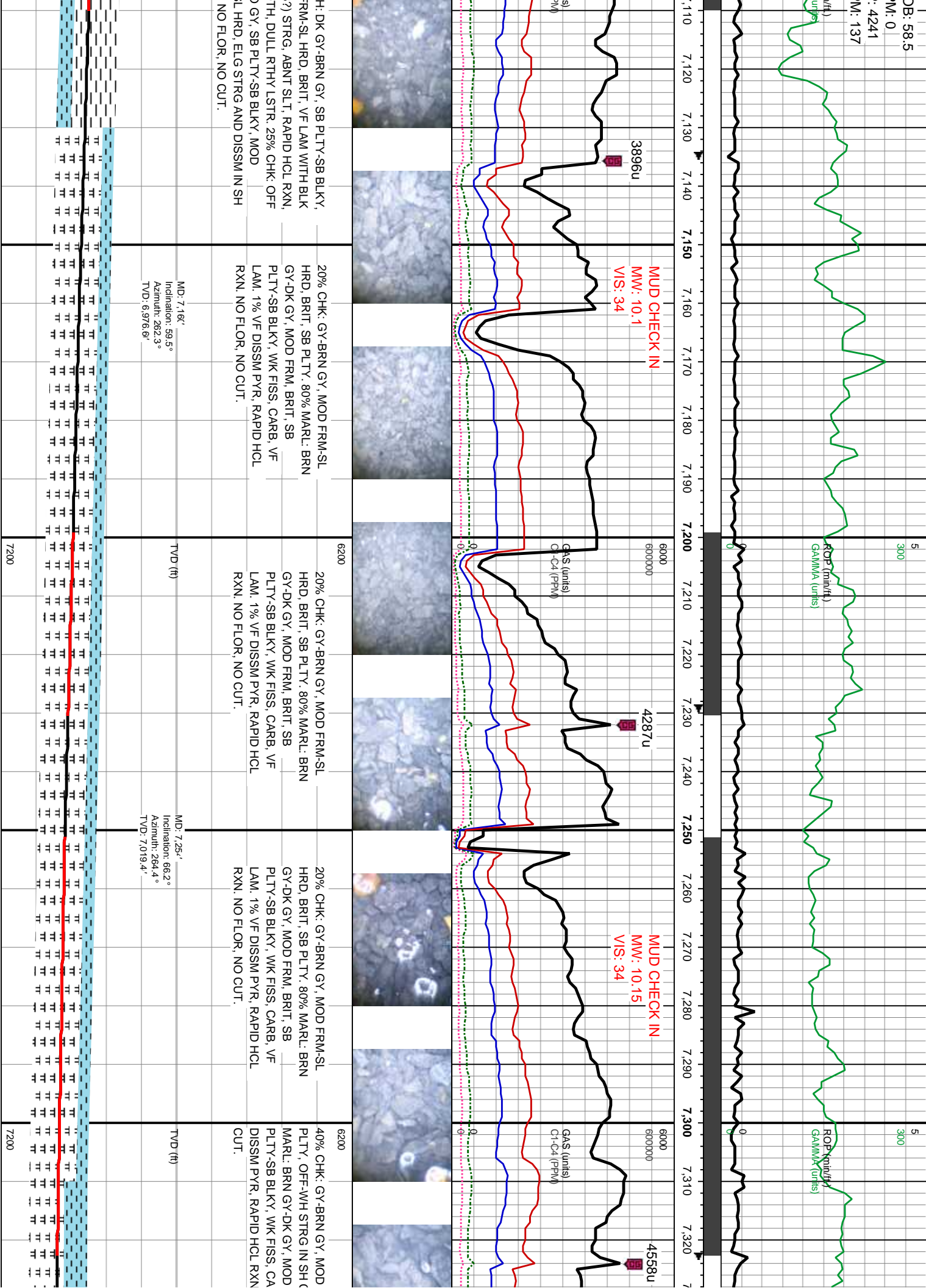
75% SH: DK GY-BRN GY, SB PLTY-SB BLKY, MOD FRM-SL HRD, BRIT, VF LAM WITH BLK (CARB?) STRG, ABNT SLT, RAPID HCL RXN, SMOOTH, DULL RTHY LSTR, 25% CHK: OFF WH TO GY, SB PLTY-SB BLKY, MOD FRM-SL HRD, ELG STRG AND DISSM IN SH CTGS, NO FLOR, NO CUT.

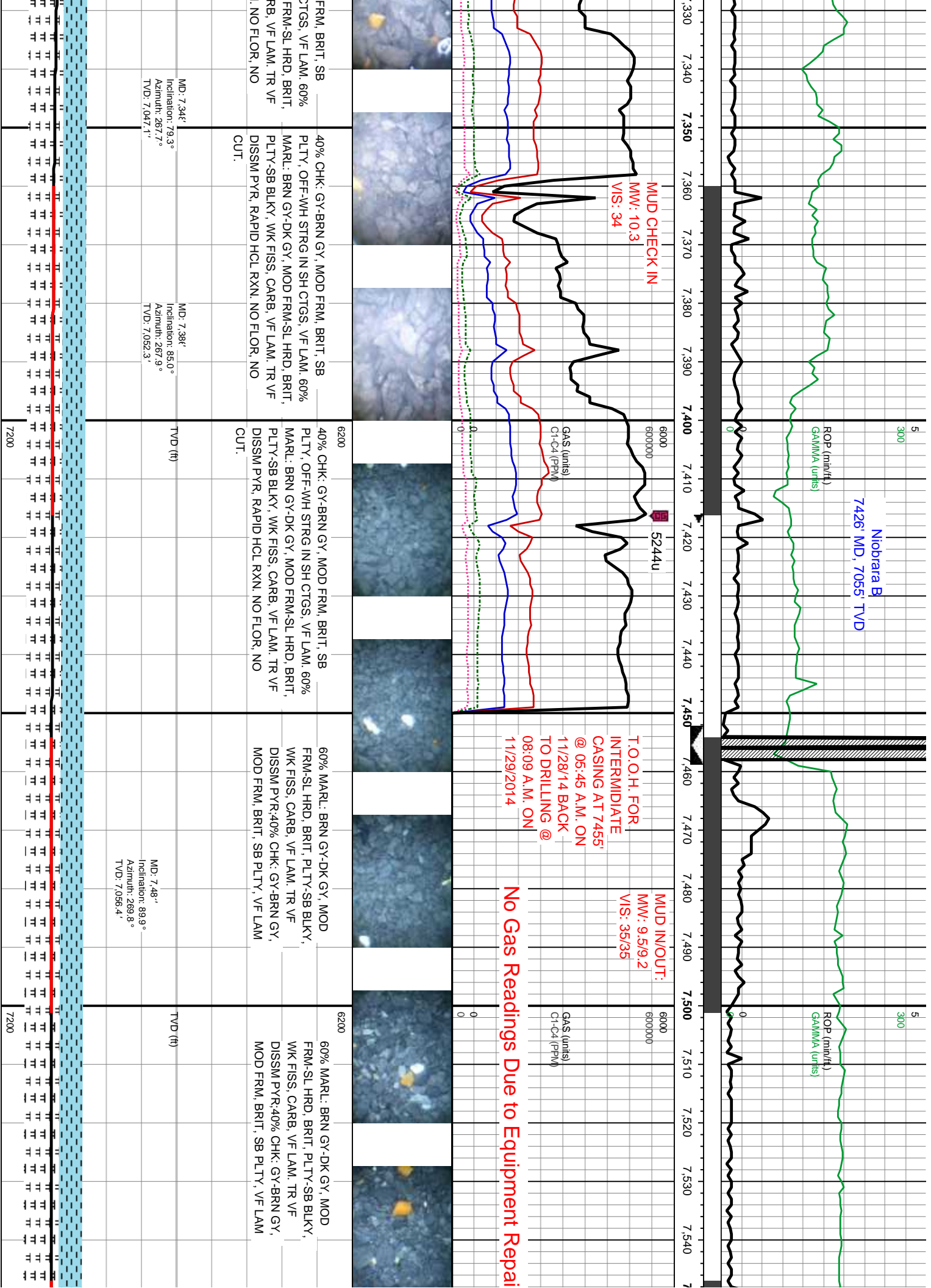
75% S MOD F (CARB?) SMOOTH, DULL RTHY LSTR, 25% CHK: OFF WH TO GY, SB PLTY-SB BLKY, MOD FRM-SL HRD, ELG STRG AND DISSM IN SH CTGS.

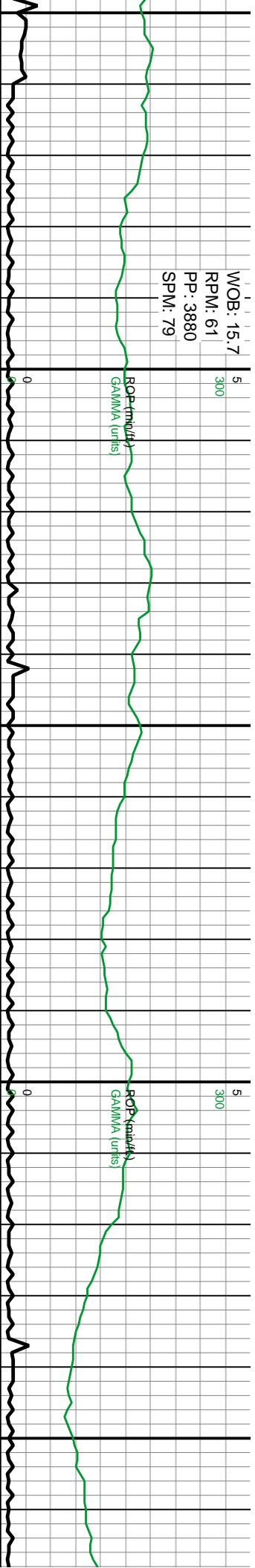


MD: 6.97'
Inclination: 43.9°
Azimuth: 268.8°
TVD: 6.865.2'

MD: 7.06'
Inclination: 55.3°
Azimuth: 264.9°
TVD: 6.926.0'







7,550 7,560 7,570 7,580 7,590 7,600 7,610 7,620 7,630 7,640 7,650 7,660 7,670 7,680 7,690 7,700 7,710 7,720 7,730 7,740 7,750 7,760

10000
1000000

MUD IN/OUT:
MW: 9.5/9.2
VIS: 35/35

GAS SCALE CHANGE
0 - 10,000 units

GAS (units)
C1-C4 (PPM)

MUD IN/OUT:
MW: 9.5/9.2
VIS: 35/35

GAS (units)
C1-C4 (PPM)

4413u

0

0

0

0



60% MARL: BRN GY-DK GY, MOD
FRM-SL HRD, BRIT, PLTY-SB BLKY,
WK FISS, CARB, VF LAM, TR VF
DISSM PYR, 40% CHK: GY-BRN GY,
MOD FRM, BRIT, SB PLTY, VF LAM

60% MARL: BRN GY-DK GY, MOD
FRM-SL HRD, BRIT, PLTY-SB BLKY,
WK FISS, CARB, VF LAM, TR VF
DISSM PYR, 40% CHK: GY-BRN GY,
MOD FRM, BRIT, SB PLTY, VF LAM

70% MARL: MED-DK GY, PLTY-SB BLKY,
VF GRND, MOD SFT-HRD, SIL, SM, DULL
RTHY LSTR: 30% CHK: LT-MED GRY,
BRN-GY, CRPXLN, MOT, VF LAM, V CALC,
SB BLKY-SB PLTY, MOD-FRM

70% MARL: MED-DK GY, PLTY-SB BLKY,
VF GRND, MOD SFT-HRD, SIL, SM, DULL
RTHY LSTR: 30% CHK: LT-MED GRY,
BRN-GY, CRPXLN, MOT, VF LAM, V CALC,
SB BLKY-SB PLTY, MOD-FRM

50% MARL: N
VF GRND, MOD
RTHY LSTR:
BRN-GY, CR
SB BLKY-SB

MD: 7.57'
Inclination: 87.°
Azimuth: 289.1°
TVD: 7,058.2'

TVD (ft)

MD: 7.66'
Inclination: 87.7°
Azimuth: 288.7°
TVD: 7,061.1'

TVD (ft)

