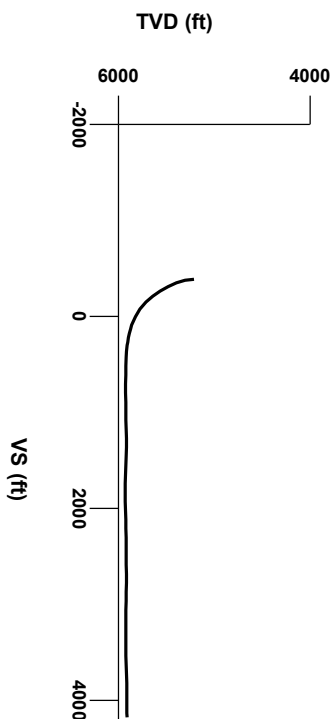


LOG created using LPLOT VH Version 3.0, February 10, 2013, Copyright (C) 1999-2009 Pason Systems Corp.

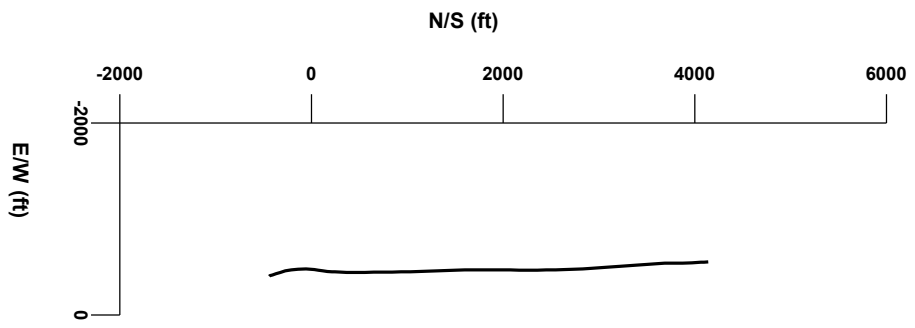
OPERATOR: NOBLE ENERGY INC.
WELL: TIMBRO FEDERAL LD17-76HN
LOCATION: SESW SEC 17, T9N, R58W
COUNTY: WELD
STATE: COLORADO
SPOT: 501' FSL, 2412' FWL
ELEVATION: GR 4,868' KB 4,898'
FIELD: WILDCAT
SPUD DATE: 02/03/2013
TD DATE: 02/09/2013
DATES LOGGED: 02/05/2013 - 02/09/2013
DEPTHS LOGGED: 5200' MD - 10251' MD
LOGGERS: ANDREA ZUIDEMA, LAURA KELLOGG
DRILLING FLUID: LSND
DRILLING RIG: H&P 326
API: 05-123-33087
LOG TYPE: HORIZONTAL
SCALE: 1:240 (5 inches per 100 feet)
REMARKS: WELLSITE GEOLOGICAL SERVICES
 PROVIDED BY COLUMBINE LOGGING INC.



Survey Elevation

6000

Survey Plan



LITHOLOGIES

Chalk

Marl

Silty Shale

ENGINEERING SYMBOLS

▲

Casing

▲

Casing

□

Connection

⊗

Connection Gas

■

Midnight Depth

⬇

Oil To Surface

↗

Reverse Fault

GAS

0

UNITS

3000

C1

0

PPM

300000

C2

0

PPM

300000

C3

0

PPM

300000

C4

0

PPM

300000

DEPTH (FEET)

5110

20

30

40

50

60

70

80

90

5200

10

20

30

40

50

60

ROP

0

FT/HR

1000

BHA BIT:

SEC 8.75", FXD 55M

Serial #: 12034931

Jets: 5x14

COLUMBINE LOGGING INC.

RIGGED UP ON 02/04/2013

MANNED 2-PERSON LOGGING

WITH BLOODHOUND GAS

CHROMATOGRAPH UNIT #0298

COLUMBINE BEGAN LOGGING

ON 02/04/2013

BEGAN DRILLING CURVE

@ 8:48 PM 02/05/2013

2057U

C1: 84.5%

C2: 6.1%

C3: 6.5%

C4: 2.9%

1616u

CUTTINGS LITHOLOGY

GAMMA RAY

30

API

200

TVD

ft

5000

7000

79

WT IN 9.70/O

VIS IN 42/O

SLTYSH: m - lt gy-brn, occ dk gy, sft - mod

firm, sbblky - sbply, rthy-gt mtx, noncalc

SLTYSH: m - lt gy-brn, occ dk gy, sft - mod

firm, sbblky - sbply, rthy-gt mtx, noncalc

OIL SHOWS

TFG

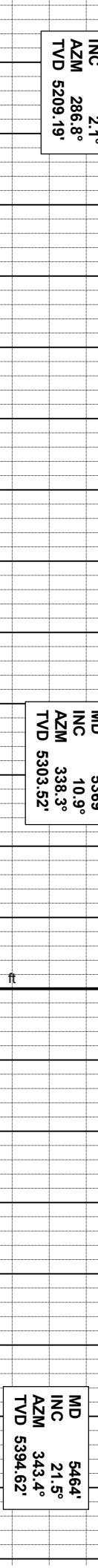
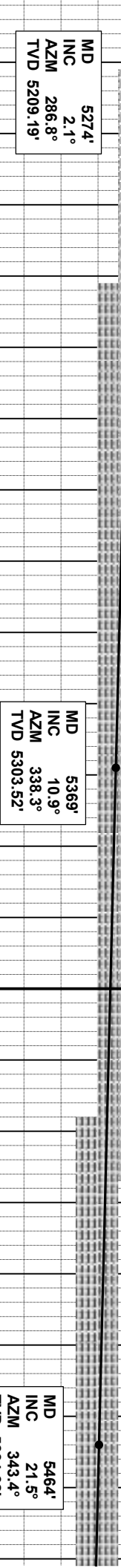
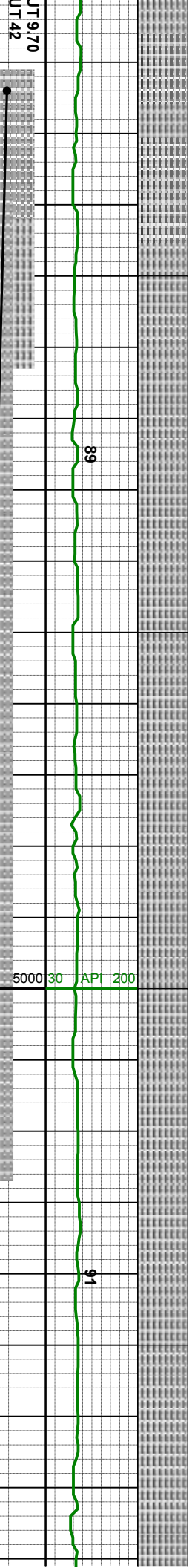
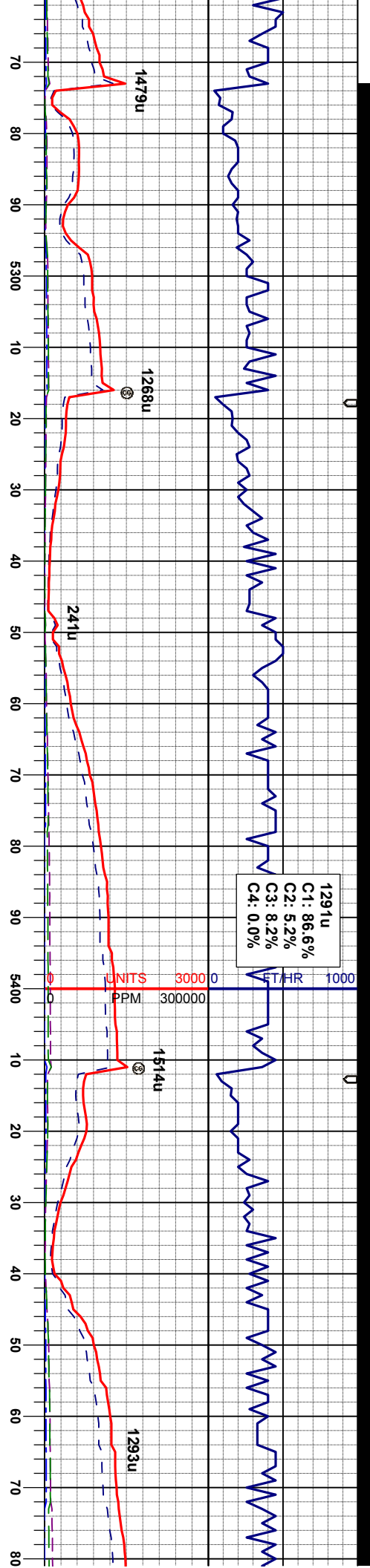
7000

ft

5000

7000

SAMPLE PHOTOS



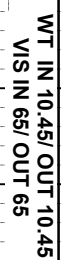
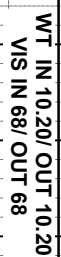
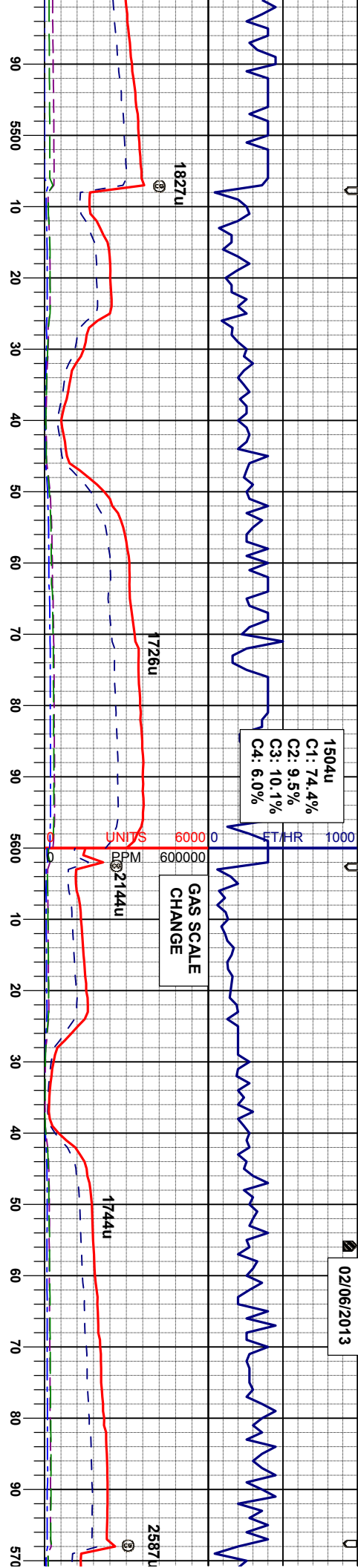
SLTYSH: m - lt gy-brn, occ dk gy, sft - mod
firm, sbblky - sbply, rthy-gt mtx, noncalc

