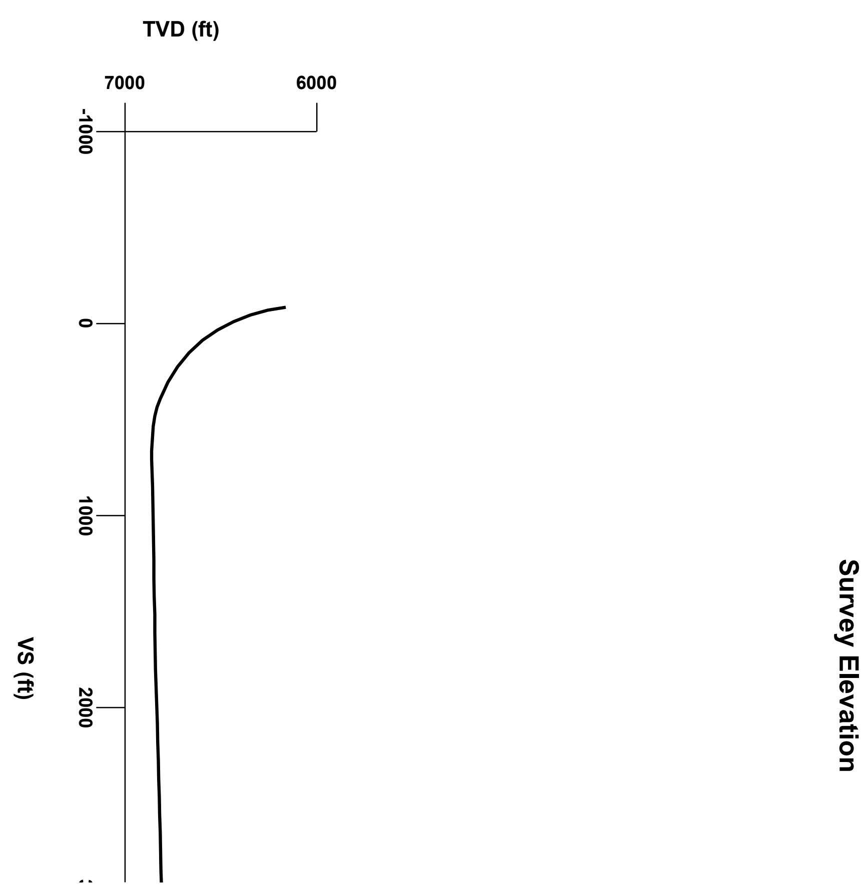
pason

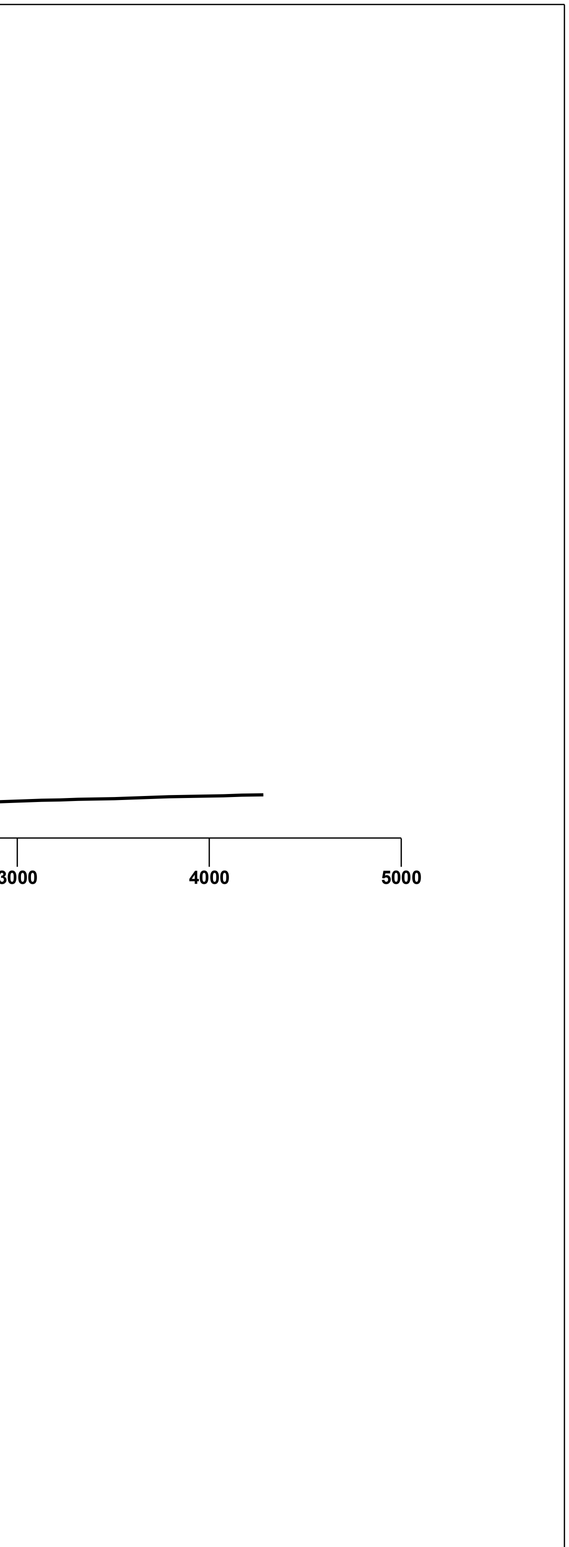
Lplot VH

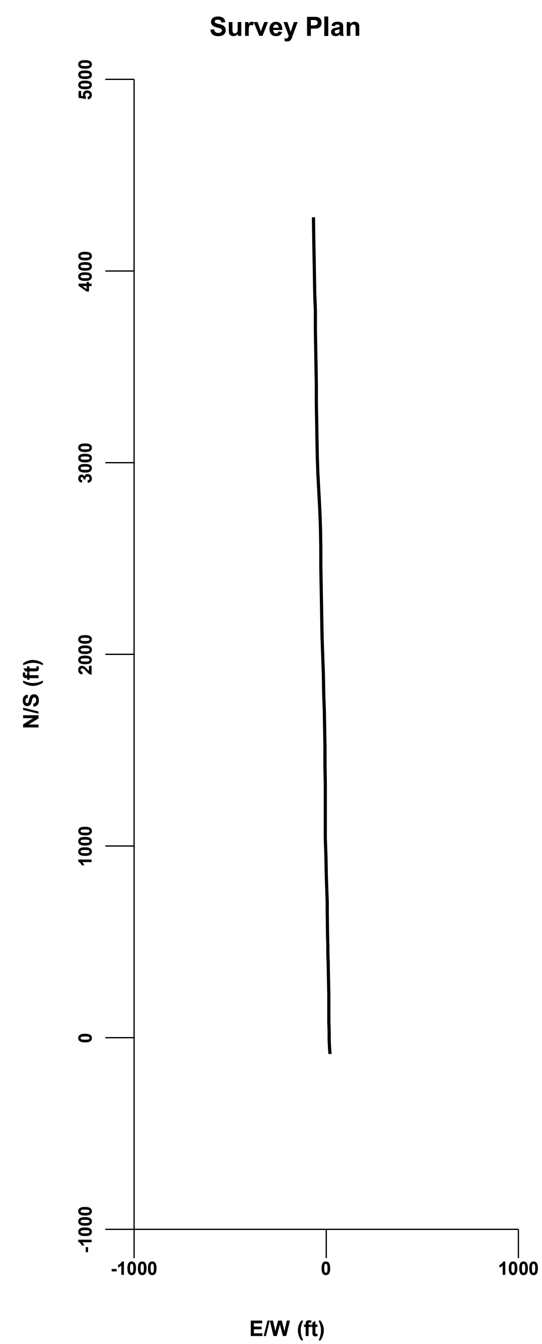
Pason Systems USA Corp.
(720) 880-2000

LOG created using LPLOT VH Version 3.0, May 22, 2013, Copyright (C) 1999-2009 Pason Systems Corp.

OPERATOR:	**NOBLE ENERGY INC.**
WELL:	**SAUER F33-77-1HNX**
LOCATION:	**SESW SEC 33 T5N R65W**
COUNTY:	**WELD**
STATE:	**COLORADO**
SPOT:	**237 FSL 1677 FWL**
ELEVATION:	**4,670' GL, 4,684' KB**
FIELD:	**WATTENBERG**
SPUD DATE:	**05/15/2013**
TD DATE:	**05/22/2013**
DATES LOGGED:	**05/16/2013 - 05/22/2013**
DEPTHS LOGGED:	**602' - 10971' MD**
LOGGERS:	**KYLE KNIGHT,NATHAN MURPHY,ERIC BERNARDO**
DRILLING FLUID:	**FW, LSND**
DRILLING RIG:	**ENSIGN 121**
API:	**05-123-37261**
LOG TYPE:	**Horizontal**
SCALE:	**1:240 (5 inches per 100 feet)**
REMARKS:	**Wellsite Geological Services Provided By Columbine Logging Inc.** **LAT, LONG: 40.34913/-104.67184**




