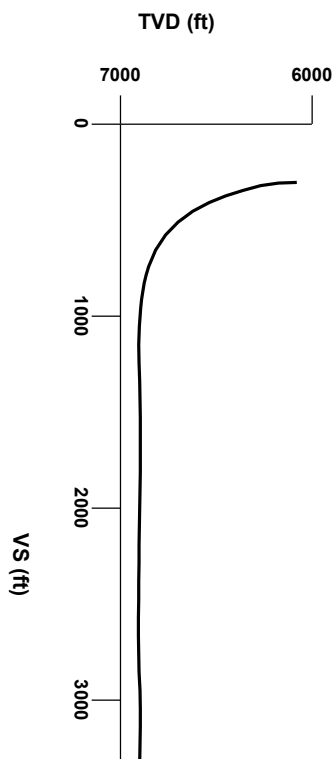


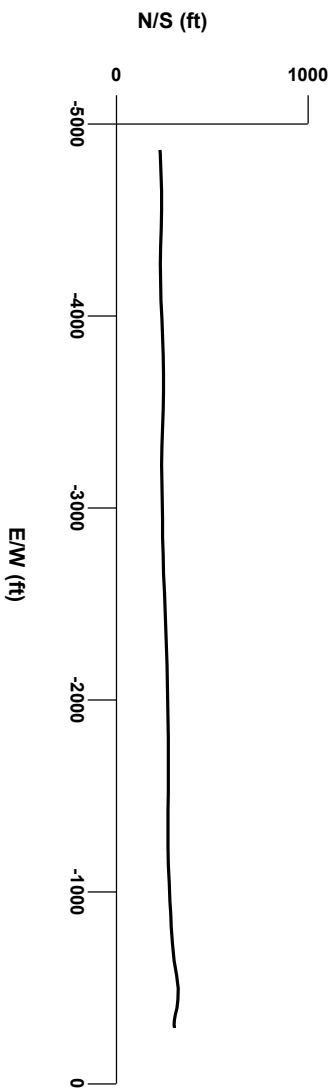
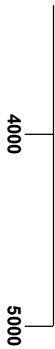
LOG created using LPLOT VH Version 3.0, July 09, 2012, Copyright (C) 1999-2009 Pason Systems Corp.

OPERATOR: NOBLE ENERGY INC
WELL: GUTTERSEN D30-68-1HN
LOCATION: NWNW SEC 29, T3N, R64W
COUNTY: WELD
STATE: COLORADO
SPOT: 1298' FNL, 370' FWL
ELEVATION: 4787' GL, 4800' KB
FIELD: WATTENBERG
SPUD DATE: 07/01/2012
TD DATE:
DATES LOGGED: 07/02/2012 -
DEPTHS LOGGED: 845 -
LOGGERS: BRITTANY GUZZO, RYAN SHILLING
DRILLING FLUID: FW, LSND
DRILLING RIG: ENSIGN 121
API: 05-123-35611
LOG TYPE: HORIZONTAL
SCALE: 1:240 (5 inches per 100 feet)
REMARKS: LAT, LONG: 40.20068, -104.60084

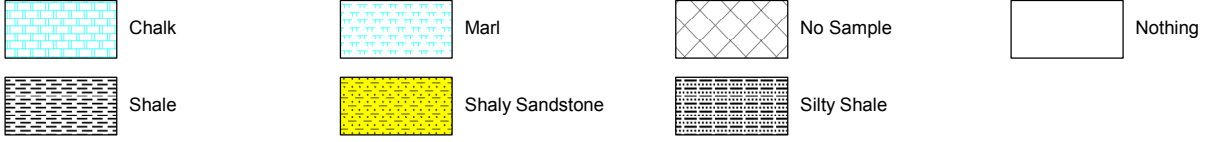


Survey Elevation

Survey Plan



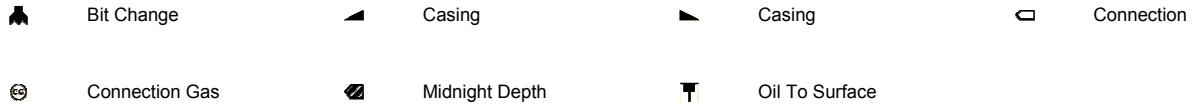
LITHOLOGIES



MODIFIERS



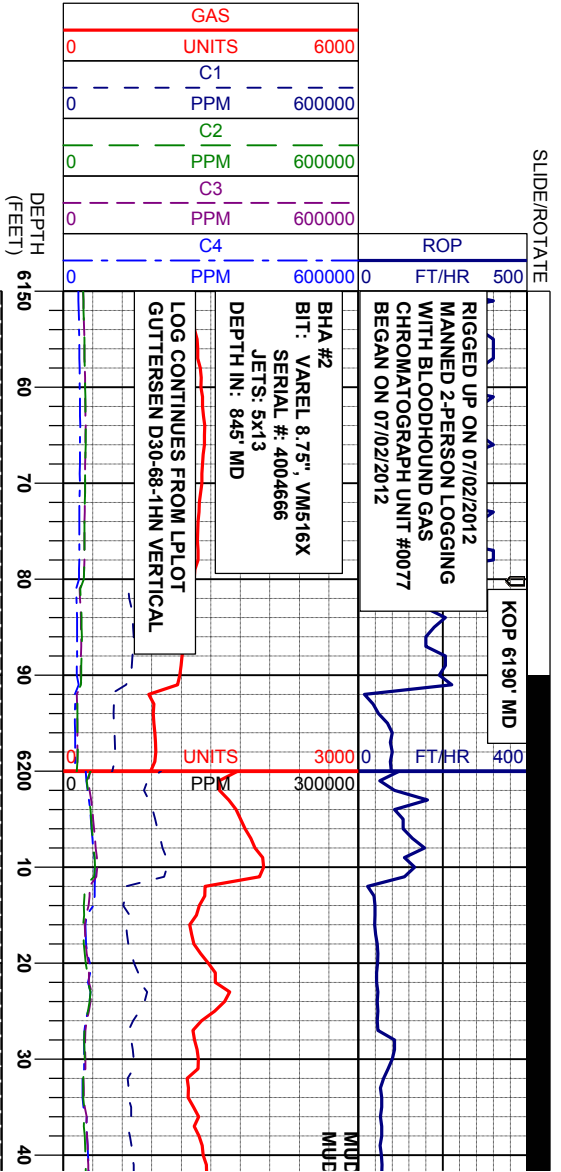
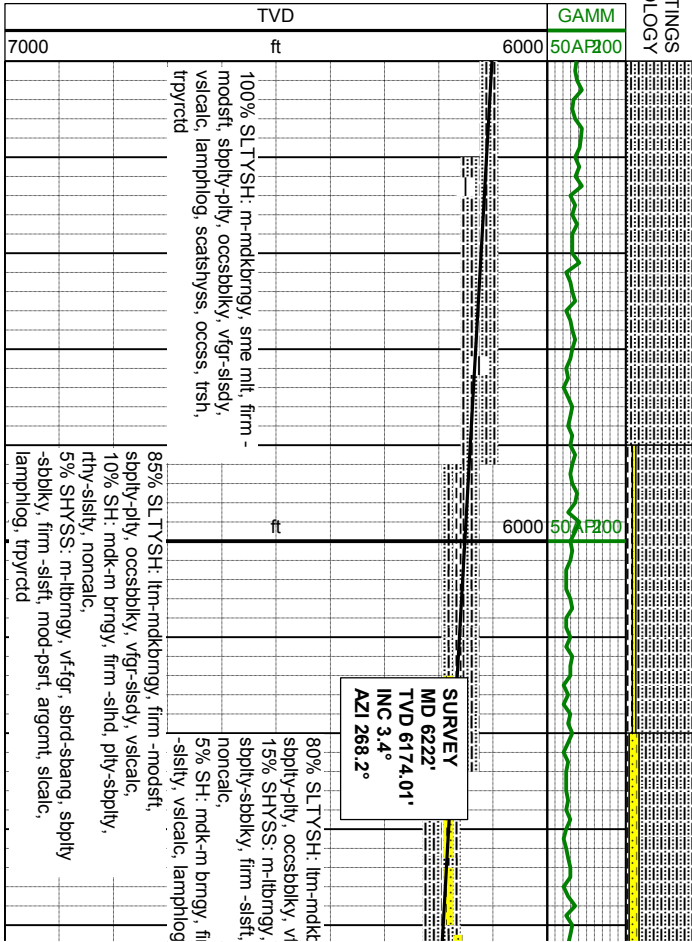
ENGINEERING SYMBOLS

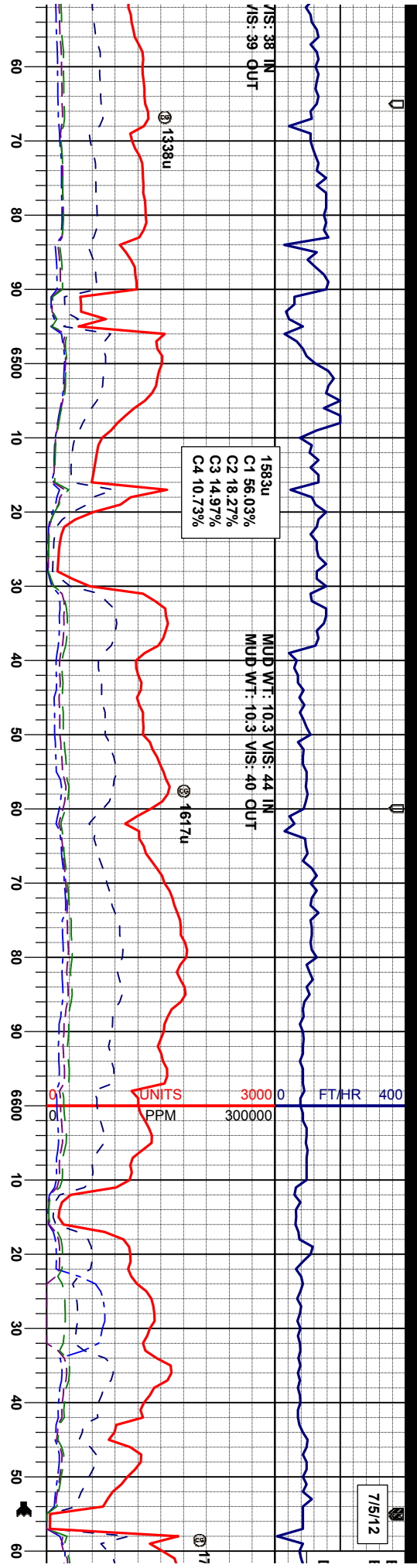


SAMPLE PHOTOS

OIL SHOW

T F G





1583u
 C1 56.03%
 C2 18.27%
 C3 14.97%
 C4 10.73%

MUD WT: 10.3 VIS: 44 IN
 MUD WT: 10.3 VIS: 40 OUT

UNITS 3000 0 FT/HR 400
 PPM 300000

SURVEY
 MD 6507
 TVD 6450.2'
 INC 19.5°
 AZI 284.7°

80% SLTYSH: m-mdkbrngy, firm-hd, ply-spply, rthy-
 -ply, occsbbkly, vfg-sdy w/inbds, sicalc, grdg
 to
 20% SH: dk-m brngy, firm-hd, ply-spply, rthy-
 -sily, sicalc, lamphlog, smeshyss, tpyrcid

SURVEY
 MD 6601
 TVD 6537.59'
 INC 23.7°
 AZI 281.2°

7000

90% SLTYSH: m-mdkbrngy, firm-modstf, sbply
 -ply, occsbbkly, vfg-sdy w/inbds, sicalc, grdg
 to
 10% SHYSS: m-lbrngy, vf-figr, sbpr-sbang,
 sbply-sbbkly, firm-slhd, mod-prt, argent,
 noncalc, lamphlog, scatch, tpyrcid

