Scale 1:240 (5"=100') Imperial
Measured Depth Log

Well Name:	**Horsetail 29G-2012B**		
API:	**05-123-3800400**		
Location:	**xxxx 2-T10N-R57W Weld County, Colorado**		
License Number:	**05-123-3800400**	**Region:**	**Redtail**
Spud Date:	**10/19/2014**	**Drilling Completed:**	**10/26/2014**
Surface Coordinates:	**Lat.: 40.874792, Long.: -103.725247**		
Bottom Hole Coordinates:	**Lat.: 40.862739 Long.: -103.723214**		
Ground Elevation (ft):	**4713**	**K.B. Elevation (ft):**	**4694**
Logged Interval (ft):	**5150 To: 13700**	**Total Depth (ft):**	**13700**
Formation:	**Niobrara**		
Type of Drilling Fluid:	**Water Based Mud**		

Printed by HORIZONTAL.LOG from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR

Company: **Whiting Oil & Gas Corp.**
Address: **1700 Broadway Suite 2300**
Denver, CO 80290

GEOLOGIST

Name: **Craig Dreiling, Brendan Donahue**
Company: **Acme Geologic Consulting**
Address: **108 Berry Street**
Little Rock, AR 72205

Drilling Company

Pioneer #54

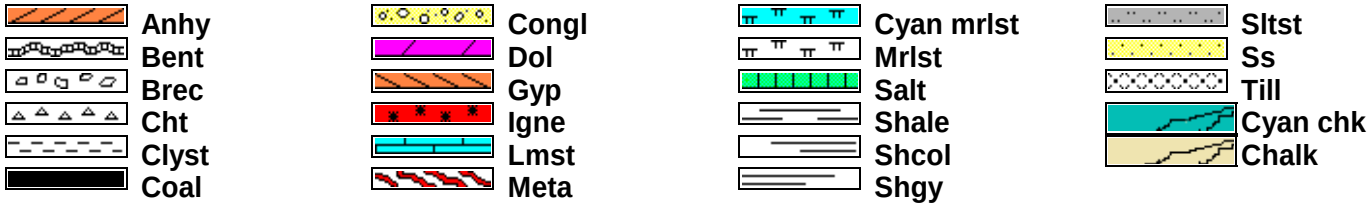
Gas Detection

Mudlogging Systems, Inc., M Logger, Model TGC, Total Gas and Chromatograph, #359

Comments

Lithologies and tops at drilled depths, not corrected to elogs. Where the well bore gas is 100% methane, the C1 line is moved to 85% for graphical purposes only.

ROCK TYPES



ACCESSORIES

MINERAL

- Anhy
- Arggrn
- Arg
- Bent
- Bit
- Brecfrag
- Calc
- Carb
- Chtdk
- Chtlt
- Dol
- Feldspar
- Ferrpel
- Ferr
- Glau
- Gyp
- Hvymin
- Kaol
- Marl
- Minxl
- Nodule
- Phos
- Pyr
- Salt
- Sandy
- Silt
- Sil
- Sulphur
- Tuff

FOSSIL

- Algae
- Amph
- Belm
- Bioclst
- Brach
- Bryozoa
- Cephal
- Coral
- Crin
- Echin
- Fish
- Foram
- Fossil
- Gastro
- Oolite
- Ostra
- Pelec
- Pellet
- Pisolite
- Plant
- Strom

STRINGER

- Anhy
- Arg
- Bent
- Coal
- Dol
- Gyp
- Ls
- Mrst
- Sltstrg
- Ssstrg

TEXTURE

- Boundst
- Chalky
- Cryxln
- Earthy
- Finexln
- Grainst
- Lithogr
- Microxln
- Mudst
- Packst
- Wackest

OTHER SYMBOLS

POROSITY

- Earthy
- Fenest
- Fracture
- Inter
- Moldic
- Organic
- Pinpoint
- Vuggy

SORTING

- Well
- Moderate
- Poor

ROUNDING

- Rounded
- Subrnd
- Subang
- Angular

OIL SHOW

- Good
- Fair
- Poor

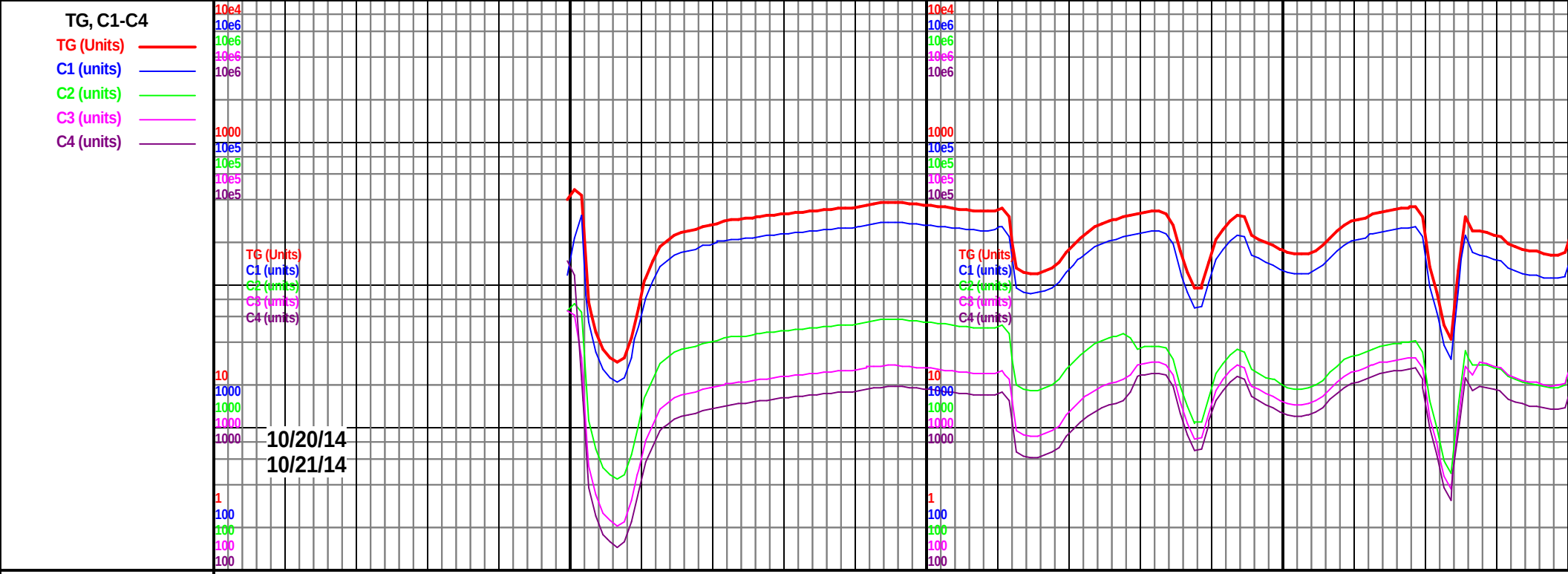
INTERVAL

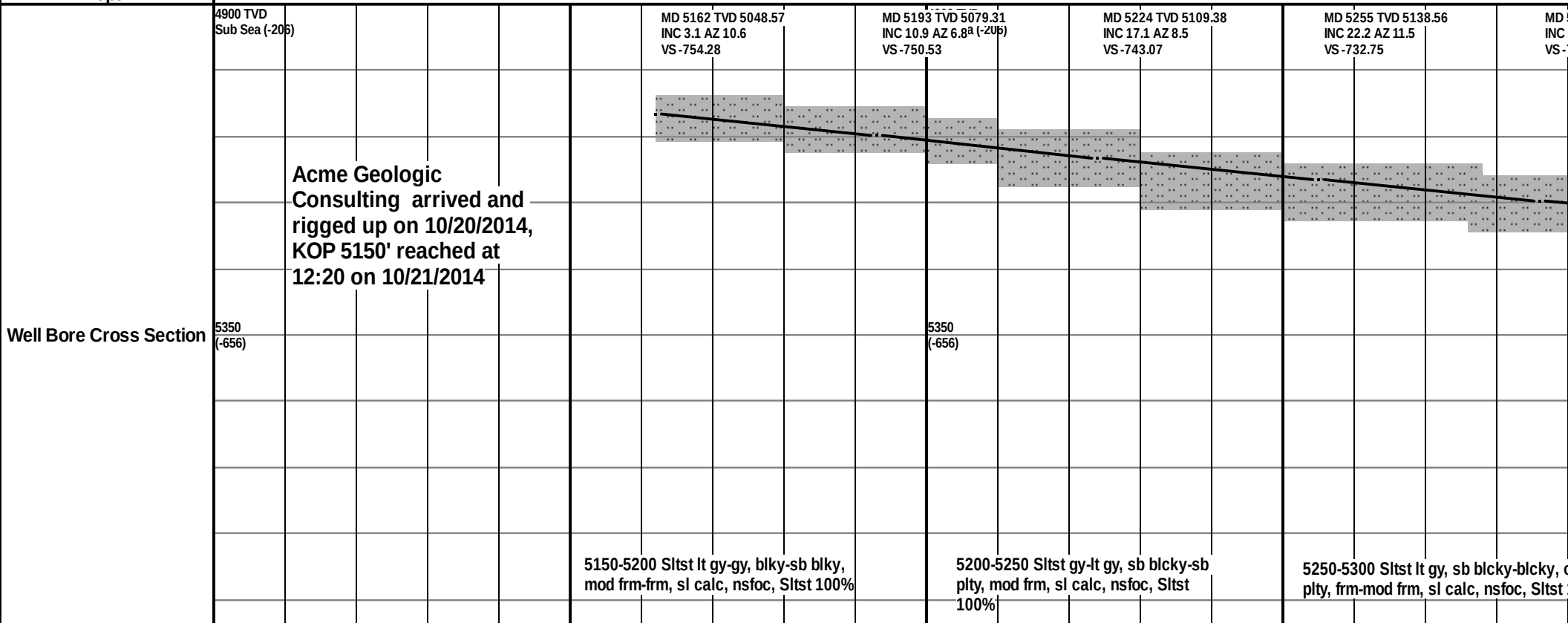
- Core

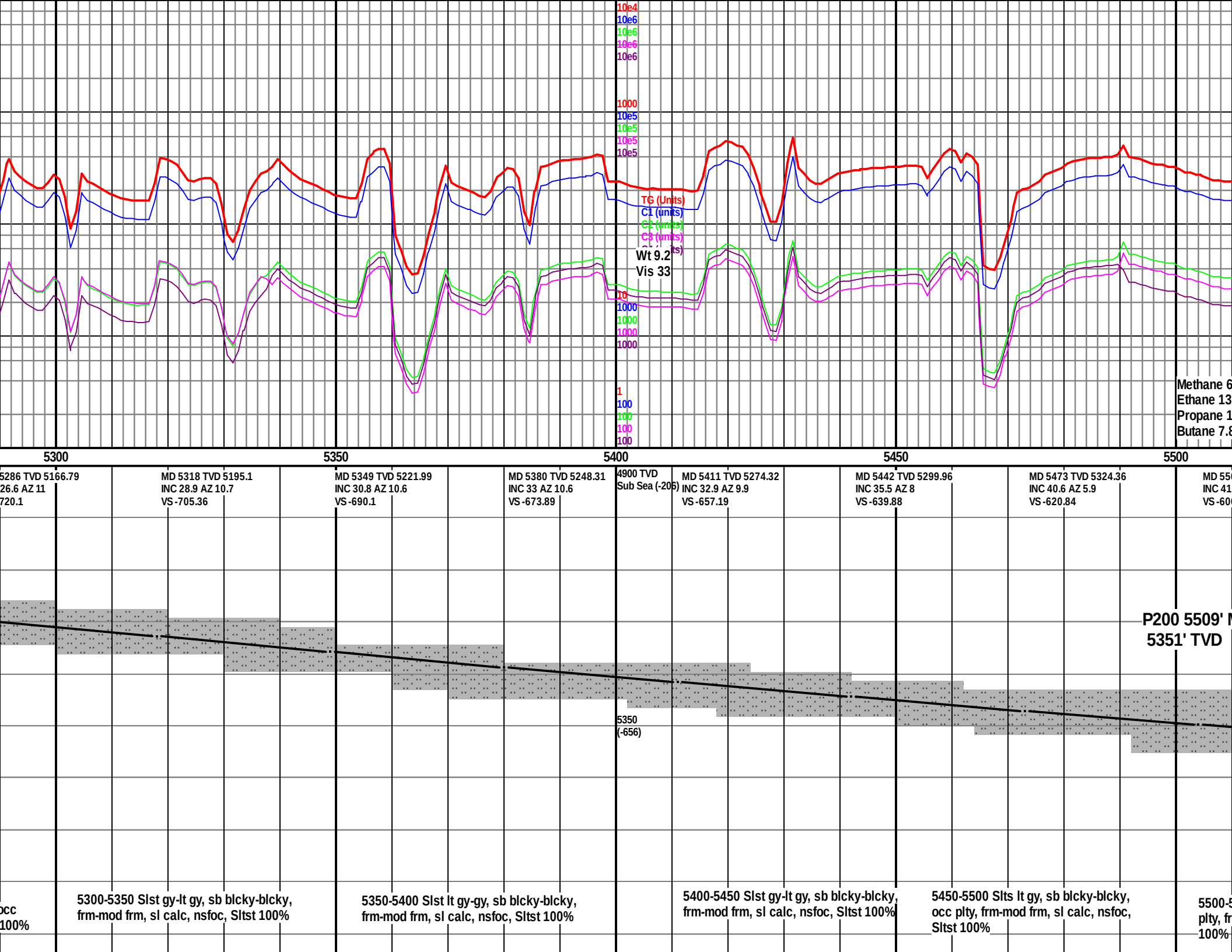
- Dst

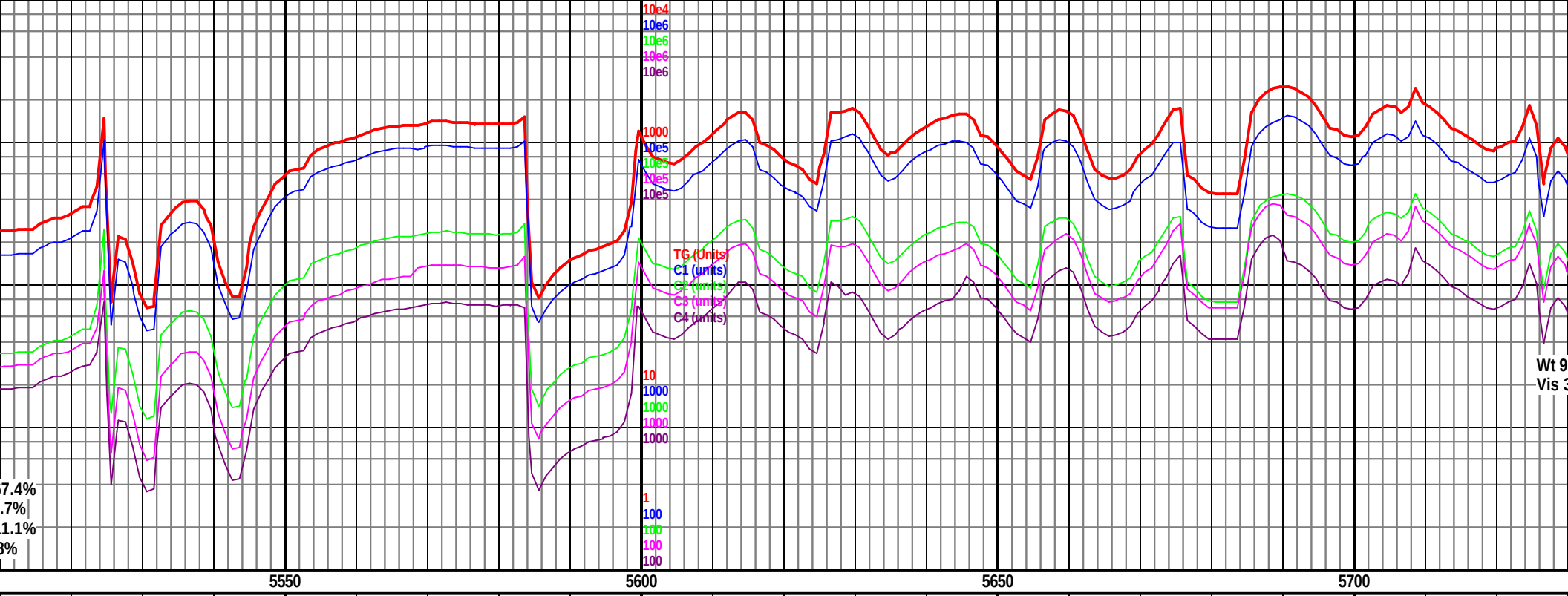
EVENT

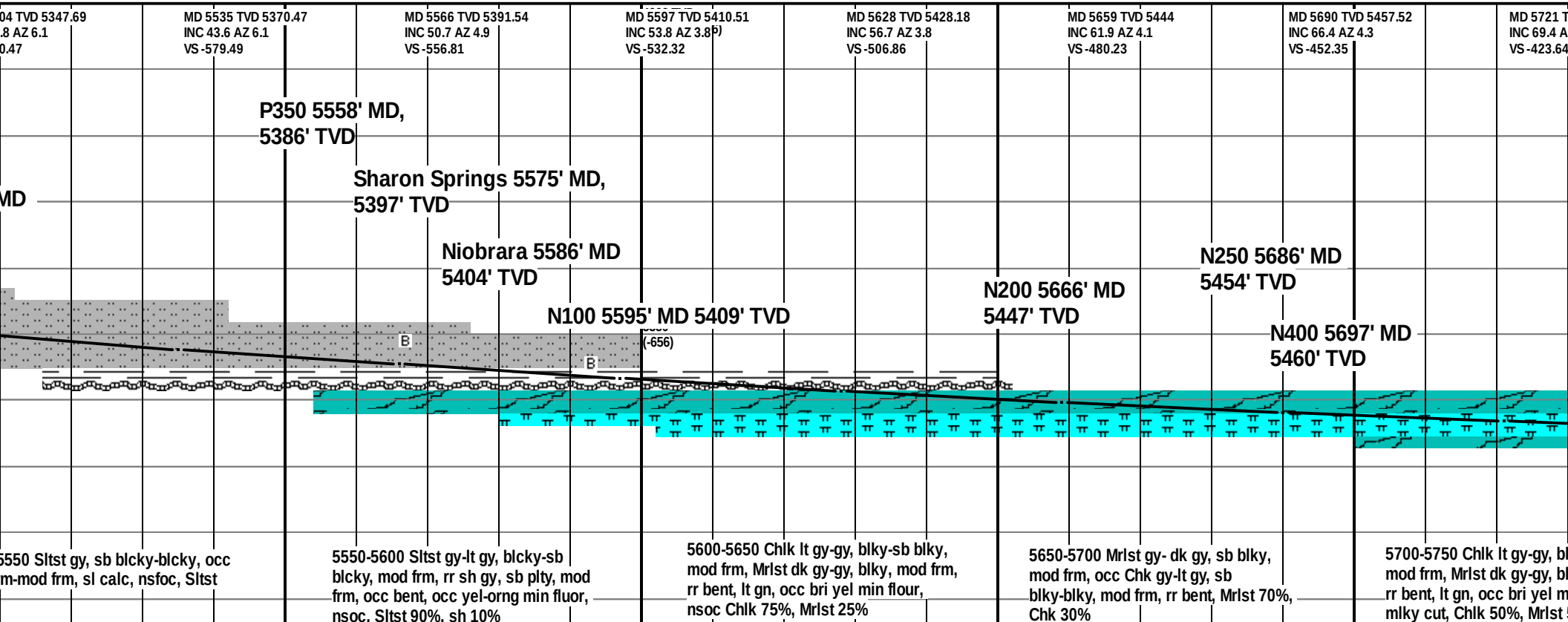
- Rft
- Sidewall

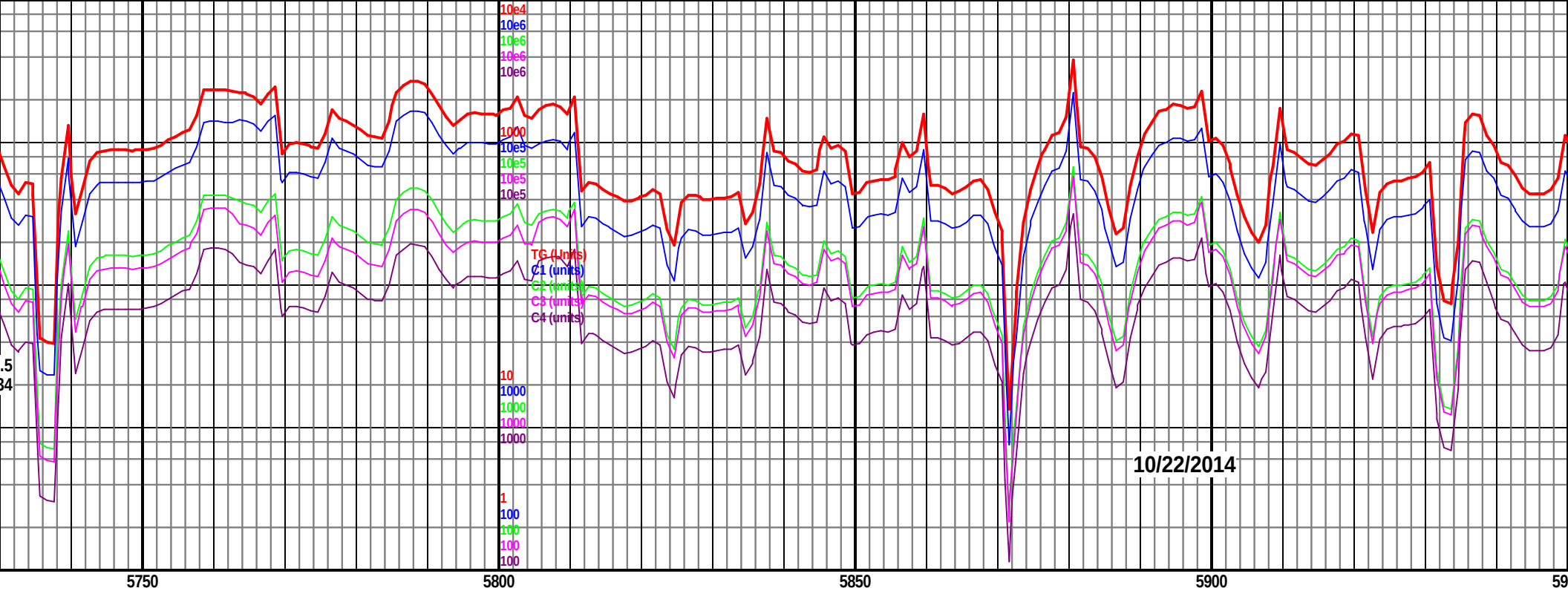

TG, C1-C4
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
10/20/14
10/21/14
1
100
100
100
100
Depth
00
5150
5200
5250

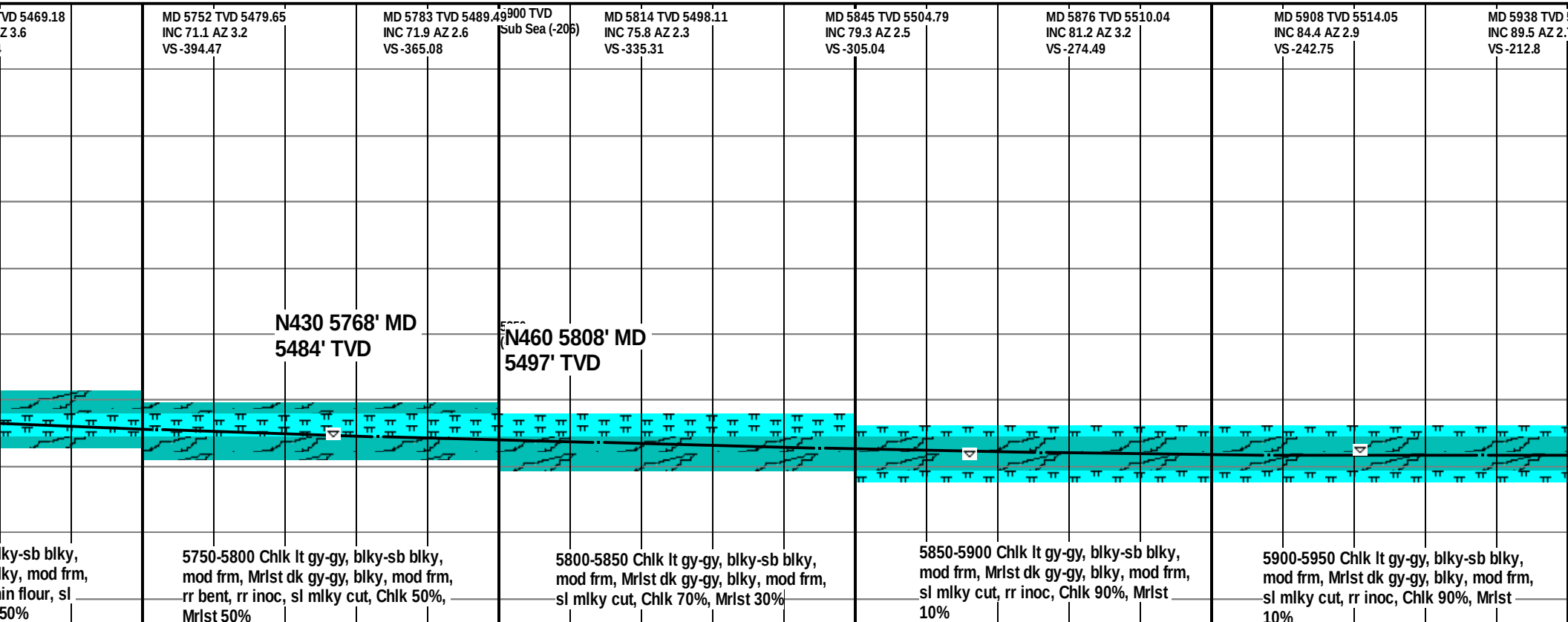

Well Bore Cross Section
4900 TVD
Sub Sea (-206)
MD 5162 TVD 5048.57
INC 3.1 AZ 10.6
VS -754.28
MD 5193 TVD 5079.31
INC 10.9 AZ 6.8
VS -750.53
MD 5224 TVD 5109.38
INC 17.1 AZ 8.5
VS -743.07
MD 5255 TVD 5138.56
INC 22.2 AZ 11.5
VS -732.75
Acme Geologic Consulting arrived and rigged up on 10/20/2014, KOP 5150' reached at 12:20 on 10/21/2014
5350
(-656)
5350
(-656)
5150-5200 Sltst lt gy-gy, blky-sb blky, mod frm-frm, sl calc, nsfoc, Sltst 100%
5200-5250 Sltst gy-lt gy, sb blcky-sb plty, mod frm, sl calc, nsfoc, Sltst 100%
5250-5300 Sltst lt gy, sb blcky-blcky, plty, frm-mod frm, sl calc, nsfoc, Sltst

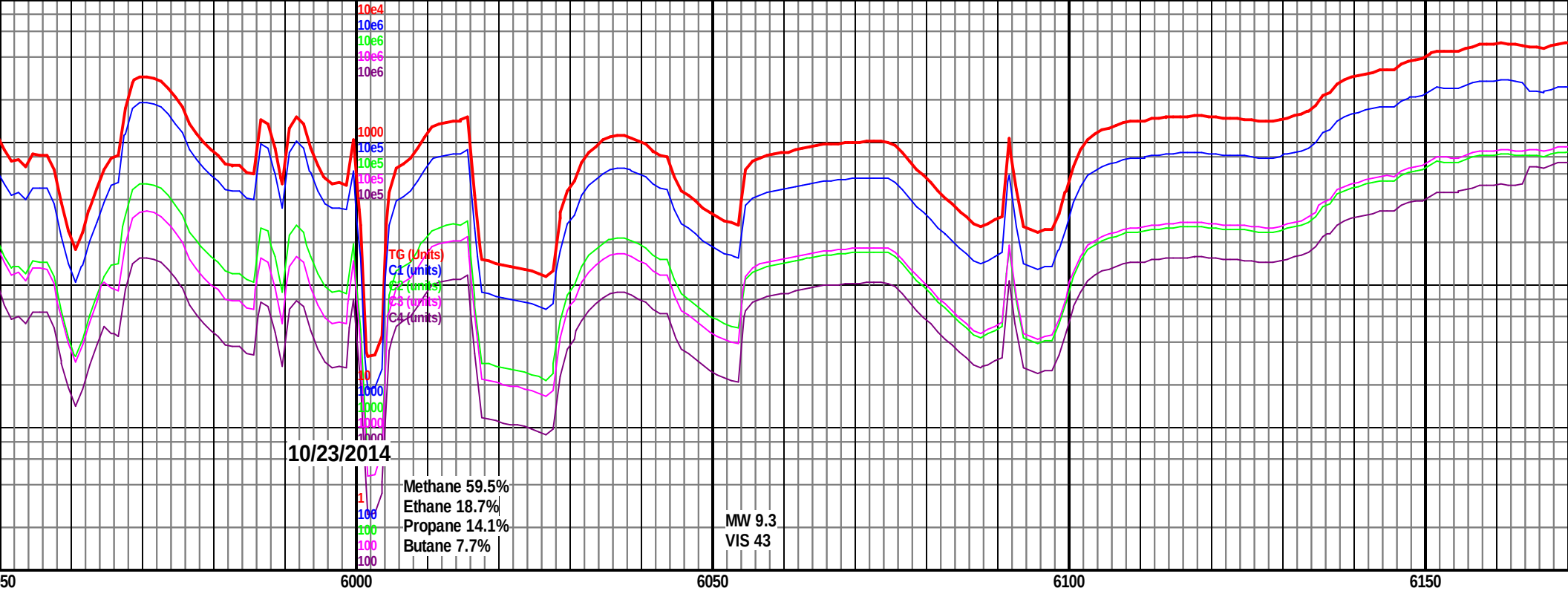

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
Wt 9.2
Vis 33
10
1000
1000
1000
1000
1
100
100
100
100
Methane 6
Ethane 13
Propane 1
Butane 7.8
5300
5350
5400
5450
5500
5286 TVD 5166.79
26.6 AZ 11
720.1
MD 5318 TVD 5195.1
INC 28.9 AZ 10.7
VS -705.36
MD 5349 TVD 5221.99
INC 30.8 AZ 10.6
VS -690.1
MD 5380 TVD 5248.31
INC 33 AZ 10.6
VS -673.89
4900 TVD
Sub Sea (-206)
MD 5411 TVD 5274.32
INC 32.9 AZ 9.9
VS -657.19
MD 5442 TVD 5299.96
INC 35.5 AZ 8
VS -639.88
MD 5473 TVD 5324.36
INC 40.6 AZ 5.9
VS -620.84
P200 5509' M
5351' TVD
5350
(-656)
5300-5350 Slst gy-lt gy, sb blcky-blcky,
frm-mod frm, sl calc, nsfoc, Sltst 100%
5350-5400 Slst lt gy-gy, sb blcky-blcky,
frm-mod frm, sl calc, nsfoc, Sltst 100%
5400-5450 Slst gy-lt gy, sb blcky-blcky,
frm-mod frm, sl calc, nsfoc, Sltst 100%
5450-5500 Slts lt gy, sb blcky-blcky,
occ plty, frm-mod frm, sl calc, nsfoc,
Sltst 100%


