

Décollement Consulting Inc.



Scale: 5" / 100'
Measured Depth Log

Well Name State Pronghorn V-32-31MRLNB_Lateral

Location NE/NE Section 32, T5N - R61W

State CO

County Weld

Country USA

Rig Number Xtreme 22

API Number 05-123-42353

Field Wattenberg

Geographic Region D.J. Basin

Drilling Completed 11/23/2015

Spud Date 11/11/2015

Surface Coordinates 1266 FNL x 748 FEL (Lat: 40.36109, -104.22620)

Bottom Hole Coordinates 1338 FNL x 2221 FEL (Lat: 40.36076, -104.25013)

Ground Elevation 4,565

K.B. Elevation 4,582

Logged Interval 6,432' To 13,155'

Total Depth 13,155

Formation Niobrara "B" Chalk

Type of Drilling Fluid Water Based Mud

Operator

Address Bonanza Creek Energy, Inc.
410 17th Street, Suite 1500
Denver, Colorado 80202

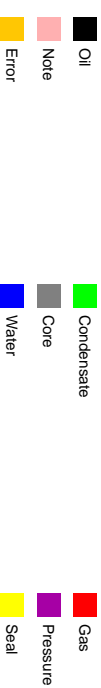
Geologist

Name Dan Kabala & Brian Spitzmiller

Company Decollement Consulting Inc.

Address 13300 Braun Rd.
Golden, CO. 80401

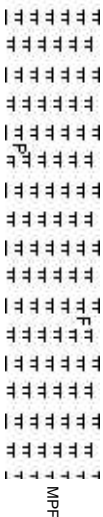
Zone Color Coding



Rock Types

Blank

CEMENT



SHALE S



CHALK



LIMESTONE



SANDSTONE



SHALE SF

CPF TT TT TT MARLSTONE --- SHALE



Accessories

Fossils

- ALGAE
- AMPHIPORA
- BELEMNITE
- BIOCLASTIC
- BRACHIOPOD
- BRYOZOA
- CEPHALOPOD
- CORAL
- CRINOID
- ECHINOID
- FISH
- FORAMINIFERA

F FOSSIL

GASTROPOD

OOLITE

OSTRACOD

PELECYPOD

PELLET

PISOLITE

PLANT REMAINS

PLANT SPORES

SCAPHOPOD

STROMATOPOROID

Minerals

ANHYDRITIC

ARGILLACEOUS

ARGILLITE GRAIN

BENTONITE

BITUMENOUS SUBSTANCE

BRECCIA FRAGMENTS

CALCAREOUS

CARBONACEOUS FLAKES

CHITDK

CHTLT

COAL - THIN BEDS

DOLOMITIC

FELDSPAR

FERRUGINOUS PELLET

FERRUGINOUS

GLAUCONITE

GYPSIFEROUS

HEAVY MINERAL

KAOLIN

MARLSTONE

MINERAL CRYSTALS

NODULES

PHOSPHATE PELLETS

PYRITE

SALT CAST

SANDY

SILICEOUS

SILTY

TUFFACEOUS

Stringer

- ANHYDRITE STRINGER
- BENTONITE STRINGER
- COAL STRINGER
- DOLOMITE STRINGER
- GYPSUM STRINGER
- LIMESTONE STRINGER
- MARLSTONE (CALC) STRG
- MARLSTONE (DOL) STRG
- SANDSTONE STRINGER
- SHALE STRINGER
- SILTSTONE STRINGER

Other Symbols

O ORGANIC

FORMATION TOP

L LITHOGRAPHIC

Oil Show

P PINPOINT

GAS SHOW

MX MICROXLN

DEAD

VUGGY

MN DEPTH

A ANGULAR

MS MUDSTONE

EVEN

NORMAL FAULT

R ROUNDED

PS PACKSTONE

Engineering

QUESTIONABLE

OIL SHOW

B SUBANG

WS WACKESTONE

SPOTTED STAINING

BIT

OVERTURNED STRATA

R SUBRND

Sorting

Porosity

CASING

REVERSE FAULT

Textures

CONNECTION (LEFT)

SIDEWALL CORE (LEFT)

M MODERATE

EARTHY

CONNECTION (RIGHT)

SIDEWALL CORE (RIGHT)

BS BOUNDSTONE

P POOR

FENESTRAL

CONNECTION GAS

SLIDE

C CHALKY

W WELL

FRACTURE

CORE - LOST

SURVEY

CX CRYPTOXLN

INTERCRYSTALLINE

CORE - RECOVERED

TRIP GAS

E EARTHY

INTEROOLITIC

DST INTERVAL

WIRELINE TESTED - LEFT

FX FINELYXLN

MOLDIC

FAULT

WIRELINE TESTED - RT

GS GRAINSTONE

Slide/Rotate

Depth

6,390

6,400

6,410

6,420

6,430

6,440

6,450

6,460

6,470

6,480

6,490

6,500

6,510

6,520

6,530

6,540

6,550

6,560

Total Gas & Chromatography

- GAS
- C1
 - C2
 - C3
 - iC4
 - nC4
 - CO2
- Total Gas Calibration
1% Methane = 100u
- Gas Chromatograph Calibration
C1 = 1.0% Methane = 10,000ppm
C2 = 1.0% Ethane = 10,000ppm
C3 = 1.0% Propane = 10,000ppm
iC4 = 1.0% Iso-Butane = 10,000ppm
nC4 = 1.0% N-Butane = 10,000ppm

10000 Black = Slide
10000 White = Rotate

MINDEPTH
11/22/2015

Running Through Gas Buster

10000
1000000
100

C1: 78.7%
C2: 13.6%
C3: 7.7%
iC4: 0.0%
nC4: 0.0%

GAS (units)
C1-iC4 (PPM)
CO2 (percent)

4870u

800
200

WOB 17
RPM 0
SPM 2727
SPM 0/89

Curves
ROP
Gamma

Decollement Consulting on location and rigged up with Bloodhound #5726 on 11/21/2015.
Start logging at 6,432' MD on 11/21/2015 at 23:30 hours.

ROP (t/hr)
Gamma (AFI)

132

127

Depth Labels

6,390

6,400

6,410

6,420

6,430

6,440

6,450

6,460

6,470

6,480

6,490

6,500

6,510

6,520

6,530

6,540

6,550

6,560

Interpretive Lithology

6000

MD: 6,454'

Inclination: 86.77°
Azimuth: 265.57°
TVD: 6,031.94'

VS: 2.84'

6000

MD: 6,540'

Inclination: 90.89°
Azimuth: 269.58°
TVD: 6,033.7'

VS: 88.76'

Well Bore
TVD

TVD (ft)

Bit #: 3
Size: 6.125
Mfr.: VAREL
Type: VS513DG
Depth In: 6,432'
Depth Out: 13,155'
Hours: 26.2 hrs
Avg FV/Hr: 256.6 /hr
Jets: 5X18
S/N: 4008887

TVD (ft)

95% CHK: lt gy/whi, mottld wh, sft- mod frm, occ brit, sb ply-sb blkly, rthy lstr, v calc, sl brn/blk stn 5% MARL: dk brn/gy, frm-sft, sb ply-sb blkly, rthy lstr, grty, com mottld carb mat.

com cal frags, com BENT

insnt bri blu whi blooming cut, thck blk whi resid ring.

95% CHK: lt gy/whi, mottld wh, sft- mod frm, occ brit, sb ply-sb blkly, rthy lstr, v calc, sl brn/blk stn 5% MARL: dk brn/gy, frm-sft, sb ply-sb blkly, rthy lstr, grty, com mottld carb mat.

com cal frags, com BENT

insnt bri blu whi blooming cut, thck blk whi resid ring.

90% CHK: lt gy/whi, mottld wh, sft- mod frm, occ brit, sb ply-sb blkly, rthy lstr, v calc, sl brn/blk stn 10% MARL: dk brn/gy, frm-sft, sb ply-sb blkly, rthy lstr, grty, com mottld carb mat.

com cal frags, com BENT

insnt bri blu whi blooming cut, thck blk whi resid ring.

Oil Show

TR
P
FR
G
E

6,570 6,580 6,590 6,600 6,610 6,620 6,630 6,640 6,650 6,660 6,670 6,680 6,690 6,700 6,710 6,720 6,730 6,740 6,750 6,760 6,770 6,780

10000
1000000
100

GA5235u
C1-H4 (PP4M)
CO2 (percent)

MW: 9.0 VIS: 35

WOB 18
RPM 50
SPM 3173
SPM 0/89

ROP (tth)
Gamma (AFI)

124

10000
1000000
100

5156u
GAS (units)
C1-H4 (PP4M)
CO2 (percent)

MW: 9.0 VIS: 39

WOB 26
RPM 0
SPM 3047
SPM 0/89

ROP (tth)
Gamma (AFI)

85

C1: 66.7%
C2: 16.2%
C3: 13.5%
iC4: 3.1%
nC4: 0.0%

5121u

MD: 6.625'
Inclination: 92.37°
Azimuth: 272.89°
TVD: 6.031.28'
VS: 173.65'

6MD: 6.711'
Inclination: 91.98°
Azimuth: 272.41°
TVD: 6.028.02'
VS: 259.41'

90% CHK: lt gy/whi, mottld wh, sft- mod frm, occ
brit, sb pily-sb blkly, rthy lst, v calc, sl brn/blk stn
10% MARL: dk brn/gy, frm-sft, sb pily-sb blkly, rthy
lst, grty, com mottld carb mat.

n BENT

blooming cut, thick blu whi resid

90% CHK: lt gy/whi, mottld wh, sft- mod frm, occ
brit, sb pily-sb blkly, rthy lst, v calc, sl brn/blk stn
10% MARL: dk brn/gy, frm-sft, sb pily-sb blkly, rthy
lst, grty, com mottld carb mat.

com cal frags, com BENT

instnt bri blu whi blooming cut, thick blu whi resid
ring.

90% CHK: lt gy/whi, mottld wh, sft- mod frm, occ
brit, sb pily-sb blkly, rthy lst, v calc, sl brn/blk stn
10% MARL: dk brn/gy, frm-sft, sb pily-sb blkly, rthy
lst, grty, com mottld carb mat.