SLTYSH: m - lt gy-brn, occ dk gy, sft - mod
firm, sbblky - sbply, rthy-gt mtx, noncalc

SLTYSH: m - lt gy-brn, occ dk gy, sft - mod
firm, sbblky - sbply, rthy-gt mtx, noncalc

SLTYSH: m - lt gy-brn, occ dk gy, sft - mod
firm, sbblky - sbply, rthy-gt mtx, noncalc





MD	5559'
INC	27.9°
AZM	342.7°
TVD	5480.89'

MD	5654'
INC	32.8°
AZM	340.4°
TVD	5562.84'

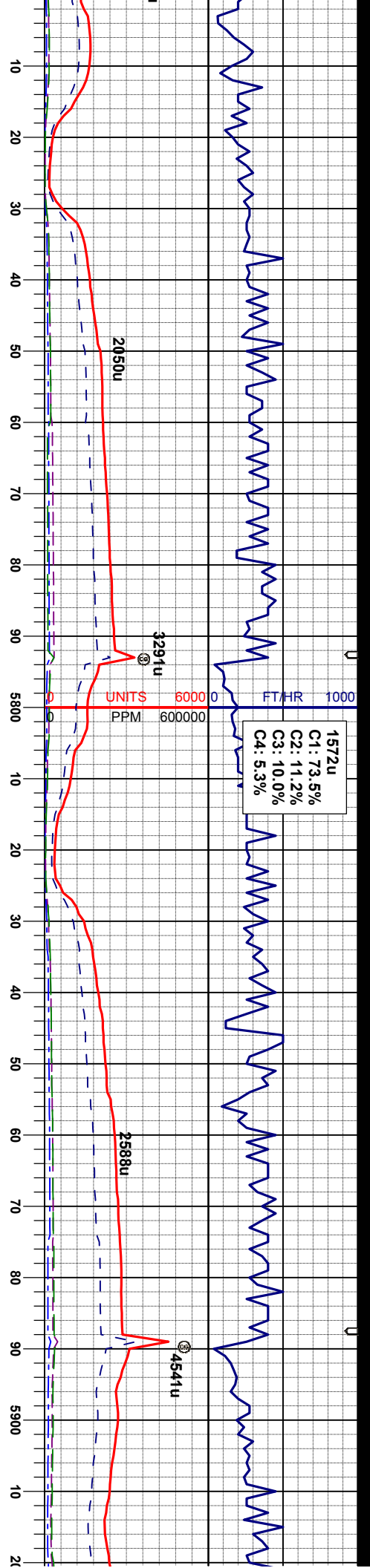
c dk gy, sft - mod
t mtX, noncalc

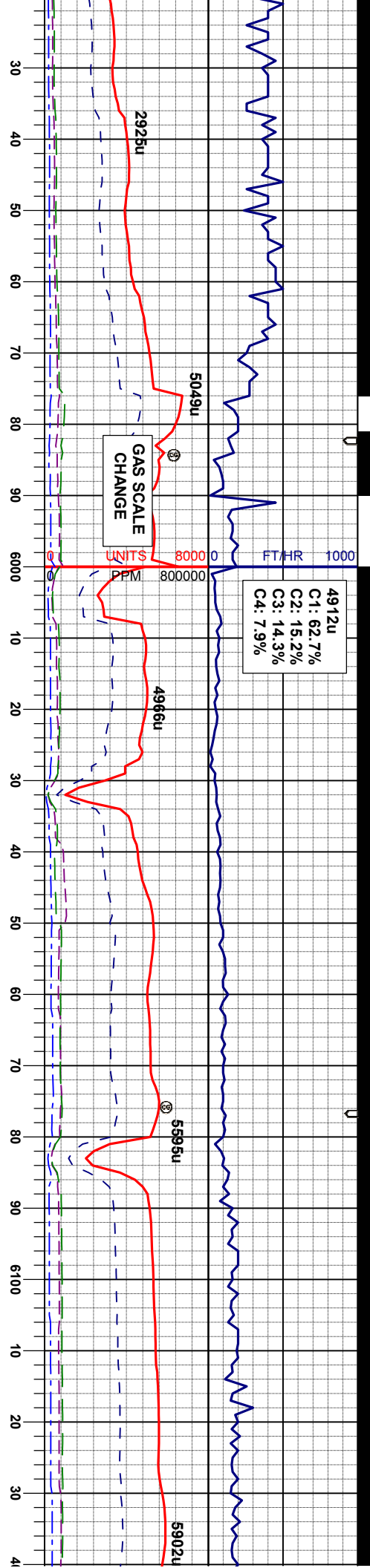
SLTYSH: m - lt gy-brn, occ dk gy, sft - mod firm, sbblky - sbply, rthy-gt mtx, noncalc

SLTYSH: m - lt gy-brn, occ dk gy, sft - mod firm, sbolky - spoly, rthy-gt mtx, noncalc

SLTYSH: m - lt gy-brn, occ dk gy, sft - mod firm, sbblky - spply, rthy-gt mtx, noncalc

SLTYSH: m - lt gy-brn, occ dk gy, sft - mod firm, sbblky - sbply, rthy-gt mtx, noncalc





4912u
C1: 62.7%
C2: 15.2%
C3: 14.3%
C4: 7.9%

GAS SCALE
CHANGE

UNITS
PPM

SHARON SPRINGS
MARKER BED @
5949' MD/ 5778'TVD

WT IN 10.50/ OUT 10.50
VIS IN 43/ OUT 43

NIOBRARA TOP @
5993'MD/ 5801'TVD

MD 6034'
INC 62.4°
AZM 358.5°
TVD 5823.05'

NIO A CHALK @
6020'MD/ 5815'TVD

WT IN 10.55/ OUT 10.55
VIS IN 42/ OUT 42

NIO A MARL @
6081'MD/ 5841'TVD

MD 6129'
INC 71.9°
AZM 8.4°
TVD 5859.97'

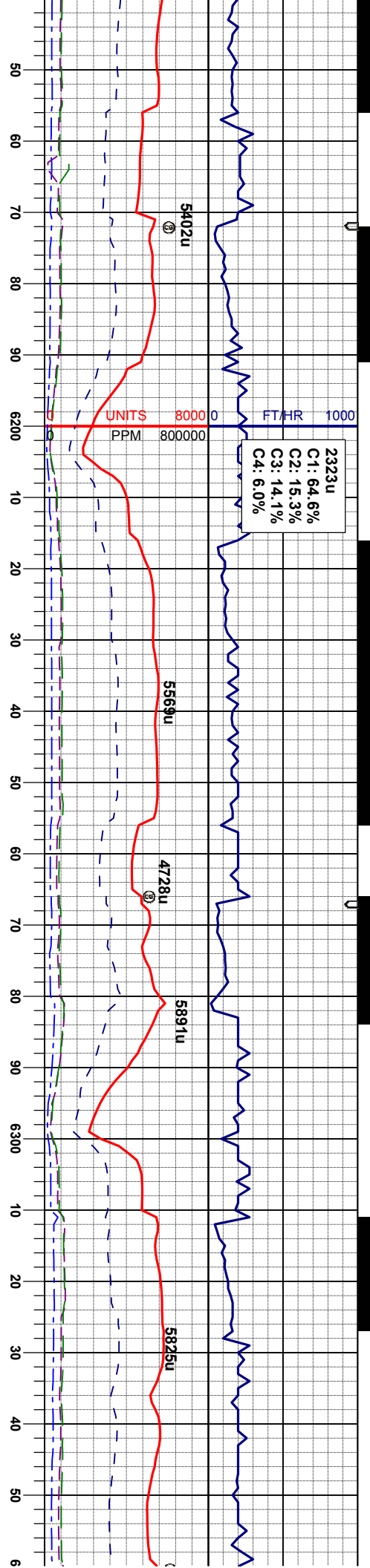
MD 5939'
INC 54.9°
AZM 357.0°
TVD 5773.79'

SLTYSH: m - lt gy-brn, occ dk gy, sft - mod
firm, sbblky - sbply, rthy-gt mtx, tr pyr, tr
bent, sicalc

SLTYSH: m - lt gy-brn, occ dk gy, sft - mod
firm, sbblky - sbply, rthy-gt mtx, tr pyr, tr
bent, tr fos, sicalc
CHK: lt-mgy, dkgy, sme tan, sft-si firm,
sbply-sbblky, mot-rthy, v calc
MRL: mgy-gyblk, sbblky-sbply, smeifs,
ply, si firm, slt-slmot, calc

CHK: lt-mgy, dkgy, sme tan, sft-si firm,
sbply-sbblky, mot-rthy, tr fos, tr bent, v
calc, grdg-
MRL: mgy-gyblk, sbblky-sbply, smeifs,
ply, si firm, slt-slmot, calc

MRL: mgy-gyblk, sbblky-sbply, smeifs,
ply, si firm, slt-slmot, calc
CHK: lt-mgy, dkgy, sme tan, sft-si fir
sbply-sbblky, mot-rthy, tr fos, tr bent



MD 6174'
INC 74.7°
AZM 9.8°
TVD 5872.90'

MD 6224'
INC 77.3°
AZM 8.2°
TVD 5885.00'

MD 6269'
INC 80.1°
AZM 5.2°
TVD 5893.82'

MD 6319'
INC 80.8°
AZM 3.3°
TVD 5902.11'