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
Wt 9
Vis 3
7.4%
.7%
1.1%
3%
5550
5600
5650
5700


04 TVD 5347.69
.8 AZ 6.1
0.47
MD 5535 TVD 5370.47
INC 43.6 AZ 6.1
VS -579.49
MD 5566 TVD 5391.54
INC 50.7 AZ 4.9
VS -556.81
MD 5597 TVD 5410.51
INC 53.8 AZ 3.8
VS -532.32
MD 5628 TVD 5428.18
INC 56.7 AZ 3.8
VS -506.86
MD 5659 TVD 5444
INC 61.9 AZ 4.1
VS -480.23
MD 5690 TVD 5457.52
INC 66.4 AZ 4.3
VS -452.35
MD 5721 T
INC 69.4 A
VS -423.64
P350 5558' MD,
5386' TVD
Sharon Springs 5575' MD,
5397' TVD
MD
Niobrara 5586' MD
5404' TVD
N100 5595' MD 5409' TVD
N200 5666' MD
5447' TVD
N250 5686' MD
5454' TVD
N400 5697' MD
5460' TVD
B
B
(-656)
5550 Sltst gy, sb blcky-blcky, occ
m-mod frm, sl calc, nsfoc, Sltst
5550-5600 Sltst gy-lt gy, blcky-sb
blcky, mod frm, rr sh gy, sb plty, mod
frm, occ bent, occ yel-orng min fluor,
nsoc, Sltst 90%, sh 10%
5600-5650 Chlk lt gy-gy, blky-sb blky,
mod frm, Mrlst dk gy-gy, blky, mod frm,
rr bent, lt gn, occ bri yel min flour,
nsoc Chlk 75%, Mrlst 25%
5650-5700 Mrlst gy- dk gy, sb blky,
mod frm, occ Chk gy-lt gy, sb
blky-blky, mod frm, rr bent, Mrlst 70%,
Chk 30%
5700-5750 Chlk lt gy-gy, bl
mod frm, Mrlst dk gy-gy, bl
rr bent, lt gn, occ bri yel m
mlky cut, Chlk 50%, Mrlst


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
10/22/2014
5750
5800
5850
5900


MD 5469.18
Z 3.6
MD 5752 TVD 5479.65
INC 71.1 AZ 3.2
VS -394.47
MD 5783 TVD 5489.49
INC 71.9 AZ 2.6
VS -365.08
900 TVD
Sub Sea (-206)
MD 5814 TVD 5498.11
INC 75.8 AZ 2.3
VS -335.31
MD 5845 TVD 5504.79
INC 79.3 AZ 2.5
VS -305.04
MD 5876 TVD 5510.04
INC 81.2 AZ 3.2
VS -274.49
MD 5908 TVD 5514.05
INC 84.4 AZ 2.9
VS -242.75
MD 5938 TVD
INC 89.5 AZ 2.
VS -212.8
N430 5768' MD
5484' TVD
N460 5808' MD
5497' TVD
lky-sb blky,
lky, mod frm,
in flour, sl
50%
5750-5800 Chlk lt gy-gy, blky-sb blky, mod frm, Mrlst dk gy-gy, blky, mod frm, rr bent, rr inoc, sl mlky cut, Chlk 50%, Mrlst 50%
5800-5850 Chlk lt gy-gy, blky-sb blky, mod frm, Mrlst dk gy-gy, blky, mod frm, sl mlky cut, Chlk 70%, Mrlst 30%
5850-5900 Chlk lt gy-gy, blky-sb blky, mod frm, Mrlst dk gy-gy, blky, mod frm, sl mlky cut, rr inoc, Chlk 90%, Mrlst 10%
5900-5950 Chlk lt gy-gy, blky-sb blky, mod frm, Mrlst dk gy-gy, blky, mod frm, sl mlky cut, rr inoc, Chlk 90%, Mrlst 10%



551MD 5952 TVD 5515.62
7 INC 90.7 AZ 2.9
VS -198.8

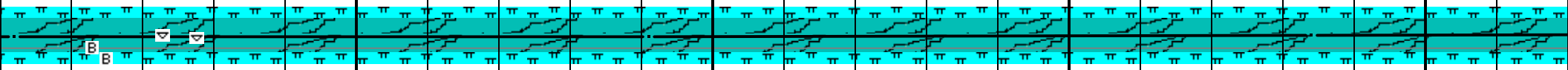
4900 TVD
Sub Sea (-206)

MD 6041 TVD 5514.38
INC 90.9 AZ 1.7
VS -109.81

MD 6134 TVD 5512.92
INC 90.9 AZ 0.1
VS -16.86

Curve Landed at 01:30 on 10/22/14 at 6000' MD. Resumed drilling at 00:50 on 10/23/2014. TOOH at 02:00 for mud motor Resume drilling at 8:35 on 10/23/2014

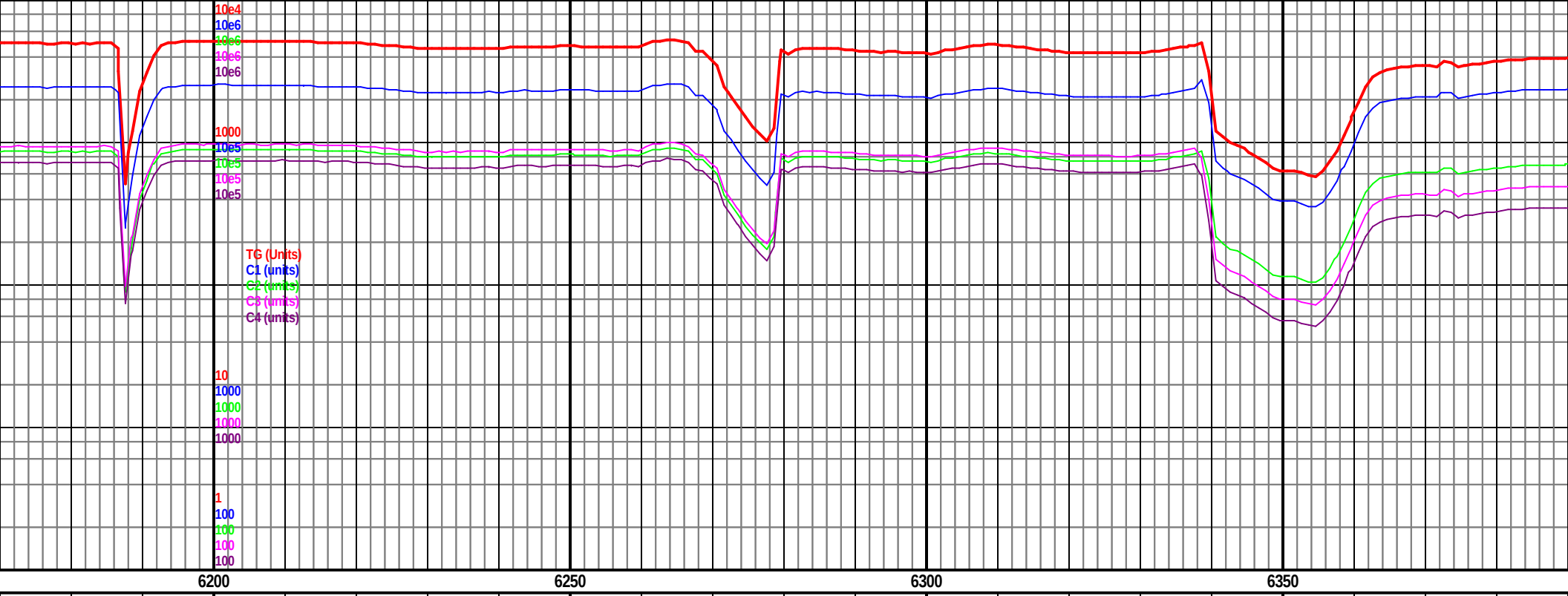
5350
(-656)

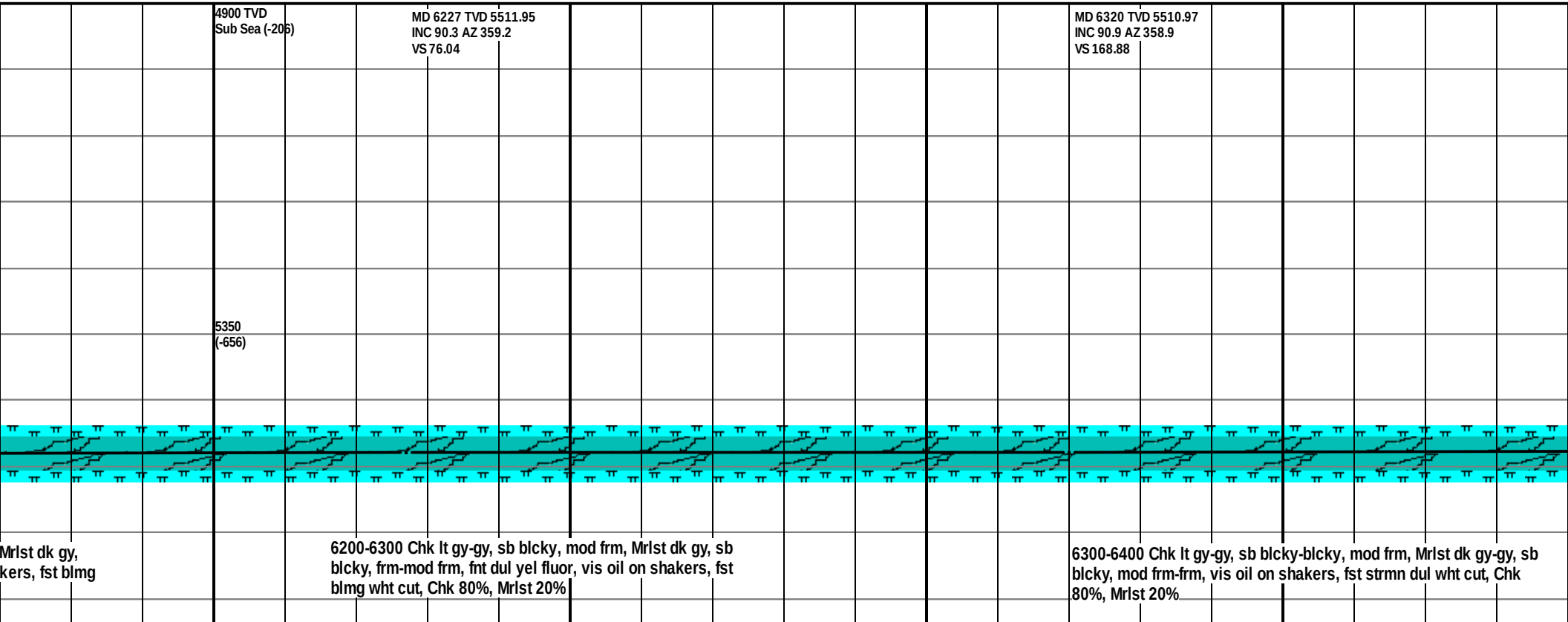


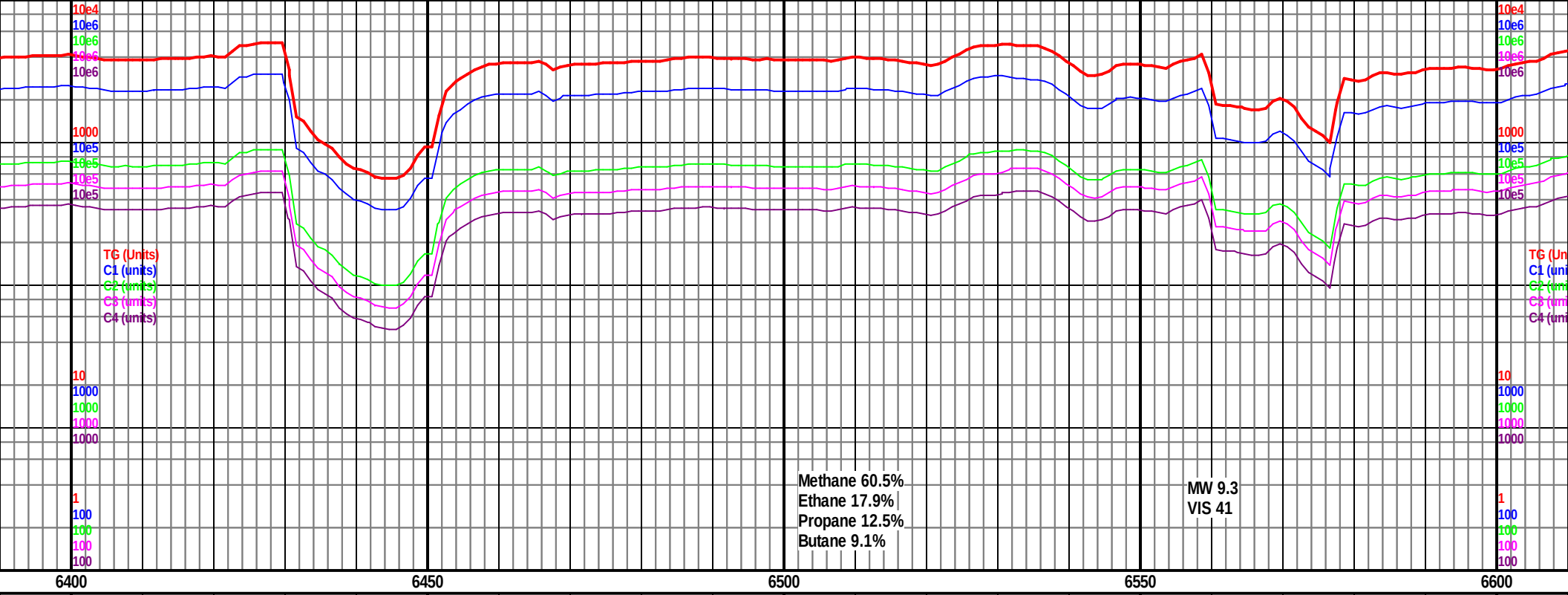
5950-6000 Chlk lt gy-gy, blky-sb blky, mod frm, Mrlst dk gy-gy, blky, mod frm, sl mlky cut, rr bent, rr inoc, Chlk 90%, Mrlst 10%

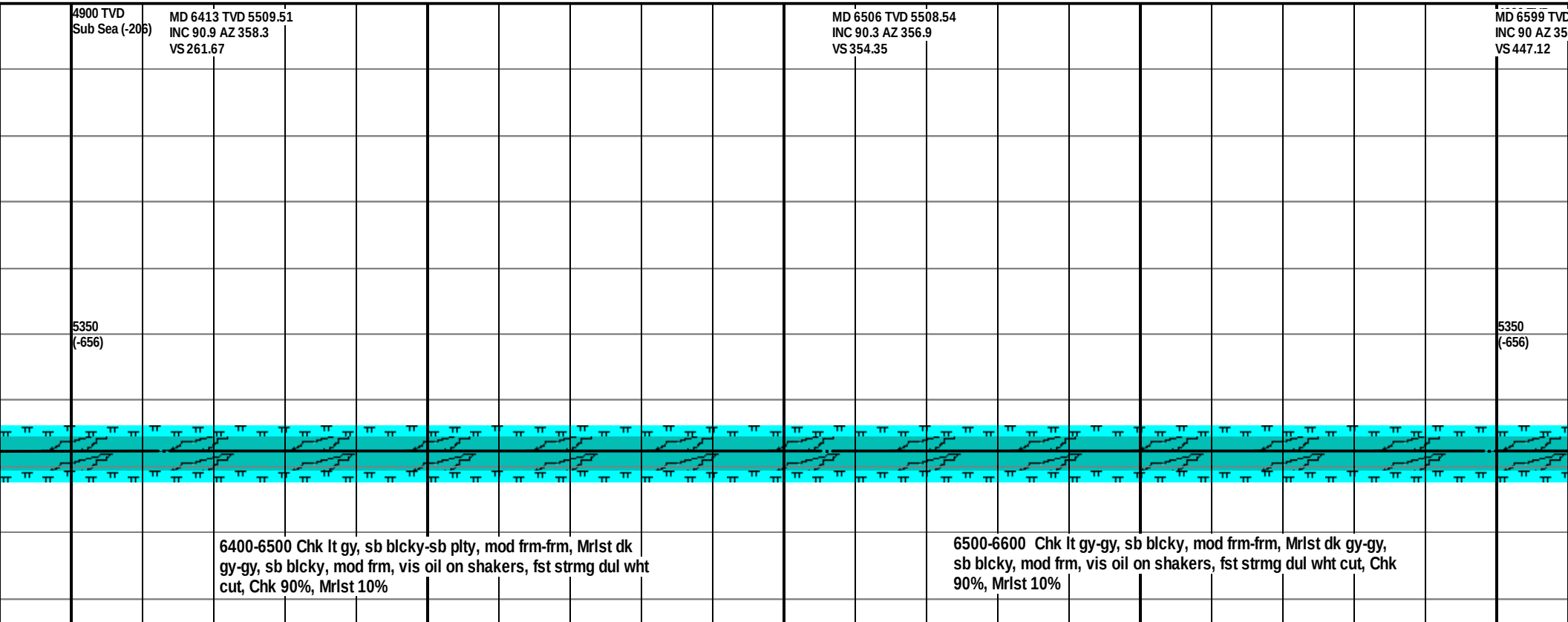
6000-6100 Chk lt gy, blcky-sb blcky, mod frm-frm, Mrlst dk gy-gy, blcky, mod frm, occ inoc frags, tr pyr frags, tr bent, tr dul yel min fluor, slw mlky wht cut, Chk 90%, Mrlst 10%

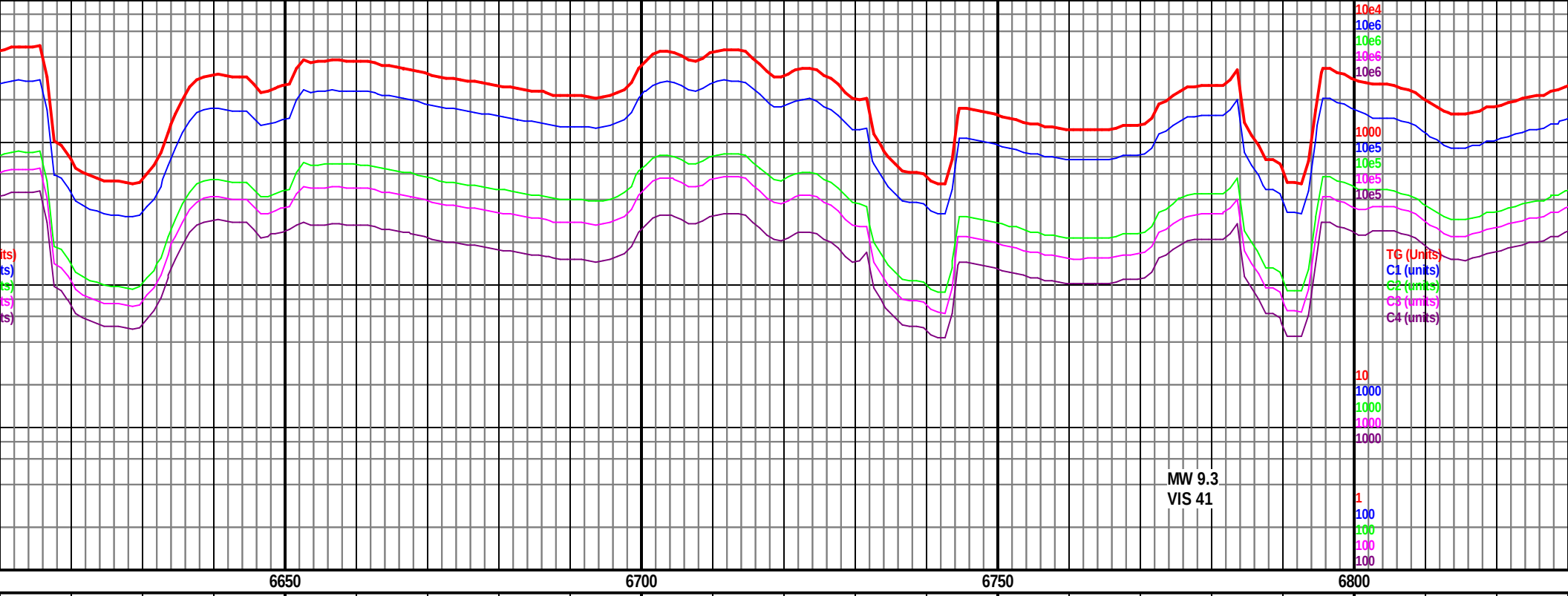
6100-6200 Chk lt gy-gy, sb blcky-blcky, mod frm, sb blcky, frm-mod frm, dul yel fluor, vis oil on sha wht cut, Chk 80% Mrlst 20%

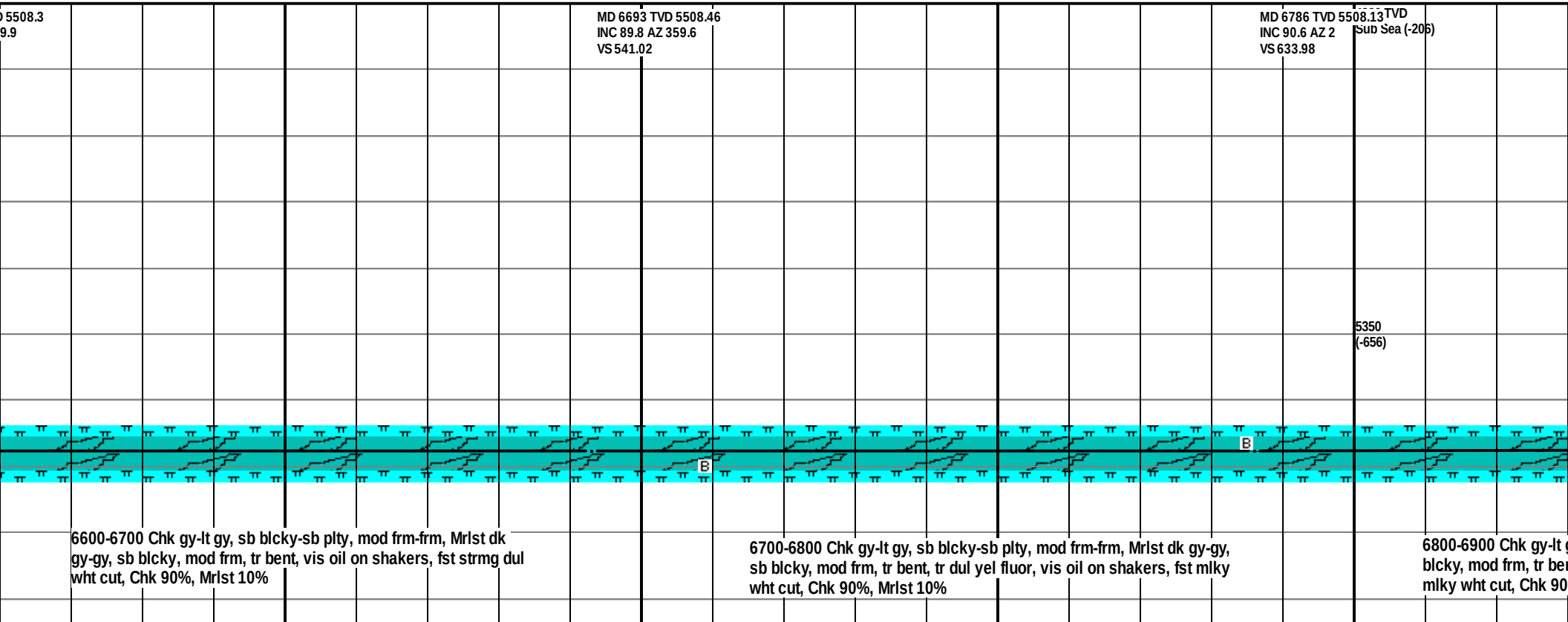

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
6200
6250
6300
6350

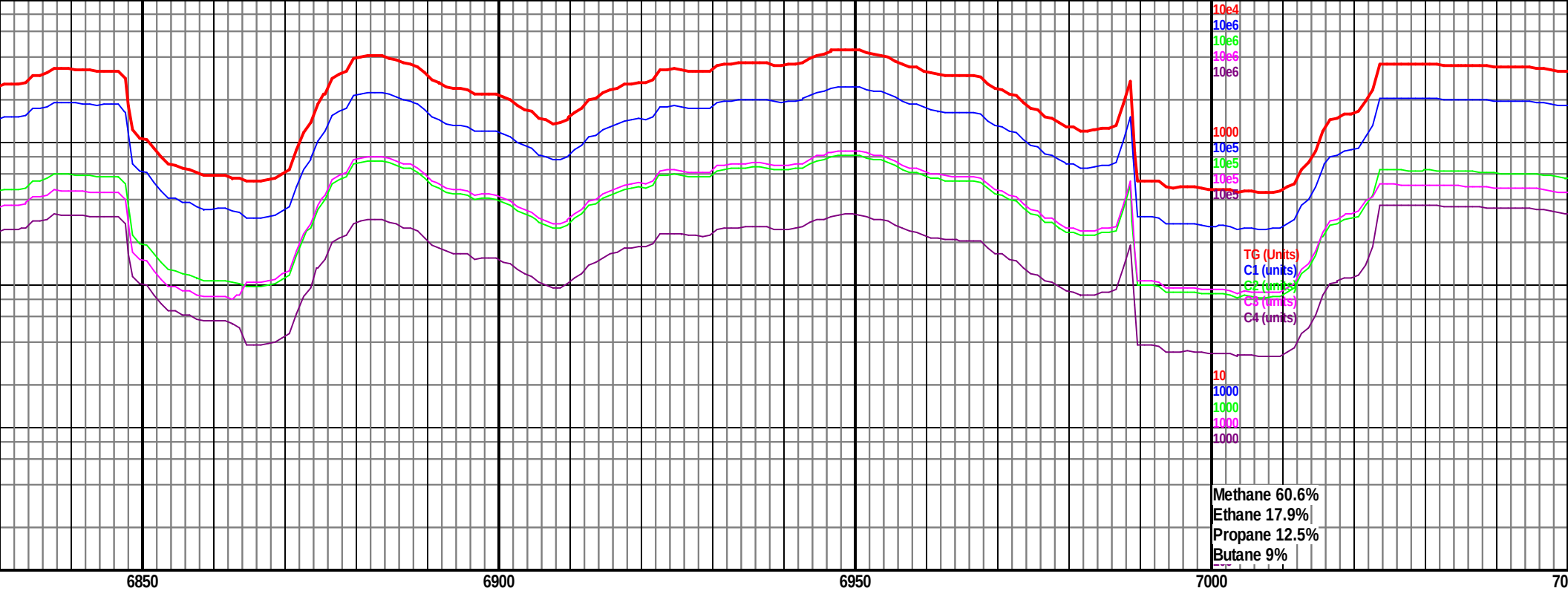

4900 TVD
Sub Sea (-206)
MD 6227 TVD 5511.95
INC 90.3 AZ 359.2
VS 76.04
MD 6320 TVD 5510.97
INC 90.9 AZ 358.9
VS 168.88
5350
(-656)
Mrlst dk gy,
kers, fst blmg
6200-6300 Chk lt gy-gy, sb blcky, mod frm, Mrlst dk gy, sb blcky, frm-mod frm, fnt dul yel fluor, vis oil on shakers, fst blmg wht cut, Chk 80%, Mrlst 20%
6300-6400 Chk lt gy-gy, sb blcky-blcky, mod frm, Mrlst dk gy-gy, sb blcky, mod frm-frm, vis oil on shakers, fst strmn dul wht cut, Chk 80%, Mrlst 20%

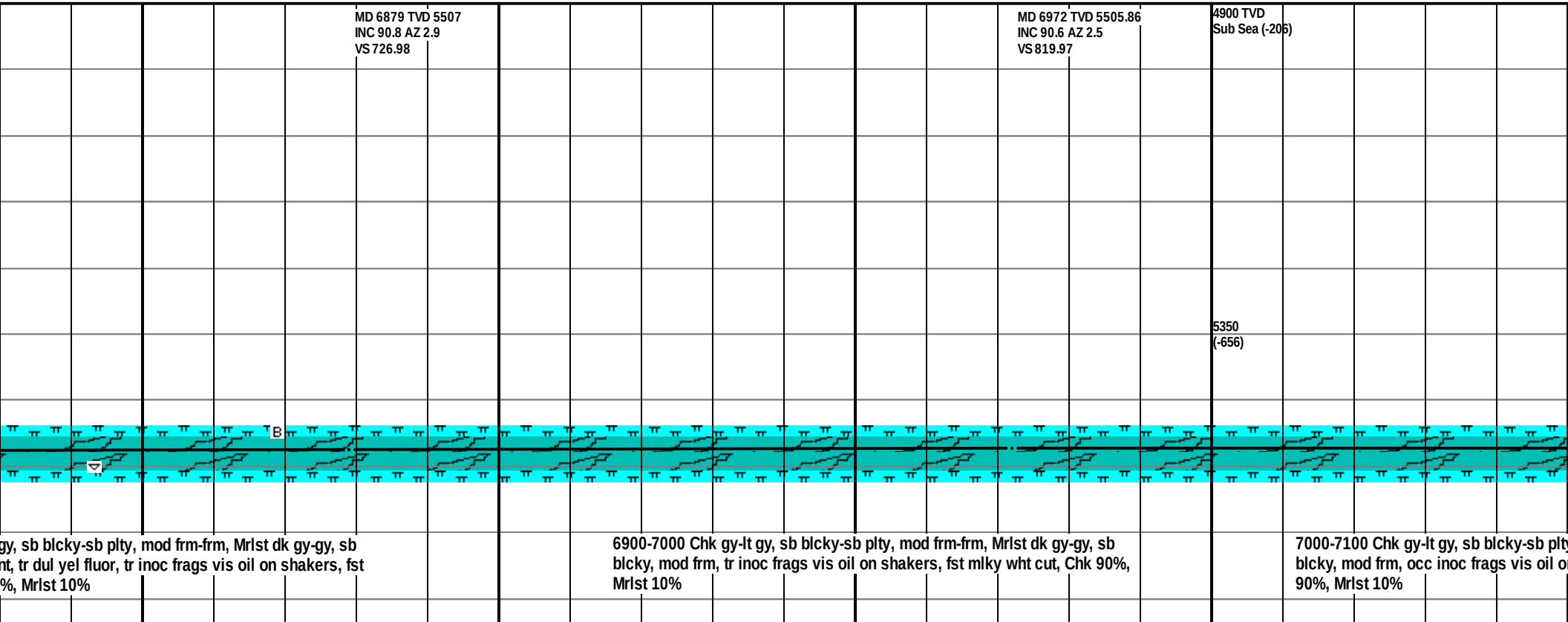

TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
Methane 60.5%
Ethane 17.9%
Propane 12.5%
Butane 9.1%
MW 9.3
VIS 41
6400
6450
6500
6550
6600