3000
4000
5000

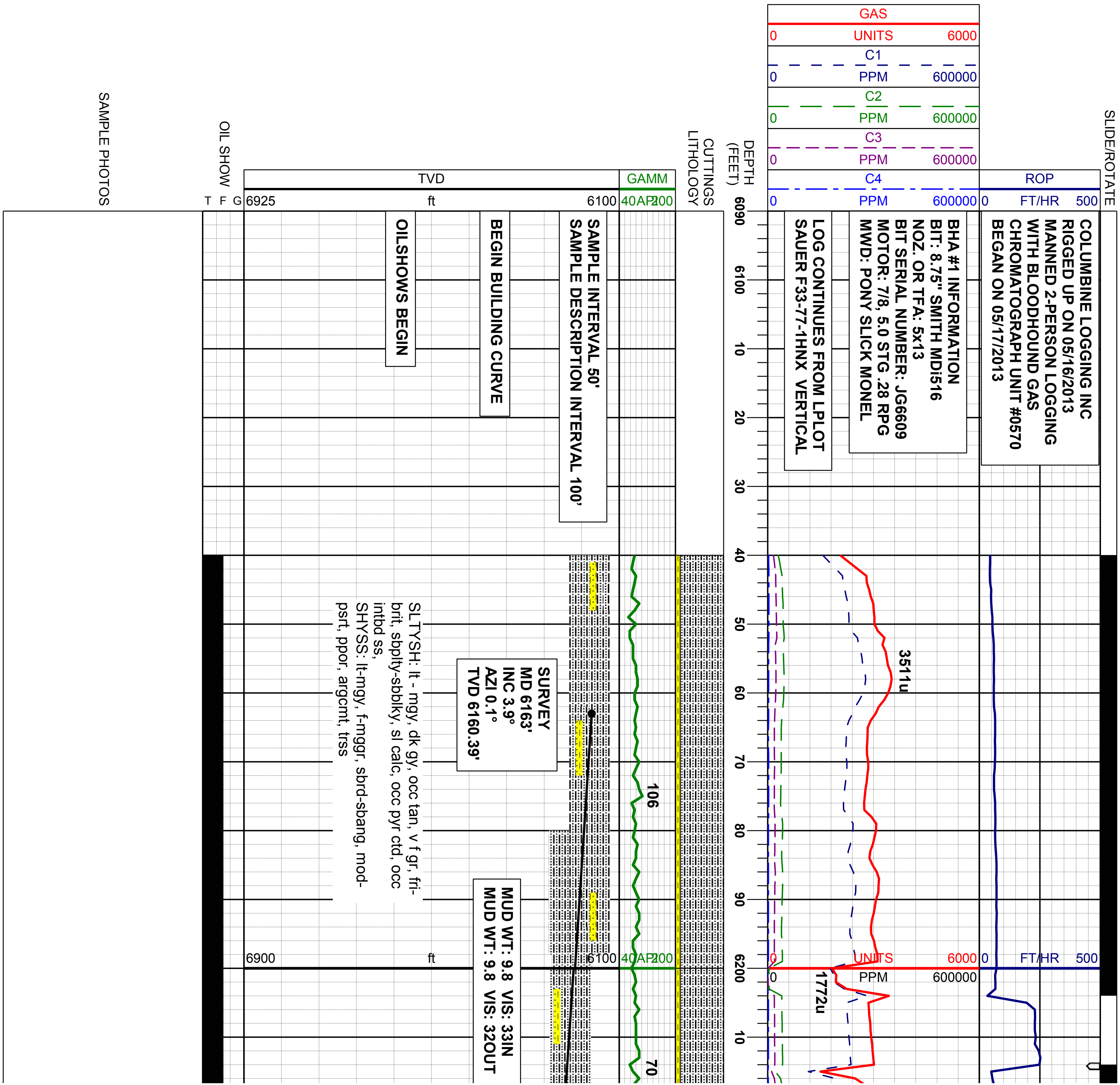

Survey Plan
N/S (ft)
E/W (ft)
5000
4000
3000
2000
1000
0
-1000
0
1000

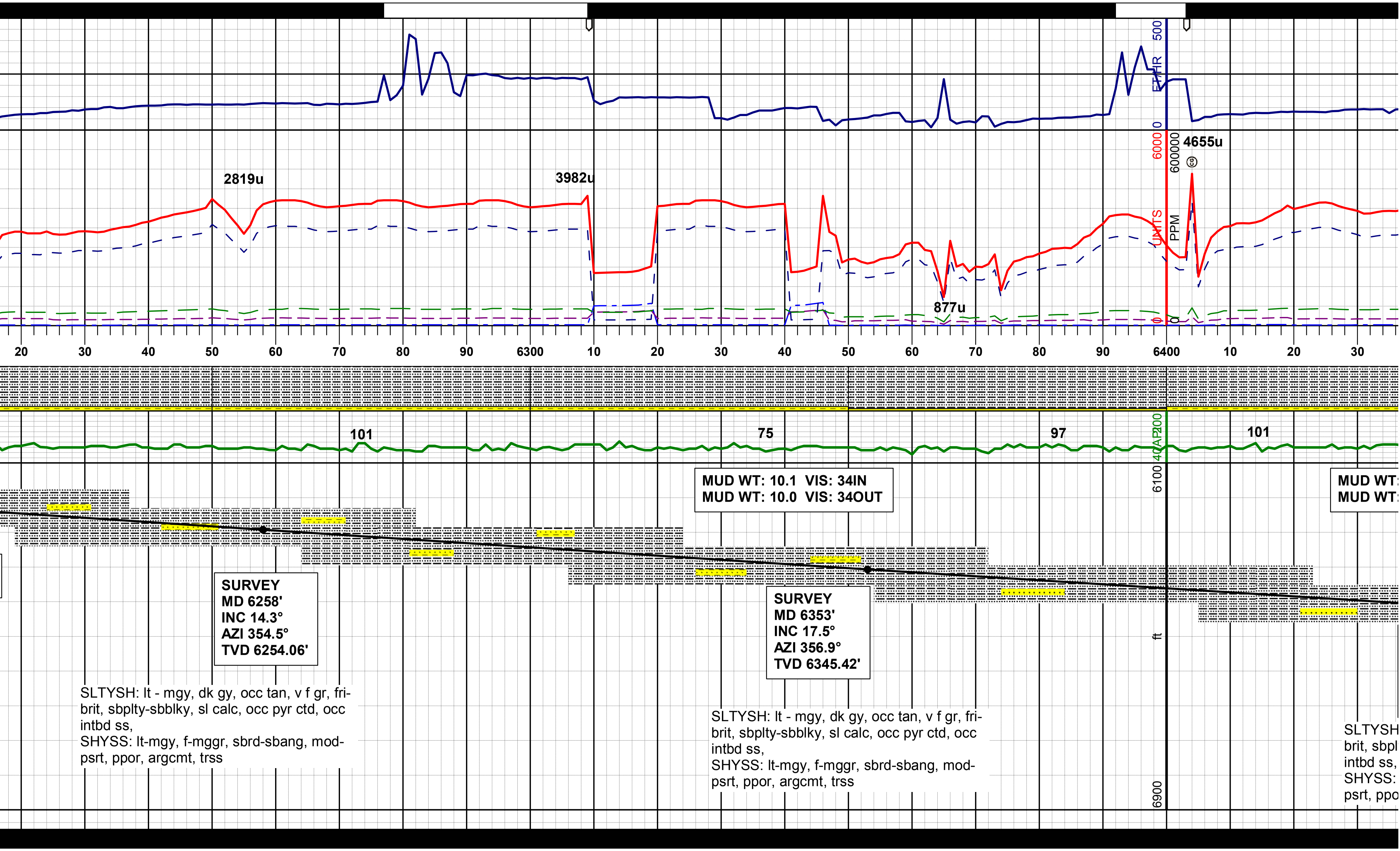
LITHOLOGIES

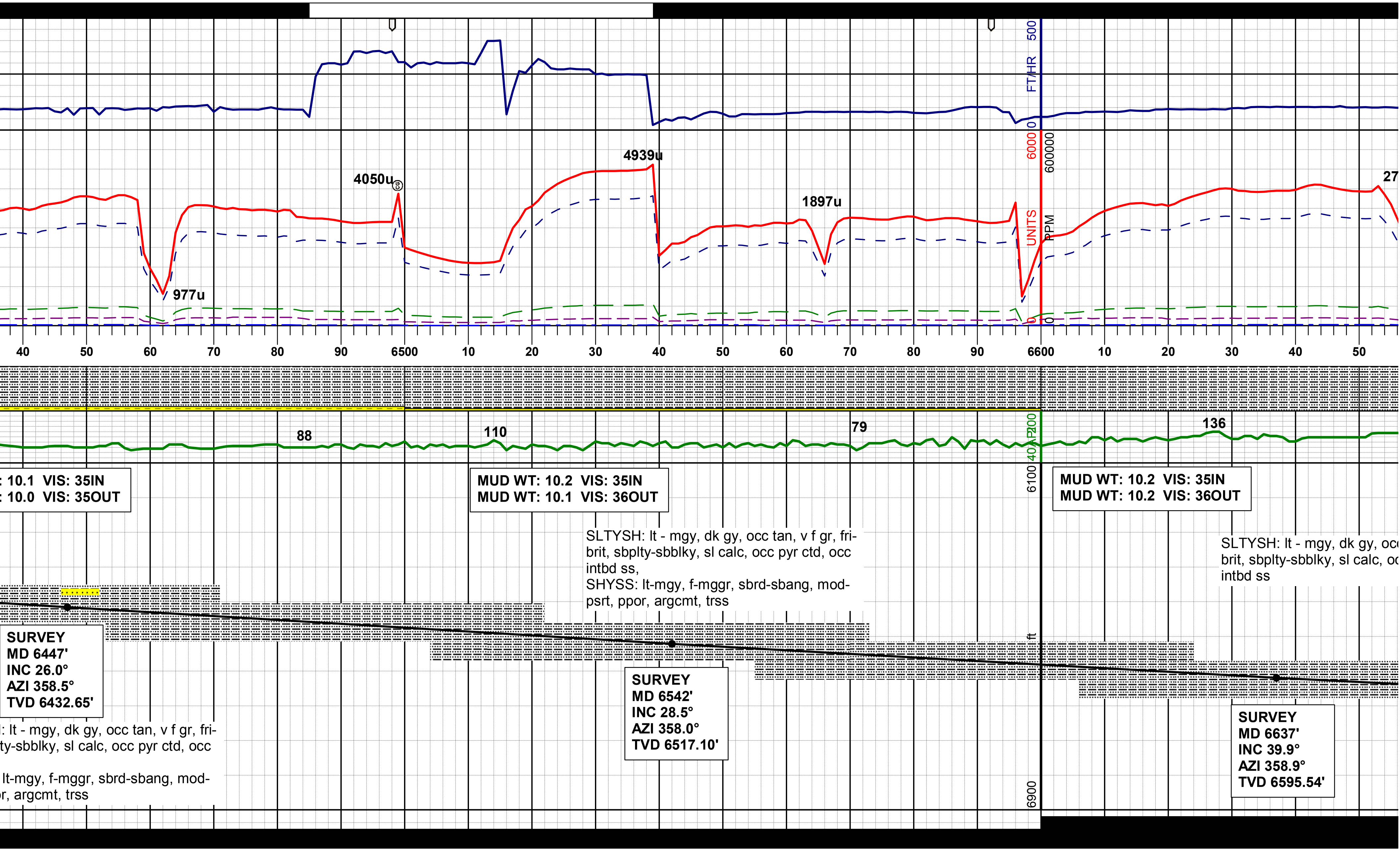
Chalk	Marl	No Sample
Sandstone	Shaly Sandstone	Silty Shale

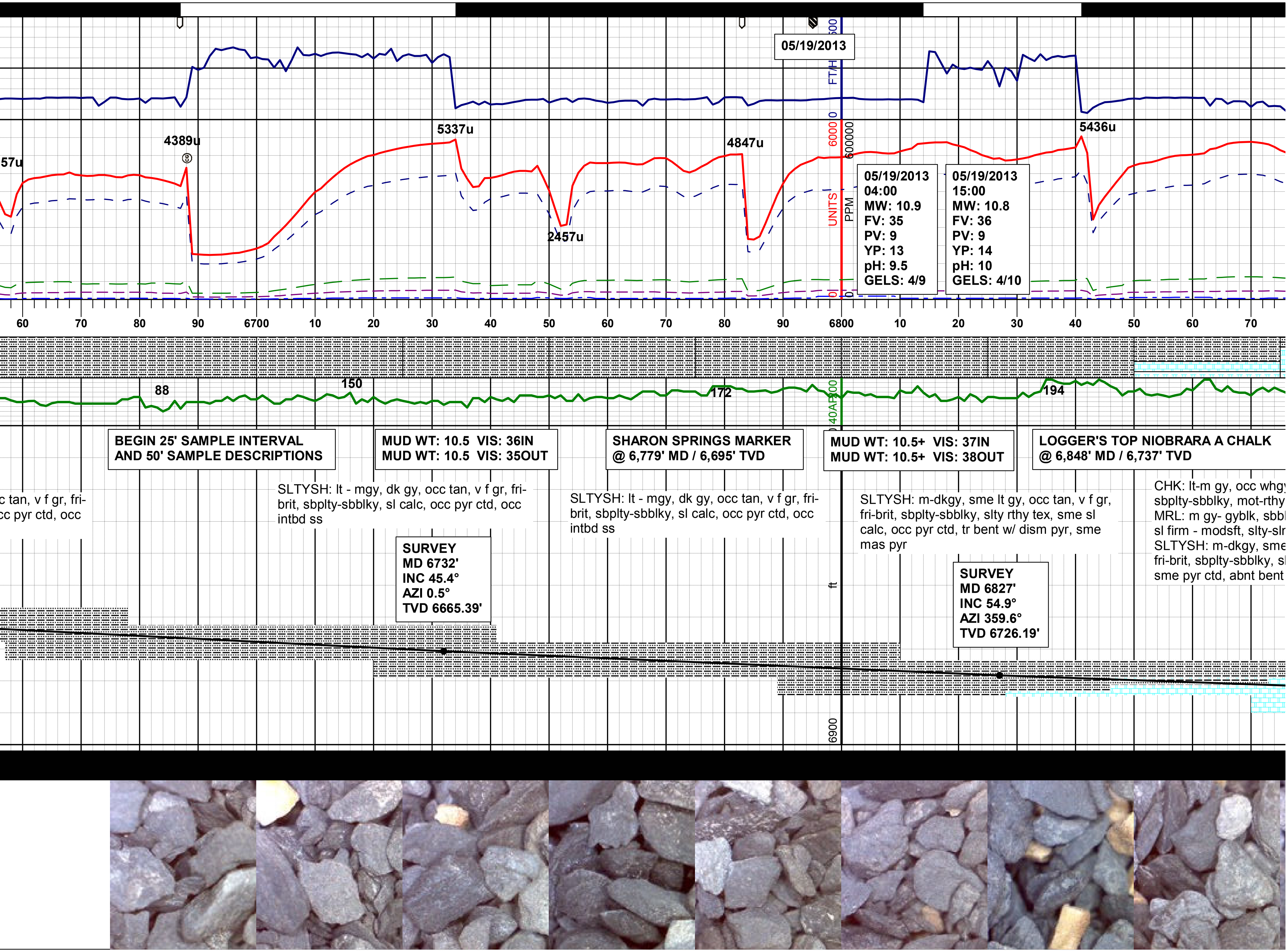
ENGINEERING SYMBOLS

Bit Change	Casing	Casing
Connection	Connection Gas	Midnight Depth

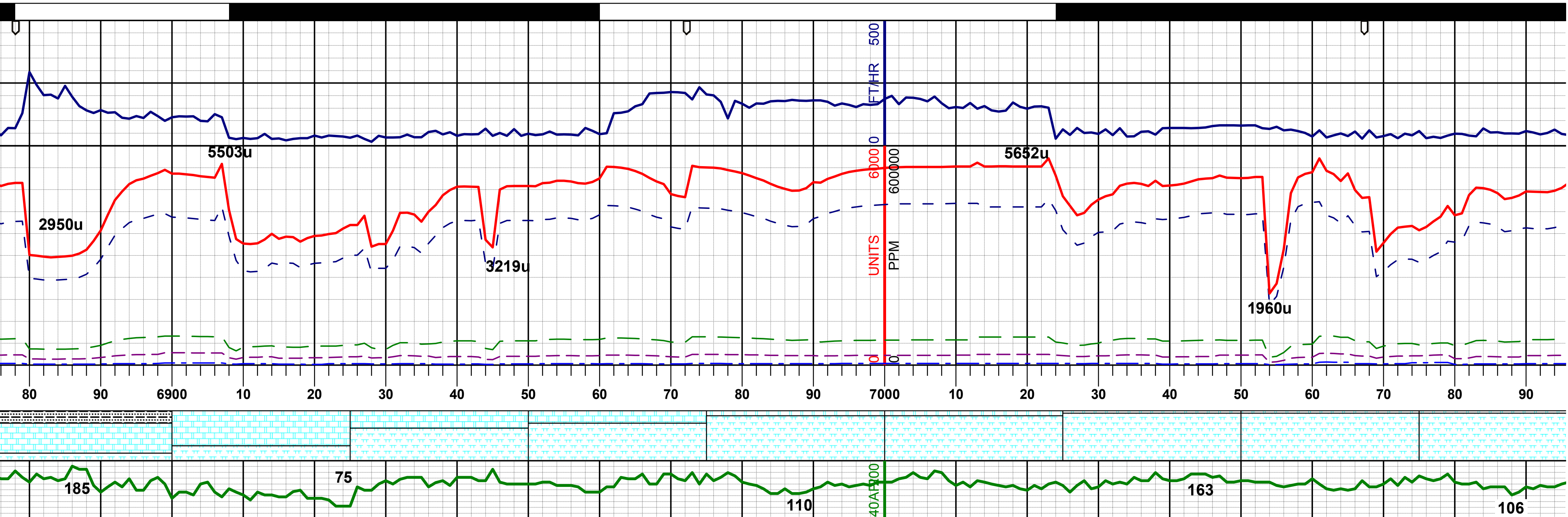



2819u
3982u
877u
4655u
UNITS
PPM
0
6000
600000
0
ET/HR
500
40 API 200
6100
ft
6900
101
75
97
101
MUD WT: 10.1 VIS: 34IN
MUD WT: 10.0 VIS: 34OUT
SURVEY
MD 6258'
INC 14.3°
AZI 354.5°
TVD 6254.06'
SURVEY
MD 6353'
INC 17.5°
AZI 356.9°
TVD 6345.42'
SLTYSH: lt - mgy, dk gy, occ tan, v f gr, fri-brit, sbplty-sbblky, sl calc, occ pyr ctd, occ intbd ss,
SHYSS: lt-mgy, f-mggr, sbrd-sbang, mod-psrt, ppor, argcmt, trss
SLTYSH: lt - mgy, dk gy, occ tan, v f gr, fri-brit, sbplty-sbblky, sl calc, occ pyr ctd, occ intbd ss,
SHYSS: lt-mgy, f-mggr, sbrd-sbang, mod-psrt, ppor, argcmt, trss
20
30
40
50
60
70
80
90
6300
10
20
30
40
50
60
70
80
90
6400
10
20
30


FT/HR 0 500
UNITS 0 6000
PPM 0 600000
977u
4050u
4939u
1897u
27
6500
6600
40 API 200
88
110
79
136
6100
6900
ft
: 10.1 VIS: 35IN
: 10.0 VIS: 35OUT
MUD WT: 10.2 VIS: 35IN
MUD WT: 10.1 VIS: 36OUT
MUD WT: 10.2 VIS: 35IN
MUD WT: 10.2 VIS: 36OUT
SLTYSH: lt - mgy, dk gy, occ tan, v f gr, fri-brit, sbplty-sbblky, sl calc, occ pyr ctd, occ intbd ss,
SHYSS: lt-mgy, f-mggr, sbrd-sbang, mod-psrt, ppor, argcmt, trss
SLTYSH: lt - mgy, dk gy, occ
brit, sbplty-sbblky, sl calc, oc
intbd ss
: lt - mgy, dk gy, occ tan, v f gr, fri-
ty-sbblky, sl calc, occ pyr ctd, occ
lt-mgy, f-mggr, sbrd-sbang, mod-
r, argcmt, trss
SURVEY
MD 6447'
INC 26.0°
AZI 358.5°
TVD 6432.65'
SURVEY
MD 6542'
INC 28.5°
AZI 358.0°
TVD 6517.10'
SURVEY
MD 6637'
INC 39.9°
AZI 358.9°
TVD 6595.54'



05/19/2013
FT/H 500
0
6000 UNITS 0
600000 PPM 0
57u
4389u
5337u
2457u
4847u
5436u
05/19/2013
04:00
MW: 10.9
FV: 35
PV: 9
YP: 13
pH: 9.5
GELS: 4/9
05/19/2013
15:00
MW: 10.8
FV: 36
PV: 9
YP: 14
pH: 10
GELS: 4/10
60
70
80
90
6700
10
20
30
40
50
60
70
80
90
6800
10
20
30
40
50
60
70
88
150
172
194
40API300
BEGIN 25' SAMPLE INTERVAL
AND 50' SAMPLE DESCRIPTIONS
MUD WT: 10.5 VIS: 36IN
MUD WT: 10.5 VIS: 35OUT
SHARON SPRINGS MARKER
@ 6,779' MD / 6,695' TVD
MUD WT: 10.5+ VIS: 37IN
MUD WT: 10.5+ VIS: 38OUT
LOGGER'S TOP NIOBRARA A CHALK
@ 6,848' MD / 6,737' TVD
c tan, v f gr, fri-
cc pyr ctd, occ
SLTYSH: lt - mgy, dk gy, occ tan, v f gr, fri-brit, sbplty-sbblky, sl calc, occ pyr ctd, occ intbd ss
SLTYSH: lt - mgy, dk gy, occ tan, v f gr, fri-brit, sbplty-sbblky, sl calc, occ pyr ctd, occ intbd ss
SLTYSH: m-dkgy, sme lt gy, occ tan, v f gr, fri-brit, sbplty-sbblky, slty rthy tex, sme sl calc, occ pyr ctd, tr bent w/ dism pyr, sme mas pyr
CHK: lt-m gy, occ whg
sbplty-sbblky, mot-rthy
MRL: m gy- gyblk, sbbl
sl firm - modsft, slty-slr
SLTYSH: m-dkgy, sme
fri-brit, sbplty-sbblky, sl
sme pyr ctd, abnt bent
SURVEY
MD 6732'
INC 45.4°
AZI 0.5°
TVD 6665.39'
SURVEY
MD 6827'
INC 54.9°
AZI 359.6°
TVD 6726.19'
ft
6900



y-crm, sft-sl firm,
, vcalc
lky - sbplty, smefis,
mot, calc
e lt gy, occ tan, v f gr,
lty rthy tex, mod calc,

