

Décollement Consulting Inc.



Scale: 5" / 100'
Measured Depth Log

Well Name North Platte 31-34-HNC_Lateral
Location SE/SW Section 27, T5N - R63W

State CO
Country USA

API Number 05-123-41765

Region D.J. Basin

Spud Date 8/25/2015

County Weld

Rig Number Xtreme 22

Field Wattenberg

Drilling Completed 9/25/2015

Surface Coordinates 1205 FSL x 2502 FWL (Lat: 40.36652, -104.42229)

Bottom Hole Coordinates 470 FSL x 2018 FEL (Lat: 40.35003, -104.41991)

Ground Elevation 4,541

K.B. Elevation 4,558

Logged Interval 6983 To 11,273

Total Depth 11,273

Formation "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



SHALE S



SHALE SF

MPF



SHALE S

CPF TT TT TT MARLSTONE --- -- -- SHALE



Fossils

- ALGAE
- AMPHIPORA
- BELEMITE
- 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

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

Accessories

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

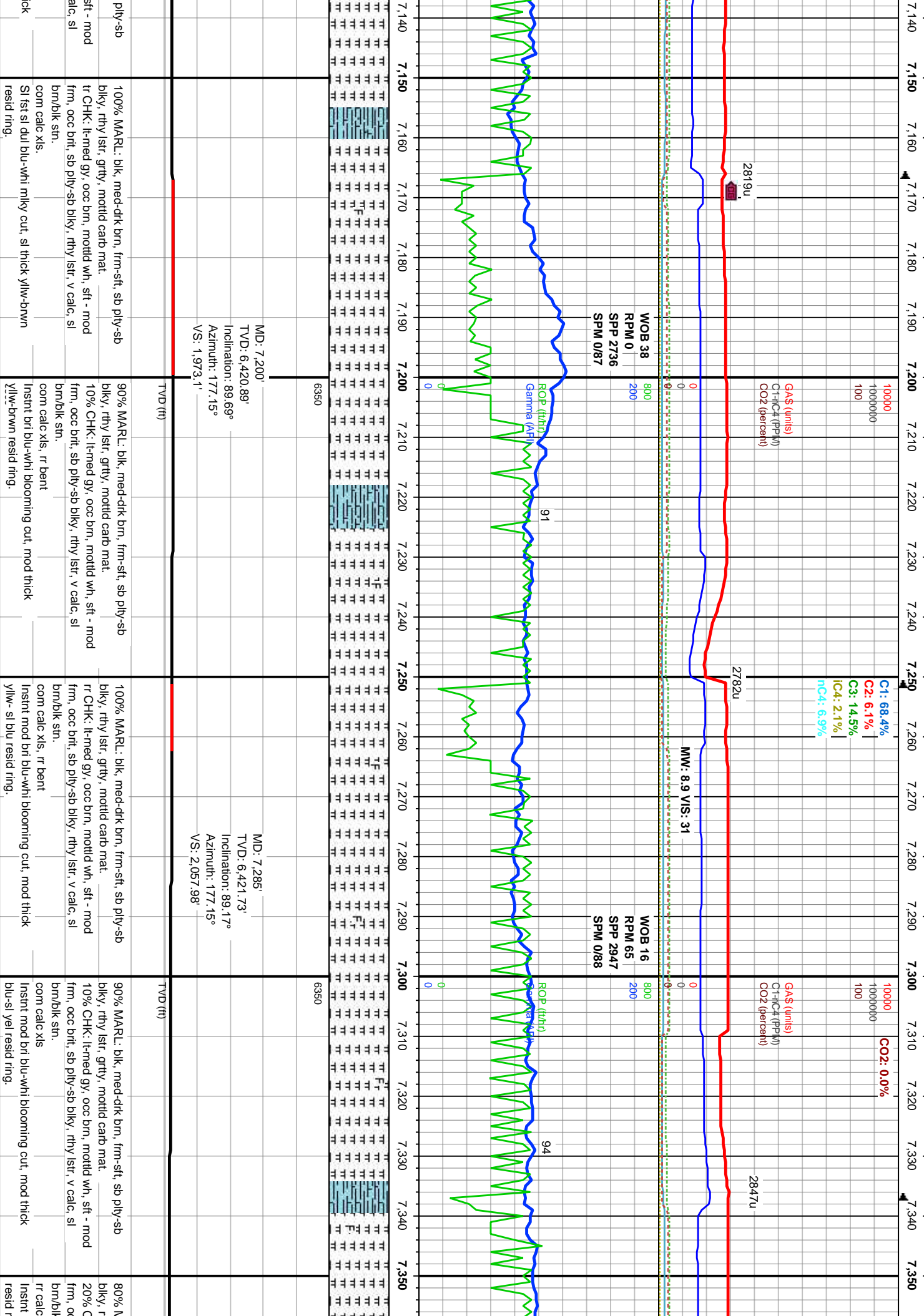
FINELYXLN

OLDIC

FAULT

WIRELINE TESTED - RT

GRAINSTONE



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 7.530 7.540 7.550 7.560 7.570

10000
1000000
100

GA\$ (units)
C1-HC4 (PPM)
CO2 (percent)

2962u

C1: 60.7%
C2: 12.1%
C3: 14.3%
iC4: 1.7%
nC4: 7.2%

MW: 8.95 VIS: 32

WOB 18
RPM 65
SPM 3040
SPM 0/88

WOB 17
RPM 65
SPM 3099
SPM 0/88

10000
1000000
100
CO2: 0.0%

GA\$ (units)
C1-HC4 (PPM)
CO2 (percent)

2965u

ROP (ft/hr)
Gamma (dEL)

93

ROP (ft/hr)
Gamma (dEL)

102



MD: 7.371'
TVD: 6.422.79'
Inclination: 89.42°
Azimuth: 177.42°
VS: 2.143.85'

MD: 7.457'
TVD: 6.423.13'
Inclination: 90.12°
Azimuth: 177.92°
VS: 2.229.69'

MD: 7.542'
TVD: 6.422.43'
Inclination: 90.83°
Azimuth: 177.92°
VS: 2.314.5'

TVD (ft)

TVD (ft)

TVD (ft)

MARL: blk, med-dk brn, frm-sft, sb ply-sb
fry lstr, mottld carb mat.
HHK: lt-med brn, rr gy, mottld wh, sft - mod
occ brt, sb ply-sb blk, rthy lstr, v calc, sl
sn.
mod bri blu-whi blooming cut, mod thick blu
ring.

50% CHK: lt-med brn, rr gy, mottld wh, sft - mod
frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl
brn/blk sn.
50% MARL: blk, med-dk brn, frm-sft, sb ply-sb
blk, rthy lstr, grty, mottld carb mat.
occ calc xls
V fst bri blu-whi blooming cut, mod thick blu
ring.

80% CHK: lt-med brn, rr gy, mottld wh, sft - mod
frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl
brn/blk sn.
20% MARL: blk, med-dk brn, frm-sft, sb ply-sb
blk, rthy lstr, grty, mottld carb mat.
occ calc xls
V fst bri blu-whi blooming cut, sl thick blu resid
ring.

