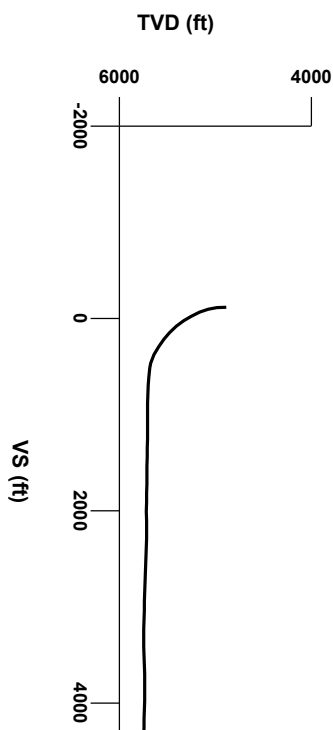


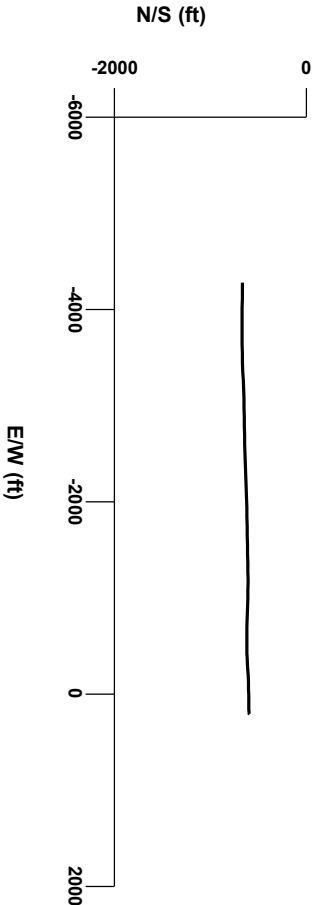
LOG created using Lplot VH Version 3.0, November 30, 2013, Copyright (C) 1999-2009 Pason Systems Corp.

OPERATOR: NOBLE ENERGY INC
WELL: TIMBRO STATE LD16-67HN
LOCATION: NENE SEC 16 T9N R58W
COUNTY: WELD
STATE: COLORADO
SPOT: 720' FNL; 290' FEL
ELEVATION: 4725' GR; 4749' KB
FIELD: WILDCAT
SPUD DATE: 11/25/2013
TD DATE: 11/30/2013
DATES LOGGED: 11/26/2013 - 11/30/2013
DEPTHS LOGGED: 4932' - 9917' MD
LOGGERS: LAURA KELLOGG; CONOR PESICKA
DRILLING FLUID: LSND
DRILLING RIG: H&P 273
API: 05-123-37490
LOG TYPE: HORIZONTAL
SCALE: 1:240 (5 inches per 100 feet)
REMARKS: WELLSITE GEOLOGIC SERVICES
 PROVIDED BY COLUMBINE LOGGING INC.



Survey Elevation

Survey Plan



6000

LITHOLOGIES

Bentonite

Chalk

Marl

Silty Shale

ENGINEERING SYMBOLS



Casing



Casing



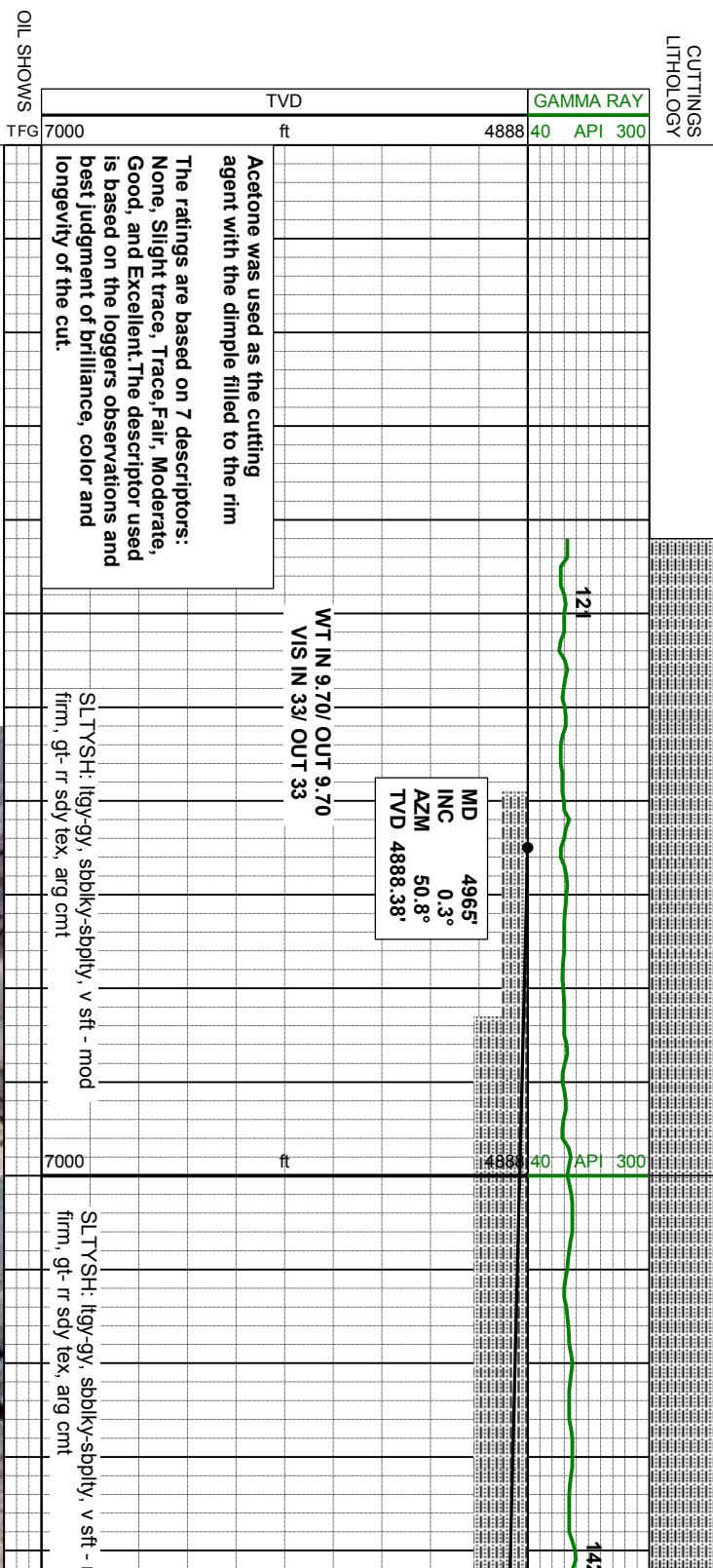
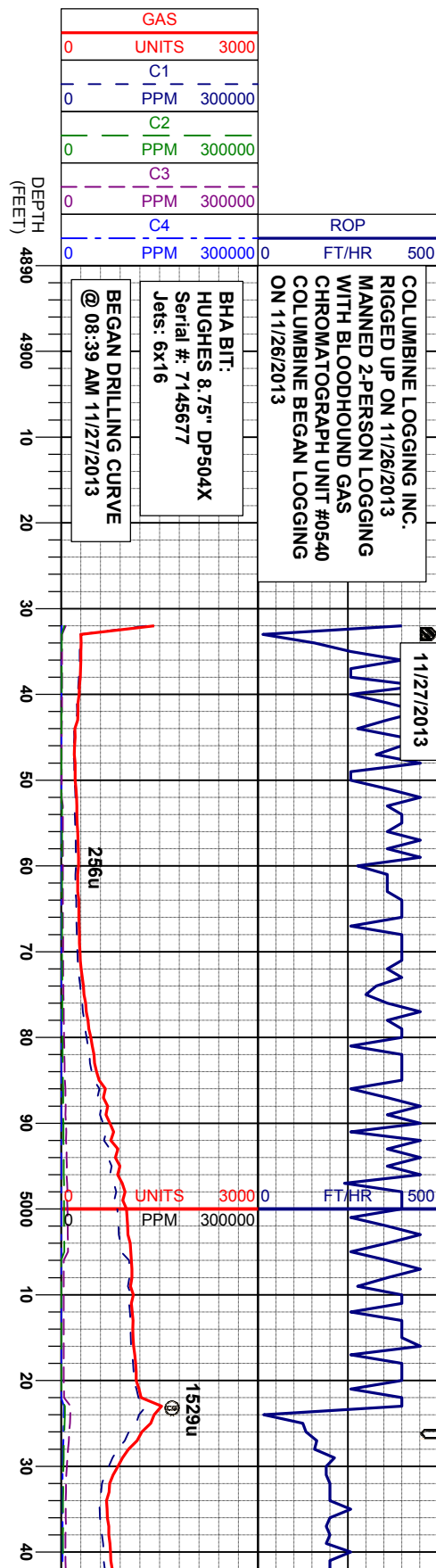
Connection



