



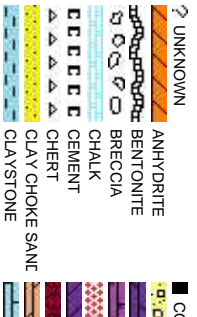
Scale: 5" / 100'
Measured Depth Log

Well Name	Cecil Farms PC 106-68-1HN(Horz)		
Location	SEC 6, T6N, R66W		
State	COLORADO	County	WELD
Country	USA	Rig Number	H&P 326
API Number	05-123-35998	Field	WATTENBERG
Region	DJ BASIN	Drilling Completed	3/4/2014
Spud Date	2/19/2014		
Surface Coordinates	SEC 6, T6N, R66W 255' FNL, 259' FEL		
Bottom Hole Coordinates	SEC 6, T6N, R66W 990' FNL, 535' FWL		
Ground Elevation	4870'	K.B. Elevation	4900'
Logged Interval	1100'	To	11923'
Formation	NIOBRARA, C CHALK		
Type of Drilling Fluid	LSND		

Company Noble Energy Inc
Address 1625 Broadway
Denver, CO 802

Name Evan Howell
Company Noble Energy Inc
Address 1625 Broadway
Denver, CO 802

Columbine Logging Inc.



Operator

Suite 2200

202

Geologist

Suite 2200

202

Other

Mike Kerschen
Ben Katka

Rock Types

CONGLOMERATE	MARLSTONE	SHALY SANDSTONE
DOLomite	METAMORPHIC	SHALY SILTSTONE
DOLOMITIC LIMESTONE	NO SAMPLE	SILT SHALE
GRANITE	SALT	SILTSTONE
GYPsUM	SANDSTONE	TILL
IGNEOUS	SALT-PEPPER SAND	TUFF
SIDERITE or LIMONITE	SHALE	WELDED TUFF
LIMESTONE	SHALE COLORED	
	SHALE GRAY	

Accessories

Fossils

GASTROPOD	ARGILLITE GRAIN	HEAVY MINERAL	ANHYDRITE STRINGER
INOCERAMUS	BENTONITE	KAO LIN	BENTONITE STRINGER
ALGAE	OOLITE	BITUMENOUS SUBSTANCE	COAL STRINGER
AMPHIPORA	OSTRACOD	BRECCIA FRAGMENTS	DOLomite STRINGER
BELEMNITE	PELECYPOD	CALCAREOUS	DOLomite STRINGER
BIOCLASTIC	PELLET	CARBONACEOUS FLAKES	GYPsUM STRINGER
BRACHIOPOD	PISOLITE	CHITDK	LIMESTONE STRINGER
BRYOZOA	PLANT REMAINS	CHITL	MARLSTONE (CALC) STRG
CEPHALOPOD	PLANT SPORES	COAL - THIN BEDS	MARLSTONE (IDOL) STRG
CORAL	SCAPHOPOD	DOLOMITIC	SANDSTONE STRINGER
CRINOID	STROMATOPOROID	FELDSPAR	SHALE STRINGER
ECHINOID	FERRUGINOUS PELLET	FERRUGINOUS	SILTSTONE STRINGER

Minerals

FISH	FERRUGINOUS	TUFFACEOUS
FORAMINIFERA	ANHYDRITIC	GLAUCONITE
F FOSSIL	ARGILLACEOUS	GYPsIFEROUS

Stringer

Other Symbols

Oil Show

P PINPOINT	DST INTERVAL	WIRELINE TESTED - LEFT	E EARTHY
V VUGGY	FAULT	WIRELINE TESTED - RT	FX FINELYX LN

Engineering

DEAD	FORMATION TOP	DRILL STEM TEST	GS GRAINSTONE
EVEN	GAS SHOW	MN DEPTH	L LITHOGRAPHIC
QUESTIONABLE	BIT		MX MICROX LN
SPOTTED STAINING	CONNECTION (UP)		MS MUDSTONE

Rounding

CONNECTION (DOWN)	ANGULAR	PS PACKSTONE
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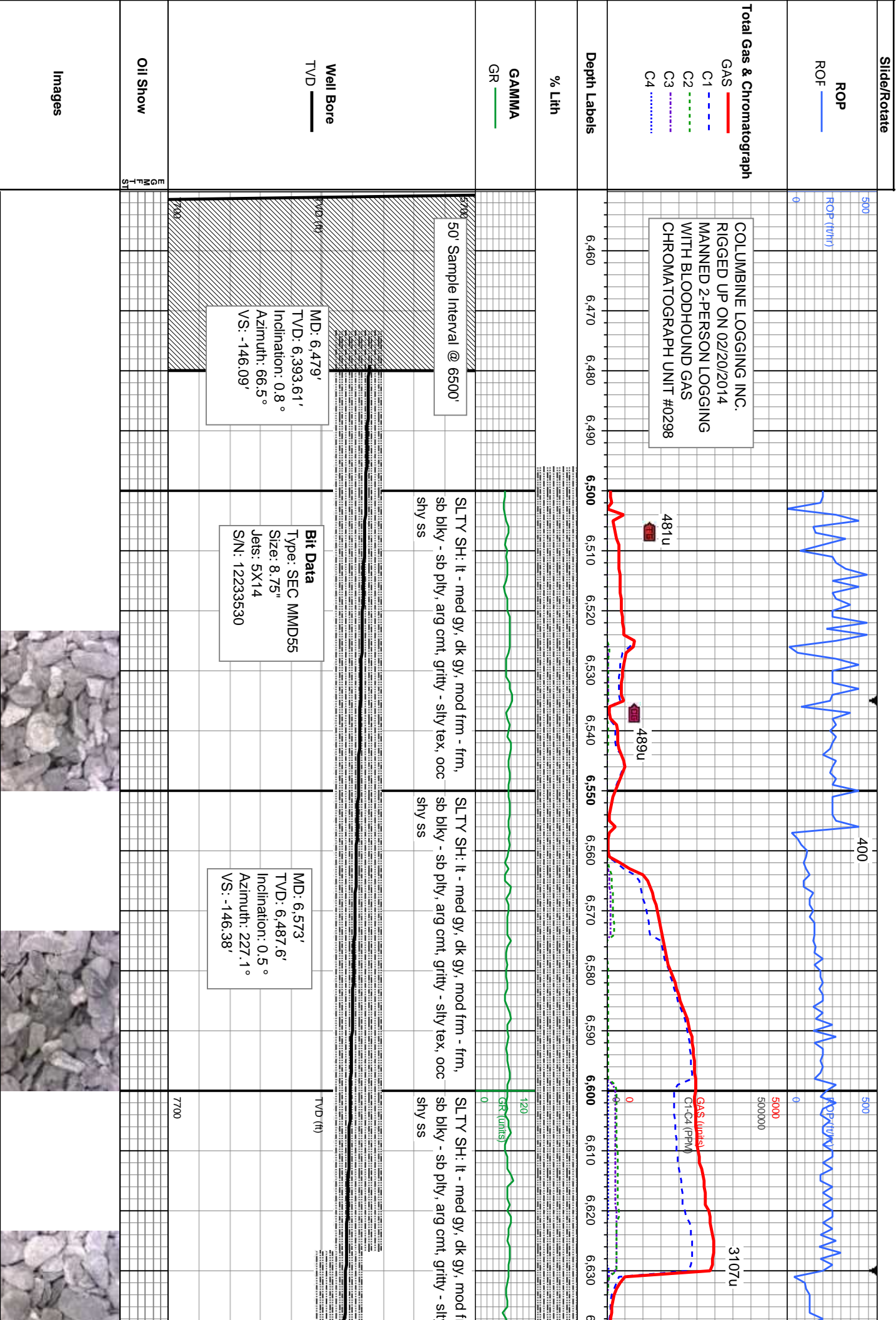
Porosity

CONNECTION GAS	NORMAL FAULT	R ROUNDED	WS WACKSTONE
CONNECTION GAS (LEFT)	OVERTURNED STRATA	B SUBANG	
FENESTRAL	REVERSE FAULT	R SUBRND	
FRACTURE	CASING		

Textures

INTERCRYSTALLINE	SIDEWALL CORE (LEFT)	P POOR	M MODERATE
INTEROOLITIC	DOWN TIME GAS (LEFT)	BS BOUNDSTONE	
MOLDIC	DOWN TIME GAS (LEFT)	SLIDE	
ORGANIC	CORE - LOST	CHALKY	
	CORE - RECOVERED	SURVEY	
		CRYPTOX LN	

Sorting



1623u
C1: 74.0%
C2: 13.7%
C3: 9.9%
C4: 2.4%

GA\$ (units)
C1-C4 (PPM)

2422u
C1: 71.5%
C2: 13.3%
C3: 11.4%
C4: 3.8%

MD: 6,761'
TVD: 6,674.54'
Inclination: 9.3°
Azimuth: 236.3°
VS: -129.78'

MD: 6,855'
TVD: 6,766.
Inclination: 1
Azimuth: 23
VS: -110.79'

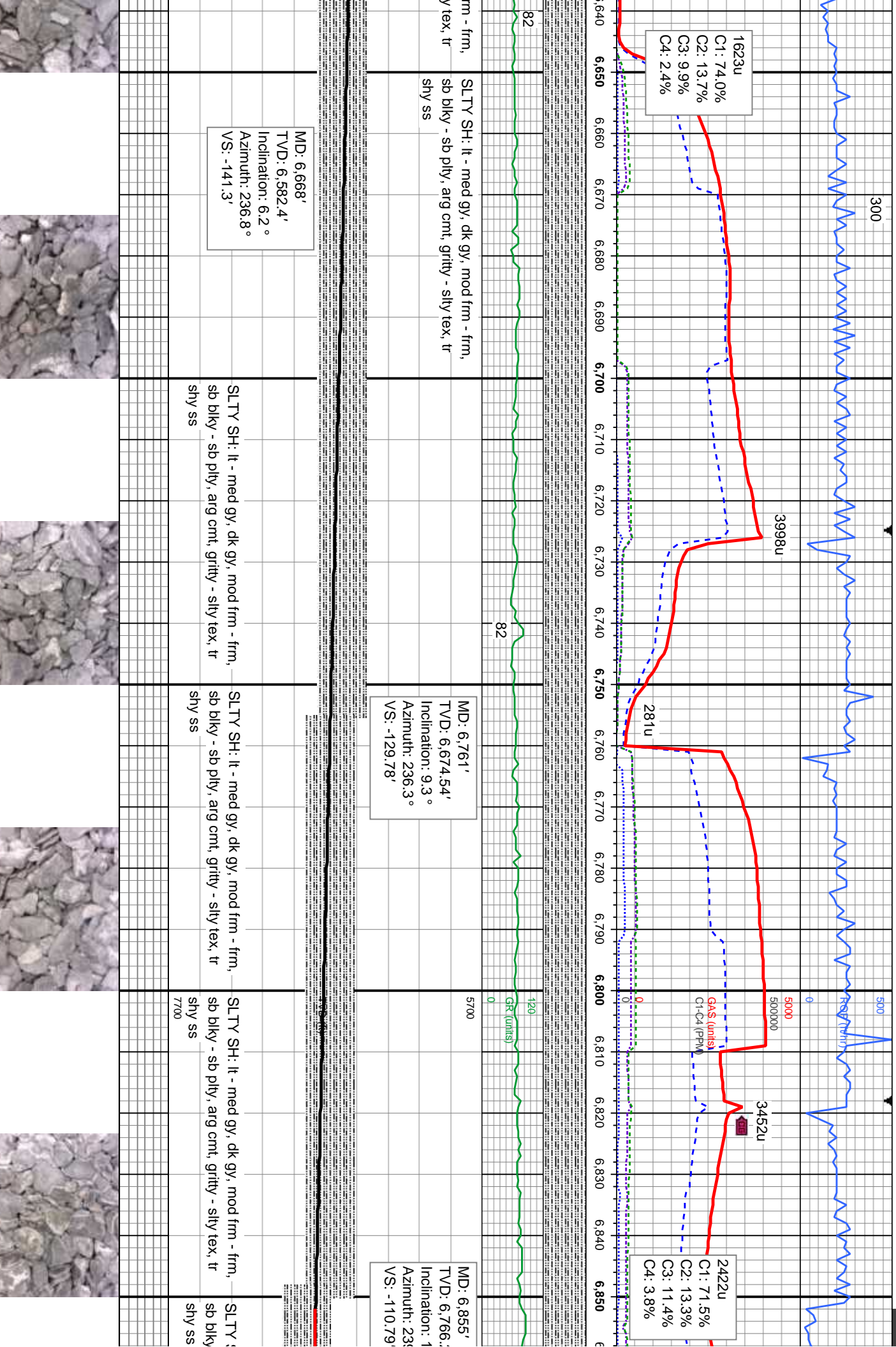
MD: 6,668'
TVD: 6,582.4'
Inclination: 6.2°
Azimuth: 236.8°
VS: -141.3'