70% CHK: lt-med brn, rr gy, mottld wh, sft - mod
frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl
brn/blk sn.
30% MARL: blk, med-dk brn, frm-sft, sb ply-sb
blk, rthy lstr, grty, mottld carb mat.
rr calc xls
V fst bri blu-whi blooming cut, sl thick blu resid
ring.

50% CHK: lt-med brn, rr gy, r
frm, occ brt, sb ply-sb blk, l
brn/blk sn.
50% MARL: blk, med-dk brn
blk, rthy lstr, grty, mottld carb
occ calc xls
V fst bri blu-whi blooming cut
ring.

7.580 7.590 7.600 7.610 7.620 7.630 7.640 7.650 7.660 7.670 7.680 7.690 7.700 7.710 7.720 7.730 7.740 7.750 7.760 7.770 7.780 7.790

10000
1000000
100

Gas (units)
C1-HC4 (PPM)
CO2 (percent)

2837u

2450u

Switched to Bloodhound #5726, troubleshooting software issues.

10000
1000000
100

Gas (units)
C1-HC4 (PPM)
CO2 (percent)

WOB 42
RPM 3
SP 2847
SPM 0/88

WOB 23
RPM 75
SP 3351
SPM 0/88

WOB 22
RPM 76
SP 3288
SPM 8/71

ROP (tthn)
Gamma (AFI)

ROP (tthn)
Gamma (AFI)

ROP (tthn)
Gamma (AFI)

6350

6350

MD: 7.627'
TVD: 6,421.98'
Inclination: 89.78°
Azimuth: 179°
VS: 2,399.26'

MD: 7.715'
TVD: 6,421.82'
Inclination: 90.43°
Azimuth: 178.74°
VS: 2,486.96'

MD:
TVD:
Incl:
Azim:
VS:

TVD (ft)

TVD (ft)

TVD (ft)

modd wh, sft - mod thy lstr, v calc, sl	90% MARL: blk, med-dk brn, frm-sft, sb ply-sb bkly, rthy lstr, grty, modd carb mat. 10% CHK: lt-med brn, rr gy, modd wh, sft - mod frm, occ brt, sb ply-sb bkly, rthy lstr, v calc, sl brn/blk stn.	90% MARL: blk, med-dk brn, frm-sft, sb ply-sb bkly, rthy lstr, grty, modd carb mat. 10% CHK: lt-med brn, rr gy, modd wh, sft - mod frm, occ brt, sb ply-sb bkly, rthy lstr, v calc, sl brn/blk stn.	70% MARL: blk, med-dk brn, frm-sft, sb ply-sb bkly, rthy lstr, grty, modd carb mat. 30% CHK: lt-med brn, rr gy, modd wh, sft - mod frm, occ brt, sb ply-sb bkly, rthy lstr, v calc, sl brn/blk stn.	50% MARL: blk, med-dk brn, frm-sft, sb ply-sb bkly, rthy lstr, grty, modd carb mat. 50% CHK: lt-med brn, rr gy, modd wh, sft - mod frm, occ brt, sb ply-sb bkly, rthy lstr, v calc, sl brn/blk stn.
frm-sft, sb ply-sb b mat.	rr calc xis	rr calc xis	rr calc xis	rr calc xis
sl thick blu resid	Instnt mod bri blu-whi blooming cut, mod thick blu resid ring.	Instnt mod bri blu-whi blooming cut, mod thick blu resid ring.	Instnt mod bri blu-whi blooming cut, mod thick blu resid ring.	Instnt mod bri blu-whi blooming cut, mod thick blu resid ring.

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 8.190 8.200 8.210 8.220 8.230

10000
1000000
100

GAS (units)
C1-HC4 (PPM)
CO2 (percent)

MMW: 9.0 VIS: 35

Switched to Bloodhound #5726, troubleshooting software issues.

MMW: 9.1 VIS: 36

10000
1000000
100

GAS (units)
C1-HC4 (PPM)
CO2 (percent)

162

WOB 23
RPM 75
SPM 3429
SPM 87/0

141

WOB 39
RPM 0
SPM 2904
SPM 89/0

141

ROP (tthn)
Gamma (AFI)

ROP (tthn)
Gamma (AFI)



MD: 8.058'
TVD: 6,420.76'
Inclination: 90.73°
Azimuth: 180.2°
VS: 2.828.01'

MD: 8.144'
TVD: 6,418.99'
Inclination: 91.63°
Azimuth: 180.14°
VS: 2.913.52'

MD: 8.231'
TVD: 6,416.47'
Inclination: 91.66°
Azimuth: 179.39°
VS: 3.000.07'

TVD (ft)

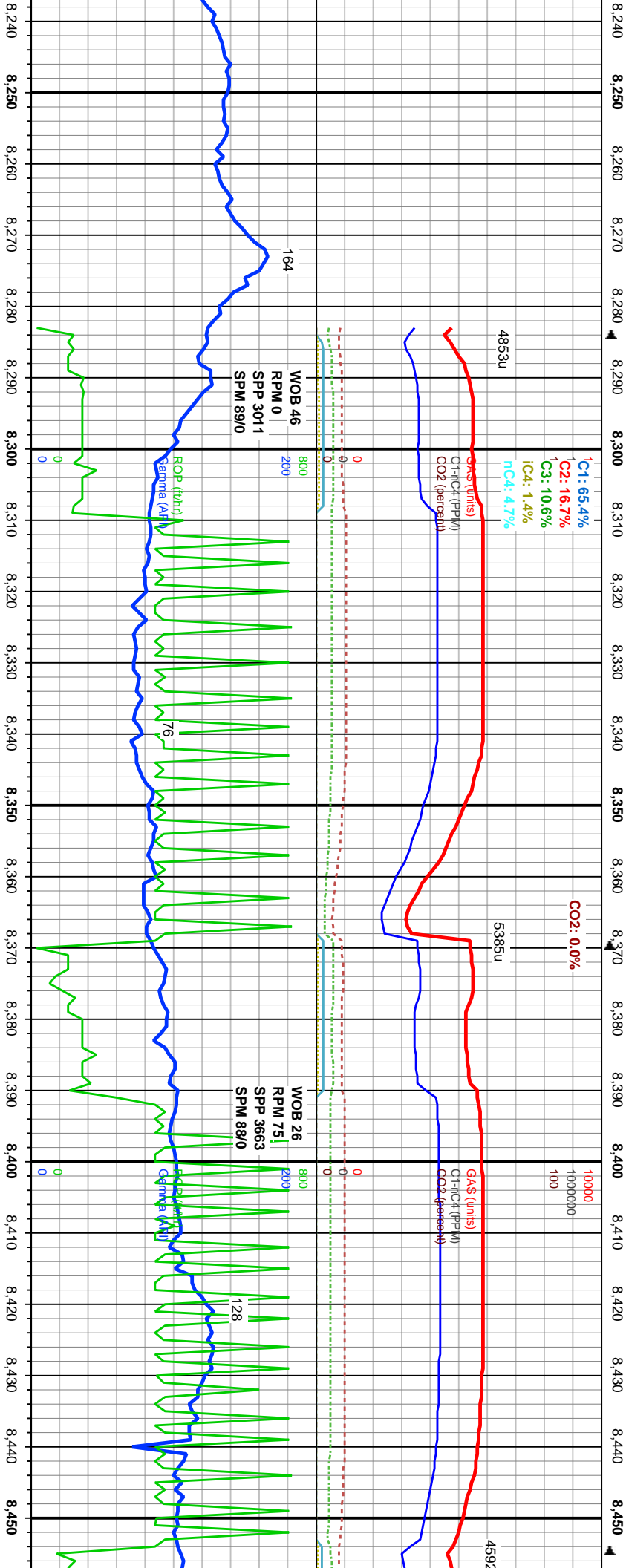
TVD (ft)