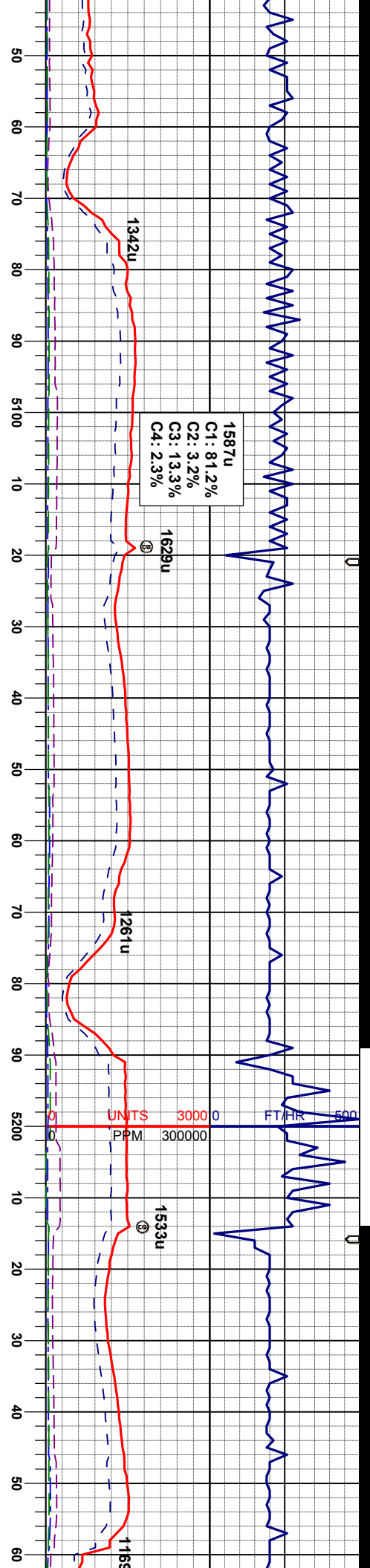
Connection Gas



Midnight Depth



SAMPLE PHOTOS



MD 5060'
INC 4.8°
AZM 252.6°
TVD 4983.27'

MD 5154'
INC 15.7°
AZM 263.8°
TVD 5075.65'

MD 5249'
INC 23.2°
AZM 271.2°
TVD 5165.17'

SLTYSH: lly-gy, sbblky-sbply, v sft - mod
firm, gt- tr sdy tex, arg cnt

SLTYSH: lly-gy, sbblky-sbply, v sft - mod
firm, gt- sdy tex, spar ip, arg cnt, tr len ss

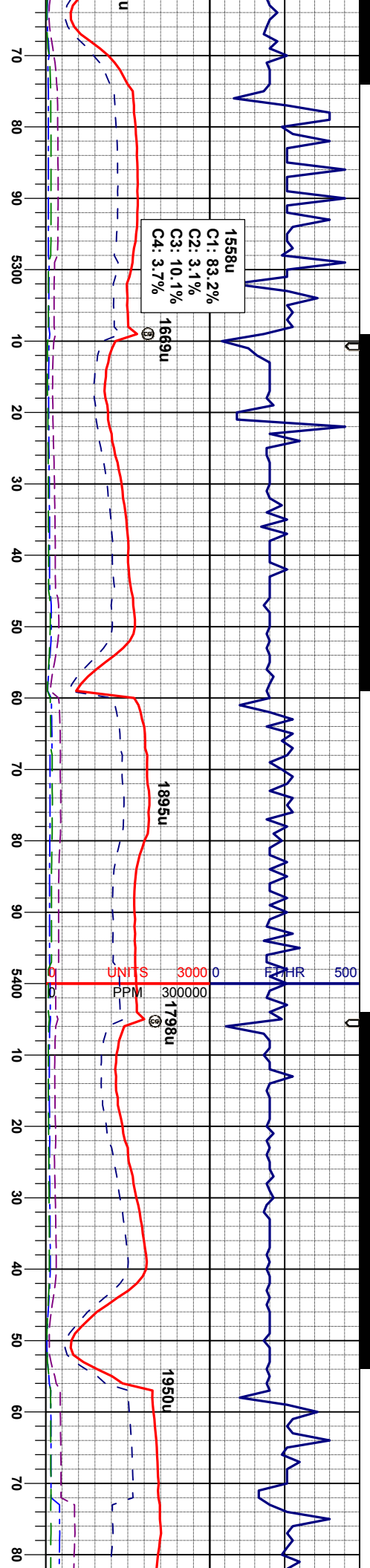
SLTYSH: lly-gy, sbblky-sbply, v sft - mod
firm, gt- sdy tex, spar ip, arg cnt, tr len ss

SLTYSH: lly-gy, sbblky-sbply, v sft, gt-
sdv tex, spar ip, arg cnt, tr len ss

SLTYS
sdv tex

WT IN 10.20/ OUT 10.20
VIS IN 34/ OUT 34





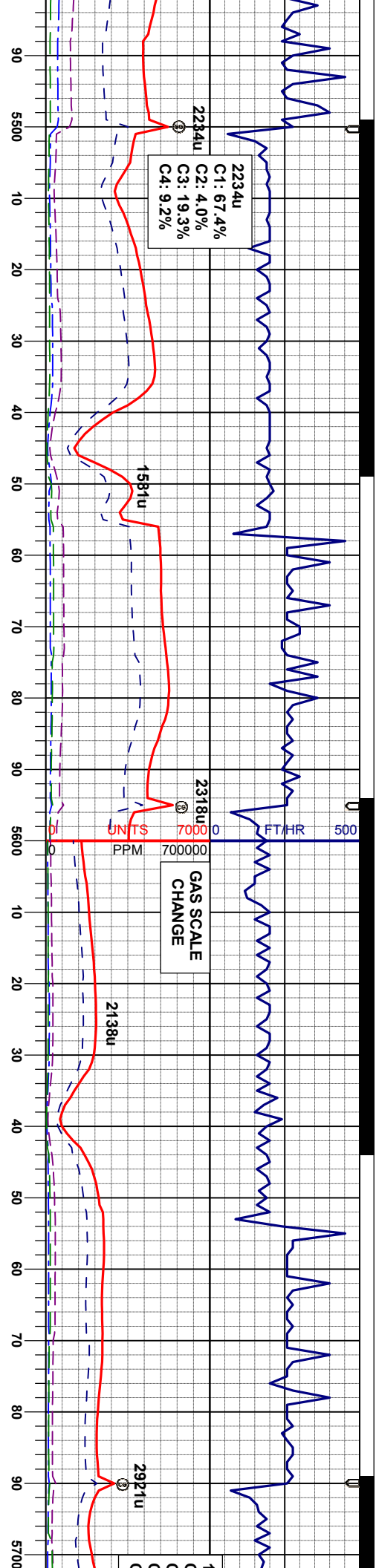
C1: 83.2%
C2: 3.1%
C3: 10.1%
C4: 3.7%

MD 5344'
INC 29.3°
AZM 267.7°
TVD 5250.34'

MD 5439'
INC 34.2°
AZM 269.8°
TVD 5331.10'

WT IN 10.30/ OUT 10.30
VIS IN 35/ OUT 35





2234u
C1: 67.4%
C2: 4.0%
C3: 19.3%
C4: 9.2%

GAS SCALE
CHANGE

MD 5534'
INC 39.3°
AZM 270.3°
TVD 5407.20'

MD 5629'
INC 46.3°
AZM 267.7°
TVD 5476.86'

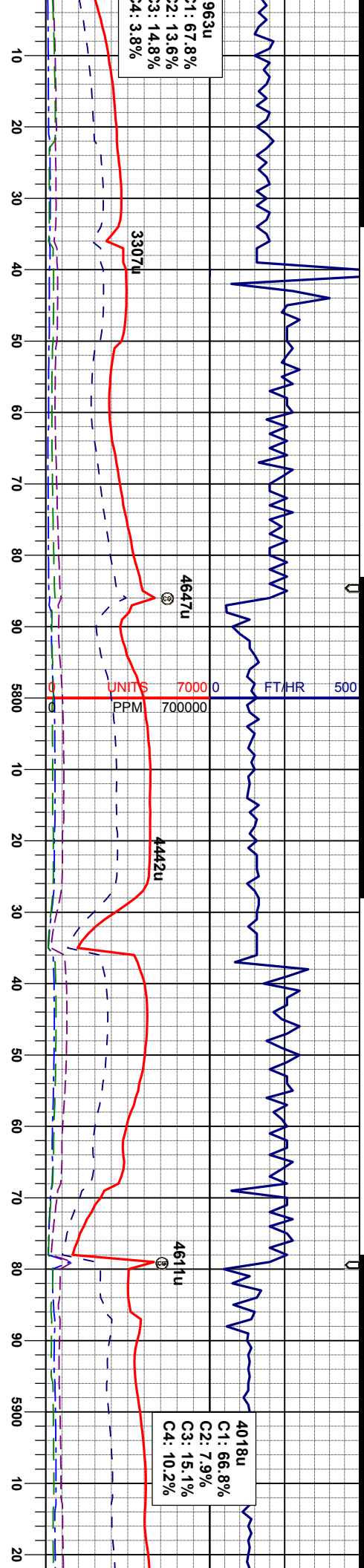
SLTYSH: lly-gy, sbblky-sbply, v sft - mod
firm, gt- sdy tex, spar ip, arg cnt, tr len ss

SLTYSH: lly-gy, sbblky-sbply, v sft - mod
firm, gt- sdy tex, spar ip, arg cnt, tr len ss

SLTYSH: lly-gy, sbblky-sbply, v sft - mod
firm, gt- sdy tex, spar ip, arg cnt, tr len ss