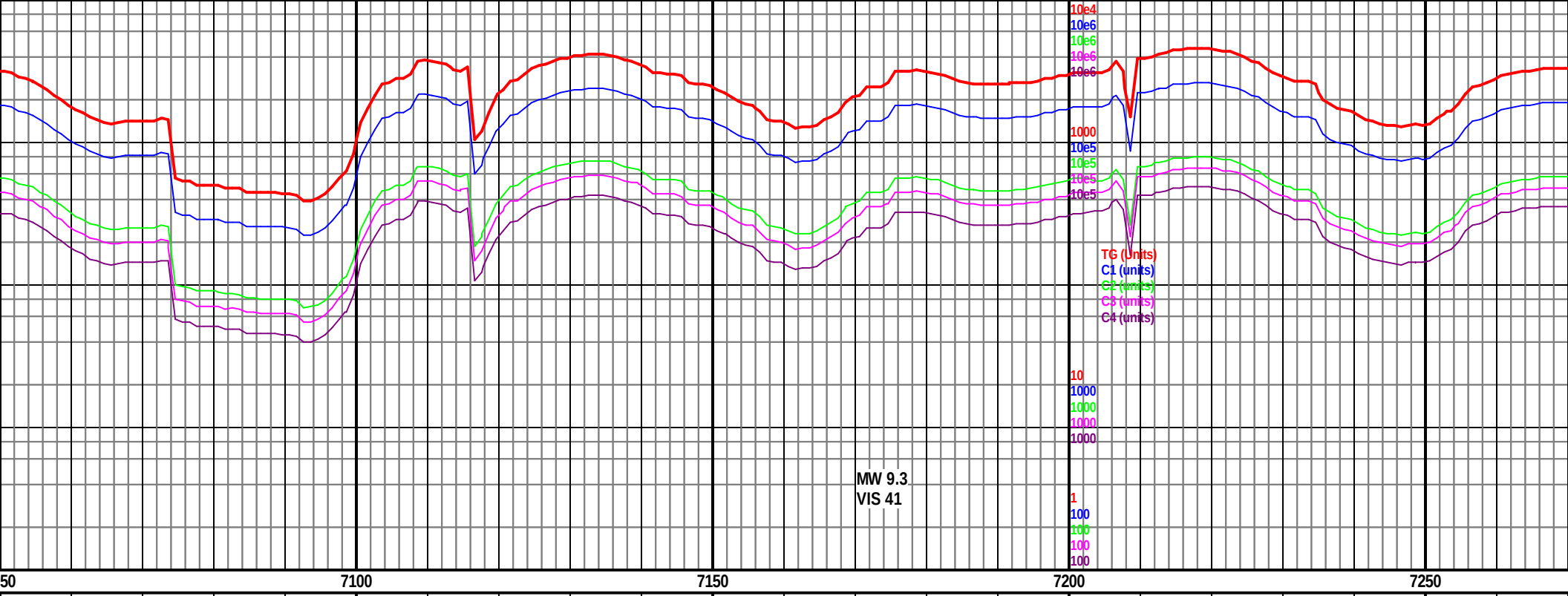

4900 TVD
Sub Sea (-206)
MD 6413 TVD 5509.51
INC 90.9 AZ 358.3
VS 261.67
MD 6506 TVD 5508.54
INC 90.3 AZ 356.9
VS 354.35
MD 6599 TVD
INC 90 AZ 35
VS 447.12
5350
(-656)
5350
(-656)
6400-6500 Chk lt gy, sb blcky-sb plty, mod frm-frm, Mrlst dk gy-gy, sb blcky, mod frm, vis oil on shakers, fst strmg dul wht cut, Chk 90%, Mrlst 10%
6500-6600 Chk lt gy-gy, sb blcky, mod frm-frm, Mrlst dk gy-gy, sb blcky, mod frm, vis oil on shakers, fst strmg dul wht cut, Chk 90%, Mrlst 10%

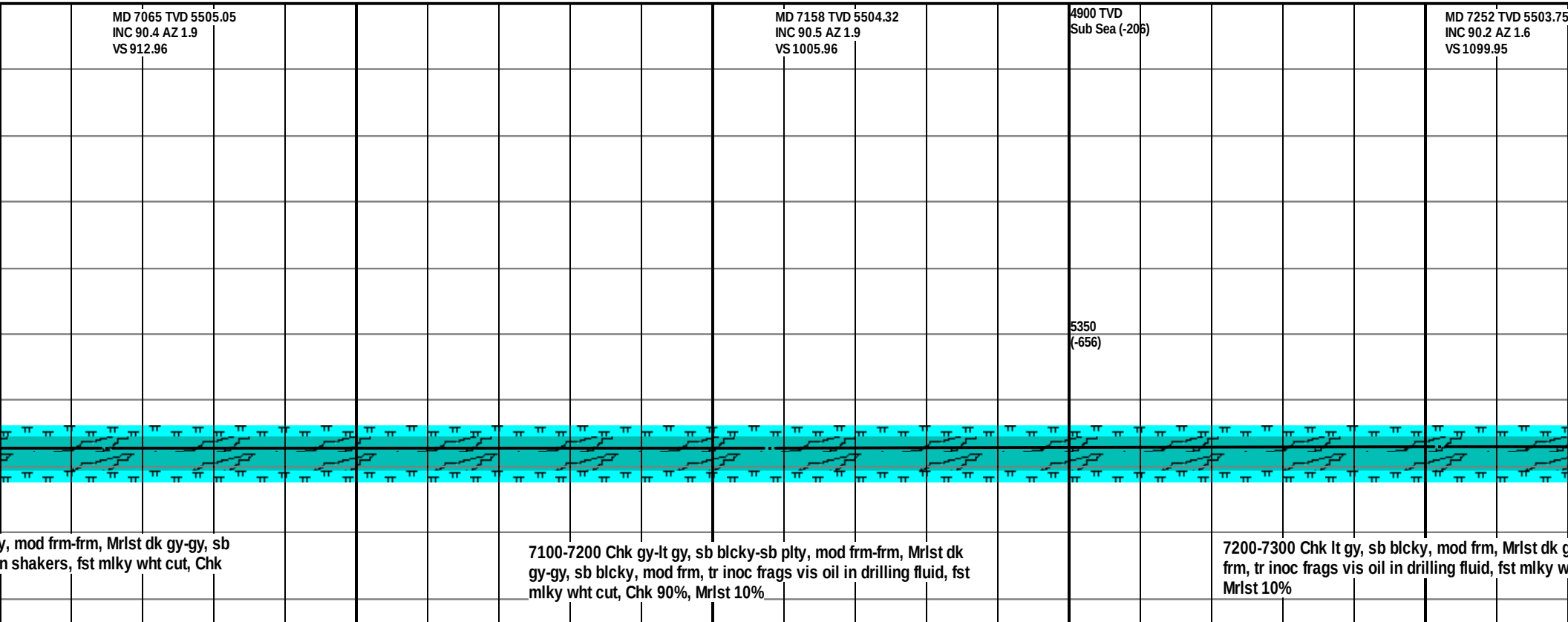

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
MW 9.3
VIS 41
1
100
100
100
100
6650
6700
6750
6800

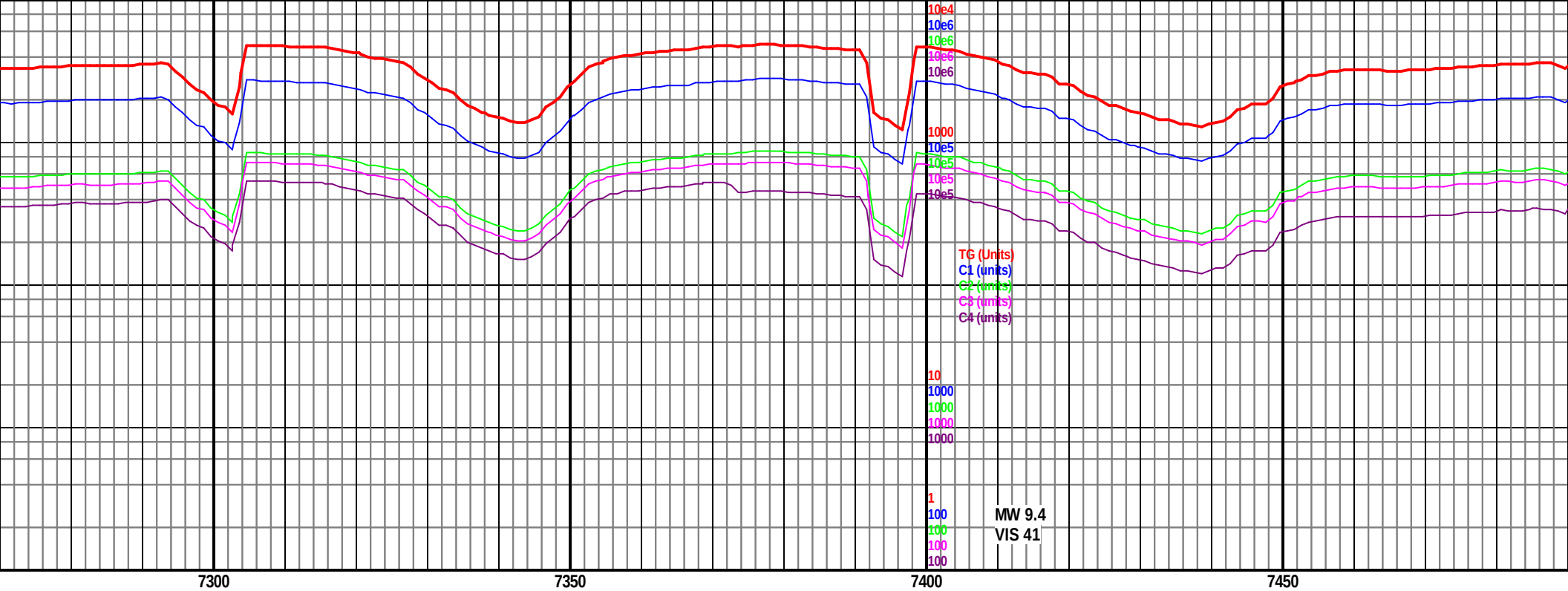

MD 6693 TVD 5508.46
INC 89.8 AZ 359.6
VS 541.02
MD 6786 TVD 5508.13
INC 90.6 AZ 2
VS 633.98
TVD
Sub Sea (-206)
5350
(-656)
B
B
6600-6700 Chk gy-lt gy, sb blcky-sb plty, mod frm-frm, Mrlst dk gy-gy, sb blcky, mod frm, tr bent, vis oil on shakers, fst strmg dul wht cut, Chk 90%, Mrlst 10%
6700-6800 Chk gy-lt gy, sb blcky-sb plty, mod frm-frm, Mrlst dk gy-gy, sb blcky, mod frm, tr bent, tr dul yel fluor, vis oil on shakers, fst mlky wht cut, Chk 90%, Mrlst 10%
6800-6900 Chk gy-lt g
blcky, mod frm, tr be
mlky wht cut, Chk 90


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
Methane 60.6%
Ethane 17.9%
Propane 12.5%
Butane 9%
6850
6900
6950
7000
70


MD 6879 TVD 5507
INC 90.8 AZ 2.9
VS 726.98
MD 6972 TVD 5505.86
INC 90.6 AZ 2.5
VS 819.97
4900 TVD
Sub Sea (-206)
5350
(-656)
B
gy, sb blcky-sb plty, mod frm-frm, Mrlst dk gy-gy, sb
nt, tr dul yel fluor, tr inoc frags vis oil on shakers, fst
%, Mrlst 10%
6900-7000 Chk gy-lt gy, sb blcky-sb plty, mod frm-frm, Mrlst dk gy-gy, sb blcky, mod frm, tr inoc frags vis oil on shakers, fst mlky wht cut, Chk 90%, Mrlst 10%
7000-7100 Chk gy-lt gy, sb blcky-sb plty
blcky, mod frm, occ inoc frags vis oil o
90%, Mrlst 10%


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
MW 9.3
VIS 41
1
100
100
100
100
50
7100
7150
7200
7250


MD 7065 TVD 5505.05
INC 90.4 AZ 1.9
VS 912.96
MD 7158 TVD 5504.32
INC 90.5 AZ 1.9
VS 1005.96
4900 TVD
Sub Sea (-206)
MD 7252 TVD 5503.75
INC 90.2 AZ 1.6
VS 1099.95
5350
(-656)
y, mod frm-frm, Mrlst dk gy-gy, sb
n shakers, fst mlky wht cut, Chk
7100-7200 Chk gy-lt gy, sb blcky-sb plty, mod frm-frm, Mrlst dk gy-gy, sb blcky, mod frm, tr inoc frags vis oil in drilling fluid, fst mlky wht cut, Chk 90%, Mrlst 10%
7200-7300 Chk lt gy, sb blcky, mod frm, Mrlst dk g
frm, tr inoc frags vis oil in drilling fluid, fst mlky w
Mrlst 10%



MD 7345 TVD 5503.5
INC 90.1 AZ 1.2
VS 1192.94

4900 TVD
Sub Sea (-206)

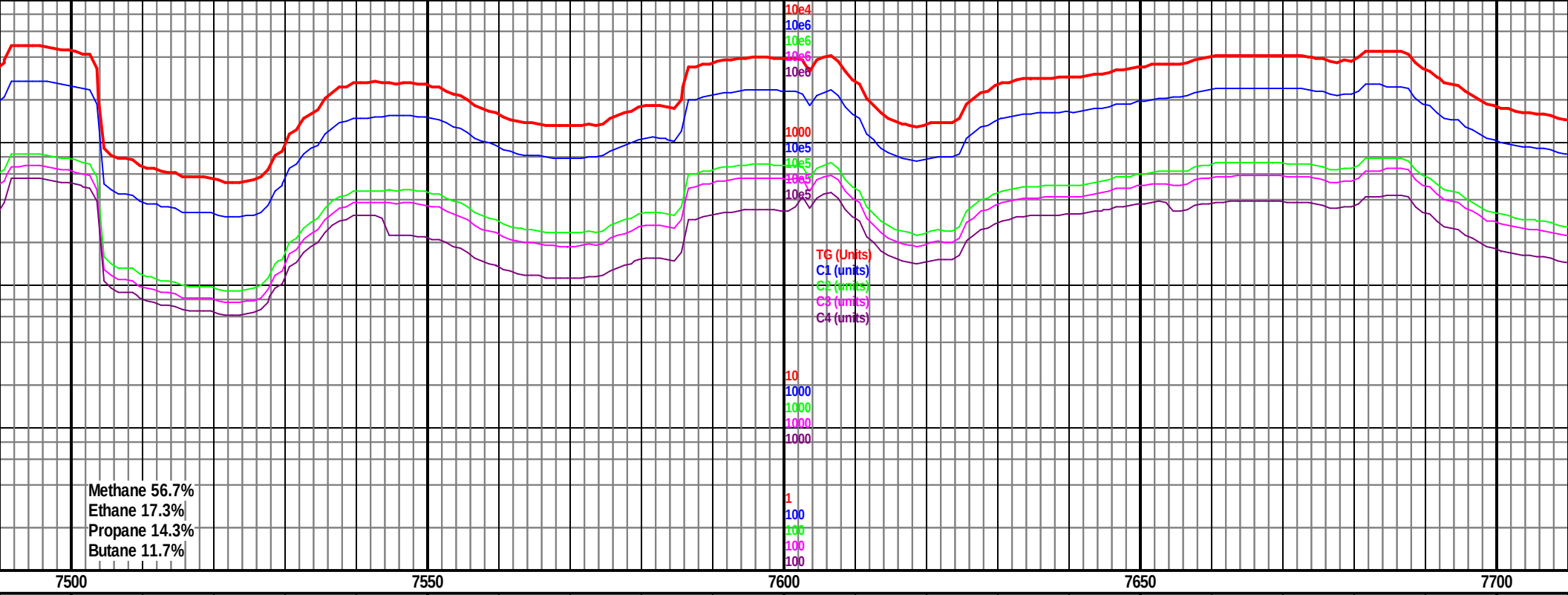
MD 7438 TVD 5503.58
INC 89.8 AZ 0.8
VS 1285.91

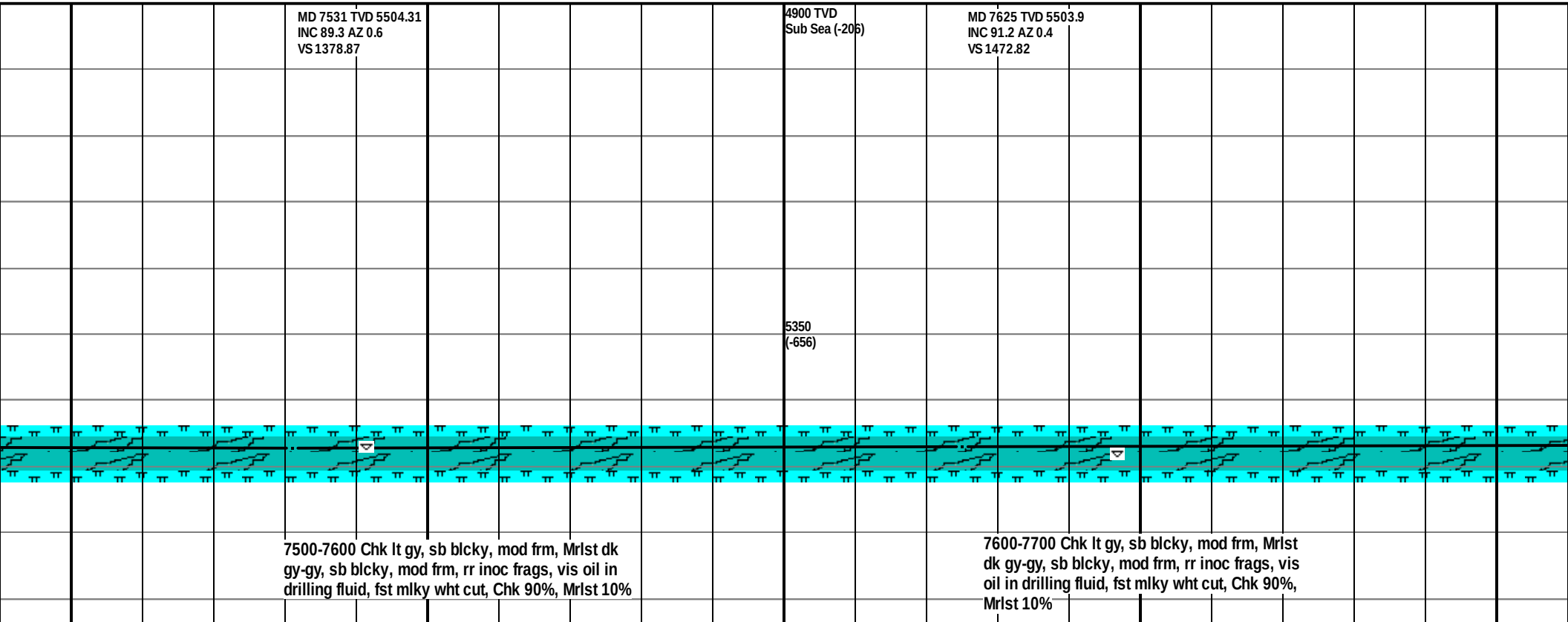
5350
(-656)

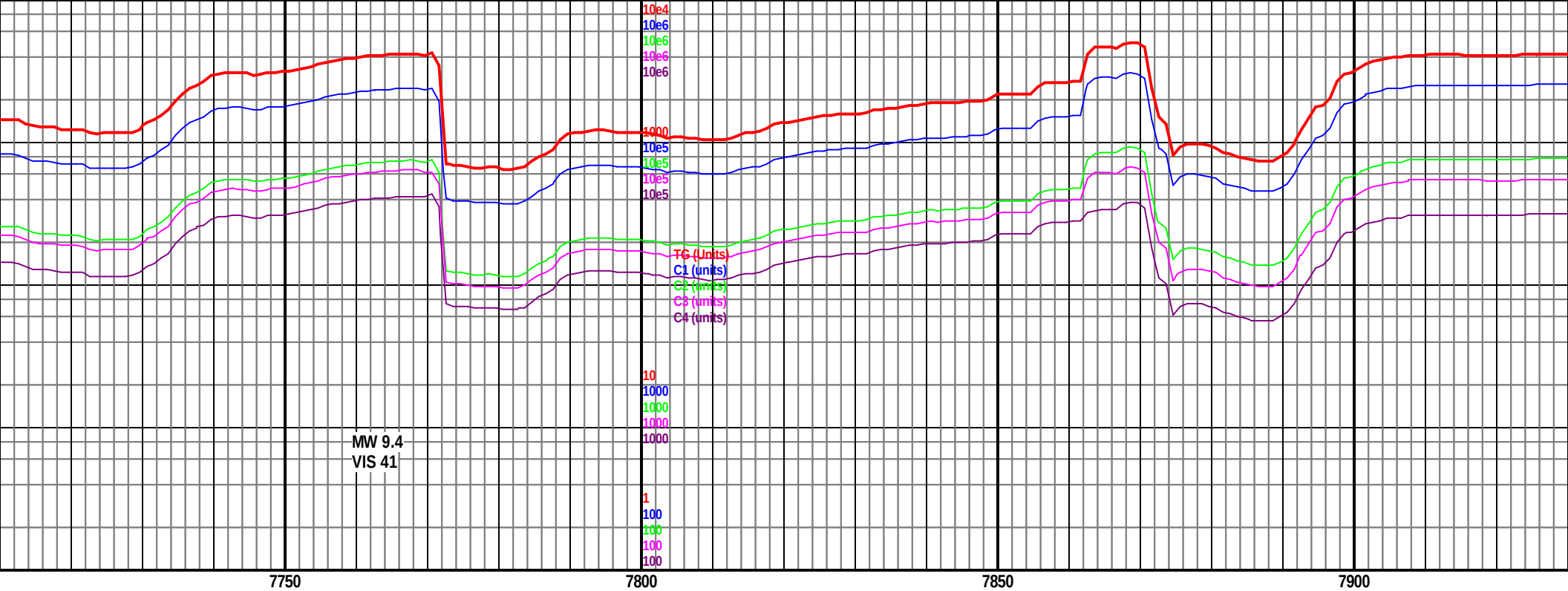
gy-gy, sb blcky, mod
ht cut, Chk 90%,

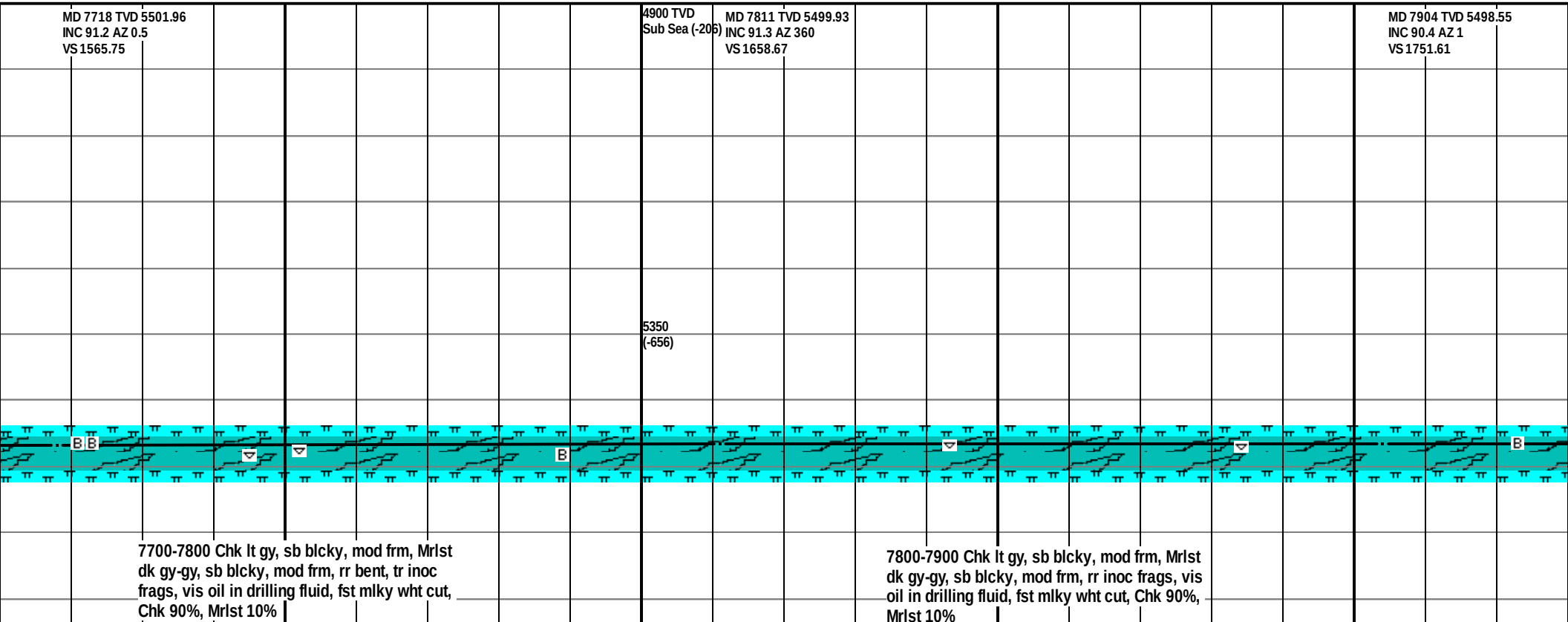
7300-7400 Chk lt gy, sb blcky, mod frm, Mrlst dk gy-gy, sb blcky, mod frm, tr inoc frags, rr bent, vis oil in drilling fluid, fst mlky wht cut, Chk 90%, Mrlst 10%

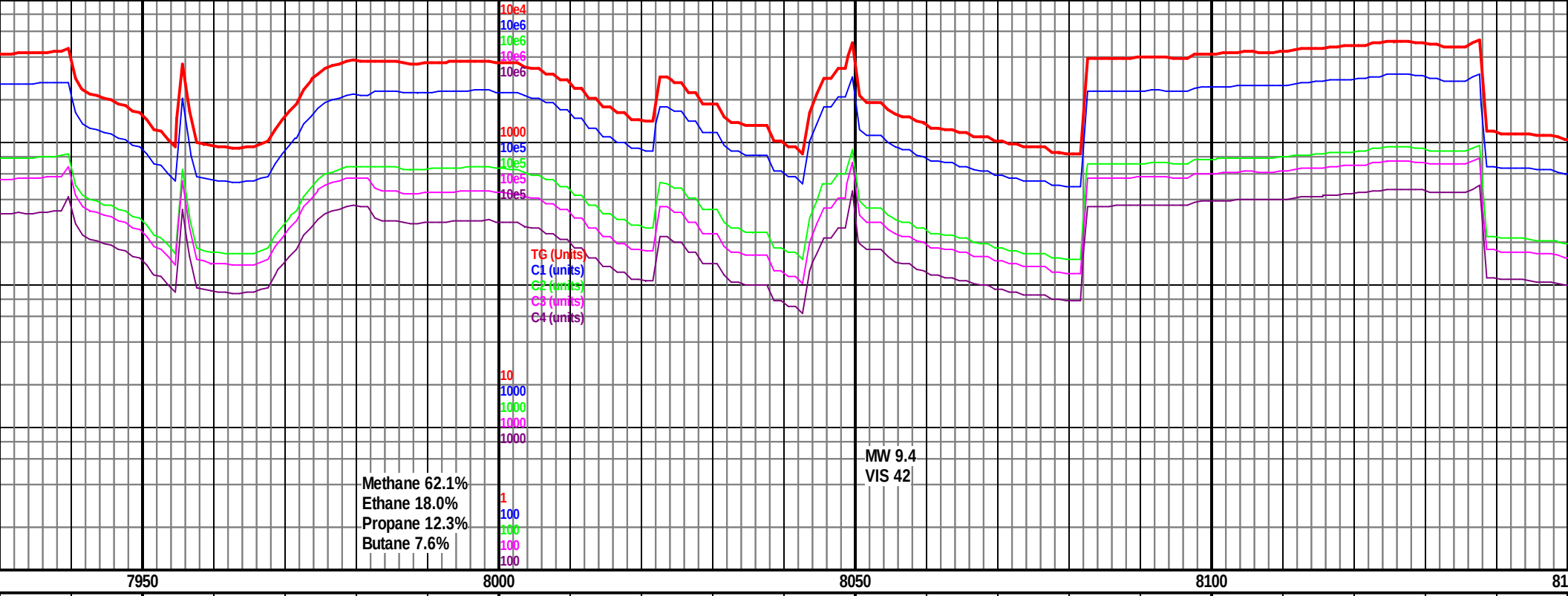
7400-7500 Chk lt gy, sb blcky, mod frm, Mrlst dk gy-gy, sb blcky, mod frm, tr inoc frags, rr bent, vis oil in drilling fluid, fst mlky wht cut, Chk 90%, Mrlst 10%

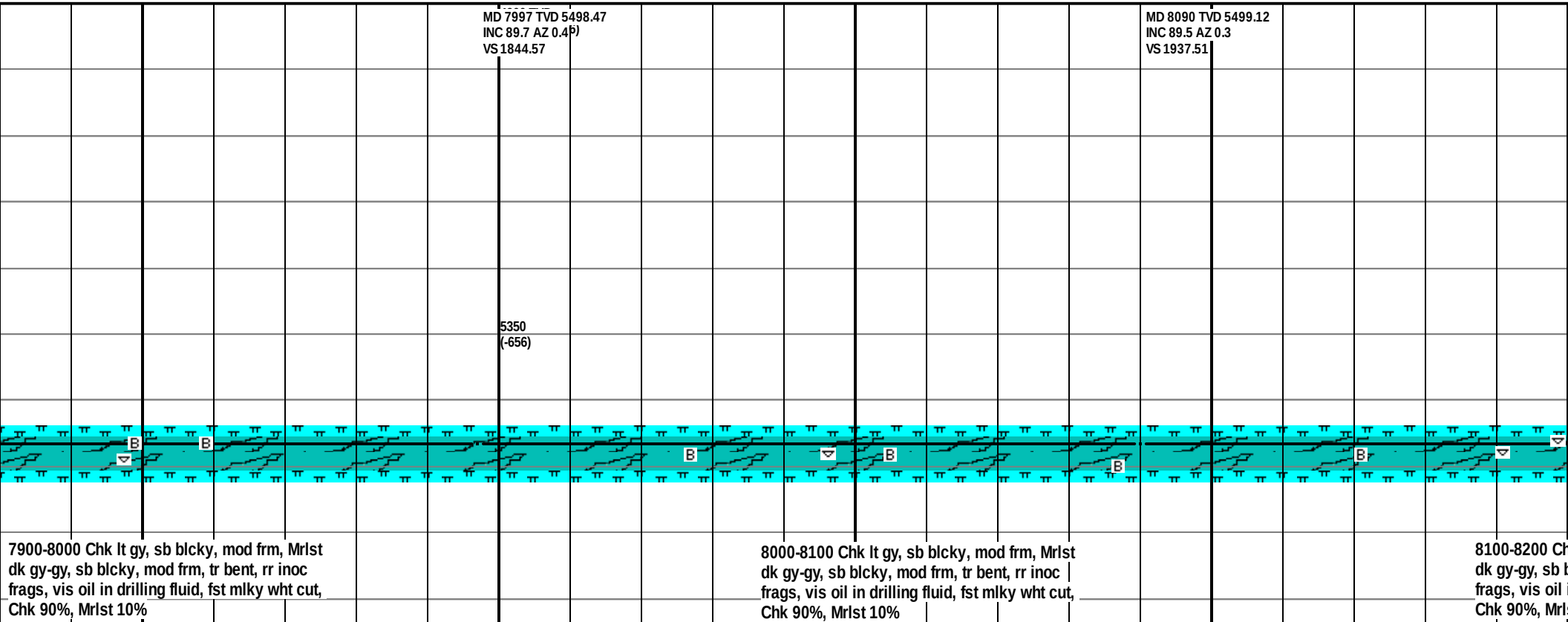

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
Methane 56.7%
Ethane 17.3%
Propane 14.3%
Butane 11.7%
7500
7550
7600
7650
7700