med-drk brn, frm-sft, sb ply-sb
mottld carb mat.
brn, rr gy, mottld wh, sft - mod
y-sb blk, rthy istr, v calc, sl
whi blooming cut, mod thick blu

50% MARL: blk, med-drk brn, frm-sft, sb ply-sb
blk, rthy istr, grty, mottld carb mat.
50% CHK: lt-med brn, rr gy, mottld wh, sft - mod
frm, occ brt, sb ply-sb blk, rthy istr, v calc, sl
brn/blk stn.
rr calc xls
Insnt mod bri blu-whi blooming cut, mod thick blu
resid ring.

80% MARL: blk, med-drk brn, frm-sft, sb ply-sb
blk, rthy istr, grty, mottld carb mat.
20% CHK: lt-med brn, rr gy, mottld wh, sft - mod
frm, occ brt, sb ply-sb blk, rthy istr, v calc, sl
brn/blk stn.
rr calc xls
Insnt mod bri blu-whi blooming cut, mod thick blu
resid ring.

60% CHK: lt-med brn, rr gy, mottld wh, s
frm, occ brt, sb ply-sb blk, rthy istr, v c
brn/blk stn.
40% MARL: blk, med-drk brn, frm-sft, sb
blk, rthy istr, grty, mottld carb mat.
rr calc xls
Inst bri blu-whi blooming cut, sl thick blu



ft - mod leic, sl	60% CHK: lt-med brn, rr gy, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/blk stn.	70% CHK: lt-med brn, rr gy, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/blk stn.	80% CHK: lt-med brn, rr gy, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/blk stn.	80% CHK: lt-med brn, rr gy, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/blk stn.
ply-sb	40% MARL: blk, med-dk brn, frm-sft, sb ply-sb blk, rthy lstr, grty, mottld carb mat.	30% MARL: blk, med-dk brn, frm-sft, sb ply-sb blk, rthy lstr, grty, mottld carb mat.	20% MARL: blk, med-dk brn, frm-sft, sb ply-sb blk, rthy lstr, grty, mottld carb mat.	20% MARL: blk, med-dk brn, frm-sft, sb ply-sb blk, rthy lstr, grty, mottld carb mat.
resid ring.	rr calc xls inst bri blu-whi blooming cut, sl thick blu resid ring.	rr calc xls inst bri blu-whi blooming cut, sl thick blu resid ring.	rr calc xls abn BENT SH w pyr nodes inst bri blu-whi blooming cut, sl thick blu resid ring.	rr calc x vry tr BENT SH w pyr nodes inst bri

MD: 8,316'
TVD: 6,414.55'
Inclination: 90.89°
Azimuth: 177.78°
VS: 3,084.79'

MD: 8,402'
TVD: 6,413.13'
Inclination: 91.01°
Azimuth: 177.83°
VS: 3,170.61'

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 8,630 8,640 8,650 8,660 8,670

C1: 64.5%
C2: 16.5%
C3: 10.7%
iC4: 1.1%
nC4: 4.6%

GAS (umol/s)
O2-N2C4 (PP4M)
CO2 (percent)

5519u

MW: 9.1 VIS: 37

CO2: 0.0%

10000
1000000
100

GAS (umol/s)
O2-N2C4 (PP4M)
CO2 (percent)

5705u

WOB 25
RPM 75
SPM 3625
SPM 880

90

ROF (ft/hr)
Gamma (API)

113

WOB 25
RPM 75
SPM 3689
SPM 880

ROF (ft/hr)
Gamma (API)

113

MD: 8.468'
TVD: 6,412.17'
Inclination: 90.27°
Azimuth: 175.8°
VS: 3,256.51'

TVD (ft)

80% CHK: lt-med brn, rr gy, mottld wh, sft - mod
frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl
brn/bk sn.
20% MARL: blk, med-drk brn, frm-sft, sb ply-sb
blk, rthy lstr, grty, mottld carb mat.
rr calc xls
inst bri blu-whi blooming cut, sl thick blu resid ring.

MD: 8.573'
TVD: 6,412.17'
Inclination: 89.72°
Azimuth: 177.01°
VS: 3,341.44'

TVD (ft)

90% CHK: lt-med brn, rr gy, mottld wh, sft - mod
frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl
brn/bk sn.
10% MARL: blk, med-drk brn, frm-sft, sb ply-sb
blk, rthy lstr, grty, mottld carb mat.
rr calc xls
inst bri blu-whi blooming cut, sl thick blu resid ring.

MD: 8.658'
TVD: 6,411.38'
Inclination: 91.35°
Azimuth: 177.37°
VS: 3,426.31'

TVD (ft)

90% CHK: lt-med brn, rr gy, n
frm, occ brt, sb ply-sb blk, r
brn/bk sn.
10% MARL: blk, med-drk brn,
blk, rthy lstr, grty, mottld car
rr calc xls
inst bri blu-whi blooming cut,

CHK: lt-med brn, rr gy, mottld wh, sft - mod
brt, sb ply-sb blk, rthy lstr, v calc, sl
sn.
MARL: blk, med-drk brn, frm-sft, sb ply-sb
rthy lstr, grty, mottld carb mat.
ENT SH w pyr nodes
blu-whi blooming cut, sl thick blu resid ring.

6500

6500

6500

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 8,850 8,860 8,870 8,880 8,890

MINDEPTH

C1: 71.8% C2: 18.4% 9/25/2015

C3: 9.8% C4: 0%

nC4: 0%

5461u

Gas (mils)
C1-NC4 (PP4)
CO2 (percent)

CO2: 0.0%

10000
1000000
100

5422u

Gas (mils)
C1-NC4 (PP4)
CO2 (percent)

MW: 9.1 VIS: 36

5782u

WOB 22
RPM 75
SP 3679
SPM 8/0

ROP (ft/hr)
Gamma (AFI)

142

WOB 56
RPM 0
SP 2890
SPM 0/89

ROP (ft/hr)
Gamma (AFI)

98

WOB 20
RPM 76
SP 372
SPM 88

ROP (ft/hr)
Gamma (AFI)

MD: 8.744'
TVD: 6.410.65'
Inclination: 89.62°
Azimuth: 176.91°
VS: 3.512.19'

MD: 8.829'
TVD: 6.411.42'
Inclination: 89.35°
Azimuth: 178.63°
VS: 3.597.02'

6350

6350

TVD (ft)

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

tr BENT SH w pyr nodes
inst bri blu-whi blooming cut, sl thick blu resid ring.

