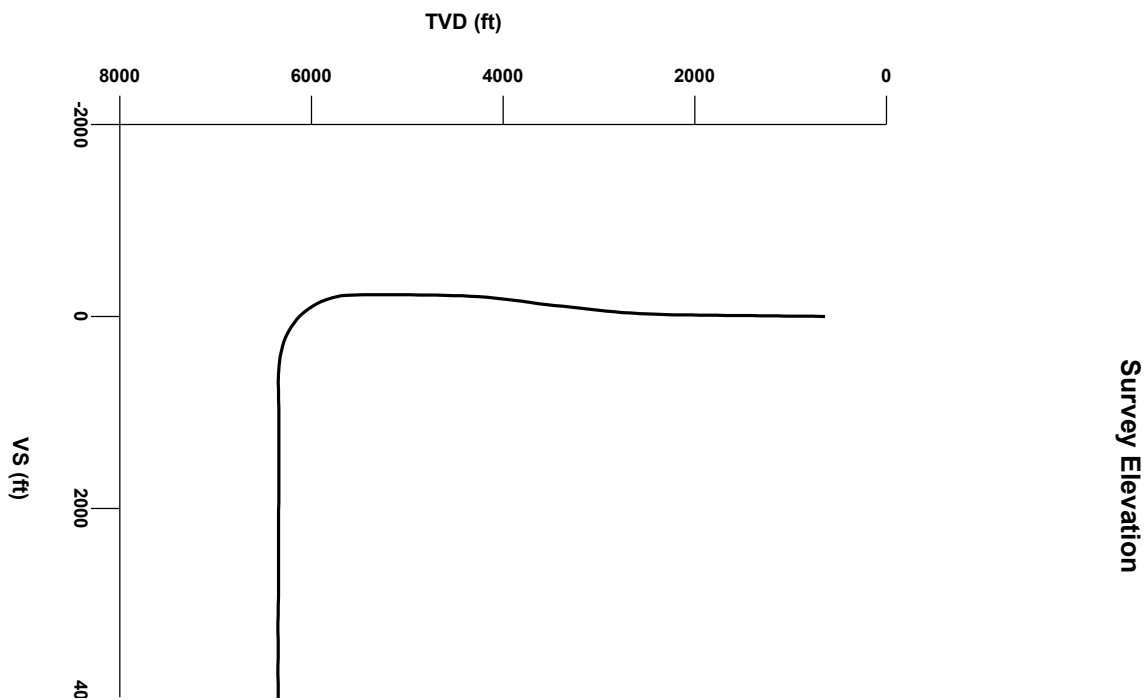
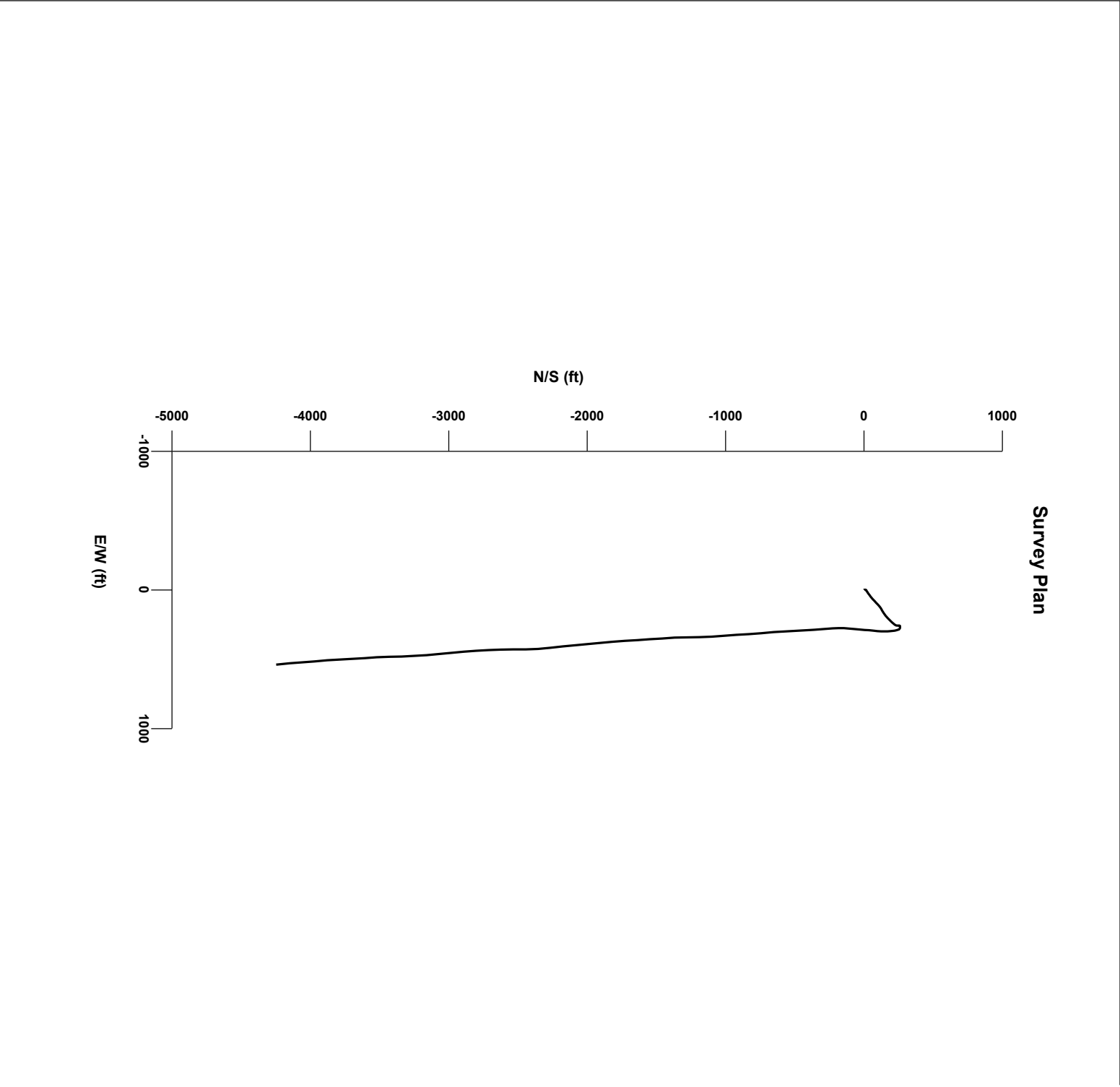
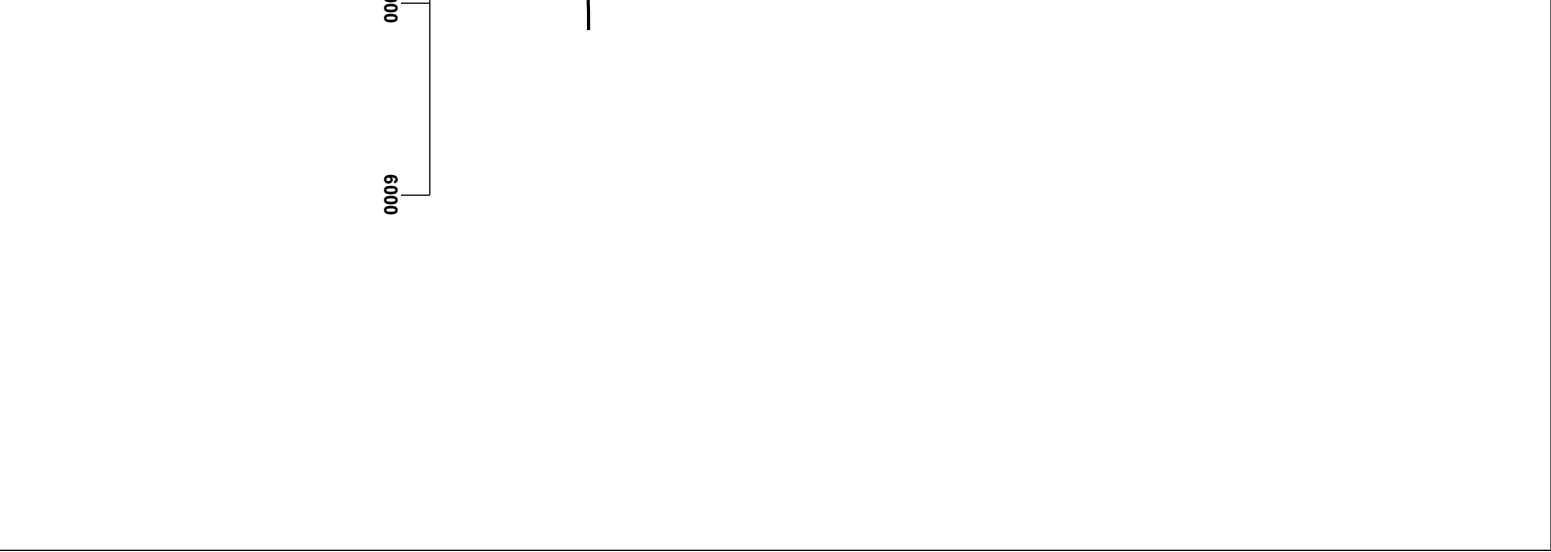


LOG created using LPLOT VH Version 3.0, April 12, 2013, Copyright (C) 1999-2009 Pason Systems Corp.

OPERATOR: NOBLE ENERGY, INC.
WELL: SHABLE FEDERAL LB33-78HN
LOCATION: SEC33 T9N R60W
COUNTY: WELD
STATE: COLORADO
SPOT: 288' FNL, 400' FWL
ELEVATION: 4940'GL, 4956'KB
FIELD: WILDCAT
SPUD DATE: 3/28/13
TD DATE: 4/12/13
DATES LOGGED: 3/30/13 - 4/12/13
DEPTHS LOGGED: 642' - 10621'
GEOLOGISTS: CHRIS WILLATT, GARY MYERS, TED STOCKWELL
DRILLING FLUID: LSND
DRILLING RIG: PRECISION 828
API: 05-123-36799
LOG TYPE: HORIZONTAL
SCALE: 1:240 (5 inches per 100 feet)
REMARKS: WELLSITE GEOLOGICAL SERVICES PROVIDED BY COLUMBINE LOGGING INC.

LOG CONTINUES FROM FILE: Shable Federal LB33-78HN Pilot.lplot



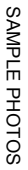
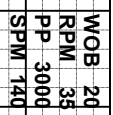


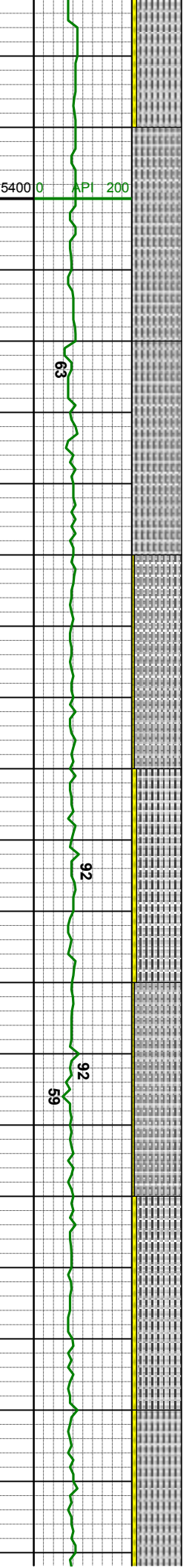
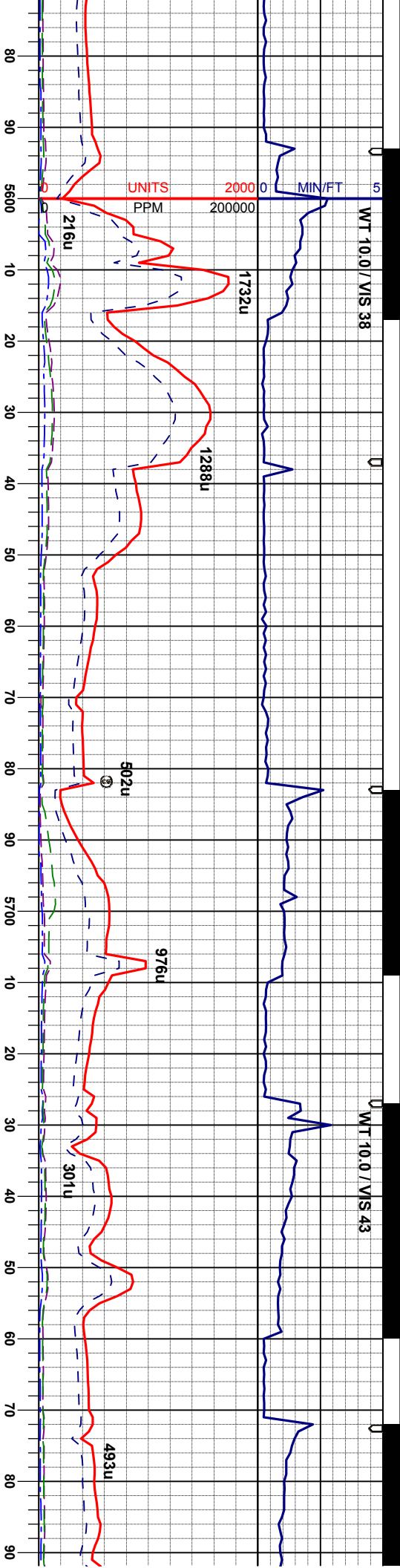
Silty Shale

