



Scale: 5" / 100'
Measured Depth Log

Well Name

Cockroft B11-62-1HN HORZ

Location

SEC 14 T5N R64W

State

COLORADO

Country

USA

API Number

05-123-37202-00

Region

DJ Basin

Spud Date

11/28/2013

Surface Coordinates

SWSW SEC 11 T5N R64W
245' FSL; 322' FWL

LAT/LONG:

40.407130/-104.525900

Bottom Hole Coordinates

SESE SEC 15 T5N R64W
330' FSL; 535' FEL

Ground Elevation

4,599'

Logged Interval

2,000'

Formation

Niobrara B Chalk

Type of Drilling Fluid

LSND

County

WELD

Rig Number

H&P 315

AFE #

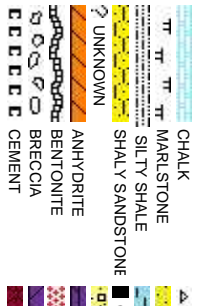
136857

Field

Kersey

K.B. Elevation

4,623'



Name MARK COLE, N
Company COLUMBINE L
Address 2385 S LIPAN S
DENVER, CO 8

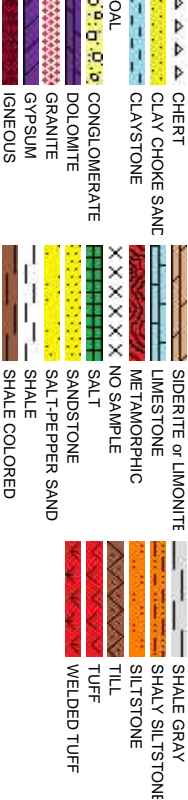
Company Noble Energy Ir

Operator

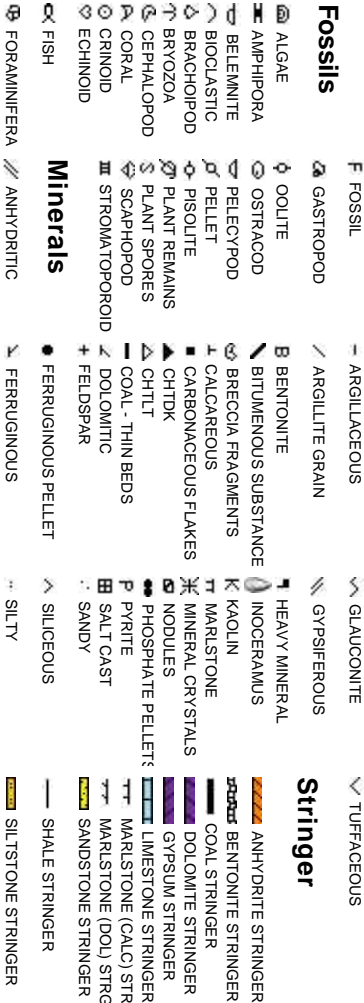
Geologist

JATHAN MURPHY, JACK WEINERTH
OGGING, INC

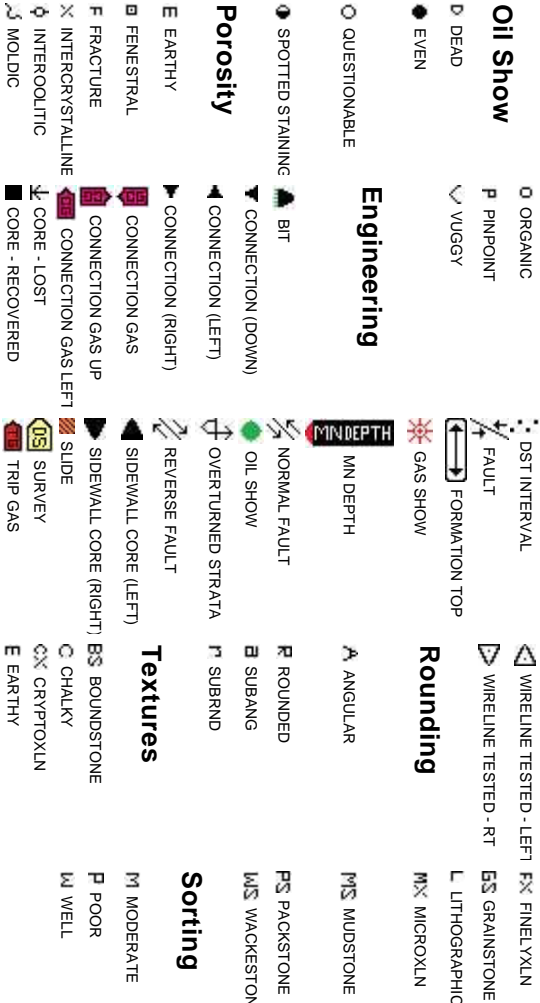
Rock Types

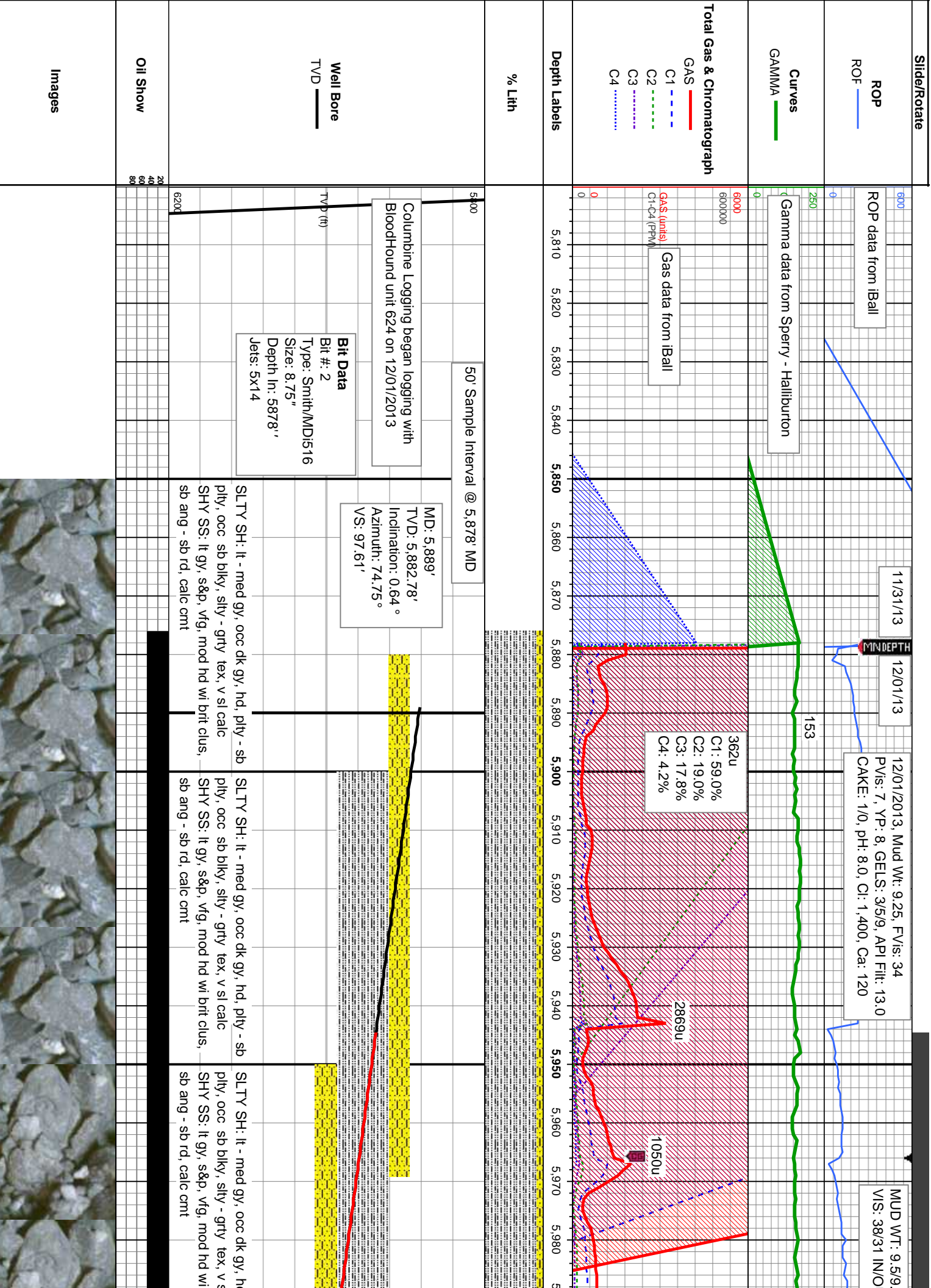


Accessories



Other Symbols





6
UT
177
600
ROP (ft/h)
MUD WT: 9.60/9.75
VIS: 37/37 IN/OUT

165
250
0
GAMMA (units)
6000
6000000

GA\$ (units) 2394u
C1-C4 (PPH)
2211u
1393u
C1: 57.1%
C2: 22.0%
C3: 17.5%
C4: 3.5%

990 6,000 6,010 6,020 6,030 6,040 6,050 6,060 6,070 6,080 6,090 6,100 6,110 6,120 6,130 6,140 6,150 6,160 6,170 6,180 6,190 6,200

MUD WT: 9.90/9.90
VIS: 36/36 IN/OUT

250
0
GAMMA (units)
6000
6000000

GA\$ (units)
C1-C4 (PPH)
1543u

5800
MD: 6.009'
TVD: 6,002.08'
Inclination: 10.4 °
Azimuth: 80.85 °
VS: 99.51'
SLTY SH: lt - med gy, occ dk gy, hd, pty - sb
pty, occ sb blkly, silty - grty tex, v sl calc
SHY SS: lt gy, s&p, vfg, mod hd wi brit clus,
sb ang - sb rd, calc cnt

SLTY SH: lt - med gy, occ dk gy, hd, pty - sb
pty, occ sb blkly, silty - grty tex, v sl calc
SHY SS: lt gy, s&p, vfg, mod hd wi brit clus,
sb ang - sb rd, calc cnt

SLTY SH: lt - med gy, occ dk gy, hd, pty - sb
pty, occ sb blkly, silty - grty tex, v sl calc
SHY SS: lt gy, s&p, vfg, mod hd wi brit clus,
sb ang - sb rd, calc cnt

MD: 6.057'
TVD: 6,048.79'
Inclination: 16.22 °
Azimuth: 95.89 °
VS: 99.51'

MD: 6.104'
TVD: 6,093.58'
Inclination: 19.03 °
Azimuth: 94.13 °
VS: 98.29'

MD: 6.152'
TVD: 6,138.05'
Inclination: 25.09 °
Azimuth: 88.45 °
VS: 98'

MD: 6.199'
TVD: 6,180.04'
Inclination: 28.27 °
Azimuth: 92 °
VS: 97.88'