TVD (ft)

70% CHK: lt-med brn, rr gy, mottld wh, sft - mod
frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl
brn/bk stn.
30% MARL: blk, med-drk brn, frm-sft, sb ply-sb
blk, rthy lstr, grty, mottld carb mat.
rr calc xls

tr BENT SH w pyr nodes
inst bri blu-whi blooming cut, sl thick blu resid ring.

TVD (ft)

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

tr BENT SH w pyr nodes
inst bri blu-whi blooming cut, sl thick blu resid ring.

frm-sft, sb ply-sb
b mat.
si thick blu resid ring.

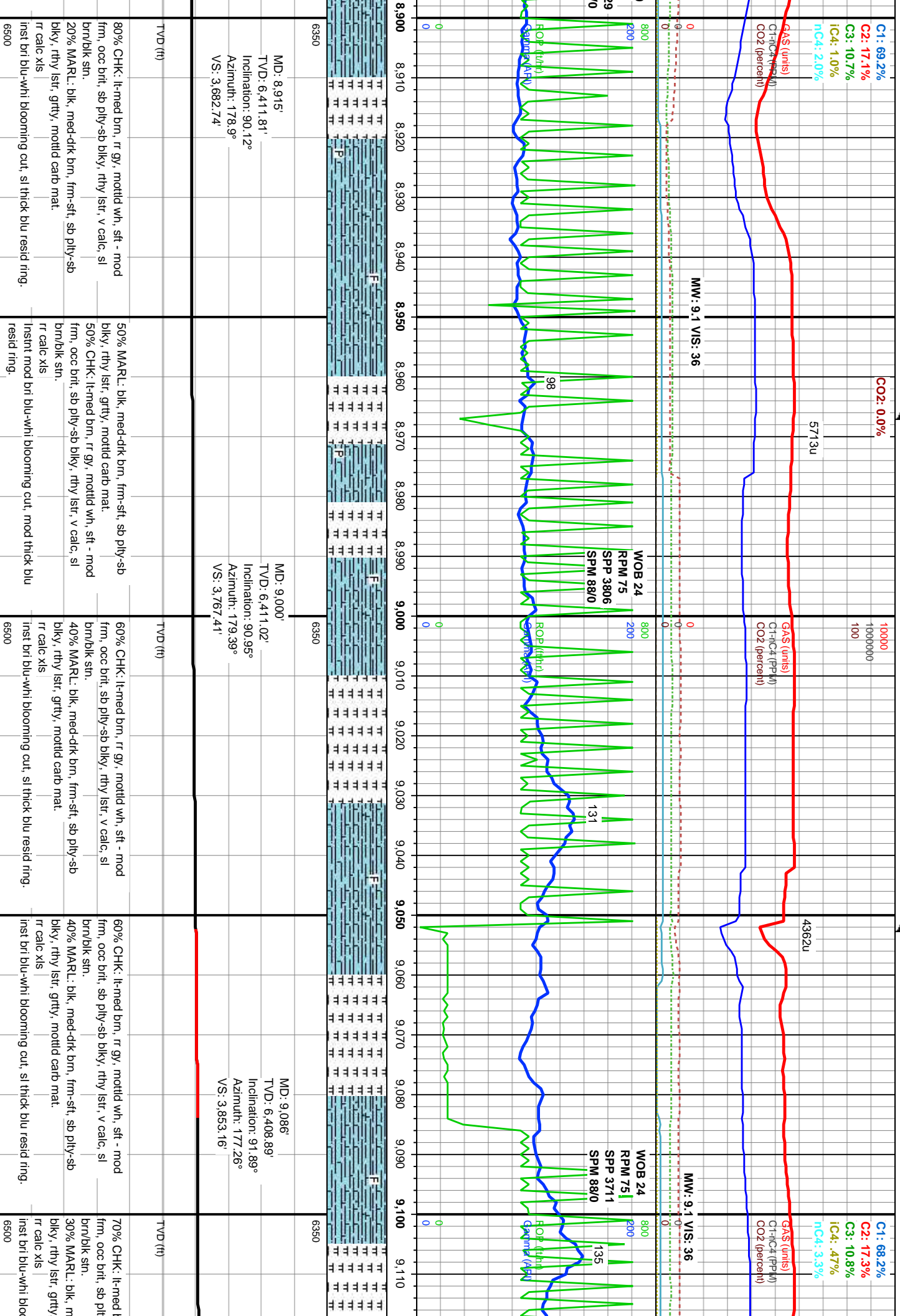
frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl
brn/bk stn.
30% MARL: blk, med-drk brn, frm-sft, sb ply-sb
blk, rthy lstr, grty, mottld carb mat.
rr calc xls

frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl
brn/bk stn.
10% MARL: blk, med-drk brn, frm-sft, sb ply-sb
blk, rthy lstr, grty, mottld carb mat.
rr calc xls

6500

6500

6500



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 9.290 9.300 9.310 9.320 9.330

CO2: 0.0%

10000
1000000
100

GAS (units)
C1-AC4 (PPM)
CO2 (percent)

5425u
5825u

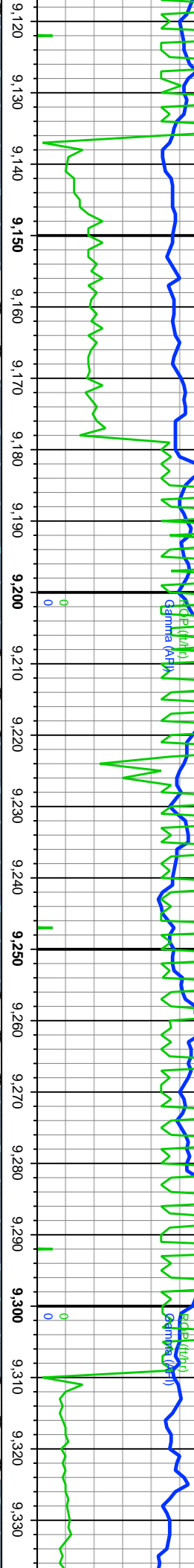
C1: 54.7%
C2: 21.2%
C3: 13.6%
iC4: 1.9%
nC4: 6.5%
GAS (units)
C1-AC4 (PPM)
CO2 (percent)

MW: 9.1 VIS: 36

MOB 23
RPM 75
SPM 3762
SPM 880

MOB 24
RPM 75
SPM 3671
SPM 890

106



MD: 9.173'
TVD: 6.408.14'
Inclination: 89.1°
Azimuth: 175.9°
VS: 3.940.07'

MD: 9.261'
TVD: 6.409.56'
Inclination: 89.04°
Azimuth: 176.06°
VS: 4.028.01'

6350

6350

60% CHK: lt-med brn, rr gy, mottld wh, sft - mod
frm, occ brlt, sb ply-sb blkly, rthy lstr, v calc, sl
brn/blk sin.
40% MARL: blk, med-drk brn, frm-sft, sb ply-sb
blkly, rthy lstr, grty, mottld carb mat.
rr calc xls
inst bri blu-whi blooming cut, sl thick blu resid ring.

