

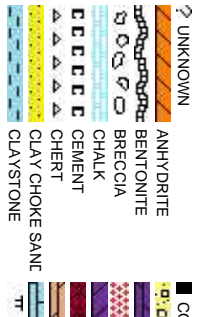


Scale: 5" / 100'
Measured Depth Log

Well Name	LEEROY B11-79HNM HORZ		
Location	SEC 11 T5N R64W		
State	COLORADO	County	WELD
Country	USA		
API Number	05-123-37192	Rig Number	H&P 315
		AFE #	136851
Spud Date	6/10/2013	Field	WATTENBERG
		Drilling Completed	6/20/2013
Surface Coordinates	LAT/LON 40.411750, -104.526260		
	SEC 11 T5N R64W 1,928' FSL, 220' FWL		
Bottom Hole Coordinates	SEC 2 T5N R64W 75' FWL, 535' FNL		
Ground Elevation	4603'	K.B. Elevation	4627'
Logged Interval	5976'	To	14095'
		Total Depth	14095'
Formation	NIOBRARA		
Type of Drilling Fluid	LSND		

Company Noble Energy Inc

Name MARK COLE, N
Company COLUMBINE LOGGING
Address 2385 S Lipan St
Denver, CO 80202



Operator

Geologist

Rock Types

AL

CONGLOMERATE

DOLomite

GRANITE

GYPSUM

IGNEOUS

SIDERITE or LIMONITE

LIMESTONE

MARLSTONE

METAMORPHIC

NO SAMPLE

SALT

SANDSTONE

SALT-PEPPER SANC

SHALE

SHALE COLORED

SHALE GRAY

SHALY SANDSTONE

SHALY SILTSTONE

SILTY SHALE

SILTSTONE

TILL

TUFF

WELDED TUFF

Accessories

F FOSSIL

GASTROPOD

OOLITE

OSTRACOD

BELEMITE

BIOCLASTIC

BRACHIOPOD

BRYOZOA

CEPHALOPOD

CORAL

CRINOID

ECHINOID

FISH

FORAMINIFERA

ARGILLACEOUS

ARGILLITE GRAIN

B BENTONITE

BITUMENOUS SUBSTANCE

BRECCIA FRAGMENTS

CALCAREOUS

CARBONACEOUS FLAKES

CHTDK

CHTLT

COAL - THIN BEDS

DOLOMITIC

FELDSPAR

FERRUGINOUS PELLET

FERRUGINOUS

SILTY

SILICEOUS

SILTSTONE STRINGER

GLAUCONITE

GYPSIFEROUS

HEAVY MINERAL

INOCERAMUS

KAOLIN

MARLSTONE

MINERAL CRYSTALS

NODULES

PHOSPHATE PELLET:

PYRITE

SALT CAST

SANDY

SHALE STRINGER

SILTSTONE STRINGER

TUFFACEOUS

ANHYDRITE STRINGER

BENTONITE STRINGER

COAL STRINGER

DOLOMITE STRINGER

GYPSUM STRINGER

LIMESTONE STRINGER

MARLSTONE (CALC) STRG

MARLSTONE (DOL) STRG

SANDSTONE STRINGER

Other Symbols

O ORGANIC

P PINPOINT

DEAD

V VUGGY

EVEN

QUESTIONABLE

SPOTTED STAINING

FORMATION TOP

GAS SHOW

MIN DEPTH

ANGULAR

MUDSTONE

R ROUNDED

B SUBANG

P SUBRND

L LITHOGRAPHIC

MX MICROXLN

Engineering

CONNECTION (DOWN)

CONNECTION (LEFT)

CONNECTION (RIGHT)

CONNECTION GAS

CORE - LOST

CORE - RECOVERED

DST INTERVAL

FAULT

Engineering

NORMAL FAULT

OIL SHOW

OVERTURNED STRATA

REVERSE FAULT

SIDEWALL CORE (LEFT)

SIDEWALL CORE (RIGHT)

SLIDE

SURVEY

TRIP GAS

WIRELINE TESTED - LEFT

WIRELINE TESTED - RT

Textures

B3 BOUNDSTONE

C CHALKY

CX CRYPTOXLN

E EARTHY

FX FINELYXLN

G3 GRAINSTONE

Sorting

M MODERATE

P POOR

W WELL

Oil Show

DEAD

V VUGGY

Other Symbols

Engineering

Textures

Sorting

Accessories

F FOSSIL

GASTROPOD

OOLITE

OSTRACOD

BELEMITE

BIOCLASTIC

BRACHIOPOD

BRYOZOA

CEPHALOPOD

CORAL

CRINOID

ECHINOID

FISH

FORAMINIFERA

Minerals

ARGILLACEOUS

ARGILLITE GRAIN

B BENTONITE

BITUMENOUS SUBSTANCE

BRECCIA FRAGMENTS

CALCAREOUS

CARBONACEOUS FLAKES

CHTDK

CHTLT

COAL - THIN BEDS

DOLOMITIC

FELDSPAR

FERRUGINOUS PELLET

FERRUGINOUS

SILTY

SILICEOUS

SILTSTONE STRINGER

Stringer

TUFFACEOUS

ANHYDRITE STRINGER

BENTONITE STRINGER

COAL STRINGER

DOLOMITE STRINGER

GYPSUM STRINGER

LIMESTONE STRINGER

MARLSTONE (CALC) STRG

MARLSTONE (DOL) STRG

SANDSTONE STRINGER

Geologist

Operator

Rock Types

Other Symbols

Accessories

F FOSSIL

GASTROPOD

OOLITE

OSTRACOD

BELEMITE

BIOCLASTIC

BRACHIOPOD

BRYOZOA

CEPHALOPOD

CORAL

CRINOID

ECHINOID

FISH

FORAMINIFERA

Minerals

ARGILLACEOUS

ARGILLITE GRAIN

B BENTONITE

BITUMENOUS SUBSTANCE

BRECCIA FRAGMENTS

CALCAREOUS

CARBONACEOUS FLAKES

CHTDK

CHTLT

COAL - THIN BEDS

DOLOMITIC

FELDSPAR

FERRUGINOUS PELLET

FERRUGINOUS

SILTY

SILICEOUS

SILTSTONE STRINGER

Stringer

TUFFACEOUS

ANHYDRITE STRINGER

BENTONITE STRINGER

COAL STRINGER

DOLOMITE STRINGER

GYPSUM STRINGER

LIMESTONE STRINGER

MARLSTONE (CALC) STRG

MARLSTONE (DOL) STRG

SANDSTONE STRINGER

Geologist

Operator

Rock Types

Other Symbols

Accessories

F FOSSIL

GASTROPOD

OOLITE

OSTRACOD

BELEMITE

BIOCLASTIC

BRACHIOPOD

BRYOZOA

CEPHALOPOD

CORAL

CRINOID

ECHINOID

FISH

FORAMINIFERA

Minerals

ARGILLACEOUS

ARGILLITE GRAIN

B BENTONITE

BITUMENOUS SUBSTANCE

BRECCIA FRAGMENTS

CALCAREOUS

CARBONACEOUS FLAKES

CHTDK

CHTLT

COAL - THIN BEDS

DOLOMITIC

FELDSPAR

FERRUGINOUS PELLET

FERRUGINOUS

SILTY

SILICEOUS

SILTSTONE STRINGER

Stringer

TUFFACEOUS

ANHYDRITE STRINGER

BENTONITE STRINGER

COAL STRINGER

DOLOMITE STRINGER

GYPSUM STRINGER

LIMESTONE STRINGER

MARLSTONE (CALC) STRG

MARLSTONE (DOL) STRG

SANDSTONE STRINGER

--

ROP Data from iBall

06/13/2013, Mud Wt: 9.35, FVis: 33
PVis: 8, YP: 8, GELS: 4/7/11, API Filtr
CAKE: 1/0, pH: 9.5, Cl: 1,300, Ca: 40

Gamma Data
from
Sperry-Halliburton

Total Gas & Chromatograph

Gas Data from iBall

GAS (units)
C1-C4 (PPM)

GAS (units)
C1-C4 (PPM)

1925u	
C1: 74.0%	
C2: 14.6%	
C3: 8.6%	
C4: 2.8%	

5,960 5,970

50' Sample Interval

Bit Data

Type: HDBS
MMMD55M
Size: 8.75"
Depth In: 5,976 '
Jets: 5x14

Well Bore
TV D —

See Corresponding
Vertical Log LeeRoy
B11-79HNM VERT

SLTY SH: It - med gy, frm - mod hd, sb
 pty - sb bkly, stly - gritty tex, v sl calc
 SHY SS: pred It gy, vfg, brit clus, sb pty -
 sb ang, calc cnt

SLTY SH: It - med gy, firm - mod hd, sb
ply - sb bkly, stly - gritty tex, v sl calc
SHY SS: pred It gy, vfig, britclus, sb ply -
sb ang, calc cmt

SLTY SH: lt - med gy, frm - mod h
 plty - sb blkly, stly - grity tex, v sl
 SHY SS: pred lt gy, vfg, brit clus,
 sb ang, calc cnt

TV_D (ft)

TV D (ft)

MD: 6,032
TVD: 5,982.57
Inclination: 1.29 °
Azimuth: 351.74 °
VS: 499.95'

Oil Show

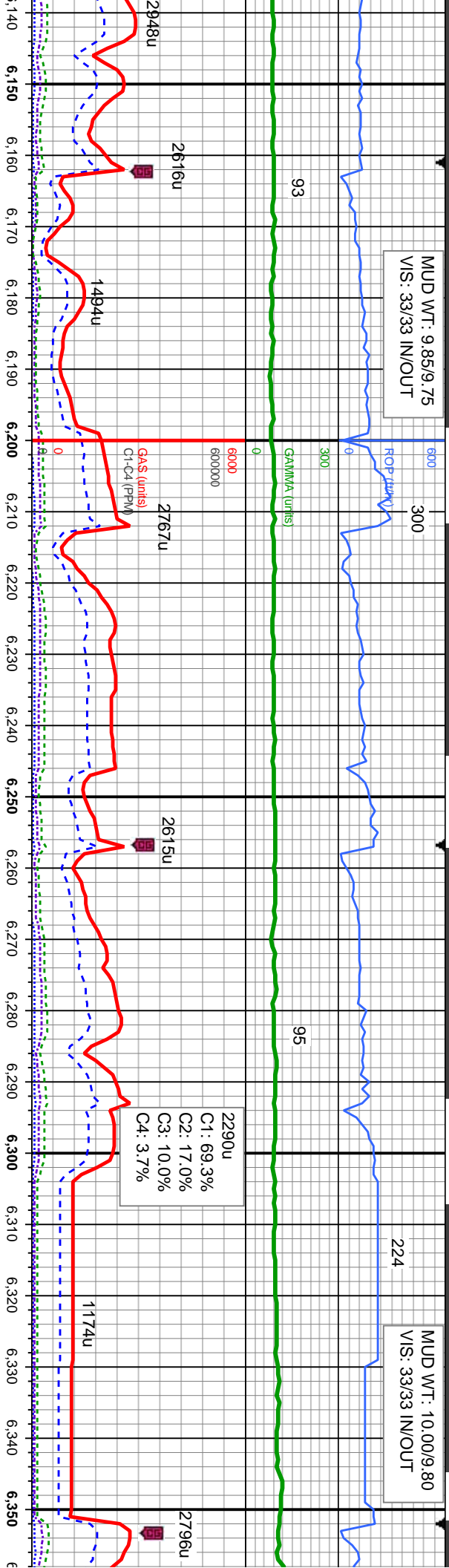
Images



MUD WT: 9.85/9.75
VIS: 33/33 IN/OUT

224

MUD WT: 10.00/9.80
VIS: 33/33 IN/OUT



MD: 6,204 '
TV D: 6,152.81 '
Inclination: 14.16 °
Azimuth: 7.01 °
VS: 521.69 '

MD: 6,252 '
TV D: 6,198.98 '
Inclination: 17.53 °
Azimuth: 7.09 °
VS: 534.66 '

MD: 6,299 '
TV D: 6,243.34 '
Inclination: 21 °
Azimuth: 5.19 °
VS: 550.04 '

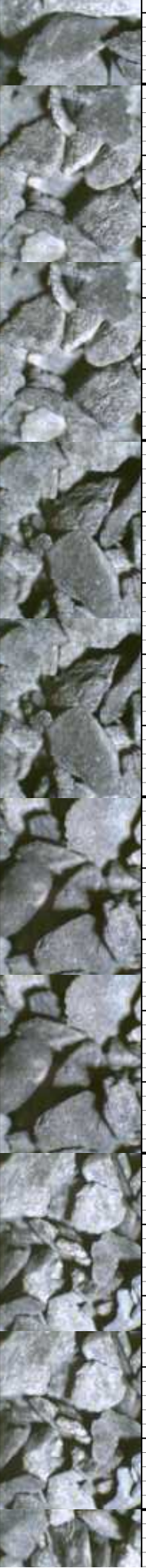
MD: 6,347 '
TV D: 6,287.46 '
Inclination: 25.32 °
Azimuth: 3.52 °
VS: 568.83 '

SLTY SH: lt - med gy, frm - mod hd, sb
ply - sb blkly, silty - gritty tex, v sl calc
SHY SS: pred lt gy, vfg, brit clus, sb ply -
sb ang, calc cnt

SLTY SH: lt - med gy, frm - mod hd, sb
ply - sb blkly, silty - gritty tex, v sl calc
SHY SS: pred lt gy, vfg, brit clus, sb ply -
sb ang, calc cnt

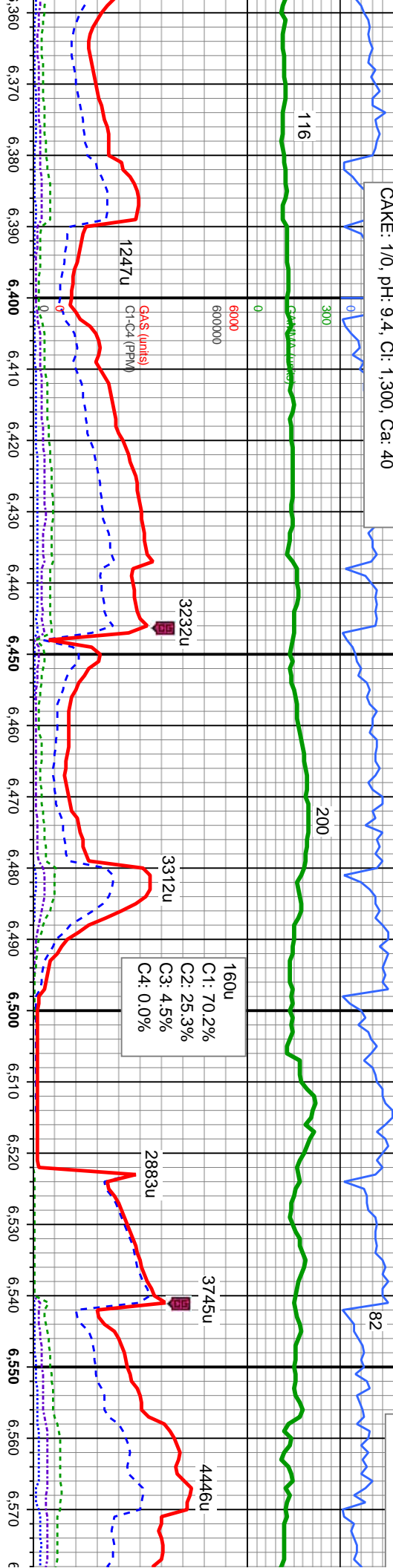
SLTY SH: lt - med gy, frm - mod hd, sb
ply - sb blkly, silty - gritty tex, v sl calc
SHY SS: pred lt gy, vfg, brit clus, sb ply -
sb ang, calc cnt

SLTY SH: lt - med gy, frm - mod hd, sb
ply - sb blkly, silty - gritty tex, v sl calc
SHY SS: pred lt gy, vfg, brit clus, sb ply -
sb ang, calc cnt



06/13/2013, Mud Wt: 10.05, FV/s: 33
PV/s: 10, YP: 9, GELS: 6/14/22, API Filtr: 7.0
CAKE: 1/0, pH: 9.4, CI: 1,300, Ca: 40

MUD WT: 10.25/10
VIS: 33/33 IN/OUT



Y SH: lt - med gy, frm - mod hd, sb
sb blkly, silty - gritty tex, v sl calc
SS: pred lt gy, vfg, brit clus, sb pily -
ng, calc cnt

<<Scale Change>>

MD: 6,394
TVD: 6,329.12
Inclination: 29.8 °
Azimuth: 3.89 °
VS: 590.49'

MD: 6,442
TVD: 6,369.84
Inclination: 34.08 °
Azimuth: 3.3 °
VS: 615.79'

MD: 6,488
TVD: 6,407.14
Inclination: 37.55 °
Azimuth: 2.9 °
VS: 642.63'

Sharon Springs Marker Top
@ 6,510' MD; 6,424' TVD

Niobrara Top
@ 6,535' MD; 6,443' TVD

Niobrara A Chalk Top
@ 6,558' MD; 6,460' TVD

SLTY SH: lt - med gy, frm - mod hd, sb
pily - sb blkly, silty - gritty tex, v sl calc
SHY SS: pred lt gy, vfg, brit clus, sb pily -
sb ang, calc cnt

SLTY SH: lt - med gy, frm - mod hd, sb
pily - sb blkly, silty - gritty tex, v sl calc

