

Décollement Consulting Inc.



Scale: 5" / 100'
Measured Depth Log

Well Name North Platte K21-O24-34HNC_Lateral

Location SE/SW Section 27, T5N - R63W

State CO

County Weld

Country USA

Rig Number Xtreme 22

API Number 05-123-41886

Field Wattenberg

Geographic Region D.J. Basin

Drilling Completed 10/1/2015

Spud Date 9/1/2015

Surface Coordinates 1171 FNL x 2482 FWL (Lat: 40.36643, -104.42236)

Bottom Hole Coordinates 470 FNL x 2446 FWL (Lat: 40.35002, -104.42263)

Ground Elevation 4,541

K.B. Elevation 4,558

Logged Interval 6976 To 11,120

Total Depth 11,120

Formation Niobrara "C" 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

Oil
Note
Error

Condensate
Core
Water

Gas
Pressure
Seal

Rock Types

Blank



CHALK

CEMENT



LIMESTONE



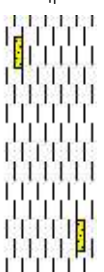
SANDSTONE



CPF MARLSTONE SHALE



MPF



SHALE S



SHALE SF



Fossils

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

Accessories

- F FOSSIL
- GASTROPOD
- OOLITE
- OSTRACOD
- PELECYPOD
- PELLET
- PISOLITE
- PLANT REMAINS
- PLANT SPORES
- SCAPHOPOD
- STROMATOPOROID
- ARGILLACEOUS
- ARGILLITE GRAIN
- B BENTONITE
- BITUMENOUS SUBSTANCE
- BRECCIA FRAGMENTS
- CALCAREOUS
- CARBONACEOUS FLAKES
- CHTDK
- 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

ORGANIC

FORMATION TOP

LITHOGRAPHIC

Show

Rounding

PINPOINT

GAS SHOW

MICROXLN

LEAD

VUGGY

MN DEPTH

ANGULAR

MUDSTONE

VEN

NORMAL FAULT

ROUNDED

PACKSTONE

QUESTIONABLE

Engineering

OIL SHOW

SUBANG

WACKESTONE

SPOTTED STAINING

BIT

OVERTURNED STRATA

SUBRND

Sorting

CASING

REVERSE FAULT

Textures

CONNECTION (LEFT)

SIDEWALL CORE (LEFT)

MODERATE

EARTHY

CONNECTION (RIGHT)

SIDEWALL CORE (RIGHT)

BOUNDSTONE

POOR

MINERAL

CONNECTION GAS

SLIDE

CHALKY

WELL

RACTURE

CORE - LOST

SURVEY

CRYPTOXLN

INTERCRYSTALLINE

CORE - RECOVERED

TRIP GAS

EARTHY

INTEROOLITIC

DST INTERVAL

WIRELINE TESTED - LEFT

FINELYXLN

OLDIC

FAULT

WIRELINE TESTED - RT

GRAINSTONE

Depth



Total Gas & Chromatography

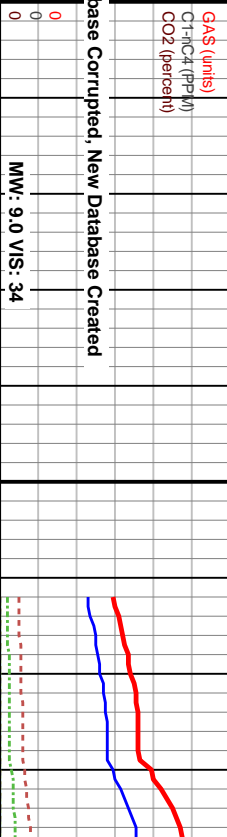
GAS
C1
C2
C3
iC4
nC4
CO2

**Black = Slide
White = Rotate**

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

Gas Database Corrupted, New Database Created



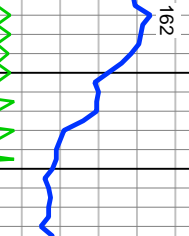
Curves
ROP
Gamma

Decollement Consulting on location and
rigged up with Bloodhound #5726 on
9/29/2015.

Start logging at 6,976' MD on 9/29/2015
at 19:22 hours.

Bit #: 4
Size: 6.125
Mfr.: VAREL
Type: VS513DGU
Depth In.: 6.898'
Jets: 5X22
S/N: 4008151

WOB 25
RPM 0
SPM 0/89



Depth Labels

0
0
0

Interpretive Lithology



Well Bore
TVD

MD: 6,927'
TVD: 6,431.81'
Incination: 92.34°
Azimuth: 179°
VS: 1,786.57'

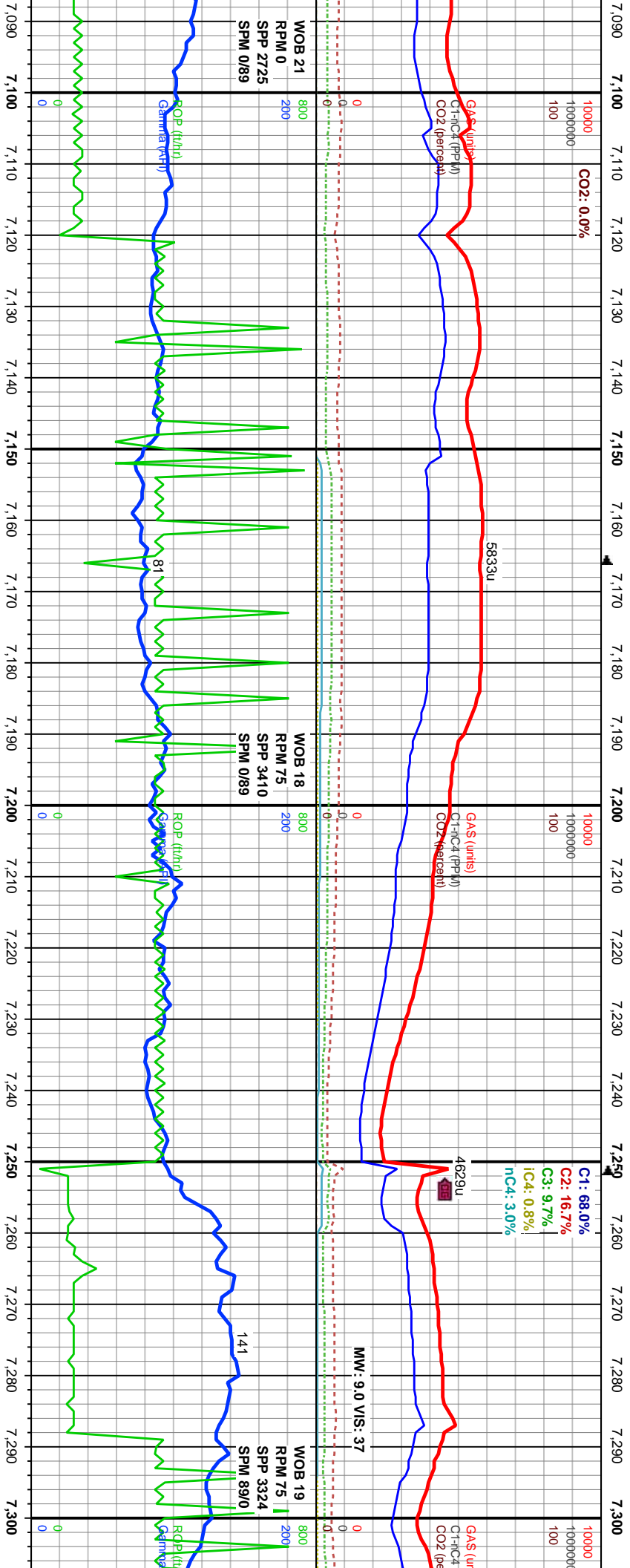
TVD (ft)

TVD (ft)

100% MARL: dkf gy/blk, frm-sft, sb pty-sb blkly,
rthy lstr spkrlng ip, grtty, mottld carb mat.
tr fib calc frag.
com CMNT
mod fst blu-whi rad strmg cut, mod-gd blu-whi
resid ring.

