



Scale: 5" / 100'
Measured Depth Log

Well Name Rohn State LD04-68-1HN(HORZ)

Location NWNW SEC 4, T9N, R58W

State COLORADO

Country USA

API Number 05-123-37479

Region DJ BASIN

Spud Date 8/10/2013

Surface Coordinates 585' FNL, 400' FWL

Bottom Hole Coordinates 990' FNL, 675' FEL

County WELD

Rig Number H&P 326

Field WILDCAT

Drilling Completed 8/19/2013

Ground Elevation 4748'

K.B. Elevation 4778'

Logged Interval 5014' To 14802'

Total Depth 14802'

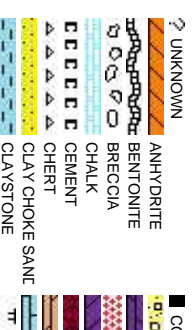
Formation NIOBRARA A CHALK

Type of Drilling Fluid LSND

Company NOBLE ENERGY
Address 1625 Broadway
Denver, CO 80202

Name EVAN HOWELL
Company NOBLE ENERGY
Address 1625 Broadway
Denver, CO 80202

ANDREA ZUIDEMA
MATTHEW HOPKINS



Operator

BY INC.

Suite 2200
202

Geologist

BY INC.

Suite 2200
202

Other

Rock Types

CONGLOMERATE

DOLOMITE

GRANITE

GYPSUM

IGNEOUS

SIDERITE or LIMONITE

LIMESTONE

MARLSTONE

METAMORPHIC

NO SAMPLE

SALT

SANDSTONE

SALT-PEPPER SAND

SHALE

SHALE COLORED

LIMESTONE

SHALY SANDSTONE

SHALY SILTSTONE

SILTY SHALE

SILTSTONE

TUFF

WELDED TUFF

Accessories

F FOSSIL

ARGILLACEOUS

GLAUCONITE

TUFFACEOUS

GASTROPOD

ARGILLITE GRAIN

GYPSIFEROUS

STRINGER

ALGAE

OOLITE

HEAVY MINERAL

ANHYDRITE STRINGER

AMPHIPORA

OSTRACOD

INOCERAMUS

BENTONITE STRINGER

BELEMNITE

PELECYPOD

KAOLIN

COAL STRINGER

BIOCLASTIC

PELLET

MARLSTONE

DOLOMITE STRINGER

BRACHIOPOD

PISOLITE

CARBONACEOUS FLAKES

GYPSUM STRINGER

BRYOZOA

PLANT REMAINS

CHTDK

NODULES

CEPHALOPOD

PLANT SPORES

COAL - THIN BEDS

PHOSPHATE PELLET

CORAL

SCAPHOPOD

DOLOMITIC

PYRITE

CRINOID

STROMATOPOROID

FELDSPAR

SALT CAST

ECHINOID

FERRUGINOUS PELLET

SANDY

MARLSTONE (CALC) STRG

FISH

Minerals

SILTACEOUS

SANDSTONE STRINGER

FORAMINIFERA

ANHYDRITIC

FERRUGINOUS

SILTY

SILTSTONE STRINGER

Other Symbols

MOLDIC

FAULT

WIRELINE TESTED - LEFT

E EARTHY

ORGANIC

FORMATION TOP

WIRELINE TESTED - RT

FX FINELYXLN

DEAD

P PINPOINT

GAS SHOW

E5 GRAINSTONE

EVEN

VUGGY

MINDEPTH MN DEPTH

L LITHOGRAPHIC

QUESTIONABLE

NORMAL FAULT

A ANGULAR

MX MICROXLN

SPOTTED STAINING

OIL SHOW

R ROUNDED

MS MUDSTONE

BIT

OVERTURNED STRATA

B SUBANG

PS PACKSTONE

CONNECTION (LEFT)

REVERSE FAULT

R SUBRND

WS WACKESTONE

CONNECTION (RIGHT)

SIDEWALL CORE (LEFT)

FENESTRAL

CONNECTION GAS

CORE - LOST

SLIDE

SURVEY

Textures

INTERCRYSTALLINE

CORE - RECOVERED

DST INTERVAL

TRIP GAS

F FRACTURE

CORE - RECOVERED

Sorting

M MODERATE

INTERCRYSTALLINE

DST INTERVAL

CRYPTOXLN

P POOR

WELL

Slide/Rotate

ROP

ROF

Total Gas & Chromatograph

GAS

C1

C2

C3

C4

Depth Labels

% Lith

Gamma

GAMMA

Well Bore

TVD

Oil Show

Images

BEGAN DRILLING CURVE
@ 07:59 PM 08/12/2013

COLUMBINE LOGGING INC.
RIGGED UP ON 08/11/2013
MANNED 2-PERSON LOGGING
WITH BLOODHOUND GAS
CHROMATOGRAPH UNIT #0298
COLUMBINE BEGAN LOGGING
ON 08/11/2013

50' Sample Interval

ROP (ft/hr)

ROF (ft/min)

GAS (units)
C1-C4 (PPM)

1993u

1422u

1247u

981u

WT IN 9.20/ OUT 9.20
VIS IN 37/ OUT 37

Bit Data
Bit #: 2
Type: sec FDX 55
Size: 8.75
Depth In: 5.015 '
Depth Out: 6.157 '
Jets: 5X14
S/N: 12249214

MD: 5.060
TVD: 5.017.16 '
Inclination: 1.9 °
Azimuth: 90.2 °
VS: 100.25 '

TVD (ft)

SLTY SH: med - drkgy, sft - mod frm, sb
biky-sb pily, rthy mtx, occ arg mtx, non
calc, tr shy ss

SLTY SH: med - drkgy, sft - mod frm, sb
biky-sb pily, rthy mtx, occ arg mtx, non
calc, tr shy ss

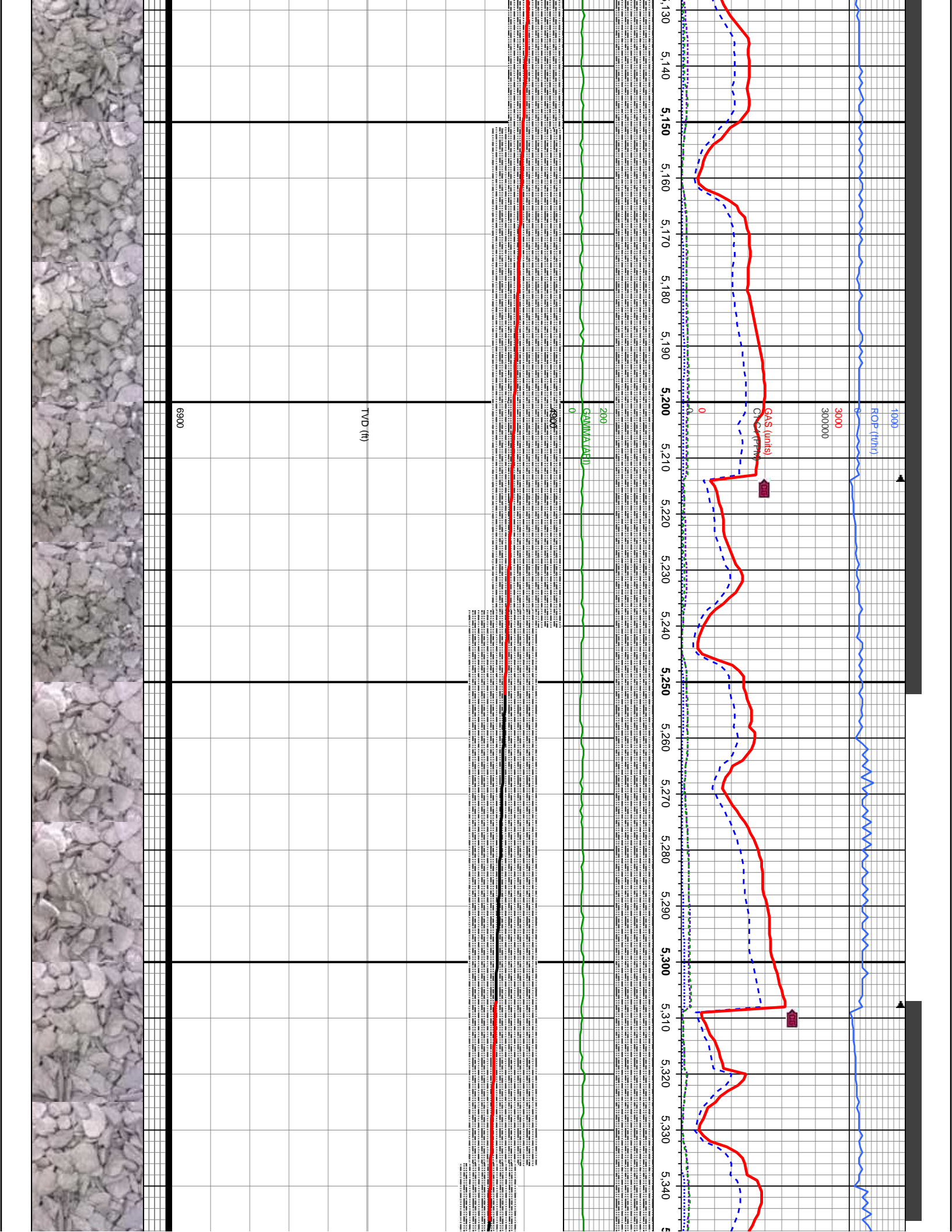
SLTY SH: med - drkgy, sft - mod frm, sb
biky-sb pily, rthy mtx, occ arg mtx, non
calc, tr shy ss

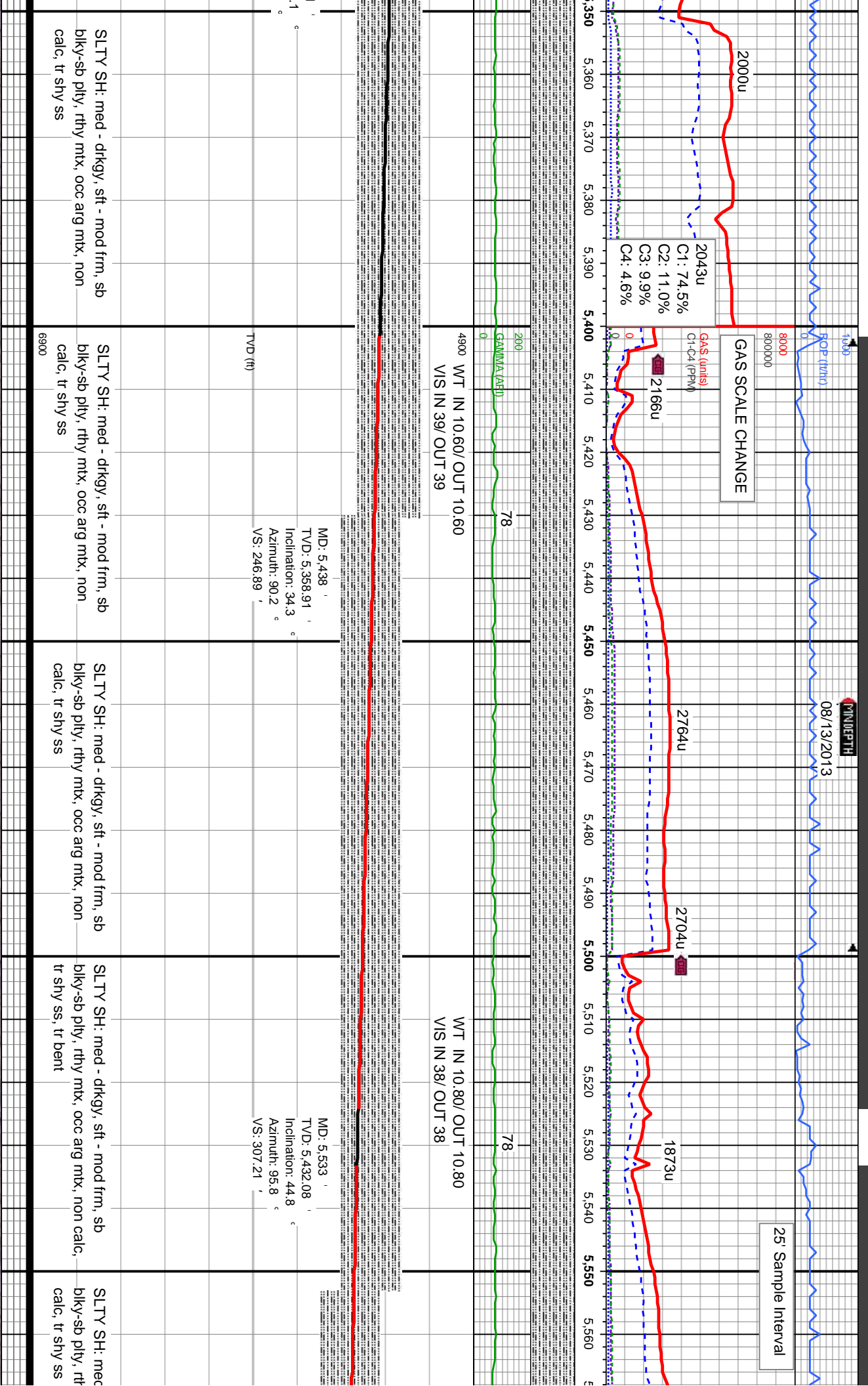
6900

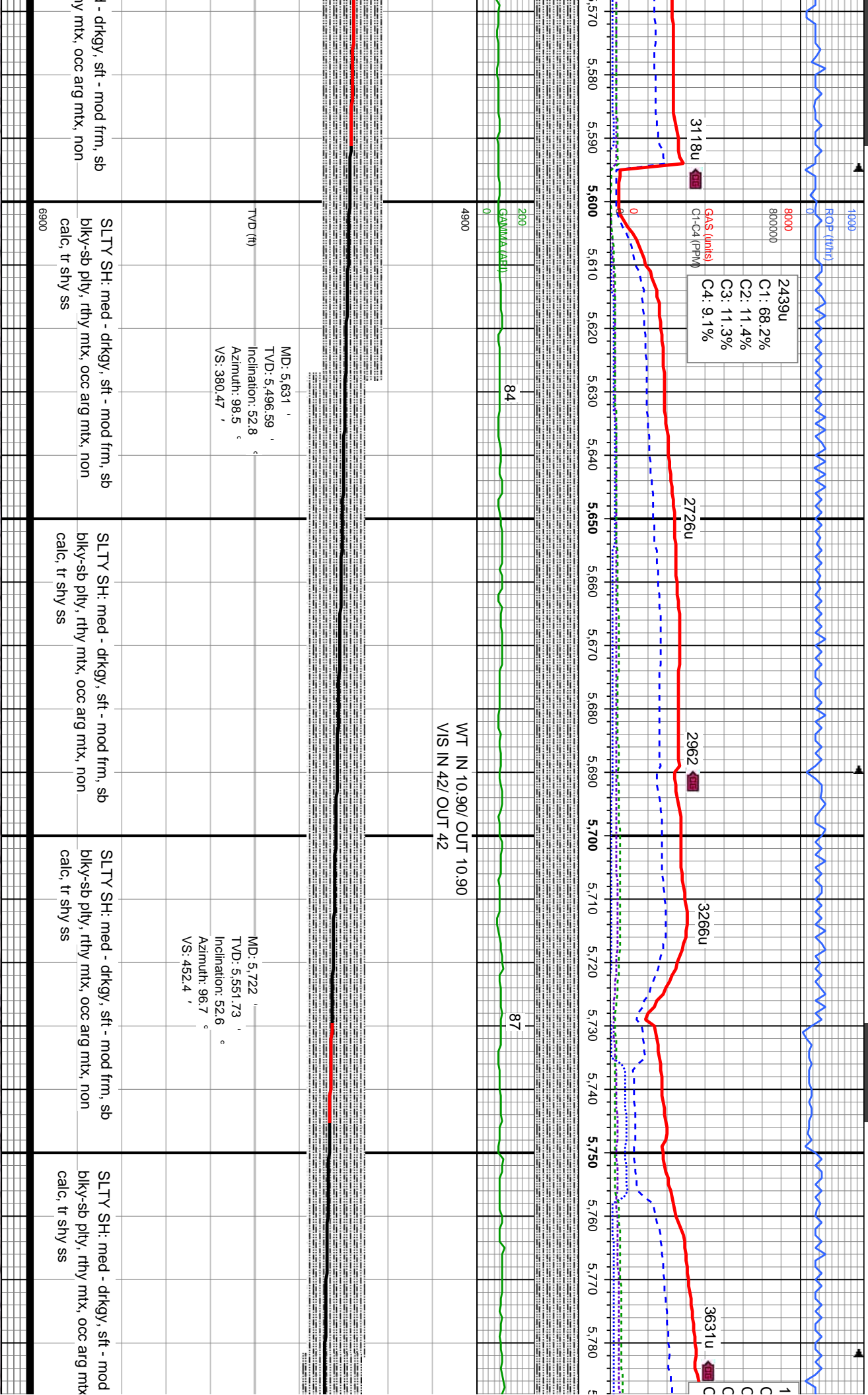
4,950 4,960 4,970 4,980 4,990 5,000 5,010 5,020 5,030 5,040 5,050 5,060 5,070 5,080 5,090 5,100 5,110 5,120

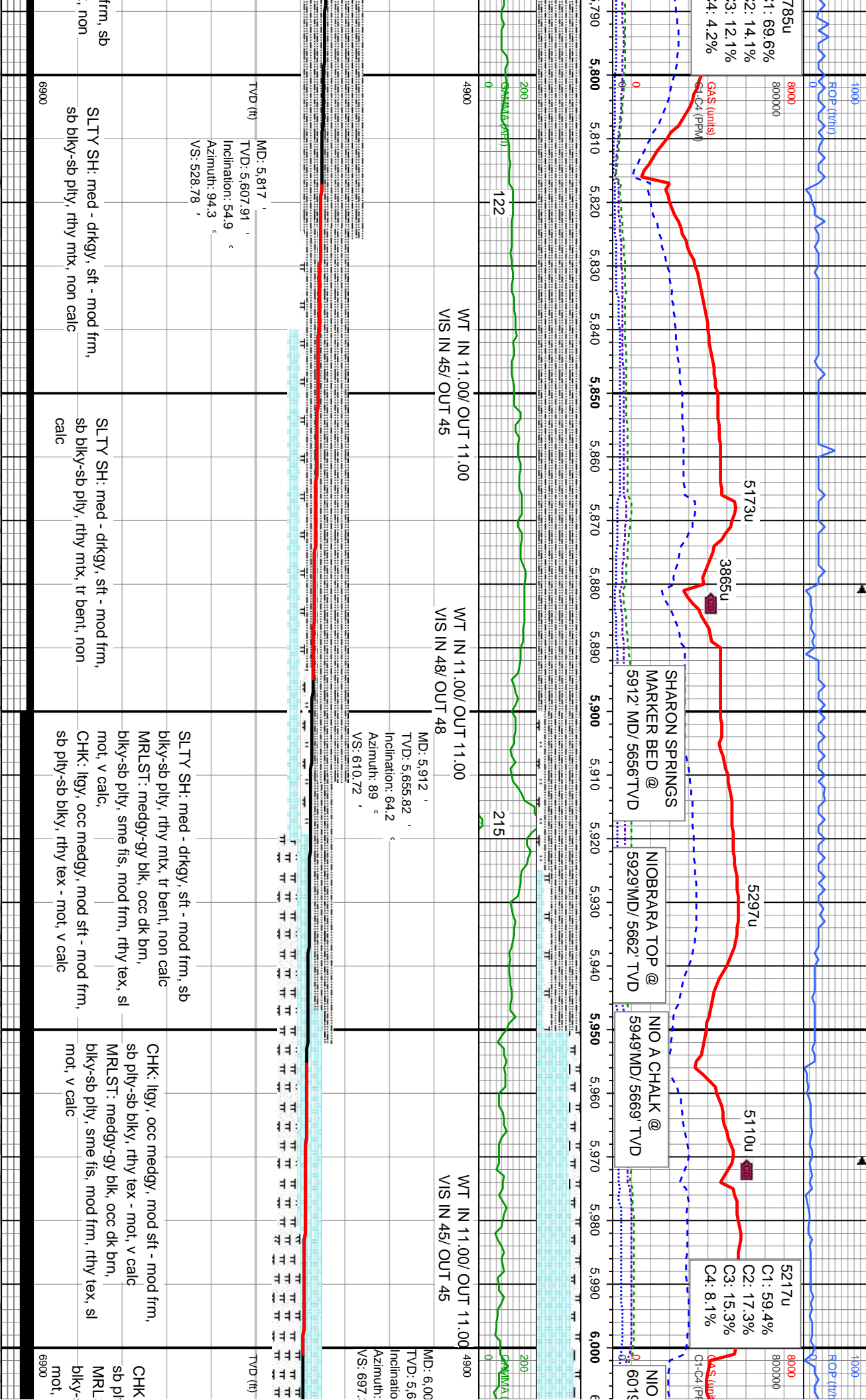
200 0 77 85











1: 69.6%
2: 14.1%
3: 12.1%
4: 4.2%

ROP (ft/m)
8000
8000000

GAS (units)
C1-C4 (PPM)

5173u

3865u

SHARON SPRINGS
MARKER BED @
5912' MD/ 5656' TVD

5297u

NIOBRARA TOP @
5929 MD/ 5662' TVD

5110u

NIO A CHALK @
5949 MD/ 5669' TVD

5217u
C1: 59.4%
C2: 17.3%
C3: 15.3%
C4: 8.1%

ROP (ft/m)
8000
8000000

GAS (units)
C1-C4 (PPM)