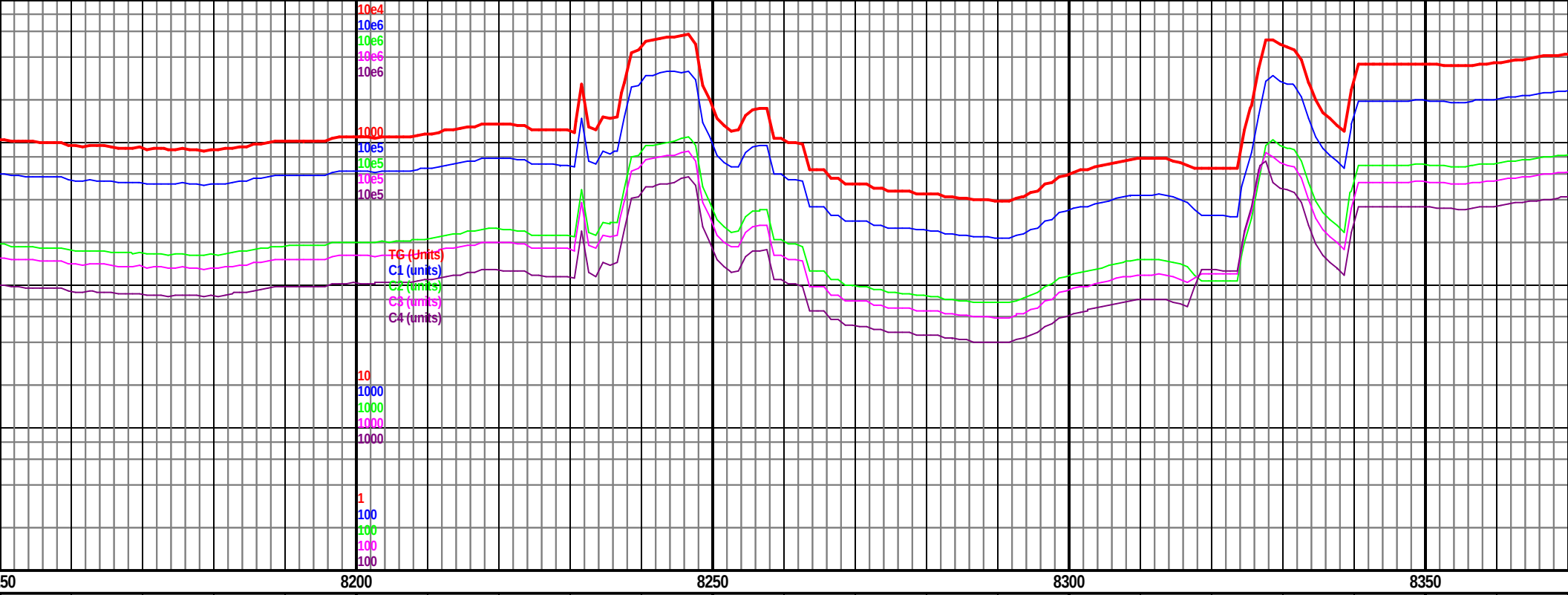

MD 7531 TVD 5504.31
INC 89.3 AZ 0.6
VS 1378.87
4900 TVD
Sub Sea (-206)
MD 7625 TVD 5503.9
INC 91.2 AZ 0.4
VS 1472.82
5350
(-656)
7500-7600 Chk lt gy, sb blcky, mod frm, Mrlst dk gy-gy, sb blcky, mod frm, rr inoc frags, vis oil in drilling fluid, fst mlky wht cut, Chk 90%, Mrlst 10%
7600-7700 Chk lt gy, sb blcky, mod frm, Mrlst dk gy-gy, sb blcky, mod frm, rr inoc frags, vis oil in drilling fluid, fst mlky wht cut, Chk 90%, Mrlst 10%

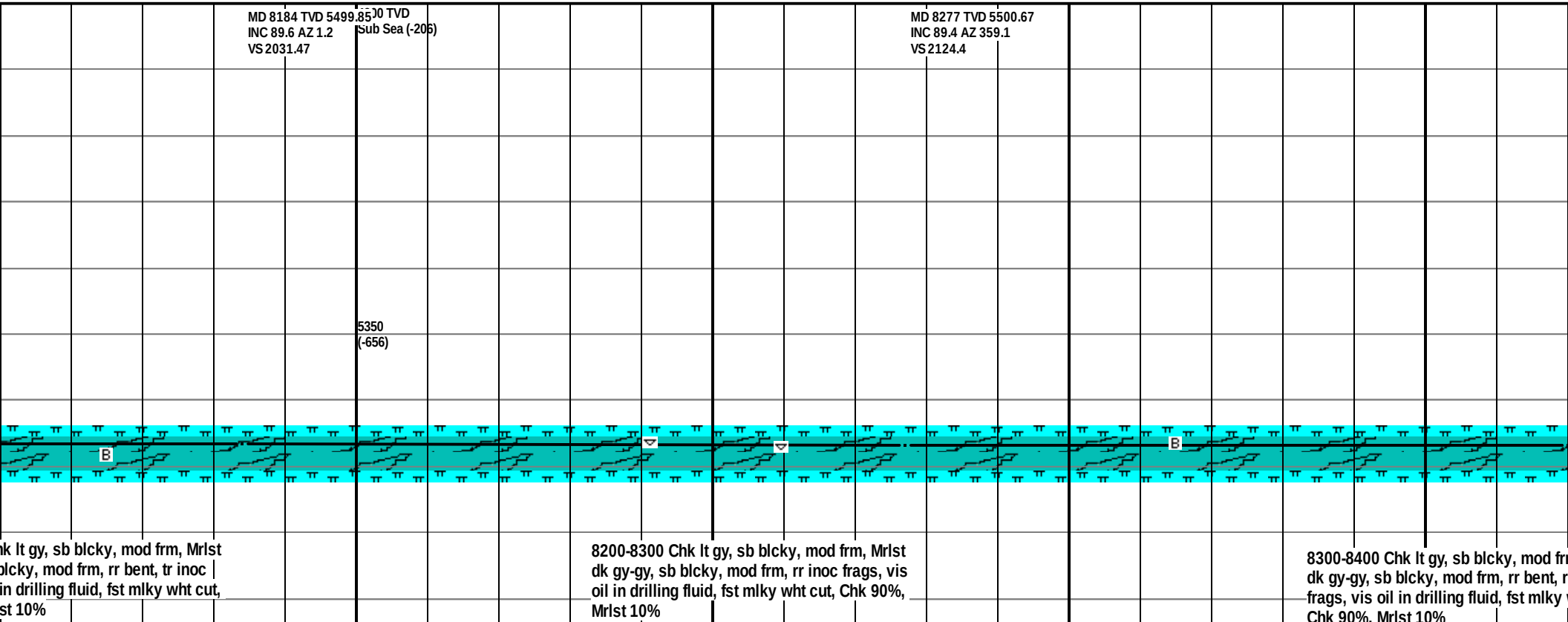

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
MW 9.4
VIS 41
7750
7800
7850
7900

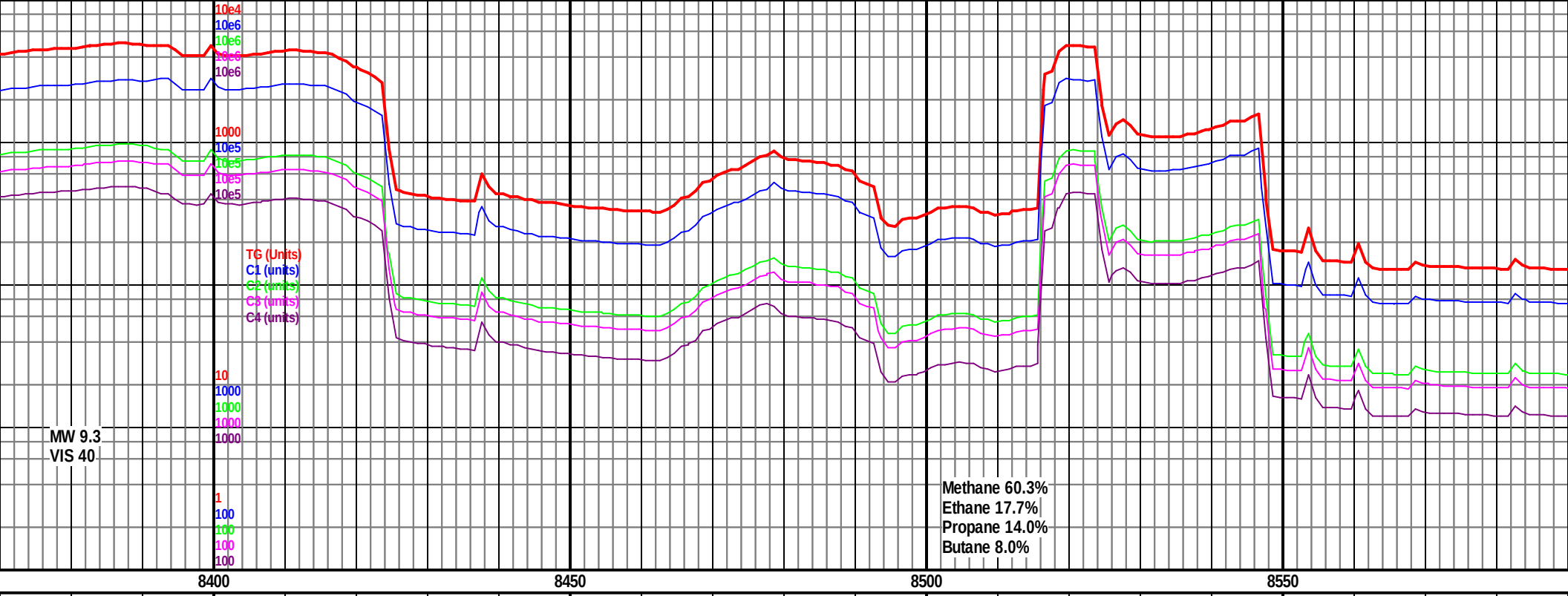

MD 7718 TVD 5501.96
INC 91.2 AZ 0.5
VS 1565.75
4900 TVD
Sub Sea (-206)
MD 7811 TVD 5499.93
INC 91.3 AZ 360
VS 1658.67
MD 7904 TVD 5498.55
INC 90.4 AZ 1
VS 1751.61
5350
(-656)
B
B
B
B
7700-7800 Chk lt gy, sb blcky, mod frm, Mrlst dk gy-gy, sb blcky, mod frm, rr bent, tr inoc frags, vis oil in drilling fluid, fst mlky wht cut, Chk 90%, Mrlst 10%
7800-7900 Chk lt gy, sb blcky, mod frm, Mrlst dk gy-gy, sb blcky, mod frm, rr inoc frags, vis oil in drilling fluid, fst mlky wht cut, Chk 90%, Mrlst 10%


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
Methane 62.1%
Ethane 18.0%
Propane 12.3%
Butane 7.6%
MW 9.4
VIS 42
7950
8000
8050
8100
81


MD 7997 TVD 5498.47
INC 89.7 AZ 0.4
VS 1844.57
MD 8090 TVD 5499.12
INC 89.5 AZ 0.3
VS 1937.51
5350
(-656)
B
7900-8000 Chk lt gy, sb blcky, mod frm, Mrlst dk gy-gy, sb blcky, mod frm, tr bent, rr inoc frags, vis oil in drilling fluid, fst mlky wht cut, Chk 90%, Mrlst 10%
8000-8100 Chk lt gy, sb blcky, mod frm, Mrlst dk gy-gy, sb blcky, mod frm, tr bent, rr inoc frags, vis oil in drilling fluid, fst mlky wht cut, Chk 90%, Mrlst 10%
8100-8200 Ch
dk gy-gy, sb
frags, vis oil
Chk 90%, Mrl


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
50
8200
8250
8300
8350


MD 8184 TVD 5499.85
INC 89.6 AZ 1.2
VS 2031.47
Sub Sea (-206)
MD 8277 TVD 5500.67
INC 89.4 AZ 359.1
VS 2124.4
5350
(-656)
B
B
hk lt gy, sb blcky, mod frm, Mrlst
blcky, mod frm, rr bent, tr inoc
in drilling fluid, fst mlky wht cut,
st 10%
8200-8300 Chk lt gy, sb blcky, mod frm, Mrlst
dk gy-gy, sb blcky, mod frm, rr inoc frags, vis
oil in drilling fluid, fst mlky wht cut, Chk 90%,
Mrlst 10%
8300-8400 Chk lt gy, sb blcky, mod fr
dk gy-gy, sb blcky, mod frm, rr bent, r
frags, vis oil in drilling fluid, fst mlky
Chk 90%, Mrlst 10%



MD 8370 TVD 5500.42
INC 90.9 AZ 359.1
VS 2217.25

4900 TVD
Sub Sea (-206)

MD 8463 TVD 5498.88
INC 91 AZ 358.8
VS 2310.07

MD 8555 TVD 5497.76
INC 90.4 AZ 358.8
VS 2401.89

5350
(-656)

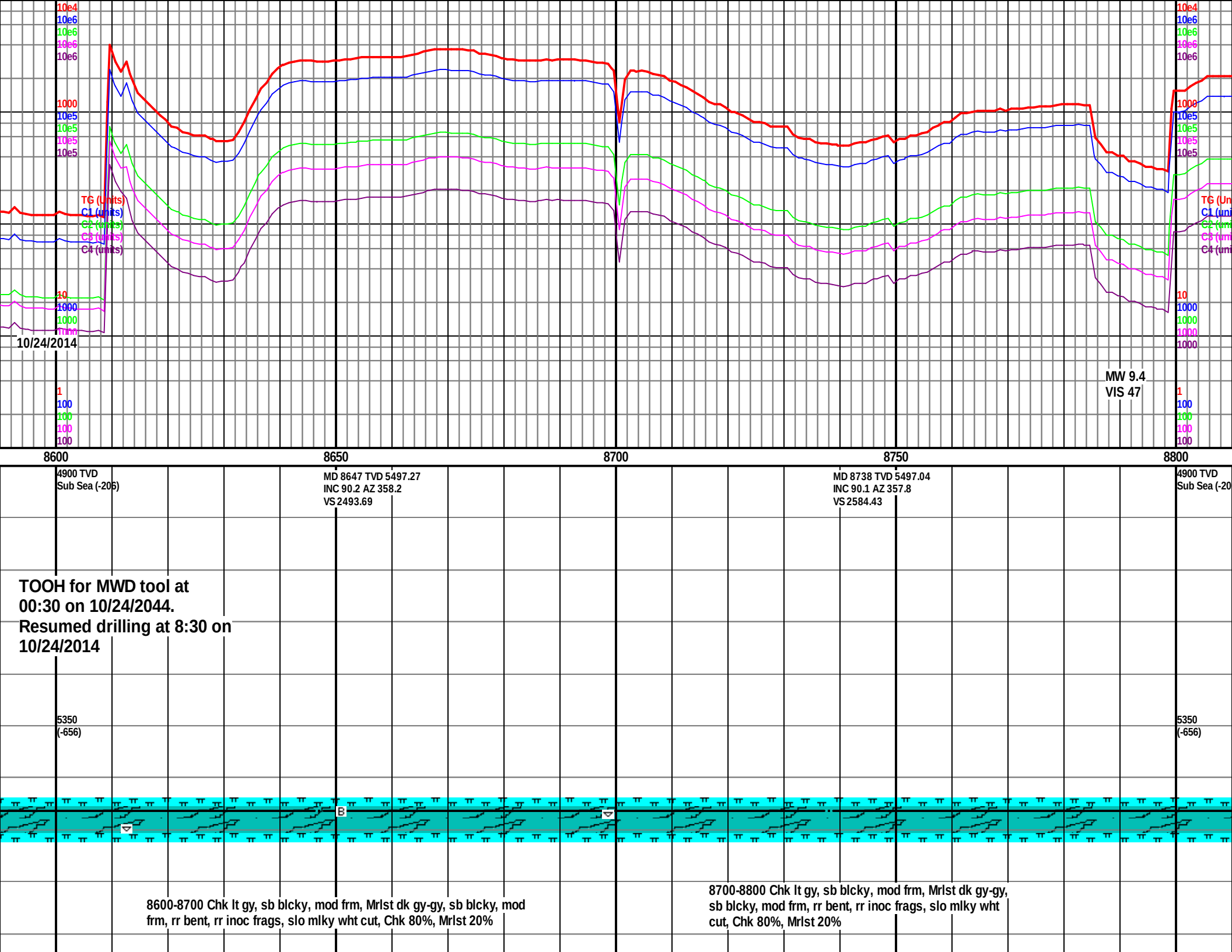
B

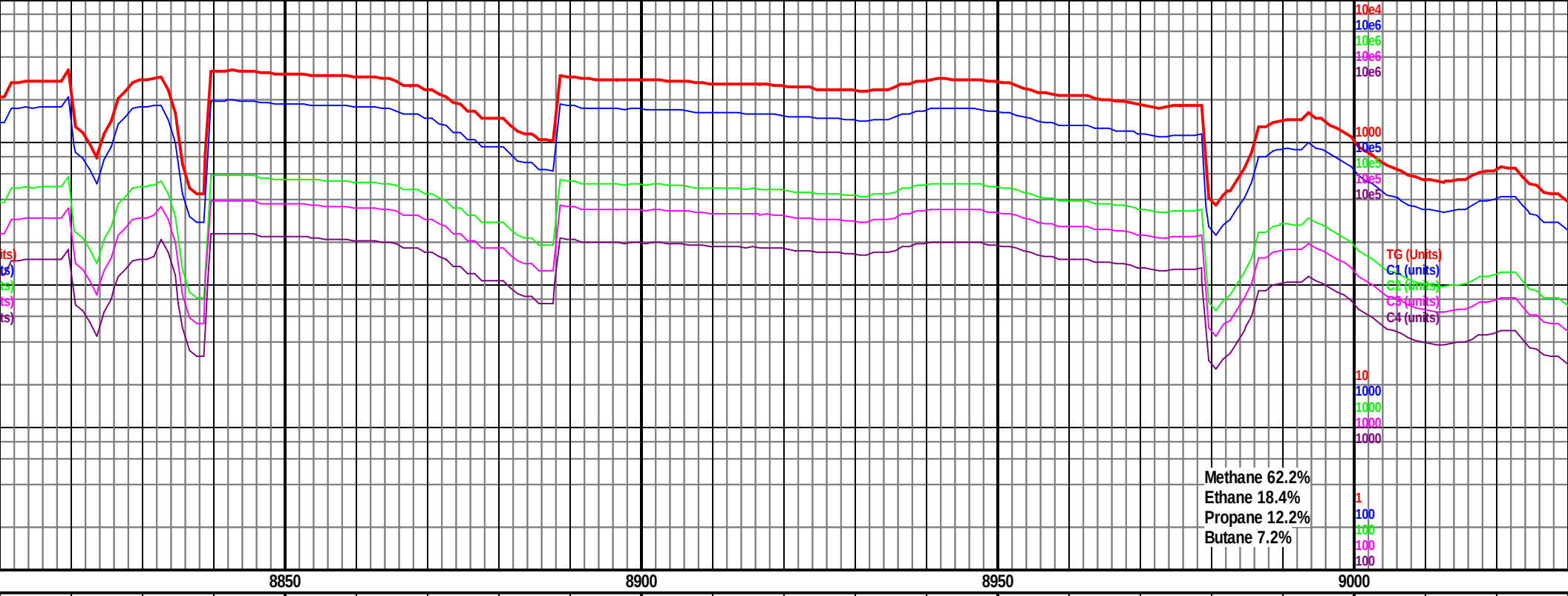
B

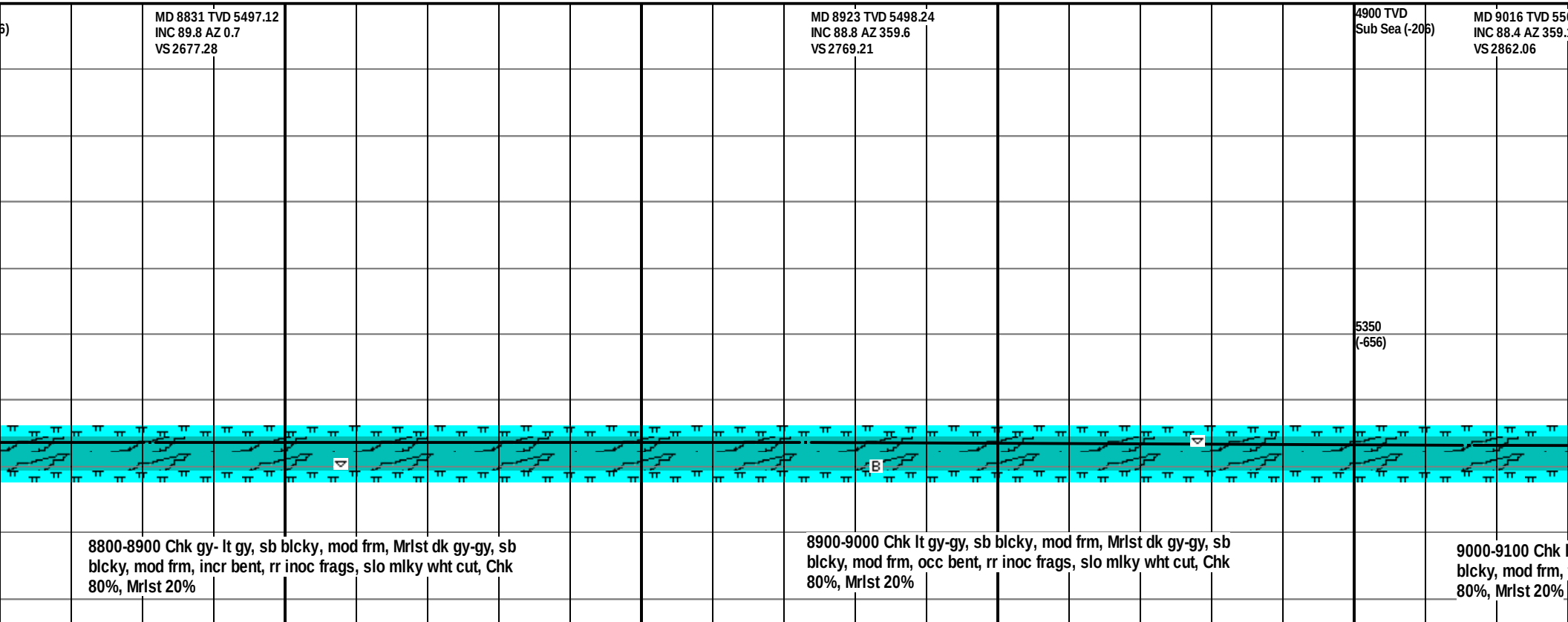
m, Mrlst
r inoc
wht cut,

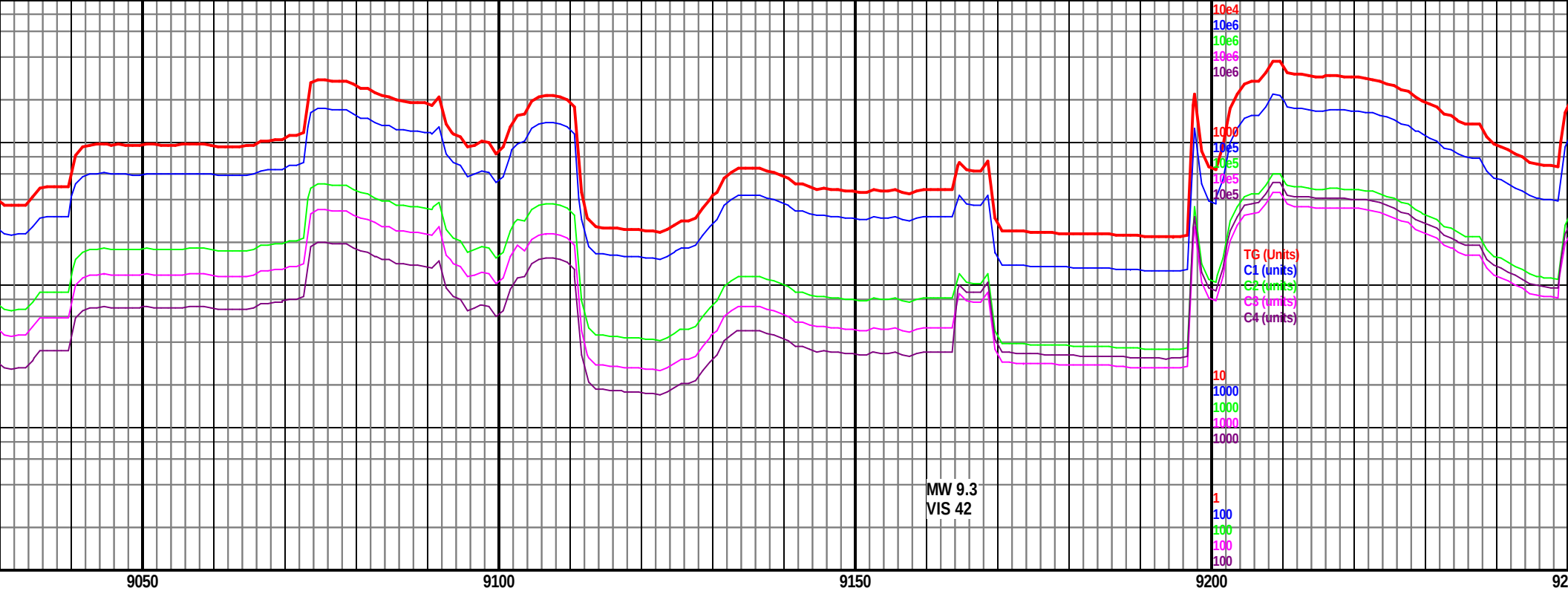
8400-8500 Chk lt gy, sb blcky, mod frm, Mrlst dk gy-gy, sb blcky, mod frm, rr bent, rr inoc frags, vis oil in drilling fluid, fst mlky wht cut, Chk 90%, Mrlst 10%

8500-8600 Chk lt gy, sb blcky, mod frm, Mrlst dk gy-gy, sb blcky, mod frm, rr bent, rr inoc frags, vis oil in drilling fluid, fst mlky wht cut, Chk 90%, Mrlst 10%


TG (units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10/24/2014
MW 9.4
VIS 47
8600
8650
8700
8750
8800
4900 TVD
Sub Sea (-206)
MD 8647 TVD 5497.27
INC 90.2 AZ 358.2
VS 2493.69
MD 8738 TVD 5497.04
INC 90.1 AZ 357.8
VS 2584.43
TOOH for MWD tool at
00:30 on 10/24/2044.
Resumed drilling at 8:30 on
10/24/2014
5350
(-656)
8600-8700 Chk lt gy, sb blcky, mod frm, Mrlst dk gy-gy, sb blcky, mod frm, rr bent, rr inoc frags, slo mlky wht cut, Chk 80%, Mrlst 20%
8700-8800 Chk lt gy, sb blcky, mod frm, Mrlst dk gy-gy, sb blcky, mod frm, rr bent, rr inoc frags, slo mlky wht cut, Chk 80%, Mrlst 20%


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
Methane 62.2%
Ethane 18.4%
Propane 12.2%
Butane 7.2%
8850
8900
8950
9000


MD 8831 TVD 5497.12
INC 89.8 AZ 0.7
VS 2677.28
MD 8923 TVD 5498.24
INC 88.8 AZ 359.6
VS 2769.21
4900 TVD
Sub Sea (-206)
MD 9016 TVD 55
INC 88.4 AZ 359.
VS 2862.06
5350
(-656)
8800-8900 Chk gy- lt gy, sb blcky, mod frm, Mrlst dk gy-gy, sb blcky, mod frm, incr bent, rr inoc frags, slo mlky wht cut, Chk 80%, Mrlst 20%
8900-9000 Chk lt gy-gy, sb blcky, mod frm, Mrlst dk gy-gy, sb blcky, mod frm, occ bent, rr inoc frags, slo mlky wht cut, Chk 80%, Mrlst 20%
9000-9100 Chk
blcky, mod frm,
80%, Mrlst 20%



00.51
1

MD 9108 TVD 5502.76
INC 88.8 AZ 360
VS 2953.92

MD 9200 TVD 5504.21
INC 89.4 AZ 1.3
VS 3045.87

5350
(-656)