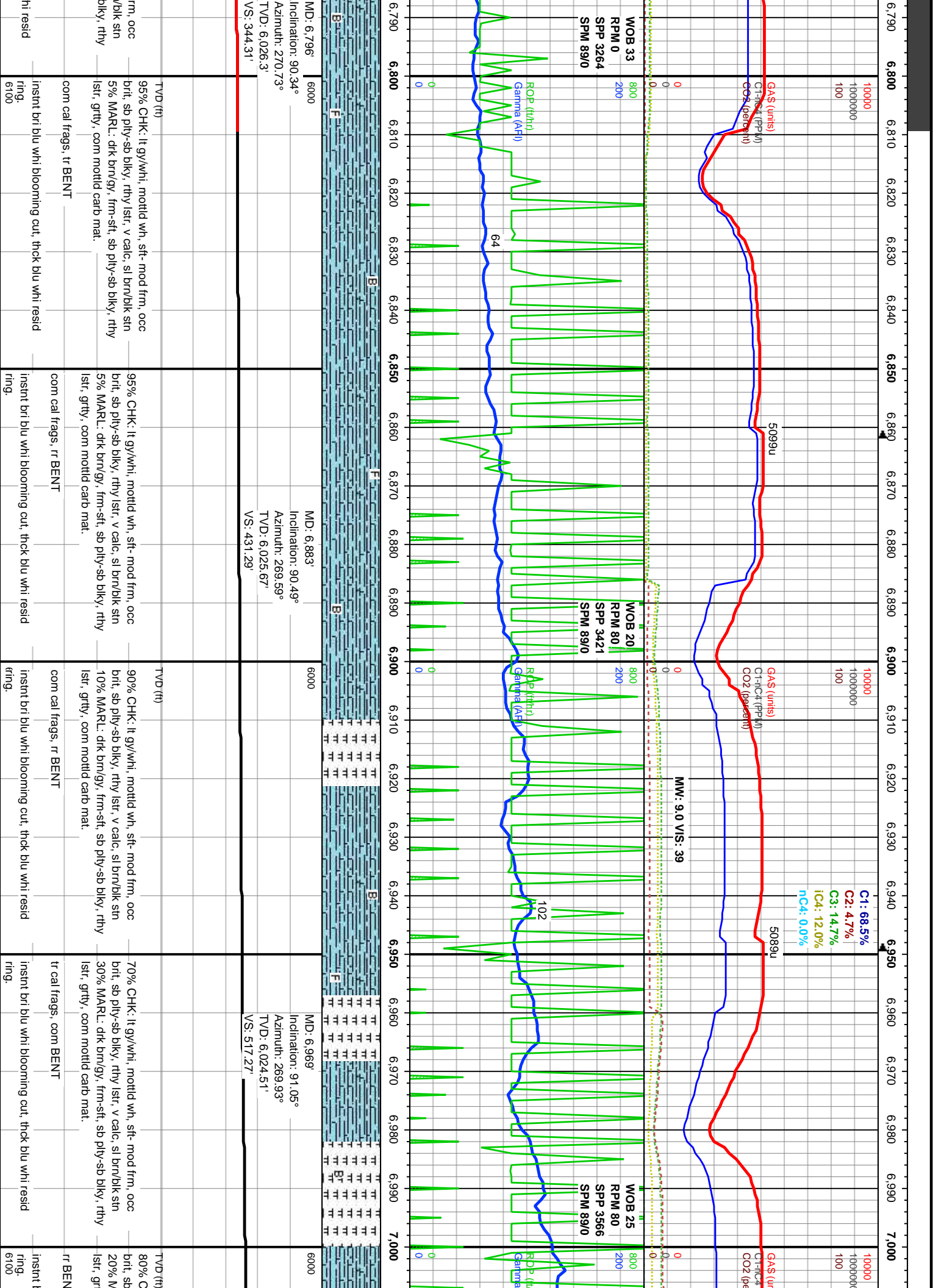
com cal frags, com BENT

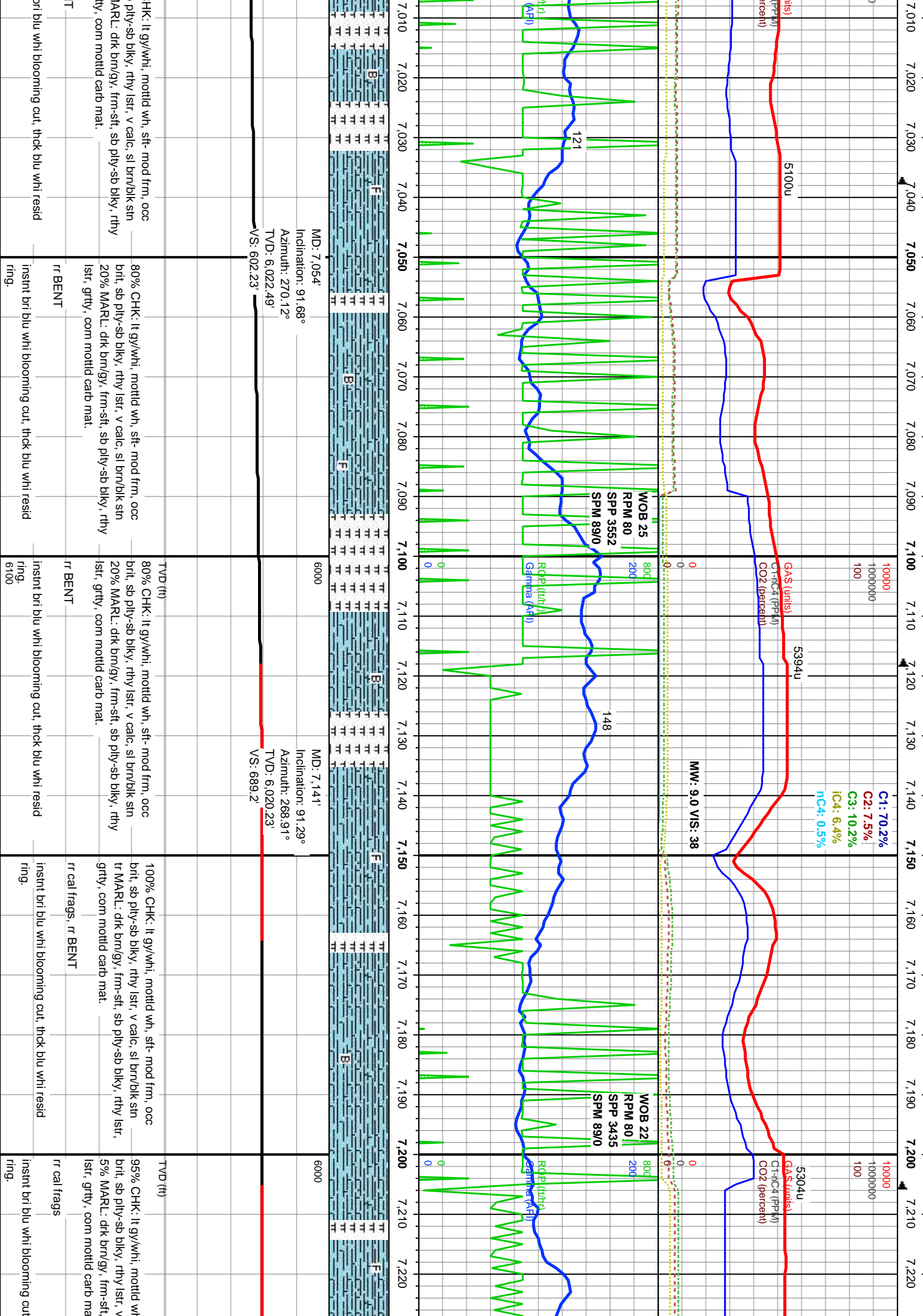
instnt bri blu whi blooming cut, thick blu whi resid
ring.

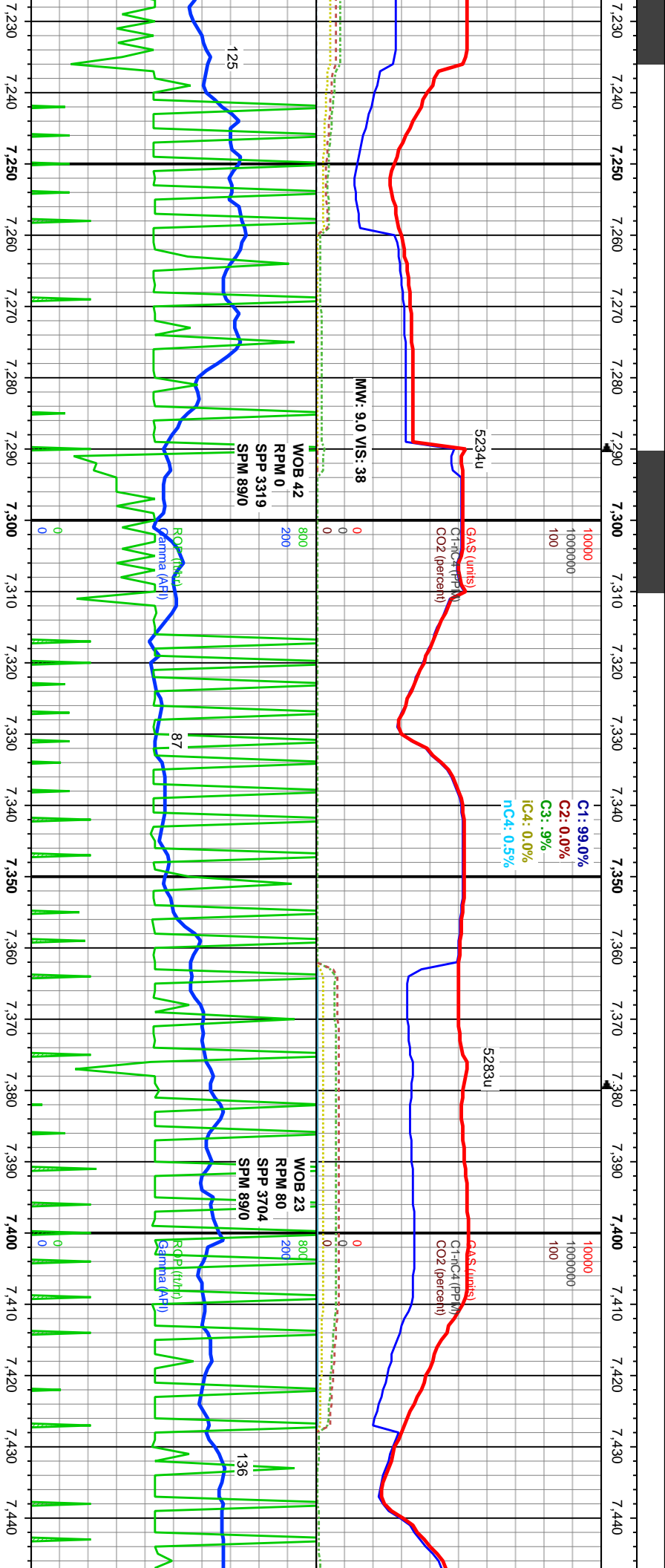
95% CHK: lt gy/whi, mottld wh, sft- mod frm, occ
brit, sb pily-sb blkly, rthy lst, v calc, sl brn/blk stn
5% MARL: dk brn/gy, frm-sft, sb pily-sb blkly, rthy
lst, grty, com mottld carb mat.

com cal frags, rr BENT

instnt bri blu whi blooming cut, thick blu whi resid
ring.







h, sft- mod frm, occ calc. sl brn/blk stn sb ply-sb blkly, rthy t.	90% CHK: lt gy/whi, mottld wh, sft- mod frm, occ brlt, sb ply-sb blkly, rthy lstr, v calc, sl brn/blk stn 10% MARL: dk brn/gy, frm-sft, sb ply-sb blkly, rthy lstr, grty, com mottld carb mat.	insnt bri blu whi blooming cut, thck blu whi resid ring.
60°MD: 7.312' Inclination: 88.55° Azimuth: 267.44° TVD: 6,020.47' VS: 860.16'	60°MD: 7.312' Inclination: 88.55° Azimuth: 267.44° TVD: 6,020.47' VS: 860.16'	insnt bri blu whi blooming cut, thck blu whi resid ring.
95% CHK: lt gy/whi, mottld wh, sft- mod frm, occ brlt, sb ply-sb blkly, rthy lstr, v calc, sl brn/blk stn 5% MARL: dk brn/gy, frm-sft, sb ply-sb blkly, rthy lstr, grty, com mottld carb mat.	95% CHK: lt gy/whi, mottld wh, sft- mod frm, occ brlt, sb ply-sb blkly, rthy lstr, v calc, sl brn/blk stn 10% MARL: dk brn/gy, frm-sft, sb ply-sb blkly, rthy lstr, grty, com mottld carb mat.	insnt bri blu whi blooming cut, thck blu whi resid ring.

7.450 7.460 7.470 7.480 7.490 7.500 7.510 7.520 7.530 7.540 7.550 7.560 7.570 7.580 7.590 7.600 7.610 7.620 7.630 7.640 7.650 7.660

C1: 88.8%
C2: 0.5%
C3: 7.6%
iC4: 3.1%
nC4: 0.0%

10000
1000000
100

5283u

Gas (units)
Cl-AC4 (ppm)
CO2 (percent)

MW: 9.0 VIS: 32

5058u

Gas (units)
Cl-AC4 (ppm)
CO2 (percent)

10000
1000000
100

5254u

Gas (units)
Cl-AC4 (ppm)
CO2 (percent)

WOB 23
RPM 80
SP 3567
SPM 89/0

WOB 21
RPM 80
SP 3550
SPM 89/0

WOB 21
RPM 80
SP 3550
SPM 89/0

ROP (ft/hr)
Gamma (API)

ROP (ft/hr)
Gamma (API)

ROP (ft/hr)
Gamma (API)

131

139

139

MD: 7,483'
Inclination: 90.25°
Azimuth: 268.16°
TVD: 6,021.96'
VS: 1,031.11'

MD: 7,568'
Inclination: 90.49°
Azimuth: 269.58°
TVD: 6,021.41'
VS: 1,116.1'

MD: 7,654'
Inclination: 90.19°
Azimuth: 269.97°
TVD: 6,020.9'
VS: 1,202.1'

90% CHK: lt gy/whi, mottld wh, sft- mod frm, occ
brit, sb pily-sb blk, rthy lst, v calc, sl brn/blk sin
10% MARL: dk brn/gy, frm-sft, sb pily-sb blk, rthy
lst, grty, com mottld carb mat.
90% CHK: lt gy/whi, mottld wh, sft- mod frm, occ
brit, sb pily-sb blk, rthy lst, v calc, sl brn/blk sin
10% MARL: dk brn/gy, frm-sft, sb pily-sb blk, rthy
lst, grty, com mottld carb mat.
insnt bri blu whi blooming cut, thck blu whi resid
ring.

TVD (ft)
90% CHK: lt gy/whi, mottld wh, sft- mod frm, occ
brit, sb pily-sb blk, rthy lst, v calc, sl brn/blk sin
10% MARL: dk brn/gy, frm-sft, sb pily-sb blk, rthy
lst, grty, com mottld carb mat.
abn Calc frag.
insnt bri blu whi blooming cut, thck blu whi resid
ring.
6100

90% CHK: lt gy/whi, mottld wh, sft- mod frm, occ
brit, sb pily-sb blk, rthy lst, v calc, sl brn/blk sin
10% MARL: dk brn/gy, frm-sft, sb pily-sb blk, rthy
lst, grty, com mottld carb mat.
abn Calc frag.
insnt bri blu whi blooming cut, thck blu whi resid
ring.

TVD (ft)
95% CHK: lt gy/whi, mottld wh, sft- mod frm, occ
brit, sb pily-sb blk, rthy lst, v calc, sl brn/blk sin
5% MARL: dk brn/gy, frm-sft, sb pily-sb blk, rthy
lst, grty, com mottld carb mat.
tr Calc frag.
insnt bri blu whi blooming cut, thck blu whi resid
ring.
6100

95% CHK: lt gy/whi, mottld wh, sft- mod frm, occ
brit, sb pily-sb blk, rthy lst, v calc, sl brn/blk sin
5% MARL: dk brn/gy, frm-sft, sb pily-sb blk, rthy
lst, grty, com mottld carb mat.
tr Calc frag.
insnt bri blu whi blooming cut, thck blu whi resid
ring.

7.670 7.680 7.690 7.700 7.710 7.720 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

10000
1000000
100
C1: 65.5%
C2: 14.6%
C3: 12.4%
iC4: 1.8%
nC4: 4.2%

10000
1000000
100
5049u

Gas (units)
C1-iC4 (PPM)
CO2 (percent)
MW: 9.0 VIS: 31

Gas (units)
C1-iC4 (PPM)
CO2 (percent)

WOB 27
RPM 80
SPM 3867
SPM 890

WOB 24
RPM 80
SPM 3545
SPM 900

ROP (ft/hr)
Gamma (API)
Bathym (AFI)

ROP (ft/hr)
Gamma (API)

MD: 7.739'
Inclination: 89.29°
Azimuth: 269.81°
TVD: 6,021.28'
VS: 1,287.08'

MD: 7.824'
Inclination: 89.54°
Azimuth: 270.47°
TVD: 6,022.15'
VS: 1,372.06'

hi, mottld wh, sft- mod frm, occ
bri, sb ply-sb blkly, rthy lstr, v calc, sl brn/blk sin
y, rthy lstr, v calc, sl brn/blk sin
y, frm-sft, sb ply-sb blkly, rthy
ttld carb mat.

TVD (ft)
90% CHK: lt gy/whi, mottld wh, sft- mod frm, occ
bri, sb ply-sb blkly, rthy lstr, v calc, sl brn/blk sin
10% MARL: dk brn/gy, frm-sft, sb ply-sb blkly, rthy
lstr, grtty, com mottld carb mat.

90% CHK: lt gy/whi, mottld wh, sft- mod fr
bri, sb ply-sb blkly, rthy lstr, v calc, sl brn/blk sin
10% MARL: dk brn/gy, frm-sft, sb ply-sb
lstr, grtty, com mottld carb mat.