Silt Stringers

Connection

Midnight Depth





MD 5587'
INC 6.3°
AZI 100.2°
TVD 5554.2'

MD 5677'
INC 5.7°
AZI 129.4°
TVD 5643.7'

MD 5722'
INC 7.4°
AZI 156.5°
TVD 5688.5'

MD 5767'
INC 11.7°
AZI 160.3°
TVD 5732.8'

mod firm, sbply-pty, sdy ip, sl calc, tr fos

SLTYSH: lt-mgy, sft- mod firm, sbply-pty, occ sbbky, silty tex, sdy ip, sl calc, tr fos frag

SHYSS: lt- mgy, tmsl -op, fgr, sbmnd-sbang, sbbky-sbply, mod srl, sft- firm, arg mtX, sl calc

SLTYSH: lt-mgy, sft- mod firm, sbply-pty, occ sbbky, silty tex, sdy ip, sl calc, tr fos frag

SHYSS: lt- mgy, tmsl -op, fgr, sbmnd-sbang, sbbky-sbply, mod srl, sft- firm, arg mtX, sl calc

SLTYSH: lt-mgy, occ dkg, sft- mod firm, sbply-pty, occ sbbky, silty tex, sdy ip, sl calc, tr fos frag

SHYSS: lt- mgy, tmsl -op, fgr, sbmnd-sbang, sbbky- sbply, mod srl, sft- firm, arg mtX, sl calc

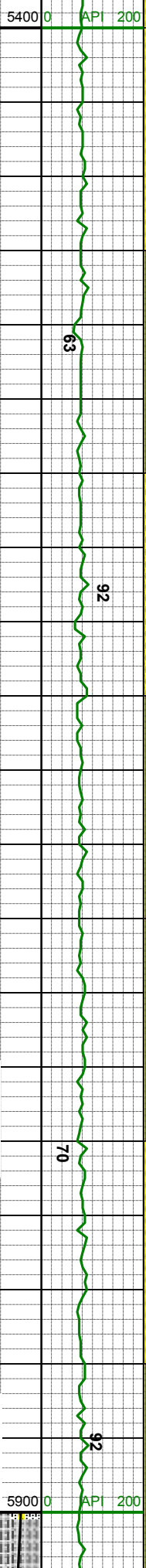
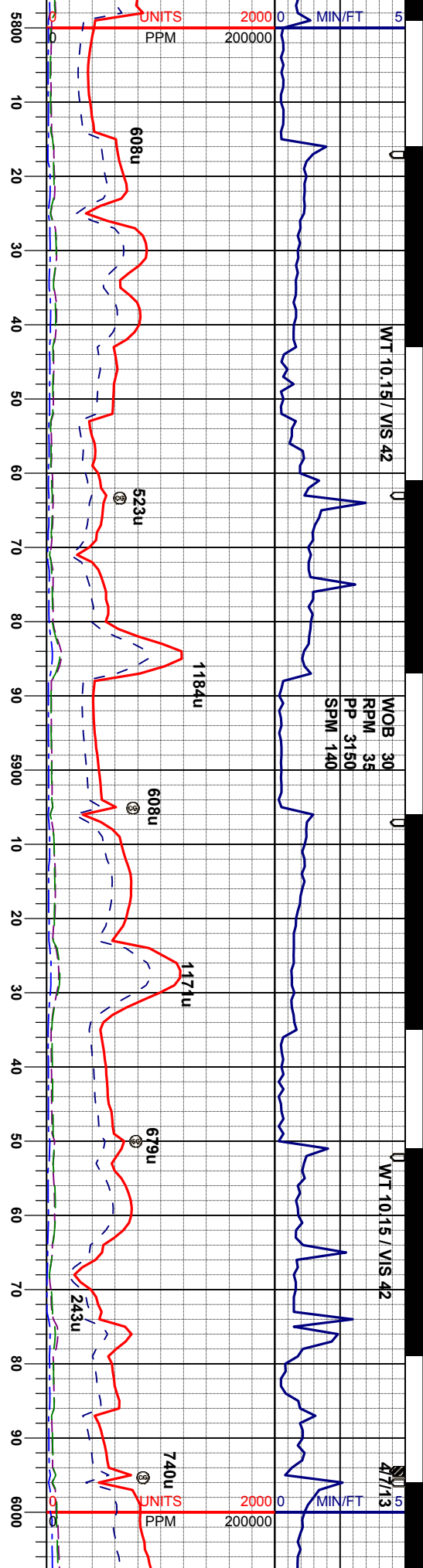


WT 10.15 / VIS 42

WOB 30
RPM 35
PP 3150
SPM 140

WT 10.15 / VIS 42

4/7/13



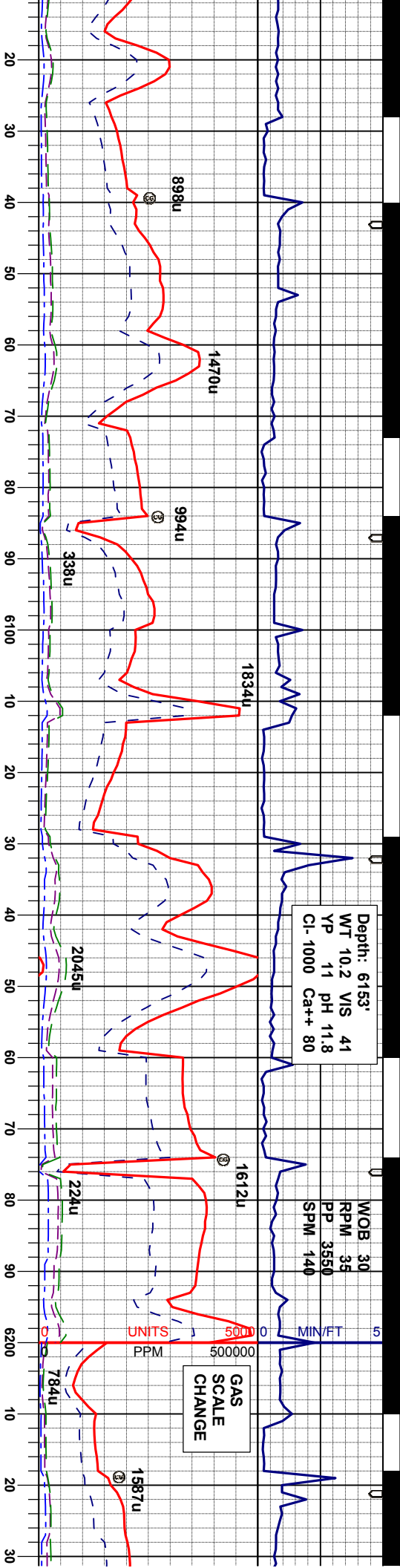
MD 5812'	INC 15.4°	MD 5857'	INC 18.5°	MD 5901'	INC 21.5°	MD 5946'	INC 24.4°	MD 5991'	INC 27.8°
AZI 165.1°	AZI 169.8°	AZI 172.6°	AZI 176.9°	AZI 176.9°	AZI 176.9°	AZI 176.9°	AZI 176.9°	AZI 176.9°	AZI 176.9°
TVD 5776.6'	TVD 5819.6'	TVD 5860.9'	TVD 5902.4'	TVD 5942.8'	TVD 5984.2'	TVD 5984.2'	TVD 5984.2'	TVD 5984.2'	TVD 5984.2'
SLTYSH: lt-mgy, occ dkgy, sft- mod firm, sbply-pty, occ sbdky, silty tex, sdy ip, sl calc, tr fos frag, tr pyr	SLTYSH: lt-mgy, occ dkgy, sft- mod firm, sbply-pty, occ sbdky, silty tex, sdy ip, sl calc, tr fos frag, tr pyr	SLTYSH: lt-mgy, occ dkgy, sft- mod firm, sbply-pty, occ sbdky, silty tex, sdy ip, sl calc, tr fos frag, tr pyr	SLTYSH: lt-mgy, occ dkgy, sft- mod firm, sbply-pty, occ sbdky, silty tex, sdy ip, sl calc, tr fos frag, tr pyr	SLTYSH: lt-mgy, occ dkgy, sft- mod firm, sbply-pty, occ sbdky, silty tex, sdy ip, sl calc, tr fos frag, tr pyr	SLTYSH: lt-mgy, occ dkgy, sft- mod firm, sbply-pty, occ sbdky, silty tex, sdy ip, sl calc, tr fos frag, tr pyr	SLTYSH: lt-mgy, occ dkgy, sft- mod firm, sbply-pty, occ sbdky, silty tex, sdy ip, sl calc, tr fos frag, tr pyr	SLTYSH: lt-mgy, occ dkgy, sft- mod firm, sbply-pty, occ sbdky, silty tex, sdy ip, sl calc, tr fos frag, tr pyr	SLTYSH: lt-mgy, occ dkgy, sft- mod firm, sbply-pty, occ sbdky, silty tex, sdy ip, sl calc, tr fos frag, tr pyr	SLTYSH: lt-mgy, occ dkgy, sft- mod firm, sbply-pty, occ sbdky, silty tex, sdy ip, sl calc, tr fos frag, tr pyr
SHYSS: lt-mgy, trnsi -op, fgr, sbmnd-sbang, sbdky-sbply, mod srt, sft- firm, arg mtix, sl calc	SHYSS: lt-mgy, trnsi -op, fgr, sbmnd-sbang, sbdky-sbply, mod srt, sft- firm, arg mtix, sl calc	SHYSS: lt-mgy, trnsi -op, fgr, sbmnd-sbang, sbdky-sbply, mod srt, sft- firm, arg mtix, sl calc	SHYSS: lt-mgy, trnsi -op, fgr, sbmnd-sbang, sbdky-sbply, mod srt, sft- firm, arg mtix, sl calc	SHYSS: lt-mgy, trnsi -op, fgr, sbmnd-sbang, sbdky-sbply, mod srt, sft- firm, arg mtix, sl calc	SHYSS: lt-mgy, trnsi -op, fgr, sbmnd-sbang, sbdky-sbply, mod srt, sft- firm, arg mtix, sl calc	SHYSS: lt-mgy, trnsi -op, fgr, sbmnd-sbang, sbdky-sbply, mod srt, sft- firm, arg mtix, sl calc	SHYSS: lt-mgy, trnsi -op, fgr, sbmnd-sbang, sbdky-sbply, mod srt, sft- firm, arg mtix, sl calc	SHYSS: lt-mgy, trnsi -op, fgr, sbmnd-sbang, sbdky-sbply, mod srt, sft- firm, arg mtix, sl calc	SHYSS: lt-mgy, trnsi -op, fgr, sbmnd-sbang, sbdky-sbply, mod srt, sft- firm, arg mtix, sl calc