MD 6351'
INC 81.3°
AZM 2.2°
TVD 5907.09'

MRL: mgy-gyblk, sbblky-sbply, smefis, pily, sl firm, silt-slmot, calc
CHK: lt-mgy, dkgy, sme tan, sft-sl firm, sbply-sbblky, mot-rthy, tr fos, tr bent, v calc

MRL: mgy-gyblk, sbblky-sbply, smefis, pily, sl firm, silt-slmot, calc
CHK: lt-mgy, dkgy, sme tan, sft-sl firm, sbply-sbblky, mot-rthy, tr fos, tr bent, v calc

MRL: mgy-gyblk, sbblky-sbply, smefis, pily, sl firm, silt-slmot, calc, grdg - calc, pale yel flr
CHK: lt-mgy, dkgy, sme tan, sft-sl firm, sbply-sbblky, mot-rthy, tr fos, tr bent, v calc, pale yel flr

CHK: lt-mgy, dkgy, sme tan, sft-sl firm, sbply-sbblky, mot-rthy, tr fos, tr bent, v calc, pale yel flr
MRL: mgy-gyblk, sbblky-sbply, smefis, pily, sl firm, silt-slmot, calc

TD Curve
Intermediate
Casing - 6392' MD
@ 09:35 AM 02/06/2013

02/07/2013
02/08/2013

Drilled out of
7" Casing
@ 03:13 AM
02/08/2013

430u
C1: 98.7%
C2: 0.0%
C3: 1.3%
C4: 0.0%

BHA BIT:
SMITH 6.125", SDI 513
Serial #: JG6630
Jets: 5x11

FT/HR

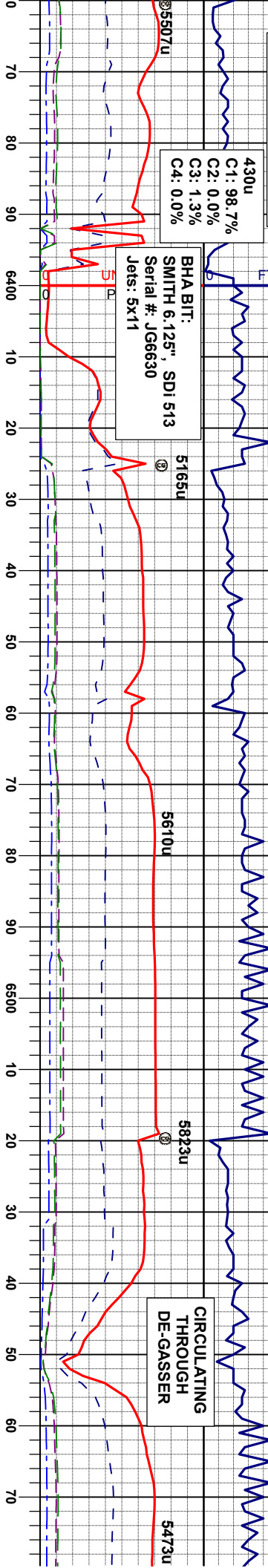
5165u

5610u

5823u

CIRCULATING
THROUGH
DE-GASSER

5473u



MD 6414'
INC 84.4°
AZM 1.9°
TVD 5914.93'

MD 6476'
INC 86.6°
AZM 2.0°
TVD 5919.20'

MD 6569'
INC 89.6°
AZM 0.1°
TVD 5922.88'

7000 ft

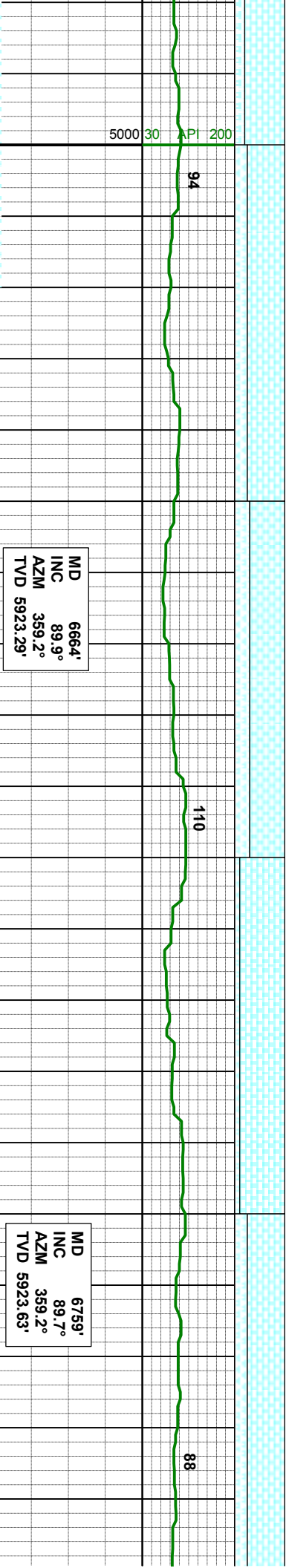
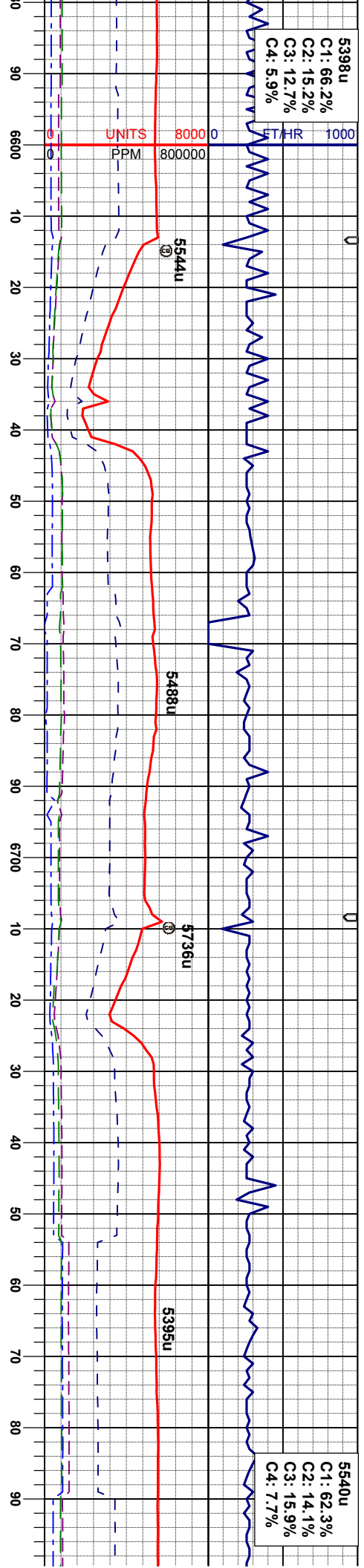
CHK: lt-mgy, dkgy, sme tan, sft-sl firm,
sbply-sbblky, mot-rthy, tr fos, tr bent, v
calc, pale yel flor
MRL: mgy-gyblk, sbblky-sbply, smeifs,
ply, sl firm, silt-slmot, calc

CHK: lt-mgy, dkgy, sme tan, sft-sl firm,
sbply-sbblky, mot-rthy, tr fos, tr bent, v
calc, pale yel flor
MRL: mgy-gyblk, sbblky-sbply, smeifs,
ply, sl firm, silt-slmot, calc

CHK: lt-mgy, dkgy, sme tan, sft-sl firm,
sbply-sbblky, mot-rthy, tr fos, tr bent, v
calc, pale yel flor
MRL: mgy-gyblk, sbblky-sbply, smeifs,
ply, sl firm, silt-slmot, calc

CHK: lt-mgy, dkgy, sme tan, sft-sl firm,
sbply-sbblky, mot-rthy, tr fos, tr bent, v
calc, pale yel flor
MRL: mgy-gyblk, sbblky-sbply, smeifs,
ply, sl firm, silt-slmot, calc





CHK: lt-mgy, dkgy, sme tan, sft-si firm, sbply-sbblky, mot-rthy, occ fos, v calc, pale yel flr

MRL: mgy-gyblk, sbblky-sbply, smeifs, pily, si firm, silt-slmot, tr calc incl, calc

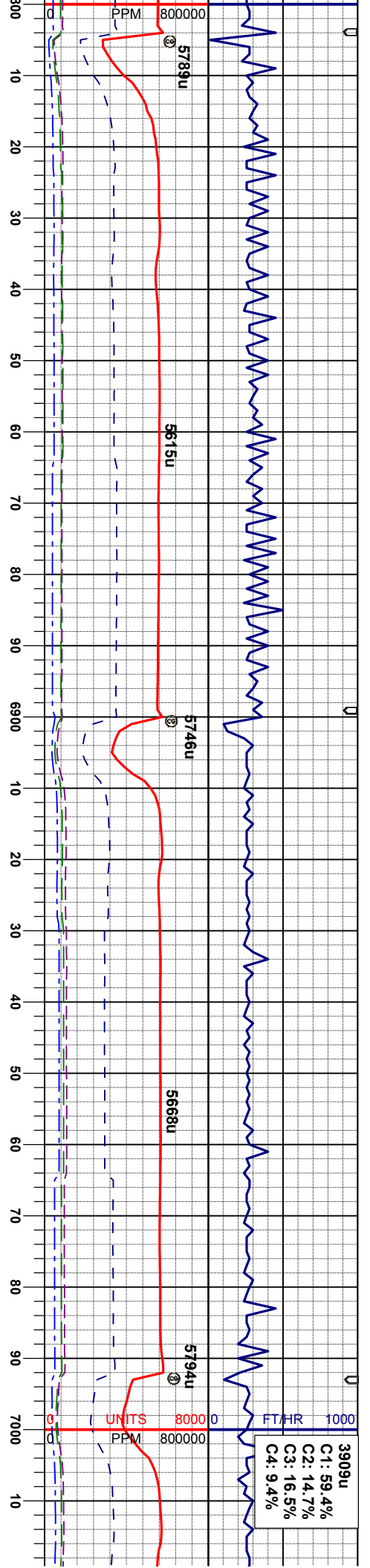
CHK: lt-mgy, dkgy, sme tan, sft-si firm, sbply-sbblky, mot-rthy, occ fos, v calc, pale yel flr