B

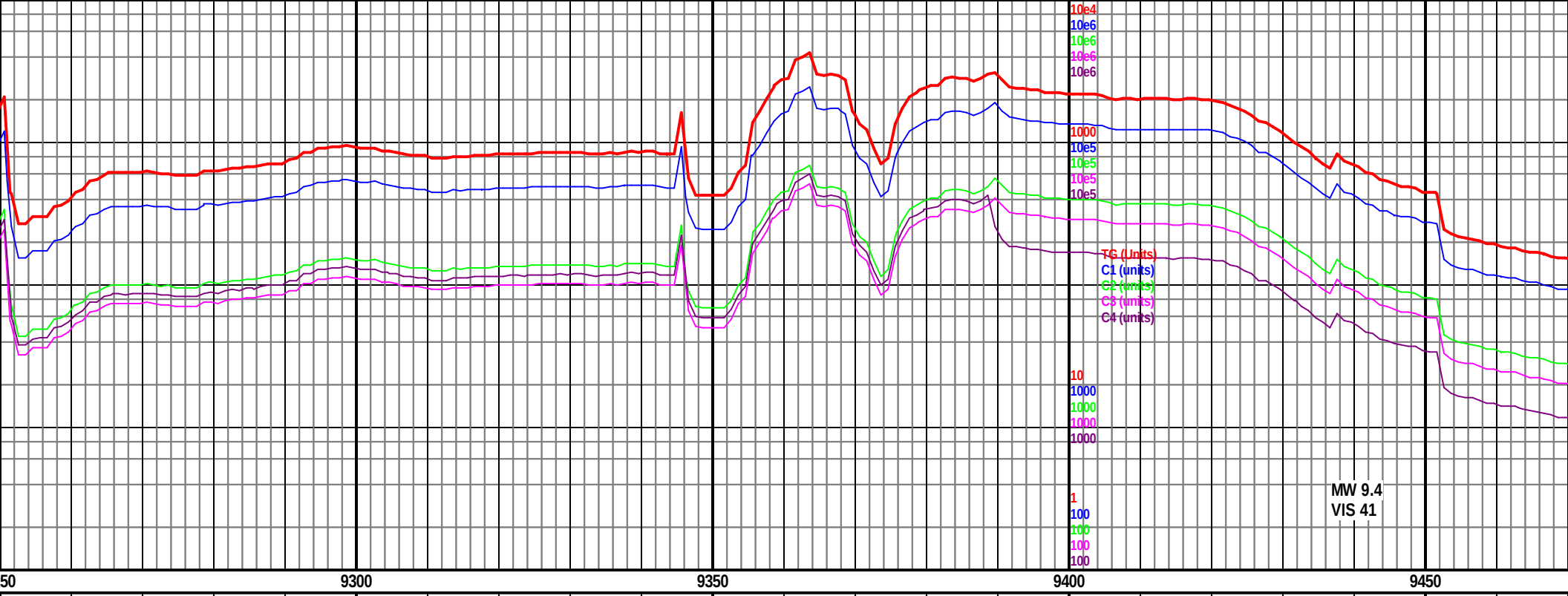
B

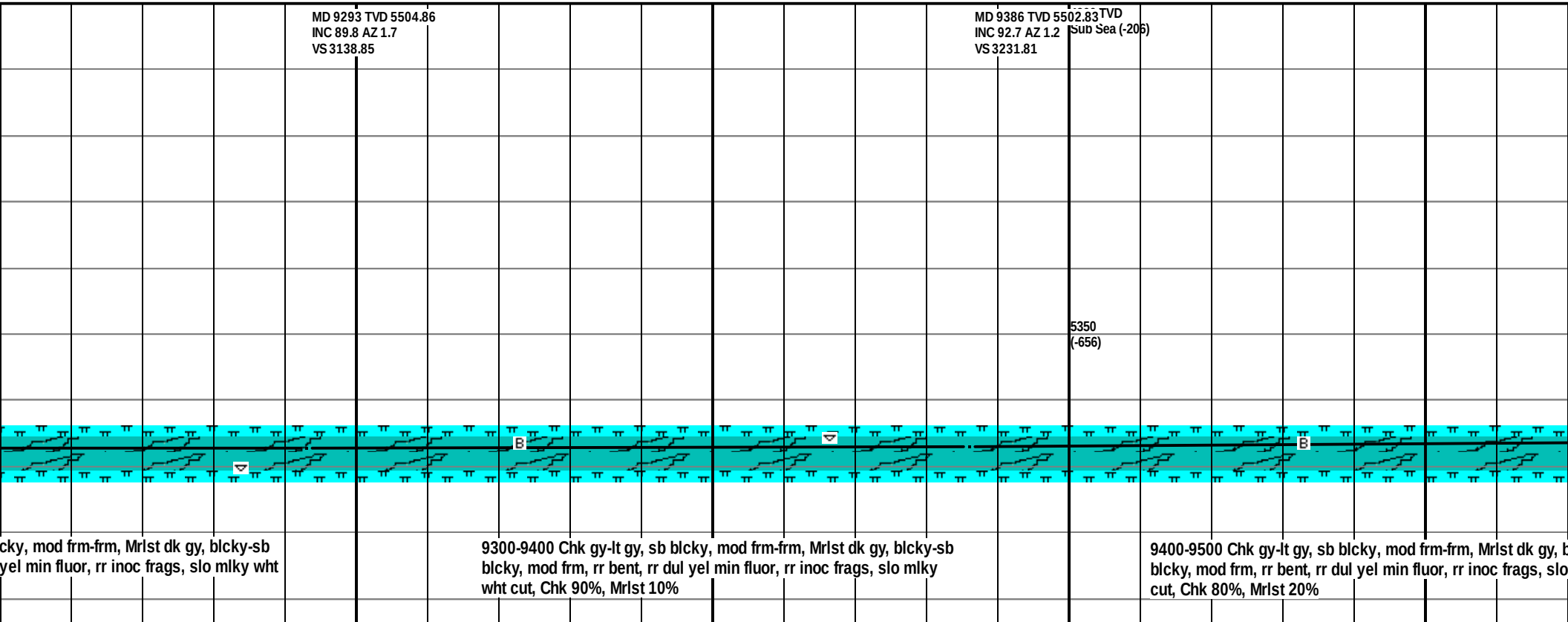
B

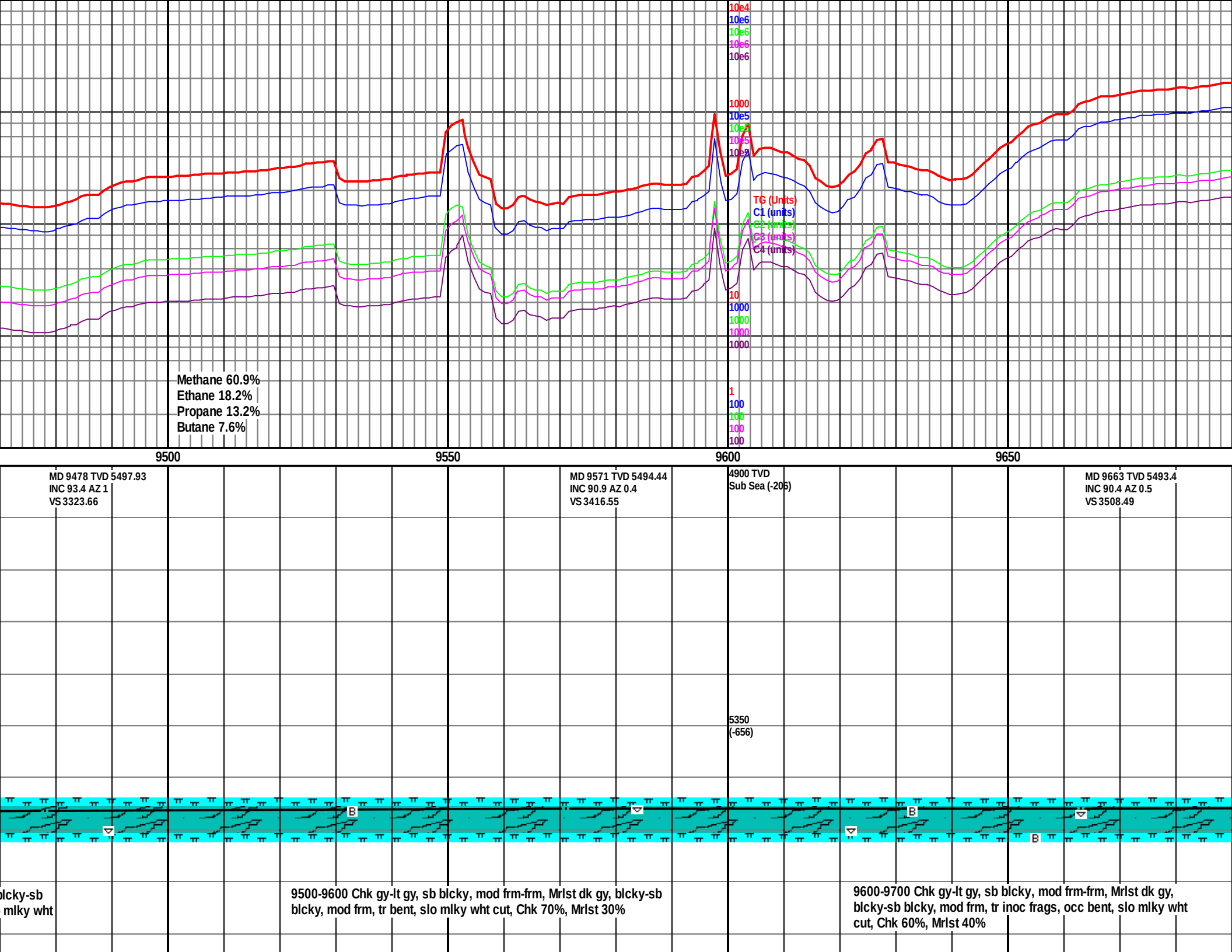
lt gy-gy, sb blcky-blcky, mod frm-frm, Mrlst dk gy, blcky-sb
tr bent, tr dul yel min fluor, rr inoc frags, slo mlky wht cut, Chk

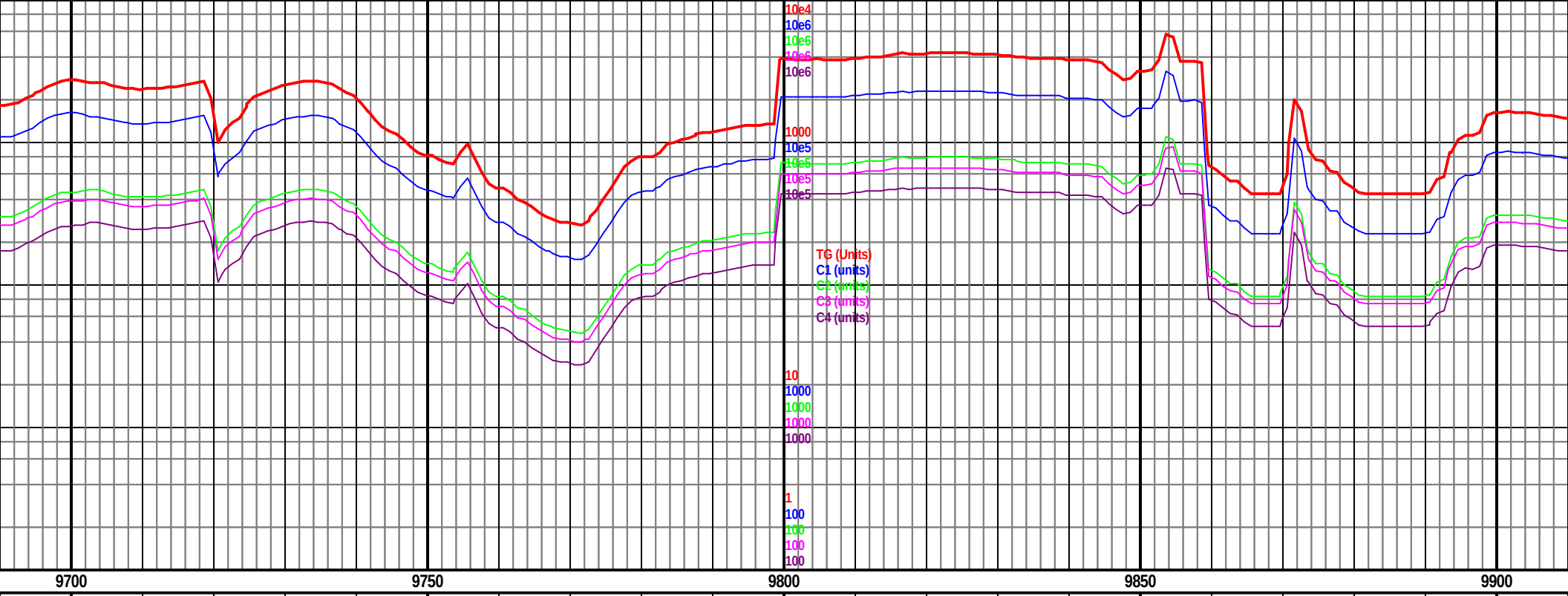
9100-9200 Chk lt gy, sb blcky, mod frm-frm, Mrlst dk gy, blcky-sb blcky, mod frm, tr bent, tr dul yel min fluor, rr inoc frags, slo mlky wht cut, Chk 80%, Mrlst 20%

9200-9300 Chk gy-lt gy, sb bl
blcky, mod frm, rr bent, rr dul
cut, Chk 90%, Mrlst 10%


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
MW 9.4
VIS 41
50
9300
9350
9400
9450


MD 9293 TVD 5504.86
INC 89.8 AZ 1.7
VS 3138.85
MD 9386 TVD 5502.83
INC 92.7 AZ 1.2
VS 3231.81
TVD
Sub Sea (-206)
5350
(-656)
B
B
cky, mod frm-frm, Mrlst dk gy, blcky-sb
yel min fluor, rr inoc frags, slo mlky wht
9300-9400 Chk gy-lt gy, sb blcky, mod frm-frm, Mrlst dk gy, blcky-sb
blcky, mod frm, rr bent, rr dul yel min fluor, rr inoc frags, slo mlky
wht cut, Chk 90%, Mrlst 10%
9400-9500 Chk gy-lt gy, sb blcky, mod frm-frm, Mrlst dk gy, b
blcky, mod frm, rr bent, rr dul yel min fluor, rr inoc frags, slo
cut, Chk 80%, Mrlst 20%


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
Methane 60.9%
Ethane 18.2%
Propane 13.2%
Butane 7.6%
9500
9550
9600
9650
MD 9478 TVD 5497.93
INC 93.4 AZ 1
VS 3323.66
MD 9571 TVD 5494.44
INC 90.9 AZ 0.4
VS 3416.55
4900 TVD
Sub Sea (-206)
MD 9663 TVD 5493.4
INC 90.4 AZ 0.5
VS 3508.49
5350
(-656)
B
B
B
lcky-sb
mlky wht
9500-9600 Chk gy-lt gy, sb blcky, mod frm-frm, Mrlst dk gy, blcky-sb blcky, mod frm, tr bent, slo mlky wht cut, Chk 70%, Mrlst 30%
9600-9700 Chk gy-lt gy, sb blcky, mod frm-frm, Mrlst dk gy, blcky-sb blcky, mod frm, tr inoc frags, occ bent, slo mlky wht cut, Chk 60%, Mrlst 40%



MD 9756 TVD 5492.35
INC 90.9 AZ 359.7
VS 3601.42

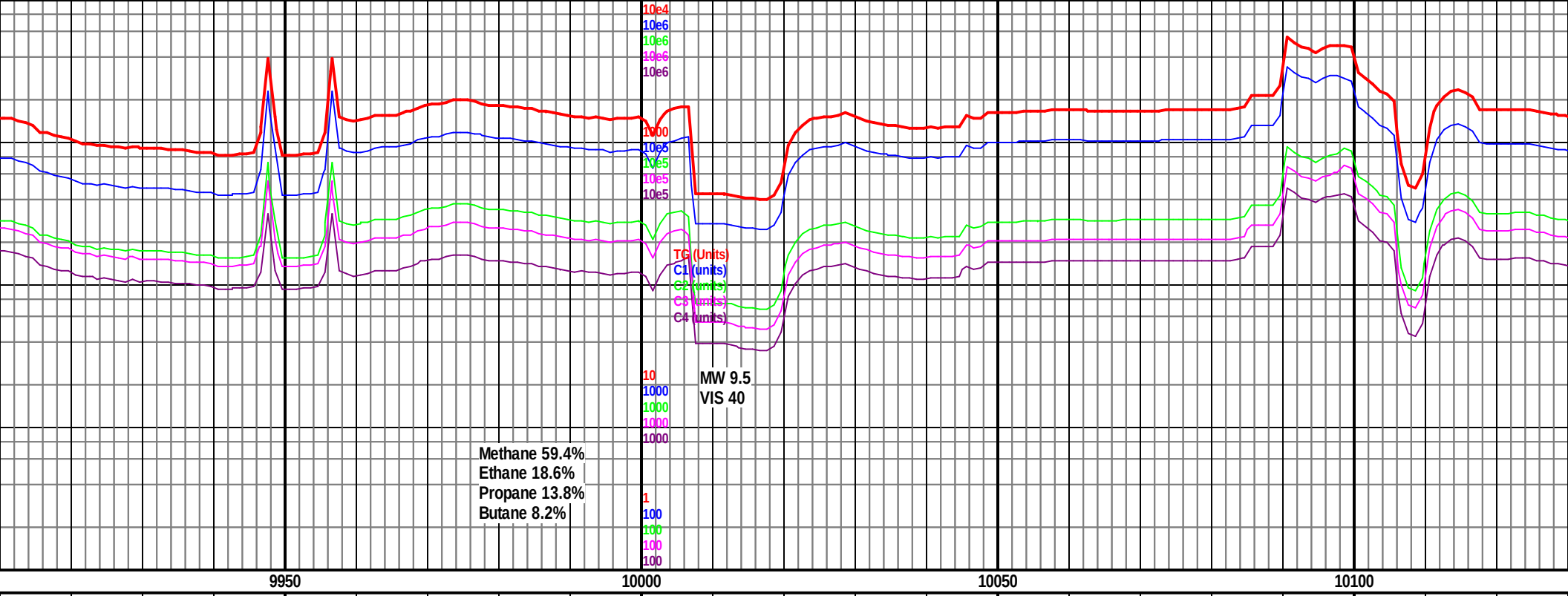
4900 TVD
Sub Sea (-206)

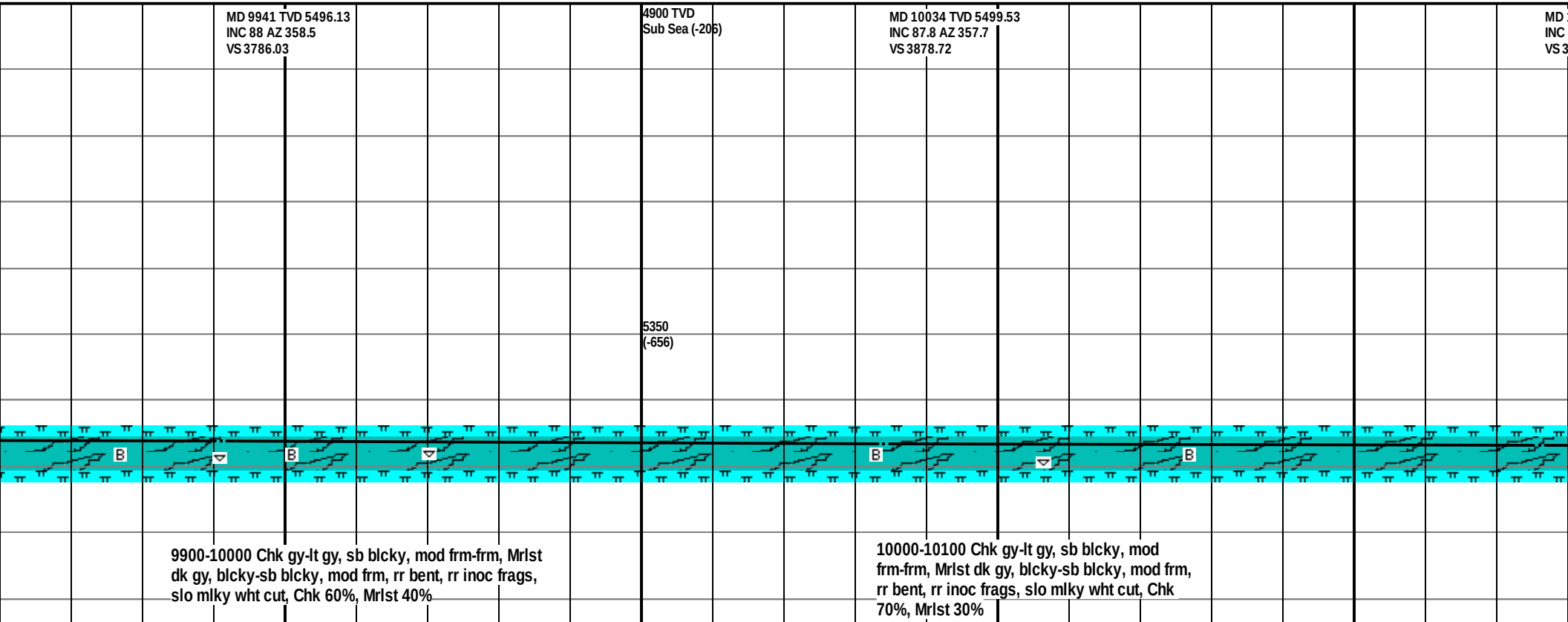
MD 9849 TVD 5493.08
INC 88.2 AZ 358.8
VS 3694.27

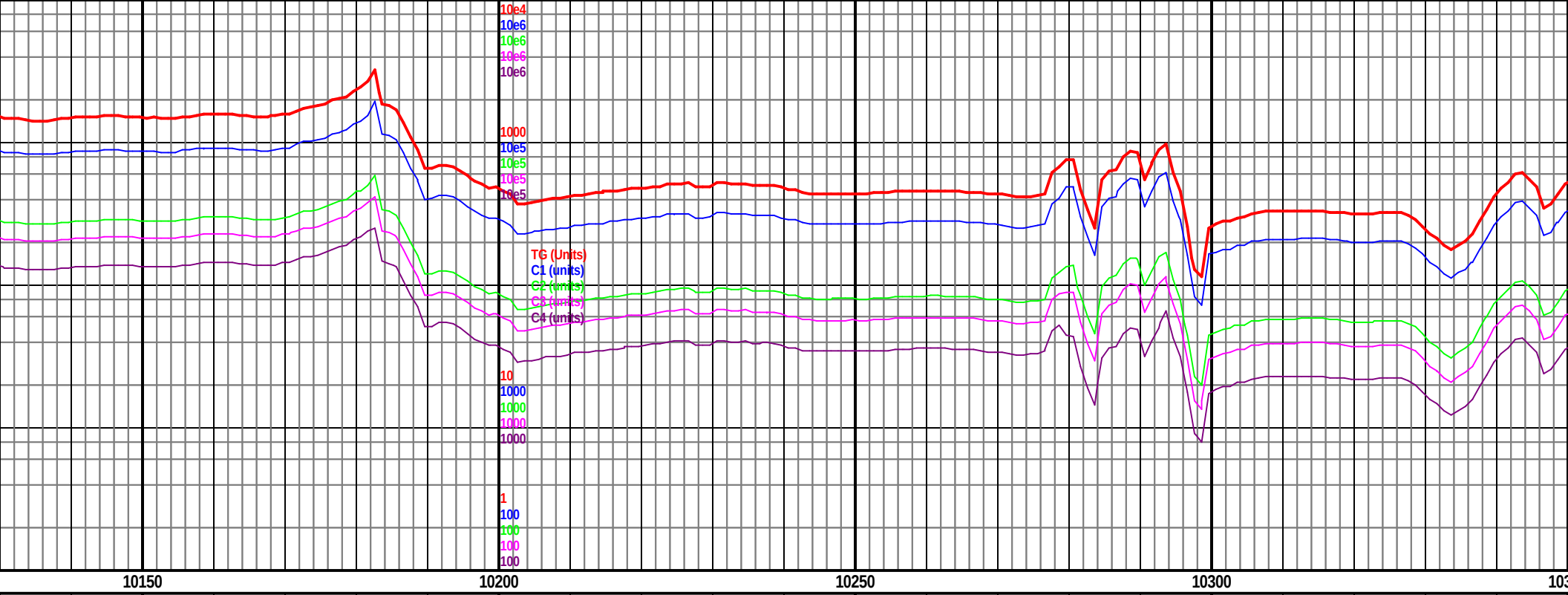
5350
(-656)

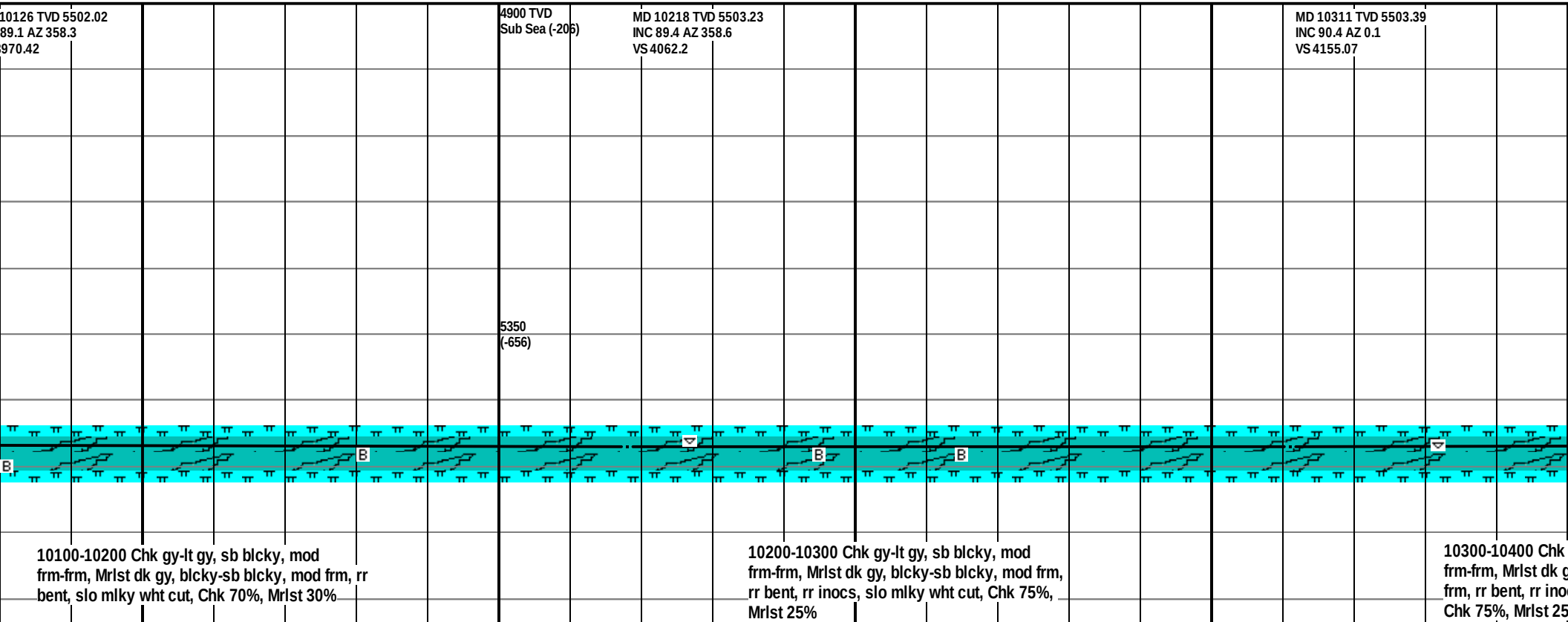
9700-9800 Chk gy-lt gy, sb blcky, mod frm-frm, Mrlst dk gy, blcky-sb blcky, mod frm, rr inoc frags, rr bent, slo mlky wht cut, Chk 50%, Mrlst 50%

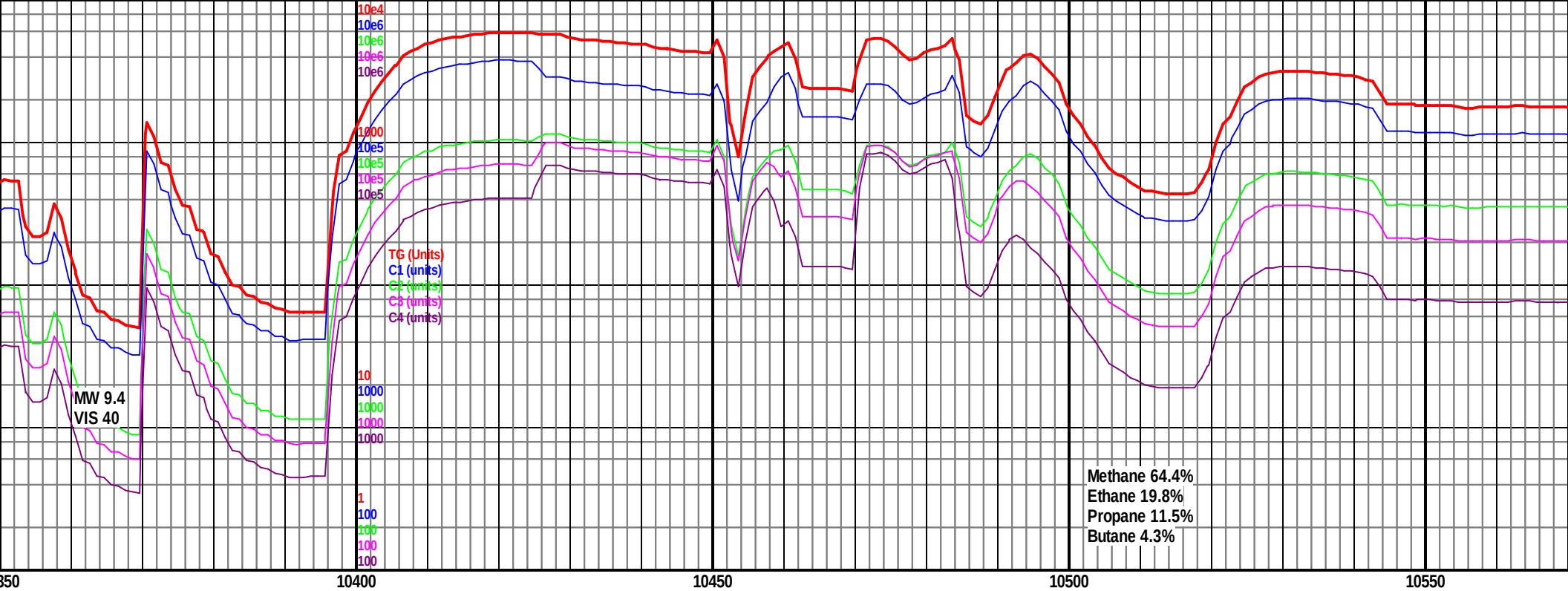
9800-9900 Chk gy-lt gy, sb blcky, mod frm-frm, Mrlst dk gy, blcky-sb blcky, mod frm, rr inoc frags, rr bent, slo mlky wht cut, Chk 50%, Mrlst 50%

