



Scale: 5" / 100'  
Measured Depth Log

**Well Name** Rohn State LD10-64-1HN

**Location** Sec. 9 T9N R58W

**State** Colorado

**Country** USA

**API Number** 05-123-37622

**Region** DJ Basin

**Spud Date** 10/8/2014

**Surface Coordinates** 2050 FSL ; 330 FEL  
40.76421 ; -103.8611

**Bottom Hole Coordinates** 1650 FSL ; 660 FEL  
40.76321 ; -103.84326

**Ground Elevation** 4716'

**Logged Interval** 4962' **To** 10213'

**Formation** Niobrara B chalk

**Type of Drilling Fluid** FW LSND

**County** Weld

**Rig Number** Precision Drilling 829

**AFE #** 200231

**Field** Wattenberg

**Drilling Completed** 10/17/2014

**K.B. Elevation** 4732'

**Total Depth** 10213'

**Company** Noble Energy Inc  
**Address** 1625 BROADWAY  
DENVER, CO 80202

**Name** Holly Duncan  
**Company** Noble Energy, Inc  
**Address** 1625 BROADWAY  
DENVER, CO 80202

Columbine Logging, Inc.  
Well Site Geologists

Operator

c  
AY  
2022

Geologist

c.  
AY  
2022

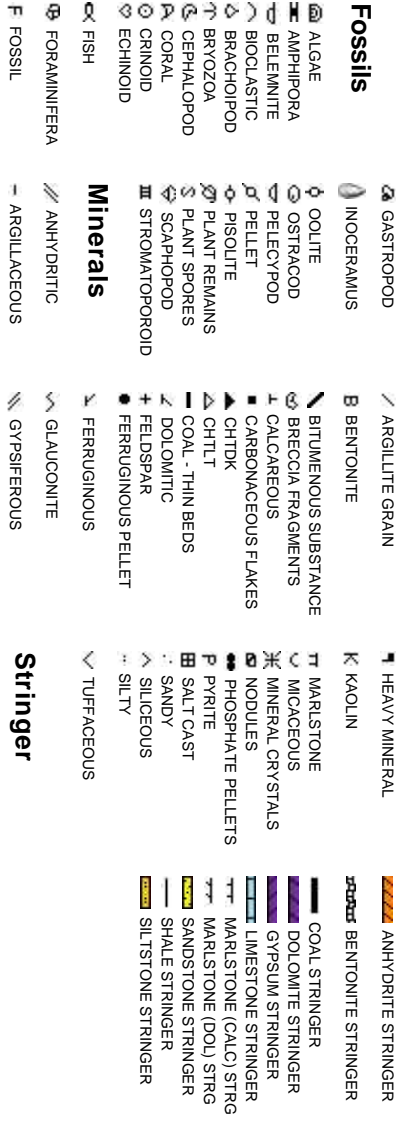
Other

2385 S. Lipan St.  
Denver, CO 80223  
  
Ryan Shilling  
Tracy Lawson

Rock Types



Accessories



Other Symbols

**Oil Show**  
P PINPOINT  
V VUGGY

D DEAD

● EVEN

○ QUESTIONABLE

● SPOTTED STAINING ▲ CONNECTION (UP)

Engineering

▲ BIT

⋮ DST INTERVAL

⚡ FAULT

▭ FORMATION TOP

☀ GAS SHOW

● OIL SHOW

▽ WIRELINE TESTED - LEFT E EARTHY

△ WIRELINE TESTED - RT FX FINELYXLN

▭ DRILL STEM TEST

BS GRAINSTONE

▭ MN DEPTH

L LITHOGRAPHIC

MX MICROXLN

Rounding

MS MUDSTONE

Porosity

▼ CONNECTION (DOWN)

▭ CONNECTION GAS

E EARTHY  
▭ CONNECTION GAS (LEFT)

▭ FENESTRAL  
▭ TRIP GAS

F FRACTURE  
▭ TRIP GAS (LEFT)

X INTERCRYSTALLINE  
▭ DOWN TIME GAS

◊ INTEROOLITIC  
▭ DOWN TIME GAS (LEFT)

⚡ CORE - LOST

◊ ORGANIC  
▭ CORE - RECOVERED

▭ MN DEPTH (DOWN)

▭ NORMAL FAULT

⬆ OVERTURNED STRATA

⬆ REVERSE FAULT

▭ CASING

▭ SIDEWALL CORE (LEFT)

▭ SIDEWALL CORE (RIGHT)

▭ SLIDE

▭ SURVEY

▲ ANGULAR

R ROUNDED

▭ SUBANG

▭ SUBRND

Textures

M MODERATE

P POOR

W WELL

PS PACKSTONE

WS WACKSTONE

Sorting

Slide/Rotate

ROP  
ROF  
GAMMA

ROP Scale  
0-700 ft/hr

Gamma Scale  
0 - 200 API

Gas Scale  
0 - 4000 units

Total Gas & Chromatograph

GAS  
C1  
C2  
C3  
C4

COLUMBINE LOGGING, INC.  
RIGGED UP ON 10/09/2014  
MANNED 2-PERSON LOGGING  
WITH BLOODHOUND GAS  
CHROMATOGRAPH UNIT # 0312

KOP = 4962'

Depth Labels

% Lith

TVD SCALE  
4900'-5900'

Well Bore  
TVD

Bit Data  
Bit #: 2  
Type: SDI 519  
Size: 8.75  
Depth In: 1,252 '  
Depth Out: 6,120 '  
Jets: 7x16  
S/N: JJ1355

Log Continued from Rohn  
State LD10-64-1HN

Oil Show

exc  
mod  
tr  
st

Images



100% SLTY SH: lt-med gy, occ dk gy,  
sft-sil frm, sb pily-blky, vf gr, silty tex, sl  
calc, tr shy ss

100% SLTY SH: lt-med gy, occ dk gy, sft-sil frm, sb  
pily-blky, vf gr, silty tex, sl calc, tr shy ss

100% SLTY SH: lt-med gy, occ dk gy, sft  
sb pily-blky, vf gr, silty tex, sl calc, tr shy

MD: 4,997  
TVD: 4,967.55  
Inclination: 3.7  
Azimuth: 69.7  
VS: 160.17

TVD (ft)

MD: 5,087  
TVD: 5,044  
Inclination  
Azimuth: 7  
VS: 170.92

4,910 4,920 4,930 4,940 4,950 4,960 4,970 4,980 4,990 5,000 5,010 5,020 5,030 5,040 5,050 5,060 5,070 5,080 5

853u

1215u

741u

WT: 9.6 / VIS: 42

800u

753u

ROP (ft/hr)

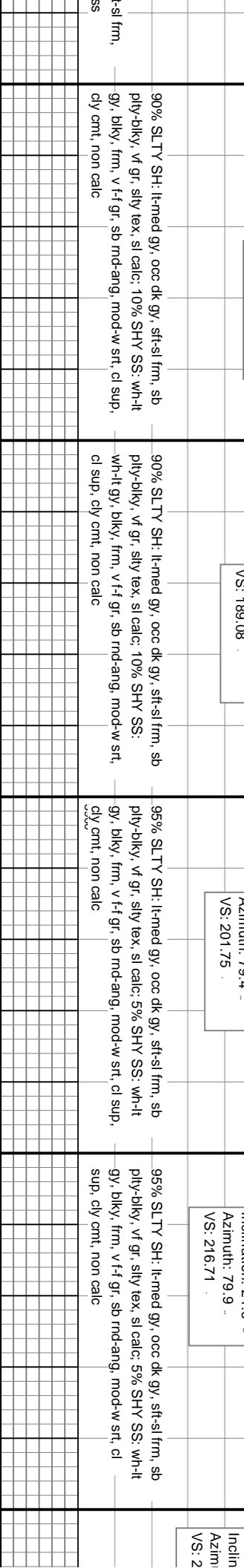
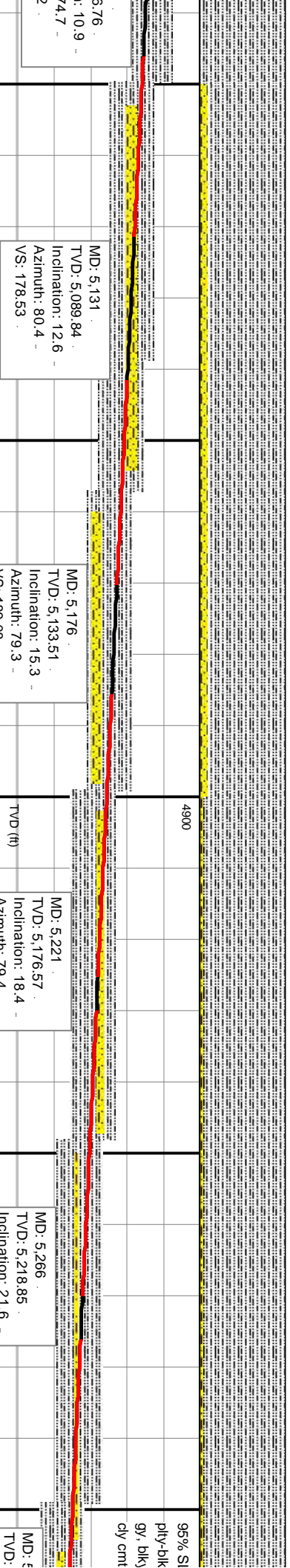
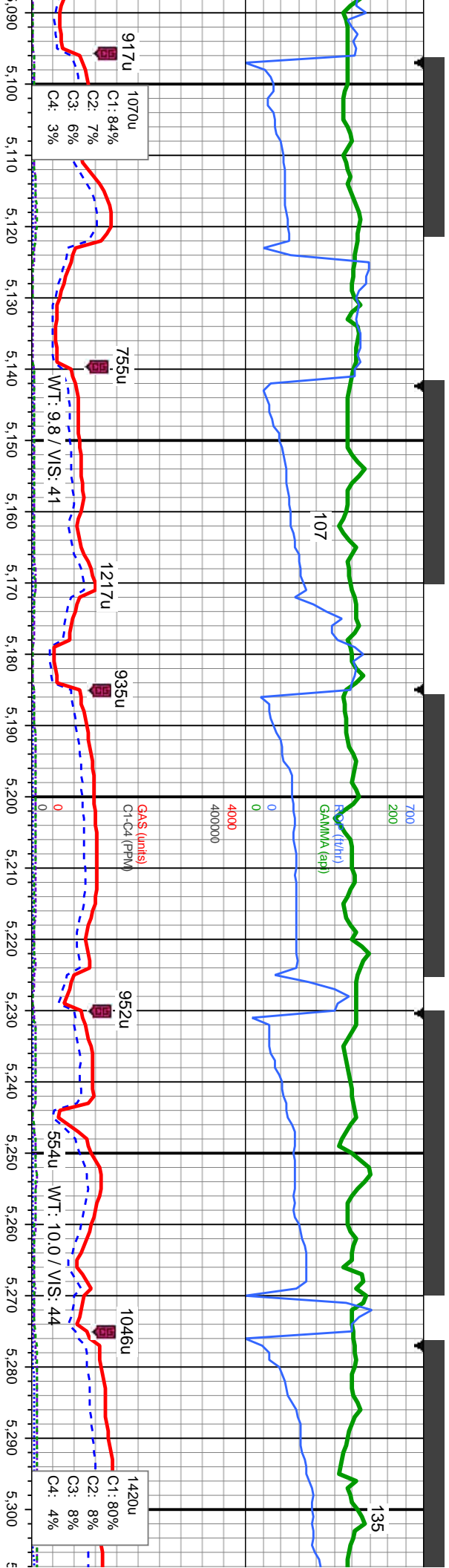
GAMMA (api)