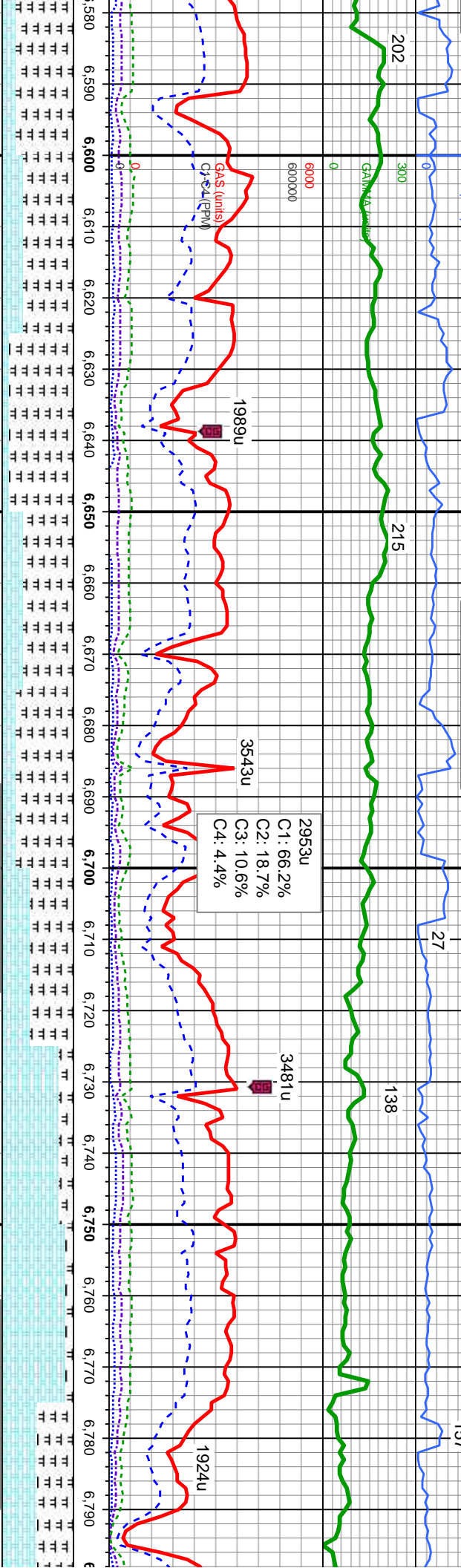
SLTY SH: lt - med gy, frm - mod hd, sb
pily - sb blkly, silty - gritty tex, v sl calc
CHK: lt gy, mot, lam, sft - frm, sb pily - sb
blkly, rthy, v calc, abnt bent

CHK: lt gy, mot, lam, sft
sb blkly, rthy, v calc, abr
MRL: med - dk gy, frm -
- sb blkly, silty - gritty tex

MD:
TVD:
Incli:
Azim:
VS:

00
ROP (ft/hr)
212
215
27
138
157

MUD WT: 10.50/10.50
VIS: 35/35 IN/OUT



Niobrara A Marl Top
@ 6,587 MD: 6,481' TVD

MD: 6,631
TVD: 6,510.79
Inclination: 49.08 °
Azimuth: 1.51 °
VS: 740.64'

MRL: med - dk gy, frm - mod hd, sb ply -
sb biky, silty - gritty tex, v calc
CHK: lt gy, mot, lam, sft - frm, sb ply - sb
biky, rthy, v calc, abnt bent

MD: 6,678
TVD: 6,540.22
Inclination: 53.38 °
Azimuth: 2.17 °
VS: 777.23'

Niobrara B Chalk Top
@ 6,702 MD: 6,554' TVD

MD: 6,726
TVD: 6,567.82
Inclination: 56.4 °
Azimuth: 2.09 °
VS: 816.43'

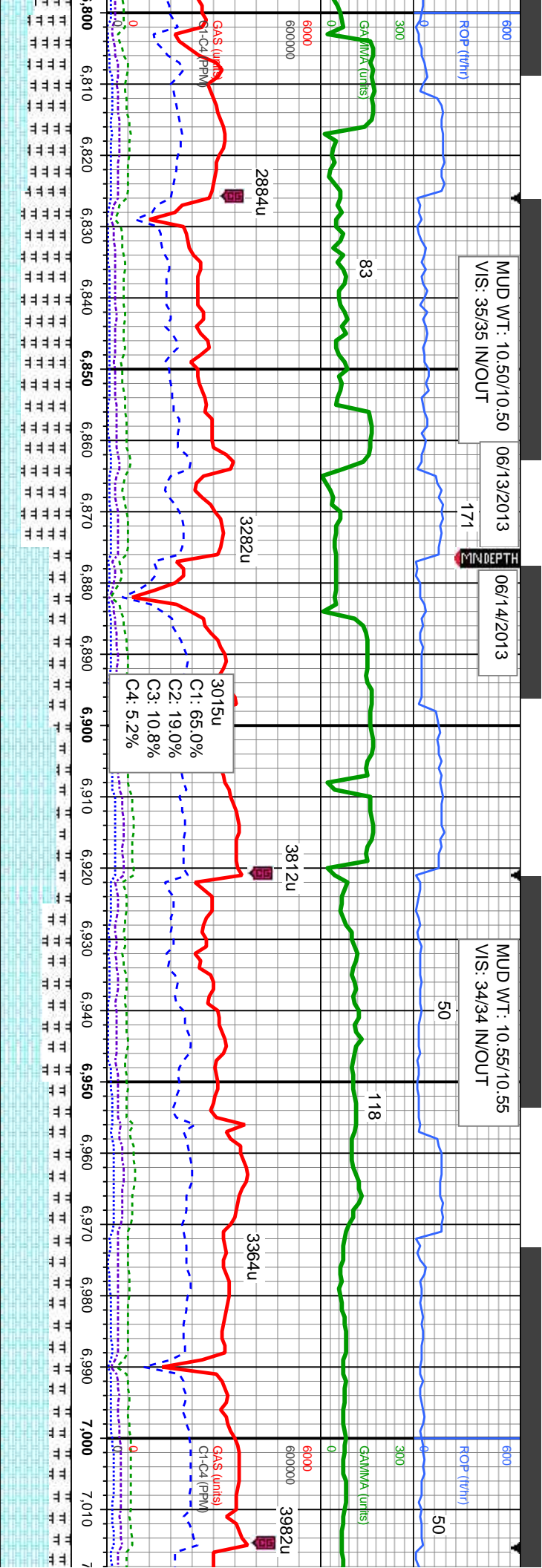
MRL: med - dk gy, frm - mod hd, sb ply -
sb biky, silty - gritty tex, v calc
CHK: lt gy, mot, lam, sft - frm, sb ply - sb
biky, rthy, v calc, sme bent

Niobrara B Marl Top
@ 6,776 MD: 6,593' TVD

MD: 6,773
TVD: 6,591.82
Inclination: 62.15 °
Azimuth: 2.53 °
VS: 856.74'

CHK: lt - med gy, mot, lam, sft - mod hd,
sb ply - sb biky, rthy, v calc
MRL: med - dk gy, frm - mod hd, sb ply -
sb biky, silty - gritty tex, v calc, sme bent,
sme inoc frag





Niobrara C Chalk Top
@ 6,865' MD; 6,628' TVD

MD: 6,821
TVD: 6,612.46

Inclination: 66.9 °
Azimuth: 1.92 °
VS: 899.98'

MD: 6,868
TVD: 6,629.21

Inclination: 71.34 °	
Azimuth: 359.97 °	
VS: 943.85 '	

MD: 6,916

TVD: 6,643.65
Inclination: 73.64 °
Azimuth: 358.14 °
VS: 989.62 m/s

MD: 6,963

IVD: 6,633.17	
Inclination: 77.98 °	
Azimuth: 357.15 °	
VS: 4.035 427	

MD: 7,013

TVD: 6,663
Inclination: 84
Azimuth: 358.4

MRL: med - dk gy, frm - mod hd, sb ply - sb bkly, slty - gritty tex, v calic, abnt bent, abnt inoc frag				
---	--	--	--	--

CHK: It - med gy, mot, lam, sft - mod hd,
sb pity - sb biky, rthy, v calc

MR.L: med - dk gy, frm - mod hd, sb ply -
sb biky, slty - gritty tex, v calc, tr bent,
sme inoc frag

CHK: It - med gy, speckl wi wh, mot, lam,
sft - mod hd, sb plty - sb blkly, rthy

CHK: it - med gy, speckl wi wh, mot, lam,
sft - mod hd, sb ply - sb blkly, rthy
MRL: med - dk qv, frm - mod hd, sb ply -

sb blkly, slty - gritty tex, v calc, tr bent, sm
Inoc frag

CHK: It - med gy, speckl wi wh, mot, lam, sft - mod hd, sb ply - sb blyk, rthy MRL: med - dk gy, frm - mod hd, sb ply - sb blyk, sily - griffy tex, v calc, sme bent, sme Inoc frag

lam, sft - mod
MRL: med - di
- sb bilky, stly
bent, sme Inoi

06/14/2013

06/15/2013

06/15/2013, Mud Wt: 9.10, FVIs: 30
PVIs: 4, YP: 4, GEELS: 35/7, API Filtr: 11.8
CAKE: 1/0, pH: 9.2, Cl: 1,400, Ca: 120

MUD WT: 9.20/9.20
VIS: 28/28 IN/OUT

400

MINDEPTH

103

89

<<No Gamma Data Inside Casing>>

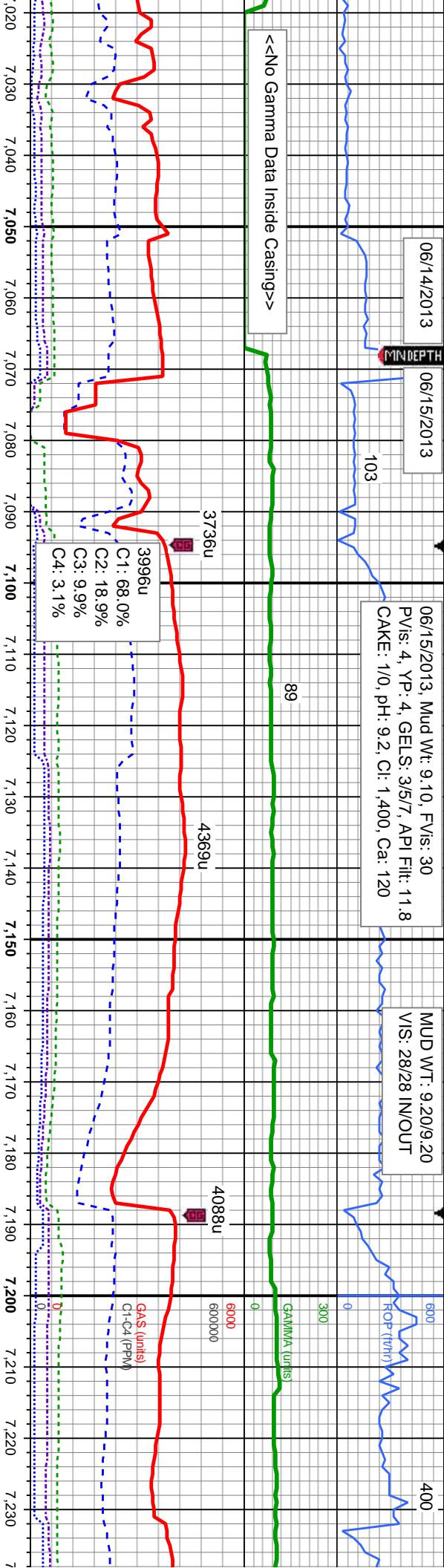
3736u

4369u

4088u

GAS (units)
C1-C4 (PPM)

C1: 68.0%
C2: 18.9%
C3: 9.9%
C4: 3.1%



TOOH @ 7,067' MD
to run 7" casing

50' Sample Interval @ 7,100' MD

<<Scale Change>>

6500

Bit Data
Bit #: 300
Type: Security FXD54
Size: 6.125"
Depth In: 7,067'
Jets: 5x14

MD: 7,067'
TVD: 6,666.58'
Inclination: 88.4°
Azimuth: 358.5°
VS: 1,138.38'

MD: 7,126'
TVD: 6,670.18'
Inclination: 88.71°
Azimuth: 358.67°
VS: 1,197.25'

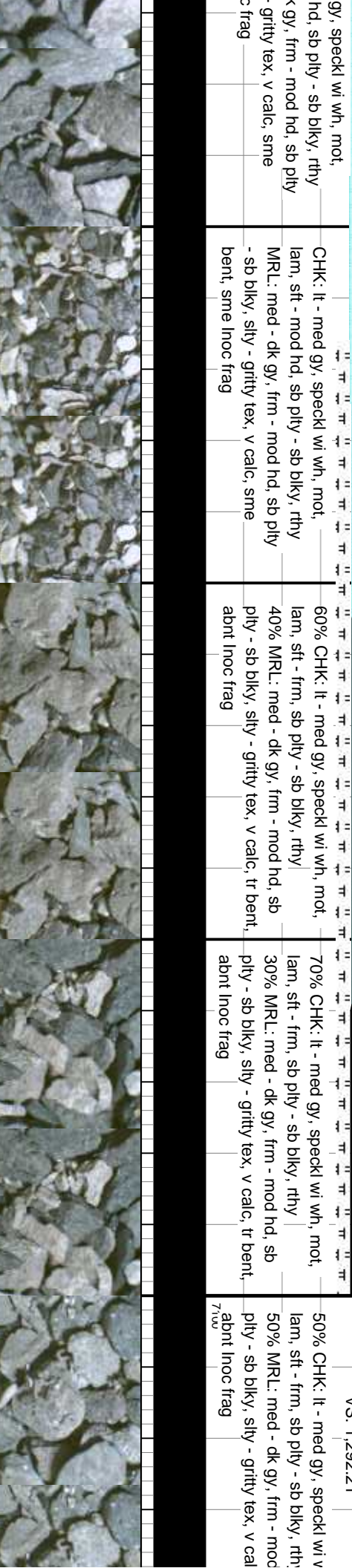
MD: 7,221'
TVD: 6,672.81'
Inclination: 88.12°
Azimuth: 357.58°
VS: 1,292.21'

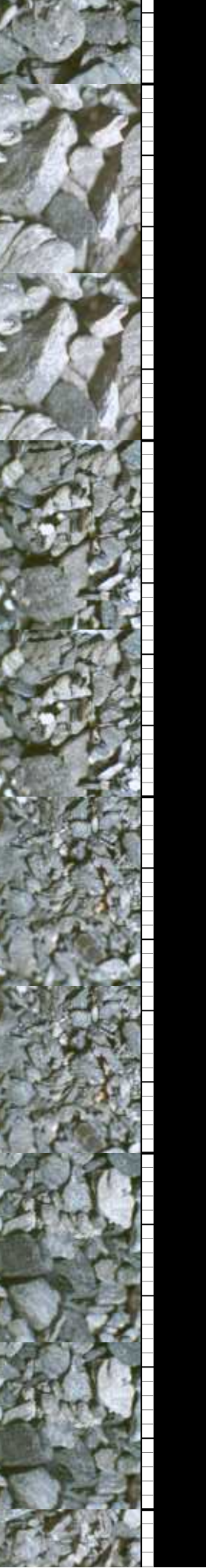
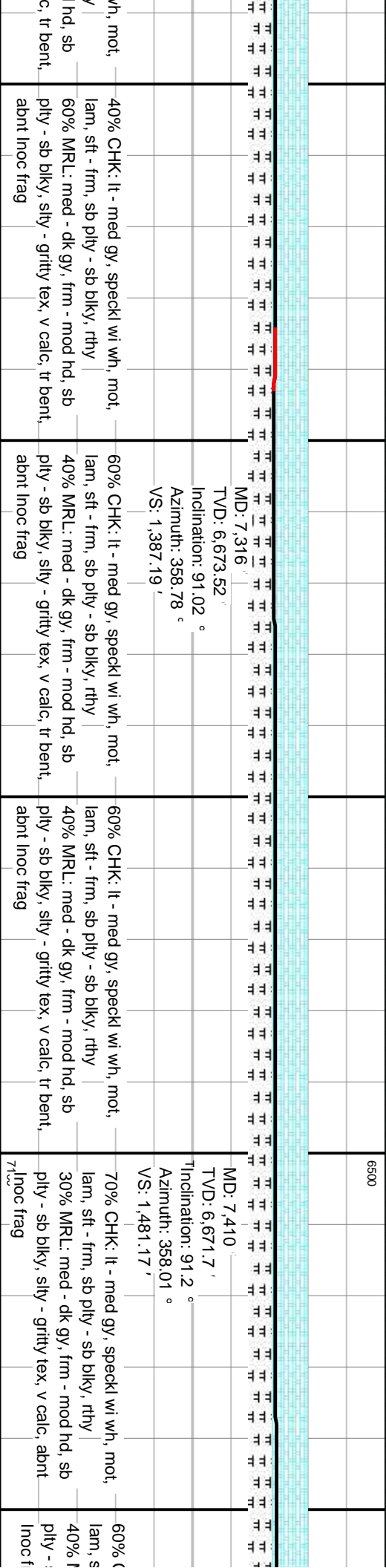
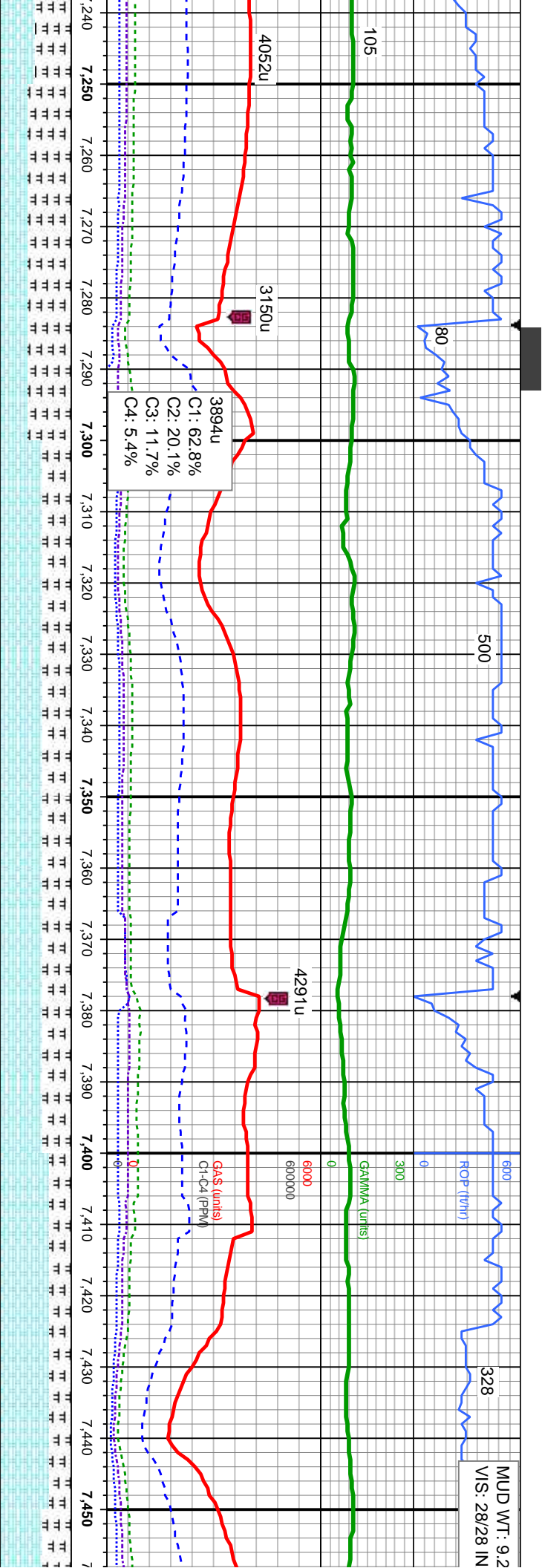
CHK: It - med gy, speckl wi wh, mot,
lam, sft - mod hd, sb ply - sb blk, rthy
MRL: med - dk gy, frm - mod hd, sb ply
- sb blk, silty - gritty tex, v calc, sme
bent, sme inoc frag