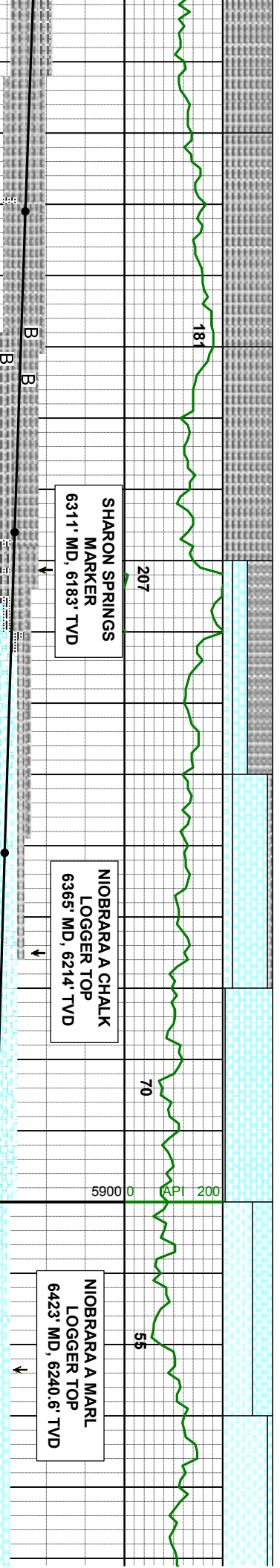
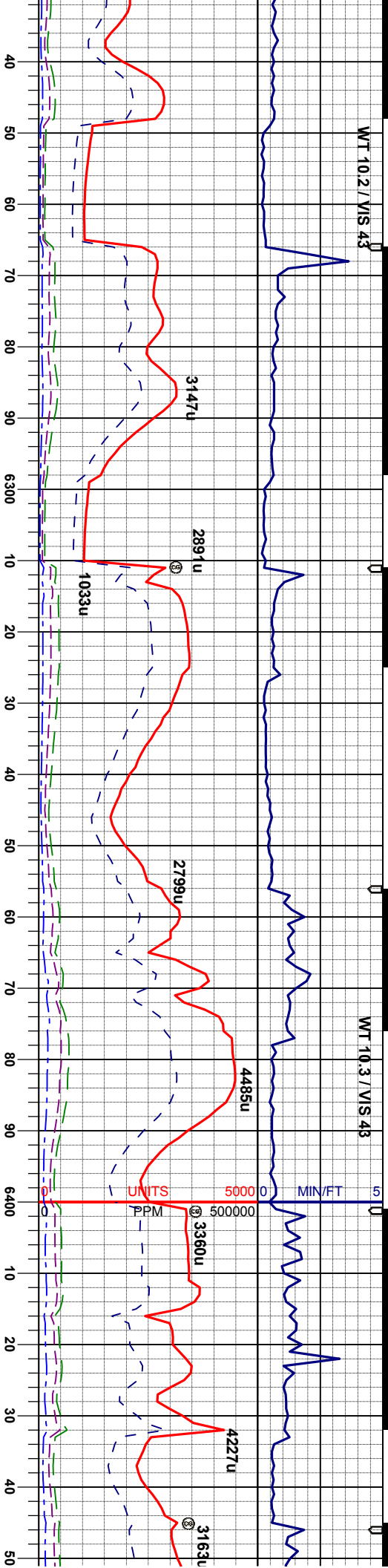


Depth: 6153'
WT 10.2 VIS 41
YP 11 PH 11.8
Cl- 1000 Ca++ 80

WOB 30
RPM 35
PP 3550
SPM 140

GAS
SCALE
CHANGE





MD	6261'
INC	50.4°
AZI	184.8°
TVD	6153.4'

MD	6306'
INC	55.1°
AZI	185.1°
TVD	6180.7'

MD	6351'
INC	56.7°
AZI	185.8°
TVD	6205.9'

MD	6396'
INC	59.0°
AZI	184.2°
TVD	6229.8'

MD	6440'
INC	62.4°
AZI	182.3°
TVD	6251.4'

TTYSH: lt-mgy, sft- mod firm, sbply-ply,
; sbblky, gt, sl calc, (tr pyr, tr rexldz
cite, scat bent, 6280')

SLTYSH: lt-mgy, sft-mod firm, sbply-ply,
occ sbply, gt sl calc, abnt bent
CHK: lt-mgy, mod sft-sl firm, sl arg, sbbky,
sbply, tthy lstr, vealc,
MRL: m-dky, sft-mfirm, sbbky-sbply,
tthy-stri, arg, org/calc mtx, mod calc

CHK: lt-mgy, mod, sft-si firm, sl arg, sbblky
-sbply, rthy istr, vcalc,
MRL: m-dkgy, sft-mfirm, sbblky-sbply,
rthy-sti, arg, org/calc mtx, mod calc, scat
(6370) -tr (6400) bent, sme resd sltysh

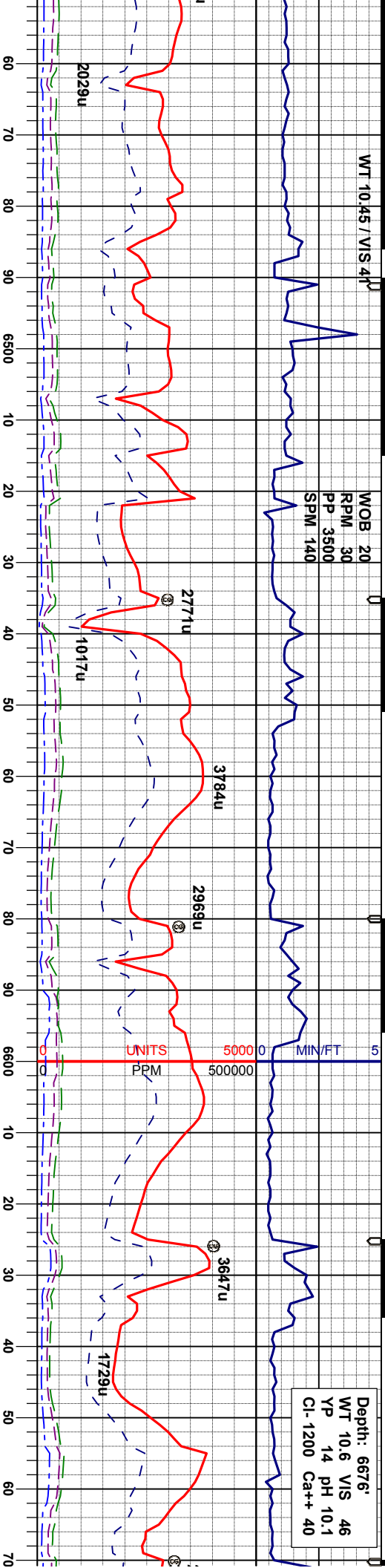
MRL: m-dkgy, sft-mfirm, sbblky-sbply,
rthy-str, arg, orgcalc mtx, mod calc, tr bent
CHK: lt-mgy, mot, sft-sl firm, sl arg, sbblky
-sbply, rthy lstr, vcalc,



WT 10.45 / VIS 41

WOB 20
RPM 30
PP 3500
SPM 140

Depth: 6676'
WT 10.6 VIS 46
YP 14 pH 10.1
Cl- 1200 Ca++ 40



NOBRARA B CHALK
LOGGER TOP
~6515' MD, ~6281' TVD

MD 6485'
INC 67.4°
AZI 179.0°
TVD 6270.5'

MD 6530'
INC 71.1°
AZI 176.1°
TVD 6286.4'

MD 6575'
INC 73.8°
AZI 175.4°
TVD 6300.0'

MD 6620'
INC 76.6°
AZI 175.4°
TVD 6311.5'

MD 6665'
INC 78.6°
AZI 175.8°
TVD 6321.1'

CHK: lt- mgy, mot, sft- sl firm, sl arg, sbbiky
-sbply, rthy lst, vcalc,
MRL: m- dky, sft- mfirm, sbbiky-sbply,
rthy-str, arg, org/calc mt, mod calc, tr bent

CHK: lt- mgy, mot, sft- sl firm, sl arg, sbbiky
-sbply, rthy lst, vcalc,
MRL: m- dky, sft- mfirm, sbbiky-sbply,
rthy-str, arg, org/calc mt, mod calc, tr pyr,
tr bent

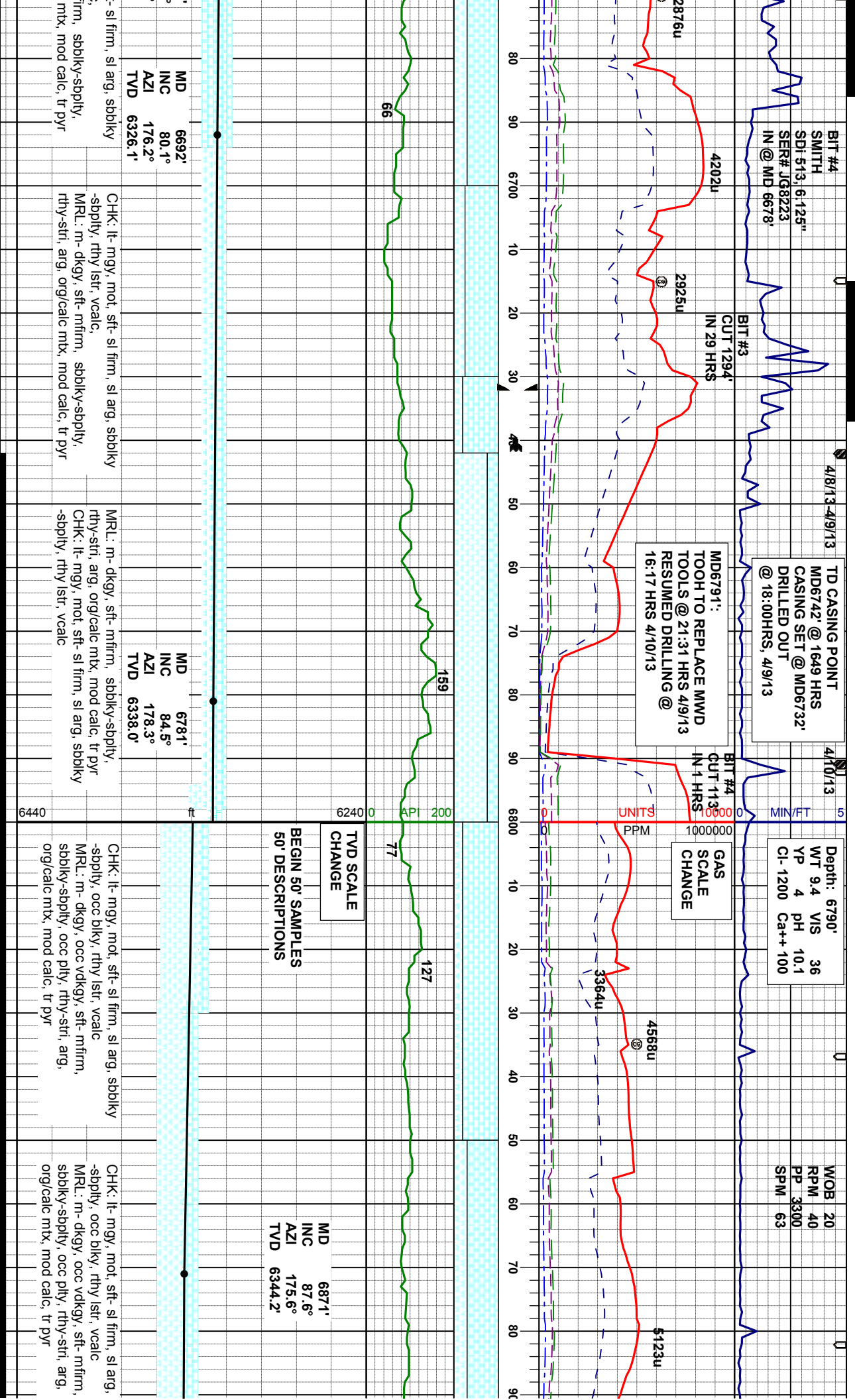
MRL: m- dky, sft- mfirm, sbbiky-sbply,
rthy-str, arg, org/calc mt, mod calc, tr pyr,
tr fos frag
CHK: lt- mgy, mot, sft- sl firm, sl arg, sbbiky
-sbply, rthy lst, vcalc

CHK: lt- mgy, mot, sft-
-sbply, rthy lst, vcalc
MRL: m- dky, sft- mfirm,
rthy-str, arg, org/calc

6900

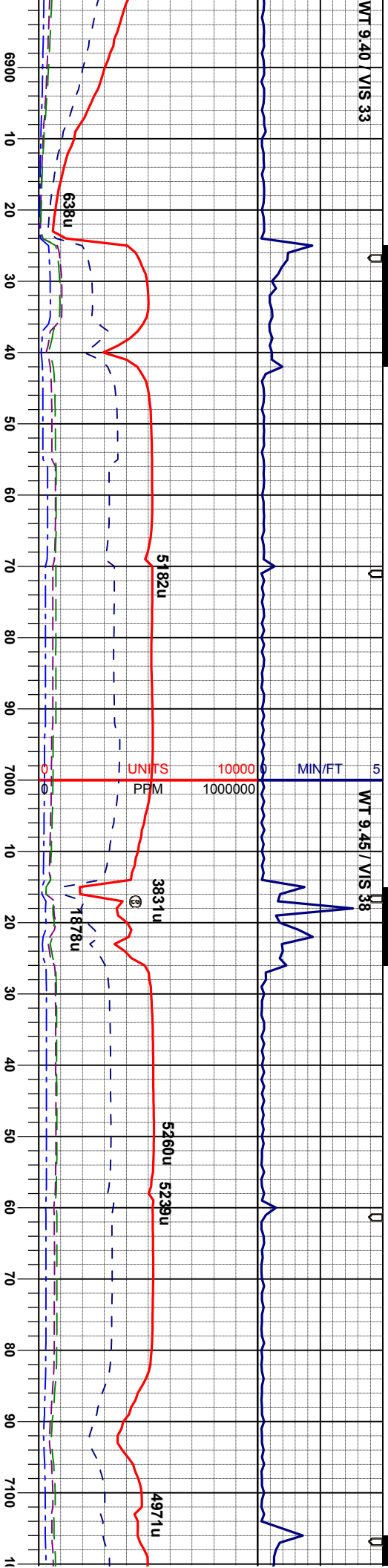
5900 0 AP 200





WT 9.40 / VIS 33

WT 9.45 / VIS 38



MD 6961'
INC 90.5°
AZI 176.7°
TVD 6345.7'