SLTY SH: lt - med gy, dk gy, mod frm - frm,
sb blkly - sb plty, arg cnt, gritty - silty tex, tr
shy ss

SLTY SH: lt - med gy, dk gy, mod frm - frm,
sb blkly - sb plty, arg cnt, gritty - silty tex, tr
shy ss

SLTY SH: lt - med gy, dk gy, mod frm - frm,
sb blkly - sb plty, arg cnt, gritty - silty tex, tr
shy ss

SLTY ;
sb blkly
shy ss



2/24/2014

2/25/2014

MINDEPTH

ROP (ft/hr)

5000

5000000

3557u

GAS (units)
CICQ (PPM)

C1: 79.0%
C2: 12.0%
C3: 8.8%
C4: 0.3%

4301u

4104u

TC

6860 6870 6880 6890 6900 6910 6920 6930 6940 6950 6960 6970 6980 6990 7000 7010 7020 7030 7040 7050 7060 7070 7080

91

112

GR (units)

5700

25'
5.8°
23.3°

MD: 6,949'
TVD: 6,855.11'
Inclination: 22.1°
Azimuth: 243.1°
VS: -81.83'

MD: 7,010'
TVD: 6,910.68'
Inclination: 26.6°
Azimuth: 236.1°
VS: -58.3'

MD: 7,043'
TVD: 6,939.83'
Inclination: 29.3°
Azimuth: 235.2°
VS: -44.18'

25' Sample Interv
50' Sample Descr

SH: lt - med gy, dk gy, mod frm - frm,
sb plty, arg cnt, gritty - silty tex, tr

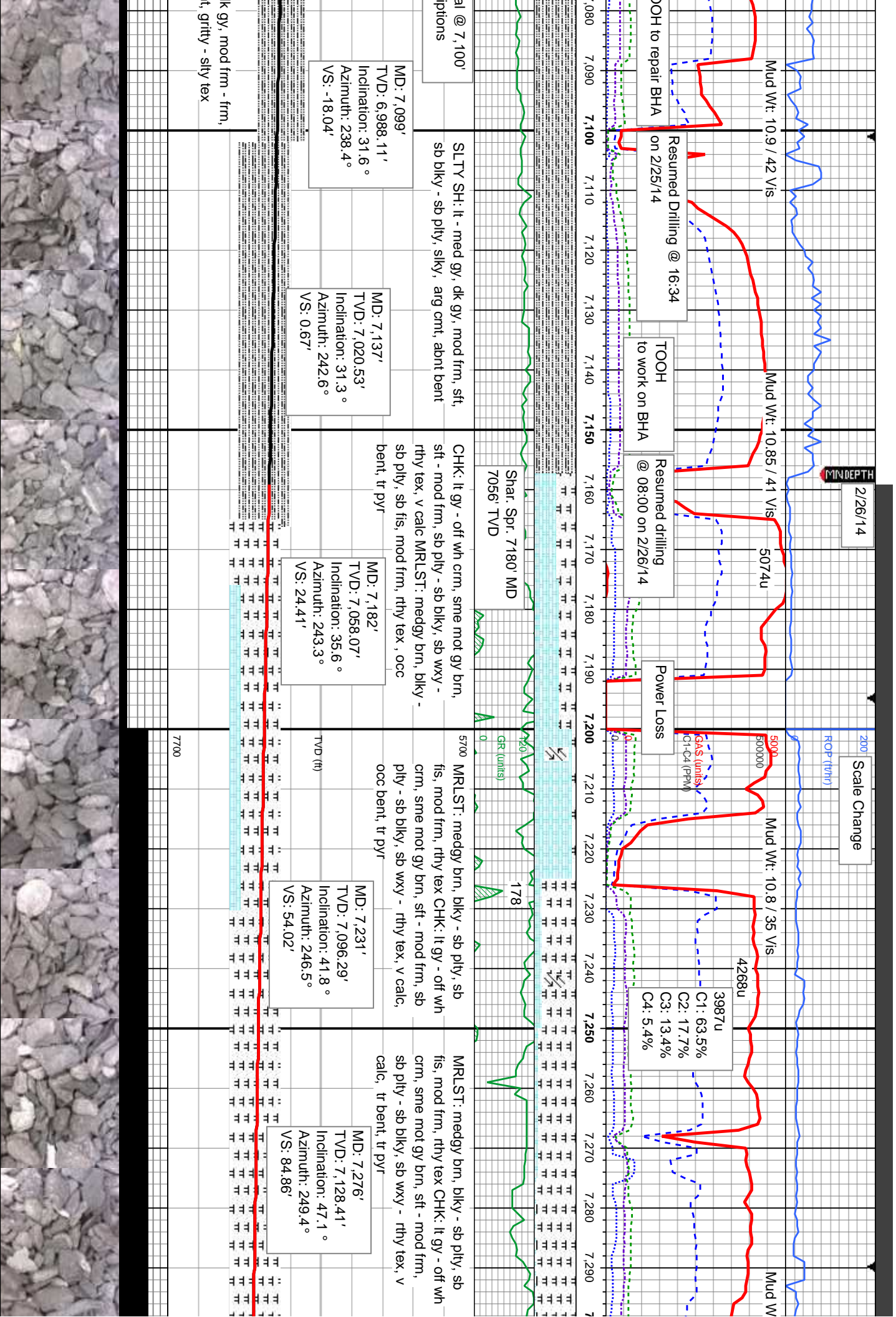
SLTY SH: lt - med gy, dk gy, mod frm - frm,
sb blkyl - sb plty, arg cnt, gritty - silty tex, tr
shy ss

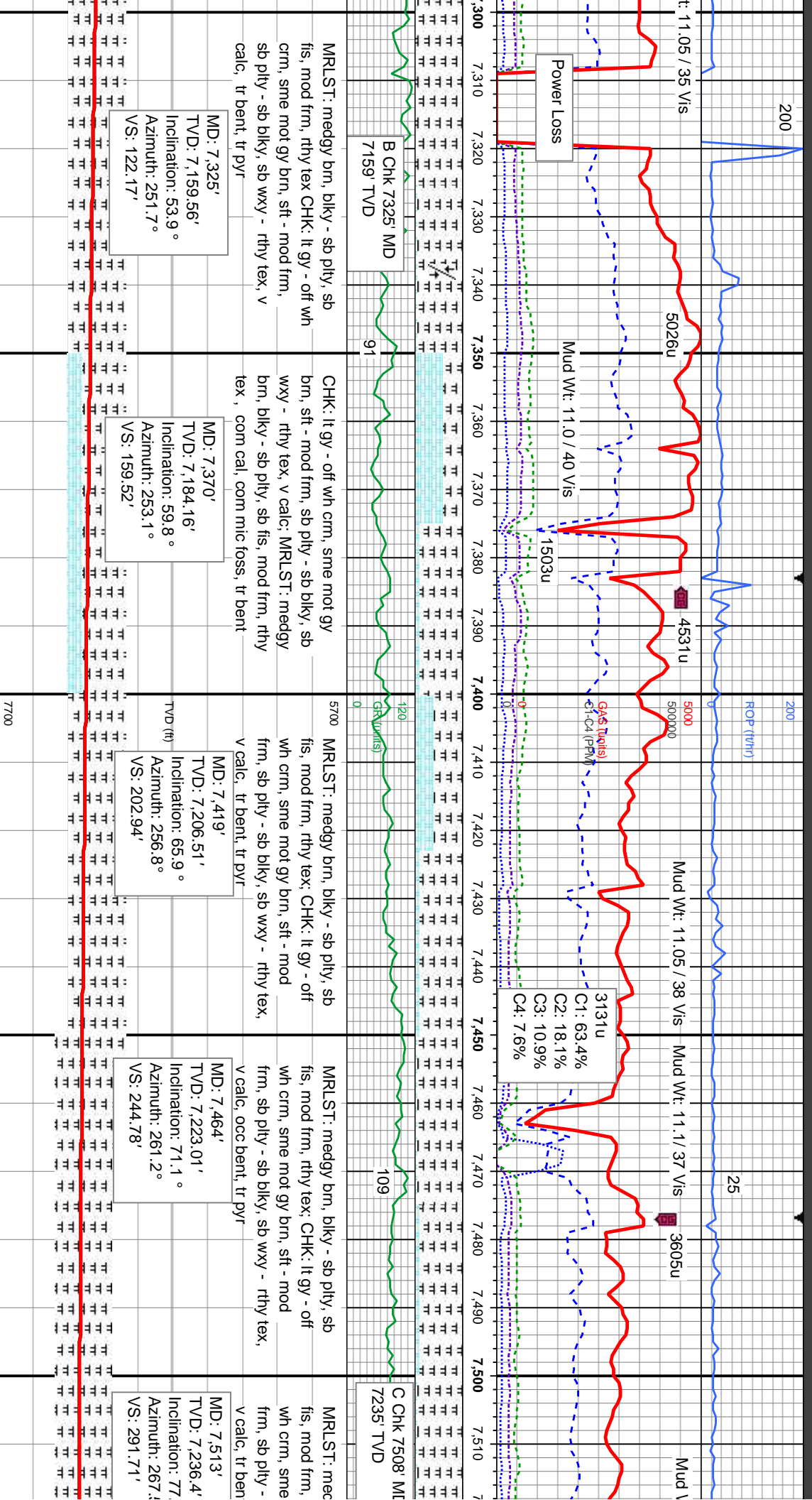
SLTY SH: lt - med gy, dk gy, mod frm - frm,
sb blkyl - sb plty, arg cnt, gritty - silty tex

SLTY SH: lt - med gy, dk gy, mod frm - frm,
sb blkyl - sb plty, arg cnt, gritty - silty tex

SLTY SH: lt - med gy, dk gy, mod frm - frm,
sb blkyl - sb plty, arg cnt, gritty - silty tex







2/27/2014

MINDEPTH

Wt: 11.05 / 37 Vis

Mud Wt: 11.05 / 36 Vis

3322u

4239u

200
ROP (ft/hr)

2/28/14

MINDEPTH

3/01/14

258

5255u

2316u

Mud

Scale Change

6500
6500000

6500 (ppm)