100% SLTYSH: m-mdkbrngy, firm-modstf, sbply
 sbply-ply, occsbbkly, occis, vfg-sdy w/inbds,
 sicalc, scatch, scatchyss, trimc, trlaphlog,
 tpyrcid

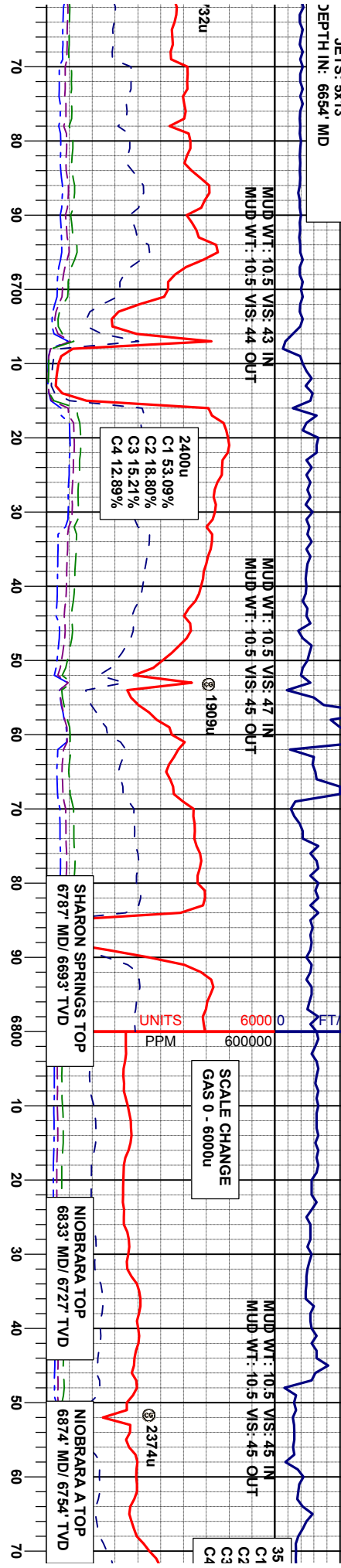
90% SLTYSH: mdk-dkbrngy, firm-modstf, sbply
 -ply, occsbbkly, vfg, sicalc, grdg to
 10% SH: dk-mdkbrngy, firm-hd, ply-spply, rthy
 -sily, sicalc, lamphlog, tpyrcid

100% SLTYSH: mdk-dkbrngy, firm-modstf, sbply
 sbply-ply, occsbbkly, vfg, sicalc, grdg to
 15% SH: dk-mdkbrngy, firm-hd, ply-spply, rthy
 -sily, sicalc, lamphlog, tpyrcid

ngy, firm-modstf, sbply
 dy w/inbds, sicalc,
 , vf-figr, sbpr-sbang,
 , mod-prt, argent,
 m-hd, ply-spply, rthy-
 yrcid

95% SLTYSH: m-mdkbrngy, firm-modstf, sbply
 -ply, occsbbkly, vfg-sdy w/inbds, sicalc, grdg
 to
 5% SHYSS: m-lbrngy, vf-figr, sbpr-sbang, sbply
 -sbply, firm-slhd, mod-prt, argent, noncalc,
 lamphlog, scatch, tpyrcid

3HA #3
 3IT: HUGHES 8.75" DP505F
 SERIAL #7140443
 JETS: 5x13
 DEPTH IN: 6654 MD



brngy, firm -modstf, 100% SLTYSH: mdk-dkbrngy, firm, sbply-pty,
 gr, sicalc, lamphlog, occsbkly, vfg, sicalc, lamphlog, tbent, tprycrd

100% SLTYSH: mdk-dkbrngy, firm, sbply-pty,
 occsbkly, vfg, sicalc, lamphlog, tprycrd

100% SLTYSH: mdk-dkbrngy, firm, sbply-pty,
 occsbkly, smefts, vfg, sicalc, lamphlog, scabent, tprycrd

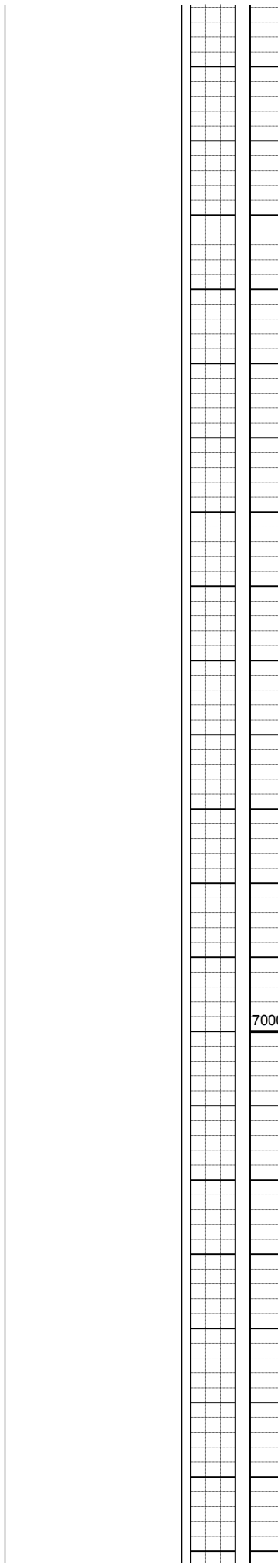
100% SLTYSH: mdk-dkbrngy, firm, sbply-pty,
 occsbkly, smefts, vfg, sicalc, lamphlog, scabent, tprycrd

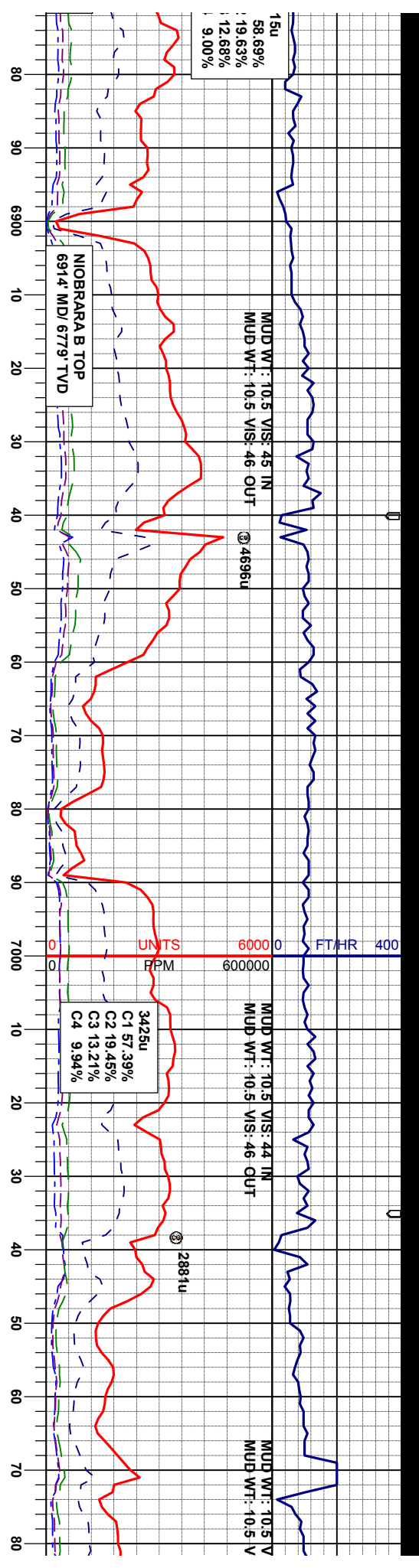
80% SLTYSH: mdk-dkbrngy, firm, sbply-pty,
 occsbkly, smefts w/simtex, lamphlog, vfg, sl-
 modcalc, 20% MRL: dkbrngy-blk, firm, sbply-sbply, slty,
 smefts, calc, scabent, tprycrd

70% MRL: dkbrngy-blk,
 smefts, calc,
 15% CHK: lbm-cm, sft
 fis, calc,
 15% SLTYSH: mdk-dk
 occsbkly, smefts w/sim
 modcalc, tbent, tprycrd

SURVEY
 MD 6697'
 TVD 6622.13'
 INC 32.7°
 AZI 274.0°

SURVEY
 MD 6792'
 TVD 6698.0'
 INC 41.2°
 AZI 268.9°





C1	57.39%
C2	19.45%
C3	13.21%
C4	9.94%

60% MR.L: dkbrngy-blk, firm, sbply-sbply, slty, smefis, calc, 40% CHK: mbrn-crm, sft, sbply-sbply, rthy-mot, fis, calc, trsec calcite, trpyrcid, trss, vitbent

75% CHK: tm brngy-m brngy, sft, sbply-sbply, rthy-mot, fis, calc, 25% MR.L: dkbrngy, firm-slst, sbply-sbply, slty, smefis, calc, oocsec calcite, trpyrcid

85% MR.L: dkbrngy, firm-slst, sbply-sbply, slty, smefis, calc, 15% CHK: m-mdkbrngy, trcm, sft-sl firm, sbply-sbply, mot-rthy, fis, calc, scatsec calcite, smeembdfos, oocbent, trpyrcid

100% MR.L: dkbrngy, firm-slst, sbply-sbply, slty, smefis, calc, 10% CHK: m-mdkbrngy, trcm, sl firm-sft, sbply-sbply, mot-rthy, fis, calc, scatsec calcite, smeembdfos, tlbent, trpyrcid

50% MR.L: dkbrngy, firm-slst, sbply-sbply, slty, smefis, calc, 50% CHK: m brngy-crm, sft, sbply-sbply, rthy-mot, fis, calc, trsec calcite, trpyrcid, vitbent

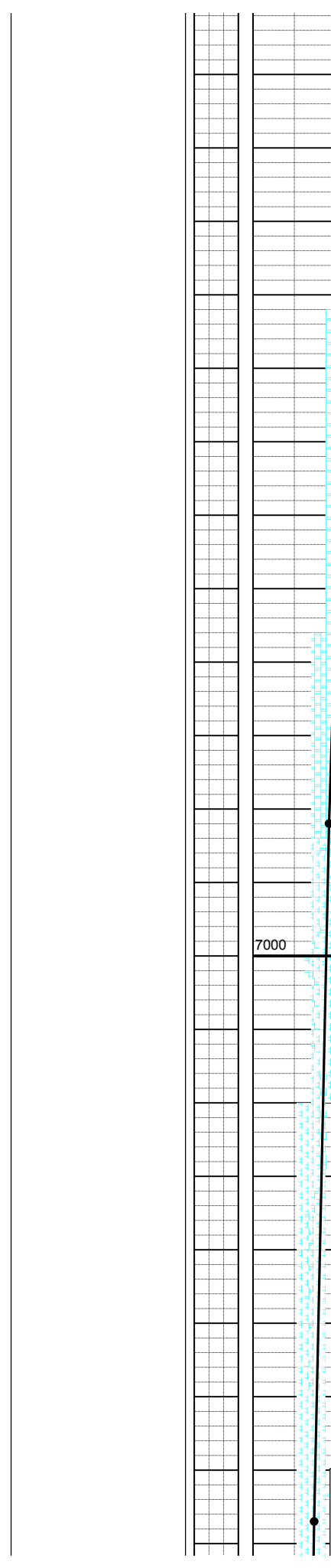
80% CHK: m brngy-crm, sft, sbply-sbply, mot, fis, calc, 20% MR.L: dkbrngy, firm-slst, sbply-sbply, slty, smefis, calc, scatembdfos, scatsec calcite, trsetos, trpyrcid

90% MR.L: dkbrngy, firm-slst, sbply-sbply, slty, smefis, calc, 10% CHK: m-mdkbrngy, trcm, sl firm-sft, sbply-sbply, mot-rthy, fis, calc, scatsec calcite, smeembdfos, tlbent, trpyrcid