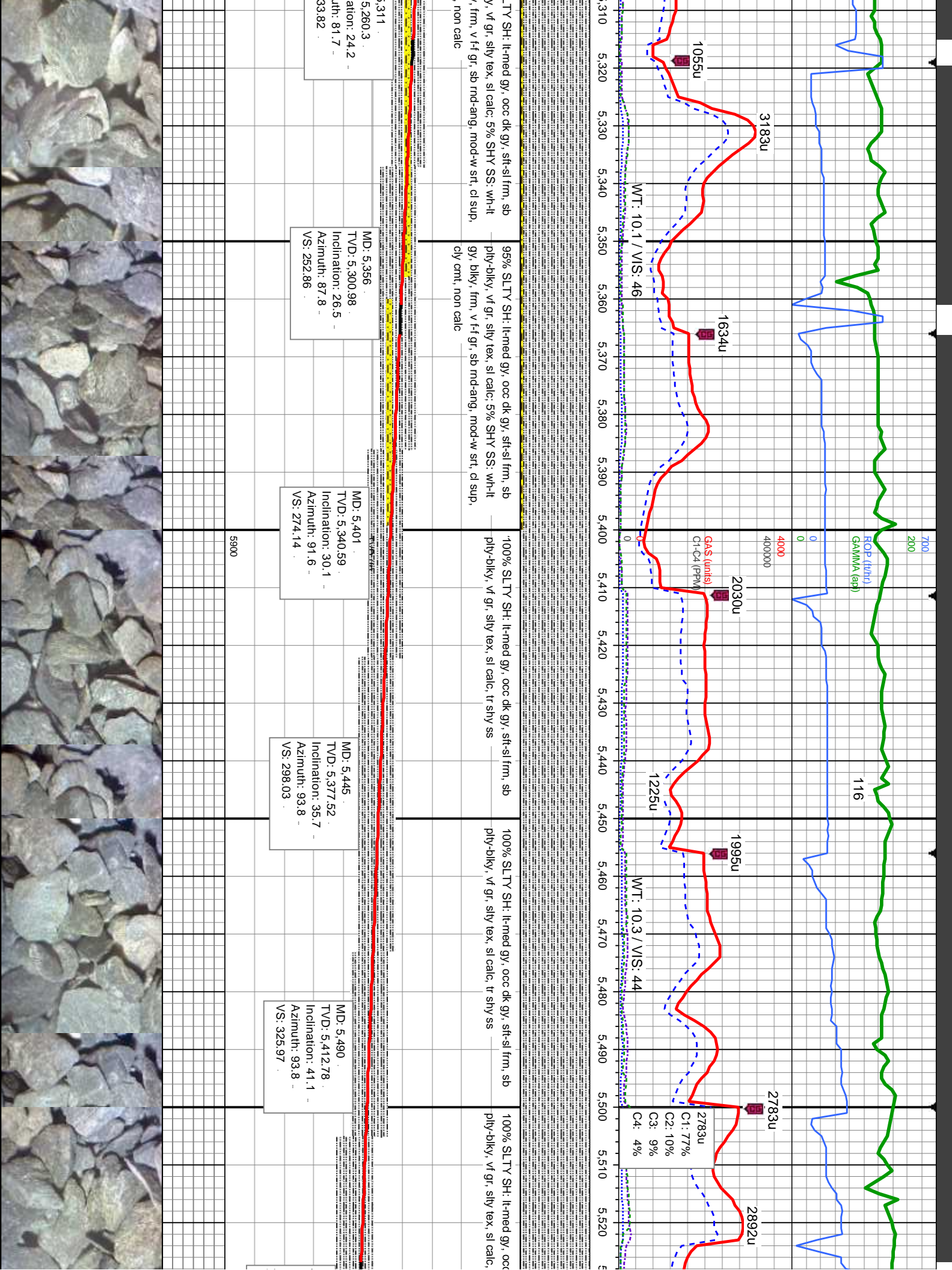
WT IN: 9.6, OUT: 9.5 / VIS: 42

130

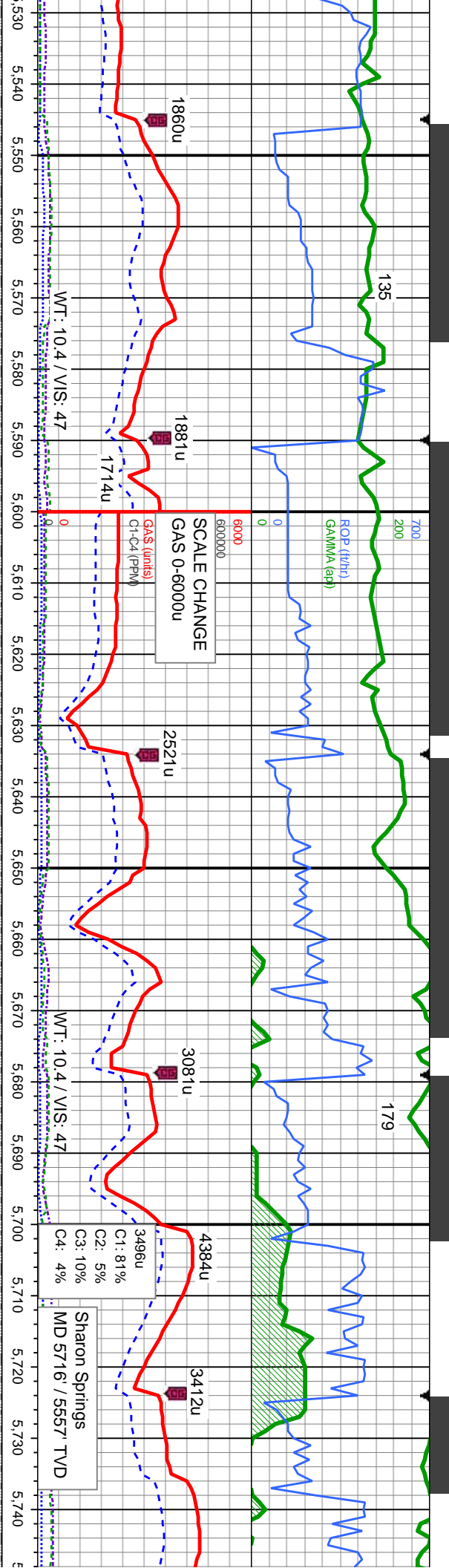
101











dk gy, sft-sl frm, sb  
100% SLTY SH: lt-med gy, occ dk gy, sft-sl frm, sb  
100% SLTY SH: lt-med gy, occ dk gy, sft-sl frm, sb  
100-100% SLTY SH: lt-med gy, occ dk gy, sft-sl frm, sb  
85-75% SLTY SH: lt-med gy, occ dk gy, sft-sl frm, sb  
sb ply-bkly, vtr gr, silty tex, sl calc, vtr mst  
sb ply-bkly, v calc

MD: 5,535  
TVD: 5,445.93  
Inclination: 44  
Azimuth: 92.3  
VS: 356.39

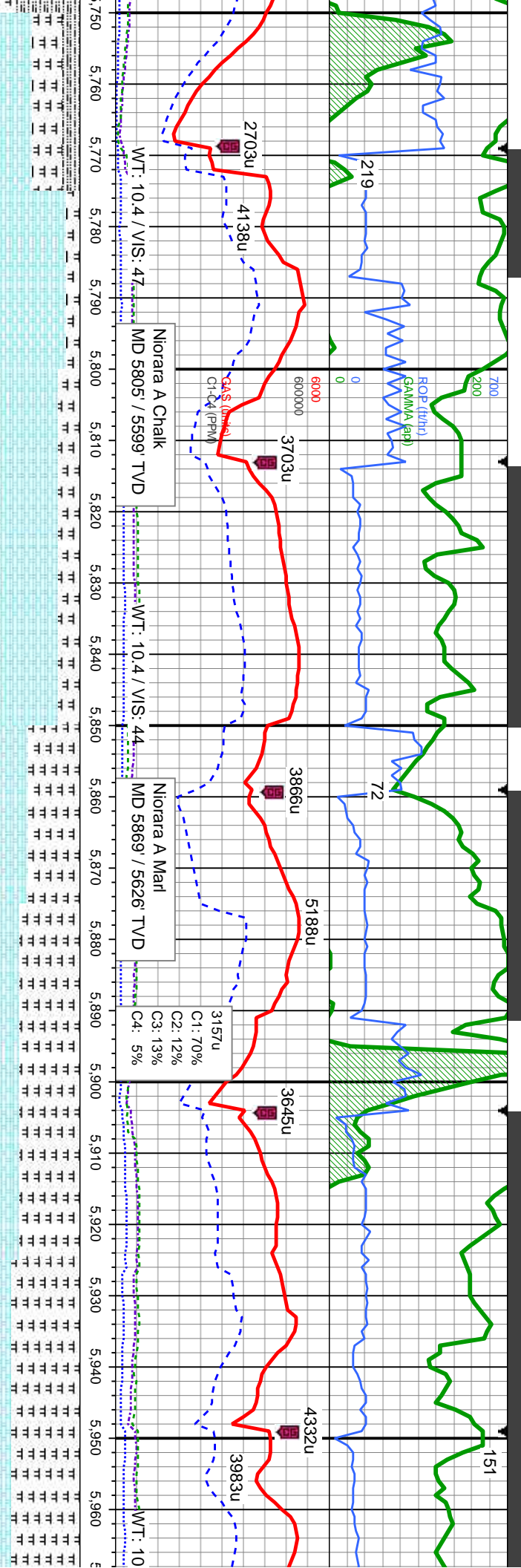
MD: 5,580  
TVD: 5,477.52  
Inclination: 46.8  
Azimuth: 90.4  
VS: 388.41

MD: 5,625  
TVD: 5,507.04  
Inclination: 51.2  
Azimuth: 88.6  
VS: 422.29

MD: 5,669  
TVD: 5,532.86  
Inclination: 56.9  
Azimuth: 87.1  
VS: 457.74

OIL SHOWS BEGIN





45-80% CHK: crm-llgy to brn, mot, sft-mod frm, sb  
ply-bkly, v calc: 35-20% MRLST: med-dk gy, sl  
frm-mod hd, sb ply-bkly, silty-mot tex, calc: 20-0%  
SLTY SH: lk-med gy, ooc dk gy, sft-sl frm, sb  
ply-bkly, vf gr, silty tex, sl calc:

MD: 5,759  
TVD: 5,578.05  
Inclination: 61.5  
Azimuth: 85.9  
VS: 534.99

75-75% CHK: crm-llgy to brn, mot, sft-mod frm, sb  
ply-bkly, v calc: 25-25% MRLST: med-dk gy, sl  
frm-mod hd, sb ply-bkly, silty-mot tex, calc

MD: 5,804  
TVD: 5,599.04  
Inclination: 62.9  
Azimuth: 86.4  
VS: 574.5

60-70% MRLST: med-dk gy, sl frm-mod hd, sb  
ply-bkly, silty-mot tex, calc: 40-30% CHK: crm-llgy  
to brn, mot, sft-mod frm, sb ply-bkly, v calc, tr inoc

