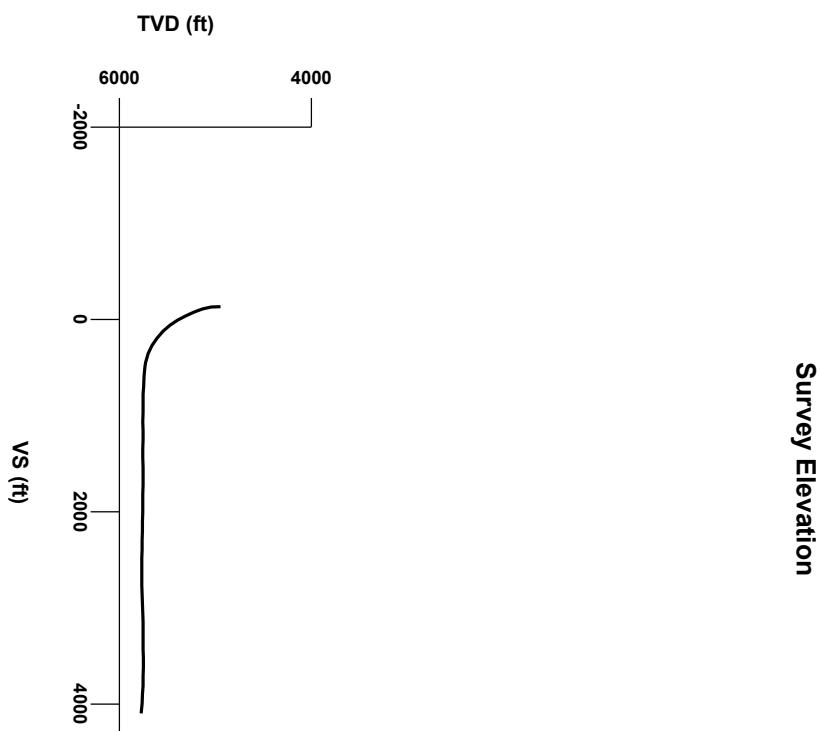
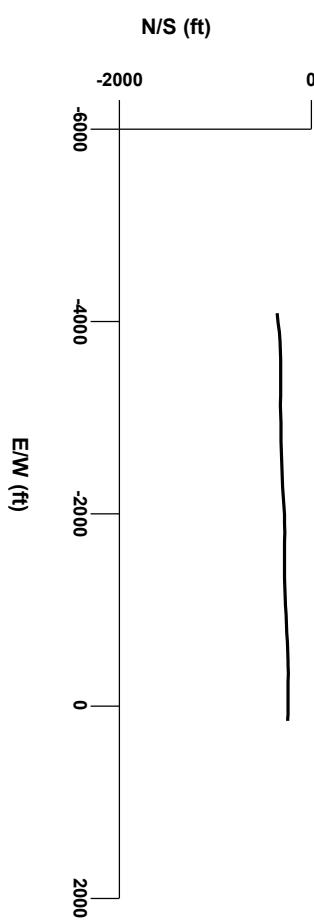


LOG created using Lplot VH Version 3.0, October 25, 2013, Copyright (C) 1999-2009 Pason Systems Corp.

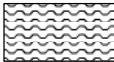
**OPERATOR:** NOBLE ENERGY INC  
**WELL:** ROHN STATE LD09-66HN  
**LOCATION:** SENE SEC 9 T9N R58W  
**COUNTY:** WELD  
**STATE:** COLORADO  
**SPOT:** 1725' FNL; 480' FEL  
**ELEVATION:** 4728' GL; 4752' KB  
**FIELD:** WILDCAT  
**SPUD DATE:** 10/20/2013  
**TD DATE:** 10/25/2013  
**DATES LOGGED:** 10/21/2013 - 10/25/2013  
**DEPTHS LOGGED:** 4981' - 9670' MD  
**LOGGERS:** LAURA KELLOGG; CONOR PESICKA  
**DRILLING FLUID:** LSND  
**DRILLING RIG:** H&P 273  
**API:** 05-123-37539  
**LOG TYPE:** HORIZONTAL  
**SCALE:** 1:240 (5 inches per 100 feet)  
**REMARKS:** WELLSITE GEOLOGIC SERVICES  
PROVIDED BY COLUMBINE LOGGING INC.



