

Décollement Consulting Inc.



Scale: 5" / 100'
Measured Depth Log

Well Name North Platte K31-O34-34HNB_Lateral

Location SE/SW Section 27, T5N - R63W

State CO

County Weld

Country USA

Rig Number Xtreme 22

API Number 05-123-41887

Field Wattenberg

Region D.J. Basin

Drilling Completed 9/28/2015

Spud Date 8/28/2015

Surface Coordinates 1188 FSL x 2492 FWL (Lat: 40.36648, -104.42233)

Bottom Hole Coordinates 470 FSL x 2397 FEL (Lat: 40.35002, -104.42127)

Ground Elevation 4,541

K.B. Elevation 4,558

Logged Interval 6,950 To 11,068

Total Depth 11,068

Formation Niobrara "B" Chalk

Type of Drilling Fluid Water Based Mud

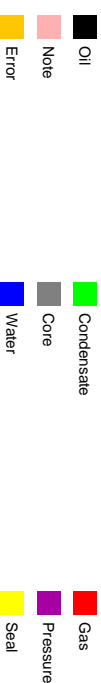
Operator

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

Geologist

Name Dan Kabala & Brian Spitzmiller
Company Décollement Consulting Inc.
Address 13300 Braun Rd.
Golden, CO. 80401

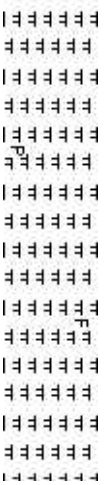
Zone Color Coding

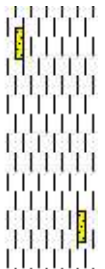


Rock Types

Blank

 CEMENT

 MPF



 SHALE S

CHALK

 LIMESTONE













 SANDSTONE

 SHALE SF


CPF  MARLSTONE  SHALE

Accessories


Fossils


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

 FOSSIL


 GASTROPOD


 OOLITE

 OSTRACOD

 PELECYPOD


 PELLET

 PISOLITE


 PLANT REMAINS

 PLANT SPORES

 SCAPHOPOD


 STROMATOPOROID


Minerals

 ANHYDRITE

 ARGILLACEOUS

 ARGILLITE GRAIN

 BENTONITE

 BITUMENOUS SUBSTANCE

 BRECCIA FRAGMENTS

 CALCAREOUS

 CARBONACEOUS FLAKES


 CHERT


 COAL - THIN BEDS


 DOLOMITIC


 FELDSPAR

 FERRUGINOUS PELLET

 FERRUGINOUS

 GLAUCONITE


 GYPSIFEROUS


 HEAVY MINERAL

 KAOLIN

 MARLSTONE


 MINERAL CRYSTALS


 NODULES

 PHOSPHATE PELLETS

 PYRITE

 SALT CAST


 SANDY

 SILTY

 TUFFACEOUS


Stringer


 ANHYDRITE STRINGER

 BENTONITE STRINGER

 COAL STRINGER

 DOLOMITE STRINGER

 GYPSUM STRINGER

 LIMESTONE STRINGER

 MARLSTONE (CAL.) STRG


 MARLSTONE (DOL.) STRG

 SANDSTONE STRINGER

 SHALE STRINGER

 SILTSTONE STRINGER

Other Symbols

 FORMATION TOP

Oil Show

 PINPOINT

 GAS SHOW

 MICROXLN


Rounding


DEAD  VUGGY


 MN DEPTH

 ANGULAR

 MUDSTONE

EVEN  NORMAL FAULT

 ROUNDED

 PACKSTONE

Engineering

QUESTIONABLE  OIL SHOW

 SUBANG

 WACKESTONE

SPOTTED STAINING  BIT

 OVERTURNED STRATA

 SUBRAND

Sorting

 CASING

 REVERSE FAULT

Porosity

 CONNECTION (LEFT)

 SIDEWALL CORE (LEFT)

 MODERATE

Textures

EARTHY  CONNECTION (RIGHT)

 SIDEWALL CORE (RIGHT)

 BOUNDSTONE

 POOR

ENESTRAL  CONNECTION GAS

 SLIDE

 CHALKY

 WELL

RACTURE  CORE - LOST

 SURVEY

 CRYPTOXLN

INTERCRYSTALLINE  CORE - RECOVERED

 TRIP GAS

 EARTHY

INTEROOLITIC  DST INTERVAL

 WIRELINE TESTED - LEFT

 FINELYXLN

MOLDIC  FAULT

 WIRELINE TESTED - RT

 GRAINSTONE

Slide/Rotate

Depth



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

Black = Slide
White = Rotate

Running through buster

C1: 72.7%
C2: 16.0%
C3: 8.7%
iC4: 0.5%
nC4: 2.1%

5033u
GAS (units)
C1-iC4 (ppm)
CO2 (percent)

5124u
GAS (units)
C1-iC4 (ppm)
CO2 (percent)

800
250

WOB 22
RPM 75
SP 3249
SPM 89/0

800
250

ROP (ft/hr)
Gamma (AFI)

Curves
ROP
Gamma

Decollement Consulting on location and rigged up with Bloodhound #5726 on 9/26/2015.

Start logging at 6,950 on 9/27/2015 at 03:33 hours.

Bit #: 1
Size: 6.125
Mfr.: VAREL
Type: VS513DGU
Depth In: 6.898'
Depth Out: 11.068'
Jets: 5X22
S/N: 4008144

135

156

Depth Labels



Interpretive Lithology

6300

Target: 6,339' TVD at 9,100' MD

6300

MD: 6,943'
TVD: 6,355.34'
Inclination: 87.07°
Azimuth: 177.56°
VS: 1,877.56'

MD: 7,028'
TVD: 6,359.31'
Inclination: 87.57°
Azimuth: 177.68°
VS: 1,962.47'

Well Bore
TVD

80% MARL: drk gy/brown-drk brwn, frm-sft, sb ply-sb blkly, rthy lstr, grty, vry mottld carb mat.
20% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blkly, rthy lstr, v calc, sl brn/blk sin.

90% MARL: drk gy/brown-drk brwn, frm-sft, sb ply-sb blkly, rthy lstr, grty, vry mottld carb mat.
10% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blkly, rthy lstr, v calc, sl brn/blk sin.

90% MARL: drk gy/brown-drk brwn, frm-sft, sb ply-sb blkly, rthy lstr, grty, vry mottld carb mat.
10% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blkly, rthy lstr, v calc, sl brn/blk sin.

abn BENT SH w pyr nodes.

abn BENT SH w pyr nodes.

abn BENT SH w pyr nodes.

poor-mod blu-whi blooming cut, sl thin org brwn resid ring.
6450

poor blu-whi blooming cut, sl thin org brwn resid ring.

poor blu-whi blooming cut, sl thin org brwn resid ring.