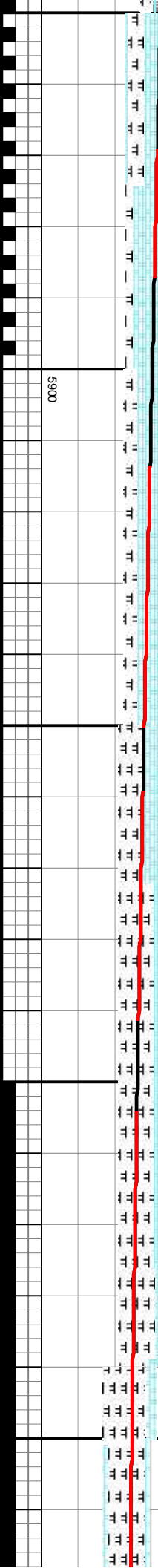
MD: 5,849  
TVD: 5,618.59  
Inclination: 65.6  
Azimuth: 85.8  
VS: 614.72

70-80% MRLST: med-dk gy, sl frm-mod hd, sb  
ply-bkly, silty-mot tex, calc: 30-20% CHK: crm-llgy  
to brn, mot, sft-mod frm, sb ply-bkly, v calc, tr  
inoc

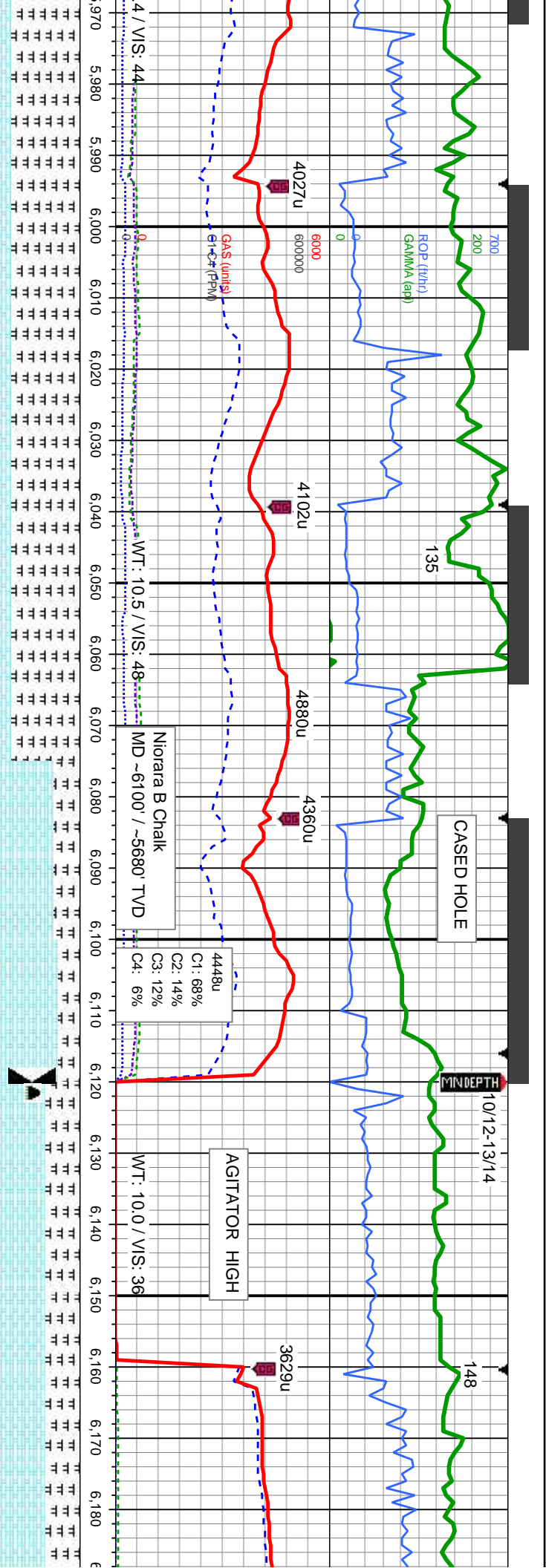
MD: 5,894  
TVD: 5,635.73  
Inclination: 69.6  
Azimuth: 85.4  
VS: 655.96

80-80% MRLST: m  
ply-bkly, silty-mot t  
to brn, mot, sft-moc

MD: 5,938  
TVD: 5,649.8  
Inclination: 73.1  
Azimuth: 86.8  
VS: 697.33







med-dk gy, sl frm-mod hd, sb  
ex, calc: 20-20% CHK: crm-llgy  
frm, sb ply-blky, v calc, tr inoc

480-80% MRLST: med-dk gy, sl frm-mod hd, sb  
ply-blky, silty-mot tex, calc: 20-20% CHK:  
crm-llgy to brn, mot, sft-mod frm, sb ply-blky, v  
calc, tr inoc

20-70-75% CHK: crm-llgy to brn, mot, sft-mod frm, sb ply-blky, v calc;  
80-30-25% MRLST: med-dk gy, sl frm-mod hd, sb ply-blky, silty-mot tex,  
calc, tr sec cal

60% CHK: crm-llgy-brn, mot,  
sft-mod frm, sb ply-blky, v calc;  
40% MRLST: med-dk gy, sl  
frm-mod hd, sb ply-blky,  
silty-mot tex, calc, tr sec cal

60% CHK: crm-llgy-brn, mot, sft-mod frm  
ply-blky, v calc: 40% MRLST: med-dk gy  
frm-mod hd, sb ply-blky, silty-mot tex, cal

MD: 5.983  
TVD: 5.661.63  
Inclination: 76.4  
Azimuth: 87.6  
VS: 740.5

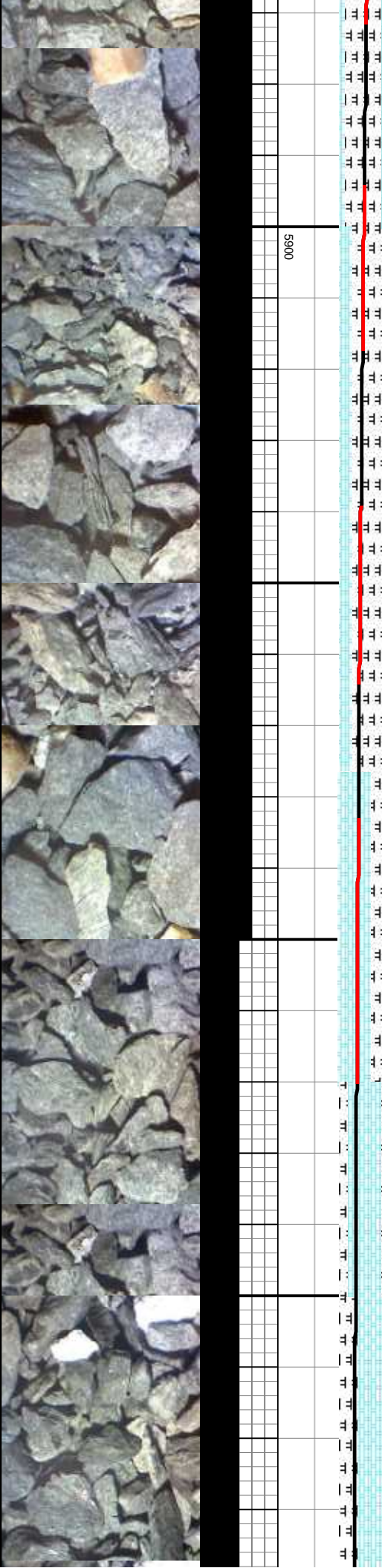
MD: 6.028  
TVD: 5.671.3  
Inclination: 78.8  
Azimuth: 88.7  
VS: 784.28

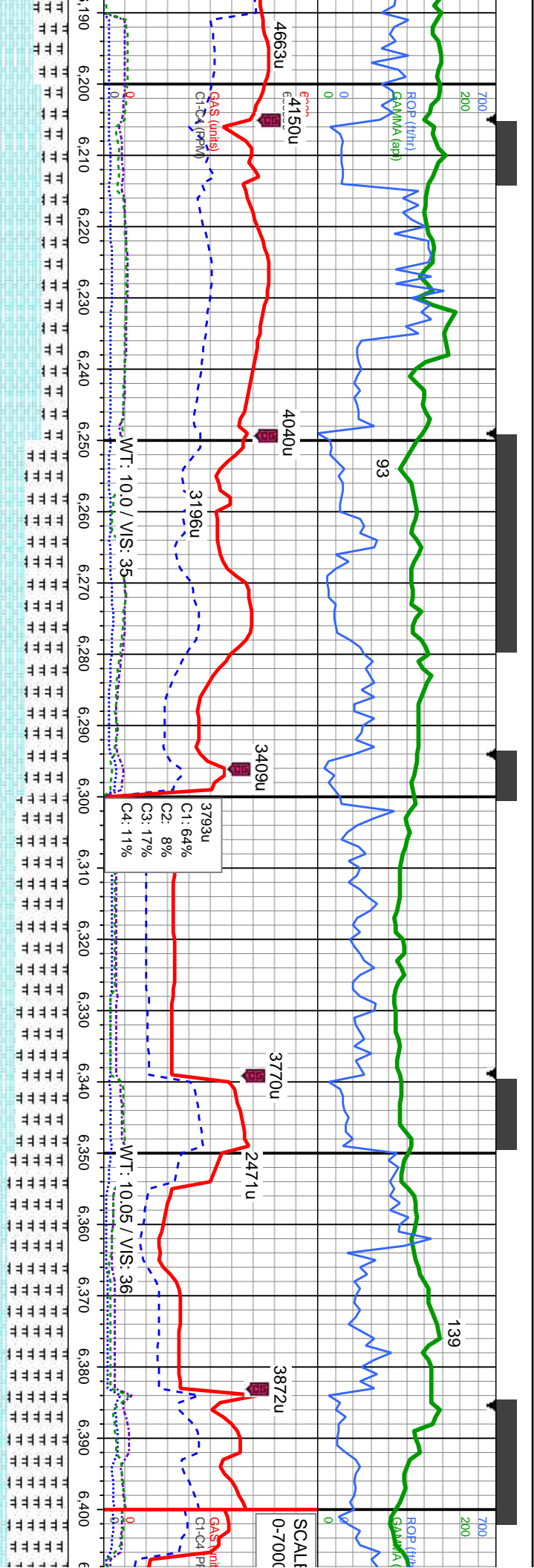
MD: 6.065  
TVD: 5.677.91  
Inclination: 80.6  
Azimuth: 88.8  
VS: 820.58

Bit Data  
Bit #: 3  
Type: PLD513S5  
Size: 6.12  
Depth In: 6,120 '  
Depth Out: 7,731 '  
Jets: 5x15  
S/N: 8897

MD: 6.143  
TVD: 5.687.89  
Inclination: 84.7  
Azimuth: 87.7  
VS: 897.63

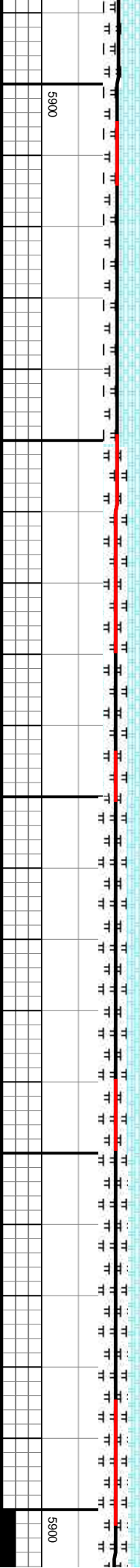
MD: 6.187  
TVD: 5.691  
Inclination:  
Azimuth: 8  
VS: 941.26