60% CHK: It - med gy, speckl wi wh, mot,
lam, sft - frm, sb ply - sb blk, rthy
40% MRL: med - dk gy, frm - mod hd, sb
ply - sb blk, silty - gritty tex, v calc, tr bent,
abt inoc frag

70% CHK: It - med gy, speckl wi wh, mot,
lam, sft - frm, sb ply - sb blk, rthy
30% MRL: med - dk gy, frm - mod hd, sb
ply - sb blk, silty - gritty tex, v calc, tr bent,
abt inoc frag

50% CHK: It - med gy, speckl wi v
lam, sft - frm, sb ply - sb blk, rthy
50% MRL: med - dk gy, frm - mod
ply - sb blk, silty - gritty tex, v cal





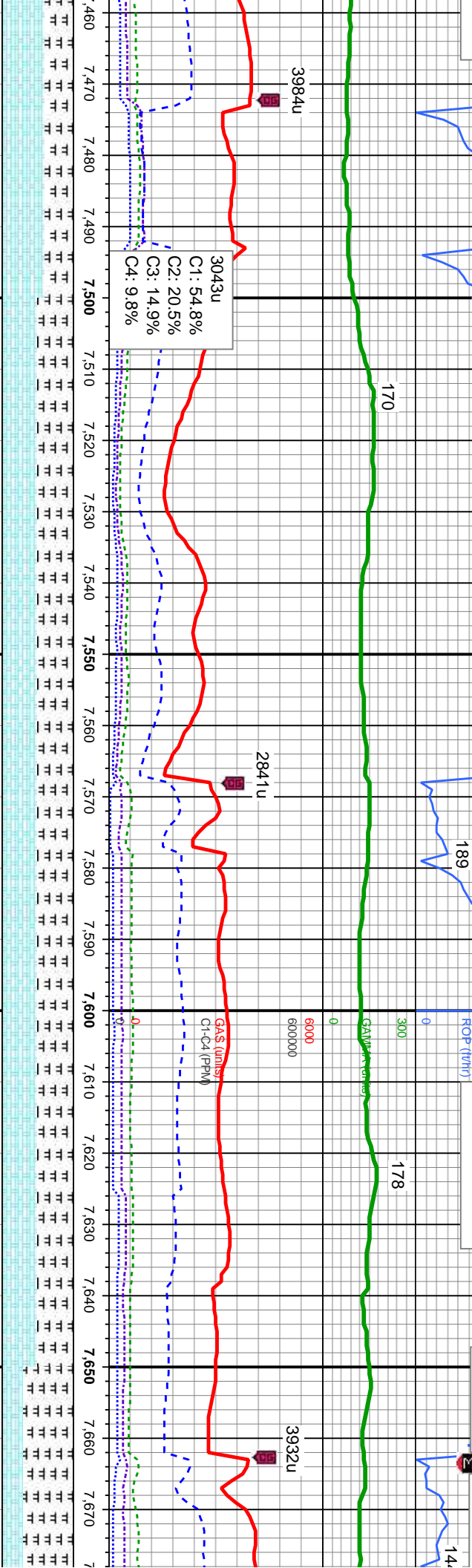
0/9.20
OUT

MUD WT: 9.25/9.25
VIS: 30/30 IN/OUT

06/15/2013

06/16/2013

MINDEPTH



MD: 7.505
TVD: 6,669.63'
Inclination: 91.3 °
Azimuth: 357.87 °
VS: 1,576.13'

MD: 7.600
TVD: 6,667.58'
Inclination: 91.17 °
Azimuth: 357.86 °
VS: 1,671.1'

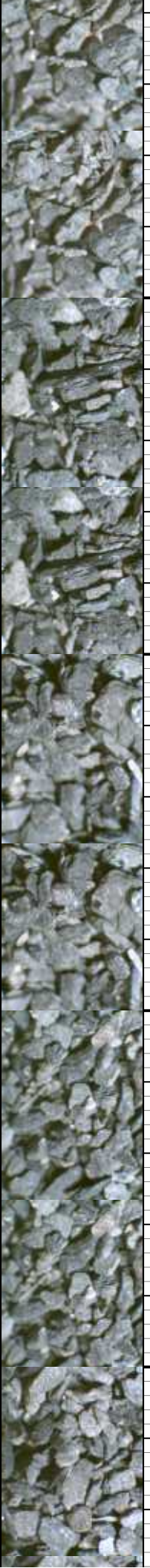
CHK: lt - med gy, speckl wi wh, mot,
ft - frm, sb pty - sb blk, rthy
MRL: med - dk gy, frm - mod hd, sb
sb blk, slty - grtty tex, v calc, abnt
rag

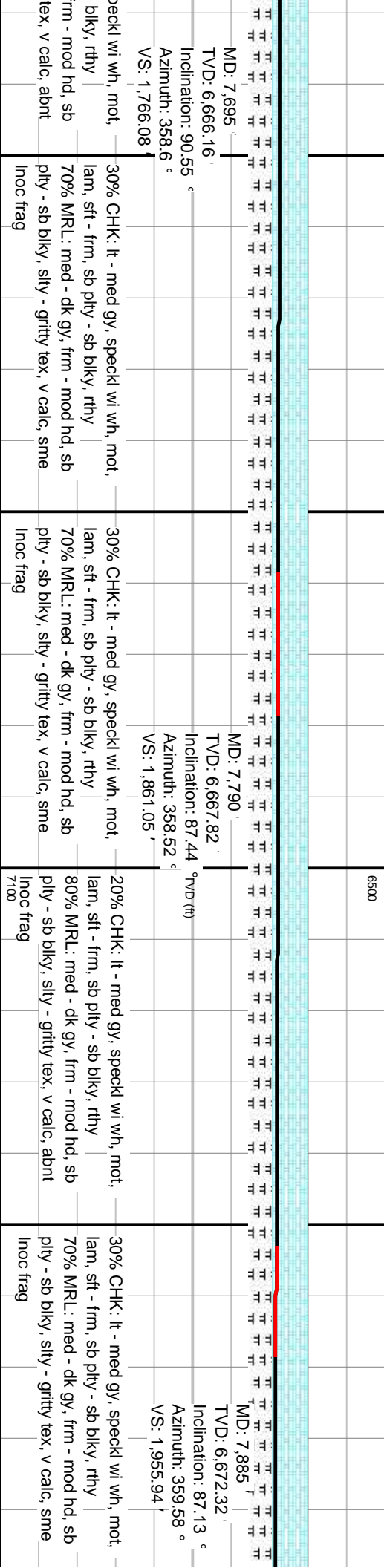
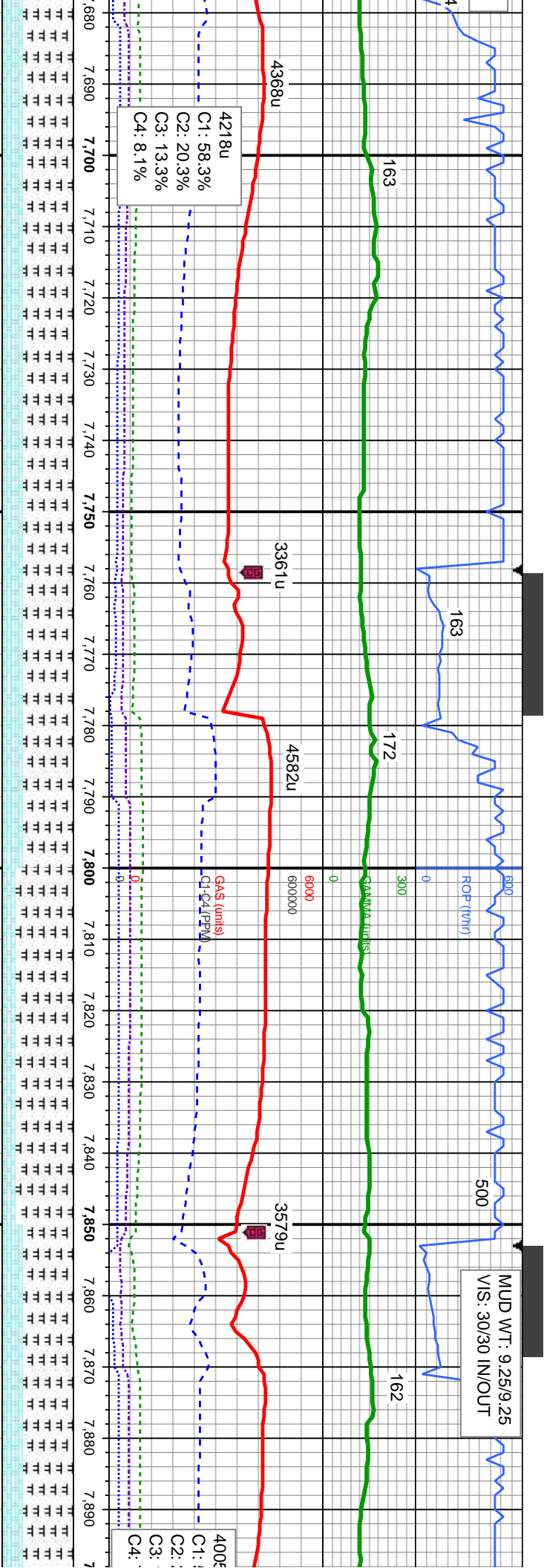
50% CHK: lt - med gy, speckl wi wh, mot,
lam, sft - frm, sb pty - sb blk, rthy
50% MRL: med - dk gy, frm - mod hd, sb
pty - sb blk, slty - grtty tex, v calc, abnt
Inoc frag

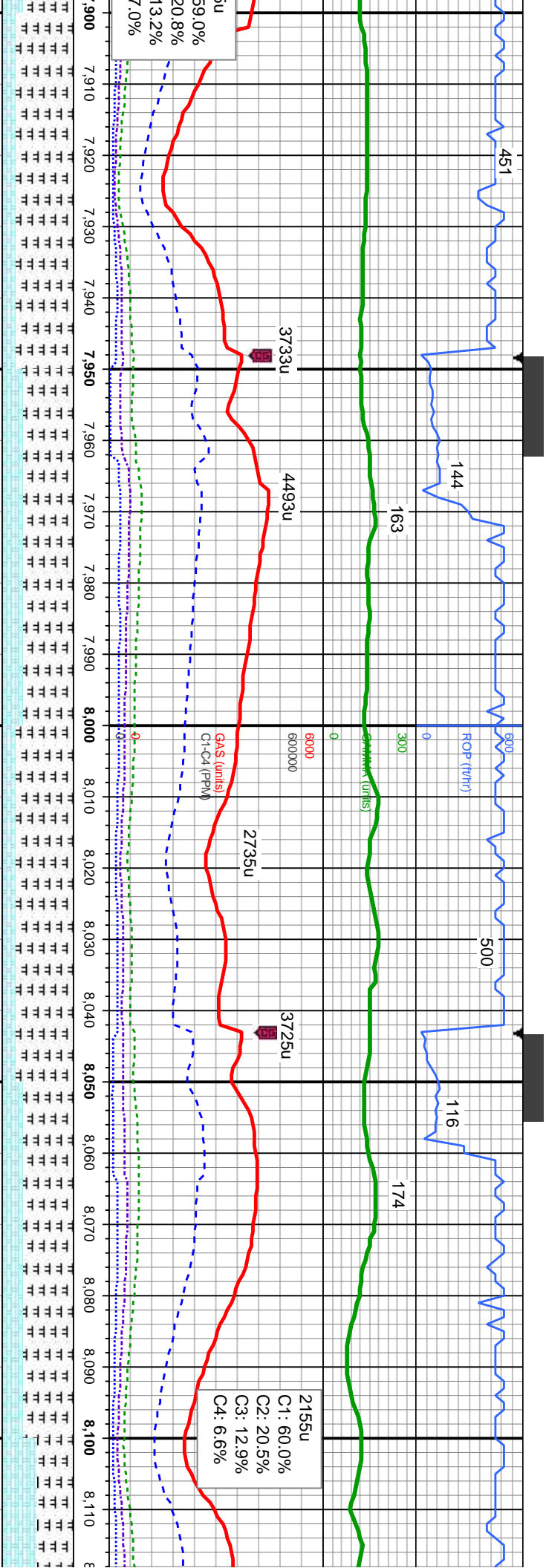
50% CHK: lt - med gy, speckl wi wh, mot,
lam, sft - frm, sb pty - sb blk, rthy
50% MRL: med - dk gy, frm - mod hd, sb
pty - sb blk, slty - grtty tex, v calc, abnt
Inoc frag

50% CHK: lt - med gy, speckl wi wh, mot,
lam, sft - frm, sb pty - sb blk, rthy
50% MRL: med - dk gy, frm - mod hd, sb
pty - sb blk, slty - grtty tex, v calc, abnt
Inoc frag

30% CHK: lt - med gy, speckl wi wh, mot,
lam, sft - frm, sb pty - sb blk, rthy
70% MRL: med - dk gy, frm - mod hd, sb
pty - sb blk, slty - grtty tex, v calc, abnt
Inoc frag