Oil Show

TR
P
FR
G
E

7.040 7.050 7.060 7.070 7.080 7.090 7.100 7.110 7.120 7.130 7.140 7.150 7.160 7.170 7.180 7.190 7.200 7.210 7.220 7.230 7.240 7.250

CO2: 0.0%

10000
1000000
100

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

4036u

MW: 9.1 VIS 35

WOB 17
RPM 75
SPP 3127
SPM 89/0

129

ROP (ft/hr)
250

0

6300

MD: 7.114'
TVD: 6,361.69'
Inclination: 89.26°
Azimuth: 178.52°
VS: 2,048.42'

90% MARL: dk gy/bwn-dk brwn, frm-sft, sb ply-sb
biky, rthy lstr, grty, vry mottld carb mat.
10% CHK: lt-med gy, occ brn, mottld wh, sft - mod
frm, occ brt, sb ply-sb biky, rthy lstr, v calc, sl
brn/bk sin.

abn BENT SH w pyr nod.

abn calc frag.

poor blu-whi blooming cut, sl thin org brwn resid
ring.

3243u

WOB 22
RPM 75
SPP 3395
SPM 89/0

119

ROP (ft/hr)
250

0

6300

MD: 7.200'
TVD: 6,363.23'
Inclination: 88.68°
Azimuth: 179.43°
VS: 2,134.36'

90% MARL: dk gy/bwn-dk brwn, frm-sft, sb ply-sb
biky, rthy lstr, grty, vry mottld carb mat.
10% CHK: lt-med gy, occ brn, mottld wh, sft - mod
frm, occ brt, sb ply-sb biky, rthy lstr, v calc, sl
brn/bk sin.

abn BENT SH w pyr nod.

abn calc frag.

poor blu-whi blooming cut, sl thin org brwn resid
ring.

C1: 72.5%
C2: 17.7%
C3: 9.8%
iC4: 0.0%
nC4: 0.0%

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

3978u

MW

6300

80% MARL: dk gy/bwn-dk brwn, frm-sft, sb ply-sb
biky, rthy lstr, grty, vry mottld carb mat.
20% CHK: lt-med gy, occ brn, mottld wh, sft - mod
frm, occ brt, sb ply-sb biky, rthy lstr, v calc, sl
brn/bk sin.

tr BENT SH w pyr nod.

com calc frag.

poor blu-whi bleeding cut, sl thin org brwn resid
ring.

90% M
biky, rthy lstr, grty, vry mottld carb mat.
10% C
frm, occ
brn/bk

occ BE
com ce

poor bl
ring.

t, sb ply-sb
biky, rthy lstr, grty, vry mottld carb mat.
10% CHK: lt-med gy, occ brn, mottld wh, sft - mod
frm, occ brt, sb ply-sb biky, rthy lstr, v calc, sl
brn/bk sin.

abn BENT SH w pyr nod.

abn calc frag.

poor blu-whi blooming cut, sl thin org brwn resid
ring.

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 7,670 7,680 7,690

10000
1000000
100

Gas (units)
C1: 68.7%
C2: 17.8%
C3: 10.9%
iC4: 0.0%
nC4: 2.5%C1-HC4 (PPM)
CO2 (percent)

4236u

Gas (units)
C1: 68.7%
C2: 17.8%
C3: 10.9%
iC4: 0.0%
nC4: 2.5%C1-HC4 (PPM)
CO2 (percent)

CO2: 0.0%

4845u

WOB 16
RPM 75
SPM 3266
SPM 89/0

WOB 40
RPM 0
SPM 3080
SPM 90/0

WOB 18
RPM 75
SPM 336
SPM 89/0

ROP (ft/hr)
Gamma (API)

144

ROP (ft/hr)
Gamma (API)

137

6300

6300

MD: 7.542'
TVD: 6,355.58'
Inclination: 91.6°
Azimuth: 180.32°
VS: 2,475.77'

MD: 7.627'
TVD: 6,363.76'
Inclination: 90.86°
Azimuth: 180.19°
VS: 2,560.63'

brwn, frm-sft, sb
mottld carb mat.
mottld wh, sft - mod
lthy str, v calc, sl

95% MARL: dk gy/brwn-dk brwn, frm-sft, sb ply-sb
blkly, rthy lstr, grtly, vry mottld carb mat.
5% CHK: lt-med gy, occ brn, mottld wh, sft - mod
frm, occ brt, sb ply-sb blkly, rthy lstr, v calc, sl
brn/blk sin.

80% MARL: dk gy/brwn-dk brwn, frm-sft, sb ply-sb
blkly, rthy lstr, grtly, vry mottld carb mat.
20% CHK: lt-med gy, occ brn, mottld wh, sft - mod
frm, occ brt, sb ply-sb blkly, rthy lstr, v calc, sl
brn/blk sin.

70% MARL: dk gy/brwn-dk brwn, frm-sft, sb ply-sb
blkly, rthy lstr, grtly, vry mottld carb mat.
30% CHK: lt-med gy, occ brn, mottld wh, sft - mod
frm, occ brt, sb ply-sb blkly, rthy lstr, v calc, sl
brn/blk sin.

tr BENT SH w pyr nods.
tr calc frag.

tr BENT SH w pyr nods.
tr calc frag.

abndt BENT SH w pyr nods.
abndt calc frag.

abndt BENT SH w pyr nods.
abndt calc frag.