WT IN 11.00/ OUT 11.00
VIS IN 45/ OUT 45

WT IN 11.00/ OUT 11.00
VIS IN 48/ OUT 48

WT IN 11.00/ OUT 11.00
VIS IN 45/ OUT 45

MD: 5,817 '
TVD: 5,607.91 '
Inclination: 54.9 °
Azimuth: 94.3 °
VS: 528.78 '

MD: 5,912 '
TVD: 5,655.82 '
Inclination: 64.2 °
Azimuth: 89 °
VS: 610.72 '

SLTY SH: med - drkgy, sft - mod frm, sb
biky-sb pily, rthy mtx, tr bent, non calc
MRLST: medgy-gy blk, occ dk brn,
biky-sb pily, sme fis, mod frm, rthy tex, sl
mot, v calc,
CHK: lgy, occ medgy, mod sft - mod frm,
sb pily-sb biky, rthy tex - mot, v calc

CHK: lgy, occ medgy, mod sft - mod frm,
sb pily-sb biky, rthy tex - mot, v calc
MRLST: medgy-gy blk, occ dk brn,
biky-sb pily, sme fis, mod frm, rthy tex, sl
mot, v calc

CHK
sb pl
MRL
biky-
mot,

TVD (ft)

TVD (ft)

MINDEPTH

08/14/2013

ROP (ft/h)

TD Curve - 6157' MD
Intermediate Casing
@ 06:40 AM 08/13/2013

50' Sample Interval

Bit Data

Bit #: 3
Type: Sec MMD 54
Size: 6.12
Depth In: 6.157
Depth Out: 13428'
Jets: 5X15
S/N: 12259730

5168u
5168u
C1: 49.1%
C2: 16.8%
C3: 21.6%
C4: 12.6%

A MARL @
MMD/5695' TVD

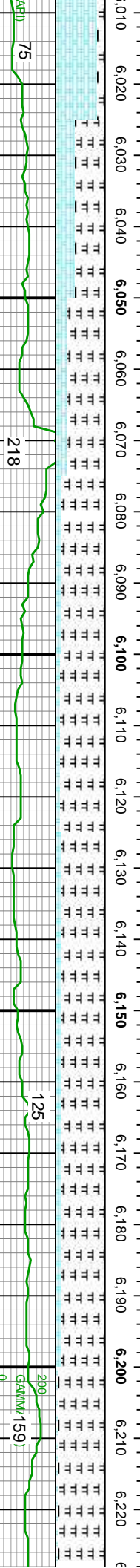
5357u

5594u

4766u

5168u

5484u



WT IN 11.10/ OUT 11.10
VIS IN 43/ OUT 43

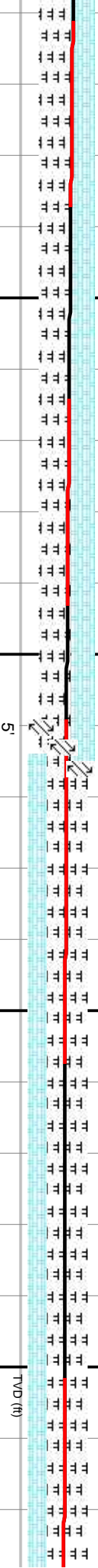
WT IN 10.80/ OUT 10.75
VIS IN 42/ OUT 43

WT IN 10.10/ OUT 1
VIS IN 38/ OUT 38

MD: 6.051
TVD: 5.705.31
Inclination: 73.9
Azimuth: 84.1
VS: 739.91

MD: 6.099
TVD: 5.716.76
Inclination: 78.5
Azimuth: 83.5
VS: 786.12

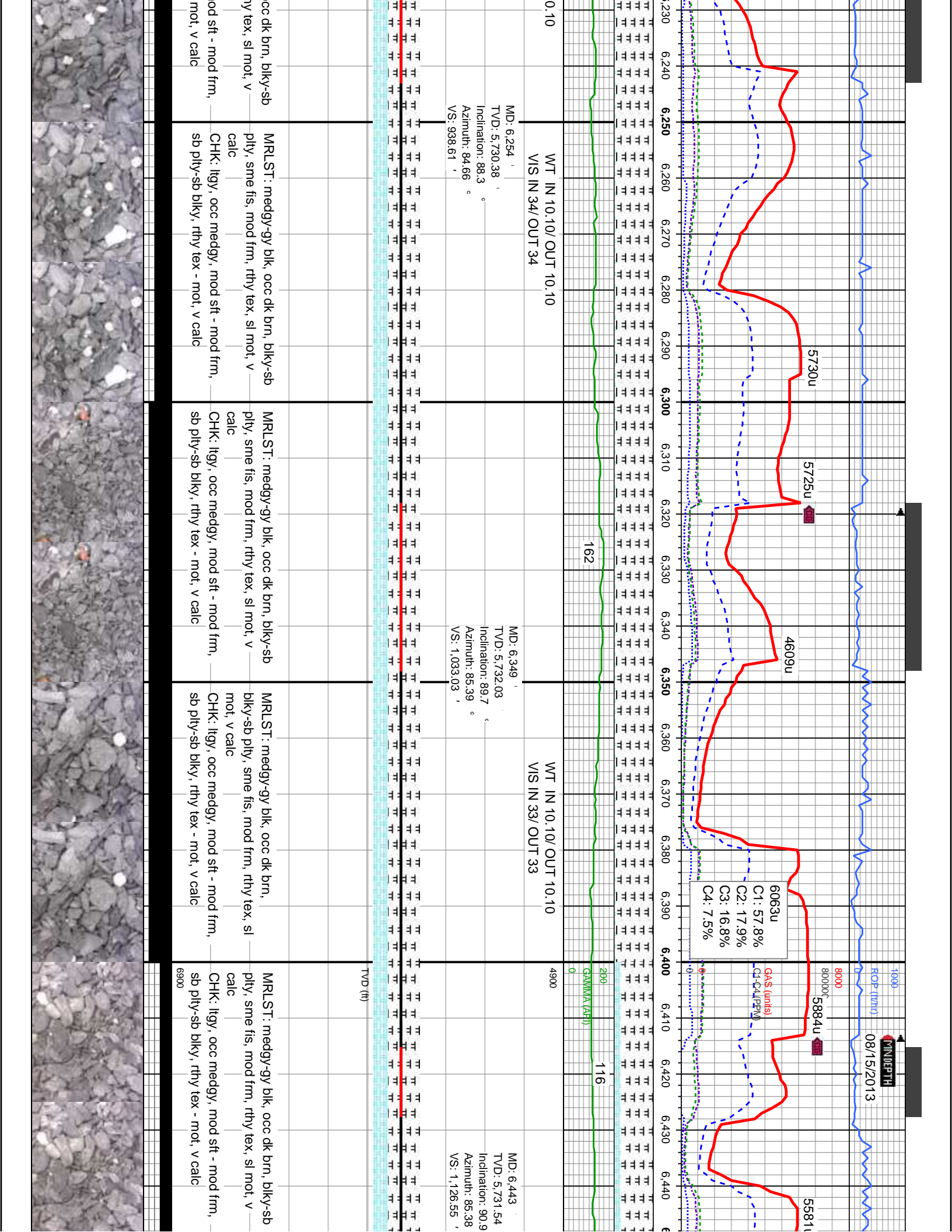
MD: 6.159
TVD: 5.725.16
Inclination: 85.4
Azimuth: 81.1
VS: 844.77

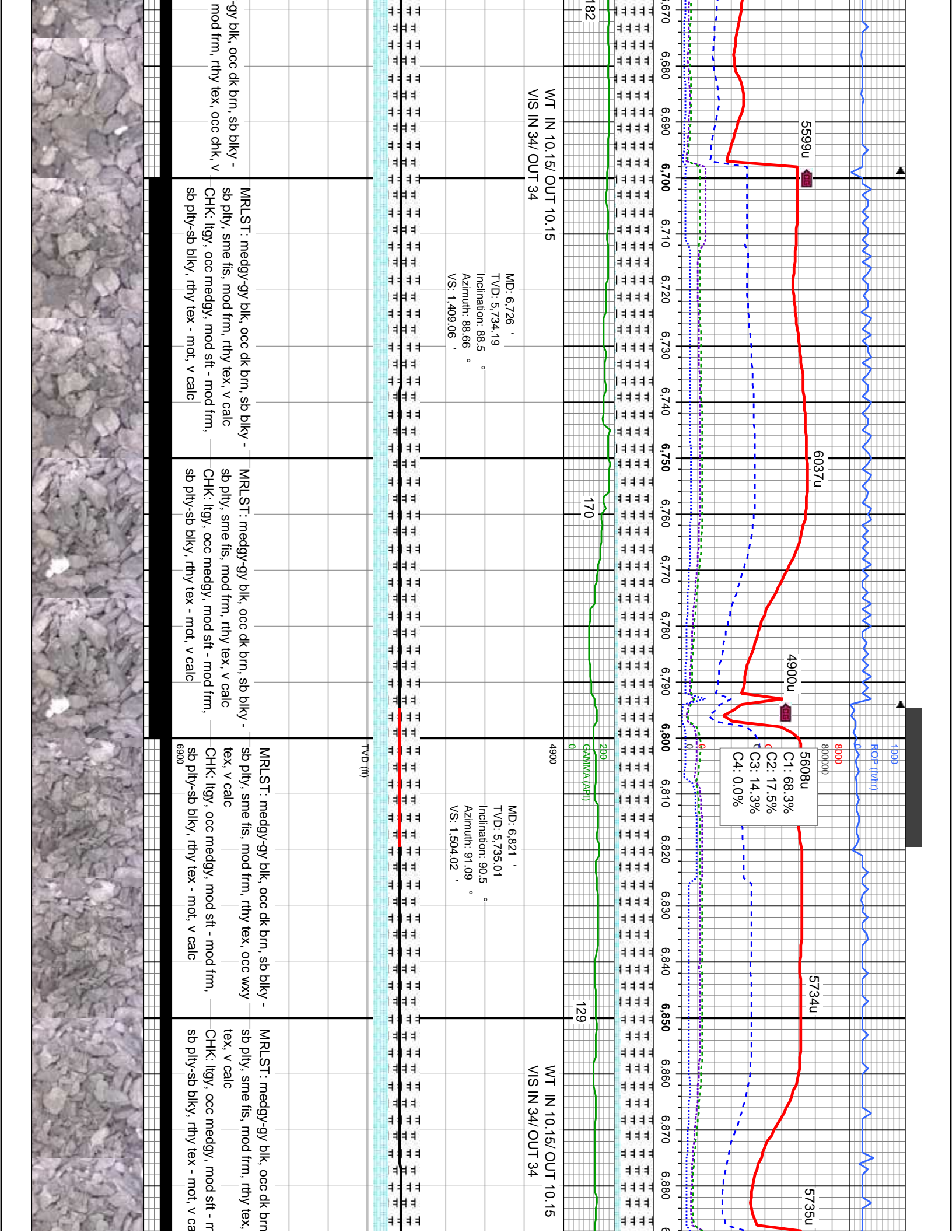


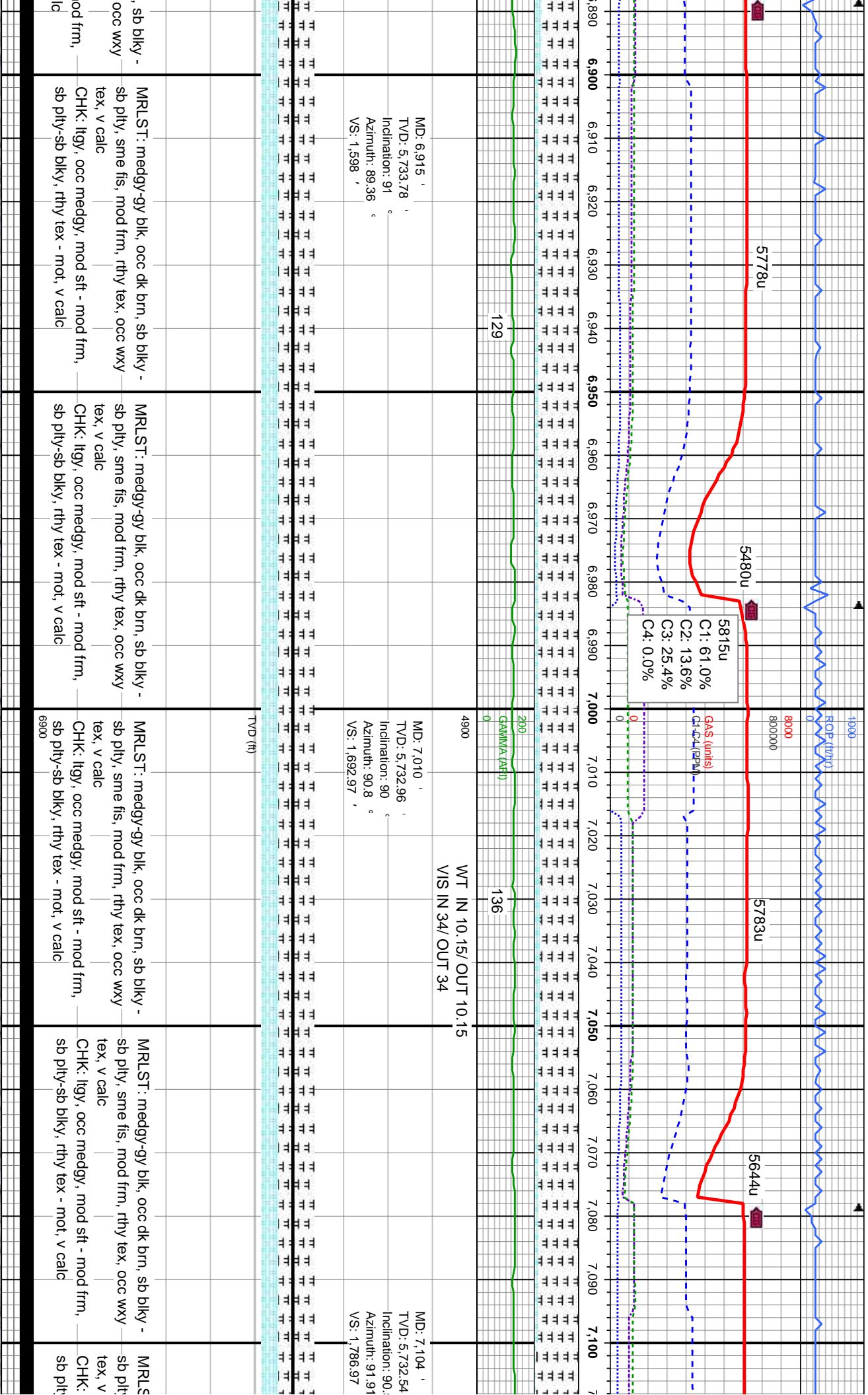
TVD (ft)

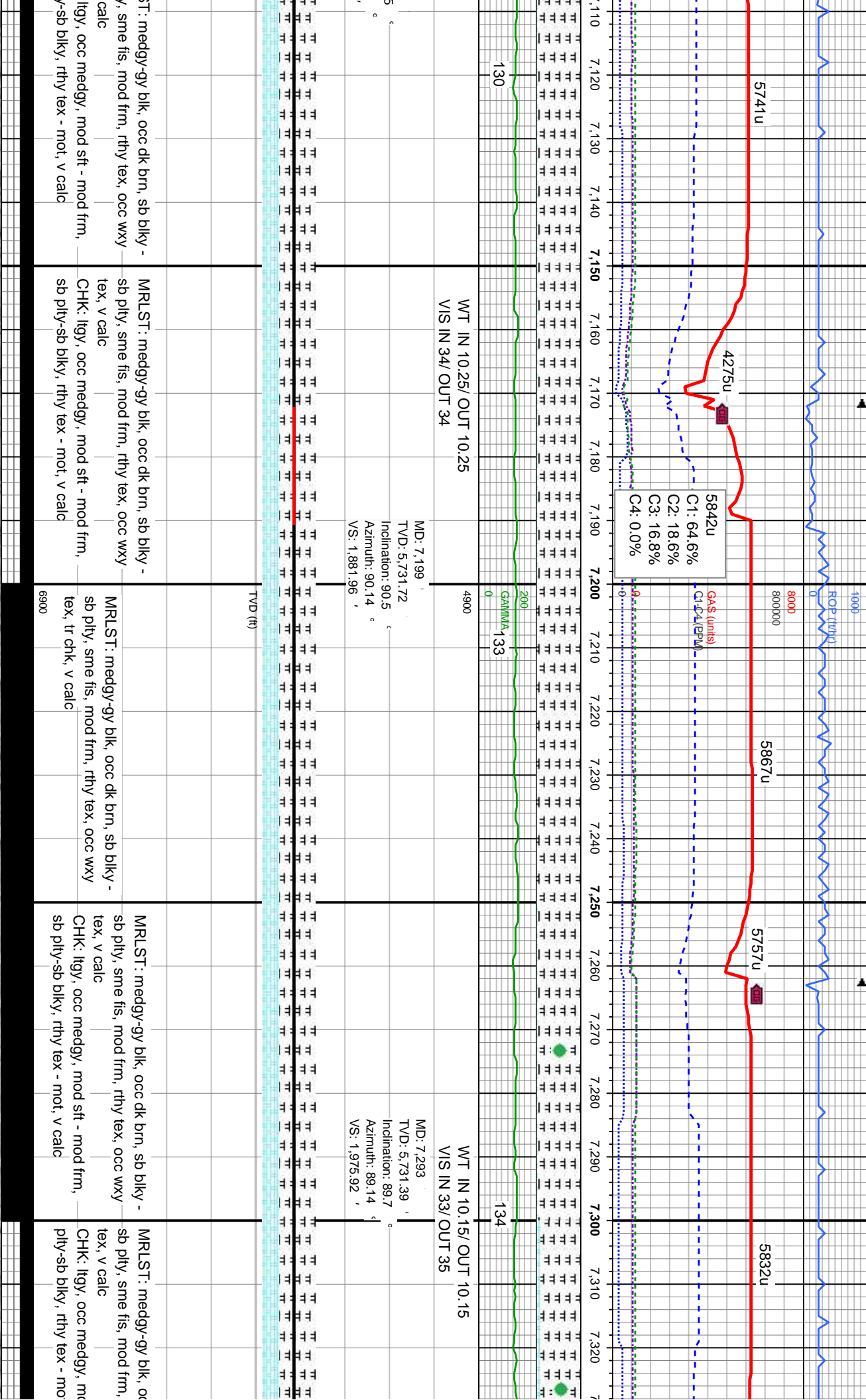
llyg, occ medgy, mod sft - mod frm, bly-sb blyk, rthy tex - mot, v calc ST: medgy-gy blk, occ dk brn, sb ply, sme fis, mod frm, rthy tex, sl v calc	MRLST: medgy-gy blk, occ dk brn, bly-sb ply, sme fis, mod frm, rthy tex, sl mot, v calc CHK: llyg, occ medgy, mod sft - mod frm, sb ply-sb blyk, rthy tex - mot, v calc	MRLST: medgy-gy blk, occ dk brn, bly-sb ply, sme fis, mod frm, rthy tex, sl mot, v calc CHK: llyg, occ medgy, mod sft - mod frm, sb ply-sb blyk, rthy tex - mot, v calc	MRLST: medgy-gy blk, occ dk brn, bly-sb ply, sme fis, mod frm, rthy tex, sl mot, v calc CHK: llyg, occ medgy, mod sft - mod frm, sb ply-sb blyk, rthy tex - mot, v calc	MRLST: medgy-gy blk, c ply, sme fis, mod frm, rth calc CHK: llyg, occ medgy, r sb ply-sb blyk, rthy tex -
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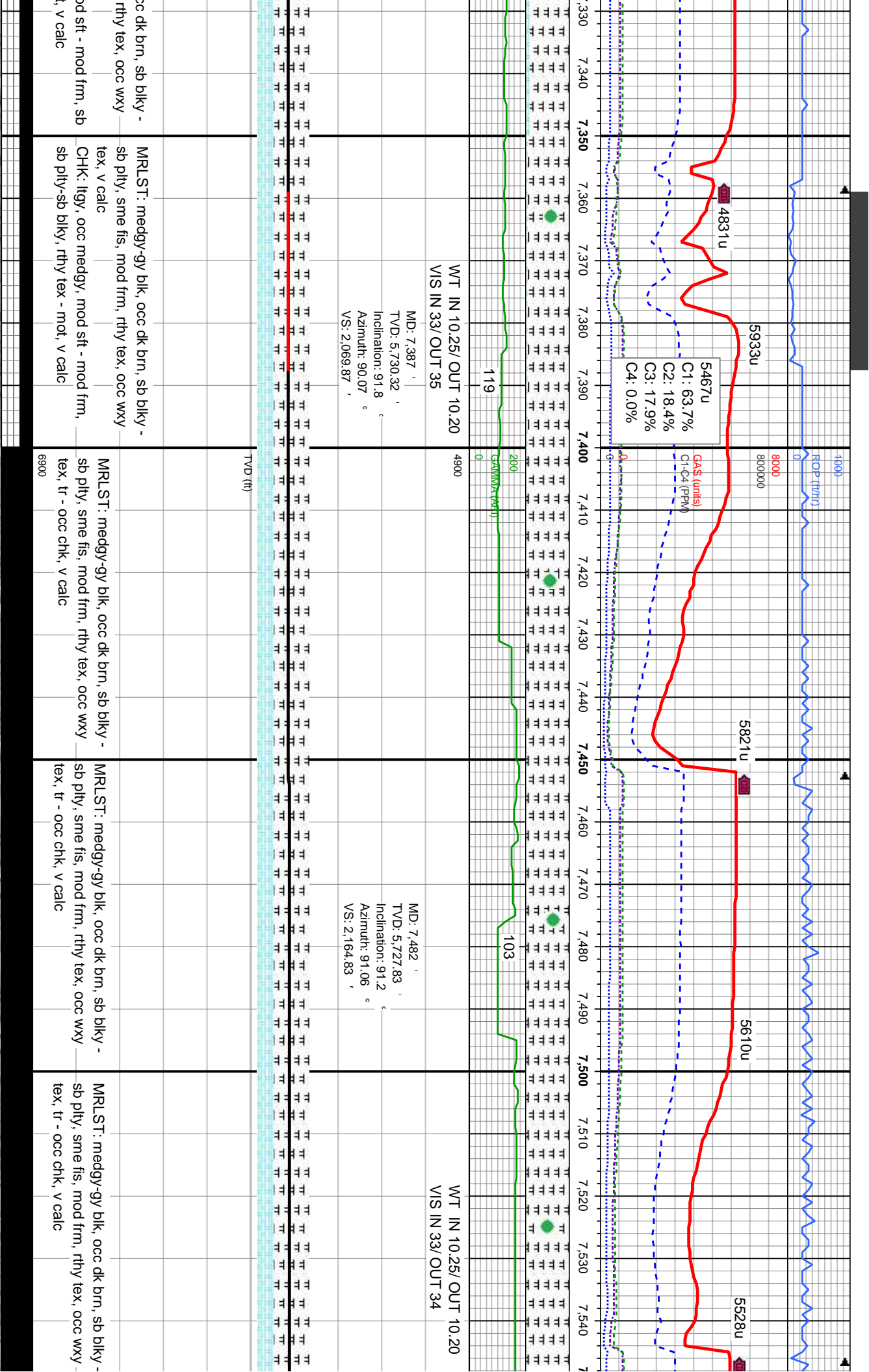