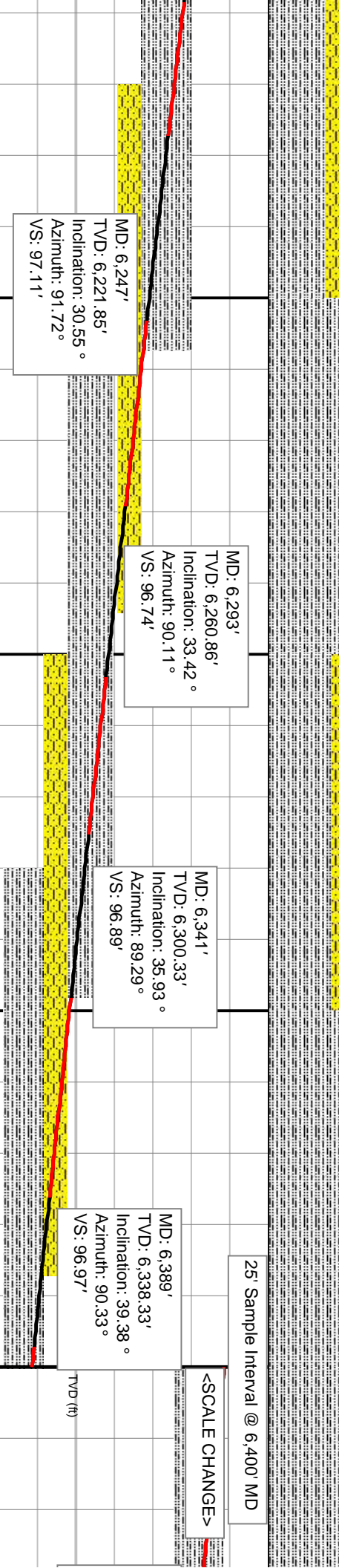
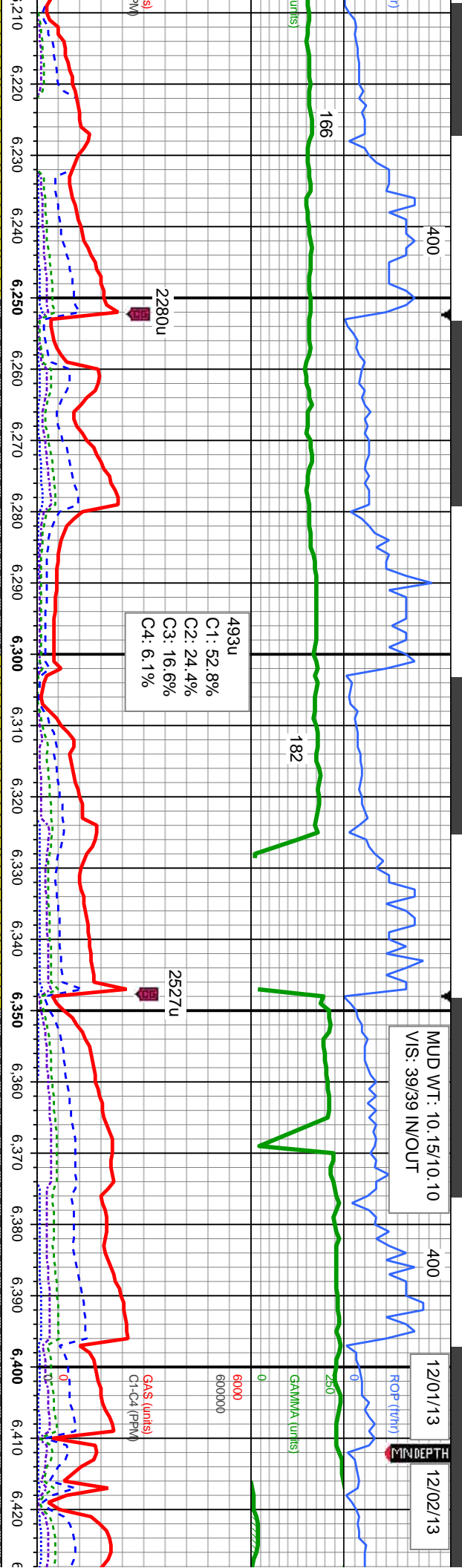
<SCALE CHANGE>

SLTY S
pty, occ
SHY SS

SLTY SH: lt - med gy, occ dk gy, hd, pty - sb
pty, occ sb blkly, silty - grty tex, v sl calc
SHY SS: lt gy, s&p, vfg, mod hd wi brit clus,
sb ang - sb rd, calc cnt

SLTY SH: lt - med gy, occ dk gy, hd, pty - sb
pty, occ sb blkly, silty - grty tex, v sl calc
SHY SS: lt gy, s&p, vfg, mod hd wi brit clus,
sb ang - sb rd, calc cnt

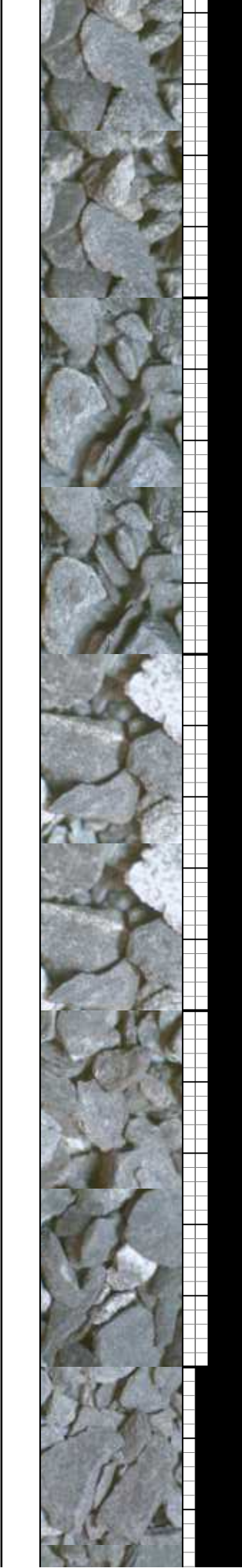




H: lt - med gy, occ dk gy, hd, pty - sb
sb blkly, silty - grty tex, v sl calc
SLTY SH: lt - med gy, occ dk gy, hd, pty - sb
SHY SS: lt gy, s&p, vfg, mod hd wi brit clus, sb
pty, occ sb blkly, silty - grty tex, v sl calc
sb ang - sb rd, calc cnt

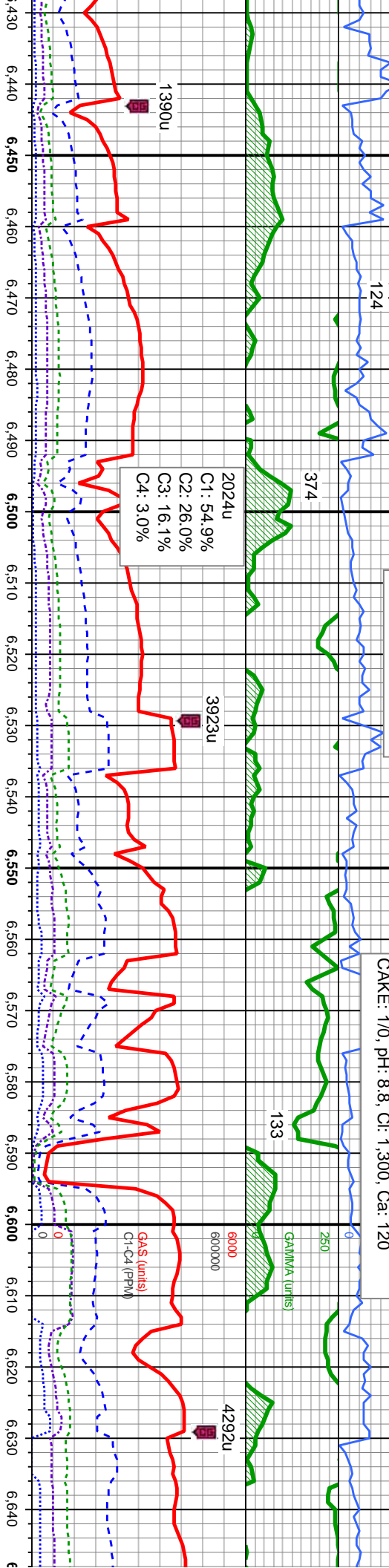
SLTY SH: lt - med gy, occ dk gy, hd, pty - sb
SHY SS: lt gy, s&p, vfg, mod hd wi brit clus, sb
pty, occ sb blkly, silty - grty tex, v sl calc
sb ang - sb rd, calc cnt

SLTY SH: lt - med gy, occ dk gy, hd, pty - sb
SHY SS: lt gy, s&p, vfg, mod hd wi brit clus, sb
pty, occ sb blkly, silty - grty tex, v sl calc
sb ang - sb rd, calc cnt



MUD WT: 10.50/10.45
VIS: 38/38 IN/OUT

12/02/2013, Mud Wt: 10.50, FVis: 38
PVs: 10, YP: 11, GELS: 37/15, API Filtr: 8.0
CAKE: 1/0, pH: 8.8, Cl: 1,300, Ca: 120



Sharon Springs Marker @
6,492' MD: 6,412' TVD

Niobrara Top @
6,522' MD: 6,431' TVD

Nio A Chalk Top @
6,552' MD: 6,449' TVD

Nio A Marl Top @
6,589' MD: 6,471' TVD

MD: 6,437'
TVD: 6,374.43'
Inclination: 43.07°
Azimuth: 92.58°
VS: 96.14'

MD: 6,484'
TVD: 6,407.36'
Inclination: 47.95°
Azimuth: 91.9°
VS: 94.84'

MD: 6,532'
TVD: 6,437.83'
Inclination: 53.23°
Azimuth: 88.88°
VS: 224.47'

MD: 6,578'
TVD: 6,464.85'
Inclination: 54.82°
Azimuth: 90.1°
VS: 261.68'

MD: 6,626'
TVD: 6,491.34'
Inclination: 58.18°
Azimuth: 90.64°
VS: 301.67'