## Survey Plan



LITHOLOGIES



Bentonite



Chalk



Marl



Silty Shale

## ENGINEERING SYMBOLS

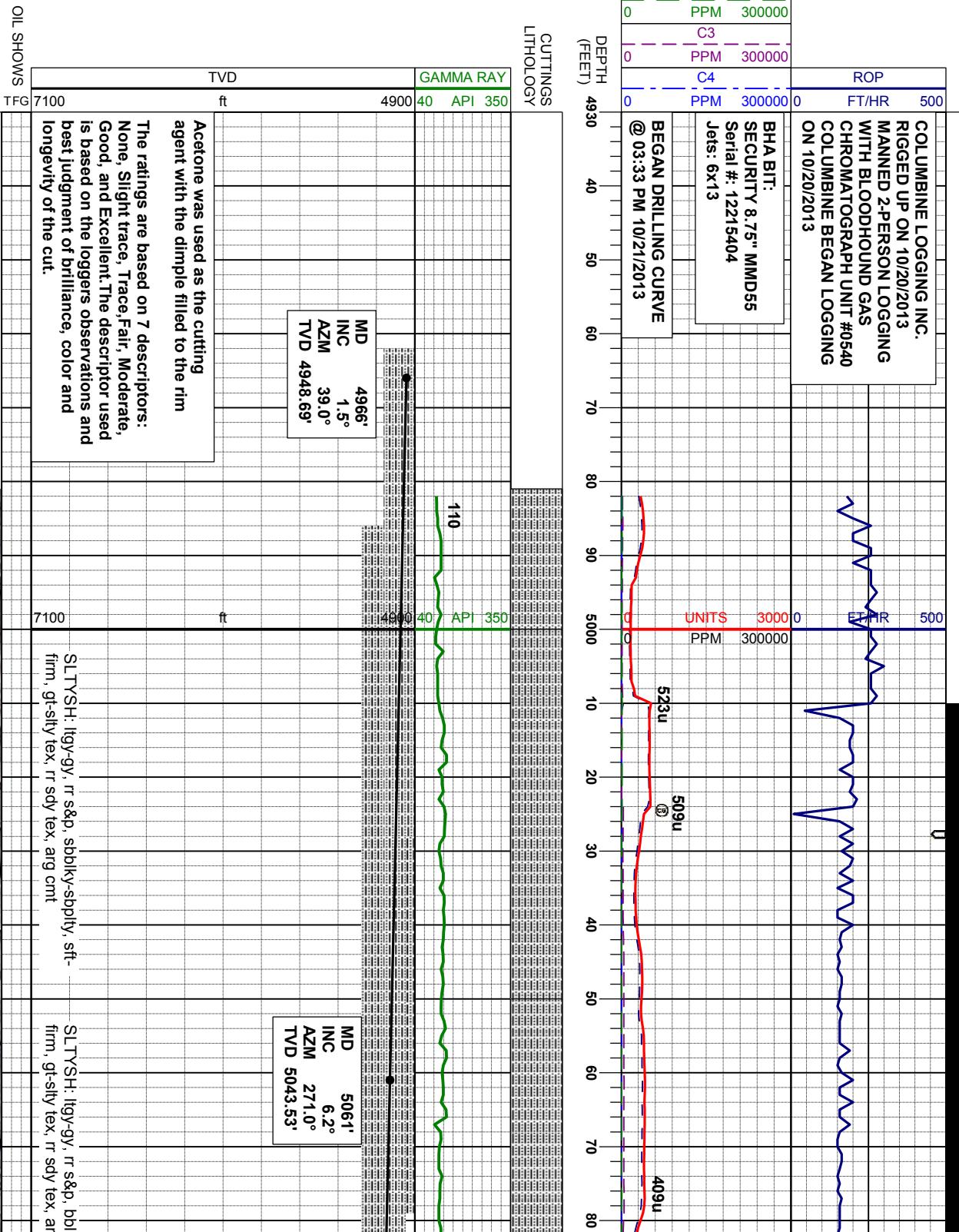
▲ Casing

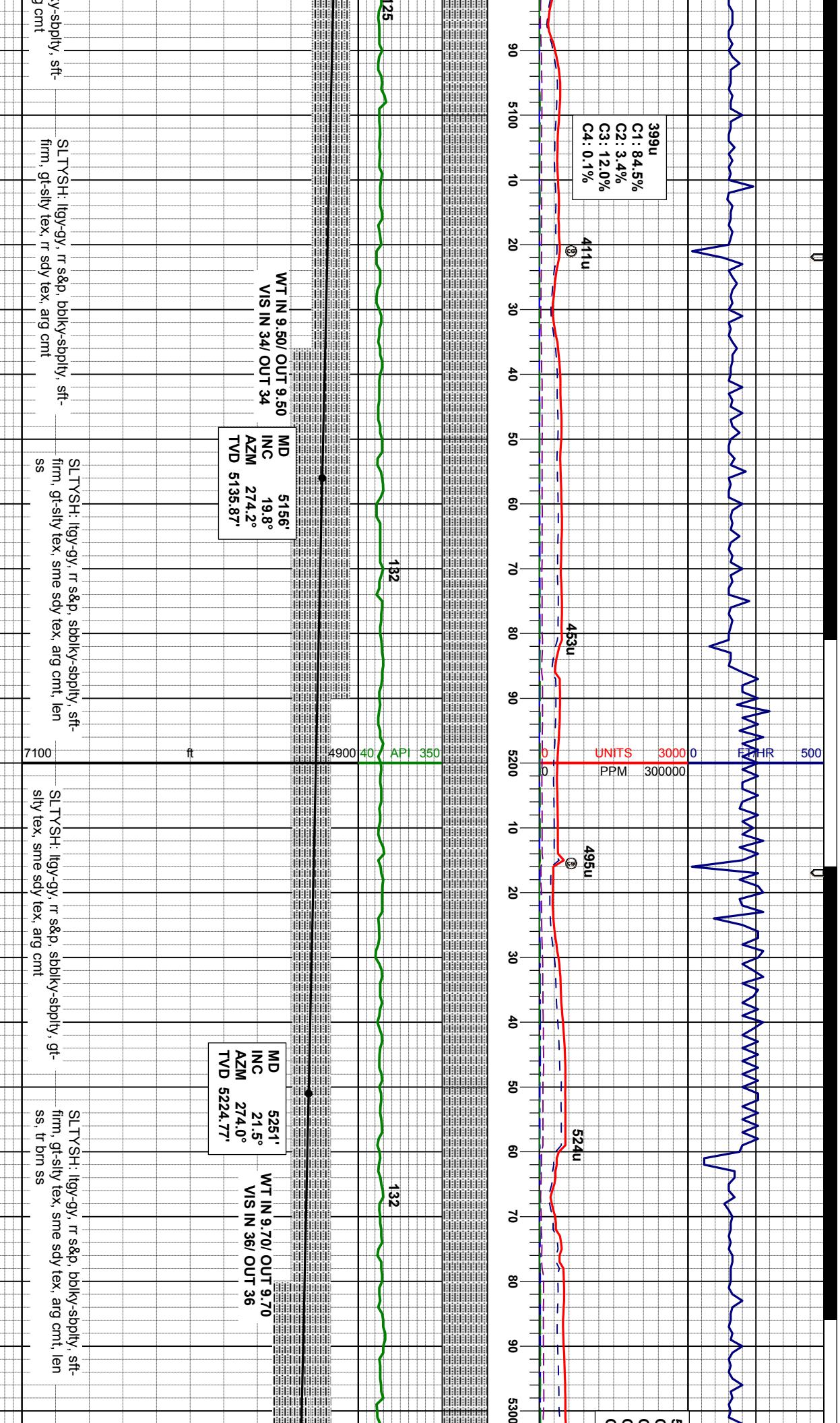
▲ Casing

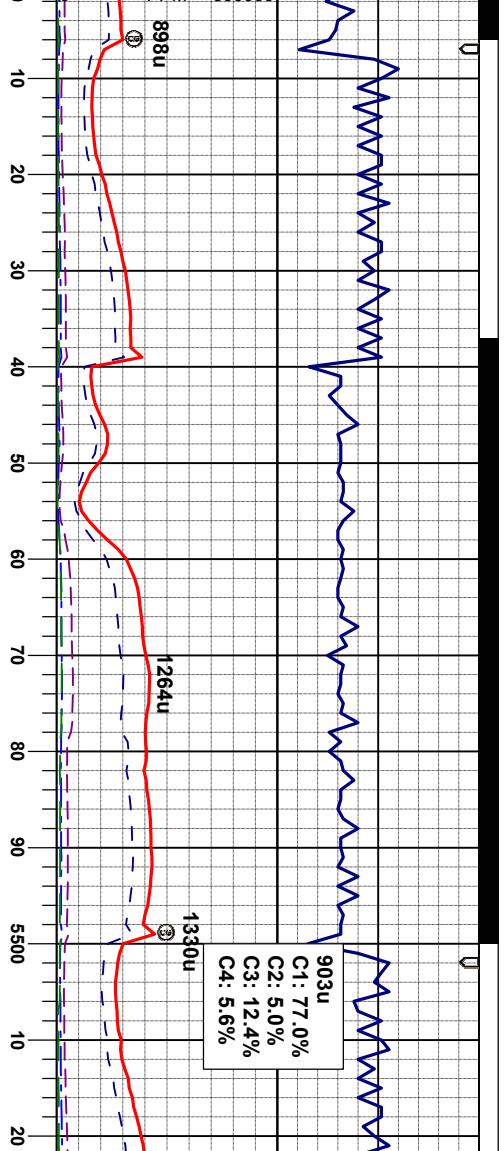
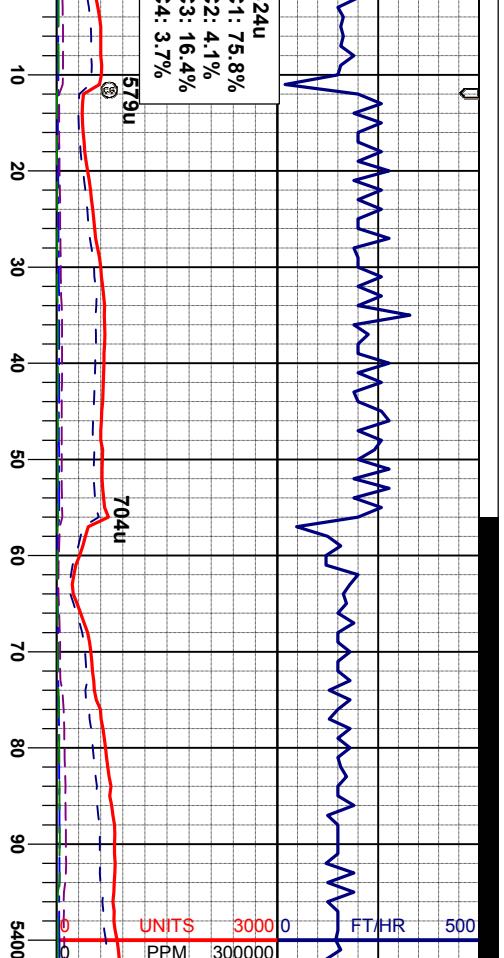
□ Connection

◎ Connection Gas

▣ Midnight Depth







WT IN 10.00/ OUT 10.00  
VIS IN 34/ OUT 34

121

4900 40 API 350

157

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

MD	5346'
INC	25.4°
AZM	269.3°
TVD	5311.91'

MD	5440'
INC	30.8°
AZM	267.9°
TVD	5394.80'

SLTYSH: ltgy-gy, rr s&p, bblky-sbptt, st-firm, gt-sly tex, sme sly tex, arg cmt, len ss, tr brn ss