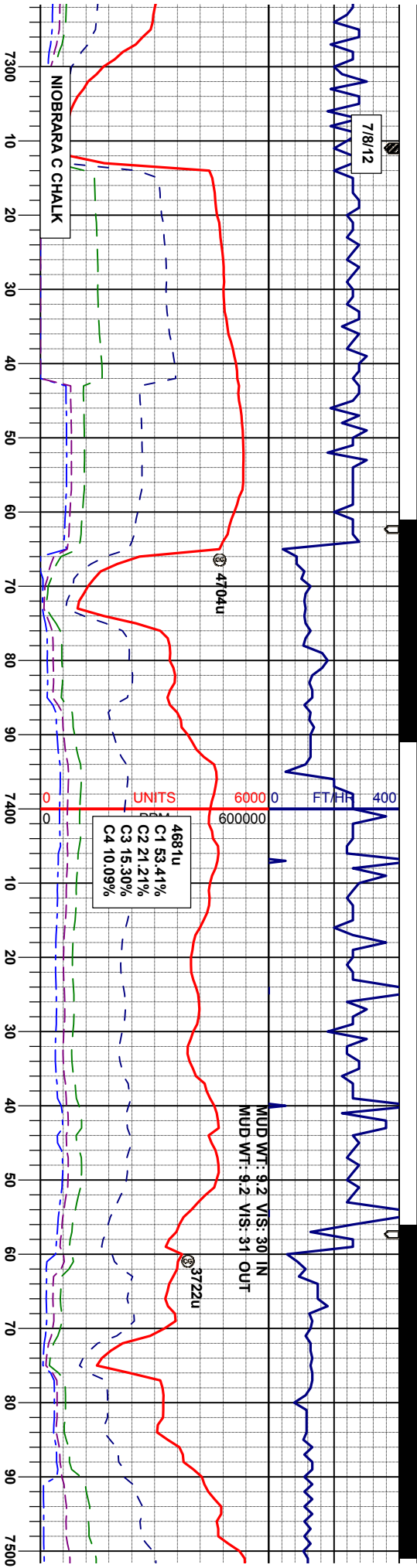
SURVEY
 MD 6887'
 TVD 6763.86'
 INC 51.0°
 AZI 259.7°

SURVEY
 MD 6982'
 TVD 6816.22'
 INC 62.0°
 AZI 260.8°

SURVEY
 MD 7077'
 TVD 6852.3'
 INC 73.2°
 AZI 266.1°



7/8/12



NIOBRARA C CHALK

4704u

3722u

4681u
 C1 53.41%
 C2 21.21%
 C3 15.30%
 C4 10.09%

MUD WT: 9.2 V/S: 30 IN
 MUD WT: 9.2 V/S: 31 OUT

75% CHK: m-mckbrngy, smeerm, sl firm -sft, sbply-sbply, mot-rthy, fs, vcalc, grd to 15% MRU: dkbrngy, firm -sft, sbply-sbply, silty, smeifs, calc, tr embdfos, tr lsefos 10% CMT:

75% CHK: m-mckbrngy, smeerm, sl firm -sft, sbply-sbply, mot-rthy, fs, vcalc, grd to 25% MRU: dkbrngy, firm -sft, sbply-sbply, silty, smeifs, calc, tr embdfos, tr pyrcid

60% MRU: dkbrngy, firm -sft, sbply-sbply, silty, smeifs, calc, grd to 40% CHK: m-mckbrngy, smeerm, sl firm -sft, sbply-sbply, mot-rthy, fs, vcalc, tr embdfos, tr lsefos

75% MRU: dkbrngy, firm -sft, sbply-sbply, silty, smeifs, calc, grd to 25% CHK: m-mckbrngy, smeerm, sl firm -sft, sbply-sbply, mot-rthy, fs, vcalc, tr embdfos, tr lsefos

SURVEY
 MD 7301'
 TVD 6893.53'
 INC 84.6°
 AZI 267.7°

SURVEY
 MD 7396'
 TVD 6900.66'
 INC 86.8°
 AZI 276.1°

SURVEY
 MD 7491'
 TVD 6903.23'
 INC 90.1°
 AZI 267.8°

7000

ft

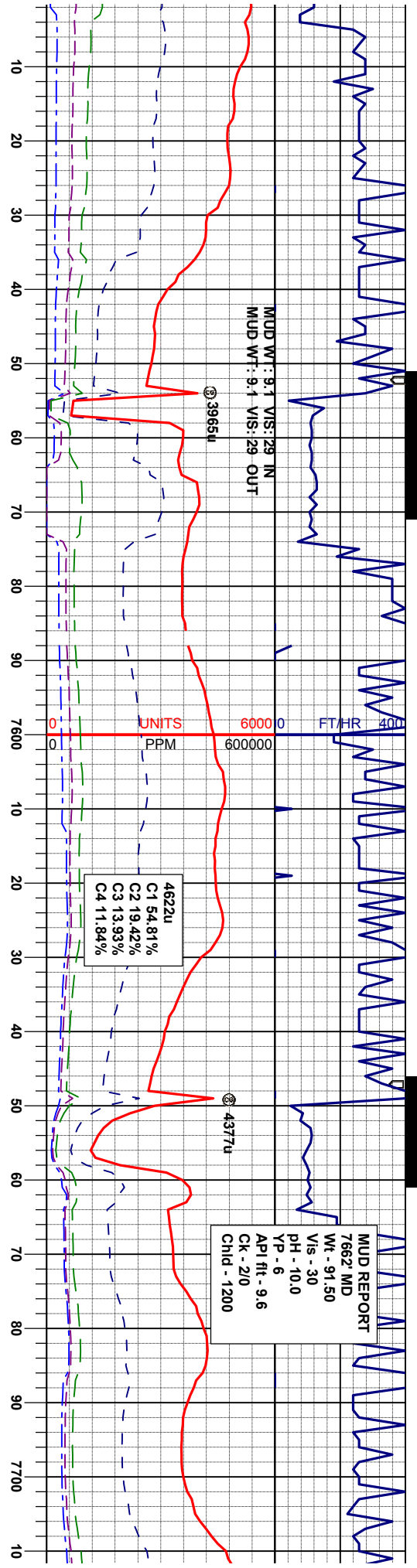
6000 50A 200

7400

7300

7500

9
1
s



0% MR.L: dkbrngy, firm -sistf, sbblky-sbply;
 sily, smefts, calc, gnd to

0% CHK: m-mckbrngy, smeccm, sl firm -sft,
 sbply-sbblky, mot-rthy, fis, vcalc, tr embdfos, tr
 setos

85% MR.L: dkbrngy, firm -sistf, sbblky-sbply;
 sily, smefts, calc, gnd to

15% CHK: m-mckbrngy, smeccm, sl firm -sft,
 sbply-sbblky, mot-rthy, fis, vcalc, vtr embdfos,
 vtr setos

90% MR.L: dkbrngy, firm -sistf, sbblky-sbply;
 sily, smefts, calc, gnd to

10% CHK: m-mckbrngy, sl firm -sft, sbply-
 sbblky, rthy-mot, fis, vcalc, tr embdfos, trsec
 calcite

70% MR.L: dkbrngy, firm -sistf, sbblky-sbply;
 sily, smefts, calc, gnd to

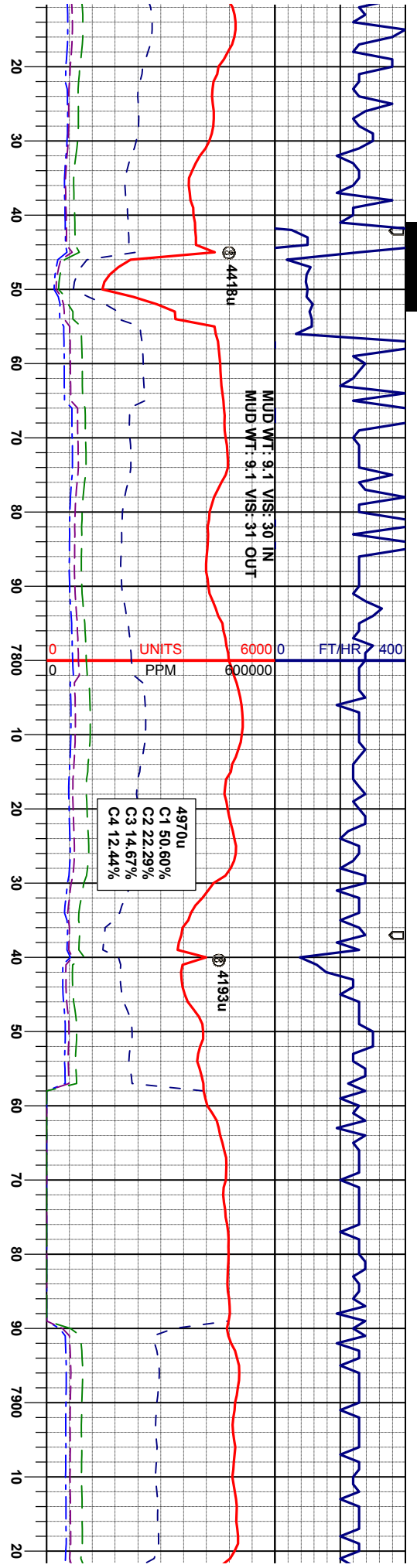
30% CHK: m-mckbrngy, sl firm -sft, sbply-
 sbblky, rthy-mot, fis, vcalc, tr embdfos, trsec
 calcite

80% MR.L: d
 sily, smefts,
 20% CHK: n
 sbblky, rthy-
 calcite

SURVEY
 MD 7586'
 TVD 6901.82'
 INC 91.6°
 AZI 268.9°

SURVEY
 MD 7681'
 TVD 6898.83'
 INC 92.0°
 AZI 270.6°

7000 ft



kbrngy, firm -sistf, sbblky-sbply,
 calc, gnd to
 -mckbrngy, sl firm -sft, sbply-
 mot, fs, vcalc, tr embd&sefos, tsecc

60% CHK: m-mckbrngy, smeltbrngy, sl firm -sft,
 sbply-sbblky, rhy-mot, fs, vcalc,
 40% MRL: dkbrngy, firm -sistf, sbblky-sbply,
 slty, smefis, calc, tr embd&sefos, tsecc calcite

85% CHK: tan -mltbrngy, firm -ocscft, sbply-
 ply, rhy-mot, fs, vcalc,
 15% MRL: dkbrngy, firm -sistf, sbblky-sbply,
 slty, smefis, calc, trsecc calcite, trsecc&modfros

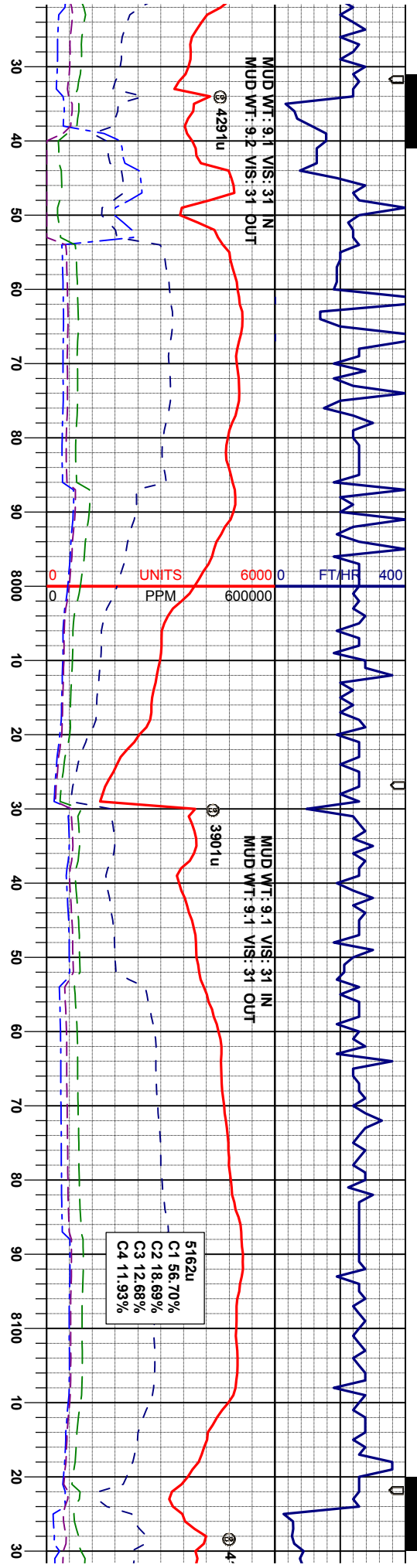
80% CHK: tan -mltbrngy, firm -ocscft, sbply-
 ply, rhy-mot, fs, vcalc,
 20% MRL: dkbrngy, firm -sistf, sbblky-sbply,
 slty, smefis, calc, ocscsec calcite, trsecc&modfros