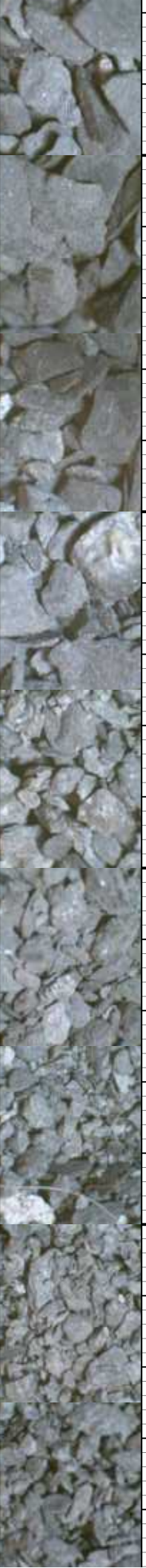
dk gy, hd, pty - sb
y tex, v sl calc, r

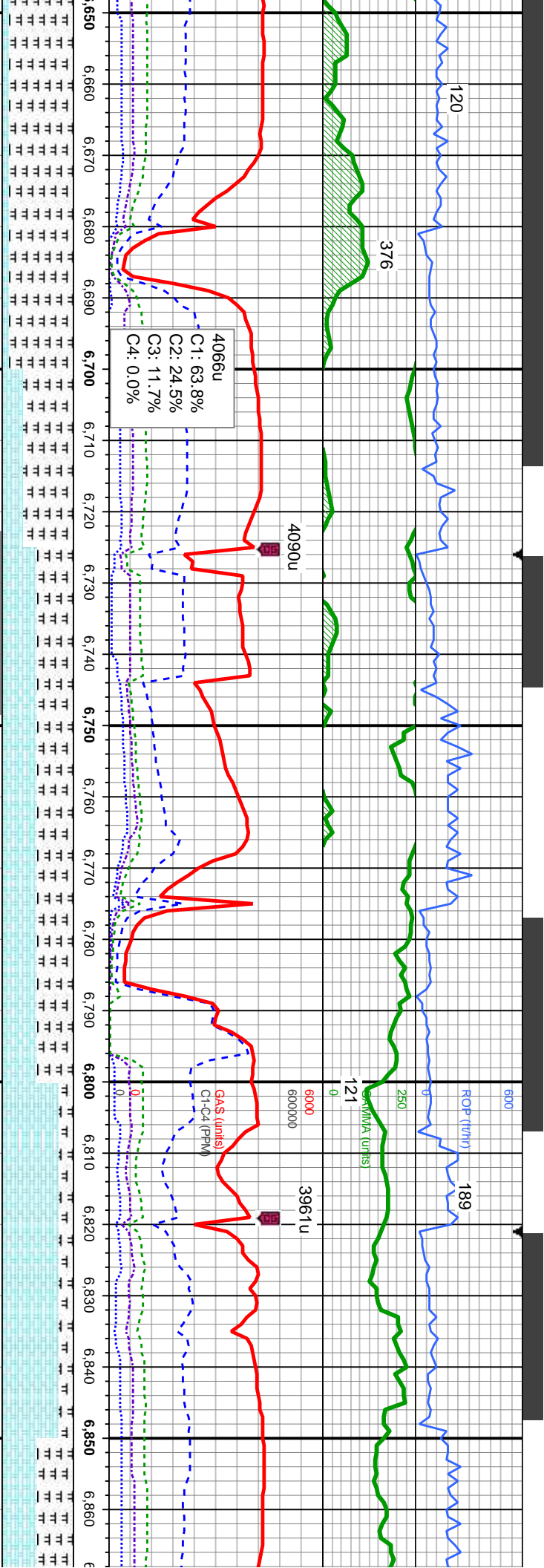
SLTY SH: lt - med gy, occ dk gy, sl hd-hd,
pty - sb pty, occ sb blk, sily - grty tex, v sl
calc, abnt bent

SLTY SH: lt - medgy, occ dk gy, frm - mod
hd, sb pty - sb blk, sily - grty tex, sl calc
MRL: lt - med gy, sme blk, sft - mod hd, sb
pty - pty, sily - grty tex
SHY SS: lt gy, s&p, vfg, mod hd wi brit clus,
sb ang - sb rd, calc cmt, abnt bent

SLTY SH: lt - medgy, occ dk gy, frm - mod hd,
sb pty - sb blk, sily - grty tex, sl calc
MRL: lt - med gy, sme blk, sft - mod hd, sb
pty - pty, sily - grty tex
CHK: lt - med gy - gy brn, mot, lam, sft - frm,
sb pty - sb blk, rthy tex, v calc, sme bent

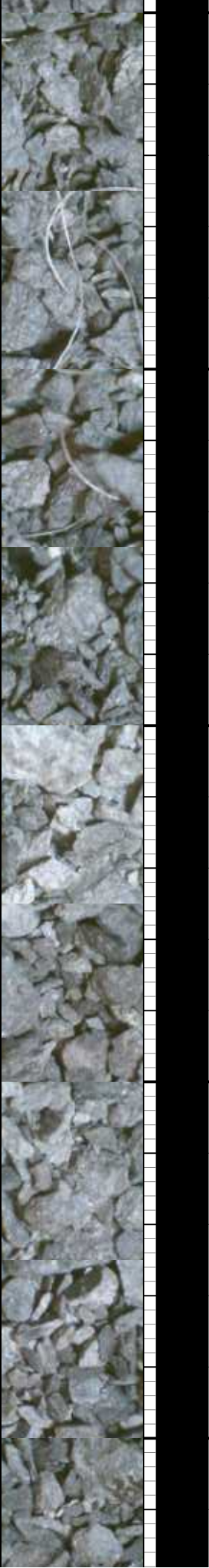
MRL: lt - med gy, sme blk, sft - mod hd, sb
pty - pty, sily - grty tex
CHK: lt - med gy - gy brn, mot, lam, sft - frm,
sb pty - sb blk, rthy tex, v calc, sme bent

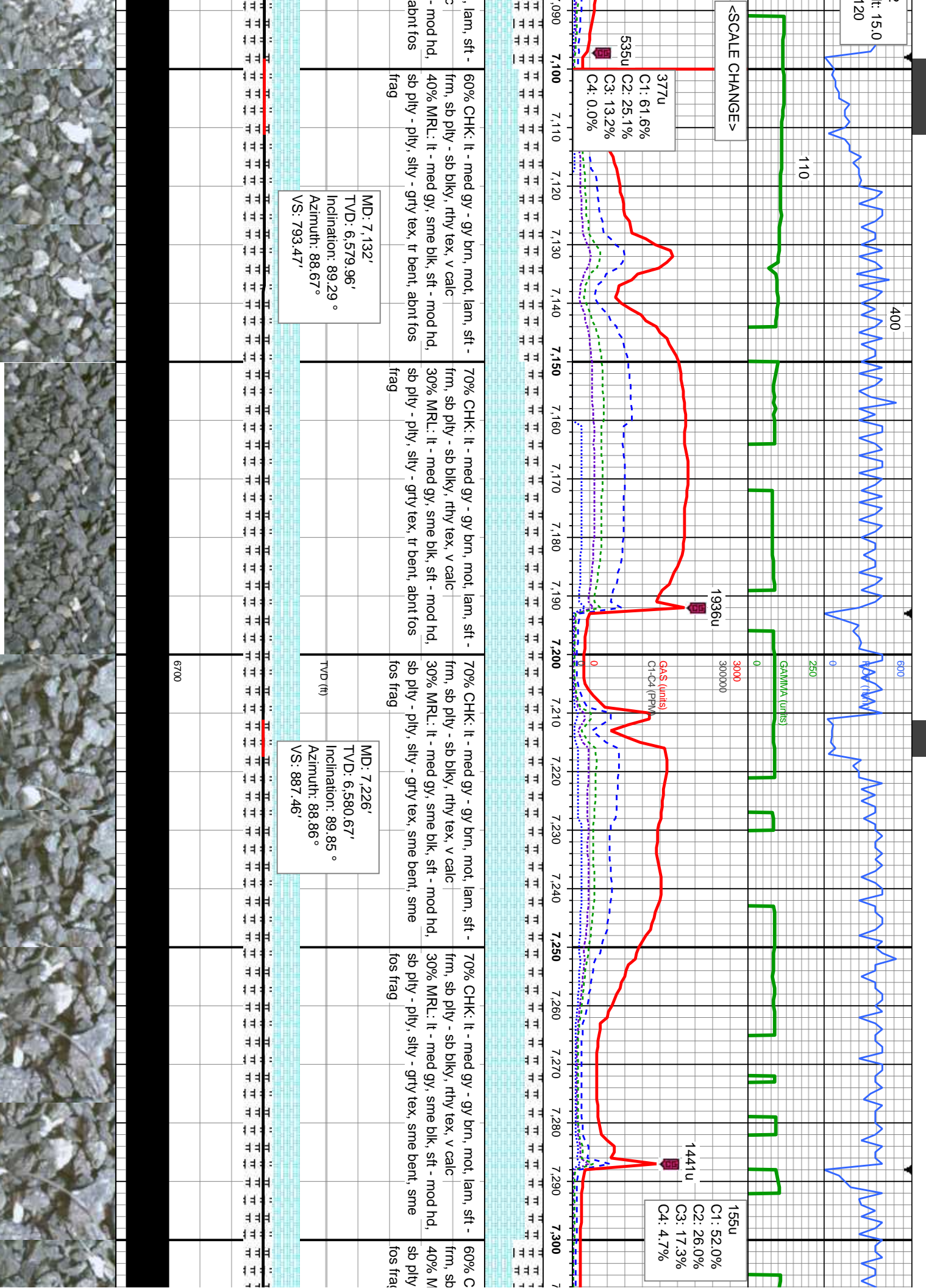


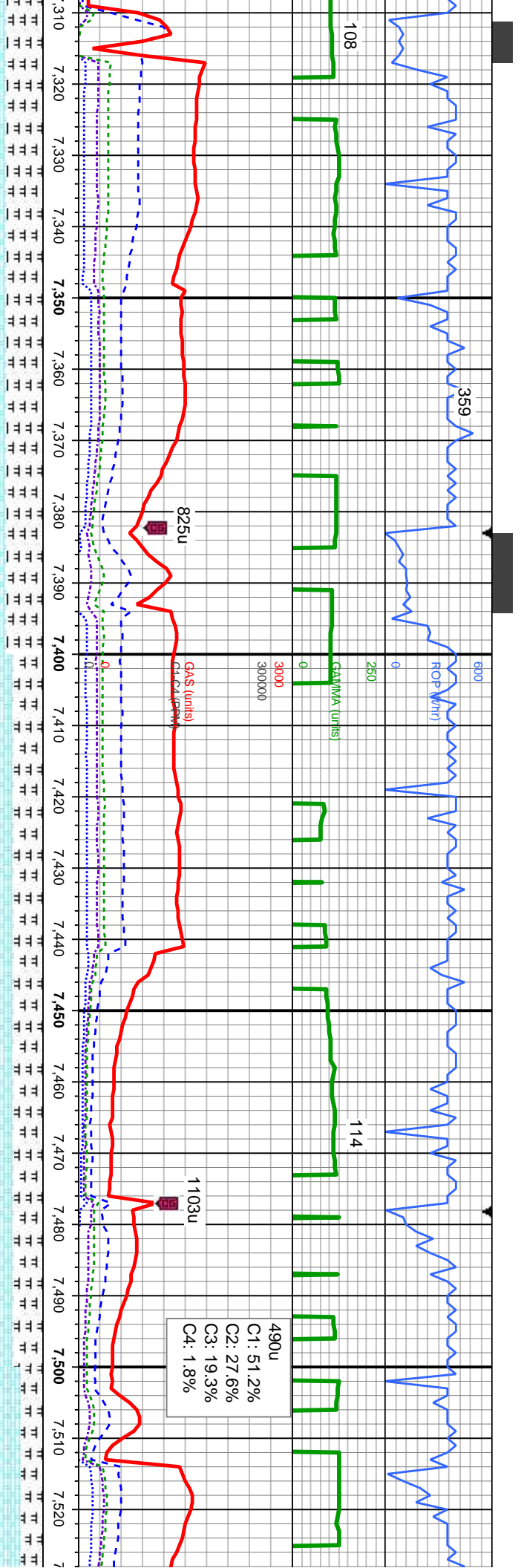


MD: 6,673' TVD: 6,513.6' Inclination: 65.24 ° Azimuth: 90.81 ° VS: 342.98'	MD: 6,721' TVD: 6,531.27' Inclination: 71.52 ° Azimuth: 90.24 ° VS: 387.54'	MD: 6,768' TVD: 6,545.19' Inclination: 74.04 ° Azimuth: 91.01 ° VS: 432.38'	MD: 6,816' TVD: 6,556.81' Inclination: 77.93 ° Azimuth: 91.05 ° VS: 478.88'	MD: 6,866' TVD: 6,565.5' Inclination: 78.93 ° Azimuth: 90.81 ° VS: 528.04'
--	---	---	---	--