SLTYSH: lly-gy, sbblky-sbply, v sft - mod
firm, gt- sdy tex, spar ip, arg cnt, tr len ss,
tr dism pyr





963u
1: 67.8%
2: 13.6%
3: 14.8%
4: 3.8%

4018u
C1: 66.8%
C2: 7.9%
C3: 15.1%
C4: 10.2%

SHARON SPRINGS
MARKER BED @
5736' MD/ 5545' TVD

NIOBRARA TOP @
5748' MD/ 5552' TVD

NIO A CHALK @
5782' MD/ 5571' TVD

NIO A MARL @
5826' MD/ 5596' TVD

WT IN 10.50/ OUT 10.50
VIS IN 40/ OUT 40

WT IN 10.50/
VIS IN 39/

MD 5723'
INC 53.0°
AZM 267.7°
TVD 5537.69'

MD 5818'
INC 57.1°
AZM 267.0°
TVD 5592.10'

MD 5913'
INC 61.4°
AZM 266.6°
TVD 5640.66'

SLT.YSH: lgy-gy, sbblky-sbply, v sft - mod
firm, gt- sdy tex, spar ip, arg cnt, tr len ss,
tr dism pyr, tr bent

SLT.YSH: gy-dkgy, rr blk, sbblky-sbply,
sme ply, v sft - mod firm, sm- slty tex, sme
bnd, arg cnt

MRL: gy-gybrn, sbblky-sbply, sft- firm, mot-
gt tex, sme bnd, v calc

CHK: lgy-crm, sme wh, sbblky, sft- mod
firm, mot-sm tex, sbvit lstr ip, v calc

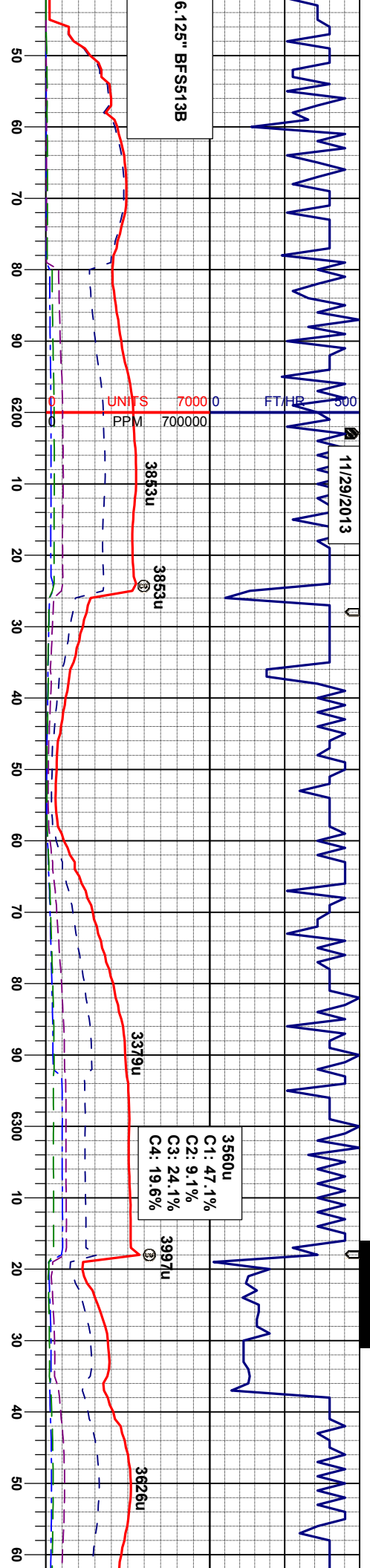
MRL: gy-gybrn, sbblky-sbply, sft- firm, mot-
gt tex, sme bnd, v calc

CHK: lgy-crm, sme wh, sbblky, sft- mod
firm, mot-sm tex, sbvit lstr ip, v calc

MRL: gy-gybrn, sbblky-sbply, sft- firm, mot-
gt tex, v chky, v calc

CHK: lgy-crm, sme wh, sbblky, sft- mod
firm, mot-sm tex, sbvit lstr ip, v calc

MRL: gy-gybrn, sbblky-sbply, sft- firm, mot-
gt tex, v chky, v calc



WT IN 9.60/ OUT 10.10
VIS IN 32/ OUT 40

MD 6157'
INC 86.7°
AZM 269.8°
TVD 5695.71'

MRL: gy-gybm, dkgy, sbblky-sbply, sft-
firm, mot-gt tex, v calc, tr fos frag
CHK: lgy, sbblky, sft- mod firm, mot tex, v
mrlly, v calc

MD 6246'
INC 86.8°
AZM 270.2°
TVD 5700.75'

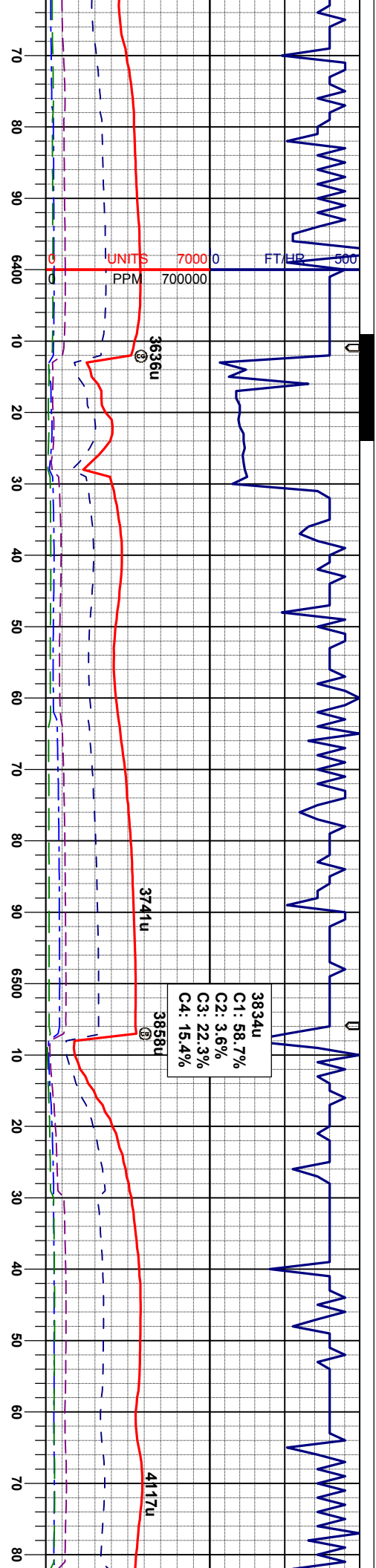
MRL: sme gy-gybm, pred dkgy, sbblky-
sbply, sft- firm, mot-gt tex, v calc, tr fos
frag
CHK: lgy, sbblky, sft- mod firm, mot tex, v
mrlly, v calc

WT IN 9.70/ OUT 9.90
VIS IN 48/ OUT 32

MD 6339'
INC 87.8°
AZM 271.0°
TVD 5705.13'

MRL: sme gy-gybm, pred dkgy, sbblky-
sbply, sft- firm, mot-gt tex, v calc, tr fos
frag, tr bent w/ pyr strg
CHK: lgy, sbblky, sft- mod firm, mot tex, v
mrlly, v calc





4888 40 API 300

WT IN 9.90+/- OUT 9.80
VIS IN 39/ OUT 37

MD 6434'
INC 89.6°
AZM 271.6°
TVD 5707.29'

MD 6529'
INC 89.7°
AZM 271.6°
TVD 5707.87'

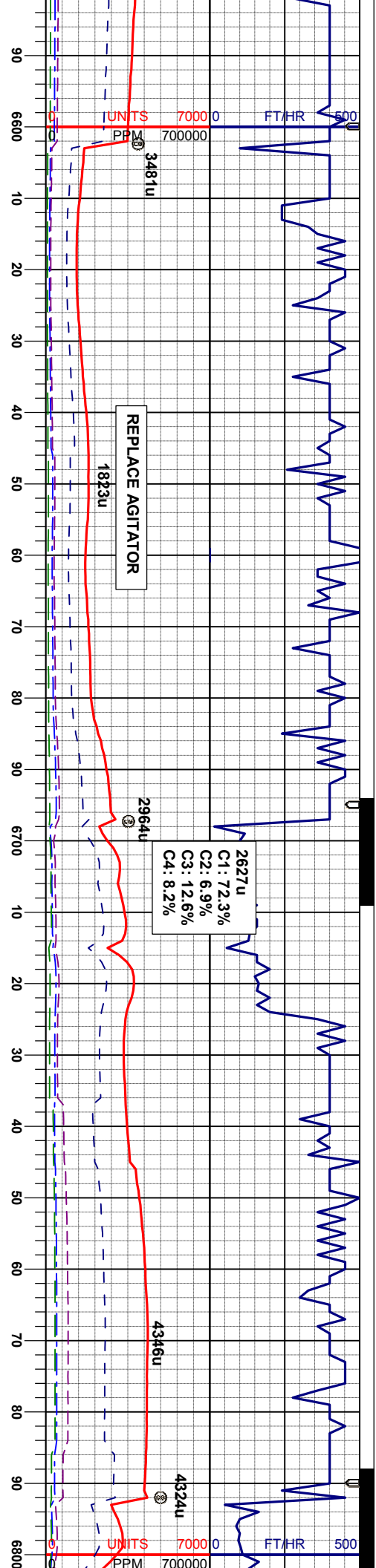
MRL: sme gy-gybrn, pred dkgy, sbblky-sbply, sft- firm, mot-gt tex, v calc, tr fos frag, tr bent w/ pyr strg
CHK: llyg-crm, sbblky, sft- mod firm, mot tex, mnty, v calc