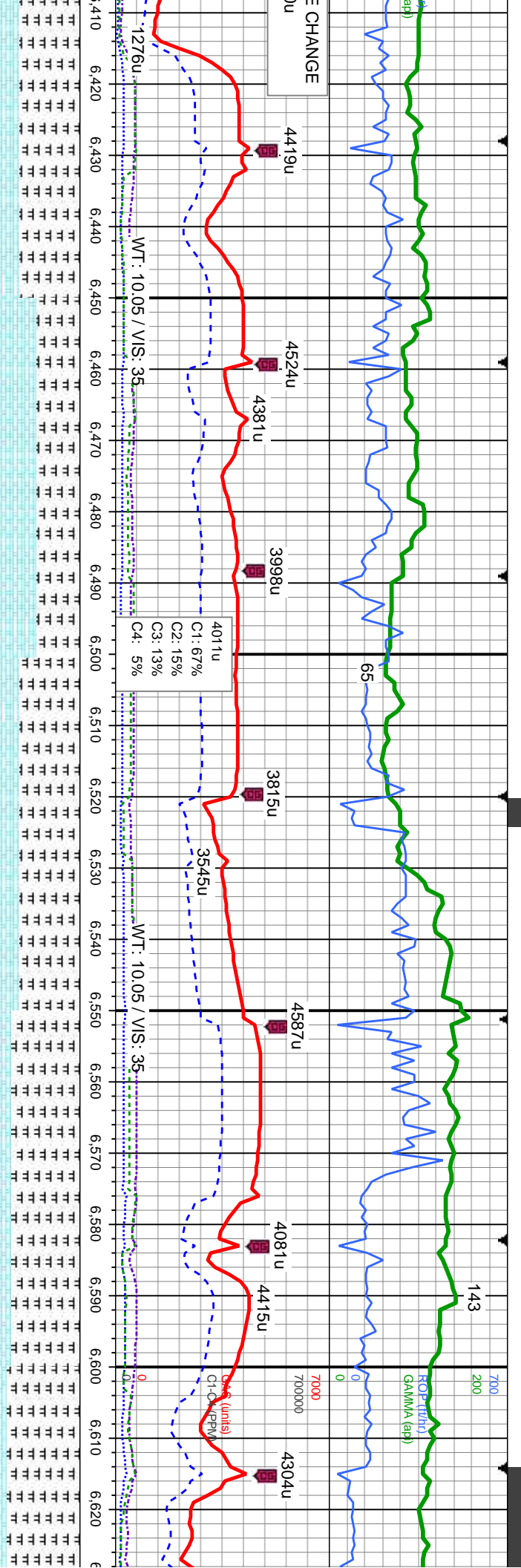


sb	49% CHK: crm-ilty-brn, mot, sft-mod frm, sb	50% CHK: crm-ilty-brn, mot, sft-mod frm, sb	60% MRLST: med-dk gy, sl frm-mod hd, sb	70% MRLST: med-dk gy, sl frm-mod hd, sb	470% M
ply-biky, v calc: 30% MRLST: med-dk gy, sl	ply-biky, v calc: 50% MRLST: med-dk gy, sl	ply-biky, sily-mot tex, calc: 40% CHK: crm-ilty-brn,	ply-biky, sily-mot tex, calc: 30% CHK:	ply-biky	
c, tr sec	frm-mod hd, sb ply-biky, sily-mot tex, calc, tr sec	cal	cal	cal	

MD: 6,232	MD: 6,277	MD: 6,322	MD: 6,367
TVD: 5,695.44	TVD: 5,697.76	TVD: 5,699.45	TVD: 5,700.47
Inclination: 86.6	Inclination: 87.5	Inclination: 88.2	Inclination: 89.2
Azimuth: 88.7	Azimuth: 89	Azimuth: 89.5	Azimuth: 90.1
VS: 985.96	VS: 1,030.78	VS: 1,075.64	VS: 1,120.55







MRSLST: med-dk gy, sl frm-mod hd, sb  
ply-biky, silty-mot tex, calc: 30% CHK:  
v-brn, mot, sft-mod frm, sb pily-biky, v calc

50% MRSLST: med-dk gy, sl frm-mod hd, sb  
ply-biky, silty-mot tex, calc: 50% CHK:  
crn-lgy-brn, mot, sft-mod frm, sb pily-biky, v calc

70% MRSLST: med-dk gy, sl frm-mod hd, sb  
ply-biky, silty-mot tex, calc: 30% CHK:  
crn-lgy-brn, mot, sft-mod frm, sb pily-biky, v calc

80% MRSLST: med-dk gy, sl frm-mod hd, sb  
ply-biky, silty-mot tex, calc: 20% CHK:  
crn-lgy-brn, mot, sft-mod frm, sb pily-biky, v calc

85% MRSLST: med-dk gy, sl frm  
ply-biky, silty-mot tex, calc: 15%  
crn-lgy-brn, mot, sft-mod frm,

MD: 6.458  
TVD: 5,701.18  
Inclination: 89.9  
Azimuth: 89.7  
VS: 1,211.4

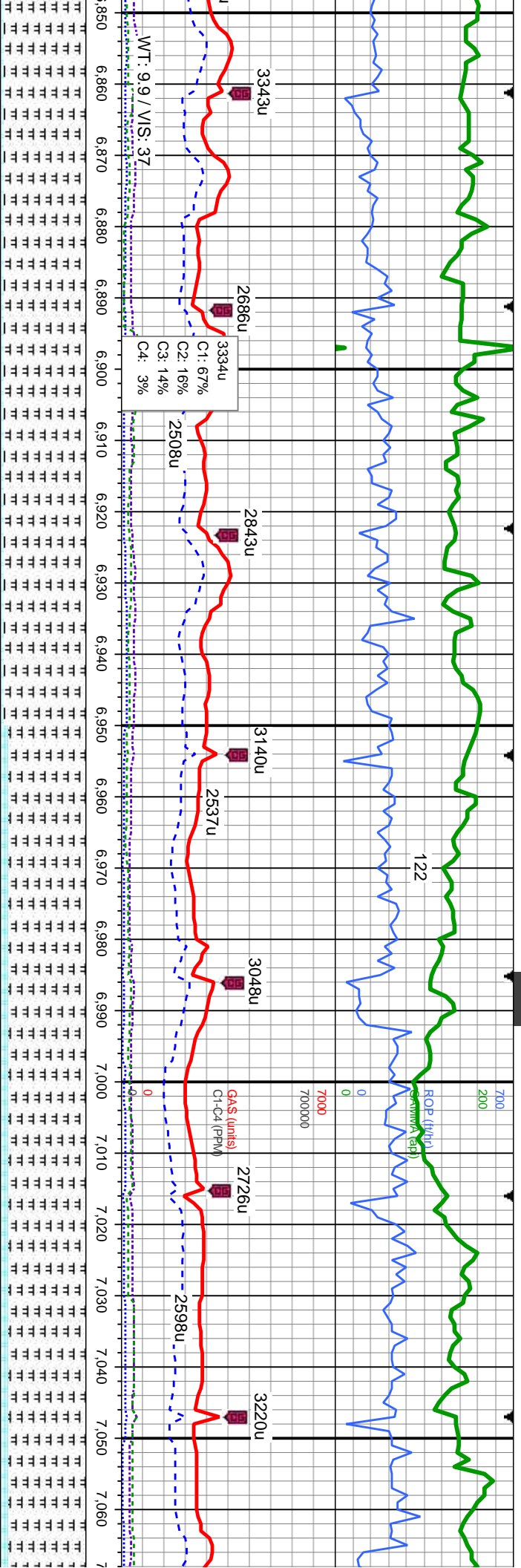
MD: 6.551  
TVD: 5,701.59  
Inclination: 89.6  
Azimuth: 90.1  
VS: 1,304.25

TVD (ft)  
5900









95% MRLST: med-dk gy, sl frm-mod hd, sb  
ply-bkly, silty-mot tex, calc: 5% CHK: crm-llgy-brn,  
mot, sft-mod frm, sb ply-bkly, v calc, occ bent

95% MRLST: med-dk gy, sl frm-mod hd, sb  
ply-bkly, silty-mot tex, calc: 5% CHK: crm-llgy-brn,  
mot, sft-mod frm, sb ply-bkly, v calc, occ bent

90% MRLST: med-dk gy, sl frm-mod hd, sb  
ply-bkly, silty-mot tex, calc: 10% CHK:  
crm-llgy-brn, mot, sft-mod frm, sb ply-bkly, v calc,  
occ bent, tr sec cal

90% MRLST: med-dk gy, sl frm-mod hd, sb  
ply-bkly, silty-mot tex, calc: 10% CHK:  
crm-llgy-brn, mot, sft-mod frm, sb ply-bkly, v calc,  
occ bent, tr sec cal

90% MRLST: med  
ply-bkly, silty-mot t  
crm-llgy-brn, mot, i  
occ bent

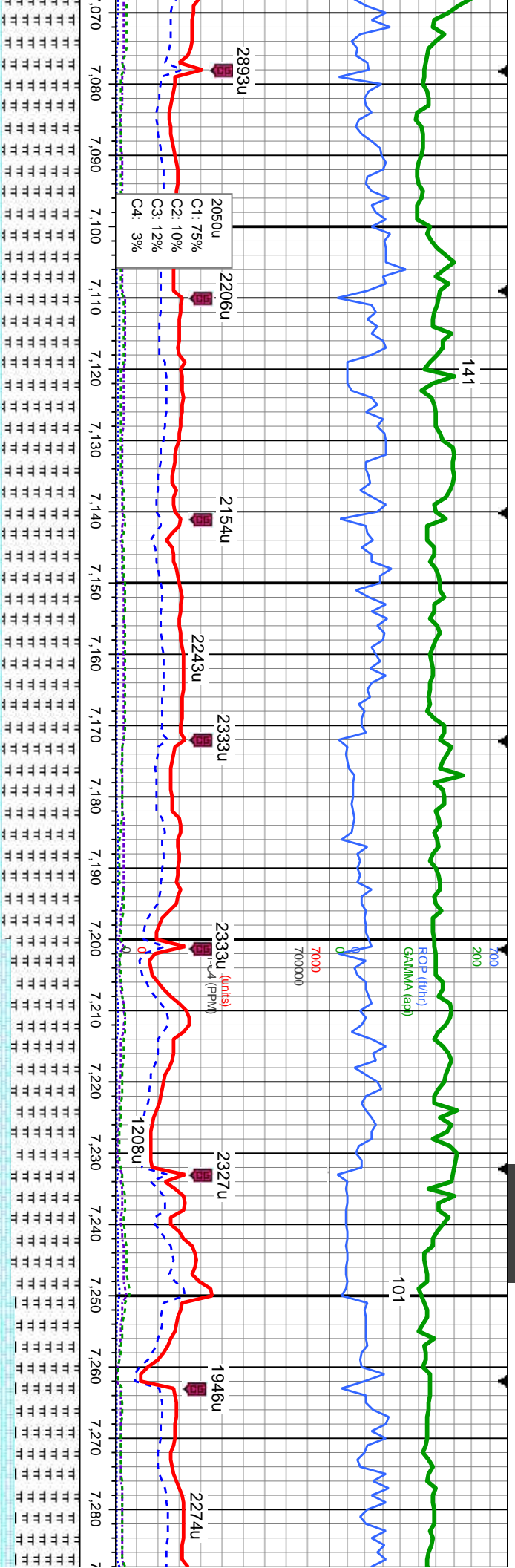
MD: 6.923  
TVD: 5,697.78  
Inclination: 90.3  
Azimuth: 89  
VS: 1,675.44