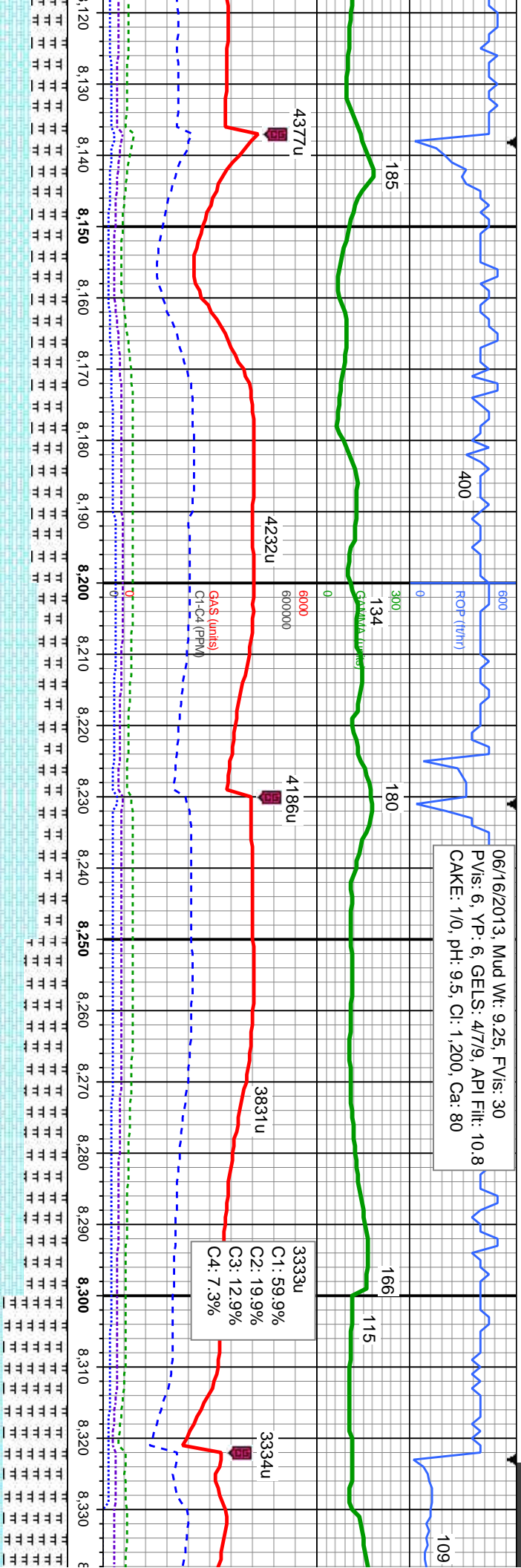




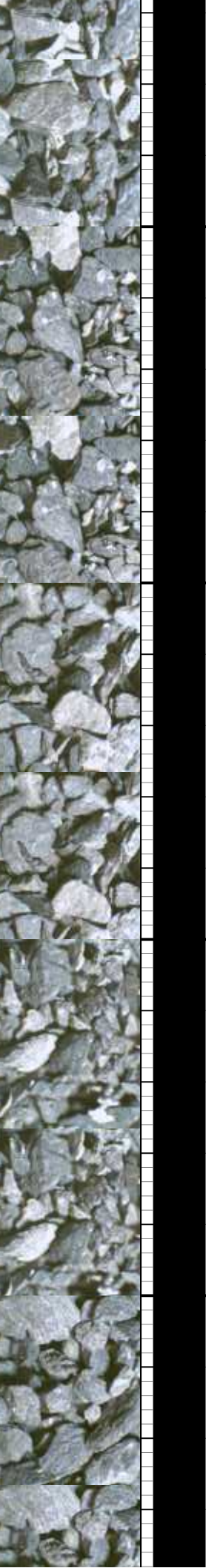
MD: 7,980		TVD: 6,676.82'		Inclination: 87.44 °		Azimuth: 0.56 °		VS: 2,050.81'	
20% CHK: lt - med gy, speckl wi wh, mot, lam, sft - frm, sb pty - sb blkly, rthy		30% CHK: lt - med gy, speckl wi wh, mot, lam, sft - frm, sb pty - sb blkly, rthy		20% CHK: lt - med gy, speckl wi wh, mot, lam, sft - frm, sb pty - sb blkly, rthy		30% CHK: lt - med gy, speckl wi wh, mot, lam, sft - frm, sb pty - sb blkly, rthy		50% CHK: lt - med gy, speckl wi wh, mot, lam, sft - frm, sb pty - sb blkly, rthy	
80% MRL: med - dk gy, frm - mod hd, sb pty - sb blkly, silty - gritty tex, v calc, tr inoc frag		70% MRL: med - dk gy, frm - mod hd, sb pty - sb blkly, silty - gritty tex, v calc, sme inoc frag, tr bent		80% MRL: med - dk gy, frm - mod hd, sb pty - sb blkly, silty - gritty tex, v calc, sme inoc frag, tr bent		70% MRL: med - dk gy, frm - mod hd, sb pty - sb blkly, silty - gritty tex, v calc, sme inoc frag, tr bent		50% MRL: med - dk gy, frm - mod hd, sb pty - sb blkly, silty - gritty tex, v calc, sme inoc frag, tr bent	

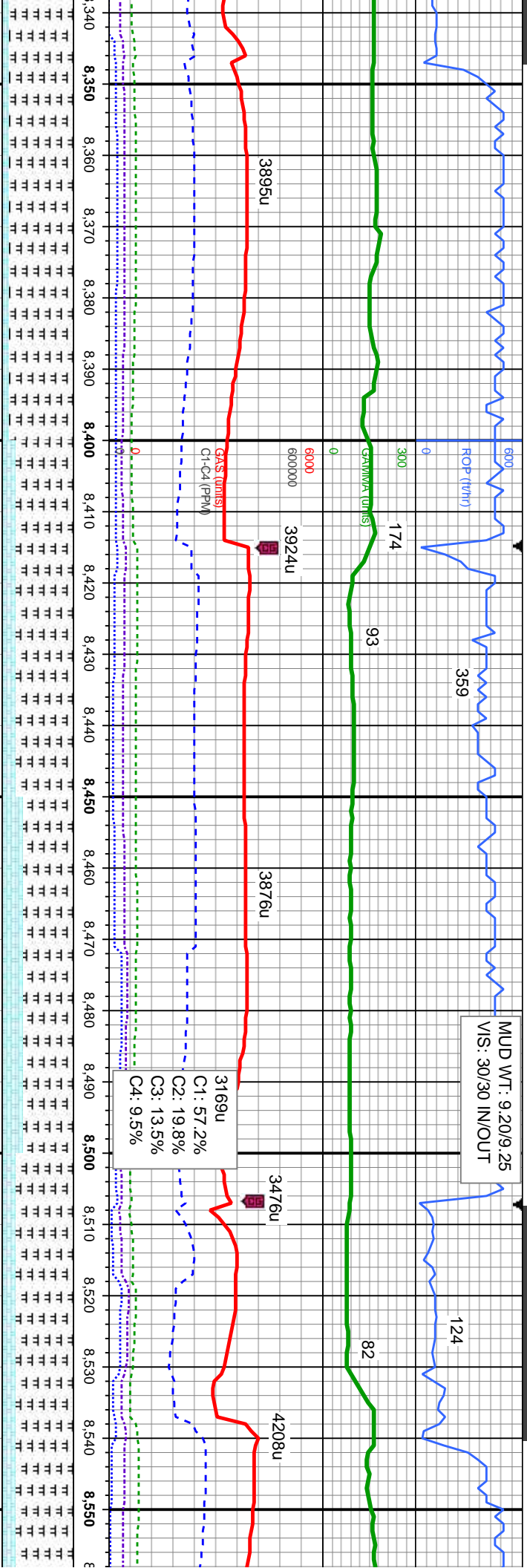


06/16/2013, Mud Wt: 9.25, FV/s: 30
PV/s: 6, YP: 6, GELS: 47/9, API Filt: 10.8
CAKE: 1/0, pH: 9.5, Cl: 1,200, Ca: 80

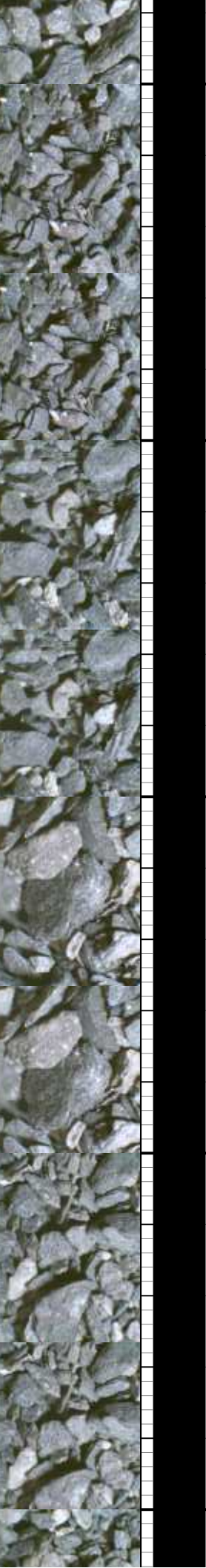


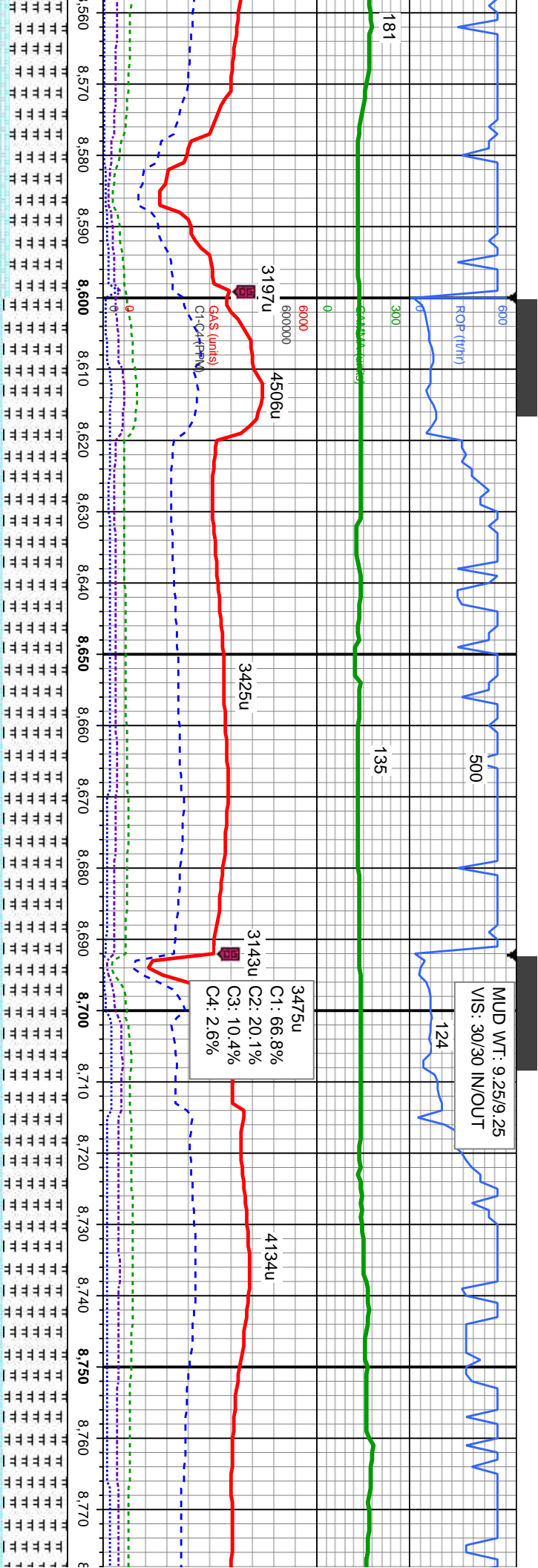
MD: 8,167' TVD: 6,679.27' Inclination: 90.8 ° Azimuth: 0.71 ° VS: 2,237.63'		6500		MD: 8,261' TVD: 6,676.74' Inclination: 92.28 ° Azimuth: 0.29 ° VS: 2,331.56'	
50% CHK: lt - med gy, speckl wi wh, mot, lam, sft - frm, sb ply - sb blkly, rthy	50% MRL: med - dk gy, frm - mod hd, sb ply - sb blkly, sily - gritty tex, v calc, abnt Inoc frag, tr bent	60% CHK: lt - med gy, speckl wi wh, mot, lam, sft - frm, sb ply - sb blkly, rthy	40% MRL: med - dk gy, frm - mod hd, sb ply - sb blkly, sily - gritty tex, v calc, sme Inoc frag, tr bent	40% CHK: lt - med gy, speckl wi wh, mot, lam, sft - frm, sb ply - sb blkly, rthy	90% MRL: med - dk gy, frm - mod ply - sb blkly, sily - gritty tex, v calc frag, abnt bent





MD: 8,353		MD: 8,446		MD: 8,538	
TVD: 6,674.41'		TVD: 6,672.93'		TVD: 6,672.56'	
Inclination: 90.62 °		Inclination: 91.2 °		Inclination: 89.26 °	
Azimuth: 0.22 °		Azimuth: 358.32 °		Azimuth: 359.73 °	
VS: 2,423.5'		VS: 2,516.48'		VS: 2,608.47'	
10% CHK: lt - med gy, speckl wi wh, mot, lam, sft - frm, sb pty - sb blk, rthy		20% CHK: lt - med gy, speckl wi wh, mot, lam, sft - frm, sb pty - sb blk, rthy		20% CHK: lt - med gy, speckl wi wh, mot, lam, sft - frm, sb pty - sb blk, rthy	
90% MRL: med - dk gy, frm - mod hd, sb pty - sb blk, sly - gritty tex, v calc, tr inoc frag, abnt bent		80% MRL: med - dk gy, frm - mod hd, sb pty - sb blk, sly - gritty tex, v calc, sme inoc frag, abnt bent		80% MRL: med - dk gy, frm - mod hd, sb pty - sb blk, sly - gritty tex, v calc, sme inoc frag, abnt bent	
7100		7100		7100	





6500

MD: 8,630

TVD: 6,674.37'

Inclination: 88.49 °

Azimuth: 1.01 °

VS: 2,700.42'

CHK: It - med gy, speckl wi wh, mot,
t - frm, sb ply - sb blkly, rthy
MRL: med - dk gy, frm - mod hd, sb
blkly, sily - grity tex, v calc, sme
frag, abnt bent

10% CHK: It - med gy, speckl wi wh, mot,
lam, sft - frm, sb ply - sb blkly, rthy
90% MRL: med - dk gy, frm - mod hd, sb
ply - sb blkly, sily - grity tex, v calc, sme
frag, abnt bent

7100

MD: 8,723

TVD: 6,678.08'