**LOGGER'S TOP NIOBRARA A MARL
@ 6,926' MD / 6,777' TVD**

MRL: m gy- gyblk, sbblky - sbplty, smefis, sl firm - modsft, slty-slmot, calc
CHK: lt-m gy, occ whgy-crm, sft-sl firm, sbplty-sbblky, mot-rthy, vcalc, tr bent, occ calc fl frac

**SURVEY
MD 6922'
INC 62.3°
AZI 358.5°
TVD 6775.65'**

**MUD WT: 10.5+ VIS: 38IN
MUD WT: 10.5 VIS: 38OUT**

MRL: m gy- gyblk, sbblky - sbplty, smefis, sl firm - modsft, slty-slmot, calc
CHK: lt-m gy, occ whgy-crm, sft-sl firm, sbplty-sbblky, mot-rthy, vcalc, tr bent, occ calc fl frac

6100 ft 6900

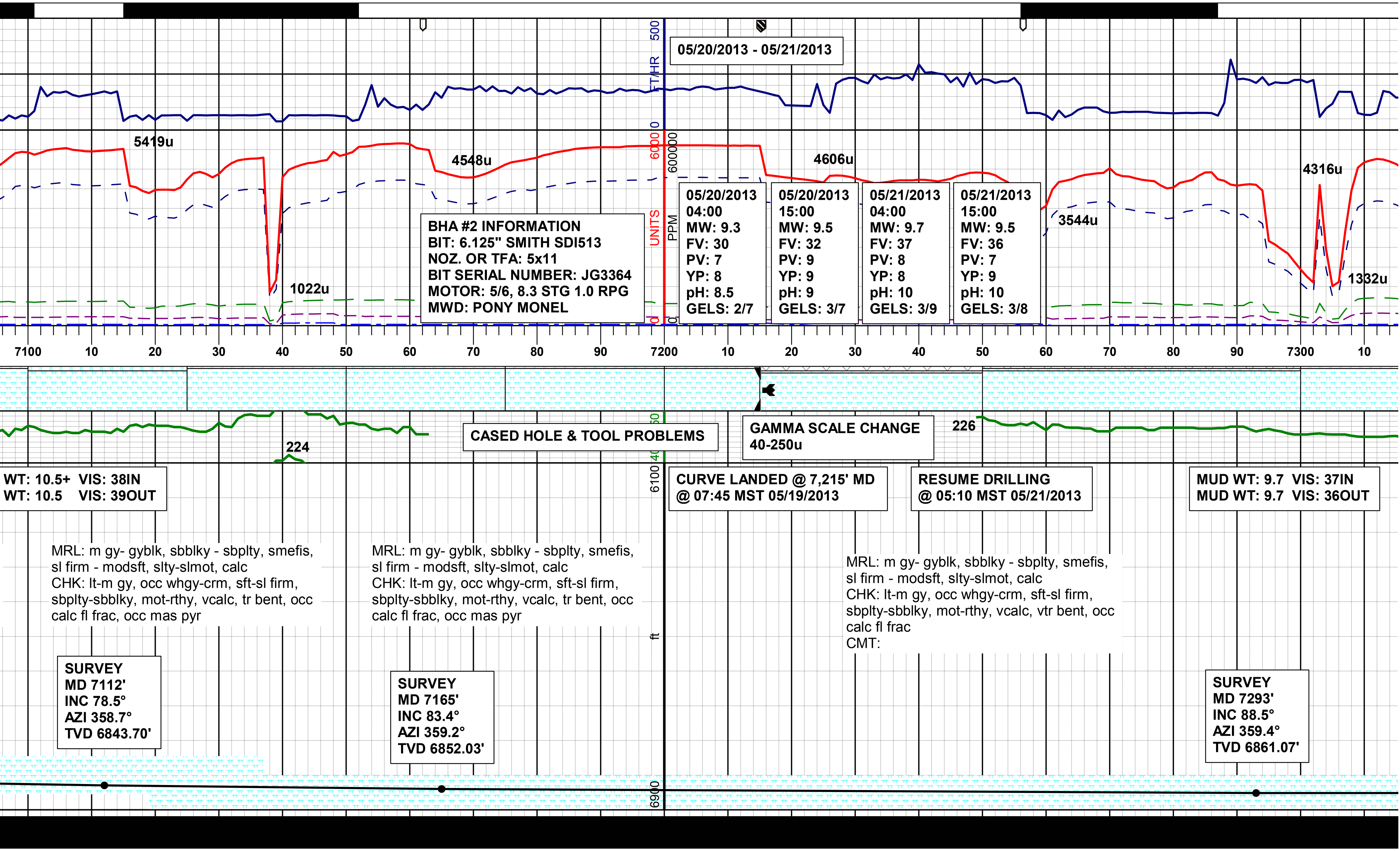
MRL: m gy- gyblk, sbblky - sbplty, smefis, sl firm - modsft, slty-slmot, calc
CHK: lt-m gy, occ whgy-crm, sft-sl firm, sbplty-sbblky, mot-rthy, vcalc, tr bent, occ calc fl frac

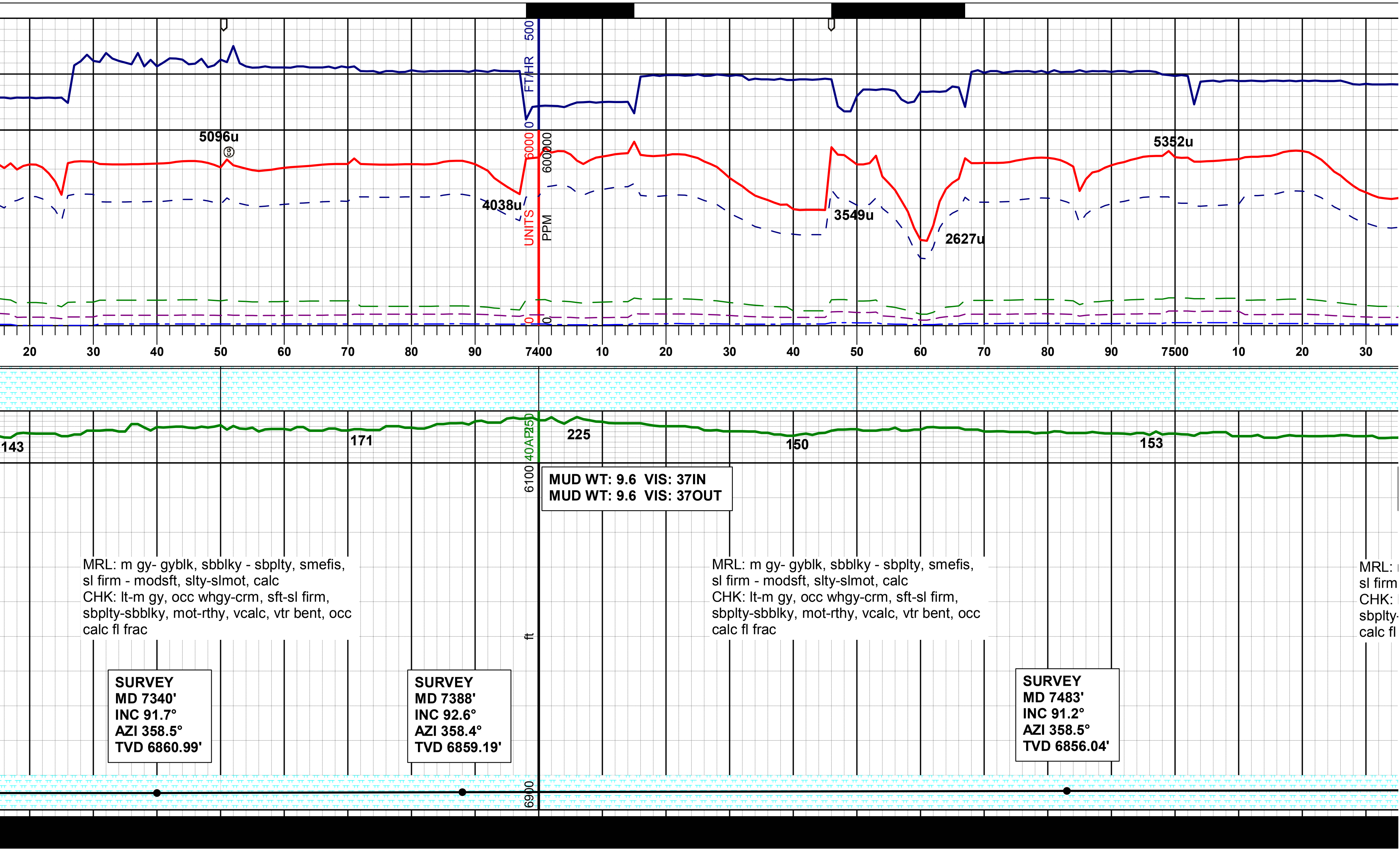
**SURVEY
MD 7017'
INC 67.3°
AZI 359.2°
TVD 6816.09'**

**MUD
MUD**

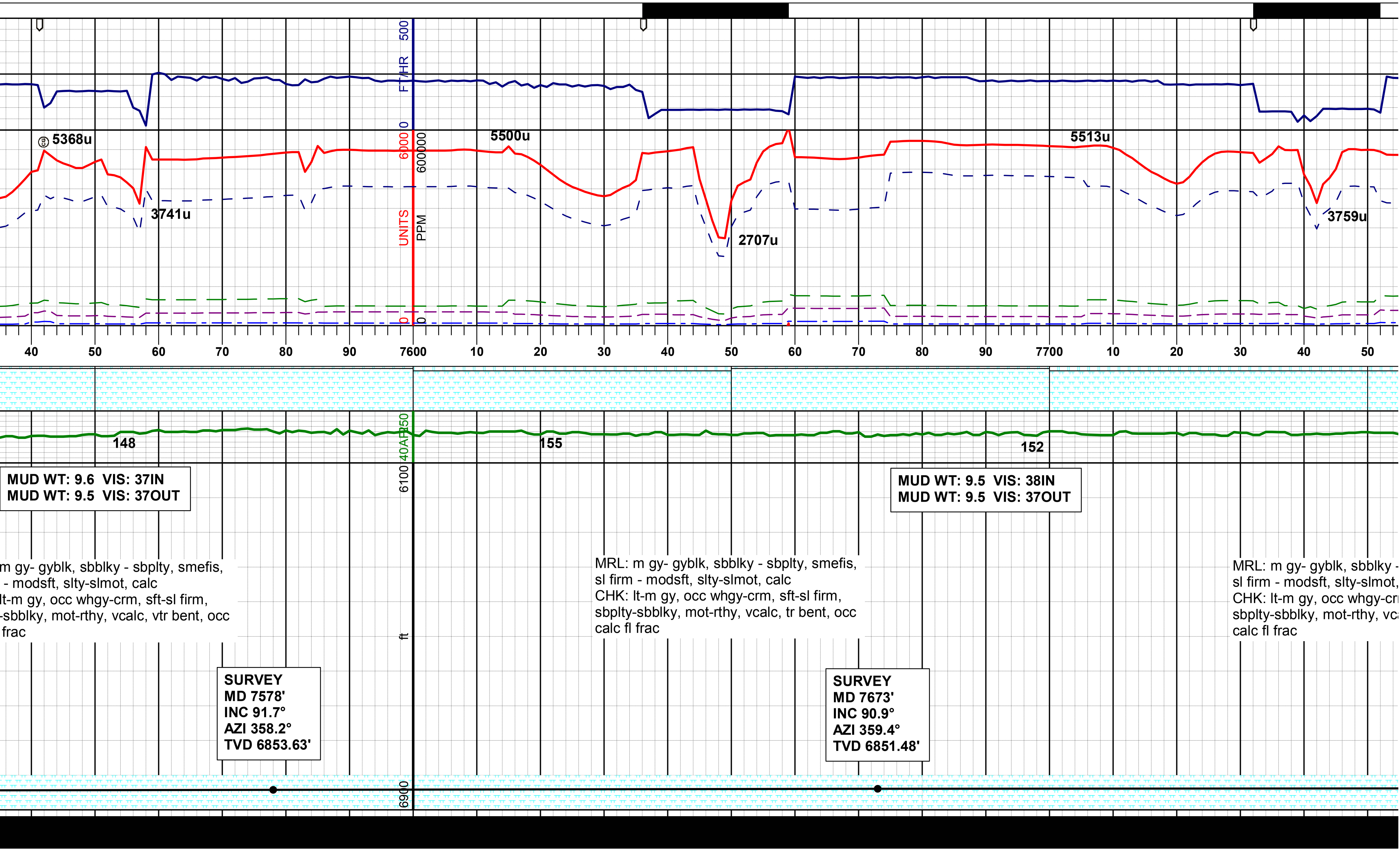
MRL: m gy- gyblk, sbblky - sbplty, smefis, sl firm - modsft, slty-slmot, calc
CHK: lt-m gy, occ whgy-crm, sft-sl firm, sbplty-sbblky, mot-rthy, vcalc, tr bent, occ calc fl frac, occ mas pyr