100% MARL: dkf gy/blk, frm-sft, sb pty-sb blkly,
rthy lstr spkrlng ip, grtty, mottld carb mat.
tr fib calc frag.
mod fst blu-whi rad strmg cut, mod-gd blu-whi
resid ring.

90% MARL: dkf gy/blk, frm-sft, sb pty-sb blkly,
lstr spkrlng ip, grtty, mottld carb mat.
10% CHK: lk-med gy, occ brn, mottld wh
mod frm, occ brt, sb pty-sb blkly, rthy lstr
sl brn/blk str.
tr fib calc frag.
mod fst blu-whi rad strmg cut, mod-gd bl
resid ring.



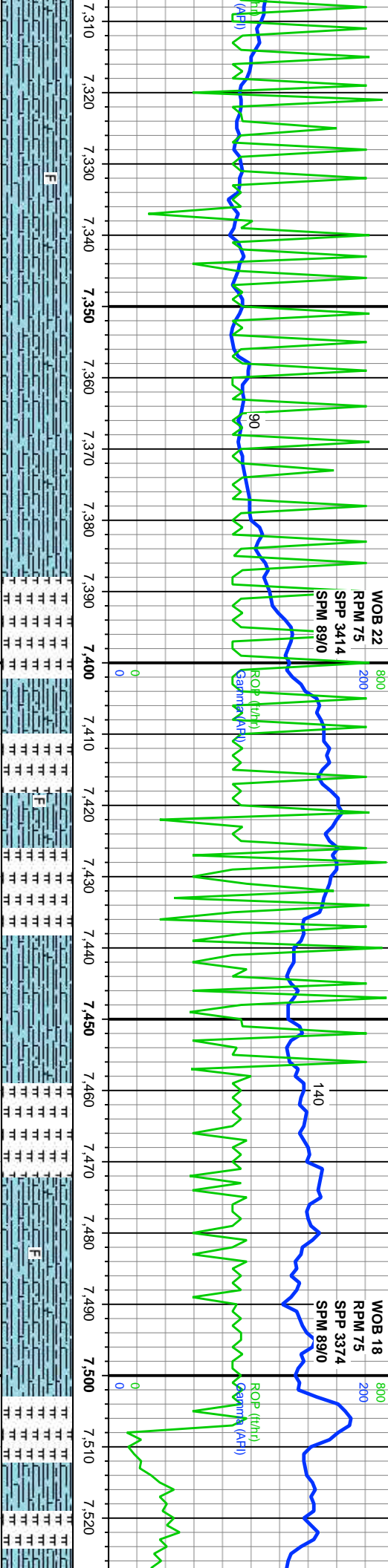
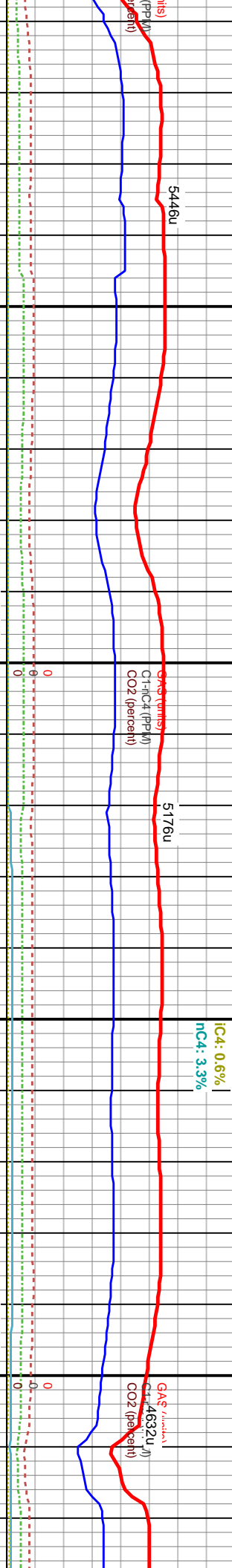
| | | | | |
|--|--|--|--|--|
| blky, rthy | 50% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blky, rthy lstr, v calc, sl brn/bk sn. | 80% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blky, rthy lstr, v calc, sl brn/bk sn. | 90% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blky, rthy lstr, v calc, sl brn/bk sn. | 90% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blky, rthy lstr, v calc, sl brn/bk sn. |
| sft - | 50% MARL: dk gy/blk, frm-sft, sb ply-sb blky, rthy lstr spkling ip, gftty, mottld carb mat. | 20% MARL: dk gy/blk, frm-sft, sb ply-sb blky, rthy lstr spkling ip, gftty, mottld carb mat. | 10% MARL: dk gy/blk, frm-sft, sb ply-sb blky, rthy lstr spkling ip, gftty, mottld carb mat. | 10% MARL: dk gy/blk, frm-sft, sb ply-sb blky, rthy lstr spkling ip, gftty, mottld carb mat. |
| u-whi | rr fib calc frag. | rr fib calc frag. | rr fib calc frag. | rr fib calc frag. |
| insnt bri blu-whi blooming cut, mod thck blu-whi resid ring. | insnt bri blu-whi blooming cut, mod thck blu-whi resid ring. | insnt bri blu-whi blooming cut, mod thck blu-whi resid ring. | insnt bri blu-whi blooming cut, mod thck blu-whi resid ring. | insnt rri blu-whi |

7.310 7.320 7.330 7.340 7.350 7.360 7.370 7.380 7.390 7.400 7.410 7.420 7.430 7.440 7.450 7.460 7.470 7.480 7.490 7.500 7.510 7.520

CO2: 0.0%

C1: 69.2%
C2: 16.9%
C3: 10.0%
iC4: 0.6%
nC4: 3.3%

CO2: 0.0%



MD: 7.456'
TVD: 6.419.31'
Inclination: 92.22°
Azimuth: 176.68°
VS: 2.314.52'

| | | | | |
|--|--|------|------|------|
| HK: lt-med gy, occ brn, mottld wh, sft - mod c brt, sb ply-sb blk, rthy lstr, v calc, sl sn. MARL: dk gy/blk, frm-sft, sb ply-sb blk, rthy lstr spkling ip, gttty, mottld carb mat. frag. mod bri blu-whi blooming cut, mod thick resid ring. | 70% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/blk sn. 30% MARL: dk gy/blk, frm-sft, sb ply-sb blk, rthy lstr spkling ip, gttty, mottld carb mat. rr calc frag. insnt bri blu-whi blooming cut, thick blu-whi resid ring. | 6380 | 6380 | 6380 |
| HK: lt-med gy, occ brn, mottld wh, sft - mod c brt, sb ply-sb blk, rthy lstr, v calc, sl sn. MARL: dk gy/blk, frm-sft, sb ply-sb blk, rthy lstr spkling ip, gttty, mottld carb mat. frag. mod bri blu-whi blooming cut, mod thick resid ring. | 50% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/blk sn. 50% MARL: dk gy/blk, frm-sft, sb ply-sb blk, rthy lstr spkling ip, gttty, mottld carb mat. rr calc frag. insnt bri blu-whi blooming cut, mod thick blu-whi resid ring. | 6380 | 6380 | 6380 |