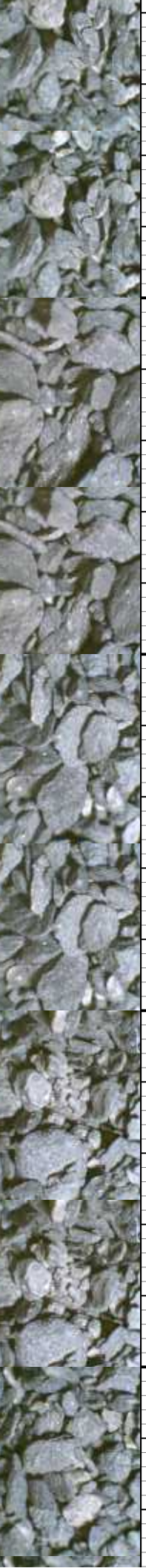
Inclination: 86.94 °

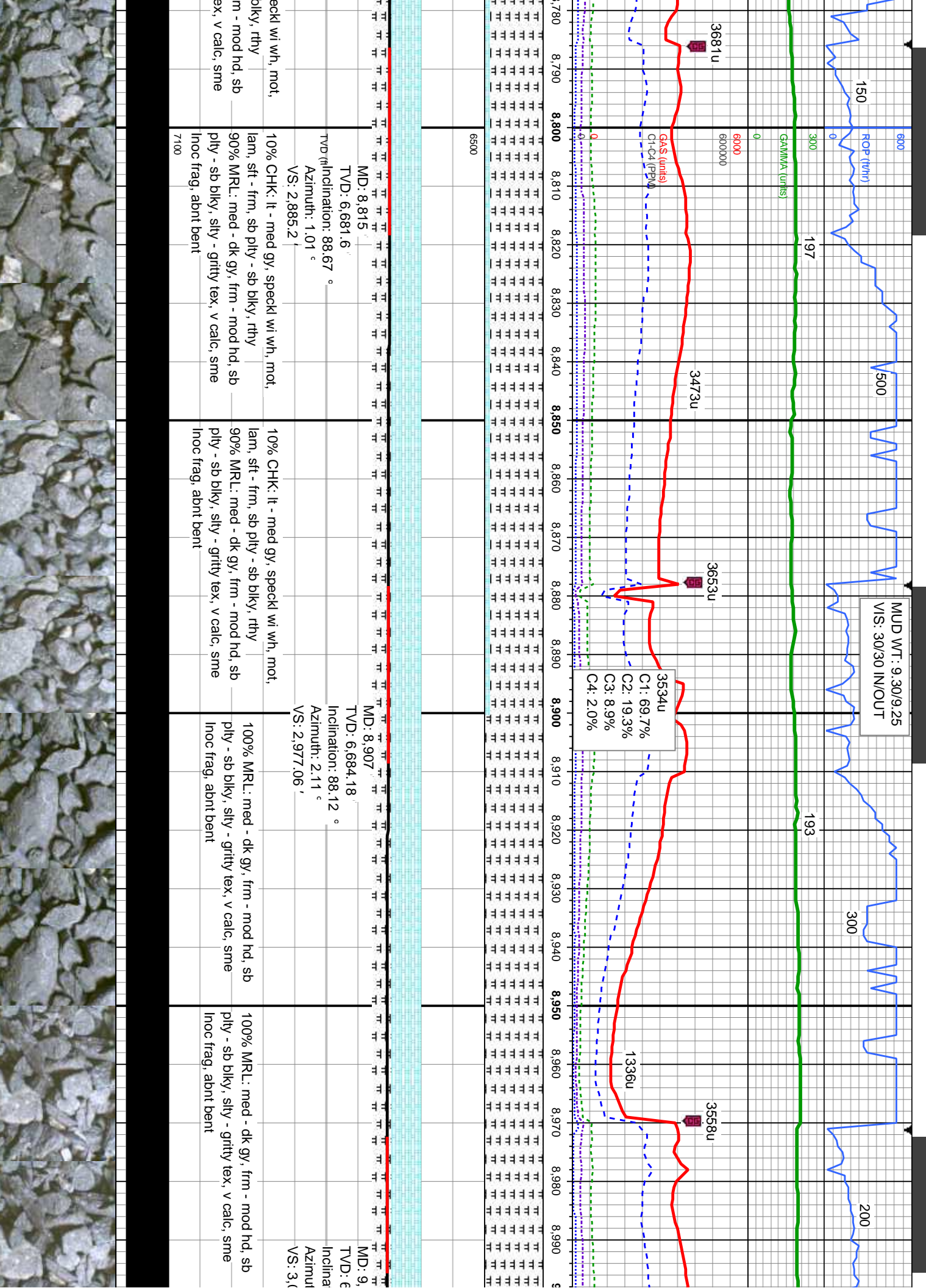
Azimuth: 359.7 °

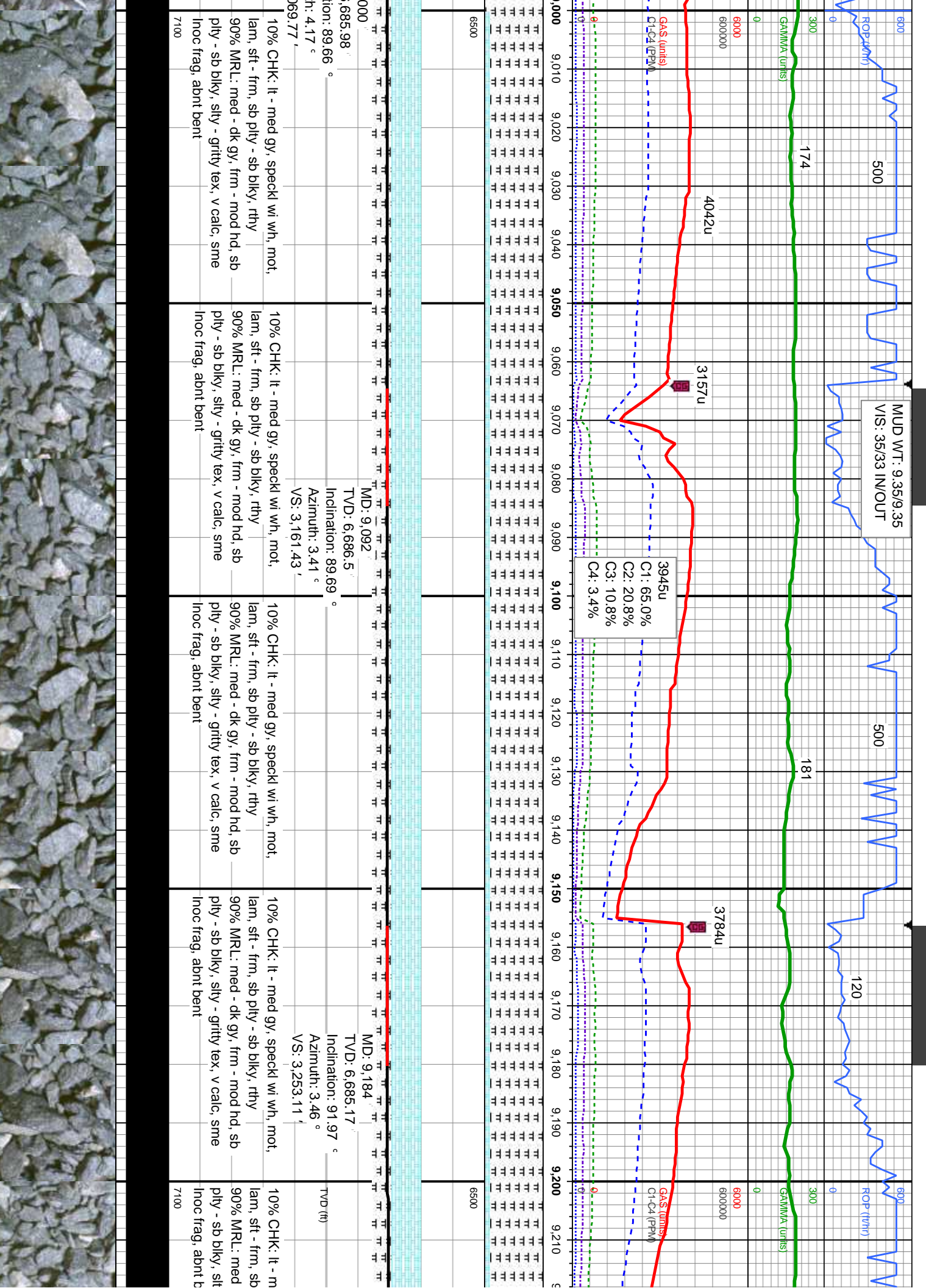
VS: 2,793.3'

10% CHK: It - med gy, speckl wi wh, mot,
lam, sft - frm, sb ply - sb blkly, rthy
90% MRL: med - dk gy, frm - mod hd, sb
ply - sb blkly, sily - grity tex, v calc, sme
frag, abnt bent

10% CHK: It - med gy, sp
lam, sft - frm, sb ply - sb
90% MRL: med - dk gy, fr
ply - sb blkly, sily - grity t
frag, abnt bent







MUD WT: 9.35/9.35
VIS: 35/33 IN/OUT

3945u
C1: 65.0%
C2: 20.8%
C3: 10.8%
C4: 3.4%

TVD: 6,686.5
MD: 9,092
Inclination: 89.69 °
Azimuth: 3.41 °
VS: 3,161.43

TVD: 6,685.17
MD: 9,184
Inclination: 91.97 °
Azimuth: 3.46 °
VS: 3,253.11

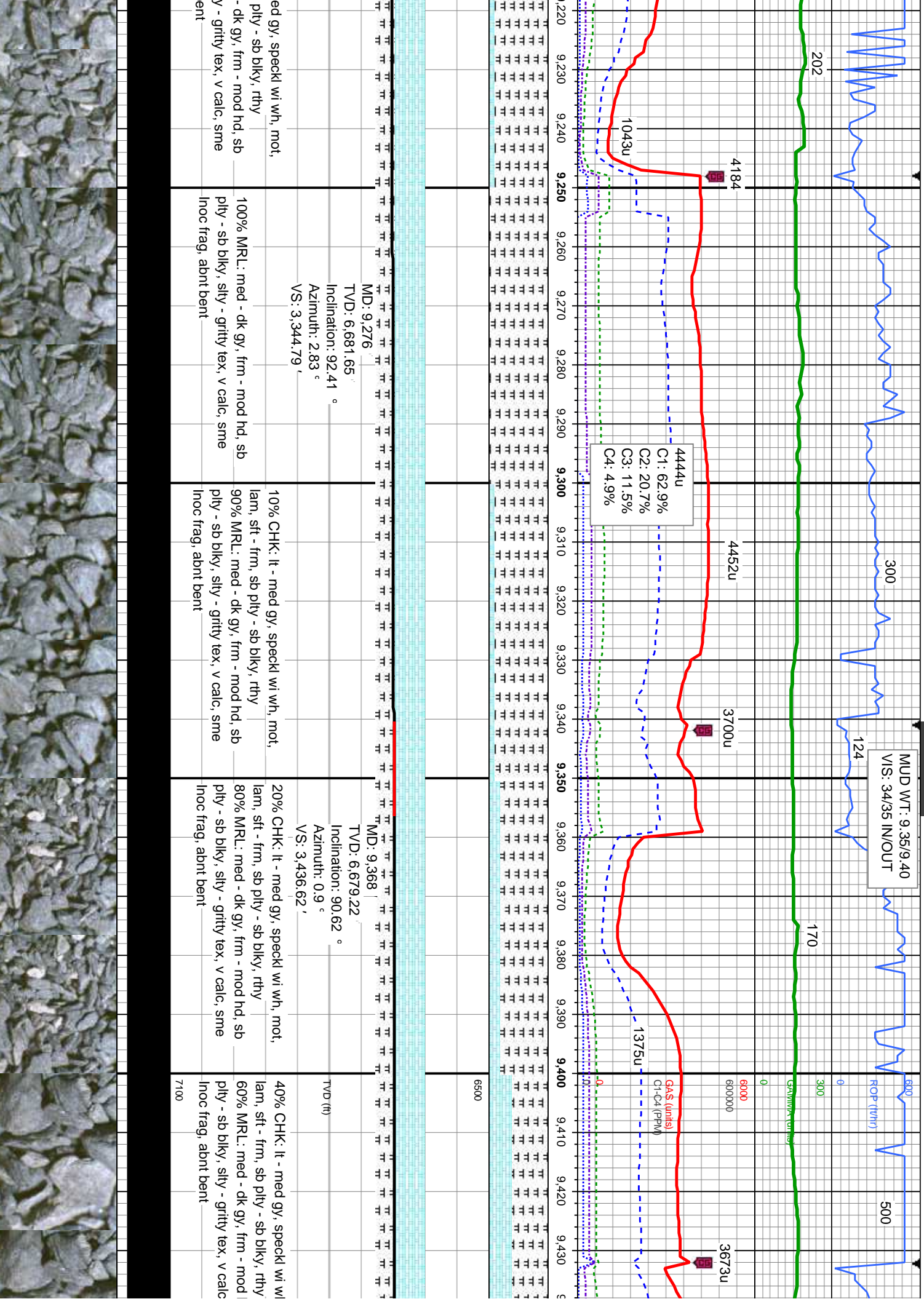
10% CHK: It - med gy, speckl w/ wh, mot,
lam, sft - frm, sb pty - sb blk, rthy
90% MRL: med - dk gy, frm - mod hd, sb
pty - sb blk, stly - grtly tex, v calc, sme
Inoc frag, abnt bent

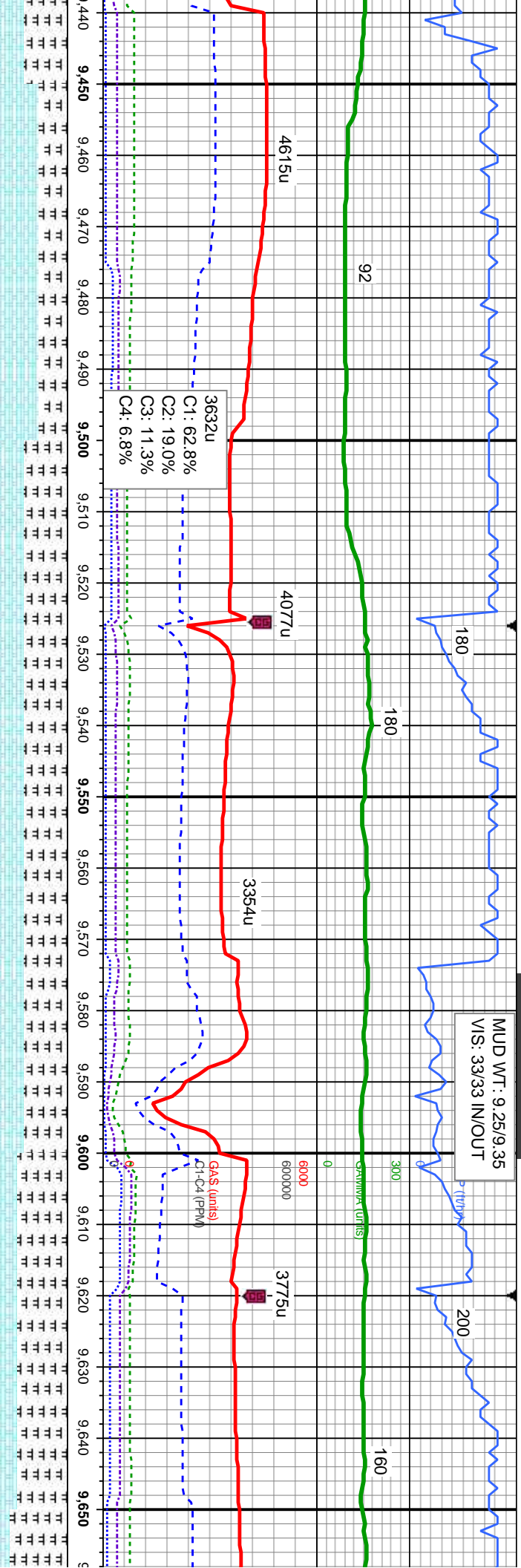
10% CHK: It - med gy, speckl w/ wh, mot,
lam, sft - frm, sb pty - sb blk, rthy
90% MRL: med - dk gy, frm - mod hd, sb
pty - sb blk, stly - grtly tex, v calc, sme
Inoc frag, abnt bent

10% CHK: It - med gy, speckl w/ wh, mot,
lam, sft - frm, sb pty - sb blk, rthy
90% MRL: med - dk gy, frm - mod hd, sb
pty - sb blk, stly - grtly tex, v calc, sme
Inoc frag, abnt bent

10% CHK: It - med gy, speckl w/ wh, mot,
lam, sft - frm, sb pty - sb blk, rthy
90% MRL: med - dk gy, frm - mod hd, sb
pty - sb blk, stly - grtly tex, v calc, sme
Inoc frag, abnt bent

10% CHK: It - m
lam, sft - frm, sb
90% MRL: med
pty - sb blk, stl
Inoc frag, abnt b



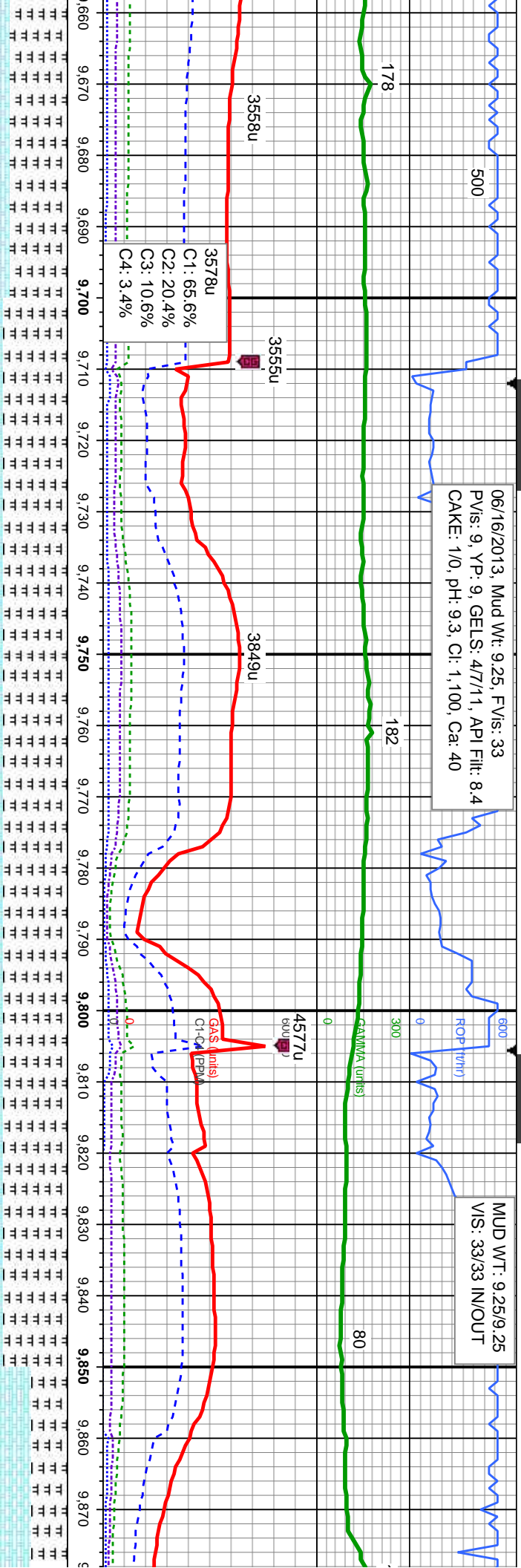


MD: 9,460		MD: 9,555		MD: 9,648	
TVD: 6,678.95'		TVD: 6,680.48'		TVD: 6,681.83'	
Inclination: 89.72 °		Inclination: 88.43 °		Inclination: 89.91 °	
Azimuth: 359.97 °		Azimuth: 359.36 °		Azimuth: 0.35 °	
VS: 3,528.58'		VS: 3,623.56'		VS: 3,716.53'	
60% CHK: It - med gy, speckl wi wh, mot, lam, sft - frm, sb pty - sb blk, rthy	40% CHK: It - med gy, speckl wi wh, mot, lam, sft - frm, sb pty - sb blk, rthy	40% CHK: It - med gy, speckl wi wh, mot, lam, sft - frm, sb pty - sb blk, rthy	30% CHK: It - med gy, speckl wi wh, mot, lam, sft - frm, sb pty - sb blk, rthy	20% C	
40% MRL: med - dk gy, frm - mod hd, sb pty - sb blk, stly - gritty tex, v calc, sme	60% MRL: med - dk gy, frm - mod hd, sb pty - sb blk, stly - gritty tex, v calc, sme	60% MRL: med - dk gy, frm - mod hd, sb pty - sb blk, stly - gritty tex, v calc, sme	70% MRL: med - dk gy, frm - mod hd, sb pty - sb blk, stly - gritty tex, v calc, sme	80% M	
Inoc frag, abnt bent	Inoc frag, abnt bent	Inoc frag, abnt bent	Inoc frag, abnt bent	Inoc fr	



06/16/2013, Mud Wt: 9.25, FV/s: 33
PV/s: 9, YP: 9, GELS: 47/11, API Filtr: 8.4
CAKE: 1/0, pH: 9.3, CI: 1.100, Ca: 40

MUD WT: 9.25/9.25
VIS: 33/33 IN/OUT



MD: 9,740

MD: 9,833

TVD: 6,681.56

TVD (ft)