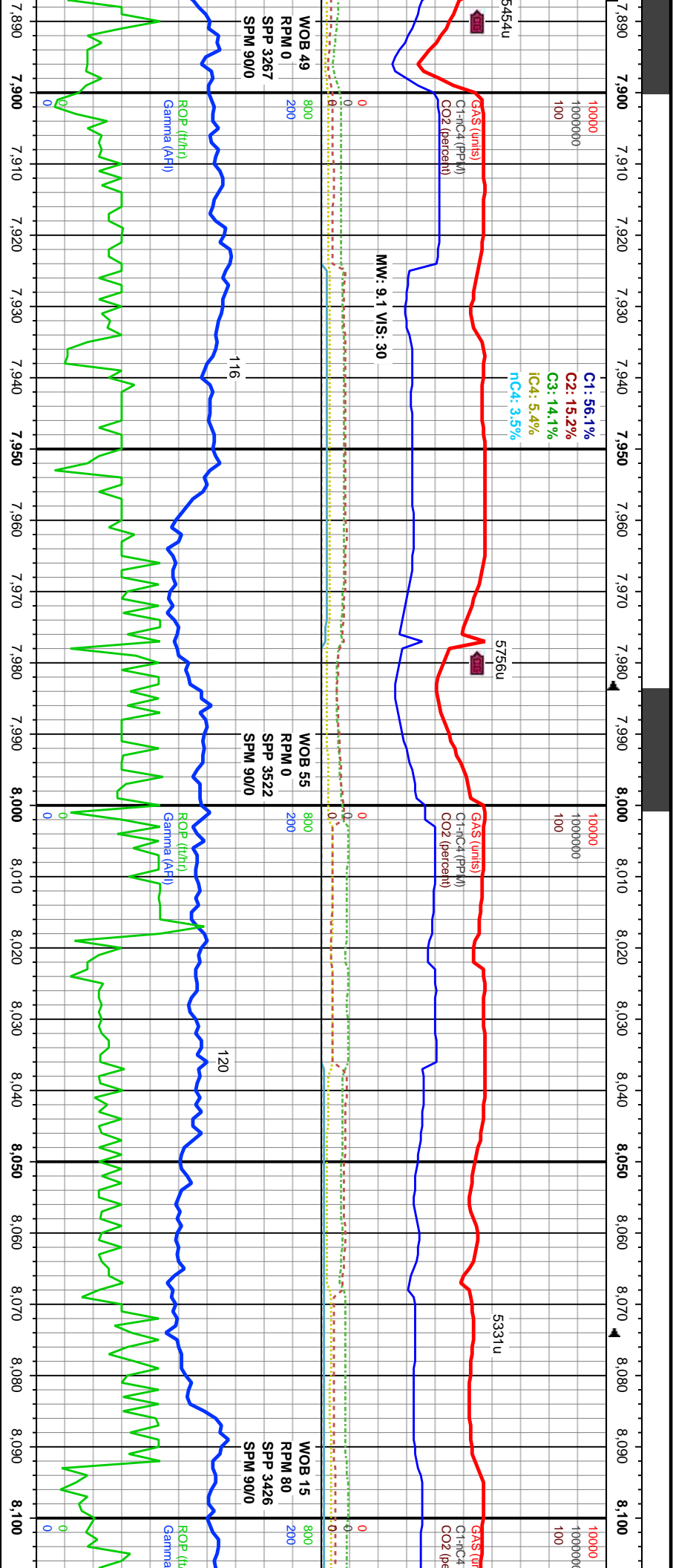
tr Calc frag.
insnt bri blu whi blooming cut, thck blu whi resid
ring.
6100

tr Calc frag.
insnt bri blu whi blooming cut, thck blu whi resid
ring.

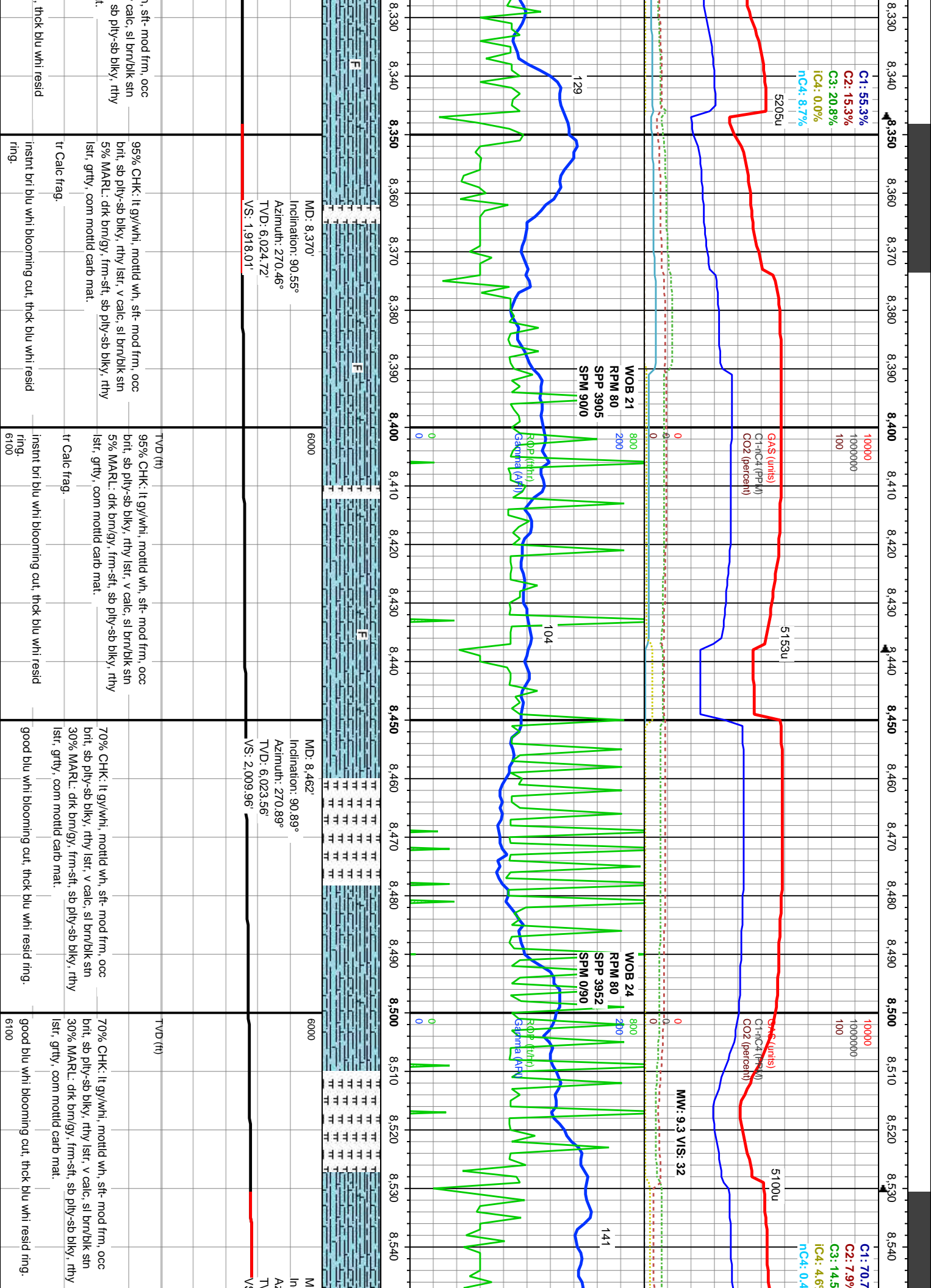
tr Calc frag.
insnt bri blu whi blooming cut, thck blu whi resid
ring.
6100

tr Calc frag.
insnt bri blu whi blooming cut, thck blu whi
ring.

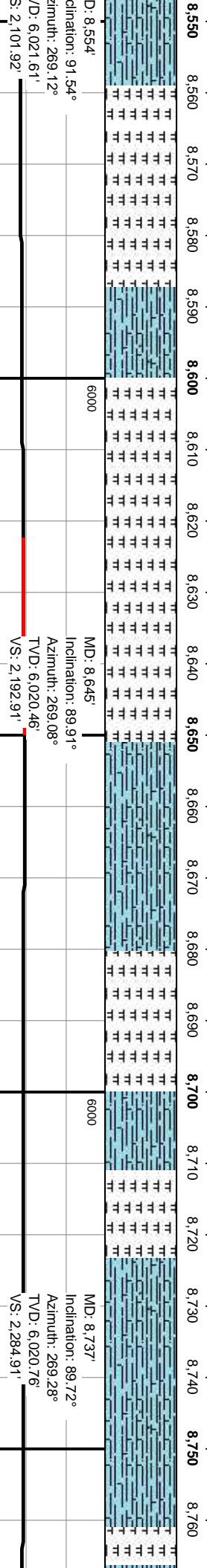
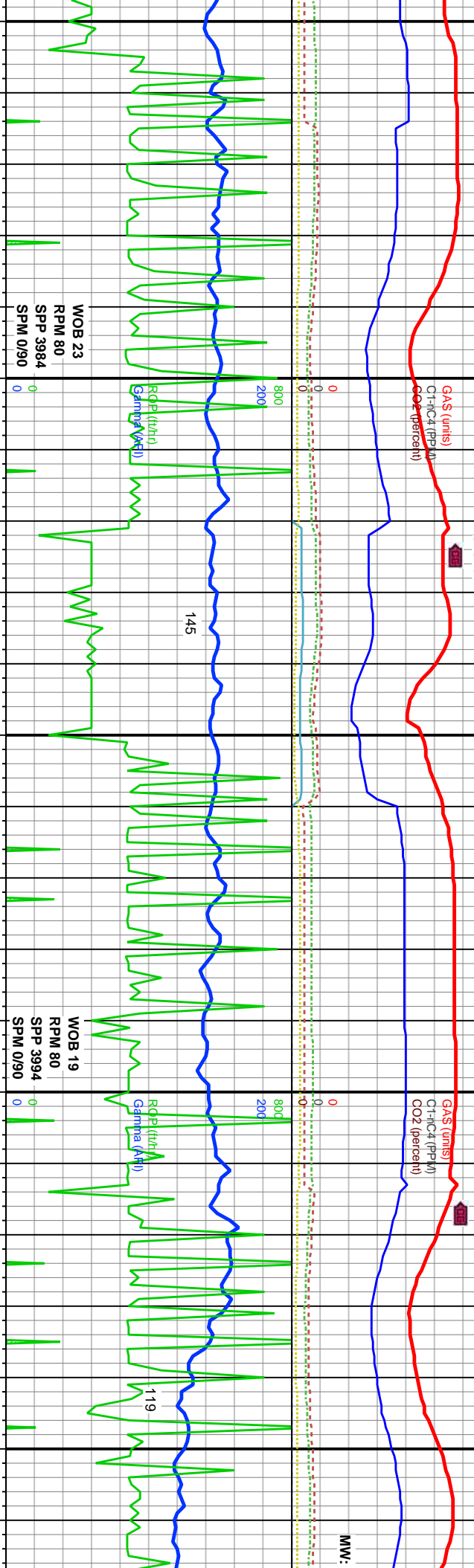
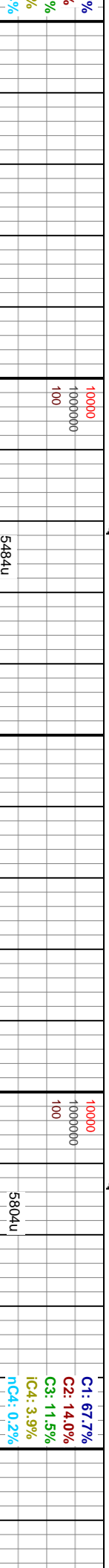
blooming cut, thck blu whi resid



6000 MD: 7.915' Inclination: 90.55° Azimuth: 269.59° TVD: 6.022.08' VS: 1.463.05'			MD: 8.006' Inclination: 89.94° Azimuth: 268.86° TVD: 6.021.69' VS: 1.554.05'			MD: 8.097' Inclination: 89.57° Azimuth: 269.34° TVD: 6.022.08' VS: 1.645.04'		
90% CHK: lt gy/whi, mottld wh, sft- mod frm, occ brit, sb ply-sb blkly, rthy lstr, v calc, sl brn/blk stn 10% MARL: dk brn/gy, frm-sft, sb ply-sb blkly, rthy lstr, grty, com mottld carb mat.			90% CHK: lt gy/whi, mottld wh, sft- mod frm, occ brit, sb ply-sb blkly, rthy lstr, v calc, sl brn/blk stn 20% MARL: dk brn/gy, frm-sft, sb ply-sb blkly, rthy lstr, grty, com mottld carb mat.			80% CHK: lt gy/whi, mottld wh, sft- mod frm, occ brit, sb ply-sb blkly, rthy lstr, v calc, sl brn/blk stn 10% MARL: dk brn/gy, frm-sft, sb ply-sb blkly, rthy lstr, grty, com mottld carb mat.		
tr Calc frag.			tr Calc frag.			tr Calc frag.		
insnt bri blu whi blooming cut, thck blu whi resid ring.			insnt bri blu whi blooming cut, thck blu whi resid ring.			insnt bri blu whi blooming cut, thck blu whi resid ring.		
6100			6100			6100		



8.550 8.560 8.570 8.580 8.590 8.600 8.610 8.620 8.630 8.640 8.650 8.660 8.670 8.680 8.690 8.700 8.710 8.720 8.730 8.740 8.750 8.760



50% CHK: lt gy/whi, mottld wh, sft- mod frm, occ
brlt, sb ply-sb blkly, rthy lstr, v calc, sl brn/blk sn
50% MARL: dk brn/gy, frm-sft, sb ply-sb blkly, rthy
lstr, grty, com mottld carb mat.

50% CHK: lt gy/whi, mottld wh, sft- mod frm, occ
brlt, sb ply-sb blkly, rthy lstr, v calc, sl brn/blk sn
50% MARL: dk brn/gy, frm-sft, sb ply-sb blkly, rthy
lstr, grty, com mottld carb mat.

60% MARL: dk brn/gy, frm-sft, sb ply-sb blkly, rthy
lstr, grty, com mottld carb mat.

40% CHK: lt gy/whi, mottld wh, sft- mod frm, occ
brlt, sb ply-sb blkly, rthy lstr, v calc, sl brn/blk sn

70% CHK: lt gy/whi, mottld wh, sft- mod frm, occ
brlt, sb ply-sb blkly, rthy lstr, v calc, sl brn/blk sn
30% MARL: dk brn/gy, frm-sft, sb ply-sb blkly, rthy
lstr, grty, com mottld carb mat.

90% CHK: lt gy/whi, mottld wh, sft- mod frm, occ
brlt, sb ply-sb blkly, rthy lstr, v calc, sl brn/blk sn
10% MARL: dk brn/gy, frm-sft, sb ply-sb blkly, rthy
lstr, grty, com mottld carb mat.