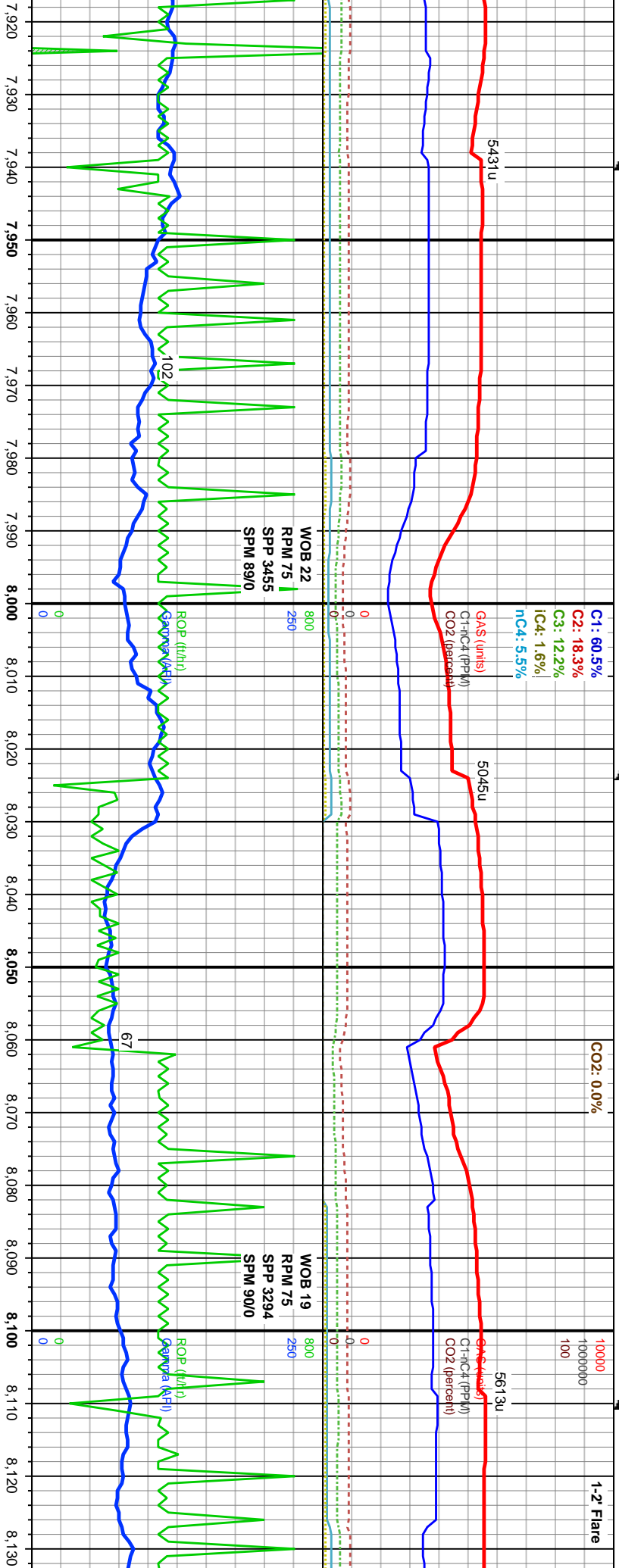
slw dul blu-whi bleeding cut, sl thin org brwn
resid ring.

poor blu-whi milky cut, sl thin org brwn resid
ring.

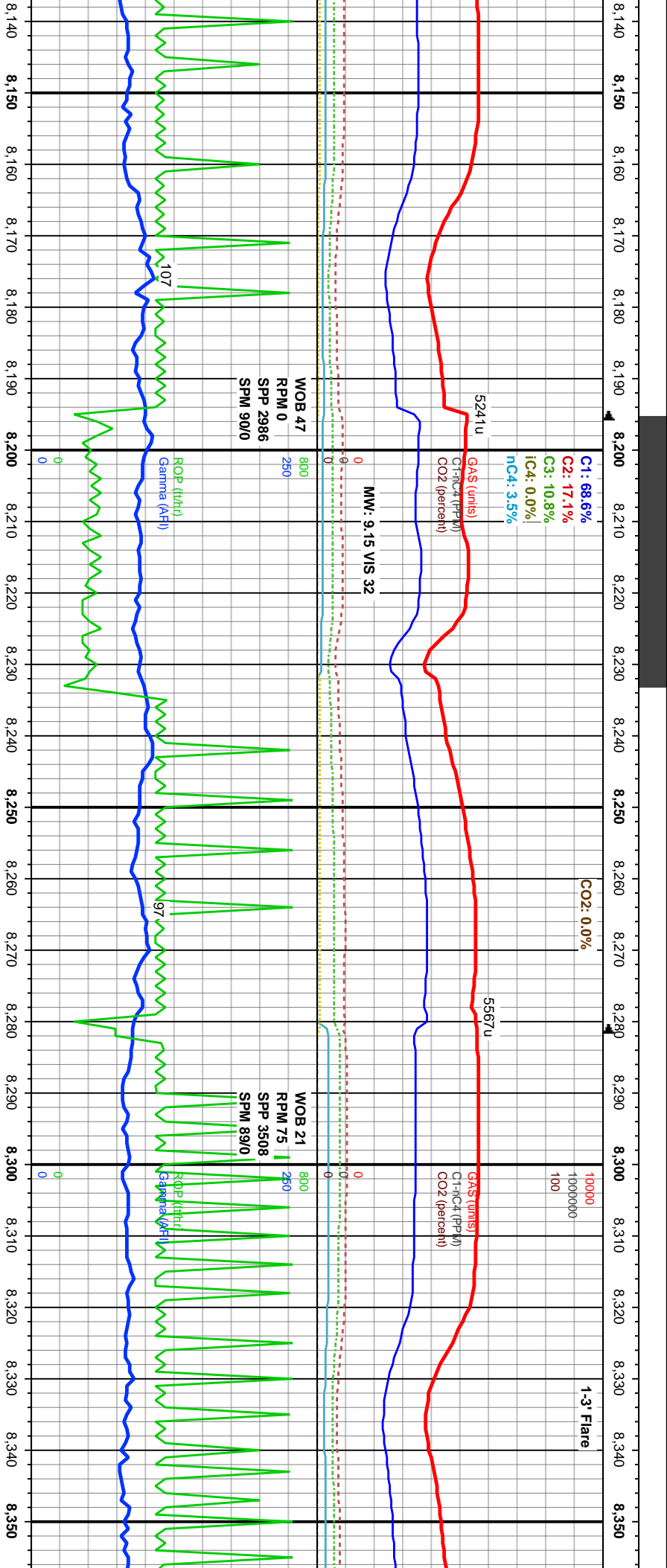
poor blu-whi bleeding cut, sl thin org brwn resid
ring.

poor blu-whi bleeding cut, sl thin org brwn
resid ring.

7.920 7.930 7.940 7.950 7.960 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



7.920	7.930	7.940	7.950	7.960	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
MD: 7.973' TVD: 6,347.56' Inclination: 91.95° Azimuth: 179.65° VS: 2,906.17'																				6300	
70% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy istr, v calc, sl brn/blk sin. 30% MARL: dk gy/brwn-dk brwn, frm-sft, sb ply-sb blk, rthy istr, grty, vry mottld carb mat. rr BENT SH w pyr nods. corn calc frag. insnt bri blu-whi rad strmg cut, sl thck blu resid ring.																				6300	
90% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy istr, v calc, sl brn/blk sin. 10% MARL: dk gy/brwn-dk brwn, frm-sft, sb ply-sb blk, rthy istr, grty, vry mottld carb mat. rr BENT SH w pyr nods. rr calc frag. insnt bri blu-whi rad strmg cut, sl thck blu resid ring.																				6300	
TVD (ft) 90% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy istr, v calc, sl brn/blk sin. 10% MARL: dk gy/brwn-dk brwn, frm-sft, sb ply-sb blk, rthy istr, grty, vry mottld carb mat. rr BENT SH w pyr nods. rr calc frag. insnt bri blu-whi blooming cut, thck blu re																				6300	