70% CHK: lt-med brn, rr gy, mottld wh, sft - mod
frm, occ brlt, sb ply-sb blkly, rthy lstr, v calc, sl
brn/blk sin.
30% MARL: blk, med-drk brn, frm-sft, sb ply-sb
blkly, rthy lstr, grty, mottld carb mat.
rr calc xls
inst bri blu-whi blooming cut, sl thick blu resid ring.

med-drk brn, frm-sft, sb ply-sb
mottld carb mat.
blooming cut, sl thick blu resid ring.

70% CHK: lt-med brn, rr gy, mottld wh, sft - mod
frm, occ brlt, sb ply-sb blkly, rthy lstr, v calc, sl
brn/blk sin.
30% MARL: blk, med-drk brn, frm-sft, sb ply-sb
blkly, rthy lstr, grty, mottld carb mat.
rr calc xls
inst bri blu-whi blooming cut, sl thick blu resid ring.

9.340 9.350 9.360 9.370 9.380 9.390 9.400 9.410 9.420 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

CO₂: 0.0%

10000
1000000
100

GAS (units)
C1+C4 (PPM)
CO₂ (percent)

C1: 67.7%
C2: 16.2%
C3: 11.2%
iC4: 0.5%
nC4: 4.4%

1-3' Flare

5326u

5262u

WOB 14
RPM 75
SPM 3507
SPM 880

WOB 58
RPM 0
SPM 2994
SPM 890

ROP (ft/hr)
Gauge (psi)

ROP (ft/hr)
Gauge (psi)

84

94



TT

TT

TT

TT

TT

TT

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6350

6350

MD: 9.346'
TVD: 6,410.69'
Inclination: 89.44°
Azimuth: 178.46°
VS: 4,112.87'

MD: 9.431'
TVD: 6,410.54'
Inclination: 90.77°
Azimuth: 178.78°
VS: 4,197.61'

MD: 9.516'
TVD: 6,410.2'
Inclination: 89.69°
Azimuth: 179.39°
VS: 4,282.3'

TVD (ft)

TVD (ft)

80% CHK: lt-med brn, rr gy, mottld wh, sft - mod
frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl
brn/blk stn.
20% MARL: blk, med-dk brn, frm-sft, sb ply-sb
blk, rthy lstr, grty, mottld carb mat.
rr calc xls
inst bri blu-whi blooming cut, sl thick blu resid ring.

80% CHK: lt-med brn, rr gy, mottld wh, sft - mod
frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl
brn/blk stn.
20% MARL: blk, med-dk brn, frm-sft, sb ply-sb
blk, rthy lstr, grty, mottld carb mat.
rr calc xls
inst bri blu-whi blooming cut, sl thick blu resid ring.

80% CHK: lt-med brn, rr gy, mottld wh, sft - mod
frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl
brn/blk stn.
20% MARL: blk, med-dk brn, frm-sft, sb ply-sb
blk, rthy lstr, grty, mottld carb mat.
rr calc xls
inst bri blu-whi blooming cut, sl thick blu resid ring.

70% CHK: lt-med brn, rr gy, mottld wh, sft - mod
frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl
brn/blk stn.
30% MARL: blk, med-dk brn, frm-sft, sb ply-sb
blk, rthy lstr, grty, mottld carb mat.
rr calc xls
inst bri blu-whi rad strng cut, thick blu resid ring.

60% C
frm, oc
brn/blk
40% M
blk, r

9,560 9,570 9,580 9,590 9,600 9,610 9,620 9,630 9,640 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

CO2: 0.0%

10000
1000000
100

5368u

GAS (units)
C1-10C4 (PP4M)
CO2 (percent)

C1: 51.4%
C2: 18.2%
C3: 16.9%
C4: 1.9%
nC4: 10.2%

5268u

CO2: 0.0%

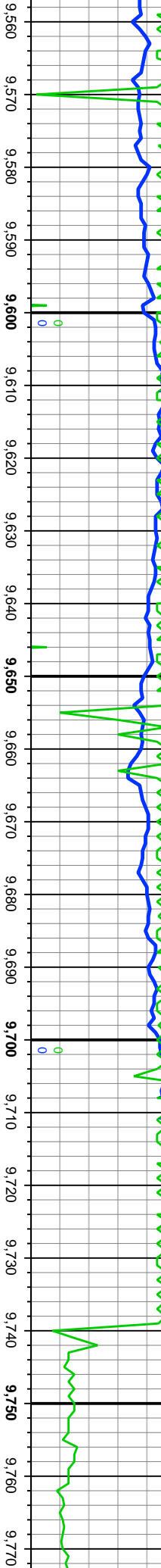
WOB 23
RPM 75
SPP 3734
SPM 0/89

WOB 19
RPM 75
SPP 3615
SPM 0/88

ROP (ft/l)
Cave (ft)

ROP (ft/l)
Cave (ft)

121



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MD: 9.601'
TVD: 6.410.25'
Inclination: 90.24°
Azimuth: 179.56°
VS: 4.366.94'

MD: 9.687'
TVD: 6.408.96'
Inclination: 91.47°
Azimuth: 179.19°
VS: 4.452.57'

MD: 9.772'
TVD: 6.407.93'
Inclination: 89.9°
Azimuth: 179.1°
VS: 4.537.24'

TVD (ft)

TVD (ft)

CHK: lt-med brn, rr gy, mottld wh, sft - mod
occ brt, sb ply-sb blk, rthy lstr, v calc, sl
brn/bk stn.

70% CHK: lt-med brn, rr gy, mottld wh, sft - mod
frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl
brn/bk stn.

MARL: blk, med-dk brn, frm-sft, sb ply-sb
blk, rthy lstr, grrty, mottld carb mat.

30% MARL: blk, med-dk brn, frm-sft, sb ply-sb
blk, rthy lstr, grrty, mottld carb mat.

70% CHK: lt-med gy, sl brn, mottld wh, sft - mod
frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl
brn/bk stn.