85% CHK: ltm-ltbrngy, f
 mot, fs, vcalc,
 15% MRL: dkbrngy, firm
 slty, smefis, calc, tsecc

SURVEY
 MD 7776'
 TVD 6896.84'
 INC 90.4°
 AZI 270.6°

SURVEY
 MD 7871'
 TVD 6895.93'
 INC 90.7°
 AZI 270.6°

7000 ft



firm -sft, sbbly-pty, rhy- 85% CHK: m-lbrngy, firm -sft, sbbly-pty, rhy- 90% CHK: tan -lbrngy, firm -sft, sbbly-sbbly, 75% CHK: tan -lbrngy, firm -sft, sbbly-sbbly, 85% CHK: tan -lbrngy, firm -sft, sbbly-sbbly, 15% MR.L: dkbrngy, firm -sift, sbbly-sbbly, mot-rthy, fs, vcalc, sily, smefis, calc, rsec calcite, trembdfos

firm -sift, sbbly-pty, rhy- 85% CHK: m-lbrngy, firm -sft, sbbly-pty, rhy- 15% MR.L: dkbrngy, firm -sift, sbbly-sbbly, mot-rthy, fs, vcalc, sily, smefis, calc, rsec calcite, trembdfos

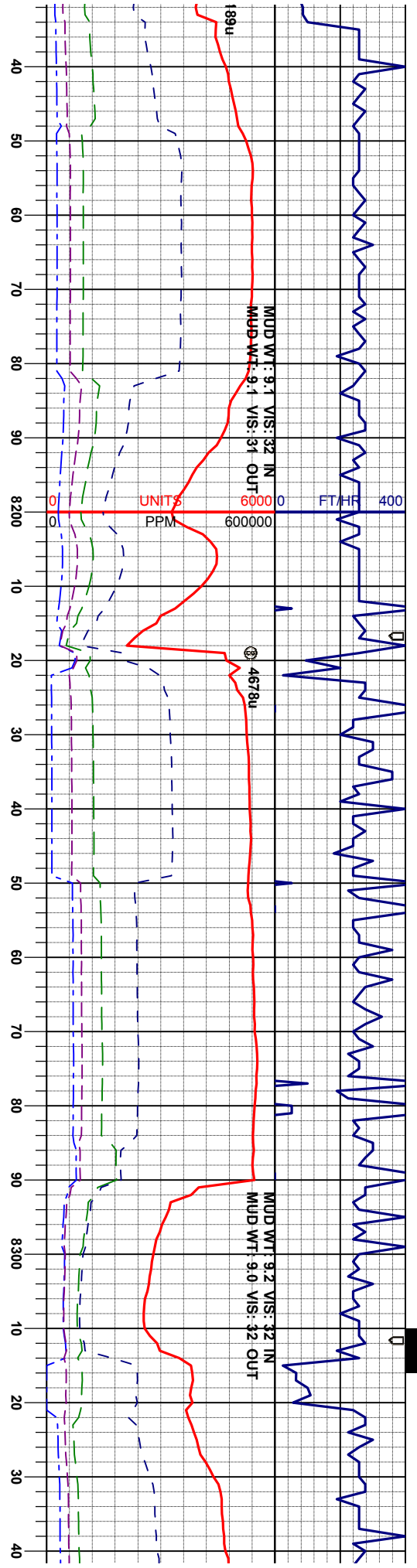
firm -sift, sbbly-pty, rhy- 85% CHK: m-lbrngy, firm -sft, sbbly-pty, rhy- 15% MR.L: dkbrngy, firm -sift, sbbly-sbbly, mot-rthy, fs, vcalc, sily, smefis, calc, rsec calcite, trembdfos

firm -sift, sbbly-pty, rhy- 85% CHK: m-lbrngy, firm -sft, sbbly-pty, rhy- 15% MR.L: dkbrngy, firm -sift, sbbly-sbbly, mot-rthy, fs, vcalc, sily, smefis, calc, rsec calcite, trembdfos

SURVEY
MD 7965'
TVD 6895.93'
INC 89.3°
AZI 270.5°

SURVEY
MD 8060'
TVD 6896.01'
INC 90.6°
AZI 269.6°





MUD WT: 9.1 VIS: 32 IN
MUD WT: 9.1 VIS: 31 OUT

MUD WT: 9.2 VIS: 32 IN
MUD WT: 9.0 VIS: 32 OUT

UNITS
PPM

SURVEY
MD 8155'
TVD 6896.26'
INC 89.1°
AZI 269.2°

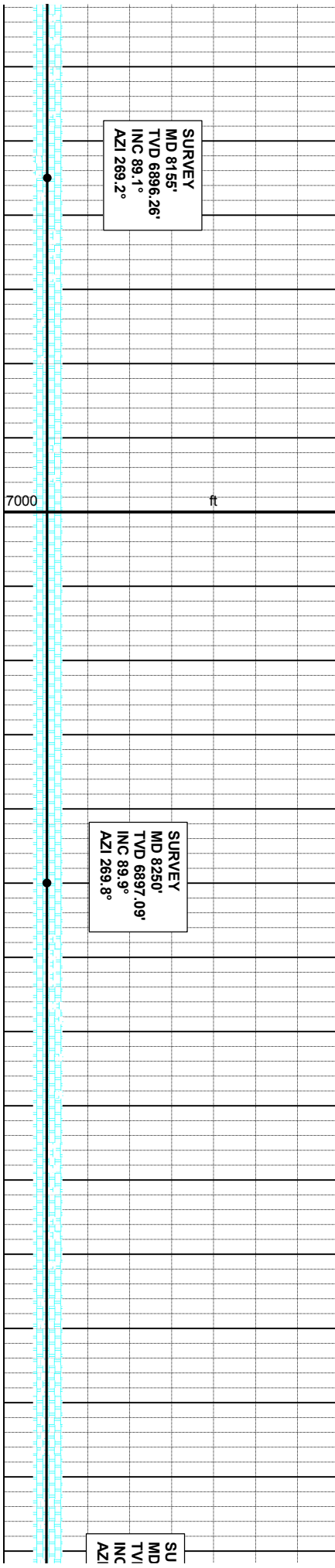
SURVEY
MD 8250'
TVD 6897.09'
INC 89.9°
AZI 269.8°

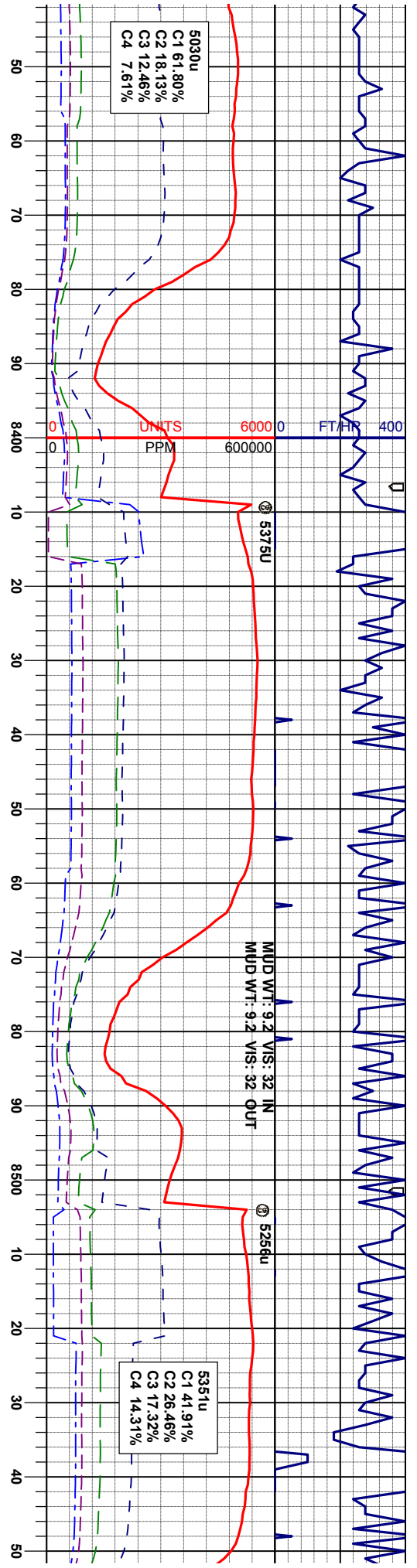
SU
MD
TVI
INC
AZI

95% CHK: tan -lmbnrgy, firm -sft, sbply-pily,
mot-rthy, fs, vcalc,
5% MRL: dkbrngy, firm -sist, sbply-sbply, slty,
smefis, calc, tsec calcite, trembdtos

90% CHK: tan -lmbnrgy, firm -sft, sbply-pily,
mot-rthy, fs, vcalc,
10% MRL: dkbrngy, firm -sist, sbply-sbply,
slty, smefis, calc, occsec calcite, trembd&setos

90% CHK: tan -lmbnrgy, firm -sft, sbply-pily,
mot-rthy, fs, vcalc,
10% MRL: dkbrngy, firm -sist, sbply-sbply,
slty, smefis, calc, tsec calcite, trembd&setos





85% CHK: tan -limbrngy, firm -sft, sbply-pily, mot-rthy, fs, vcalc, 15% MRL: dkbrngy, firm -sift, sbblky-sbply, sily, smeifs, calc, tsec calcite, trembd&setos

65% CHK: lim-ndkbrngy, firm -sft, sbply-pily, mot-rthy, fs, vcalc, 35% MRL: dkbrngy, ocoblk, firm -sift, sbblky-sbply, sily, smeifs, calc, smeembdofos, tsec calcite, tisefos

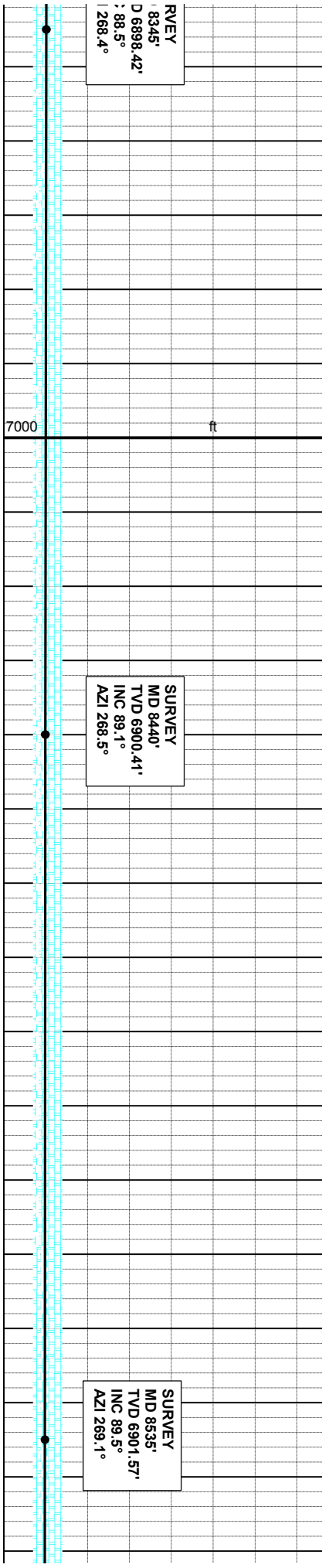
70% CHK: lim-ndkbrngy, firm -sft, sbply-pily, mot-rthy, fs, vcalc, 30% MRL: dkbrngy, ocoblk, firm -sift, sbblky-sbply, sily, smeifs, calc, smeembdofos, tsec calcite, tisefos