MD: 7.015  
TVD: 5,697.78  
Inclination: 89.7  
Azimuth: 89.3  
VS: 1,767.22

5900







dk gy, sl frm-mod hd, sb  
ex, calc: 10% CHK:  
sft-mod frm, sb pty-bkly, v calc,

90% MRLST: med-dk gy, sl frm-mod hd, sb  
pty-bkly, silty-mot tex, calc: 10% CHK:  
mot, sft-mod frm, sb pty-bkly, v calc, occ bent

90% MRLST: med-dk gy, sl frm-mod hd, sb  
pty-bkly, silty-mot tex, calc: 10% CHK:  
crm-lgy-brn, mot, sft-mod frm, sb pty-bkly, v calc,  
tr bent

480% MRLST: med-dk gy, sl frm-mod hd, sb  
pty-bkly, silty-mot tex, calc: 20% CHK:  
crm-lgy-brn, mot, sft-mod frm, sb pty-bkly, v calc,  
tr bent

75% MRLST: med-dk gy, sl frm-mod hd, sb  
pty-bkly, silty-mot tex, calc: 25% CHK:  
crm-lgy-brn, mot, sft-mod frm, sb pty-bkly,  
tr bent, tr sec cal

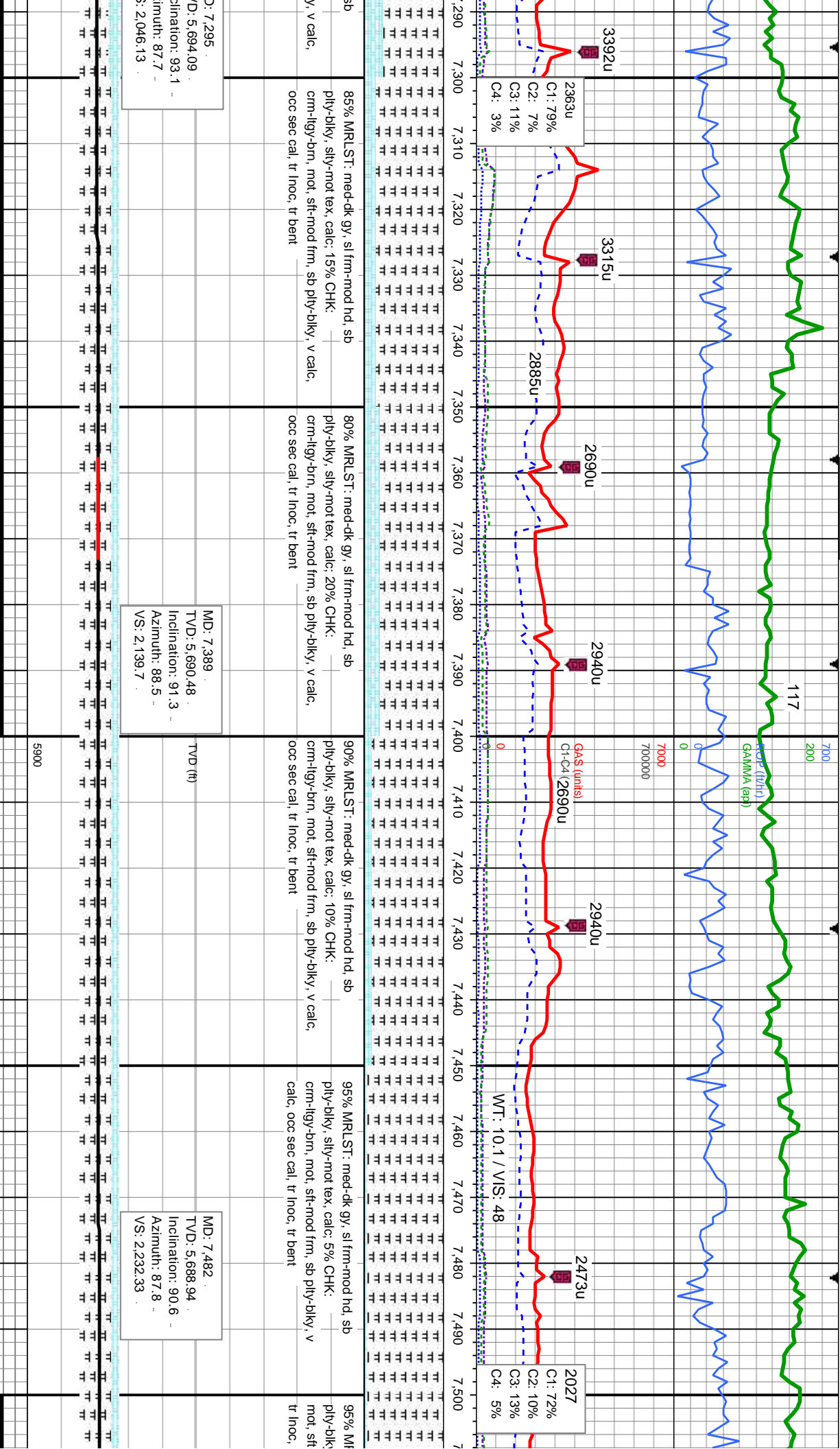
MD: 7,109  
TVD: 5,698.52  
Inclination: 89.4  
Azimuth: 88.6  
VS: 1,860.96

MD: 7,203  
TVD: 5,697.78  
Inclination: 91.5  
Azimuth: 87.9  
VS: 1,954.61

7,070 7,080 7,090 7,100 7,110 7,120 7,130 7,140 7,150 7,160 7,170 7,180 7,190 7,200 7,210 7,220 7,230 7,240 7,250 7,260 7,270 7,280





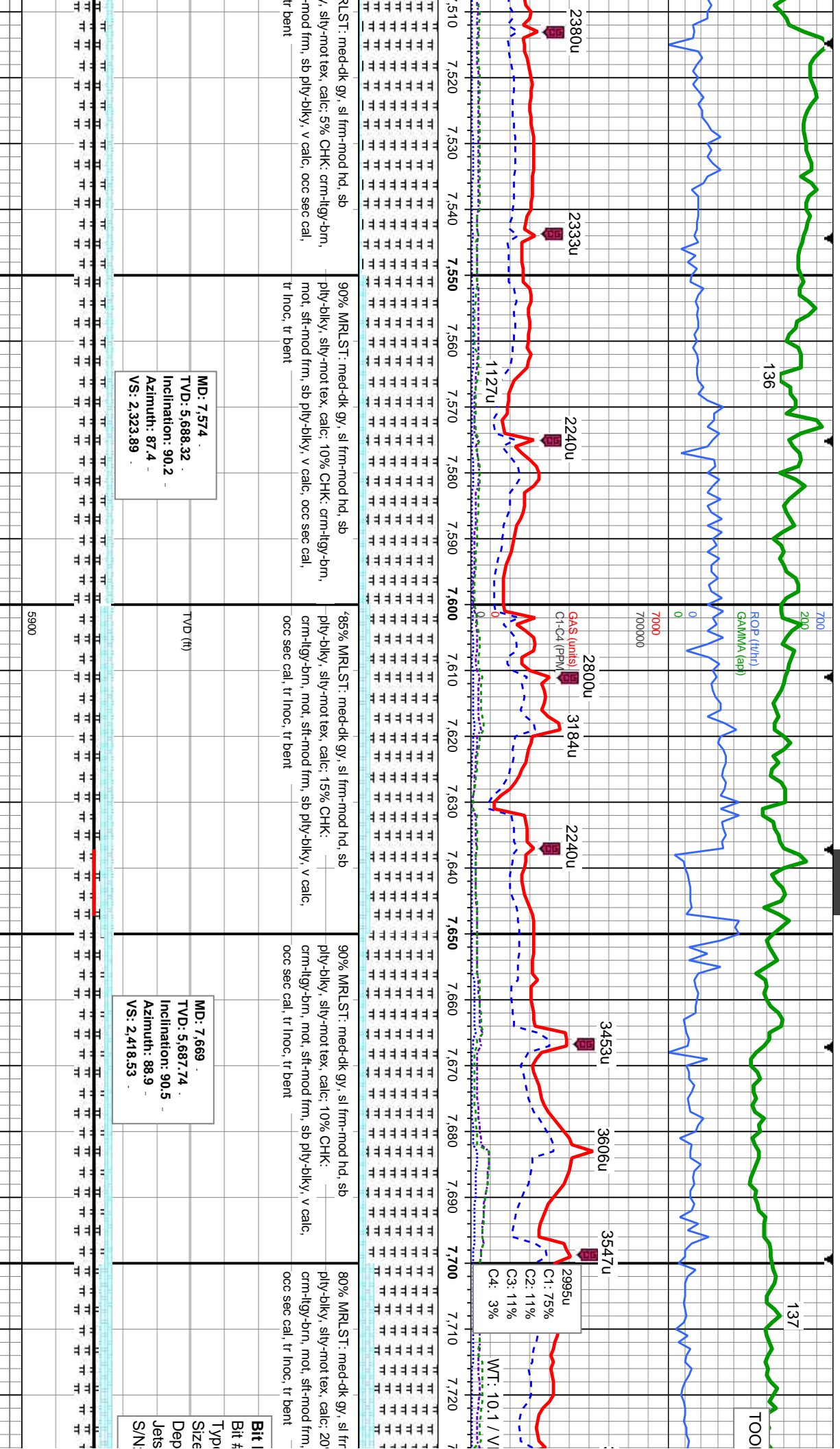


MD: 7.295  
D: 5.694.09  
Inclination: 93.1  
Azimuth: 87.7  
VS: 2.046.13

MD: 7.389  
TVD: 5.690.48  
Inclination: 91.3  
Azimuth: 88.5  
VS: 2.139.7

MD: 7.482  
TVD: 5.688.94  
Inclination: 90.6  
Azimuth: 87.8  
VS: 2.232.33





90% MRLST: med-dk gy, sl frm-mod hd, sb  
ply-biky, silty-mot tex, calc: 10% CHK: crm-ilty-brn,  
mot, sft-mod frm, sb ply-biky, v calc, occ sec cal,  
tr inoc, tr bent

90% MRLST: med-dk gy, sl frm-mod hd, sb  
ply-biky, silty-mot tex, calc: 15% CHK:  
crm-ilty-brn, mot, sft-mod frm, sb ply-biky, v calc,  
occ sec cal, tr inoc, tr bent

90% MRLST: med-dk gy, sl frm-mod hd, sb  
ply-biky, silty-mot tex, calc: 10% CHK:  
crm-ilty-brn, mot, sft-mod frm, sb ply-biky, v calc,  
occ sec cal, tr inoc, tr bent

80% MRLST: med-dk gy, sl frm-mod hd, sb  
ply-biky, silty-mot tex, calc: 20% CHK:  
crm-ilty-brn, mot, sft-mod frm, sb ply-biky, v calc,  
occ sec cal, tr inoc, tr bent