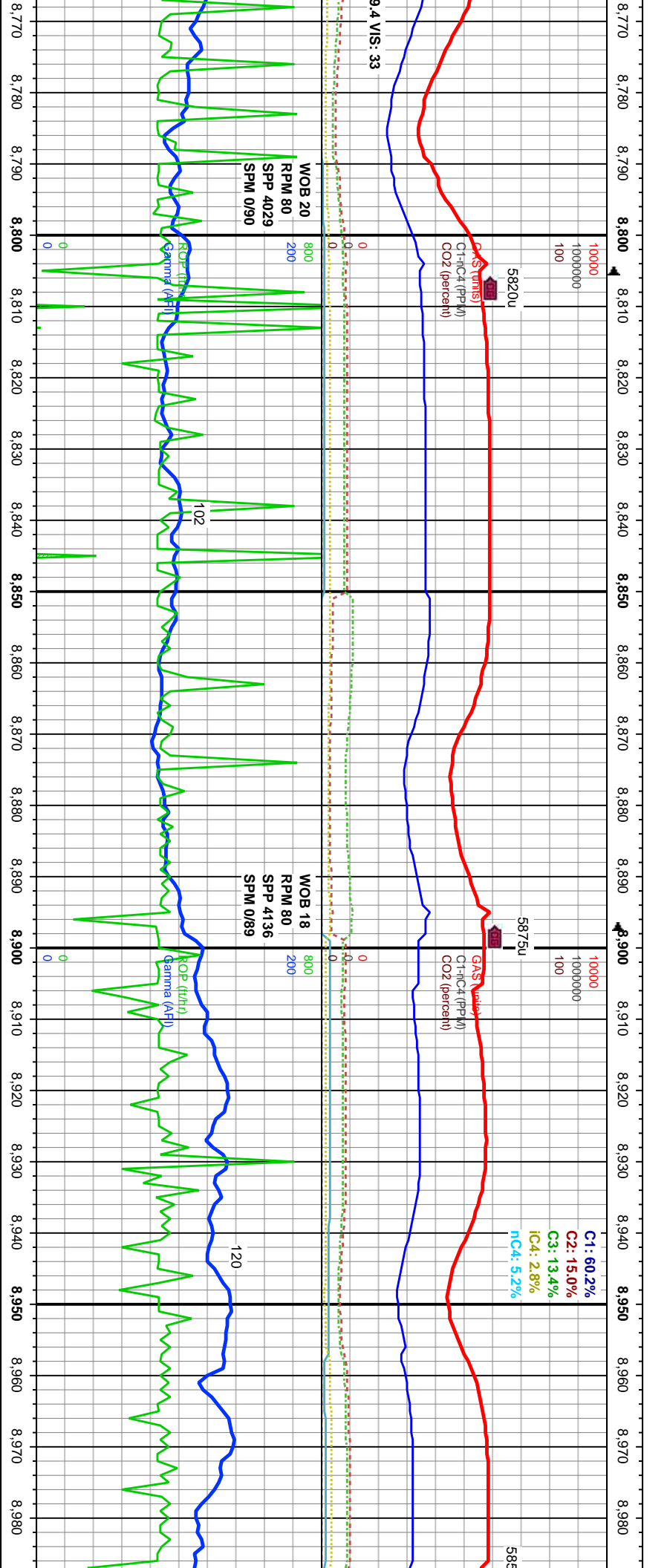
good blu whi blooming cut, thick blu whi resid ring.

good blu whi blooming cut, thick blu whi resid ring.

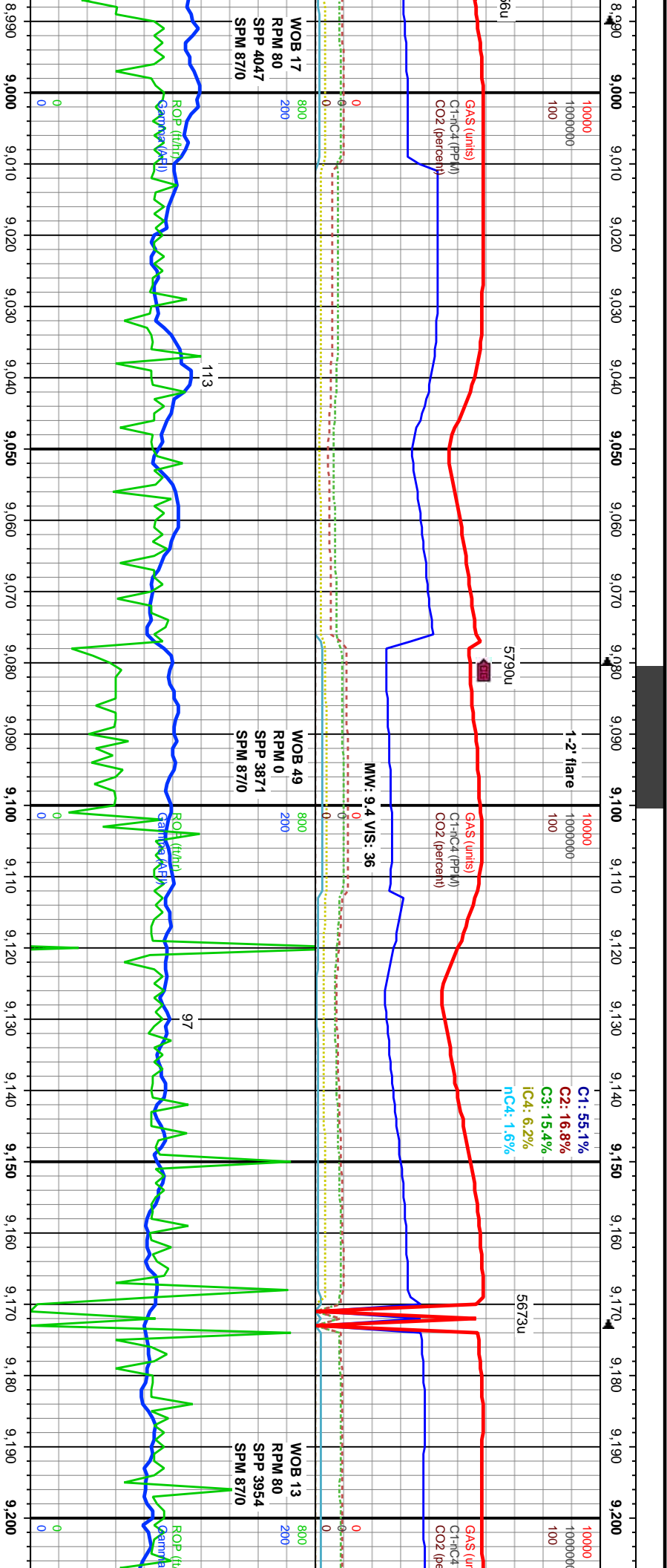
good blu whi blooming cut, thick blu whi resid ring.

insnt brl blu whi blooming cut, thick blu whi resid ring.

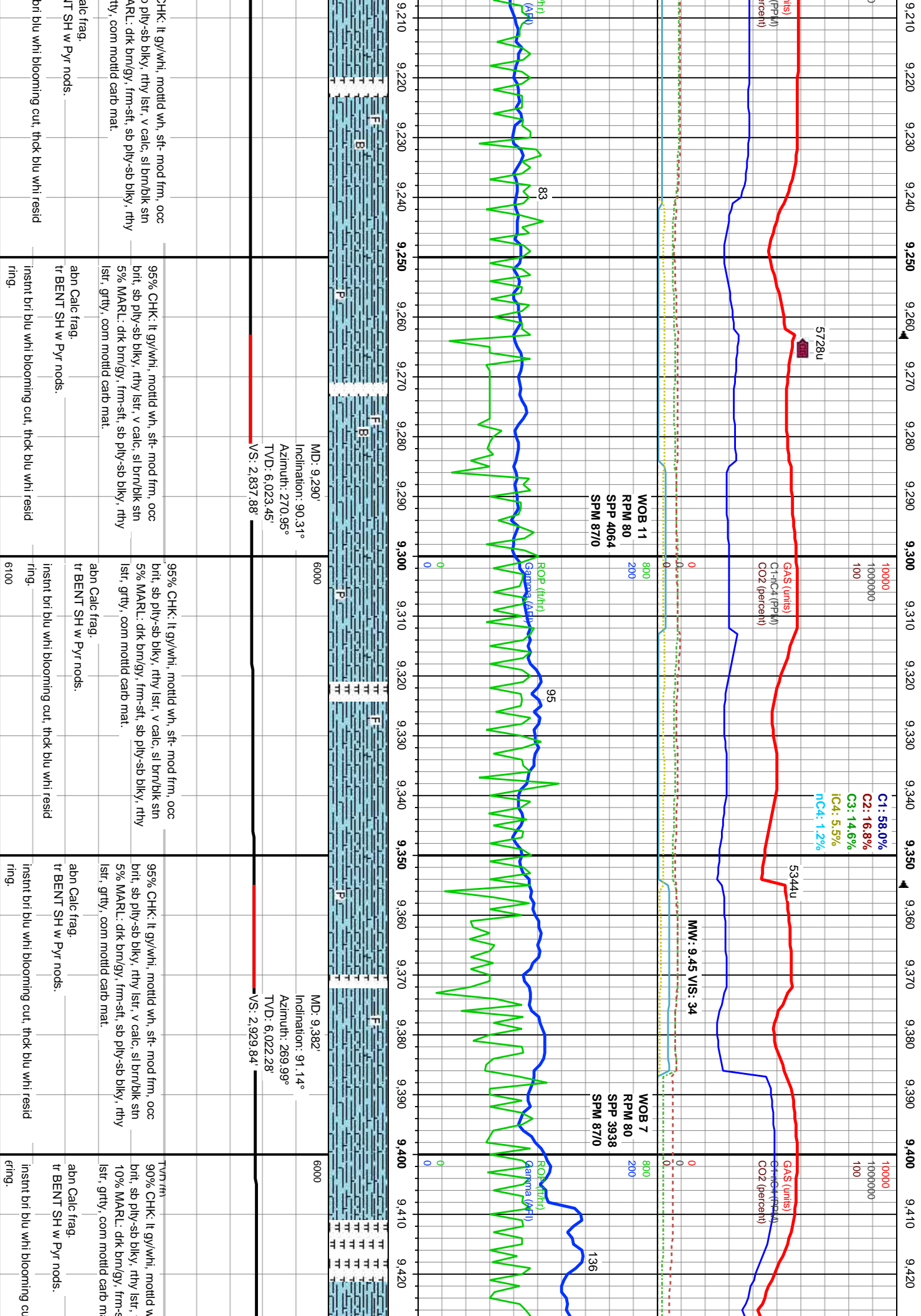
insnt brl blu whi blooming cut, thick blu whi resid ring.



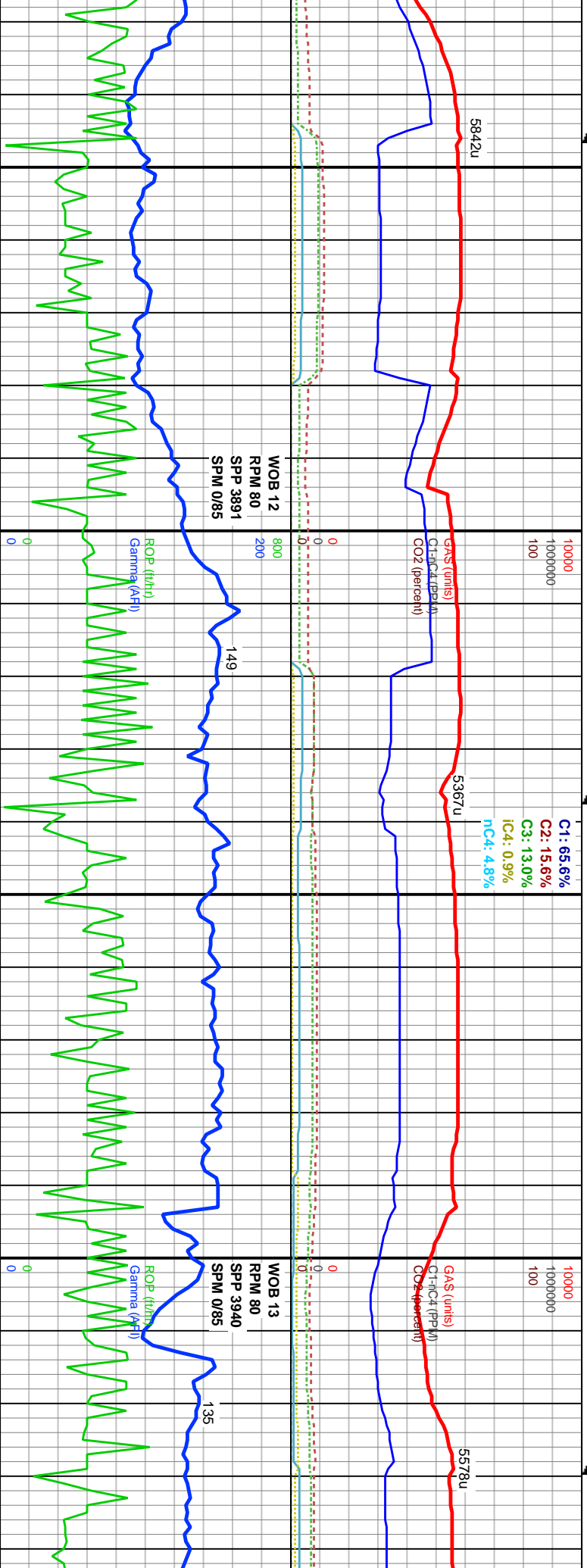
6000		MD: 8,829' Inclination: 89.63° Azimuth: 269.39° TVD: 6,021.28' VS: 2,376.91'	6000		MD: 8,921' Inclination: 89.54° Azimuth: 269.18° TVD: 6,021.95' VS: 2,468.91'	6000		
TVD (ft)			TVD (ft)			TVD (ft)		
90% CHK: lt gy/whi, mottld wh, sft- mod frm, occ brlt, sb ply-sb blkly, rthy lstr, v calc, sl brn/blk stn 10% MARL: dk brn/gy, frm-sft, sb ply-sb blkly, rthy lstr, grtly, com mottld carb mat.			90% CHK: lt gy/whi, mottld wh, sft- mod frm, occ brlt, sb ply-sb blkly, rthy lstr, v calc, sl brn/blk stn 10% MARL: dk brn/gy, frm-sft, sb ply-sb blkly, rthy lstr, grtly, com mottld carb mat.			90% CHK: lt gy/whi, mottld wh, sft- mod frm, occ brlt, sb ply-sb blkly, rthy lstr, v calc, sl brn/blk stn 5% MARL: dk brn/gy, frm-sft, sb ply-sb blkly, rthy lstr, grtly, com mottld carb mat.		
blooming cut, thck blu whi resid ring.			instnt bri blu whi blooming cut, thck blu whi resid ring.			instnt bri blu whi blooming cut, thck blu whi resid ring.		