**SURVEY
MD 7064'
INC 73.2°
AZI 358.7°
TVD 6831.97'**

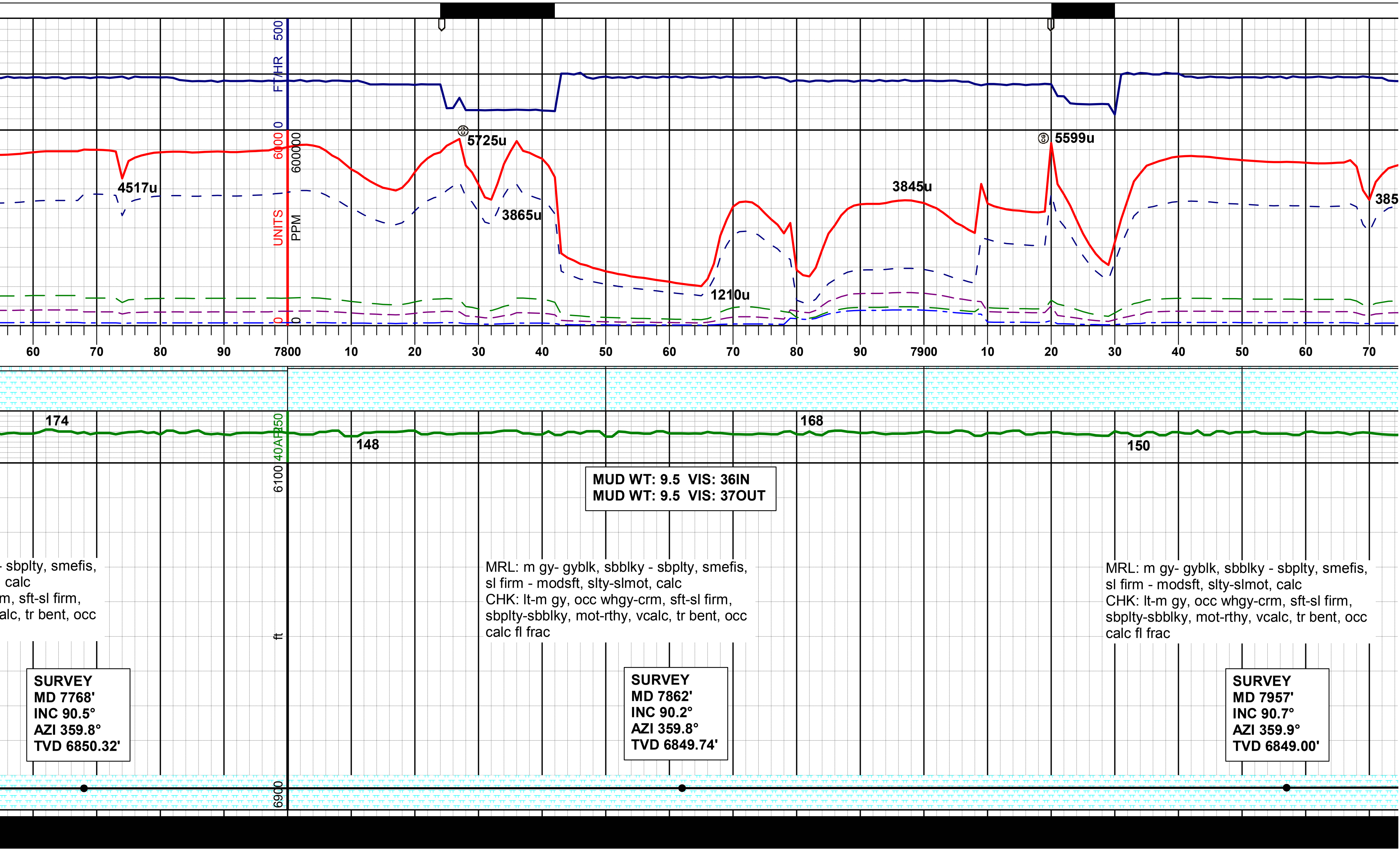

05/20/2013 - 05/21/2013
0 FT/HR 500
0 UNITS 6000
0 PPM 600000
40 50
6100 ft 6900
5419u
1022u
4548u
4606u
3544u
4316u
1332u
224
226
BHA #2 INFORMATION
BIT: 6.125" SMITH SDI513
NOZ. OR TFA: 5x11
BIT SERIAL NUMBER: JG3364
MOTOR: 5/6, 8.3 STG 1.0 RPG
MWD: PONY MONEL
05/20/2013
04:00
MW: 9.3
FV: 30
PV: 7
YP: 8
pH: 8.5
GELS: 2/7
05/20/2013
15:00
MW: 9.5
FV: 32
PV: 9
YP: 9
pH: 9
GELS: 3/7
05/21/2013
04:00
MW: 9.7
FV: 37
PV: 8
YP: 8
pH: 10
GELS: 3/9
05/21/2013
15:00
MW: 9.5
FV: 36
PV: 7
YP: 9
pH: 10
GELS: 3/8
7100 10 20 30 40 50 60 70 80 90 7200 10 20 30 40 50 60 70 80 90 7300 10
CASED HOLE & TOOL PROBLEMS
GAMMA SCALE CHANGE
40-250u
WT: 10.5+ VIS: 38IN
WT: 10.5 VIS: 39OUT
CURVE LANDED @ 7,215' MD
@ 07:45 MST 05/19/2013
RESUME DRILLING
@ 05:10 MST 05/21/2013
MUD WT: 9.7 VIS: 37IN
MUD WT: 9.7 VIS: 36OUT
MRL: m gy- gyblk, sbblky - sbplty, smefis,
sl firm - modsft, slty-slmot, calc
CHK: lt-m gy, occ whgy-crm, sft-sl firm,
sbplty-sbblky, mot-rthy, vcalc, tr bent, occ
calc fl frac, occ mas pyr
MRL: m gy- gyblk, sbblky - sbplty, smefis,
sl firm - modsft, slty-slmot, calc
CHK: lt-m gy, occ whgy-crm, sft-sl firm,
sbplty-sbblky, mot-rthy, vcalc, tr bent, occ
calc fl frac, occ mas pyr
MRL: m gy- gyblk, sbblky - sbplty, smefis,
sl firm - modsft, slty-slmot, calc
CHK: lt-m gy, occ whgy-crm, sft-sl firm,
sbplty-sbblky, mot-rthy, vcalc, vtr bent, occ
calc fl frac
CMT:
SURVEY
MD 7112'
INC 78.5°
AZI 358.7°
TVD 6843.70'
SURVEY
MD 7165'
INC 83.4°
AZI 359.2°
TVD 6852.03'
SURVEY
MD 7293'
INC 88.5°
AZI 359.4°
TVD 6861.07'



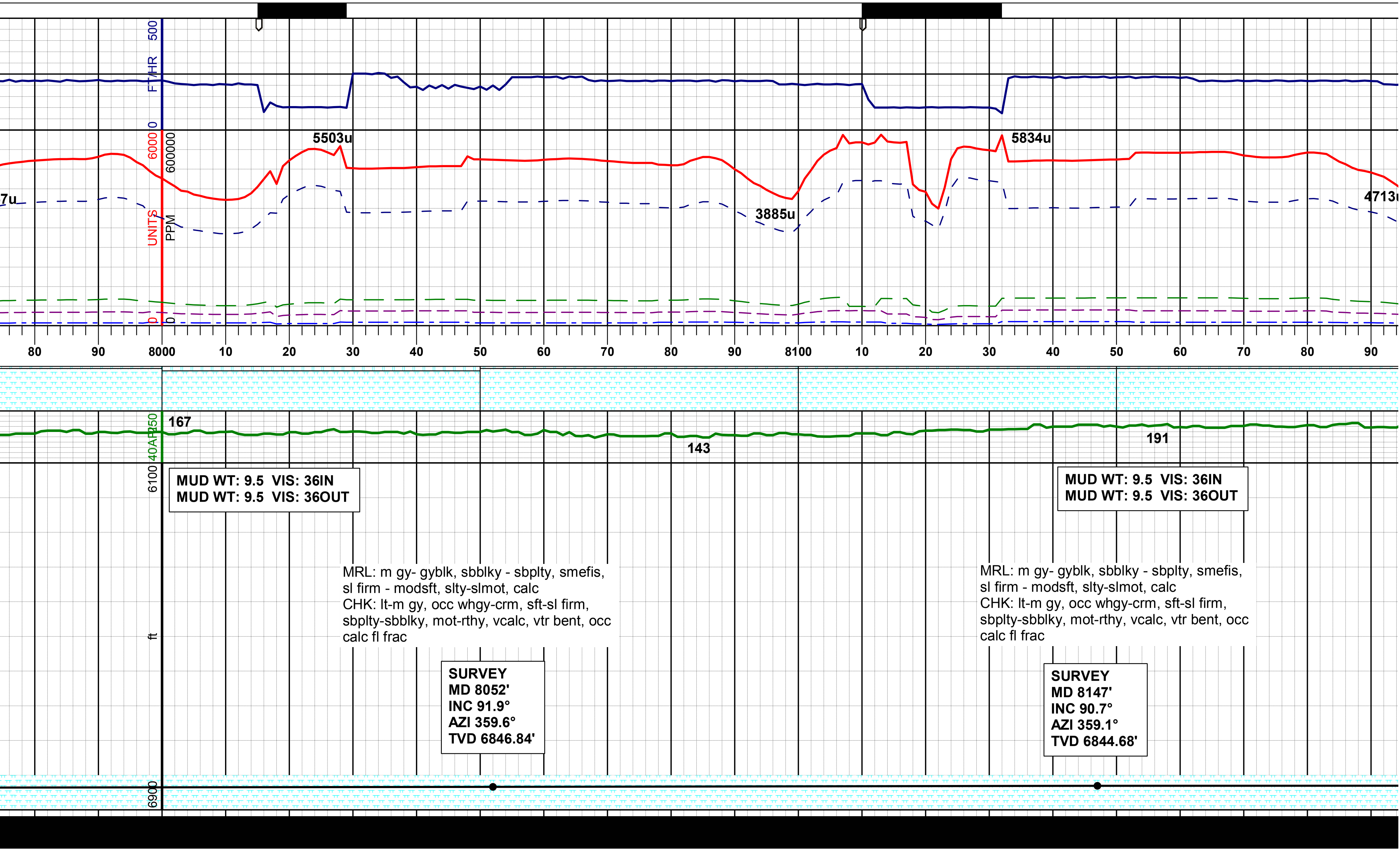
FT/HR
0
500
UNITS
0
6000
PPM
0
600000
5096u
4038u
3549u
2627u
5352u
20
30
40
50
60
70
80
90
7400
10
20
30
40
50
60
70
80
90
7500
10
20
30
40API250
143
171
225
150
153
6100
ft
6900
MUD WT: 9.6 VIS: 37IN
MUD WT: 9.6 VIS: 37OUT
MRL: m gy- gyblk, sbblky - sbplty, smefis, sl firm - modsft, slty-slmot, calc
CHK: lt-m gy, occ whgy-crm, sft-sl firm, sbplty-sbblky, mot-rthy, vcalc, vtr bent, occ calc fl frac
MRL: m gy- gyblk, sbblky - sbplty, smefis, sl firm - modsft, slty-slmot, calc
CHK: lt-m gy, occ whgy-crm, sft-sl firm, sbplty-sbblky, mot-rthy, vcalc, vtr bent, occ calc fl frac
SURVEY
MD 7340'
INC 91.7°
AZI 358.5°
TVD 6860.99'
SURVEY
MD 7388'
INC 92.6°
AZI 358.4°
TVD 6859.19'
SURVEY
MD 7483'
INC 91.2°
AZI 358.5°
TVD 6856.04'



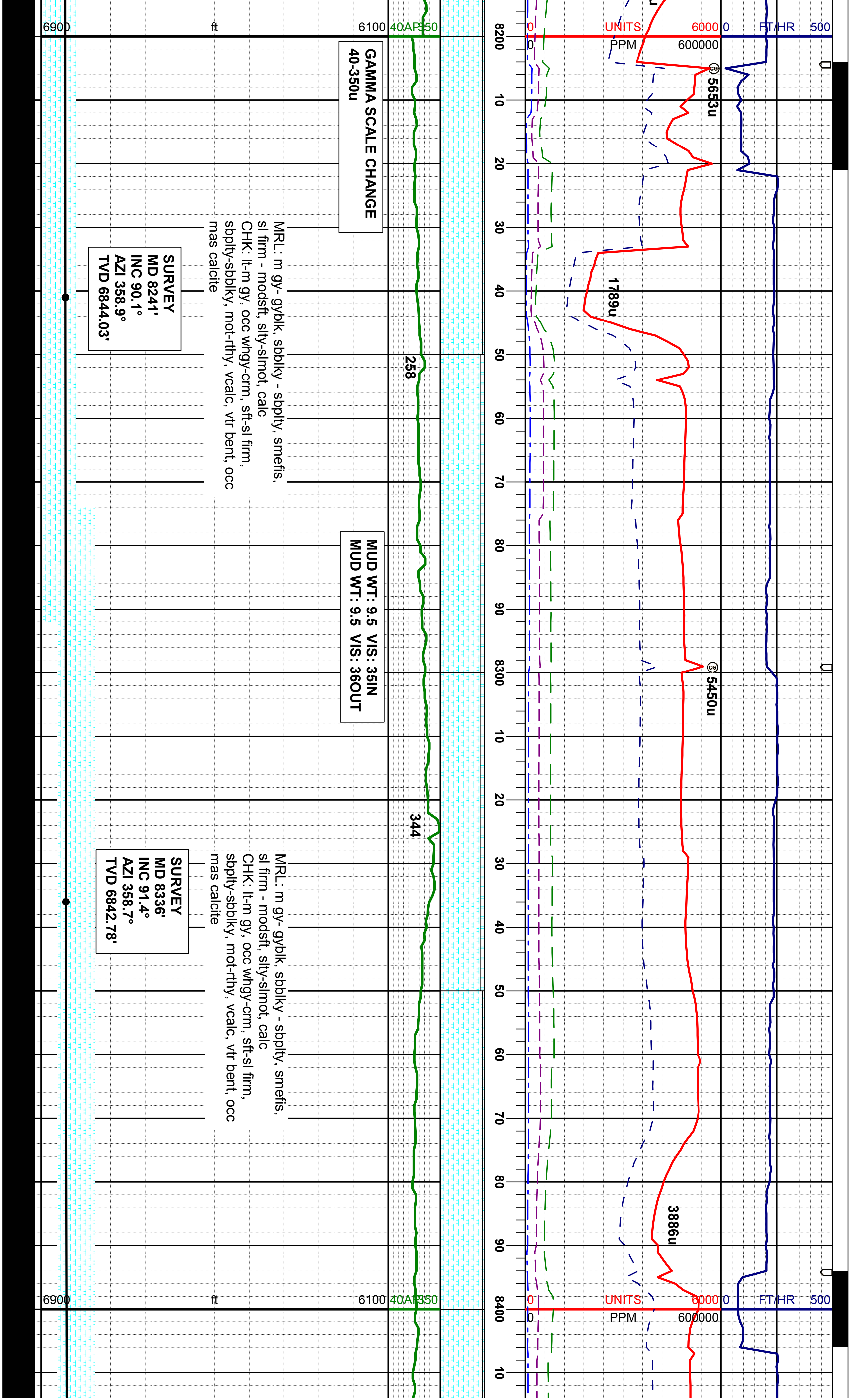
5368u
3741u
5500u
2707u
5513u
3759u
0 UNITS 6000
0 PPM 600000
0 FT/HR 500
40 50 60 70 80 90 7600 10 20 30 40 50 60 70 80 90 7700 10 20 30 40 50
0 40API150
148
155
152
6100 ft 6900
MUD WT: 9.6 VIS: 37IN
MUD WT: 9.5 VIS: 37OUT
MUD WT: 9.5 VIS: 38IN
MUD WT: 9.5 VIS: 37OUT
m gy- gyblk, sbblky - sbplty, smefis,
- modsft, slty-slmot, calc
lt-m gy, occ whgy-crm, sft-sl firm,
-sbblky, mot-rthy, vcalc, vtr bent, occ
frac
MRL: m gy- gyblk, sbblky - sbplty, smefis,
sl firm - modsft, slty-slmot, calc
CHK: lt-m gy, occ whgy-crm, sft-sl firm,
sbplty-sbblky, mot-rthy, vcalc, tr bent, occ
calc fl frac
MRL: m gy- gyblk, sbblky -
sl firm - modsft, slty-slmot,
CHK: lt-m gy, occ whgy-cr
sbplty-sbblky, mot-rthy, vc
calc fl frac
SURVEY
MD 7578'
INC 91.7°
AZI 358.2°
TVD 6853.63'
SURVEY
MD 7673'
INC 90.9°
AZI 359.4°
TVD 6851.48'