DATE/TIME
9/30/2015

10000
1000000
100

C1: 73.4%
C2: 17.0%
C3: 9.4%
iC4: 0.0%
nC4: 0.1%

10000
1000000
100

CO2: 0.0%

GAS (units)
C1-C4 (ppm)
CO2 (percent)

4682u

GAS (units)
C1-C4 (ppm)
CO2 (percent)

4994u

MW: 9.0 VIS: 39

WOB 27
RPM 0
SPP 2711
SPM 890

WOB 12
RPM 75
SPP 2819
SPM 890

ROP (t/hr)
Gamma (AFI)

ROP (t/hr)
Gamma (AFI)

160

144

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 7.670 7.680 7.690 7.700 7.710 7.720 7.730 7.740

MD: 7.541'
TVD: 6,416.52'
Inclination: 91.54°
Azimuth: 177.81°
VS: 2,399.31'

MD: 7.627'
TVD: 6,416.15'
Inclination: 88.95°
Azimuth: 180.59°
VS: 2,485.27'

MD: 7.714'
TVD: 6,418.09'
Inclination: 88.5°
Azimuth: 181.1°
VS: 2,572.24'

6380

6380

mottld wh. sft - mod
1str istr, v calc, sl
60% MARL: drk gy/blk, frm-sft, sb ply-sb blk, rthy
1str sprkling ip, grry, mottld carb mat.
40% CHK: lt-med gy, occ brn, mottld wh, sft - mod
frm, occ brt, sb ply-sb blk, rthy istr, v calc, sl
brn/blk sn.
tr calc frag.
insnt bri blu-whi blooming cut, mod thck blu-whi
resid ring.

TVD (ft)
50% MARL: drk gy/blk, frm-sft, sb ply-sb blk, rthy
1str sprkling ip, grry, mottld carb mat.
50% CHK: lt-med gy, occ brn, mottld wh, sft - mod
frm, occ brt, sb ply-sb blk, rthy istr, v calc, sl
brn/blk sn.
tr calc frag.
insnt bri blu-whi blooming cut, mod thck blu-whi
resid ring.

70% MARL: drk gy/blk, frm-sft, sb ply-sb blk, rthy
1str sprkling ip, grry, mottld carb mat.
30% CHK: lt-med gy, occ brn, mottld wh, sft - mod
frm, occ brt, sb ply-sb blk, rthy istr, v calc, sl
brn/blk sn.
com calc frag.
insnt bri blu-whi blooming cut, mod thck blu-whi
resid ring.

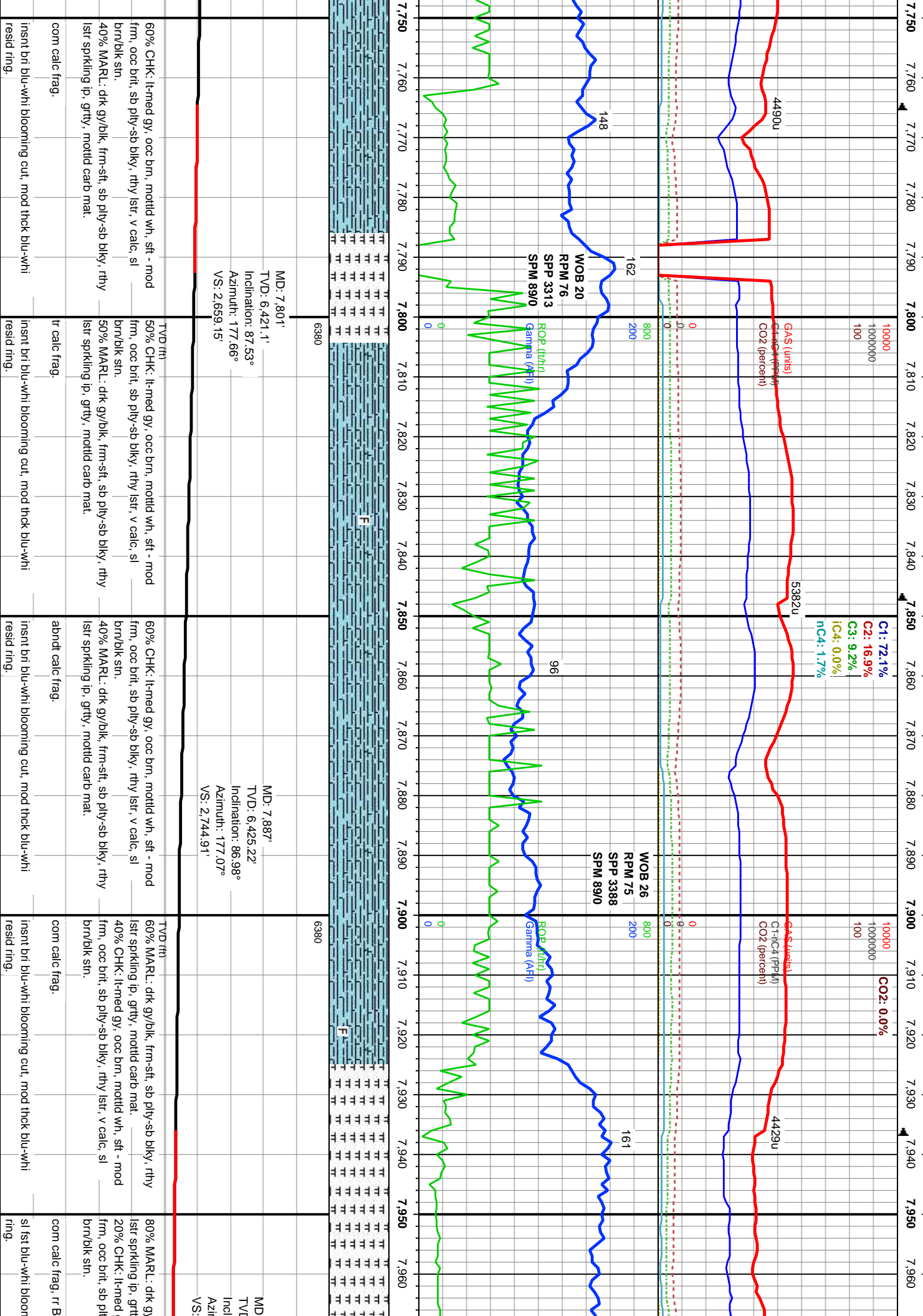
TVD (ft)
50% MARL: drk gy/blk, frm-sft, sb ply-sb blk, rthy
1str sprkling ip, grry, mottld carb mat.
50% CHK: lt-med gy, occ brn, mottld wh, sft - mod
frm, occ brt, sb ply-sb blk, rthy istr, v calc, sl
brn/blk sn.
tr calc frag.
insnt bri blu-whi blooming cut, mod thck blu-whi
resid ring.

mod thck blu-whi

insnt bri blu-whi blooming cut, mod thck blu-whi
resid ring.

insnt bri blu-whi blooming cut, mod thck blu-whi
resid ring.

insnt bri blu-whi blooming cut, mod thck blu-whi
resid ring.