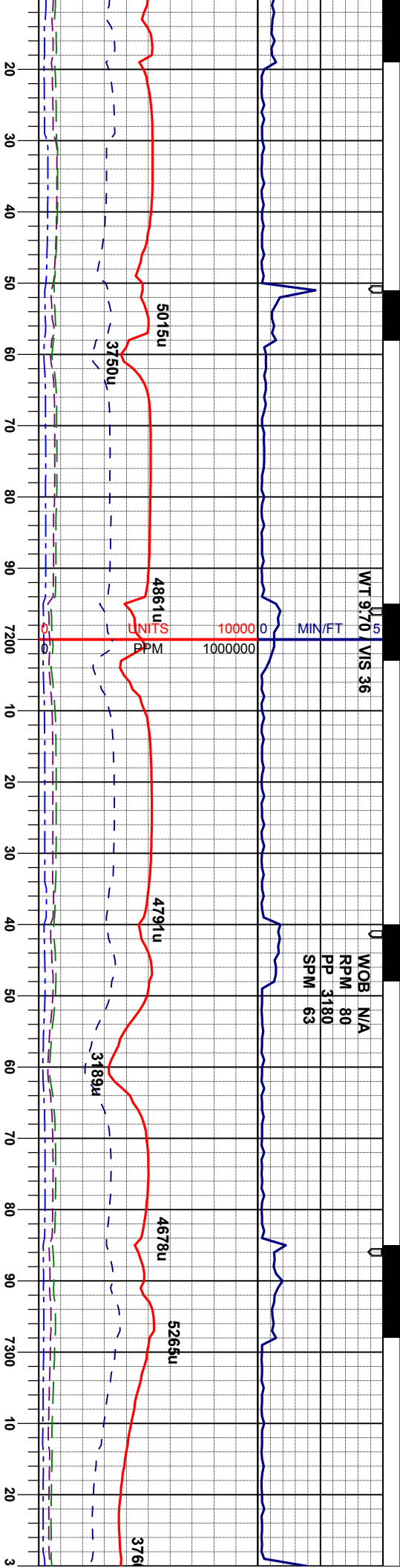
MD 7051'
INC 90.9°
AZI 174.0°
TVD 6344.6'

CHK: lt-mgy, mot, sft-si firm, sl arg, sbbiky
-sbbly, occ blkly, rthy lstr, vcalc
MRL: m-dkgy, occ vdkgy, sft-mfirm,
sbbiky-sbbly, occ ply, rthy-str, arg,
org/calc mix, mod calc, tr pyr

CHK: lt-mgy, mot, sft-si firm, sl arg, sbbiky
-sbbly, occ blkly, rthy lstr, vcalc, tr fos
MRL: m-dkgy, occ vdkgy, sft-mfirm,
sbbiky-sbbly, occ ply, rthy-str, arg,
org/calc mix, mod calc, tr pyr

CHK: lt-mgy, mot, sft-si firm, sl arg, sbbiky
-sbbly, occ blkly, rthy lstr, vcalc, tr fos
MRL: m-dkgy, occ vdkgy, sft-mfirm,
sbbiky-sbbly, occ ply, rthy-str, arg,
org/calc mix, mod calc, tr pyr





MD 7141'
INC 90.6°
AZI 176.9°
TVD 6343.5'

MD 7231'
INC 91.2°
AZI 176.5°
TVD 6342.0'

MD 7321'
INC 90.6°
AZI 175.4°
TVD 6340.6'

mg, mot, sft- sl firm, sl arg, sbbiky
occ biky, rthy lstr, vcalc, tr fos
-dkgy, occ vdkgy, sft- mfirm,
sbbiky, occ pily, rthy-strl, arg,
mtx, mod calc, tr pyr

CHK: lt- mgy, mot, sft- sl firm, sl arg, sbbiky
-spily, occ biky, rthy lstr, vcalc, tr fos
MRL: m- dkgy, occ vdkgy, sft- mfirm,
sbbiky-spily, occ pily, rthy-strl, arg,
org/calc mtx, mod calc, tr pyr

6440

ft

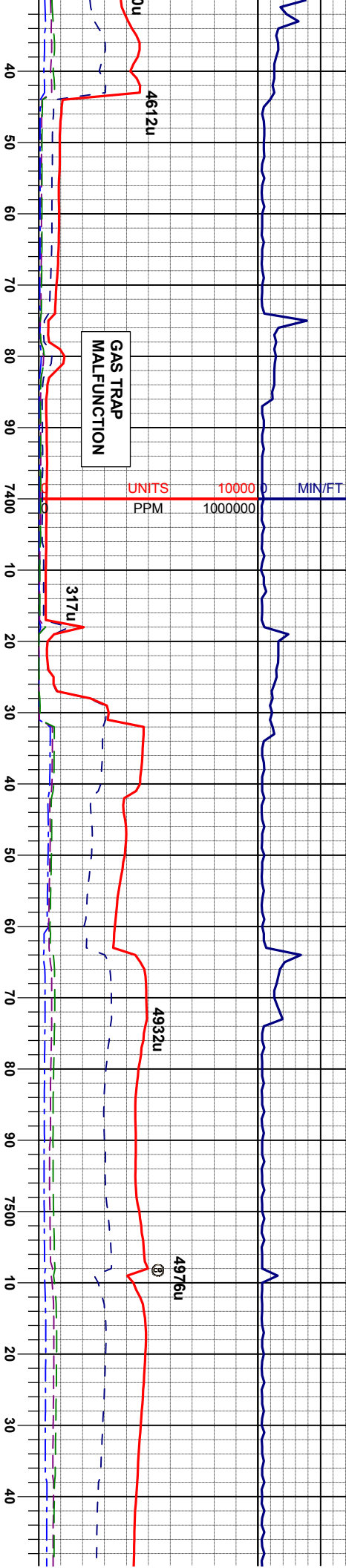
6240 0 API 200

CHK: lt- mgy-dkgy, mot, sft- sl firm, sl arg,
sbbiky-spily, occ biky, rthy lstr, vcalc, tr
fos
MRL: m- dkgy, occ vdkgy, sft- mfirm,
sbbiky-spily, occ pily, rthy-strl, arg,
org/calc mtx, mod calc, tr pyr

CHK: lt- mgy, mot, sft- sl firm, sl arg, sbbiky
-spily, occ biky, rthy lstr, vcalc, tr fos
MRL: m- dkgy, occ vdkgy, sft- mfirm,
sbbiky-spily, occ pily, rthy-strl, arg,
org/calc mtx, mod calc, tr pyr

CHK: lt- mgy-dkgy, mot, sft
sbbiky-spily, occ biky, rthy
fos
MRL: m- dkgy, occ vdkgy, s
sbbiky-spily, occ pily, rthy
org/calc mtx, mod calc, tr p



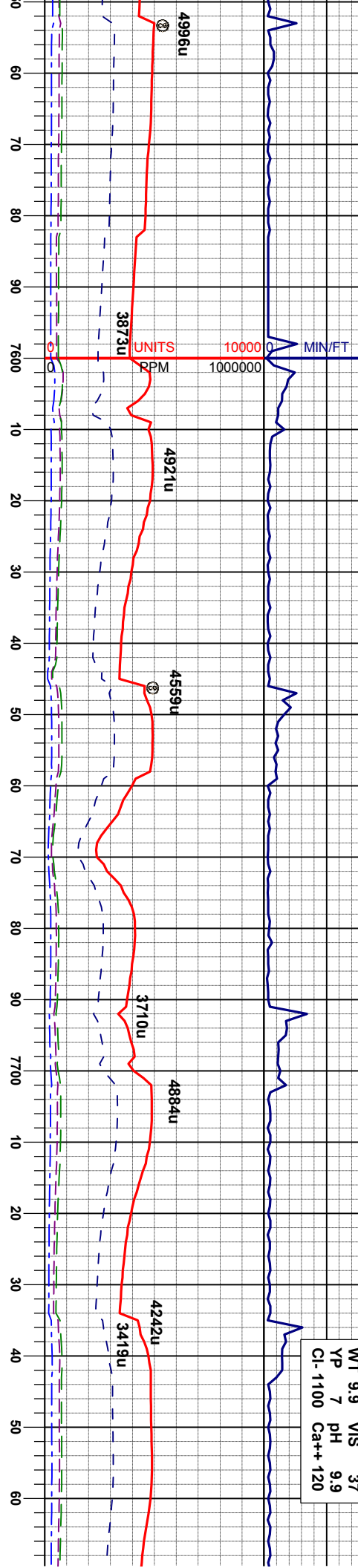


132	200	6240	0	APL
MD 7411'	INC 90.3°	AZI 176.5°	TVD 6339.9'	
CHK: lt-mgy-dkgy, mot-sft-sl firm, sl arg, sbblky-sbply, occ blk, rthy istr, vcalc, tr fos	CHK: lt-mgy-dkgy, mot-sft-sl firm, sl arg, sbblky-sbply, occ blk, rthy istr, vcalc, tr fos	CHK: lt-mgy-dkgy, mot-sft-sl firm, sl arg, sbblky-sbply, occ blk, rthy istr, vcalc, tr fos	CHK: lt-mgy-dkgy, mot-sft-sl firm, sl arg, sbblky-sbply, occ blk, rthy istr, vcalc, tr fos	CHK: lt-mgy-dkgy, mot-sft-sl firm, sl arg, sbblky-sbply, occ blk, rthy istr, vcalc, tr fos
MRL: m-dkgy, occ vdkgy, sft-mfirm, sbblky-sbply, occ ply, rthy-str, arg, org/calc mtb, mod calc, tr pyr	MRL: m-dkgy, occ vdkgy, sft-mfirm, sbblky-sbply, occ ply, rthy-str, arg, org/calc mtb, mod calc, tr pyr	MRL: m-dkgy, occ vdkgy, sft-mfirm, sbblky-sbply, occ ply, rthy-str, arg, org/calc mtb, mod calc, tr pyr	MRL: m-dkgy, occ vdkgy, sft-mfirm, sbblky-sbply, occ ply, rthy-str, arg, org/calc mtb, mod calc, tr pyr	MRL: m-dkgy, occ vdkgy, sft-mfirm, sbblky-sbply, occ ply, rthy-str, arg, org/calc mtb, mod calc, tr pyr



4/11/13

Depth: 7735'
WT 9.9 VIS 37
YP 7 pH 9.9
Cl- 1100 Ca++ 120



MD 7590'
INC 90.3°
AZI 180.0°
TVD 6340.9'

MD 7680'
INC 90.7°
AZI 176.0°
TVD 6340.1'

MD
INC
AZI
TVD

CHK: lt- mgy-dkgy, mot, sft- sl firm, sl arg, sbblky-sbply, occ blk, rthy lstr, vcalc, tr fos
MRL: m- dkgy, occ vdkgy, sft- mfirm, sbblky-sbply, occ pily, rthy-str, arg, org/calc mt, mod calc, tr pyr

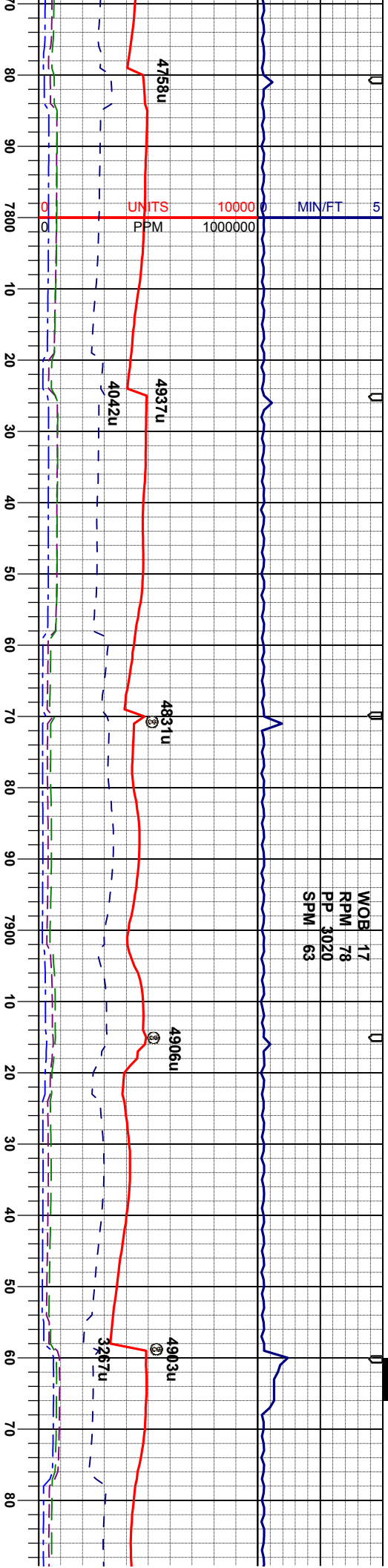
CHK: lt- mgy-dkgy, mot, sft- sl firm, sl arg, sbblky-sbply, occ blk, rthy lstr, vcalc, scat fos, tr pyr
SLTYSH: lgy-dkgy, sft-firm, sbblky-sbply, occ pily, occ sdy ip, tr glauc, sl calc