600' MD: 9,013' Inclination: 89.11° Azimuth: 269.03° TVD: 6,023.03' VS: 2,560.9'		MD: 9,105' Inclination: 90.03° Azimuth: 268.97° TVD: 6,023.72' VS: 2,652.9'		MD: 9,198' 6000 Inclination: 90° Azimuth: 268.42° TVD: 6,023.7' VS: 2,745.89'	
frn, occ /blk stn biky, rthy	90% CHK: lt gy/whi, mottld wh, sft- mod frm, occ brt, sb ply-sb biky, rthy lstr, v calc, sl brn/blk stn 10% MARL: dk brn/gy, frm-sft, sb ply-sb biky, rthy lstr, grty, com mottld carb mat.	frn, occ /blk stn biky, rthy	90% CHK: lt gy/whi, mottld wh, sft- mod frm, occ brt, sb ply-sb biky, rthy lstr, v calc, sl brn/blk stn 10% MARL: dk brn/gy, frm-sft, sb ply-sb biky, rthy lstr, grty, com mottld carb mat.	frn, occ /blk stn biky, rthy	95% C brt, sft 5% MARL: dk brn/gy, frm-sft, sb ply-sb biky, rthy lstr, grty, com mottld carb mat.
instnt bri blu whi blooming cut, thick blu whi resid ring.	instnt bri blu whi blooming cut, thick blu whi resid ring.	instnt bri blu whi blooming cut, thick blu whi resid ring.	instnt bri blu whi blooming cut, thick blu whi resid ring.	instnt ring.	tr BENT SH w Pyr nods.
6100	6100	6100	6100	6100	6100



9,430 9,440 9,450 9,460 9,470 9,480 9,490 9,500 9,510 9,520 9,530 9,540 9,550 9,560 9,570 9,580 9,590 9,600 9,610 9,620 9,630 9,640



WOB 12
RPM 80
SPM 3891
SPM 0/85

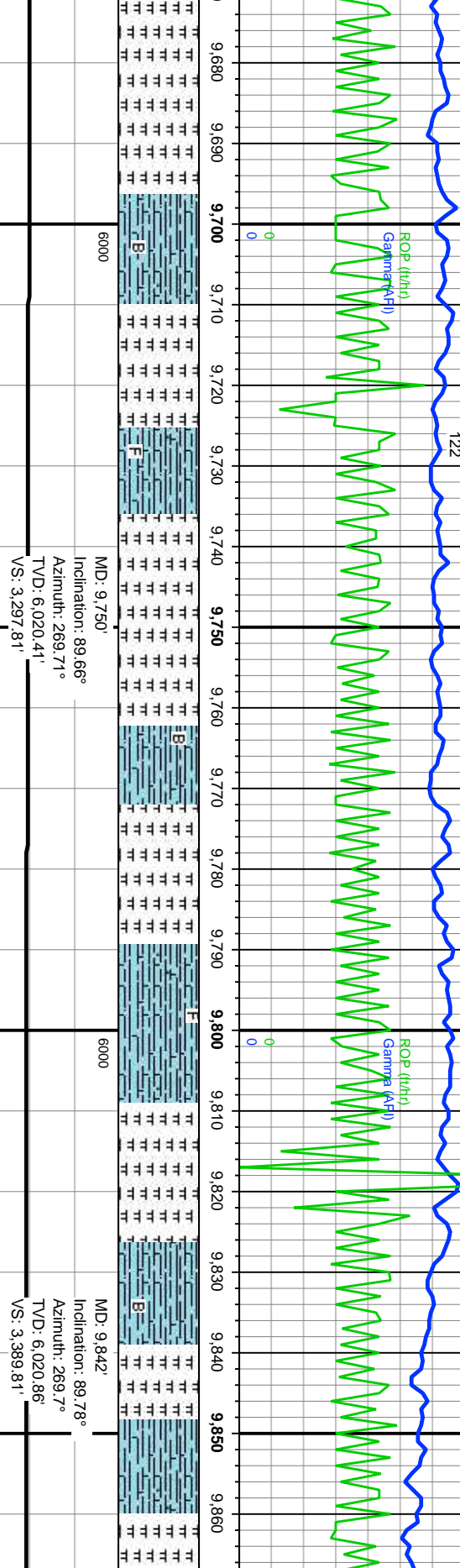
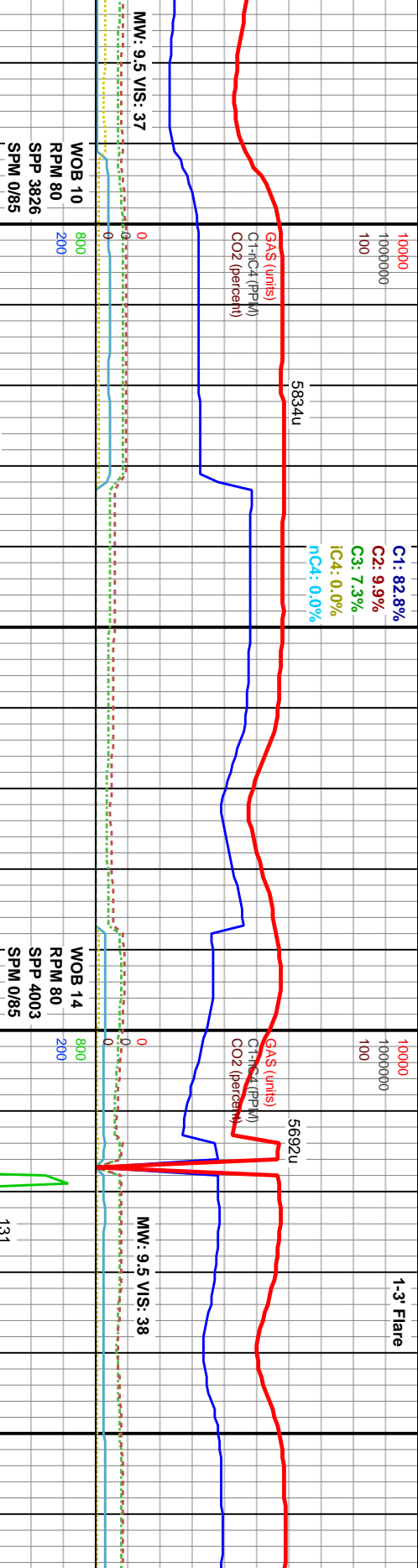
WOB 13
RPM 80
SPM 3940
SPM 0/85

MD: 9,474'
Inclination: 90.28°
Azimuth: 268.89°
TVD: 6,021.14'
VS: 3,021.83'

MD: 9,565'
Inclination: 90.8°
Azimuth: 269.81°
TVD: 6,020.29'
VS: 3,112.82'

95% CHK: lt gy/whi, mottld wh, sft- mod frm, occ bri, sb ply-sb biky, rthy lstr, v calc, sl brn/bk stn 5% MARL: drk brn/gy, frm-sft, sb ply-sb biky, rthy lstr, grty, com mottld carb mat.	70% CHK: lt gy/whi, mottld wh, sft- mod frm, occ bri, sb ply-sb biky, rthy lstr, v calc, sl brn/bk stn 30% MARL: drk brn/gy, frm-sft, sb ply-sb biky, rthy lstr, grty, com mottld carb mat.	60% CHK: lt gy/whi, mottld wh, sft- mod frm, occ bri, sb ply-sb biky, rthy lstr, v calc, sl brn/bk stn 40% MARL: drk brn/gy, frm-sft, sb ply-sb biky, rthy lstr, grty, com mottld carb mat.	50% MARL: drk brn/gy, frm-sft, sb ply-sb biky, rthy lstr, grty, com mottld carb mat.
abn Calc frag. tr BENT SH w Pyr nodes.	com Calc frag. tr BENT SH w Pyr nodes.	com Calc frag. tr BENT SH w Pyr nodes.	tr Calc frag. tr BENT SH w Pyr nodes.
instnt bri blu whi blooming cut, thck blu whi resid ring.	instnt bri blu whi blooming cut, thck blu whi resid ring.	instnt bri blu whi blooming cut, thck blu whi resid ring.	instnt bri blu whi blooming cut, thck blu whi resid ring.

9.650 9.660 9.670 9.680 9.690 9.700 9.710 9.720 9.730 9.740 9.750 9.760 9.770 9.780 9.790 9.800 9.810 9.820 9.830 9.840 9.850 9.860



MD: 9.658' Inclination: 89.69° Azimuth: 269.21° TVD: 6.019.89' VS: 3.205.82'	MD: 9.750' Inclination: 89.66° Azimuth: 269.71° TVD: 6.020.41' VS: 3.297.81'	MD: 9.842' Inclination: 89.78° Azimuth: 269.7° TVD: 6.020.86' VS: 3.389.81'
60% MARL: dk brn/gy, frm-sft, sb pty-sb blk, rthy lst, grty, com mottld carb mat. 40% CHK: lt gy/whi, mottld wh, sft- mod frm, occ bri, sb pty-sb blk, rthy lst, v calc, sl brn/blk stn com Calc frag. rr BENT SH w Pyr nodes. insnt bri blu whi blooming cut, thck blu whi resid ring.	60% MARL: dk brn/gy, frm-sft, sb pty-sb blk, rthy lst, grty, com mottld carb mat. 40% CHK: lt gy/whi, mottld wh, sft- mod frm, occ bri, sb pty-sb blk, rthy lst, v calc, sl brn/blk stn com Calc frag. rr BENT SH w Pyr nodes. insnt bri blu whi blooming cut, thck blu whi resid ring.	60% CHK: lt gy/whi bri, sb pty-sb blk 40% MARL: dk brn/gy, frm-sft, sb pty-sb blk, rthy lst, grty, com mottld carb mat. com Calc frag. rr BENT SH w Pyr nodes. insnt bri blu whi blooming cut, thck blu whi resid ring.

9,870 9,880 9,890 9,900 9,910 9,920 9,930 9,940 9,950 9,960 9,970 9,980 9,990 10,000 10,010 10,020 10,030 10,040 10,050 10,060 10,070 10,080

10000
1000000
100

C1: 57.4%
C2: 14.4%
C3: 14.4%
iC4: 1.3%
nC4: 7.7%

5875u

GAS (units)
C1-iC4 (PPL)
CO2 (percent)

0
0
0

WOB 15
RPM 80
SPM 4132
SPM 0/85

WOB 7
RPM 80
SPM 3640
SPM 840

10000
1000000
100

C1: 57.4%
C2: 14.4%
C3: 14.4%
iC4: 1.3%
nC4: 7.7%

5825u

GAS (units)
C1-iC4 (PPL)
CO2 (percent)

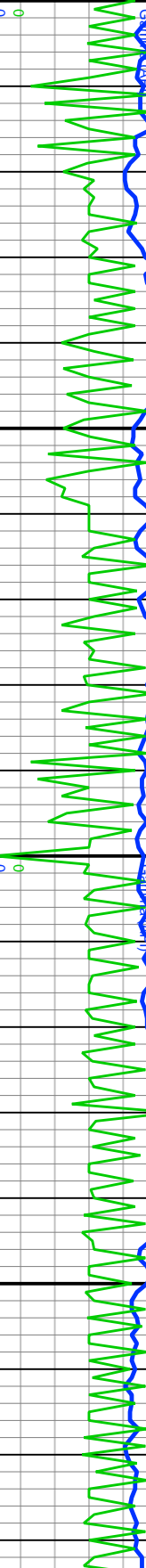
0
0
0

105

107

ROP (ft/hr)

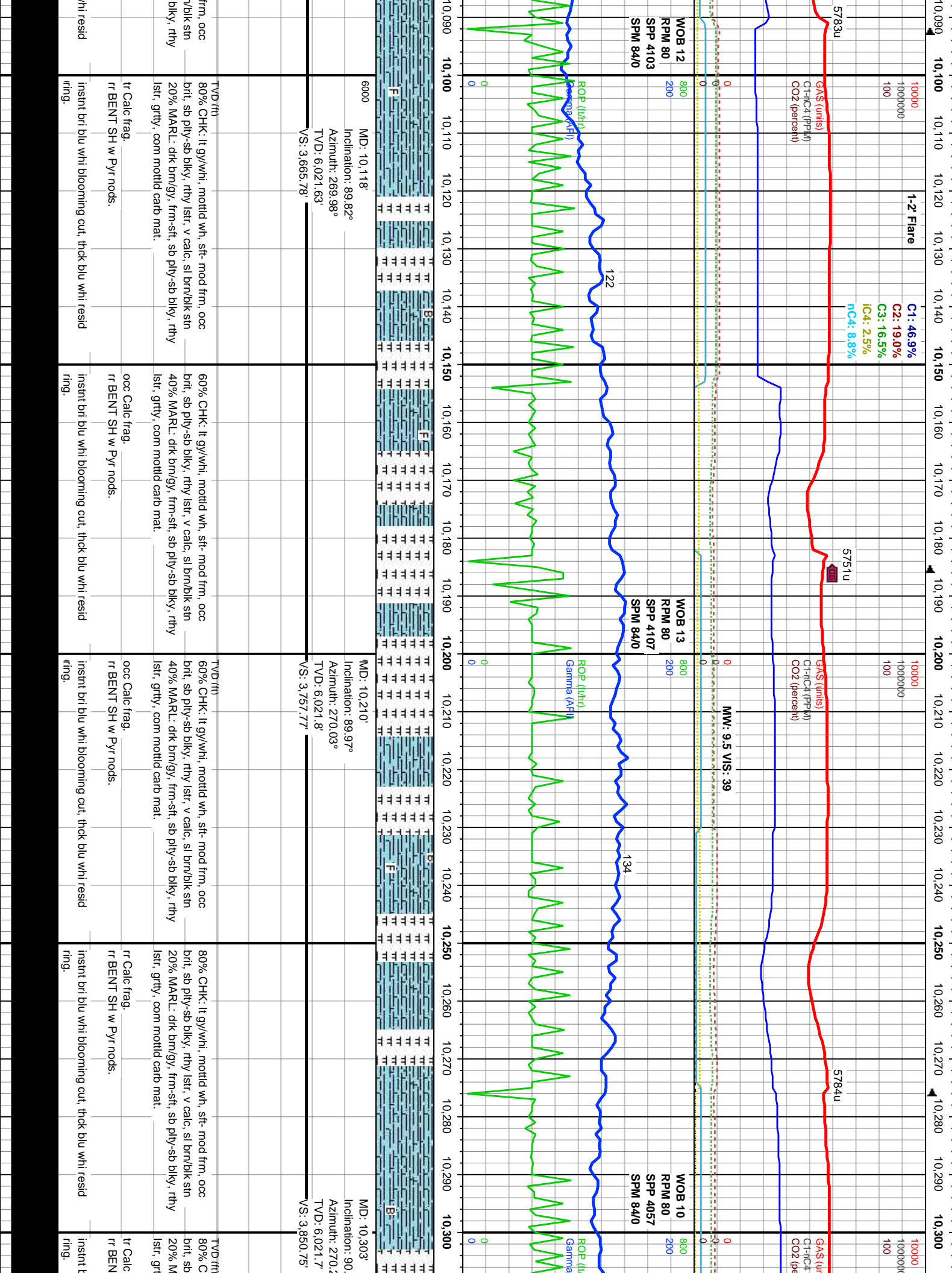
ROP (ft/hr)



6000
MD: 9,934'
Inclination: 90°
Azimuth: 269.85°
TVD: 6,021.04'
VS: 3,481.8'

6000
MD: 10,026'
Inclination: 89.72°
Azimuth: 269.64°
TVD: 6,021.26'
VS: 3,573.79'

70% CHK: lt gy/whi, mottld wh, sft- mod frm, occ bri, sb ply-sb blk, rthy lstr, v calc, sl brn/bk sn 30% MARL: dk brn/gy, frm-sft, sb ply-sb blk, rthy lstr, grty, com mottld carb mat.	90% CHK: lt gy/whi, mottld wh, sft- mod frm, occ bri, sb ply-sb blk, rthy lstr, v calc, sl brn/bk sn 10% MARL: dk brn/gy, frm-sft, sb ply-sb blk, rthy lstr, grty, com mottld carb mat.	95% CHK: lt gy/whi, mottld wh, sft- mod frm, occ bri, sb ply-sb blk, rthy lstr, v calc, sl brn/bk sn 5% MARL: dk brn/gy, frm-sft, sb ply-sb blk, rthy lstr, grty, com mottld carb mat.
TVD (ft)	TVD (ft)	TVD (ft)
com Calc frag. rr BENT SH w Pyr nods.	rr Calc frag. rr BENT SH w Pyr nods.	rr Calc frag. rr BENT SH w Pyr nods.
instnt bri blu whi blooming cut, thick blu whi resid ring.	instnt bri blu whi blooming cut, thick blu whi resid ring.	instnt bri blu whi blooming cut, thick blu whi resid ring.