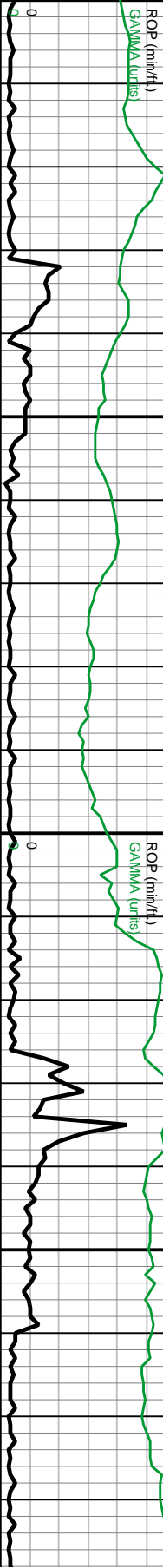
MD: 7.76'
Inclination: 87.7°
Azimuth: 288.5°
TVD: 7,065.5'



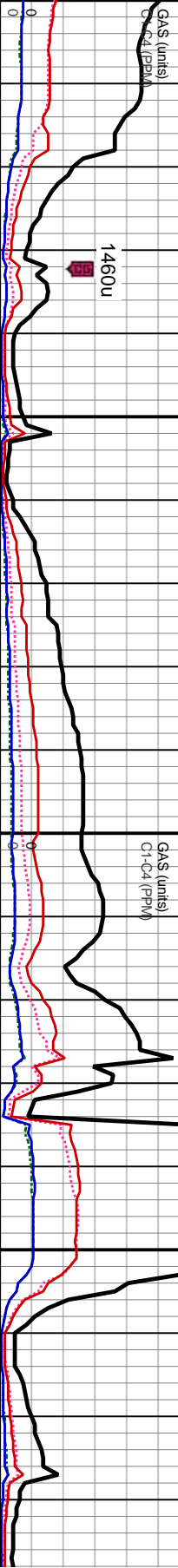
7200

7200

WOB: 17.6
RPM: 61
PP: 3843
SPM: 79



MUD IN/OUT:
MW: 9.5/9.2
VIS: 35/35



MUD IN/OUT:
MW: 9.5/9.2
VIS: 35/35

5464u

MUD IN/OUT:
MW: 9.5/9.2
VIS: 35/35

50% MARL: MED-DK GY, PLTY-SB BLKY,
DD SFT-HRD, SIL, SM, DULL
60% CHK: LT-MED GRV,
BRN-GY, CRPXLN, MOT, VF LAM, V CALC,
PLTY, MOD-FRM

50% MARL: MED-DK GY, PLTY-SB BLKY,
VF GRND, MOD SFT-HRD, SIL, SM, DULL
RTHY LSTR: 50% CHK: LT-MED GRV,
BRN-GY, CRPXLN, MOT, VF LAM, V CALC,
SB BLKY-SB PLTY, MOD-FRM

50% MARL: MED-DK GY, PLTY-SB BLKY,
VF GRND, MOD SFT-HRD, SIL, SM, DULL
RTHY LSTR: 50% CHK: LT-MED GRV,
BRN-GY, CRPXLN, MOT, VF LAM, V CALC,
SB BLKY-SB PLTY, MOD-FRM

70% MARL: BRN GY-DK GY, MOD
FRM-SL HRD, BRIT, PLTY-SB BLKY,
WK FISS, CARB, VF LAM, TR VF
DISSM PYR: 30% CHK: GY-BRN GY,
MOD FRM, BRIT, SB PLTY, VF LAM

70% MARL: BRN GY-DK GY, MOD
FRM-SL HRD, BRIT, PLTY-SB BLK
WK FISS, CARB, VF LAM, TR VF
DISSM PYR: 30% CHK: GY-BRN GY,
MOD FRM, BRIT, SB PLTY, VF LAM

TVD (ft)

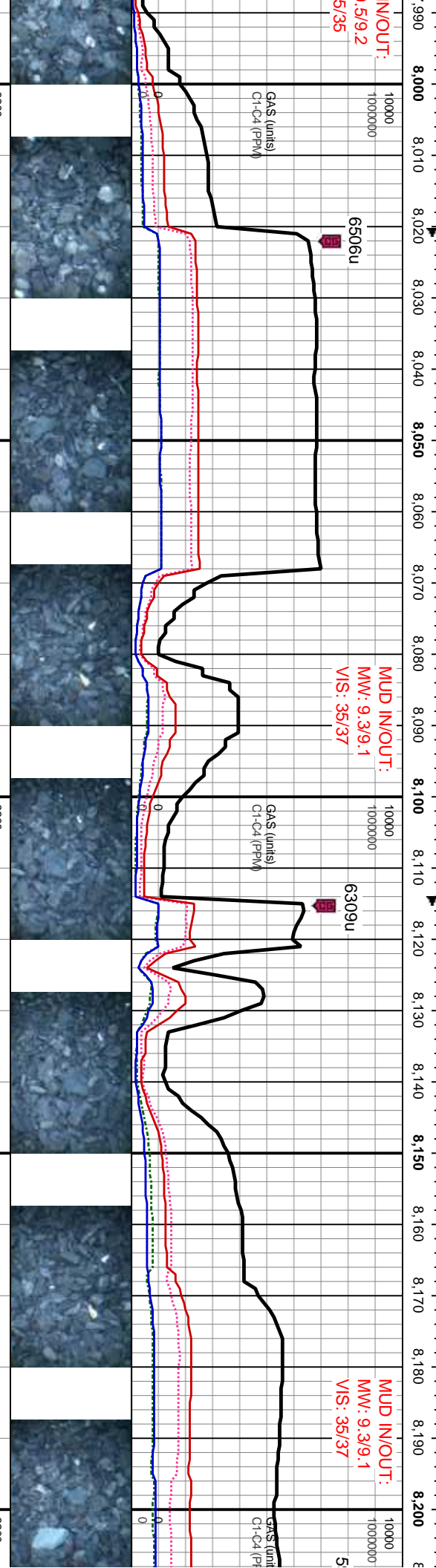
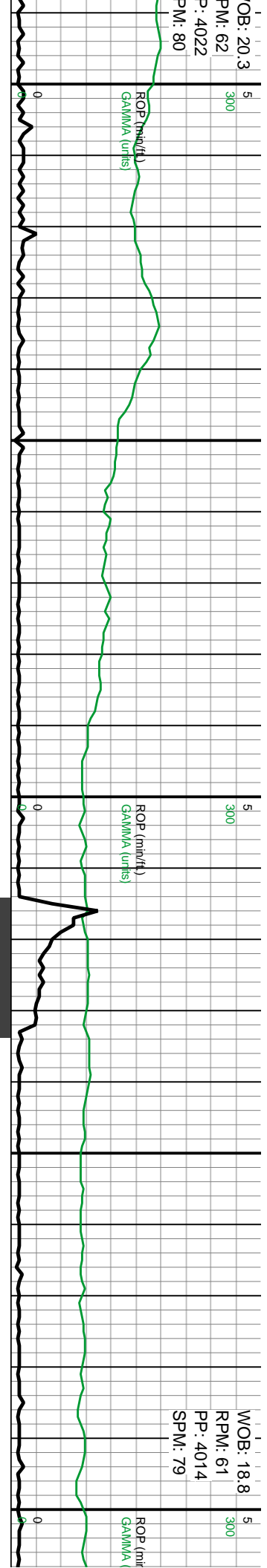
MD: 7.85'
Inclination: 87.7°
Azimuth: 270.4°
TVD: 7.069.2'

TVD (ft)

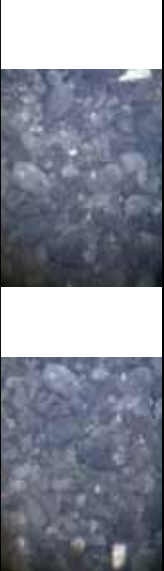
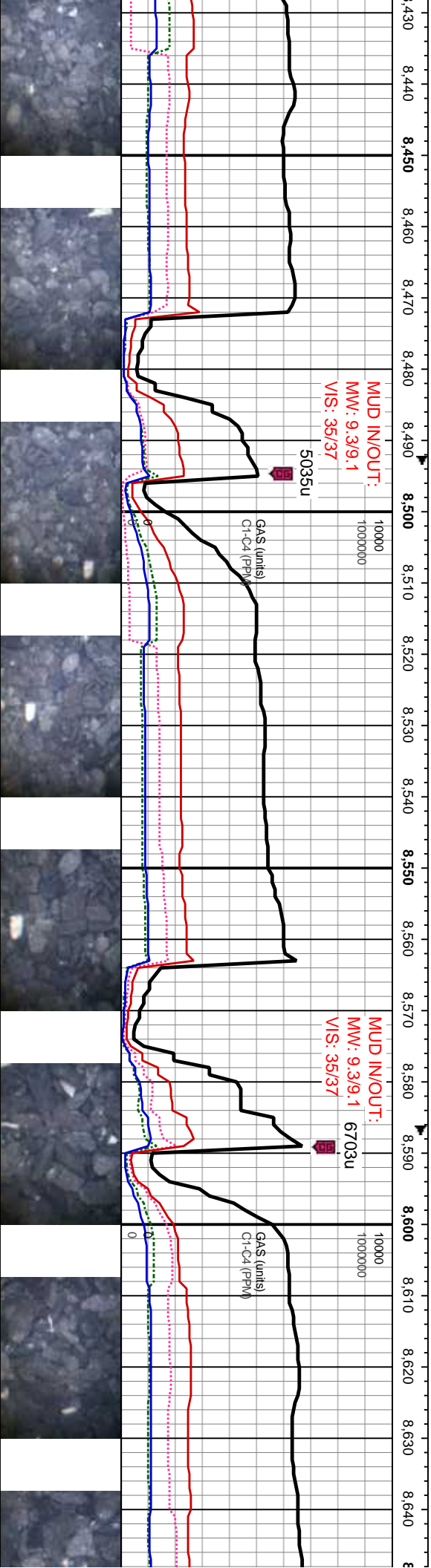
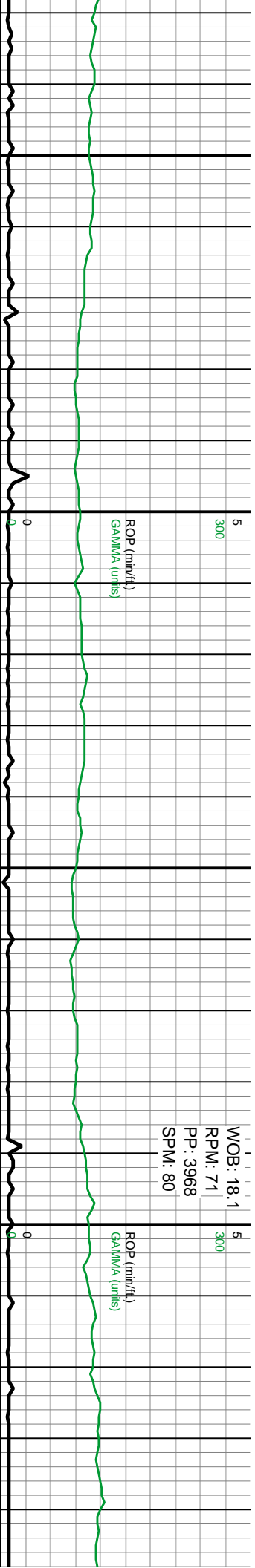
MD: 7.95'
Inclination: 90.2°
Azimuth: 270.7°
TVD: 7.070.1'