C1-C4 (ppm)

2675u

4624u
C1:68.9%
C2:14.3%
C3:12.3%
C4:1.5%

Ice Blockage

GR (units)

120

66

83

Bit Data

Bit #: 3

Type: SMITH DSI 513

Size: 6.12

Depth In: 7.631'

Jets: 5x11

S/N: JH3197

MRLST: medgy brn, blkly - sb ply, sb
fis, mod frm, rthy tex; CHK: lt gy - off
wh crm, sme mot gy brn, sft - mod frm,
sb ply - sb blkly, sb wxy - rthy tex, v calc

MRLST: medgy brn, blkly - sb p
fis, mod frm, rthy tex; CHK: lt gy
wh crm, sme mot gy brn, sft - n
frm, sb ply - sb blkly, sb wxy -
v calc

MD: 7.559'

TVD: 7.244.71'

Inclination: 82°

Azimuth: 273.7°

VS: 336.1'

MD: 7.573'

TVD: 7.246.48'

Inclination: 83.4°

Azimuth: 276°

VS: 349.51'

TD Curve, TOO H

for Casing on

2/27/14 @ 7:00 hrs

Resumed Drilling

3/1/2014

MD: 7.657'

TVD: 7.251.39'

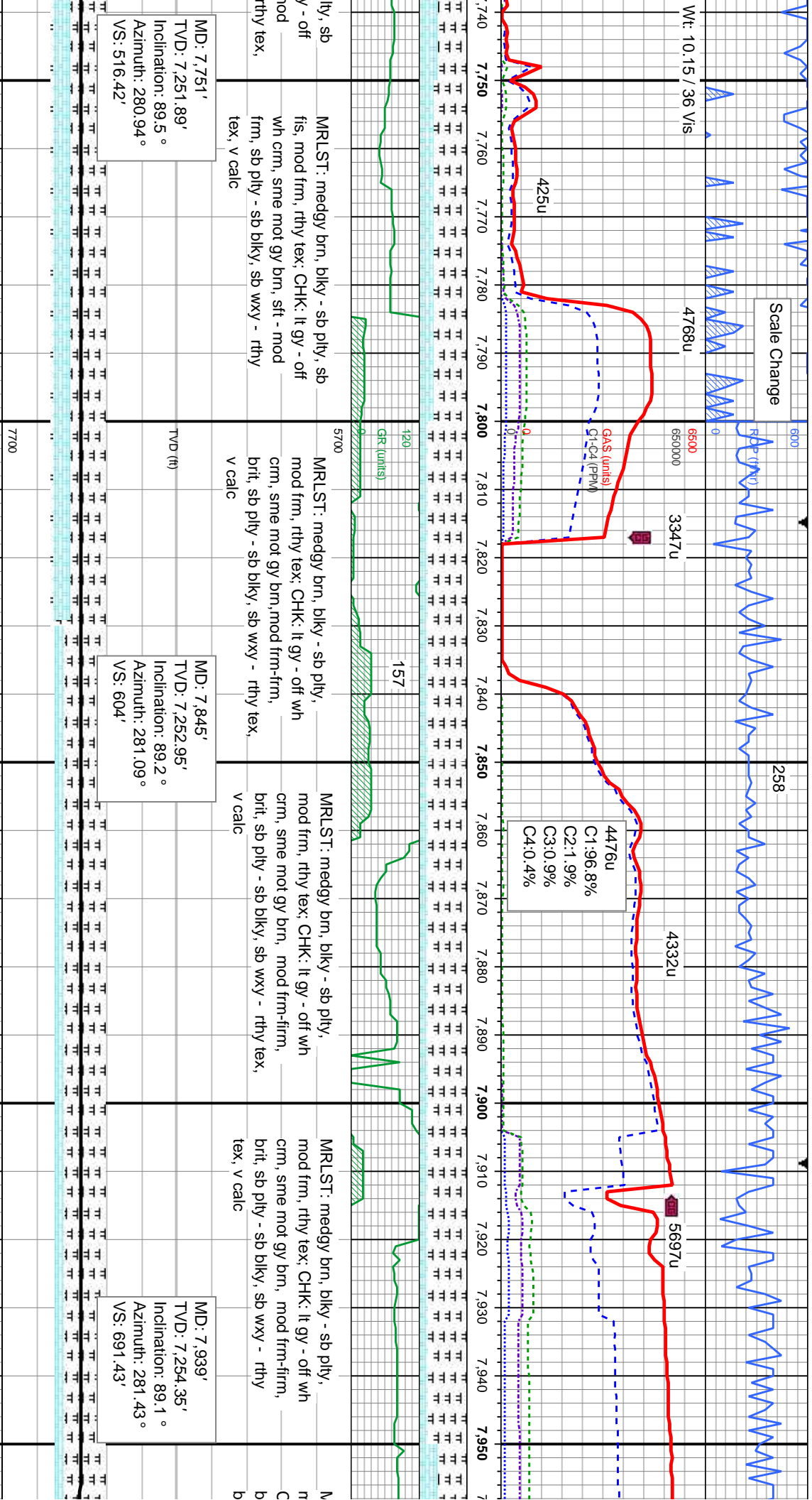
Inclination: 89.9°

Azimuth: 281.02°

VS: 428.82'

MRLST: medgy brn, blkly - sb p
fis, mod frm, rthy tex; CHK: lt gy
wh crm, sme mot gy brn, sft - n
frm, sb ply - sb blkly, sb wxy -
v calc

7700



MRLST: medgy brn, blkly - sb ply, sb
tis, mod frm, rthy tex; CHK: lt gy - off
wh crm, sme mot gy brn, sft - mod
frm, sb ply - sb blkly, sb wxy - rthy
tex, v calc

MRLST: medgy brn, biky - sb ply, mod frm, rthy tex; CHK: lt gy - off wh cmm, sme mot gy brn, mod frm-frm, brt, sb ply - sb biky, sb wxy - rthy tex, v calic

MRLST: medgy brn, bilky - sb pily,
mod frm, rthy tex; **CHK:** lt gy - off wh
crrn, sme mot gy brn, mod frm-frim,
brit, sb pily - sb bilky, sb wxy - rthy tex,
v calc

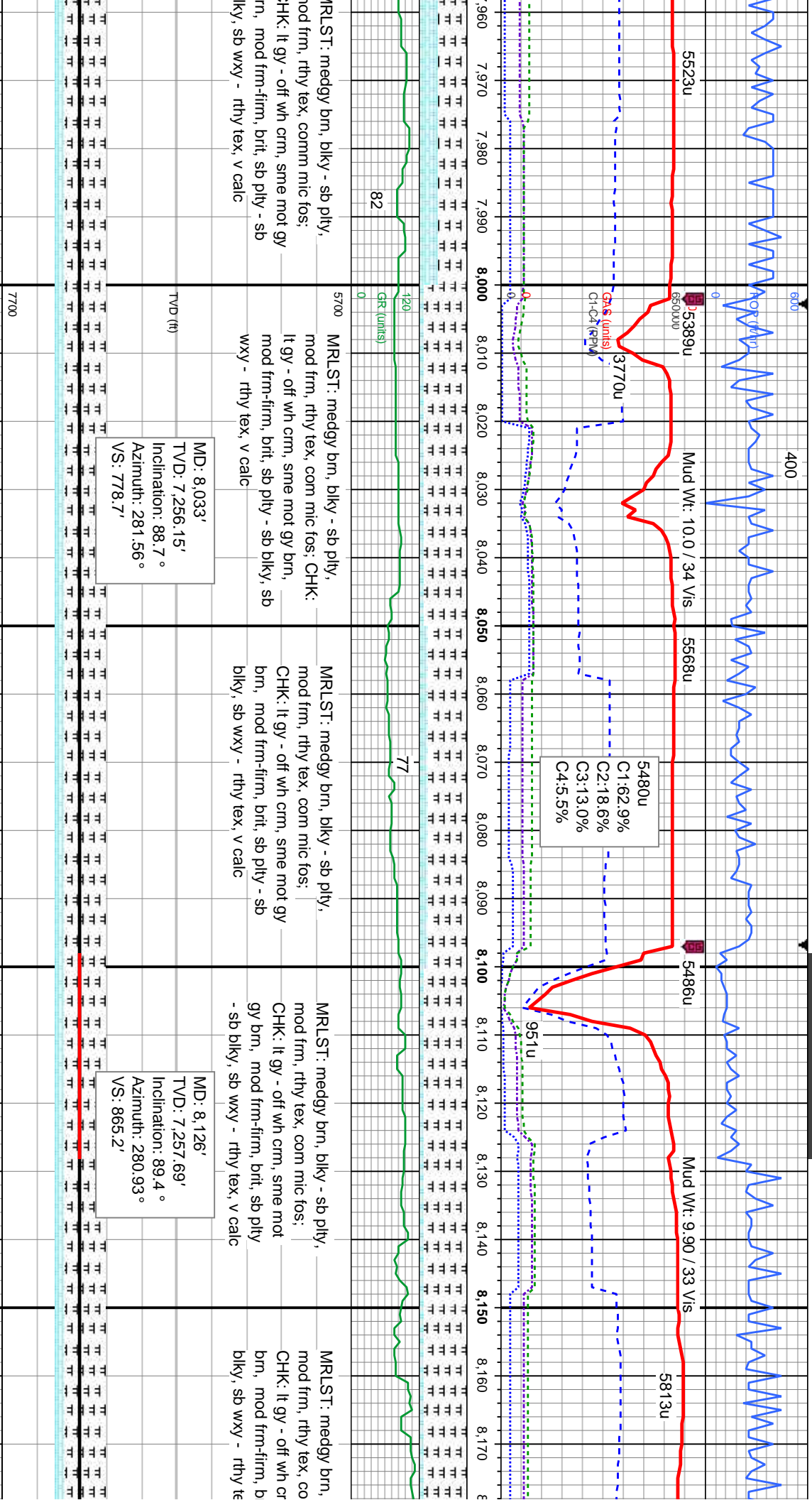
MRLST: medgy brn, biky - sb pty,
mod frm, rthy tex: CHK: It gy - off wh
cmn, sme mot gy brn, mod frm-firm,
brit, sb pty - sb biky, sb wxy - rthy
tex, v calc

MD: 7,751'
TVD: 7,251.89'
Inclination: 89.5 °
Azimuth: 280.94 °
VS: 516.42'

TVD (ft)

MD: 7,845'
TVD: 7,252.95'
Inclination: 89.2 °
Azimuth: 281.09 °
VS: 604'

MD: 7,939'
TVD: 7,254.35'
Inclination: 89.1 °
Azimuth: 281.43 °
VS: 691.43'



PRLEST: meedgy brn, bilky - sb pily, mod frm, rthy tex, comm mic fos; -HK: It gy - off wh crm, sme mot gy rky, mod frm-frim, brit, sb pily - sb rky, sb wxy - rthy tex, v calc

MRLST: meegy brn, biky - sb ply,
 mod frm, rthy tex, com mic fos; CHK:
 It gy - off wh crm, sme mot gy brn,
 mod frm-firm, brit, sb ply - sb biky, sb
 wxy - rthy tex, v calc

MRLST: medgy brn, blyk - sb plyt,
 mod frm, rthy tex, com mic fos,
 CHK: It gy - off wh crm, sme mot gy
 brn, mod frm-frm, bit, sb plyt - sb
 blyk, sb wxy - rthy tex, v calc