80% CHK: lt-med gy, sl brn, r
frm, occ brt, sb ply-sb blk, r
brn/bk stn.

blu-whi rad strmg cut, v thick blu resid ring.

inst bri blu-whi blooming cut, thick blu resid ring.

inst bri blu-whi rad strmg cut, v thick blu resid ring.

inst bri blu-whi rad strmg cut,

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 9,950 9,960 9,970 9,980 9,990

1-3' Flare

~1' Flare

100000
1000000
100

C1: 62.1%
C2: 16.9%
C3: 12.9%
iC4: 0.9%
nC4: 5.9%

CO2: 0.0%

GAS (units)
C1-HC4 (ppm)
CO2 (percent)

5550u

5338u

55

MMW: 9.3 VIS: 35

WOB 20
RPM 75
SPM 3656
SPM 0/89

WOB 19
RPM 76
SPM 3605
SPM 0/89

WOB 13
RPM 75
SPM 339
SPM 0/8

ROP (ft/hr)
Sample (psi)

ROP (ft/hr)
Sample (psi)

ROP (ft/hr)
Sample (psi)

111

114

6350

6350

6350

MD: 9.857'
TVD: 6,407.73'
Inclination: 90.33°
Azimuth: 178.92°
VS: 4,621.93'

MD: 9.943'
TVD: 6,407.74'
Inclination: 89.66°
Azimuth: 178.93°
VS: 4,707.64'

TVD (ft)

TVD (ft)

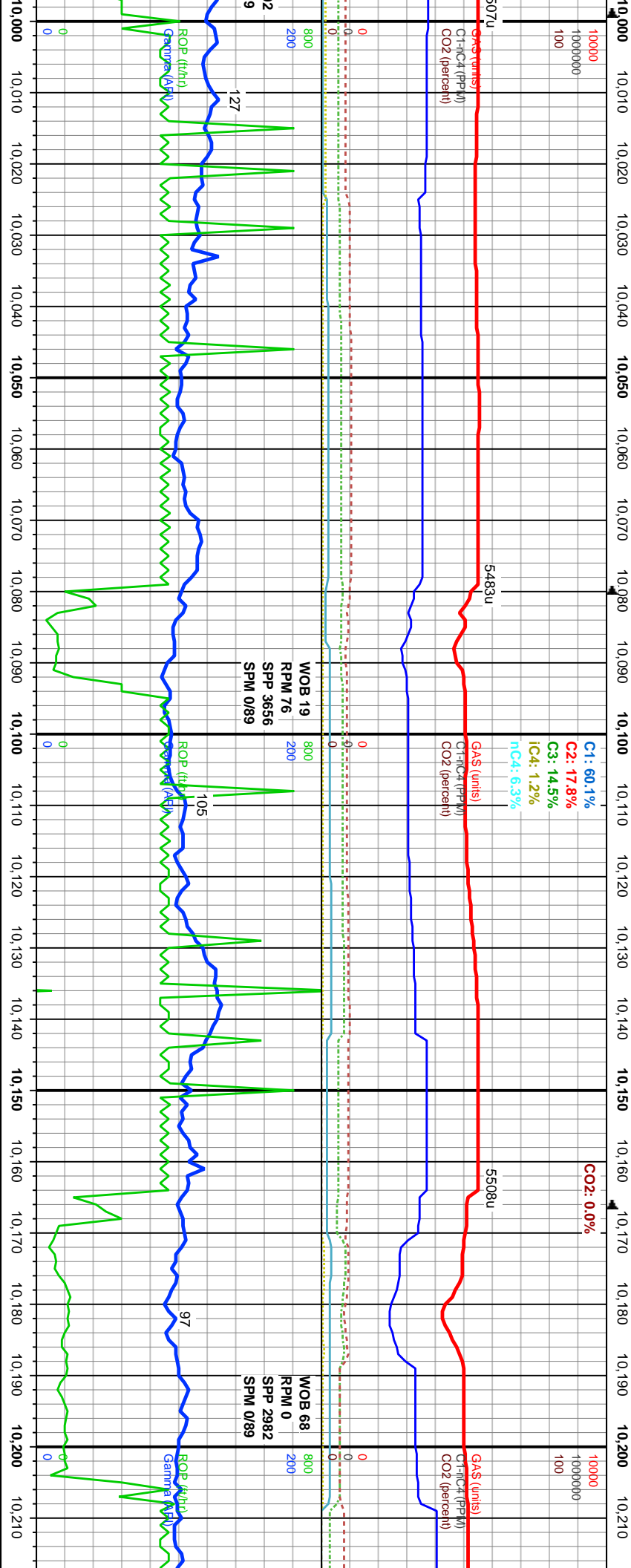
TVD (ft)

mouth wh, sft - mod
thly lstr, v calc, sl
frm-sft, sb ply-sb
b mat.
thick blu resid ring.
50% MARL: blk, med-drk brn, frm-sft, sb ply-sb
blky, rthy lstr, grty, motld carb mat.
50% CHK: lt-med gy, sl brn, motld wh, sft - mod
frm, occ brt, sb ply-sb blky, rthy lstr, v calc, sl
brn/blk sn.
rr cal frags
inst brl blu-whi rad string cut, thick blu resid ring.

60% MARL: blk, med-drk brn, frm-sft, sb ply-sb
blky, rthy lstr, grty, motld carb mat.
40% CHK: lt-med gy, sl brn, motld wh, sft - mod
frm, occ brt, sb ply-sb blky, rthy lstr, v calc, sl
brn/blk sn.
rr cal frags
inst brl blu-whi rad string cut, thick blu resid ring.

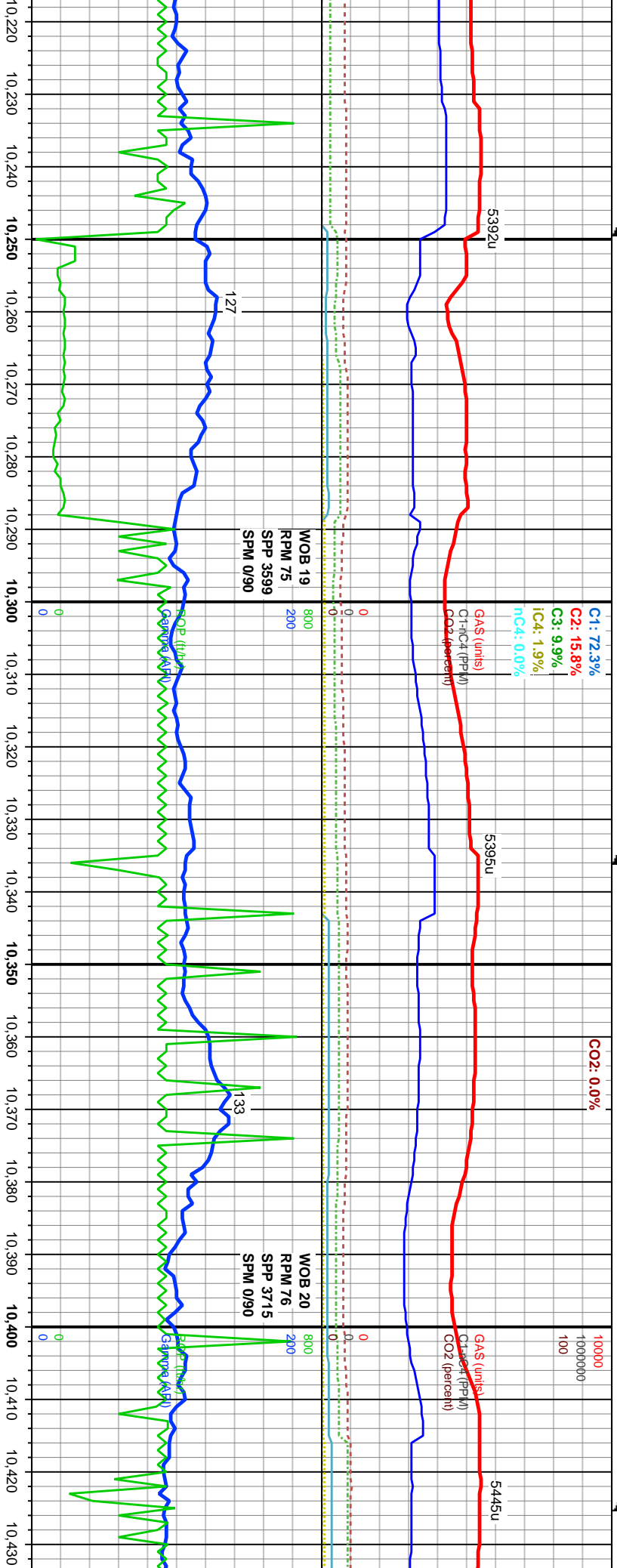
70% MARL: blk, med-drk brn, frm-sft, sb ply-sb
blky, rthy lstr, grty, motld carb mat.
30% CHK: lt-med gy, sl brn, motld wh, sft - mod
frm, occ brt, sb ply-sb blky, rthy lstr, v calc, sl
brn/blk sn.
rr cal frags
inst brl blu-whi rad string cut, thick blu resid ring.