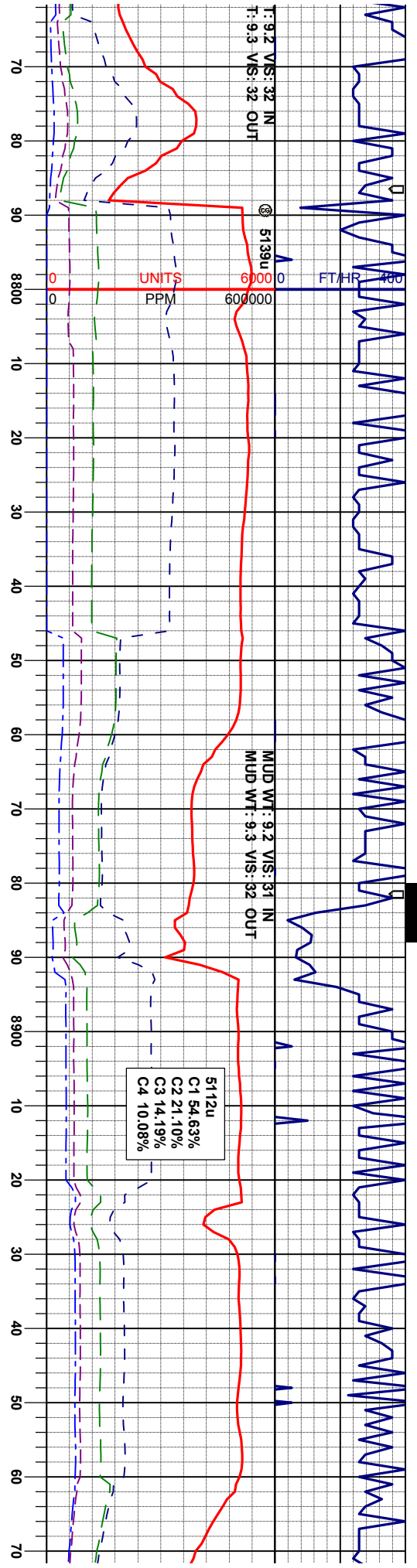
85% CHK: m-mdkbrngy, smeltm, firm -sft, sbply-sbblky, rthy-mot, fs, vcalc, 15% MRL: dkbrngy, ocoblk, firm -sift, sbblky-sbply, sily, smeifs, calc, smeembdofos, ococsec calcite, tisefos

SURVEY
 RVEY
 8345'
 D 6898.42'
 : 88.5°
 I 268.4°

SURVEY
 MD 8440'
 TVD 6900.41'
 INC 89.1°
 AZI 268.5°

SURVEY
 MD 8535'
 TVD 6901.57'
 INC 89.5°
 AZI 269.1°



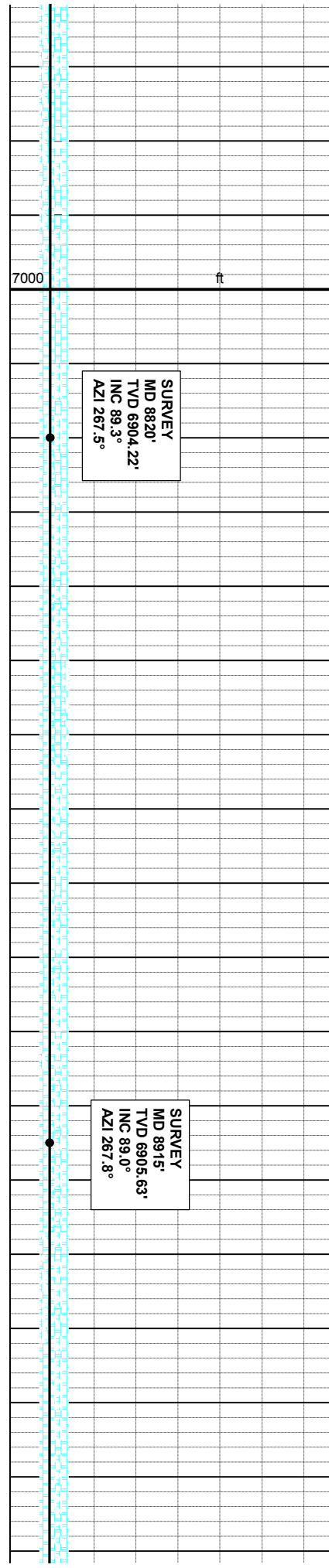


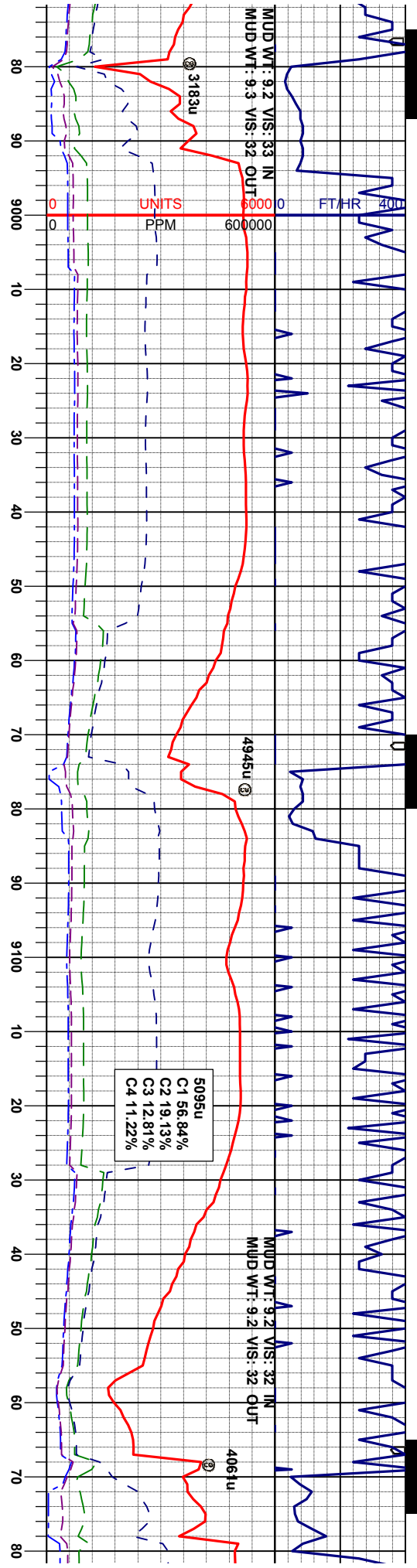
65% CHK: tm-mdkbrngy, tan, firm -sft, sbply-
 sbply, rhy-mot, fs, vcalc,
 35% MRL: dkbrngy, occblk, firm -sft, sbply-
 sbply, sily, smefis, calc, occsec calcite,
 occsetos, trembdfos

70% CHK: m-mdkbrngy, smeltn, tr tan, firm -sft,
 sbply-sbply, rhy-mot, fs, vcalc,
 30% MRL: dkbrngy, occblk, firm -sft, sbply-
 sbply, sily, smefis, calc, occsec calcite, trisetos,
 trembdfos

75% CHK: m-mdkbrngy, smeltn, tr tan, firm -sft,
 sbply-sbply, rhy-mot, fs, vcalc,
 25% MRL: dkbrngy, occblk, firm -sft, sbply-
 sbply, sily, smefis, calc, smesec calcite,
 smesetfos, occembdfos

60% CHK: m-mdkbrngy
 sbply-sbply, rhy-mot,
 40% MRL: dkbrngy, oc
 sbply, sily, smefis, calc
 occsetos, occembdfos



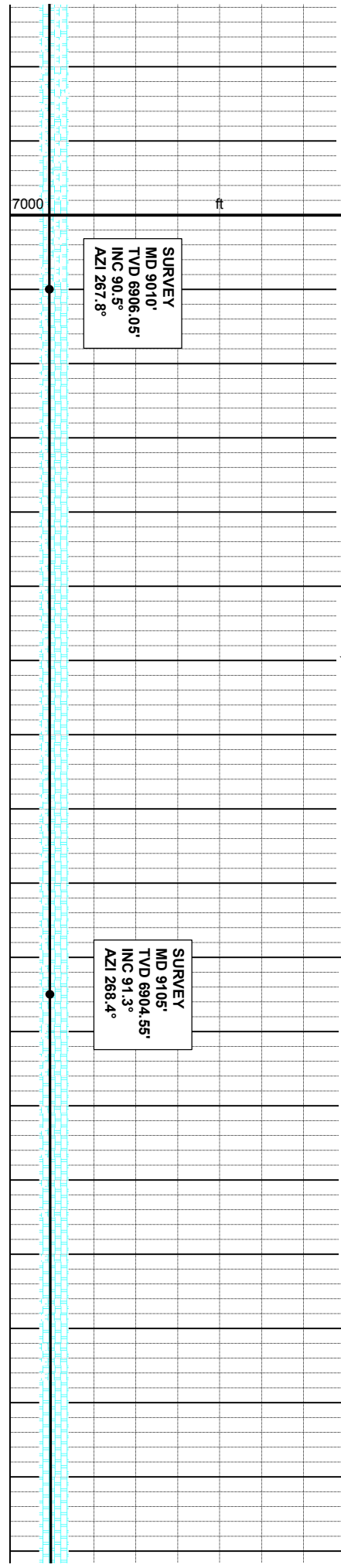


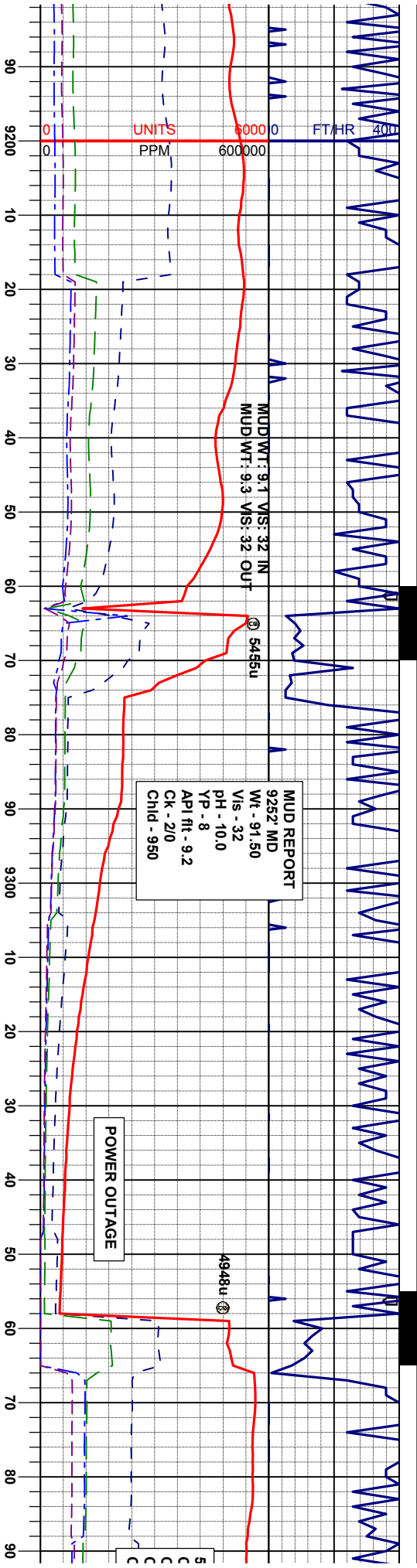
80% CHK: limgy-m brngy, firm -sft, sbply-
sbply, rhy-mot, fs, vcalc,
20% MRL: dkbrngy, occblk, firm -sift, sbply-
sbply, sily, smefis, calc, occsec calcite,
rembrdofos