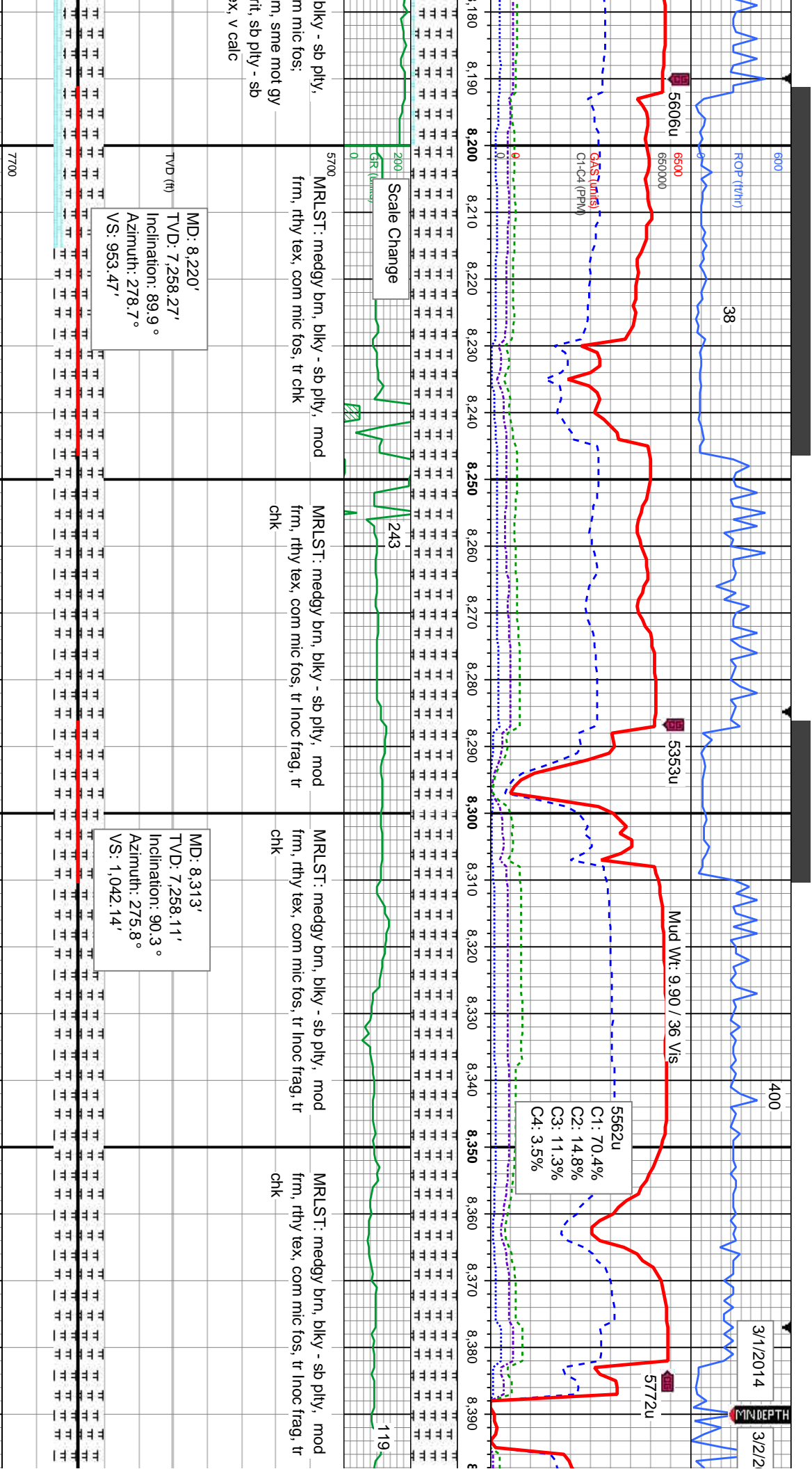
MRLST: medgy brn, blkly - sb plyt,
mod frm, rthy tex, com mic fos;
CHK: It gy - off wh cfm, sme mod
gy brn, mod frm-firm, brit, sb plyt
- sb blkly, sb wxy - rthy tex, v calc

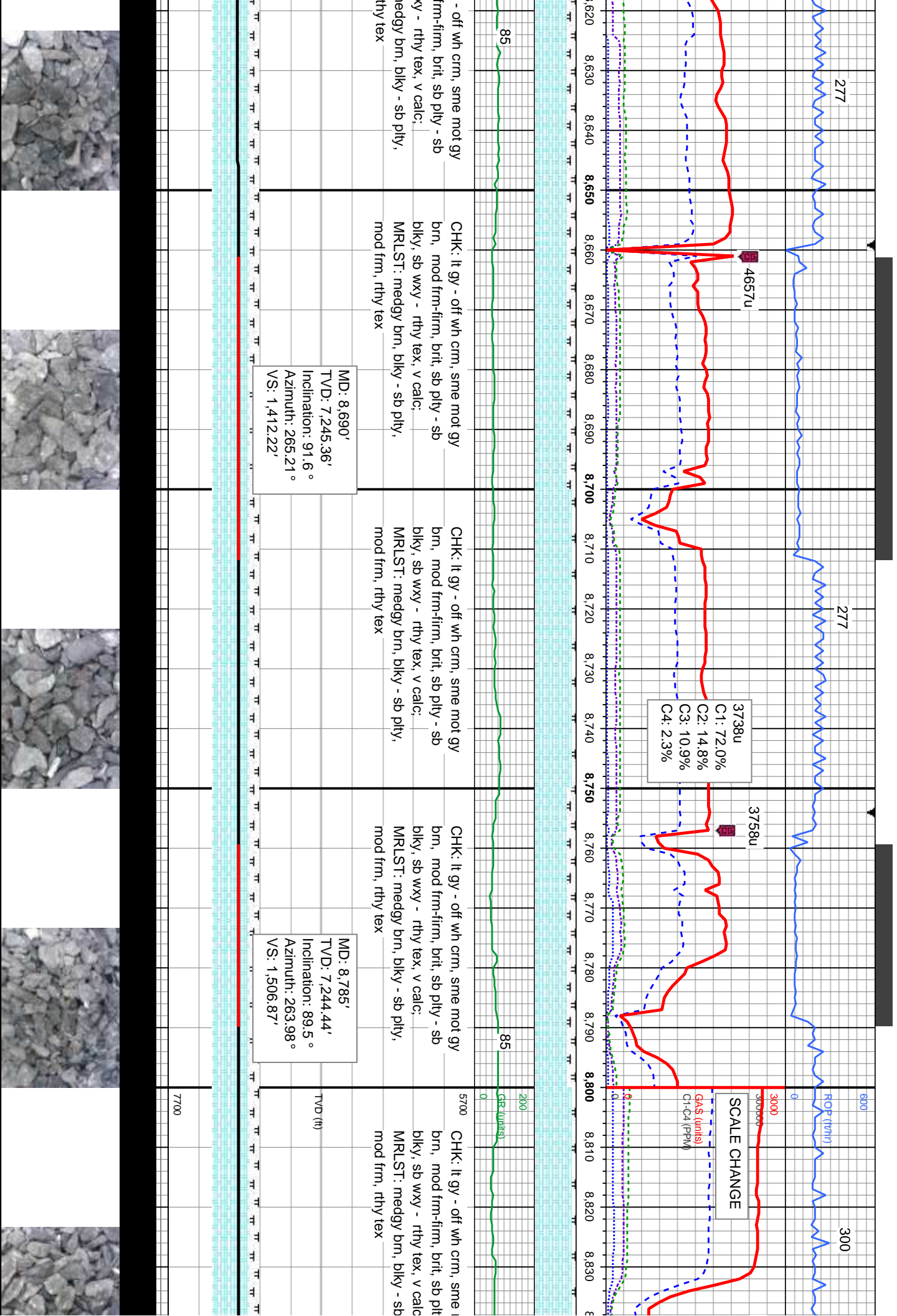
MRLST: medgy brn,
 mod frm, rthy tex, co
 CHK: It gy - off wh cr
 brn, mod frm-firm, b
 blyk, sb wxy - rthy te

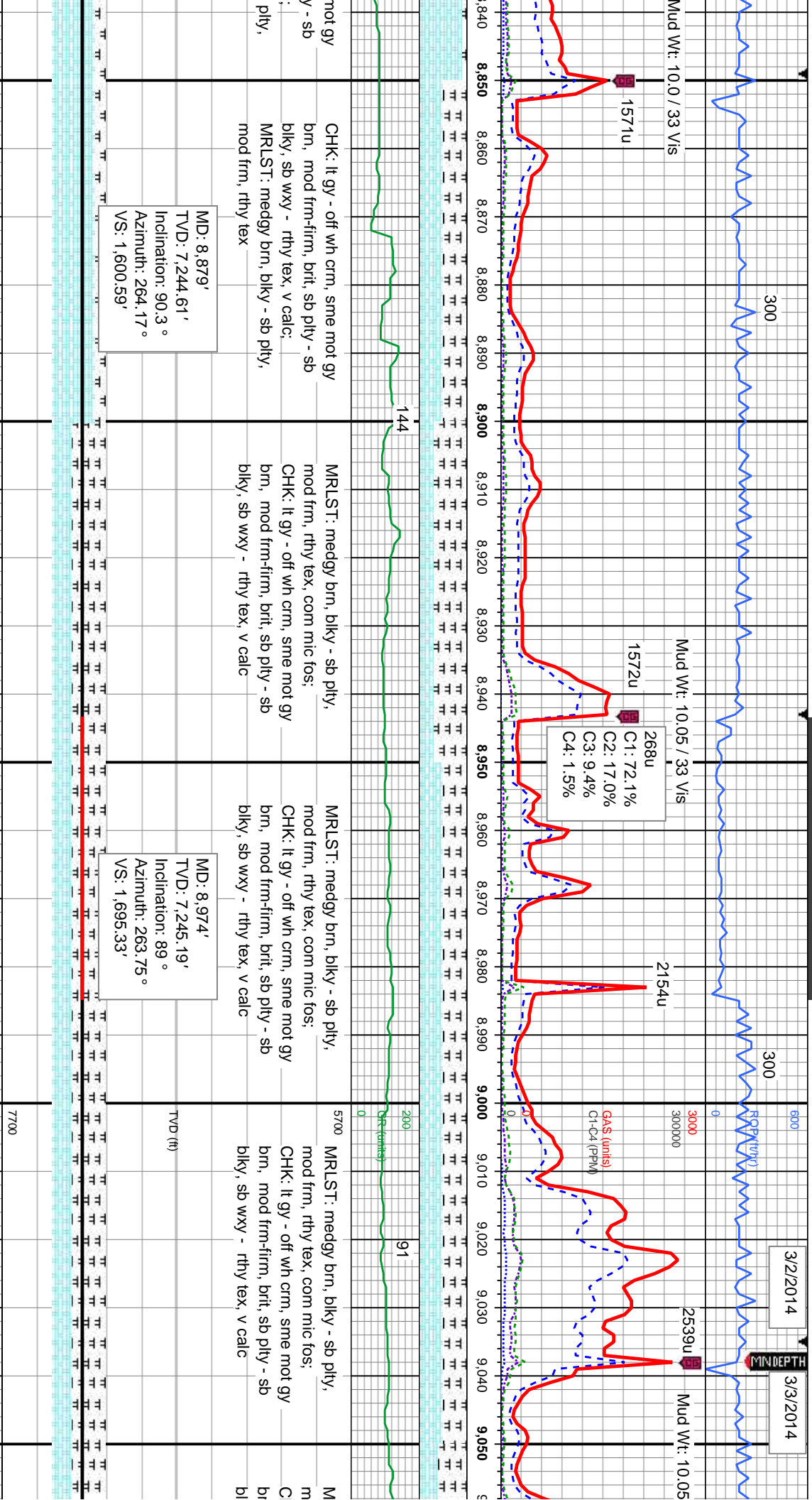
TVD (ft)