7.970 7.980 7.990 8.000 8.010 8.020 8.030 8.040 8.050 8.060 8.070 8.080 8.090 8.100 8.110 8.120 8.130 8.140 8.150 8.160 8.170 8.180

100000
1000000
100

C1: 68.7%
C2: 16.9%
C3: 9.9%
C4: 0.7%
nC4: 3.8%

TOOH for new Bit & Motor @ 8160' MD

GAS (units)
C1+C4 (PPM)
CO2 (percent)

4648u

4228u

WOB 22
RPM 75
SPM 3195
SPM 890

WOB 20
RPM 75
SPM 3246
SPM 890

ROP (ft/hr)
Gamma (AFI)

ROP (ft/hr)
Gamma (AFI)

6380

6380

7.972
D: 6.427.46'
Inclination: 90°
muth: 177.59°
2.829.72'

MD: 8.144'
TVD: 6.426.15'
Inclination: 90.87°
Azimuth: 177.99°
VS: 3.001.49'

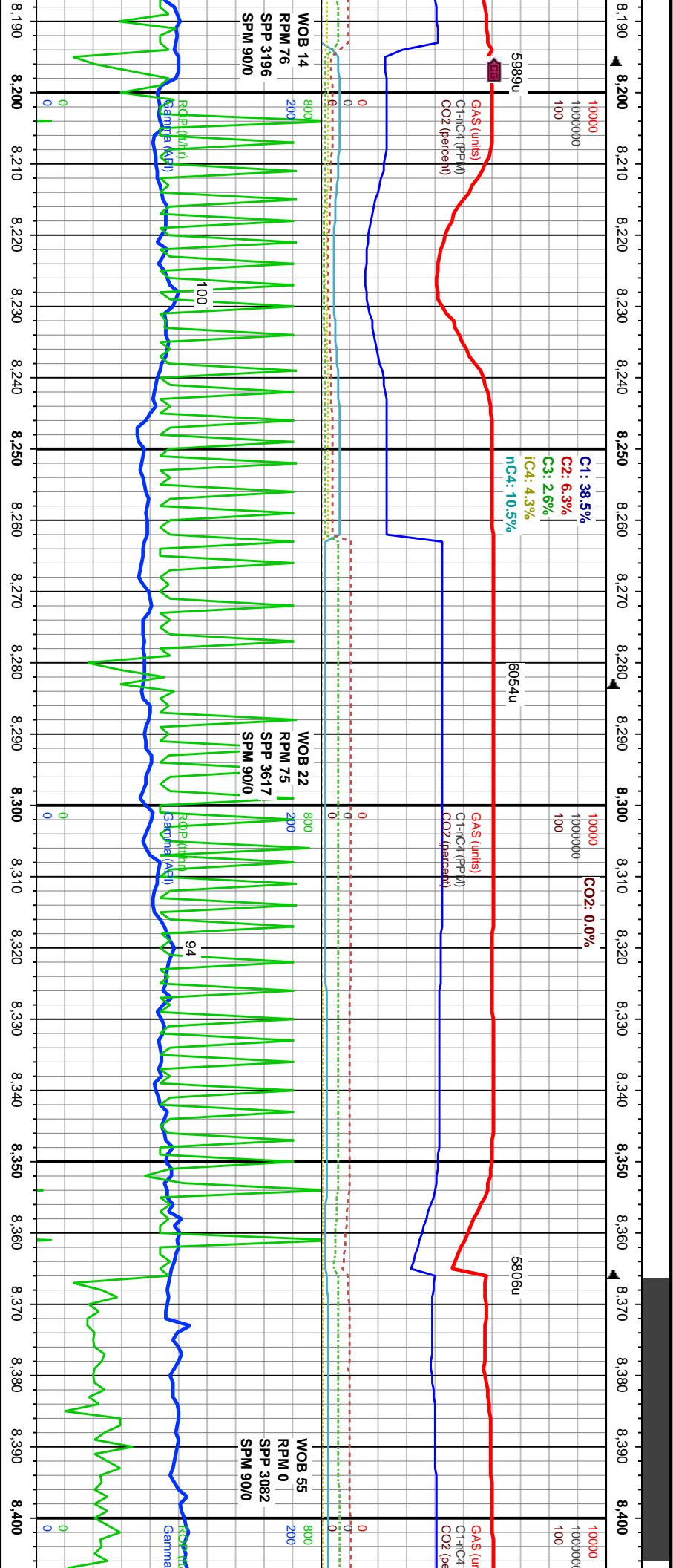
frn-sft, sb ply-sb blkly, rthy
y, mottld carb mat.
gy, occ brn, mottld wh, sft - mod
y-sb blkly, rthy istr, v calc, sl

TVD (ft)
100% MARL: dk gy/blk, frn-sft, sb ply-sb blkly, rthy
istr sprkling ip, gttty, mottld carb mat.
rr CHK: lt-med gy, occ brn, mottld wh, sft - mod
frn, occ brt, sb ply-sb blkly, rthy istr, v calc, sl
brn/blk sn.
com calc frag, rr BENT
sl fst blu-whi blooming cut, sl thrck blu-whi resid
ring.

90% MARL: dk gy/blk, frn-sft, sb ply-sb blkly, rthy
istr sprkling ip, gttty, mottld carb mat.
10% CHK: lt-med gy, occ brn, mottld wh, sft - mod
frn, occ brt, sb ply-sb blkly, rthy istr, v calc, sl
brn/blk sn.
com calc frag
sl fst blu-whi blooming cut, sl thrck blu-whi resid
ring.

TVD (ft)
60% CHK: lt-med gy, occ brn, mottld wh, sft - mod
frn, occ brt, sb ply-sb blkly, rthy istr, v calc, sl
brn/blk sn.
40% MARL: dk gy/blk, frn-sft, sb ply-sb blkly, rthy
istr sprkling ip, gttty, mottld carb mat.
rr calc frag.
insnt mod bri blu-whi blooming cut, mod thrck
blu-whi resid ring.

80% CHK: lt-med gy, occ brn, mottld wh, sft - mod
frn, occ brt, sb ply-sb blkly, rthy istr, v calc, sl
brn/blk sn.
20% MARL: dk gy/blk, frn-sft, sb ply-sb blkly, rthy
istr sprkling ip, gttty, mottld carb mat.
rr calc frag.
insnt mod bri blu-whi blooming cut, mod thrck
blu-whi resid ring.



MD: 8,231'
TVD: 6,425.31'
Inclination: 90.24°
Azimuth: 176.46°
VS: 3,088.32'

MD: 8,402'
TVD: 6,425.42'
Inclination: 89.6°
Azimuth: 179°
VS: 3,259.07'

| | | | | | | | |
|----------------------|---|------|--|------|---|---------------|--|
| sft - mod alc, sl | TVD (ft) 80% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/blk sin. 20% MARL: dk gy/blk, frm-sft, sb ply-sb blk, rthy lstr sprkling ip, grtty, mottld carb mat. | 6380 | 95% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/blk sin. 5% MARL: dk gy/blk, frm-sft, sb ply-sb blk, rthy lstr sprkling ip, grtty, mottld carb mat. | 6380 | 80% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/blk sin. 20% MARL: dk gy/blk, frm-sft, sb ply-sb blk, rthy lstr sprkling ip, grtty, mottld carb mat. | rr calc frag. | insnt mod bri blu-whi blooming cut, mod thick blu-whi resid ring. |
| | | | | | | | |
| blk, rthy | rr calc frag. | | | | | | |
| thick | insnt mod bri blu-whi blooming cut, mod thick blu-whi resid ring. | | | | | | |

8,410 8,420 8,430 8,440 8,450 8,460 8,470 8,480 8,490 8,500 8,510 8,520 8,530 8,540 8,550 8,560 8,570 8,580 8,590 8,600 8,610 8,620

C1: 69.6%
C2: 17.5%
C3: 10.5%
iC4: 1.6%
nC4: 8%

CO2: 0.0%

10000
1000000
100

5777u

5430u

5683u

MM: 9.1 VIS: 38

WOB 22
RPM 75
SPM 3538
SPM 90/0

WOB 22
RPM 75
SPM 3460
SPM 89/0

6380

6380

MD: 8,488'
TVD: 6,424.61'
Inclination: 91.38°
Azimuth: 179.97°
VS: 3,345.04'

MD: 8,573'
TVD: 6,422.42'
Inclination: 91.57°
Azimuth: 178.99°
VS: 3,429.99'

HK: lt-med gy, occ brn, mottld wh, sft - mod
c brt, sb ply-sb blk, rthy lstr, v calc, sl
sn.
MARL: drk gy/blk, frm-sft, sb ply-sb blk, rthy
lstr spkrlng ip, grtty, mottld carb mat.
frg.
mod bri blu-whi blooming cut, mod thick
resid ring.