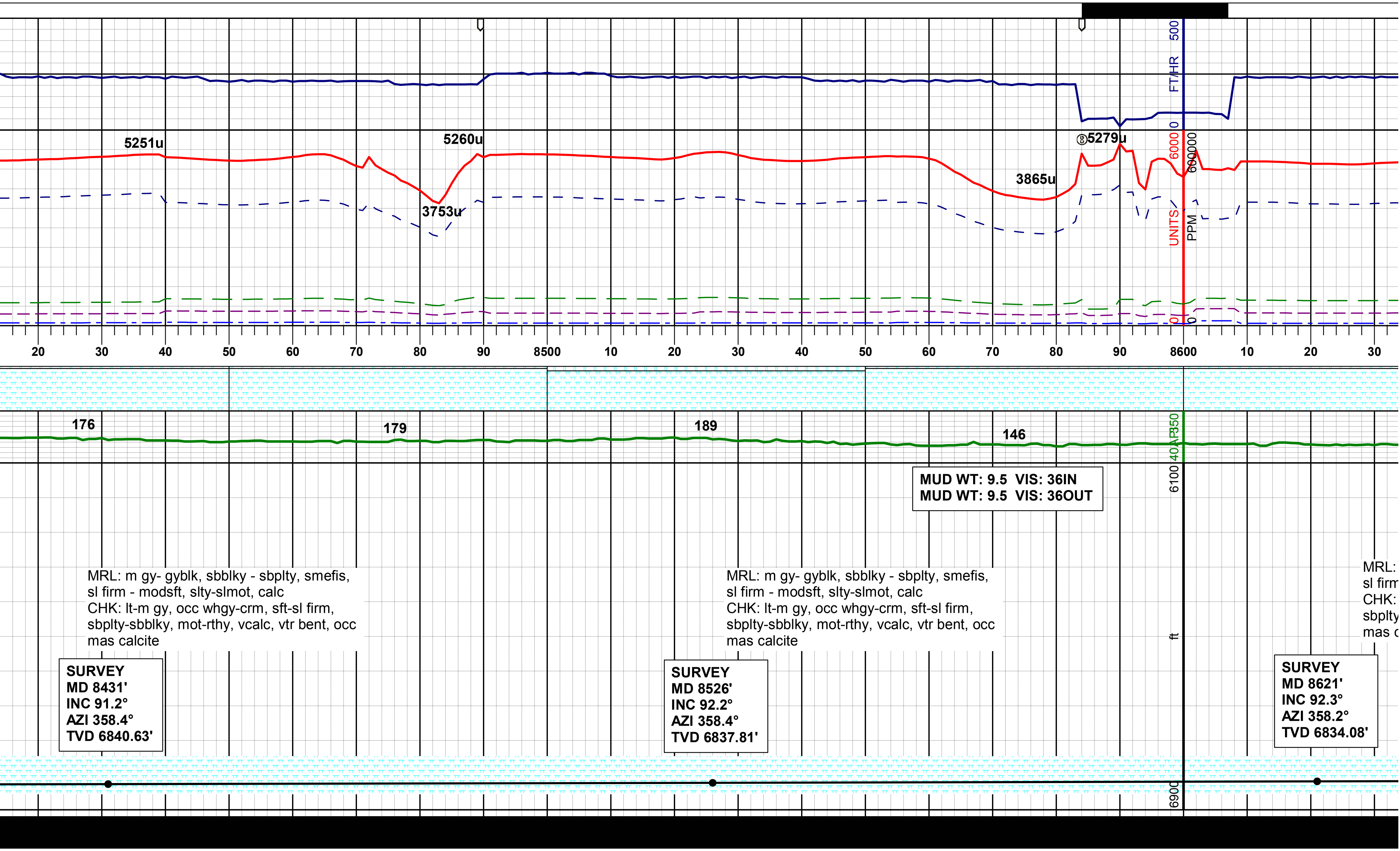
4517u
5725u
3865u
1210u
3845u
5599u
385
UNITS
PPM
0
6000
600000
FT/HR
500
60
70
80
90
7800
10
20
30
40
50
60
70
80
90
7900
10
20
30
40
50
60
70
174
148
168
150
40AP150
6100
ft
6900
MUD WT: 9.5 VIS: 36IN
MUD WT: 9.5 VIS: 37OUT
- sbplty, smefis,
calc
m, sft-sl firm,
alc, tr bent, occ
MRL: m gy- gyblk, sbblky - sbplty, smefis, sl firm - modsft, slty-slmot, calc
CHK: lt-m gy, occ whgy-crm, sft-sl firm, sbplty-sbblky, mot-rthy, vcalc, tr bent, occ calc fl frac
MRL: m gy- gyblk, sbblky - sbplty, smefis, sl firm - modsft, slty-slmot, calc
CHK: lt-m gy, occ whgy-crm, sft-sl firm, sbplty-sbblky, mot-rthy, vcalc, tr bent, occ calc fl frac
SURVEY
MD 7768'
INC 90.5°
AZI 359.8°
TVD 6850.32'
SURVEY
MD 7862'
INC 90.2°
AZI 359.8°
TVD 6849.74'
SURVEY
MD 7957'
INC 90.7°
AZI 359.9°
TVD 6849.00'



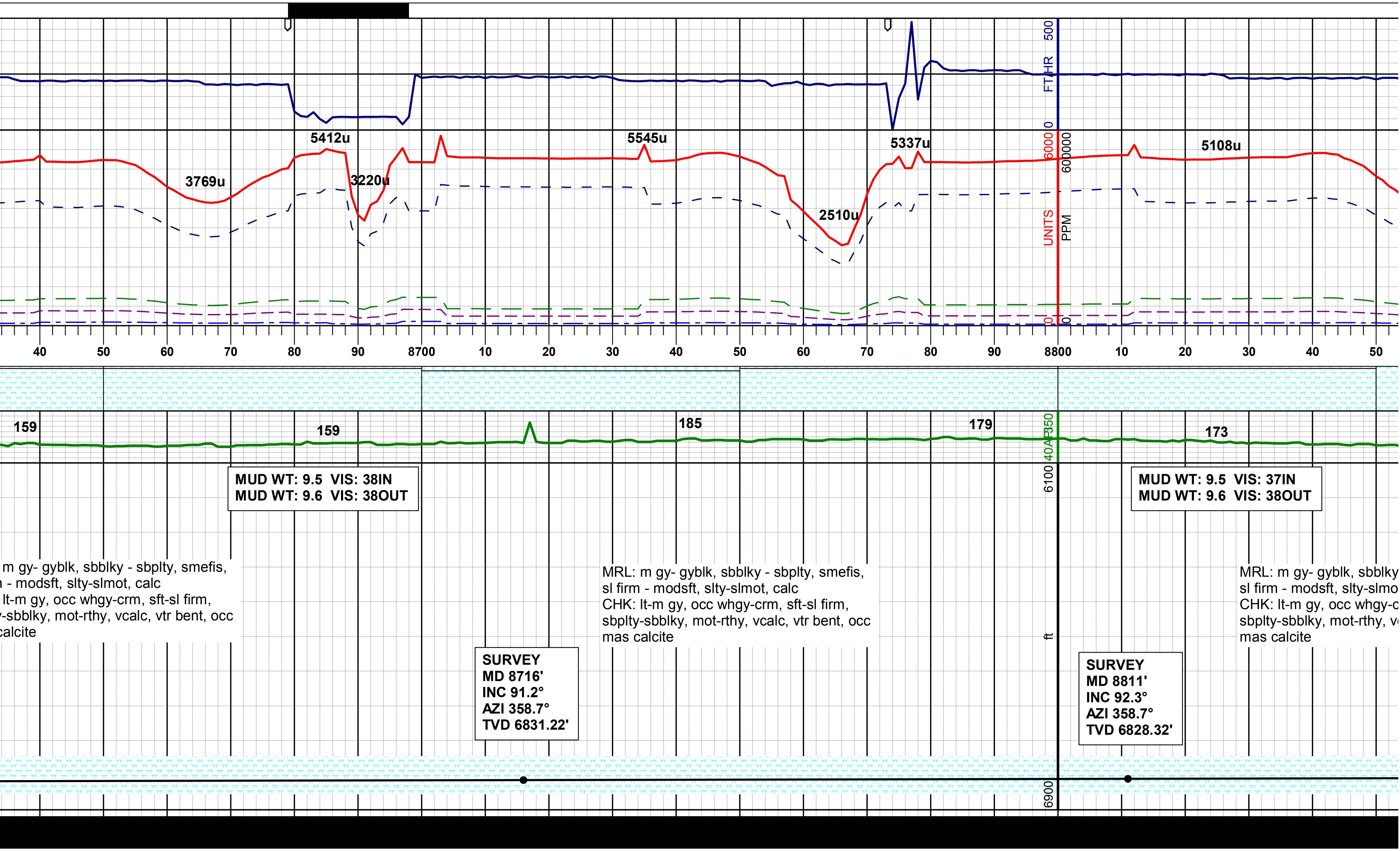
FT/HR 0 500
UNITS 0 6000
PPM 0 600000
5503u
5834u
3885u
4713u
7u
8000
8100
40 API 150
167
143
191
6100 ft 6900
MUD WT: 9.5 VIS: 36IN
MUD WT: 9.5 VIS: 36OUT
MRL: m gy- gyblk, sbblky - sbplty, smefis, sl firm - modsft, slty-slmot, calc
CHK: lt-m gy, occ whgy-crm, sft-sl firm, sbplty-sbblky, mot-rthy, vcalc, vtr bent, occ calc fl frac
SURVEY
MD 8052'
INC 91.9°
AZI 359.6°
TVD 6846.84'
MUD WT: 9.5 VIS: 36IN
MUD WT: 9.5 VIS: 36OUT
MRL: m gy- gyblk, sbblky - sbplty, smefis, sl firm - modsft, slty-slmot, calc
CHK: lt-m gy, occ whgy-crm, sft-sl firm, sbplty-sbblky, mot-rthy, vcalc, vtr bent, occ calc fl frac
SURVEY
MD 8147'
INC 90.7°
AZI 359.1°
TVD 6844.68'



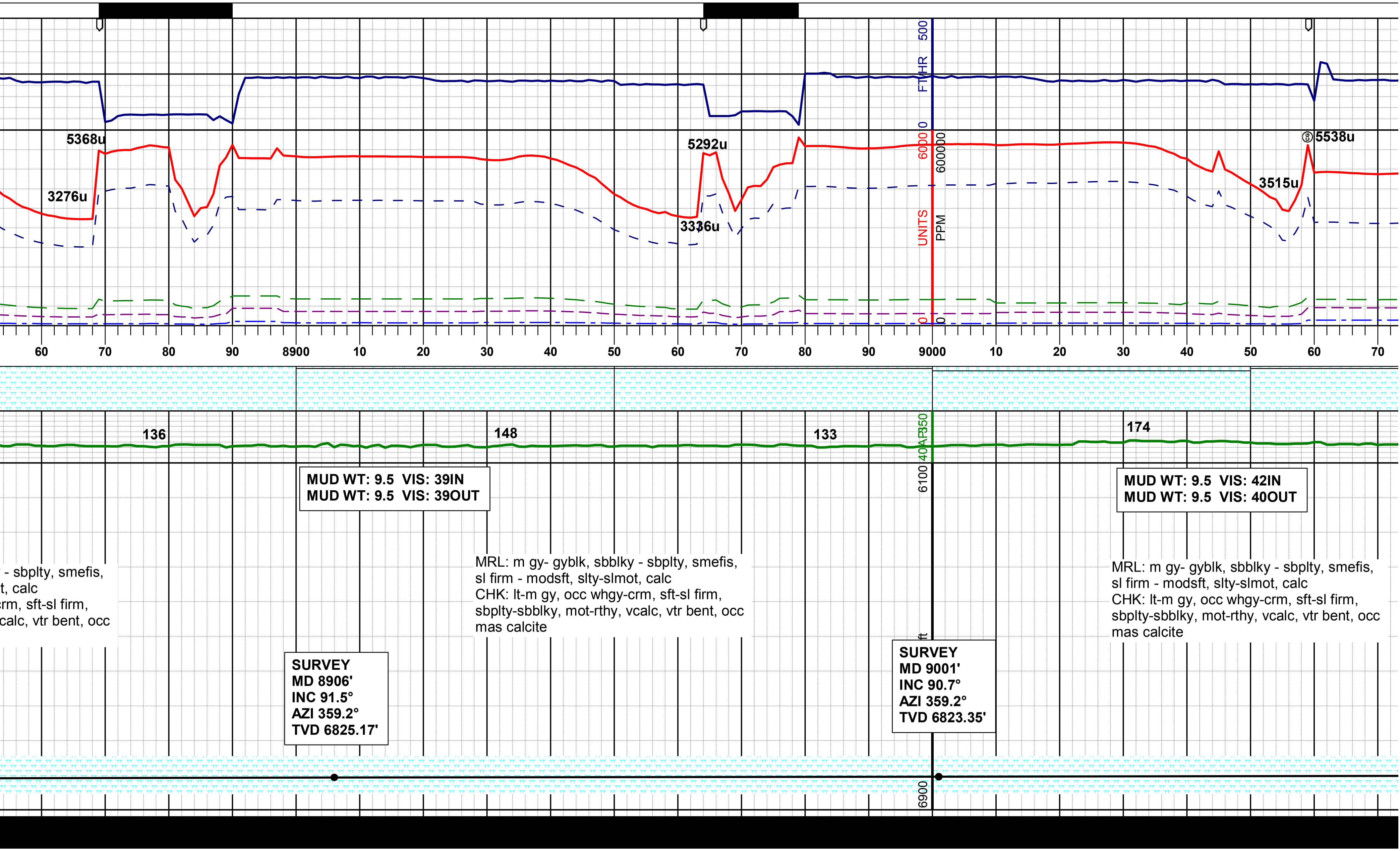
6900 ft 6100 40API 350
0 UNITS 6000
0 PPM 600000
0 FT/HR 500
8200
GAMMA SCALE CHANGE 40-350u
5653u
SURVEY MD 8241' INC 90.1° AZI 358.9° TVD 6844.03'
MRL: m gy- gyblk, sbblky - sbplty, smefis, sl firm - modsft, slty-slmot, calc
CHK: lt-m gy, occ whgy-crm, sft-sl firm, sbplty-sbblky, mot-rthy, vcalc, vtr bent, occ mas calcite
1789u
258
MUD WT: 9.5 VIS: 35IN
MUD WT: 9.5 VIS: 36OUT
8300
5450u
344
SURVEY MD 8336' INC 91.4° AZI 358.7° TVD 6842.78'
MRL: m gy- gyblk, sbblky - sbplty, smefis, sl firm - modsft, slty-slmot, calc
CHK: lt-m gy, occ whgy-crm, sft-sl firm, sbplty-sbblky, mot-rthy, vcalc, vtr bent, occ mas calcite
3886u
8400



5251u
5260u
3753u
3865u
5279u
0
UNITS
6000
0
PPM
600000
0
FT/HR
500
20
30
40
50
60
70
80
90
8500
10
20
30
40
50
60
70
80
90
8600
10
20
30
176
179
189
146
40
API
350
6100
ft
6900
MUD WT: 9.5 VIS: 36IN
MUD WT: 9.5 VIS: 36OUT
MRL: m gy- gyblk, sbblky - sbplty, smefis, sl firm - modsft, slty-slmot, calc
CHK: lt-m gy, occ whgy-crm, sft-sl firm, sbplty-sbblky, mot-rthy, vcalc, vtr bent, occ mas calcite
SURVEY
MD 8431'
INC 91.2°
AZI 358.4°
TVD 6840.63'
MRL: m gy- gyblk, sbblky - sbplty, smefis, sl firm - modsft, slty-slmot, calc
CHK: lt-m gy, occ whgy-crm, sft-sl firm, sbplty-sbblky, mot-rthy, vcalc, vtr bent, occ mas calcite
SURVEY
MD 8526'
INC 92.2°
AZI 358.4°
TVD 6837.81'
SURVEY
MD 8621'
INC 92.3°
AZI 358.2°
TVD 6834.08'