MRL: sme gy-gybrn, pred dkgy, sbblky-sbply, sft- firm, mot-gt tex, v calc, tr fos frag, tr bent w/ pyr strg
CHK: llyg-crm, sbblky, sft- mod firm, mot tex, mnty, v calc

MRL: sme gy-gybrn, pred dkgy, sbblky-sbply, sft- firm, mot-gt tex, v calc, tr fos frag, tr pyr
CHK: llyg-crm, sbblky, sft- mod firm, mot tex, mnty, v calc

MRL: sme gy-gybrn, pred dkgy, sbblky-sbply, sft- firm, mot-gt tex, v calc, tr fos frag, tr pyr
CHK: llyg-crm, sbblky, sft- mod firm, mot tex, mnty, v calc





4888 40 API 300

WT IN 10.10+ OUT 10.20
VIS IN 39/ OUT 41

4888 40 API 300

MD 6624'
INC 90.0°
AZM 272.3°
TVD 5708.12'

MD 6718'
INC 89.5°
AZM 270.9°
TVD 5708.53'

MRL: sme gy-gybrn, pred dkgy, sbblky-sbply, sft- firm, mot-gt tex, v calc, tr fos frag, tr bent, tr calc conc
CHK: lgy-crm, sbblky, sft- mod firm, mot tex, mfly, v calc

MRL: sme gy-gybrn, pred dkgy, sbblky-sbply, sft- firm, mot-gt tex, v calc, occ fos frag, tr bent, sme calc conc
CHK: lgy-crm, sbblky, sft- mod firm, mot tex, mfly, v calc

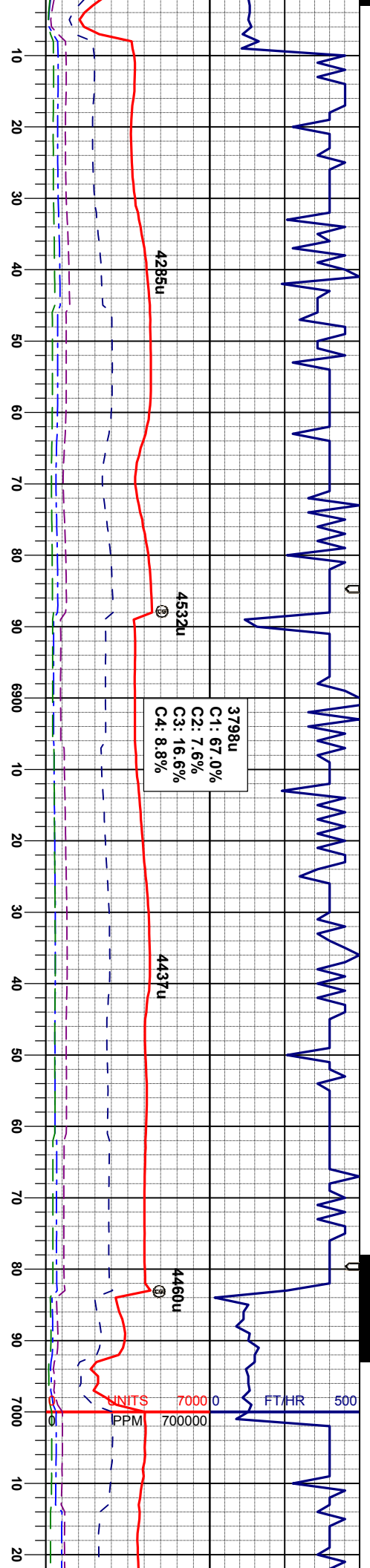
MRL: sme gy-gybrn, pred dkgy, sbblky-sbply, sft- firm, mot-gt tex, v calc, occ fos frag, tr bent, tr calc conc
CHK: lgy-crm, sbblky, sft- mod firm, mot tex, mfly, v calc

MRL: sme gy-gybrn, pred dkgy, sbblky-sbply, sft- firm, mot-gt tex, v calc, occ fos frag, tr bent, tr calc conc
CHK: lgy-crm, sbblky, sft- mod firm, mot tex, mfly, v calc

ft 7000

ft 7000





WT IN 10.10+ OUT 10.20
VIS IN 38/ OUT 38

MD 6813'
INC 88.9°
AZM 269.8°
TVD 5709.85'

MRL: sme gy-gybrn, pred dkgy, sbblky-sbply, sft- firm, mot-gt tex, v calc, tr fos frag, tr bent, tr calc conc
CHK: lgy-crm, sbblky, sft- mod firm, mot tex, mrlly, v calc

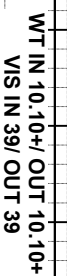
MD 6908'
INC 89.2°
AZM 270.0°
TVD 5711.76'

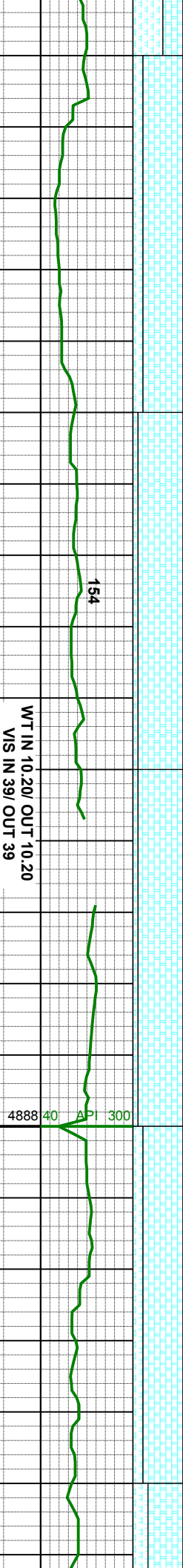
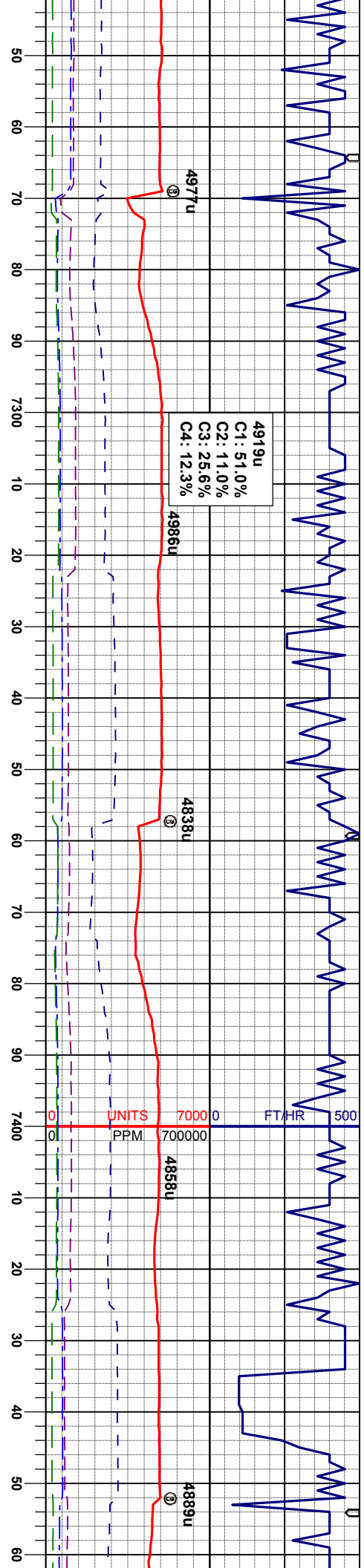
MRL: sme gy-gybrn, pred dkgy, sbblky-sbply, sft- firm, mot-gt tex, v calc, tr fos frag, tr bent, tr calc conc
CHK: lgy-crm, sbblky, sft- mod firm, mot tex, mrlly, v calc

MD 7003'
INC 89.2°
AZM 268.4°
TVD 5712.76'

MRL: sme gy-gybrn, pred dkgy, sbblky-sbply, sft- firm, mot-gt tex, v calc, tr fos frag, tr bent, tr calc conc
CHK: lgy-crm, sbblky, sft- mod firm, mot tex, mrlly, v calc







MD 7288°
INC 89.5°
AZM 268.8°
TVD 5716.17'

CHK: ltgy-crm, occ wh, sbblky, sft- mod
firm, mot tex, mrlly, v calc
MRL: sme gy-gybrn, pred dkgy, sbblky-
sbply, sft- firm, mot-gt tex, v calc, tr fos
frag, tr bent, tr calc conc