90% MARL: drk gy/blk, frm-sft, sb ply-sb blk, rthy
lstr spkrlng ip, grtty, mottld carb mat.
10% CHK: lt-med gy, occ brn, mottld wh, sft - mod
frg, occ brt, sb ply-sb blk, rthy lstr, v calc, sl
brn/blk str.
com calc frag
fst blu-whi blooming cut, sl thick blu-whi resid ring.

TVD (ft)
90% MARL: drk gy/blk, frm-sft, sb ply-sb blk, rthy
lstr spkrlng ip, grtty, mottld carb mat.
10% CHK: lt-med gy, occ brn, mottld wh, sft - mod
frg, occ brt, sb ply-sb blk, rthy lstr, v calc, sl
brn/blk str.
com calc frag
sl fst blu-whi blooming cut, sl thick blu-whi resid
ring.

50% CHK: lt-med gy, occ brn, mottld wh, sft - mod
frg, occ brt, sb ply-sb blk, rthy lstr, v calc, sl
brn/blk str.
50% MARL: drk gy/blk, frm-sft, sb ply-sb blk, rthy
lstr spkrlng ip, grtty, mottld carb mat.
tr calc frag.
insnt bri blu-whi blooming cut, mod thick blu-whi
resid ring.

TVD (ft)
50% CHK: lt-med gy, occ brn
frg, occ brt, sb ply-sb blk, r
brn/blk str.
50% MARL: drk gy/blk, frm-sft
lstr spkrlng ip, grtty, mottld ca
tr calc frag.
insnt bri blu-whi blooming cut
resid ring.

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 8,770 8,780 8,790 8,800 8,810 8,820 8,830 8,840

C1: 74.5%
C2: 11.2%
C3: 11.0%
C4: 2.8%
nC4: 0%

10000 CO2: 0.0%
1000000
100

5861u

10000
1000000
100

5905u

MW: 9.2 VIS: 37

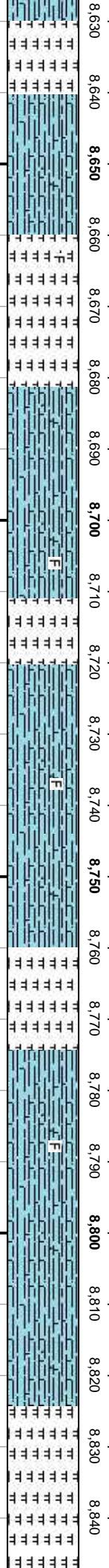
MOB 21
RPM 75
SP 3451
SPM 890

MOB 59
RPM 9
SP 3198
SPM 900

118

102

99



MD: 8,658'
TVD: 6,420.08'
Inclination: 91.59°
Azimuth: 179°
VS: 3,514.92'

MD: 8,744'
TVD: 6,416.63'
Inclination: 93.01°
Azimuth: 179.18°
VS: 3,600.82'

MD: 8,829'
TVD: 6,413.55'
Inclination: 91.14°
Azimuth: 179.38°
VS: 3,685.73'

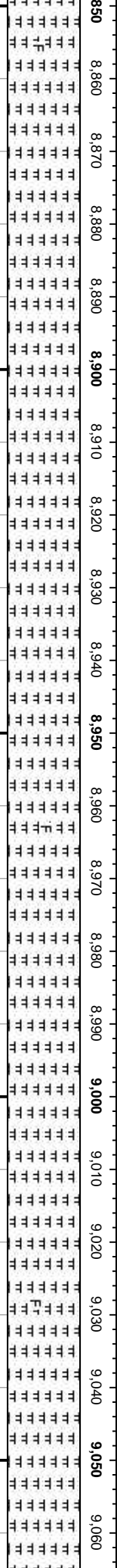
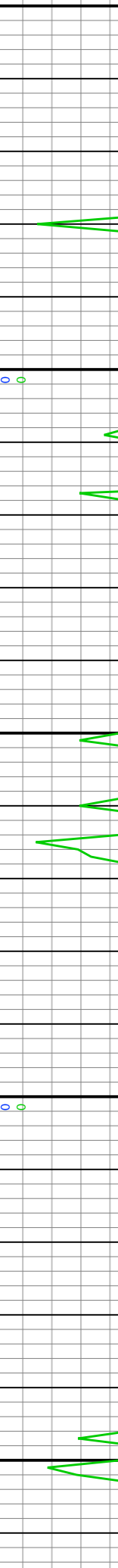
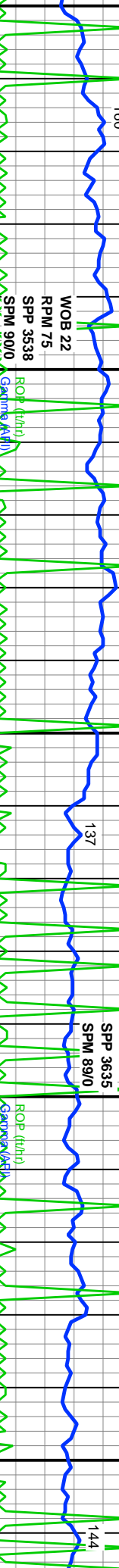
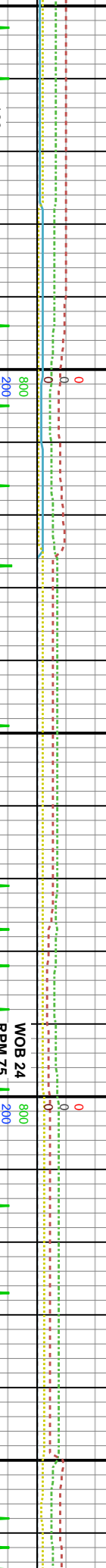
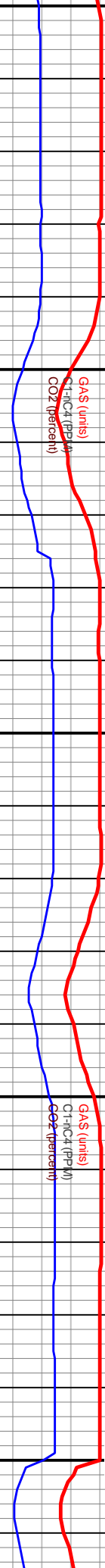
| | | | | | |
|--|--|--|--|--|--|
| mottld wh, sft - mod thy istr, v calc, sl | 60% MARL: dk gy/bk, frm-sft, sb ply-sb biky, rthy istr spkling ip, gttf, mottld carb mat. | 80% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brt, sb ply-sb biky, rthy istr, v calc, sl brn/bk sm. | TVD (ft) | | |
| 1, sb ply-sb biky, rthy mat. | 40% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brt, sb ply-sb biky, rthy istr, v calc, sl brn/bk sm. | 20% MARL: dk gy/bk, frm-sft, sb ply-sb biky, rthy istr spkling ip, gttf, mottld carb mat. | 70% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brt, sb ply-sb biky, rthy istr, v calc, sl brn/bk sm. | 50% MARL: dk gy/bk, frm-sft, sb ply-sb biky, rthy istr spkling ip, gttf, mottld carb mat. | 50% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brt, sb ply-sb biky, rthy istr, v calc, sl brn/bk sm. |
| mod thick blu-whi | com calc frag | rr calc frag. | rr calc frag. | com calc frag | com calc frag |
| | fst blu-whi blooming cut, sl thick blu-whi resid ring. | insnt mod brl blu-whi blooming cut, mod thick blu-whi resid ring. | insnt mod brl blu-whi blooming cut, mod thick blu-whi resid ring. | insnt mod brl blu-whi blooming cut, mod thick blu-whi resid ring. | fst blu-whi blooming cut, sl thick blu-whi resid ring. |