0 FT/HR 500
0 UNITS 6000
0 PPM 600000
5412u
3769u
3220u
5545u
2510u
5337u
5108u
40 50 60 70 80 90 8700 10 20 30 40 50 60 70 80 90 8800 10 20 30 40 50
159
159
185
179
173
40 API 350
6100 ft 6900
MUD WT: 9.5 VIS: 38IN
MUD WT: 9.6 VIS: 38OUT
MUD WT: 9.5 VIS: 37IN
MUD WT: 9.6 VIS: 38OUT
m gy- gyblk, sbblky - sbplty, smefis,
n - modsft, slty-slmot, calc
lt-m gy, occ whgy-crm, sft-sl firm,
y-sbblky, mot-rthy, vcalc, vtr bent, occ
calcite
MRL: m gy- gyblk, sbblky - sbplty, smefis,
sl firm - modsft, slty-slmot, calc
CHK: lt-m gy, occ whgy-crm, sft-sl firm,
sbplty-sbblky, mot-rthy, vcalc, vtr bent, occ
mas calcite
MRL: m gy- gyblk, sbblky
sl firm - modsft, slty-slmo
CHK: lt-m gy, occ whgy-c
sbplty-sbblky, mot-rthy, v
mas calcite
SURVEY
MD 8716'
INC 91.2°
AZI 358.7°
TVD 6831.22'
SURVEY
MD 8811'
INC 92.3°
AZI 358.7°
TVD 6828.32'



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3276u
5292u
3336u
5538u
3515u
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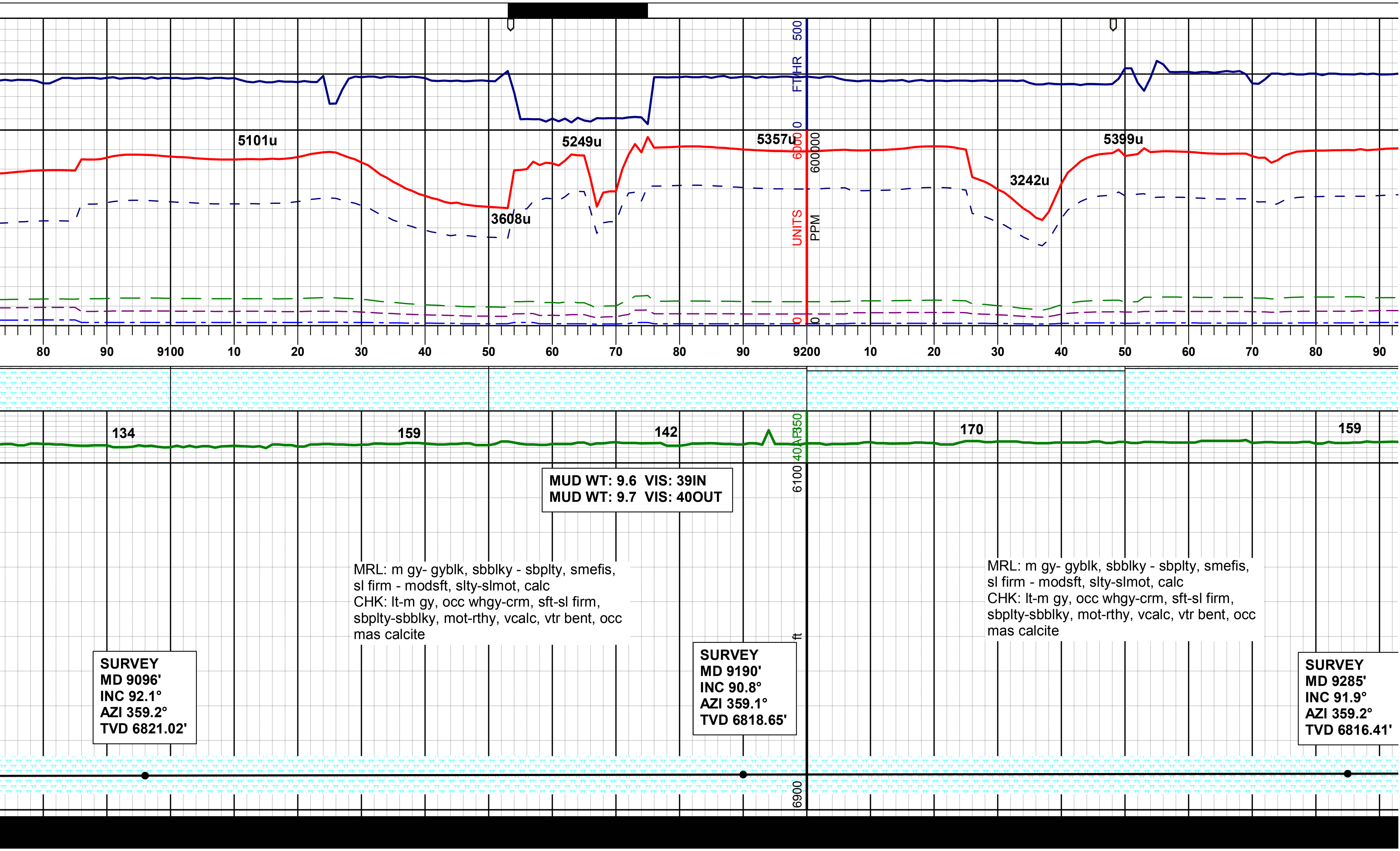
136
148
133
174
40 API 350
6100
6900
ft
MUD WT: 9.5 VIS: 39IN
MUD WT: 9.5 VIS: 39OUT
MUD WT: 9.5 VIS: 42IN
MUD WT: 9.5 VIS: 40OUT
- sbplty, smefis,
t, calc
rm, sft-sl firm,
calc, vtr bent, occ
MRL: m gy- gyblk, sbblky - sbplty, smefis,
sl firm - modsft, slty-slmot, calc
CHK: lt-m gy, occ whgy-crm, sft-sl firm,
sbplty-sbblky, mot-rthy, vcalc, vtr bent, occ
mas calcite
MRL: m gy- gyblk, sbblky - sbplty, smefis,
sl firm - modsft, slty-slmot, calc
CHK: lt-m gy, occ whgy-crm, sft-sl firm,
sbplty-sbblky, mot-rthy, vcalc, vtr bent, occ
mas calcite
SURVEY
MD 8906'
INC 91.5°
AZI 359.2°
TVD 6825.17'
SURVEY
MD 9001'
INC 90.7°
AZI 359.2°
TVD 6823.35'



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5249u
5357u
3242u
5399u
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500
UNITS
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PPM
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600000
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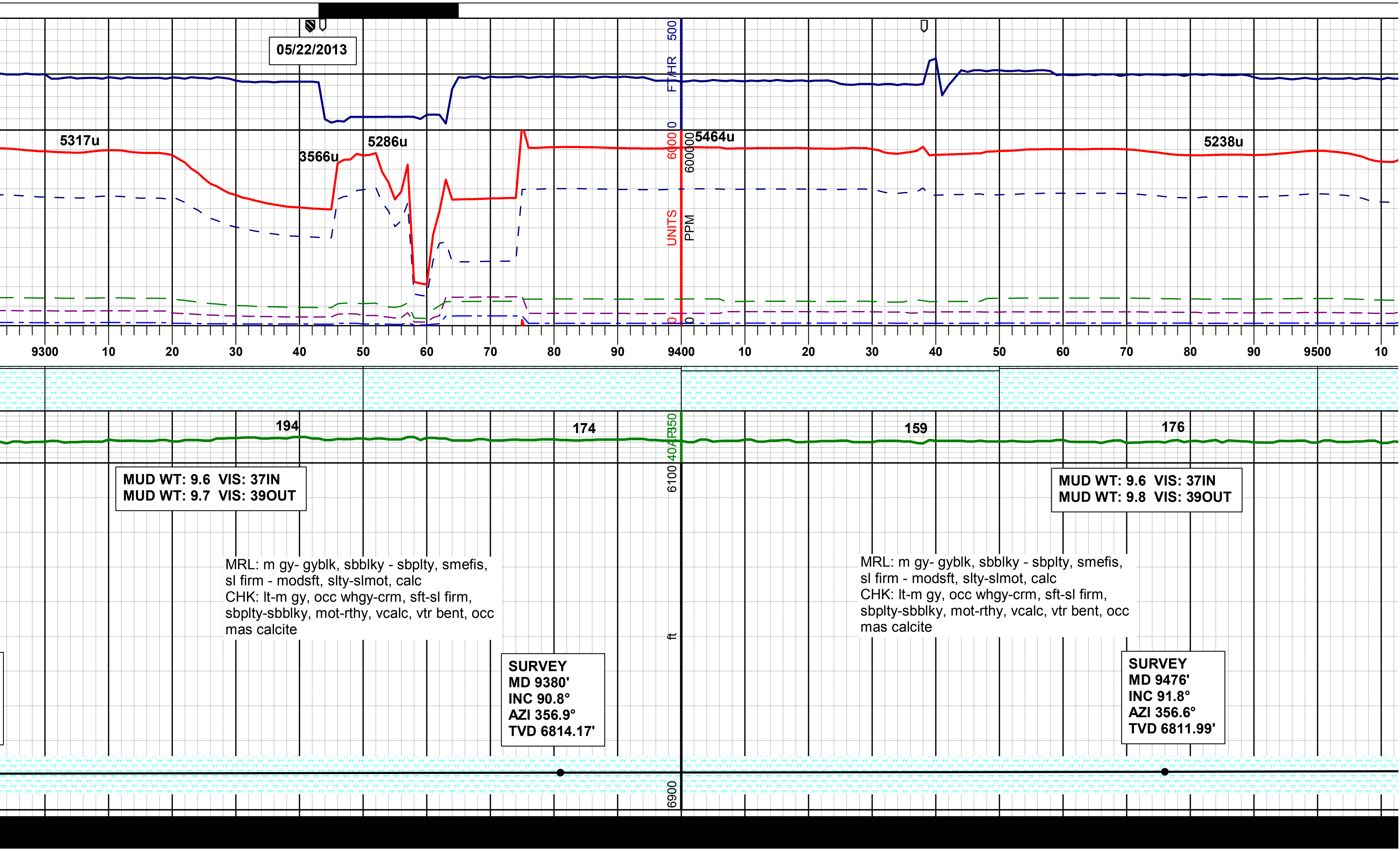
90
9100
10
20
30
40
50
60
70
80
90
9200
10
20
30
40
50
60
70
80
90
134
159
142
170
159
40 API 350
6100
ft
6900
MUD WT: 9.6 VIS: 39IN
MUD WT: 9.7 VIS: 40OUT
MRL: m gy- gyblk, sbblky - sbplty, smefis, sl firm - modsft, slty-slmot, calc
CHK: lt-m gy, occ whgy-crm, sft-sl firm, sbplty-sbblky, mot-rthy, vcalc, vtr bent, occ mas calcite
MRL: m gy- gyblk, sbblky - sbplty, smefis, sl firm - modsft, slty-slmot, calc
CHK: lt-m gy, occ whgy-crm, sft-sl firm, sbplty-sbblky, mot-rthy, vcalc, vtr bent, occ mas calcite
SURVEY
MD 9096'
INC 92.1°
AZI 359.2°
TVD 6821.02'
SURVEY
MD 9190'
INC 90.8°
AZI 359.1°
TVD 6818.65'
SURVEY
MD 9285'
INC 91.9°
AZI 359.2°
TVD 6816.41'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5317u
3566u
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FT/HR 0 500
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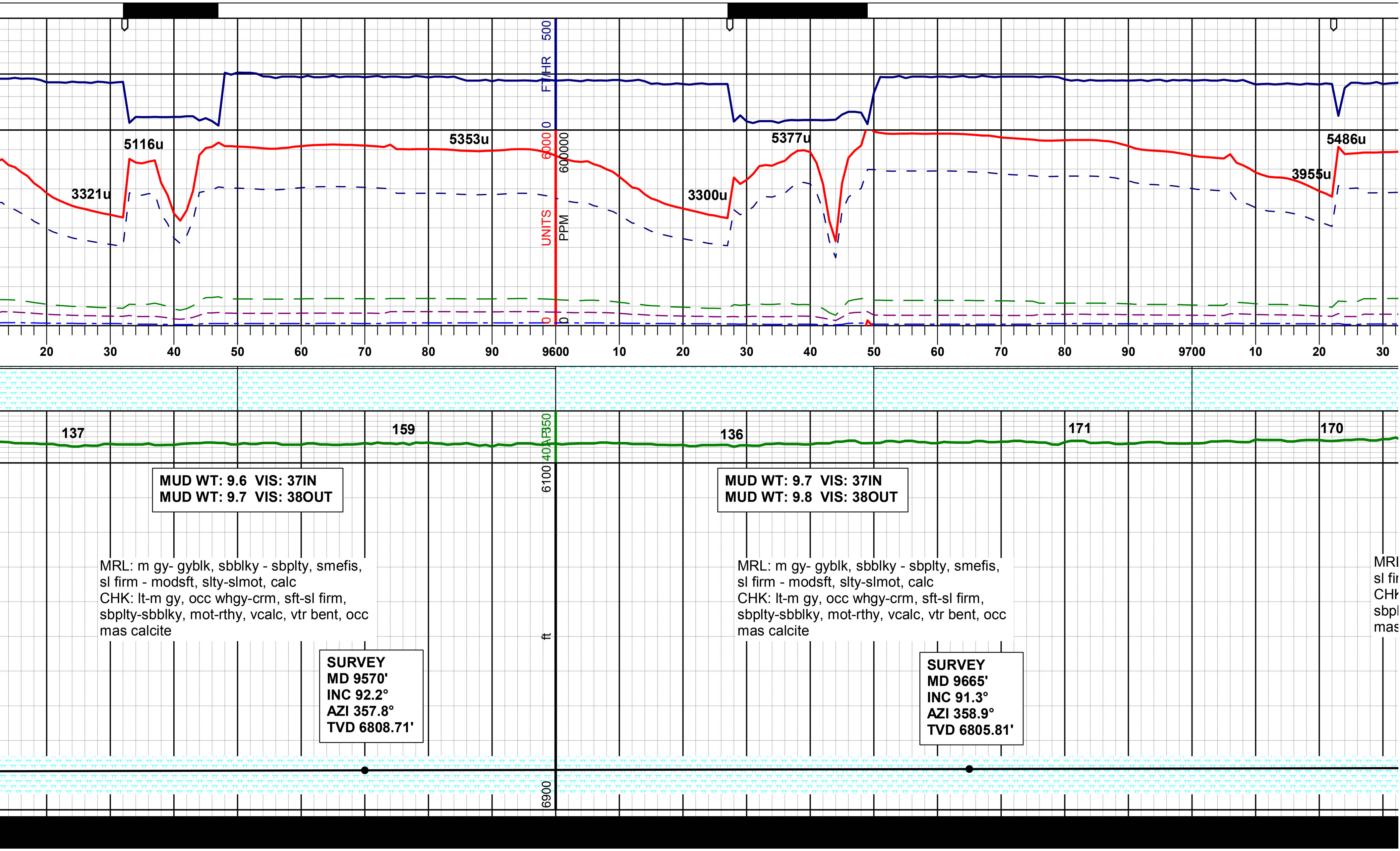
194
174
159
176
40 API 350
6100 ft 6900
MUD WT: 9.6 VIS: 37IN
MUD WT: 9.7 VIS: 39OUT
MRL: m gy- gyblk, sbblky - sbplty, smefis, sl firm - modsft, slty-slmot, calc
CHK: lt-m gy, occ whgy-crm, sft-sl firm, sbplty-sbblky, mot-rthy, vcalc, vtr bent, occ mas calcite
SURVEY
MD 9380'
INC 90.8°
AZI 356.9°
TVD 6814.17'
MUD WT: 9.6 VIS: 37IN
MUD WT: 9.8 VIS: 39OUT
MRL: m gy- gyblk, sbblky - sbplty, smefis, sl firm - modsft, slty-slmot, calc
CHK: lt-m gy, occ whgy-crm, sft-sl firm, sbplty-sbblky, mot-rthy, vcalc, vtr bent, occ mas calcite
SURVEY
MD 9476'
INC 91.8°
AZI 356.6°
TVD 6811.99'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UNITS 0 6000
PPM 0 600000
40 API 350
6100 ft 6900
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40
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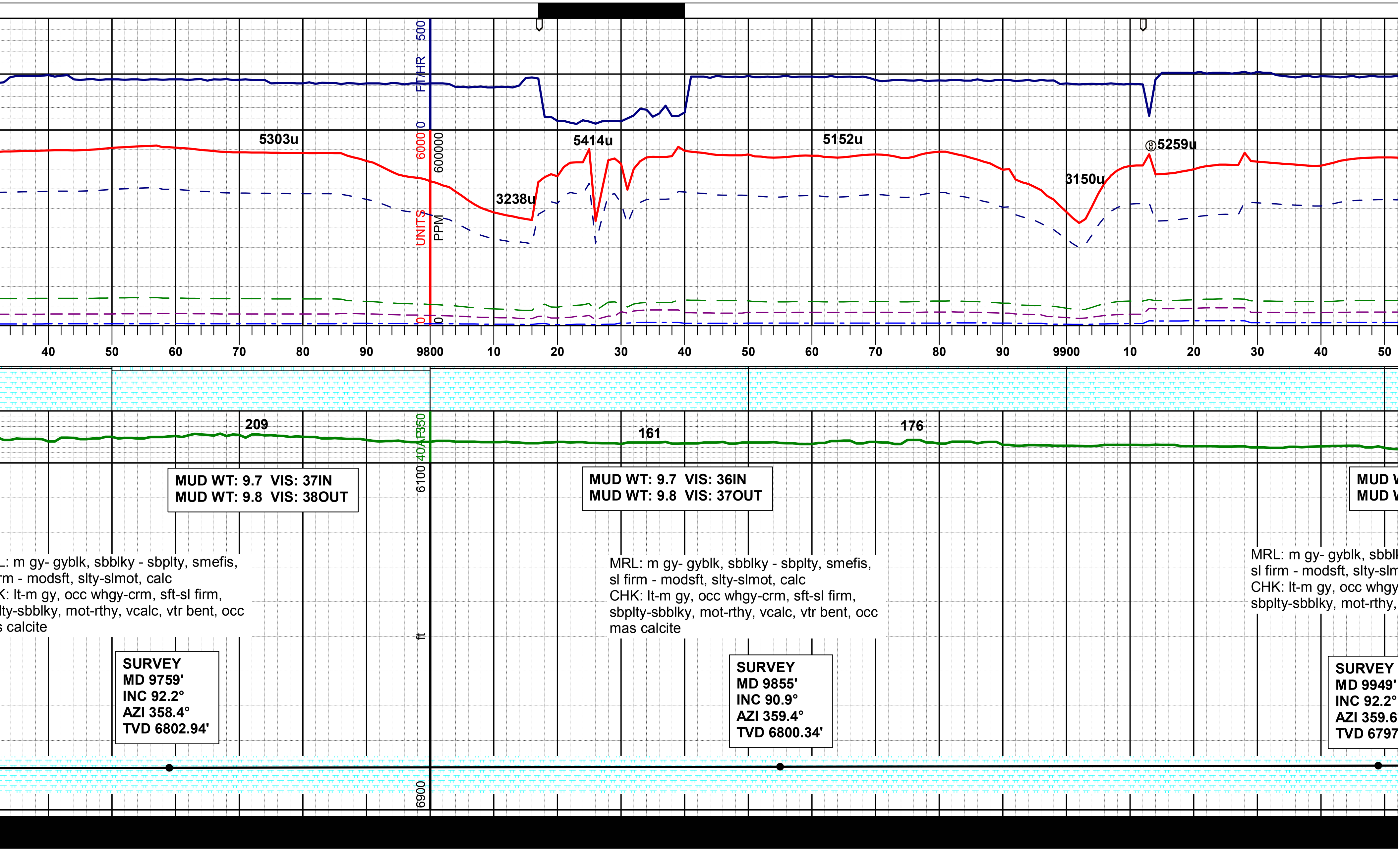
30
40
50
60
70
80
90
9700
10
20
30
3321u
5116u
5353u
3300u
5377u
3955u
5486u
137
159
136
171
170
MUD WT: 9.6 VIS: 37IN
MUD WT: 9.7 VIS: 38OUT
MRL: m gy- gyblk, sbblky - sbplty, smefis, sl firm - modsft, slty-slmot, calc
CHK: lt-m gy, occ whgy-crm, sft-sl firm, sbplty-sbblky, mot-rthy, vcalc, vtr bent, occ mas calcite
SURVEY
MD 9570'
INC 92.2°
AZI 357.8°
TVD 6808.71'
MUD WT: 9.7 VIS: 37IN
MUD WT: 9.8 VIS: 38OUT
MRL: m gy- gyblk, sbblky - sbplty, smefis, sl firm - modsft, slty-slmot, calc
CHK: lt-m gy, occ whgy-crm, sft-sl firm, sbplty-sbblky, mot-rthy, vcalc, vtr bent, occ mas calcite
SURVEY
MD 9665'
INC 91.3°
AZI 358.9°
TVD 6805.81'