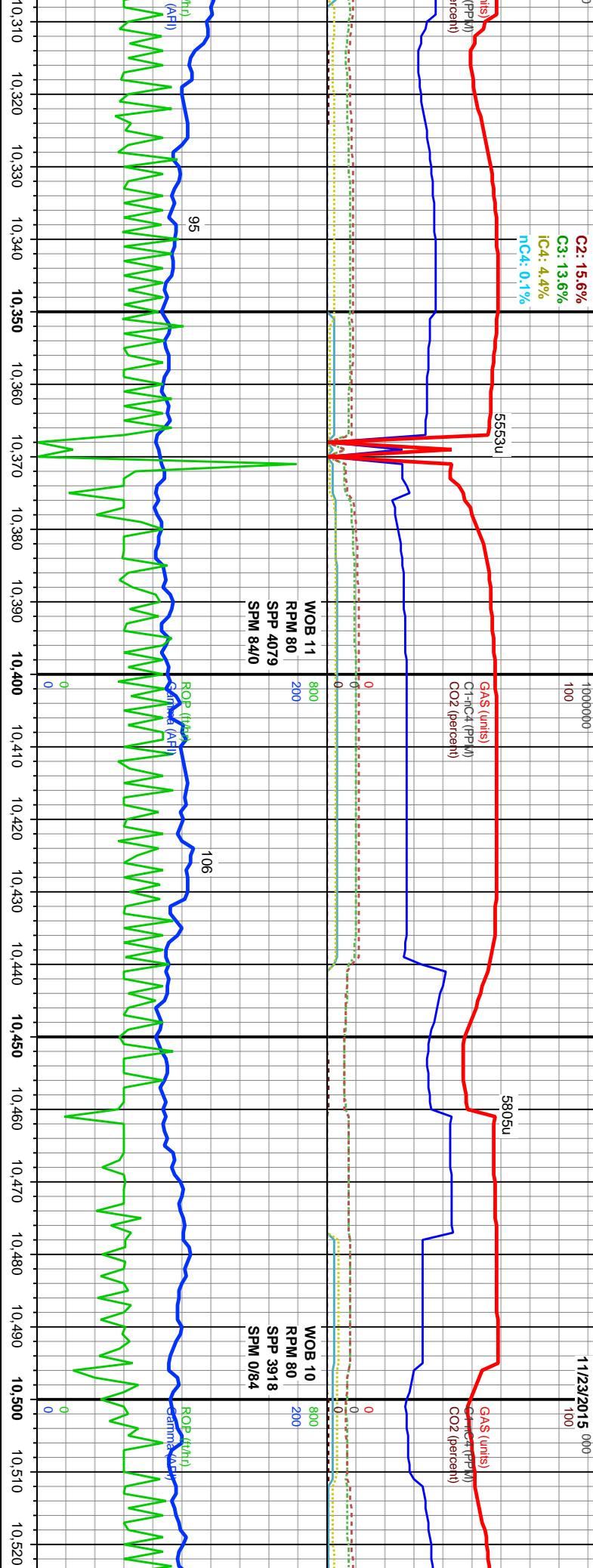


10,310 10,320 10,330 10,340 10,350 10,360 10,370 10,380 10,390 10,400 10,410 10,420 10,430 10,440 10,450 10,460 10,470 10,480 10,490 10,500 10,510 10,520

1-3' Flare

C1: 63.6%
C2: 15.6%
C3: 13.6%
iC4: 4.4%
nC4: 0.1%

MINDEPTH 10
11/23/2015 000



MD: 10,395'
Inclination: 90.34°
Azimuth: 270.66°
TVD: 6,021.31'
VS: 3.942.72'

MD: 10,480'
Inclination: 90.28°
Azimuth: 270.66°
TVD: 6,020.85'
VS: 4,027.69'

CHK: lt gy/wht, mottld wh, sft- mod frm, occ ply-sb blk, rthy lstr, v calc, sl brn/bk sin MARL: dk brn/gy, frm-sft, sb ply-sb blk, rthy ly, com mottld carb mat.	95% CHK: lt gy/wht, mottld wh, sft- mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/bk sin 5% MARL: dk brn/gy, frm-sft, sb ply-sb blk, rthy lstr, grty, com mottld carb mat.	TVD (ft) 90% CHK: lt gy/wht, mottld wh, sft- mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/bk sin 10% MARL: dk brn/gy, frm-sft, sb ply-sb blk, rthy lstr, grty, com mottld carb mat.	100% CHK: lt gy/wht, mottld wh, sft- mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/bk sin 1% MARL: dk brn/gy, frm-sft, sb ply-sb blk, rthy lstr, grty, com mottld carb mat.	TVD (ft) 80% CHK: lt gy/wht, mottld wh, sft- mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/bk sin 20% MARL: dk brn/gy, frm-sft, sb ply-sb blk, rthy lstr, grty, com mottld carb mat.
frag.	rr Calc frag.	rr Calc frag.	rr Calc frag.	com Calc frag.
T SH w Pyr nods.	rr BENT SH w Pyr nods.	rr BENT SH w Pyr nods.	rr BENT SH w Pyr nods.	rr BENT SH w Pyr nods.
brt blu whi blooming cut, thck blu whi resid ring.	instnt brt blu whi blooming cut, thck blu whi resid ring.	instnt brt blu whi blooming cut, thck blu whi resid ring.	instnt brt blu whi blooming cut, thck blu whi resid ring.	instnt brt blu whi blooming cut, thck blu whi resid ring.

10,530 10,540 10,550 10,560 10,570 10,580 10,590 10,600 10,610 10,620 10,630 10,640 10,650 10,660 10,670 10,680 10,690 10,700 10,710 10,720 10,730 10,740

C1: 64.9%
C2: 15.7%
C3: 13.2%
iC4: 4.1%
nC4: 1.1%

C1: 42.9%
C2: 11.6%
C3: 15.9%
iC4: 0.0%
nC4: 8.1%

5827u

5032u

Gas (units)
C1-iC4 (PPM)
CO2 (percent)

Gas (units)
C1-iC4 (PPM)
CO2 (percent)

MW: 9.1 VIS: 37

113

153

152

ROP (ft/hr)
Gamma (API)
SPP 3990
SPM 0/84

ROP (ft/hr)
Gamma (API)
SPP 3874
SPM 0/84



MD: 10,565'
Inclination: 90.15°
Azimuth: 270.82°
TVD: 6,020.53'
VS: 4,112.65'

MD: 10,650'
Inclination: 90.37°
Azimuth: 270.95°
TVD: 6,020.14'
VS: 4,197.61'

MD: 10,735'
Inclination: 90.25°
Azimuth: 270.31°
TVD: 6,019.68'
VS: 4,282.57'

60% MARL: dk brn/gy, frm-sft, sb ply-sb blk, rthy
lstr, grty, com mottld carb mat.
40% CHK: lt gy/whi, mottld wh, sft- mod frm, occ
brt, sb ply-sb blk, rthy lstr, v calc, sl brn/blk stn

60% MARL: dk brn/gy, frm-sft, sb ply-sb blk, rthy
lstr, grty, com mottld carb mat.
40% CHK: lt gy/whi, mottld wh, sft- mod frm, occ
brt, sb ply-sb blk, rthy lstr, v calc, sl brn/blk stn

80% MARL: dk brn/gy, frm-sft, sb ply-sb blk, rthy
lstr, grty, com mottld carb mat.
20% CHK: lt gy/whi, mottld wh, sft- mod frm, occ
brt, sb ply-sb blk, rthy lstr, v calc, sl brn/blk stn

90% MARL: dk brn/gy, frm-sft, sb ply-sb blk, rthy
lstr, grty, com mottld carb mat.
10% CHK: lt gy/whi, mottld wh, sft- mod frm, occ
brt, sb ply-sb blk, rthy lstr, v calc, sl brn/blk stn

com Calc frag.
tr BENT SH w Pyr nodes.

com Calc frag.
tr BENT SH w Pyr nodes.

com Calc frag.
tr BENT SH w Pyr nodes.

com Calc frag.
tr BENT SH w Pyr nodes.

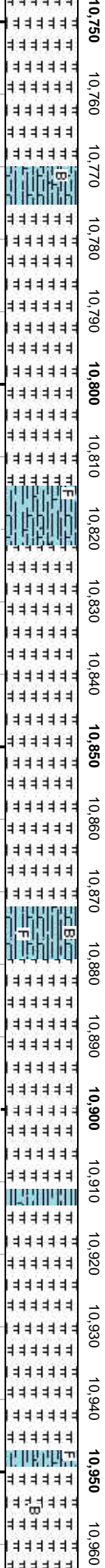
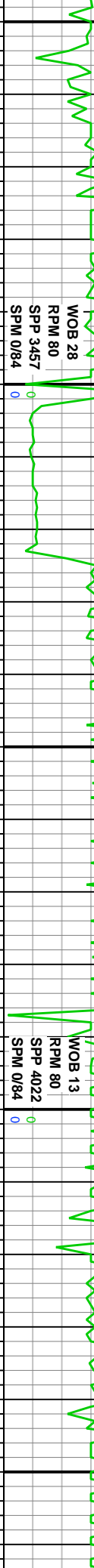
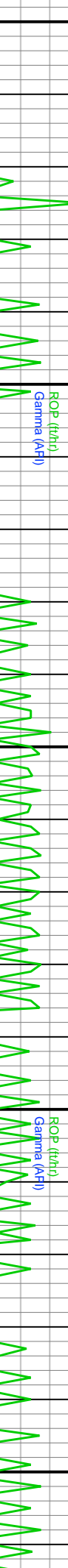
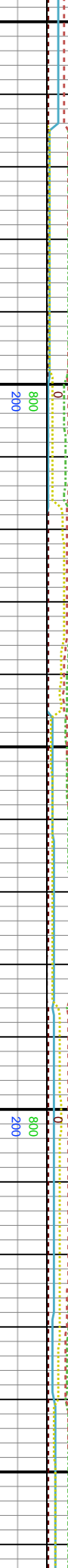
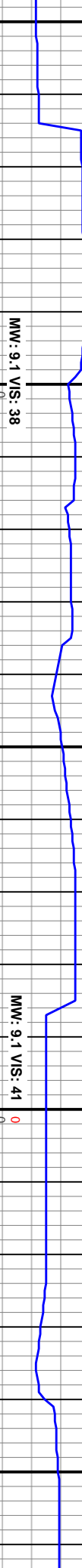
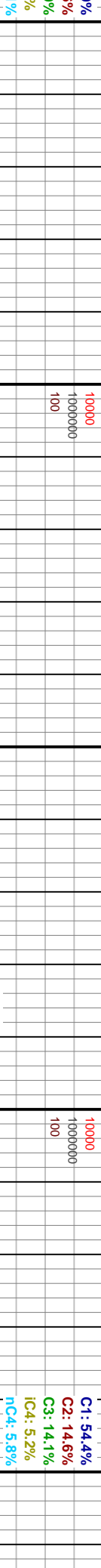
instnt bri blu whi blooming cut, thck blu whi resid
ring.

instnt bri blu whi blooming cut, thck blu whi resid
ring.

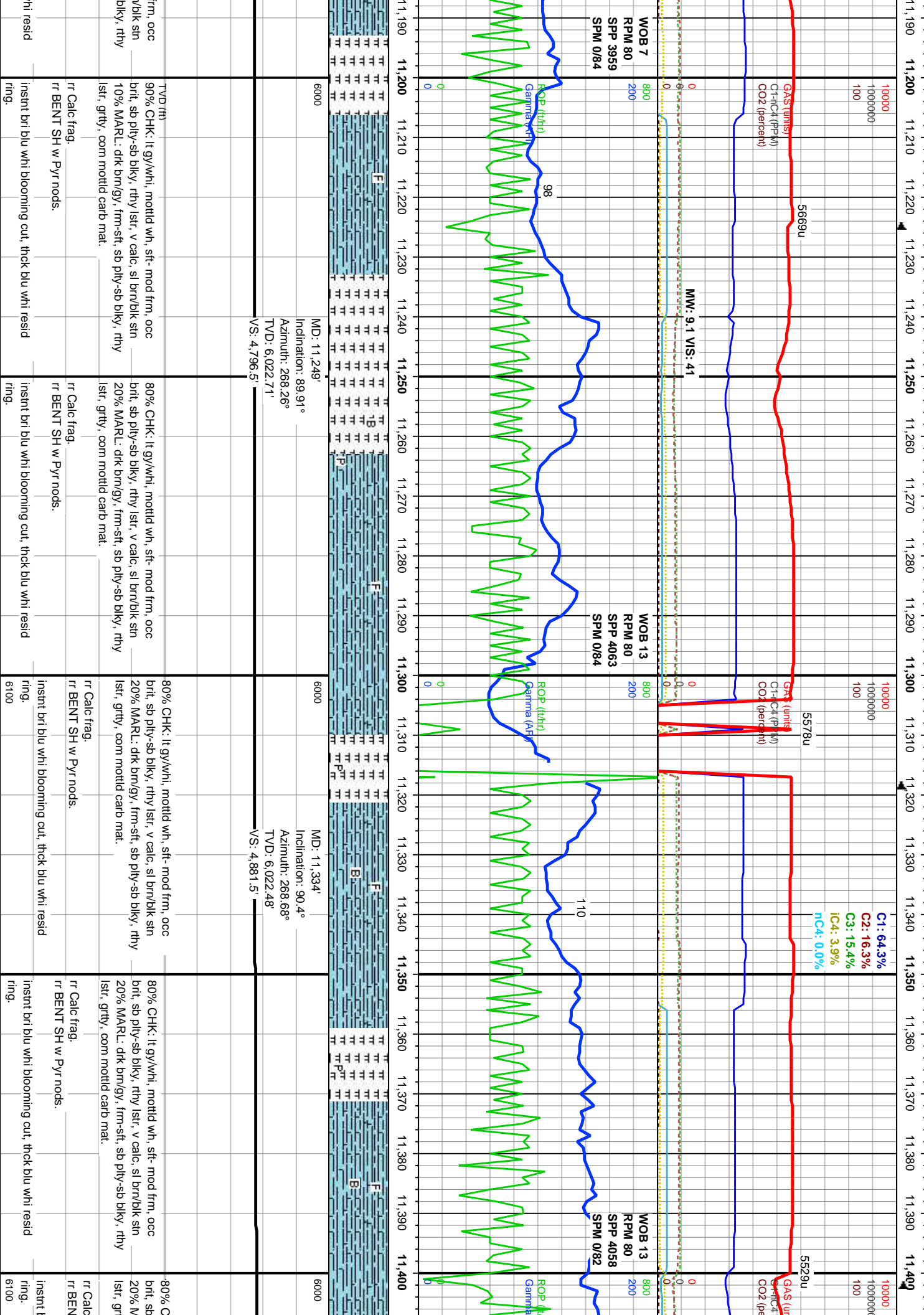
mod fst mod bri blu whi blooming cut, thck blu
whi resid ring.