8,850 8,860 8,870 8,880 8,890 8,900 8,910 8,920 8,930 8,940 8,950 8,960 8,970 8,980 8,990 9,000 9,010 9,020 9,030 9,040 9,050 9,060

C1: 65.0%
C2: 16.7%
C3: 10.9%
iC4: 3.7%
nC4: 1.8%

CO2: 0.0%

C1: 67.3%
C2: 15.1%
C3: 11.3%
iC4: 3.6%
nC4: 0.3%



MD: 8,915'
TVD: 6,412.05'
Inclination: 90.86°
Azimuth: 178.61°
VS: 3,771.68'

MD: 9,000'
TVD: 6,411.28'
Inclination: 90.18°
Azimuth: 178.97°
VS: 3,856.63'

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

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

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

com calc frag

com calc frag

com calc frag

occ calc frag

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

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

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

mod fst blu-whi blk ring.

9,070 9,080 9,090 9,100 9,110 9,120 9,130 9,140 9,150 9,160 9,170 9,180 9,190 9,200 9,210 9,220 9,230 9,240 9,250 9,260 9,270 9,280

10000
CO2: 0.0%

GAS (units)
C1-C4 (PPM)
CO2 (percent)

6053u

10000
CO2: 0.0%

GAS (units)
C1-C4 (PPM)
CO2 (percent)

6060u

C1: 57.8%
C2: 19.6%
C3: 12.6%
iC4: 1.7%
nC4: 5.7%

WOB 24

RPM 75

SPM 3730

SPM 890

ROP (in/hr)
Bathymetry

ROP (in/hr)
Bathymetry

WOB 24

RPM 75

SPM 3716

SPM 890

ROP (in/hr)
Bathymetry

ROP (in/hr)
Bathymetry

WOB 24

RPM 75

SPM 3716

SPM 890

ROP (in/hr)
Bathymetry

ROP (in/hr)
Bathymetry

MD: 9,086'
TVD: 6,410.96'
Inclination: 90.25°
Azimuth: 180.01°
VS: 3,942.6'

6380

MD: 9,173'
TVD: 6,410.55'
Inclination: 90.28°
Azimuth: 180.63°
VS: 4,029.6'

6380

MD: 9,261'
TVD: 6,410.15'
Inclination: 90.25°
Azimuth: 181.33°
VS: 4,117.6'

TVD (ft)

100% MARL: dk gy/bk, frm-sft, sb ply-sb blk, rthy
lstr spkling ip, grtty, mottld carb mat.
rr CHK: lt-med gy, occ brn, mottld wh, sft - mod
frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl
brn/bk str.

occ calc frag

sl fst blu-whi string cut, sl thick blu-whi resid

TVD (ft)

100% MARL: dk gy/bk, frm-sft, sb ply-sb blk, rthy
lstr spkling ip, grtty, mottld carb mat.
rr CHK: lt-med gy, occ brn, mottld wh, sft - mod
frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl
brn/bk str.

occ calc frag

mod fst blu-whi rad string cut, sl thick blu-whi resid

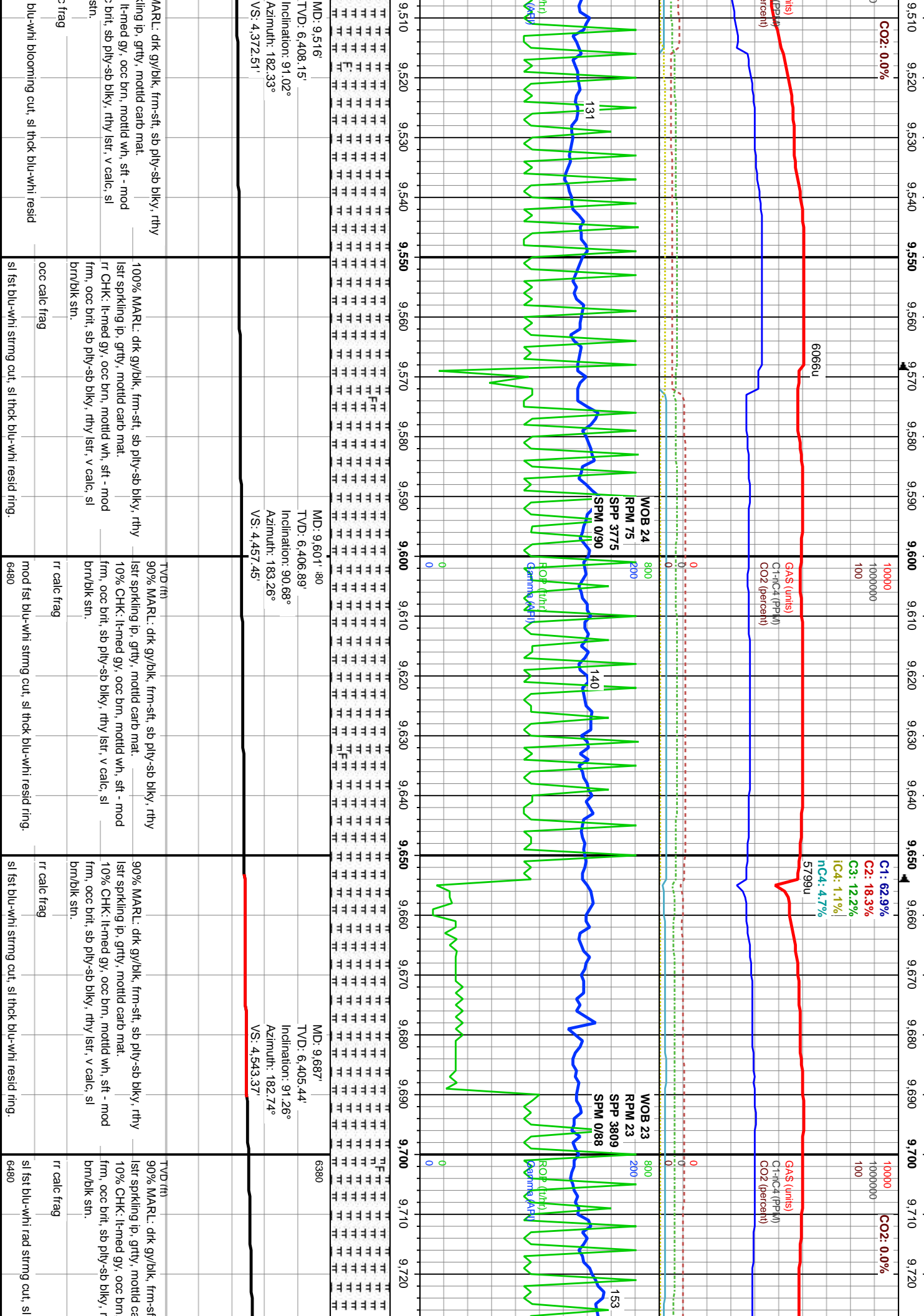
TVD (ft)