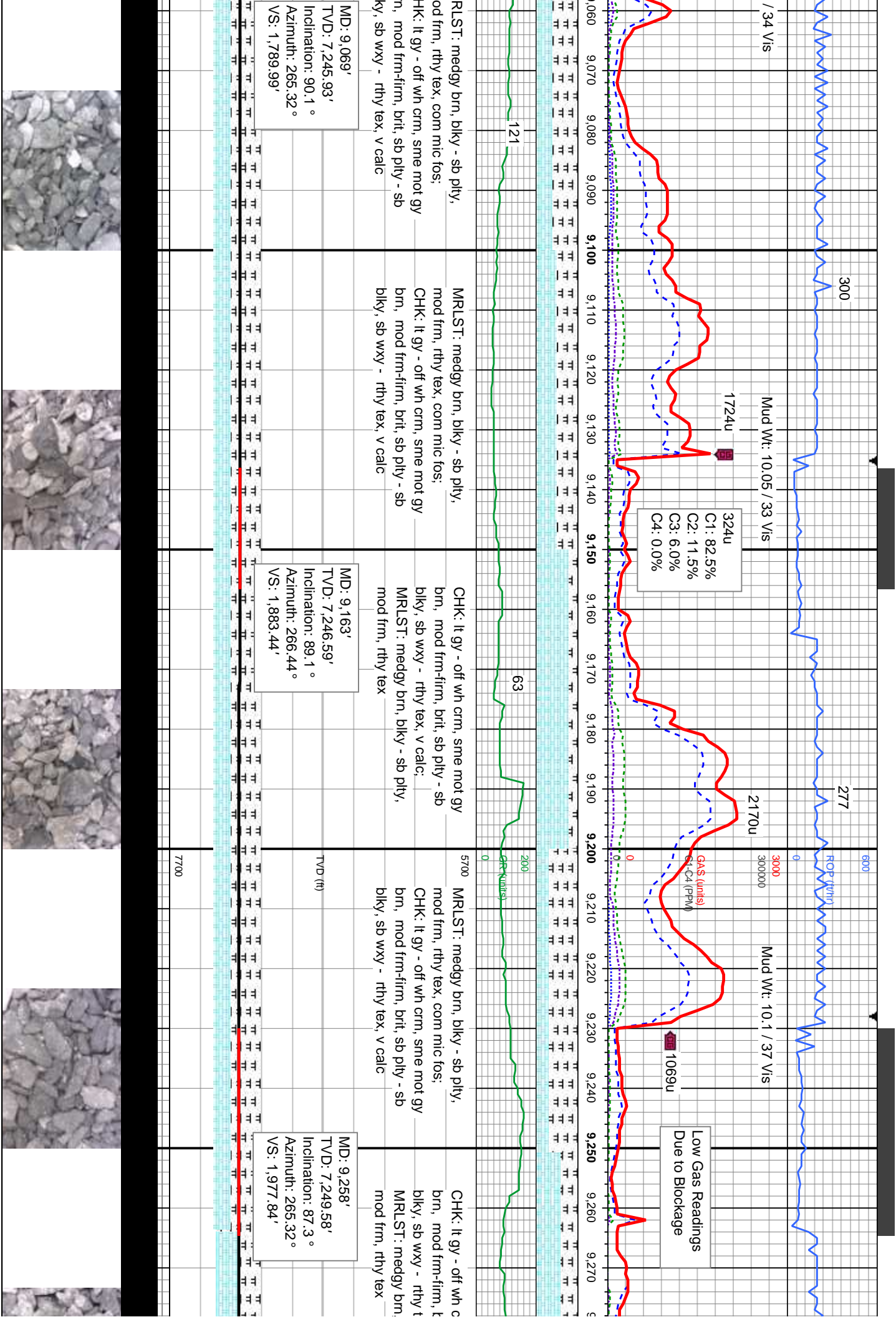
MD: 8,033'
TVD: 7,256.15'
Inclination: 88.7°
Azimuth: 281.56°
VS: 778.7'

MD: 8,126'
TVD: 7,257.69'
Inclination: 89.4 °
Azimuth: 280.93 °
VS: 865.2'









/ 34 Vis

300

277

ROF (ft/hr)

Mud Wt: 10.05 / 33 Vis

Mud Wt: 10.1 / 37 Vis

1724u

2170u

324u
C1: 82.5%
C2: 11.5%
C3: 6.0%
C4: 0.0%

Gas (units)
CH4 (ppm)

1069u

Low Gas Readings
Due to Blockage

121

63

GR (Kiln/s)

MRLST: medgy brn, blkly - sb pty,
mod frm, rthy tex, com mic fos;
CHK: it gy - off wh crm, sme mot gy
brn, mod frm-firm, brit, sb pty - sb
blkly, sb wxy - rthy tex, v calc

MRLST: medgy brn, blkly - sb pty,
mod frm, rthy tex, com mic fos;
CHK: it gy - off wh crm, sme mot gy
brn, mod frm-firm, brit, sb pty - sb
blkly, sb wxy - rthy tex, v calc

CHK: it gy - off wh crm, sme mot gy
brn, mod frm-firm, brit, sb pty - sb
blkly, sb wxy - rthy tex, v calc;
MRLST: medgy brn, blkly - sb pty,
mod frm, rthy tex

MRLST: medgy brn, blkly - sb pty,
mod frm, rthy tex, com mic fos;
CHK: it gy - off wh crm, sme mot gy
brn, mod frm-firm, brit, sb pty - sb
blkly, sb wxy - rthy tex, v calc

CHK: it gy - off wh c
brn, mod frm-firm, t
blkly, sb wxy - rthy t
MRLST: medgy brn,
mod frm, rthy tex

MD: 9,069'
TVD: 7,245.93'
Inclination: 90.1 °
Azimuth: 265.32 °
VS: 1,789.99'

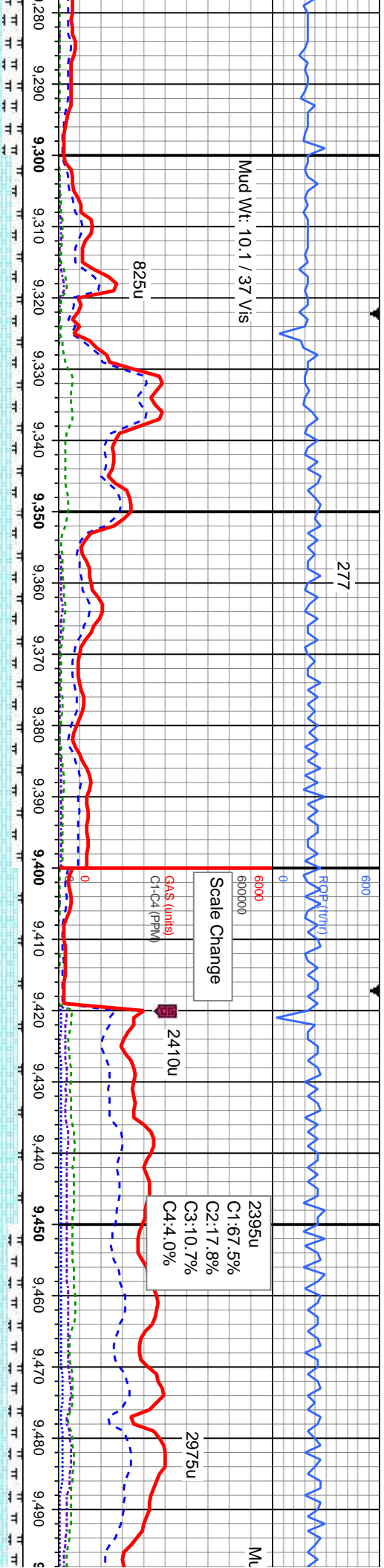
MD: 9,163'
TVD: 7,246.59'
Inclination: 89.1 °
Azimuth: 266.44 °
VS: 1,883.44'

TVD (ft)

MD: 9,258'
TVD: 7,249.58'
Inclination: 87.3 °
Azimuth: 265.32 °
VS: 1,977.84'

7700





frm, sme mot gy
rit, sb ply - sb
ex, v calc;
bly - sb ply,
CHK: lt gy - off wh crm, sme mot gy
brn, mod frm-firm, brit, sb ply - sb
bly, sb wxy - rthy tex, v calc: MRLST:
medgy brn, bly - sb ply, mod frm,
rthy tex, com mic fos

MD: 9,353'
TVD: 7,253.06'
Inclination: 88.5 °
Azimuth: 267.07 °
VS: 2,072.16'

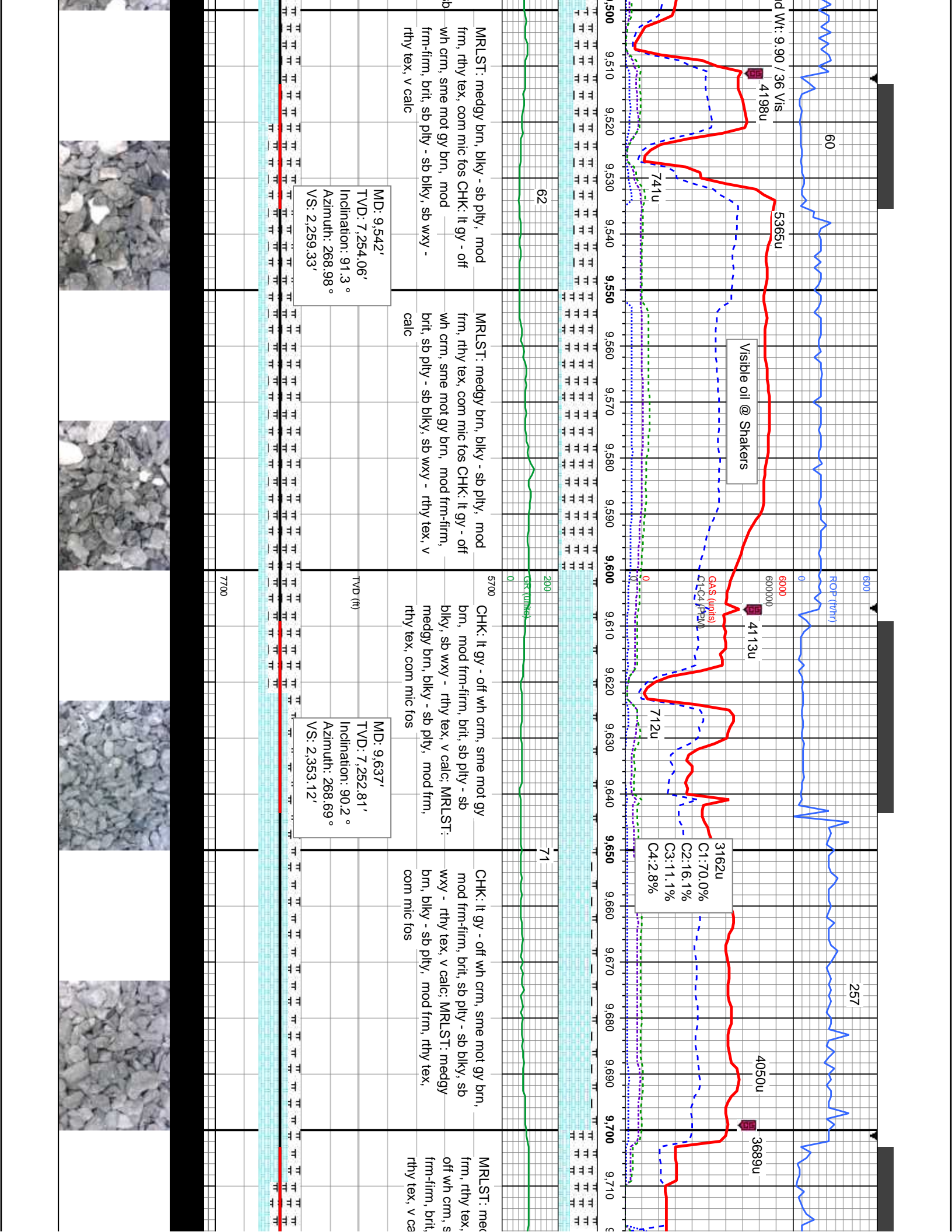
CHK: lt gy - off wh crm, sme mot gy brn,
mod frm-firm, brit, sb ply - sb bly, sb
wxy - rthy tex, v calc: MRLST: medgy
brn, bly - sb ply, mod frm, rthy tex,
com mic fos