SLTYSH: ltgy-gy, sbblky-sbptt, st-firm, gt-sly tex, rr sdy tex, arg cmt

7100

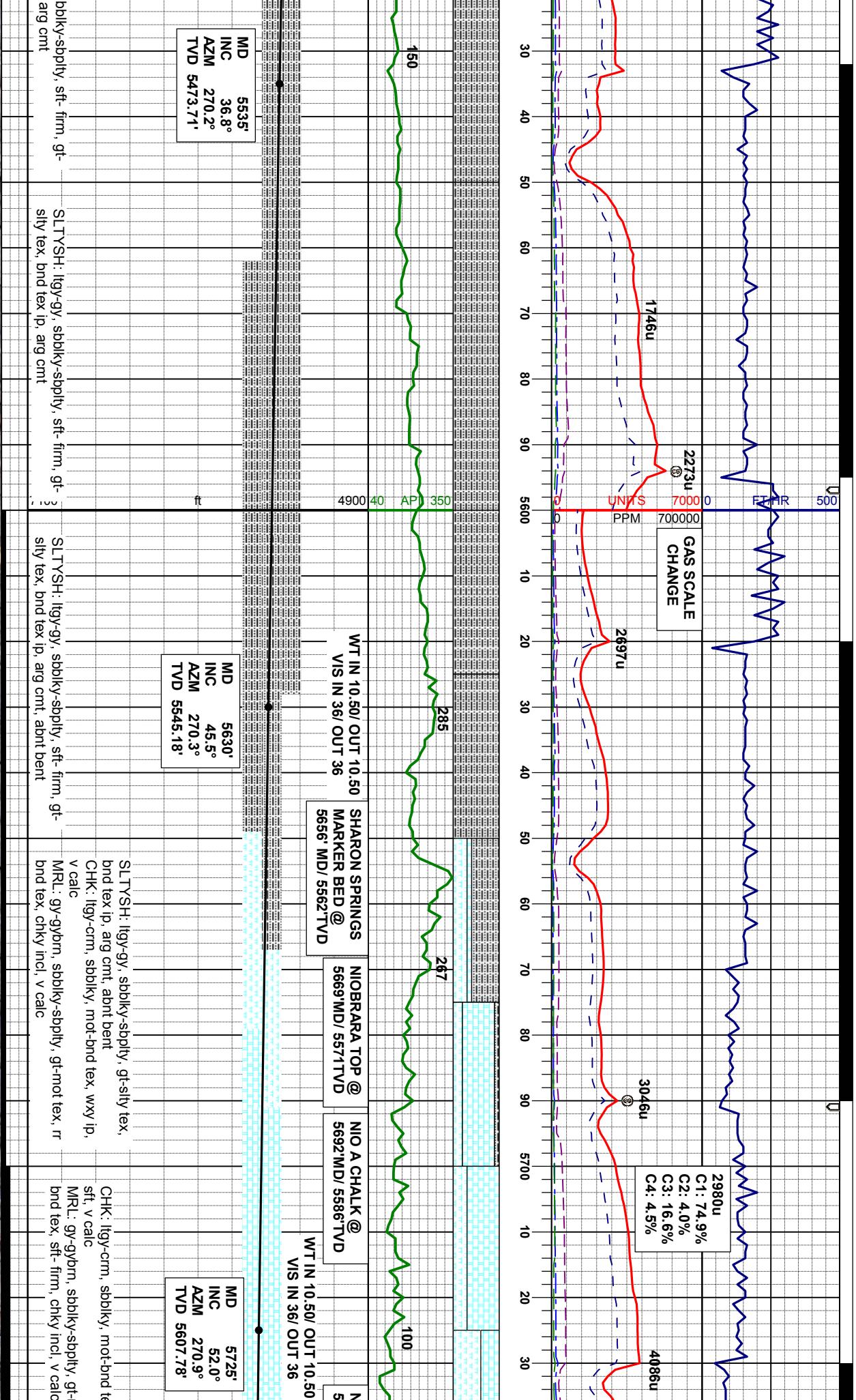
ft

SLTYSH: ltgy-gy, sbblky-sbptt, st-firm, gt-sly tex, bnd tex ip, arg cmt

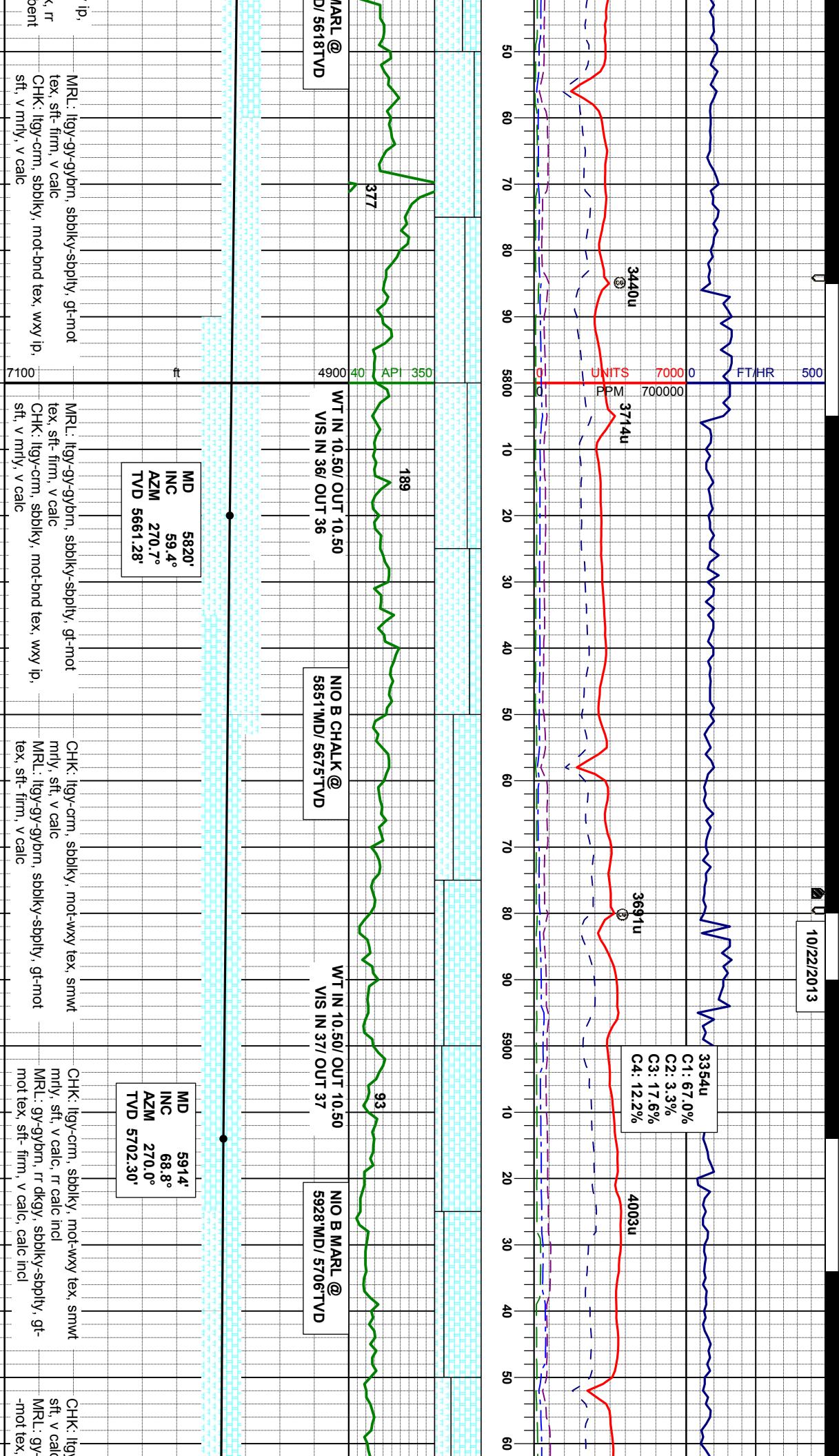
SLTYSH: ltgy-gy, sbblky-sbptt, st-firm, gt-sly tex, bnd tex ip, arg cmt

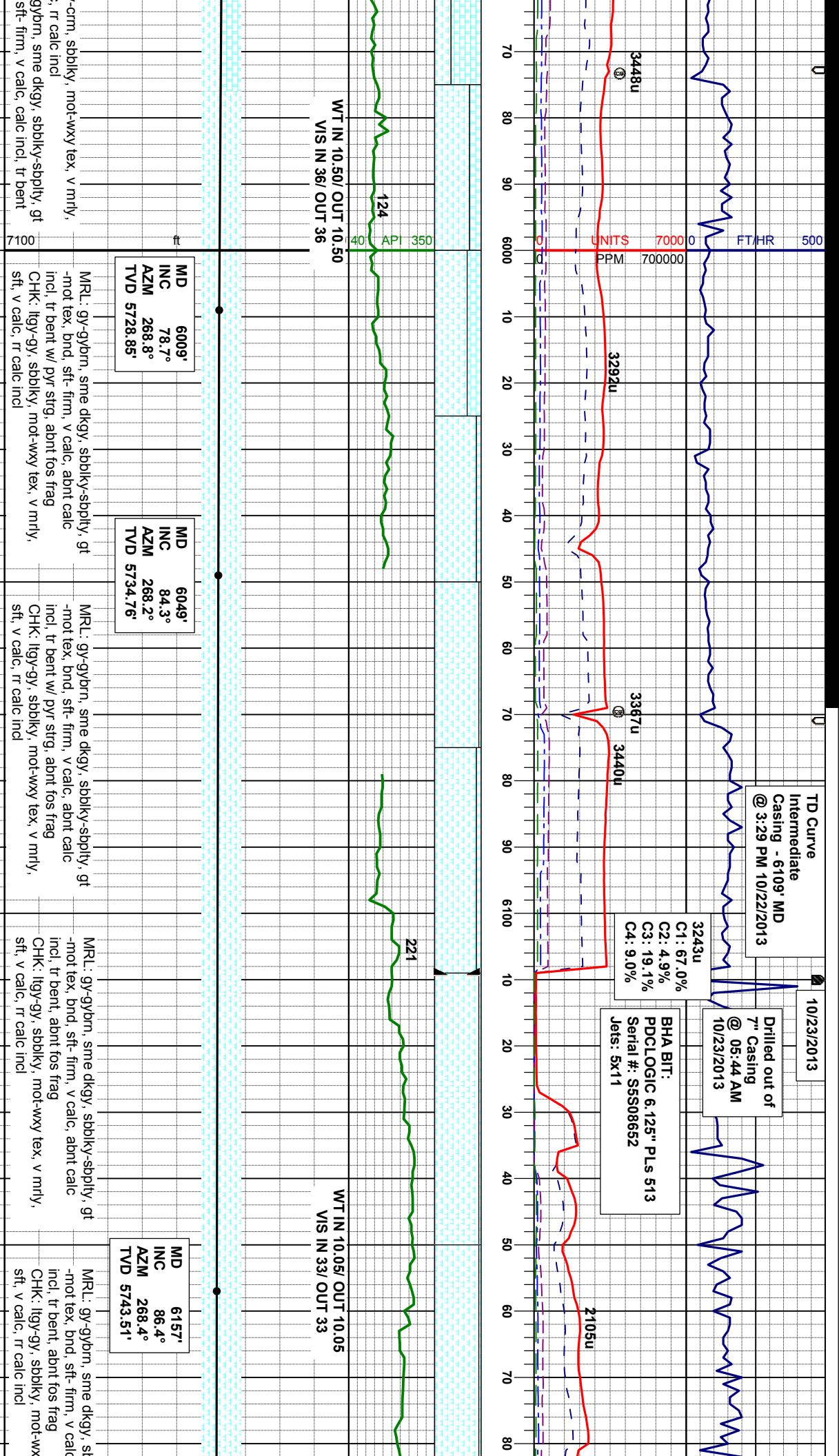
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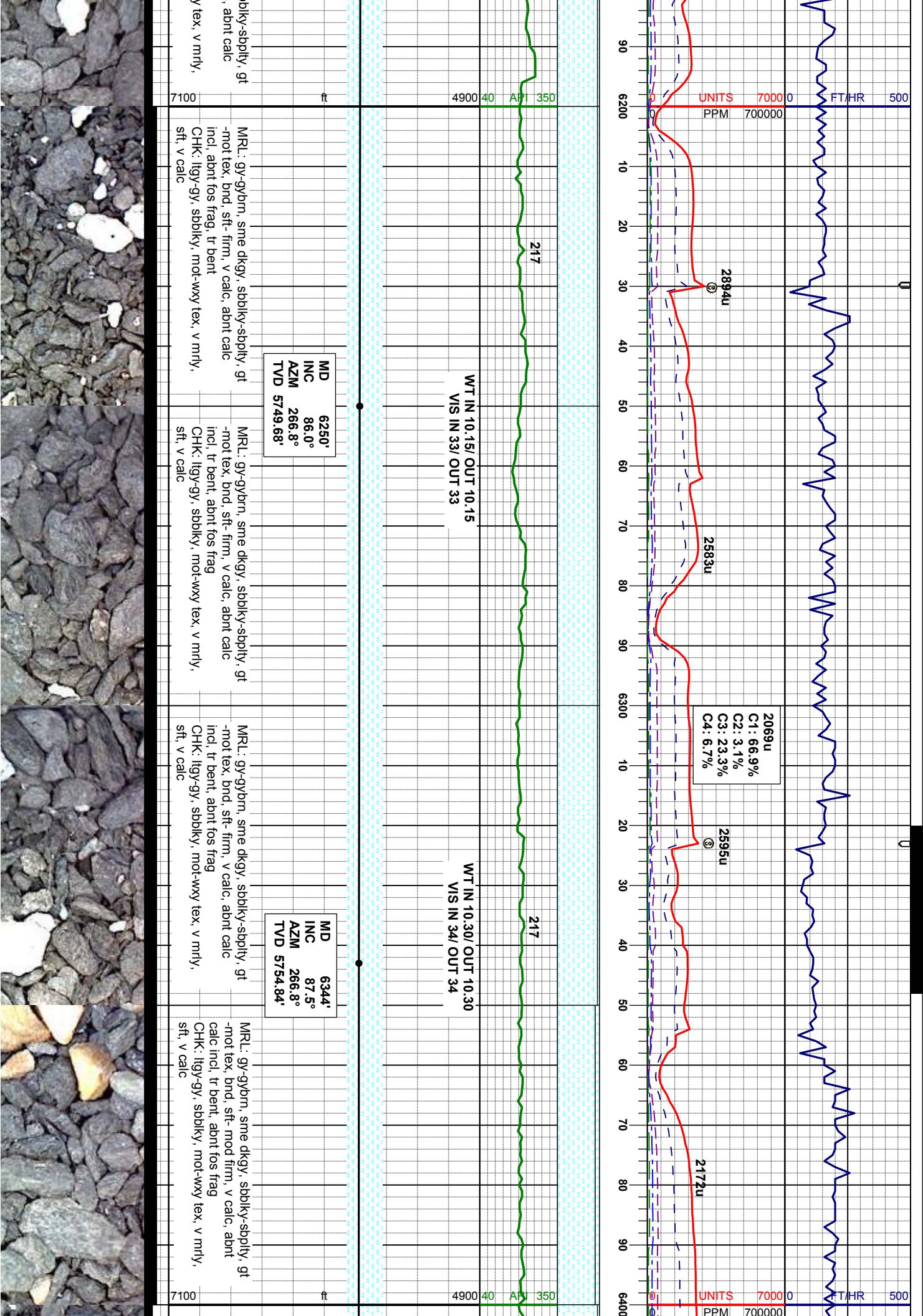