MRL: mgy-gyblk, sbblky-sbply, smeifs, pily, si firm, silt-slmot, tr calc incl, calc

CHK: lt-mgy, dkgy, sme tan, sft-si firm, sbply-sbblky, mot-rthy, occ fos, v calc, pale yel flr

MRL: mgy-gyblk, sbblky-sbply, smeifs, pily, si firm, silt-slmot, tr calc incl, calc





MD 6854'
INC 90.1°
AZM 359.6°
TVD 5923.79'

MD 6949'
INC 90.6°
AZM 359.2°
TVD 5923.21'

WT IN 9.90/ OUT 9.90
VIS IN 36/ OUT 36

CHK: lt-mgy, dkgy, sme tan, sft-sl firm, sbply-sbblky, mot-rthy, occ fos, v calc, pale yel flor
MRL: mgy-gyblk, sbblky-sbply, smefts, pty, sl firm, sft-slmot, tr calc incl, calc

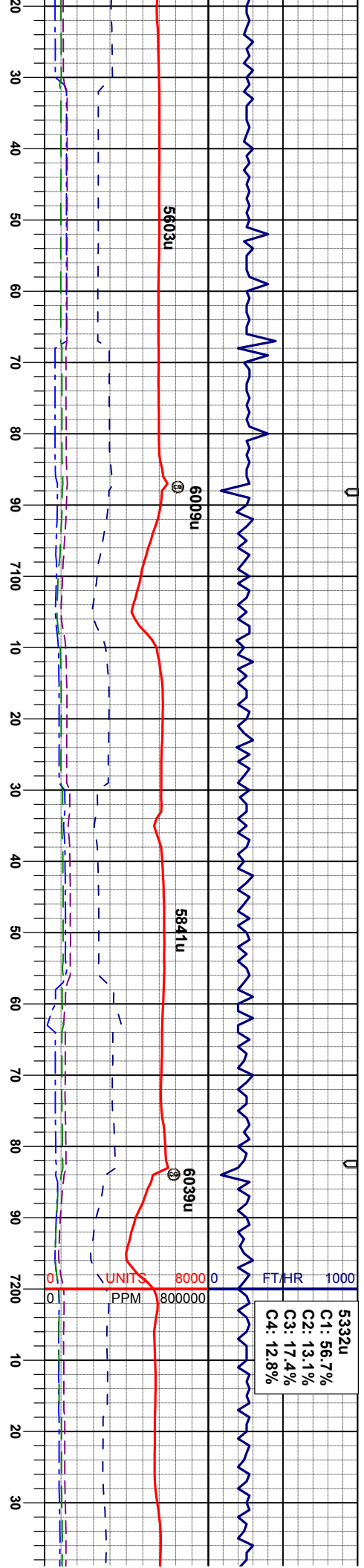
CHK: lt-mgy, dkgy, sme tan, sft-sl firm, sbply-sbblky, mot-rthy, occ fos, v calc, pale yel flor
MRL: mgy-gyblk, sbblky-sbply, smefts, pty, sl firm, sft-slmot, tr calc incl, calc

CHK: lt-mgy, dkgy, sme tan, sft-sl firm, sbply-sbblky, mot-rthy, tr fos, v calc, pale yel flor
MRL: mgy-gyblk, sbblky-sbply, smefts, pty, sl firm, sft-slmot, tr calc incl, calc

CHK: lt-mgy, dkgy, sme tan, sft-sl firm, sbply-sbblky, mot-rthy, tr fos, v calc, pale yel flor
MRL: mgy-gyblk, sbblky-sbply, smefts, pty, sl firm, sft-slmot, tr calc incl, calc

CHK: lt-mgy, dkgy, sme tan, sft-sl firm, sbply-sbblky, mot-rthy, tr fos, v calc, pale yel flor
MRL: mgy-gyblk, sbblky-sbply, smefts, pty, sl firm, sft-slmot, tr calc incl, calc





MD 7043'
INC 90.9°
AZM 358.7°
TVD 5921.98'

MD 7138'
INC 91.3°
AZM 358.7°
TVD 5920.16'

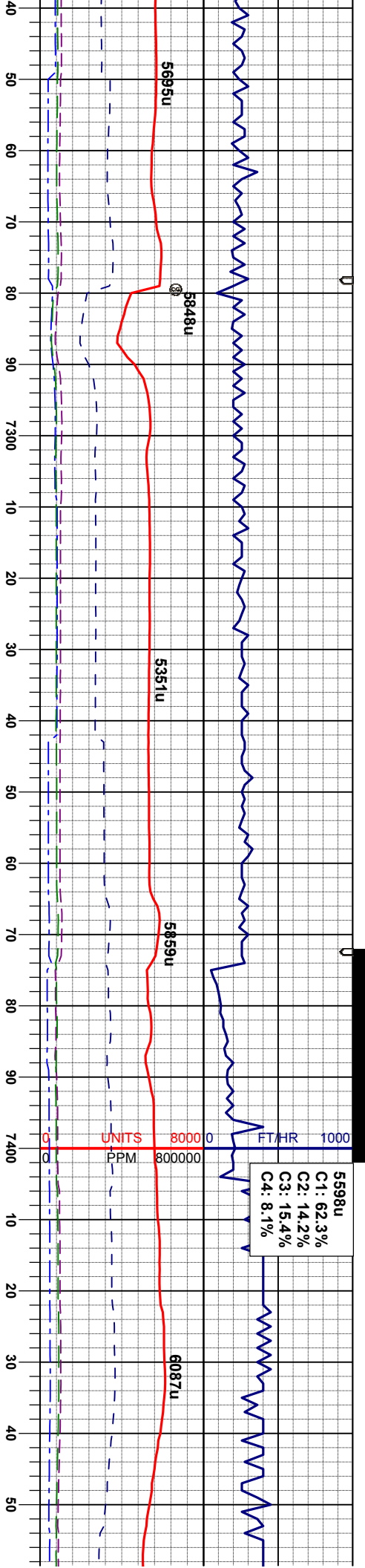
MD 723'
INC 91.4°
AZM 357.8°
TVD 5917.92'

gy, sme tan, sft-si firm, mot-rthy, tr fos, v calc, pale
CHK: lt-mgy, dkgy, sme tan, sft-si firm, sbply-sbblky, mot-rthy, tr fos, v calc, pale yel flor
MRL: mgy-gyblk, sbblky-sbply, smefts, pty, si firm, sft-slmot, tr calc incl, calc

CHK: lt-mgy, dkgy, sme tan, sft-si firm, sbply-sbblky, mot-rthy, tr fos, v calc, pale yel flor
MRL: mgy-gyblk, sbblky-sbply, smefts, pty, si firm, sft-slmot, tr calc incl, calc

CHK: lt-mgy, dkgy, sme tan, sft-si firm, sbply-sbblky, mot-rthy, tr fos, v calc, pale yel flor
MRL: mgy-gyblk, sbblky-sbply, smefts, pty, si firm, sft-slmot, tr calc incl, calc





WT IN 10.00/ OUT 10.00
VIS IN 35/ OUT 35

MD 7328'
INC 91.6°
AZM 357.0°
TVD 5915.43'

WT IN 10.00/ OUT 10.00
VIS IN 35/ OUT 35

MD 7423'
INC 88.6°
AZM 359.1°
TVD 5915.27'

CHK: lt-mgy, dkgy, sme tan, sft-si firm,
sppty-sbbiky, mot-rthy, tr fos, v calc, pale
yel flr
MRL: mgy-gyblk, sbbiky-sbpty, smefts,
pity, si firm, sft-simot, tr calc incl, calc

CHK: lt-mgy, dkgy, sme tan, sft-si firm,
sppty-sbbiky, mot-rthy, tr fos, v calc, pale
yel flr
MRL: mgy-gyblk, sbbiky-sbpty, smefts,
pity, si firm, sft-simot, tr calc incl, calc

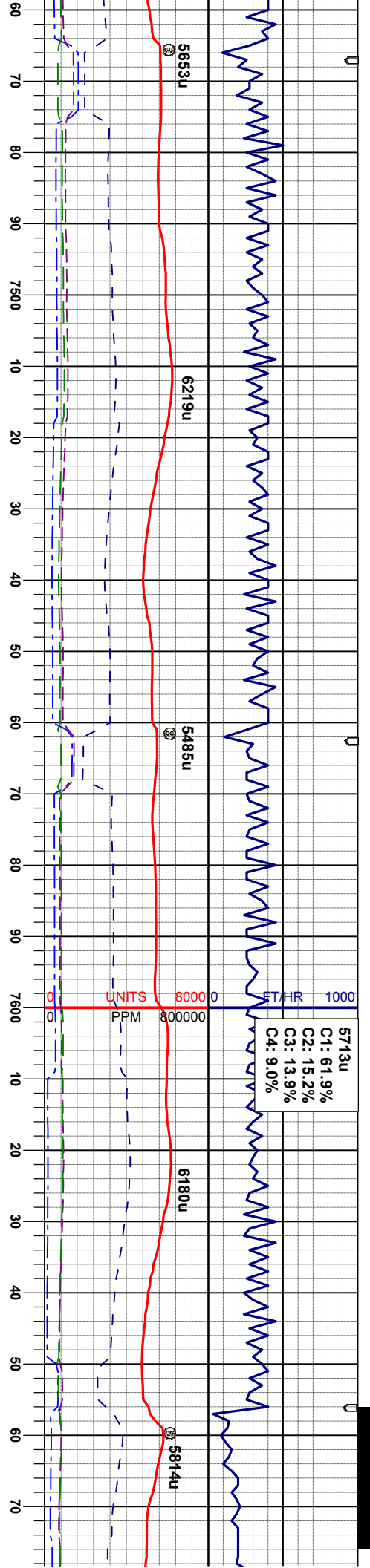
CHK: lt-mgy, dkgy, sme tan, sft-si firm,
sppty-sbbiky, mot-rthy, tr fos, v calc, pale
yel flr
MRL: mgy-gyblk, sbbiky-sbpty, smefts,
pity, si firm, sft-simot, tr calc incl, calc