MD: 7,574  
TVD: 5,688.32  
Inclination: 90.2  
Azimuth: 87.4  
VS: 2,323.89

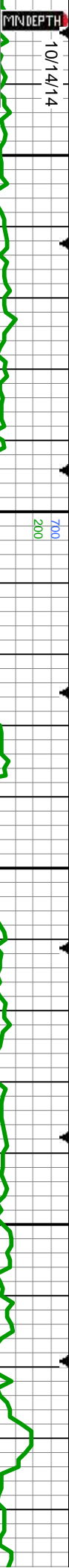
MD: 7,669  
TVD: 5,687.74  
Inclination: 90.5  
Azimuth: 88.9  
VS: 2,418.53

Bit #  
Type  
Size  
Dep  
Jets  
S/N





10/14/14



FOR MWD

GAMMA (api)

91

3594u

1891u

1756u

2104u

1979u

1727u

1268u

2320u

3452u

S: 46

1575u

WT: 10.1 / VIS: 48

1095u

C1: 69%  
C2: 11%  
C3: 15%  
C4: 5%

WT: 10.2 / VIS: 45

7,730

7,740

7,750

7,760

7,770

7,780

7,790

7,800

7,810

7,820

7,830

7,840

7,850

7,860

7,870

7,880

7,890

7,900

7,910

7,920

7,930

7,940

7

in-mod hd, sb  
% CHK: -  
ply-biky, v calc,

90% MRLST: med-dk gy, sl frm-mod hd, sb  
ply-biky, silty-mot tex, calc: 10% CHK: crm-lgy-brn,  
mot, sft-mod frm, sb ply-biky, v calc, occ sec cal, tr  
Inoc, tr bent

85% MRLST: med-dk gy, sl frm-mod hd, sb  
ply-biky, silty-mot tex, calc: 15% CHK: crm-lgy-brn, mot, sft-mod frm, sb ply-biky, v calc,  
occ sec cal, tr Inoc, tr bent

95% MRLST: med-dk gy, sl frm-mod hd, sb  
ply-biky, silty-mot tex, calc: 5% CHK: crm-lgy-brn, mot, sft-mod frm, sb ply-biky, v  
calc, occ sec cal, tr Inoc, tr bent

95% MRLST: med-dk gy, sl frm-mod hd, sb  
ply-biky, silty-mot tex, calc: 5% CHK: crm-lgy-brn, mot, sft-mod frm, sb ply-biky, v  
calc, occ sec cal, tr Inoc, tr bent

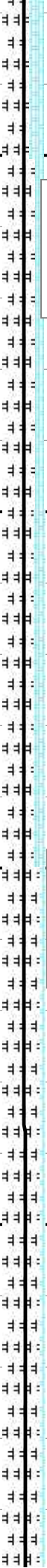
Data

MD: 7.4  
TVD: 5.612  
Inclination: 7.731  
Azimuth: 5x15  
VS: 8919

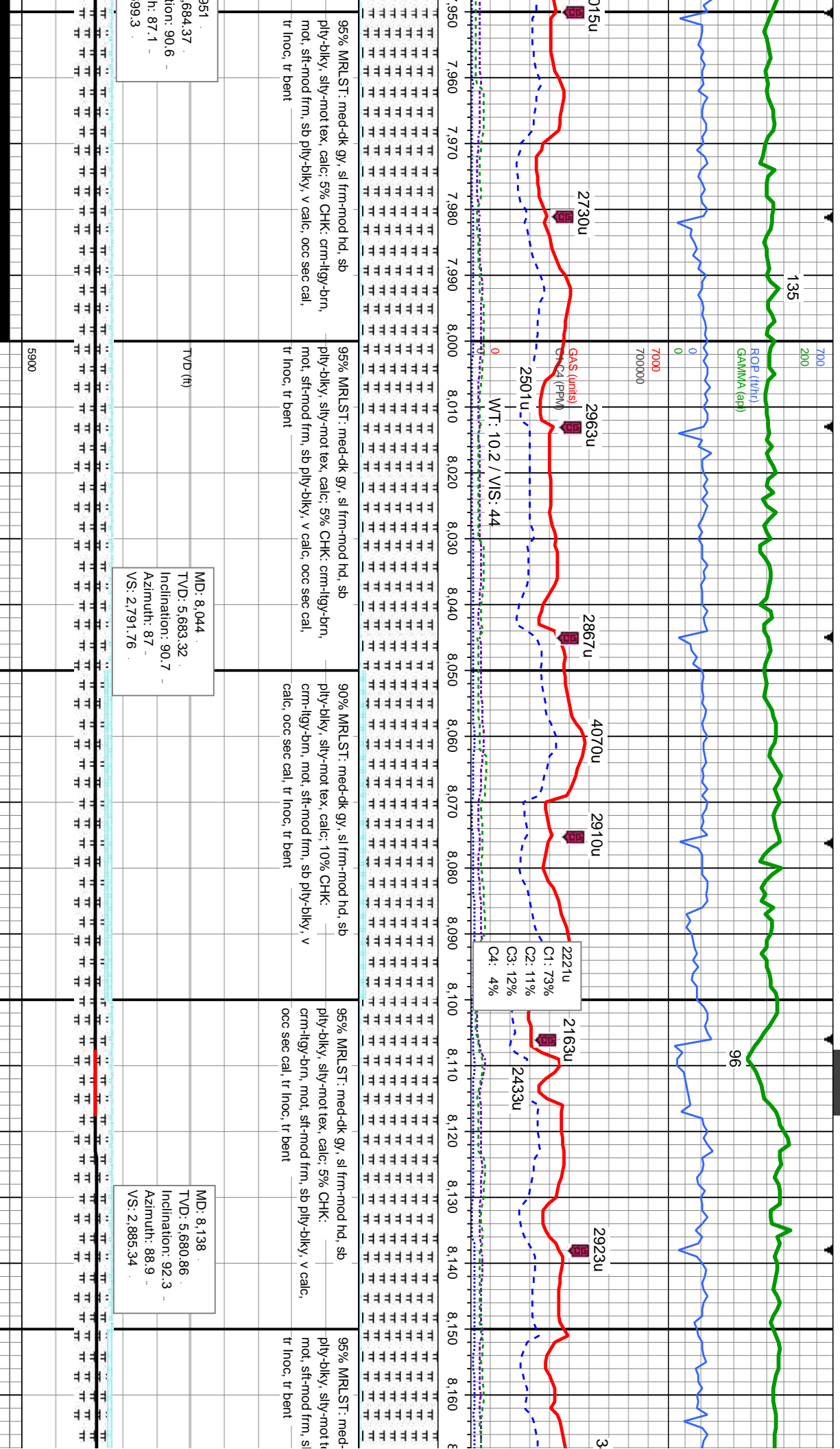
MD: 7.763  
TVD: 5.686.75  
Inclination: 90.7  
Azimuth: 88.1  
VS: 2.512.21

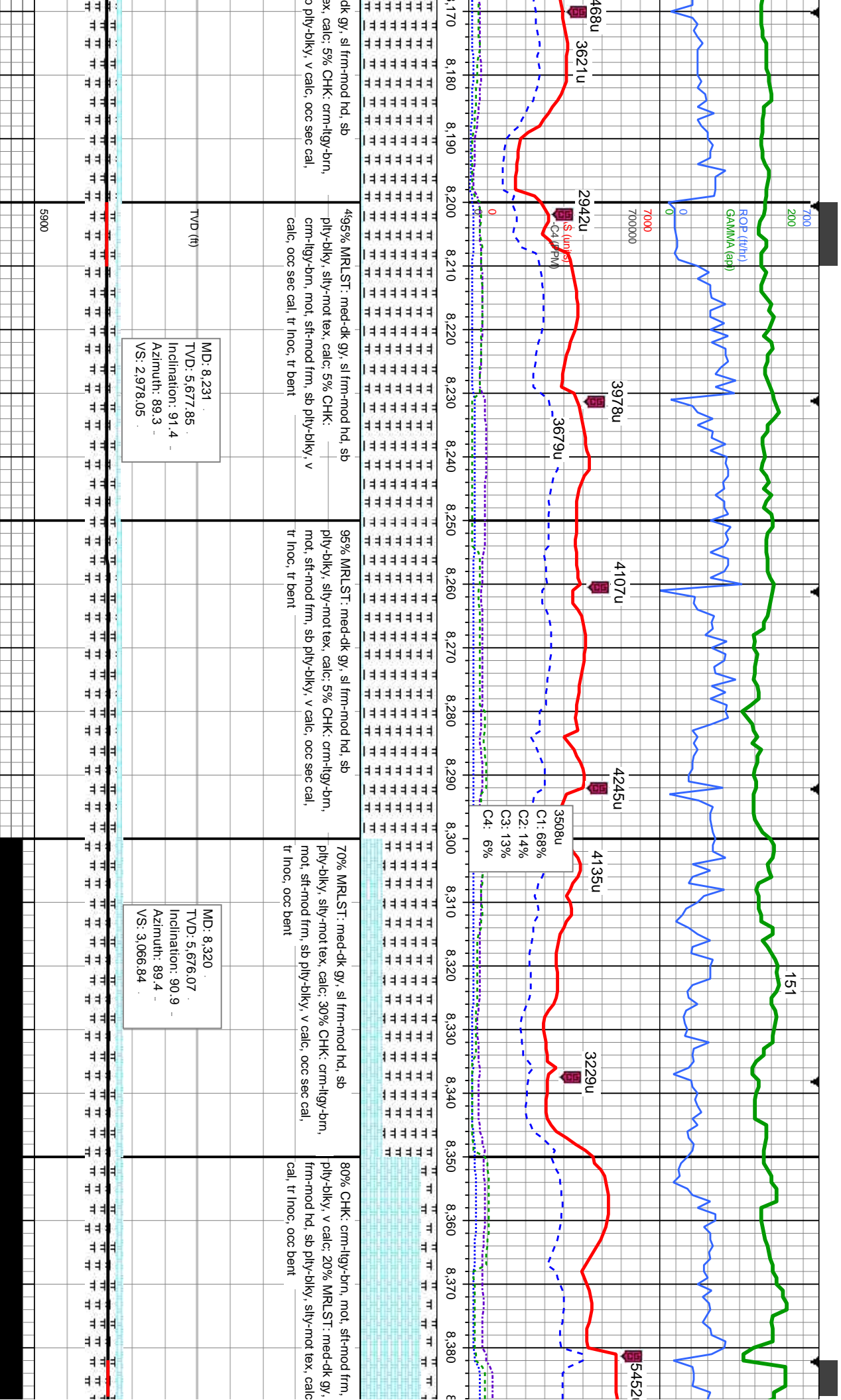
MD: 7.857  
TVD: 5.685.52  
Inclination: 90.8  
Azimuth: 87.5  
VS: 2.605.79