7200

7200



6200	70% MARL: BRN GY-DK GY, MOD FRM-SL HRD, BRIT, PLTY-SB BLKY, WK FISS, CARB, VF LAM, TR VF DISSM PYR,30% CHK: GY-BRN GY, MOD FRM, BRIT, SB PLTY, VF LAM	6200	70% MARL: BRN GY-DK GY, MOD FRM-SL HRD, BRIT, PLTY-SB BLKY, WK FISS, CARB, VF LAM, TR VF DISSM PYR,30% CHK: GY-BRN GY, MOD FRM, BRIT, SB PLTY, VF LAM	6200	60% CHK: LT-MED GRY, BRN-GY, CRPXLN, MOT, VF LAM, V CALC, SB BLKY-SB PLTY, MOD-FRM: 40% MARL, MED-DK GY, PLTY-SB BLKY, VF GRND, MOD SFT-HRD, SIL, SM, DULL RTHY LSTR	6200	60% CHK: LT-MED GRY, BRN-GY, CRPXLN, MOT, VF LAM, V CALC, SB BLKY-SB PLTY, MOD-FRM: 40% MARL, MED-DK GY, PLTY-SB BLKY, VF GRND, MOD SFT-HRD, SIL, SM, DULL RTHY LSTR	6200	60% MOT MOD PLTY SIL,
TVD (ft)		TVD (ft)		TVD (ft)		TVD (ft)		TVD (ft)	
MD: 8.04'		MD: 8.14'		MD: 8.14'		MD: 8.14'		MD: 8.14'	
Inclination: 90.8°		Inclination: 89.°		Inclination: 89.°		Inclination: 89.°		Inclination: 89.°	
Azimuth: 270.7°		Azimuth: 270.°		Azimuth: 270.°		Azimuth: 270.°		Azimuth: 270.°	
TVD: 7,070.0'		TVD: 7,069.7'		TVD: 7,069.7'		TVD: 7,069.7'		TVD: 7,069.7'	



60% CHK: LT-MED GRAY, BRN-GY, CRPXLN,
MOT, VF LAM, V CALC, SB BLKY-SB PLTY,
MOD-FRM, 40% MARL: MED-DK GY,
PLTY-SB BLKY, VF GRND, MOD SFT-HRD,
SIL, SM, DULL RTHY LSTR

60% CHK: LT-MED GRAY, BRN-GY, CRPXLN,
MOT, VF LAM, V CALC, SB BLKY-SB PLTY,
MOD-FRM, 40% MARL: MED-DK GY,
PLTY-SB BLKY, VF GRND, MOD SFT-HRD,
SIL, SM, DULL RTHY LSTR

60% CHK: LT-MED GRAY, BRN-GY, CRPXLN,
MOT, VF LAM, V CALC, SB BLKY-SB PLTY,
MOD-FRM, 40% MARL: MED-DK GY,
PLTY-SB BLKY, VF GRND, MOD SFT-HRD,
SIL, SM, DULL RTHY LSTR

60% CHK: LT-MED GRAY, BRN-GY, CRPXLN,
MOT, VF LAM, V CALC, SB BLKY-SB PLTY,
MOD-FRM, 40% MARL: MED-DK GY,
PLTY-SB BLKY, VF GRND, MOD SFT-HRD,
SIL, SM, DULL RTHY LSTR

60% CHK: LT-MED GRAY, BRN-GY, CRPXLN,
MOT, VF LAM, V CALC, SB BLKY-SB PLTY,
MOD-FRM, 40% MARL: MED-DK GY,
PLTY-SB BLKY, VF GRND, MOD SFT-HRD,
SIL, SM, DULL RTHY LSTR

60% CHK: LT-MED GRAY, BRN-GY, CRPXLN,
MOT, VF LAM, V CALC, SB BLKY-SB PLTY,
MOD-FRM, 40% MARL: MED-DK GY,
PLTY-SB BLKY, VF GRND, MOD SFT-HRD,
SIL, SM, DULL RTHY LSTR

TVD (ft)

MD: 8.517'
Inclination: 88.5°
Azimuth: 270.5°
TVD: 7.074.7'

TVD (ft)

MD: 8.517'
Inclination: 88.5°
Azimuth: 270.5°
TVD: 7.074.7'

TVD (ft)

MD: 8.517'
Inclination: 88.5°
Azimuth: 270.5°
TVD: 7.074.7'

TVD (ft)

MD: 8.517'
Inclination: 88.5°
Azimuth: 270.5°
TVD: 7.074.7'

TVD (ft)

MD: 8.517'
Inclination: 88.5°
Azimuth: 270.5°
TVD: 7.074.7'

TVD (ft)

MD: 8.517'
Inclination: 88.5°
Azimuth: 270.5°
TVD: 7.074.7'

7200

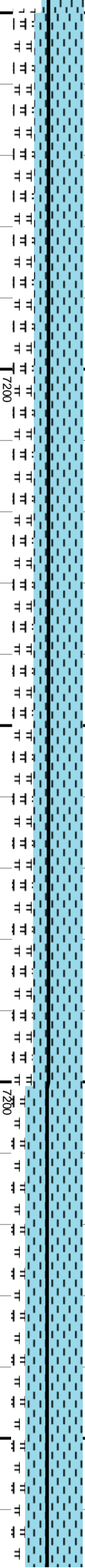
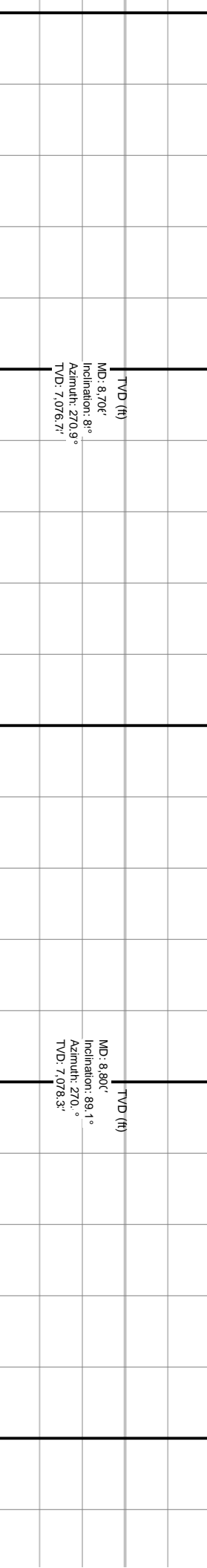
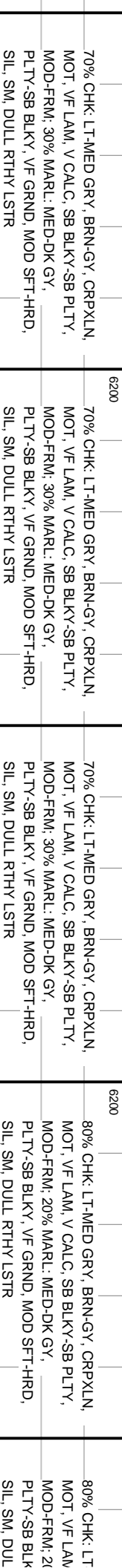
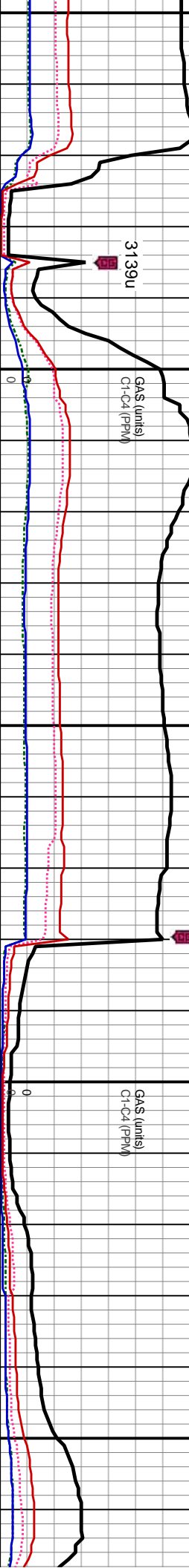
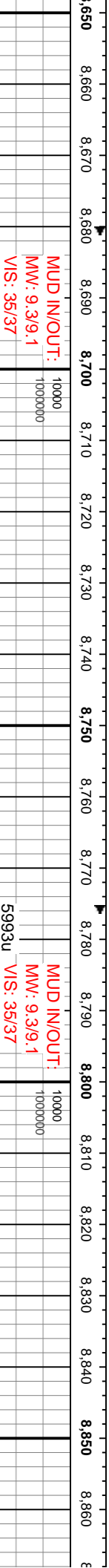
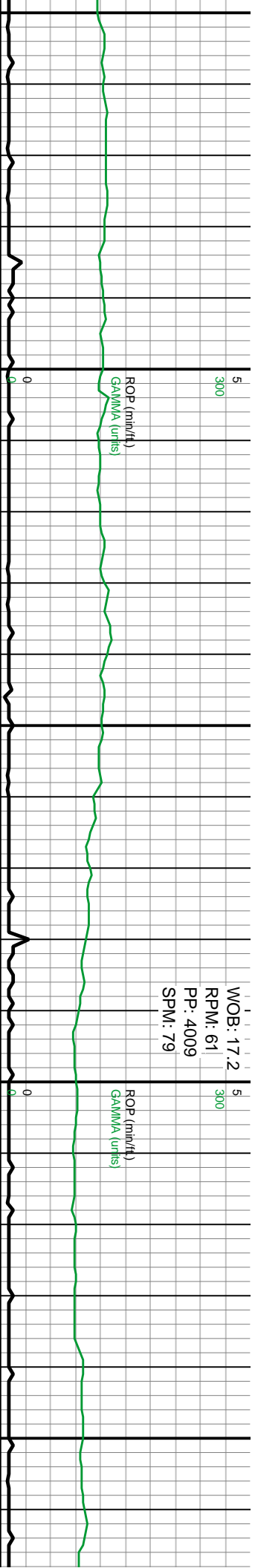
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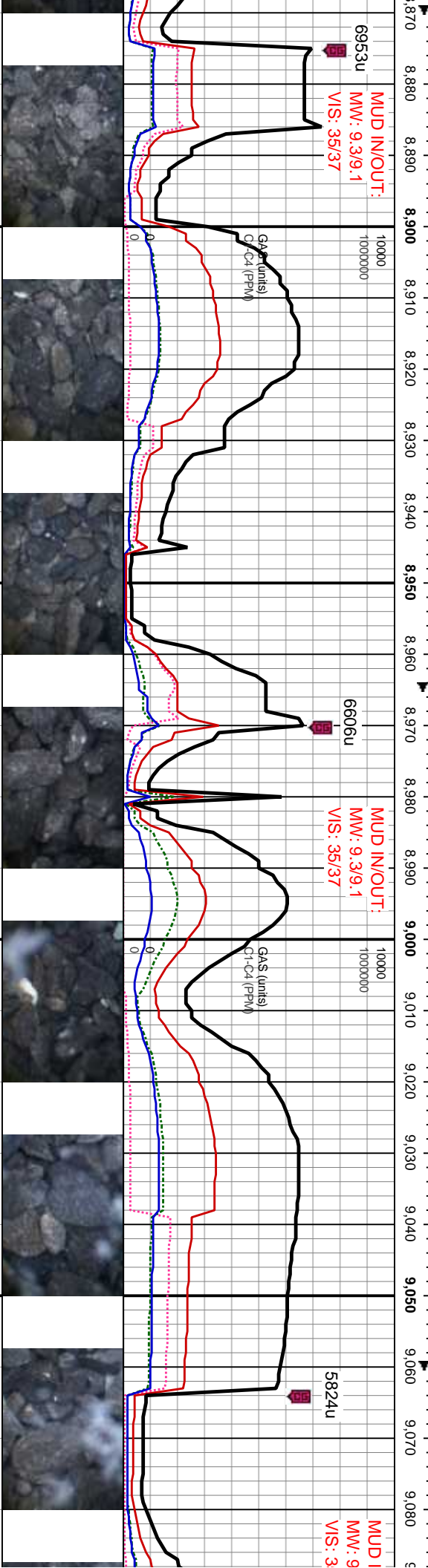
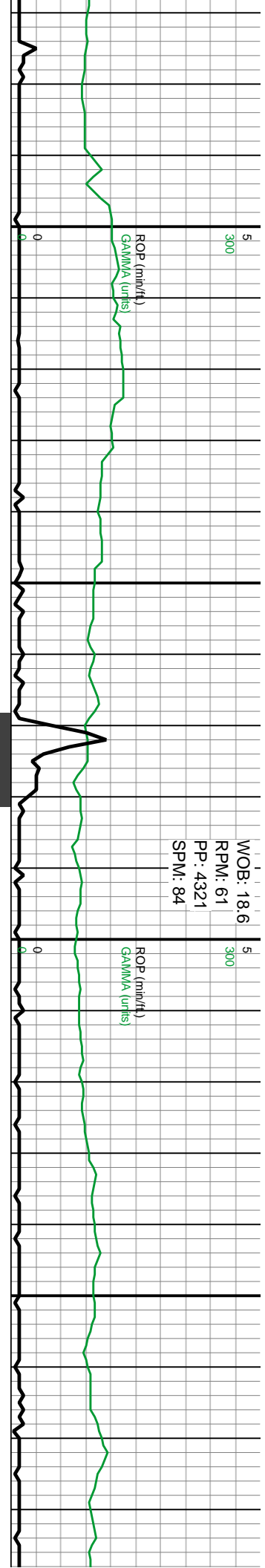
7200