D: 8,144'		6300	MD: 8,231'	6300	MD: 8,316'
D: 6,342.68'			TVD: 6,341.65'		TVD: 6,341.12'
Inclination: 91.32°			Inclination: 90.03°		Inclination: 90.68°
azimuth: 178.78°			Azimuth: 178.27°		Azimuth: 178.51°
S: 3,076.99'			VS: 3,163.96'		VS: 3,248.94'
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.		100% 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.		100% 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/brwn-dk brwn, frm-sft, sb ply-sb blk, rthy lstr, gfty, vry mottld carb mat.		tr MARL: dk gy/brwn-dk brwn, frm-sft, sb ply-sb blk, rthy lstr, gfty, vry mottld carb mat.		tr MARL: dk gy/brwn-dk brwn, frm-sft, sb ply-sb blk, rthy lstr, gfty, vry mottld carb mat.	
rr BENT SH w pyr nods.		rr BENT SH w pyr nods.		rr BENT SH w pyr nods.	
rr calc frag.		com calc frag.		rr calc frag.	
insnt bri blu-whi blooming cut, mod thck blu resid ring.		insnt bri blu-whi rad strmg cut, sl thck blu resid ring.		insnt bri blu-whi rad strmg cut, thck blu resid ring.	

8,360 8,370 8,380 8,390 8,400 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

C1: 67.7%
C2: 17.5%
C3: 11.3%
C4: 3.2%
nC4: 0.3%

GA\$ (units)
C1-NC4 (PPM)
CO2 (percent)

4944u

5680u

4880u

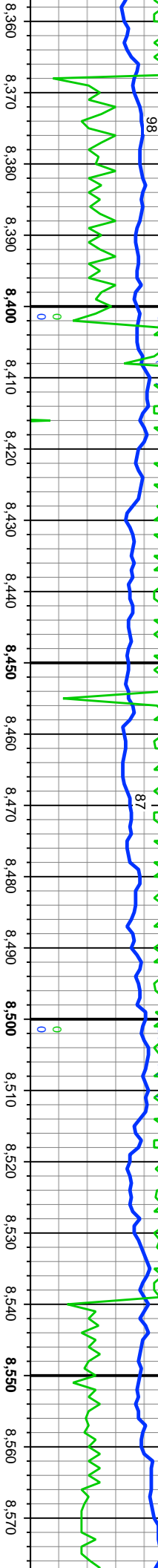
MW: 9.15 VIS 32

WOB 51
RPM 0
SPP 3094
SPM 90/0

WOB 21
RPM 75
SPP 3492
SPM 89/0

ROP (t/h)
Gasline (t/h)

ROP (t/h)
Gasline (t/h)



MD: 8.402°
TVD: 6.340.59°
Inclination: 90.03°
Azimuth: 180.04°
VS: 3.334.87

MD: 8.487°
TVD: 6.340.07°
Inclination: 90.67°
Azimuth: 180.23°
VS: 3.419.76

MD: 8.573°
TVD: 6.339.55°
Inclination: 90°
Azimuth: 179°
VS: 3.505.66

CHK: lt-med gy, occ brn, mottld wh, sft - n, occ brt, sb ply-sb blk, rthy lstr, v calc, sl sn. l: dtk gy/brwn-dtk brwn, frm-sft, sb ply-sb rthy lstr, grtty, vry mottld carb mat.	TVD (ft) 95% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/bk sn. 5% MARL: dtk gy/brwn-dtk brwn, frm-sft, sb ply-sb blk, rthy lstr, grtty, vry mottld carb mat.	90% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/bk sn. 10% MARL: dtk gy/brwn-dtk brwn, frm-sft, sb ply-sb blk, rthy lstr, grtty, vry mottld carb mat.	TVD (ft) 95% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/bk sn. 5% MARL: dtk gy/brwn-dtk brwn, frm-sft, sb ply-sb blk, rthy lstr, grtty, vry mottld carb mat.	100% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/bk sn. com MARL: dtk gy/brwn-dtk k k blk, rthy lstr, grtty, vry mottld
T SH w pyr nods. rr 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. rr calc frag.	rr BENT SH w pyr nods. rr calc frag.
insnt bri blu-whi blooming cut, thick blu resid ring.	insnt bri blu-whi blooming cut, thick blu resid ring.	insnt bri blu-whi blooming cut, thick blu resid ring.	insnt bri blu-whi blooming cut, thick blu resid ring.	insnt bri blu-whi rad string cut

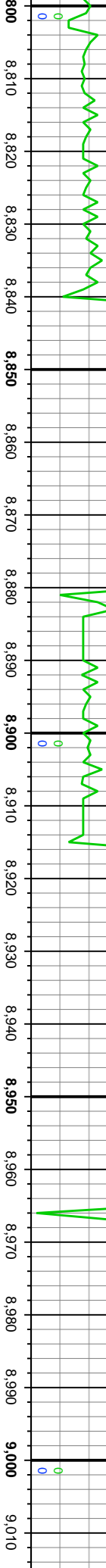
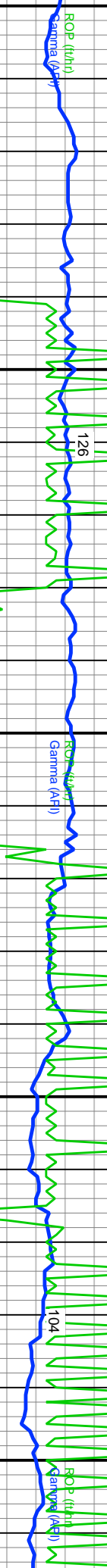
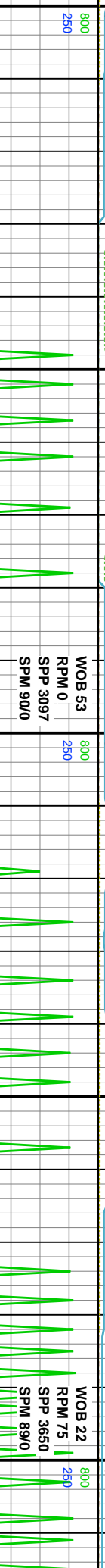
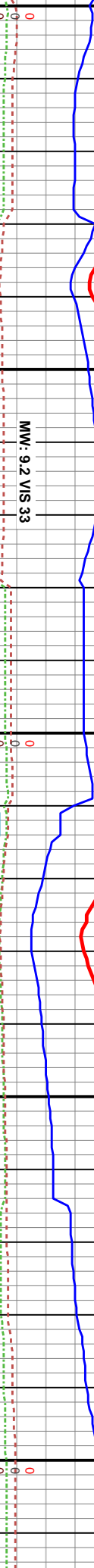
8,800 8,810 8,820 8,830 8,840 8,850 8,860 8,870 8,880 8,890 8,900 8,910 8,920 8,930 8,940 8,950 8,960 8,970 8,980 8,990 9,000 9,010