CHK: lt- mgy-dkgy, mot, sft- sl firm, sl arg, sbblky-sbply, occ blk, rthy lstr, vcalc, scat fos, tr pyr
SLTYSH: lgy-dkgy, sft-firm, sbblky-sbply, occ pily, occ sdy ip, tr glauc, sl calc

CHK: lt- mgy-dkgy, mot, sft- sl firm, sl arg, sbblky-sbply, occ blk, rthy lstr, vcalc, tr fos
MRL: m- dkgy, sft- mfirm, sbblky-sbply, occ pily, rthy-str, arg, org/calc mt, mod calc, tr pyr

CHK: lt- mgy-dk
sbblky-sbply, o
pyr
MRL: m- dkgy, s
occ pily, rthy-str
calc,





WOB 17
RPM 78
PP 3020
SPM 63

API 200

7770'
88.8°
176.7°
6340.5'

MD 7860'
INC 89.3°
AZI 176.1°
TVD 6342.0'

MD 7950'
INC 90.4°
AZI 176.5°
TVD 6342.2'

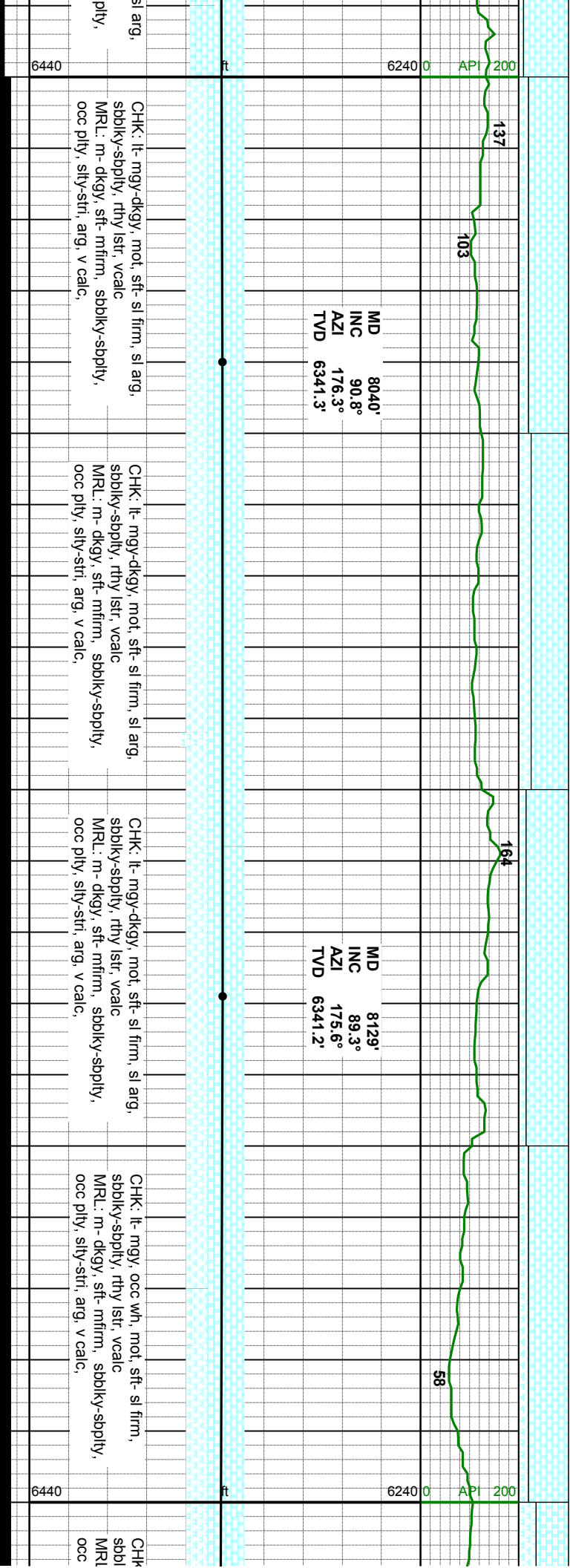
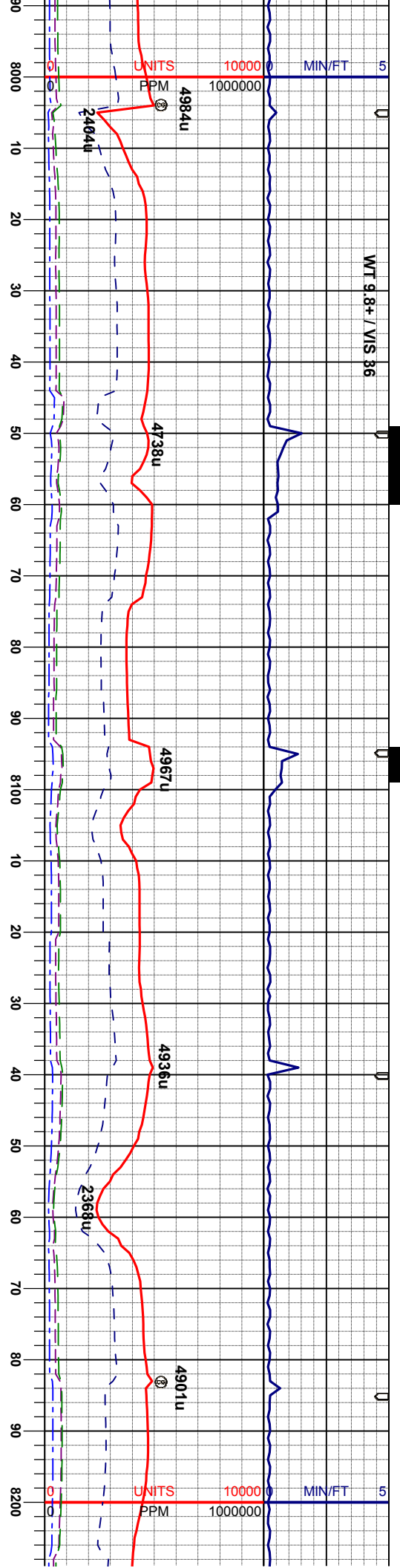
6440

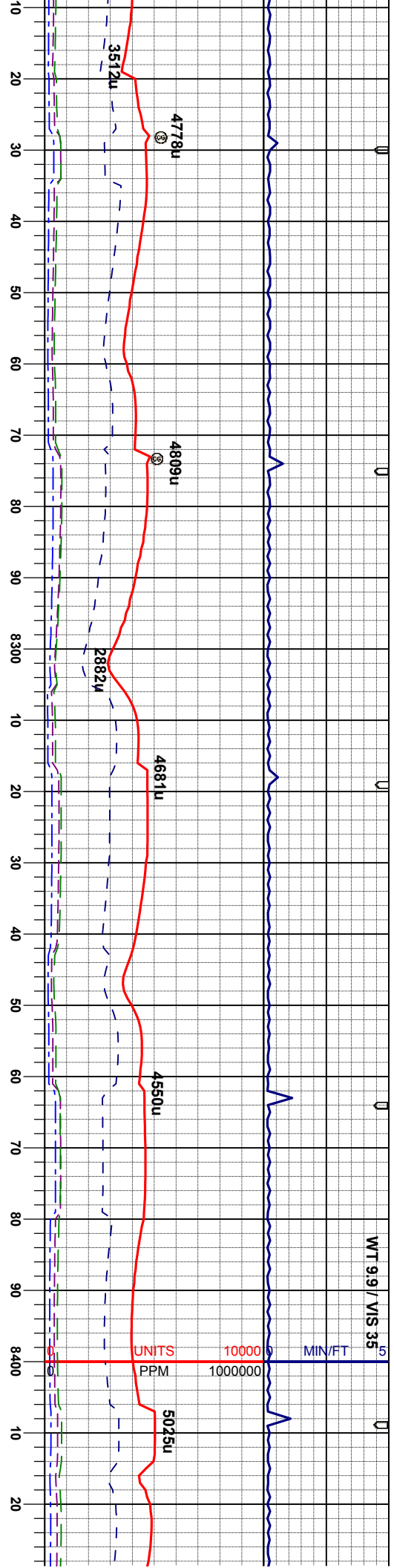
CHK: lt-mgy-dkgy, mot, sft-si firm, sl arg, sbbiky-sbpity, occ blk, rthy lstr, vcalc, tr
pyr
MRL: m-dkgy, sft-mfirm, sbbiky-sbpity, occ ply, rthy-str, arg, org/calc mix, mod calc,

CHK: lt-mgy-dkgy, mot, sft-si firm, sl arg, sbbiky-sbpity, rthy lstr, vcalc
MRL: m-dkgy, sft-mfirm, sbbiky-sbpity, occ ply, slty-str, arg, v calc,

CHK: lt-mgy-dkgy, mot, sft-si firm, sl arg, sbbiky-sbpity, rthy lstr, vcalc
MRL: m-dkgy, sft-mfirm, sbbiky-sb occ ply, slty-str, arg, v calc,







MD 8219'
INC 89.3°
AZI 174.0°
TVD 6342.3'

MD 8309'
INC 89.8°
AZI 174.9°
TVD 6343.0'

MD 8399'
INC 90.0°
AZI 174.4°
TVD 6343.1'

CHK: lt-mgy, occ wh, mod, sft-si firm, sblbky-sbply, rthy lst, vcalc
MRL: m-dkgy, sft-mfirm, sblbky-sbply, occ ply, silty-stri, arg, v calc

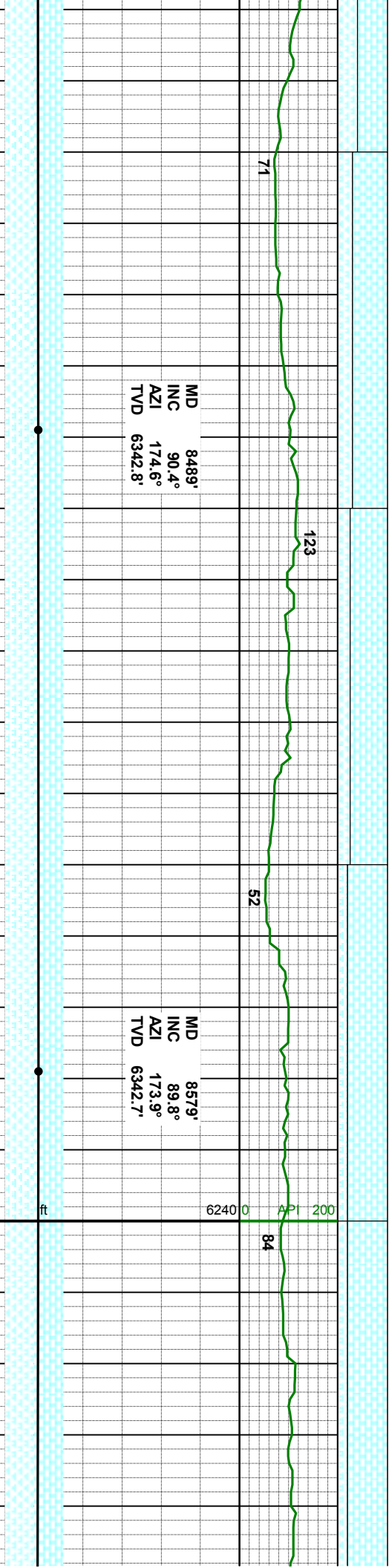
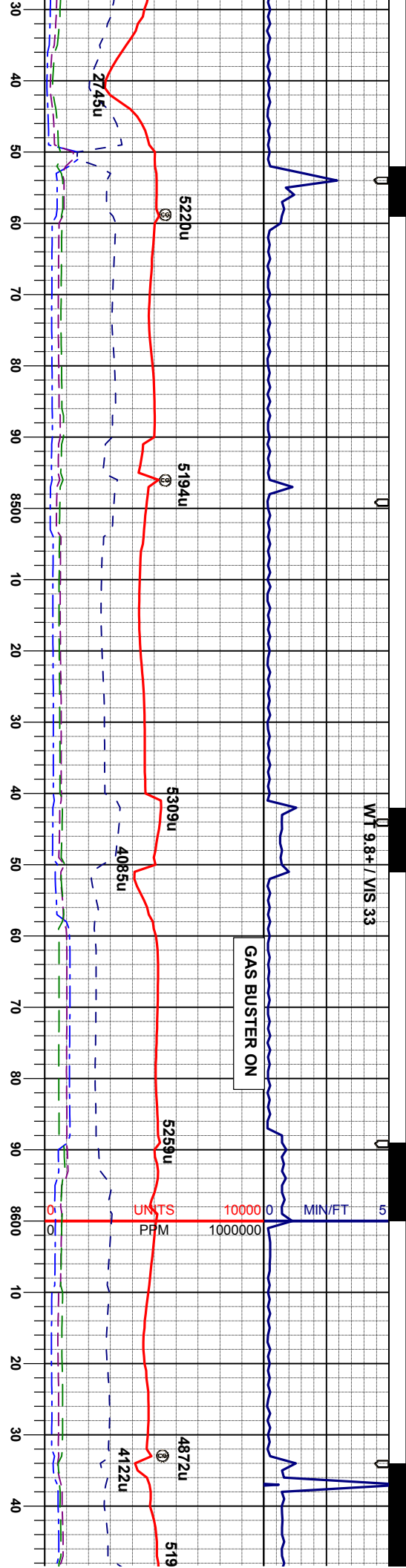
CHK: lt-mgy, occ wh, mod, sft-si firm, sblbky-sbply, rthy lst, vcalc
MRL: m-dkgy, sft-mfirm, sblbky-sbply, occ ply, silty-stri, arg, v calc