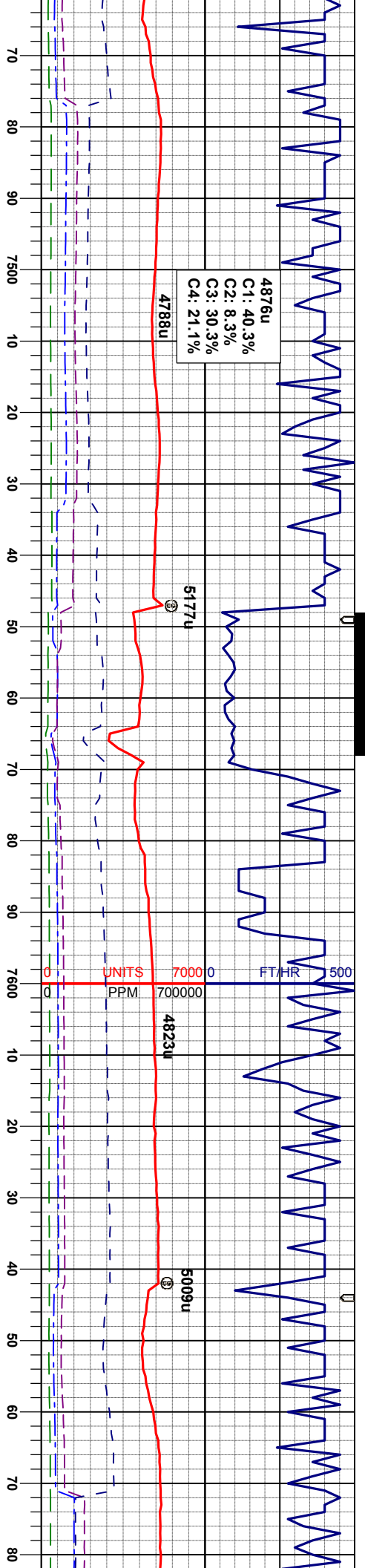
MD 7383°
INC 89.5°
AZM 268.9°
TVD 5717.00'

CHK: ltgy-crm, occ wh, sbblky, sft- mod
firm, mot tex, mrlly, v calc
MRL: sme gy-gybrn, pred dkgy, sbblky-
sbply, sft- firm, mot-gt tex, v calc, tr fos
frag, tr bent, tr calc conc

CHK: ltgy-crm, abnt wh, sbblky, sft- mod
firm, mot tex, mrlly, v calc
MRL: sme gy-gybrn, pred dkgy, sbblky-
sbply, sft- firm, mot-gt tex, v calc, tr fos
frag

CHK: ltgy-crm, abnt wh, sbblky, sft- mod
firm, mot tex, mrlly, v calc
MRL: sme gy-gybrn, pred dkgy, sbblky-
sbply, sft- firm, mot-gt tex, v calc, tr fos
frag





4876u
C1: 40.3%
C2: 8.3%
C3: 30.3%
C4: 21.1%

WT IN 10.30/ OUT 10.30
VIS IN 35/ OUT 35

MD 7478'
INC 88.5°
AZM 269.5°
TVD 5718.65'

MD 7573'
INC 89.9°
AZM 268.4°
TVD 5719.98'

MD 7667'
INC 90.8°
AZM 268.4°
TVD 5719.41'

lgy-crm, abnt wh, sbblky, sft- mod
t tex, mfly, v calc
me gy-gybrn, pred dkgy, sbblky-
sft- firm, mot-gt tex, v calc, tr fos

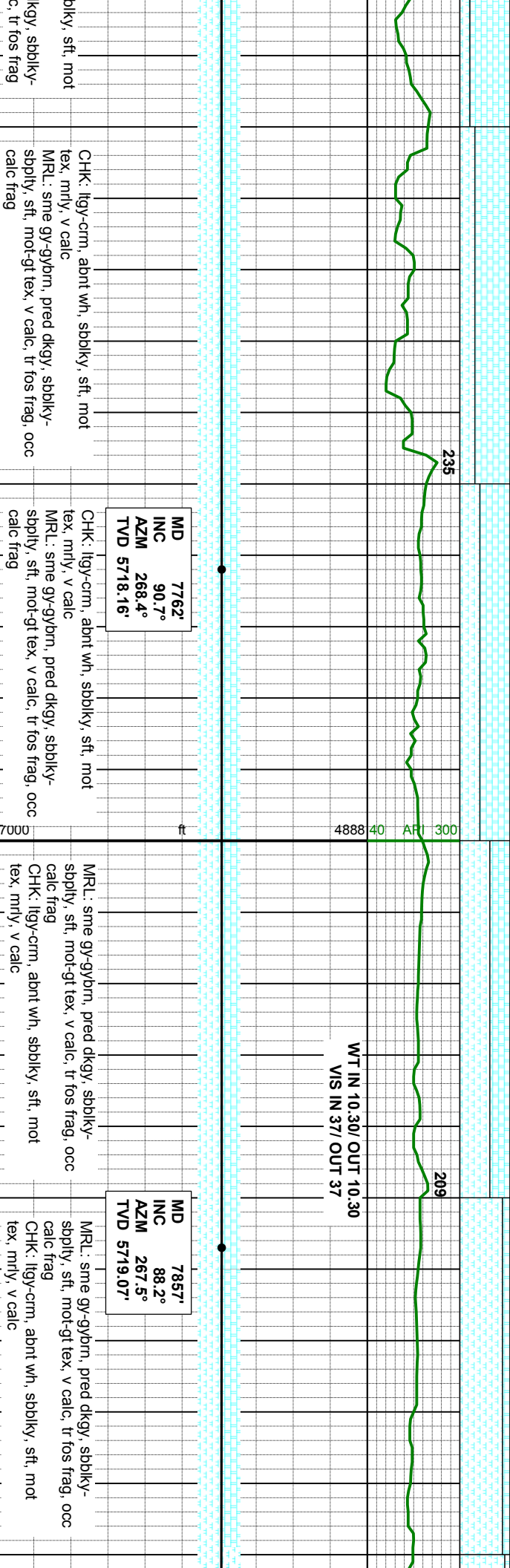
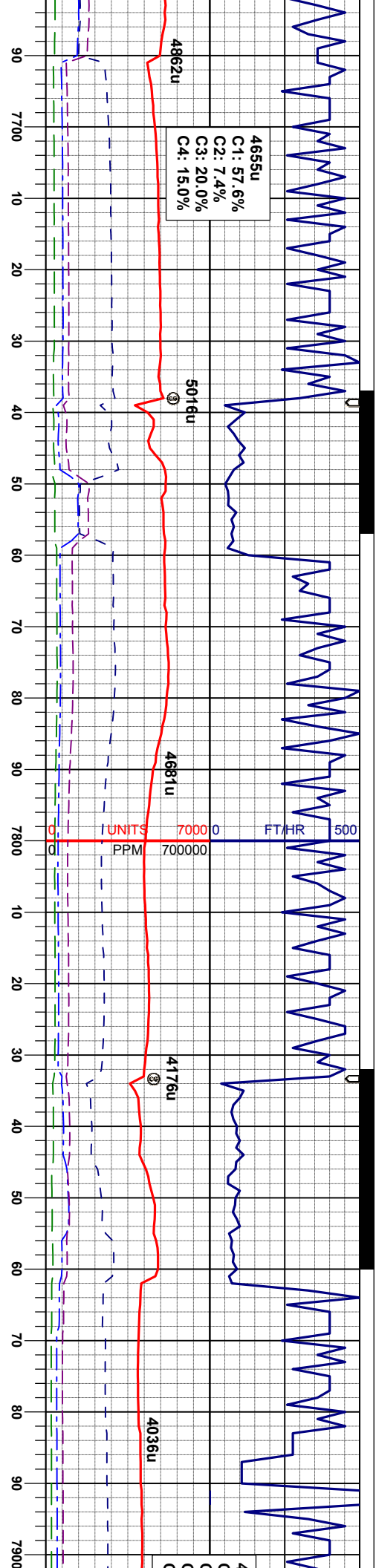
CHK: lgy-crm, abnt wh, sbblky, sft, mot
tex, mfly, v calc
MRL: sme gy-gybrn, pred dkgy, sbblky-
sblply, sft, mot-gt tex, v calc, tr fos frag

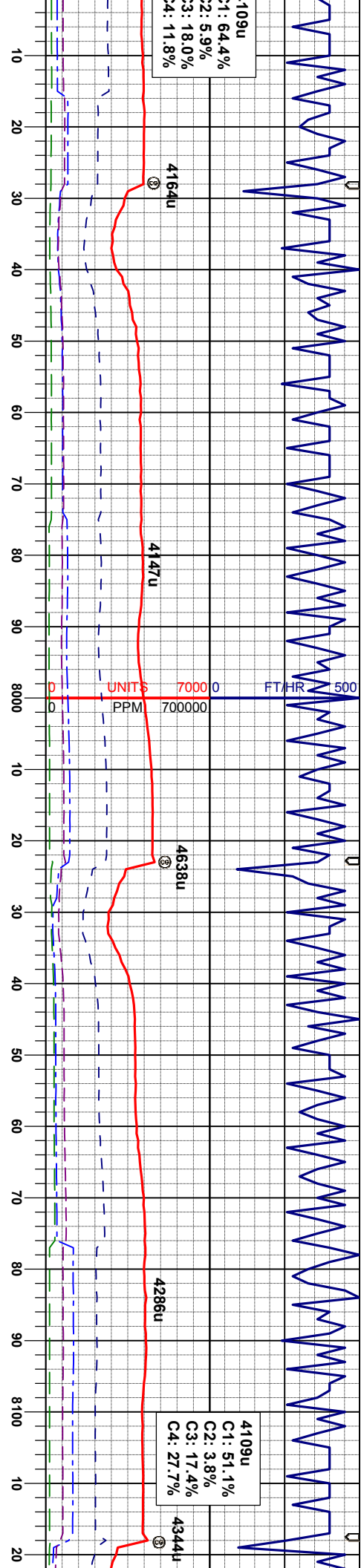
CHK: lgy-crm, abnt wh, sbblky, sft, mot
tex, mfly, v calc
MRL: sme gy-gybrn, pred dkgy, sbblky-
sblply, sft, mot-gt tex, v calc, tr fos frag