C1: 62.3% C2: 17.2% C3: 11.5% IC4: 1.3% nC4: 5.1% CO2: 0.0%

C1: 68.4% C2: 17.2% C3: 11.4% IC4: 0.0% nC4: 2.9%

GAS (units)
C1-NC4 (PPM)
CO2 (percent)

GAS (units)
C1-NC4 (PPM)
CO2 (percent)



MD: 8,829'
TVD: 6,336.73'
Inclination: 91.01°
Azimuth: 179.01°
VS: 3,761.45'

MD: 8,915'
TVD: 6,336.63'
Inclination: 89.13°
Azimuth: 178.7°
VS: 3,847.4'

MD: 9,000'
TVD: 6,337.6'
Inclination: 89.56°
Azimuth: 178.27°
VS: 3,932.38'

6300
TVD (ft)
100% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brit, sb ply-sb blkly, rthy lstr, v calc, sl brn/bk sin.
com MARL: dk gy/brwn-dk brwn, frm-sft, sb ply-sb blkly, rthy lstr, grtty, vry mottld carb mat.
rr calc frag.
insnt bri blu-whi rad string cut, thck blu resid ring.

6300
TVD (ft)
95% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brit, sb ply-sb blkly, rthy lstr, v calc, sl brn/bk sin.
5% MARL: dk gy/brwn-dk brwn, frm-sft, sb ply-sb blkly, rthy lstr, grtty, vry mottld carb mat.
rr BENT w/ pyr nodes
rr calc frag.
insnt bri blu-whi rad string cut, thck blu resid ring.

6300
TVD (ft)
100% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brit, sb ply-sb blkly, rthy lstr, v calc, sl brn/bk sin.
com MARL: dk gy/brwn-dk brwn, frm-sft, sb ply-sb blkly, rthy lstr, grtty, vry mottld carb mat.
rr calc frag.
insnt bri blu-whi blooming cut, thck blu resid ring.

6300
TVD (ft)
100% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brit, sb ply-sb blkly, rthy lstr, v calc, sl brn/bk sin.
com MARL: dk gy/brwn-dk brwn, frm-sft, sb ply-sb blkly, rthy lstr, grtty, vry mottld carb mat.
rr calc frag.
insnt bri blu-whi blooming cut, mod thck blu resid ring.

9,020 9,030 9,040 9,050 9,060 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

CO2: 0.0%

10000
1000000
100

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

5496u

5067u

5362u

MW: 9.2 VIS 33

C1: 65.7%
C2: 19.2%
C3: 13.0%
IC4: 2.1%
nC4: 0.0%

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

WOB 21
RPM 75
SPM 3667
SPM 89/0

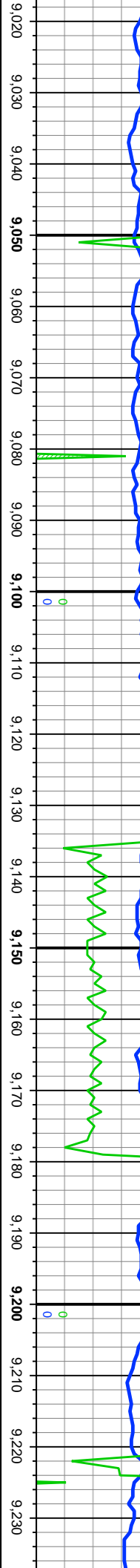
WOB 20
RPM 75
SPM 3564
SPM 0/90

ROP (ft/hr)
Gdmm (AE)

ROP (ft/hr)
Gdmm (AE)

86

90



MD: 9.173'
TVD: 6.339.2'
Inclination: 89.38°
Azimuth: 178.91°
VS: 4.105.32'

d gy, occ brn, mottld wh, sft - sb ply-sb blkly, rthy lstr, v calc, sl /brwn-drk brwn, frm-sft, sb ply-sb blkly, vry mottld carb mat.	100% CHK: It-med gy, occ brn, mottld wh, sft - mod frm, occ brit, sb ply-sb blkly, rthy lstr, v calc, sl brn/bk sin. com MARL: drk gy/brwn-drk brwn, frm-sft, sb ply-sb blkly, rthy lstr, grtty, vry mottld carb mat.	TVD (ft) 6300	insnt bri blu-whi blooming cut, mod thck blu resid ring.
ooming cut, mod thck blu resid	rr calc frag.	6300	insnt bri blu-whi blooming cut, mod thck blu resid ring.

9,240 9,250 9,260 9,270 9,280 9,290 9,300 9,310 9,320 9,330 9,340 9,350 9,360 9,370 9,380 9,390 9,400 9,410 9,420 9,430 9,440 9,450

CO2: 0.0%

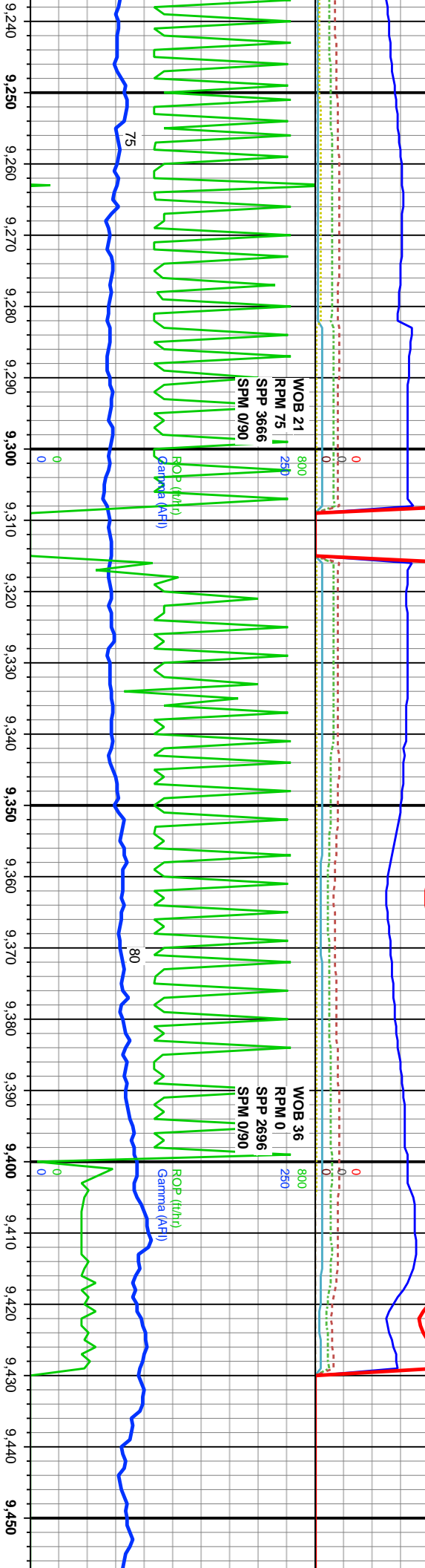
-1' Flare

C1: 64.6%
C2: 17.2%
C3: 11.7%
iC4: 1.0%
nC4: 5.4%

Hole Depth Reset

GAS (units)
CHOC4 (PPH)
CO2 (percent)