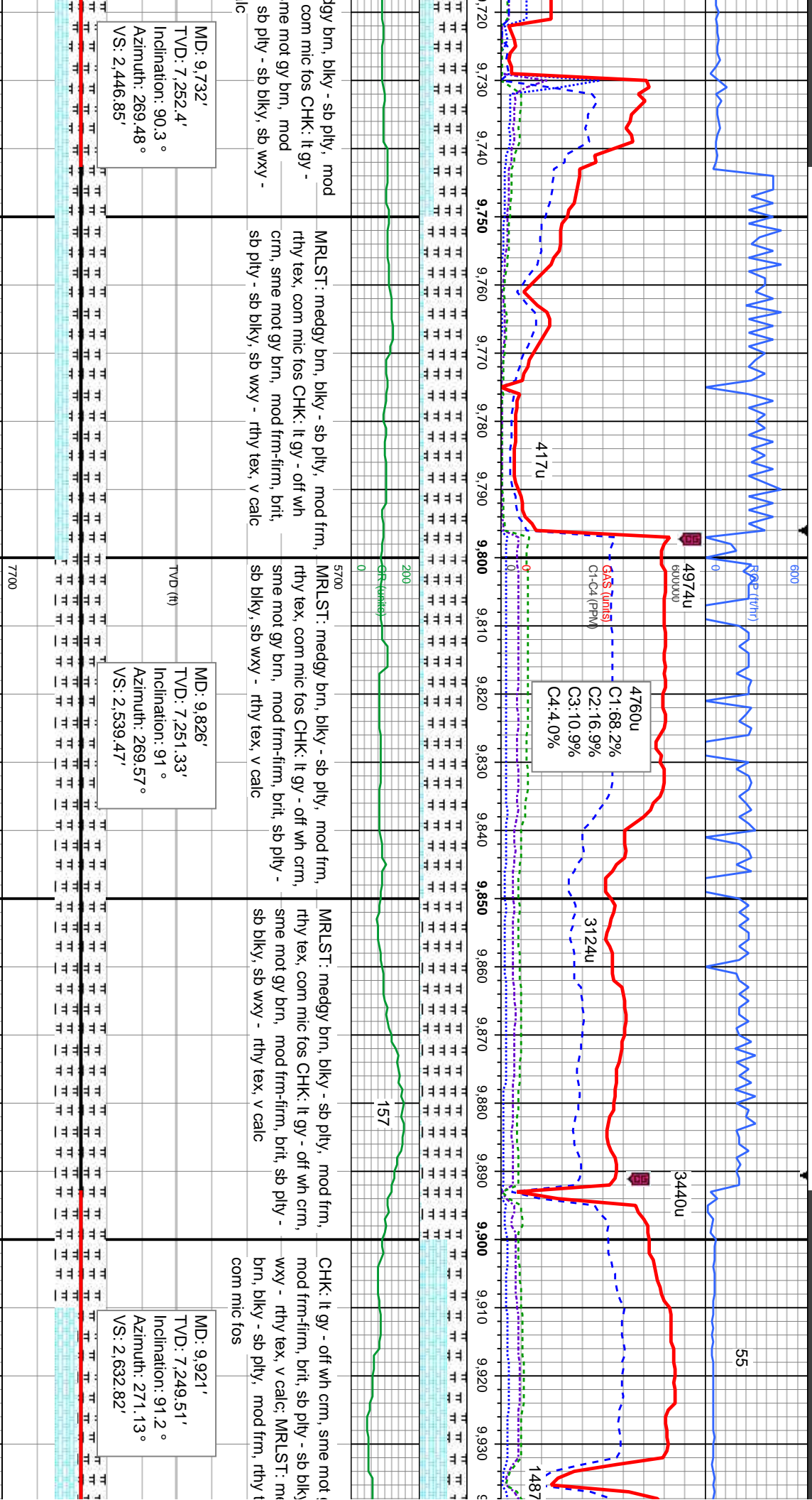
CHK: lt gy - off wh crm, sme mot gy brn,
mod frm-firm, brit, sb ply - sb bly, sb wxy -
rthy tex, v calc: MRLST: medgy brn, bly - sb
ply, mod frm, rthy tex, com mic fos

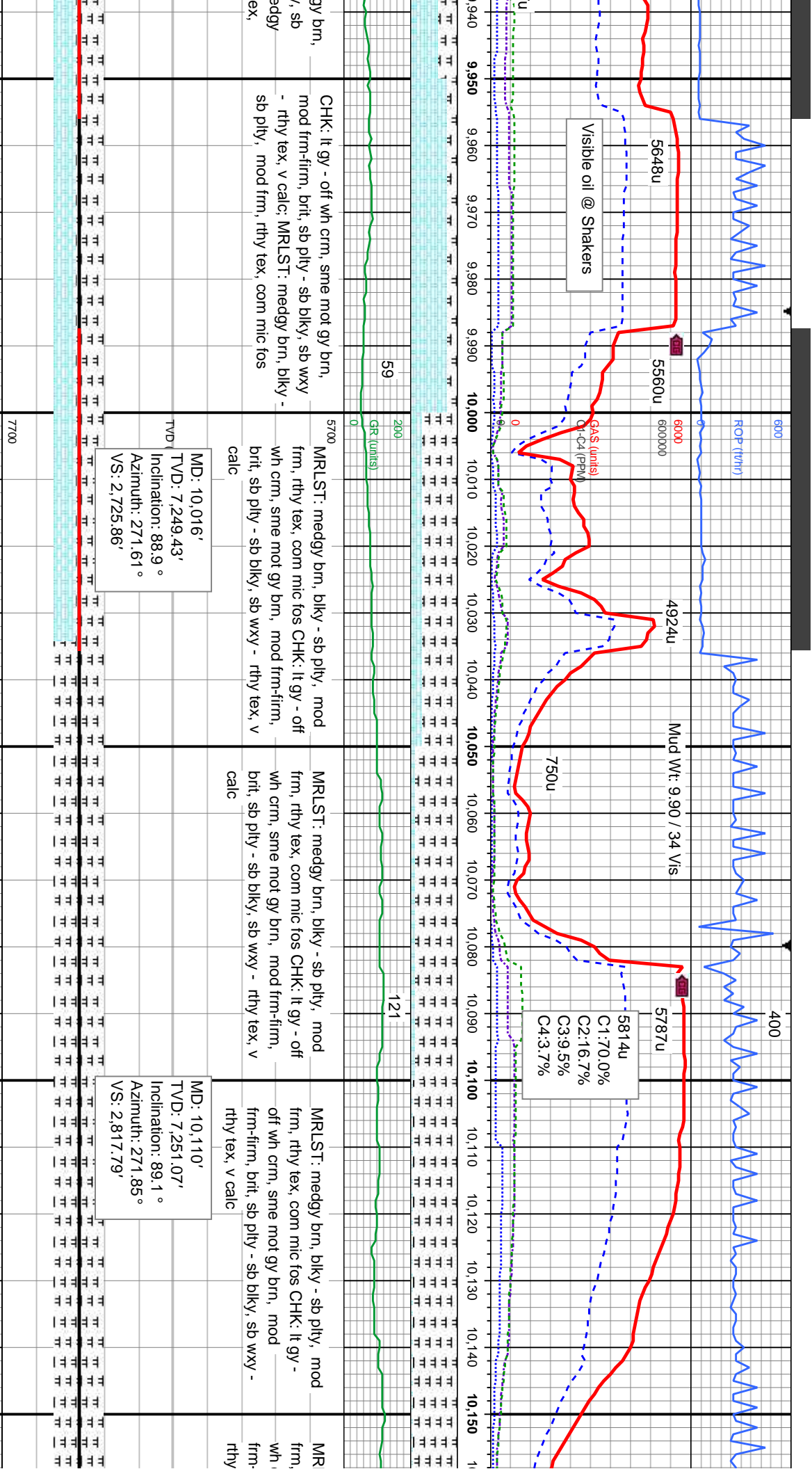
MD: 9,448'
TVD: 7,254.71'
Inclination: 89.5 °
Azimuth: 267.26 °
VS: 2,166.35'

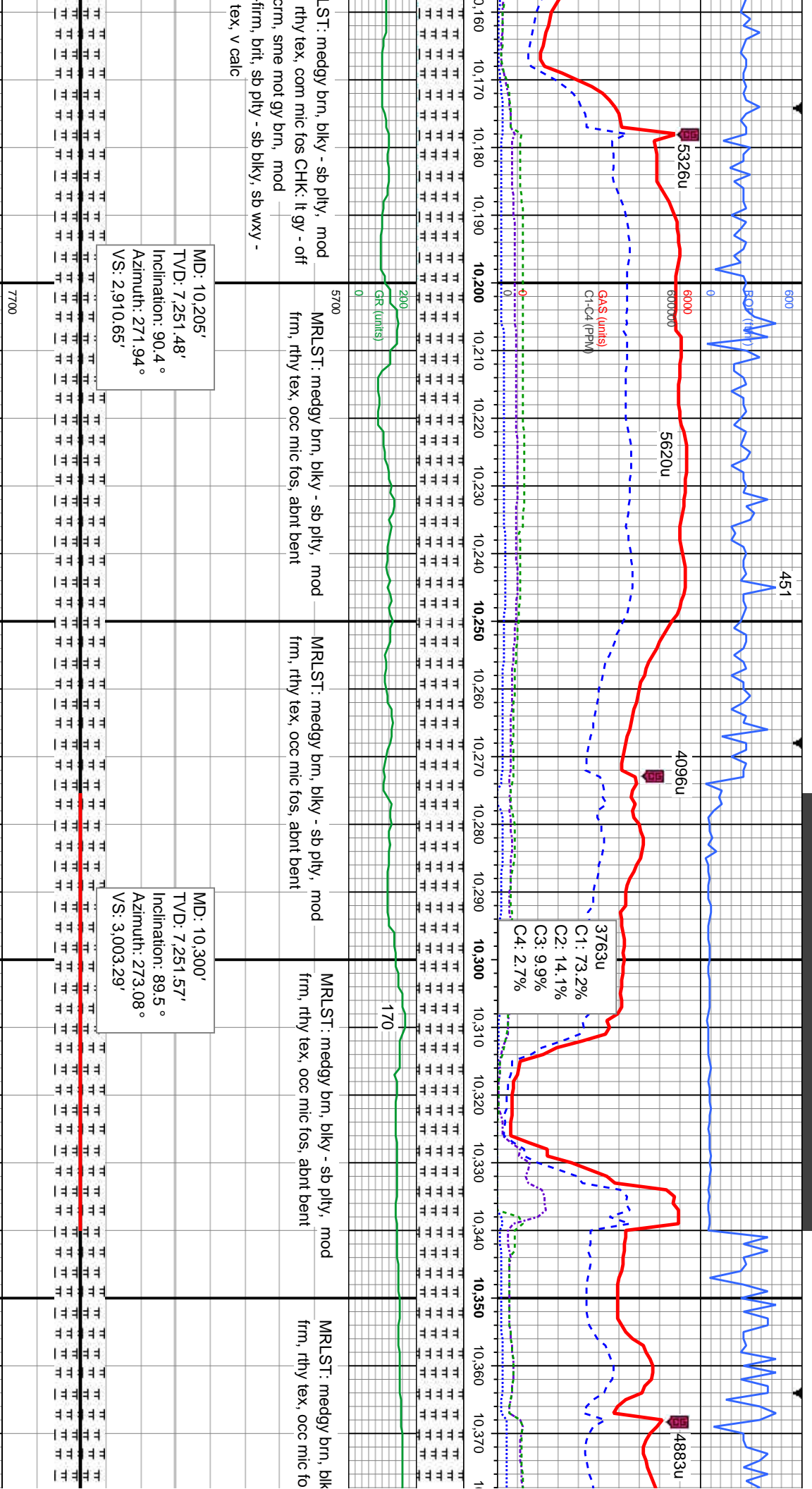
CHK: lt gy - off wh crm, sme mot gy brn,
mod frm-firm, brit, sb ply - sb bly, sb wxy -
rthy tex, v calc: MRLST: medgy brn, bly - s
ply, mod frm, rthy tex, com mic fos