7200

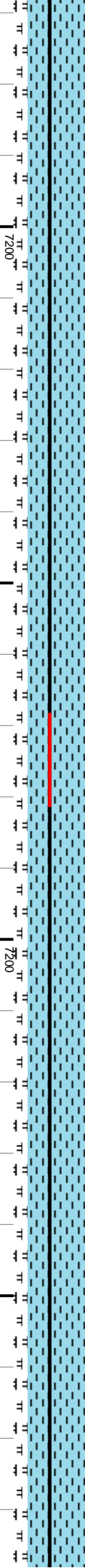
7200

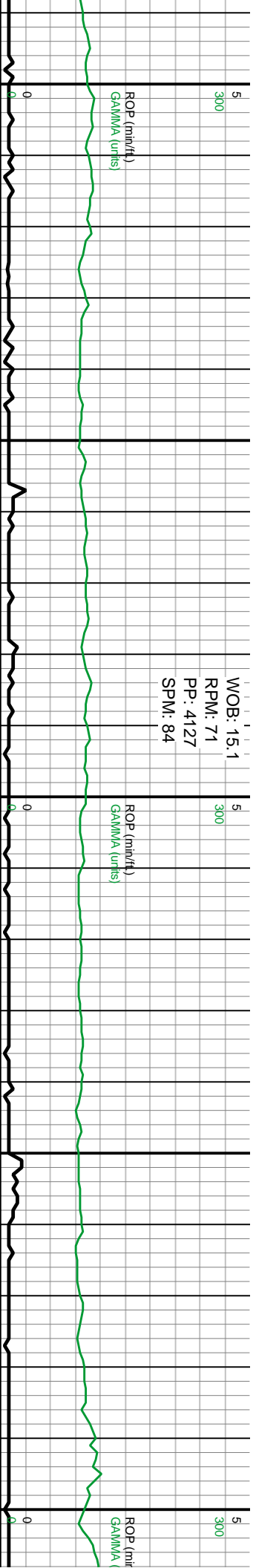
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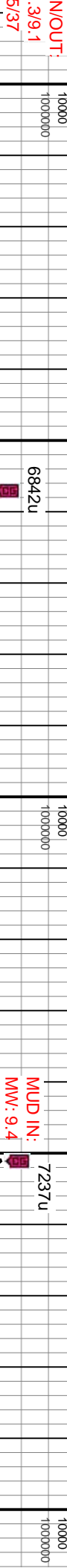


MED GRY, BRN-GY, CRPXLN, V CALC, SB BLKY-SB PLTY, % MARL: MED-DK GY, Y, VF GRND, MOD SFT-HRD, L RTHY LSTR	6200	80% CHK: LT-MED GRY, BRN-GY, CRPXLN, MOT, VF LAM, V CALC, SB BLKY-SB PLTY, MOD-FRM: 20% MARL: MED-DK GY, PLTY-SB BLKY, VF GRND, MOD SFT-HRD, SIL, SM, DULL RTHY LSTR	80% CHK: LT-MED GRY, BRN-GY, CRPXLN, MOT, VF LAM, V CALC, SB BLKY-SB PLTY, MOD-FRM: 20% MARL: MED-DK GY, PLTY-SB BLKY, VF GRND, MOD SFT-HRD, SIL, SM, DULL RTHY LSTR	6200	80% CHK: LT-MED GRY, BRN-GY, MOT, SB BLKY-SB PLTY, MOD-FRM, CRPXLN, VF LAM, V CALC. 20% MARL: MED-DK GY, PLTY-SB BLKY, MOD SFT-HRD, VF GRND, SIL, SM, DULL RTHY LSTR, TR DISSM VF PYR. SCAT DULL YEL FLOR, WK MKY RESD RING.	80% CHK: LT-MED GRY, BRN-GY, MOT BLKY-SB PLTY, MOD-FRM, CRPXLN, V V CALC. 20% MARL: MED-DK GY, PLTY BLKY, MOD SFT-HRD, VF GRND, SIL, S RTHY LSTR, TR DISSM VF PYR. SCAT YEL FLOR, WK MKY RESD RING.





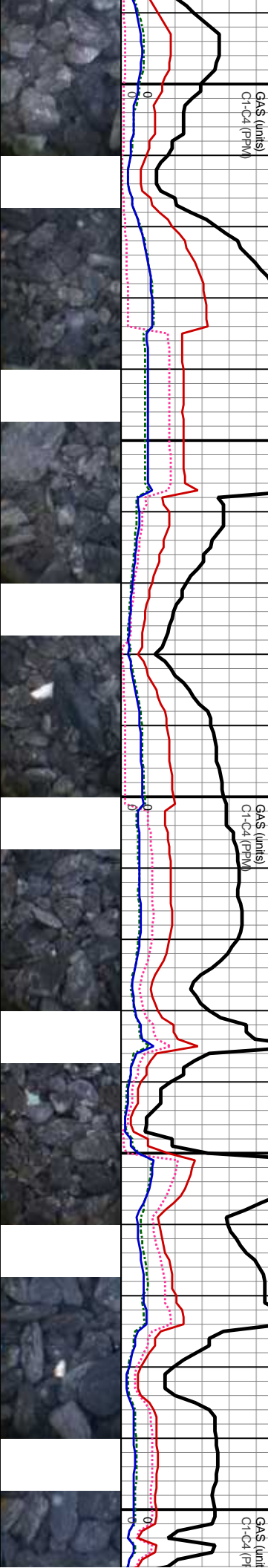
WOB: 15.1
RPM: 71
PP: 4127
SPM: 84



6842u

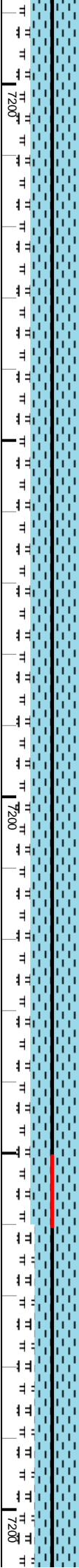
NOUT: 3/9.1 5/37

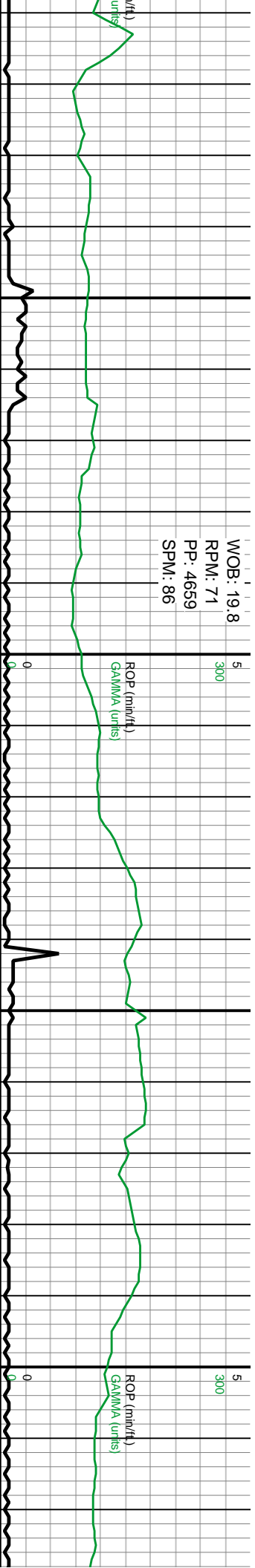
MUD IN: 7237u
MW: 9.4
VIS: 36



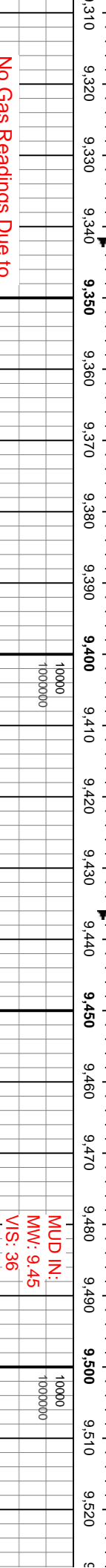
SB	80% CHK: LT-MED GRY, BRN-GY, MOT, SB	80% CHK: LT-MED GRY, BRN-GY, SB BLKY-SB	80% CHK: LT-MED GRY, BRN-GY, SB BLKY-SB	75% CH
BLKY-SB	PLTY, MOD-FRM, CRPXLN, VF	PLTY, MOD-FRM, MOT, CRPXLN, VF LAM, V	PLTY, MOD-FRM, MOT, CRPXLN, VF LAM, V	PLTY, A
LAM, V	CALC, 20% MARL: MED-DK GY, PLTY-SB	CALC, 20% MARL: MED-DK GY, PLTY-SB	CALC, 20% MARL: MED-DK GY, PLTY-SB	CALC, 2
SB	PLTY-SB BLKY, MOD SFT-HRD, VF GRND,	BLKY, MOD FRM-HRD, SM, DULL RTHY LSTR,	MOD FRM-HRD, SM, DULL RTHY LSTR, VF	BLKY, A
M, DULL	SIL, SM, DULL RTHY LSTR, TR DISSM VF	GRND, SIL, TR DISSM VF PYR.	GRND, SIL, TR DISSM VF PYR.	VF GRN
DULL	PYR, SCAT DULL YEL FLOR, WK MKY RESD			
RING.				

TVD (ft)	MD: 9.17' Inclination: 90.0° Azimuth: 270.0° TVD: 7.0798'	TVD (ft)	MD: 9.27' Inclination: 90.5° Azimuth: 270.8° TVD: 7.079.0'	TVD (ft)
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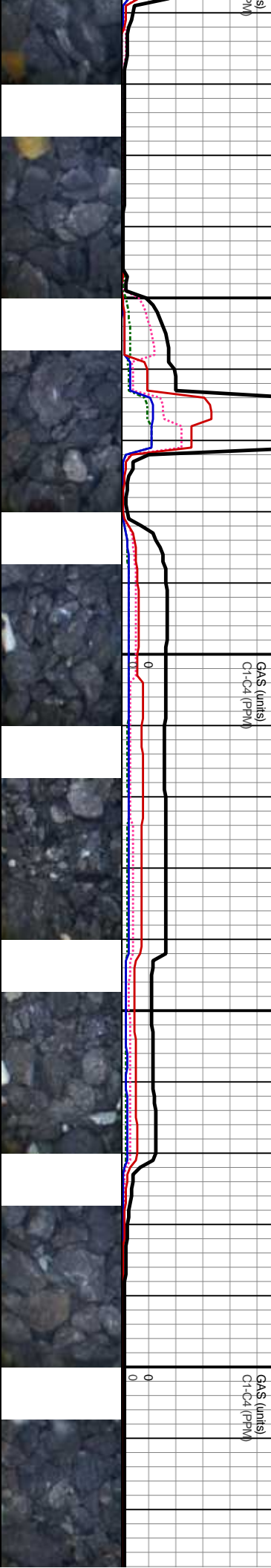


No Gas Readings Due to
Equipment Repairs



MUD IN:
MW: 9.45
VIS: 36

No Gas Readings Due to Equip



75% CHK: LT-MED GRY, BRN-GY, SB BLKY-SB
MOD-FRM, MOT, CRPXLN, VF LAM, V
5% MARL: MED-DK GY, PLTY-SB
MOD FRM-HRD, SM, DULL RTHY LSTR,
ID, SIL, TR DISSM VF PYR.

75% CHK: LT-MED GRY, BRN-GY, SB BLKY-SB
PLTY, MOD-FRM, MOT, CRPXLN, VF LAM, V
CALC. 25% MARL: MED-DK GY, PLTY-SB
BLKY, MOD FRM-HRD, SM, DULL RTHY LSTR,
VF GRND, SIL, TR DISSM VF PYR.