80% CHK: limgy-m brngy, firm -sft, sbply-
sbply, rhy-mot, fs, vcalc,
20% MRL: dkbrngy, occblk, firm -sift, sbply-
sbply, sily, smefis, calc, occsec calcite,
occsefos, trembrdofos

85% CHK: limgy-rndkbrngy, firm -sft, sbply-
sbply, rhy-mot, fs, vcalc,
15% MRL: dkbrngy, occblk, firm -sift, sbply-
sbply, sily, smefis, calc, tsec calcite, ttrsetfos,
trembrdofos

80% CHK: limgy-rndkbrngy, firm -si
sbply, rhy-mot, fs, vcalc,
20% MRL: dkbrngy, occblk, firm -si
sbply, sily, smefis, calc, tsec calci





MUD REPORT
 9252 MD
 Wt - 91.50
 Vis - 32
 pH - 10.0
 YP - 8
 API ft - 9.2
 Ck - 210
 Chd - 950

POWER OUTAGE

SURVEY
 MD 9200'
 TVD 6901.65'
 INC 92.2°
 AZI 269.1°

SURVEY
 MD 9295'
 TVD 6898.17'
 INC 92.0°
 AZI 269.8°

SURVEY
 MD 9390'
 TVD 689
 INC 90.9
 AZI 269.9

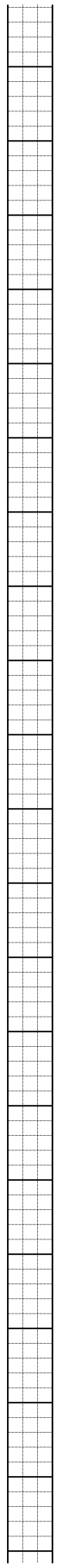
70% CHK: limgy-mdkbrngy, firm -sft, sbply-
 sbply, rthy-mot, fs, vcalc,
 30% MR.L: dkbrngy, occblk, firm -sist, sbply-
 sbply, sily, smetfs, calc, vrenbdts

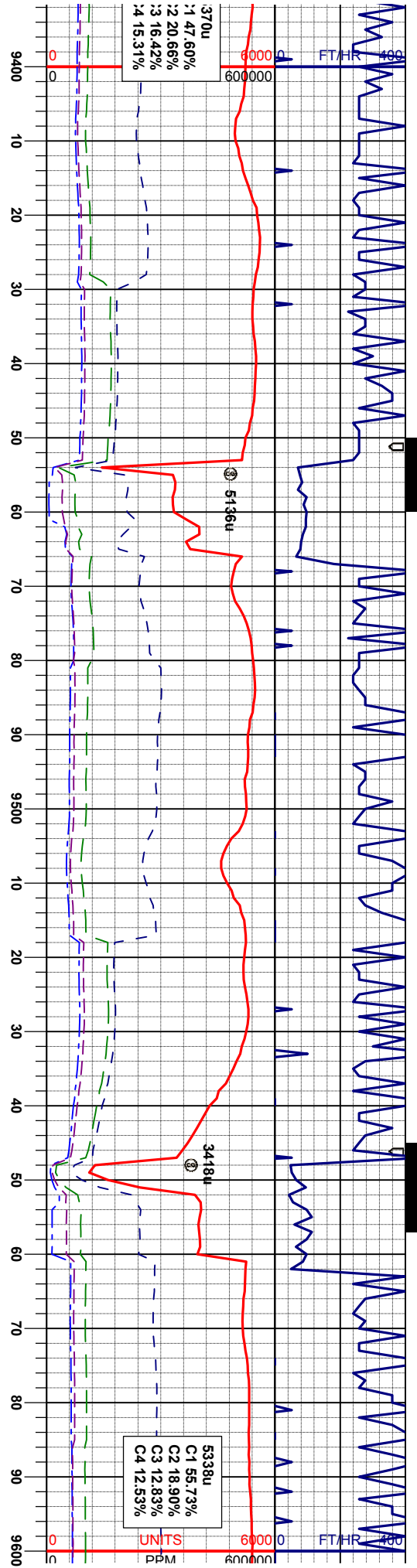
65% CHK: limgy-mdkbrngy, firm -sft, sbply-
 sbply, rthy-mot, fs, vcalc,
 35% MR.L: dkbrngy, occblk, firm -sist, sbply-
 sbply, sily, smetfs, calc, vrenbdts

50% MR.L: dkbrngy, firm -sist, sbply-sbply,
 sily, smetfs, calc, grd to
 50% CHK: m-mdkbrngy, sl firm -sft, sbply-
 sbply, rthy-mot, fs, vcalc, vt embd

70% MR.L: dkbrngy, firm -sist, sbply-sbply,
 sily, smetfs, calc, grd to
 30% CHK: m-mdkbrngy, sl firm -sft, sbply-
 sbply, rthy-mot, fs, vcalc, vt embd

7000





6000 50AP200

60% MRL: dkbrngy, firm -sist, sbblky-sbply;
sily, smeifs, calc, grd to

40% CHK: m-mckbrngy, sl firm -sft, sbply-
sbblky, rthy-mot, fis, vcalc, tr embd

60% MRL: dkbrngy, firm -sist, sbblky-sbply;
sily, smeifs, calc, grd to

40% CHK: m-mckbrngy, sl firm -sft, sbply-
sbblky, rthy-mot, fis, vcalc, tr embd, tsec calcie

55% MRL: dkbrngy, firm -sist, sbblky-sbply;
sily, smeifs, calc, grd to

45% CHK: m-mckbrngy, sl firm -sft, sbply-
sbblky, rthy-mot, fis, vcalc, tr embd&isefos

60% CHK: ltmgy-mckbrngy, firm -sft, sbply-
sbblky, rthy-mot, fis, vcalc,

40% MRL: dkbrngy, occblk, firm -sist, sbply-
sbply, sily, smeifs, calc, trembd&isefos

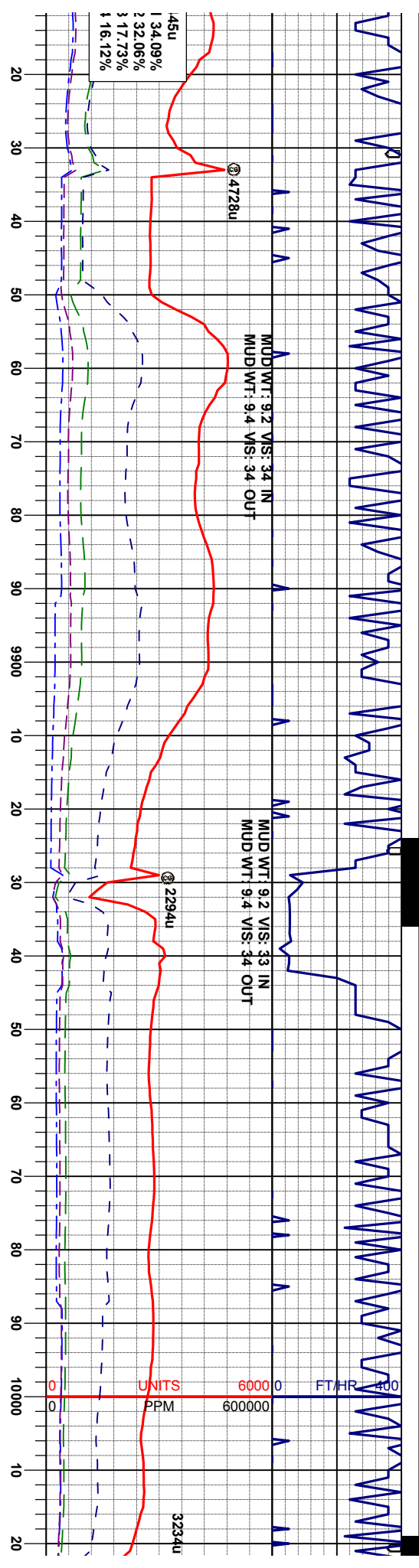
5.77' 4°

7000 ft

SURVEY
MD 9485'
TVD 6895.93'
INC 88.9°
AZI 268.5°

SURVEY
MD 9580'
TVD 6897.67'
INC 89.0°
AZI 269.8°

7000 ft

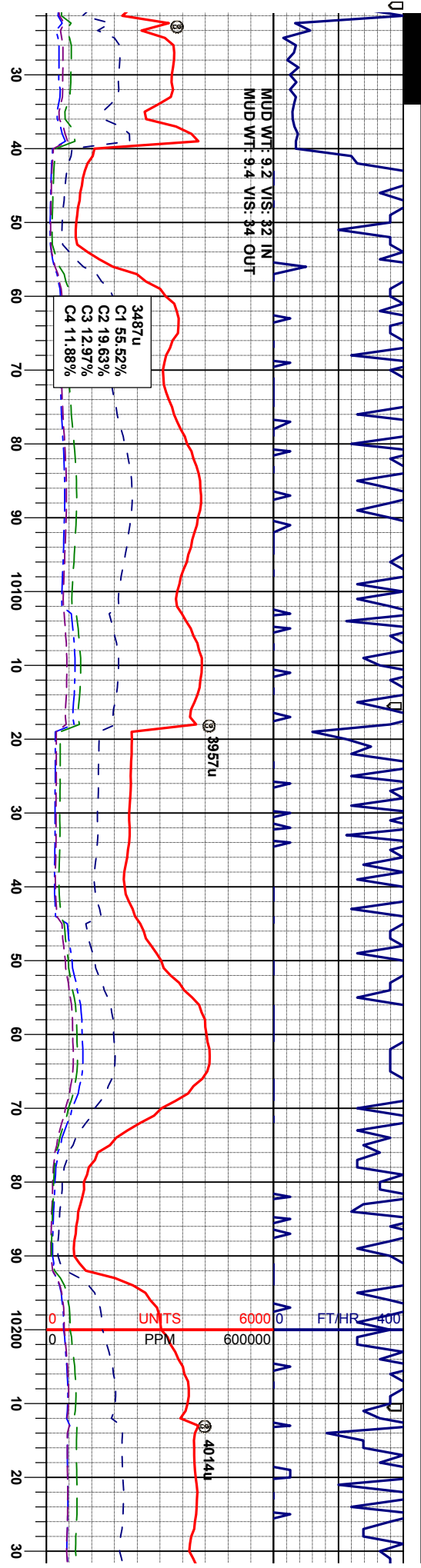


dkbrngy, frm -sist, sbblky-sbply; calc, grd to n-mckbrngy, sl frm -sft, sbply- mot, fis, vcalc, tr embd&iserfos	70% MRL: dkbrngy, frm -sist, sbblky-sbply; silty, smefis, calc, grd to 30% CHK: m-mckbrngy, sl frm -sft, sbply- sbblky, rthy-mot, fis, vcalc, tr embd&iserfos	90% MRL: dkbrngy, frm -sist, sbblky-sbply; silty, smefis, calc, grd to 100% CHK: m-mckbrngy, sl frm -sft, sbply- sbblky, rthy-mot, fis, vcalc, tr embd&iserfos	90% MRL: dkbrngy, frm -sist, sbblky-sbply; silty, smefis, calc, grd to 100% CHK: m-mckbrngy, sl frm -sft, sbply- sbblky, rthy-mot, fis, vcalc, tr embd&iserfos	80% MRL: dkbrngy, frm -sist, sbblky-sbply; silty, smefis, calc, grd to 20% CHK: m-mckbrngy sbblky, rthy-mot, fis, vce
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SURVEY
 MD 9864'
 TVD 6902.38'
 INC 89.1°
 AZI 272.1°