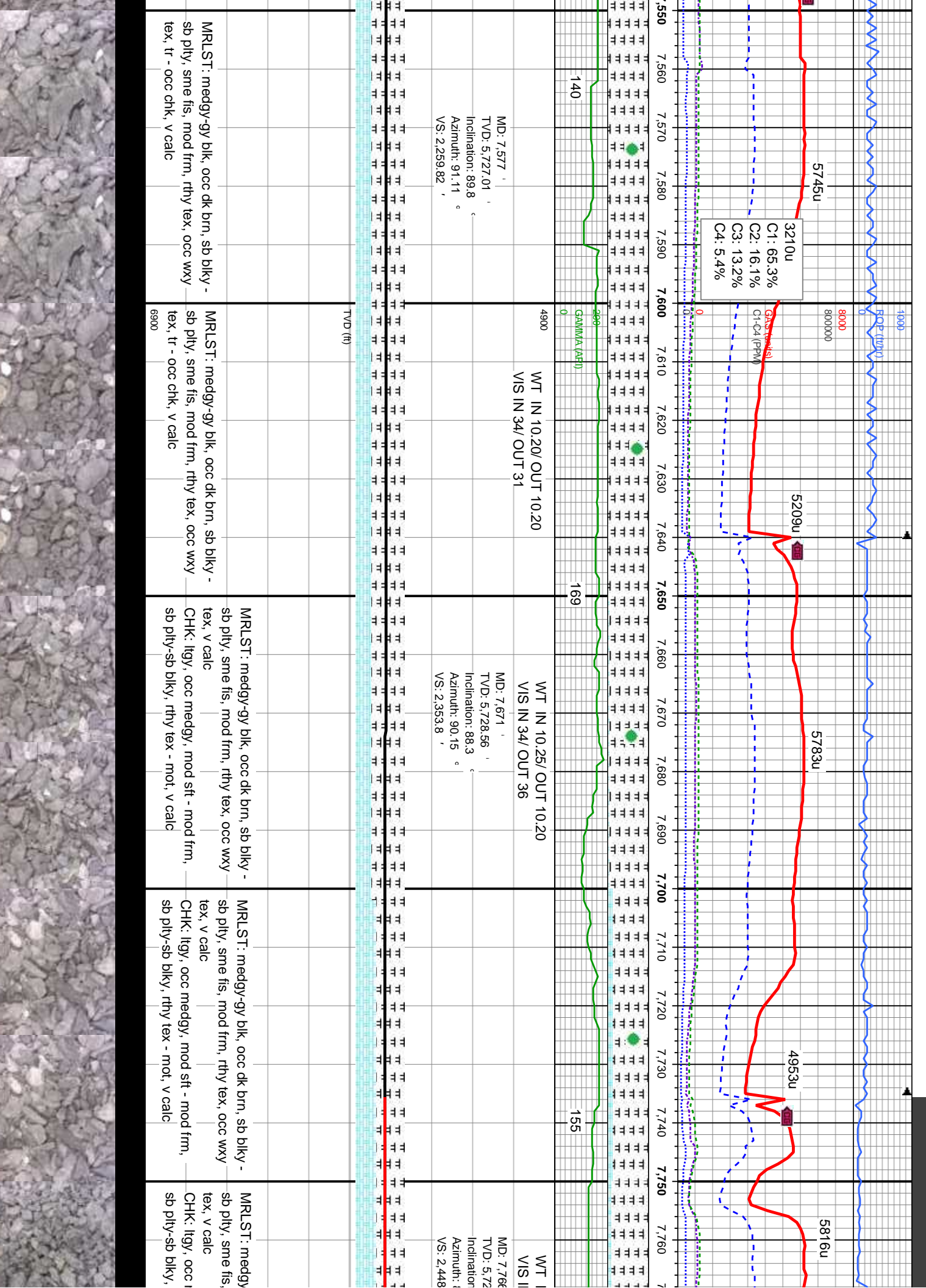


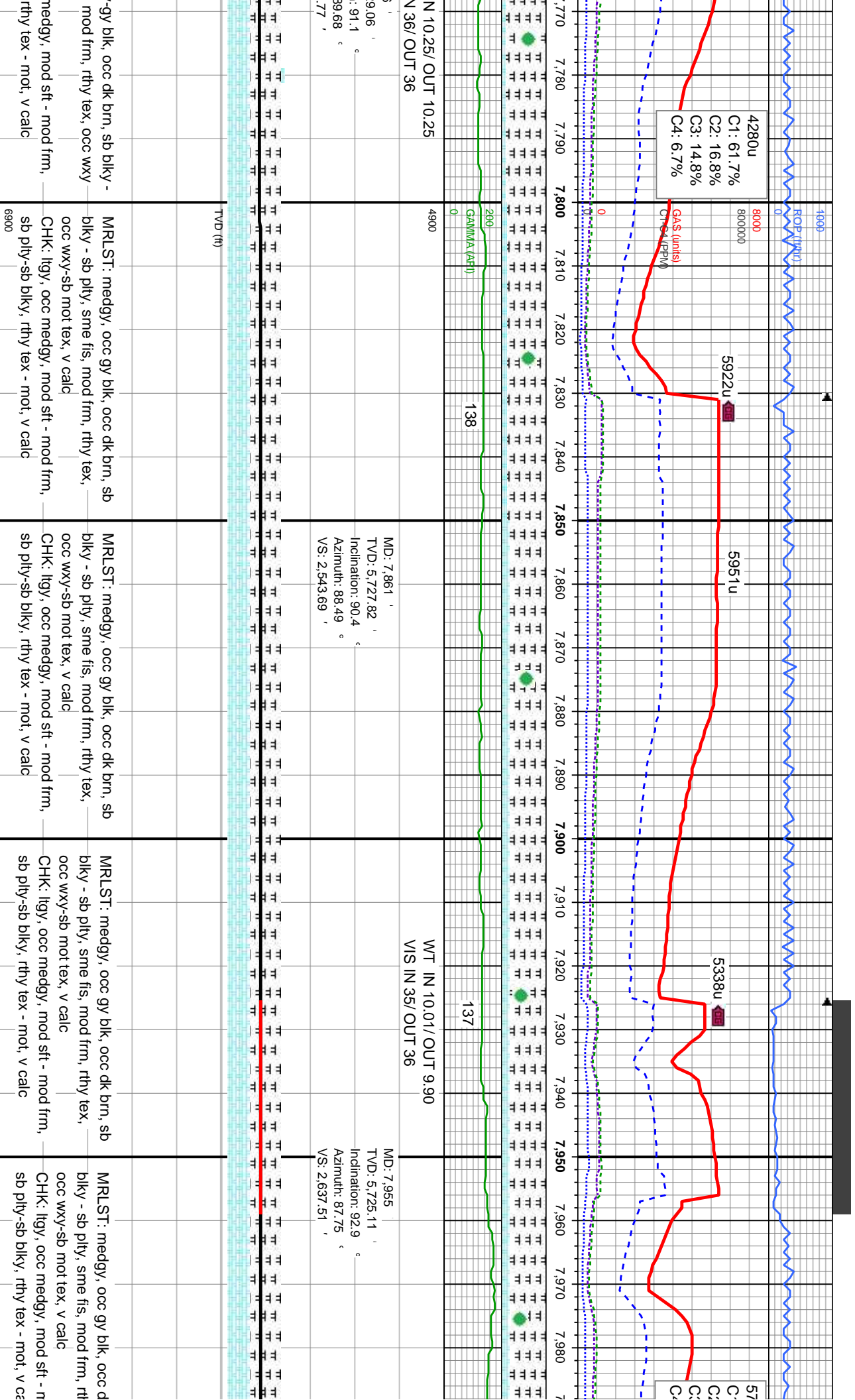


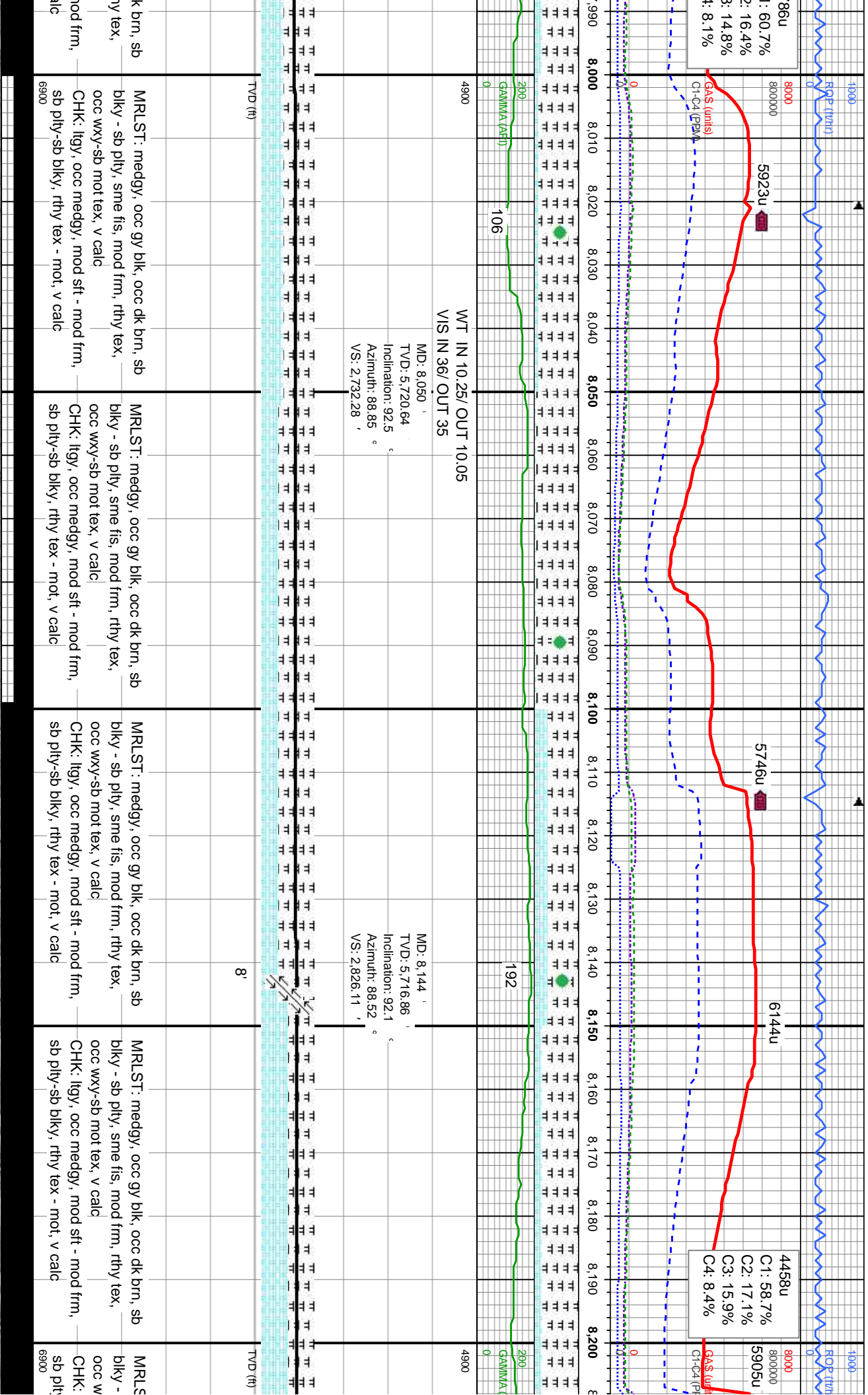


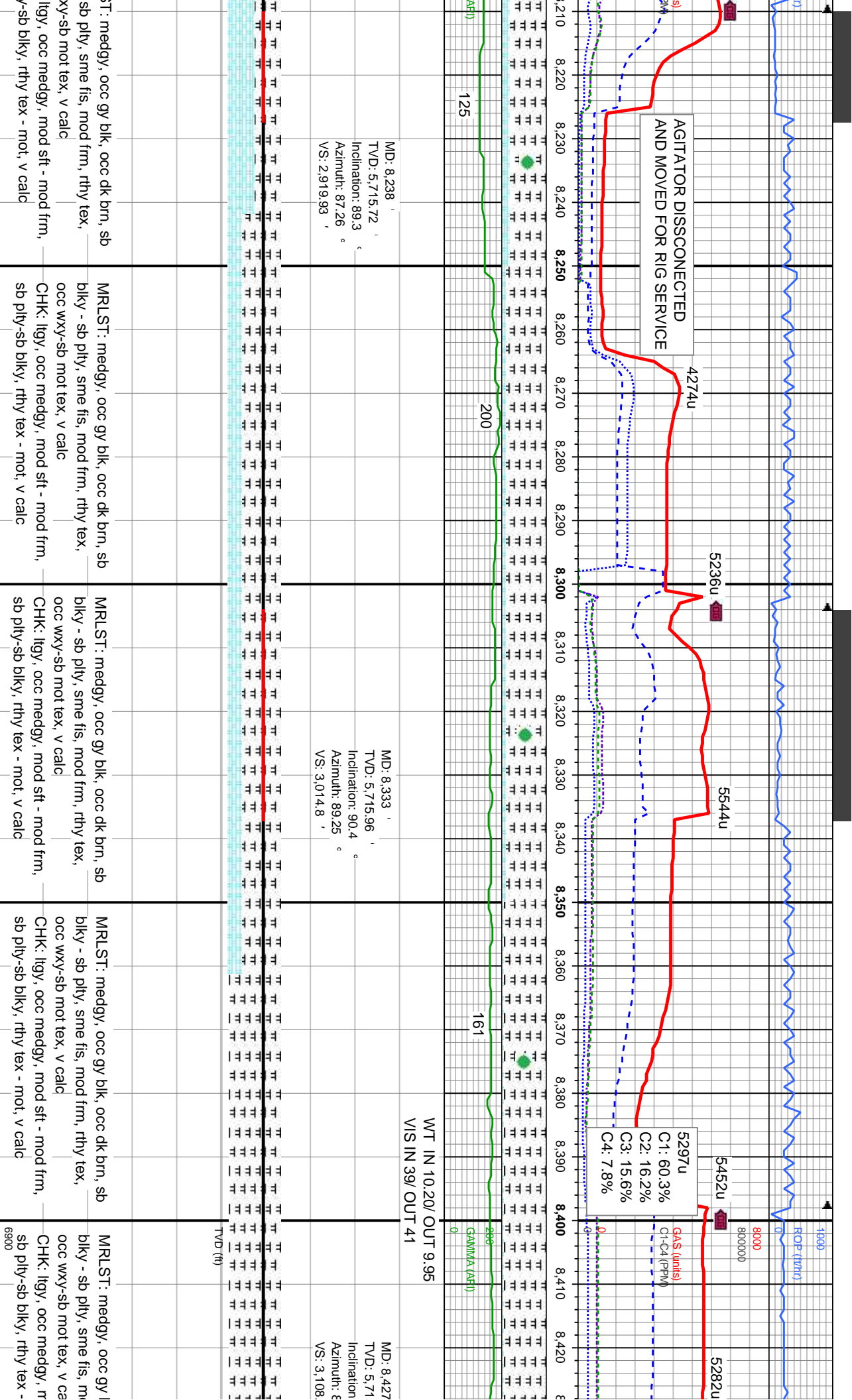


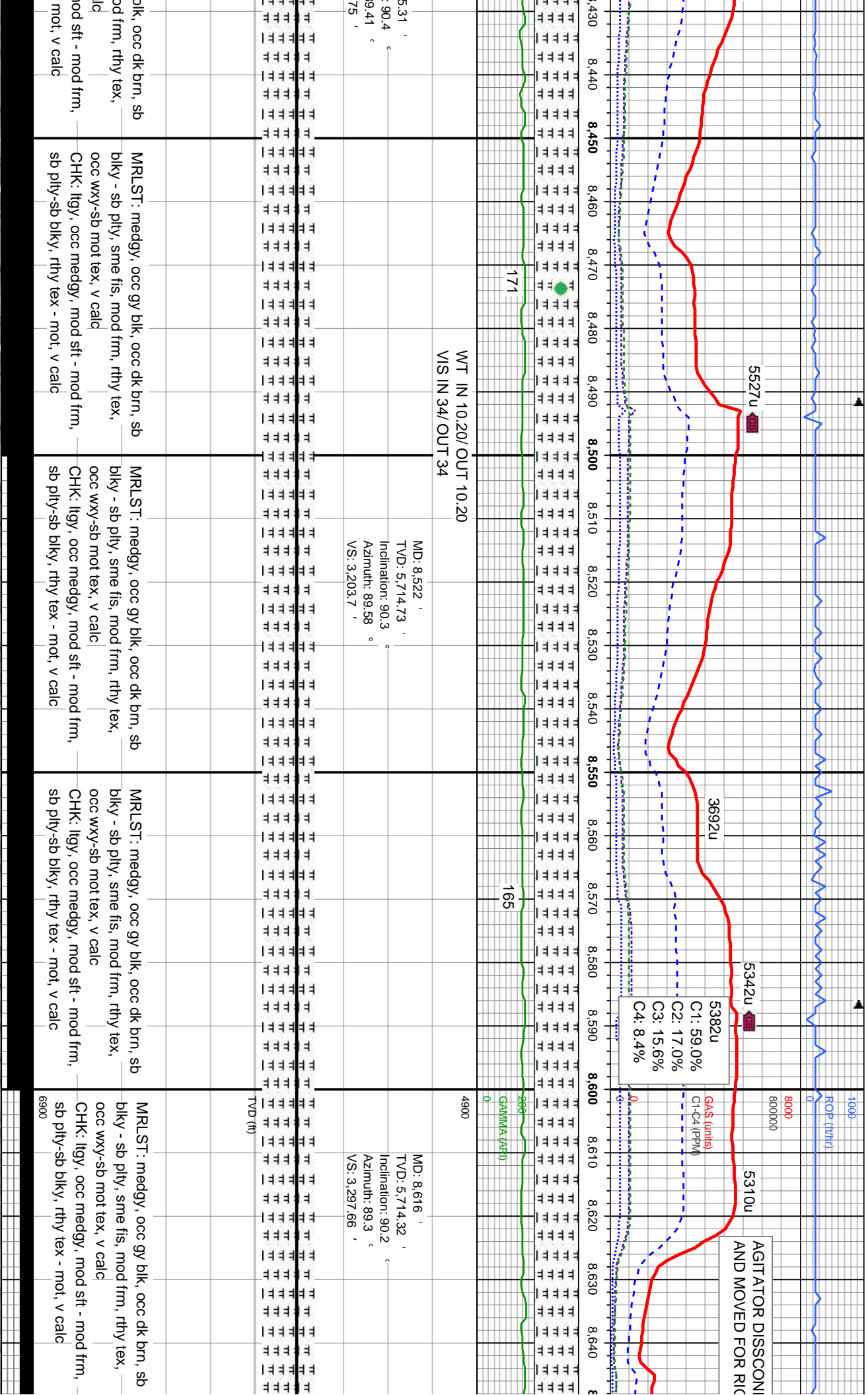


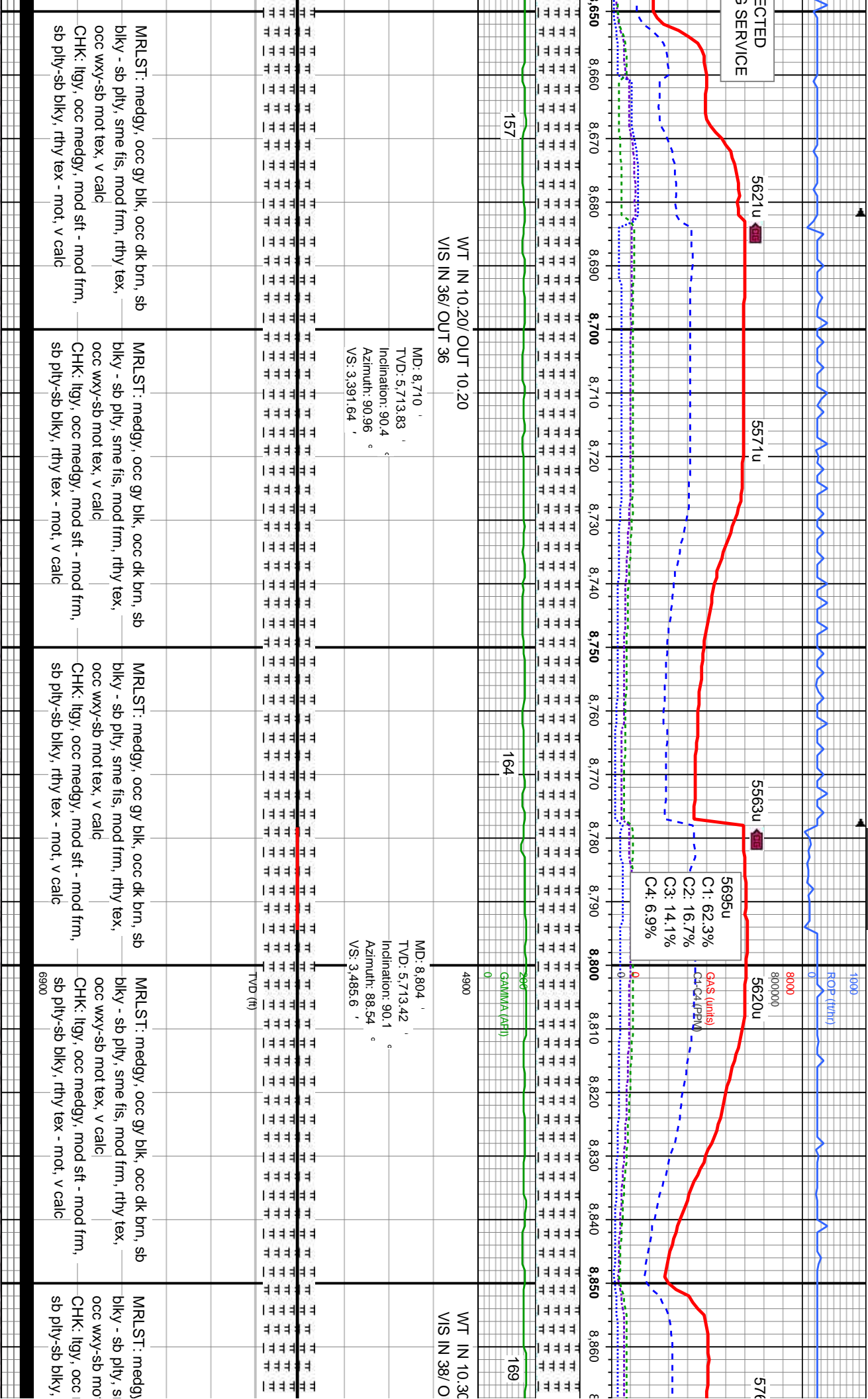


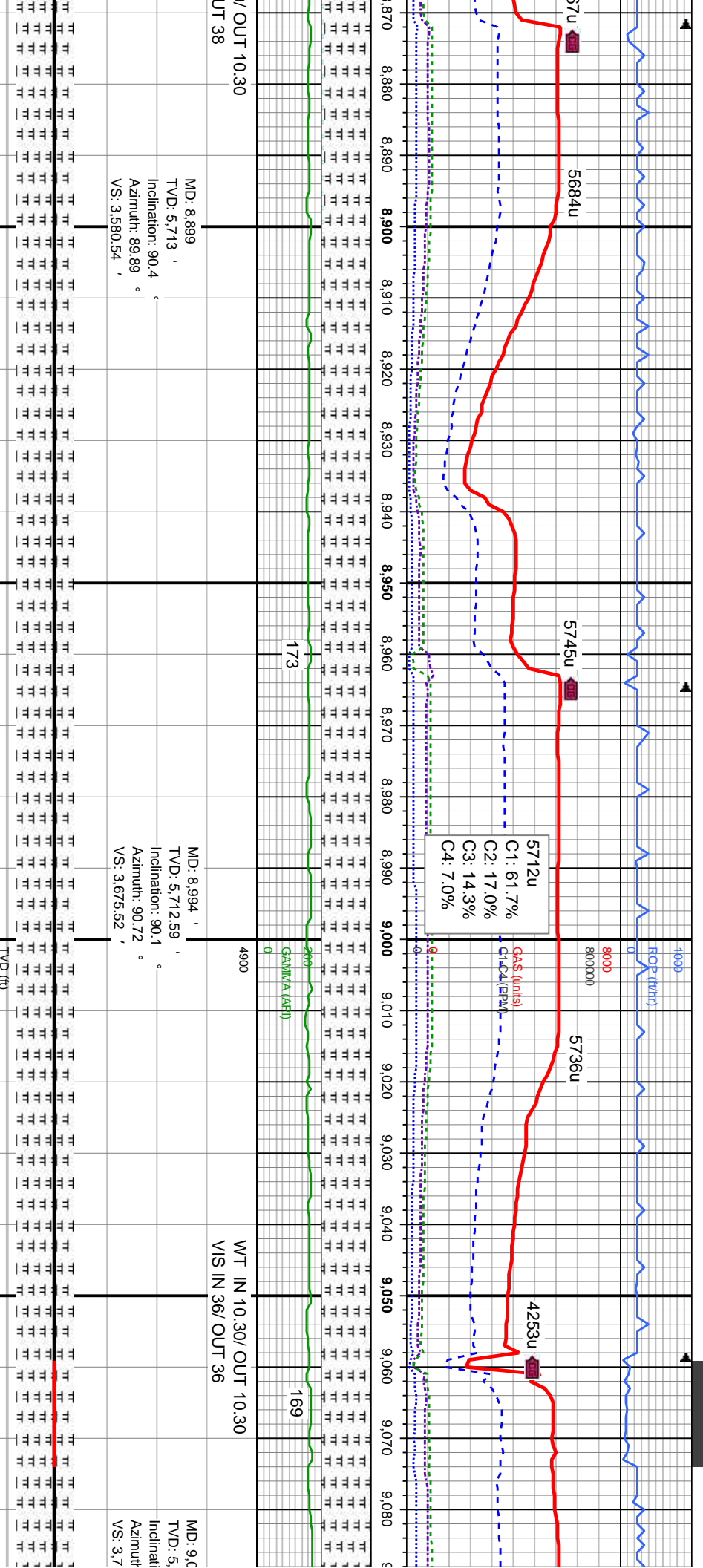












WT IN 10.30/ OUT 10.30
VIS IN 36/ OUT 36

MD: 8.899 ' TVD: 5.713 ' Inclination: 90.4 ° Azimuth: 89.89 ° VS: 3.580.54 '
MD: 8.994 ' TVD: 5.712.59 ' Inclination: 90.1 ° Azimuth: 90.72 ° VS: 3.675.52 '
MD: 9.0 ' TVD: 5. ' Inclination: ' Azimuth: ' VS: 3.7 '

occ gy blk, occ dk brn, sb
me fis, mod frm, rthy tex,
tex, v calc
MRLST: medgy-gy blk, occ dk brn, sb blk
- sb ply, sme fis, mod frm, rthy tex, occ
wxy tex, tr - occ chk, v calc
MRLST: medgy-gy blk, occ dk brn, sb blk
- sb ply, sme fis, mod frm, rthy tex, occ
wxy tex, tr - occ chk, v calc
MRLST: medgy-gy blk, occ dk brn, sb blk
- sb ply, sme fis, mod frm, rthy tex, occ
wxy tex, tr - occ chk, v calc
MRLST: medgy-gy blk, occ dk brn, sb blk
- sb ply, sme fis, mod frm, rthy tex, occ
wxy tex, tr - occ chk, v calc

08/16/2013

ROP (ft/h)

4234u

C1: 64.0%

C2: 16.8%

C3: 13.5%

C4: 5.7%

GAS (units)

C1-C4 (PPM)

5886u

5320u

3993u

5428u

5306u

175

200

190

GAMMA (API)

WT IN 10.20/ OUT 10.20
VIS IN 38/ OUT 38

WT IN 10.15/ OUT 10.15
VIS IN 34/ OUT 34

MD: 9.183

TVD: 5.712.26

Inclination: 91.1

Azimuth: 88.44

VS: 3.864.48

MD: 9.278

TVD: 5.711.27

Inclination: 90.1

Azimuth: 87.53

VS: 3.959.32

TVD (ft)

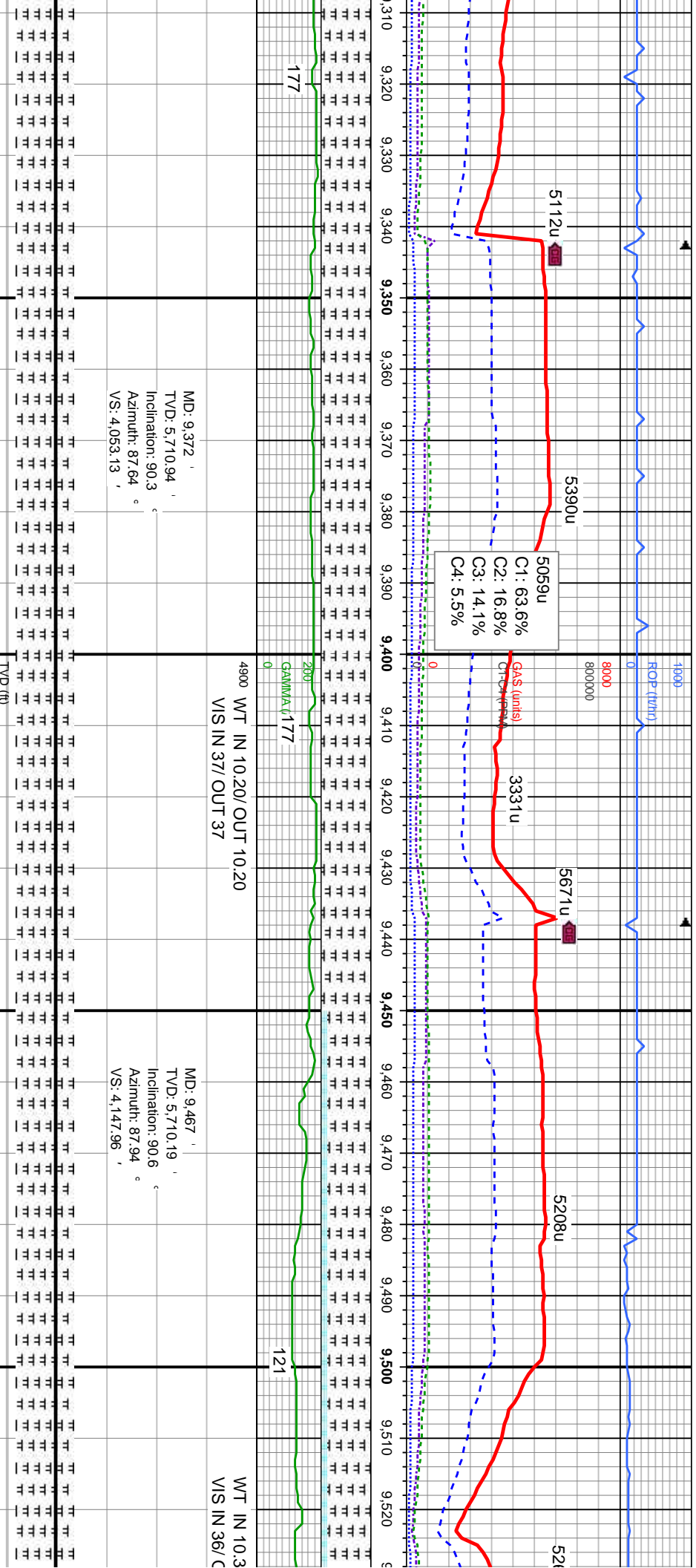
MRSLT: medgy-gy blk, occ dk brn, sb blk
- sb pily, sme fis, mod frm, rthy tex, occ
wxy tex, tr - occ chk, v calc

MRSLT: medgy-gy blk, occ dk brn, sb blk
- sb pily, sme fis, mod frm, rthy tex, occ
wxy tex, tr - occ chk, v calc

MRSLT: medgy-gy blk, occ dk brn, sb blk
- sb pily, sme fis, mod frm, rthy tex, occ
wxy tex, tr - occ chk, v calc

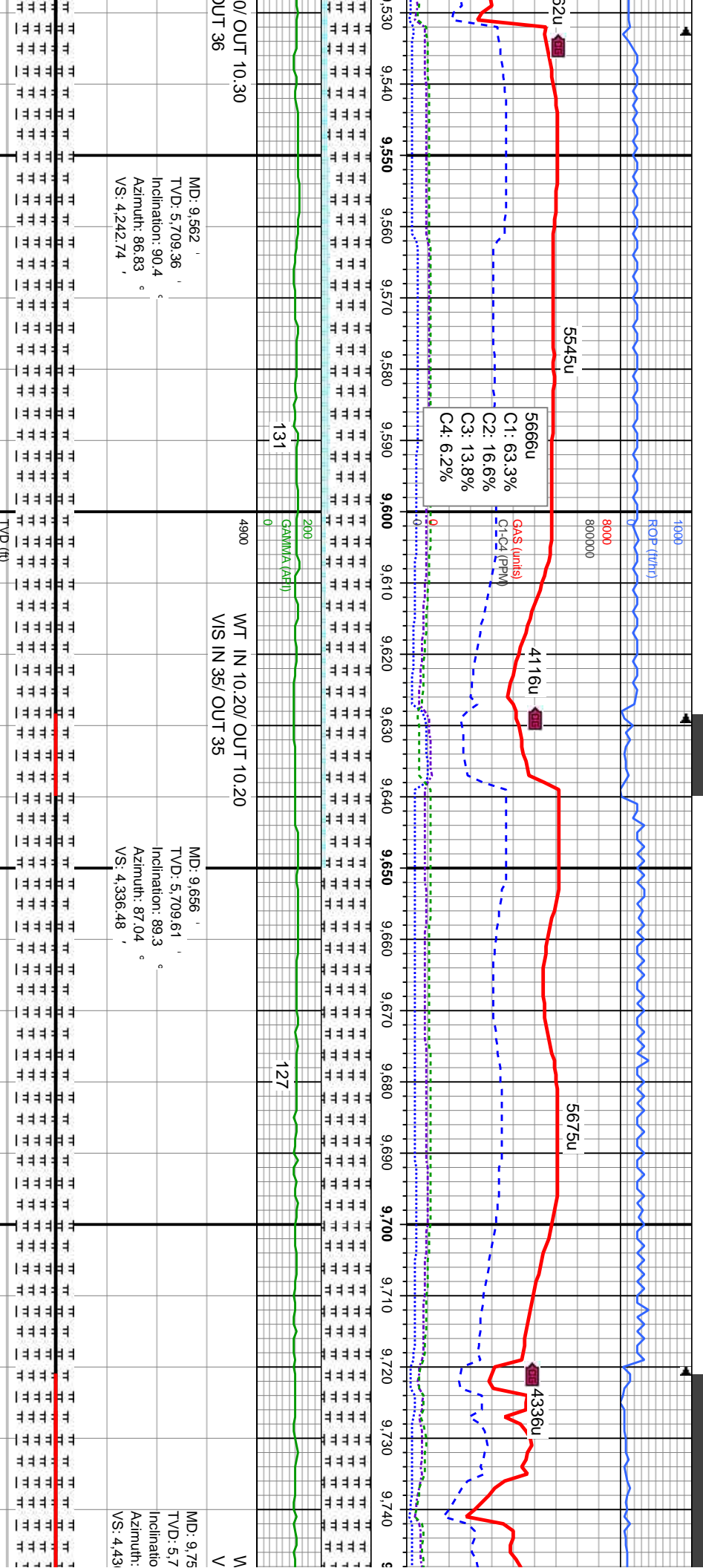