CHK: lgy-crm, abnt wh, sbblky, sft, mot
tex, mfly, v calc
MRL: sme gy-gybrn, pred dkgy, sbblky-
sblply, sft, mot-gt tex, v calc, tr fos frag

CHK: lgy-crm, abnt wh, sbblky, sft, mot
tex, mfly, v calc
MRL: sme gy-gybrn, pred dkgy, sbblky-
sblply, sft, mot-gt tex, v calc, tr fos frag







MD 7951' INC 88.0° AZM 267.4° TVD 5722.19'

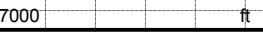
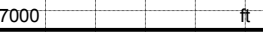
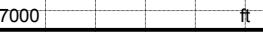
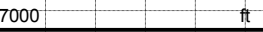
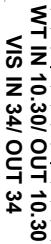
MR.L: sme gy-gybrn, pred dkgy, sbblky-sbply, sft, mot-gt tex, v calc, tr fos frag, occ calc frag
CHK: llyg-crm, abnt wh, sbblky, sft, mot tex, mrlly, v calc

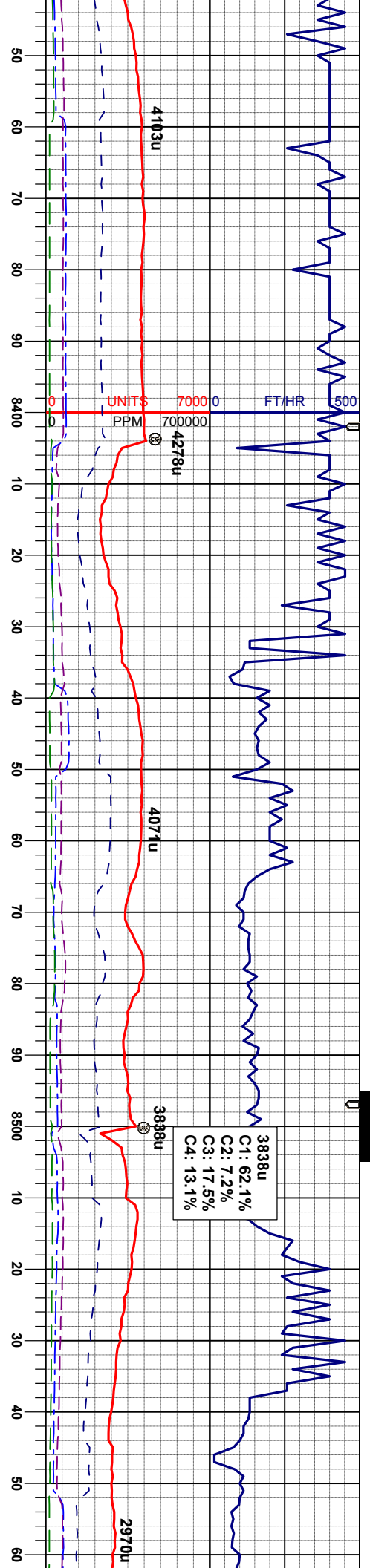
MD 8046' INC 88.1° AZM 268.1° TVD 5725.42'

MR.L: sme gy-gybrn, pred dkgy, sbblky-sbply, sft, mot-gt tex, v calc, occ calc frag
CHK: llyg-crm, abnt wh, sbblky, sft, mot tex, mrlly, v calc

MR.L: sme gy-gybrn, pred dkgy, sbblky-sbply, sft, mot-gt tex, v calc, occ calc frag
CHK: llyg-crm, abnt wh, sbblky, sft, mot tex, mrlly, v calc







WT IN 10.40/ OUT 10.40
VIS IN 34/ OUT 34

WT IN 10.40/ C
VIS IN 36/ C

MD 8426'
INC 87.9°
AZM 269.1°
TVD 5737.86'

MD 8520'
INC 88.4°
AZM 269.1°
TVD 5740.89'

MRL: sme gy-gybm, pred dkgy, sbblky-sbply, sft, mot-gt tex, v calc, occ calc frag, tr fos frag
CHK: ltgy-crm, abnt wh, sbblky, sft, mot tex, mrlly, v calc

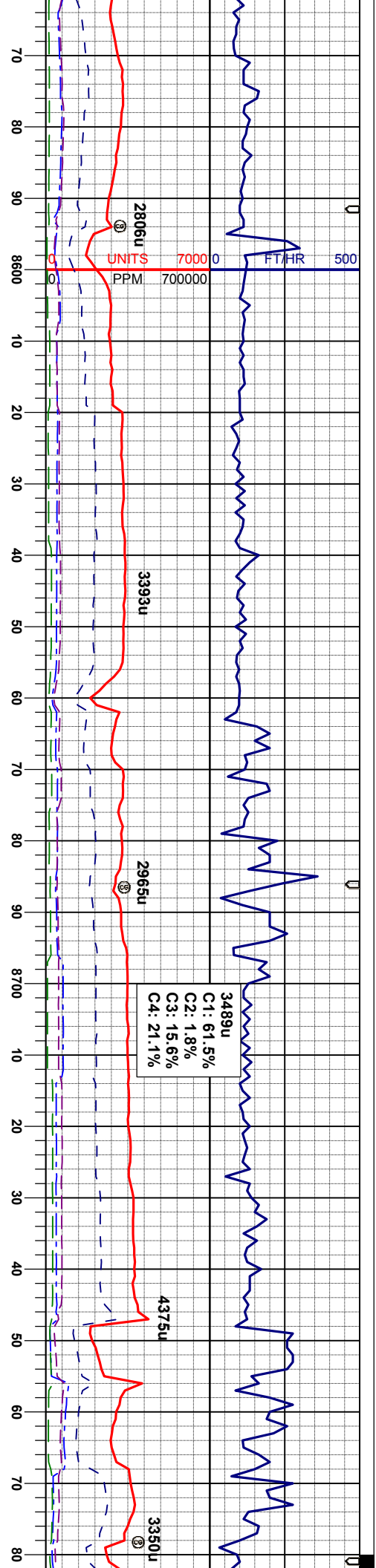
MRL: sme gy-gybm, pred dkgy, sbblky-sbply, sft, mot-gt tex, v calc, occ calc frag
CHK: ltgy-crm, abnt wh, sbblky, sft, mot tex, mrlly, v calc

MRL: sme gy-gybm, pred dkgy, sbblky-sbply, sft, mot-gt tex, v calc, occ calc frag
CHK: ltgy-crm, abnt wh, sbblky, sft, mot tex, mrlly, v calc

MRL: sme gy-gybm, pred dkgy, sbblky-sbply, sft, mot-gt tex, v calc, occ calc frag, tr fos frag, tr bent
CHK: ltgy-crm, abnt wh, sbblky, sft, mot tex, mrlly, v calc

MRL: sme gy-gybm, pred dkgy, sbblky-sbply, sft, mot-gt tex, v calc, occ calc frag, tr fos frag
CHK: ltgy-crm, abnt wh, sbblky, sft, mot tex, mrlly, v calc





OUT 10.40
OUT 36

4888 40 API 300

207

192

WT IN 10.15/ OUT 10.15
VIS IN 40/ OUT 40

MD 8615'
INC 89.0°
AZM 269.1°
TVD 5743.05'

MD 8710'
INC 88.2°
AZM 268.1°
TVD 5745.37'

gy-gybrn, pred dkg, sbblly-
fr, mot-gt tex, v calc, occ calc frag,
g, tr bent
y-crm, abnt wh, sbblly, sft, mot
v calc

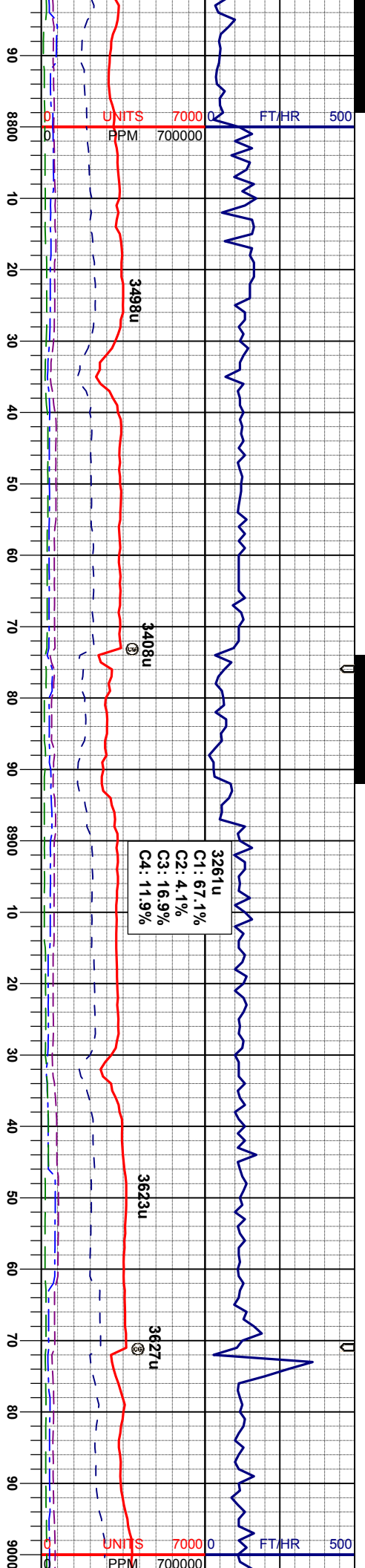
MRL: sme gy-gybrn, pred dkg, sbblly-
sbply, sft, mot-gt tex, v calc, tr calc frag, tr
fos frag, tr bent
CHK: lly-crm, abnt wh, sbblly, sft, mot
tex, mly, v calc