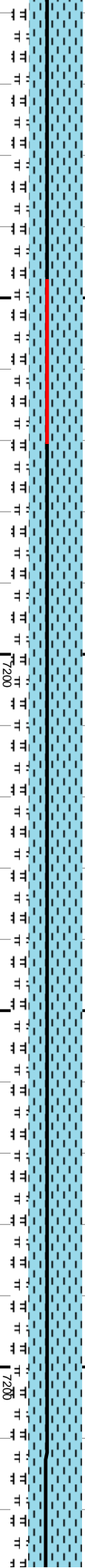
75% CHK: LT-MED GRY, BRN-GY, SB BLKY-SB
PLTY, MOD-FRM, MOT, CRPXLN, VF LAM, V
CALC. 25% MARL: MED-DK GY, PLTY-SB
BLKY, MOD FRM-HRD, SM, DULL RTHY LSTR,
VF GRND, SIL, TR DISSM VF PYR.

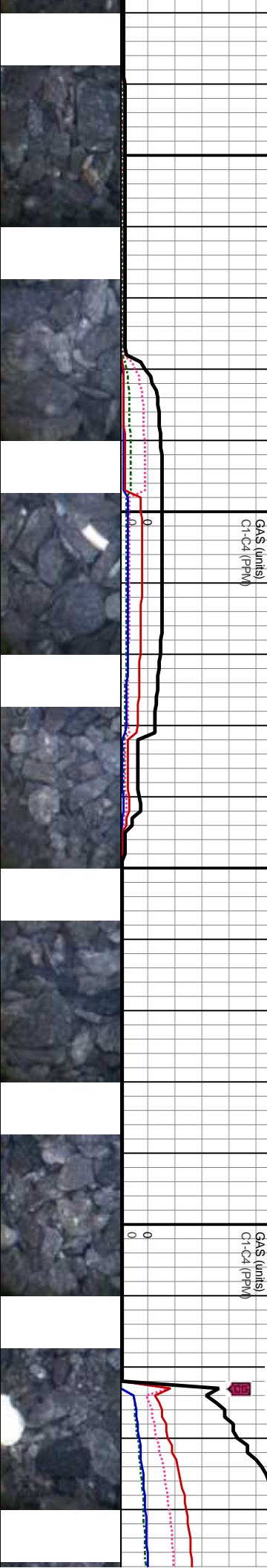
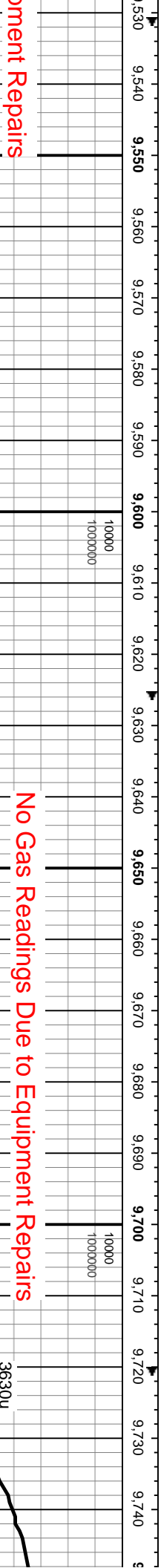
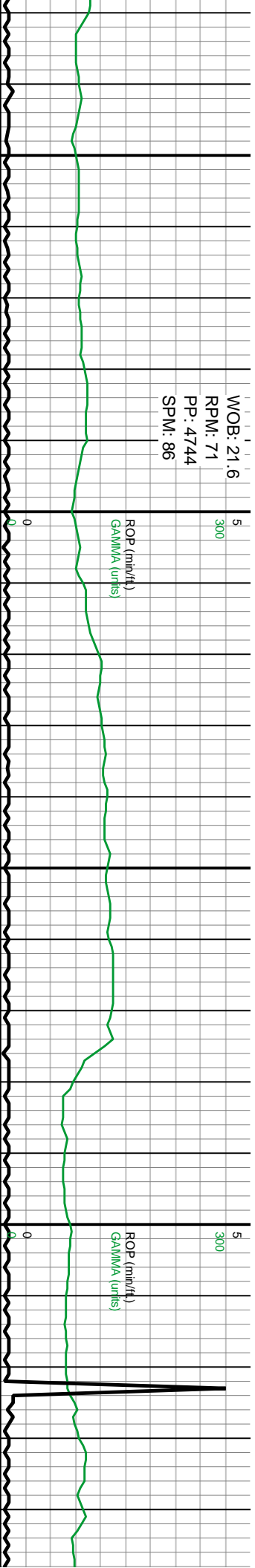
75% CHK: LT-MED GRY, BRN-GY, SB BLKY-SB
PLTY, FRM-MOD HRD, MOT, CRPXLN, VF LAM,
V CALC. 25% MARL: MED-DK GY, SB PLTY-SB
BLKY, MOD FRM-HRD, SM, DULL RTHY LSTR,
VF GRND, SIL, TR DISSM VF PYR.

75% CHK: LT-MED GRY, BRN-GY, SB BLKY-SB
PLTY, FRM-MOD HRD, MOT, CRPXLN, VF LAM,
V CALC. 25% MARL: MED-DK GY, SB PLTY-SB
BLKY, MOD FRM-HRD, SM, DULL RTHY LSTR,
VF GRND, SIL, TR DISSM VF PYR.

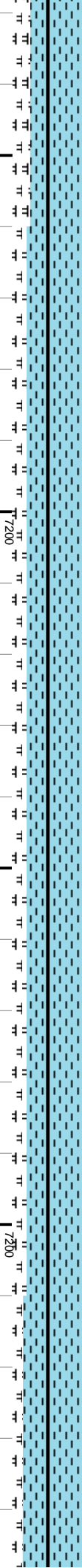
MD: 9.36f'
Inclination: 89.2°
Azimuth: 270.7°
TVD: 7,079.31'

MD: 9.46f'
Inclination: 88.8°
Azimuth: 270.6°
TVD: 7,080.7'



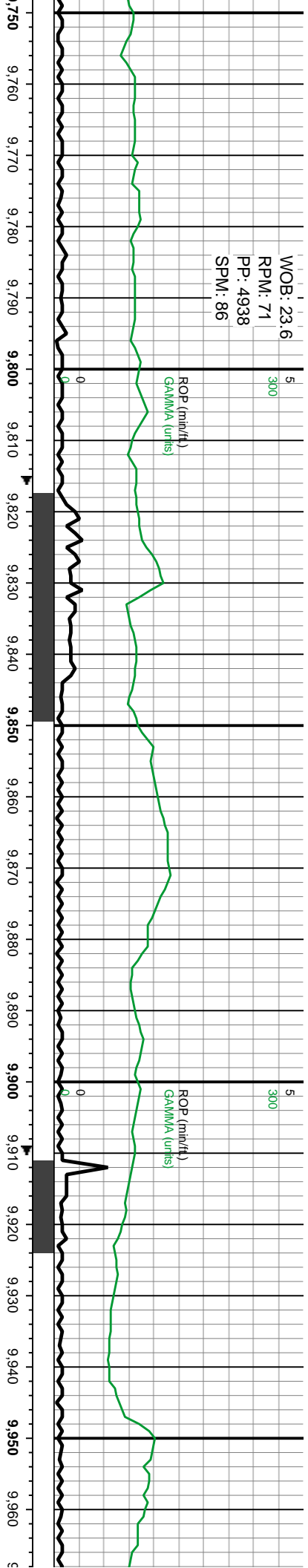


N-GY, SB BLKY-SB CRPXLN, VF LAM, K GY, SB PLTY-SB DULL RTHY LSTR, PYR.	75% CHK: LT-MED GRY, BRN-GY, SB BLKY-SB PLTY, FRM-MOD HRD, MOT, CRPXLN, VF LAM, V CALC. 25% MARL: MED-DK GY, SB PLTY-SB BLKY, MOD FRM-HRD, SM, DULL RTHY LSTR, VF GRND, SIL, TR DISSM VF PYR.	80% CHK: LT-MED GRY, BRN-GY, SB BLKY-SB PLTY, FRM-MOD HRD, MOT, CRPXLN, VF LAM, V CALC. 20% MARL: MED-DK GY, SB PLTY-SB BLKY, MOD FRM-HRD, SM, DULL RTHY LSTR, VF GRND, SIL, TR DISSM VF PYR.	80% CHK: LT-MED GRY, BRN-GY, SB BLKY-SB PLTY, FRM-MOD HRD, MOT, CRPXLN, VF LAM, V CALC. 20% MARL: MED-DK GY, SB PLTY-SB BLKY, MOD FRM-HRD, SM, DULL RTHY LSTR, VF GRND, SIL, TR DISSM VF PYR.	80% CHK: LT-MED GRY, BRN-GY, SB BLKY-SB PLTY, FRM-MOD HRD, MOT, CRPXLN, VF LAM, V CALC. 20% MARL: MED-DK GY, SB PLTY-SB BLKY, MOD FRM-HRD, SM, DULL RTHY LSTR, VF GRND, SIL, TR DISSM VF PYR.
MD: 9.554' Inclination: 89.° Azimuth: 270.9° TVD: 7,082.4'	TVD (ft)	MD: 9.651' Inclination: 88.4° Azimuth: 271.7° TVD: 7,083.6'	TVD (ft)	TVD (ft)



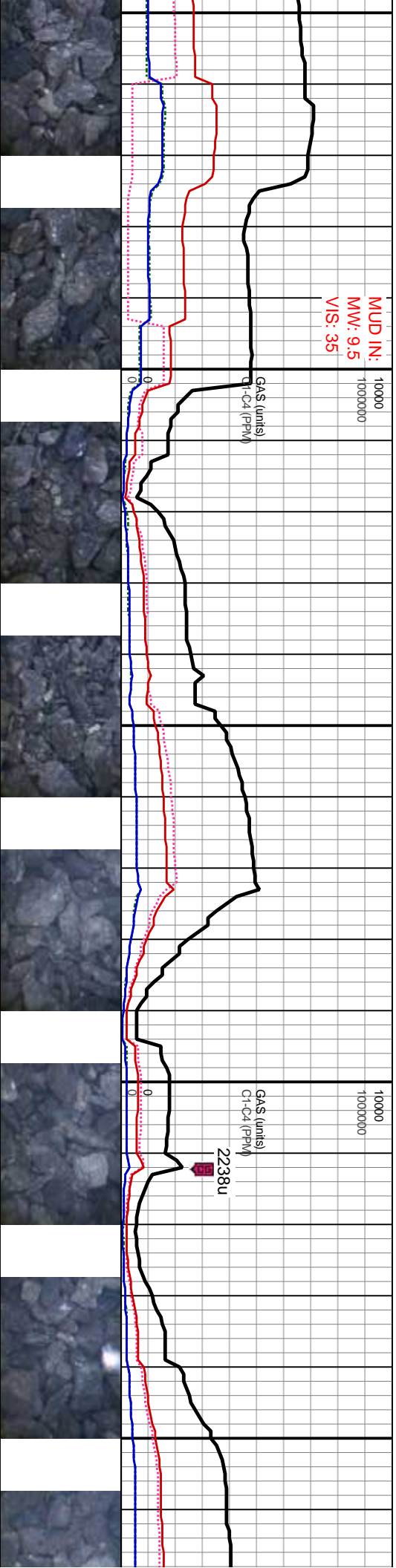
WOB: 23.6
RPM: 71
PP: 4938
SPM: 86

ROP (min/ft)
GAMMA (units)



MUD IN:
MW: 9.5
VIS: 35

GAS (units)
C1-C4 (PPM)



85% CHK, LT-MED GRY, BRN-GY, SB BLKY-SB
PLTY, FRM-MOD HRD, MOT, CRPXLN, VF LAM,
V CALC. 15% MARL: MED-DK GY, SB PLTY-SB
BLKY, MOD FRM-HRD, SM, DULL RTHY LSTR,
VF GRND, SIL, TR DISSM VF PYR.

85% CHK: LT-MED GRY, BRN-GY, SB BLKY-SB
PLTY, FRM-MOD HRD, MOT, CRPXLN, VF LAM,
V CALC. 15% MARL: MED-DK GY, SB PLTY-SB
BLKY, MOD FRM-HRD, SM, DULL RTHY LSTR,
VF GRND, SIL, TR DISSM VF PYR.