CHK: lt-mgy, dkgy, sme tan, sft-si firm,
sppty-sbbiky, mot-rthy, tr fos, v calc, pale
yel flr
MRL: mgy-gyblk, sbbiky-sbpty, smefts,
pity, si firm, sft-simot, tr calc incl, calc

CHK: lt-mgy, dkgy, sme tan, sft-si firm,
sppty-sbbiky, mot-rthy, tr fos, v calc, pale
yel flr
MRL: mgy-gyblk, sbbiky-sbpty, smefts,
pity, si firm, sft-simot, tr calc incl, calc

ft





MD 7518'
INC 88.2°
AZM 358.2°
TVD 5917.92'

MD 7612'
INC 87.6°
AZM 357.8°
TVD 5921.36'

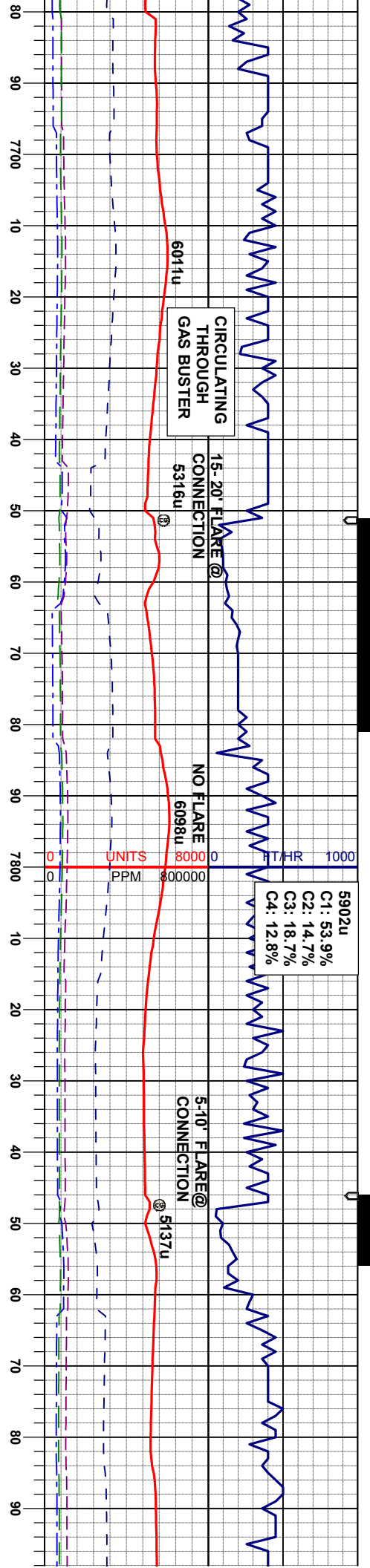
CHK: lt-mgy, dkgy, sme tan, sft-si firm, sbply-sbblky, mot-rthy, tr fos, v calc, pale yel flor, grdg -
MRL: mgy-gyblk, sbblky-sbply, smeifs, sly, si firm, silt-slmot, tr calc incl, calc

CHK: lt-mgy, dkgy, sme tan, sft-si firm, sbply-sbblky, mot-rthy, tr fos, v calc, pale yel flor, grdg -
MRL: mgy-gyblk, sbblky-sbply, smeifs, sly, si firm, silt-slmot, tr calc incl, calc

CHK: lt-mgy, dkgy, sme tan, sft-si firm, sbply-sbblky, mot-rthy, tr fos, v calc, pale yel flor, grdg -
MRL: mgy-gyblk, sbblky-sbply, smeifs, sly, si firm, silt-slmot, tr calc incl, calc

WT IN 10.00/ OUT 10.00
VIS IN 38/ OUT 38





MD 7707'
INC 87.3°
AZM 358.7°
TVD 5925.59'

MD 7802'
INC 89.3°
AZM 0.8°
TVD 5928.41'

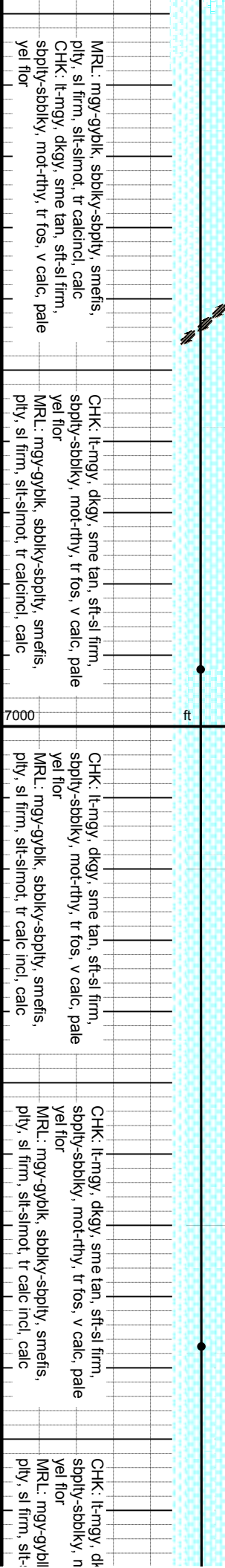
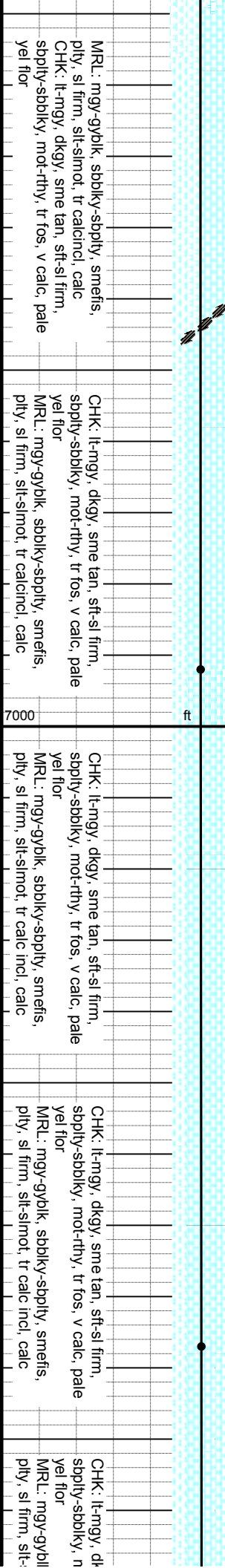
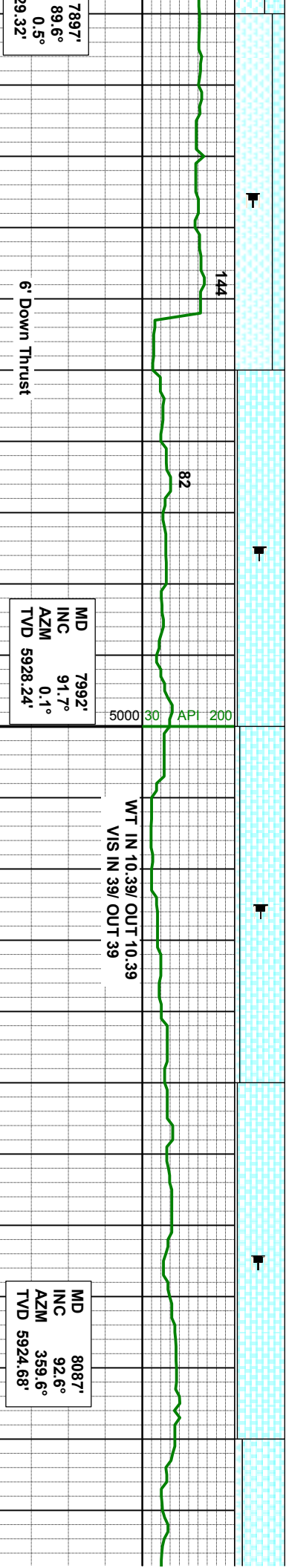
MD
INC
AZM
TVD 592

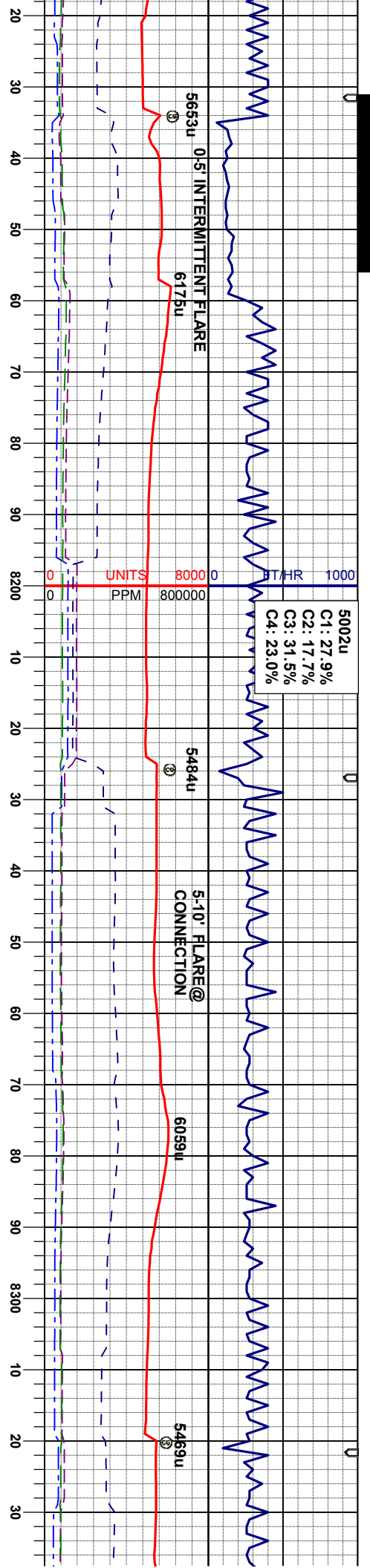
MR.L: mgy-gyblk, sbblky-sbply, smeefs, pily, sl firm, silt-slmot, tr calc incl, calc CHK: lt-mgy, dkgy, sme tan, sft-sl firm, sbply-sbblky, mot-rthy, tr fos, v calc, pale yel floor