Inclination: 90.43 °

Inclination: 89.69 °

Azimuth: 359.57 °

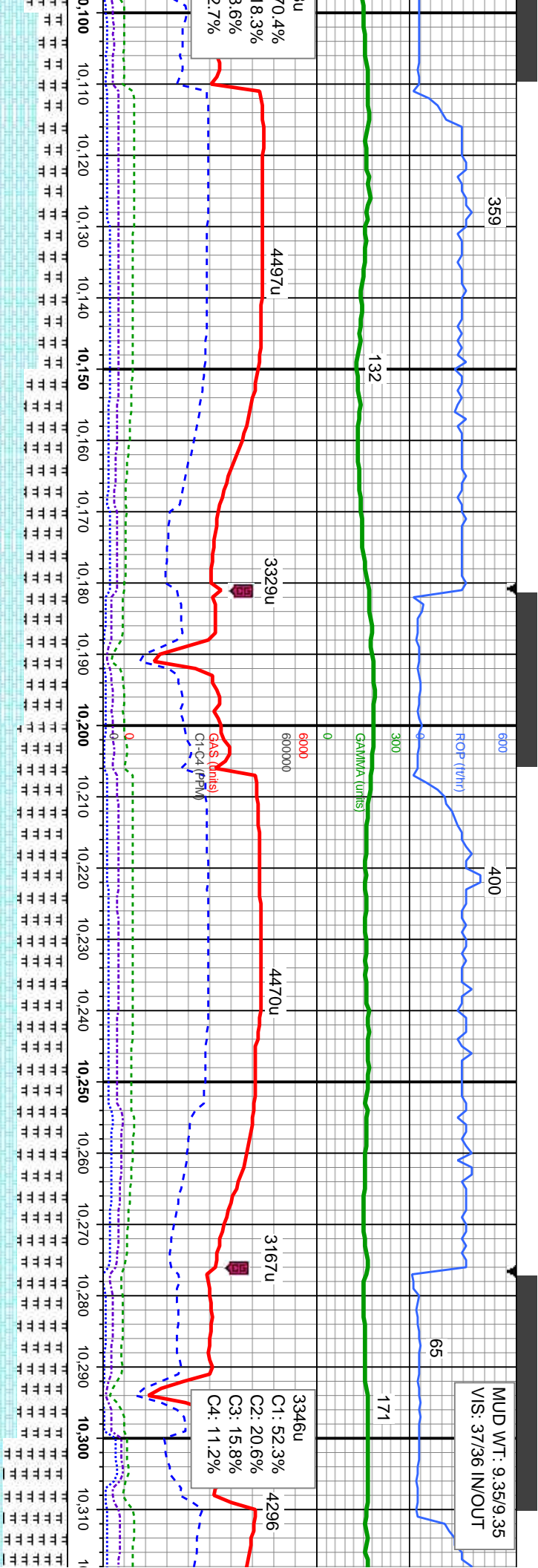
Azimuth: 0.17 °

VS: 3,808.51

VS: 3,901.49

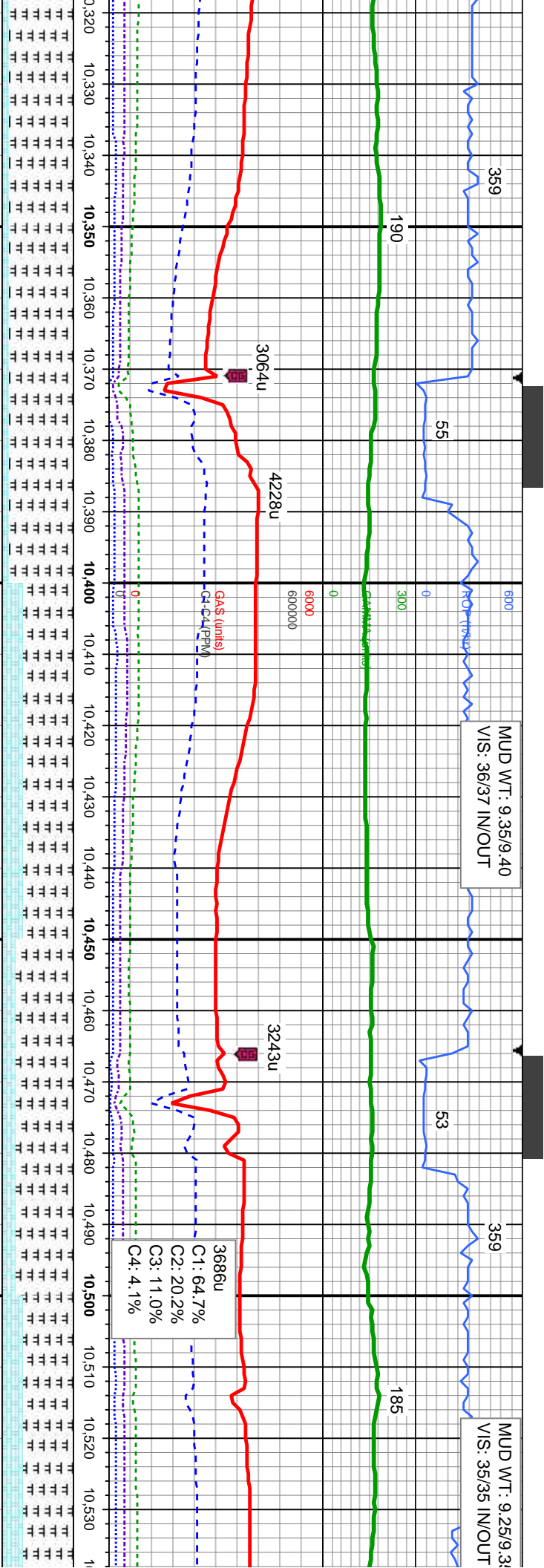
HK: lt - med gy, speckl wi wh, mot, t - frm, sb pty - sb blk, rthy
10% CHK: lt - med gy, speckl wi wh, mot, lam, sft - frm, sb pty - sb blk, rthy
90% MRL: med - dk gy, frm - mod hd, sb pty - sb blk, sly - gritty tex, v calc, sme frag, sme bent
90% MRL: med - dk gy, frm - mod hd, sb pty - sb blk, sly - gritty tex, v calc, sme frag, sme bent
50% CHK: lt - med gy, s lam, sft - frm, sb pty - s
50% MRL: med - dk gy, pty - sb blk, sly - gritty
Inoc frag, sme bent



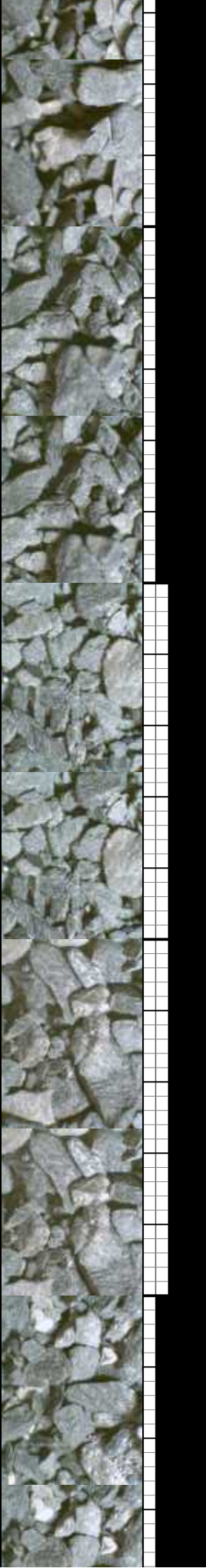


MD: 10.115 TVD: 6,685.27' Inclination: 87.94° Azimuth: 358.51° VS: 4,183.4'		MD: 10.210 TVD: 6,687.9' Inclination: 88.89° Azimuth: 359.28° VS: 4,278.36'		MD: 10.305 TVD: 6,688.56' Inclination: 90.31° Azimuth: 359.43° VS: 4,373.35'	
60% CHK: lt - med gy, speckl wi wh, mot, lam, sft - frm, sb ply - sb blk, rthy	40% CHK: lt - med gy, speckl wi wh, mot, lam, sft - frm, sb ply - sb blk, rthy	30% CHK: lt - med gy, speckl wi wh, mot, lam, sft - frm, sb ply - sb blk, rthy	70% MRL: med - dk gy, frm - mod hd, sb ply - sb blk, sily - gritty tex, v calc, sme Inoc frag, sme bent	30% CHK: lt - med gy, speckl wi wh, mot, lam, sft - frm, sb ply - sb blk, rthy	10% CHK: lt - m
40% MRL: med - dk gy, frm - mod hd, sb ply - sb blk, sily - gritty tex, v calc, sme Inoc frag, sme bent	60% MRL: med - dk gy, frm - mod hd, sb ply - sb blk, sily - gritty tex, v calc, sme Inoc frag, sme bent	70% MRL: med - dk gy, frm - mod hd, sb ply - sb blk, sily - gritty tex, v calc, sme Inoc frag, sme bent	90% MRL: med		





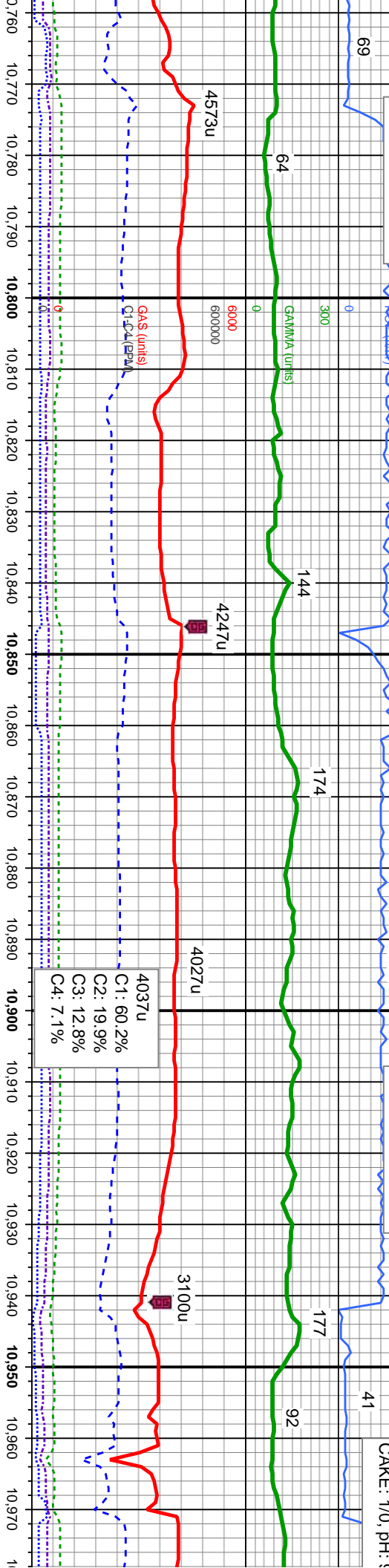
med gy, speckl wi wh, mot, pty - sb blk, rthy	10% CHK: lt - med gy, speckl wi wh, mot, lam, sft - frm, sb pty - sb blk, rthy	30% CHK: lt - med gy, speckl wi wh, lam, sft - frm, sb pty - sb blk, rthy	20% CHK: lt - med gy, speckl wi wh, lam, sft - frm, sb pty - sb blk, rthy	30% CHK: lt - med gy, speckl wi wh, lam, sft - frm, sb pty - sb blk, rthy
- dk gy, frm - mod hd, sb	90% MRL: med - dk gy, frm - mod hd, sb	70% MRL: med - dk gy, frm - mod hd, sb	80% MRL: med - dk gy, frm - mod hd, sb	70% MRL: med - dk gy, frm - mod
v - grity tex, v calc, sme	pty - sb blk, sly - grity tex, v calc, sme	pty - sb blk, sly - grity tex, v calc, sme	pty - sb blk, sly - grity tex, v calc, sme	pty - sb blk, sly - grity tex, v calc
ent	Inoc frag, sme bent	Inoc frag, sme bent	Inoc frag, sme bent	Inoc frag, sme bent
	MD: 10,400	MD: 10,495		
	TVD: 6,687.84	TVD: 6,686.86		
	Inclination: 90.56 °	Inclination: 90.62 °		
	Azimuth: 359.51 °	Azimuth: 0.14 °		
	VS: 4,468.34	VS: 4,563.32		



MUD WT: 9.30/9.30
VIS: 35/35 IN/OUT

MUD WT: 9.30/9.30
VIS: 33/34 IN/OUT

06/17/2013, Muc
PVIS: 10, YP: 10
CAKE: 1/0, pH: 8



6500

MD: 10,780
TVD: 6,682.52'
Inclination: 89.94°
Azimuth: 358.72°
VS: 4,848.25'

MD: 10,875
TVD: 6,681.9'
Inclination: 90.8°
Azimuth: 357.4°
VS: 4,943.24'

MD: 10,969
TVD: 6,680.39'
Inclination: 91.05°
Azimuth: 358.09°
VS: 5,037.21'

CHK: crm - lt gy, speckl wi wh, mot, lam, sft - frm, sb ply - sb blk, rthy
MRL: med - dk gy, frm - mod hd, sb ply - sb blk, sily - gritty tex, v calc, sme
eg, tr bent

80% CHK: crm - lt gy, speckl wi wh, mot, lam, sft - frm, sb ply - sb blk, rthy
20% MRL: med - dk gy, frm - mod hd, sb ply - sb blk, sily - gritty tex, v calc, sme
Inoc frag, tr bent

70% CHK: crm - lt gy, speckl wi wh, mot, lam, sft - frm, sb ply - sb blk, rthy
30% MRL: med - dk gy, frm - mod hd, sb ply - sb blk, sily - gritty tex, v calc, abnt
Inoc frag, tr bent

70% CHK: crm - lt gy, speckl wi wh, mot, lam, sft - frm, sb ply - sb blk, rthy
30% MRL: med - dk gy, frm - mod hd, sb ply - sb blk, sily - gritty tex, v calc, abnt
Inoc frag, tr bent

70% CHK: crm - lt gy, speckl wi wh, mot, lam, sft - frm, sb ply - sb blk, rthy
30% MRL: med - dk gy, frm - mod hd, sb ply - sb blk, sily - gritty tex, v calc, abnt
Inoc frag, tr bent



MUD WT: 9.30/9.30
VIS: 34/33 IN/OUT

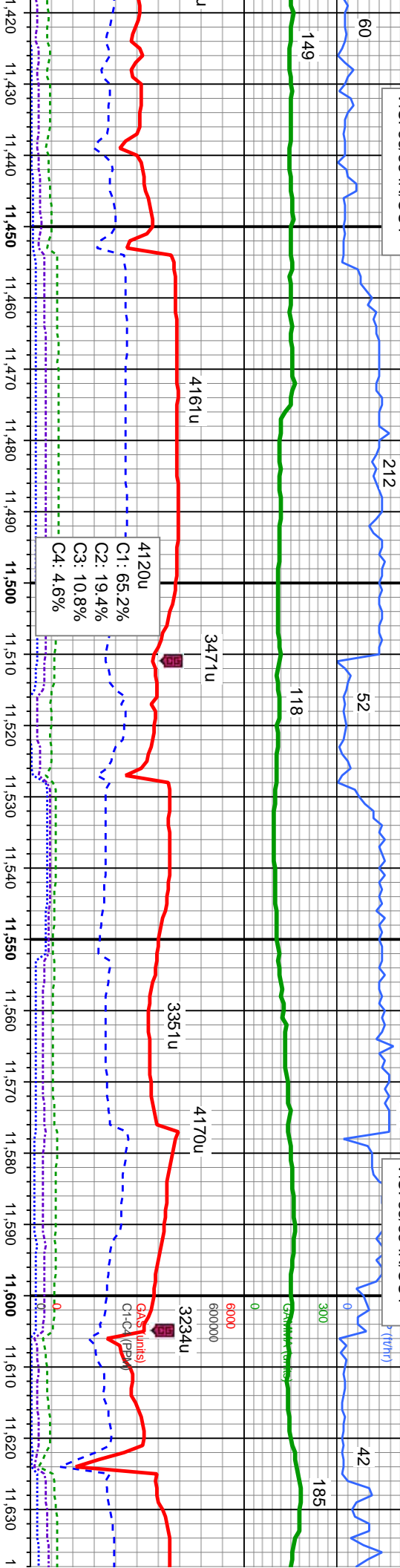


Inclination: 90.52 °
Azimuth: 358.08 °
VS: 5.132.19 '

40% CHk: crm - lt gy, speckl wi wh, mot,
lam, sft - frm, sb pily - sb blkly, rthy
60% MRL: med - dk gy, frm - mod hd, sb
pily - sb blkly, sily - gritty tex, v calc, abnt
Inoc frag, tr bent

MUD WT: 9.15/9.20
VIS: 33/33 IN/OUT

MUD WT: 9.20/9.30
VIS: 33/33 IN/OUT



MWD: 11.444
TVD: 6,687.3
Inclination: 89.63 °
Azimuth: 2.79 °
VS: 5,511.8'

MWD: 11.538
TVD: 6,687.81
Inclination: 89.75 °
Azimuth: 2.08 °
VS: 5,605.61'

Depth (ft)	VS	VS (ft)	VS (ft)	VS (ft)
11,420	5,511.8'	5,511.8'	5,511.8'	5,511.8'
11,430	5,511.8'	5,511.8'	5,511.8'	5,511.8'
11,440	5,511.8'	5,511.8'	5,511.8'	5,511.8'
11,450	5,511.8'	5,511.8'	5,511.8'	5,511.8'
11,460	5,511.8'	5,511.8'	5,511.8'	5,511.8'
11,470	5,511.8'	5,511.8'	5,511.8'	5,511.8'
11,480	5,511.8'	5,511.8'	5,511.8'	5,511.8'
11,490	5,511.8'	5,511.8'	5,511.8'	5,511.8'
11,500	5,511.8'	5,511.8'	5,511.8'	5,511.8'
11,510	5,511.8'	5,511.8'	5,511.8'	5,511.8'
11,520	5,511.8'	5,511.8'	5,511.8'	5,511.8'
11,530	5,511.8'	5,511.8'	5,511.8'	5,511.8'
11,540	5,511.8'	5,511.8'	5,511.8'	5,511.8'
11,550	5,511.8'	5,511.8'	5,511.8'	5,511.8'
11,560	5,511.8'	5,511.8'	5,511.8'	5,511.8'
11,570	5,511.8'	5,511.8'	5,511.8'	5,511.8'
11,580	5,511.8'	5,511.8'	5,511.8'	5,511.8'
11,590	5,511.8'	5,511.8'	5,511.8'	5,511.8'
11,600	5,511.8'	5,511.8'	5,511.8'	5,511.8'
11,610	5,511.8'	5,511.8'	5,511.8'	5,511.8'
11,620	5,511.8'	5,511.8'	5,511.8'	5,511.8'
11,630	5,511.8'	5,511.8'	5,511.8'	5,511.8'