MD: 7.9  
TVD: 5  
Inclination  
Azimuth  
VS: 2.6

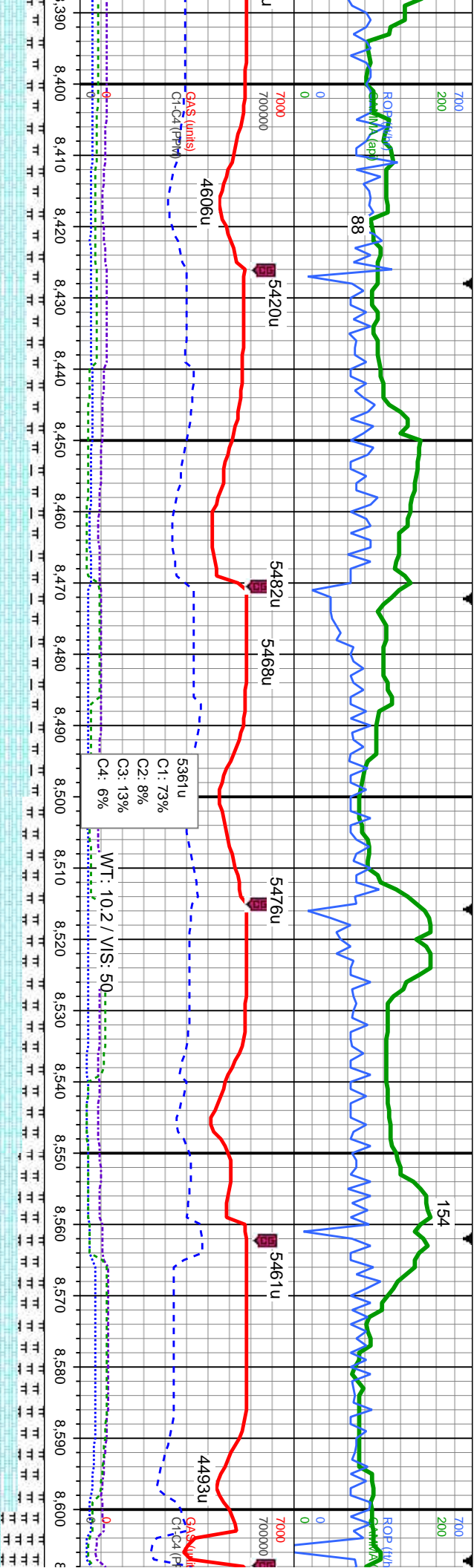












80% CHK: crn-ilty-brn, mot, sft-mod frm, sb ply-biky, v calc: 20% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty-mot tex, calc, occ sec cal, tr inoc, occ bent	85% CHK: crn-ilty-brn, mot, sft-mod frm, sb ply-biky, v calc: 15% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty-mot tex, calc, occ sec cal, tr inoc, occ bent	75% CHK: crn-ilty-brn, mot, sft-mod frm, sb ply-biky, v calc: 25% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty-mot tex, calc, occ sec cal, tr inoc, occ bent	70% CHK: crn-ilty-brn, mot, sft-mod frm, sb ply-biky, v calc: 30% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, silty-mot tex, calc, occ sec cal, tr inoc, occ bent	50% MR ply-biky mot, sft- tr inoc, tr
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MD: 8.410  
TVD: 5.675.52  
Inclination: 89.8  
Azimuth: 88.4  
VS: 3.156.59

MD: 8.500  
TVD: 5.675.83  
Inclination: 89.8  
Azimuth: 88  
VS: 3.246.25

MD: 8.589  
TVD: 5.676.61  
Inclination: 89.2  
Azimuth: 86.9  
VS: 3.334.81

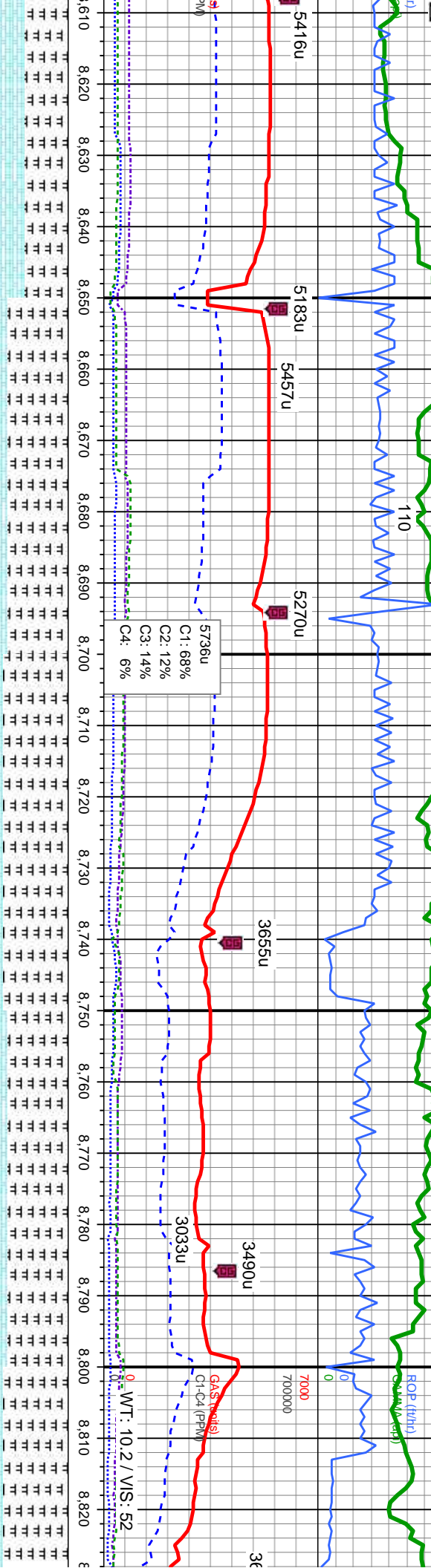
5900					5900
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10/15/14

MINDEPTH



LSLT: med-dk gy, sl frm-mod hd, sb  
sily-mot tex, calc: 50% CHK: crm-lyg-brn,  
mod frm, sb ply-blky, v calc, occ sec cal,  
bent

70% MRLST: med-dk gy, sl frm-mod hd, sb  
ply-blky, sily-mot tex, calc: 30% CHK:  
crm-lyg-brn, mod, sft-mod frm, sb ply-blky, v  
calc, occ sec cal, tr inoc, tr bent

75% MRLST: med-dk gy, sl frm-mod hd, sb  
ply-blky, sily-mot tex, calc: 25% CHK:  
crm-lyg-brn, mod, sft-mod frm, sb ply-blky, v calc,  
occ sec cal, tr inoc, tr bent

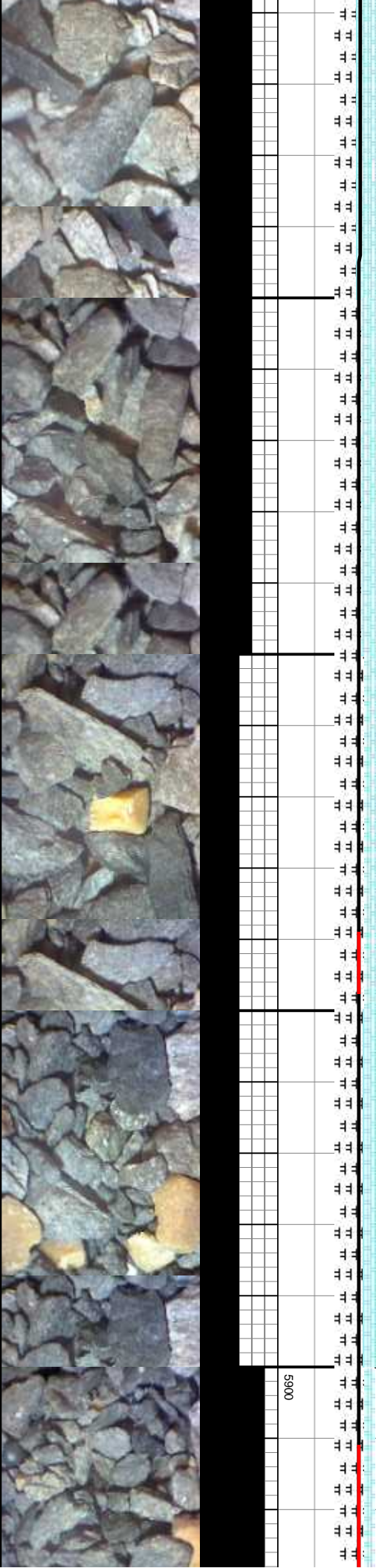
70% MRLST: med-dk gy, sl frm-mod hd, sb  
ply-blky, sily-mot tex, calc: 30% CHK:  
crm-lyg-brn, mod, sft-mod frm, sb ply-blky, v calc,  
occ sec cal, tr inoc, tr bent

75% MRLST: med-dk gy, sl frm-mod hd, sb  
ply-blky, sily-mot tex, calc: 25% CHK:  
crm-lyg-brn, mod, sft-mod frm, sb ply-blky, v calc,  
occ sec cal, tr inoc, tr bent

MD: 8,679  
TVD: 5,677.79  
Inclination: 89.3  
Azimuth: 87.4  
VS: 3,424.31

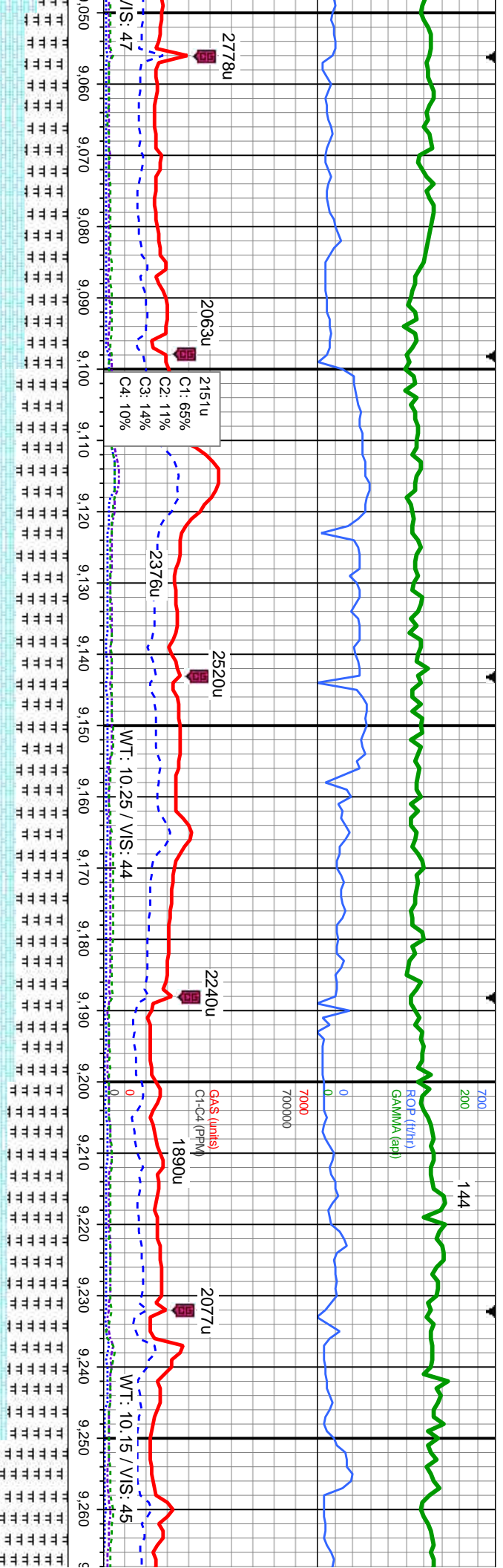
MD: 8,769  
TVD: 5,678.73  
Inclination: 89.5  
Azimuth: 86.9  
VS: 3,513.81

5900









50% CHK: crm-lyg-brn, mot, sft-mod frm, sb  
ply-biky, v calc: 50% MRLST: med-dk gy, sl  
frm-mod hd, sb ply-biky, silty-mot tex, calc, tr bent,  
tr inoc, tr sec cal