4900u 3AS (units)
CHOC4 (PPH)
CO2 (percent)



MD: 9,260'
TVD: 6,340'
Inclination: 89.56°
Azimuth: 179.47°
VS: 4,192.26'

MD: 9,346'
TVD: 6,339.6'
Inclination: 90.98°
Azimuth: 179.56°
VS: 4,278.18'

6300

95% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/bk stn. 5% MARL: drk gy/bwn-drk brwn, frm-sft, sb ply-sb blk, rthy lstr, grty, vry mottld carb mat.	95% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/bk stn. 5% MARL: drk gy/bwn-drk brwn, frm-sft, sb ply-sb blk, rthy lstr, grty, vry mottld carb mat.	100% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/bk stn. tr MARL: drk gy/bwn-drk brwn, frm-sft, sb ply-sb blk, rthy lstr, grty, vry mottld carb mat.	100% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blk, rthy lstr, v calc, sl brn/bk stn. com MARL: drk gy/bwn-drk brwn, frm-sft, sb ply-sb blk, rthy lstr, grty, vry mottld carb mat.
tr BENT SH w/ pyr nods rr calc frag.	tr BENT SH w/ pyr nods rr calc frag.	tr BENT SH w/ pyr nods rr calc frag.	tr BEN rr calc
insnt bri blu-whi blooming cut, mod thck blu resid ring.	insnt bri blu-whi blooming cut, mod thck blu resid ring.	insnt bri blu-whi blooming cut, mod thck blu resid ring.	insnt b

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 9,870 9,880 9,890

10000
1000000
100

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

4857u

MW: 9.1 VIS 35

C1: 65.6%
C2: 16.4%
C3: 11.6%
iC4: 77%
nC4: 4.5%

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

4868u

CO2: 0.0%

WOB 18
RPM 75
SPP 3368
SPM 0/90

800
250

ROP (ft/hr)
Gas (lb/hr)
Grain (lb/hr)

126

WOB 26
RPM 75
SPP 3639
SPM 0/90

800
250

ROP (ft/hr)
Gas (lb/hr)
Grain (lb/hr)

92

WOB 22
RPM 75
SPP 3630
SPM 89/0

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 9,870 9,880 9,890

MD: 9.686'
TVD: 6.334.63'
Inclination: 90.43°
Azimuth: 179.79°
VS: 4.617.71'

6300

95% 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.
5% MARL: drk gy/brwn-drk brwn, frm-sft, sb ply-sb
blk, rthy istr, grty, vry mottld carb mat.

tr BENT SH w/ pyr nodes
tr calc frag.

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

MD: 9.772'
TVD: 6.335.45'
Inclination: 86.48°
Azimuth: 179.22°
VS: 4.703.63'

6300

100% 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 MARL: drk gy/brwn-drk brwn, frm-sft, sb ply-sb
blk, rthy istr, grty, vry mottld carb mat.

tr BENT SH w/ pyr nodes
tr calc frag.

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

MD: 9.857'
TVD: 6.336.99'
Inclination: 89.44°
Azimuth: 178.62°
VS: 4.788.57'

6300

100% 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 MARL: drk gy/brwn-drk brwn, frm-sft, sb ply-sb
blk, rthy istr, grty, vry mottld carb mat.

abn BENT SH w/ pyr nodes
tr calc frag.

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

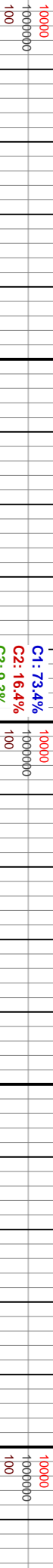
mod thck blu resid

ring.

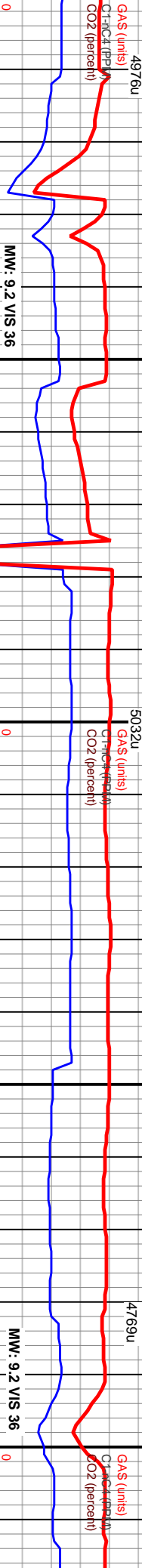
ring.

ring.

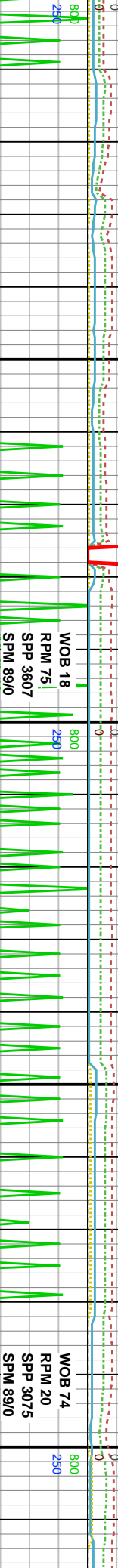
9,900 9,910 9,920 9,930 9,940 9,950 9,960 9,970 9,980 9,990 10,000 10,010 10,020 10,030 10,040 10,050 10,060 10,070 10,080 10,090 10,100 10,110



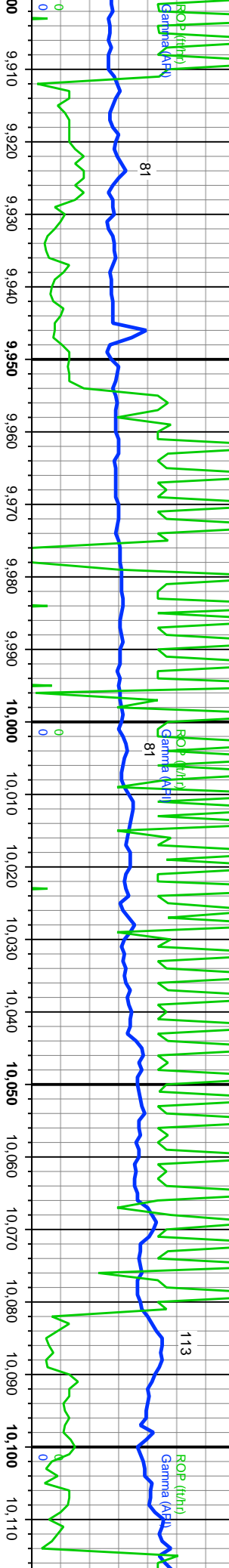
C1: 73.4%
C2: 16.4%
C3: 9.3%
iC4: 0.0%
nC4: .87%