SURVEY
 MD 9959'
 TVD 6903.87'
 INC 89.1°
 AZI 271.0°

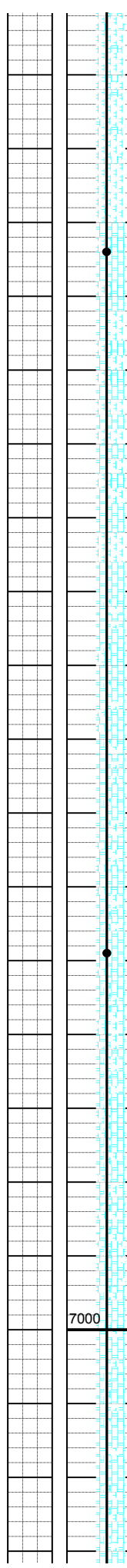
7000 ft

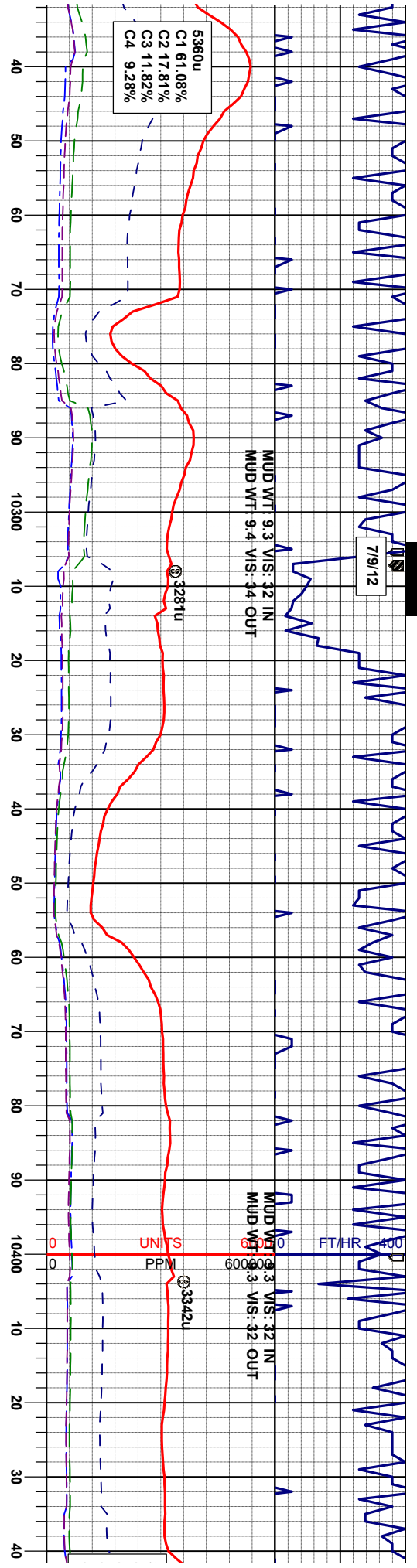


1-sift, sbply-sbply,	60% CHK: limgy-rndkbrngy, frm -sft, sbply-sbply, rthv-mot, fs, vcalc,	75% CHK: limgy-rndkbrngy, frm -sft, sbply-sbply, rthv-mot, fs, vcalc,	60% CHK: limgy-rndkbrngy, frm -sft, sbply-sbply, rthv-mot, fs, vcalc,	80% CHK: limgy-rndkbrngy, frm -sift, sbply-sbply, rthv-mot, fs, vcalc,
sl frm -sft, sbply-nc, tr embdd&asetos	40% MRL: dkbrngy, occblk, frm -sift, sbply-sbply, slty, smefns, calc	25% MRL: dkbrngy, occblk, frm -sift, sbply-sbply, slty, smefns, calc	40% MRL: dkbrngy, occblk, frm -sift, sbply-sbply, slty, smefns, calc, tembdfos&asetos	20% MRL: dkbrngy, occblk, frm -sift, sbply-sbply, slty, smefns, calc, tembdfos

SURVEY
MD 10054'
TVD 6904.54'
INC 90.1°
AZI 269.8°

SURVEY
MD 10149'
TVD 6904.37'
INC 90.1°
AZI 268.0°



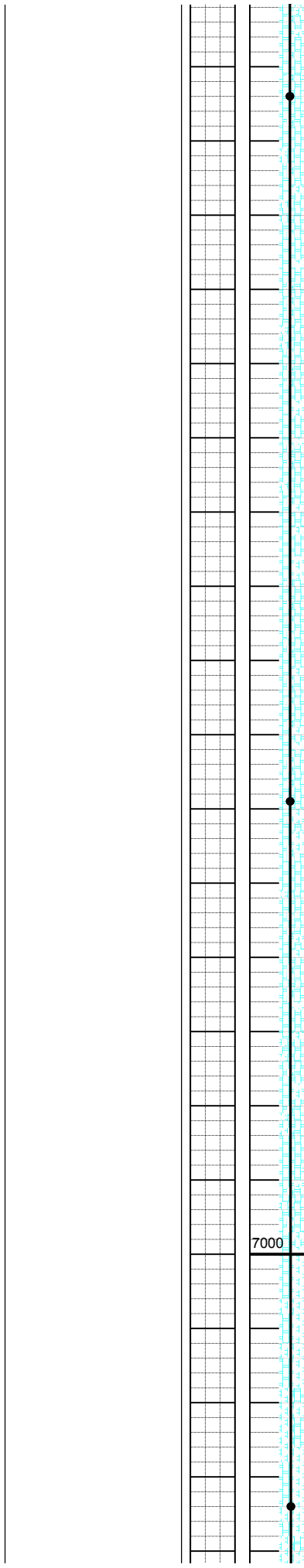


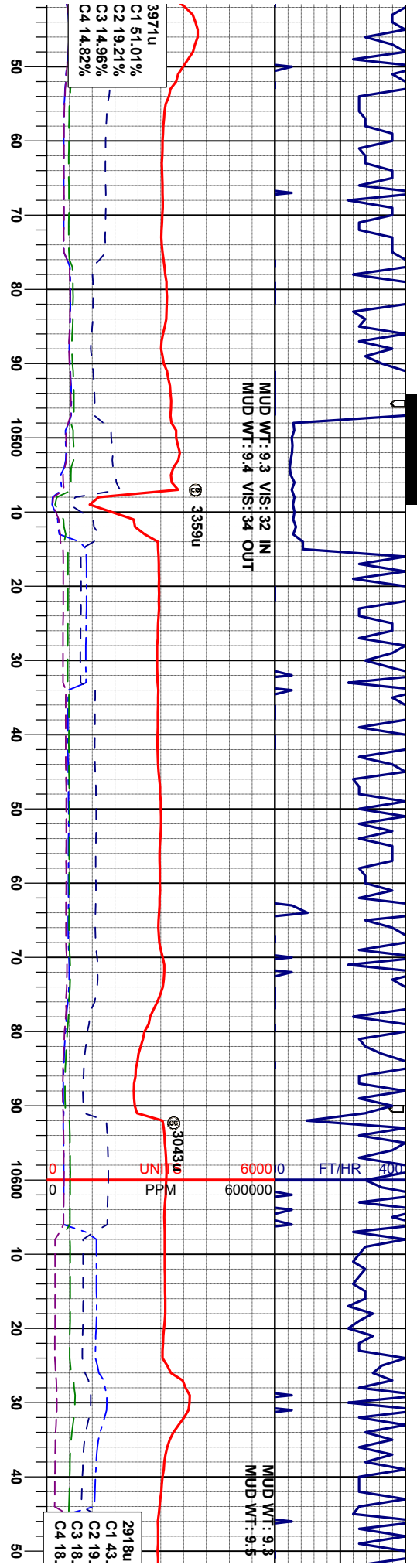
ft, spbply-	80% CHK: limgy-mdkbrngy, firm -sft, spbply- spbky, rthy-mot, fs, vcalc,	75% CHK: limgy-mdkbrngy, firm -sft, spbply- spbky, rthy-mot, fs, vcalc,	60% MRL: dkbrngy, firm -sft, spbky-spbly; sily, smefis, calc, grd to	60% MRL: dkbrngy, firm -sft, spbky-spbly; sily, smefis, calc, grd to
sft, spbky- &isefos	20% MRL: dkbrngy, occblk, firm -sift, spbky- spbly, sily, smefis, calc, tembdfos&isefos	25% MRL: dkbrngy, occblk, firm -sift, spbky- spbly, sily, smefis, calc, tembdfos&isefos	40% CHK: m-mdkbrngy, si firm -sft, spbly- spbky, rthy-mot, fs, vcalc, tr embd&isefos	40% CHK: m-mdkbrngy, si firm -sft, spbly- spbky, rthy-mot, fs, vcalc, tr embd&isefos

SURVEY
MD 10244'
TVD 6904.20'
INC 90.1°
AZI 267.3°

SURVEY
MD 10339'
TVD 6903.54'
INC 90.7°
AZI 267.7°

SURVEY
MD 10434'
TVD 6901.97'
INC 91.2°
AZI 267.7°





70% MRL: dkbrngy, firm -sistf, sbblky-sbply,
sily, smefts, calc, grd to
30% CHK: m-mckbrngy, sl firm -sft, sbply-
sbblky, rthy-mot, fis, vcalc, tr embd&isefos

65% MRL: dkbrngy, firm -sistf, sbblky-sbply,
sily, smefts, calc, grd to
35% CHK: m-mckbrngy, sl firm -sft, sbply-
sbblky, rthy-mot, fis, vcalc, tr embd