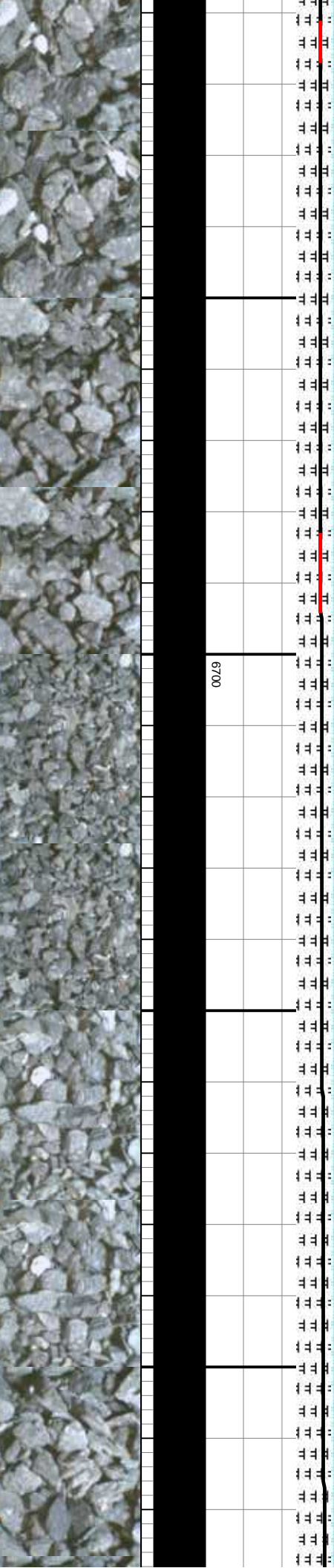
MRL: It - med gy, sme blk, sft - mod hd, sb ply - pty, silty - grfy tex CHK: It - med gy - gy brn, mot, lam, sft - frm, sb ply - sb blk, rthy tex, v calc, tr bent	MRL: It - med gy, sme blk, sft - mod hd, sb ply - pty, silty - grfy tex CHK: It - med gy - gy brn, mot, lam, sft - frm, sb ply - sb blk, rthy tex, v calc, sme bent	MRL: It - med gy, sme blk, sft - mod hd, sb ply - pty, silty - grfy tex CHK: It - med gy - gy brn, mot, lam, sft - frm, sb ply - sb blk, rthy tex, v calc, sme bent	MRL: It - med gy, sme blk, sft - mod hd, sb ply - pty, silty - grfy tex CHK: It - med gy - gy brn, mot, lam, sft - frm, sb ply - sb blk, rthy tex, v calc, sme bent	MRL: It - med gy, sme blk, sft - mod hd, sb ply - pty, silty - grfy tex CHK: It - med gy - gy brn, mot, lam, sft - frm, sb ply - sb blk, rthy tex, v calc, sme bent
---	--	--	--	--

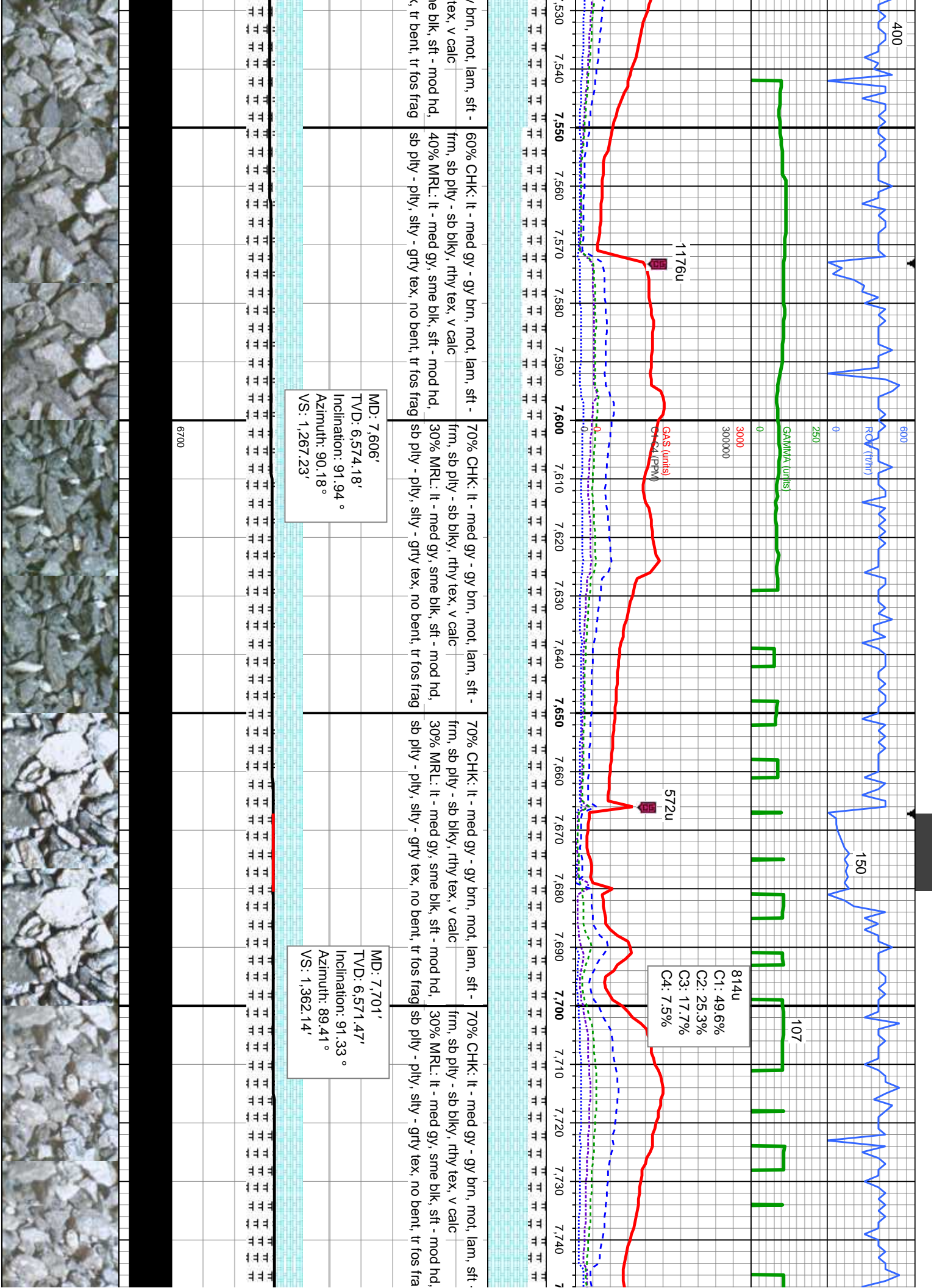


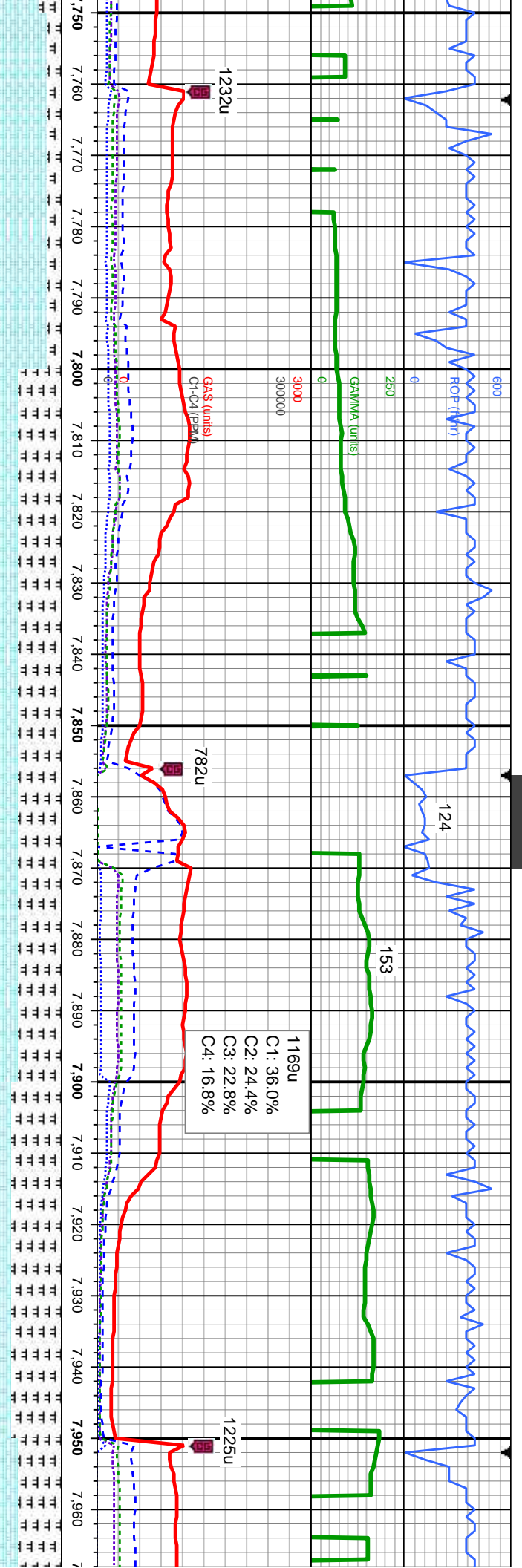




HK: It - med gy - gy brn, mot, lam, sft - ply - sb blk, rthy tex, v calc RL: It - med gy, sme blk, sft - mod hd, - ply, stly - grty tex, abnt bent, sme	50% CHK: It - med gy - gy brn, mot, lam, sft - frm, sb ply - sb blk, rthy tex, v calc 50% MRL: It - med gy, sme blk, sft - mod hd, sb ply - ply, stly - grty tex, abnt bent, sme fos frag	50% CHK: It - med gy - gy brn, mot, lam, sft - frm, sb ply - sb blk, rthy tex, v calc 50% MRL: It - med gy, sme blk, sft - mod hd, sb ply - ply, stly - grty tex, tr bent, sme fos frag	50% CHK: It - med gy - gy brn, mot, lam, sft - frm, sb ply - sb blk, rthy tex, v calc 50% MRL: It - med gy, sme blk, sft - mod hd, sb ply - ply, stly - grty tex, tr bent, tr fos frag	70% CHK: It - med gy - gy frm, sb ply - sb blk, rthy 30% MRL: It - med gy, sr sb ply - ply, stly - grty tex
MD: 7,321' TVD: 6,580.85' Inclination: 89.94 ° Azimuth: 88.81 ° VS: 982.45'				
MD: 7,416' TVD: 6,579.75' Inclination: 91.39 ° Azimuth: 89.89 ° VS: 1,077.42'				
MD: 7,511' TVD: 6,577.2' Inclination: 91.7 ° Azimuth: 89.94 ° VS: 1,172.33'				