MR.L: mgy-gyblk, sbblky-sbply, smeefs, pily, sl firm, silt-slmot, tr calc incl, calc CHK: lt-mgy, dkgy, sme tan, sft-sl firm, sbply-sbblky, mot-rthy, tr fos, v calc, pale yel floor

MR.L: mgy-gyblk, sbblky-sbply, smeefs, pily, sl firm, silt-slmot, tr calc incl, calc CHK: lt-mgy, dkgy, sme tan, sft-sl firm, sbply-sbblky, mot-rthy, tr fos, v calc, pale yel floor







MD 8180'
INC 91.0°
AZM 0.8°
TVD 5921.73'

MD 8276'
INC 90.7°
AZM 0.1°
TVD 5920.32'

gy, sme tan, sft-si firm,
mot-rthy, tr fos, v calc, pale

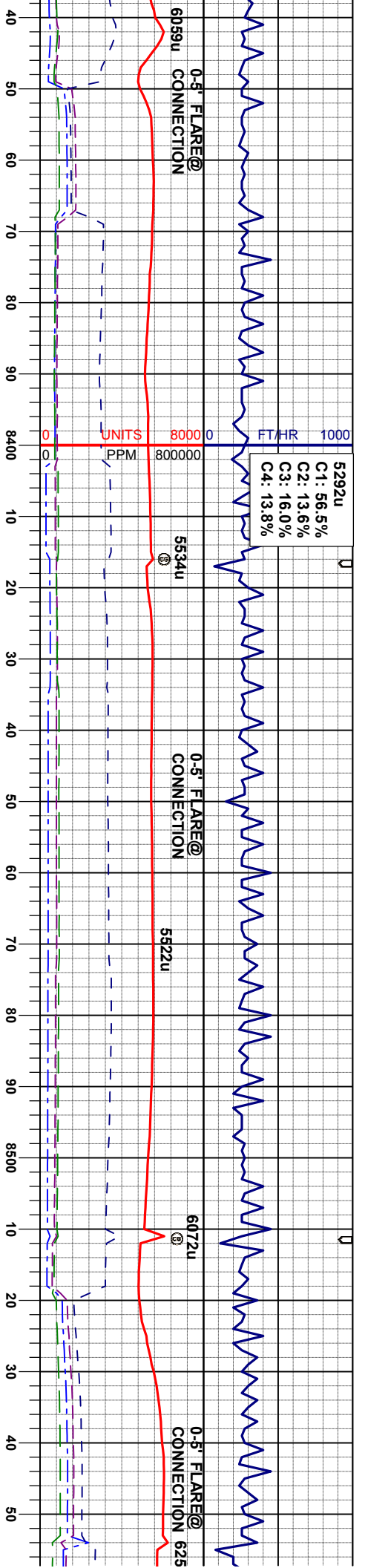
CHK: lt-mgy, dkgy, sme tan, sft-si firm,
sbply-sbblky, mot-rthy, tr fos, v calc, pale
yel flr
MRL: mgy-gyblk, sbblky-sbply, smefs,
ply, sl firm, sft-slmot, tr calc incl, calc

CHK: lt-mgy, dkgy, sme tan, sft-si firm,
sbply-sbblky, mot-rthy, tr fos, v calc, pale
yel flr
MRL: mgy-gyblk, sbblky-sbply, smefs,
ply, sl firm, sft-slmot, tr calc incl, calc

MRL: mgy-gyblk, sbblky-sbply, smefs,
ply, sl firm, sft-slmot, tr calc incl, calc
CHK: lt-mgy, dkgy, sme tan, sft-si firm,
sbply-sbblky, mot-rthy, tr fos, v calc, pale
yel flr

MRL: mgy-gyblk, sbblky-sbply, sr
ply, sl firm, sft-slmot, tr calc incl, c
CHK: lt-mgy, dkgy, sme tan, sft-si
sbply-sbblky, mot-rthy, tr fos, v ca
yel flr





MD 8371'
INC 90.5°
AZM 359.8°
TVD 5919.32'

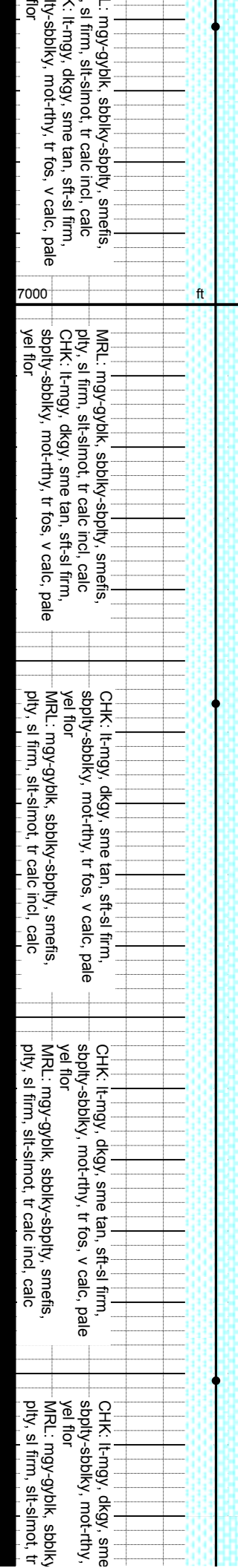
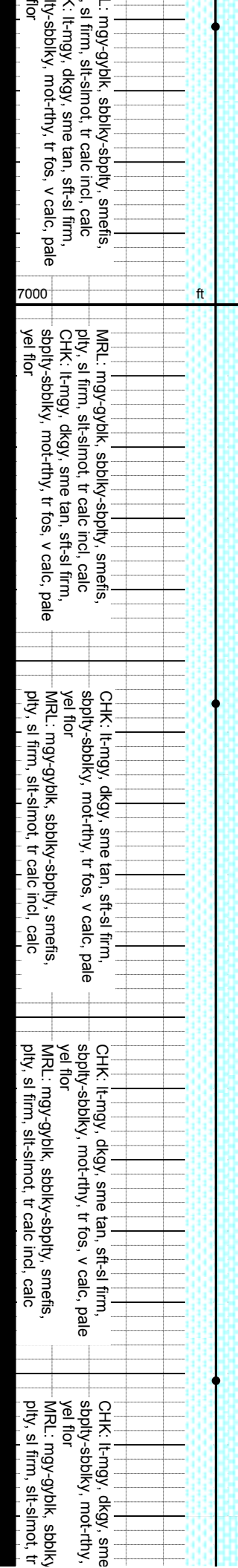
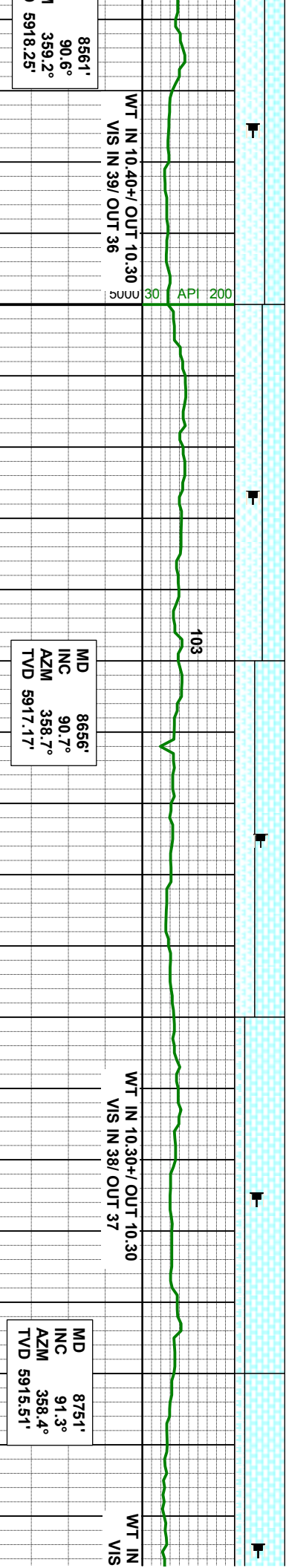
MR.L: mgy-gy/bk, sbblky-sbply, smeifs,
ply, sl firm, silt-slmot, tr calc incl, calc
CHK: lt-mgy, dkgy, sme tan, sft-sl firm,
sbply-sbblky, mot-rthy, tr fos, v calc, pale
yel flor