ST: medgy brn, blkly - sb plty, mod
rthy tex, com mic fos CHK: lt gy - off
ccrm, sme mot gy brn, mod
firm, brit, sb plty - sb blkly, sb wxy -
tex, v calc

MRLST: medgy brn, blkly - sb plty, mod
frm, rthy tex, occ mic fos, abnt bent

MRLST: medgy brn, blkly - sb plty, mod
frm, rthy tex, occ mic fos, abnt bent

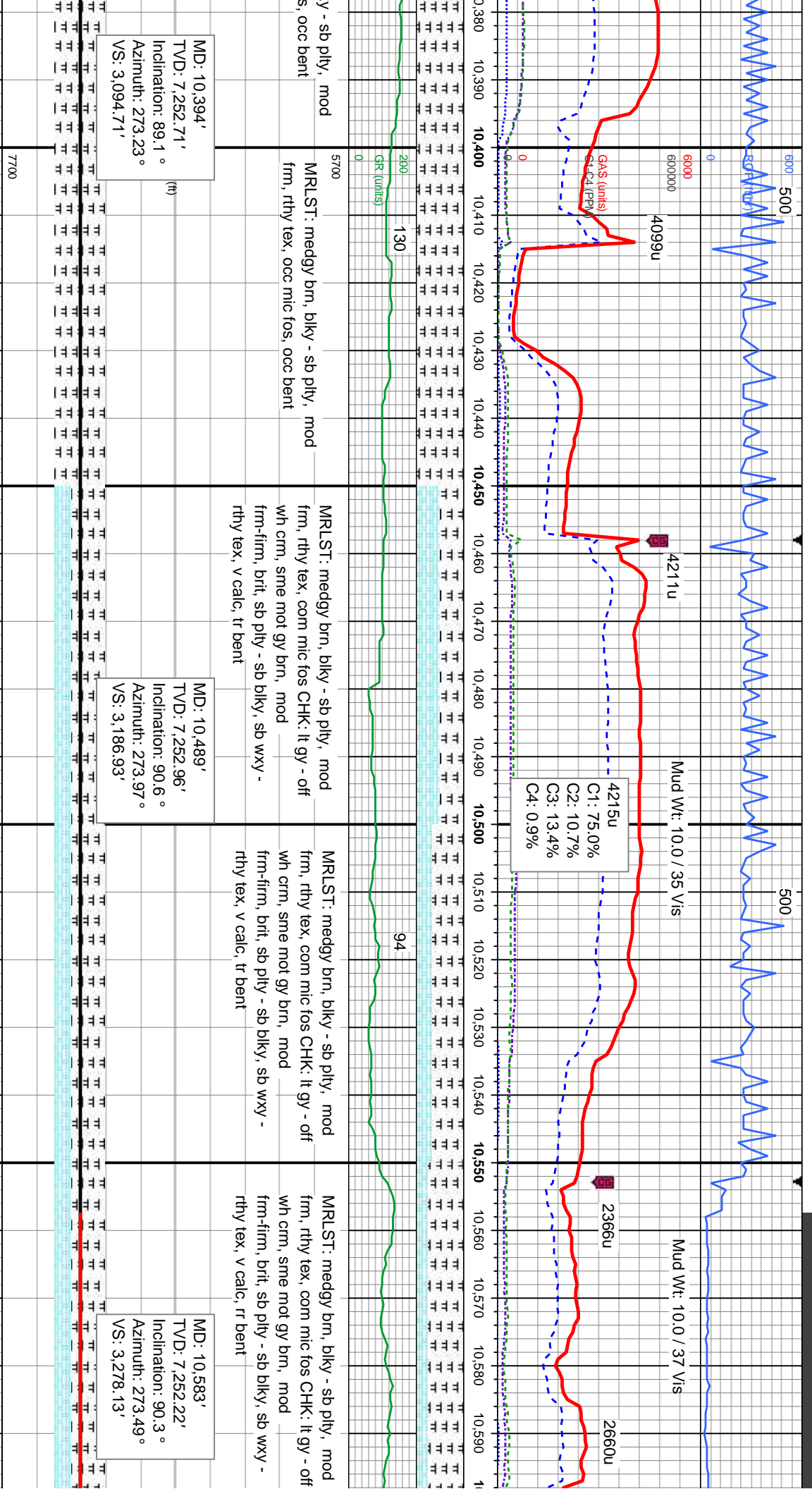
MRLST: medgy brn, blkly - sb plty, mod
frm, rthy tex, occ mic fos, abnt bent

MRLST: medgy brn, blkly - sb plty, mod
frm, rthy tex, occ mic fos, abnt bent

MD: 10,205'
TVD: 7,251.48'
Inclination: 90.4°
Azimuth: 271.94°
VS: 2,910.65'

MD: 10,300'
TVD: 7,251.57'
Inclination: 89.5°
Azimuth: 273.08°
VS: 3,003.29'





MD: 10,394'
TVD: 7,252.71'
Inclination: 89.1 °
Azimuth: 273.23 °
VS: 3,094.71'

y - sb pty, mod
s, occ bent

MRLST: medgy brn, blkly - sb pty, mod
frm, rthy tex, occ mic fos, occ bent

MRLST: medgy brn, blkly - sb pty, mod
frm, rthy tex, com mic fos CHK: lt gy - off
wh crm, sme mot gy brn, mod
frm-firm, brit, sb pty - sb blkly, sb wxy -
rthy tex, v calc, tr bent

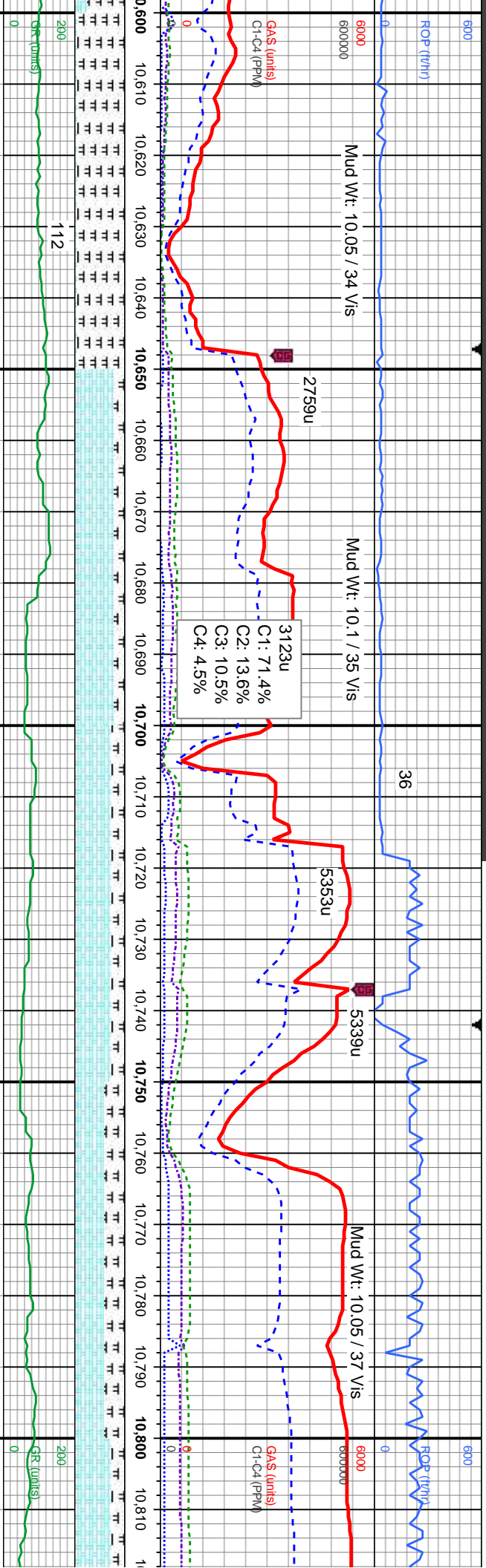
MD: 10,489'
TVD: 7,252.96'
Inclination: 90.6 °
Azimuth: 273.97 °
VS: 3,186.93'

MRLST: medgy brn, blkly - sb pty, mod
frm, rthy tex, com mic fos CHK: lt gy - off
wh crm, sme mot gy brn, mod
frm-firm, brit, sb pty - sb blkly, sb wxy -
rthy tex, v calc, tr bent

MD: 10,583'
TVD: 7,252.22'
Inclination: 90.3 °
Azimuth: 273.49 °
VS: 3,278.13'

MRLST: medgy brn, blkly - sb pty, mod
frm, rthy tex, com mic fos CHK: lt gy - off
wh crm, sme mot gy brn, mod
frm-firm, brit, sb pty - sb blkly, sb wxy -
rthy tex, v calc, rr bent





5700
MRLST: medgy brn, blkly - sb ply, mod frm, rthy tex, com mic fos CHK: lt gy - off wh crm, sme mot gy brn, mod frm-firm, brit, sb ply - sb blkly, sb wxy - rthy tex, v calc.MRLST: medgy brn, blkly - sb ply, mod frm, rthy tex, com mic fos, tr bent

5700
CHK: lt gy - off wh crm, sme mot gy brn, mod frm-firm, brit, sb ply - sb blkly, sb wxy - rthy tex, v calc.MRLST: medgy brn, blkly - sb ply, mod frm, rthy tex, com mic fos, tr bent

5700
CHK: lt gy - off wh crm, sme mot gy brn, mod frm-firm, brit, sb ply - sb blkly, sb wxy - rthy tex, v calc.MRLST: medgy brn, blkly - sb ply, mod frm, rthy tex, com mic fos, tr bent

TVD (ft)

MD: 10,678'
TVD: 7,255.37'
Inclination: 85.9°
Azimuth: 269.3°
VS: 3,371.07'

TVD (ft)