MUD WT: 9.20/9.25
VIS: 33/33 IN/OUT

06/17/2013, Mud Wt: 9.20, FV/s: 33
PV/s: 8, YP: 8, GELS: 4/7/12, API Filtr: 8.6
CAKE: 1/0, pH: 9.0, Cl: 1,100, Ca: 40

MUD WT: 9.15/9.25
VIS: 33/33 IN/OUT

3511u
C1: 66.8%
C2: 19.6%
C3: 10.1%
C4: 3.6%

3886u

159

212

3824u

144

GA\$ (units)
Cl CA (PEN)

6500

Inclination: 90.65 °
Azimuth: 1.25 °
VS: 5,795.3'

TVD (ft)

Inclination: 89.78 °
Azimuth: 0.31 °
VS: 5,890.25'

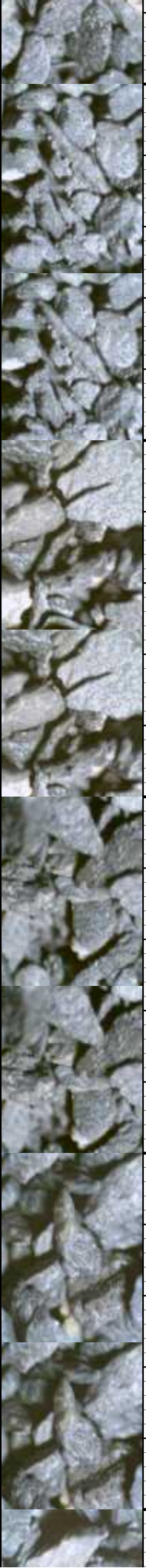
100% MRL: med - dk gy, frm - mod hd, sb
ply - sb blk, silty - gritty tex, v calc, abnt
Inoc frag, tr bent

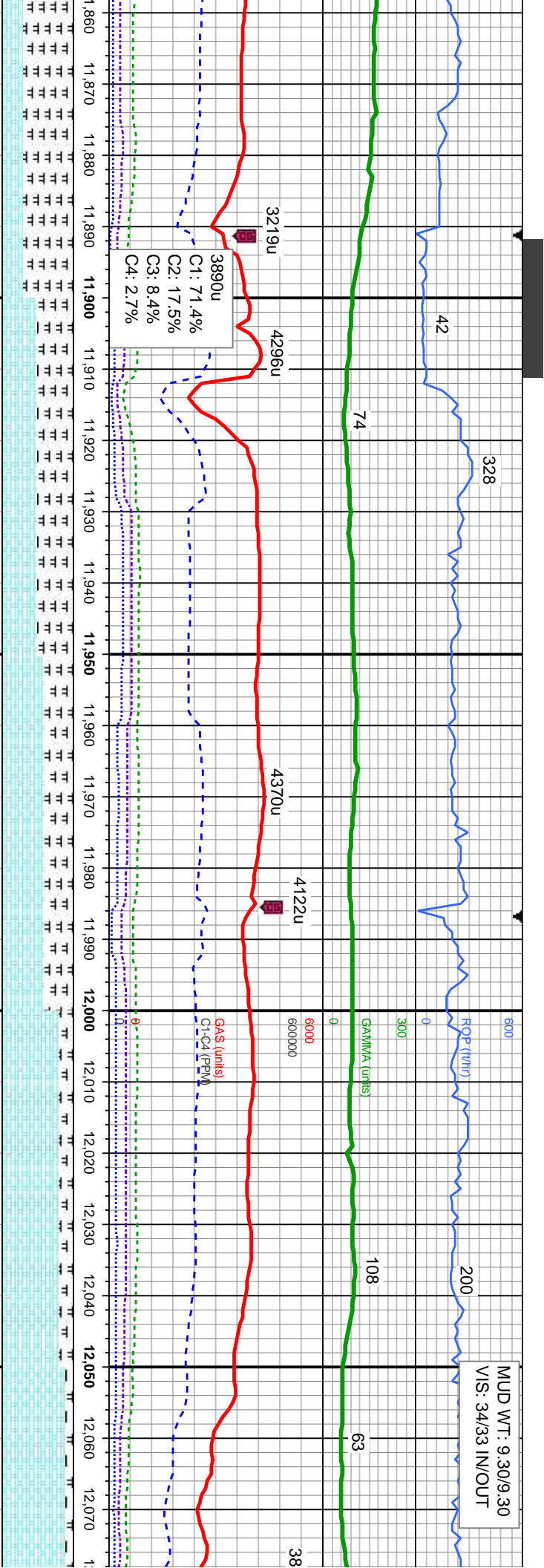
10% CHK: crm - lt gy, speckl wi wh, mot,
lam, sft - frm, sb ply - sb blk, rthy
90% MRL: med - dk gy, frm - mod hd, sb
ply - sb blk, silty - gritty tex, v calc, sme
Inoc frag, sme bent

10% CHK: crm - lt gy, speckl wi wh, mot,
lam, sft - frm, sb ply - sb blk, rthy
90% MRL: med - dk gy, frm - mod hd, sb
ply - sb blk, silty - gritty tex, v calc, sme
Inoc frag, sme bent

20% CHK: crm - lt gy, speckl wi wh,
mot, lam, sft - frm, sb ply - sb blk, rthy
80% MRL: med - dk gy, frm - mod hd,
sb ply - sb blk, silty - gritty tex, v calc,
sme Inoc frag, abnt bent

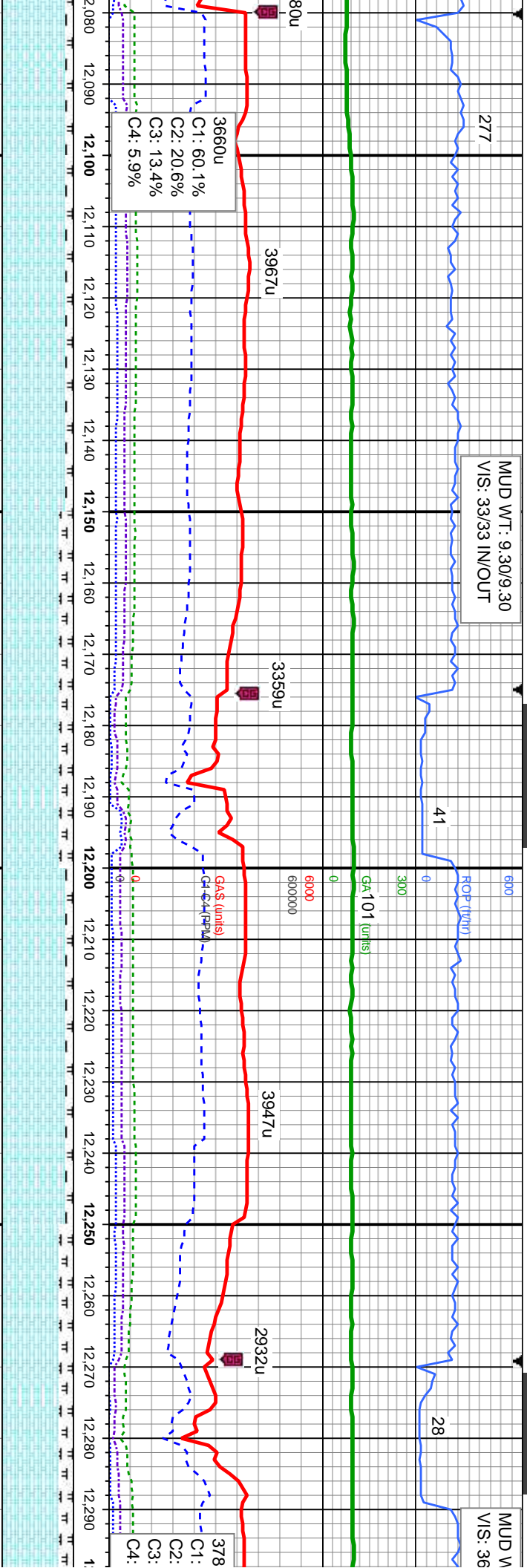
30% C
lam, s
70% N
ply - s
Inoc fr





MD: 11,918 TVD: 6,685.31' Inclination: 90.8 ° Azimuth: 0.78 ° VS: 5.985.2'		MD: 12,013 TVD: 6,684.16' Inclination: 90.59 ° Azimuth: 0.08 ° VS: 6.080.16'		MD: 12,050 TVD: 6,684.16' Inclination: 90.59 ° Azimuth: 0.08 ° VS: 6.080.16'	
50% CHK: crm - lt gy, speckl wi wh, mot, lam, sft - frm, sb ply - sb blk, rthy		60% CHK: crm - lt gy, speckl wi wh, mot, lam, sft - frm, sb ply - sb blk, rthy		90% CHK: crm - lt gy, speckl wi wh, mot, lam, sft - frm, sb ply - sb blk, rthy	
50% MRL: med - dk gy, frm - mod hd, sb ply - sb blk, sily - gritty tex, v calc, sme		40% MRL: med - dk gy, frm - mod hd, sb ply - sb blk, sily - gritty tex, v calc, sme		10% MRL: med - dk gy, frm - mod hd, sb ply - sb blk, sily - gritty tex, v calc, sme	
Inoc frag, sme bent		Inoc frag, sme bent		Inoc frag, sme bent	



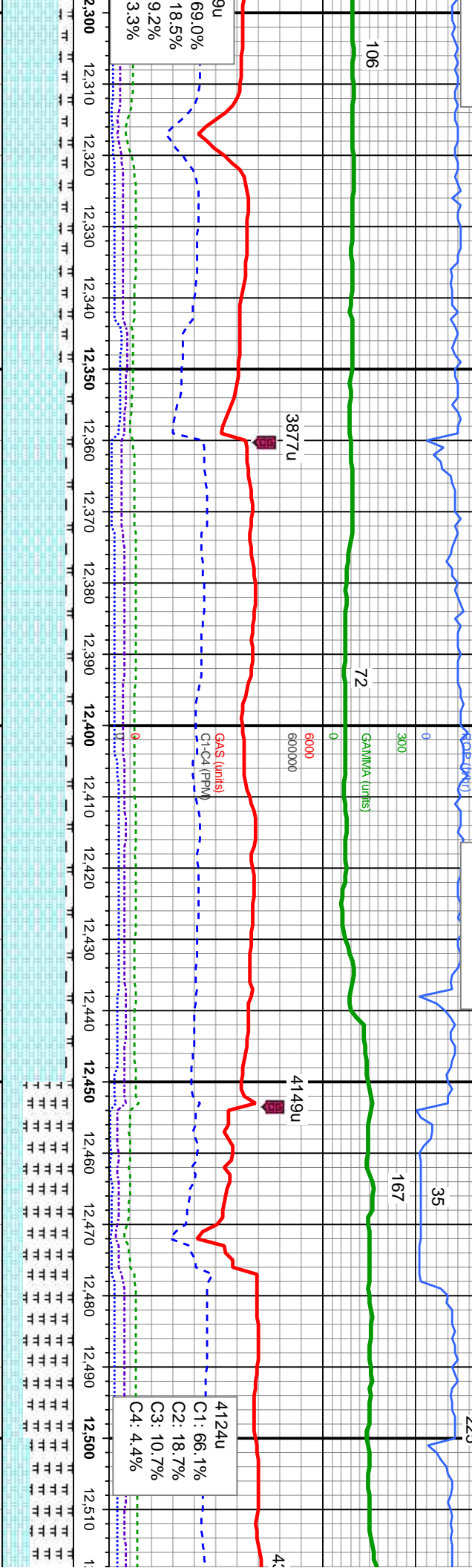


MD: 12,107		MD: 12,202		MD: 12,290	
TVD: 6,683.22'		TVD: 6,684.6'		TVD: 6,688	
Inclination: 90.56 °		Inclination: 87.77 °		Inclination: 87.77 °	
Azimuth: 359.02 °		Azimuth: 359.28 °		Azimuth: 359.28 °	
VS: 6,174.14'		VS: 6,269.12'		VS: 6,364	
90% CHK: crm - lt gy, speckl wi wh, mot, lam, sft - frm, sb ply - sb blkly, rthy	80% CHK: crm - lt gy, speckl wi wh, mot, lam, sft - frm, sb ply - sb blkly, rthy	90% CHK: crm - lt gy, speckl wi wh, mot, lam, sft - frm, sb ply - sb blkly, rthy	80% CHK: crm - lt gy, speckl wi wh, mot, lam, sft - frm, sb ply - sb blkly, rthy	90% CHK: crm - lt gy, speckl wi wh, mot, lam, sft - frm, sb ply - sb blkly, rthy	80% CHK: crm - lt gy, speckl wi wh, mot, lam, sft - frm, sb ply - sb blkly, rthy
10% MRL: med - dk gy, frm - mod hd, sb ply - sb blkly, silty - gritty tex, v calc, tr fos	20% MRL: med - dk gy, frm - mod hd, sb ply - sb blkly, silty - gritty tex, v calc, tr fos	10% MRL: med - dk gy, frm - mod hd, sb ply - sb blkly, silty - gritty tex, v calc, tr fos	20% MRL: med - dk gy, frm - mod hd, sb ply - sb blkly, silty - gritty tex, v calc, tr fos	10% MRL: med - dk gy, frm - mod hd, sb ply - sb blkly, silty - gritty tex, v calc, tr fos	20% MRL: med - dk gy, frm - mod hd, sb ply - sb blkly, silty - gritty tex, v calc, tr fos
frag, sme bent	frag, sme bent	frag, abnt bent	frag, sme bent	frag, sme bent	frag, sme bent

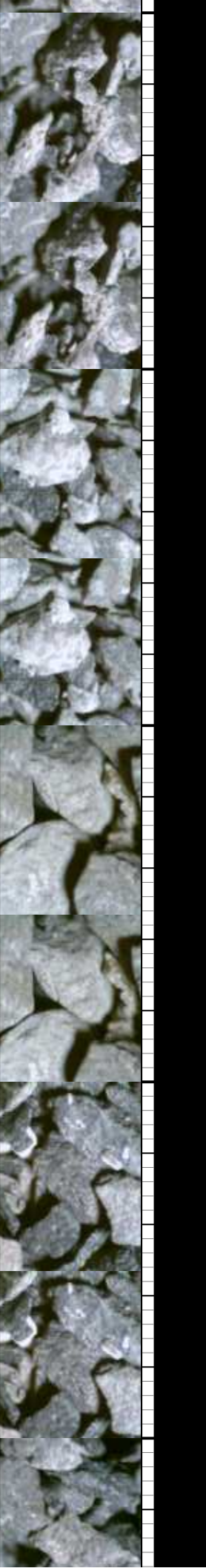


9.30/9.30
/34 IN/OUT

MUD WT: 9.30/9.40
VIS: 35/35 IN/OUT



6.55'	MD: 12,392'	TV D: 6,687.31'	Inclination: 89.2 °	Azimuth: 357.92 °	VS: 6,459.09'	90% CHK: crm - lt gy, speckl wi wh, mot, lam, sft - frm, sb ply - sb blk, rthy	10% MRL: med - dk gy, frm - mod hd, sb ply - sb blk, silty - gritty tex, v calc, tr fos frag, sme bent
89.88 °	MD: 12,487'	TV D: 6,688.46'	Inclination: 89.41 °	Azimuth: 358.96 °	VS: 6,554.08'	30% CHK: crm - lt gy, v cin, speckl wi wh, mot, lam, sft - frm, sb ply - sb blk, rthy	70% MRL: med - dk gy, frm - mod hd, sb ply - sb blk, silty - gritty tex, v calc, tr fos frag, sme bent
559.18 °	MD: 12,487'	TV D: 6,688.46'	Inclination: 89.41 °	Azimuth: 358.96 °	VS: 6,554.08'	40% CHK: crm - lt gy, v cin, speckl wi wh, mot, lam, sft - frm, sb ply - sb blk, rthy	60% MRL: med - dk gy, frm - mod hd, sb ply - sb blk, silty - gritty tex, v calc, tr fos frag, sme bent



06/18/2013

ROP (14/hr)

[illegible]

TVD: 6.689.59

Azimuth: 359.48 °

—

[illegible]

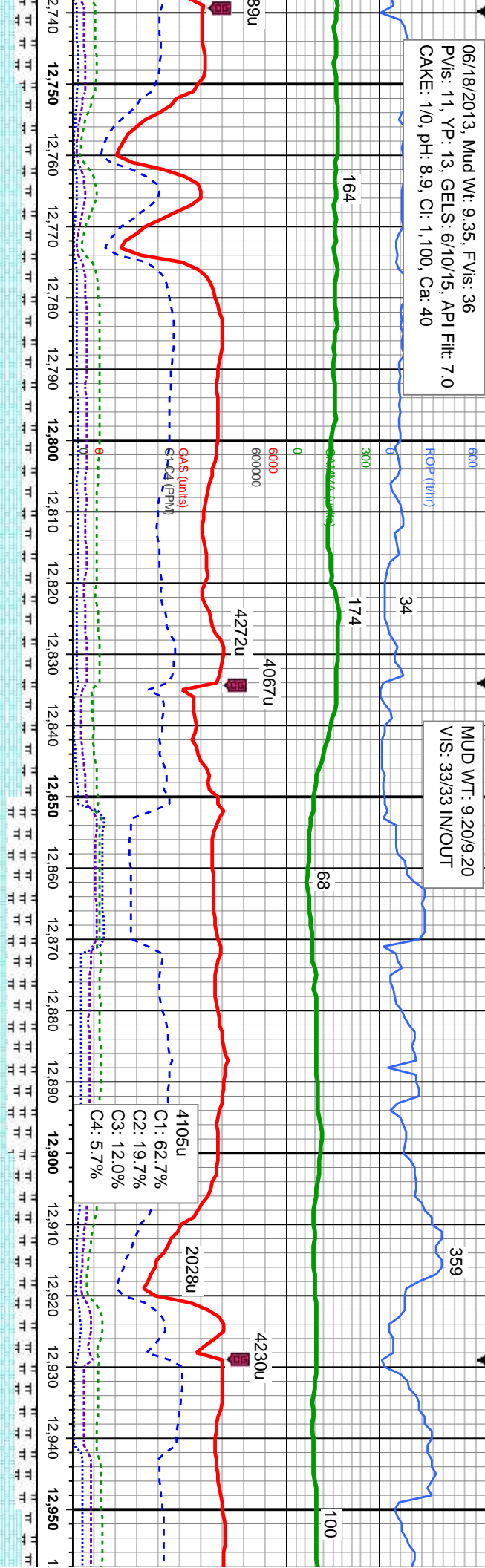
—Inclination: 90.