MRSLT: medgy, occ gy blk, occ dk brn, sb
blk - sb pily, sme fis, mod frm, rthy tex,
occ wxy-sb mot tex, v calc
CHK: lgy, occ medgy, mod sft - mod frm,
sb pily-sb blk, rthy tex - mot, v calc

MRSLT:
- sb p
wxy t



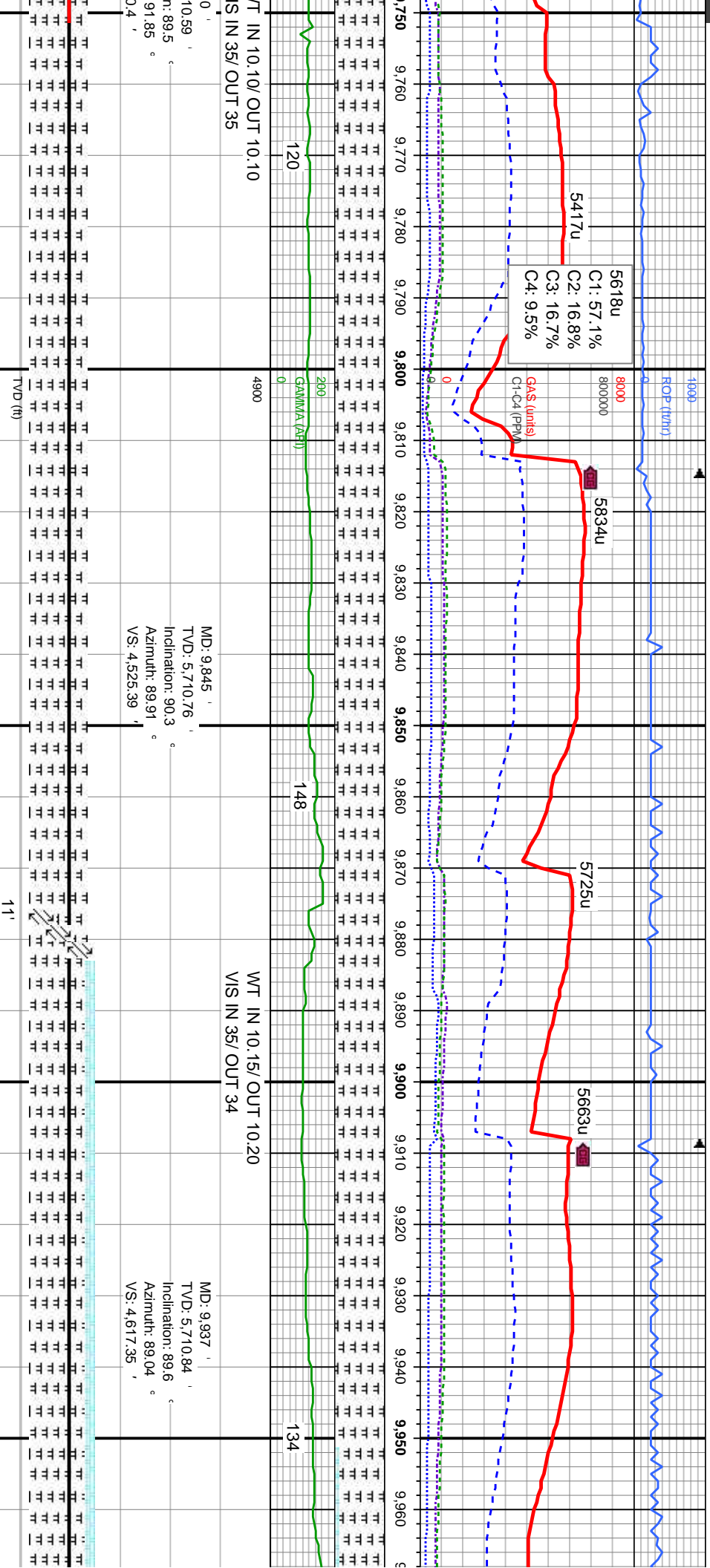
ST: medgy-gy blk, occ dk brn, sb blk ly, sme fis, mod frm, rthy tex, occ ex, tr - occ chk, v calc	MRLST: medgy-gy blk, occ dk brn, sb blk - sb ply, sme fis, mod frm, rthy tex, occ wxy tex, tr - occ chk, v calc	MRLST: medgy-gy blk, occ dk brn, sb blk - sb ply, sme fis, mod frm, rthy tex, tr - occ chk, v calc	MRLST: medgy, occ gy blk, occ dk brn, sb blk - sb ply, sme fis, mod frm, rthy tex, occ wxy-sb mot tex, v calc CHK: ltgy, occ medgy, mod sft - mod frm, sb ply-sb blk, rthy tex - mot, v calc	MRLST: medgy, occ gy blk - sb ply, sme fis, m occ wxy-sb mot tex, v ca CHK: ltgy, occ medgy, n sb ply-sb blk, rthy tex -
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0/ OUT 10.30 OUT 36	MD: 9.562 TVD: 5,709.36 Inclination: 90.4 Azimuth: 86.83 VS: 4.242.74	WT IN 10.20/ OUT 10.20 VIS IN 35/ OUT 35	MD: 9.656 TVD: 5,709.61 Inclination: 89.3 Azimuth: 87.04 VS: 4.336.48	MD: 9.75 TVD: 5.7 Inclination: Azimuth: VS: 4.43
blk, occ dk brn, sb mod frm, rthy tex, occ wxy-sb mod tex, v calc	MRLST: medgy, occ gy blk, occ dk brn, sb biky - sb pily, sme fis, mod frm, rthy tex, occ wxy-sb mod tex, v calc CHK: lly, occ medgy, mod sft - mod frm, sb pily-sb biky, rthy tex - mot, v calc	MRLST: medgy, occ gy blk, occ dk brn, sb biky - sb pily, sme fis, mod frm, rthy tex, occ wxy-sb mod tex, v calc CHK: lly, occ medgy, mod sft - mod frm, sb pily-sb biky, rthy tex - mot, v calc	MRLST: medgy, occ gy blk, occ dk brn, sb biky - sb pily, sme fis, mod frm, rthy tex, occ wxy-sb mod tex, tr - occ chk, v calc	MRLST: medgy, occ gy blk, occ dk brn, sb biky - sb pily, sme fis, mod frm, rthy tex, occ wxy-sb mod tex, tr - occ chk, v calc