100% MARL: dk gy/bk, frm-sft, sb ply-sb blk, rthy
lstr spkling ip, grtty, mottld carb mat.
rr CHK: lt-med gy, occ brn, mottld wh, sft - mod
frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl
brn/bk str.

occ calc frag

sl fst blu-whi blooming cut, sl thick blu-whi resid

forming cut, sl thick blu-whi resid



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 9.870 9.880 9.890 9.900 9.910 9.920 9.930 9.940

10000
1000000
100

C1: 66.4%
C2: 17.5%
C3: 11.8%
IC4: 0.0%
nC4: 4.2%

10000
1000000
100

GAS (units)
C1+IC4 (PPM)
CO2 (percent)

597.4u

MW: 9.3 VIS: 40

GAS (units)
C1+IC4 (PPM)
CO2 (percent)

565.8u

WOB 21
RPM 75
SPM 3707
SPM 0/88

WOB 23
RPM 75
SPM 3705
SPM 0/88

ROP (ft/hr)
Gain/Air/FM

ROP (ft/hr)
Gain/Air/FM

73

107

MD: 9.772'
TVD: 6.401.63
Inclination: 93.87°
Azimuth: 181.58°
VS: 4.628.25'

MD: 9.857'
TVD: 6.397.83
Inclination: 91.26°
Azimuth: 178.62°
VS: 4.713.14'

MD: 9.943'
TVD: 6.396.47
Inclination: 90
Azimuth: 178.3
VS: 4.799.06'

6380

6380

90% MARL: drk gy/blk, frm-sft, sb ply-sb blk, rthy
10% CHK: lk-med gy, occ brn, mottld wh, sft - mod
frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl
brr/bk stn.

60% MARL: drk gy/blk, frm-sft, sb ply-sb blk, rthy
40% CHK: lk-med gy, occ brn, mottld wh, sft - mod
frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl
brr/bk stn.

50% MARL: drk gy/blk, frm-sft, sb ply-sb blk, rthy
50% CHK: lk-med gy, occ brn, mottld wh, sft - mod
frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl
brr/bk stn.

60% MARL: drk gy/blk, frm-sft, sb ply-sb blk, rthy
40% CHK: lk-med gy, occ brn, mottld wh, sft - mod
frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl
brr/bk stn.

tr calc frag
mod fst blu-whi blooming cut, sl thck blu-whi resid
ring.

tr calc frag
v fst blu-whi blooming cut, sl thck blu-whi resid
ring.

tr calc frag
instnt blu-whi blooming cut, sl thck blu-whi resid
ring.

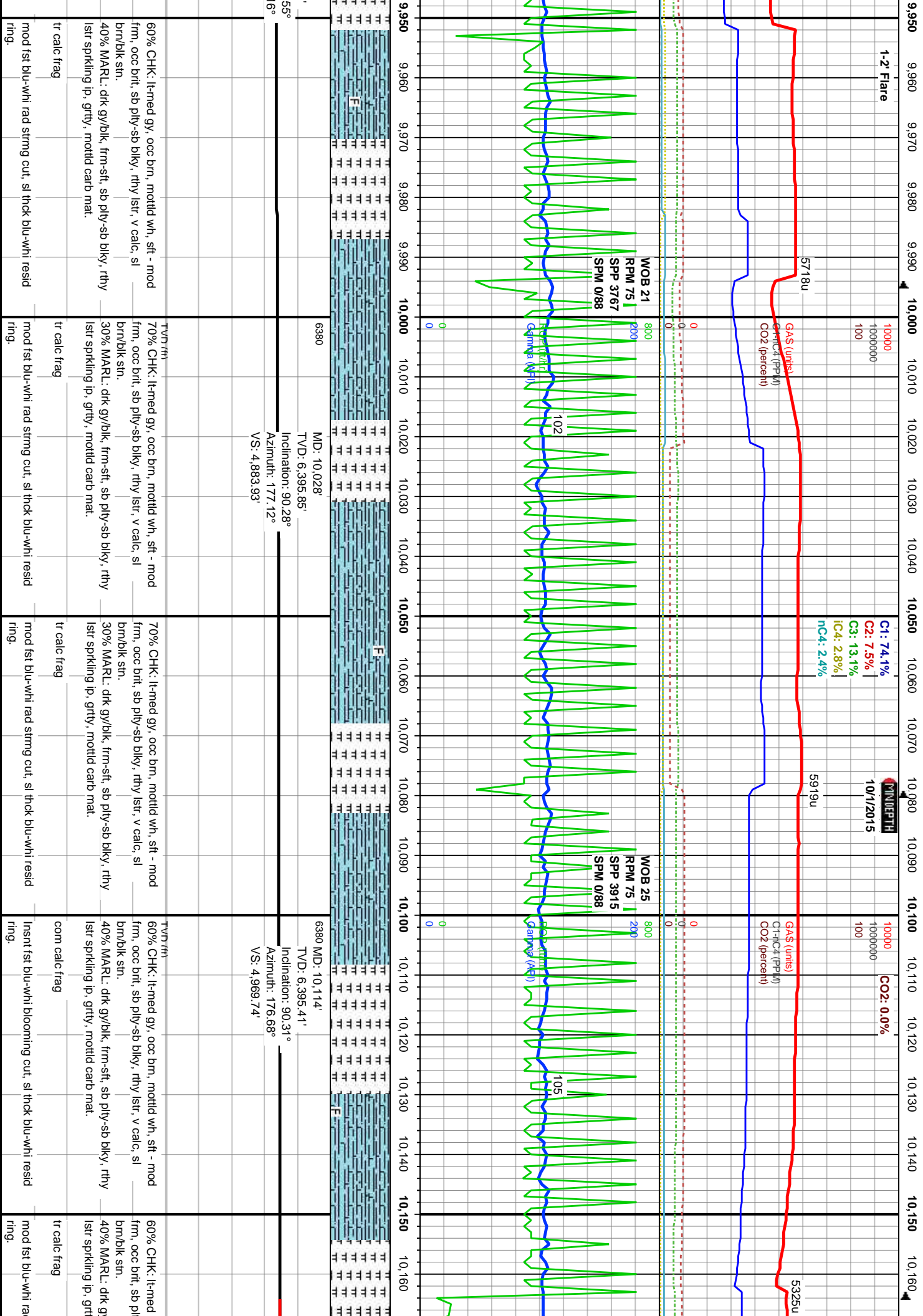
tr calc frag
v fst blu-whi blooming cut, sl thck blu-whi resid
ring.