MW: 9.2 VIS 36



WOB 74
RPM 20
SPM 3075
SPM 89/0



WOB 18
RPM 75
SPM 3607
SPM 89/0



MD: 10,028'
TVD: 6,335.59'
Inclination: 91.5°
Azimuth: 180.31°
VS: 4,959.42'

630MD: 10,113'
TVD: 6,333.63'
Inclination: 91°
Azimuth: 180.2°
VS: 5,044.26'

100% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blkly, rthy lstr, v calc, sl brn/bk stn.
com MARL: dk gy/brwn-dk brwn, frm-sft, sb ply-sb blkly, rthy lstr, grtty, vry mottld carb mat.

95% CHK: lt-med gy, occ brn, mottld wh, sft - mod frm, occ brt, sb ply-sb blkly, rthy lstr, v calc, sl brn/bk stn.
5% MARL: dk gy/brwn-dk brwn, frm-sft, sb ply-sb blkly, rthy lstr, grtty, vry mottld carb mat.

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

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

abn BENT SH w/ pyr nods
rr calc frag.

abn BENT SH w/ pyr nods
rr calc frag.

abn BENT SH w/ pyr nods
rr calc frag.

abn BENT SH w/ pyr nods
rr calc frag.

insnt bri blu-whi rad string cut, mod thick blu resid ring.
6450

insnt bri blu-whi blooming cut, mod thick blu resid ring.
6450

insnt bri blu-whi blooming cut, mod thick blu resid ring.
6450

insnt bri blu-whi blooming cut, mod thick blu resid ring.
6450

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 10,530 10,540 10,550

C1: 69.9%
C2: 15.2%
C3: 9.2%
iC4: .57%
nC4: 3.4%

10000
1000000
100

GAS (units)
GAS (ppm)
CO2 (percent)

4970u

CO2: 0.0%

10000
1000000
100

GAS (units)
GAS (ppm)
CO2 (percent)

5543u

0 MW: 9.2 VIS 37

WOB 16
RPM 75
SPM 3614
SPM 89/0

800
250
1502 (ft/hr)
Gamma (API)

162

WOB 23
RPM 75
SPM 3788
SPM 88/0

800
250
1502 (ft/hr)
Gamma (API)

91

MD: 10,370'
TVD: 6,327.74'
Inclination: 90.03°
Azimuth: 181.37°
VS: 5,300.54'

6300

MD: 10,455'
TVD: 6,329.57'
Inclination: 87.5°
Azimuth: 178.95°
VS: 5,365.39'

Target: 6,332' TVD at 10,500' MD

6300

MD: 10,541'
TVD: 6,332.81'
Inclination: 88.18°
Azimuth: 178.47°
VS: 5,471.3'

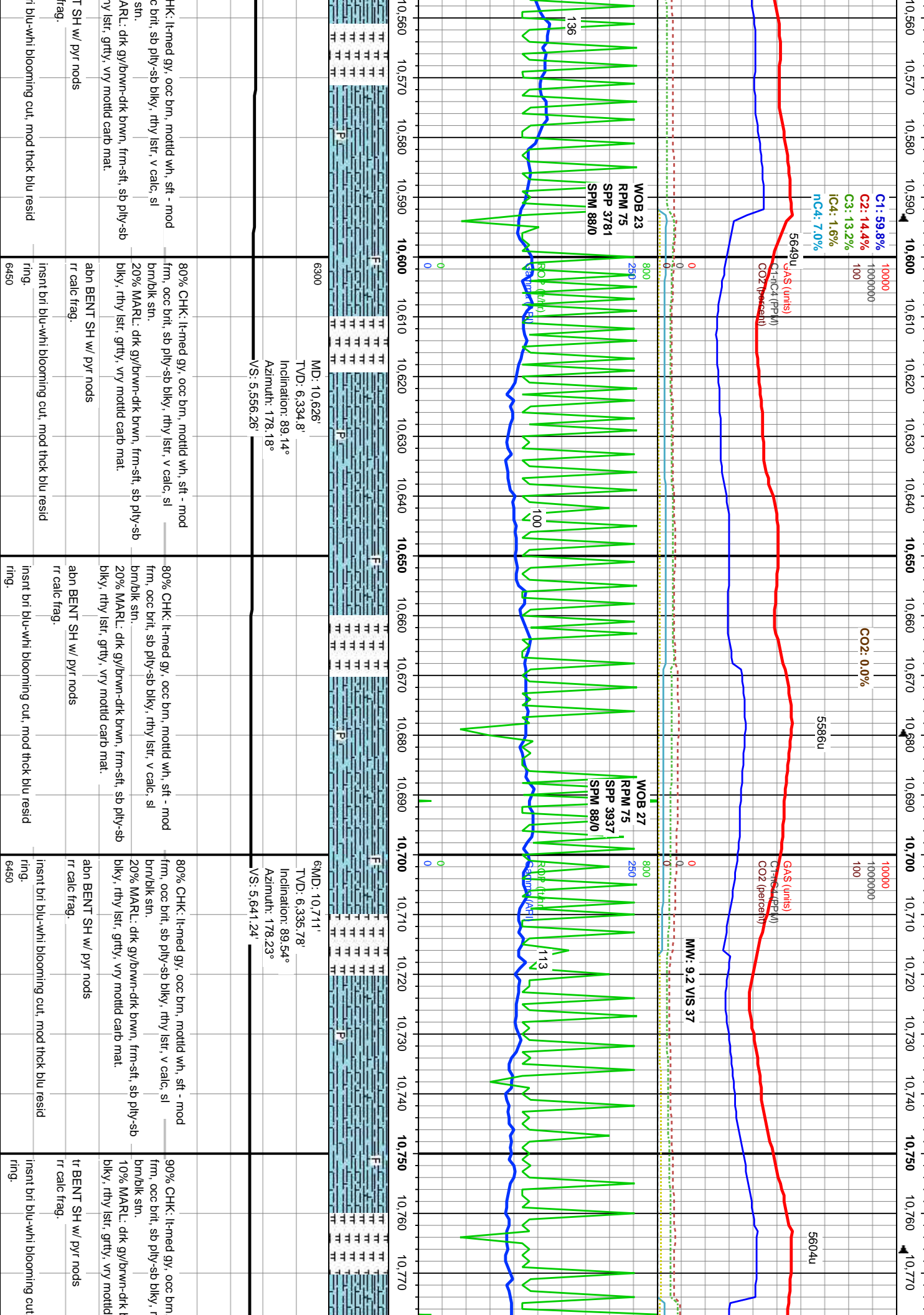
sft - mod
alc, sl
frt, sb ply-sb
50% CHK: lt-med gy, occ brn, mottld wh, sft - mod
frm, occ brt, sb ply-sb blkly, rthy lstr, v calc, sl
brn/blk sn.
50% MARL: drk gy/brwn-drk brwn, frm-sft, sb ply-sb
blkly, rthy lstr, grtty, vry mottld carb mat.
abn BENT SH w/ pyr nodes
rr calc frag.
vry good bri blu-whi blooming cut, mod thick blu
resid ring.