10/22/2013







TROUBLE SHOOT  
DRILLING PROBLEMS

2162u

③

UNITS

PPM

700000

FT/HR

500

2454u

③

275u

C1: 53.3%

C2: 0.3%

C3: 33.8%

C4: 12.6%

2305u

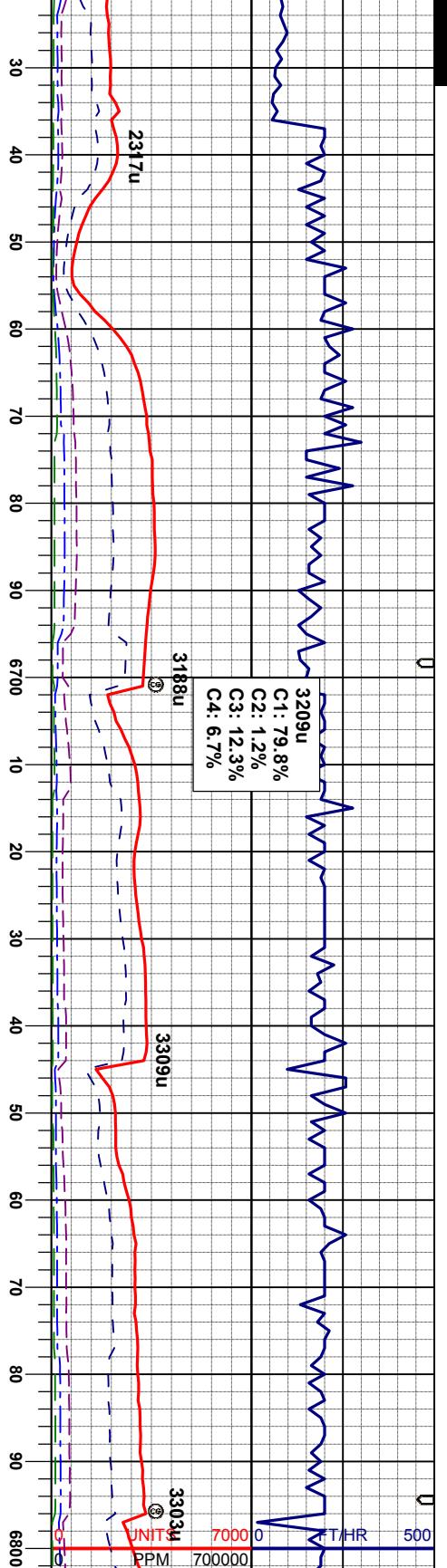
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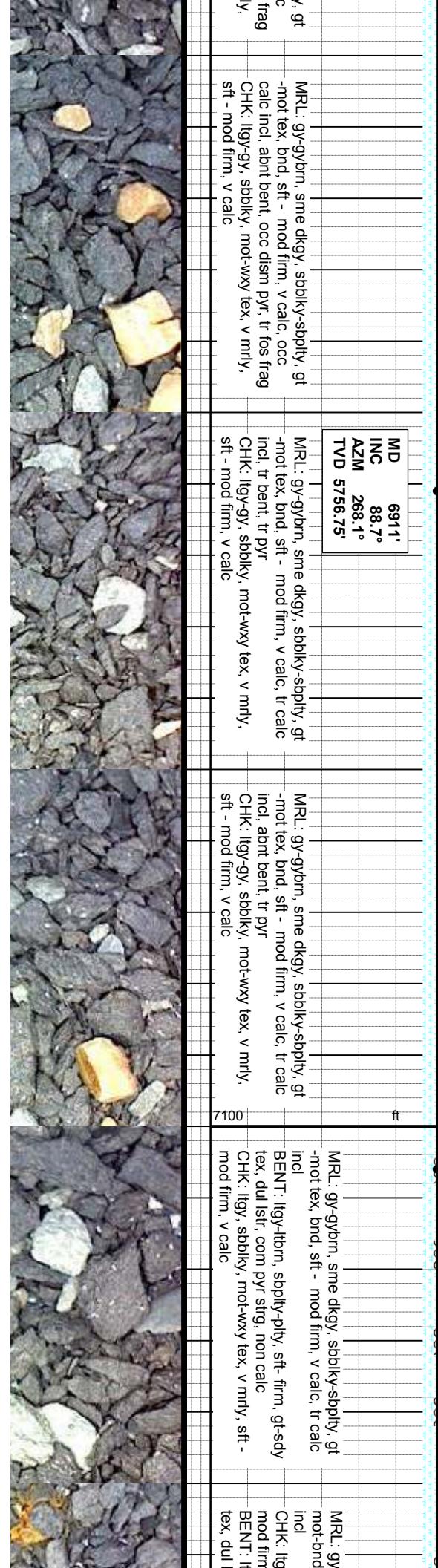
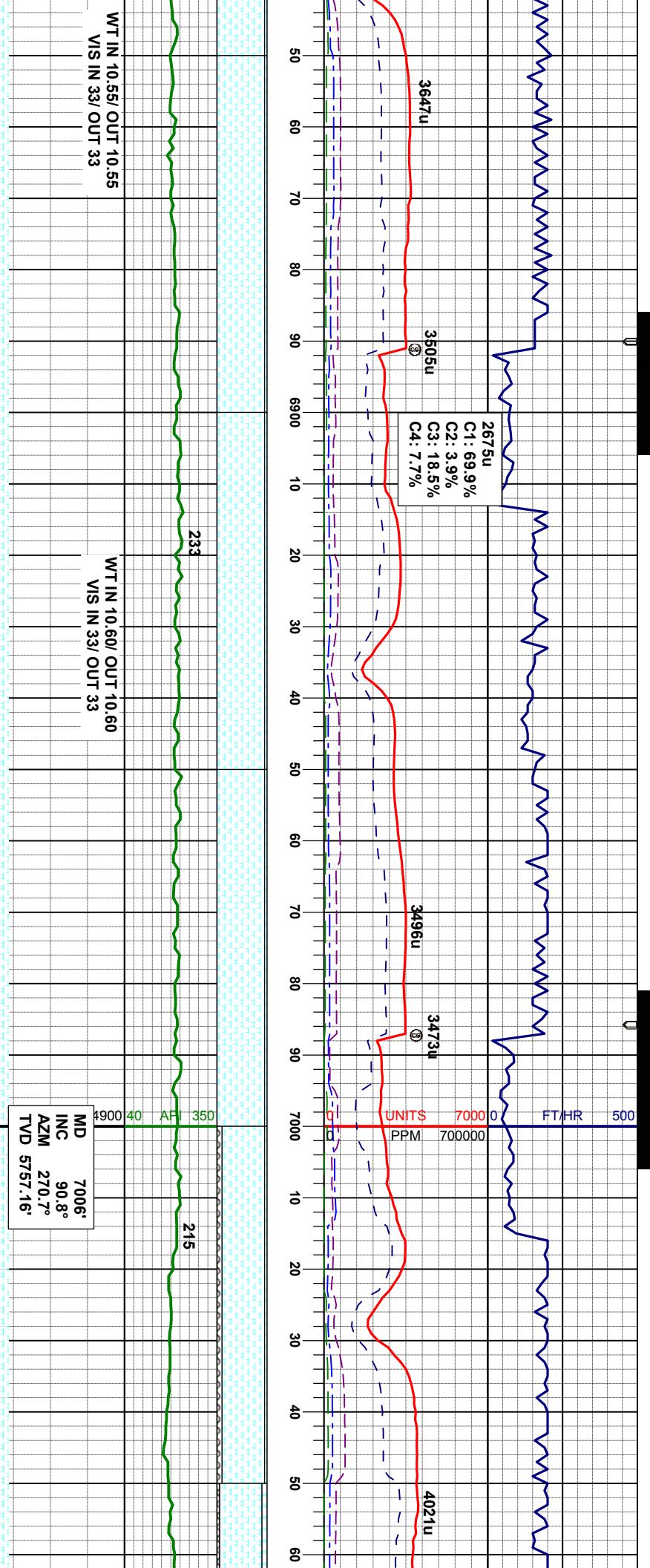
2741u