MRLST: medgy, occ gy blk, occ dk brn, sb
biky - sb plty, sme fis, mod frm, rthy tex,
occ wxy-sb mot, tex, tr - occ chk, v calc

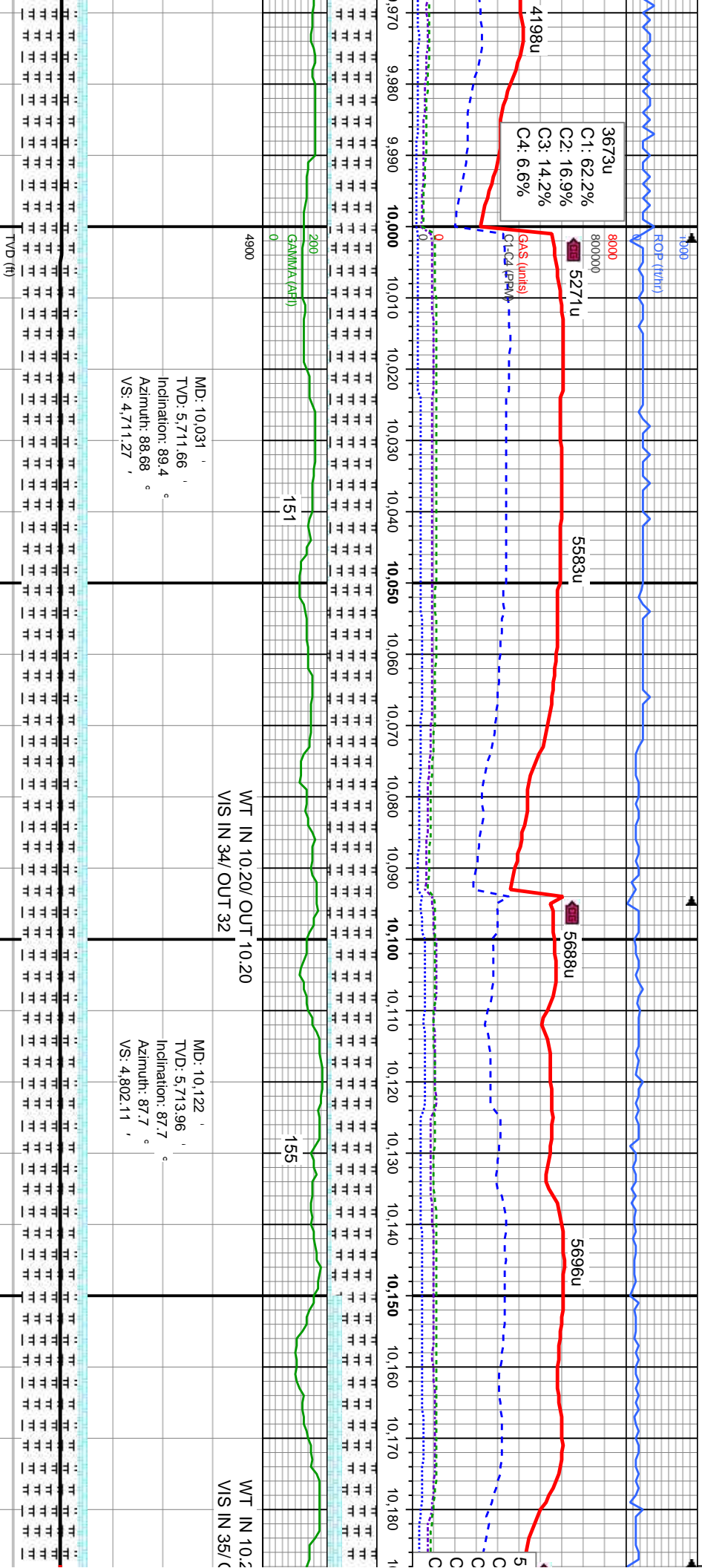
MRLST: medgy, occ gy blk, occ dk brn, sb
biky - sb plty, sme fis, mod frm, rthy tex,
occ wxy-sb mot, tex, tr - occ chk, v calc

MRLST: medgy, occ gy blk, occ dk brn, sb
biky - sb plty, sme fis, mod frm, rthy tex,
occ wxy-sb mot, tex, tr - occ chk, v calc

MRLST: medgy, occ gy blk, occ dk brn, sb
biky - sb plty, sme fis, mod frm, rthy tex,
occ wxy-sb mot, tex, tr - occ chk, v calc

MRLST: medgy, occ gy blk, occ dk brn, sb
biky - sb plty, sme fis, mod frm, rthy tex,
occ wxy-sb mot, tex, tr - occ chk, v calc





gy, occ gy blk, occ dk bm,
ly, sme fis, mod frm, rthy
sb mot tex, v calc
c medgy, mod sft - mod frm,
rthy tex - mot, v calc

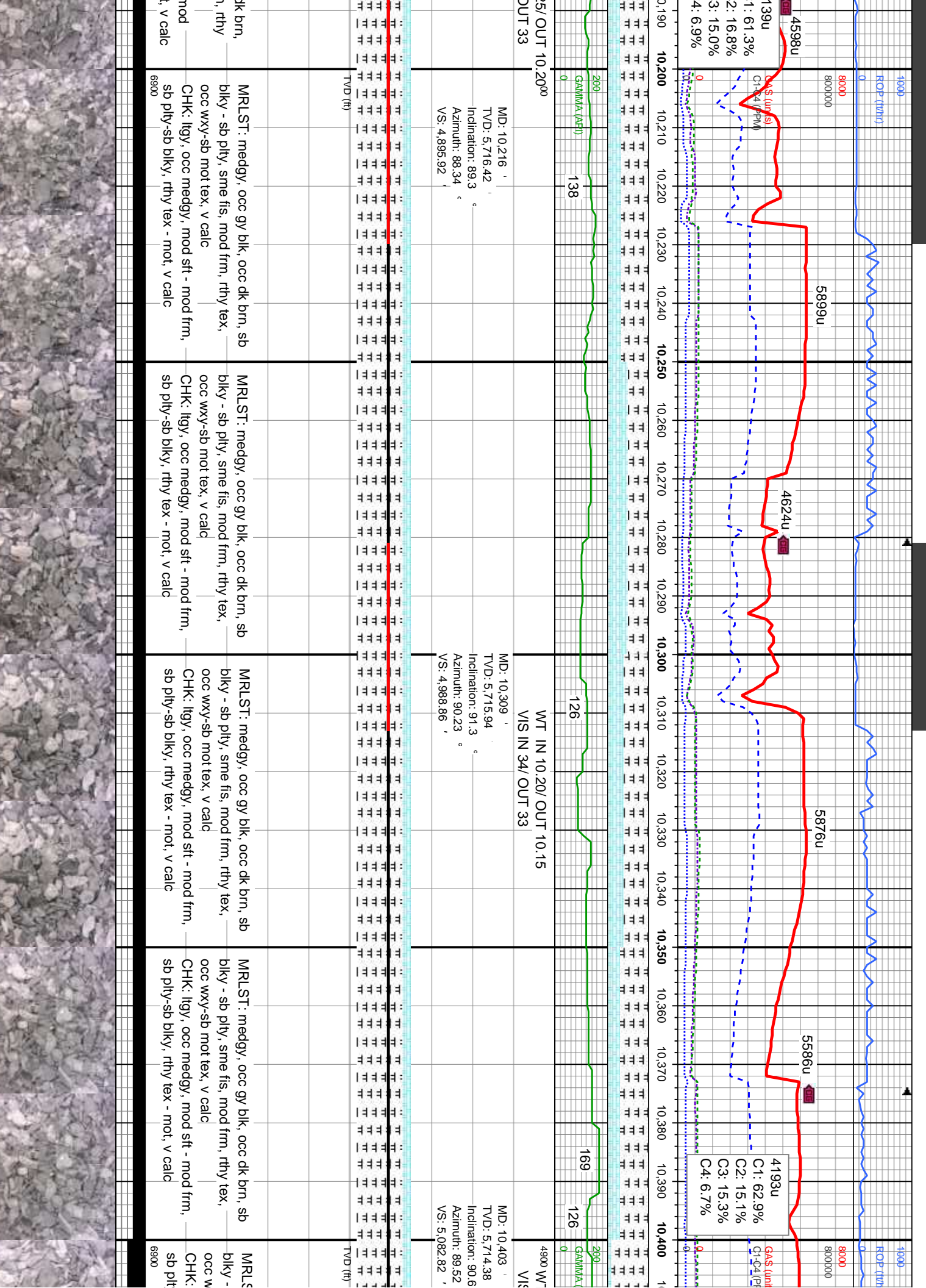
MRLST: medgy, occ gy blk, occ dk bm,
sb blkly - sb ply, sme fis, mod frm, rthy
tex, occ wxy-sb mot tex, v calc
CHK: ltgy, occ medgy, mod sft - mod
frm, sb ply-sb blkly, rthy tex - mot, v calc

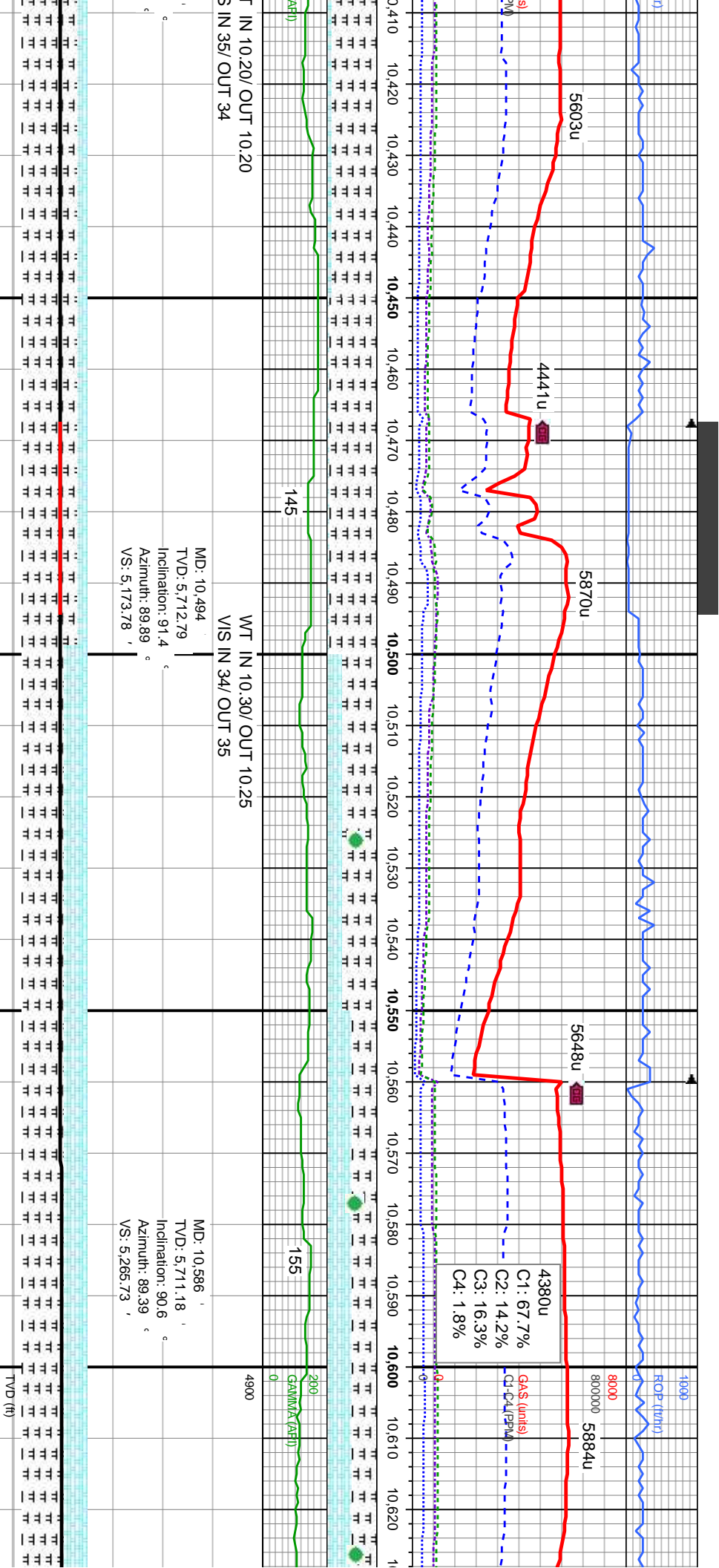
MRLST: medgy, occ gy blk, occ dk bm, sb
blkly - sb ply, sme fis, mod frm, rthy
tex, occ wxy-sb mot tex, v calc
CHK: ltgy, occ medgy, mod sft - mod
frm, sb ply-sb blkly, rthy tex - mot, v calc

MRLST: medgy, occ gy blk, occ dk bm, sb
blkly - sb ply, sme fis, mod frm, rthy
tex, occ wxy-sb mot tex, v calc
CHK: ltgy, occ medgy, mod sft - mod
frm, sb ply-sb blkly, rthy tex - mot, v calc

MRLST: medgy, occ gy blk, occ dk bm, sb
blkly - sb ply, sme fis, mod frm, rthy
tex, occ wxy-sb mot tex, v calc
CHK: ltgy, occ medgy, mod sft - mod
frm, sb ply-sb blkly, rthy tex - mot, v calc







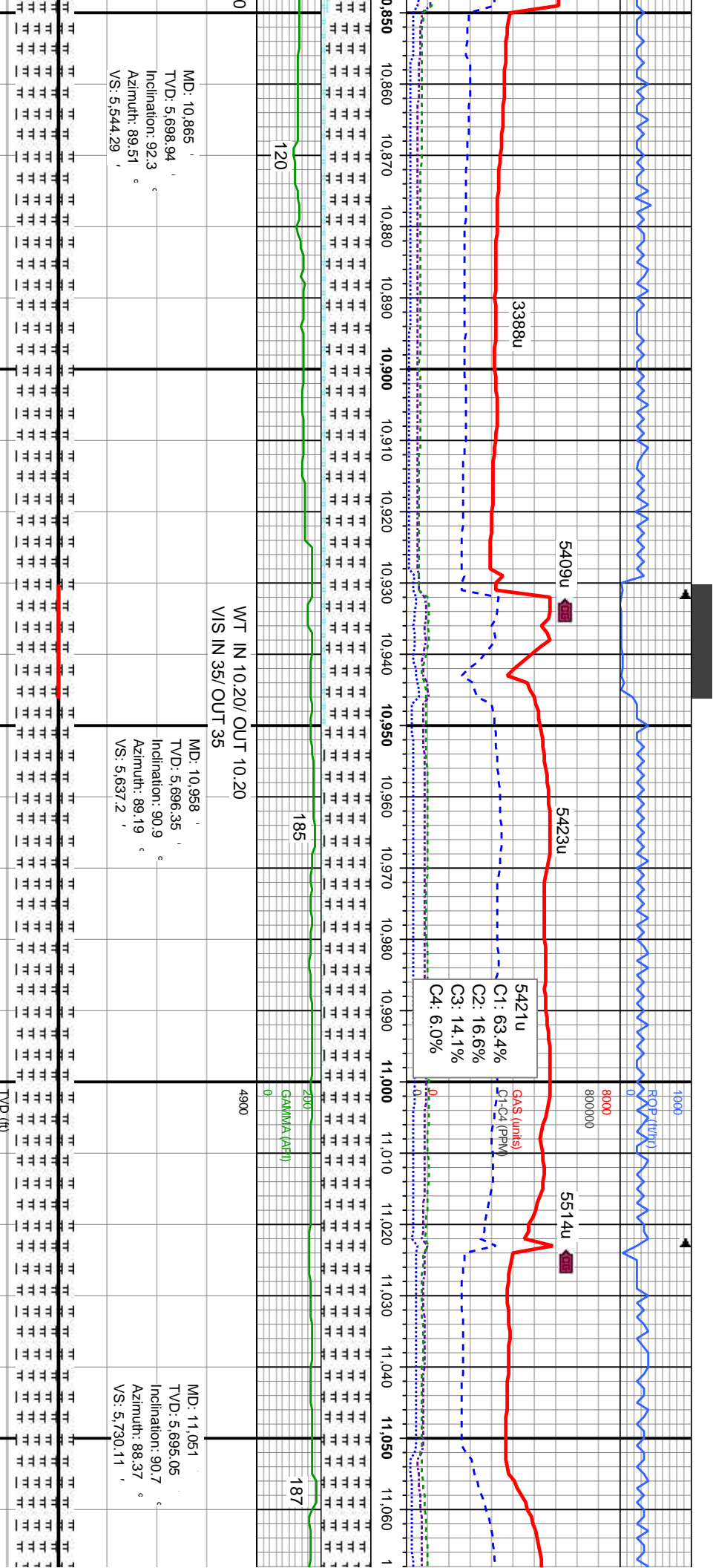
b1: meagy, occ gy blk, occ dk brn, sb
 sb plty, sme fis, mod frm, rthy tex,
 xxy-sb mot tex. v calc
 ltyg, occ medgy, mod sft - mod frm,
 v-sb blkly, rthy tex - mot, v calc

MRLST: medgy, occ gy blk, occ dk brn, sb
 blk - sb pily, sme fls, mod frm, rthy tex,
 occ wxy-sb mot tex, v calc
 CHK: llyg, occ medgy, mod sft - mod frm,
 sb pily-sb blkly, rthy tex - mot, v calc

MRLST: medgy, occ gy blk, occ dk brn, sb blkly -sb ply, sme fls, mod frm, rthy tex, occ wxy-sb mot tex, v calc
CHK: llyg, occ medgy, mod sft - mod frm, sb ply-sb blkly, rthy tex - mot, v calc

MRLST: medgy, occ gy blk, occ dk brn, sb
 blyk - sb plty, sme fis, mod frm, rthy tex,
 occ wxy-sb mot tex, v calc
 CHK: lgy, occ medgy, mod sft - mod frm,
 sb plty-sb blyk, rthy tex - mot, v calc

6900



MD: 10.865
TVD: 5.698.94
Inclination: 92.3
Azimuth: 89.51
VS: 5.544.29

MD: 10.958
TVD: 5.696.35
Inclination: 90.9
Azimuth: 89.19
VS: 5.637.2

MD: 11.051
TVD: 5.695.05
Inclination: 90.7
Azimuth: 88.37
VS: 5.730.11

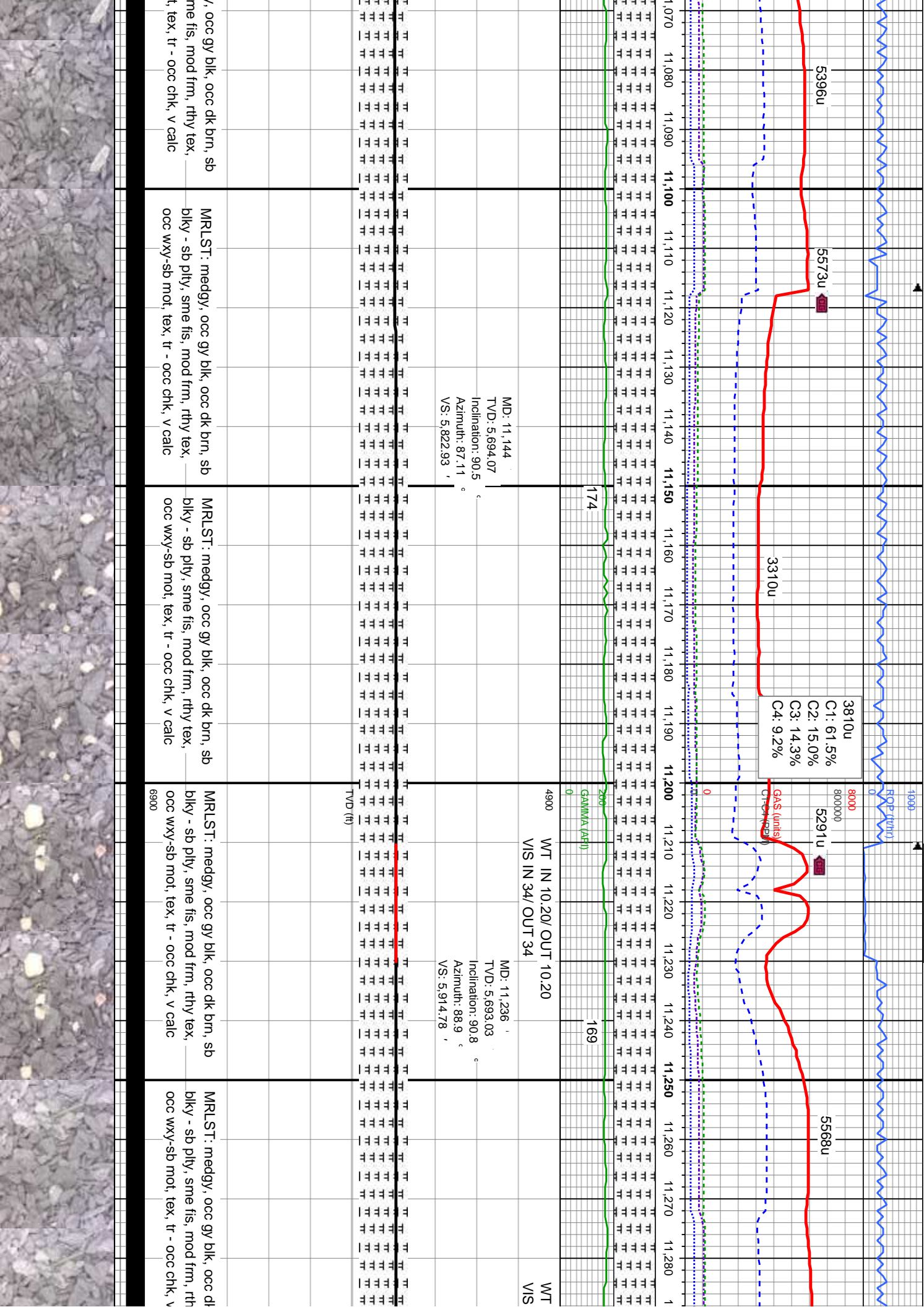
MRSLT: medgy, occ gy blk, occ dk brn, sb
biky - sb pily, sme fis, mod frm, rthy tex,
occ wxy-sb mot tex, v calc
CHK: ltgy, occ medgy, mod sft - mod frm,
sb pily-sb biky, rthy tex - mot, v calc