86% CHK: LT-MED GRY, BRN-GY, SB BLKY-SB
PLTY, FRM-MOD HRD, MOT, CRPXLN, VF LAM,
V CALC. 15% MARL: MED-DK GY, SB PLTY-SB
BLKY, MOD FRM-HRD, SM, DULL RTHY LSTR,
VF GRND, SIL, TR DISSM VF PYR.

85% CHK: LT-MED GRY, BRN-GY, SB BLKY-SB
PLTY, FRM-MOD HRD, MOT, CRPXLN, VF LAM,
V CALC. 15% MARL: MED-DK GY, SB PLTY-SB
BLKY, MOD FRM-HRD, SM, DULL RTHY LSTR,
VF GRND, VF LAM, SIL, TR DISSM VF PYR. NO
CUT, NO FLOR.

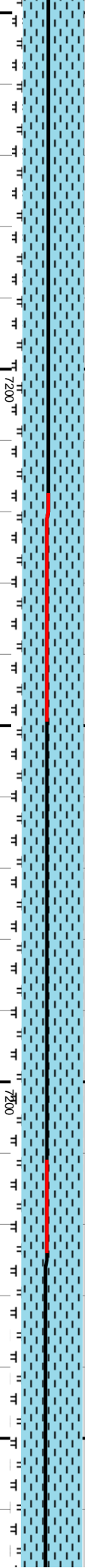
85% CHK: LT-ME
PLTY, FRM-MOD
V CALC. 15% MA
BLKY, MOD FRM
VF GRND, VF LA
CUT, NO FLOR.

TVD (ft)

MD: 9.84'
Inclination: 88.2°
Azimuth: 269.6°
TVD: 7,085.2'

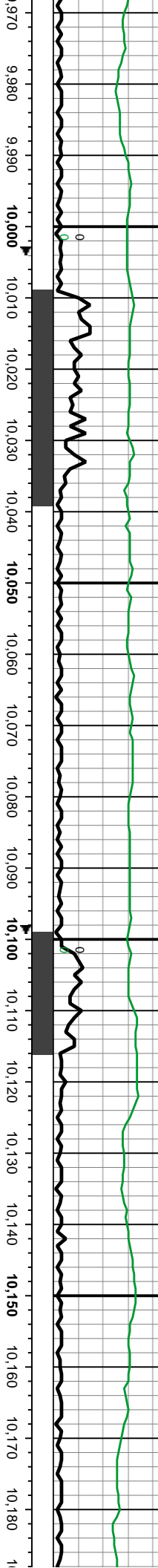
TVD (ft)

MD: 9.93'
Inclination: 87.6°
Azimuth: 269.3°
TVD: 7,088.6'



WOB: 22.9
RPM: 71
PP: 4843
SPM: 85

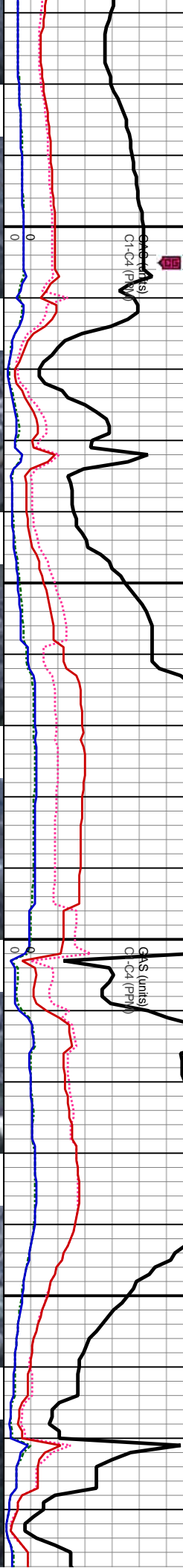
ROP (min/ft)
GAMMA (units)



MUD IN:
MW: 9.55
VIS: 35

5470u

Gas (units)
C1-C4 (PPH)



D GRV, BRN-GY, SB BLKY-SB
HRD, MOT, CRPXLN, VF LAM,
RL: MED-DK GY, SB PLTY-SB
HRD, SM, DULL RTHY LSTR,
M SIL, TR DISSM VF PYR, NO

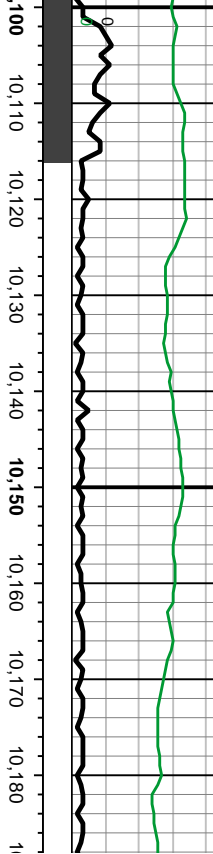
85% CHK: LT-MED GRV, BRN-GY, SB BLKY-SB
PLTY, FRM-MOD HRD, MOT, CRPXLN, VF LAM,
V CALC, 15% MARL: MED-DK GY, SB PLTY-SB
BLKY, MOD FRM-HRD, SM, DULL RTHY LSTR,
VF GRND, VF LAM, SIL, TR DISSM VF PYR, NO
CUT, NO FLOR.

TVD (ft)

MD: 10.02°
Inclination: 89.0°
Azimuth: 268.0°
TVD: 7.0914'

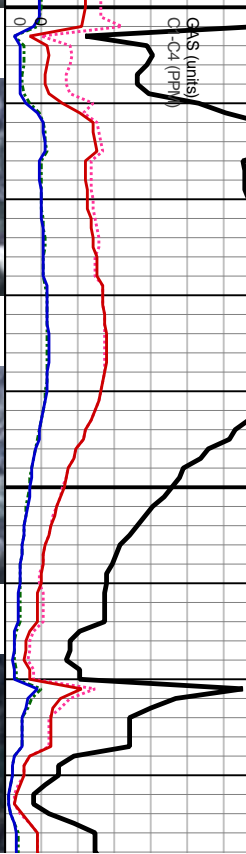
WOB:
RPM:
PP:
SPM:

ROP (min/ft)
GAMMA (units)



6952u

Gas (units)
C1-C4 (PPH)

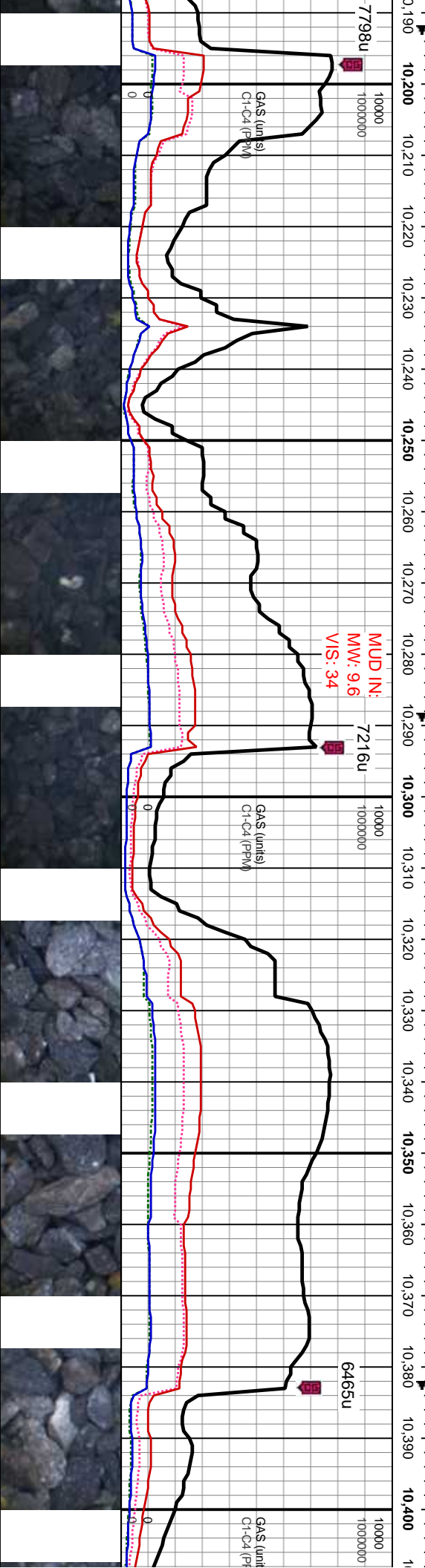
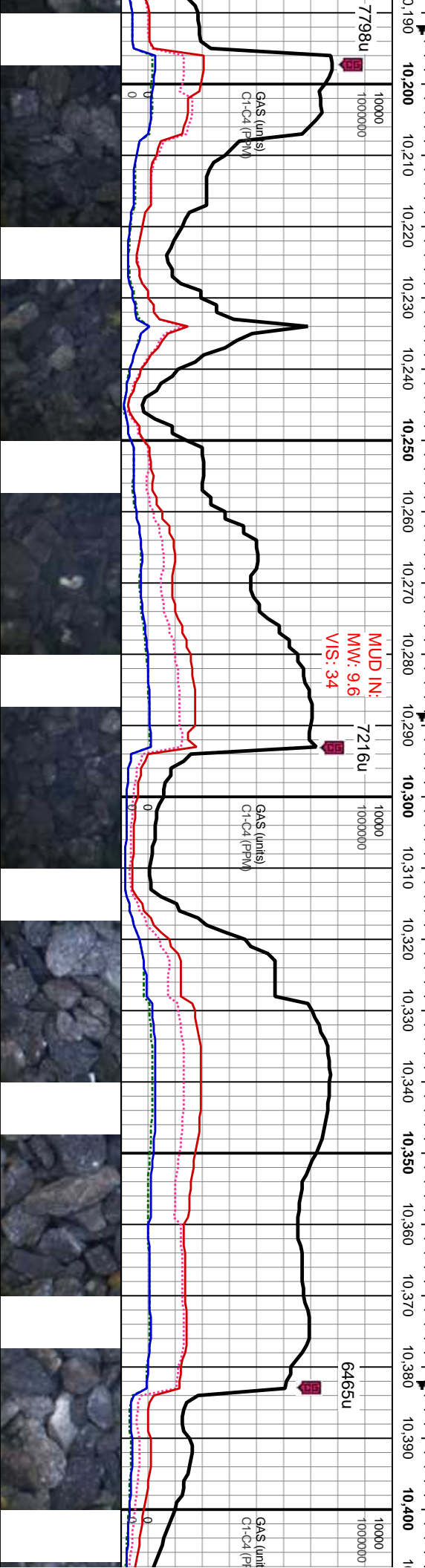
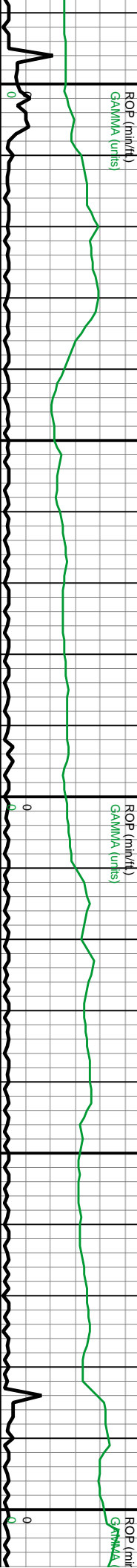


85% CHK: MED GRV-BRN GY, OCCLV LT GY,
SB BLKY-SB PLTY, MOD HRD, MOT, CRPXLN,
VF LAM, V CALC, 15% MARL: MED-DK GY, SB
PLTY-SB BLKY, FRM-HRD, SM, DULL RTHY
LSTR, VF GRND, VF LAM, SIL, TR DISSM VF
PYR, NO FLOR, MKY RESDL RING.