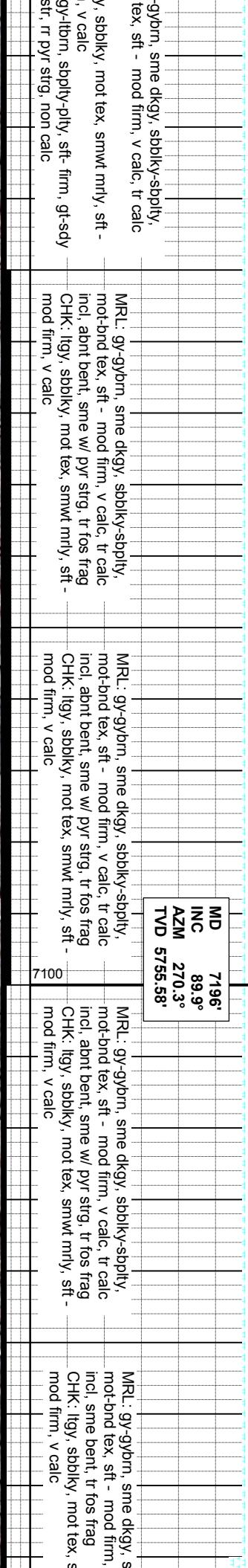
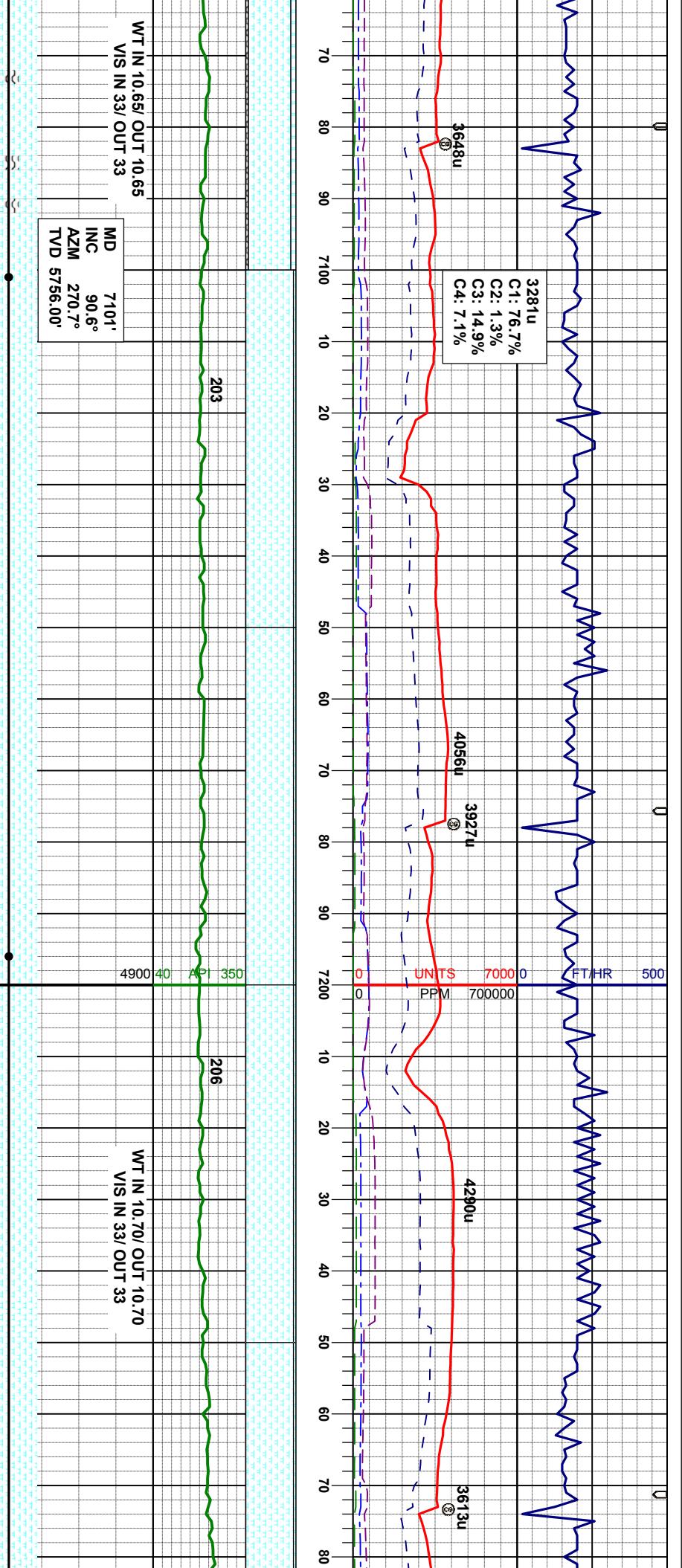
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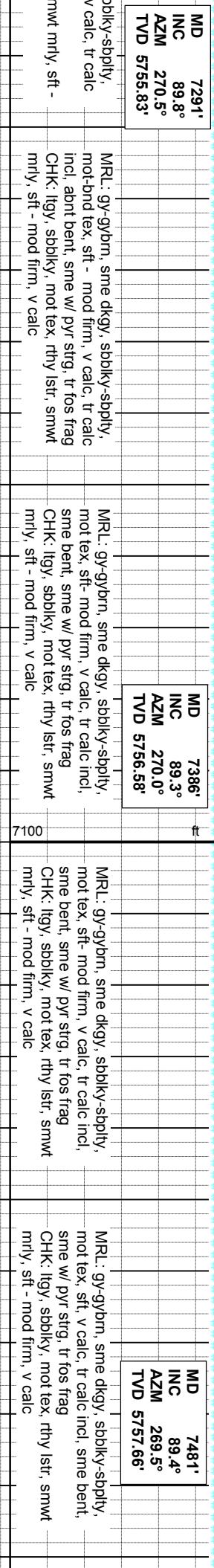
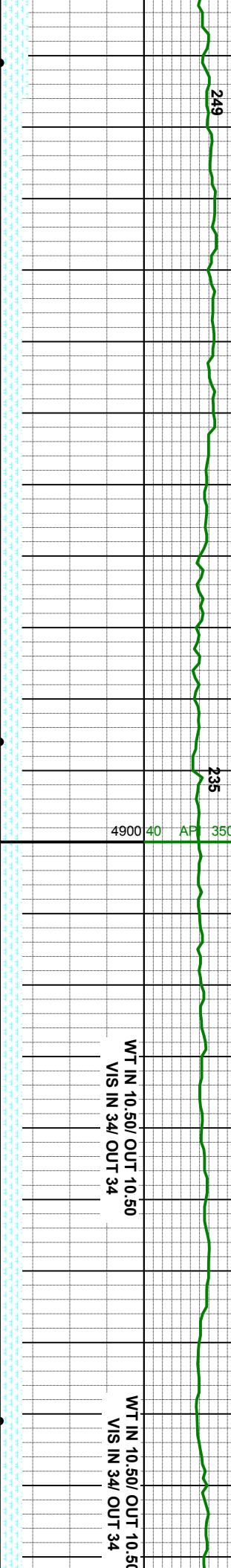
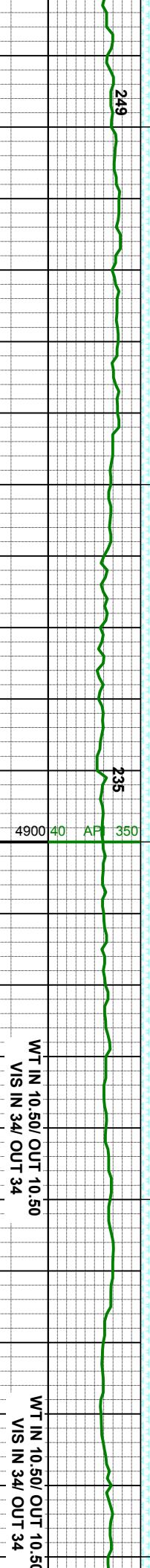
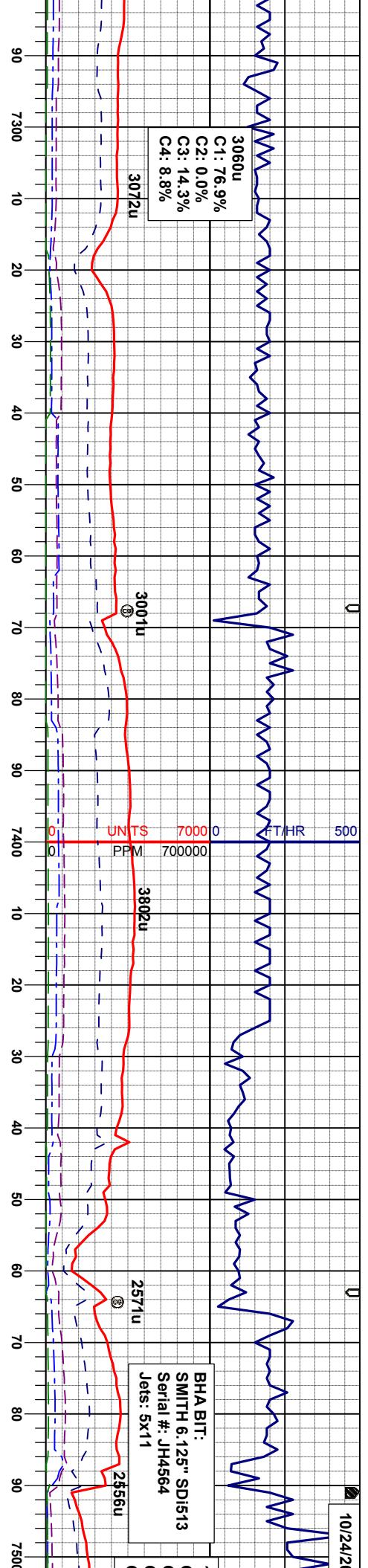
2415u

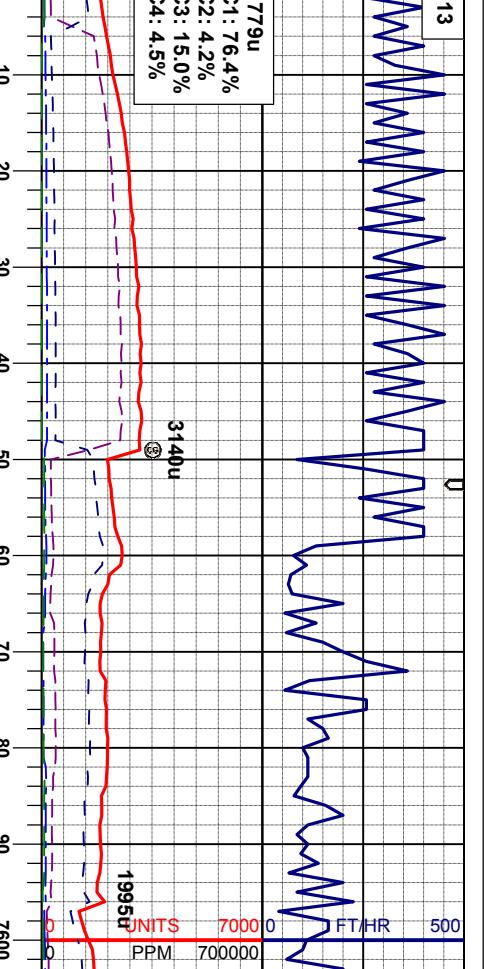
③











MD  
INC  
AZM  
TVD

7576'  
88.7°  
267.5°  
5759.23'

MRL: gy-gybrn, sme dkgy, sbblkly-sbplty,  
mot tex, sft, v calc, tr calc incl, sme bent,  
sme w/ pyr strg, tr fos frag  
CHK: itgy, sbblkly, mot tex, rhy lstr, smwt  
mly, sft - mod firm, v calc

MRL: gy-gybrn, sme dkgy, sbblkly-sbplty,  
mot tex, sft, v calc, tr calc incl, sme bent,  
sme w/ pyr strg, tr fos frag  
CHK: itgy, sbblkly, mot tex, rhy lstr, smwt  
mly, sft - mod firm, v calc

MD  
INC  
AZM  
TVD

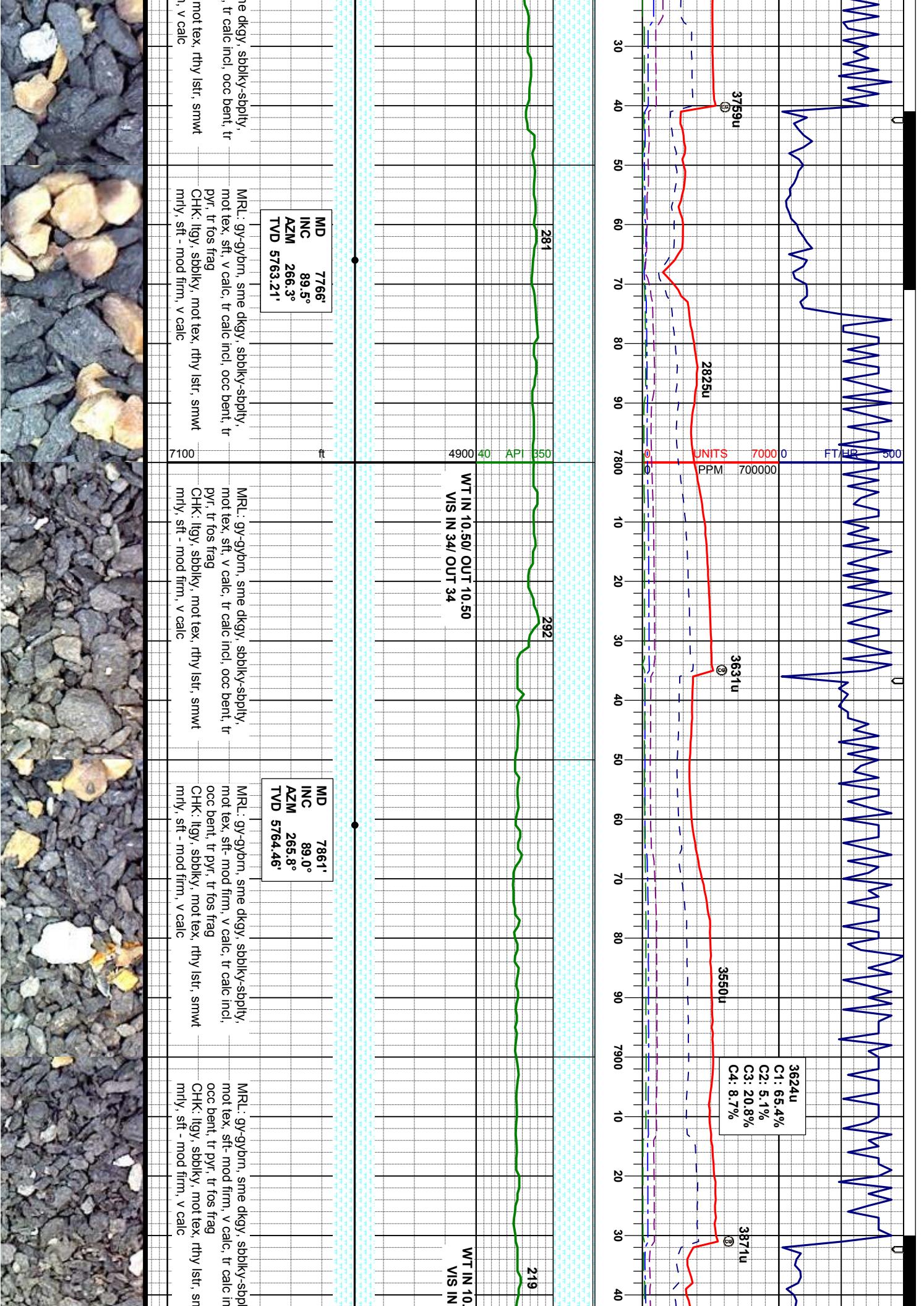
7671'  
88.5°  
265.9°  
5761.55'