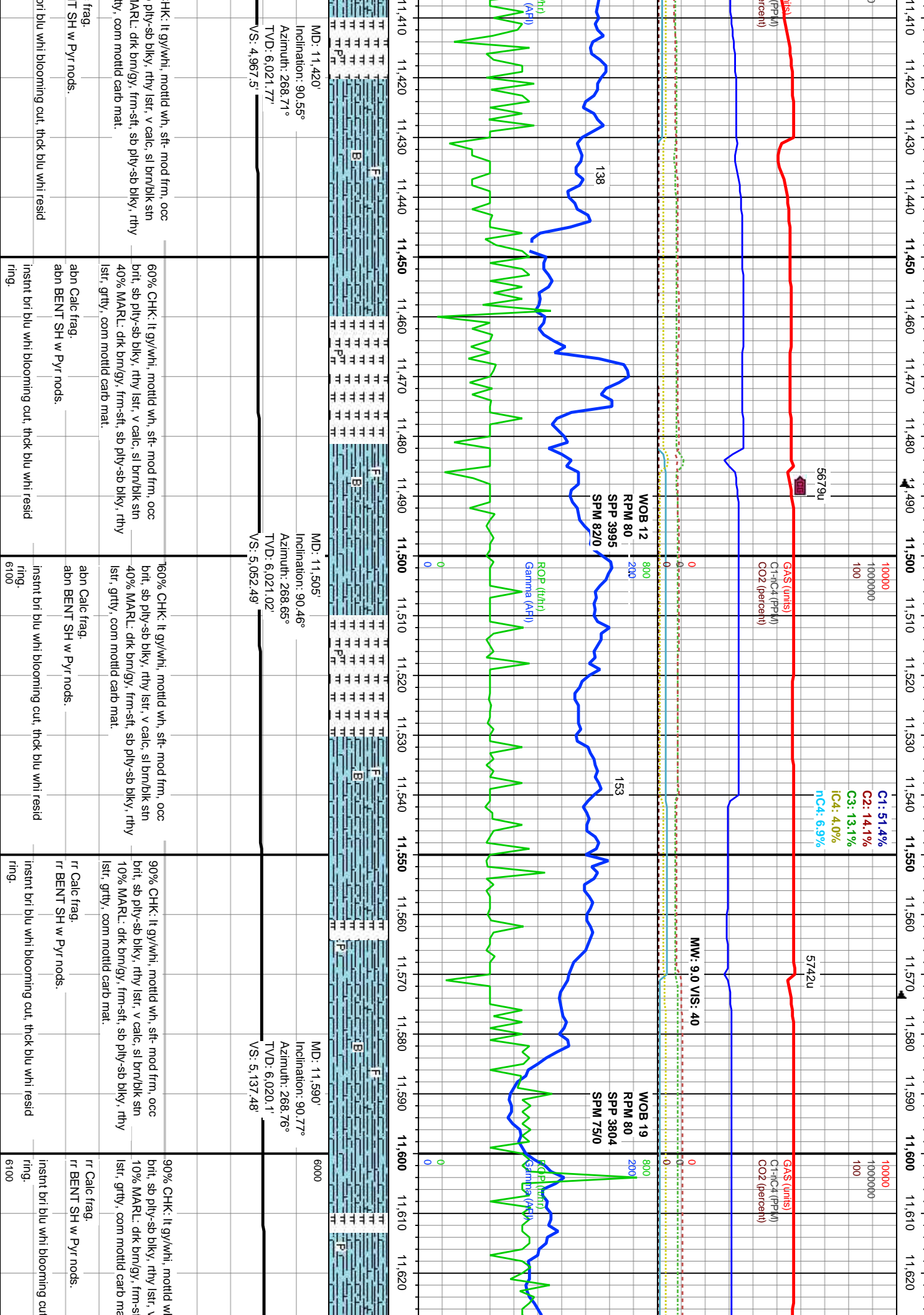
sl fst bri blu whi blooming cut, thck blu whi resid
ring.

10,750 10,760 10,770 10,780 10,790 10,800 10,810 10,820 10,830 10,840 10,850 10,860 10,870 10,880 10,890 10,900 10,910 10,920 10,930 10,940 10,950 10,960



90% MARL: dk brm/gy, frm-sft, sb pty-sb blk, rthy lstr, grty, com mottld carb mat. 10% CHK: lt gy/whi, mottld wh, sft- mod frm, occ brt, sb pty-sb blk, rthy lstr, v calc, sl brn/blk stn	80% MARL: dk brm/gy, frm-sft, sb pty-sb blk, rthy lstr, grty, com mottld carb mat. 20% CHK: lt gy/whi, mottld wh, sft- mod frm, occ brt, sb pty-sb blk, rthy lstr, v calc, sl brn/blk stn	90% MARL: dk brm/gy, frm-sft, sb pty-sb blk, rthy lstr, grty, com mottld carb mat. 10% CHK: lt gy/whi, mottld wh, sft- mod frm, occ brt, sb pty-sb blk, rthy lstr, v calc, sl brn/blk stn	100% MARL: dk rthy lstr, grty, com r CHK: lt gy/whi, sb pty-sb blk, rth
com Calc frag. rr BENT SH w Pyr nodes.	rr Calc frag. rr BENT SH w Pyr nodes.	rr Calc frag. rr BENT SH w Pyr nodes.	abndt Calc frag. rr BENT SH w Pyr
mod fst brt blu whi blooming cut, thick blu whi resid ring.	mod fst brt blu whi blooming cut, thick blu whi resid ring.	mod fst brt blu whi blooming cut, thick blu whi resid ring.	mod fst mod brt b whi resid ring.





11,850 11,860 11,870 11,880 11,890 11,900 11,910 11,920 11,930 11,940 11,950 11,960 11,970 11,980 11,990 12,000 12,010 12,020 12,030 12,040 12,050 12,060

10000
1000000
100

C1: 62.7%
C2: 15.2%
C3: 14.3%
iC4: 0.8%
nC4: 7.0%

5691u

GAS (units)
C1-iC4 (PPM)
CO2 (percent)

0 MW: 9.2 VIS: 42

WOB 12
RPM 80
SPP 3868
SPM 0/82

800
200

ROP (ft/hr)
Gamma (AFI)

96

0
0

MD: 11,932'
Inclination: 89.48°
Azimuth: 270.06°
TVD: 6,017.05'
VS: 5,479.42'

6000

50% CHK: lt gy/whi, mottld wh, sft- mod frm, occ
brlt, sb ply-sb blkly, rthy lstr, v calc, sl brn/bk sin
50% MARL: dk brn/gy, frm-sft, sb ply-sb blkly, rthy
lstr, grtty, com mottld carb mat.

rr Calc frag.
rr BENT SH w Pyr nods.
instnt bri blu whi blooming cut, thick blu whi resid
ring.

10000
1000000
100

5231u

GAS (units)
C1-iC4 (PPM)
CO2 (percent)

0 MW: 9.2 VIS: 40

WOB 16
RPM 80
SPP 3553
SPM 0/75

800
200

ROP (ft/hr)
Gamma (AFI)

96

0
0

MD: 12,018'
Inclination: 87.87°
Azimuth: 270.1°
TVD: 6,019.04'
VS: 5,565.38'

6000

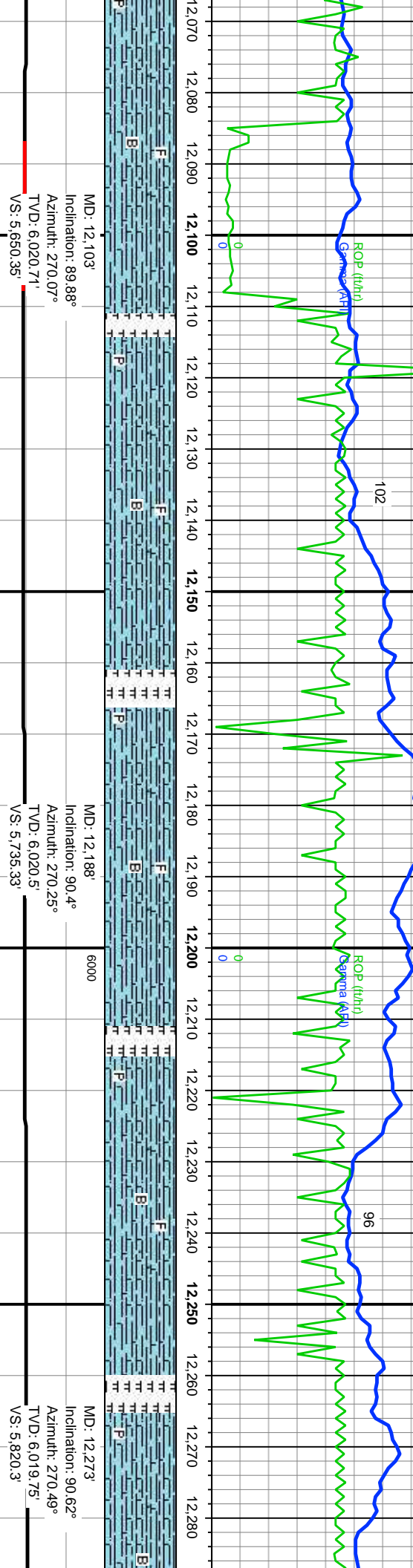
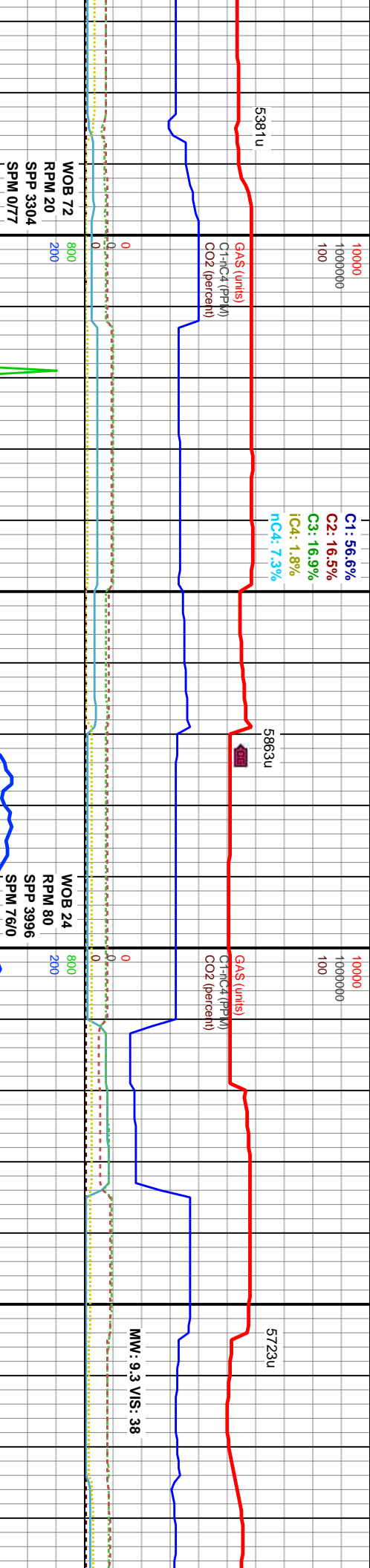
95% CHK: lt gy/whi, mottld wh, sft- mod frm, occ
brlt, sb ply-sb blkly, rthy lstr, v calc, sl brn/bk sin
5% MARL: dk brn/gy, frm-sft, sb ply-sb blkly, rthy
lstr, grtty, com mottld carb mat.

rr Calc frag.
rr BENT SH w Pyr nods.
instnt bri blu whi blooming cut, thick blu whi resid
ring.

95% CHK: lt gy/wh
brlt, sb ply-sb blkly
5% MARL: dk brn/
lstr, grtty, com mott

rr Calc frag.
rr BENT SH w Pyr
instnt bri blu whi blo

12,070 12,080 12,090 12,100 12,110 12,120 12,130 12,140 12,150 12,160 12,170 12,180 12,190 12,200 12,210 12,220 12,230 12,240 12,250 12,260 12,270 12,280



90% CHK: lt gy/whi, mottld wh, sft- mod frm, occ brlt, sb ply-sb blkly, rthy lstr, v calc, sl brn/bk sin 10% MARL: dk brn/gy, frm-sft, sb ply-sb blkly, rthy lstr, grty, com mottld carb mat.

90% CHK: lt gy/whi, mottld wh, sft- mod frm, occ brlt, sb ply-sb blkly, rthy lstr, v calc, sl brn/bk sin 10% MARL: dk brn/gy, frm-sft, sb ply-sb blkly, rthy lstr, grty, com mottld carb mat.

90% CHK: lt gy/whi, mottld wh, sft- mod frm, occ brlt, sb ply-sb blkly, rthy lstr, v calc, sl brn/bk sin 10% MARL: dk brn/gy, frm-sft, sb ply-sb blkly, rthy lstr, grty, com mottld carb mat.

rr Calc frag.
rr BENT SH w Pyr nods.
insnt bri blu whi blooming cut, thck blu whi resid ring.

rr Calc frag.
rr BENT SH w Pyr nods.
insnt bri blu whi blooming cut, thck blu whi resid ring.

rr Calc frag.
rr BENT SH w Pyr nods.
insnt bri blu whi blooming cut, thck blu whi resid ring.