TVD (ft)

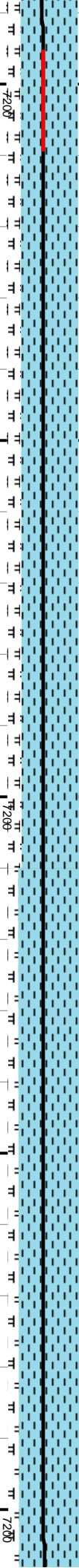
MD: 10.12°
Inclination: 9°
Azimuth: 269.1°
TVD: 7.0922'

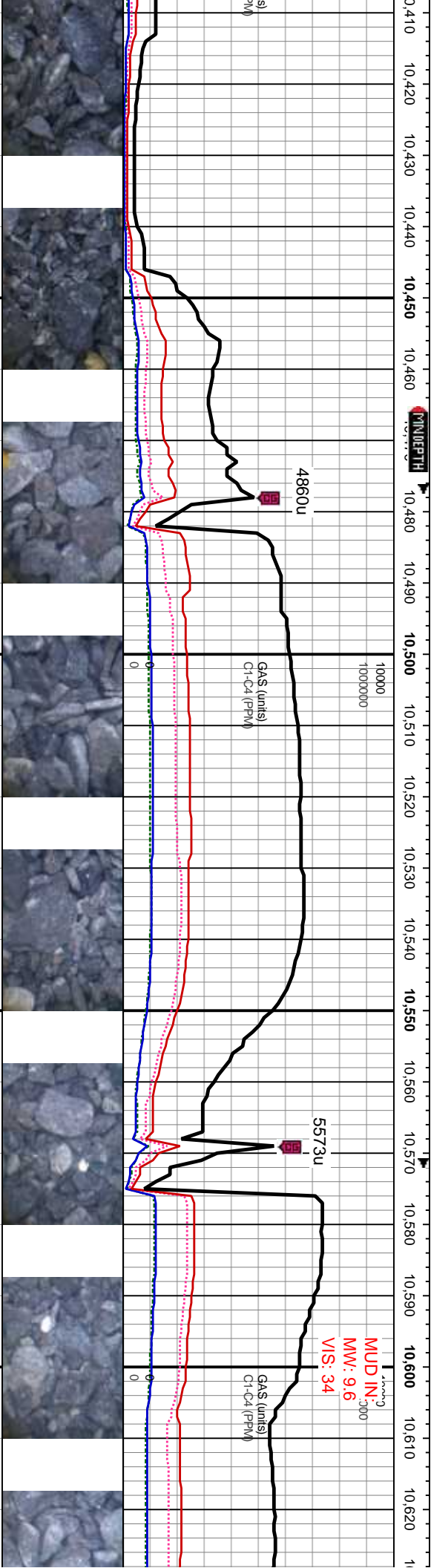
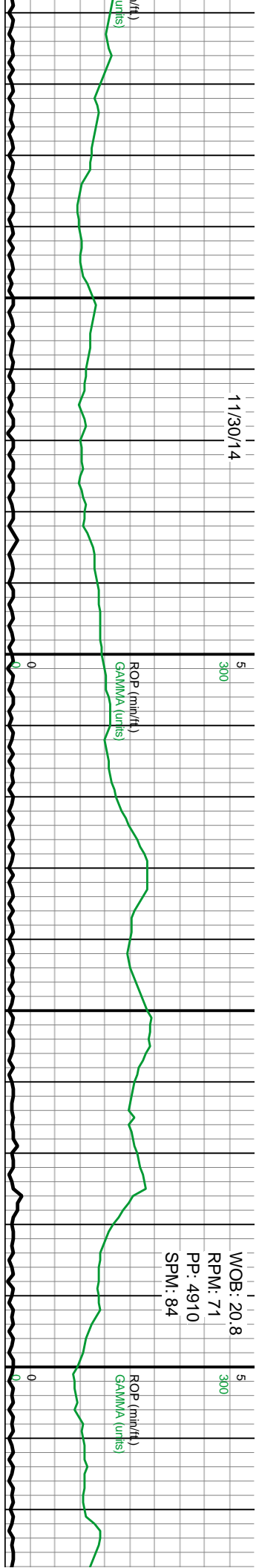
3: 24.7
I: 56
4788
I: 85



WOB: 18.8
RPM: 71
PP: 4540
SPM: 85

T GY, RPXLN, GY, SB THY V MF	80% CHK: MED GRY-BRN GY, OCCLY LT GY, MOT, SB BLKY-SB PLTY, MOD HRD, VF LAM, V CALC, CRPXLN, 10% MARL: MED-DK GY, SB PLTY-SB BLKY, FRM-HRD, VF GRND, VF LAM, SIL, DULL RTHY LSTR, SM, TR DISSM VF PYR. NO CUT, NO FLOR.	80% CHK: MED GRY-BRN GY, OCCLY LT GY, MOT, SB BLKY-SB PLTY, MOD HRD, VF LAM, V CALC, CRPXLN, 10% MARL: MED-DK GY, SB PLTY-SB BLKY, FRM-HRD, VF GRND, VF LAM, SIL, DULL RTHY LSTR, SM, TR DISSM VF PYR. NO CUT, NO FLOR.	80% CHK: MED GRY-BRN GY, OCCLY LT GY, MOT, SB BLKY-SB PLTY, MOD HRD, VF LAM, V CALC, CRPXLN, 10% MARL: MED-DK GY, SB PLTY-SB BLKY, FRM-HRD, VF GRND, VF LAM, SIL, DULL RTHY LSTR, SM, TR DISSM VF PYR. NO CUT, NO FLOR.	86% CHK: MED GRY-BRN GY, OCCLY LT GY, MOT, SB BLKY-SB PLTY, MOD HRD, VF LAM, V CALC, CRPXLN, 15% MARL: MED-DK GY, SB PLTY-SB BLKY, FRM-HRD, VF GRND, VF LAM, SIL, DULL RTHY LSTR, SM, TR DISSM VF PYR. NO FLOR, V WK RESDL RING.	86% CH MOT, S V CALC PLTY-S SIL, DU NO FLOC
6200	6200	6200	6200	6200	6200
TVD (ft)	TVD (ft)	TVD (ft)	TVD (ft)	TVD (ft)	TVD (ft)
MD: 10.21° Inclination: 90.9° Azimuth: 268.7° TVD: 7.091.4'	MD: 10.31° Inclination: 91.1° Azimuth: 269.0° TVD: 7.089.7'	MD: 10.40° Inclination: 91.1° Azimuth: 269.0° TVD: 7.089.7'	MD: 10.40° Inclination: 91.1° Azimuth: 269.0° TVD: 7.089.7'	MD: 10.40° Inclination: 91.1° Azimuth: 269.0° TVD: 7.089.7'	MD: 10.40° Inclination: 91.1° Azimuth: 269.0° TVD: 7.089.7'





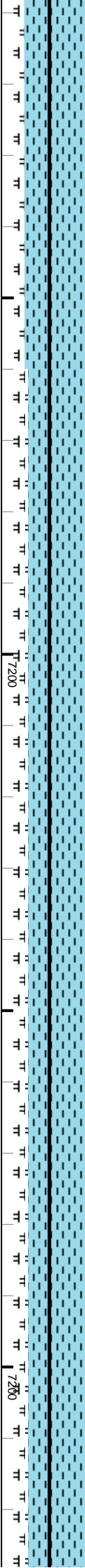
85% CHK: MED GRY-BRN GY, OCCLY LT GY, MOT, SB BLY-SB PLTY, MOD HRD, VF LAM, V CALC, CRPXLN, 15% MARL: MED-DK GY, SB PLTY-SB BLY, FRM-HRD, VF GRND, VF LAM, SIL, DULL RTHY LSTR, SM, TR DISSM VF PYR, NO FLOR, V WK RESDL RING.

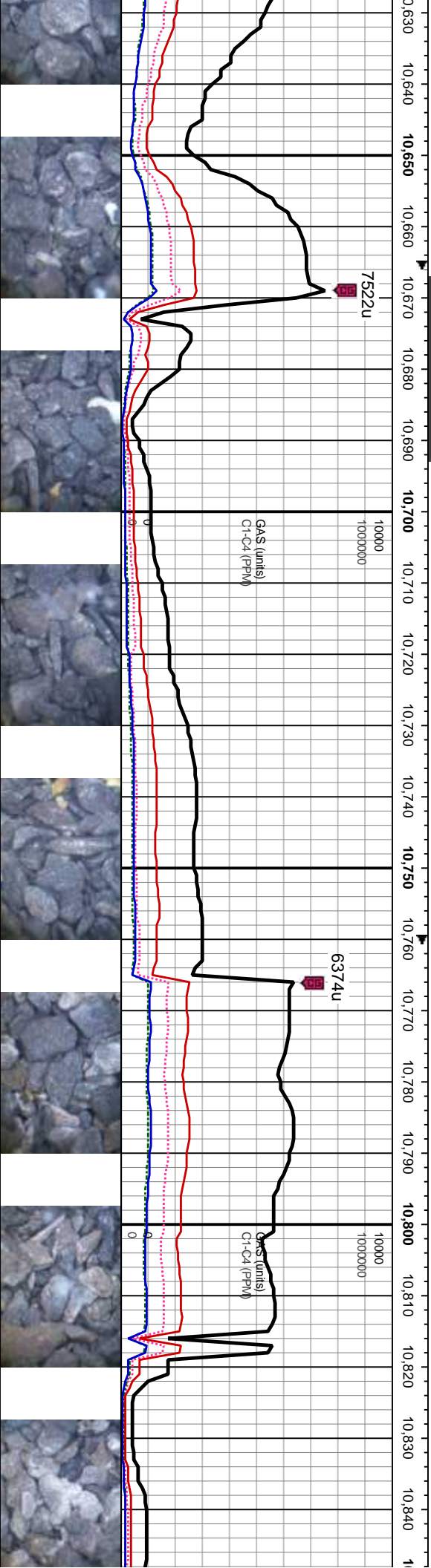
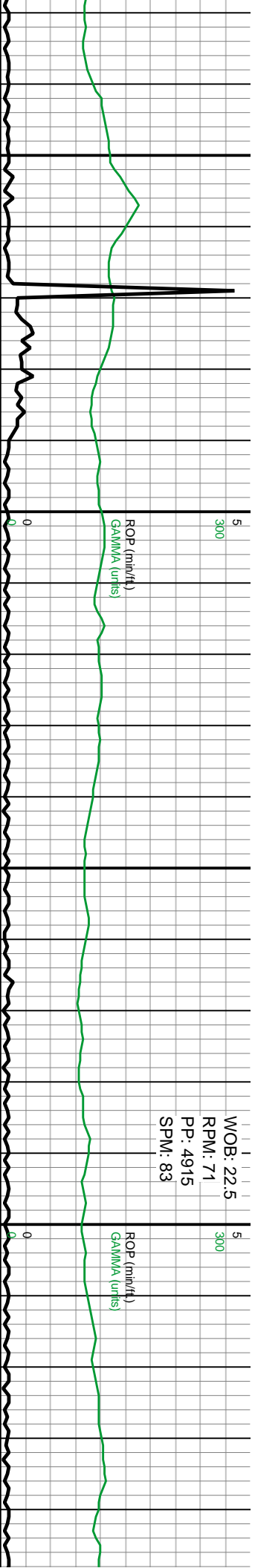
80% CHK: MED GRY-BRN GY, OCCLY LT GY, MOT, SB PLTY-SB BLY, V FRM-MOD HRD, VF LAM, CRPXLN, V CALC, 20% MARL: MED-DK GY, SB PLTY-SB BLY, FRM-HRD, VF GRND, VF LAM, SIL, TR DISSM VF PYR, NO FLOR, TR MLKY RESDL RING.

80% CHK: MED GRY-BRN GY, OCCLY LT GY, MOT, SB PLTY-SB BLY, V FRM-MOD HRD, VF LAM, CRPXLN, V CALC, 20% MARL: MED-DK GY, SB PLTY-SB BLY, FRM-HRD, VF GRND, VF LAM, SIL, TR DISSM VF PYR, NO FLOR, TR MLKY RESDL RING.