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 9.870 9.880 9.890 9.900 9.910 9.920 9.930 9.940

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 9.870 9.880 9.890 9.900 9.910 9.920 9.930 9.940

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 9.870 9.880 9.890 9.900 9.910 9.920 9.930 9.940

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 9.870 9.880 9.890 9.900 9.910 9.920 9.930 9.940



10,170 10,180 10,190 10,200 10,210 10,220 10,230 10,240 10,250 10,260 10,270 10,280 10,290 10,300 10,310 10,320 10,330 10,340 10,350 10,360 10,370 10,380

10000
1000000
100

C1: 74.7%
C2: 9.1%
C3: 12.5%
C4: 3.5%
nC4: 0.1%

2.4' Flare

10000
1000000
100

CO2: 0.0%

GAS (units)
C1+IC4 (PPM)
CO2 (percent)

6056u

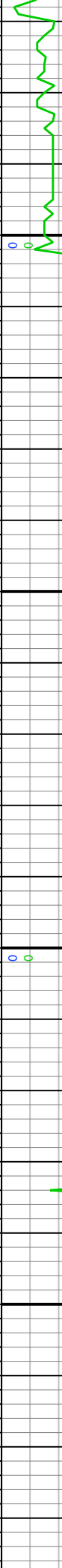
5928u

WOB 73
RPM 0
SPP 3127
SPM 0/88

WOB 23
RPM 75
SPP 3927
SPM 0/87

ROF (ft/hr)
Gamma (API)

ROF (ft/hr)
Gamma (API)



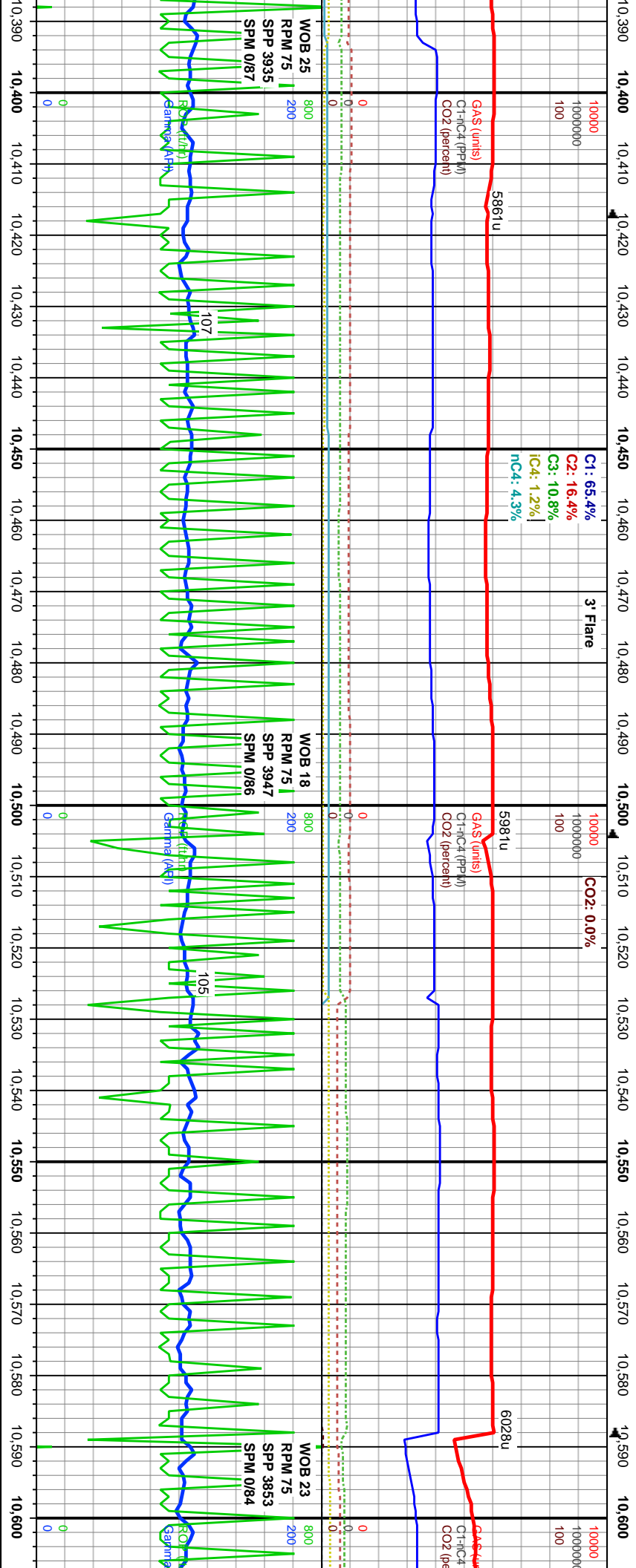
MD: 10,199' .380
TVD: 6,395.46'
Inclination: 89.63°
Azimuth: 178.75°
VS: 5,054.61'

MD: 10,284'
TVD: 6,395.86'
Inclination: 89.82°
Azimuth: 179.94°
VS: 5,139.59'

6380

MD: 10,370'
TVD: 6,396.14'
Inclination: 89.81°
Azimuth: 179.47°
VS: 5,225.57'

| | | | | |
|---|---|---|---|---|
| gy, occ brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl w/blk, frm-sft, sb ply-sb blk, rthy y, mottld carb mat. | TVD (ft) 70% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/blk sn. 30% MARL: dk gy/blk, frm-sft, sb ply-sb blk, rthy lstr spkling ip, gttty, mottld carb mat. | 80% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/blk sn. 20% MARL: dk gy/blk, frm-sft, sb ply-sb blk, rthy lstr spkling ip, gttty, mottld carb mat. | 80% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/blk sn. 20% MARL: dk gy/blk, frm-sft, sb ply-sb blk, rthy lstr spkling ip, gttty, mottld carb mat. | 70% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/blk sn. 30% MARL: dk gy/blk, frm-sft, sb ply-sb blk, rthy lstr spkling ip, gttty, mottld carb mat. |
| strng cut, sl thck blu-whi resid | tr calc frag | com calc frag | com calc frag | com calc frag |
| mod fst blu-whi blooming cut, sl thck blu-whi resid | mod fst blu-whi blooming cut, sl thck blu-whi resid | mod fst blu-whi rad strng cut, sl thck blu-whi resid | mod fst blu-whi blooming cut, sl thck blu-whi resid | mod fst blu-whi rad strng cut, sl thck blu-whi resid |



| | | | | | | | |
|-----------------------|--|------|---|--|------|--|-----------------------|
| sft - mod calc, sl | 80% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/blk sn. | 6380 | MD: 10,541' TVD: 6,396.38' Inclination: 90.03° Azimuth: 177.33° VS: 5,396.42' | 90% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/blk sn. | 6380 | 90% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/blk sn. | sft - mod calc, sl |
| | 20% MARL: drk gy/blk, frm-sft, sb ply-sb blk, rthy lstr spkling ip, grty, mottld carb mat. | | | | | | |
| | occ calc frag | | | | | | |
| blky, rthy | lstr spkling ip, grty, mottld carb mat. | | | 10% MARL: drk gy/blk, frm-sft, sb ply-sb blk, rthy lstr spkling ip, grty, mottld carb mat. | | 10% MARL: drk gy/blk, frm-sft, sb ply-sb blk, rthy lstr spkling ip, grty, mottld carb mat. | |
| | occ calc frag | | | tr calc frag | | occ calc frag | |
| whi resid | mod fst blu-whi rad strmg cut, sl thck blu-whi resid ring. | | | sl fst blu-whi rad strmg cut, mod thck blu-whi resid ring. | | mod fst blu-whi rad strmg cut, sl thck blu-whi resid ring. | |