MD: 10,772'
TVD: 7,262.51'
Inclination: 85.4°
Azimuth: 265.66°
VS: 3,463.93'



3/3/2014

3/4/2014

MINDEPTH

Mud Wt: 10.05 / 38 Vis

4345u

258

C1: 72.9%
C2: 12.7%
C3: 10.6%
C4: 3.8%

4885u

Mud Wt: 10.15 / 36 Vis

2783u

29

5103u

5280u

GA5 (units)
C1-C4 (PPM)

671u

122

5700

200

115

MRLST: medgy brn, blkly - sb plty, mod
frm, rthy tex, com mic fos CHK: lt gy - off
wh crm, sme mot gy brn, mod
frm-firm, brit, sb plty - sb blkly, sb wxy -
rthy tex, v calc, tr bent

MRLST: medgy brn, blkly - sb plty, mod
frm, rthy tex, com mic fos, tr bent

MRLST: medgy brn, blkly - sb plty, mod
frm, rthy tex, abnt bent, tr chk

MRLST: medgy brn, blkly - sb plty
frm, rthy tex, abnt bent, tr chk

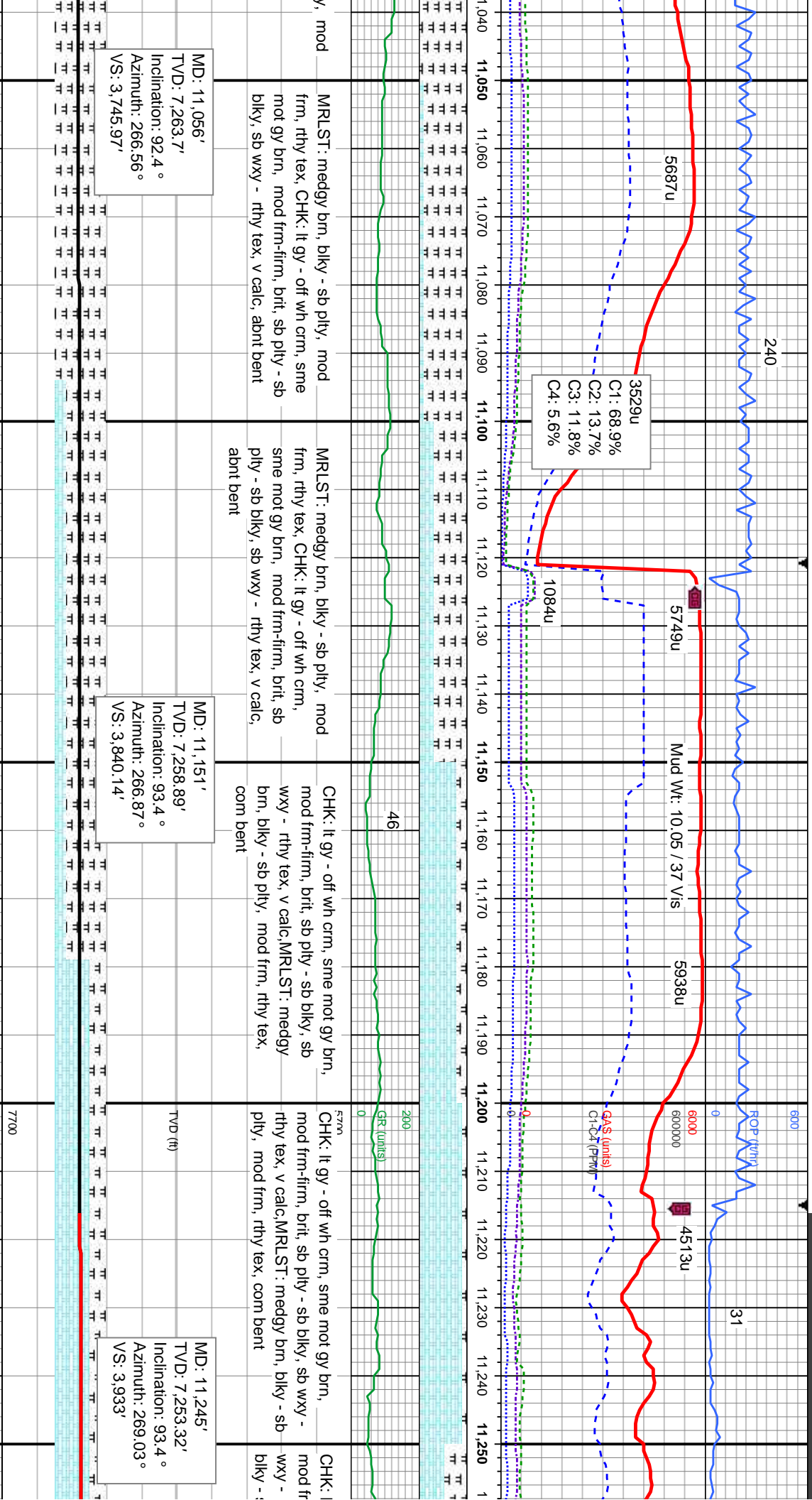
MD: 10,867'
TVD: 7,267.15'
Inclination: 89°
Azimuth: 265.37°
VS: 3,558.31'

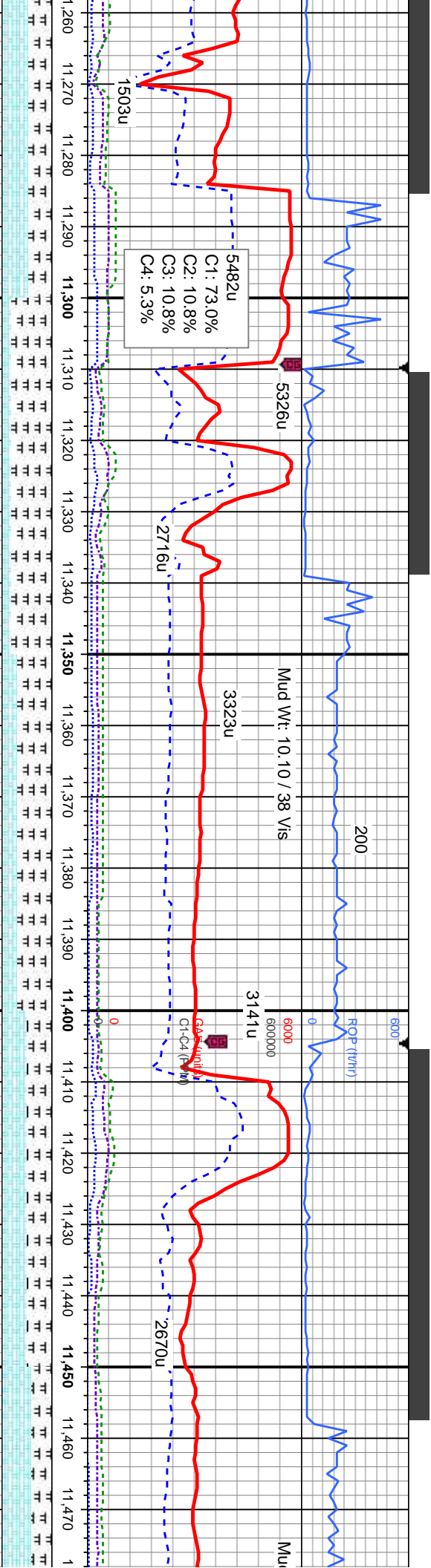
MD: 10,962'
TVD: 7,266.81'
Inclination: 91.4°
Azimuth: 266.8°
VS: 3,652.72'

TVD (ft)

7700





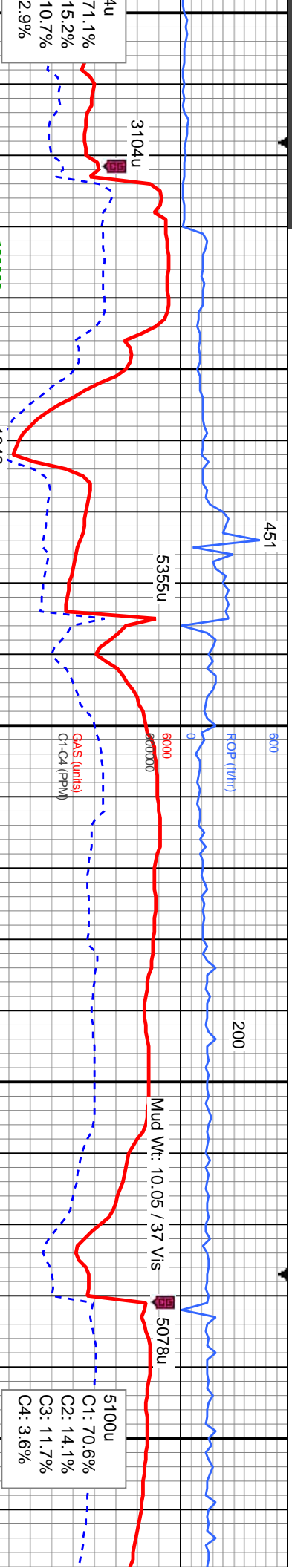


t gy - off wh crm, sme mot gy brn, m-firm, brit, sb ply - sb blk, sb rthy tex, v calc, MRLST: medgy brn, mod frm, rthy tex, com bent	MRLST: medgy brn, blk - sb ply, mod frm, rthy tex, CHK: lt gy - off wh crm, sme mot gy brn, mod frm-firm, brit, sb ply - sb blk, sb wxy - rthy tex, v calc, rr bent	MRLST: medgy brn, blk - sb ply, mod frm, rthy tex, CHK: lt gy - off wh crm, sme mot gy brn, mod frm-firm, brit, sb ply - sb blk, sb wxy - rthy tex, v calc	MRLST: medgy brn, blk - sb ply, mod frm, rthy tex, CHK: lt gy - off wh crm, sme mot gy brn, mod frm-firm, brit, sb ply - sb blk, sb wxy - rthy tex, v calc	CHK: lt gy - off wh crm, mod frm-firm, brit, sb ply wxy - rthy tex, v calc, M blk - sb ply, mod frm,
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MD: 11,340'
TVD: 7,250'
Inclination: 90.6°
Azimuth: 269.18°
VS: 4,026.67'

MD: 11,435'
TVD: 7,249.75'
Inclination: 89.7°
Azimuth: 269.78°
VS: 4,120.29'





CHK: It gy - off wh crm, sme mot gy brn,
mod frm-firm, brit, sb pty - sb blk, sb
wxy - rthy tex, v calc,MRLST: medgy brn,
biky - sb pty, mod frm, rthy tex

CHK: It gy - off wh crm, sme mot gy brn,
mod frm-firm, brit, sb pty - sb blk, sb
wxy - rthy tex, v calc,MRLST: medgy brn,
biky - sb pty, mod frm, rthy tex

CHK: It gy - off wh crm, sme mot gy brn,
mod frm-firm, brit, sb pty - sb blk, sb
wxy - rthy tex, v calc,MRLST: medgy brn,
biky - sb pty, mod frm, rthy tex

CHK: It gy - off wh crm, sme mot gy brn,
mod frm-firm, brit, sb pty - sb blk, sb
wxy - rthy tex, v calc,MRLST: medgy brn,
biky - sb pty, mod frm, rthy tex

MD: 11,718'
TVD: 7,251.72'
Inclination: 88.3°
Azimuth: 269.9°
VS: 4,398.75'

MD: 11,859'
TVD: 7,255.01'
Inclination: 89.3°
Azimuth: 269.95°
VS: 4,537.52'

MD:
TVD:
Inclir
Azim
VS: 4