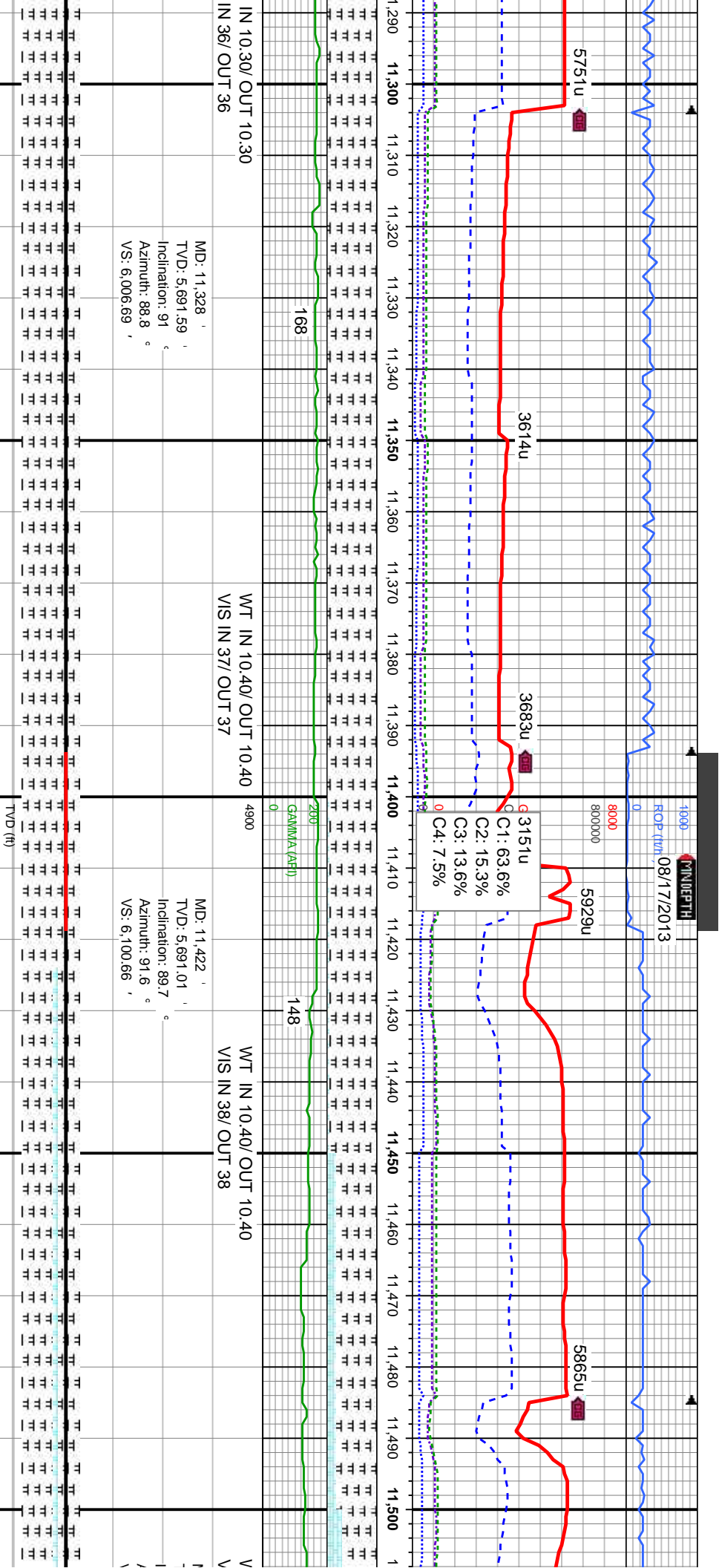
MRSLT: medgy, occ gy blk, occ dk brn, sb
biky - sb pily, sme fis, mod frm, rthy tex,
occ wxy-sb mot tex, v calc
CHK: ltgy, occ medgy, mod sft - mod frm,
sb pily-sb biky, rthy tex - mot, v calc

MRSLT: medgy, occ gy blk, occ dk brn, sb
biky - sb pily, sme fis, mod frm, rthy tex,
occ wxy-sb mot tex, v calc
CHK: ltgy, occ medgy, mod sft - mod frm,
sb pily-sb biky, rthy tex - mot, v calc

MRSLT: medgy, occ gy blk, occ dk brn, sb
biky - sb pily, sme fis, mod frm, rthy tex,
occ wxy-sb mot, tex, tr - occ chk, v calc

MRSLT: medgy,
biky - sb pily, s
occ wxy-sb mo

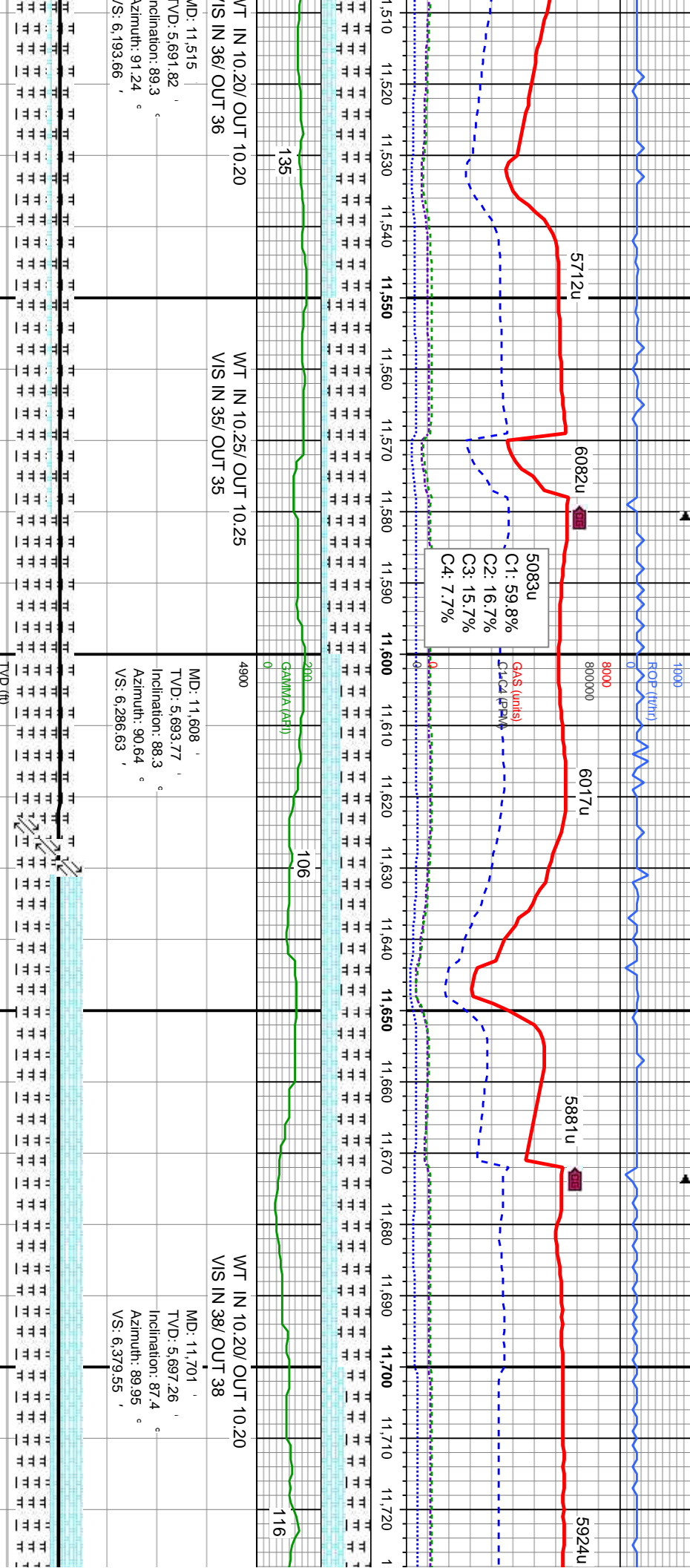




<p> k brn, sb y tex, calc </p>	<p> MRLST: medgy, occ gy blk, occ dk brn, sb biky - sb ply, sme fis, mod frm, rthy tex, occ wxy-sb mot, tex, tr - occ chk, v calc </p>	<p> MRLST: medgy, occ gy blk, occ dk brn, sb biky - sb ply, sme fis, mod frm, rthy tex, occ wxy-sb mot, tex, tr - occ chk, v calc </p>
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69300

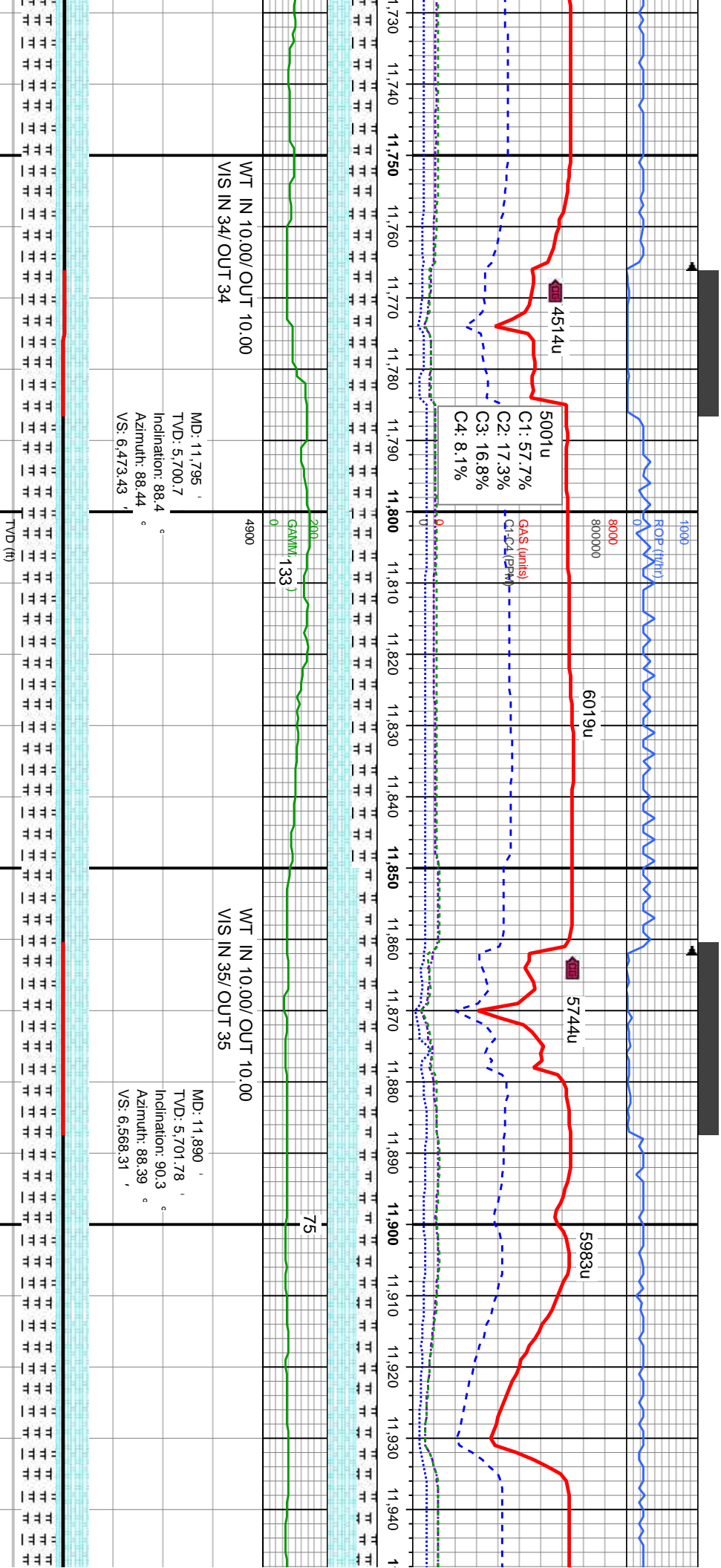
MRLS:
-biky -
occ w
CHK:
sb plt



MD: 11,515	MD: 11,608	MD: 11,701
V/D: 5,691.82	TVD: 5,693.77	TVD: 5,697.26
Inclination: 89.3	Inclination: 88.3	Inclination: 87.4
Azimuth: 91.24	Azimuth: 90.64	Azimuth: 89.95
VS: 6,193.66	VS: 6,286.63	VS: 6,379.55

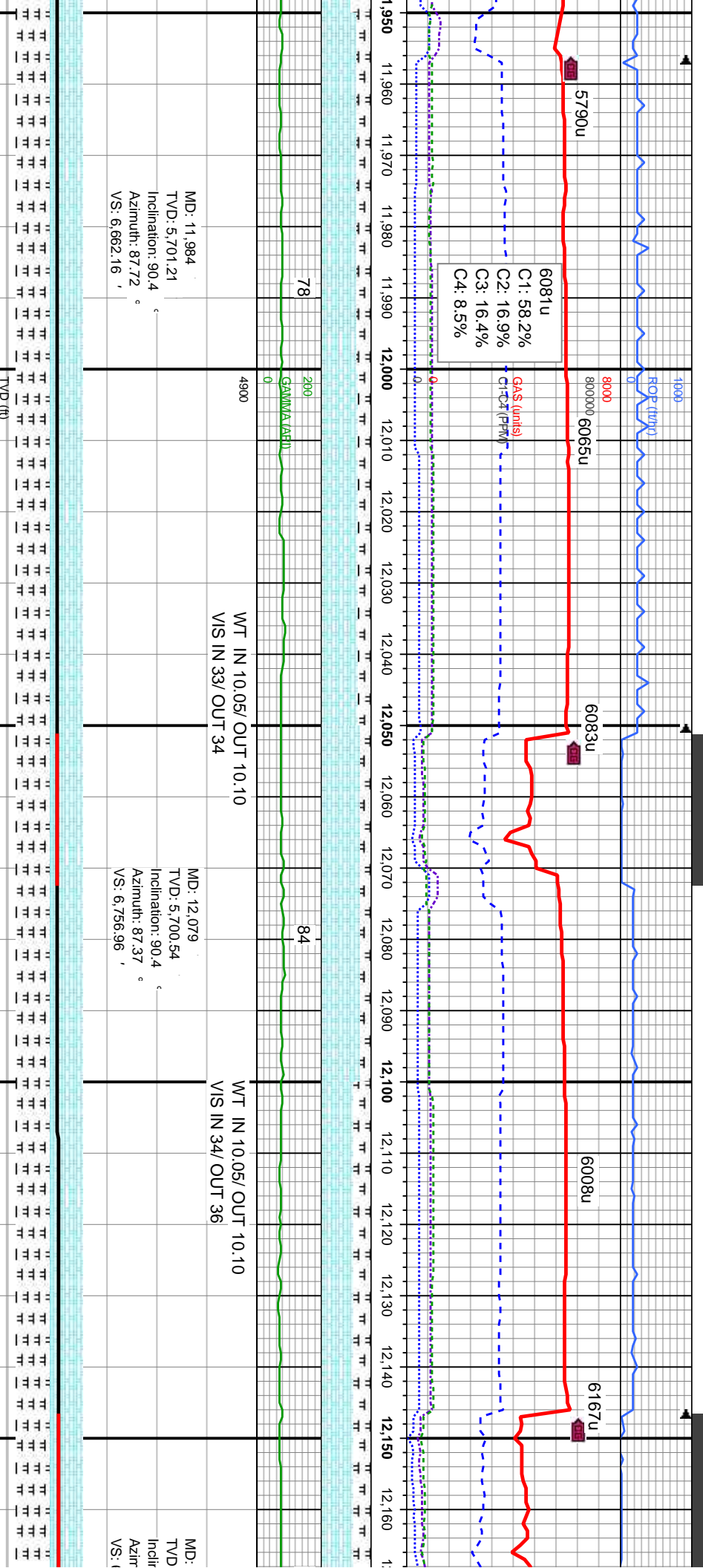
WT IN 10.20/ OUT 10.20 VIS IN 36/ OUT 36	WT IN 10.25/ OUT 10.25 VIS IN 35/ OUT 35	4900	WT IN 10.20/ OUT 10.20 VIS IN 38/ OUT 38
ST: medgy, occ gy blk, occ dk brn, sb sb plty, sme fis, mod frm, rthy tex, lgy-sb mot tex, v calc	MRLST: medgy, occ gy blk, occ dk brn, sb blkly - sb plty, sme fis, mod frm, rthy tex, occ wxy-sb mot tex, v calc	MRLST: medgy, occ gy blk, occ dk brn, sb blkly - sb plty, sme fis, mod frm, rthy tex, occ wxy-sb mot tex, v calc	MRLST: medgy, occ gy blk, occ dk brn, sb blkly - sb plty, sme fis, mod frm, rthy tex, occ wxy-sb mot tex, v calc
CHK: lgy, occ medgy, mod sft - mod frm, sb plty-sb blkly, rthy tex - mot, v calc	CHK: lgy, occ medgy, mod sft - mod frm, sb plty-sb blkly, rthy tex - mot, v calc	CHK: lgy, occ medgy, mod sft - mod frm, sb plty-sb blkly, rthy tex - mot, v calc	CHK: lgy, occ medgy, mod sft - mod frm, sb plty-sb blkly, rthy tex - mot, v calc





blk, occ dk brn, sb mod frm, rthy tex, c, grdg - mod sft - mod frm, mot, v calc	MRLLST: medgy, occ gy blk, occ dk brn, sb biky - sb pty, sme fis, mod frm, rthy tex, occ wxy-sb mot tex, v calc, grdg - CHK: lty, occ medgy, mod sft - mod frm, sb pty-sb biky, rthy tex - mot, v calc	MRLLST: medgy, occ gy blk, occ dk brn, sb biky - sb pty, sme fis, mod frm, rthy tex, occ wxy-sb mot tex, v calc, grdg - CHK: lty, occ medgy, mod sft - mod frm, sb pty-sb biky, rthy tex - mot, v calc	CHK: lty - medgy, mod sft - mod frm, sb pty-sb biky, rthy tex - mot, v calc MRLLST: medgy, occ gy blk, sb biky - sb pty, sme fis, mod frm, rthy tex, occ wxy-sb mot tex, v calc	CHK: lty - medgy, mod sft - mod frm, sb pty-sb biky, rthy tex - mot, v calc MRLLST: medgy, occ gy blk, sb biky - sb pty, sme fis, mod frm, rthy tex, occ wxy-sb mot tex, v calc
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MD: 11.984
TVD: 5,701.21
Inclination: 90.4 °
Azimuth: 87.72 °
VS: 6,662.16 '

MD: 12.079
TVD: 5,700.54
Inclination: 90.4 °
Azimuth: 87.37 °
VS: 6,756.96 '

MD: TVD
Inclir
Azimr
VS: 1

CHK: lgy - medgy, mod sft - mod frm,
sb pty-sb blk, rthy tex - mot, v calc
MRLST: medgy, occ gy blk, sb blk - sb
pty, sme fis, mod frm, rthy tex, occ
wxy-sb mot tex, v calc

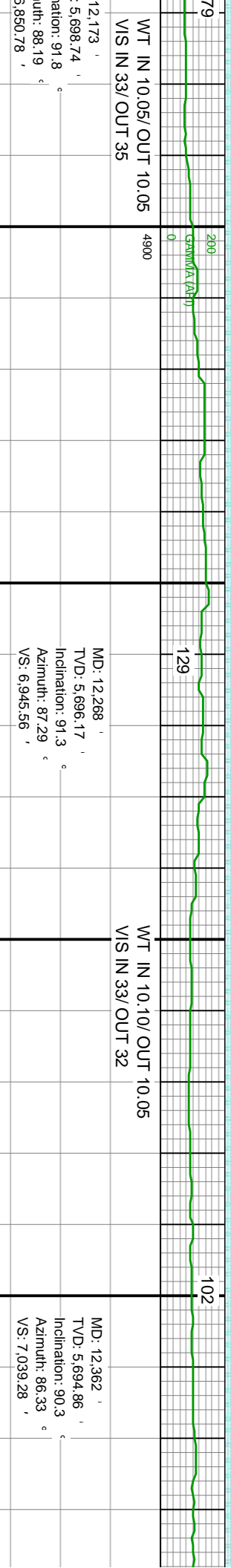
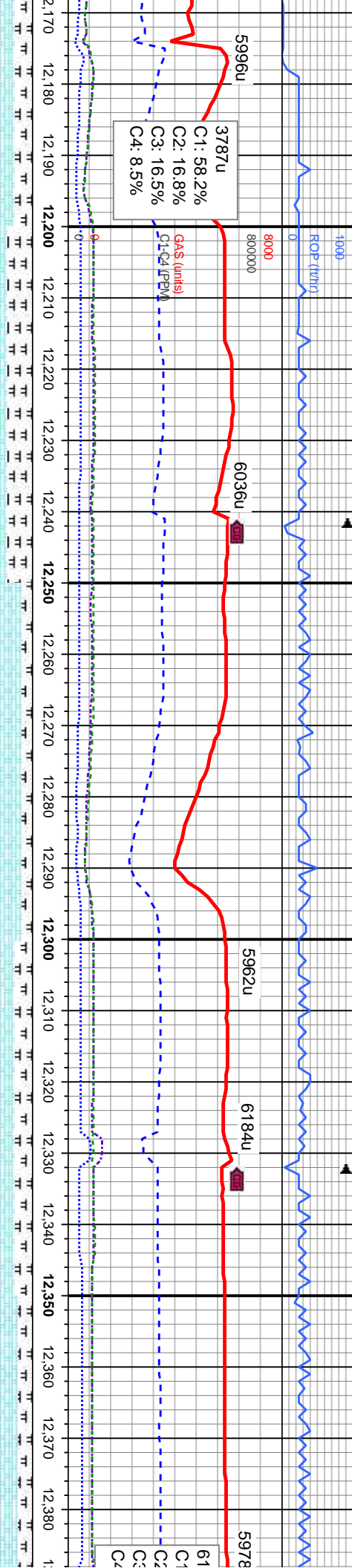
CHK: lgy - medgy, mod sft - mod frm,
sb pty-sb blk, rthy tex - mot, v calc
MRLST: medgy, occ gy blk, sb blk - sb
pty, sme fis, mod frm, rthy tex, occ
wxy-sb mot tex, v calc