12,290 12,300 12,310 12,320 12,330 12,340 12,350 12,360 12,370 12,380 12,390 12,400 12,410 12,420 12,430 12,440 12,450 12,460 12,470 12,480 12,490 12,500

10000
1000000
100

C1: 62.5%
C2: 10.4%
C3: 13.1%
iC4: 1.6%
nC4: 7.0%

GAS (units)
C1-iC4 (PPM)
CO2 (percent)

5794u

WOB 21
RPM 80
SPP 3964
SPM 77/0

10000
1000000
100

5771u

GAS (units)
C1-iC4 (PPM)
CO2 (percent)

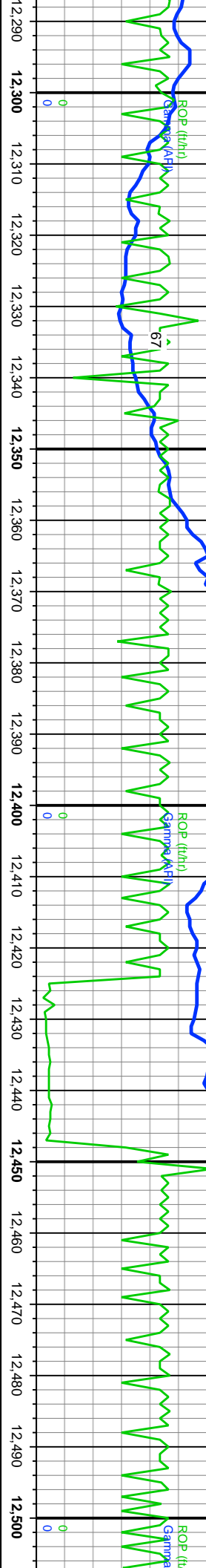
MW: 9.3 VIS: 38

WOB 24
RPM 80
SPP 4009
SPM 76/0

10000
1000000
100

GAS (units)
C1-iC4 (PPM)
CO2 (percent)

WOB 23
RPM 81
SPP 3953
SPM 76/0



ROP (ft/hr)
Gamma Ray (API)

ROP (ft/hr)
Gamma Ray (API)

ROP (ft/hr)
Gamma Ray (API)

MD: 12,359'
Inclination: 90.8°
Azimuth: 270.65°
TVD: 6,018.68'
VS: 5,906.26'

MD: 12,444'
Inclination: 89.82°
Azimuth: 269.99°
TVD: 6,018.22'
VS: 5,991.24'

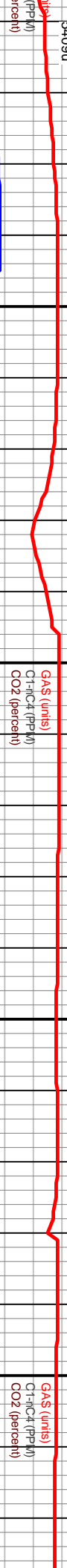
6000
90% CHK: lt gy/whi, mottld wh, sft- mod frm, occ
brlt, sb ply-sb blkly, rthy lstr, v calc, sl brn/bk sin
10% MARL: dk brn/gy, frm-sft, sb ply-sb blkly, rthy
lstr, grtly, com mottld carb mat.
rr Calc frag.
rr BENT SH w Pyr nods.
insnt bri blu whi blooming cut, thck blu whi resid
ring.
6100

6000
95% CHK: lt gy/whi, mottld wh, sft- mod frm, occ
brlt, sb ply-sb blkly, rthy lstr, v calc, sl brn/bk sin
5% MARL: dk brn/gy, frm-sft, sb ply-sb blkly, rthy
lstr, grtly, com mottld carb mat.
rr Calc frag.
rr BENT SH w Pyr nods.
insnt bri blu whi blooming cut, thck blu whi resid
ring.
6100

6000
95% C
brlt, sb ply-sb blkly, rthy lstr, v calc, sl brn/bk sin
5% MARL: dk brn/gy, frm-sft, sb ply-sb blkly, rthy
lstr, grtly, com mottld carb mat.
rr Calc frag.
rr BENT SH w Pyr nods.
insnt bri blu whi blooming cut, thck blu whi resid
ring.
6100

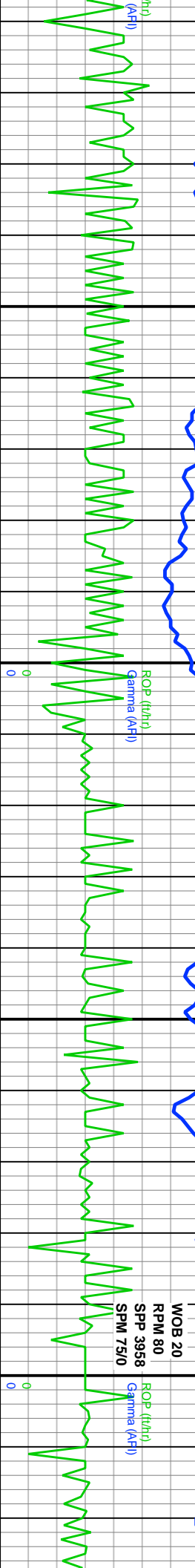
12,519 12,520 12,530 12,540 12,550 12,560 12,570 12,580 12,590 12,600 12,610 12,620 12,630 12,640 12,650 12,660 12,670 12,680 12,690 12,700 12,710 12,720

C1: 56.2%
C2: 14.0%
C3: 13.3%
iC4: 2.2%
nC4: 6.8%



MW: 9.3 VIS: 39

WOB 18
RPM 80
SPM 4029
SPM 76/0



MD: 12,530'
Inclination: 89.75°
Azimuth: 269.69°
TVD: 6,018.54'
VS: 6,077.23'

MD: 12,615'
Inclination: 90.09°
Azimuth: 269.93°
TVD: 6,018.66'
VS: 6,162.22'

MD: 12,702'
Inclination: 90.25°
Azimuth: 269.99°
TVD: 6,018.4'
VS: 6,249.21'

HK: lt gy/whi, mottld wh, sft- mod frm, occ ply-sb blkly, rthy lst, v calc, sl brn/bk sh RL: dk brn/gy, frm-sft, sb ply-sb blkly, rthy ly, com mottld carb mat.	90% CHK: lt gy/whi, mottld wh, sft- mod frm, occ brlt, sb ply-sb blkly, rthy lst, v calc, sl brn/bk sh 10% MARL: dk brn/gy, frm-sft, sb ply-sb blkly, rthy lst, grty, com mottld carb mat.	95% MARL: dk brn/gy, frm-sft, sb ply-sb blkly, rthy lst, grty, com mottld carb mat. 5% CHK: lt gy/whi, mottld wh, sft- mod frm, occ brlt, sb ply-sb blkly, rthy lst, v calc, sl brn/bk sh.	mod fst bri blu whi blooming cut, thick blu whi resid ring.
frag. T SH w Pyr nods.	rr Calc frag. rr BENT SH w Pyr nods.	rr Calc frag. rr BENT SH w Pyr nods.	mod fst bri blu whi blooming cut, thick blu whi resid ring.
bri blu whi blooming cut, thick blu whi resid ring.	instnt bri blu whi blooming cut, thick blu whi resid ring.	mod fst bri blu whi blooming cut, thick blu whi resid ring.	mod fst bri blu whi blooming resid ring.

12,730 12,740 12,750 12,760 12,770 12,780 12,790 12,800 12,810 12,820 12,830 12,840 12,850 12,860 12,870 12,880 12,890 12,900 12,910 12,920 12,930 12,940

C1: 55.9%
C2: 15.5%
C3: 15.7%
iC4: 1.9%
nC4: 8.1%

10000
1000000
100

C1: 66.3
C2: 14.6
C3: 12.3
iC4: 0.6
nC4: 5.5

C1: 66.3
C2: 14.6
C3: 12.3
iC4: 0.6
nC4: 5.5

5579u

5882u

5904u

MW: 9.3 VIS: 41

MW: 9.3 VIS: 40

WOB 8
RPM 80
SPP 4062
SPM 79/0

WOB 8
RPM 80
SPP 3925
SPM 78/0

ROP (ft/hr)
Gamma (AFI)

ROP (ft/hr)
Gamma (AFI)

89

59

136

MD: 12,787'
Inclination: 90.34°
Azimuth: 269.72°
TVD: 6,017.97'
VS: 6,334.2'

MD: 12,872'
Inclination: 89.82°
Azimuth: 269.85°
TVD: 6,017.85'
VS: 6,419.19'

6000

6000

TVD (ft)

TVD (ft)

ft, sb ply-sb blk, rthy

90% MARL: dk brn/gy, frm-sft, sb ply-sb blk, rthy
10% CHK: lt gy/whi, mottld wh, sft- mod frm, occ
bri, sb ply-sb blk, rthy lstr, v calc, sl brn/bk stn.

90% CHK: lt gy/whi, mottld wh, sft- mod frm, occ
bri, sb ply-sb blk, rthy lstr, v calc, sl brn/bk stn
10% MARL: dk brn/gy, frm-sft, sb ply-sb blk, rthy
lstr, gfty, com mottld carb mat.

90% CHK: lt gy/whi, mottld wh, sft- mod frm, occ
bri, sb ply-sb blk, rthy lstr, v calc, sl brn/bk stn
10% MARL: dk brn/gy, frm-sft, sb ply-sb blk, rthy
lstr, gfty, com mottld carb mat.

sfr- mod frm, occ
calc, sl brn/bk stn.

90% MARL: dk brn/gy, frm-sft, sb ply-sb blk, rthy
10% CHK: lt gy/whi, mottld wh, sft- mod frm, occ
bri, sb ply-sb blk, rthy lstr, v calc, sl brn/bk stn.

90% CHK: lt gy/whi, mottld wh, sft- mod frm, occ
bri, sb ply-sb blk, rthy lstr, v calc, sl brn/bk stn
10% MARL: dk brn/gy, frm-sft, sb ply-sb blk, rthy
lstr, gfty, com mottld carb mat.

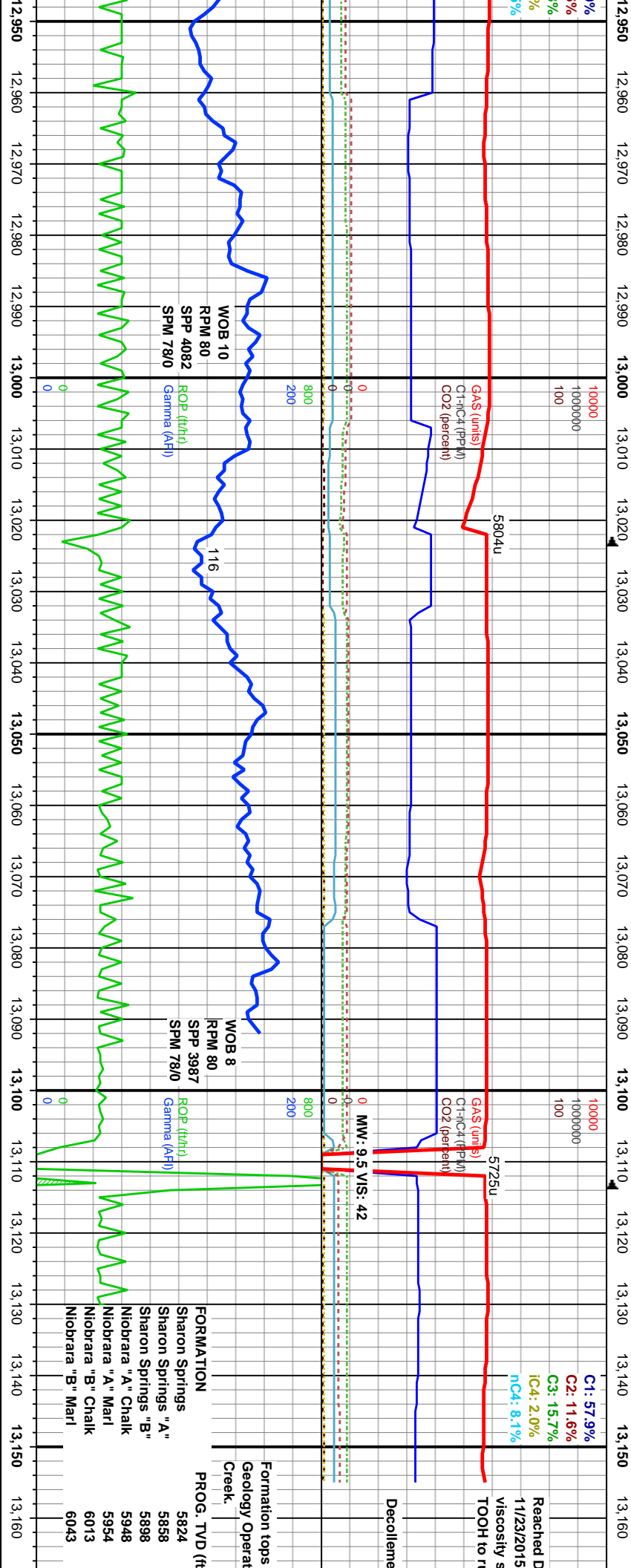
90% CHK: lt gy/whi, mottld wh, sft- mod frm, occ
bri, sb ply-sb blk, rthy lstr, v calc, sl brn/bk stn
10% MARL: dk brn/gy, frm-sft, sb ply-sb blk, rthy
lstr, gfty, com mottld carb mat.

cut, thck blu whi

good blu whi blooming cut, thck blu whi resid
ring.

rr Calc frag.
insnt bri blu whi blooming cut, thck blu whi resid
ring.

rr Calc frag.
insnt bri blu whi blooming cut, thck blu whi resid
ring.



MD: 12,958'		MD: 13,045'		MD: 13,087'		MD: 13,155'	
Inclination: 89.48°		Inclination: 89.63°		Inclination: 89.82°		Inclination: 89.82°	
Azimuth: 269.45°		Azimuth: 269.44°		Azimuth: 269.69°		Azimuth: 269.69°	
TVD: 6,018.37'		TVD: 6,019.05'		TVD: 6,019.25'		TVD: 6,019.46'	
VS: 6,505.19'		VS: 6,592.18'		VS: 6,634.18'		VS: 6,702.18'	
95% CHK: lt gy/whi, mottld wh, sft- mod frm, occ brit, sb pily-sb blkly, rthy lstr, v calc, sl brn/bk strn 5% MARL: dk brn/gy, frm-sft, sb pily-sb blkly, rthy lstr, grtty, com mottld carb mat.		90% CHK: lt gy/whi, mottld wh, sft- mod frm, occ brit, sb pily-sb blkly, rthy lstr, v calc, sl brn/bk strn 10% MARL: dk brn/gy, frm-sft, sb pily-sb blkly, rthy lstr, grtty, com mottld carb mat.		100% CHK: lt gy/whi, mottld wh, sft- mod frm, occ brit, sb pily-sb blkly, rthy lstr, v calc, sl brn/bk strn rr MARL: dk brn/gy, frm-sft, sb pily-sb blkly, rthy lstr, grtty, com mottld carb mat.			
rr Calc frag, rr BENT		rr Calc frag, rr BENT		rr Calc frag, rr BENT		rr Calc frag, rr BENT	
instnt bri blu whi blooming cut, thck blu whi resid ring.		instnt bri blu whi blooming cut, thck blu whi resid ring.		instnt bri blu whi blooming cut, thck blu whi resid ring.		instnt bri blu whi blooming cut, thck blu whi resid ring.	