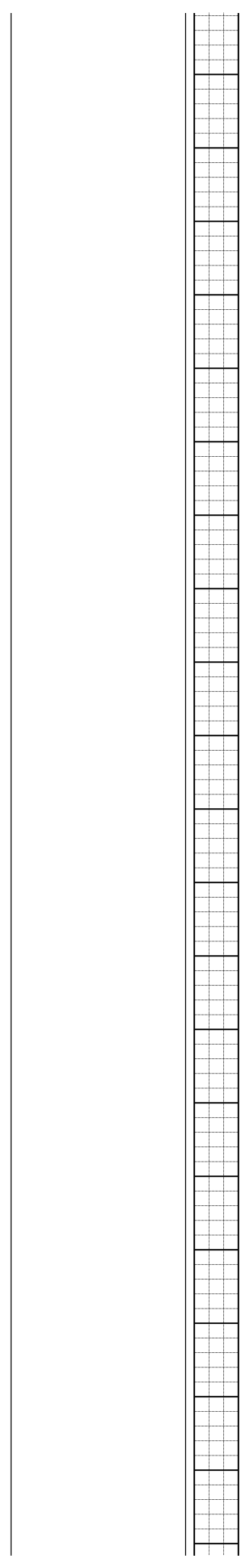
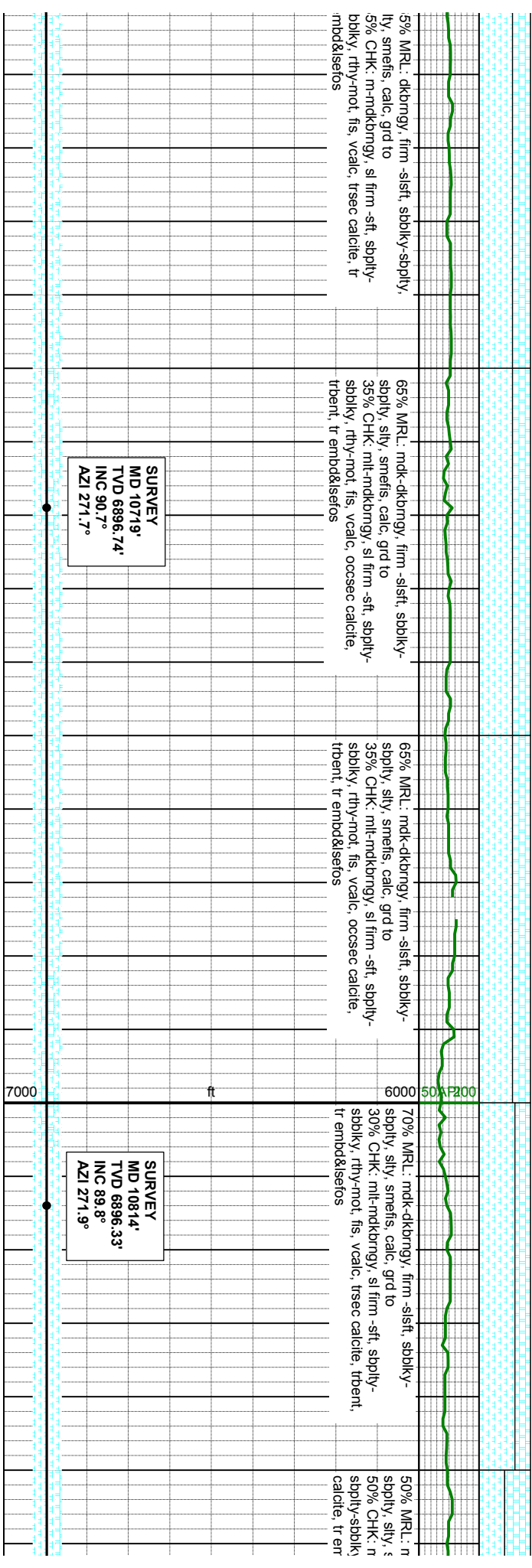
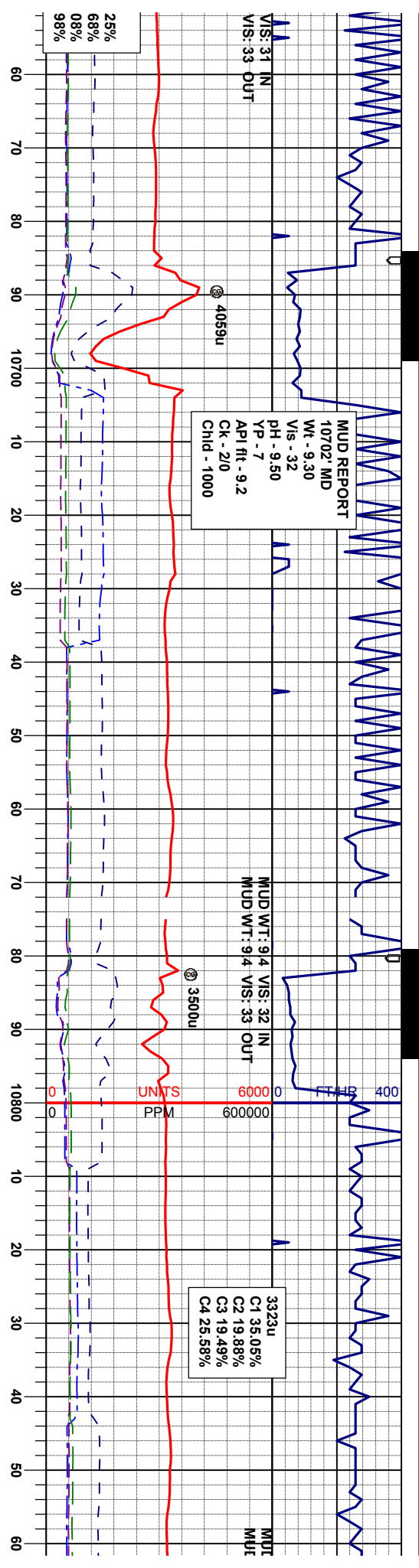
75% MRL: dkbrngy, firm -sistf, sbblky-sbply,
sily, smefts, calc, grd to
25% CHK: m-mckbrngy, sl firm -sft, sbply-
sbblky, rthy-mot, fis, vcalc, tr embd

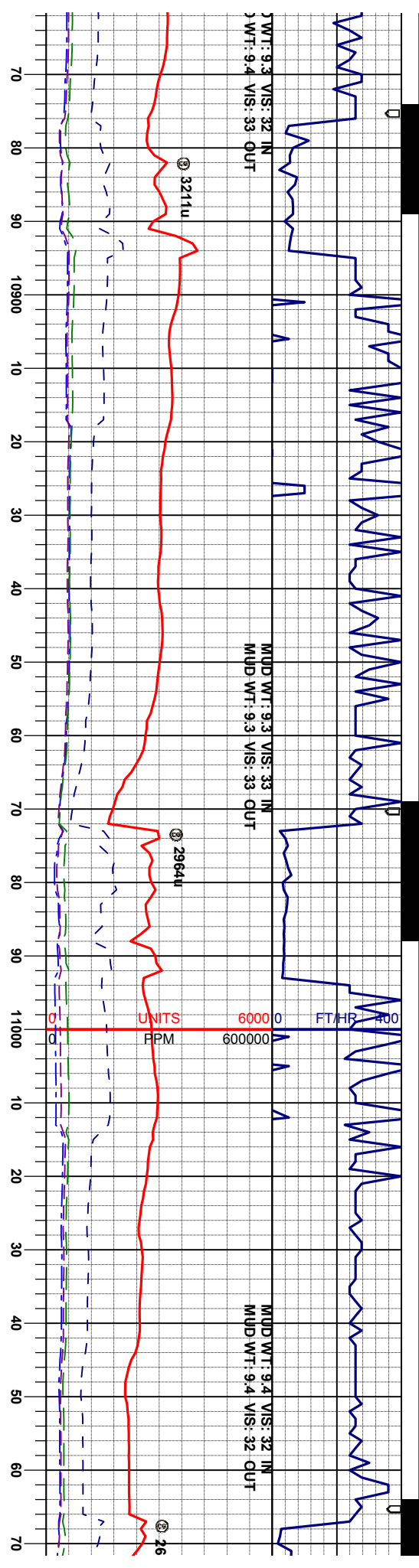
80% MRL: dkbrngy, firm -sistf, sbblky-sbply,
sily, smefts, calc, grd to
20% CHK: m-mckbrngy, sl firm -sft, sbply-
sbblky, rthy-mot, fis, vcalc, tr embd&isefos

SURVEY
MD 10529'
TVD 6900.31'
INC 90.8°
AZI 269.6°

SURVEY
MD 10624'
TVD 6898.48'
INC 91.4°
AZI 269.4°

7000 ft





ndk-dkbrngy, firm -sift, sbblky-
 smefis, calc.
 mlr-ndkbrngy, trcm- tan, sl firm -sft
 /, rthy-mot, fis, vcalc, smesec
 lbdfos

70% CHK: mlr-n brngy, cm- tan, sl firm -sft,
 sbply-sbblky, rthy-mot, fis, vcalc,
 30% MRL: ndk-dkbrngy, firm -sift, sbblky-
 sbply, slty, smefis, calc,
 smesec calcite, tr embd&sefos

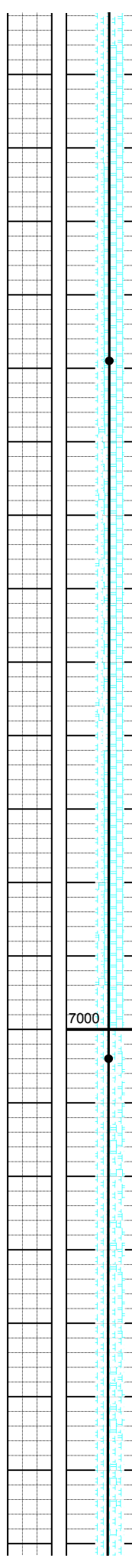
65% CHK: mlr-n brngy, cm- tan, sl firm -sft,
 sbply-sbblky, rthy-mot, fis, vcalc,
 35% MRL: ndk-dkbrngy, firm -sift, sbblky-
 sbply, slty, smefis, calc,
 smesec calcite, tr embd&sefos

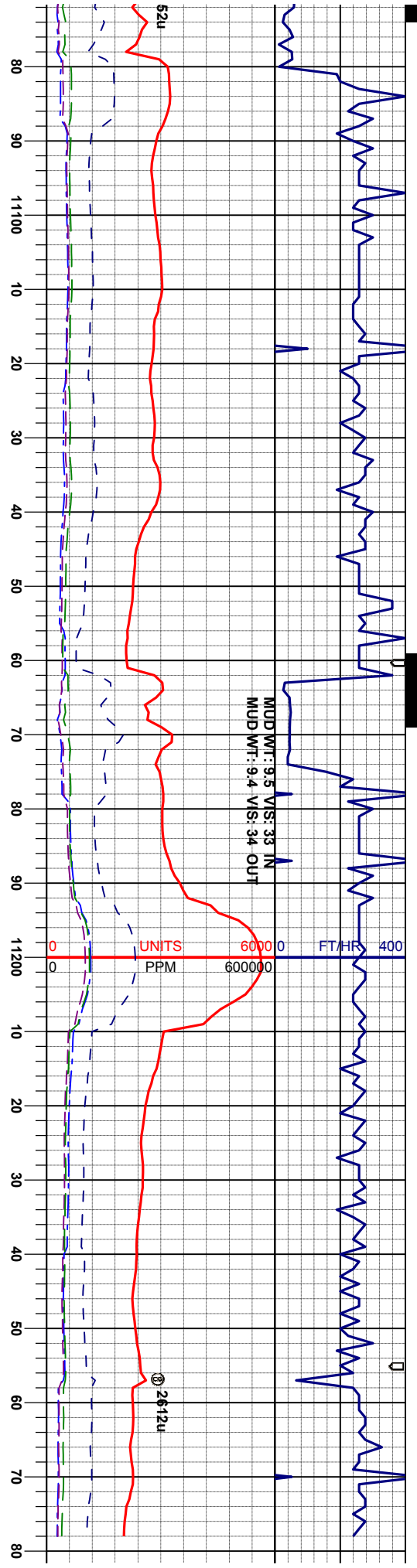
70% MRL: ndkbrngy-blk, firm -sift, sbblky-
 sbply, slty, smefis, calc,
 30% CHK: mlr-n brngy, cm- tan, sl firm -sft,
 sbply-sbblky, rthy-mot, fis, vcalc,
 smesec calcite, occembd&sefos

80% MRL: ndkbrngy-bl
 sbply, slty, smefis, calc
 20% CHK: mlr-n brngy
 sbply-sbblky, rthy-mot,
 abntsec calcite, occent

SURVEY
 MD 10909'
 TVD 6896.25'
 INC 90.3°
 AZI 270.5°

SURVEY
 MD 11004'
 TVD 6897.74'
 INC 87.9°
 AZI 268.9°





80% CHK: ml-m brngy, crn- tan, sl firm -sft, sbspily-sbbkly, rthy-mot, fis, vcalc, 20% MRL: mdkbrngy-dlk, firm -sft, sbbkly-sbply, silty, smefis, calc, scatsec calcite, occemhd&setos, trtent

85% CHK: ml-m brngy, crn- tan, sl firm -sft, sbspily-sbbkly, rthy-mot, fis, vcalc, 15% MRL: mdkbrngy-dlk, firm -sft, sbbkly-sbply, silty, smefis, calc, occsec calcite, trembd

SURVEY
MD 11099'
TVD 6900.72'
INC 88.5°
AZI 267.8°

SURVEY
MD 11194'
TVD 6902.13'
INC 89.8°
AZI 267.5°

SURVEY
MD 11218'
TVD 6902.17'
INC 90.0°
AZI 267.3°

TD @ 1127'
07/09/2012
THANK YOU
COLUMBIN