MRL: sme gy-gybrn, pred dkg, sbblly-
sbply, sft, mot-gt tex, v calc, tr calc frag, tr
fos frag, tr bent
CHK: lly-crm, abnt wh, sbblly, sft, mot
tex, mly, v calc

MRL: sme gy-gybrn, pred dkg, sbblly-
sbply, sft, mot-gt tex, v calc, tr calc frag, tr
fos frag, tr bent
CHK: lly-crm, abnt wh, sbblly, sft, mot
tex, mly, v calc

MRL: sme gy-gybrn, pred dkg
sbply, sft, mot-gt tex, v calc,
fos frag
CHK: lly-crm, abnt wh, sbblly
tex, mly, v calc
BENT: brn-tan, ply-sbply, s
tex, tr pyr strg





API 300

185

181

API 300

223

WT IN 10.20/ OUT 10.20
VIS IN 42/ OUT 42

WT IN 10.20/ OUT 10.20
VIS IN 43/ OUT 43

MD 8804'
INC 89.2°
AZM 267.9°
TVD 5747.50'

MD 8899'
INC 90.3°
AZM 267.5°
TVD 5747.92'

MD 8994'
INC 90.0°
AZM 267.7°
TVD 5747.67'

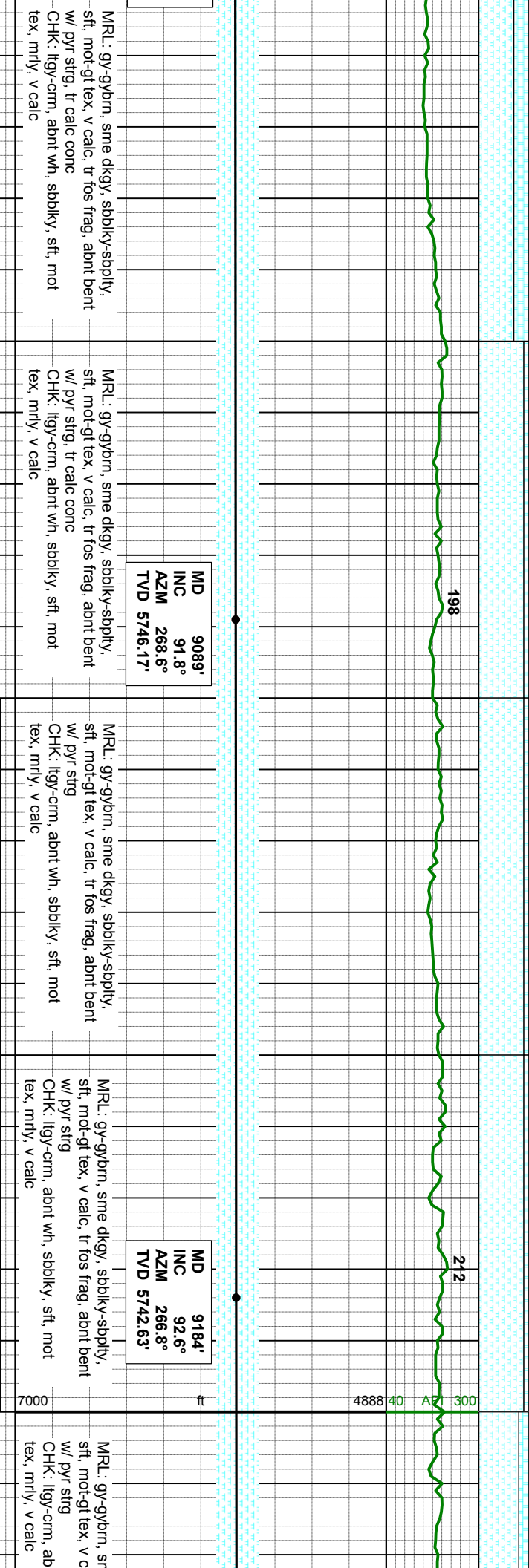
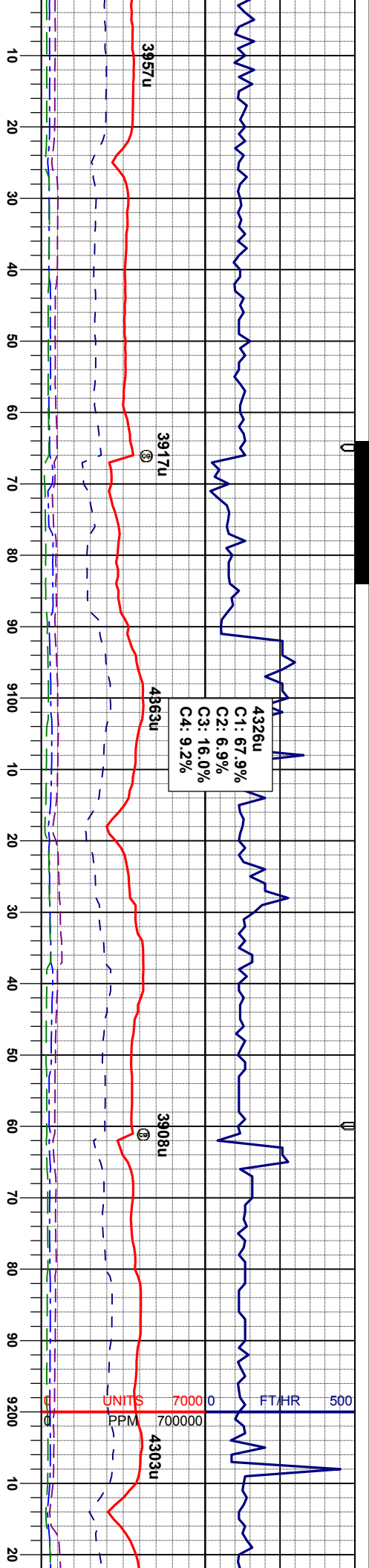
MRL: sme gy-gybrn, pred dkg, sbblky-sbply, sft, mot-gt tex, v calc, tr calc frag, tr fos frag, abnt bent w/ pyr strg
CHK: lly-crm, abnt wh, sbblky, sft, mot tex, mly, v calc

MRL: sme gy-gybrn, pred dkg, sbblky-sbply, sft, mot-gt tex, v calc, tr calc frag, tr fos frag, abnt bent w/ pyr strg
CHK: lly-crm, abnt wh, sbblky, sft, mot tex, mly, v calc

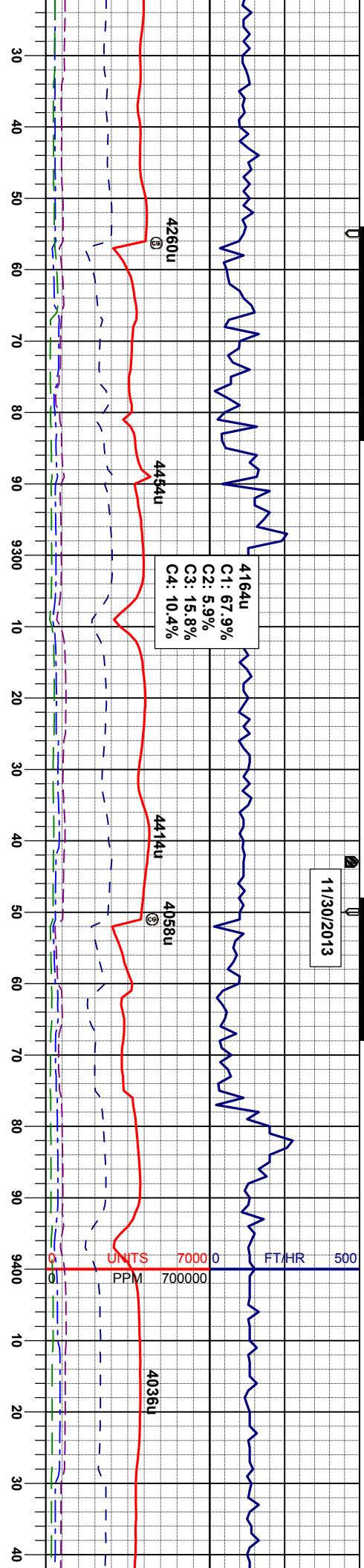
MRL: gy-gybrn, sme dkg, sbblky-sbply, sft, mot-gt tex, v calc, tr fos frag, abnt bent w/ pyr strg, tr calc conc
CHK: lly-crm, abnt wh, sbblky, sft, mot tex, mly, v calc