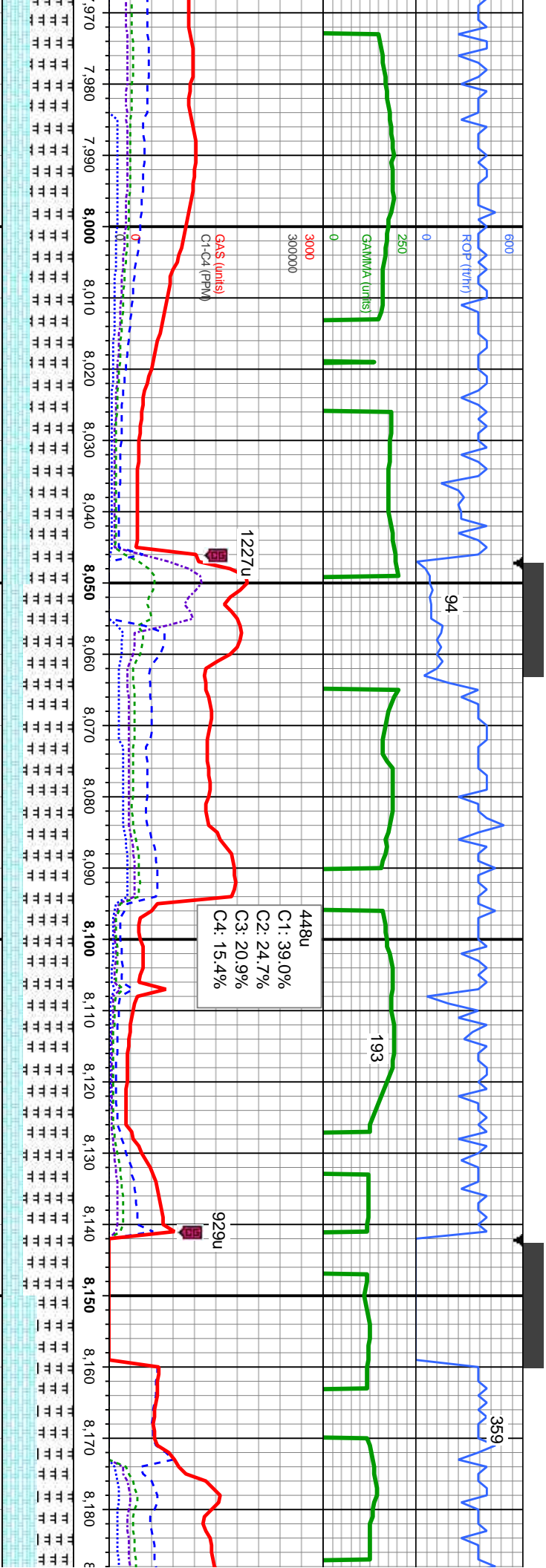






80% CHK: It - med gy - gy brn, mot, lam, sft - frn, sb ply - sb blk, rthy tex, v calc	40% CHK: It - med gy - gy brn, mot, lam, sft - frn, sb ply - sb blk, rthy tex, v calc	40% CHK: It - med gy - gy brn, mot, lam, sft - frn, sb ply - sb blk, rthy tex, v calc	30% CHK: It - med gy - gy brn, mot, lam, sft - frn, sb ply - sb blk, rthy tex, v calc	40% CHK: It - med gy - gy brn, mot, lam, sft - frn, sb ply - sb blk, rthy tex, v calc
20% MRL: It - med gy, sme blk, sft - mod hd, sb ply - ply, silty - grty tex, no bent, tr fos frag	60% MRL: It - med gy, sme blk, sft - mod hd, sb ply - ply, silty - grty tex, tr bent, tr fos frag	60% MRL: It - med gy, sme blk, sft - mod hd, sb ply - ply, silty - grty tex, tr bent, tr fos frag	70% MRL: It - med gy, sme blk, sft - mod hd, sb ply - ply, silty - grty tex, tr bent, tr fos frag	60% MRL: It - med gy, sme blk, sft - mod hd, sb ply - ply, silty - grty tex, tr bent, tr fos frag
MD: 7,796' TVD: 6,569.19' Inclination: 91.42 ° Azimuth: 89.64 ° VS: 1,457.08'				
MD: 7,891' TVD: 6,567.58' Inclination: 90.52 ° Azimuth: 89.89 ° VS: 1,552.03'				





MD: 7,986'
TVD: 6,566.3'
Inclination: 91.02 °
Azimuth: 90.46 °
VS: 1,646.95'

MD: 8,080'
TVD: 6,565.82'
Inclination: 89.57 °
Azimuth: 90.39 °
VS: 1,740.87'

MD: 8,176'
TVD: 6,566.37'
Inclination: 89.78 °
Azimuth: 90.41 °
VS: 1,836.78'



359

12/04/13

12/05/13

12/06/13

PVI:

CAV

MINDEPTH

units)

178

240

0 250 500000

GAMMA (units)

2348u

1482u

C1: 22.7%
C2: 16.3%
C3: 25.6%
C4: 35.4%

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

1614u

414u

HK: It - med gy - gy brn, mot, lam, sft -
ply - sb blk, rthy tex, v calc
RL: It - med gy, sme blk, sft - mod hd,
- ply, silty - grty tex, sme bent, sme

10% CHK: It - med gy - gy brn, mot, lam, sft -
frm, sb ply - sb blk, rthy tex, v calc
90% MRL: It - med gy, sme blk, sft - mod hd,
sb ply - ply, silty - grty tex, rr bent, sme fos

10% CHK: It - med gy - gy brn, mot, lam, sft -
frm, sb ply - sb blk, rthy tex, v calc
90% MRL: It - med gy, sme blk, sft - mod hd,
sb ply - ply, silty - grty tex, rr bent, sme fos

10% CHK: It - med gy - gy brn, mot, lam, sft -
frm, sb ply - sb blk, rthy tex, v calc
90% MRL: It - med gy, sme blk, sft - mod hd,
sb ply - ply, silty - grty tex, rr bent, sme fos

10% CHK: It - med gy - gy
frm, sb ply - sb blk, rthy t
90% MRL: It - med gy, sme
sb ply - ply, silty - grty tex

MD: 8,460'
TVD: 6,569.66'
Inclination: 89.14 °
Azimuth: 88.8 °
VS: 108.81'

MD: 8,555'
TVD: 6,570.51'
Inclination: 89.85 °
Azimuth: 88.49 °
VS: 111.06'

TVD (ft)

6700

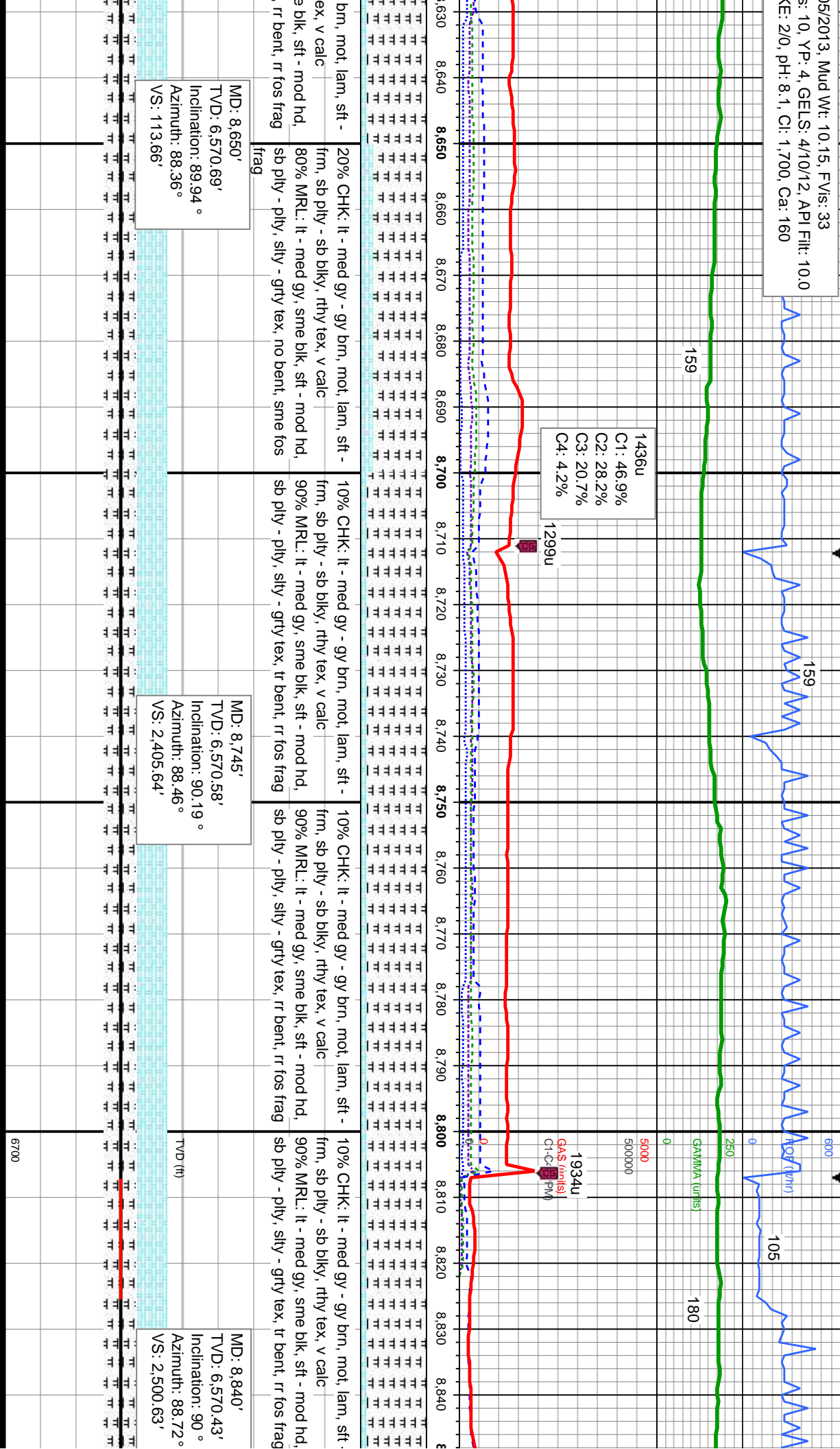


5/2013, Mud Wt: 10.15, FV/s: 33
s: 10, YP: 4, GELS: 4/10/12, API Filtr: 10.0
E: 2/0, pH: 8.1, Cl: 1,700, Ca: 160