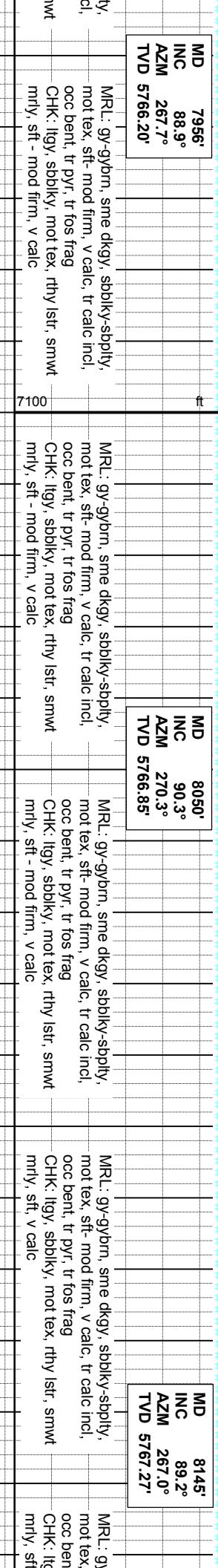
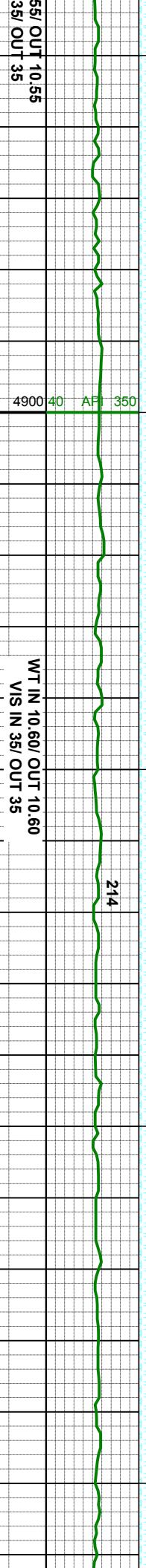
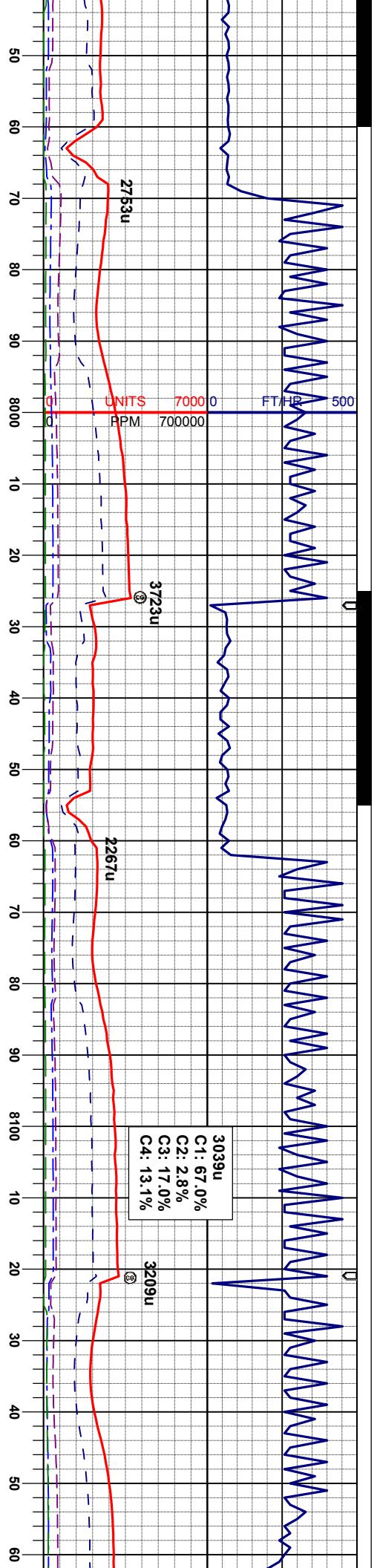
MRL: gy-gybrn, sme dkgy, sbblkly-sbplty,  
mot tex, sft, v calc, tr calc incl, sme bent,  
sme w/ pyr strg, tr fos frag  
CHK: itgy, sbblkly, mot tex, rhy lstr, smwt  
mly, sft - mod firm, v calc

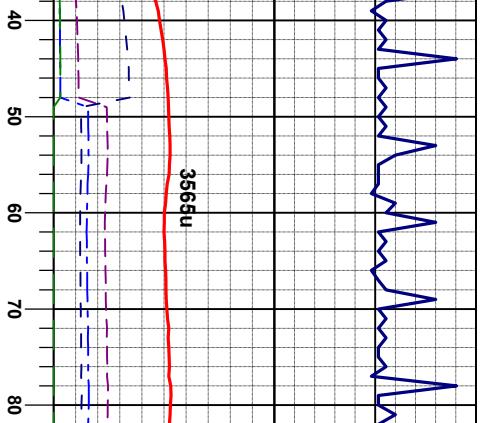
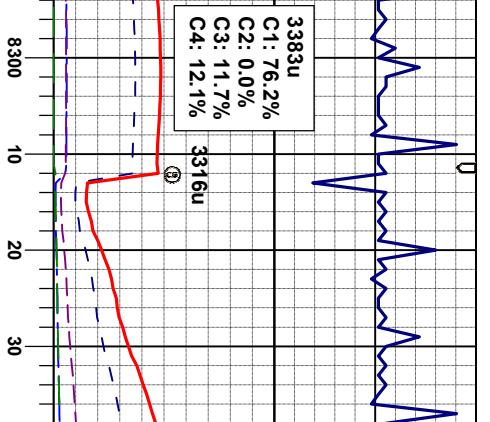
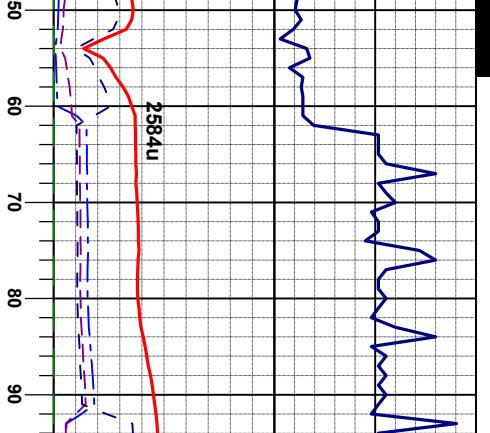
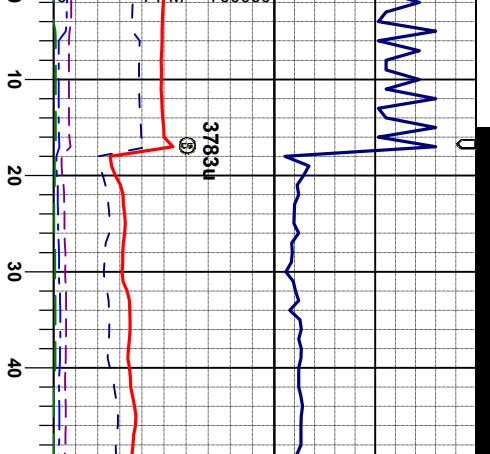
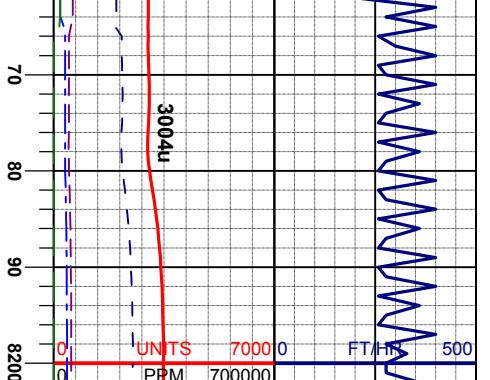
MRL: gy-gybrn, sme dkgy, sbblkly-sbplty,  
mot tex, sft, v calc, tr calc incl, sme bent,  
sme w/ pyr strg, tr fos frag  
CHK: itgy, sbblkly, mot tex, rhy lstr, smwt  
mly, sft - mod firm, v calc

MRL: gy-gybrn, sme dkgy, sbblkly-sbplty,  
mot tex, sft, v calc, tr calc incl, sme bent,  
sme w/ pyr strg, tr fos frag  
CHK: itgy, sbblkly, mot tex, rhy lstr, smwt  
mly, sft - mod firm, v calc









WT IN 10.65/ OUT 10.65  
VIS IN 35/ OUT 35

4900 40 API 350

WT IN 10.65/ OUT 10.65  
VIS IN 36/ OUT 36

4900 40 API 350

WT IN 10  
VIS IN

4900 40 API 350

MD  
INC  
AZM  
TVD

8240'  
90.0°  
268.6°  
5767.93'

MD  
INC  
AZM  
TVD

8335'  
90.2°  
268.1°  
5767.76'

-gybrn, sme dkgy, sbblkty-sbpty,  
sft-mod firm v calc, tr calc incl,  
tr pyr, tr fos frag

CHK, Itgy, sbblkty, mot tex, rthly lstr, smwrt

mfly, sft, v calc

, v calc

MRL, gy-gybrn, sme dkgy, sbblkty-sbpty,  
mot tex, sft, v calc, tr calc incl, occ bent, tr  
pyr, tr fos frag