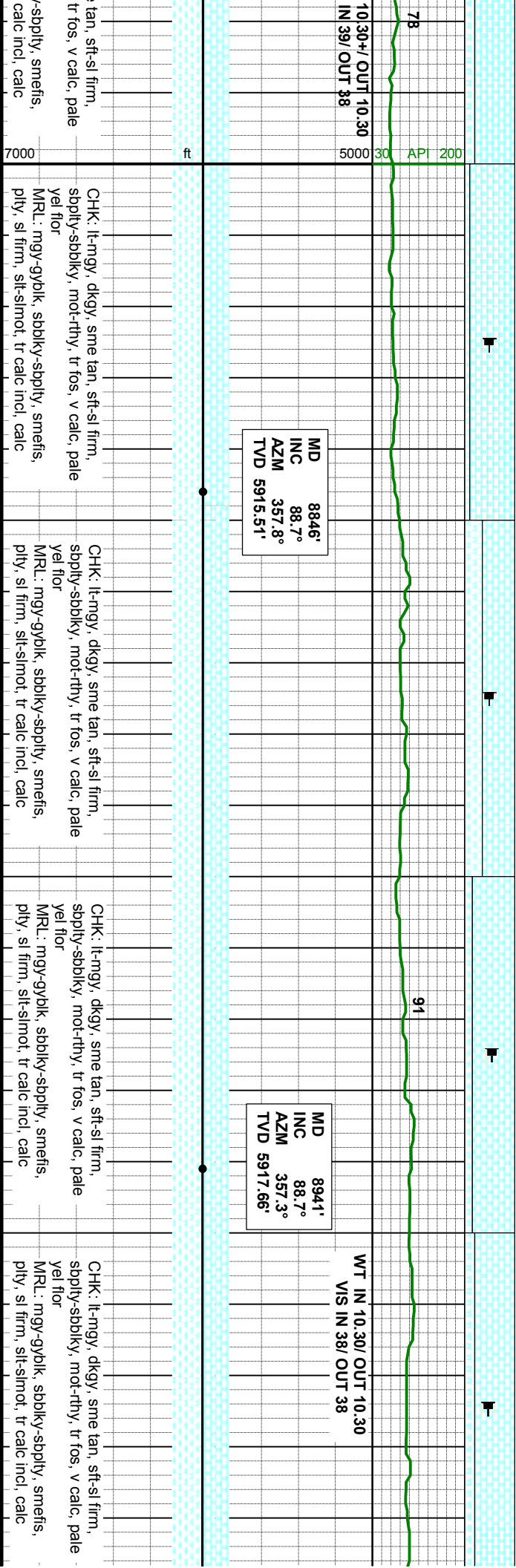
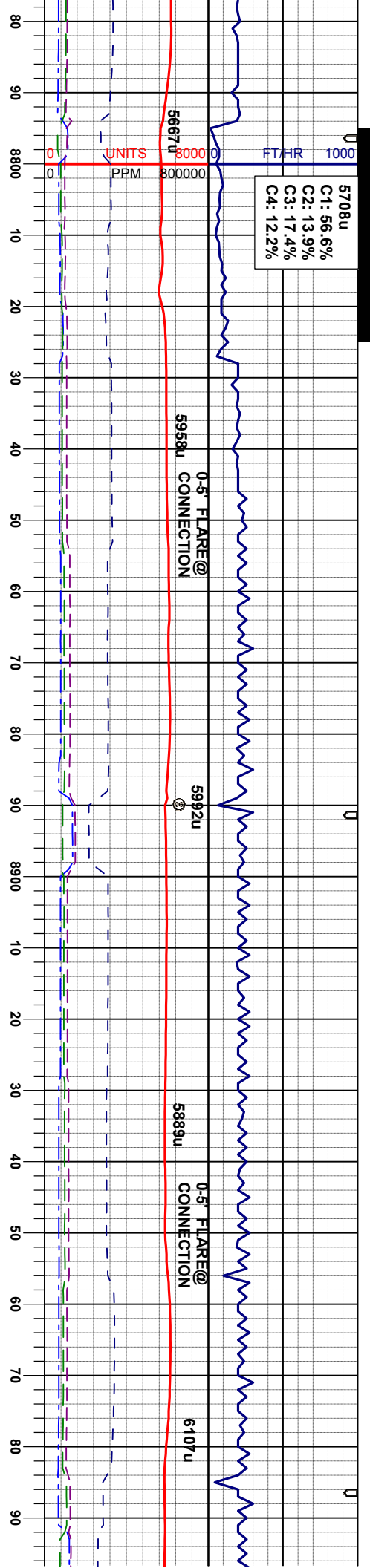
MD 8466'
INC 90.1°
AZM 359.8°
TVD 5918.82'

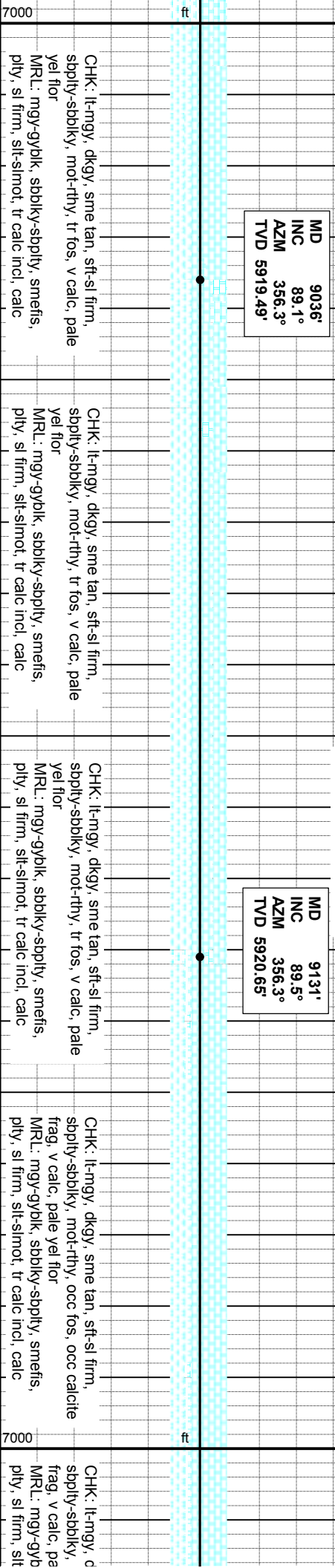
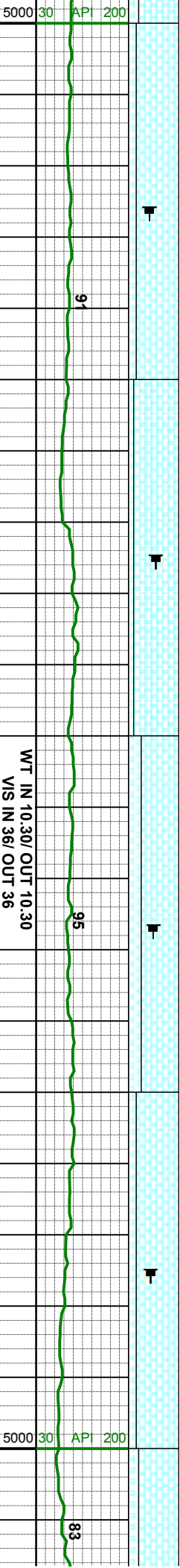
MR.L: mgy-gy/bk, sbblky-sbply, smeifs,
ply, sl firm, silt-slmot, tr calc incl, calc
CHK: lt-mgy, dkgy, sme tan, sft-sl firm,
sbply-sbblky, mot-rthy, tr fos, v calc, pale
yel flor

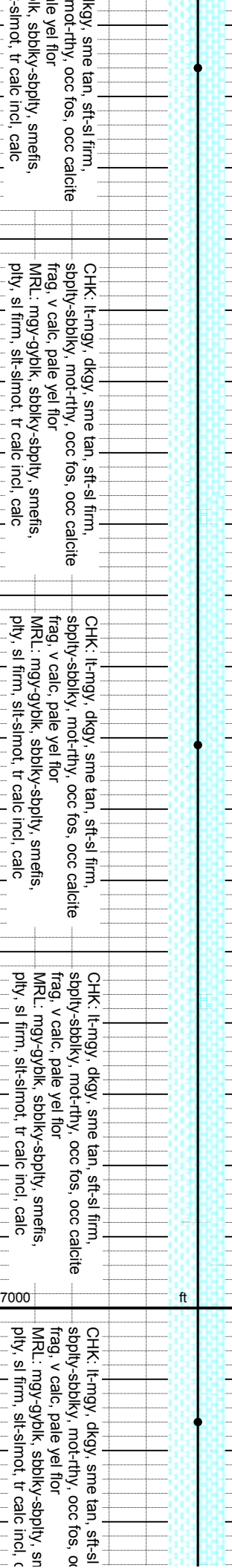
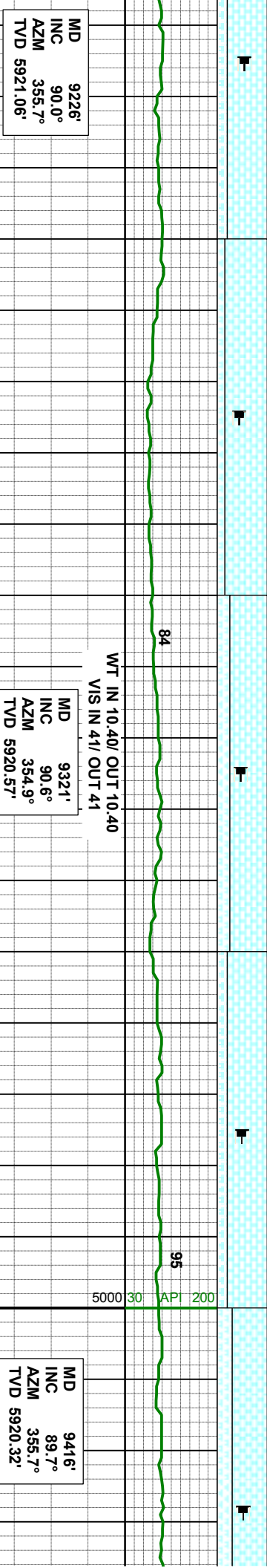
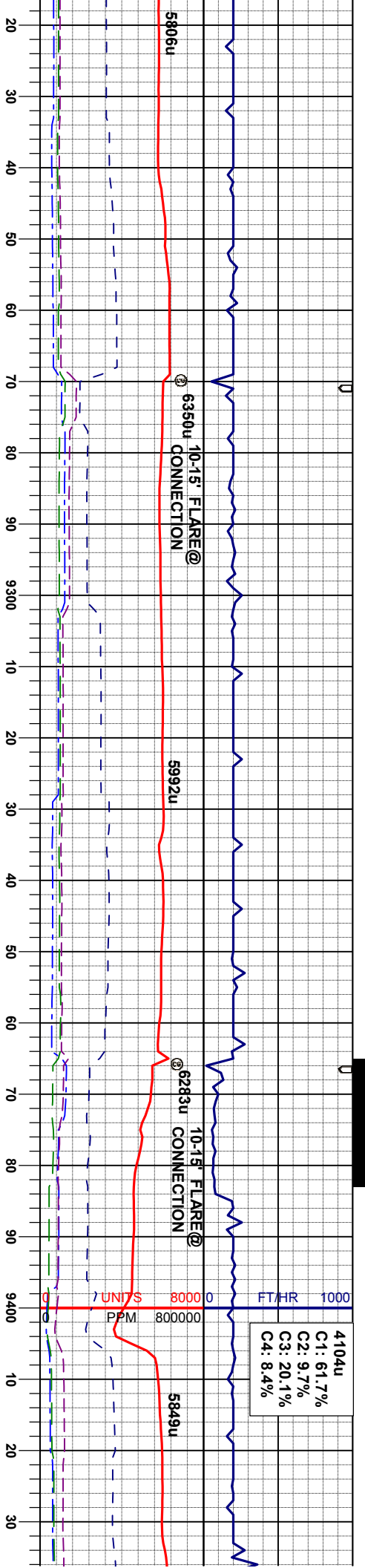
MD
INC
AZM
TVD