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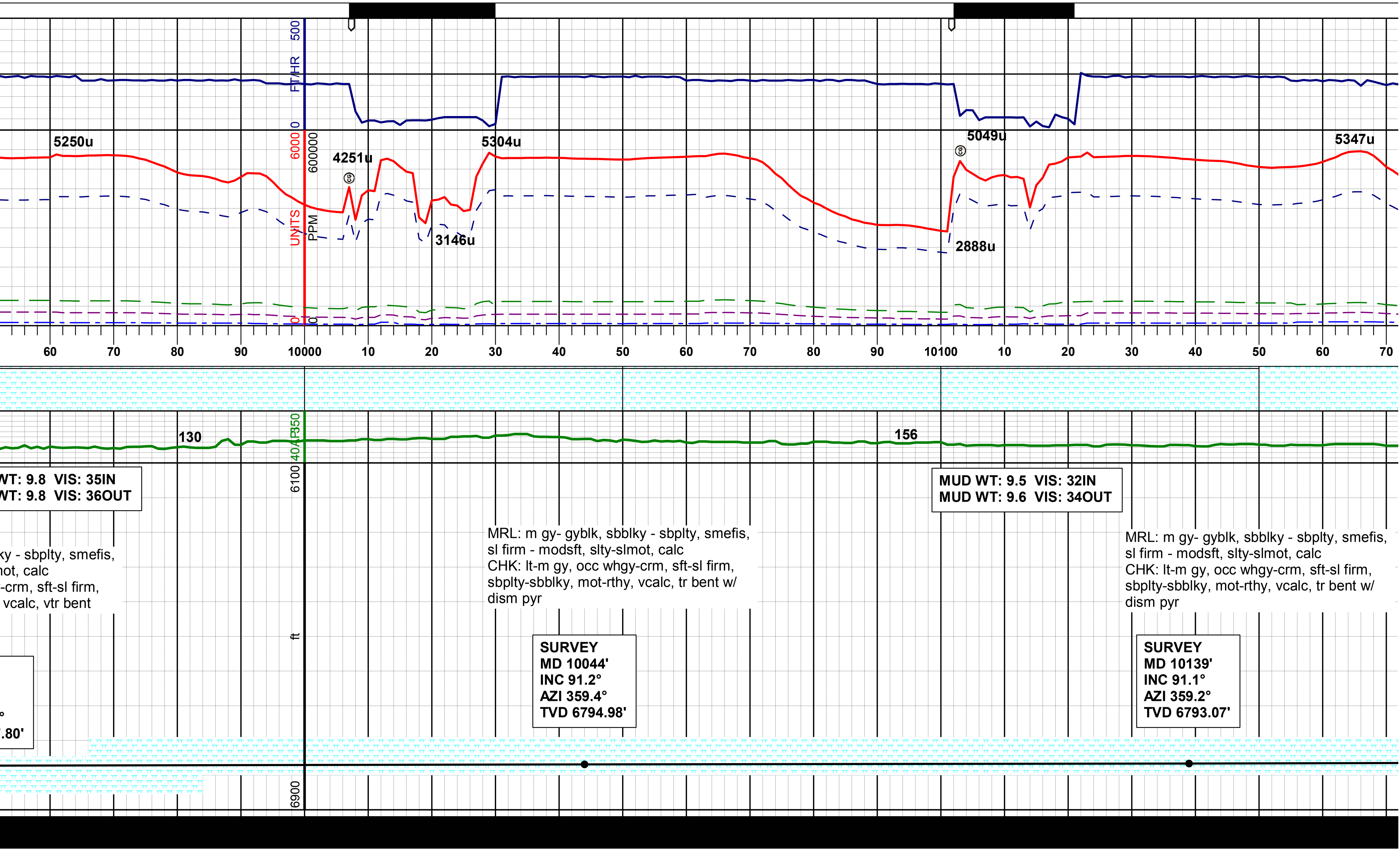
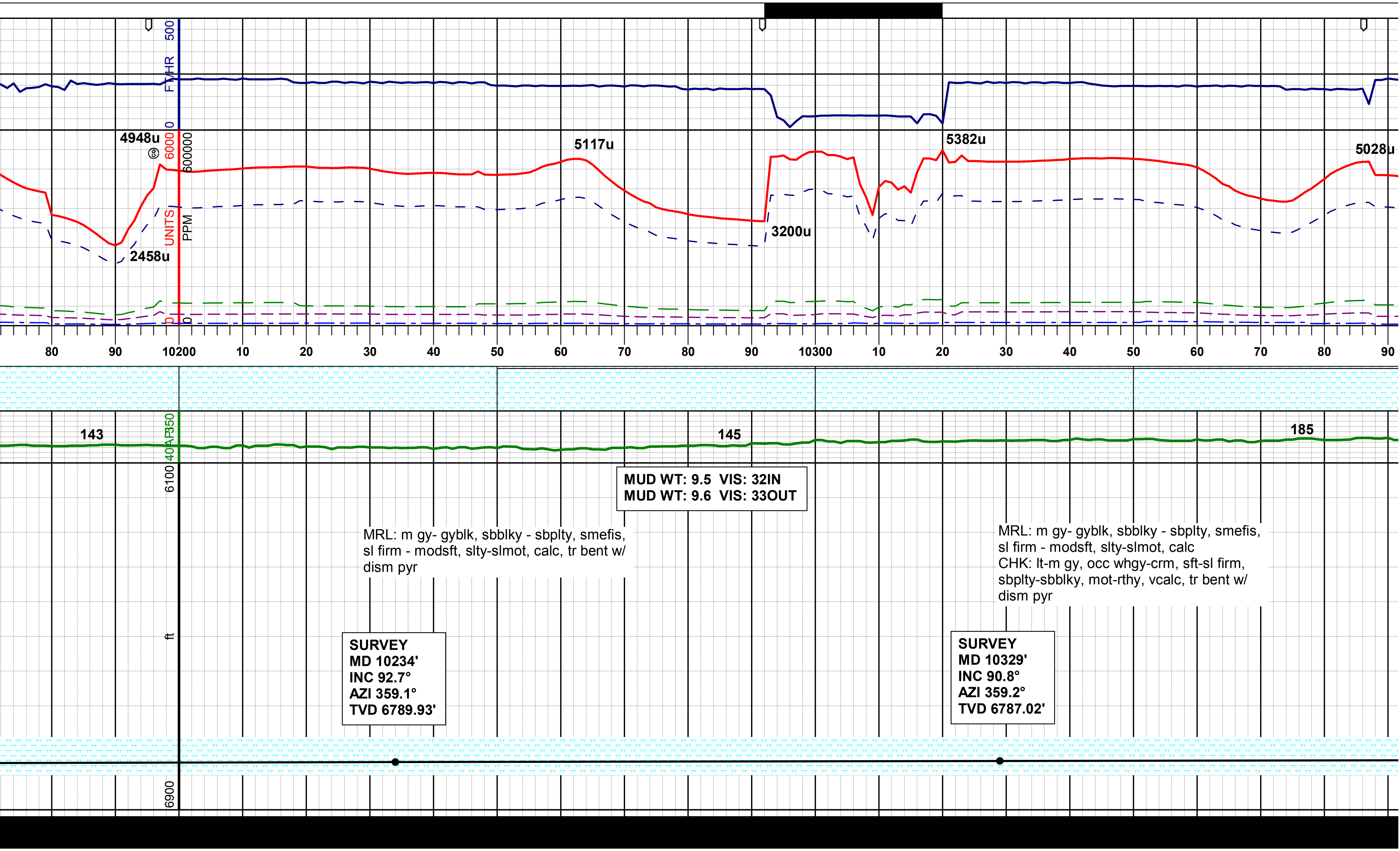
PPM 0 600000
5303u
3238u
5414u
5152u
3150u
5259u
40 50 60 70 80 90 9800 10 20 30 40 50 60 70 80 90 9900 10 20 30 40 50
40 API 350
209
161
176
6100 ft 6900
MUD WT: 9.7 VIS: 37IN
MUD WT: 9.8 VIS: 38OUT
MUD WT: 9.7 VIS: 36IN
MUD WT: 9.8 VIS: 37OUT
L: m gy- gyblk, sbblky - sbplty, smefis,
rm - modsft, slty-slmot, calc
K: lt-m gy, occ whgy-crm, sft-sl firm,
lty-sbblky, mot-rthy, vcalc, vtr bent, occ
s calcite
MRL: m gy- gyblk, sbblky - sbplty, smefis,
sl firm - modsft, slty-slmot, calc
CHK: lt-m gy, occ whgy-crm, sft-sl firm,
sbplty-sbblky, mot-rthy, vcalc, vtr bent, occ
mas calcite
MRL: m gy- gyblk, sbbl
sl firm - modsft, slty-slm
CHK: lt-m gy, occ whgy
sbplty-sbblky, mot-rthy,
SURVEY
MD 9759'
INC 92.2°
AZI 358.4°
TVD 6802.94'
SURVEY
MD 9855'
INC 90.9°
AZI 359.4°
TVD 6800.34'
SURVEY
MD 9949'
INC 92.2°
AZI 359.6
TVD 6797



5250u
4251u
3146u
5304u
5049u
2888u
5347u
0 FT/HR 500
0 UNITS 6000
0 PPM 600000
40 API 350
6100 ft 6900
130
156
60
70
80
90
10000
10
20
30
40
50
60
70
80
90
10100
10
20
30
40
50
60
70
WT: 9.8 VIS: 35IN
WT: 9.8 VIS: 36OUT
ky - sbplty, smefis,
mot, calc
-crm, sft-sl firm,
vcalc, vtr bent
.80'
MRL: m gy- gyblk, sbblky - sbplty, smefis,
sl firm - modsft, slty-slmot, calc
CHK: lt-m gy, occ whgy-crm, sft-sl firm,
sbplty-sbblky, mot-rthy, vcalc, tr bent w/
dism pyr
SURVEY
MD 10044'
INC 91.2°
AZI 359.4°
TVD 6794.98'
MUD WT: 9.5 VIS: 32IN
MUD WT: 9.6 VIS: 34OUT
MRL: m gy- gyblk, sbblky - sbplty, smefis,
sl firm - modsft, slty-slmot, calc
CHK: lt-m gy, occ whgy-crm, sft-sl firm,
sbplty-sbblky, mot-rthy, vcalc, tr bent w/
dism pyr
SURVEY
MD 10139'
INC 91.1°
AZI 359.2°
TVD 6793.07'