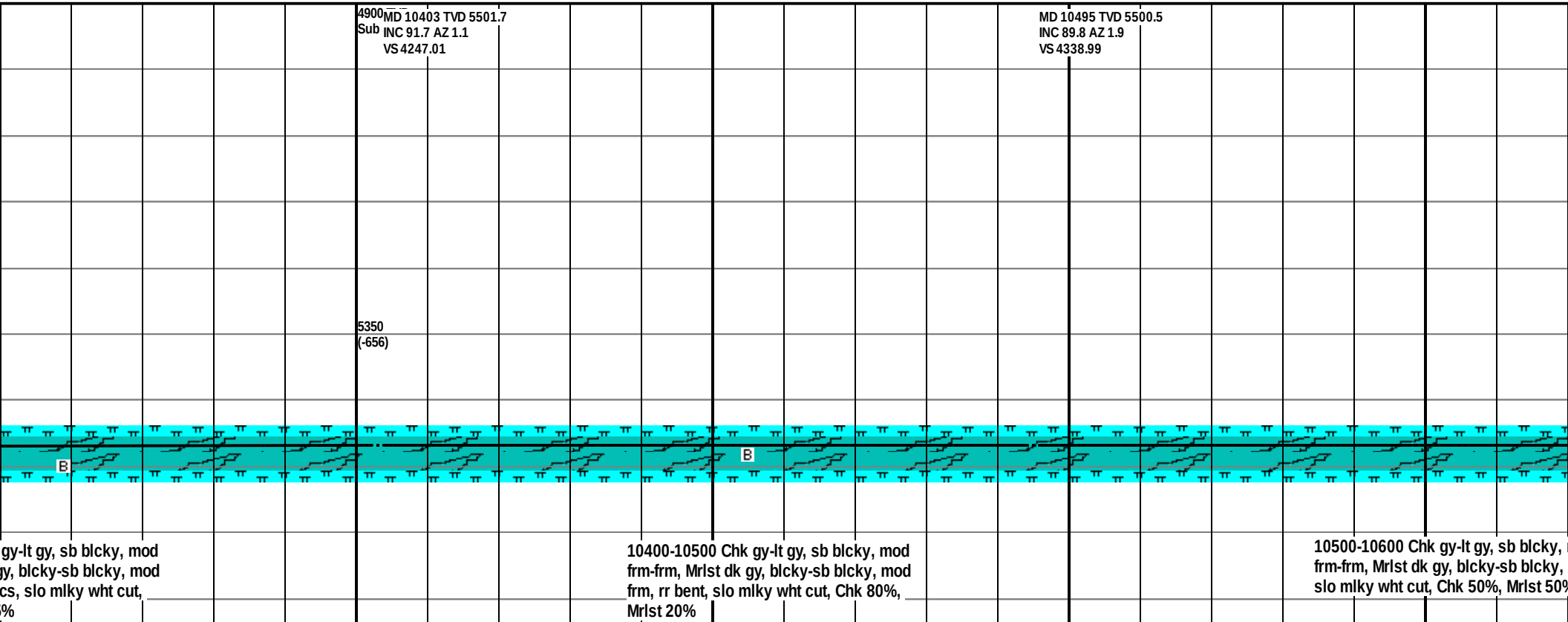

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
MW 9.5
VIS 40
Methane 59.4%
Ethane 18.6%
Propane 13.8%
Butane 8.2%
1
100
100
100
100
9950
10000
10050
10100

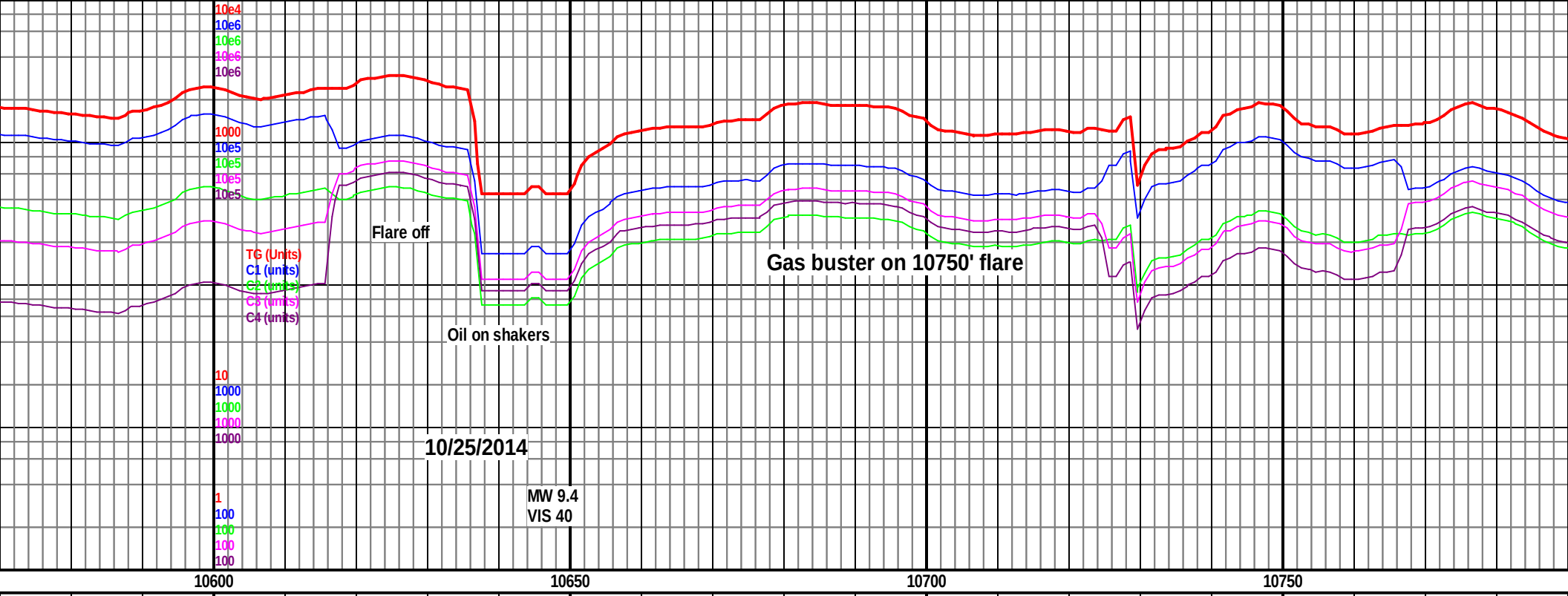

MD 9941 TVD 5496.13
INC 88 AZ 358.5
VS 3786.03
4900 TVD
Sub Sea (-206)
MD 10034 TVD 5499.53
INC 87.8 AZ 357.7
VS 3878.72
5350
(-656)
B
B
B
B
9900-10000 Chk gy-lt gy, sb blcky, mod frm-frm, Mrlst dk gy, blcky-sb blcky, mod frm, rr bent, rr inoc frags, slo mlky wht cut, Chk 60%, Mrlst 40%
10000-10100 Chk gy-lt gy, sb blcky, mod frm-frm, Mrlst dk gy, blcky-sb blcky, mod frm, rr bent, rr inoc frags, slo mlky wht cut, Chk 70%, Mrlst 30%

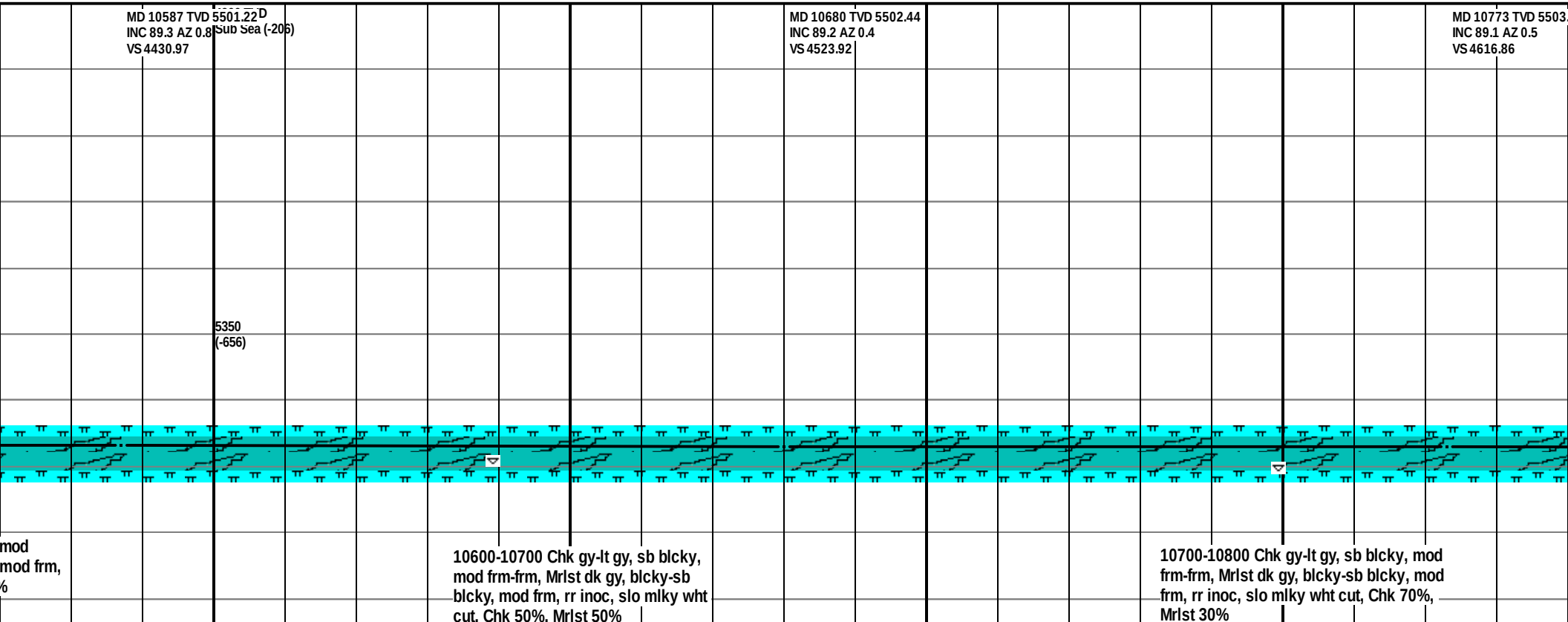

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
10150
10200
10250
10300

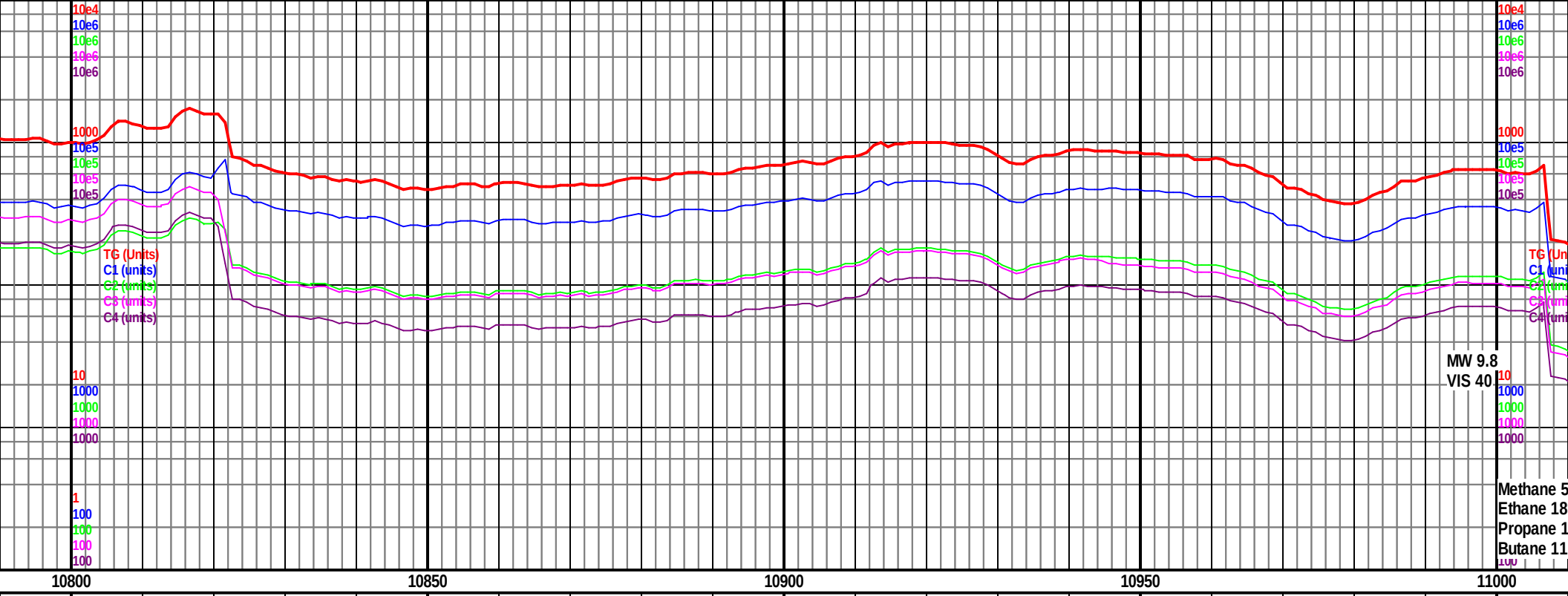

10126 TVD 5502.02
89.1 AZ 358.3
970.42
4900 TVD
Sub Sea (-206)
MD 10218 TVD 5503.23
INC 89.4 AZ 358.6
VS 4062.2
MD 10311 TVD 5503.39
INC 90.4 AZ 0.1
VS 4155.07
5350
(-656)
B
B
B
B
B
10100-10200 Chk gy-lt gy, sb blcky, mod frm-frm, Mrlst dk gy, blcky-sb blcky, mod frm, rr bent, slo mlky wht cut, Chk 70%, Mrlst 30%
10200-10300 Chk gy-lt gy, sb blcky, mod frm-frm, Mrlst dk gy, blcky-sb blcky, mod frm, rr bent, rr inocs, slo mlky wht cut, Chk 75%, Mrlst 25%
10300-10400 Chk
frm-frm, Mrlst dk g
frm, rr bent, rr ino
Chk 75%, Mrlst 25

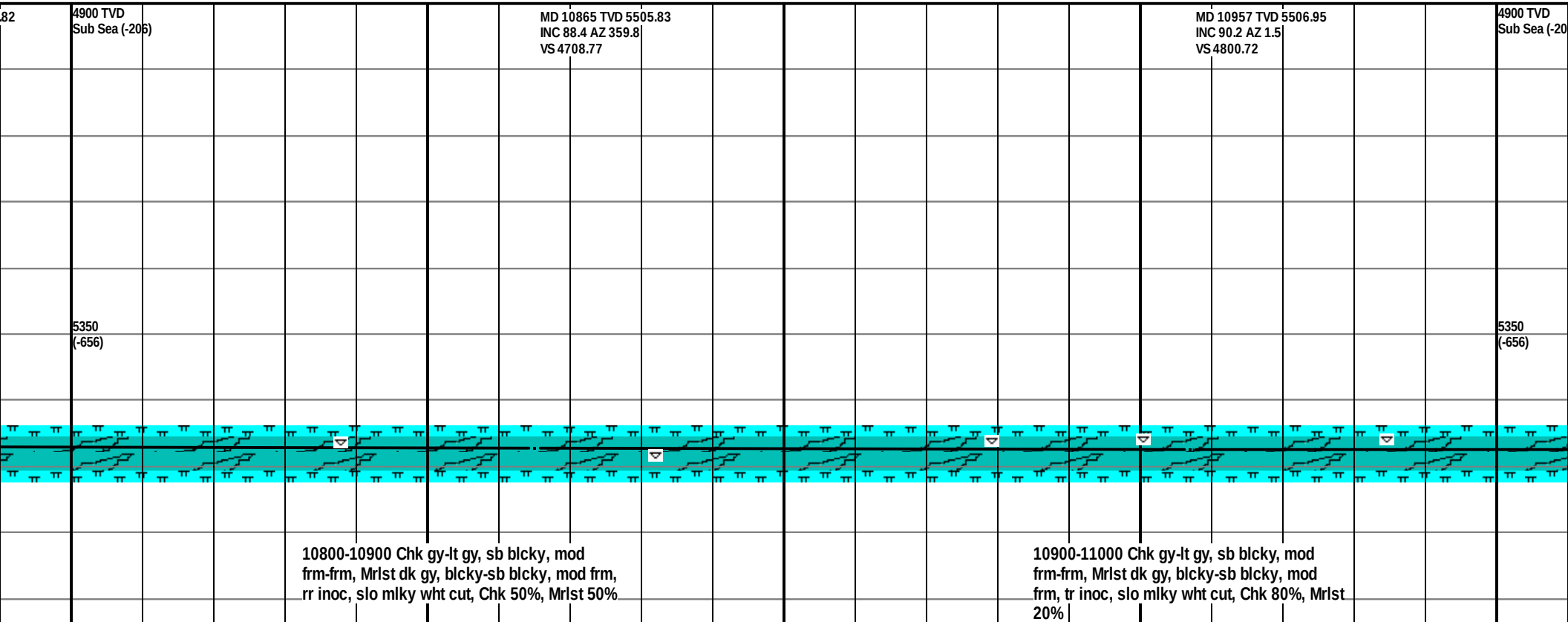

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
MW 9.4
VIS 40
Methane 64.4%
Ethane 19.8%
Propane 11.5%
Butane 4.3%
350
10400
10450
10500
10550

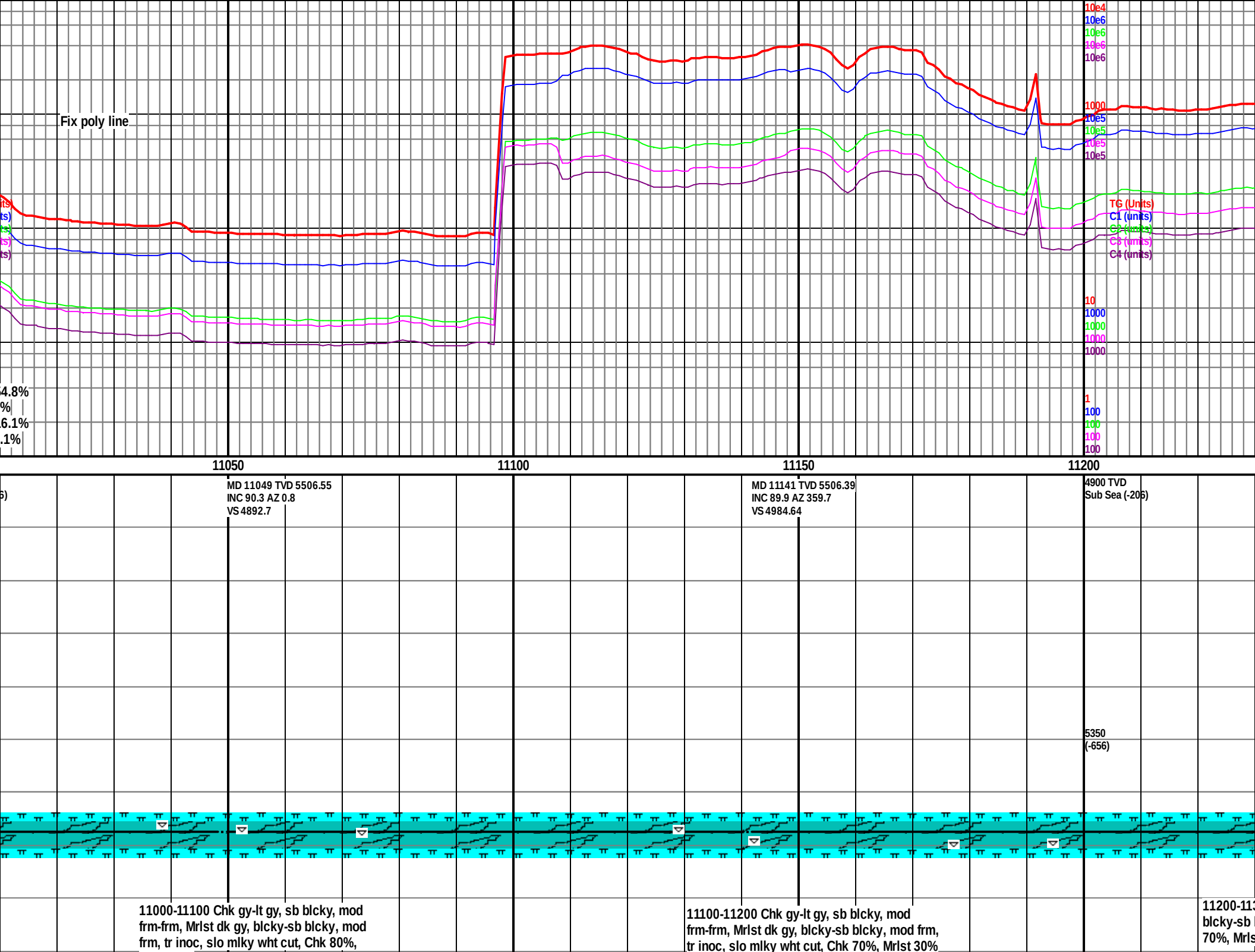

4900
Sub
MD 10403 TVD 5501.7
INC 91.7 AZ 1.1
VS 4247.01
MD 10495 TVD 5500.5
INC 89.8 AZ 1.9
VS 4338.99
5350
(-656)
B
B
gy-lt gy, sb blcky, mod
y, blcky-sb blcky, mod
cs, slo mlky wht cut,
%
10400-10500 Chk gy-lt gy, sb blcky, mod
frm-frm, Mrlst dk gy, blcky-sb blcky, mod
frm, rr bent, slo mlky wht cut, Chk 80%,
Mrlst 20%
10500-10600 Chk gy-lt gy, sb blcky,
frm-frm, Mrlst dk gy, blcky-sb blcky,
slo mlky wht cut, Chk 50%, Mrlst 50%

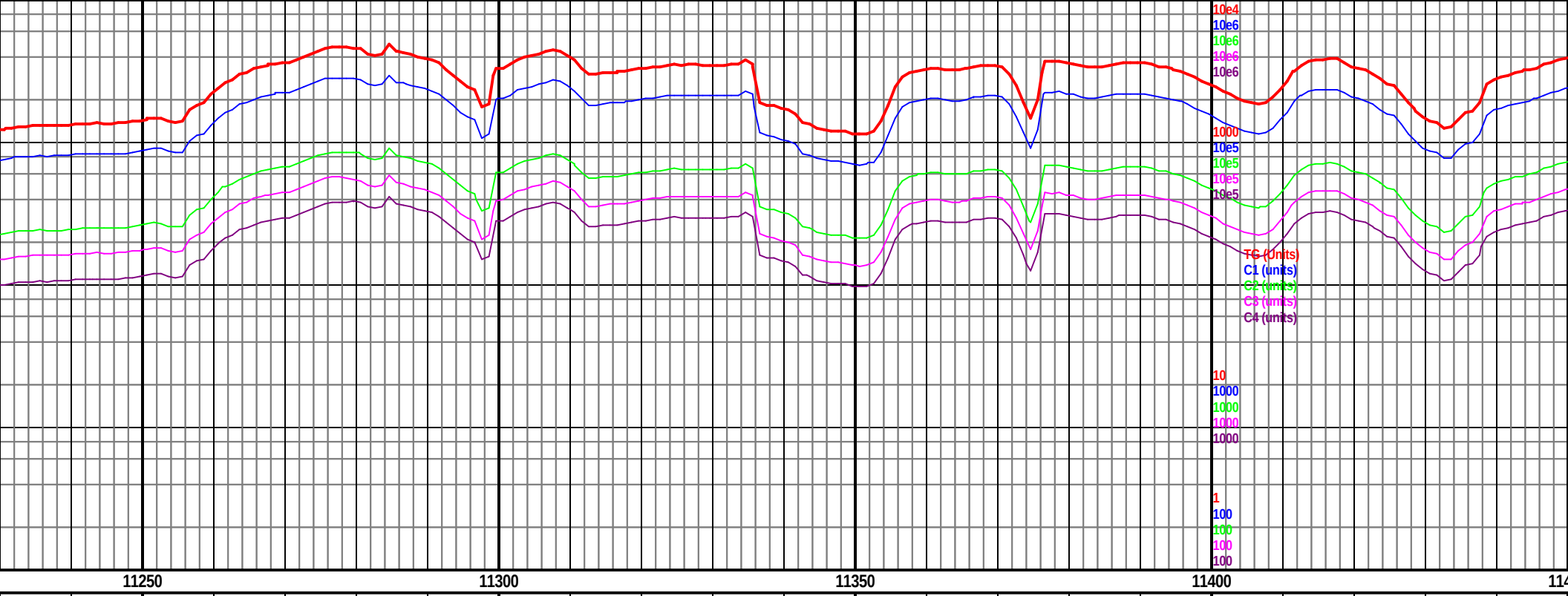

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
Flare off
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
Gas buster on 10750' flare
Oil on shakers
10
1000
1000
1000
1000
10/25/2014
MW 9.4
VIS 40
1
100
100
100
100
10600
10650
10700
10750

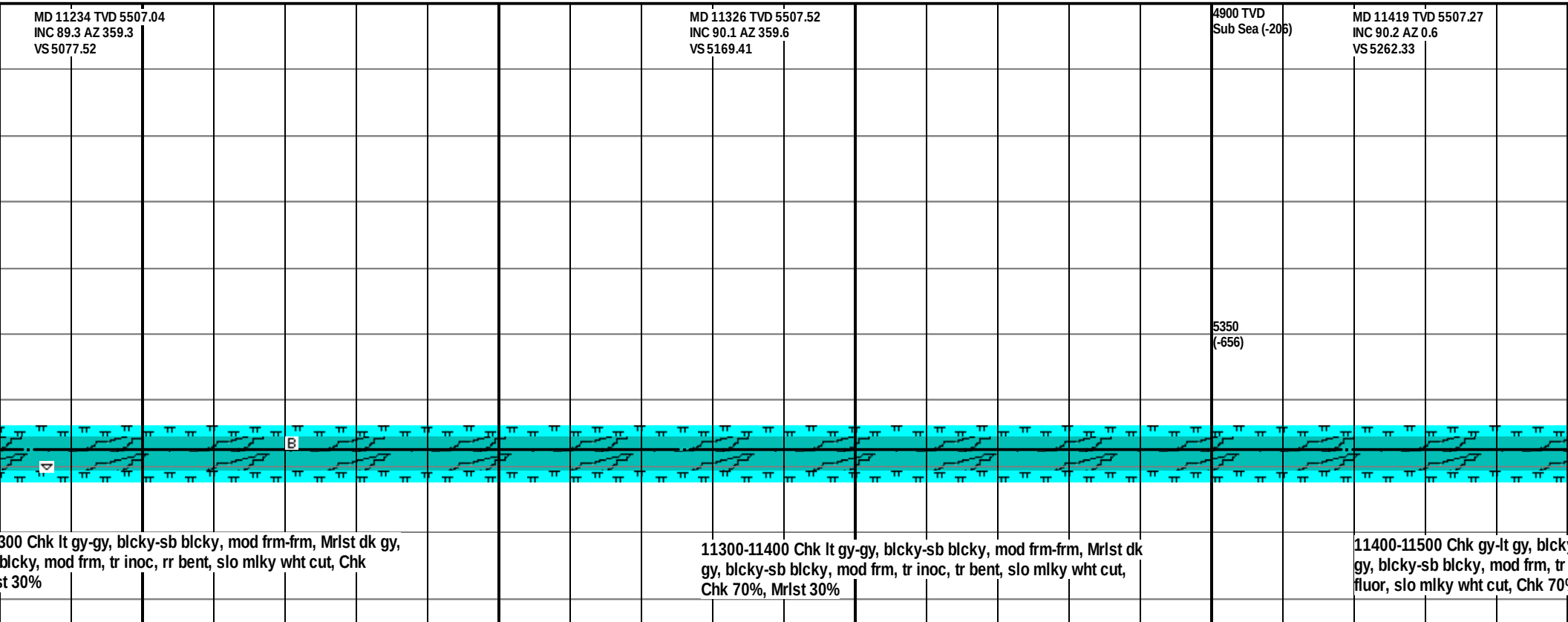

MD 10587 TVD 5501.22
INC 89.3 AZ 0.8
VS 4430.97
Sub Sea (-206)
MD 10680 TVD 5502.44
INC 89.2 AZ 0.4
VS 4523.92
MD 10773 TVD 5503.
INC 89.1 AZ 0.5
VS 4616.86
5350
(-656)
mod
mod frm,
%
10600-10700 Chk gy-lt gy, sb blcky, mod frm-frm, Mrlst dk gy, blcky-sb blcky, mod frm, rr inoc, slo mlky wht cut. Chk 50%. Mrlst 50%
10700-10800 Chk gy-lt gy, sb blcky, mod frm-frm, Mrlst dk gy, blcky-sb blcky, mod frm, rr inoc, slo mlky wht cut, Chk 70%, Mrlst 30%

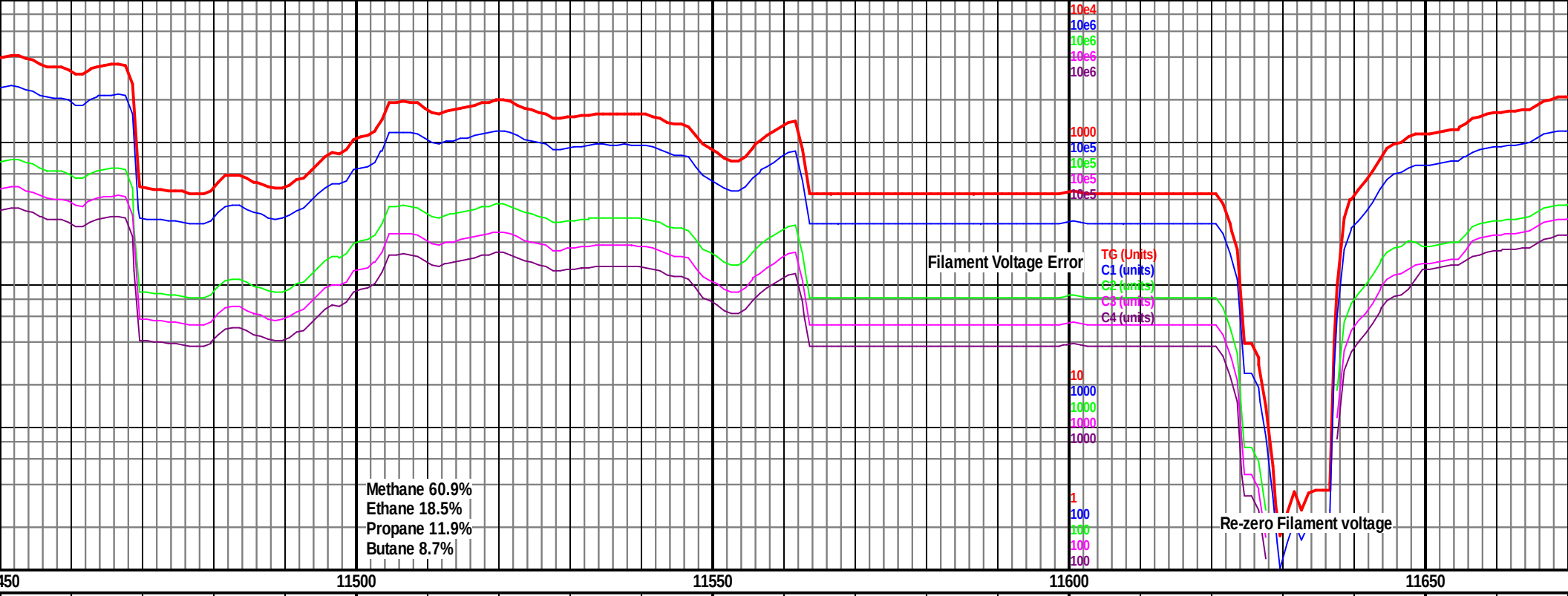

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
MW 9.8
VIS 40
Methane 5
Ethane 18
Propane 1
Butane 11
10800
10850
10900
10950
11000