CHK: lgy - medgy, mod sft - mod frm,
sb pty-sb blk, rthy tex - mot, v calc
MRLST: medgy, occ gy blk, sb blk - sb
pty, sme fis, mod frm, rthy tex, occ
wxy-sb mot tex, v calc

CHK: lgy - medgy, mod sft - mod frm,
sb pty-sb blk, rthy tex - mot, v calc
MRLST: medgy, occ gy blk, sb blk - sb
pty, sme fis, mod frm, rthy tex, occ
wxy-sb mot tex, v calc

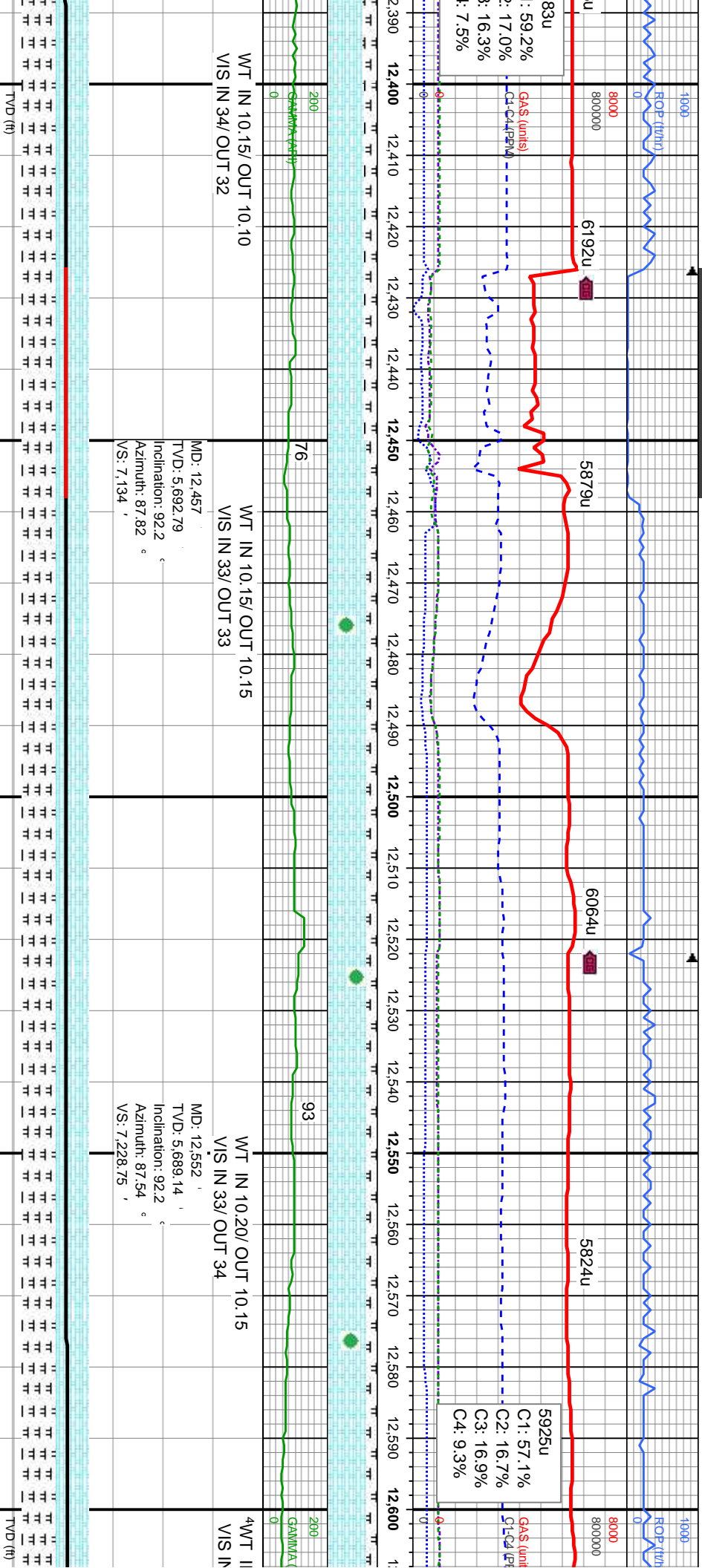
CHK: lgy - medgy, mod sft - mod frm,
sb pty-sb blk, rthy tex - mot, v calc
MRLST: medgy, occ gy blk, sb blk - sb
pty, sme fis, mod frm, rthy tex, occ
wxy-sb mot tex, v calc



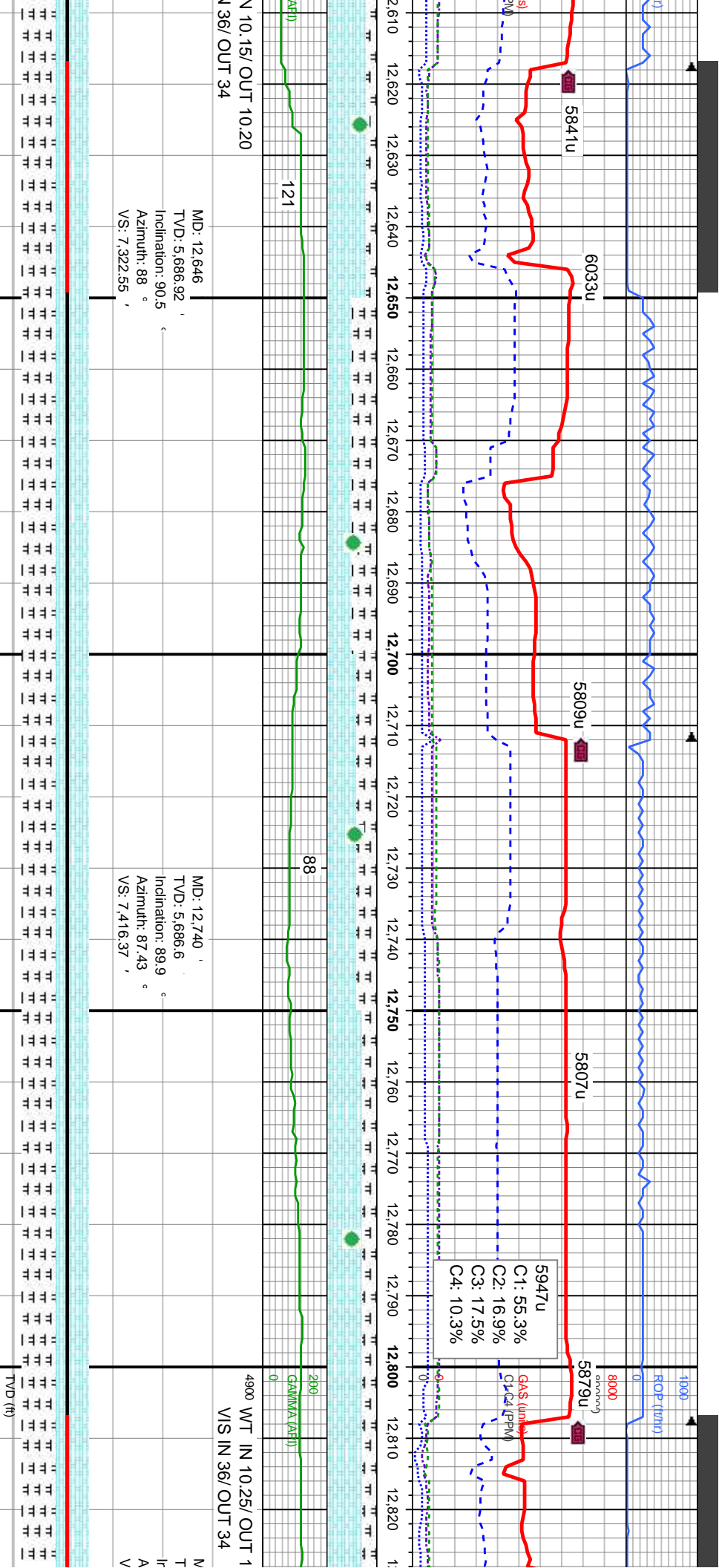


medgy, mod sft - mod frm, rthy tex - mot, v calc gy, occ gy blk, sb blk - sb mod frm, rthy tex, occ x, v calc	CHK: lty - medgy, mod sft - mod frm, sb pty-sb blk, rthy tex - mot, v calc MRLST: medgy, occ gy blk, sb blk - sb pty, sme fis, mod frm, rthy tex, occ wxy-sb mot tex, v calc	CHK: lty - medgy, mod sft - mod frm, sb pty-sb blk, rthy tex - mot, v calc MRLST: medgy, occ gy blk, sb blk - sb pty, sme fis, mod frm, rthy tex, occ wxy-sb mot tex, v calc	CHK: lty - medgy, mod sft - mod frm, sb pty-sb blk, rthy tex - mot, v calc MRLST: medgy, occ gy blk, sb blk - sb pty, sme fis, mod frm, rthy tex, occ wxy-sb mot tex, v calc
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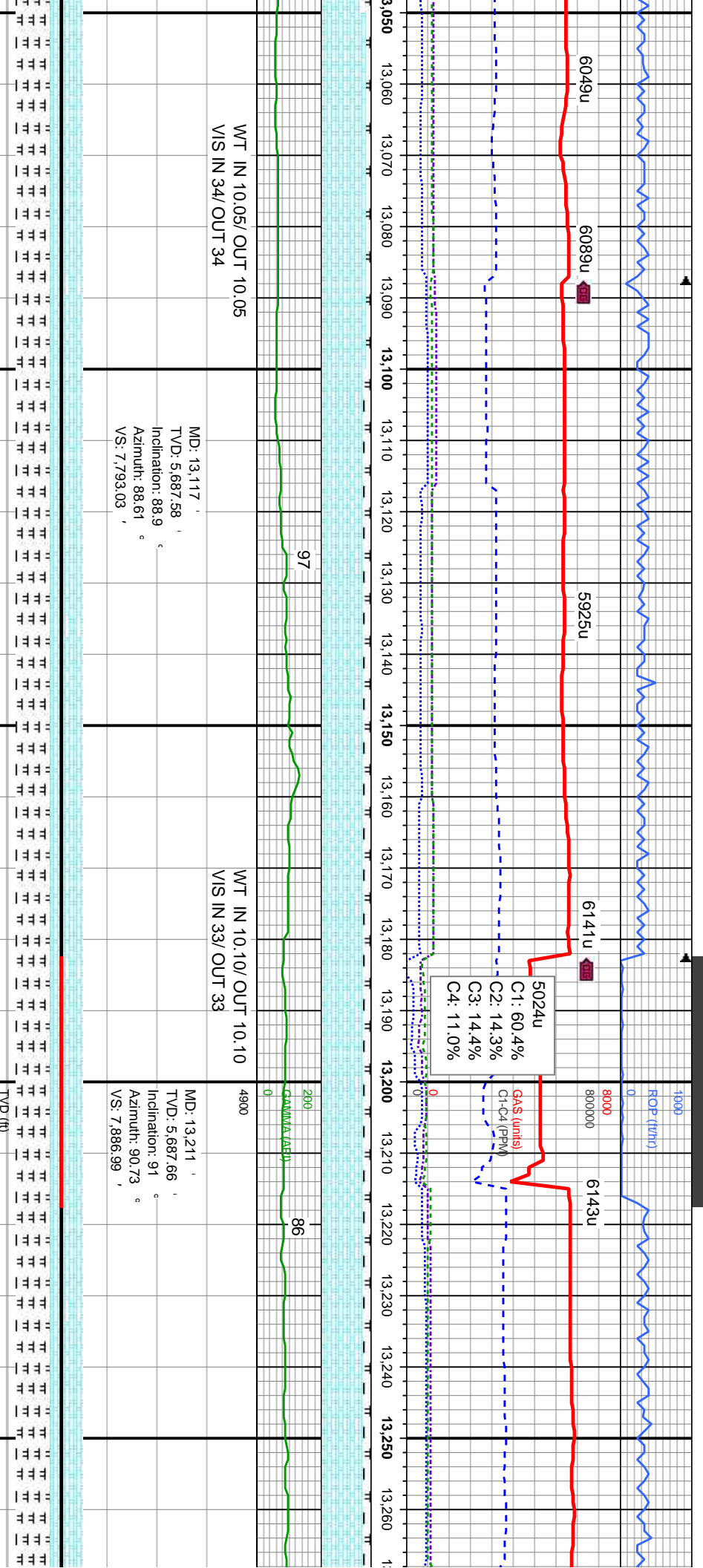


TVĐ (th)				TVĐ (th)
6900	<p>CHK: lly - medgy, mod sft - mod frm, sb ply-sb blk, rthy tex - mot, v calc MRLST: medgy, occ gy blk, sb blk - sb ply, sme fis, mod frm, rthy tex, occ wxy-sb mot tex, v calc</p>	<p>CHK: lly - medgy, mod sft - mod frm, sb ply-sb blk, rthy tex - mot, v calc MRLST: medgy, occ gy blk, sb blk - sb ply, sme fis, mod frm, rthy tex, occ wxy-sb mot tex, v calc</p>	<p>CHK: lly - medgy, mod sft - mod frm, sb ply-sb blk, rthy tex - mot, v calc MRLST: medgy, occ gy blk, sb blk - sb ply, sme fis, mod frm, rthy tex, occ wxy-sb mot tex, v calc</p>	<p>CHK: lly - medgy, mod sft - mod frm, sb ply-sb blk, rthy tex - mot, v calc MRLST: medgy, occ gy blk, sb blk - sb ply, sme fis, mod frm, rthy tex, occ wxy-sb mot tex, v calc</p>



lty - medgy, mod sft - mod frm, sb b bly, rthy tex - mot, v calc	CHK: lty - medgy, mod sft - mod frm, sb pty-sb bly, rthy tex - mot, v calc MRLST: medgy, occ gy blk, sb bly - sb pty, sme fis, mod frm, rthy tex, occ wxy-sb mot tex, v calc
lty - medgy, mod sft - mod frm, sb b bly, rthy tex - mot, v calc	CHK: lty - medgy, mod sft - mod frm, sb pty-sb bly, rthy tex - mot, v calc MRLST: medgy, occ gy blk, sb bly - sb pty, sme fis, mod frm, rthy tex, occ wxy-sb mot tex, v calc
lty - medgy, mod sft - mod frm, sb b bly, rthy tex - mot, v calc	CHK: lty - medgy, mod sft - mod frm, sb pty-sb bly, rthy tex - mot, v calc MRLST: medgy, occ gy blk, sb bly - sb pty, sme fis, mod frm, rthy tex, occ wxy-sb mot tex, v calc





WT IN 10.05/ OUT 10.05
VIS IN 34/ OUT 34

MD: 13.117 ' ,
TVD: 5.687.58 ' ,
Inclination: 88.9 ° ,
Azimuth: 88.61 ° ,
VS: 7.793.03 ' ,

WT IN 10.10/ OUT 10.10
VIS IN 33/ OUT 33

MD: 13.211 ' ,
TVD: 5.687.66 ' ,
Inclination: 91 ° ,
Azimuth: 90.73 ° ,
VS: 7.886.99 ' ,

TVD (ft)

CHK: lgy - medgy, mod sft - mod frm, sb
ply-sb blk, rthy tex - mot, v calc
MRLST: medgy, occ gy blk, sb blk - sb
ply, sme fis, mod frm, rthy tex, occ wxy-sb
mot tex, v calc

CHK: lgy - medgy, mod sft - mod frm, sb
ply-sb blk, rthy tex - mot, v calc
MRLST: medgy, occ gy blk, sb blk - sb
ply, sme fis, mod frm, rthy tex, occ wxy-sb
mot tex, v calc

CHK: lgy - medgy, mod sft - mod frm, sb
ply-sb blk, rthy tex - mot, v calc
MRLST: medgy, occ gy blk, sb blk - sb
ply, sme fis, mod frm, rthy tex, occ wxy-sb
mot tex, v calc

CHK: lgy - medgy, mod sft - mod frm, sb
ply-sb blk, rthy tex - mot, v calc
MRLST: medgy, occ gy blk, sb blk - sb
ply, sme fis, mod frm, rthy tex, occ wxy-sb
mot tex, v calc

CHK: lgy - medgy, mod sft - mod frm, sb
ply-sb blk, rthy tex - mot, v calc
MRLST: medgy, occ gy blk, sb blk - sb
ply, sme fis, mod frm, rthy tex, occ wxy-sb
mot tex, v calc



MINIDEPTH

08/18/2013

MINIDEPTH

08/19/2013

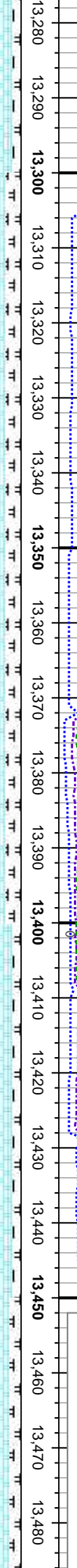
6147u 6126u 6116u 842u

C1: 96.8%
C2: 1.9%
C3: 0.9%
C4: 0.4%

TOOH for Mud Motor @ 13428MD
07:12AM 08/18/2013
Resumed drilling @ 12:46AM 08/19/2013

RECIRCULATING THROUGH
GAS BUSTER

5527u



89

90

200

222

WT IN 10.10/ OUT 10.10
VIS IN 34/ OUT 34

WT IN 10.10/ OUT 10.10
VIS IN 34/ OUT 34

WT IN 10.10/ OUT 10.10
VIS IN 36/ OUT 36

MD: 13.306
TVD: 5.686.5
Inclination: 90.4
Azimuth: 88.42
VS: 7.981.93

MD: 13.400
TVD: 5.685.27
Inclination: 91.1
Azimuth: 88.82
VS: 8.075.83

TVD (ft)

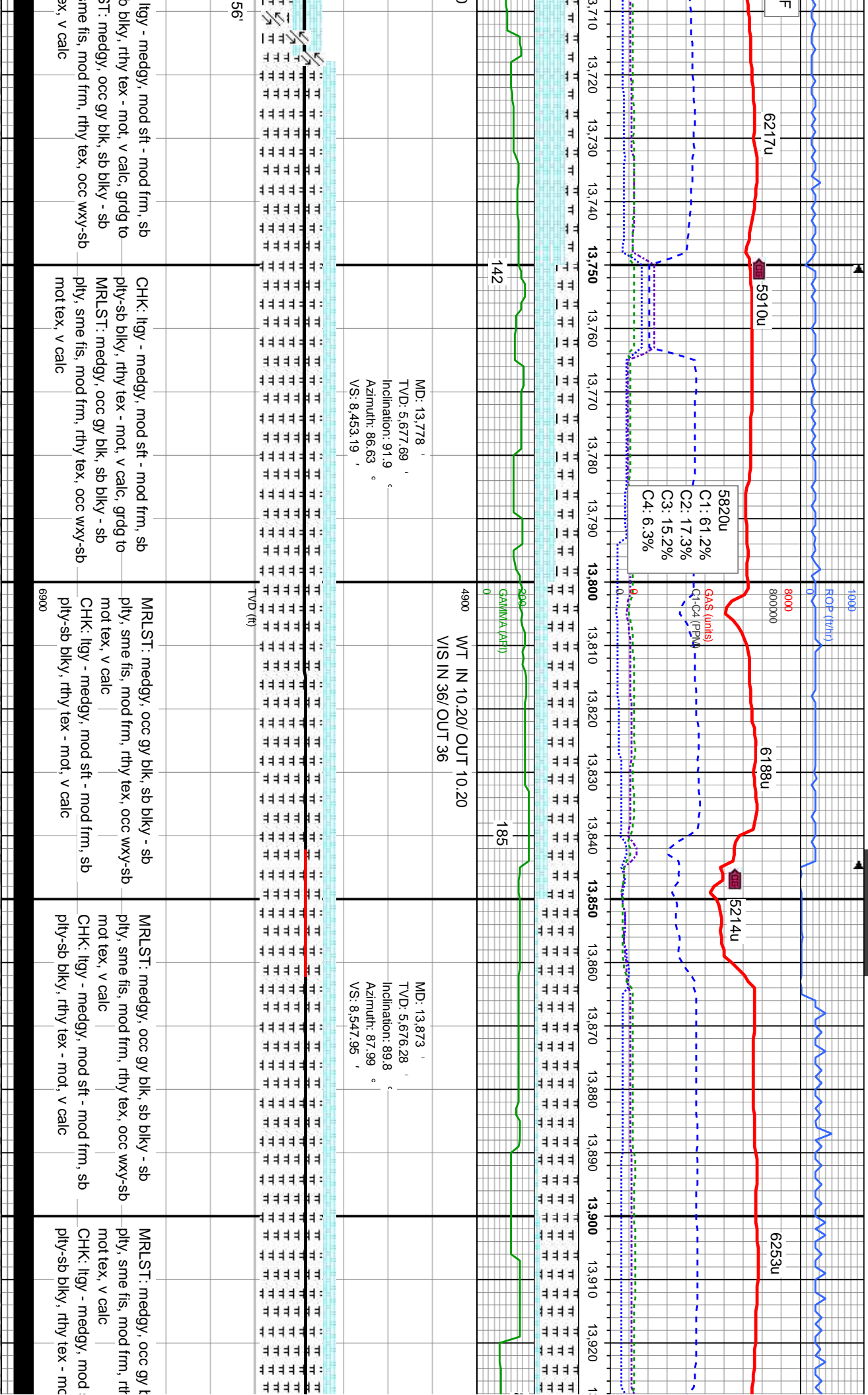
CHK: lty - medgy, mod sft - mod frm, sb
ply-sb blk, rthy tex - mot, v calc
MRLST: medgy, occ gy blk, sb blk - sb
ply, sme fis, mod frm, rthy tex, occ wxy-sb
mot tex, v calc