CHK: lt-mgy, occ wh, mod, sft-si firm, sblbky-sbply, rthy lst, vcalc
MRL: m-dkgy, sft-mfirm, sblbky-sbply, occ ply, silty, stri, arg, v calc

CHK: lt-mgy, occ wh, mod, sft-si firm, sblbky-sbply, rthy lst, vcalc
MRL: m-dkgy, sft-mfirm, sblbky-sbply, occ ply, silty, stri, arg, v calc

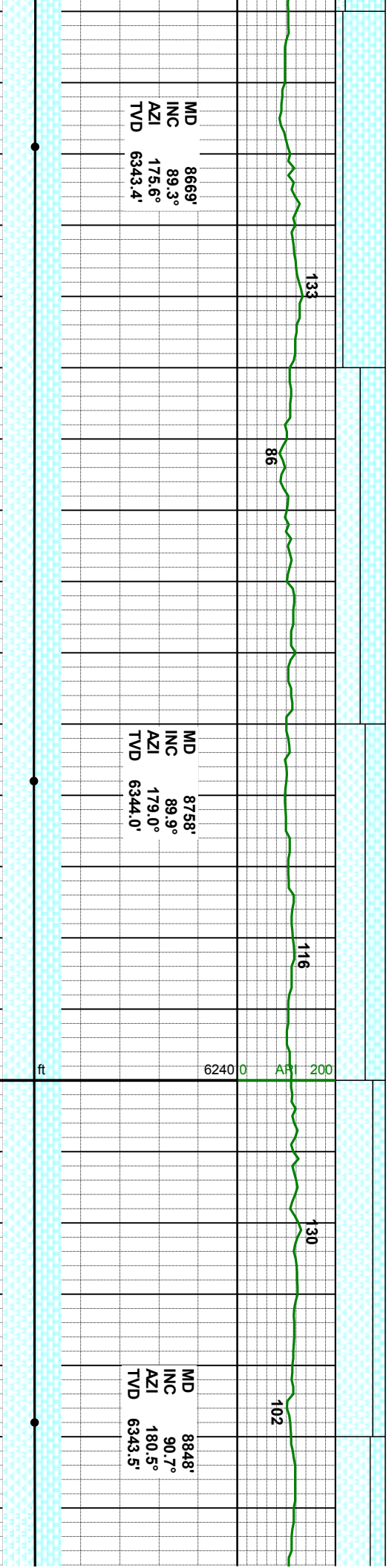
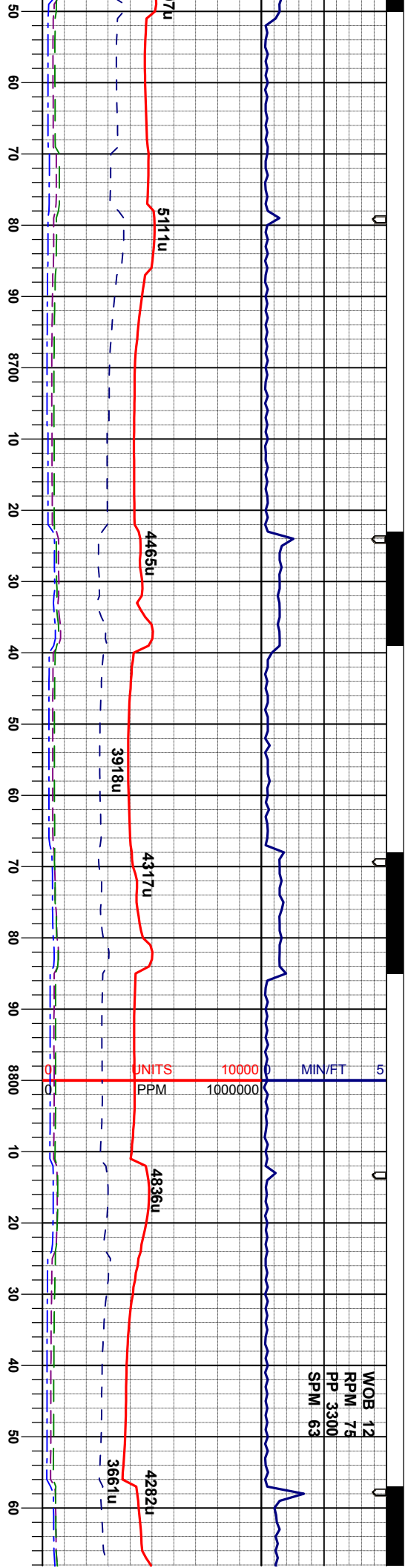
CHK: lt-mgy, occ wh, mod, sft-si firm, sblbky-sbply, rthy lst, vcalc
MRL: m-dkgy, sft-mfirm, sblbky-sbply, occ ply, silty, stri, arg, v calc





cht. sft- sl firm, calc sbbiky-sbply, occ ply, slty-str, arg, v calc,	CHK: lt- mgy, occ wh, mot, sl-mod firm, sbbiky-sbply, rthy lstr, vcalc MRL: m- dkgv, sft- mfirm, sbbiky-sbply, occ ply, slty-str, arg, v calc,	CHK: lt- mgy, occ wh, mot, sl-mod firm, sbbiky-sbply, rthy lstr, vcalc MRL: m- dkgv, sft- mfirm, sbbiky-sbply, occ ply, slty, stri, arg, v calc; abnt blk o	CHK: lt- mgy, occ wh, mot, sl-mod firm, sbbiky-sbply, rthy lstr, vcalc MRL: m- dkgv, sft- mfirm, sbbiky-sbply, occ ply, slty, stri, arg, v calc; abnt blk o	CHK: lt- mgy, occ wh, mot, sl-mod firm, sbbiky-sbply, rthy lstr, vcalc, tr calcite MRL: m- dkgv, sft- mfirm, fts-sbply, occ ply, slty, stri, arg, v calc; tr blk o
--	---	--	--	---





CHK: lt-mgy, occ wh, mot, sl-mod firm, sbblky-sbply, rthy lst, vcalc, tr calcite
MRL: m-dkgy, sft-mfirm, fis-sbply, occ ply, silty, stri, arg, v calc; tr blk o

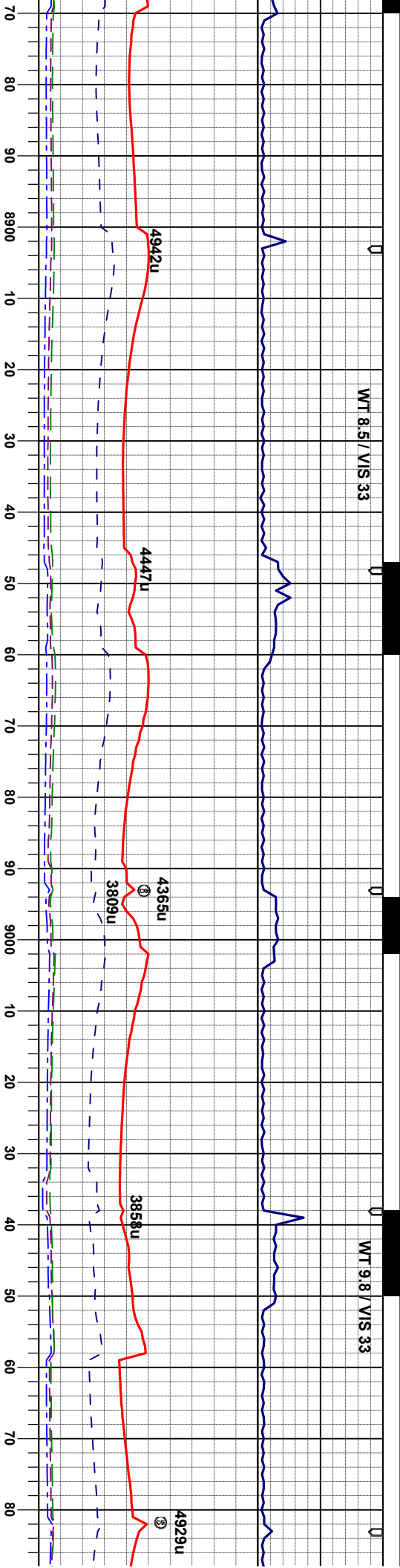
CHK: lt-mgy, occ wh, mot, sl-mod firm, sbblky-sbply, rthy lst, vcalc, mod calcite
 MRL: m-dkgy, sft-mfirm, fis-sbply, occ pty, silty, stri, arg, v calc; tr blk o

MR.: m- dkg, st- mfm, fis-sply, occ
ply, sly, stri, ag, v calc
CHK: lt- mgy, occ wh, mot, sl-mod firm,
sbbkly-sply, rthy lstr, vcal, mod calcite; tr
blk o

MRL, m-dkgy, sft-mfirm, fts-sbply, occ
 ply, slty, stri, arg, v calc
 CHK, lt-mgy, occ wh, mot, sl-mod firm,
 sbblky-sbply, rthy lstr, vcalc, mod calcite; tr
 blk o

MRL: m- dkg
pity,ilty,stri,
CHK: lt- mgy,
sbbiky-sbpity,
blk o





MD 8938'
INC 90.5°
AZI 179.1°
TVD 6342.6'

102

142

126

169

MD 9028'
INC 88.6°
AZI 176.5°
TVD 6343.3'

, sft- mfirm, fts-sbply, occ
arg, v calc
occ wh, mot, sl-mod firm,
rthy lst, vcalc, mod calcite; tr

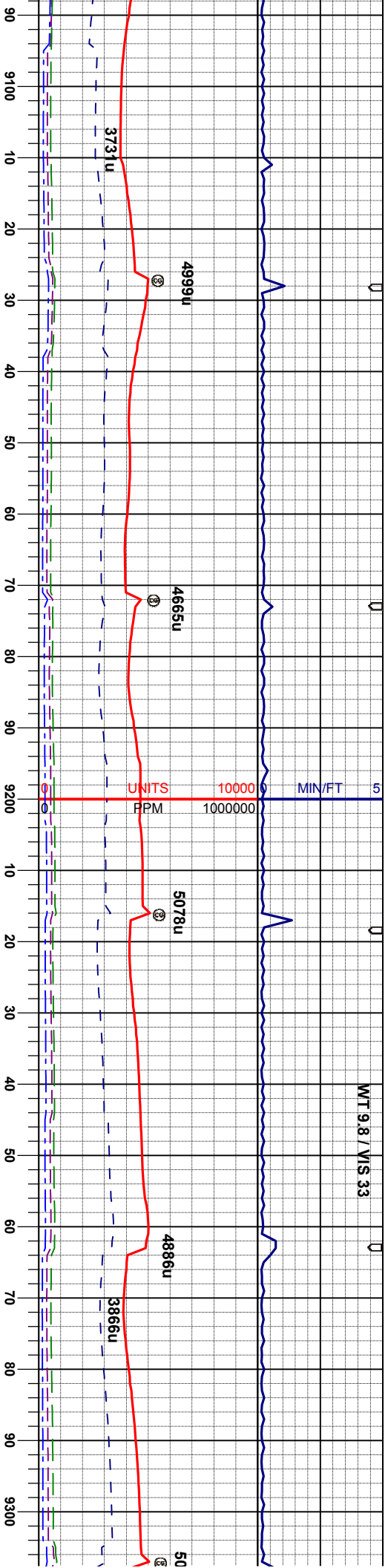
MRL: m- dkgy, sft- mfirm, fts-sbply, occ
ply, silty, str, arg, v calc
CHK: lt- mgy, occ wh, mot, sft-mod firm,
sbply-sbply, rthy lst, vcalc, mod calcite, tr
fos frag