MRL: gy-gybrn, sme dkg, sbblky-sbply, sft, mot-gt tex, v calc, tr fos frag, abnt bent w/ pyr strg, tr calc conc
CHK: lly-crm, abnt wh, sbblky, sft, mot tex, mly, v calc





11/30/2013



C1: 67.9%
C2: 5.9%
C3: 15.8%
C4: 10.4%

WT IN 10.20/ OUT 10.20
VIS IN 41/ OUT 41

MD 9278'
INC 91.9°
AZM 269.5°
TVD 5738.84'

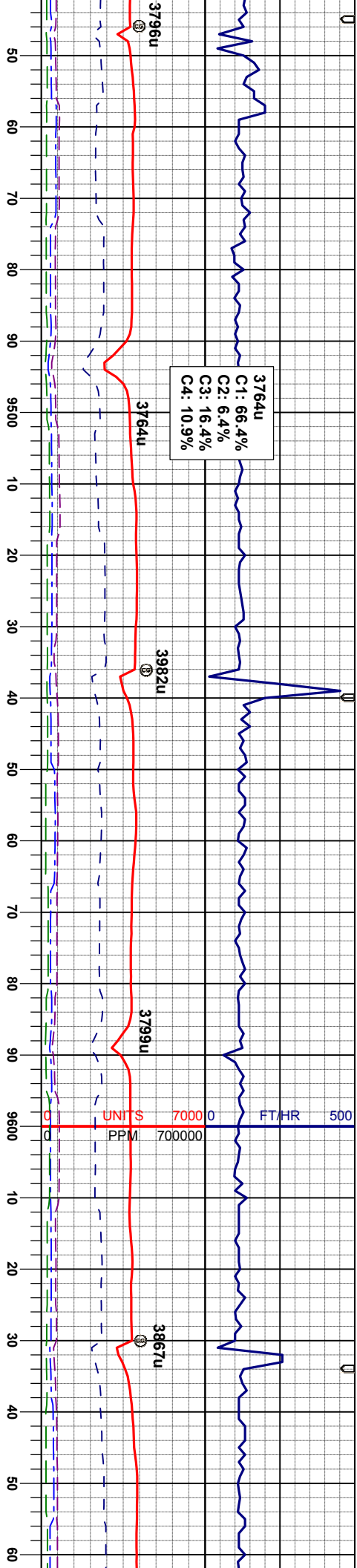
MRU: gy-gybm, sme dkgy, sbblky-sbply,
sft, mot-gt tex, v calc, tr fos frag, abnt bent
w/ pyr strg, tr xl calcite
CHK: lgy-crm, abnt wh, sbblky, sft, mot
tex, mfly, v calc

WT IN 10.30/ OUT 10.30
VIS IN 41/ OUT 41

MD 9373'
INC 90.1°
AZM 270.0°
TVD 5737.18'

MRU: gy-gybm, sme dkgy, sbblky-sbply,
sft, mot-gt tex, v calc, tr fos frag, abnt bent
w/ pyr strg
CHK: lgy-crm, abnt wh, sbblky, sft, mot
tex, mfly, v calc





WT IN 10.30+ OUT 10.30+
VIS IN 43/ OUT 43

231

224

4888 40 API 300

WT IN 10.40 OUT 10.40
VIS IN 46/ OUT 46

MD 9468'
INC 89.6°
AZM 270.0°
TVD 5737.43'

MD 9563'
INC 88.8°
AZM 270.3°
TVD 5738.75'

MD 96
INC 86
AZM 270
TVD 5740.

MR.L: gy-gybrn, sme dkgy, sbblky-sbply, sft, mot-gt tex, v calc, tr fos frag, abnt bent w/ pyr strg, sme calc conc CHK: ltgy-crm, abnt wh, sbblky, sft, mot tex, mfly, v calc

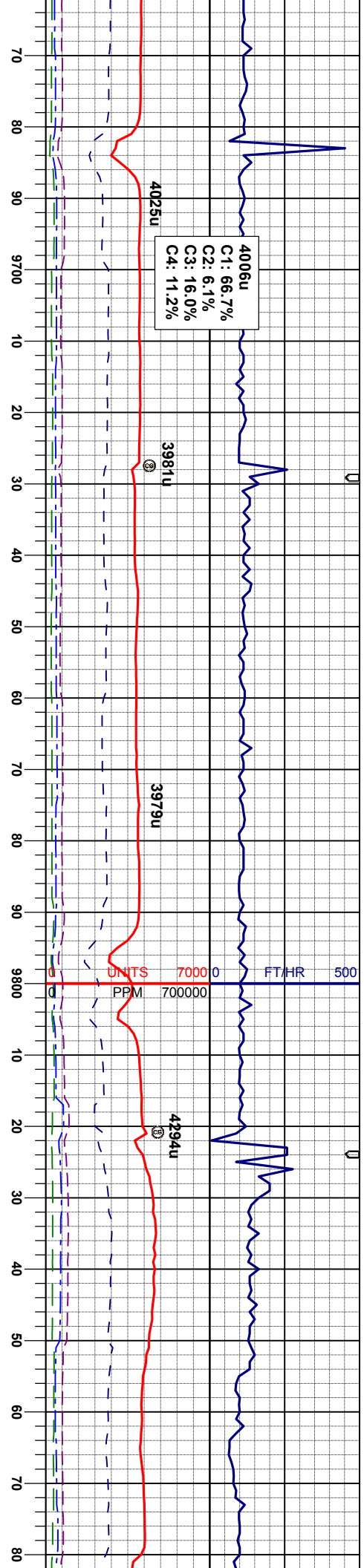
MR.L: gy-gybrn, tr dkgy, sbblky-sbply, sft, mot-gt tex, bnd, v calc, tr fos frag, abnt bent w/ pyr strg, tr calc conc CHK: ltgy, rr crm, abnt wh, sbblky, sft, mot tex, mfly, v calc

MR.L: gy-gybrn, tr dkgy, sbblky-sbply, sft, mot-gt tex, bnd, v calc, tr fos frag, abnt bent w/ pyr strg, tr calc conc CHK: ltgy, rr crm, abnt wh, sbblky, sft, mot tex, mfly, v calc

MR.L: gy-gybrn, tr dkgy, sbblky-sbply, sft, mot-gt tex, bnd, v calc, tr fos frag, tr bent, tr pyr, tr calc conc CHK: ltgy, rr crm, abnt wh, sbblky, sft, mot tex, mfly, v calc

MR.L: gy-gybrn, tr dkgy, sbblky-sbply, sft, mot-gt tex, bnd, v calc, tr fos frag, tr bent, tr pyr, tr calc conc CHK: ltgy, rr crm, abnt wh, sbblky, sft, mot tex, mfly, v calc





4888 40 AP 300

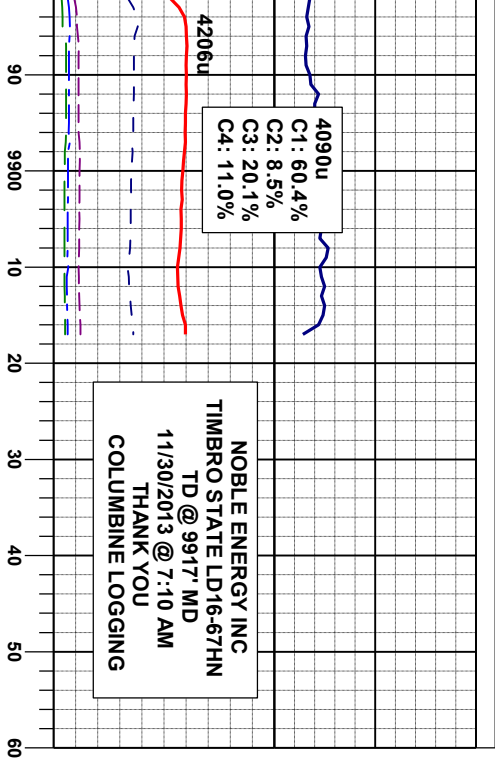
WT IN 10.30/ OUT 10.30
VIS IN 50/ OUT 50

558' 5° 3' 19'	MD 9753' INC 88.3° AZIM 270.3° TVD 5743.64'	MD 9847' INC 88.5° AZIM 270.0° TVD 5746.27'
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MRU: gy-gybrn, tr dkgy, sbbkly-spply, sft, mot-gt tex, bnd, v calc, tr bent, tr pyr, tr calc conc
CHK: lly, rr crm, abnt wh, sbbkly, sft, mot tex, mrlly, v calc

MRU: gy-gybrn, tr dkgy, sbbkly-spply, sft, mot-gt tex, bnd, v calc, occ bent, tr pyr, tr calc conc
CHK: lly, rr crm, abnt wh, sbbkly, sft, mot tex, mrlly, v calc





NOBLE ENERGY INC
TIMBRO STATE LD16-67HN
TD @ 9917' MD
11/30/2013 @ 7:10 AM

PROJECTION
MD 9917'
INC 88.5°
AZM 270.0°
TVD 5748.10'

tr dkgy, sbblky-sbply, sft,
v calc, abnt bent, tr pyr, tr
n, abnt wh, sbblky, sft, mot