1436u
C1: 46.9%
C2: 28.2%
C3: 20.7%
C4: 4.2%

1299u

1934u
GAS (mils)
C1-C4 (m)

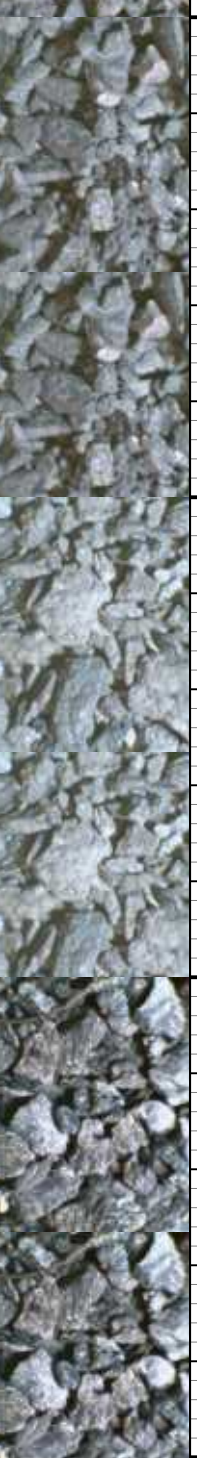
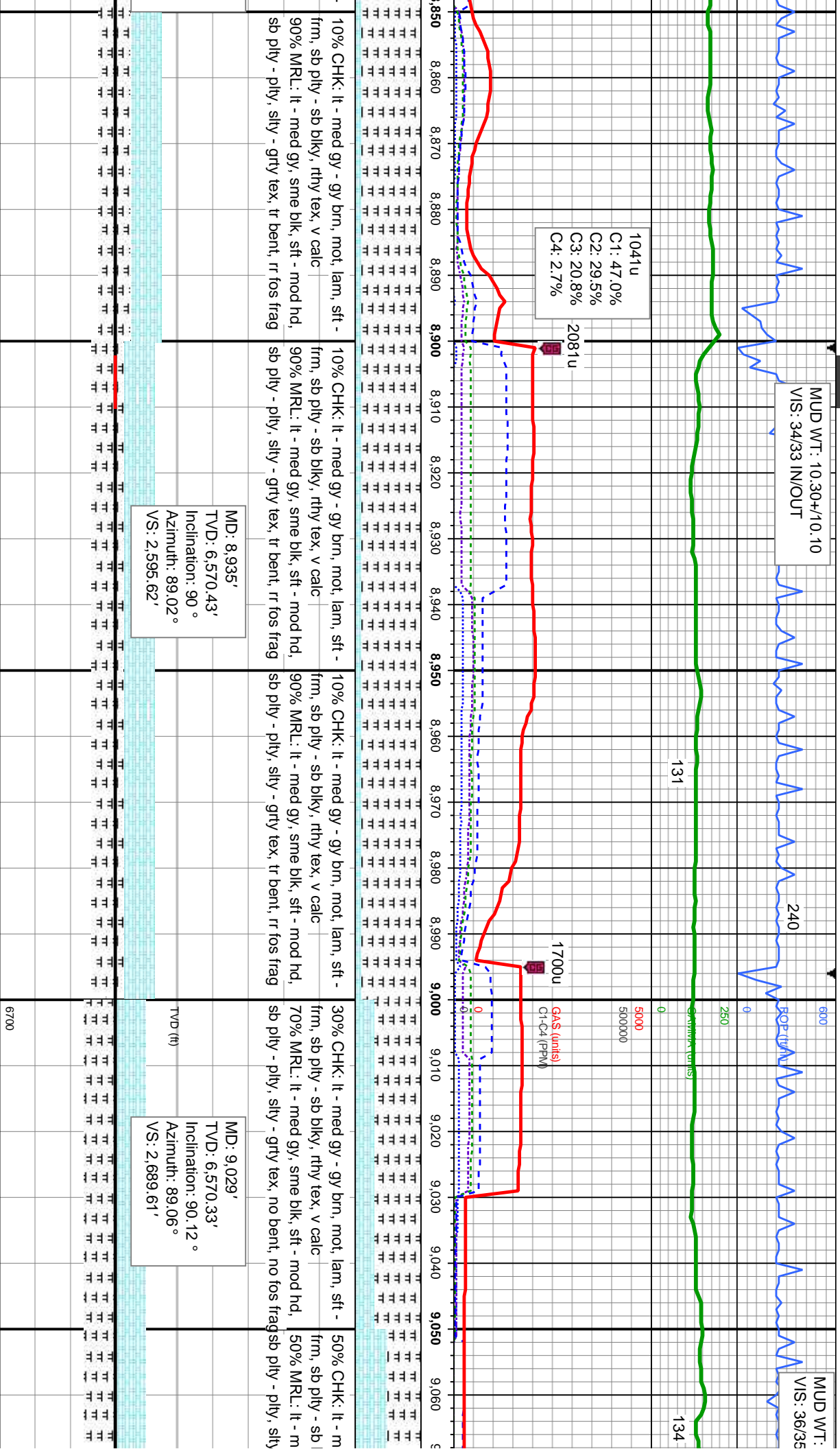