60% MRLST: med-dk gy, sl frm-mod hd, sb  
ply-biky, silty-mot tex, calc: 40% CHK:  
crm-lyg-brn, mot, sft-mod frm, sb ply-biky, v calc,  
tr bent, tr inoc, tr sec cal

60% MRLST: med-dk gy, sl frm-mod hd, sb  
ply-biky, silty-mot tex, calc: 40% CHK:  
crm-lyg-brn, mot, sft-mod frm, sb ply-biky, v calc,  
tr sec cal

470% MRLST: med-dk gy, sl frm-mod hd, sb  
ply-biky, silty-mot tex, calc: 30% CHK:  
crm-lyg-brn, mot, sft-mod frm, sb ply-biky, v calc,  
tr sec cal, tr inoc

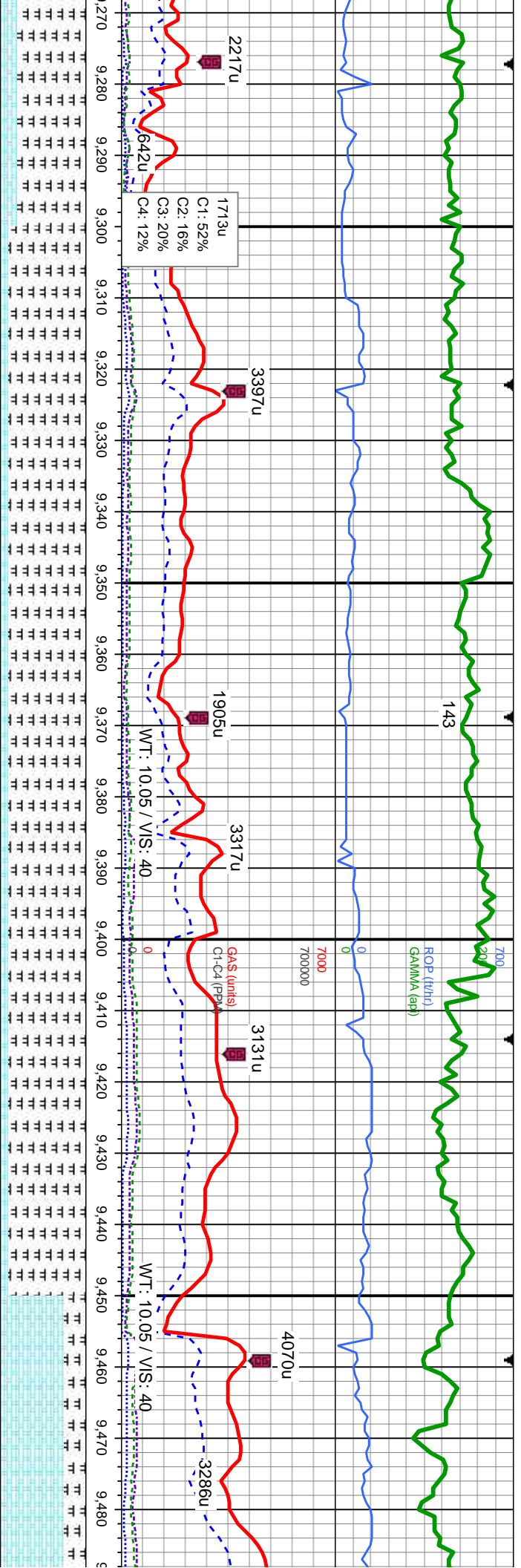
80% MRLST: med-  
ply-biky, silty-mot t  
mot, sft-mod frm, sl  
inoc

MD: 9.127  
TVD: 5,680.14  
Inclination: 90.1  
Azimuth: 88.1  
VS: 3,869.65

MD: 9.217  
TVD (ft): 5,679.82  
Inclination: 90.3  
Azimuth: 89.3  
VS: 3,959.37

5900





dkk gy, sl frm-mod hd, sb  
ply-biky, v calc, tr sec cal, tr

90% MRLST: med-dk gy, sl frm-mod hd, sb  
ply-biky, silv-mot tex, calc: 10% CHK:  
crm-lgy-brn, mot, sft-mod frm, sb ply-biky, v calc,  
occ bent, tr sec cal

90% MRLST: med-dk gy, sl frm-mod hd, sb  
ply-biky, silv-mot tex, calc: 10% CHK:  
crm-lgy-brn, mot, sft-mod frm, sb ply-biky, v calc,  
occ bent, tr sec cal

90% MRLST: med-dk gy, sl frm-mod hd, sb  
ply-biky, silv-mot tex, calc: 10% CHK:  
mot, sft-mod frm, sb ply-biky, v calc, occ bent, tr  
sec cal

75% CHK: crm-lgy-brn, mot, sft-mod frm,  
ply-biky, v calc: 25% MRLST: med-dk gy  
frm-mod hd, sb ply-biky, silv-mot tex, cal  
bent, tr inoc, tr sec cal

MD: 9,307  
TVD: 5,679.51  
Inclination: 90.1  
Azimuth: 88.2  
VS: 4,049.11

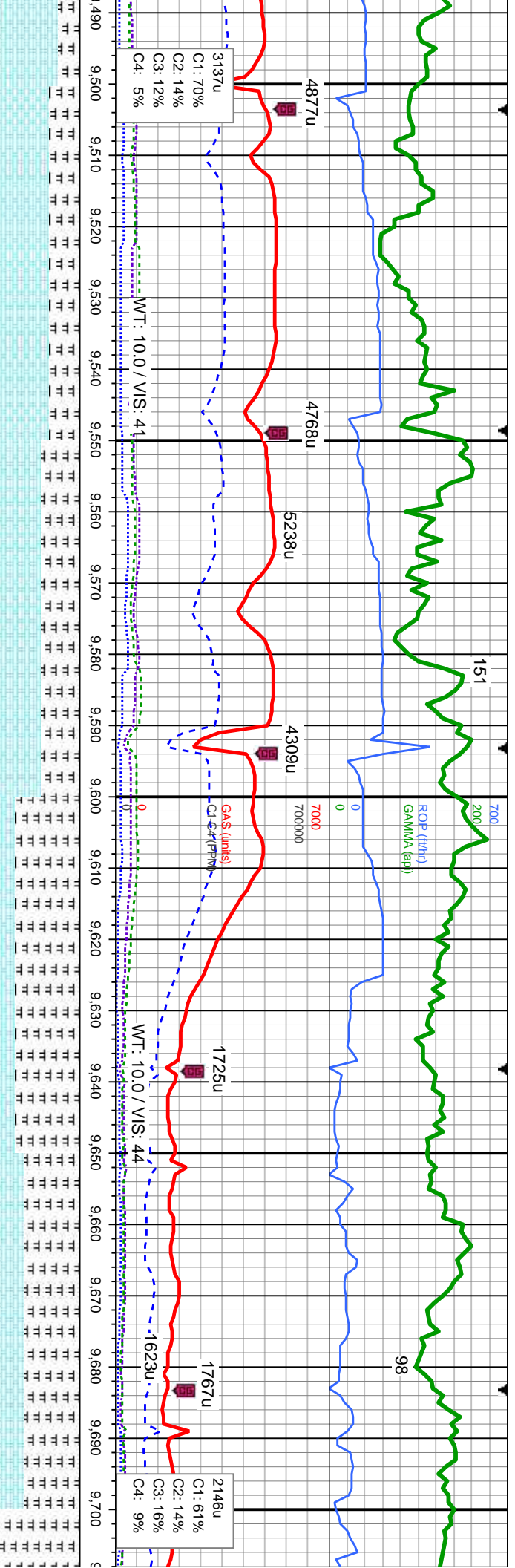
MD: 9,396  
TVD: 5,678.11  
Inclination: 91.7  
Azimuth: 90  
VS: 4,137.87

MD: 9,486  
TVD: 5,674.8  
Inclination: 91.7  
Azimuth: 89  
VS: 4,227.63

5900



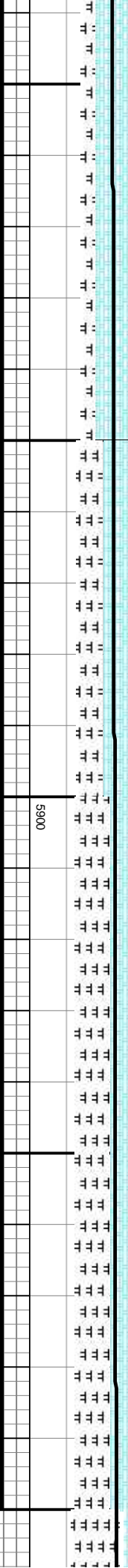




sb	65% CHK: crm-llgy-brn, mot, stf-mod frm, sb ply-biky, v calc; 35% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, stly-mot tex, calc, tr bent, tr inoc, tr sec cal	55% CHK: crm-llgy-brn, mot, stf-mod frm, sb ply-biky, v calc; 45% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, stly-mot tex, calc, tr bent, tr inoc, tr sec cal	75% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, stly-mot tex, calc; 25% CHK: crm-llgy-brn, mot, stf-mod frm, sb ply-biky, v calc, tr sec cal, tr inoc	65% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, stly-mot tex, calc; 35% CHK: crm-llgy-brn, mot, stf-mod frm, sb ply-biky, v calc, tr sec cal, tr inoc	95% MRLST: med-dk gy, sl frm-mod hd, sb ply-biky, stly-mot tex, calc; 5% CHK: crm-llgy-brn, mot, stf-mod frm, sb ply-biky, v calc, calc, tr
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MD: 9,576  
TVD: 5,670.26  
Inclination: 93.5  
Azimuth: 89.3  
VS: 4,317.29

MD: 9,666  
TVD: 5,666.02  
Inclination: 91.9  
Azimuth: 89.9  
VS: 4,407.01



CHANGED TRANSDUCER

10/16/14  
184

ROP (ft/hr)  
GAMMA (api)

0  
7000  
700000

GAS (units)  
C1-C4 (ppm)

1891u  
C1: 69%  
C2: 15%  
C3: 11%  
C4: 4%

WT: 10.05 / VS: 44

WT: 10.0 / VS: 44

MRLST: med-dk gy, sl frm-mod hd, sb  
y, silty-mot tex, calc: 5% CHK:  
-y-brn, mot, sft-mod frm, sb ply-blky, v  
sec cal, tr inoc

95% MRLST: med-dk gy, sl frm-mod hd, sb  
ply-blky, silty-mot tex, calc: 5% CHK:  
crn-lgy-brn, mot, sft-mod frm, sb ply-blky, v  
calc, tr sec cal, tr inoc

495% MRLST: med-dk gy, sl frm-mod hd, sb  
ply-blky, silty-mot tex, calc: 5% CHK:  
crn-lgy-brn, mot, sft-mod frm, sb ply-blky, v  
calc, tr sec cal, tr inoc

95% MRLST: med-dk gy, sl frm-mod hd, sb  
ply-blky, silty-mot tex, calc: 5% CHK: crn-lgy-brn,  
mot, sft-mod frm, sb ply-blky, v calc, tr sec cal, tr  
inoc

95% MRLST: med-dk gy, sl frm  
ply-blky, silty-mot tex, calc: 5%  
mot, sft-mod frm, sb ply-blky, v  
inoc

MD: 9,755  
TVD: 5,663.85  
Inclination: 90.9  
Azimuth: 90.4  
VS: 4,495.86

TVD (ft)

MD: 9,845  
TVD: 5,662.67  
Inclination: 90.6  
Azimuth: 89.5  
VS: 4,585.71

5900