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0 PPM 600000
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2458u
5117u
3200u
5382u
5028u
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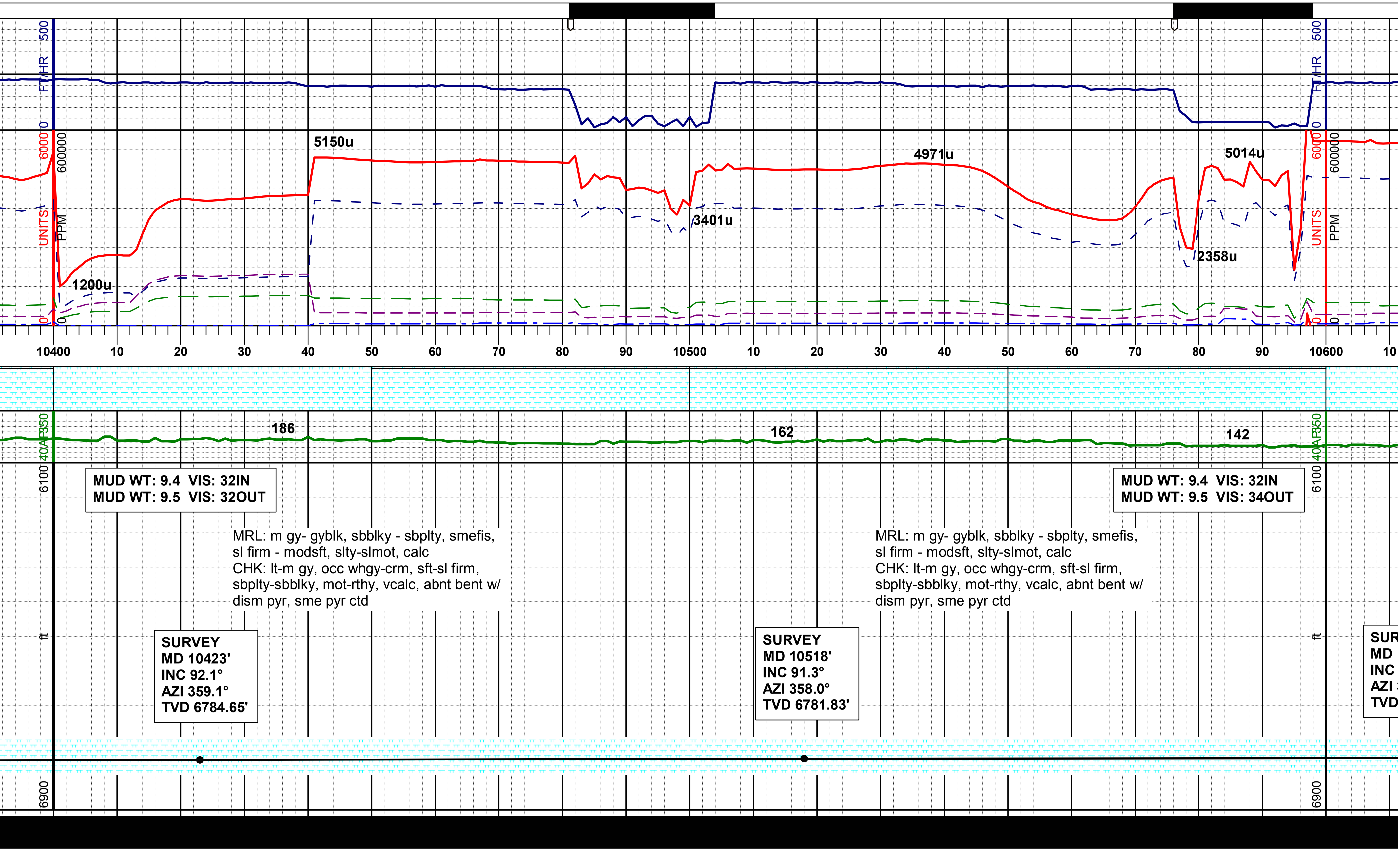
10200
10
20
30
40
50
60
70
80
90
10300
10
20
30
40
50
60
70
80
90
40 API 350
143
145
185
6100 ft 6900
MUD WT: 9.5 VIS: 32IN
MUD WT: 9.6 VIS: 33OUT
MRL: m gy- gyblk, sbblky - sbplty, smefis, sl firm - modsft, slty-slmot, calc, tr bent w/ dism pyr
MRL: m gy- gyblk, sbblky - sbplty, smefis, sl firm - modsft, slty-slmot, calc
CHK: lt-m gy, occ whgy-crm, sft-sl firm, sbplty-sbblky, mot-rthy, vcalc, tr bent w/ dism pyr
SURVEY
MD 10234'
INC 92.7°
AZI 359.1°
TVD 6789.93'
SURVEY
MD 10329'
INC 90.8°
AZI 359.2°
TVD 6787.02'



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PPM 0 600000
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5150u
3401u
4971u
2358u
5014u
10400
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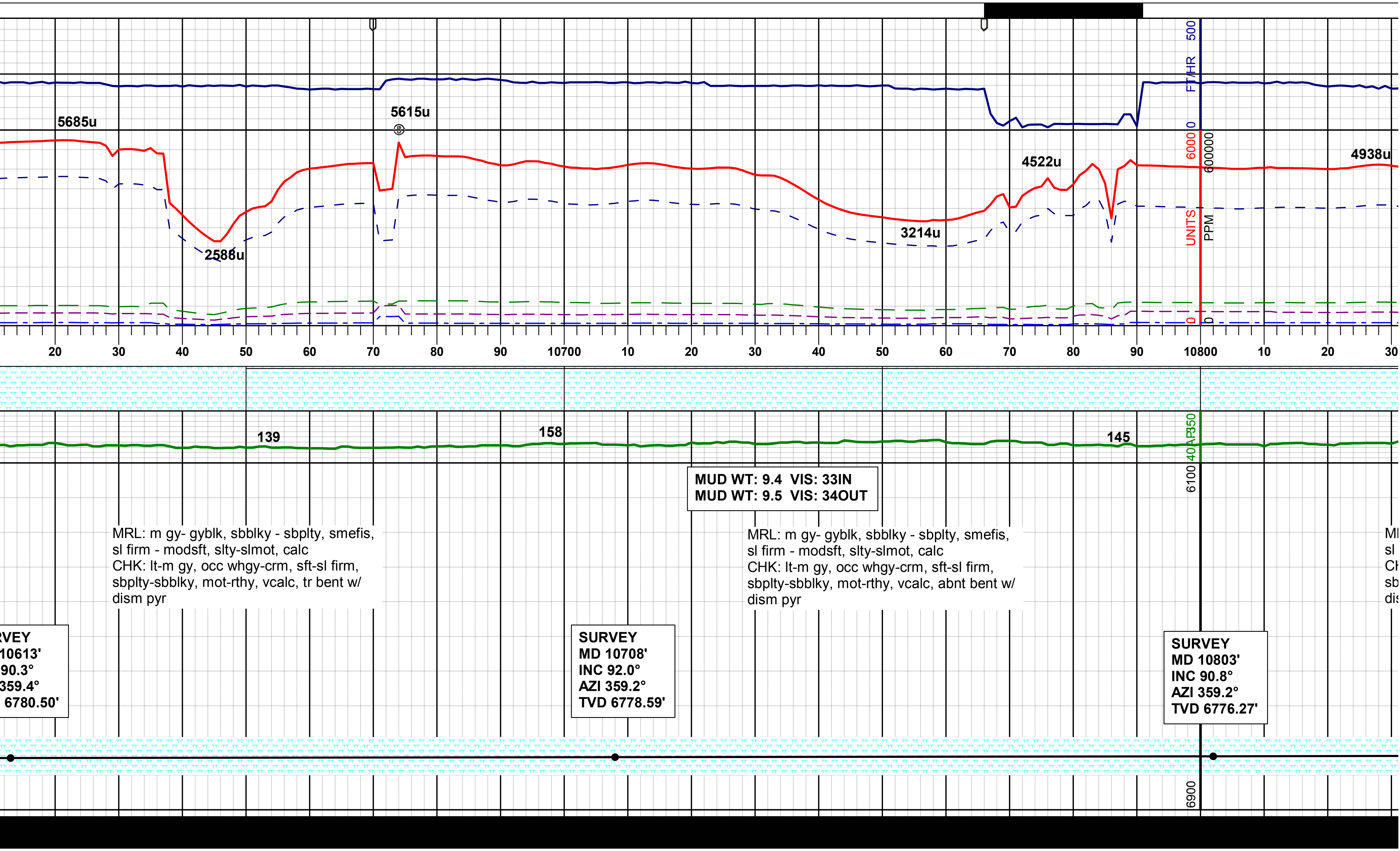
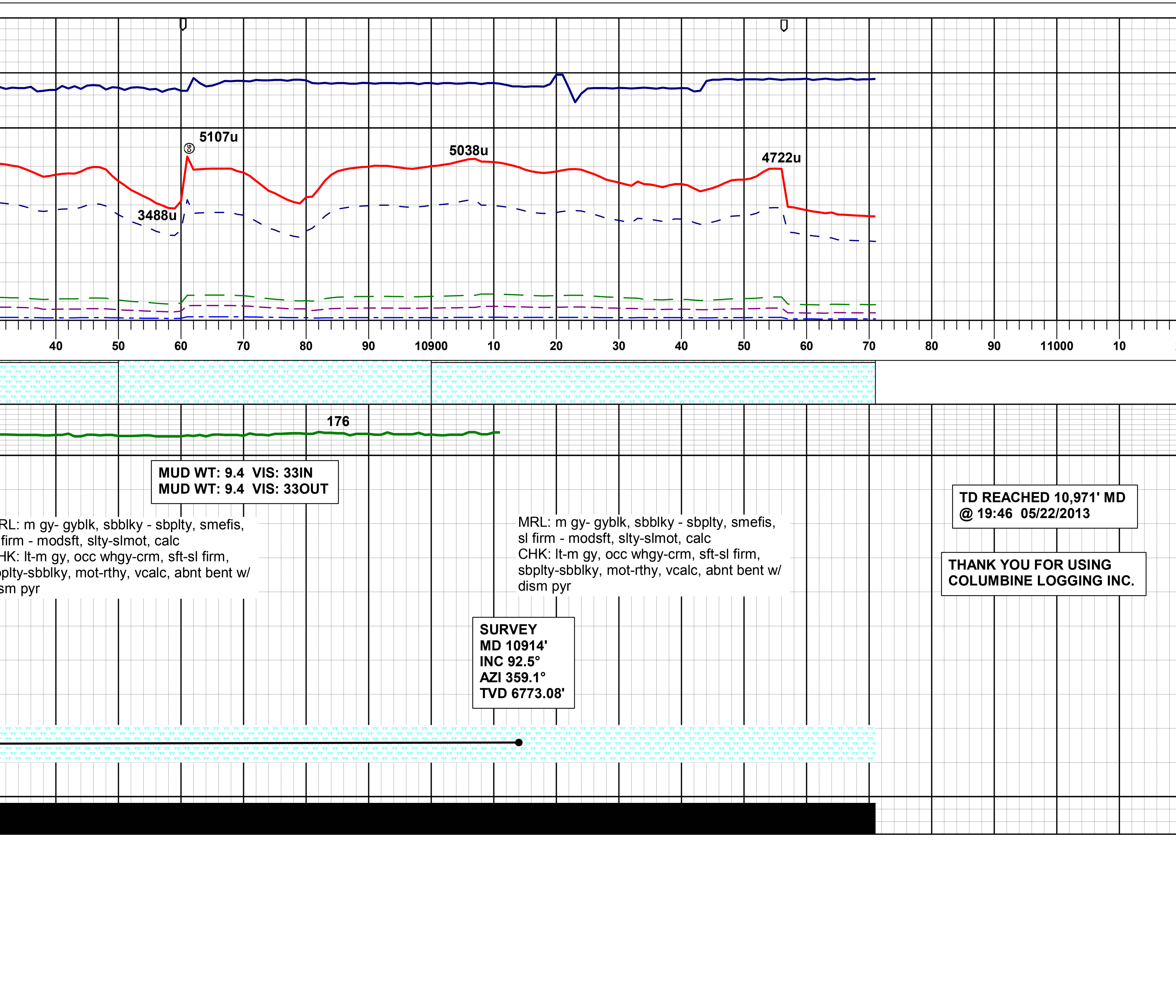
20
30
40
50
60
70
80
90
10500
10
20
30
40
50
60
70
80
90
10600
10
40 API 350
186
162
142
6100
ft
6900
MUD WT: 9.4 VIS: 32IN
MUD WT: 9.5 VIS: 32OUT
MRL: m gy- gyblk, sbblky - sbplty, smefis, sl firm - modsft, slty-slmot, calc
CHK: lt-m gy, occ whgy-crm, sft-sl firm, sbplty-sbblky, mot-rthy, vcalc, abnt bent w/ dism pyr, sme pyr ctd
SURVEY
MD 10423'
INC 92.1°
AZI 359.1°
TVD 6784.65'
SURVEY
MD 10518'
INC 91.3°
AZI 358.0°
TVD 6781.83'
MUD WT: 9.4 VIS: 32IN
MUD WT: 9.5 VIS: 34OUT
MRL: m gy- gyblk, sbblky - sbplty, smefis, sl firm - modsft, slty-slmot, calc
CHK: lt-m gy, occ whgy-crm, sft-sl firm, sbplty-sbblky, mot-rthy, vcalc, abnt bent w/ dism pyr, sme pyr ctd



5685u
5615u
2586u
4522u
3214u
4938u
UNITS
0
6000
PPM
0
600000
FT/HR
0
500
20
30
40
50
60
70
80
90
10700
10
20
30
40
50
60
70
80
90
10800
10
20
30
139
158
145
40
API
350
6100
6900
MUD WT: 9.4 VIS: 33IN
MUD WT: 9.5 VIS: 34OUT
MRL: m gy- gyblk, sbblky - sbplty, smefis, sl firm - modsft, slty-slmot, calc
CHK: lt-m gy, occ whgy-crm, sft-sl firm, sbplty-sbblky, mot-rthy, vcalc, tr bent w/ dism pyr
MRL: m gy- gyblk, sbblky - sbplty, smefis, sl firm - modsft, slty-slmot, calc
CHK: lt-m gy, occ whgy-crm, sft-sl firm, sbplty-sbblky, mot-rthy, vcalc, abnt bent w/ dism pyr
RVEY
10613'
90.3°
359.4°
6780.50'
SURVEY
MD 10708'
INC 92.0°
AZI 359.2°
TVD 6778.59'
SURVEY
MD 10803'
INC 90.8°
AZI 359.2°
TVD 6776.27'


5107u
3488u
5038u
4722u
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80
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10900
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60
70
80
90
11000
10
20
176
MUD WT: 9.4 VIS: 33IN
MUD WT: 9.4 VIS: 33OUT
RL: m gy- gyblk, sbblky - sbplty, smefis,
firm - modsft, slty-slmot, calc
HK: lt-m gy, occ whgy-crm, sft-sl firm,
plty-sbblky, mot-rthy, vcalc, abnt bent w/
sm pyr
MRL: m gy- gyblk, sbblky - sbplty, smefis,
sl firm - modsft, slty-slmot, calc
CHK: lt-m gy, occ whgy-crm, sft-sl firm,
sbplty-sbblky, mot-rthy, vcalc, abnt bent w/
dism pyr
SURVEY
MD 10914'
INC 92.5°
AZI 359.1°
TVD 6773.08'
TD REACHED 10,971' MD
@ 19:46 05/22/2013
THANK YOU FOR USING
COLUMBINE LOGGING INC.