MRL: m- dkgy, sft- mfirm, fts-sbply, occ
ply, silty, str, arg, v calc
CHK: lt- mgy, occ wh, mot, sft-mod firm,
sbply-sbply, rthy lst, vcalc, mod calcite, tr
fos frag

MRL: m- dkgy, occ blk, sl firm - firm, fts-
sbply, occ ply, silty, occ str, arg, v calc
CHK: lt- mgy, occ wh, mot, sft-mod firm,
sbply-sbply, rthy lst, vcalc, mod calcite, tr
fos frag

MRL: m- dkgy, occ blk, sl firm - firm
sbply, occ ply, silty, occ str, arg, v
CHK: lt- mgy, occ wh, mot, sft-mod
sbply-sbply, rthy lst, vcalc, mod c
fos frag





MD 9118'
INC 89.5°
AZI 175.8°
TVD 6344.8'

129

164

MD 9208'
INC 89.4°
AZI 176.5°
TVD 6345.6'

141

192

MD 9297'
INC 89.1°
AZI 173.5°
TVD 6346.8'

MRL: m-dkgy, occ blk, sl firm - firm, fis-sbply, occ pily, silty, tr stri, arg, v calc
CHK: lt-mgy, occ wh, mot, sft-mod firm, sbblky-sbply, rthy lst, vcalc, mod calcite, tr fos frag

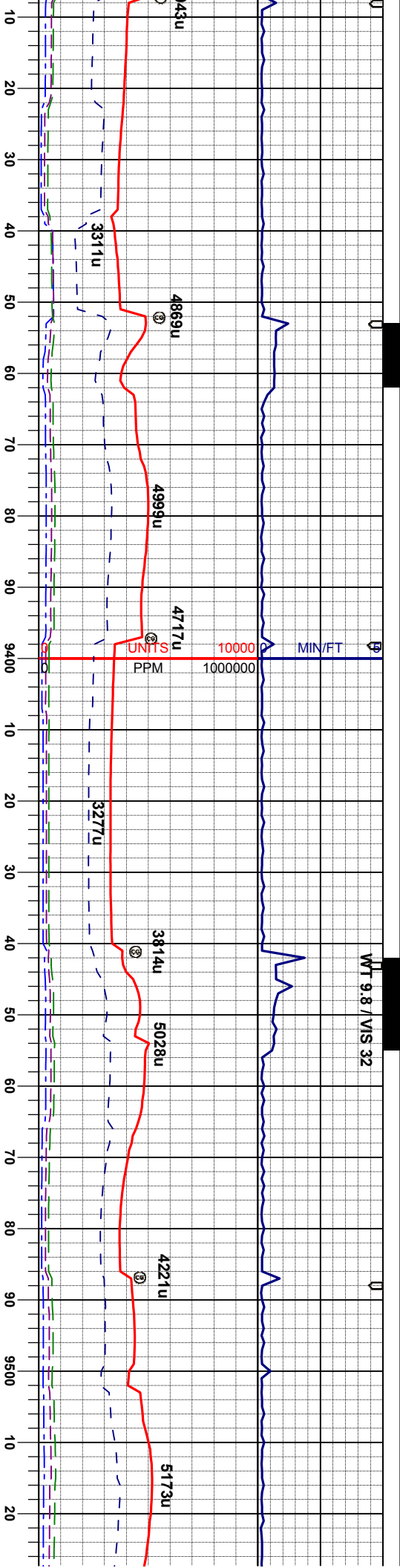
MRL: m-dkgy, occ blk, sl firm - firm, fis-sbply, occ pily, silty, tr stri, arg, v calc
CHK: lt-mgy, occ wh, mot, sft-mod firm, sbblky-sbply, rthy lst, vcalc, mod calcite, tr fos frag

MRL: m-dkgy, occ blk, sl firm - firm, fis-sbply, occ pily, silty, tr stri, arg, v calc, tr fos frag
CHK: lt-mgy, occ wh, mot, sft-mod firm, sbblky-sbply, rthy lst, vcalc, mod calcite

MRL: m-dkgy, occ blk, sl firm - firm, fis-sbply, occ pily, silty, tr stri, arg, v calc, tr fos frag, tr bent
CHK: lt-mgy, occ wh, mot, sft-mod firm, sbblky-sbply, rthy lst, vcalc, mod calcite

MRL: m-dkgy, occ blk, sl firm - firm, fis-sbply, occ pily, silty, tr stri, arg, v calc, tr fos frag, tr bent
CHK: lt-mgy, occ wh, mot, sft-mod firm, sbblky-sbply, rthy lst, vcalc, mod calcite



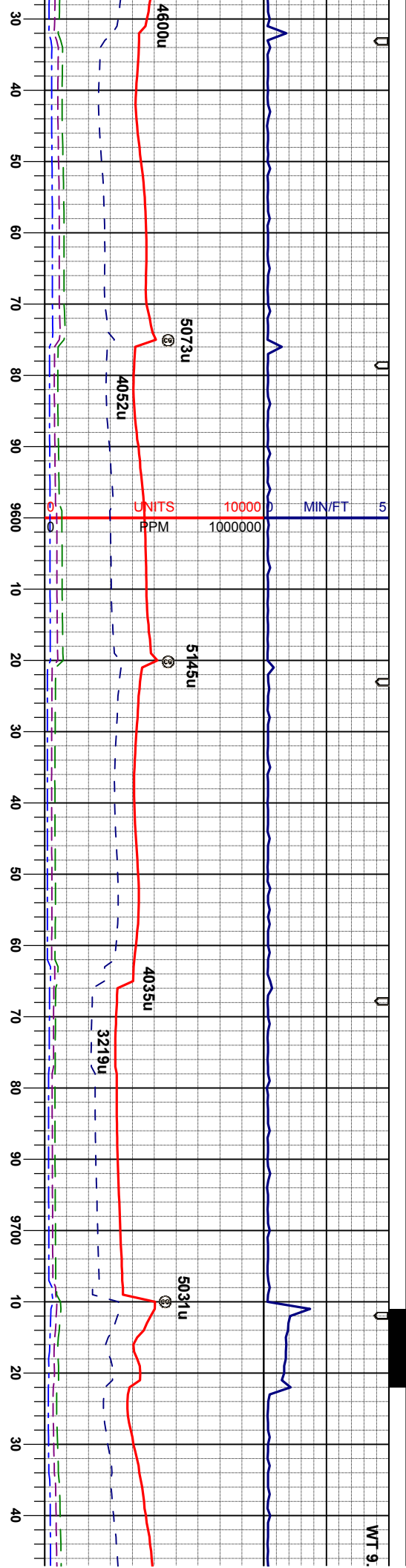


MD 9387'
INC 89.1°
AZI 174.2°
TVD 6348.2'

MD 9477'
INC 89.7°
AZI 175.6°
TVD 6349.2'

MRU: m- dkg, occ blk, sl firm - firm, fis- sbply, occ pily, silty, tr stri, arg, v calc, scat fos frag, tr bent	MRU: m- dkg, occ blk, sl firm - firm, fis- sbply, occ pily, silty, tr stri, arg, v calc, scat fos frag, tr bent	MRU: m- dkg, occ blk, sl firm - firm, fis- sbply, occ pily, silty, tr stri, arg, v calc, scat fos frag, tr bent	MRU: m- dkg, occ blk, sl firm - firm, fis- sbply, occ pily, silty, tr stri, arg, v calc, scat fos frag, tr bent
CHK: lt- mgy, occ wh, mot, sft-mod firm, sblky-sbply, rthy lstr, vcalc, mod calcite	CHK: lt- mgy, occ wh, mot, sft-mod firm, sblky-sbply, rthy lstr, vcalc, mod calcite	CHK: lt- mgy, occ wh, mot, sft-mod firm, sblky-sbply, rthy lstr, vcalc, mod calcite	CHK: lt- mgy, occ wh, mot, sft-mod firm, sblky-sbply, rthy lstr, vcalc, mod calcite
6440			





MD 9567'
INC 90.0°
AZI 177.4°
TVD 6349.4'

MD 9657'
INC 90.6°
AZI 177.6°
TVD 6348.9'

MD
INC
AZI
TVD

firm - firm, fis-
i, arg, v calc, tr fos
MR.L: m- dkgy, occ blk, sl firm - firm, fis-
sbply, occ ply, silty, tr stri, arg, v calc, tr fos
frag, tr bent
CHK: lt- mgy, occ wh, mot, sft-mod firm,
sbply-sbply, rthy lstr, vcalc, mod calcite

MR.L: m- dkgy, occ blk, sl firm - firm, fis-
sbply, occ ply, silty, tr stri, arg, v calc, tr fos
frag, tr bent
CHK: lt- mgy, occ wh, mot, sft-mod firm,
sbply-sbply, rthy lstr, vcalc, mod calcite

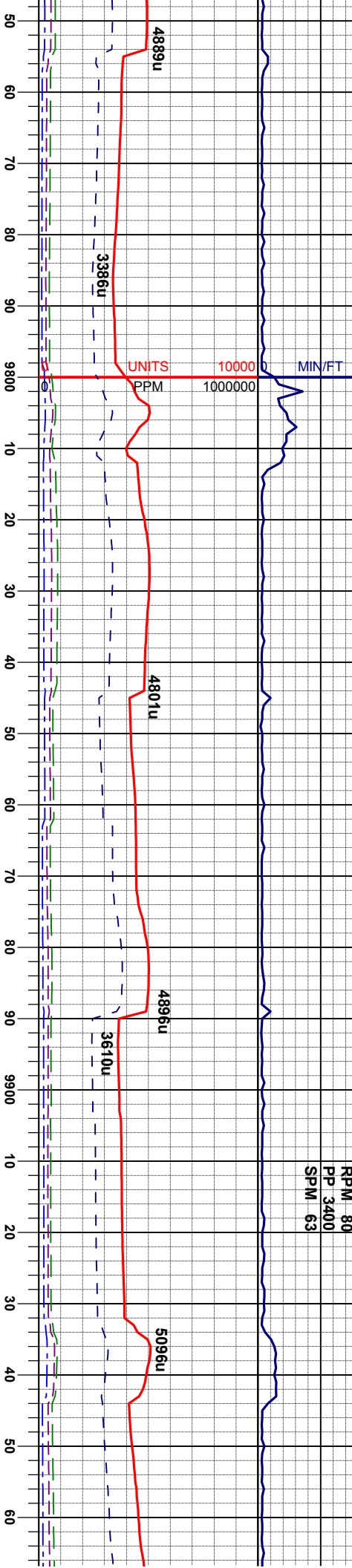
MR.L: m- dkgy, occ blk, sl firm - firm, fis-
sbply, occ ply, silty, tr stri, arg, v calc, tr fos
frag, tr bent
CHK: lt- mgy, occ wh, mot, sft-mod firm,
sbply-sbply, rthy lstr, vcalc, mod calcite



8 / VIS 36

WT 9.75 / VIS 36

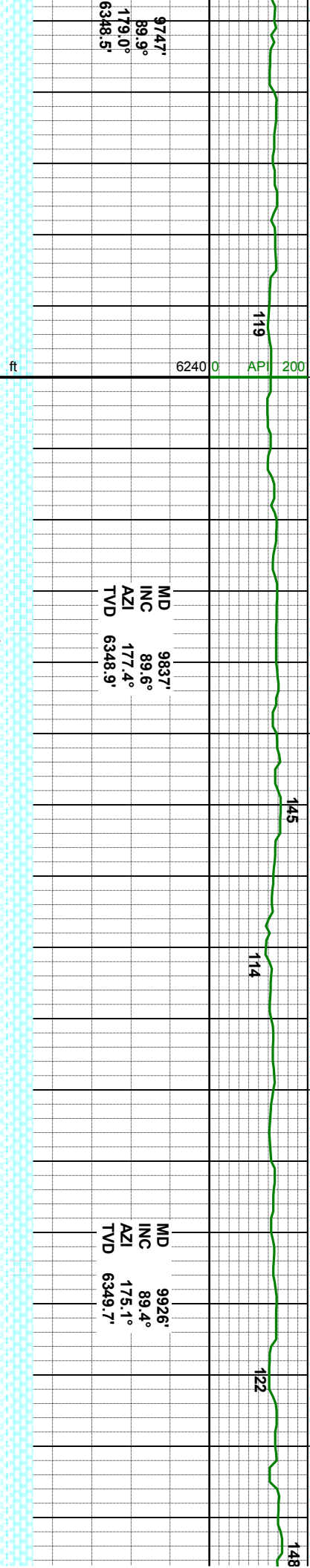
WOB 15
RPM 80
PP 3400
SPM 63



9747'
89.9°
179.0°
6348.5'