MUD WT: 10.30+/10.10
VIS: 34/33 IN/OUT

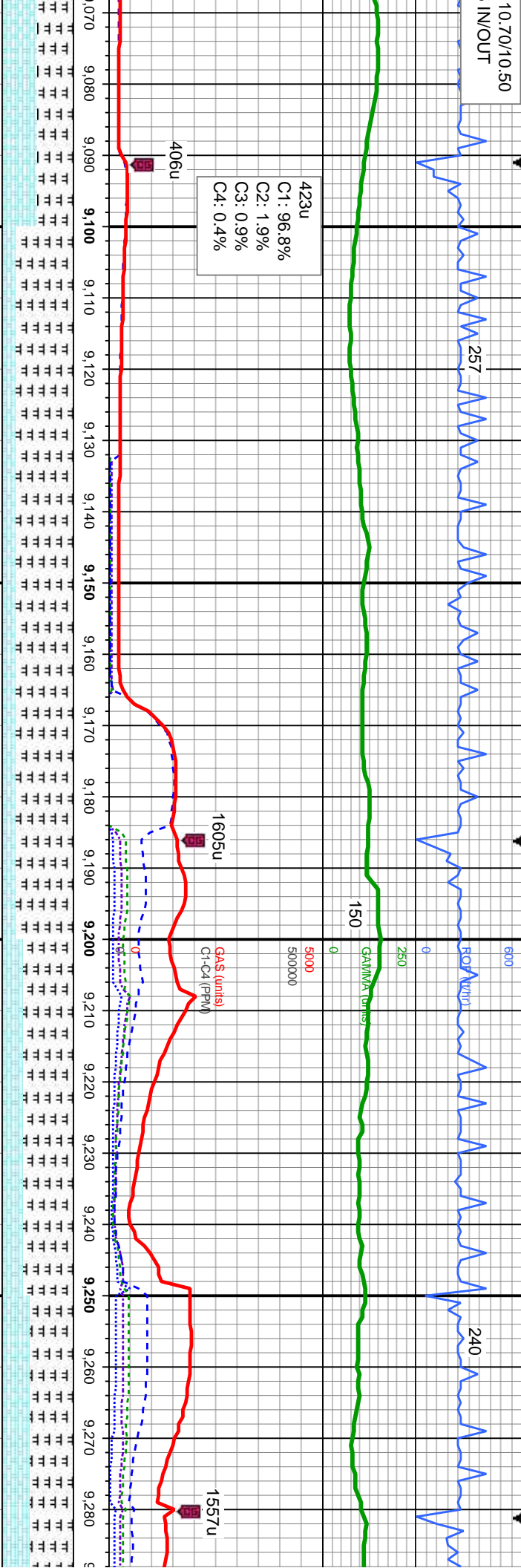
MUD WT:
VIS: 36/35

1041u
C1: 47.0%
C2: 29.5%
C3: 20.8%
C4: 2.7%

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



10.70/10.50
INOUT

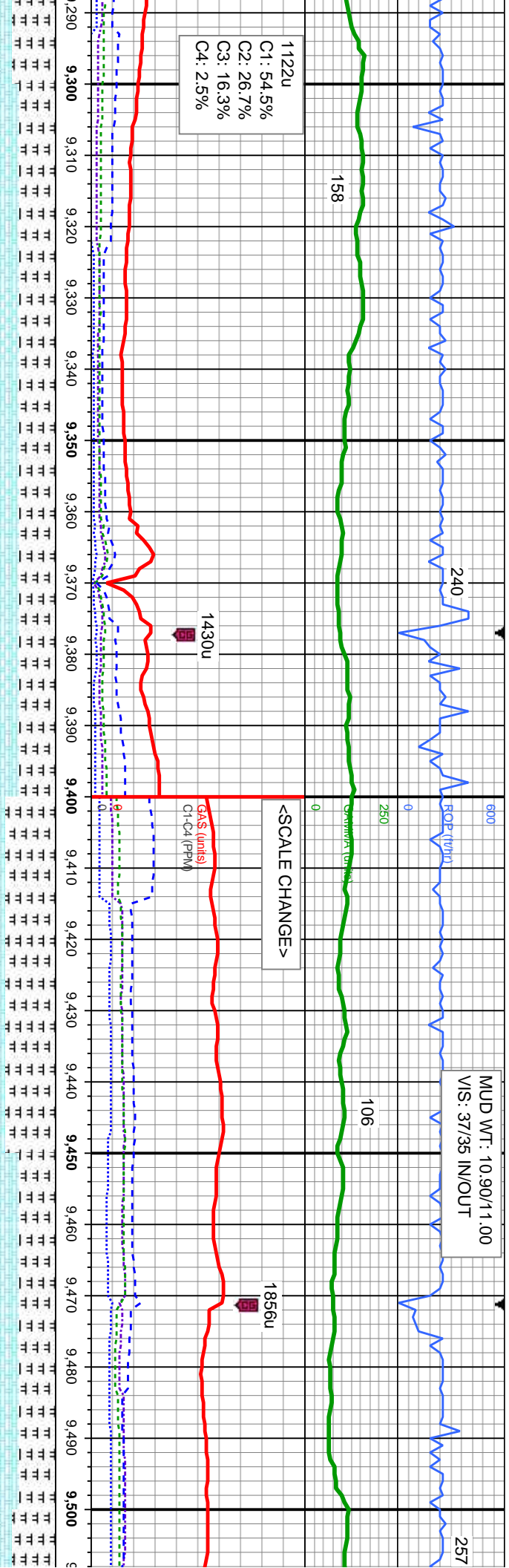


Depth (ft)	Lithology
9,070 - 9,080	gy - gy brn, mot, lam, sft - blkly, rthy tex, v calc
9,080 - 9,090	gy - gy brn, mot, lam, sft - blkly, rthy tex, v calc
9,090 - 9,100	gy - gy brn, mot, lam, sft - blkly, rthy tex, v calc
9,100 - 9,110	20% CHK: lt - med gy - gy brn, mot, lam, sft - frm, sb ply - sb blkly, rthy tex, v calc
9,110 - 9,120	20% CHK: lt - med gy - gy brn, mot, lam, sft - frm, sb ply - sb blkly, rthy tex, v calc
9,120 - 9,130	20% CHK: lt - med gy - gy brn, mot, lam, sft - frm, sb ply - sb blkly, rthy tex, v calc
9,130 - 9,140	20% CHK: lt - med gy - gy brn, mot, lam, sft - frm, sb ply - sb blkly, rthy tex, v calc
9,140 - 9,150	20% CHK: lt - med gy - gy brn, mot, lam, sft - frm, sb ply - sb blkly, rthy tex, v calc
9,150 - 9,160	20% CHK: lt - med gy - gy brn, mot, lam, sft - frm, sb ply - sb blkly, rthy tex, v calc
9,160 - 9,170	20% CHK: lt - med gy - gy brn, mot, lam, sft - frm, sb ply - sb blkly, rthy tex, v calc
9,170 - 9,180	20% CHK: lt - med gy - gy brn, mot, lam, sft - frm, sb ply - sb blkly, rthy tex, v calc
9,180 - 9,190	20% CHK: lt - med gy - gy brn, mot, lam, sft - frm, sb ply - sb blkly, rthy tex, v calc
9,190 - 9,200	20% CHK: lt - med gy - gy brn, mot, lam, sft - frm, sb ply - sb blkly, rthy tex, v calc
9,200 - 9,210	30% CHK: lt - med gy - gy brn, mot, lam, sft - frm, sb ply - sb blkly, rthy tex, v calc
9,210 - 9,220	30% CHK: lt - med gy - gy brn, mot, lam, sft - frm, sb ply - sb blkly, rthy tex, v calc
9,220 - 9,230	30% CHK: lt - med gy - gy brn, mot, lam, sft - frm, sb ply - sb blkly, rthy tex, v calc
9,230 - 9,240	30% CHK: lt - med gy - gy brn, mot, lam, sft - frm, sb ply - sb blkly, rthy tex, v calc
9,240 - 9,250	30% CHK: lt - med gy - gy brn, mot, lam, sft - frm, sb ply - sb blkly, rthy tex, v calc
9,250 - 9,260	40% CHK: lt - med gy - gy brn, mot, lam, sft - frm, sb ply - sb blkly, rthy tex, v calc
9,260 - 9,270	40% CHK: lt - med gy - gy brn, mot, lam, sft - frm, sb ply - sb blkly, rthy tex, v calc
9,270 - 9,280	40% CHK: lt - med gy - gy brn, mot, lam, sft - frm, sb ply - sb blkly, rthy tex, v calc

MD: 9,124'
TVD: 6,570.1'
Inclination: 90.15 °
Azimuth: 89.23 °
VS: 2,784.59'

MD: 9,219'
TVD: 6,569.77'
Inclination: 90.25 °
Azimuth: 89.47 °
VS: 2,879.56'

6700



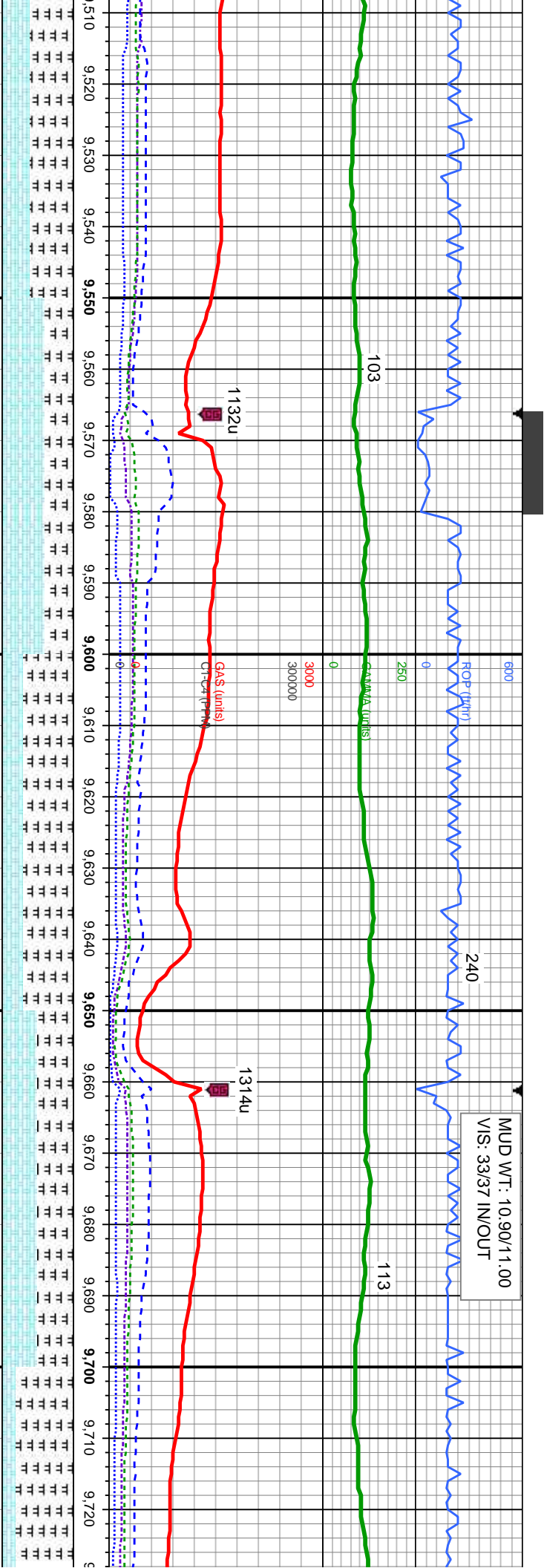
1122u
C1: 54.5%
C2: 26.7%
C3: 16.3%
C4: 2.5%

MD: 9,314'
TVD: 6,569.31'
Inclination: 90.31 °
Azimuth: 89.52°
VS: 2,974.53'

MD: 9,409'
TVD: 6,568.92'
Inclination: 90.15 °
Azimuth: 89.79°
VS: 125.98'

MD: 9,504'
TVD: 6,568.7'
Inclination: 90.0°
Azimuth: 90.0°
VS: 126.11'

lam, sft -	50% CHK: lt - med gy - gy brn, mot, lam, sft -	50% CHK: lt - med gy - gy brn, mot, lam, sft -	63% CHK: lt - med gy - gy brn, mot, lam, sft -	50% CHK: lt - med gy - gy brn, mot, lam, sft -	40% CHK: lt - med gy - gy brn, mot, lam, sft -
frm, sb ply - sb blk, rthy tex, v calc	frm, sb ply - sb blk, rthy tex, v calc	frm, sb ply - sb blk, rthy tex, v calc	sft - frm, sb ply - sb blk, rthy tex, v calc	frm, sb ply - sb blk, rthy tex, v calc	frm, sb ply - sb blk, rthy tex, v calc
mod hd, 50% MRL: lt - med gy, sme blk, sft - mod hd, sb ply - ply, silty - grty tex, no bent, no fos frag	50% MRL: lt - med gy, sme blk, sft - mod hd, sb ply - ply, silty - grty tex, no bent, no fos frag	50% MRL: lt - med gy, sme blk, sft - mod hd, sb ply - ply, silty - grty tex, no bent, no fos frag	70% MRL: lt - med gy, sme blk, sft - mod hd, sb ply - ply, silty - grty tex, no bent, no fos frag	50% MRL: lt - med gy, sme blk, sft - mod sb ply - ply, silty - grty tex, no bent, no fos frag	60% MRL: lt - med gy, sme blk, sft - mod sb ply - ply, silty - grty tex, no bent, no fos frag
6700					