50% MARL: blk, med-drk brn, frm-sft, sb ply-sb
blky, rthy lstr, grty, motld carb mat.
50% CHK: lt-med gy, sl brn, motld wh, sft - mod
frm, occ brt, sb ply-sb blky, rthy lstr, v calc, sl
brn/blk sn.
rr cal frags
inst brl blu-whi rad string cut, thick blu resid ring.



<div>6350</div> <div>MD: 10,028' TVD: 6,407.49' Inclination: 90.68° Azimuth: 179.53° VS: 4,792.3</div>		<div>6350</div> <div>MD: 10,113' TVD: 6,405.75' Inclination: 91.66° Azimuth: 179.27° VS: 4,876.93'</div>		<div>6350</div> <div>MD: 10,199' TVD: 6,403.63' Inclination: 91.17° Azimuth: 179.34° VS: 4,962.56'</div>	
60% CHK: lt-med gy, sl brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/blk sn.		60% CHK: lt-med gy, sl brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/blk sn.		70% CHK: lt-med gy, sl brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/blk sn.	
40% MARL: blk, med-dk brn, frm-sft, sb ply-sb blk, rthy lstr, grry, mottld carb mat.		40% MARL: blk, med-dk brn, frm-sft, sb ply-sb blk, rthy lstr, grry, mottld carb mat.		30% MARL: blk, med-dk brn, frm-sft, sb ply-sb blk, rthy lstr, grry, mottld carb mat.	
tr cal frags		tr cal frags		tr cal frags	
inst bri blu-whi rad string cut, thick blu resid ring.		inst bri blu-whi rad string cut, thick blu resid ring.		inst bri blu-whi rad string cut, thick blu resid ring.	
TVD (ft)		TVD (ft)		TVD (ft)	

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 10,390 10,400 10,410 10,420 10,430



gy, sl brn, mottld wh, sft - mod ly-sb blk, rthy lstr, v calc, sl med-dk brn, frm-sft, sb ply-sb , mottld carb mat. string cut, mod thick blu resid	MD: 10,284' TVD: 6,403.46' Inclination: 89.06° Azimuth: 178.92° VS: 5.047.24'	6350	TVD (ft)	90% CHK: lt-med gy, sl brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/blk str. 10% MARL: blk, med-dk brn, frm-sft, sb ply-sb blk, rthy lstr, grrty, mottld carb mat. tr cal frags inst brl blu-whi rad string cut, thick blu resid ring.
gy, sl brn, mottld wh, sft - mod ly-sb blk, rthy lstr, v calc, sl med-dk brn, frm-sft, sb ply-sb , mottld carb mat. string cut, mod thick blu resid	MD: 10,370' TVD: 6,404.73' Inclination: 89.25° Azimuth: 177.23° VS: 5.133.02'	6350	TVD (ft)	90% CHK: lt-med gy, sl brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/blk str. 10% MARL: blk, med-dk brn, frm-sft, sb ply-sb blk, rthy lstr, grrty, mottld carb mat. tr cal frags inst brl blu-whi rad string cut, thick blu resid ring.

10,660 10,670 10,680 10,690 10,700 10,710 10,720 10,730 10,740 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

C1: 68.6%
C2: 17.0%
C3: 12.0%
C4: 2.3%
nC4: 0.0%

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

5469u

CO2: 0.0%

10000
1000000
100

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

5715u

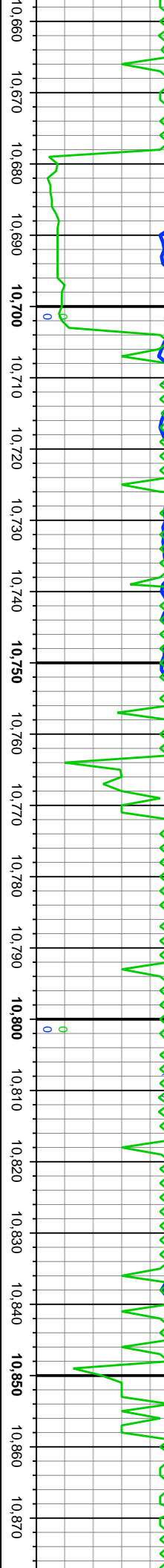
5164u

WOB 55
RPM 0
SPM 3121
SPM 0/90

WOB 19
RPM 65
SPM 3864
SPM 890

ROP (in)

ROP (in)



6350

MD: 10,711'
TVD: 6,407.18'
Inclination: 90.06°
Azimuth: 179.74°
VS: 5,473.33'

6350

MD: 10,797'
TVD: 6,406.51'
Inclination: 90.83°
Azimuth: 179.76°
VS: 5,558.92'

TVD (ft)

TVD (ft)

80% CHK: lt-med gy, sl brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl bmb/blk sn.
20% MARL: blk, med-dk brn, frm-sft, sb ply-sb blk, rthy lstr, grty, mottld carb mat.
rr cal frags
inst bri blu-whi rad strng cut, mod thick blu resid ring.

70% CHK: lt-med gy, sl brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl bmb/blk sn.
30% MARL: blk, med-dk brn, frm-sft, sb ply-sb blk, rthy lstr, grty, mottld carb mat.
rr cal frags
inst bri blu-whi rad strng cut, mod thick blu resid ring.

80% CHK: lt-med gy, sl brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl bmb/blk sn.
30% MARL: blk, med-dk brn, frm-sft, sb ply-sb blk, rthy lstr, grty, mottld carb mat.
rr cal frags
inst bri blu-whi rad strng cut, mod thick blu resid ring.