CHK, Itgy, sbblkty, mot tex, rthly lstr, smwrt

mfly, sft, v calc

, v calc

MRL, gy-gybrn, sme dkgy, sbblkty-sbpty,  
mot tex, sft, v calc, tr calc incl, occ bent, tr  
pyr, tr fos frag

CHK, Itgy, sbblkty, mot tex, rthly lstr, smwrt

mfly, sft, v calc

MRL, gy-gybrn, sme dkgy, sbblkty-sbpty,  
mot tex, sft, v calc, tr calc incl, occ bent, rr  
pyr

CHK, Itgy, sbblkty, mot tex, rthly lstr, smwrt

mfly, sft, v calc

MRL, gy-gybrn, sme dkgy, sbblkty-sbpty,  
mot tex, sft, v calc, tr calc incl, occ bent, rr  
pyr

CHK, Itgy, sbblkty, mot tex, rthly lstr, smwrt

mfly, sft, v calc

MRL, gy-gybrn, sme dkgy, sbblkty-sbpty,  
mot tex, sft, v calc, tr calc incl, occ bent, rr  
pyr

CHK, Itgy, sbblkty, mot tex, rthly lstr, smwrt

mfly, sft, v calc

MRL, gy-gybrn, sme dkgy, sbblkty-sbpty,  
mot tex, sft, v calc, tr calc incl, occ bent, rr  
pyr

CHK, Itgy, sbblkty, mot tex, rthly lstr, smwrt

mfly, sft, v calc

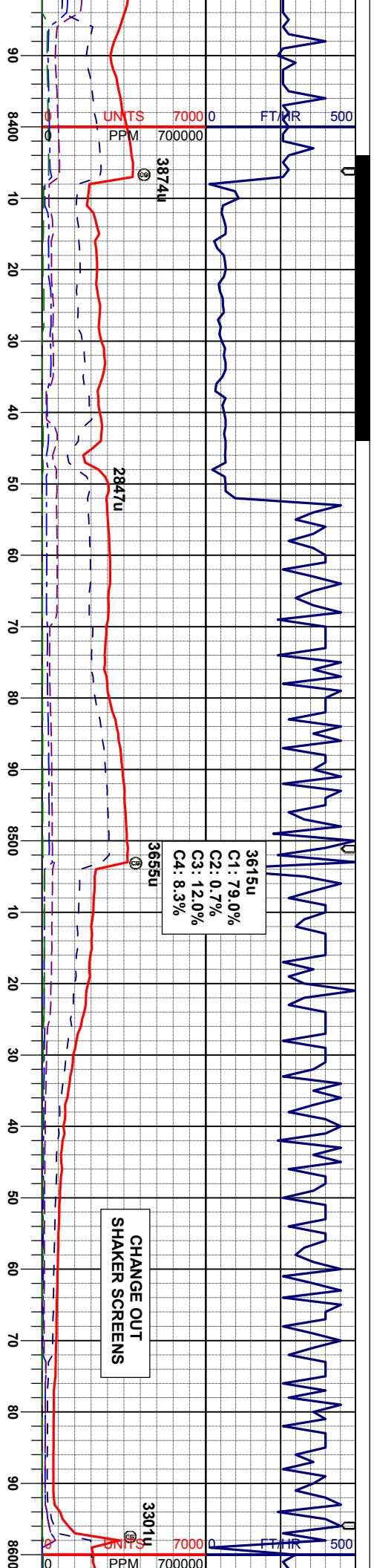
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mot tex, sft, v calc, tr calc incl, occ bent, rr  
pyr

CHK, Itgy, sbblkty, mot tex, rthly lstr, smwrt

mfly, sft, v calc

, v calc





50/ OUT 10.50  
35/ OUT 35

4900 40 API 350

221

WT IN 10.55/ OUT 10.55  
VIS IN 36/ OUT 36

285

4900 40 API 350

266

ft  
MD  
INC  
AZM  
TVD

8430'  
91.9°  
269.1°  
5766.02'

biky-sbpy,  
tr bent, rr pyr  
7100

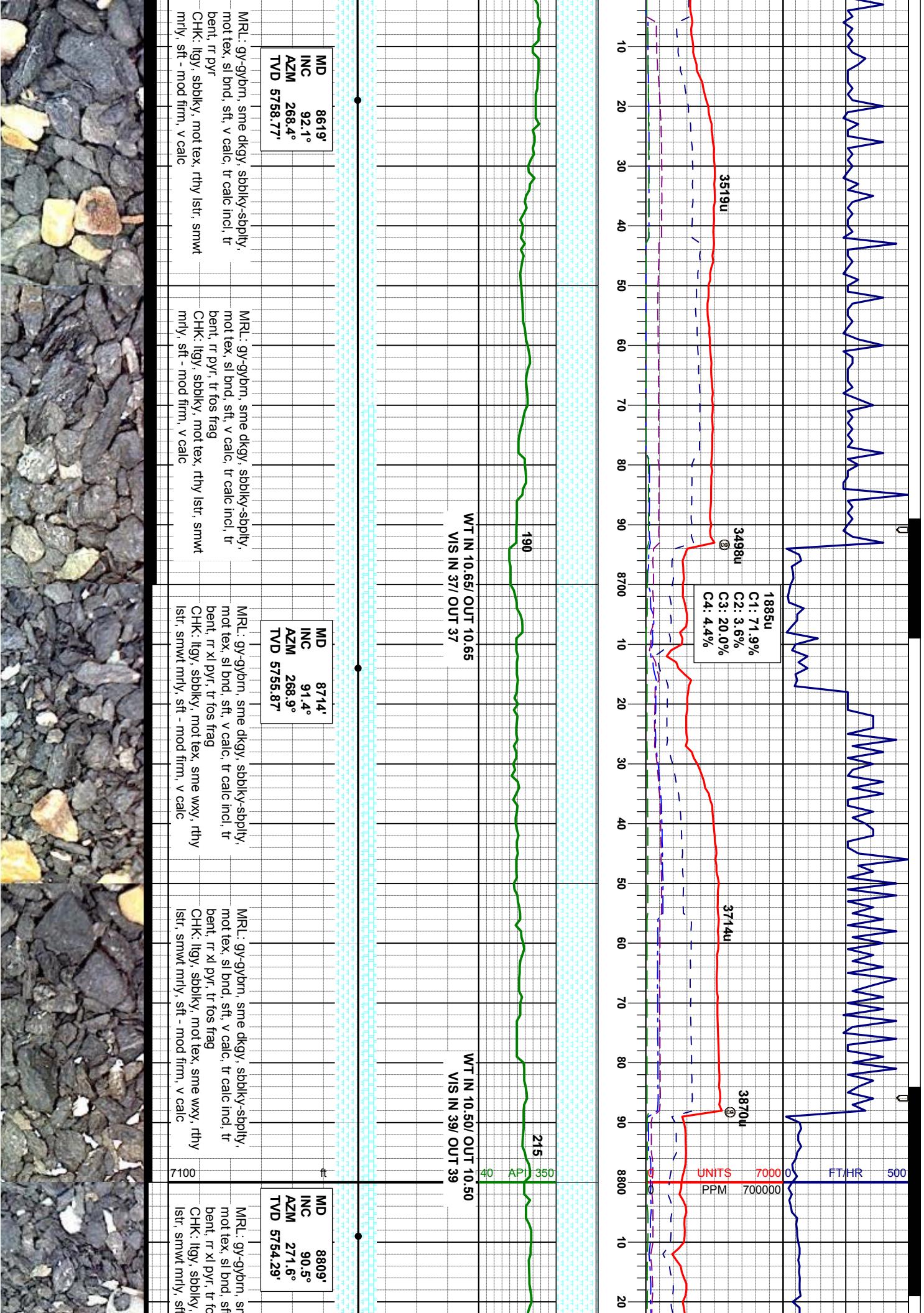
MRL: gy-gbrn, sme dkg, sbkly-sbpy,  
mot tex, st, v calc, tr calc incl, rr pyr  
CHK, Itgy, sbkly, mot tex, rhyth lstr, smwt  
mly, st, v calc

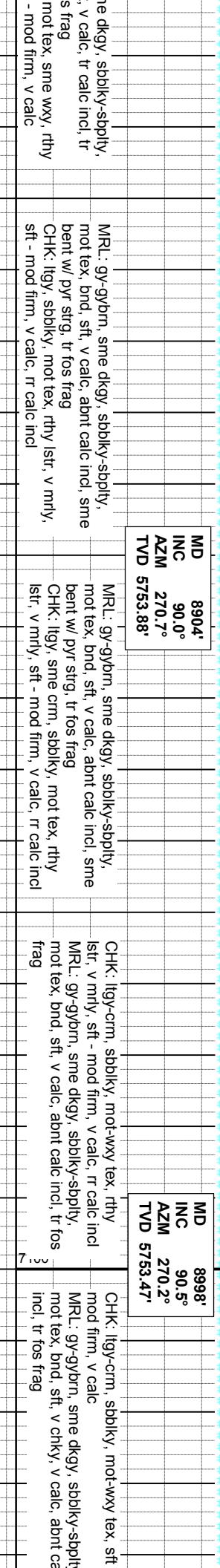
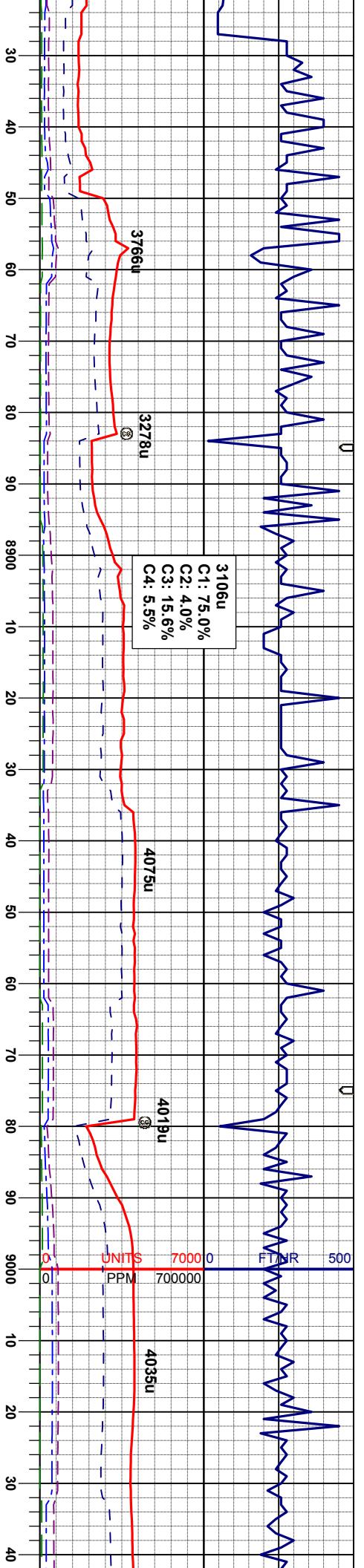
ft  
MD  
INC  
AZM  
TVD