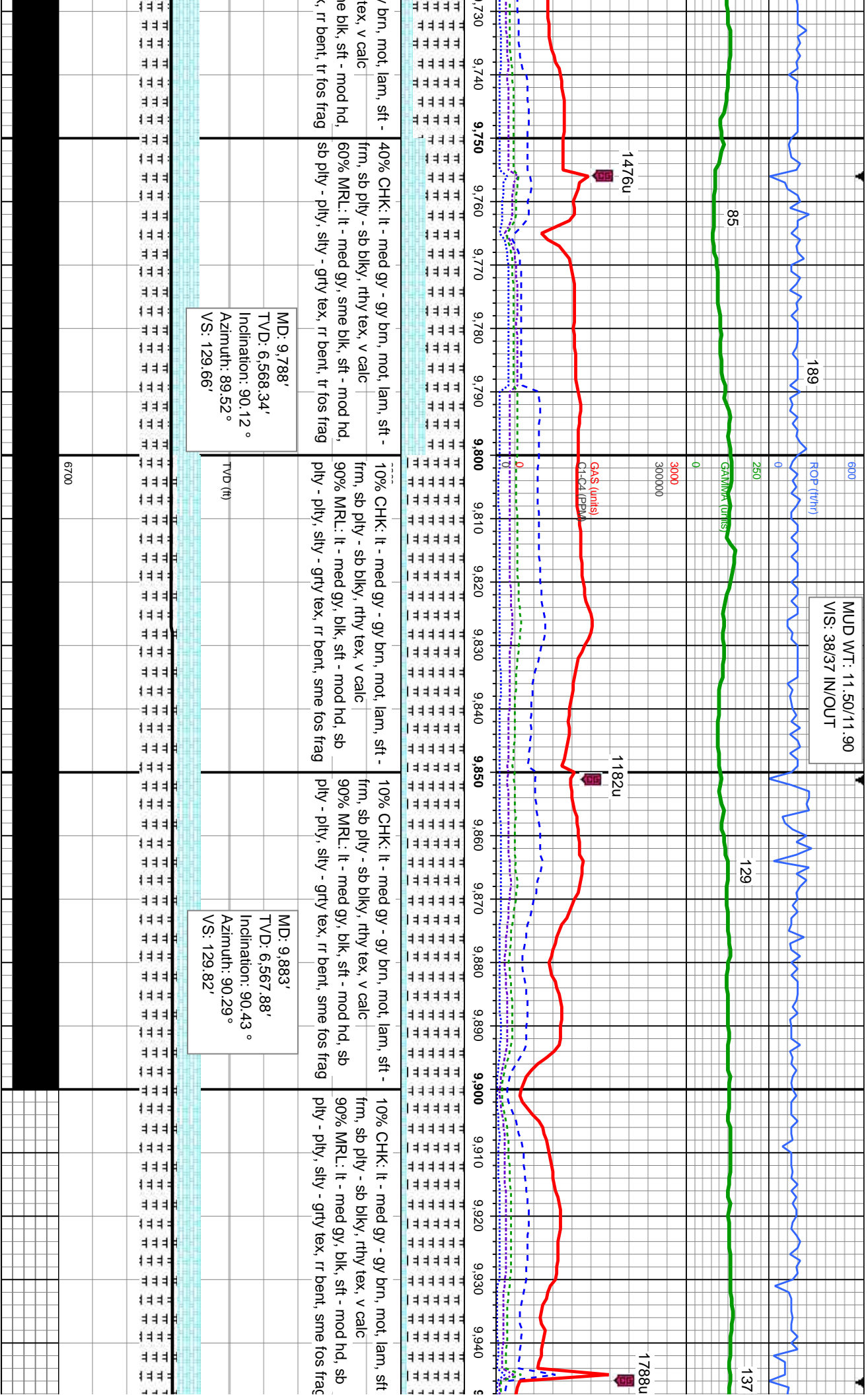


HK: lt - med gy - gy brn, mot, lam, sft - ply - sb blk, rthy tex, v calc	60% CHK: lt - med gy - gy brn, mot, lam, sft - sl frm, sb ply - sb blk, rthy tex, v calc	30% CHK: lt - med gy - gy brn, mot, lam, sft frm, sb ply - sb blk, rthy tex, v calc	50% CHK: lt - med gy - gy brn, mot, lam, sft - frm, sb ply - sb blk, rthy tex, v calc	20% CHK: lt - med gy - gy frm, sb ply - sb blk, rthy
RL: lt - med gy, sme blk, sft - mod hd, ply, silty - grty tex, no bent, rr fos frag	40% MRL: lt - med gy, sme blk, sft - hd, sb ply - ply, silty - grty tex, no bent, rr fos frag	70% MRL: lt - med gy, sme blk, sft - mod hd, sb ply - ply, silty - grty tex, tr bent, sme fos frag	50% MRL: lt - med gy, sme blk, sft - mod hd, sb ply - ply, silty - grty tex, tr bent, rr fos frag	80% MRL: lt - med gy, sr sb ply - ply, silty - grty tex

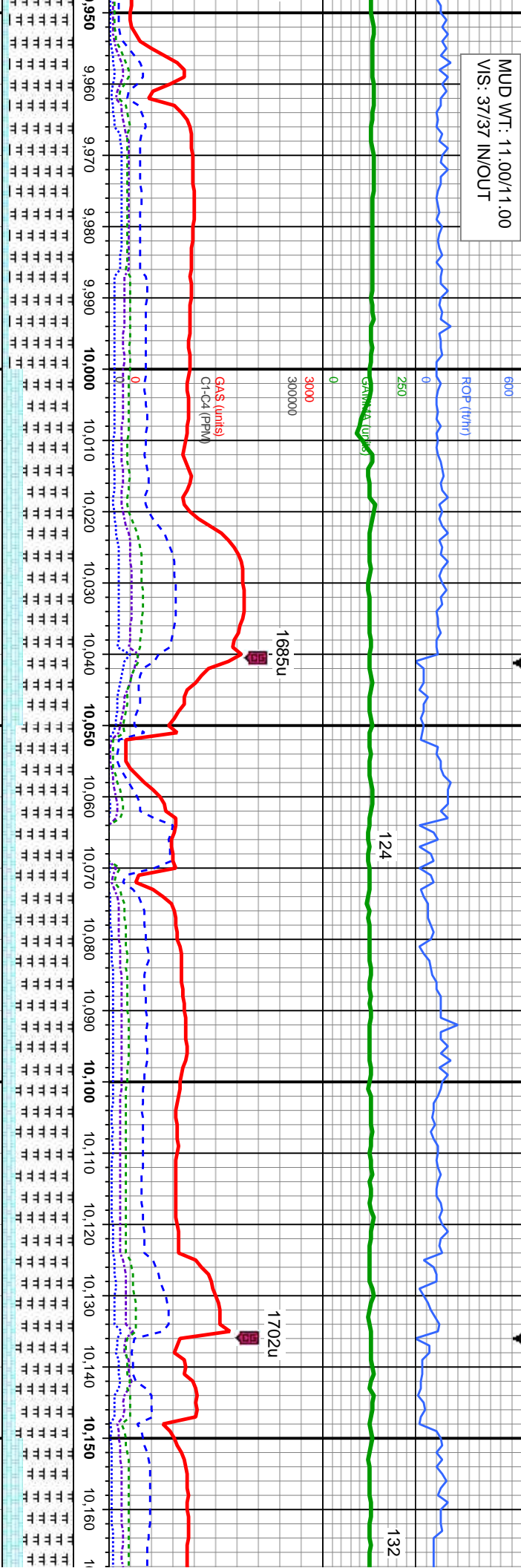
MD: 9.599'
TVD: 6,568.67'
Inclination: 90.15 °
Azimuth: 88.84 °
VS: 127.03'

MD: 9.694'
TVD: 6,568.49'
Inclination: 90.06 °
Azimuth: 89.23 °
VS: 128.63'

6700



MUD WT: 11.00/11.00
VS: 37/37 IN/OUT



10% CHK: lt - med gy - gy brn, mot, lam, sft -
frm, sb pty - sb blk, rthy tex, v calc
90% MRL: lt - med gy, blk, sft - mod hd, sb pty
- pty, silty - grty tex, abnt bent, sme fos frag

10% CHK: lt - med gy - gy brn, mot, lam, sft -
frm, sb pty - sb blk, rthy tex, v calc
30% MRL: lt - med gy, blk, sft - mod hd, sb
pty - pty, silty - grty tex, abnt bent, no fos frag

20% CHK: lt - med gy - gy brn, mot, lam, sft -
frm, sb pty - sb blk, rthy tex, v calc
80% MRL: lt - med gy, blk, sft - mod hd, sb
pty - pty, silty - grty tex, abnt bent, no fos frag

20% CHK: lt - med gy - gy brn, mot, lam, sft -
frm, sb pty - sb blk, rthy tex, v calc
80% MRL: lt - med gy, blk, sft - mod hd, sb pty
- pty, silty - grty tex, abnt bent, abnt fos frag

30% CHK: lt - r
sl frm, sb pty - :
70% MRL: lt - r
pty, silty - grty t
calc

MD: 9,978'
TVD: 6,566.42'
Inclination: 91.33 °
Azimuth: 91.35 °
VS: 128.46'

TVD (ft)

MD: 10,073'
TVD: 6,564.86'
Inclination: 90.56 °
Azimuth: 90.11 °
VS: 127.25'

MD: 10,16
TVD: 6,56
Inclination
Azimuth: 5
VS: 126.6

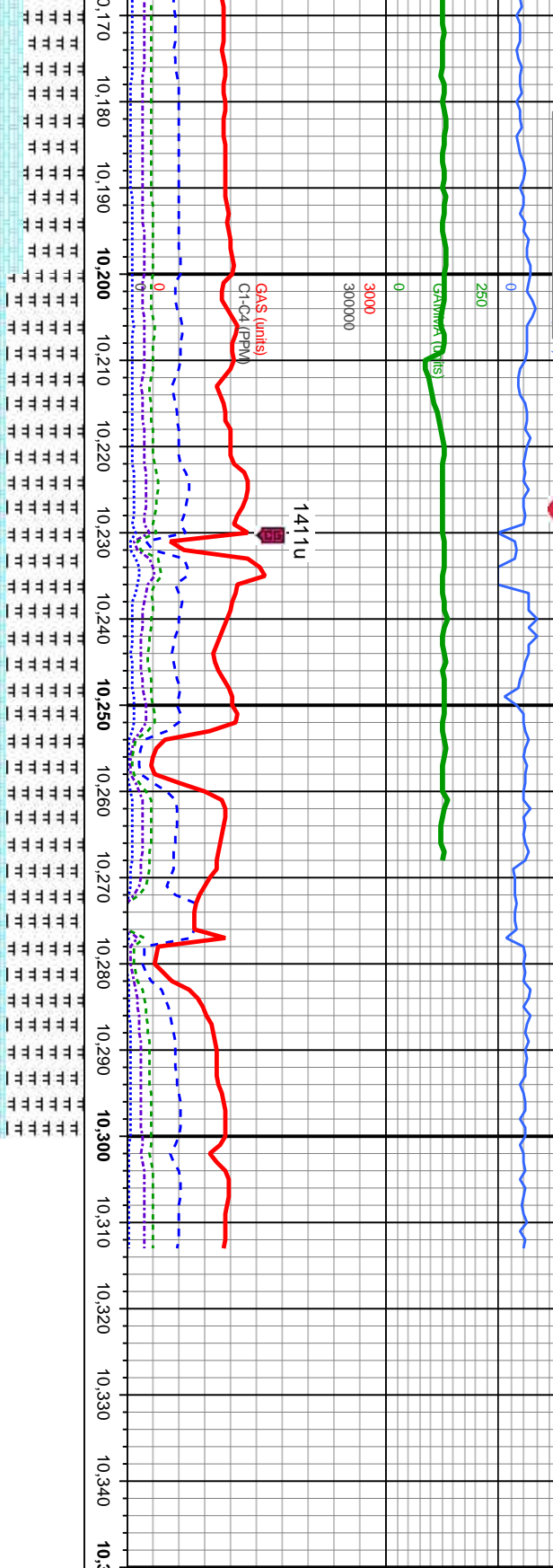
6700

MUD WT: 11.05/11.05
VIS: 38/38 IN/OUT

12/05/13

1206/13

MINDEPTH



med gy - gy brn, mot, lam, sft -
sb blkly, rthy tex
med gy, blk, sft - hd, sb ply -
ex, abnt bent, no fos frag, v

10% CHK: lt - med gy - gy brn, mot, lam, sft -
frm, sb ply - sb blkly, rthy tex, v calc
90% MRL: lt - med gy, blk, sft - mod hd, sb
ply - ply, silty - grty tex, abnt bent, abnt fos
frag

8'
3.79'
: 90.74 °
90.57 °
9'

TVD (ft)

MD: 10,263'
TVD: 6,562.97'
Inclination: 90.25 °
Azimuth: 88.77 °
VS: 127.24'

6700