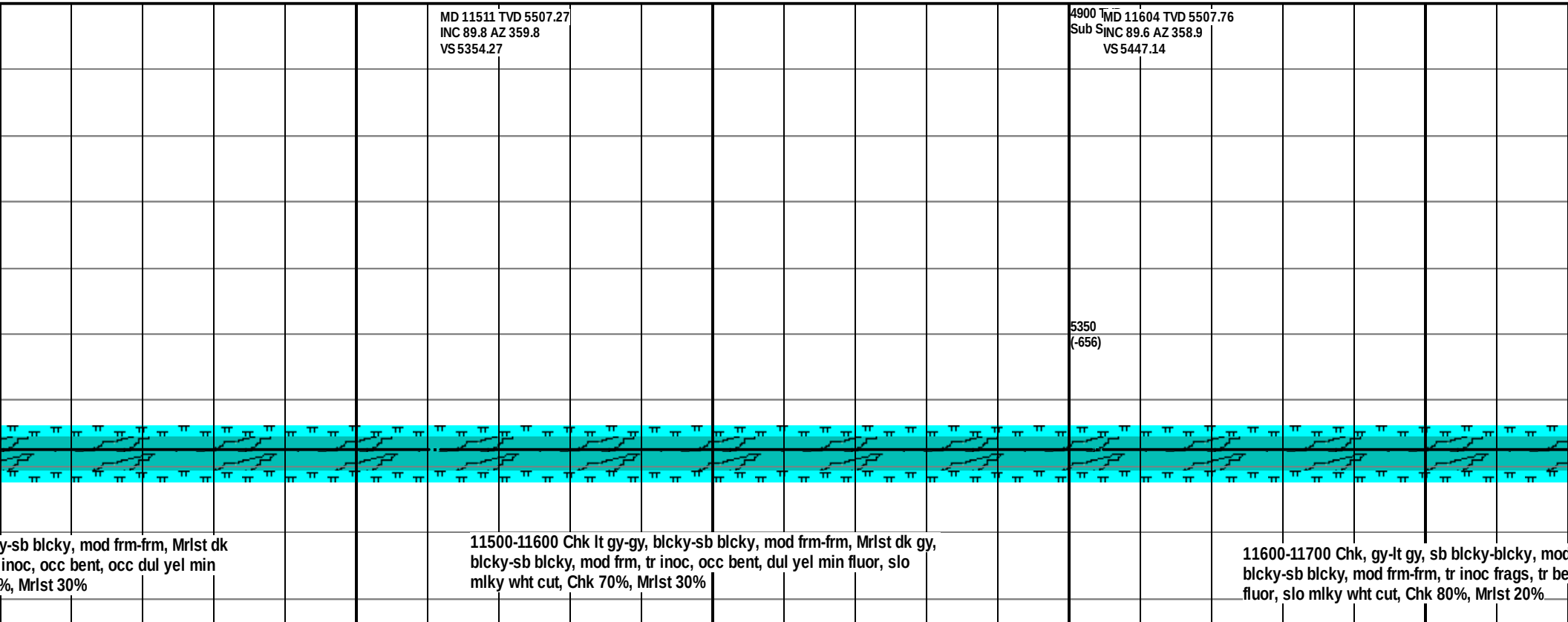

.82
4900 TVD
Sub Sea (-206)
MD 10865 TVD 5505.83
INC 88.4 AZ 359.8
VS 4708.77
MD 10957 TVD 5506.95
INC 90.2 AZ 1.5
VS 4800.72
4900 TVD
Sub Sea (-20
5350
(-656)
5350
(-656)
10800-10900 Chk gy-lt gy, sb blcky, mod frm-frm, Mrlst dk gy, blcky-sb blcky, mod frm, rr inoc, slo mlky wht cut, Chk 50%, Mrlst 50%
10900-11000 Chk gy-lt gy, sb blcky, mod frm-frm, Mrlst dk gy, blcky-sb blcky, mod frm, tr inoc, slo mlky wht cut, Chk 80%, Mrlst 20%

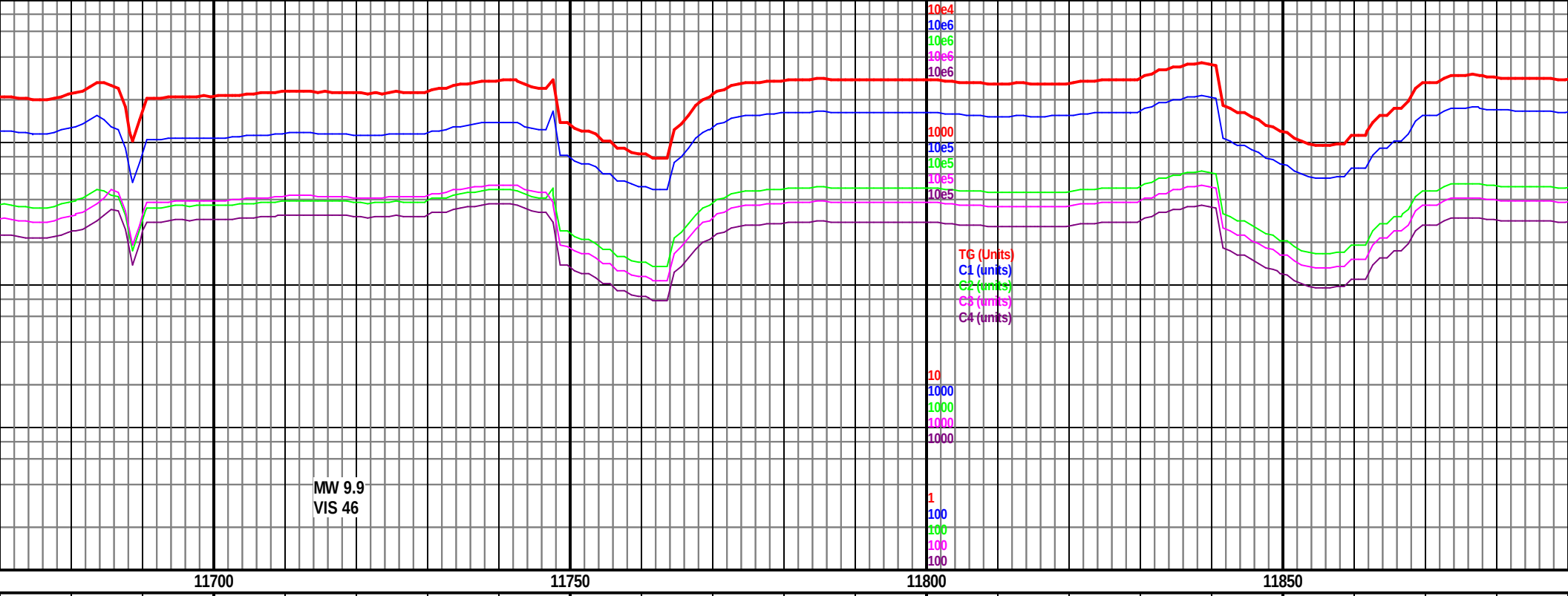

Fix poly line
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
11050
11100
11150
11200
MD 11049 TVD 5506.55
INC 90.3 AZ 0.8
VS 4892.7
MD 11141 TVD 5506.39
INC 89.9 AZ 359.7
VS 4984.64
4900 TVD
Sub Sea (-206)
5350
(-656)
11000-11100 Chk gy-lt gy, sb blcky, mod frm-frm, Mrlst dk gy, blcky-sb blcky, mod frm, tr inoc, slo mlky wht cut, Chk 80%, Mrlst 20%
11100-11200 Chk gy-lt gy, sb blcky, mod frm-frm, Mrlst dk gy, blcky-sb blcky, mod frm, tr inoc, slo mlky wht cut, Chk 70%, Mrlst 30%

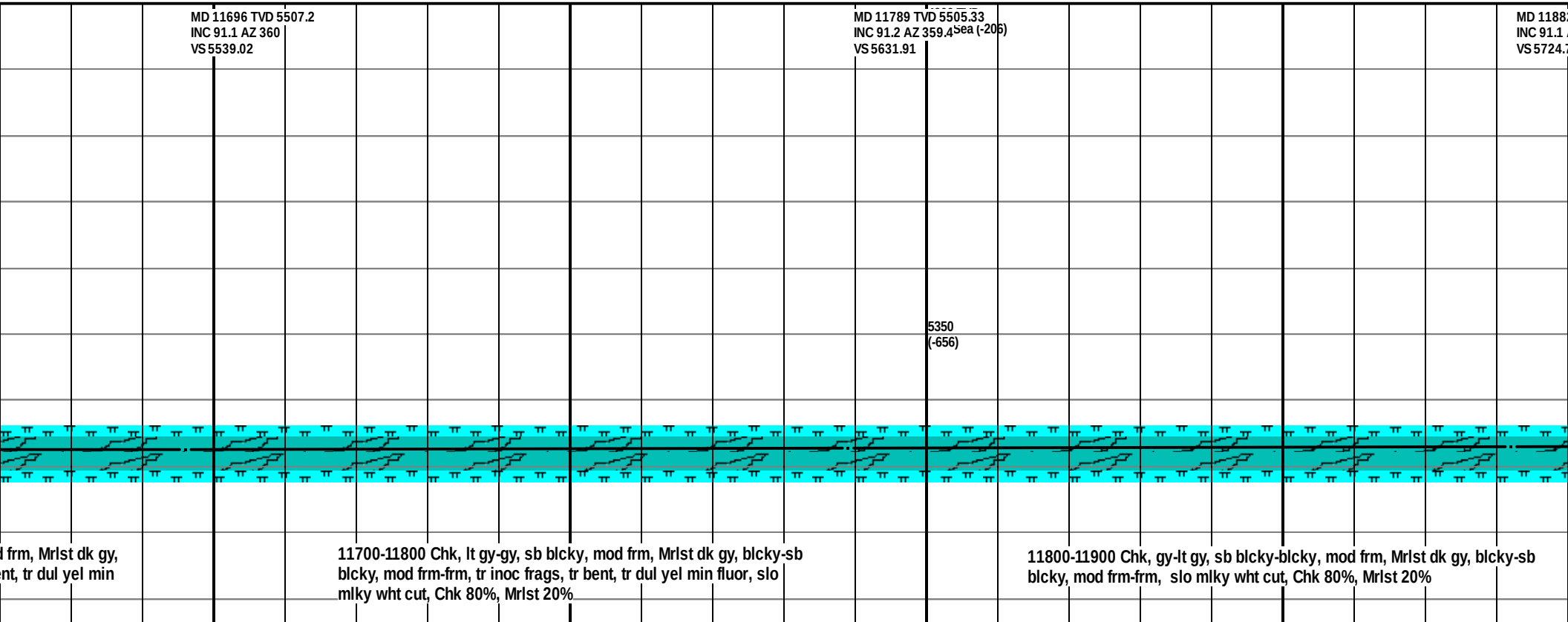

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
11250
11300
11350
11400
114

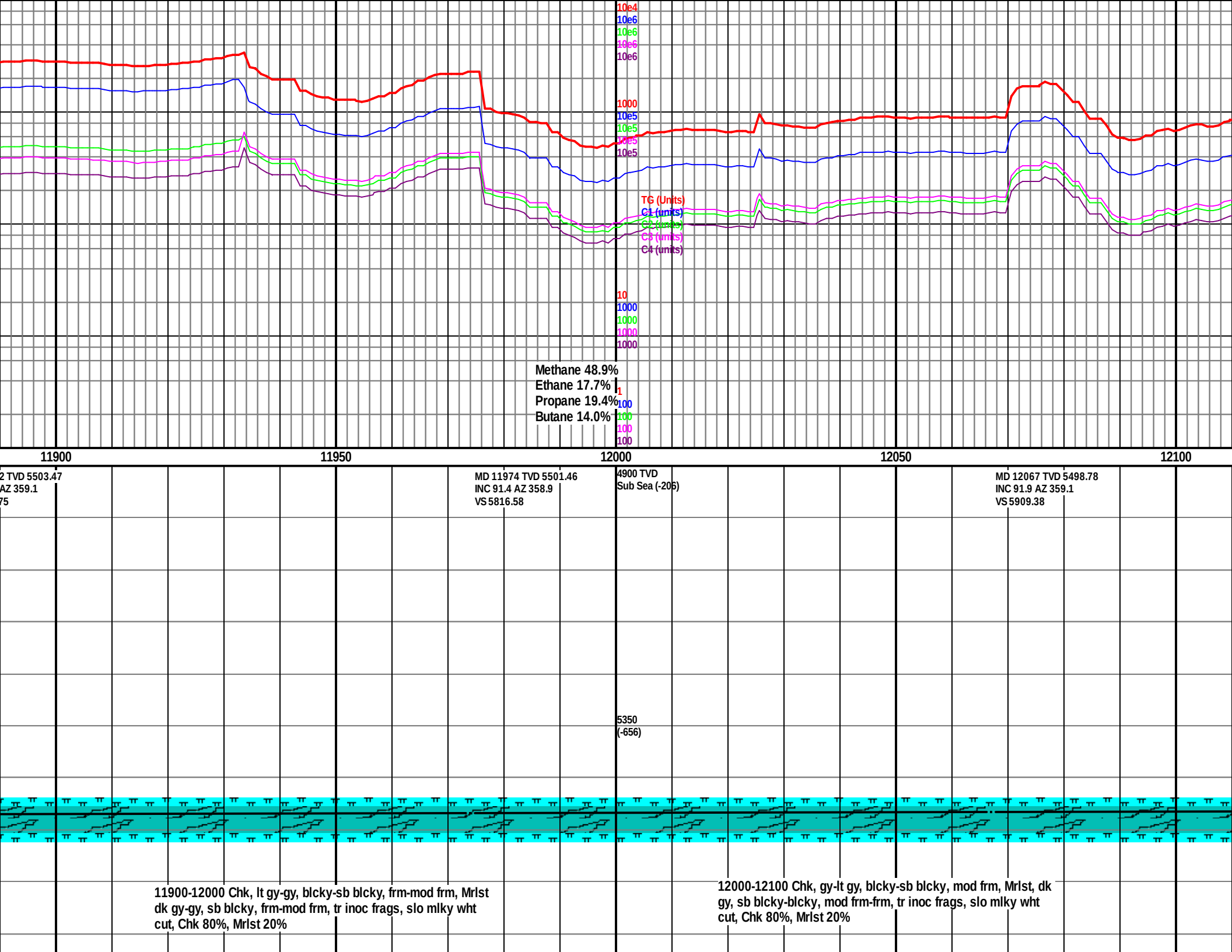

MD 11234 TVD 5507.04
INC 89.3 AZ 359.3
VS 5077.52
MD 11326 TVD 5507.52
INC 90.1 AZ 359.6
VS 5169.41
4900 TVD
Sub Sea (-206)
MD 11419 TVD 5507.27
INC 90.2 AZ 0.6
VS 5262.33
5350
(-656)
B
300 Chk lt gy-gy, blcky-sb blcky, mod frm-frm, Mrlst dk gy, blcky, mod frm, tr inoc, rr bent, slo mlky wht cut, Chk st 30%
11300-11400 Chk lt gy-gy, blcky-sb blcky, mod frm-frm, Mrlst dk gy, blcky-sb blcky, mod frm, tr inoc, tr bent, slo mlky wht cut, Chk 70%, Mrlst 30%
11400-11500 Chk gy-lt gy, blcky gy, blcky-sb blcky, mod frm, tr fluor, slo mlky wht cut, Chk 70

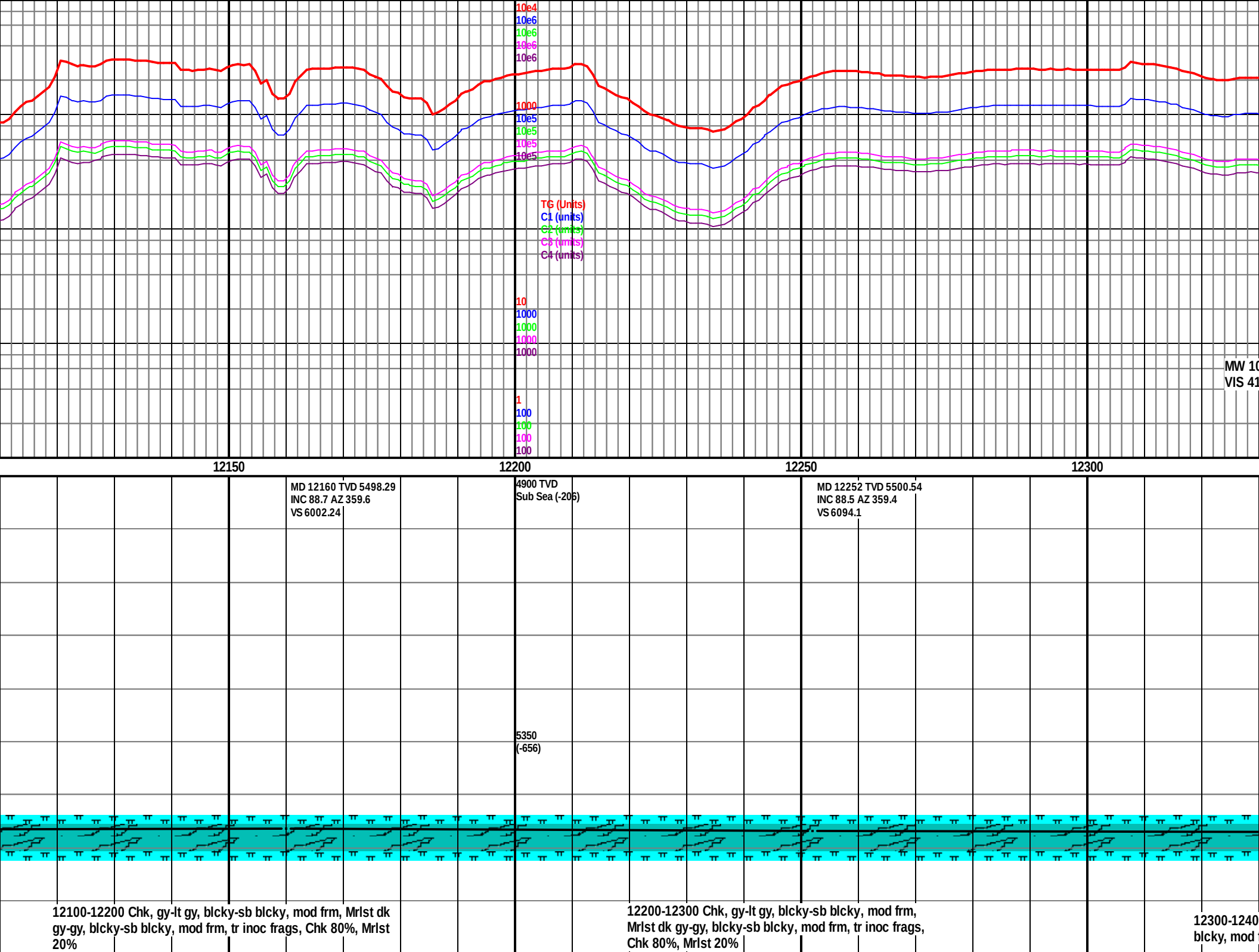

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
Filament Voltage Error
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
Methane 60.9%
Ethane 18.5%
Propane 11.9%
Butane 8.7%
Re-zero Filament voltage
450
11500
11550
11600
11650

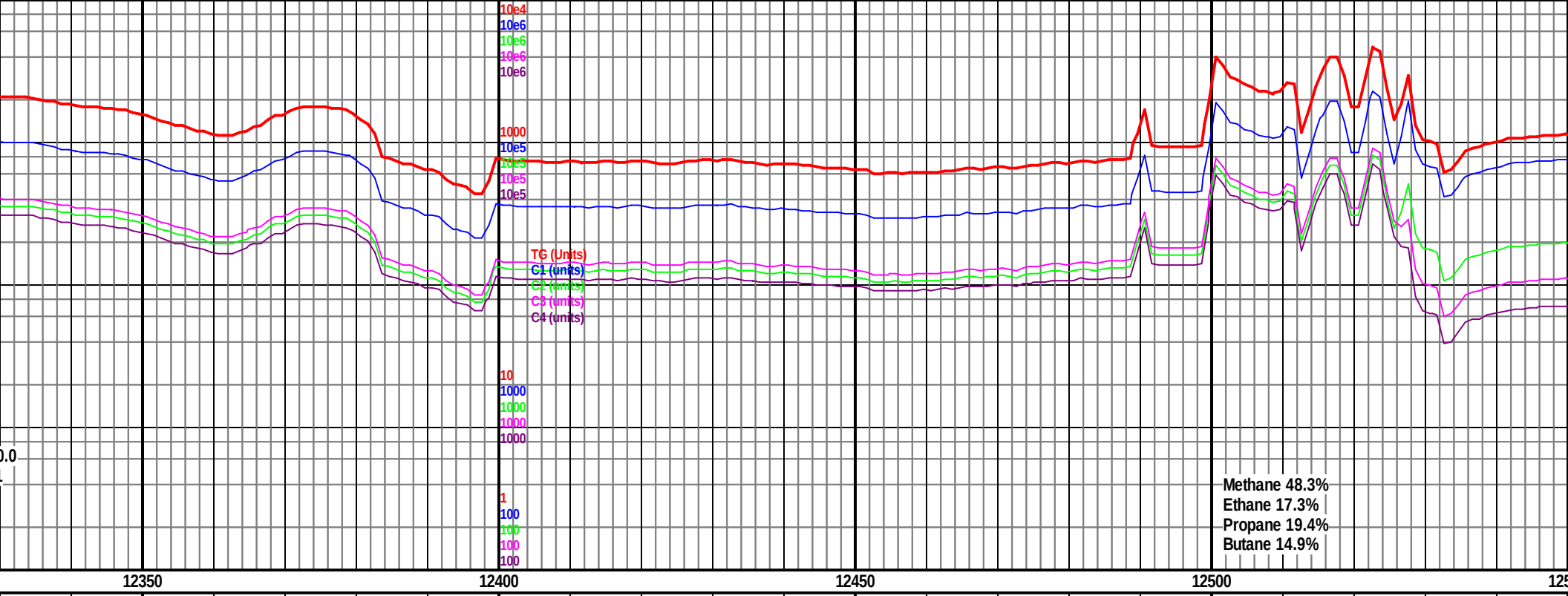

MD 11511 TVD 5507.27
INC 89.8 AZ 359.8
VS 5354.27
4900 TG
Sub S
MD 11604 TVD 5507.76
INC 89.6 AZ 358.9
VS 5447.14
5350
(-656)
y-sb blcky, mod frm-frm, Mrlst dk
inoc, occ bent, occ dul yel min
%, Mrlst 30%
11500-11600 Chk lt gy-gy, blcky-sb blcky, mod frm-frm, Mrlst dk gy,
blcky-sb blcky, mod frm, tr inoc, occ bent, dul yel min fluor, slo
mlky wht cut, Chk 70%, Mrlst 30%
11600-11700 Chk, gy-lt gy, sb blcky-blcky, mod
blcky-sb blcky, mod frm-frm, tr inoc frags, tr be
fluor, slo mlky wht cut, Chk 80%, Mrlst 20%


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
MW 9.9
VIS 46
11700
11750
11800
11850


MD 11696 TVD 5507.2
INC 91.1 AZ 360
VS 5539.02
MD 11789 TVD 5505.33
INC 91.2 AZ 359.4
VS 5631.91
Sea (-206)
5350
(-656)
d frm, Mrlst dk gy,
ent, tr dul yel min
11700-11800 Chk, lt gy-gy, sb blcky, mod frm, Mrlst dk gy, blcky-sb blcky, mod frm-frm, tr inoc frags, tr bent, tr dul yel min fluor, slo mlky wht cut, Chk 80%, Mrlst 20%
11800-11900 Chk, gy-lt gy, sb blcky-blcky, mod frm, Mrlst dk gy, blcky-sb blcky, mod frm-frm, slo mlky wht cut, Chk 80%, Mrlst 20%


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
Methane 48.9%
Ethane 17.7%
Propane 19.4%
Butane 14.0%
1
100
100
100
100
11900
11950
12000
12050
12100
2 TVD 5503.47
AZ 359.1
75
MD 11974 TVD 5501.46
INC 91.4 AZ 358.9
VS 5816.58
4900 TVD
Sub Sea (-206)
MD 12067 TVD 5498.78
INC 91.9 AZ 359.1
VS 5909.38
5350
(-656)
11900-12000 Chk, lt gy-gy, blcky-sb blcky, frm-mod frm, Mrlst dk gy-gy, sb blcky, frm-mod frm, tr inoc frags, slo mlky wht cut, Chk 80%, Mrlst 20%
12000-12100 Chk, gy-lt gy, blcky-sb blcky, mod frm, Mrlst, dk gy, sb blcky-blcky, mod frm-frm, tr inoc frags, slo mlky wht cut, Chk 80%, Mrlst 20%


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
MW 10
VIS 41
12150
12200
12250
12300
MD 12160 TVD 5498.29
INC 88.7 AZ 359.6
VS 6002.24
4900 TVD
Sub Sea (-206)
MD 12252 TVD 5500.54
INC 88.5 AZ 359.4
VS 6094.1
5350
(-656)
12100-12200 Chk, gy-lt gy, blcky-sb blcky, mod frm, Mrlst dk gy-gy, blcky-sb blcky, mod frm, tr inoc frags, Chk 80%, Mrlst 20%
12200-12300 Chk, gy-lt gy, blcky-sb blcky, mod frm, Mrlst dk gy-gy, blcky-sb blcky, mod frm, tr inoc frags, Chk 80%, Mrlst 20%
12300-1240
blcky, mod



MD 12345 TVD 5502.81
INC 88.7 AZ 359.1
VS 6186.94

4900 TVD
Sub Sea (-206)

MD 12438 TVD 5505.17
INC 88.4 AZ 359.3
VS 6279.78

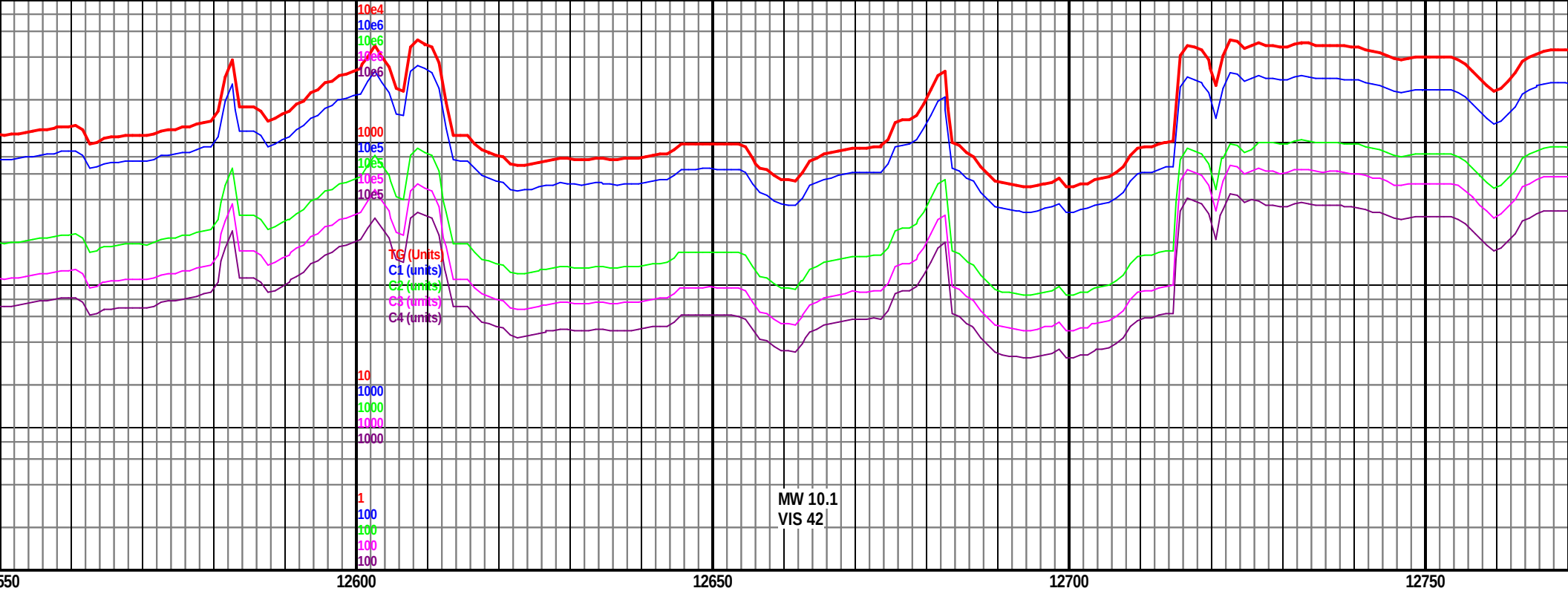
MD 12531 TVD 5508.74
INC 87.2 AZ 359.6
VS 6372.59

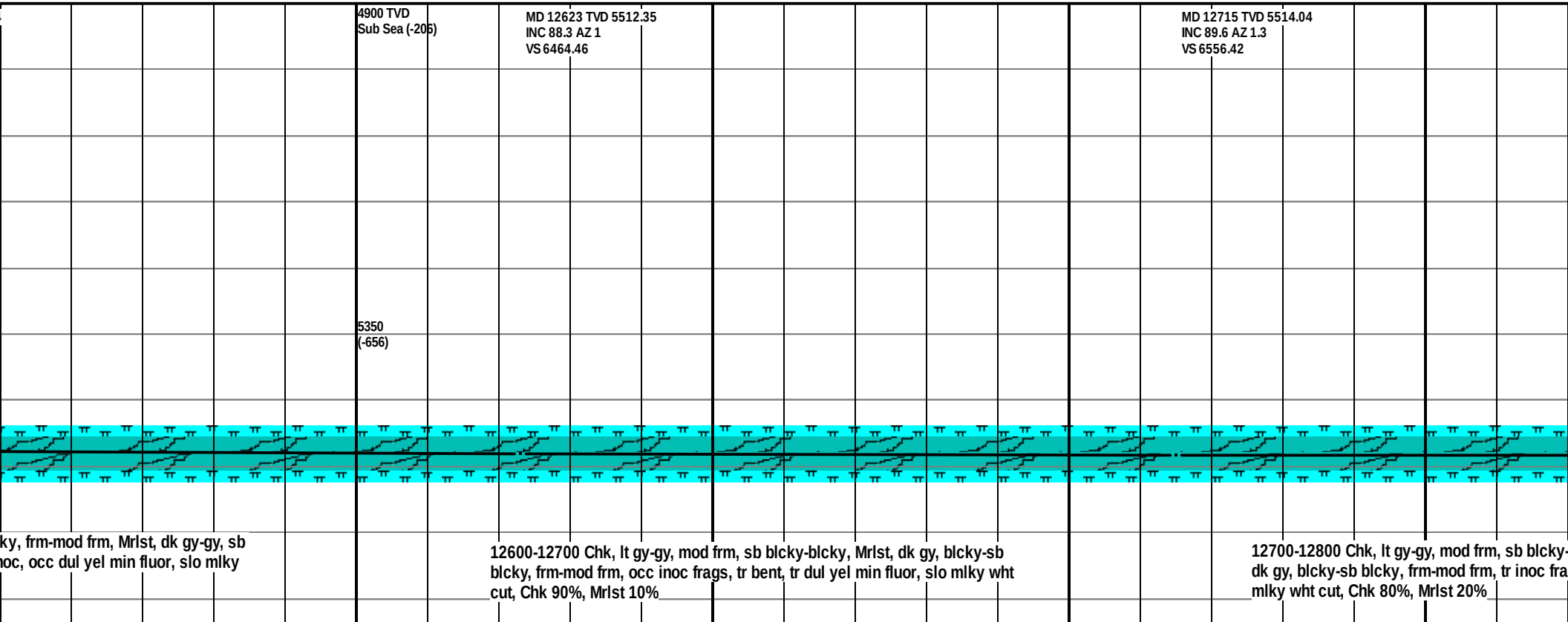
5350
(-656)