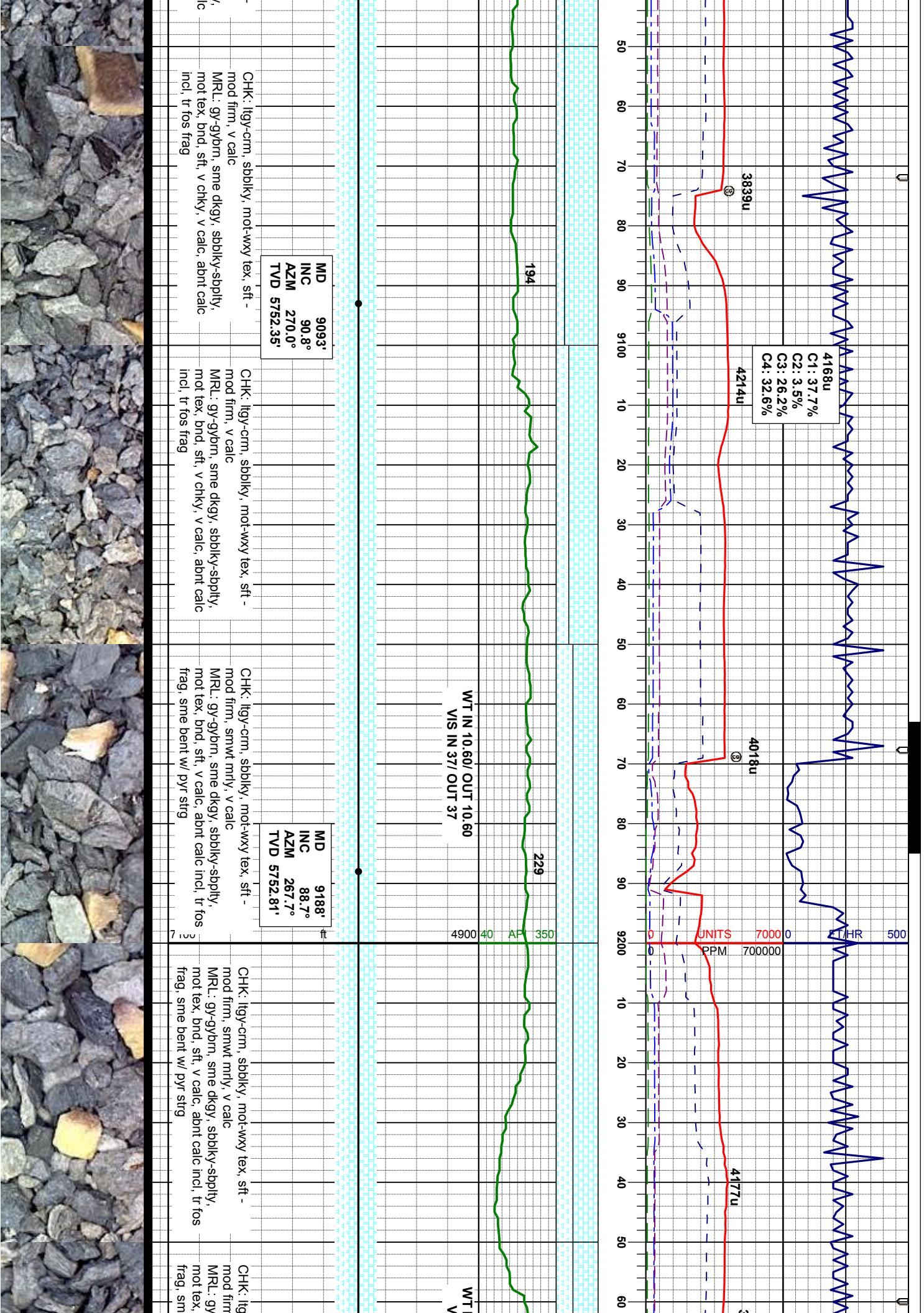
8525'  
92.4°  
269.8°  
5762.46'

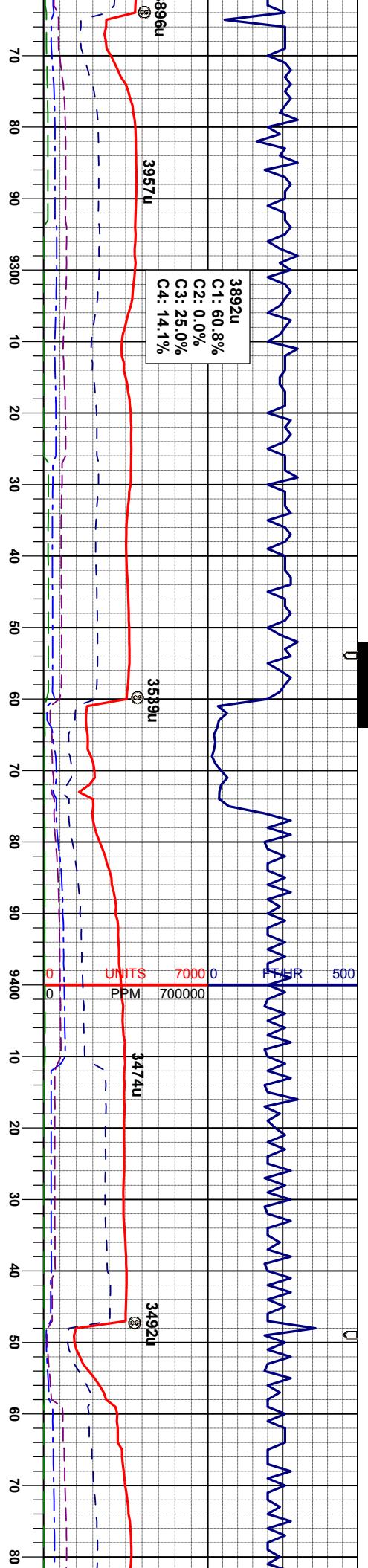
MRL: gy-gbrn, sme dkg, sbkly-sbpy,  
mot tex, st, v calc, tr calc incl, rr pyr  
CHK, Itgy, sbkly, mot tex, rhyth lstr, smwt  
mly, st, v calc

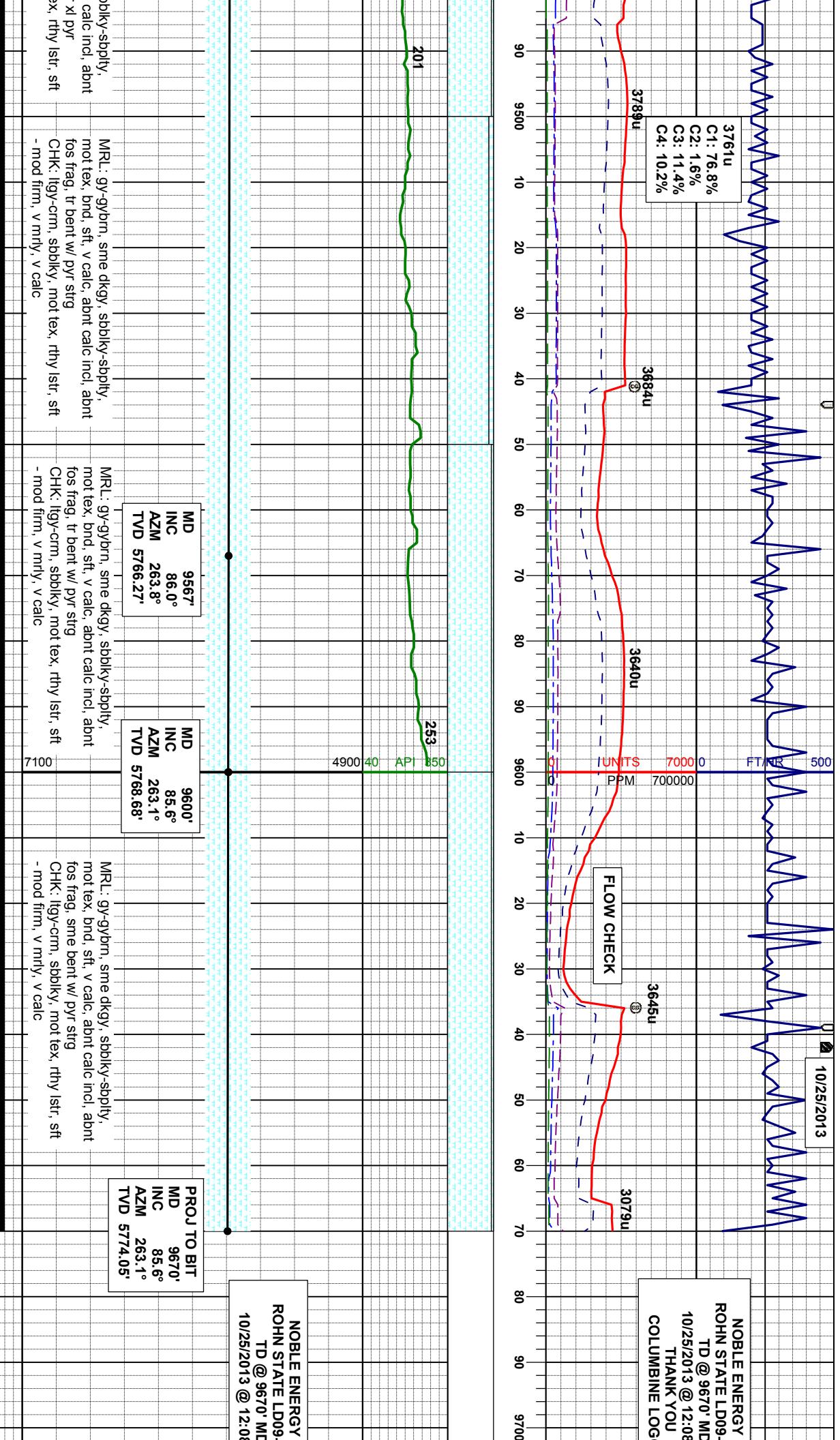
MRL: gy-gbrn, sme dkg, sbkly-sbpy,  
mot tex, st, v calc, tr calc incl, rr pyr  
CHK, Itgy, sbkly, mot tex, rhyth lstr, smwt  
mly, st - mod firm, v calc

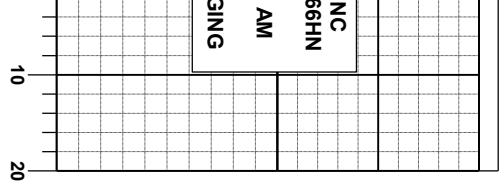












INC	
66HN	
)	
AM	