MD 9837'
INC 89.6°
AZI 177.4°
TVD 6348.9'

MD 9926'
INC 89.4°
AZI 175.1°
TVD 6349.7'



MRL: m- dkgy, occ blk, sl firm - firm, fis-
sbply, occ pily, silty, tr str, arg, v calc, tr fos
frag, tr bent
CHK: lt- mgy, occ wh, mot, sft-mod firm,
sbbky-sbply, rthy lstr, vcalc, mod calcite

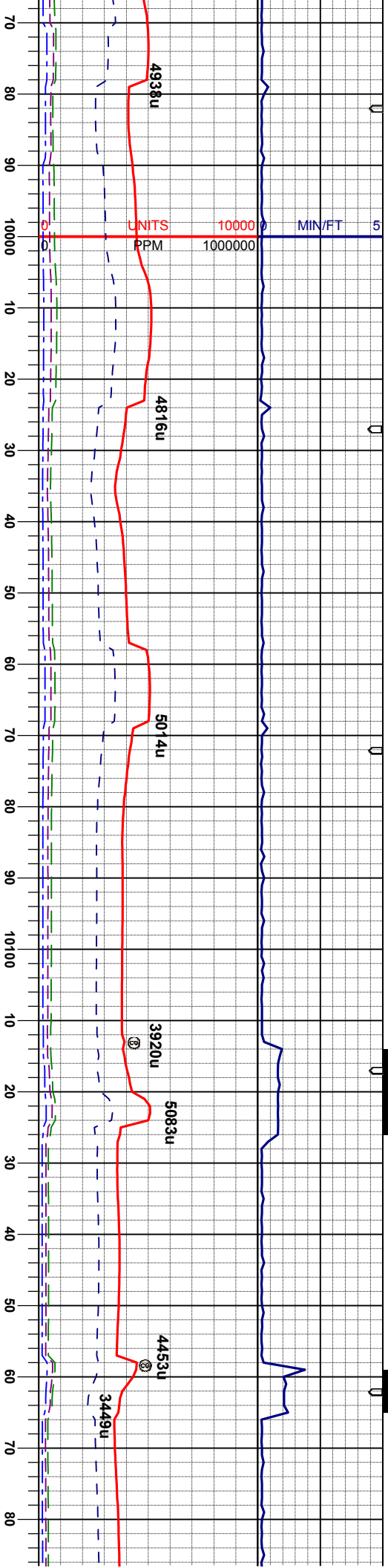
MRL: m- dkgy, occ blk, sl firm - firm, fis-
sbply, occ pily, silty, tr str, arg, v calc, tr fos
frag, tr bent
CHK: lt- mgy, occ wh, mot, sft-mod firm,
sbbky-sbply, rthy lstr, vcalc, mod calcite

MRL: m- dkgy, occ blk, sl firm - firm, fis-
sbply, occ pily, silty, tr str, arg, v calc, tr fos
frag, tr bent
CHK: lt- mgy, occ wh, mot, sft-mod firm,
sbbky-sbply, rthy lstr, vcalc, mod calcite

MRL: m- dkgy, occ blk, sl firm - firm, fis-
sbply, occ pily, silty, tr str, arg, v calc, tr fos
frag, tr bent
CHK: lt- mgy, occ wh, mot, sft-mod firm,
sbbky-sbply, rthy lstr, vcalc, mod calcite

MRL: m- dkgy,
sbply, occ pily
frag, tr bent
CHK: lt- mgy, ('
sbbky-sbply,





MD 10016'
INC 90.7°
AZI 177.0°
TVD 6349.6'

MD 10106'
INC 91.6°
AZI 177.2°
TVD 6347.8'

occ blk, sl firm - firm, fis-
silty, tr stri, arg, v calc, tr fos

MRL: m-dkgy, occ blk, sl firm - firm, fis-
silty, occ pily, silty, tr stri, arg, v calc, tr fos
frag, tr bent
CHK: lt-mgy, occ wh, mot, sft-mod firm,
sblky-silty, rthy istr, vcalc, mod calcite

MRL: m-dkgy, occ blk, sl firm - firm, fis-
silty, occ pily, silty, tr stri, arg, v calc, tr fos
frag, tr bent
CHK: lt-mgy, occ wh, mot, sft-mod firm,
sblky-silty, rthy istr, vcalc, mod calcite

MRL: m-dkgy, occ blk, sl firm - firm, fis-
silty, occ pily, silty, tr stri, arg, v calc, tr fos
frag, tr bent
CHK: lt-mgy, occ wh, mot, sft-mod firm,
sblky-silty, rthy istr, vcalc, mod calcite

MRL: m-dkgy, occ blk, sl firm - firm, fis-
silty, occ pily, silty, tr stri, arg, v calc, tr fos
frag, tr bent
CHK: lt-mgy, occ wh, mot, sft-mod firm,
sblky-silty, rthy istr, vcalc, mod calcite

6440

ft

6240 0 API 200

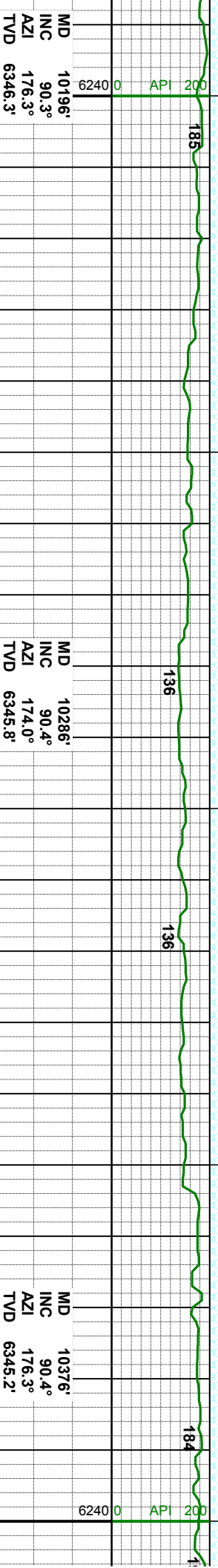
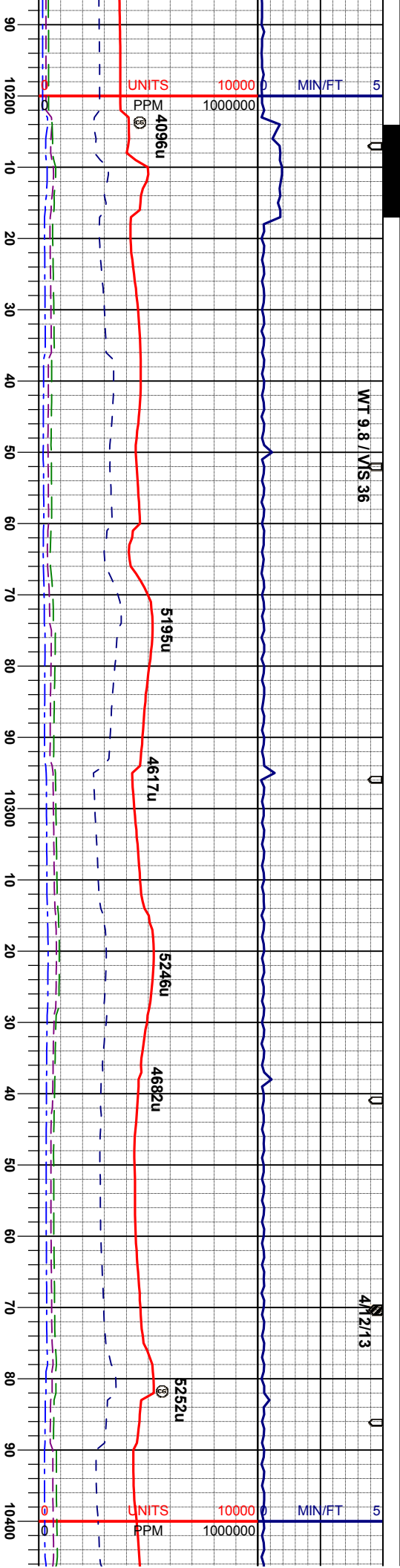
129

153

144

195



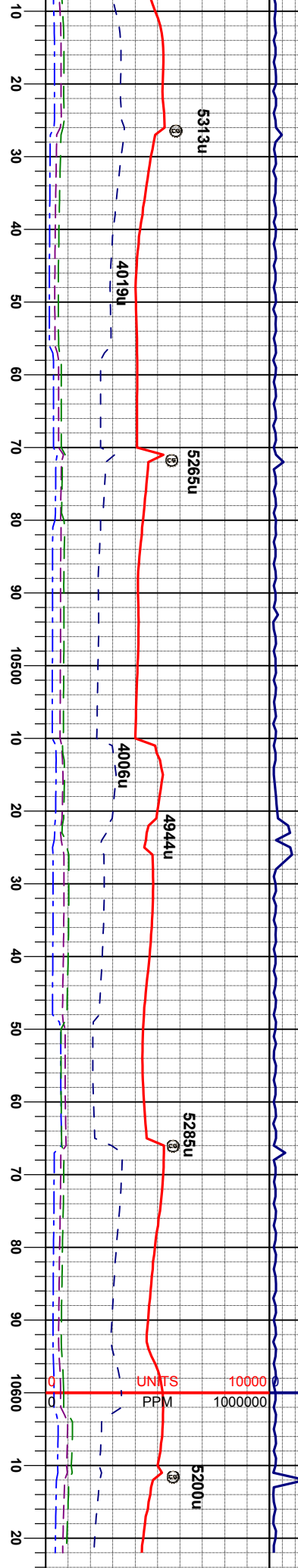


ft	ft	ft	ft
6440	6440	6440	6440
MRL: m- dkgy, occ blk, sl firm - firm, fis- spply, occ ply, silty, tr stri, arg, v calc, tr fos frag, tr bent	MRL: m- dkgy, occ blk, sl firm - firm, fis- spply, occ ply, silty, tr stri, arg, v calc, tr fos frag, tr bent	MRL: m- dkgy, occ blk, sl firm - firm, fis- spply, occ ply, silty, tr stri, arg, v calc, tr fos frag, tr bent	MRL: m- dkgy, occ blk, sl firm - firm, fis- spply, occ ply, silty, tr stri, arg, v calc, tr fos frag, tr bent
CHK: lt- mgy, occ wh, mot, sft-mod firm, sbbly-sbply, rthy lstr, vcalc, mod calcite	CHK: lt- mgy, occ wh, mot, sft-mod firm, sbbly-sbply, rthy lstr, vcalc, mod calcite	CHK: lt- mgy, occ wh, mot, sft-mod firm, sbbly-sbply, rthy lstr, vcalc, mod calcite	CHK: lt- mgy, occ wh, mot, sft-mod firm, sbbly-sbply, rthy lstr, vcalc, mod calcite



WOB 15 WT 9.85' VIS 36
RPM 80
PP 3400
SPM 63

Depth: 10621'
WT 10.0 VIS 39
YP 11 pH 9.1
Cl- 1050 Ca++ 160



MD 10466'
INC 90.8°
AZI 174.9°
TVD 6344.2'

MD 10566'
INC 89.9°
AZI 174.9°
TVD 6343.6'

Bit Projectic
MD 1066'
INC 89°
AZI 174°
TVD 6343°

L: m- dkgy, occ blk, sl firm - firm, fis-
sblly, occ pily, slty, tr stri, arg, v calc, tr fos
a, tr bent
K: lt- mgy, occ wh, mot, sft-mod firm,
sblly-sblly, rthy lstr, vcalc, mod calcite

MRL: m- dkgy, occ blk, sl firm - firm, fis-
sblly, occ pily, slty, tr stri, arg, v calc, tr fos
frag, tr bent
CHK: lt- mgy, occ wh, mot, sft-mod firm,
sblly-sblly, rthy lstr, vcalc, mod calcite

MRL: m- dkgy, occ blk, sl firm - firm, fis-
sblly, occ pily, slty, tr stri, arg, v calc, tr fos
frag, tr bent
CHK: lt- mgy, occ wh, mot, sft-mod firm,
sblly-sblly, rthy lstr, vcalc, mod calcite

ft 6440 6240 0 API 200