70% CHK: lt-med gy, sl brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl bmb/blk sn.
30% MARL: blk, med-dk brn, frm-sft, sb ply-sb blk, rthy lstr, grty, mottld carb mat.
rr cal frags
inst bri blu-whi rad strng cut, mod thick blu resid ring.

10,880 10,890 10,900 10,910 10,920 10,930 10,940 10,950 10,960 10,970 10,980 10,990 11,000 11,010 11,020 11,030 11,040 11,050 11,060 11,070 11,080 11,090

C1: 65.4%
C2: 17.5%
C3: 12.4%
iC4: 0.2%
nC4: 4.5%

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

5369u

MW: 9.5 VIS: 38

WOB 19
RPM 65
SPM 3900
SPM 890

WOB 21
RPM 65
SPM 3844
SPM 860

WOB 2
RPM 65
SPM 38
SPM 86

ROP (t/hr)
SARA (t/FI)
0
0

60

ROP (t/hr)
SARA (t/FI)
0
0

149

6350

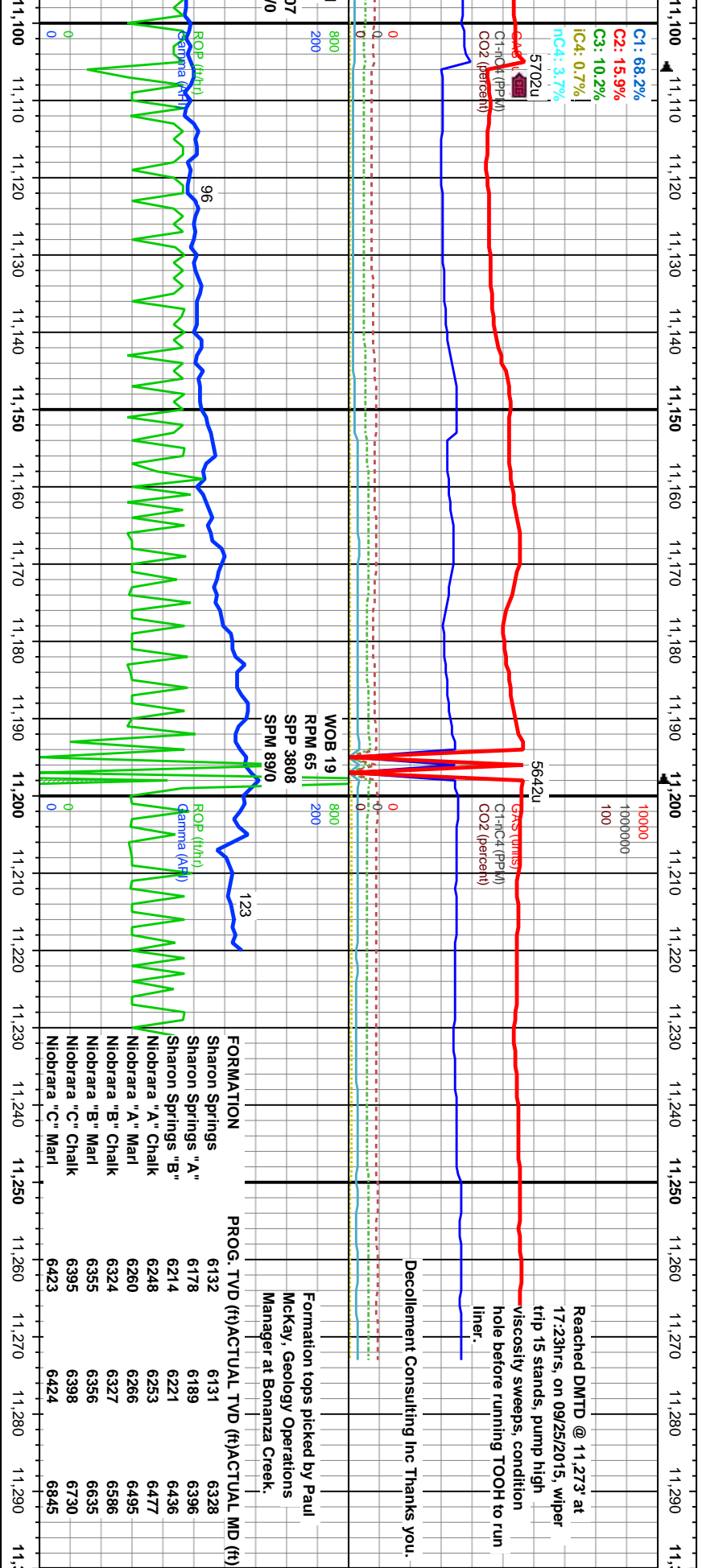
6350

MD: 11.05°
TVD: 6,402.71'
Inclination: 90.86°
Azimuth: 180.7°
VS: 5.815.45'

TVD (ft)

TVD (ft)

modtld wh, sft - mod thy lstr, v calc, sl	60% CHK: lt-med gy, sl brn, motld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/blk sn.	70% CHK: lt-med gy, sl brn, motld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/blk sn.	80% CHK: lt-med gy, sl brn, motld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/blk sn.	80% CHK: lt-med gy, sl brn, motld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/blk sn.
frm-sft, sb ply-sb b mat	40% MARL: blk, med-dk brn, frm-sft, sb ply-sb blk, rthy lstr, grry, motld carb mat.	30% MARL: blk, med-dk brn, frm-sft, sb ply-sb blk, rthy lstr, grry, motld carb mat.	20% MARL: blk, med-dk brn, frm-sft, sb ply-sb blk, rthy lstr, grry, motld carb mat.	20% MARL: blk, med-dk brn, frm-sft, sb ply-sb blk, rthy lstr, grry, motld carb mat.
mod thick blu resid	inst bri blu-wh blooming cut, thick blu resid ring.	inst bri blu-wh blooming cut, thick blu resid ring.	inst bri blu-wh rad string cut, mod thick blu resid ring.	inst bri blu-wh blooming cut, thick blu resid ring.



6350		6350	MD: 11.218' TVD: 6,400.26' Inclination: 90.86° Azimuth: 181.48° VS: 5.977.24	6350	MD: 11.273' TVD: 6,399.43' Inclination: 90.86° Azimuth: 181.48° VS: 6.031.79
TVD (ft)					
90% CHK: lt-med gy, sl brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/blk sn.					
10% MARL: blk, med-dk brn, frm-sft, sb ply-sb blk, rthy lstr, grty, mottld carb mat.					
rr cal frags, rr bent					
inst brl blu-whi blooming cut, thick blu resid ring.					
TVD (ft)					
80% CHK: lt-med gy, sl brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/blk sn.					
20% MARL: blk, med-dk brn, frm-sft, sb ply-sb blk, rthy lstr, grty, mottld carb mat.					
rr cal frags, rr bent					
inst brl blu-whi rad strng cut, mod thick blu resid ring.					