80% MARL: drk gy/brwn-drk brwn, frm-sft, sb ply-sb
blkly, rthy lstr, grtty, vry mottld carb mat.
20% CHK: lt-med gy, occ brn, mottld wh, sft - mod
frm, occ brt, sb ply-sb blkly, rthy lstr, v calc, sl
brn/blk sn.
tr BENT SH w pyr nodes.
com calc frag.
good blu-whi bleeding cut, sl thin org brwn resid
ring.
6450

60% MARL: drk gy/brwn-drk brwn, frm-sft, sb ply-sb
blkly, rthy lstr, grtty, vry mottld carb mat.
40% CHK: lt-med gy, occ brn, mottld wh, sft - mod
frm, occ brt, sb ply-sb blkly, rthy lstr, v calc, sl
brn/blk sn.
tr BENT SH w pyr nodes.
com calc frag.
inst blu-whi bleeding cut, sl thin org brwn resid
ring.
6450

80% CHK: lt-med gy, occ brn, mottld wh, sft - mod
frm, occ brt, sb ply-sb blkly, rthy lstr, v calc, sl
brn/blk sn.
20% MARL: drk gy/brwn-drk brwn, frm-sft, sb ply-sb
blkly, rthy lstr, grtty, vry mottld carb mat.
abn BENT SH w/ pyr nodes
rr calc frag.
inst bri blu-whi blooming cut, mod thick blu resid
ring.
6450

80% C: lt-med gy, occ brn, mottld wh, sft - mod
frm, occ brt, sb ply-sb blkly, rthy lstr, v calc, sl
brn/blk sn.
20% MARL: drk gy/brwn-drk brwn, frm-sft, sb ply-sb
blkly, rthy lstr, grtty, vry mottld carb mat.
tr BENT SH w pyr nodes.
rr calc frag.
inst bri blu-whi blooming cut, mod thick blu resid
ring.



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 10,970 10,980 10,990

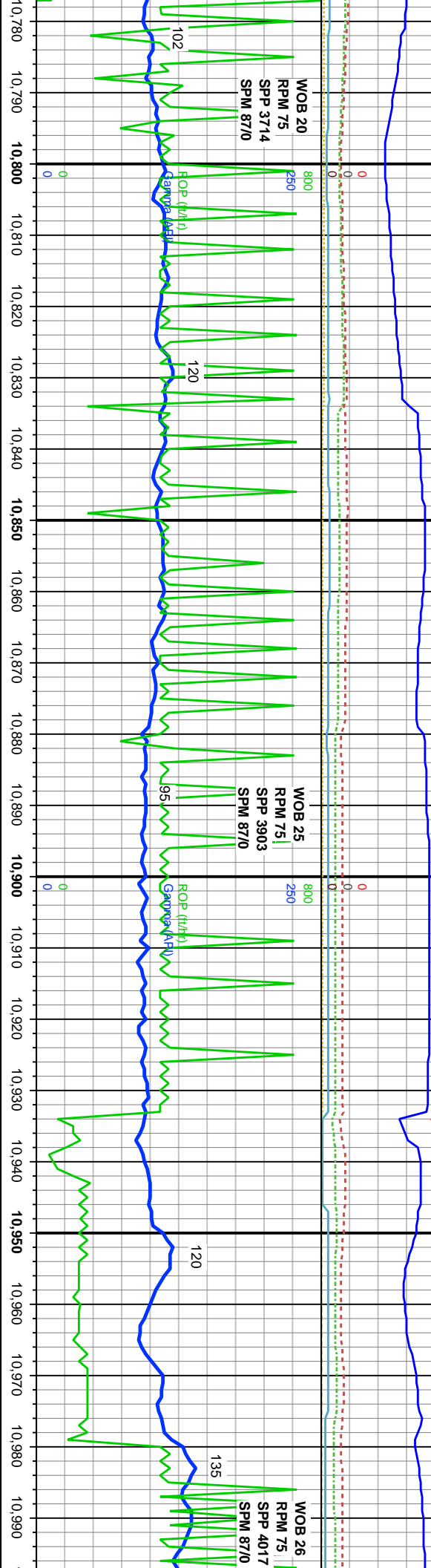
C1: 55.1%
C2: 17.4%
C3: 15.9%
iC4: 2.1%
nC4: 5.3%

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

CO2: 0.0%

C1: 72.1%
C2: 15.3%
C3: 9.6%
iC4: .1%
nC4: 3.0%

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



MD: 10,797' 6300
TVD: 6,336.33'
Inclination: 89.72°
Azimuth: 176.64°
VS: 5.727.23'

MD: 10,883' 6300
TVD: 6,337.03'
Inclination: 89.35°
Azimuth: 175.56°
VS: 5.813.21'

mod thick wh, sft - mod thy istr, v calc, sl	100% 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.	95% 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.	95% 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.	95% 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.
brwn, frm-sft, sb ply-sb carb mat.	cmmin MARL: dk gy/brwn-dk brwn, frm-sft, sb ply-sb blk, rthy istr, grty, vry mottld carb mat.	5% MARL: dk gy/brwn-dk brwn, frm-sft, sb ply-sb blk, rthy istr, grty, vry mottld carb mat.	5% MARL: dk gy/brwn-dk brwn, frm-sft, sb ply-sb blk, rthy istr, grty, vry mottld carb mat.	5% MARL: dk gy/brwn-dk brwn, frm-sft, sb ply-sb blk, rthy istr, grty, vry mottld carb mat.
	tr BENT SH w/ pyr nodes rr calc frag.	abn BENT SH w/ pyr nodes rr calc frag.	tr BENT SH w/ pyr nodes rr calc frag.	abn BENT SH w/ pyr nodes rr calc frag.
	insnt bri blu-whi blooming cut, mod thick blu resid ring.	insnt bri blu-whi blooming cut, mod thick blu resid ring.	insnt bri blu-whi blooming cut, mod thick blu resid ring.	insnt bri blu-whi blooming cut, mod thick blu resid ring.
	6450	6450	6450	6450