1000000

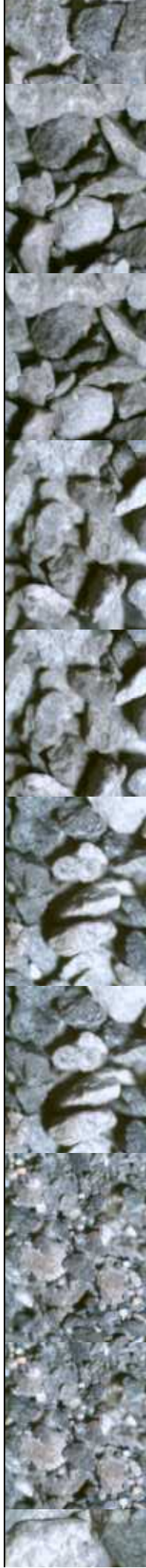
1

06/18/2013, Mud Wt: 9.35, FV/s: 36
PV/s: 11, YP: 13, GELS: 6/10/15, API Filtr: 7.0
CAKE: 1/0, pH: 8.9, CI: 1,100, Ca: 40

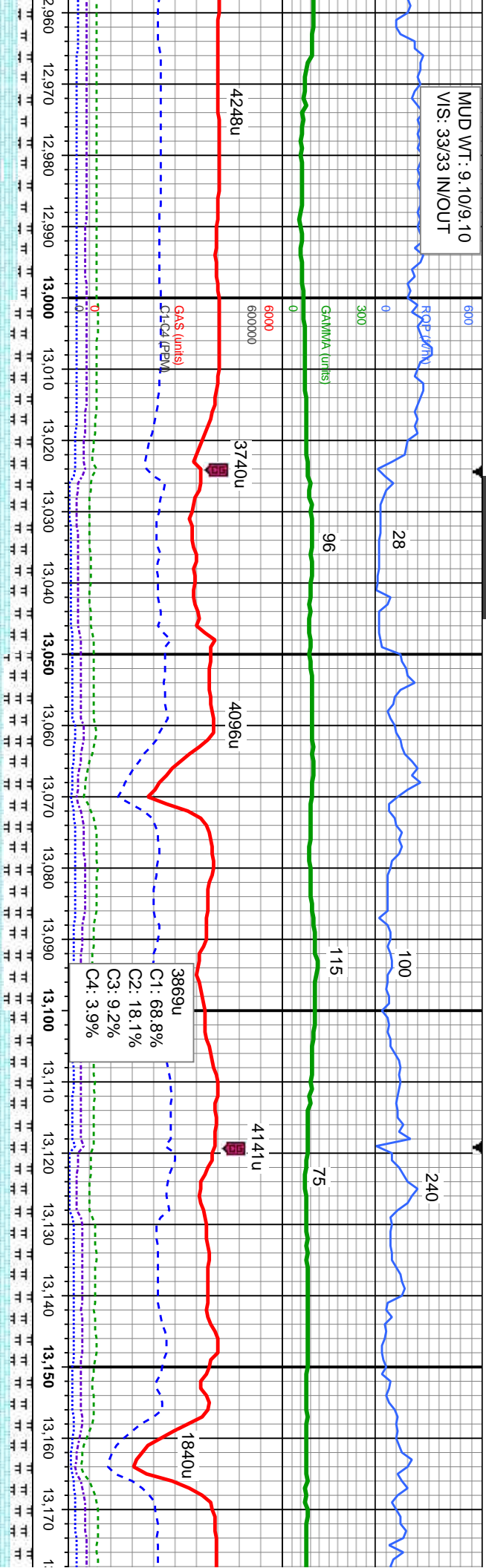
MUD WT: 9.20/9.20
VIS: 33/33 IN/OUT



6500		
MD: 12,771	TVD: 6,689.64'	Inclination: 89.91° Azimuth: 358.51° VS: 6,838.06'
80% CHK: crm - lt gy, speckl wi wh, mot, lam, sft - frm, sb ply - sb blkly, rthy	80% CHK: crm - lt gy, speckl wi wh, mot, lam, sft - frm, sb ply - sb blkly, rthy	20% MRL: med - dk gy, frm - mod hd, sb ply - sb blkly, silty - gritty tex, v calc, sme fos frag, sme bent
MD: 12,866	TVD: 6,689.57'	Inclination: 90.18° Azimuth: 359.68° VS: 6,933.06'
60% CHK: crm - lt gy, speckl wi wh, mot, lam, sft - frm, sb ply - sb blkly, rthy	60% CHK: crm - lt gy, speckl wi wh, mot, lam, sft - frm, sb ply - sb blkly, rthy	40% MRL: med - dk gy, frm - mod hd, sb ply - sb blkly, silty - gritty tex, v calc, sme fos frag, sme bent
MD: 12,950	TVD: 6,689.50'	Inclination: 90.18° Azimuth: 359.68° VS: 6,933.06'
70% CHK: crm - lt gy, speckl wi wh, mot, lam, sft - frm, sb ply - sb blkly, rthy	70% CHK: crm - lt gy, speckl wi wh, mot, lam, sft - frm, sb ply - sb blkly, rthy	30% MRL: med - dk gy, frm - mod hd, sb ply - sb blkly, silty - gritty tex, v calc, sme fos frag, sme bent



MUD WT: 9.10/9.10
VIS: 33/33 IN/OUT



6500

12,960 12,970 12,980 12,990 13,000 13,010 13,020 13,030 13,040 13,050 13,060 13,070 13,080 13,090 13,100 13,110 13,120 13,130 13,140 13,150 13,160 13,170

TVD (ft)

Inclination: 89.26 °
Azimuth: 359.59 °
VS: 228.05 °

70% CHK: crm - lt gy, speckl wi wh, mot, lam, sft - frm, sb ply - sb blkly, rthy
30% MRL: med - dk gy, frm - mod hd, sb ply - sb blkly, silty - gritty tex, v calc, sme fos frag, sme bent

TVD: 6,689.78

Inclination: 91.05 °
Azimuth: 0.79 °
VS: 7,123.02 °

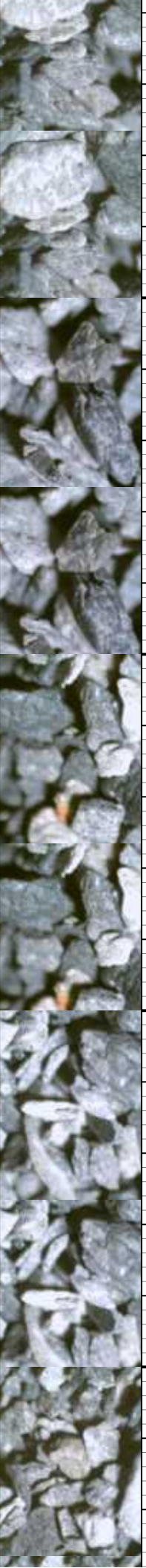
60% CHK: crm - lt gy, speckl wi wh, mot, lam, sft - frm, sb ply - sb blkly, rthy
40% MRL: med - dk gy, frm - mod hd, sb ply - sb blkly, silty - gritty tex, v calc, sme fos frag, sme bent

TVD: 6,689.49

Inclination: 89.29 °
Azimuth: 2.14 °
VS: 7,217.91 °

70% CHK: crm - lt gy, speckl wi wh, mot, lam, sft - frm, sb ply - sb blkly, rthy
30% MRL: med - dk gy, frm - mod hd, sb ply - sb blkly, silty - gritty tex, v calc, sme fos frag, sme bent

70% CHK: crm - lt gy, speckl wi wh, mot, lam, sft - frm, sb ply - sb blkly, rthy
30% MRL: med - dk gy, frm - mod hd, sb ply - sb blkly, silty - gritty tex, v calc, sme fos frag, sme bent

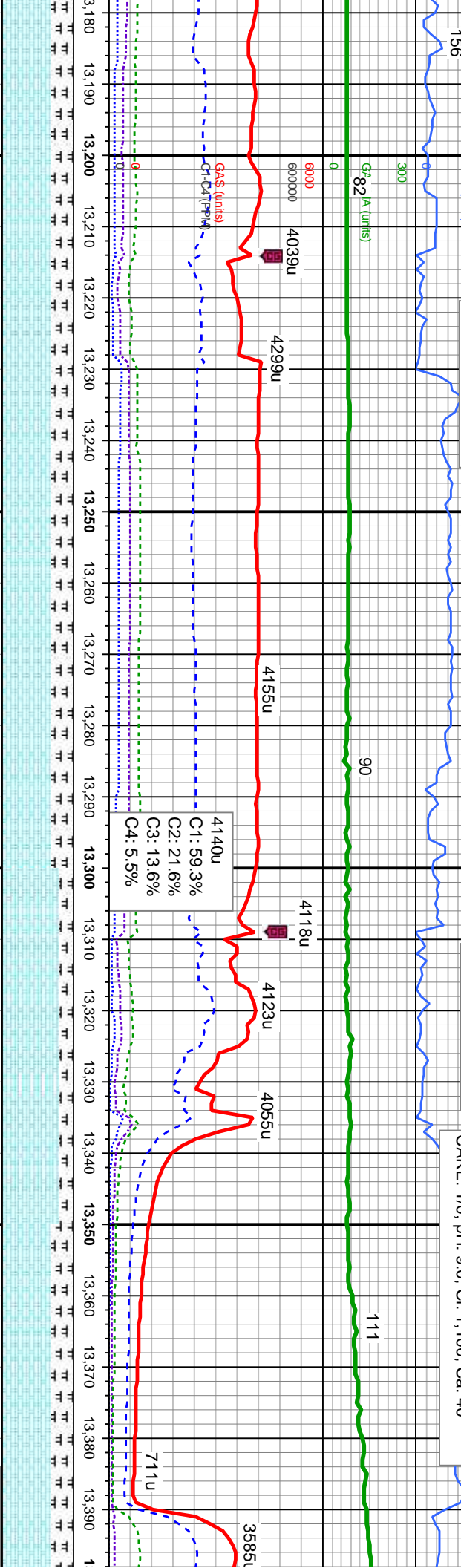


MUD WT: 9.20/9.25
VIS: 35/35 IN/OUT

MUD WT: 9.25/9.30
VIS: 35/35 IN/OUT

06/18/2013, Mud Wt: 9.25, FV/s: 33
PV/s: 10, YP: 9, GELS: 5/9/14, API Filtr: 7.2
CAKE: 1/0, pH: 9.0, Cl: 1, 100, Ca: 40

06/18/2013



MD: 13,246
TVD: 6,690.93
Inclination: 88.98 °
Azimuth: 5.27 °
VS: 7,312.55'

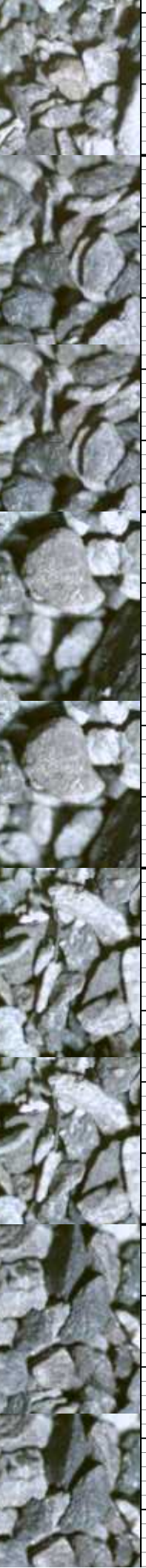
MD: 13,341
TVD: 6,691.21
Inclination: 90.68 °
Azimuth: 5.55 °
VS: 7,406.92'

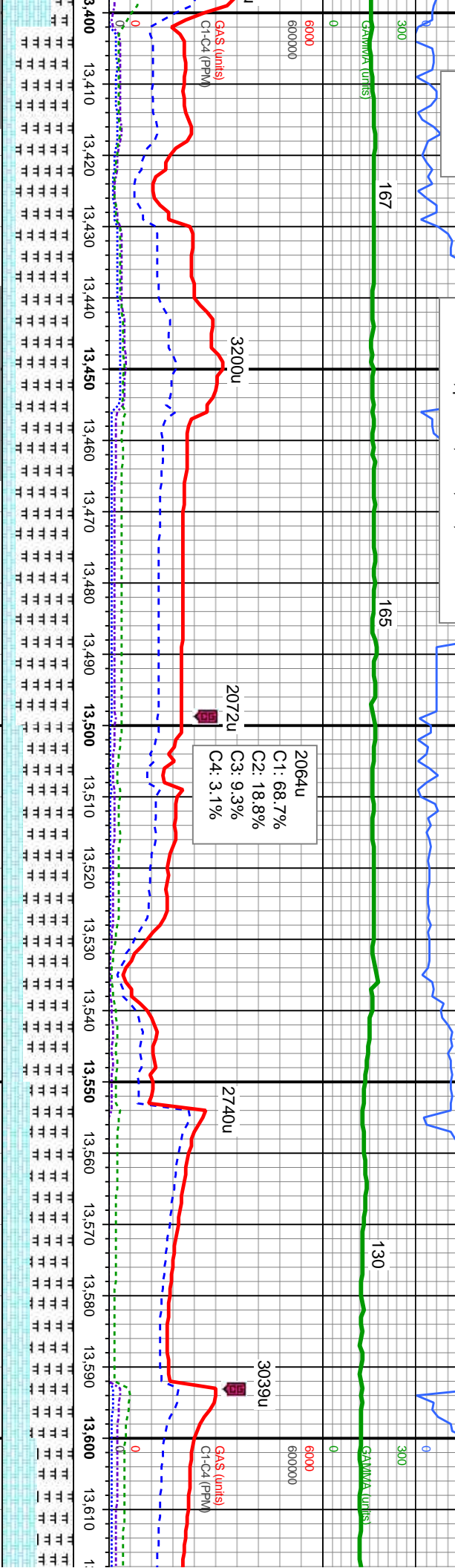
70% CHK: crm - lt gy, speckl wi wh, mot, lam, sft - frm, sb ply - sb blk, rthy
30% MRL: med - dk gy, frm - mod hd, sb ply - sb blk, silty - gritty tex, v calc, sme fos frag, sme bent

70% CHK: crm - lt gy, speckl wi wh, mot, lam, sft - frm, sb ply - sb blk, rthy
30% MRL: med - dk gy, frm - mod hd, sb ply - sb blk, silty - gritty tex, v calc, sme fos frag, sme bent

80% CHK: crm - lt gy, speckl wi wh, mot, lam, sft - frm, sb ply - sb blk, rthy
20% MRL: med - dk gy, frm - mod hd, sb ply - sb blk, silty - gritty tex, v calc, sme fos frag, tr bent

70% CHK: crm - lt gy, speckl wi wh, mot, lam, sft - frm, sb ply - sb blk, rthy
30% MRL: med - dk gy, frm - mod hd, sb ply - sb blk, silty - gritty tex, v calc, sme fos frag, tr bent





402' to change & bit

TOOH @ 13,454' to change out mud motor

6500

TVD (ft)	MD: 13,436	TVD: 6,690.9	Inclination: 89.69 °	Azimuth: 3.85 °	VS: 7,501.42'	20% CHK: crm - lt gy, speckl wi wh, mot, lam, sft - frm, sb pty - sb blk, rthy	80% MRL: med - dk gy, frm - mod hd, sb pty - sb blk, stly - gritty tex, v calc, sme fos frag, sme bent	7100
TVD (ft)	MD: 13,531	TVD: 6,690.03	Inclination: 91.36 °	Azimuth: 0.95 °	VS: 7,596.22'	30% CHK: crm - lt gy, speckl wi wh, mot, lam, sft - frm, sb pty - sb blk, rthy	70% MRL: med - dk gy, frm - mod hd, sb pty - sb blk, stly - gritty tex, v calc, sme fos frag, sme bent	
TVD (ft)						40% CHK: crm - lt gy, speckl wi wh, mot, lam, sft - frm, sb pty - sb blk, rthy	60% MRL: med - dk gy, frm - mod hd, sb pty - sb blk, stly - gritty tex, v calc, sme fos frag, sme bent	
TVD (ft)						50% CHK: crm - lam, sft - frm, sb pty - sb blk, rthy	50% MRL: med pty - sb blk, stly - gritty tex, v calc, sme bent	7100