CHK: lty - medgy, mod sft - mod frm, sb
ply-sb blk, rthy tex - mot, v calc
MRLST: medgy, occ gy blk, sb blk - sb
ply, sme fis, mod frm, rthy tex, occ wxy-sb
mot tex, v calc

CHK: lty - medgy, mod sft - mod frm, sb
ply-sb blk, rthy tex - mot, v calc
MRLST: medgy, occ gy blk, sb blk - sb
ply, sme fis, mod frm, rthy tex, occ wxy-sb
mot tex, v calc

CHK: lty - medgy, mod sft - mod frm, sb
ply-sb blk, rthy tex - mot, v calc
MRLST: medgy, occ gy blk, sb blk - sb
ply, sme fis, mod frm, rthy tex, occ wxy-sb
mot tex, v calc



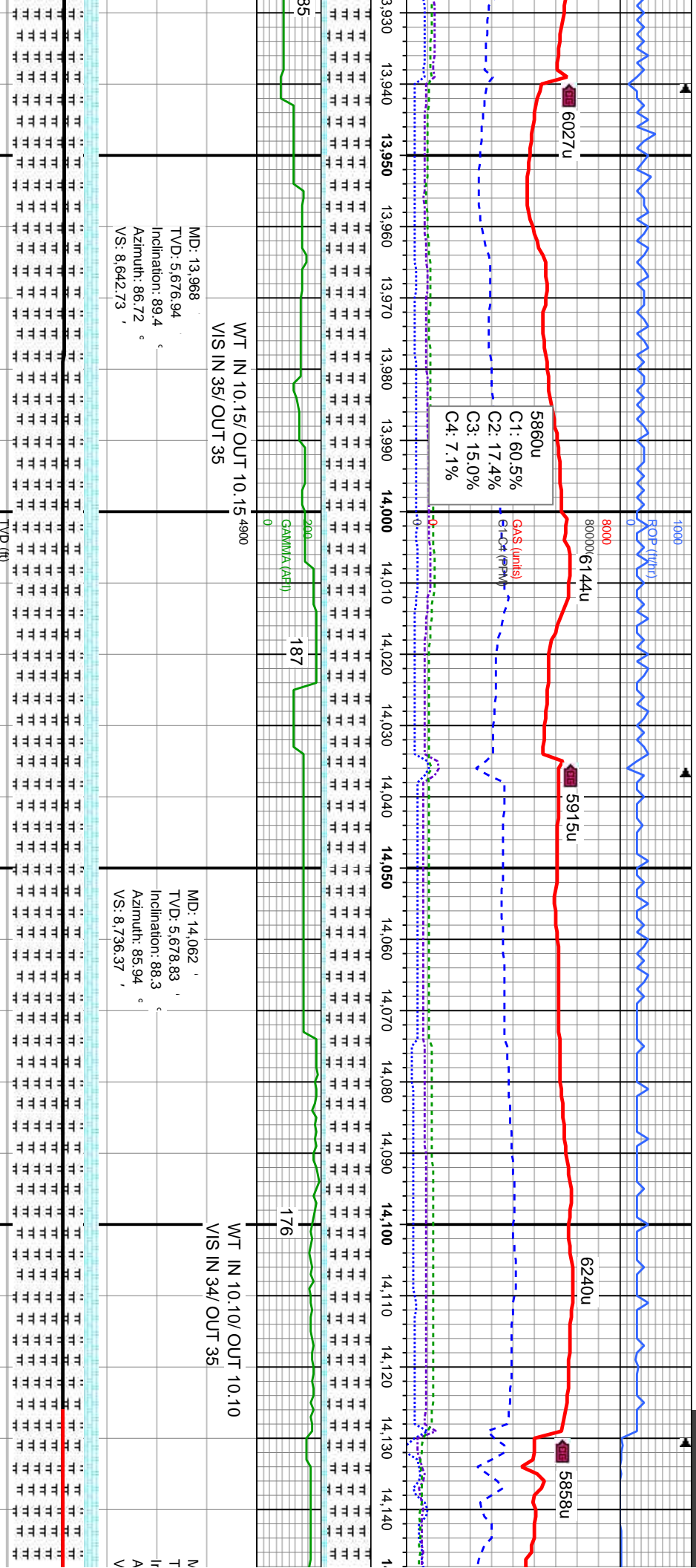


CHK: lty - medgy, mod sft - mod frm, sb
ply-sb blk, rthy tex - mot, v calc, grdg to
MRLST: medgy, occ gy blk, sb blk - sb
ply, sme fis, mod frm, rthy tex, occ wxy-sb
mot tex, v calc

MRLST: medgy, occ gy blk, sb blk - sb
ply, sme fis, mod frm, rthy tex, occ wxy-sb
mot tex, v calc
CHK: lty - medgy, mod sft - mod frm, sb
ply-sb blk, rthy tex - mot, v calc

MRLST: medgy, occ gy blk, sb blk - sb
ply, sme fis, mod frm, rthy tex, occ wxy-sb
mot tex, v calc
CHK: lty - medgy, mod sft - mod frm, sb
ply-sb blk, rthy tex - mot, v calc

MRLST: medgy, occ gy blk, sb blk - sb
ply, sme fis, mod frm, rthy tex, occ wxy-sb
mot tex, v calc
CHK: lty - medgy, mod sft - mod frm, sb
ply-sb blk, rthy tex - mot, v calc



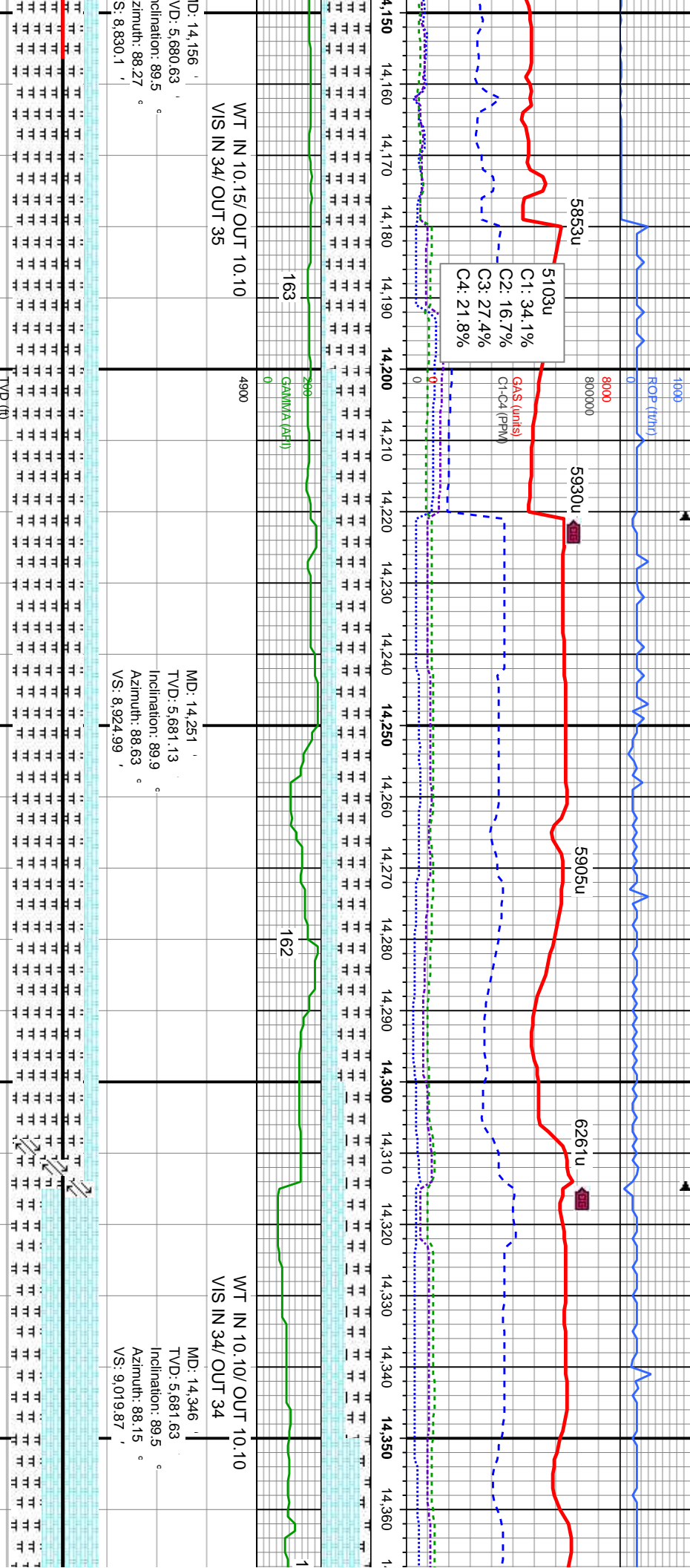
WT IN 10.15/ OUT 10.15 4900
VIS IN 35/ OUT 35

MD: 13.968
TVD: 5,676.94
Inclination: 89.4 °
Azimuth: 86.72 °
VS: 8,642.73 '

MD: 14.062
TVD: 5,678.83
Inclination: 88.3 °
Azimuth: 85.94 °
VS: 8,736.37 '

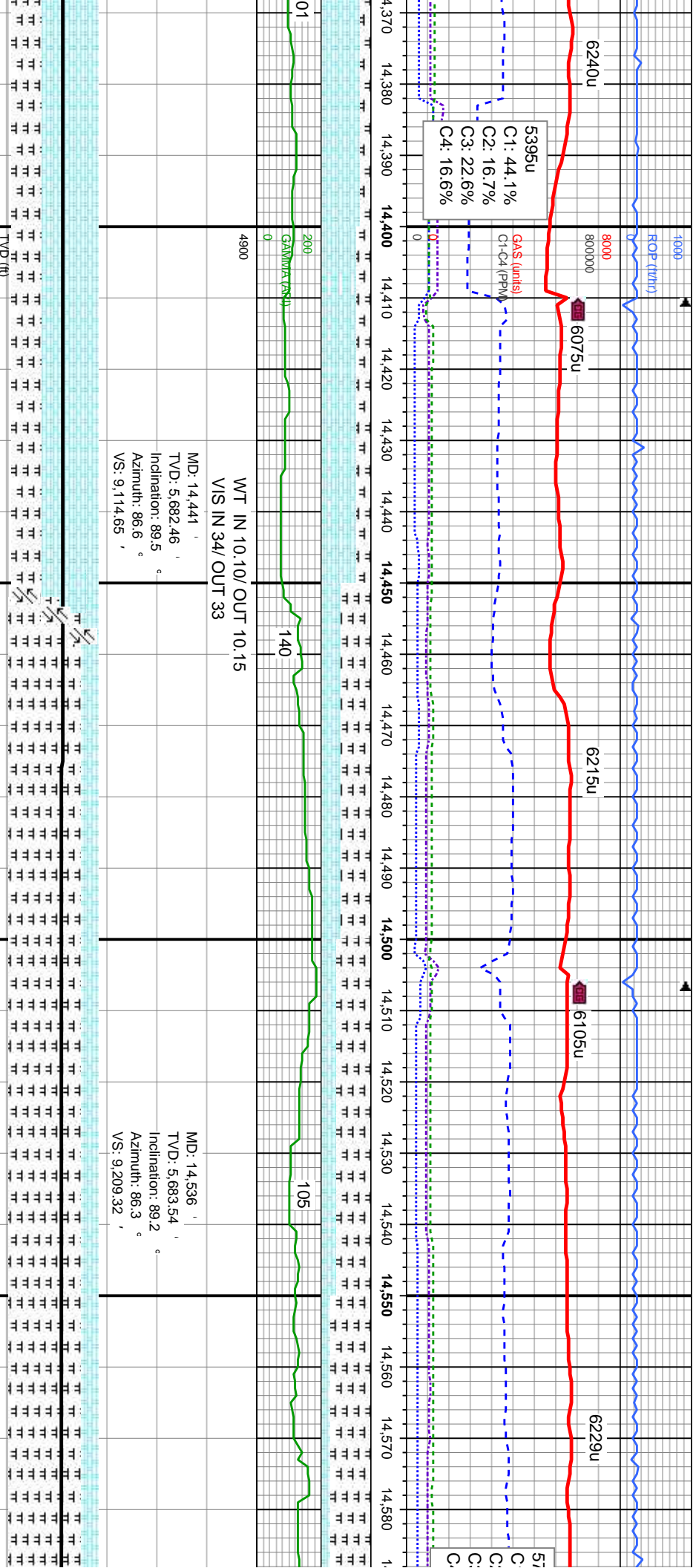
WT IN 10.10/ OUT 10.10
VIS IN 34/ OUT 35

sb blkly - sb ply, sme fis, mod frm, rthy tex, occ wxy-sb mot tex, v calc	MRSLT: medgy, occ gy blk, sb blkly - sb ply, sme fis, mod frm, rthy tex, occ wxy-sb mot tex, v calc	MRSLT: medgy, occ gy blk, sb blkly - sb ply, sme fis, mod frm, rthy tex, occ wxy-sb mot tex, v calc	MRSLT: medgy, occ gy blk, sb blkly - sb ply, sme fis, mod frm, rthy tex, occ wxy-sb mot tex, v calc
sft - mod frm, sb ply, rthy tex, v calc	CHK: lty - medgy, mod sft - mod frm, sb ply-sb blkly, rthy tex - mot, v calc	CHK: lty - medgy, mod sft - mod frm, sb ply-sb blkly, rthy tex - mot, v calc	CHK: lty - medgy, mod sft - mod frm, sb ply-sb blkly, rthy tex - mot, v calc



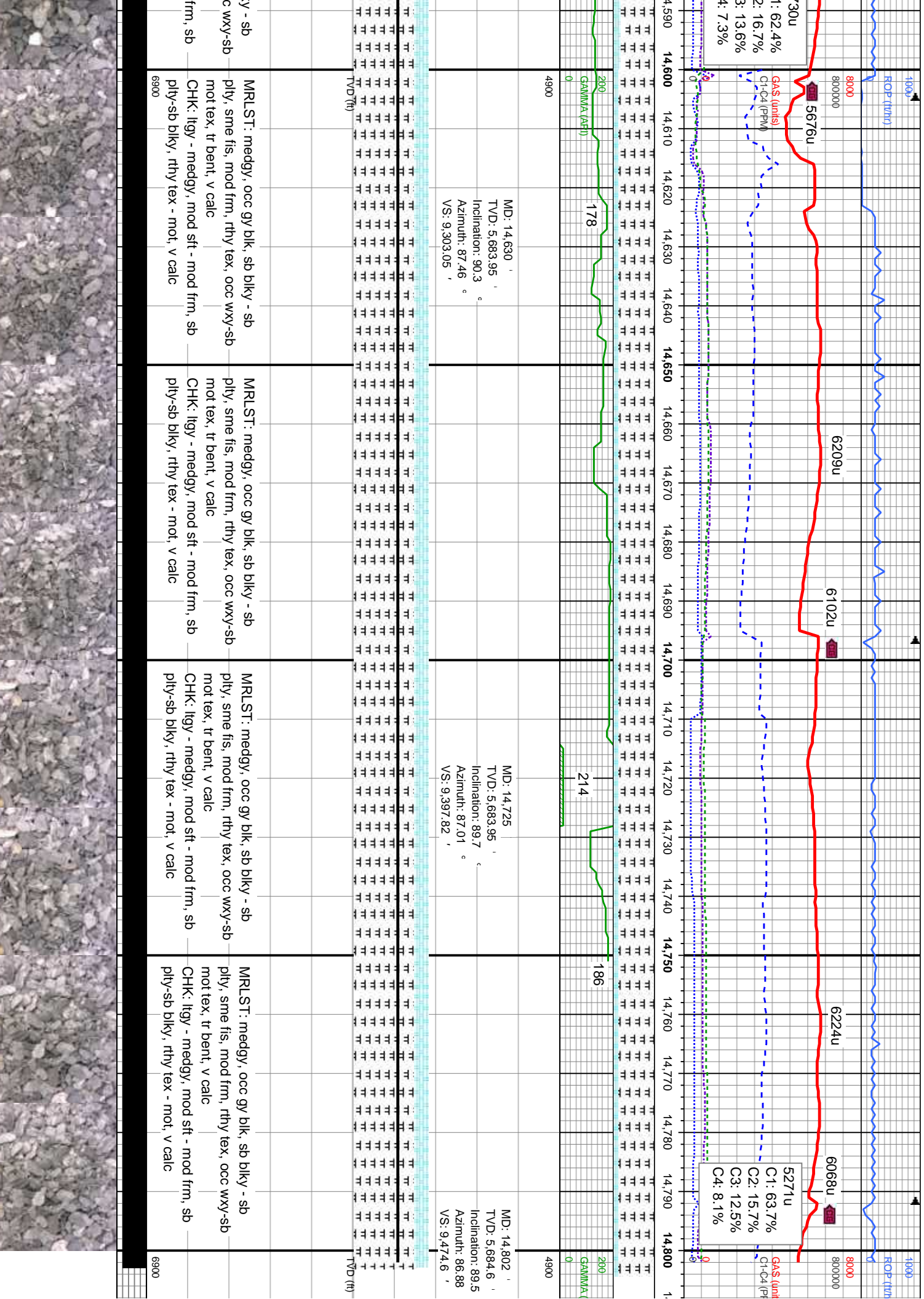
MRSLT: medgy, occ gy blk, sb blk - sb ply, sme fis, mod frm, rthy tex, occ wxy-sb mot tex, v calc	MRSLT: medgy, occ gy blk, sb blk - sb ply, sme fis, mod frm, rthy tex, occ wxy-sb mot tex, v calc	MRSLT: medgy, occ gy blk, sb blk - sb ply, sme fis, mod frm, rthy tex, occ wxy-sb mot tex, v calc, grdg to	MRSLT: medgy, occ gy blk, sb blk - sb ply, sme fis, mod frm, rthy tex, occ wxy-sb mot tex, v calc	CHK: lgy - medgy, mod sft - mod frm, sb ply-sb blk, rthy tex - mot, v calc	CHK: lgy - medgy, mod sft - mod frm, sb ply-sb blk, rthy tex - mot, v calc	CHK: lgy - medgy, mod sft - mod frm, sb ply-sb blk, rthy tex - mot, v calc	CHK: lgy - medgy, mod sft - mod frm, sb ply-sb blk, rthy tex - mot, v calc	CHK: lgy - medgy, mod sft - mod frm, sb ply-sb blk, rthy tex - mot, v calc	CHK: lgy - medgy, mod sft - mod frm, sb ply-sb blk, rthy tex - mot, v calc
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lgy, mod sft - mod frm, sb	CHK: lgy - medgy, mod sft - mod frm, sb	MRLST: medgy, occ gy blk, sb blk - sb	MRLST: medgy, occ gy blk, sb blk - sb	MRLST: medgy, occ gy blk, sb blk - sb
y tex - mot, v calc	ply-sb blk, rthy tex - mot, v calc	ply, sme fis, mod frm, rthy tex, occ wxy-sb	ply, sme fis, mod frm, rthy tex, occ wxy-sb	ply, sme fis, mod frm, rthy tex, occ wxy-sb
, occ gy blk, sb blk - sb	MRLST: medgy, occ gy blk, sb blk - sb	mot tex, tr bent, v calc	mot tex, tr bent, v calc	mot tex, tr bent, v calc
mod frm, rthy tex, occ wxy-sb	ply, sme fis, mod frm, rthy tex, occ wxy-sb	CHK: lgy - medgy, mod sft - mod frm, sb	CHK: lgy - medgy, mod sft - mod frm, sb	CHK: lgy - medgy, mod sft - mod frm, sb
	mot tex, v calc	ply-sb blk, rthy tex - mot, v calc	ply-sb blk, rthy tex - mot, v calc	ply-sb blk, rthy tex - mot, v calc
	6900			





NOBLE ENERGY INC.
ROHN STATE LD04-68-1HN
TD @ 14802' MD
08/19/2013 @ 03:44 PM
THANK YOU
COLUMBINE LOGGING

14,810 14,820 14,830 14,840 14,850

NOBLE ENERGY INC.
ROHN STATE LD04-68-1HN
TD @ 14802' MD
08/19/2013 @ 03:44 PM