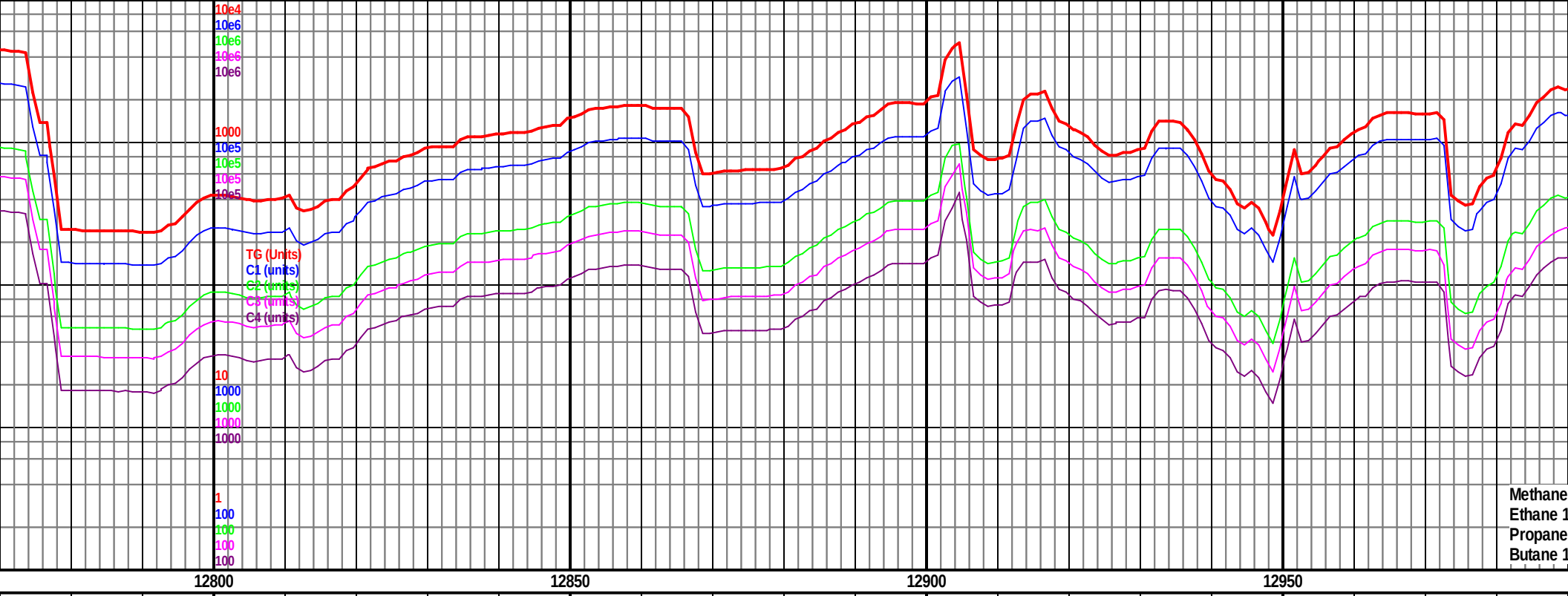
0 Chk, lt gy-gy, sb blcky, mod frm, Mrlst dk gy-gy, blcky-sb frm, rr inoc frags, Chk 80%, Mrlst 20%

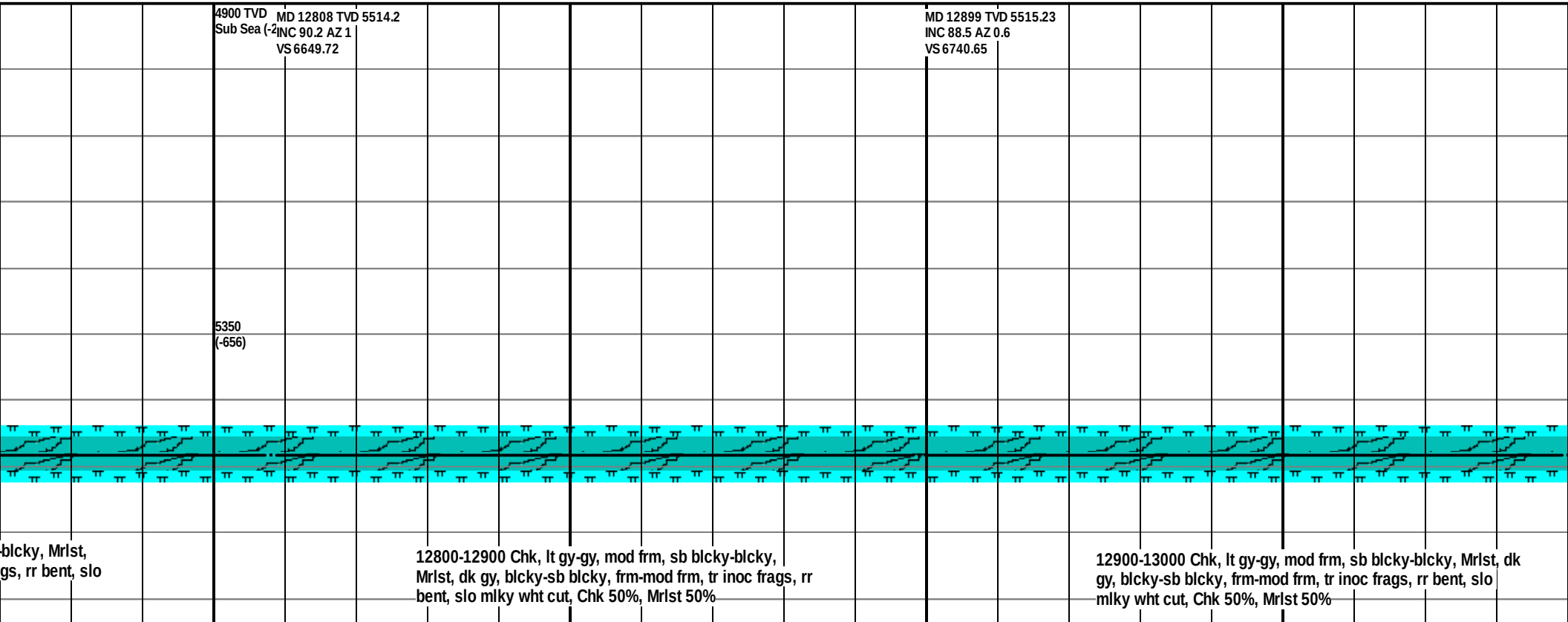
12400-12500 Chk, lt gy-gy, sb blcky-blcky, frm-mod frm, Mrlst, dk gy, sb blcky, frm-mod frm, occ bent, occ dull yel fluor, slo mlky wht cut, Chk 80%, Mrlst 20%

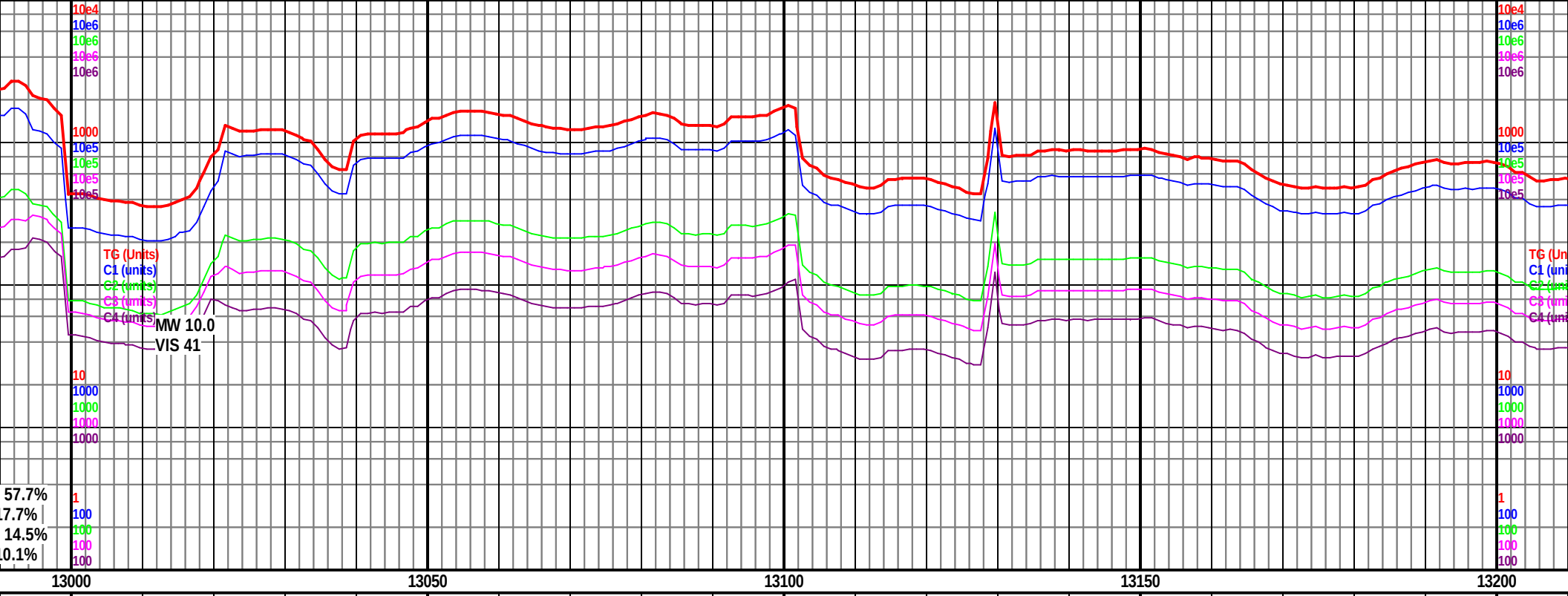
12500-12600 Chk, lt gy-gy, blcky-sb blc blcky-blcky, frm-mod frm, occ bent, tr ir wht cut, Chk 80%, Mrlst 20%

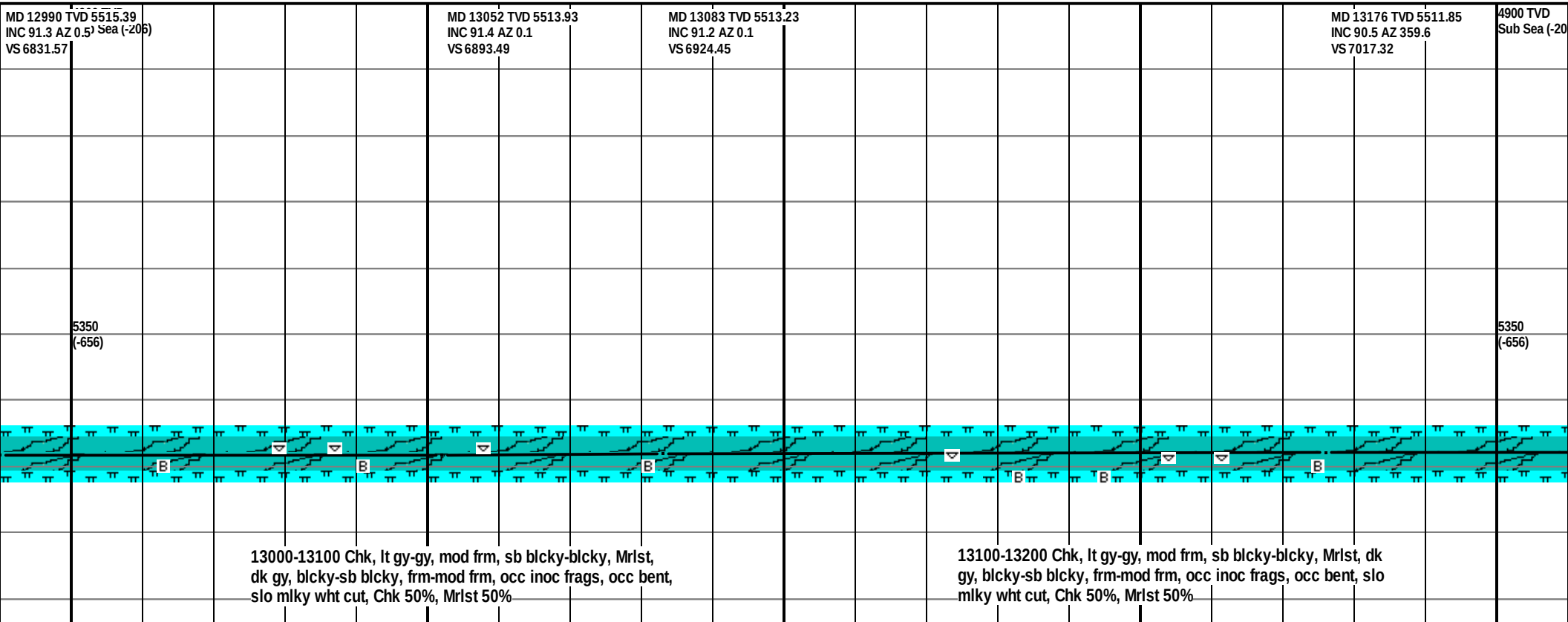

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
MW 10.1
VIS 42
550
12600
12650
12700
12750

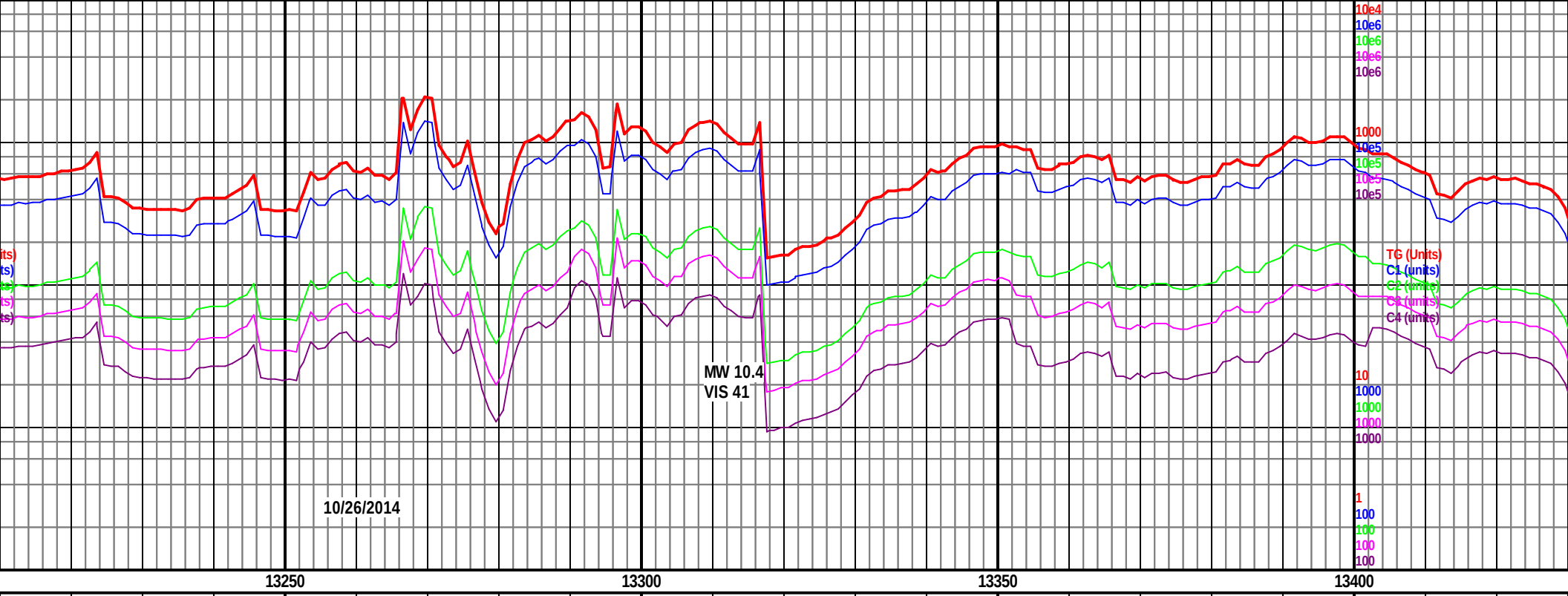

4900 TVD
Sub Sea (-206)
MD 12623 TVD 5512.35
INC 88.3 AZ 1
VS 6464.46
MD 12715 TVD 5514.04
INC 89.6 AZ 1.3
VS 6556.42
5350
(-656)
ky, frm-mod frm, Mrlst, dk gy-gy, sb
oc, occ dul yel min fluor, slo mlky
12600-12700 Chk, lt gy-gy, mod frm, sb blcky-blcky, Mrlst, dk gy, blcky-sb
blcky, frm-mod frm, occ inoc frags, tr bent, tr dul yel min fluor, slo mlky wht
cut, Chk 90%, Mrlst 10%
12700-12800 Chk, lt gy-gy, mod frm, sb blcky-
dk gy, blcky-sb blcky, frm-mod frm, tr inoc fra
mlky wht cut, Chk 80%, Mrlst 20%

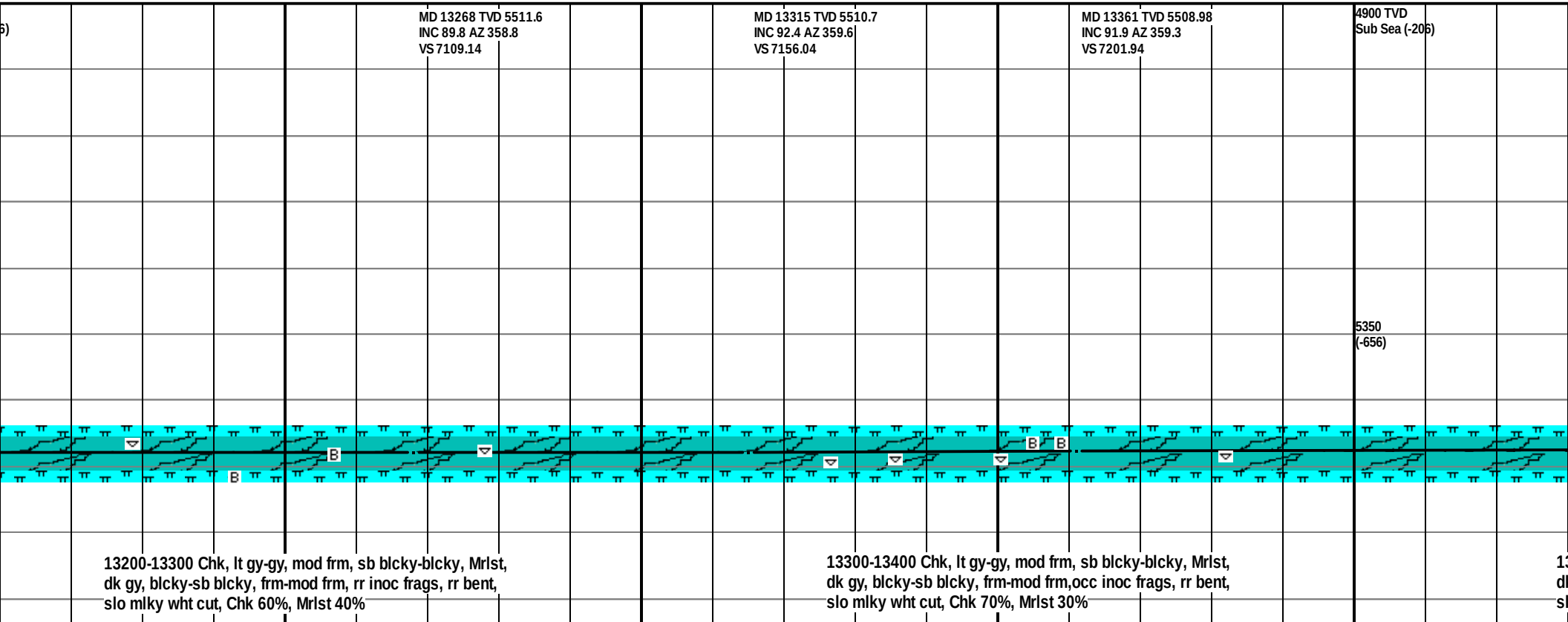

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
Methane
Ethane 1
Propane
Butane 1
12800
12850
12900
12950

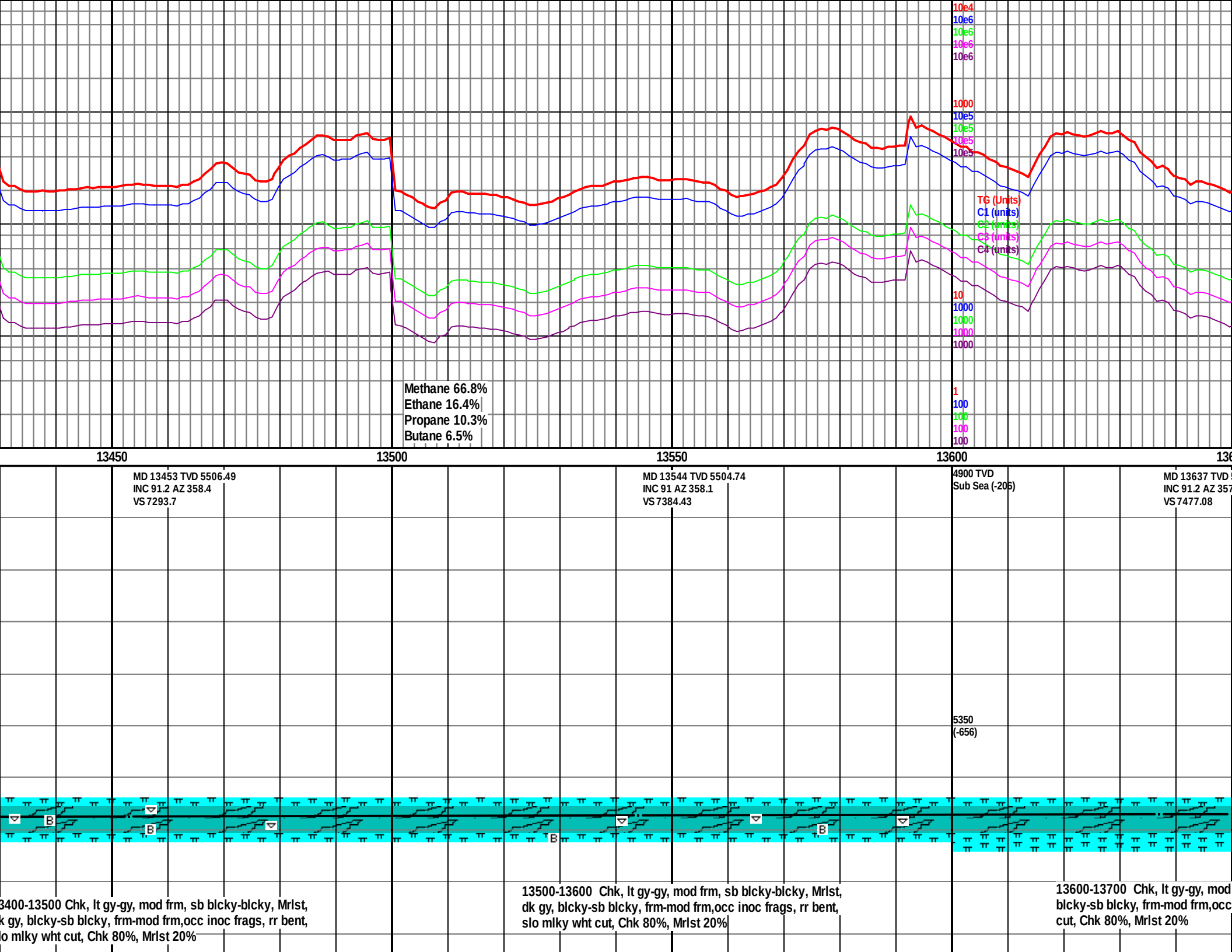

4900 TVD
Sub Sea (-2
MD 12808 TVD 5514.2
INC 90.2 AZ 1
VS 6649.72
MD 12899 TVD 5515.23
INC 88.5 AZ 0.6
VS 6740.65
5350
(-656)
-blcky, Mrlst,
gs, rr bent, slo
12800-12900 Chk, lt gy-gy, mod frm, sb blcky-blcky, Mrlst, dk gy, blcky-sb blcky, frm-mod frm, tr inoc frags, rr bent, slo mlky wht cut, Chk 50%, Mrlst 50%
12900-13000 Chk, lt gy-gy, mod frm, sb blcky-blcky, Mrlst, dk gy, blcky-sb blcky, frm-mod frm, tr inoc frags, rr bent, slo mlky wht cut, Chk 50%, Mrlst 50%

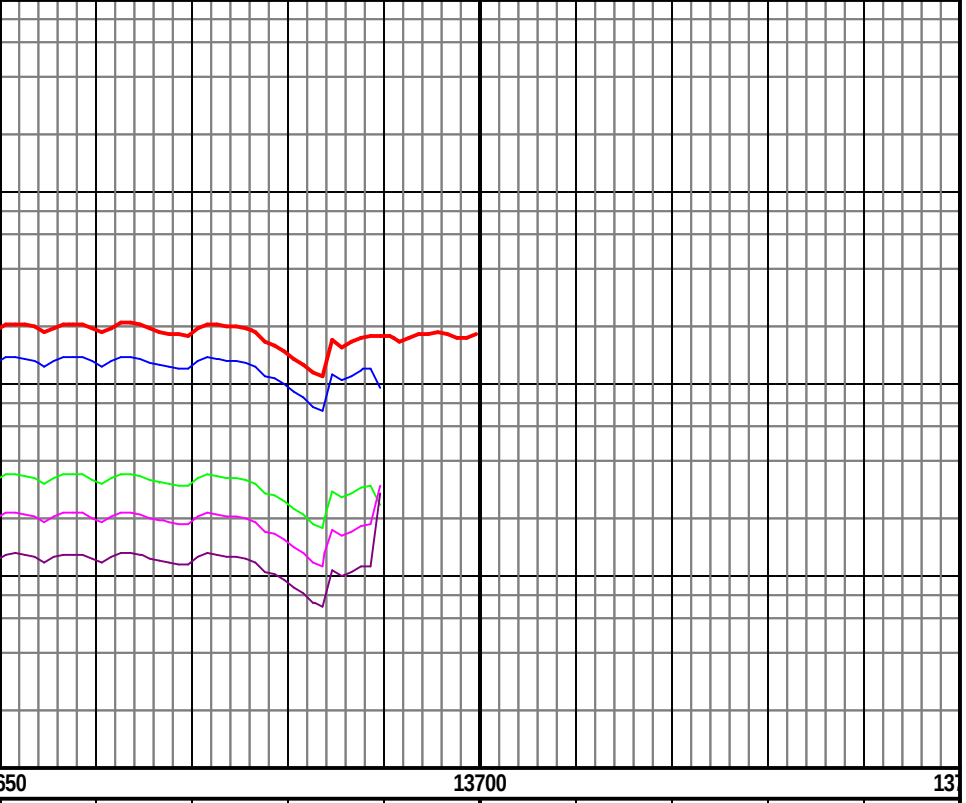

TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
MW 10.0
VIS 41
57.7%
7.7%
14.5%
0.1%
13000
13050
13100
13150
13200


MD 12990 TVD 5515.39
INC 91.3 AZ 0.5
VS 6831.57
MD 13052 TVD 5513.93
INC 91.4 AZ 0.1
VS 6893.49
MD 13083 TVD 5513.23
INC 91.2 AZ 0.1
VS 6924.45
MD 13176 TVD 5511.85
INC 90.5 AZ 359.6
VS 7017.32
5350
(-656)
13000-13100 Chk, lt gy-gy, mod frm, sb blcky-blcky, Mrlst, dk gy, blcky-sb blcky, frm-mod frm, occ inoc frags, occ bent, slo mlky wht cut, Chk 50%, Mrlst 50%
13100-13200 Chk, lt gy-gy, mod frm, sb blcky-blcky, Mrlst, dk gy, blcky-sb blcky, frm-mod frm, occ inoc frags, occ bent, slo mlky wht cut, Chk 50%, Mrlst 50%


10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
MW 10.4
VIS 41
10/26/2014
13250
13300
13350
13400


MD 13268 TVD 5511.6
INC 89.8 AZ 358.8
VS 7109.14
MD 13315 TVD 5510.7
INC 92.4 AZ 359.6
VS 7156.04
MD 13361 TVD 5508.98
INC 91.9 AZ 359.3
VS 7201.94
4900 TVD
Sub Sea (-206)
5350
(-656)
B
B
B
B
B
13200-13300 Chk, lt gy-gy, mod frm, sb blcky-blcky, Mrlst,
dk gy, blcky-sb blcky, frm-mod frm, rr inoc frags, rr bent,
slo mlky wht cut, Chk 60%, Mrlst 40%
13300-13400 Chk, lt gy-gy, mod frm, sb blcky-blcky, Mrlst,
dk gy, blcky-sb blcky, frm-mod frm,occ inoc frags, rr bent,
slo mlky wht cut, Chk 70%, Mrlst 30%

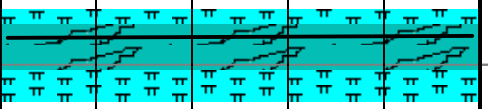

10e4
10e6
10e6
10e6
10e6
1000
10e5
10e5
10e5
10e5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
10
1000
1000
1000
1000
1
100
100
100
100
Methane 66.8%
Ethane 16.4%
Propane 10.3%
Butane 6.5%
13450
13500
13550
13600
MD 13453 TVD 5506.49
INC 91.2 AZ 358.4
VS 7293.7
MD 13544 TVD 5504.74
INC 91 AZ 358.1
VS 7384.43
4900 TVD
Sub Sea (-206)
MD 13637 TVD
INC 91.2 AZ 357
VS 7477.08
5350
(-656)
B
B
B
B
3400-13500 Chk, lt gy-gy, mod frm, sb blcky-blcky, Mrlst,
k gy, blcky-sb blcky, frm-mod frm,occ inoc frags, rr bent,
lo mlky wht cut, Chk 80%, Mrlst 20%
13500-13600 Chk, lt gy-gy, mod frm, sb blcky-blcky, Mrlst,
dk gy, blcky-sb blcky, frm-mod frm,occ inoc frags, rr bent,
slo mlky wht cut, Chk 80%, Mrlst 20%
13600-13700 Chk, lt gy-gy, mod
blcky-sb blcky, frm-mod frm,occ
cut, Chk 80%, Mrlst 20%



5MD 13650 TVD 5502.68
.INC 91.2 AZ 357.4
VS 7490.03

MD 13700 TVD 5501.64
INC 91.2 AZ 357.4
VS 7539.82

TD 13700' MD reached at 05:35 on 10/26/2014



frm, sb blcky-blcky, Mrlst, dk gy,
inoc frags, rr bent, slo mlky wht