MD: 10.50'
Inclination: 90.7°
Azimuth: 268.5°
TVD: 7,087.2'

MD: 10.59'
Inclination: 90.9°
Azimuth: 268.8°
TVD: 7,085.8'

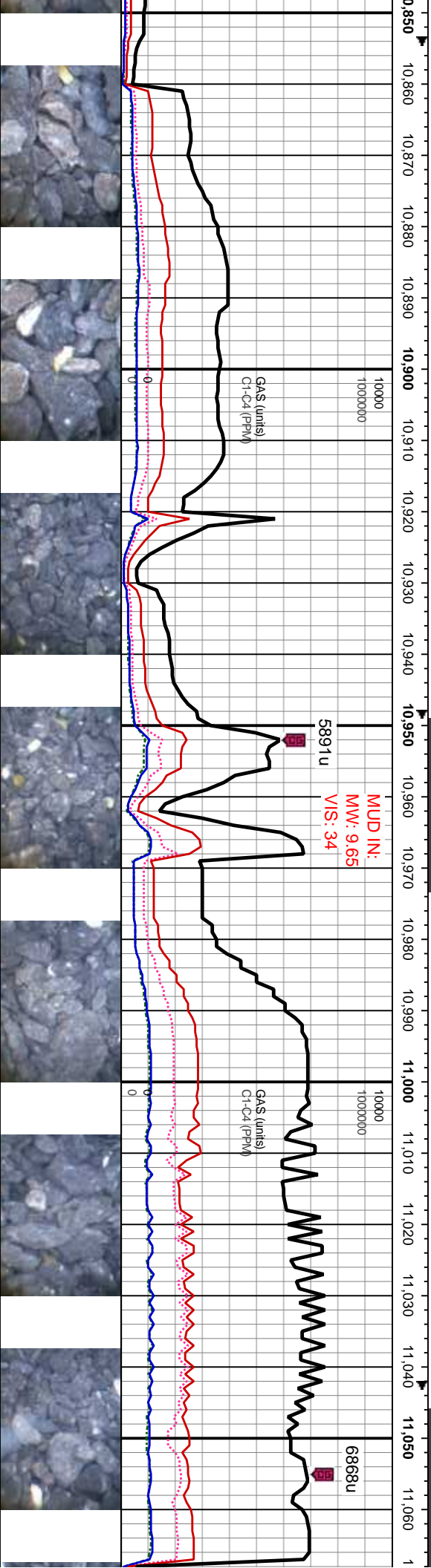
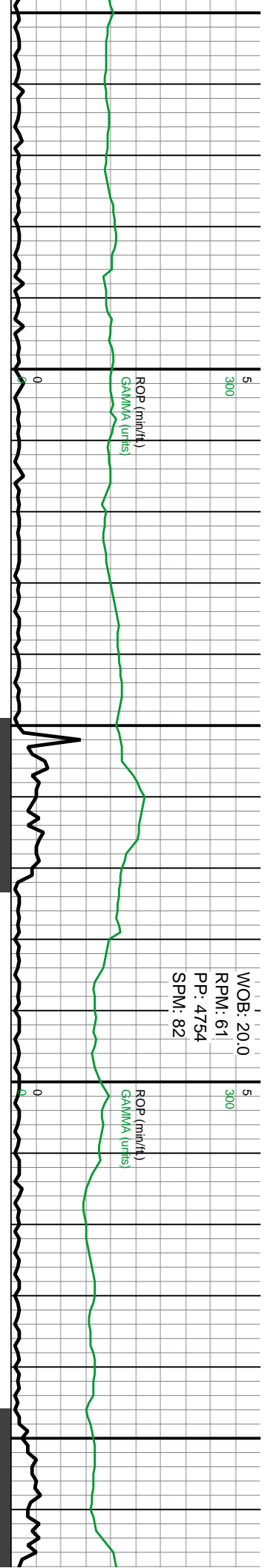




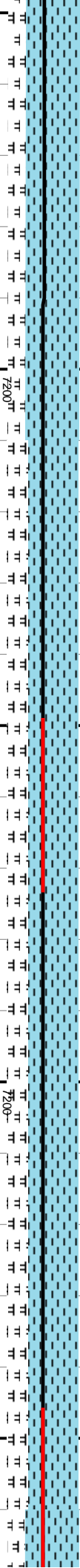
FRM-MOD HRD, VF MARL: MED-DK -HRD, VF GRND, VF NO FLOR, TR	80% CHK, MED GRY-BRN GY, OCCLY LT GY, SB PLTY-SB BLKY, V FRM-MOD HRD, VF LAM, CRPXLN, V CALC. 20% MARL: MED-DK GY, PLTY-SB BLKY, MOD FRM-HRD, VF LAM, VF GRND, SIL. TR DISSM VF PYR. NO FLOR, NO CUT.	6200	80% CHK, MED GRY-BRN GY, OCCLY LT GY, SB PLTY-SB BLKY, V FRM-MOD HRD, VF LAM, CRPXLN, V CALC. 20% MARL: MED-DK GY, PLTY-SB BLKY, MOD FRM-HRD, VF LAM, VF GRND, SIL. TR DISSM VF PYR. NO FLOR, NO CUT.	6200	75% CHK: LT GRY-BRN GY, SB PLTY-SB BLKY, V FRM-MOD HRD, VF LAM, CRPXLN, V CALC. 25% MARL: MED-DK GY, SB BLKY-SB PLTY, MOD FRM-HRD, VF GRND, VF LAM, SIL. TR DISSM VF PYR. NO FLOR, NO CUT.
		MD: 10.691' Inclination: 89.6° Azimuth: 269.3° TVD: 7.085.3'		MD: 10.781' Inclination: 89.2° Azimuth: 268.5° TVD: 7.086.2'	

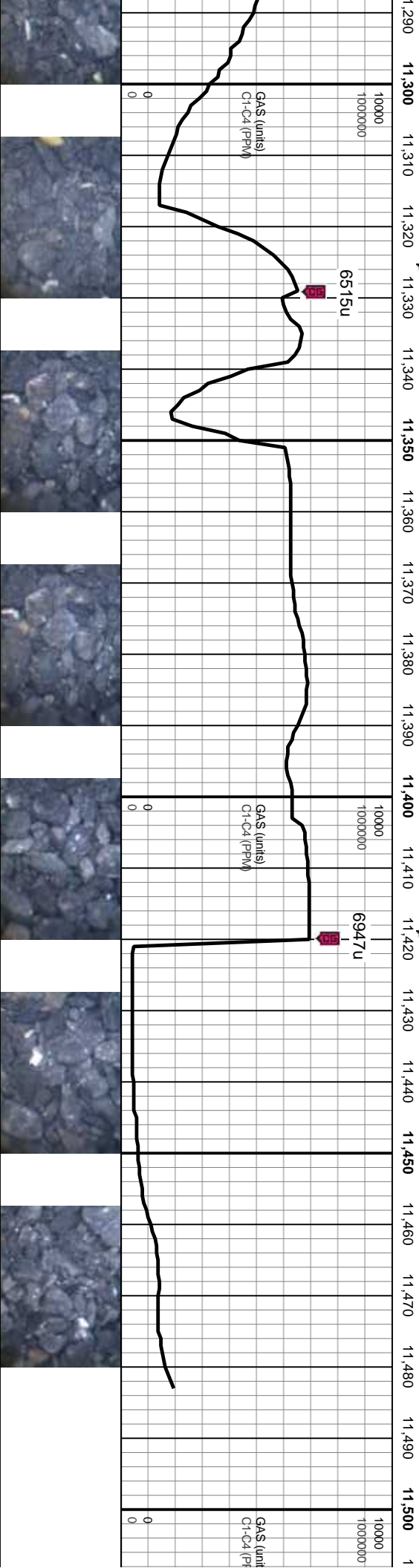
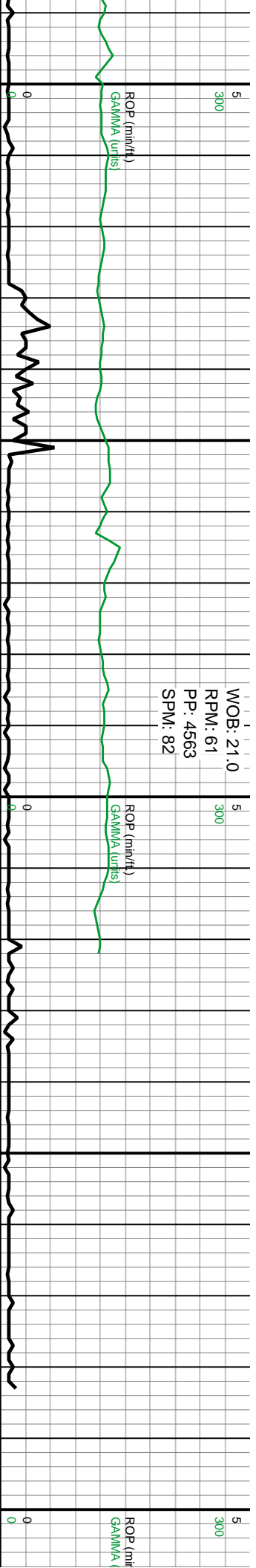
TVD (ft)

TVD (ft)



75% CHK: LT GRY-BRN GY, SB PLTY-SB BLKY, V FRM-MOD HRD, VF LAM, CRPXLN, V CALC. 25% MARL: MED-DK GY, SB BLKY-SB PLTY, MOD FRM-HRD, VF GRND, VF LAM, SIL, TR DISSM VF PYR, NO FLOR, NO CUT.	6200	75% CHK: LT GRY-BRN GY, SB PLTY-SB BLKY, V FRM-MOD HRD, VF LAM, CRPXLN, V CALC. 25% MARL: MED-DK GY, SB BLKY-SB PLTY, MOD FRM-HRD, VF GRND, VF LAM, SIL, TR DISSM VF PYR, NO FLOR, NO CUT.	6200	70% CHK: DK GY-BRN GY, SB PLTY-SB BLKY, V FRM-MOD HRD, VF LAM, CRPXLN, V CALC. 30% MARL: MED-DK GY, SB BLKY-SB PLTY, MOD FRM-HRD, VF GRND, VF LAM, SIL, TR DISSM VF PYR, NO FLOR, NO CUT.	6200	70% CHK: DK GY-BRN GY, SB PLTY-SB BLKY, V FRM-MOD HRD, VF LAM, CRPXLN, V CALC. 30% MARL: MED-DK GY, SB BLKY-SB PLTY, MOD FRM-HRD, VF GRND, VF LAM, SIL, TR DISSM VF PYR, NO FLOR, NO CUT.	6200	70% CHK: DK GY-BRN GY, SB PLTY-SB BLKY, V FRM-MOD HRD, VF LAM, CRPXLN, V CALC. 30% MARL: MED-DK GY, SB BLKY-SB PLTY, MOD FRM-HRD, VF GRND, VF LAM, SIL, TR DISSM VF PYR, NO FLOR, NO CUT.	6200
MD: 10.87° Inclination: 88.4° Azimuth: 268.1° TVD: 7.088.0'									
TVD (ft)									
MD: 10.97° Inclination: 89.1° Azimuth: 267.4° TVD: 7.090.0'									
TVD (ft)									
MD: 11.0° Inclination: Azimuth: TVD: 7.06									





Y, SB LAM, GY, SB LM, VF DR, NO	75% CHK: GRY-DK GY, OCCLY BRN-GY, SB PLTY-SB BLKY, V FRM-MOD HRD, VF LAM, CRPXLN, V CALC. 25% MARL: MED-DK GY, SB BLKY-SB PLTY, MOD FRM-HRD, VF LAM, VF GRND, SIL. TR DISSM VF PYR. NO FLOR, NO CUT.	75% CHK: GRY-DK GY, OCCLY BRN-GY, SB PLTY-SB BLKY, V FRM-MOD HRD, VF LAM, CRPXLN, V CALC. 25% MARL: MED-DK GY, SB BLKY-SB PLTY, MOD FRM-HRD, VF LAM, VF GRND, SIL. TR DISSM VF PYR. NO FLOR, NO CUT.	75% CHK: GRY-DK GY, OCCLY BRN-GY, SB PLTY-SB BLKY, V FRM-MOD HRD, VF LAM, CRPXLN, V CALC. 25% MARL: MED-DK GY, SB BLKY-SB PLTY, MOD FRM-HRD, VF LAM, VF GRND, SIL. TR DISSM VF PYR. NO FLOR, NO CUT.
6200	6200	6200	6200
TVD (ft)	TVD (ft)	TVD (ft)	TVD (ft)
MD: 11.35° Inclination: 89.6° Azimuth: 267.5° TVD: 7.093.3'	MD: 11.41° Inclination: 89.2° Azimuth: 266.9° TVD: 7.093.9'		
7200	7200		