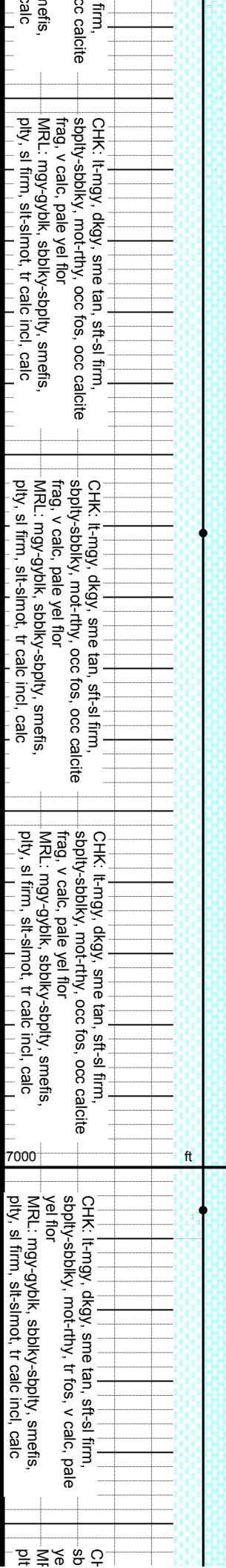
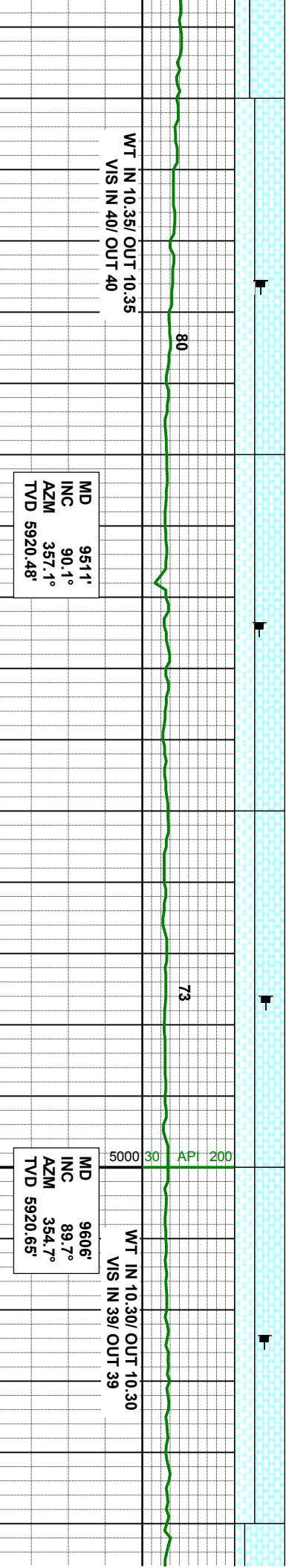
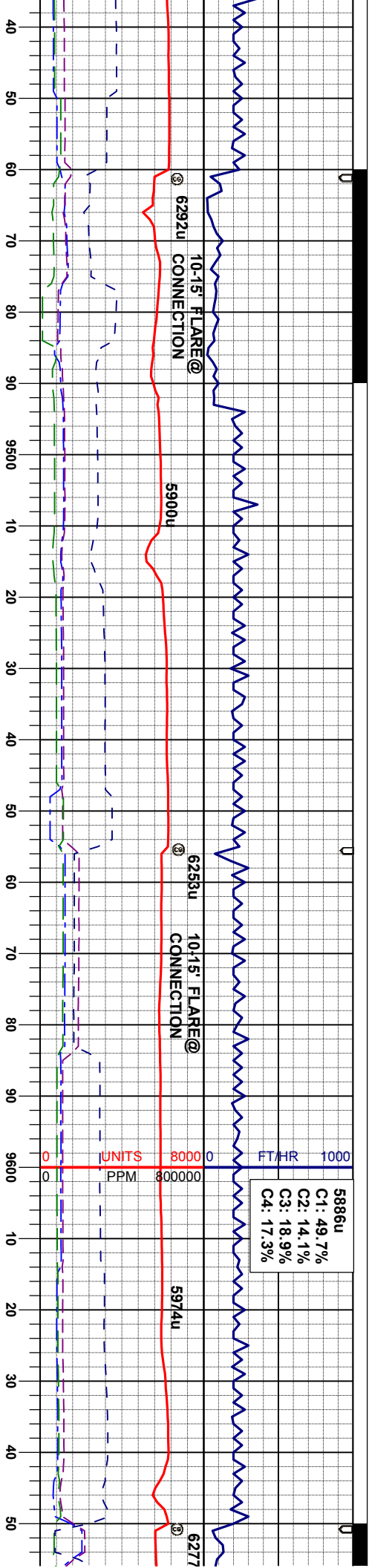
MR.L
ply
CHK
sbply
yel

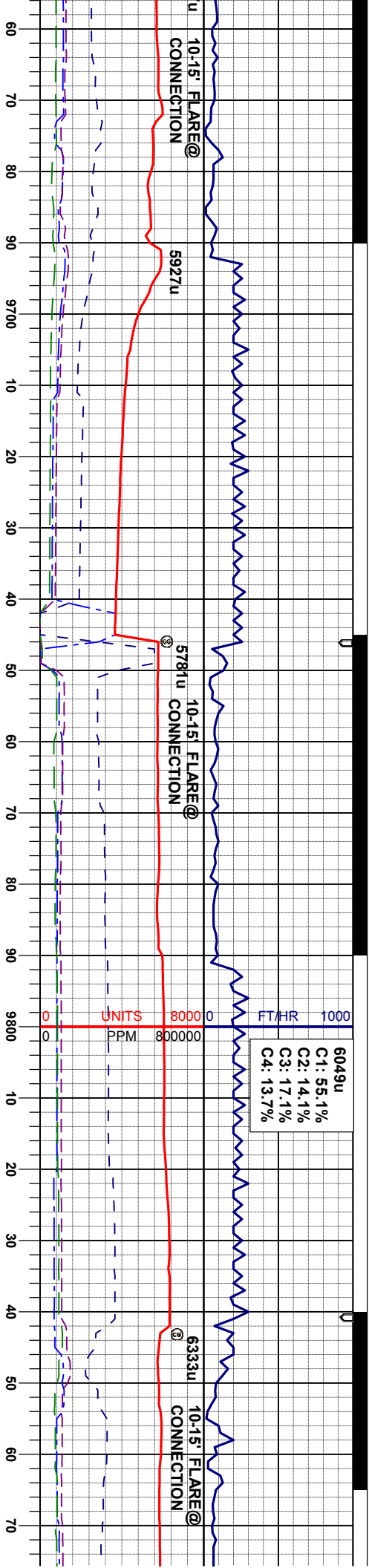












MD 9701'
INC 91.8°
AZM 355.7°
TVD 5919.41'

MD 9796'
INC 92.5°
AZM 359.1°
TVD 5915.84'

WT IN 10.40/ OUT 10.40
VIS IN 39/ OUT 39

WT IN 10.50/ OI
VIS IN 38/ OI

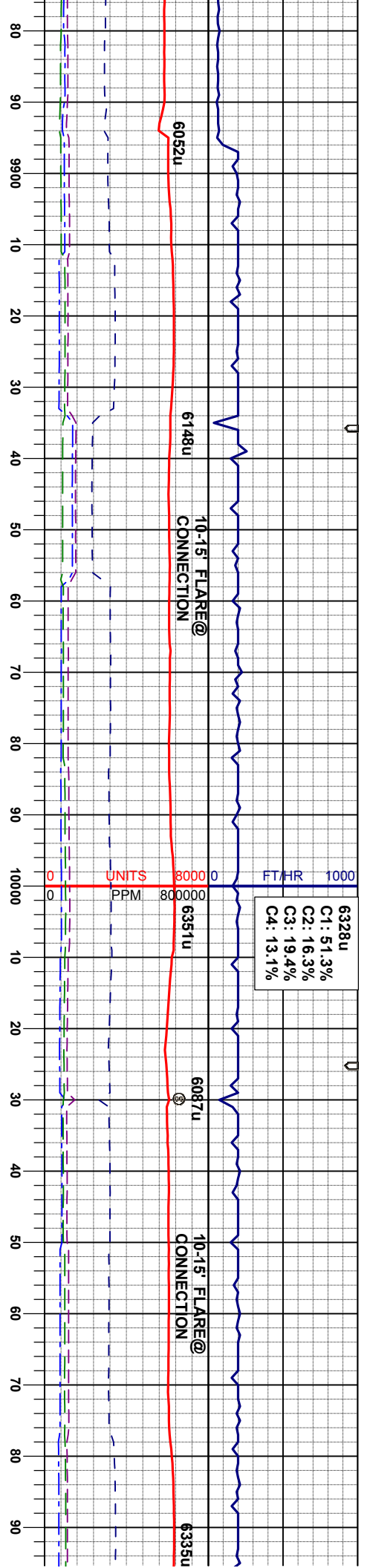
CHK: lt-mgy, dkgy, sme tan, sft-si firm,
sbply-sbbiky, mot-rthy, tr fos, v calc, pale
yel flor

CHK: lt-mgy, dkgy, sme tan, sft-si firm,
sbply-sbbiky, mot-rthy, tr fos, v calc, pale
yel flor

CHK: lt-mgy, dkgy, sme tan, sft-si firm,
sbply-sbbiky, mot-rthy, tr fos, v calc, pale
yel flor

CHK: lt-mgy, dkgy, sme tan, sft-si firm,
sbply-sbbiky, mot-rthy, tr fos, v calc, pale
yel flor

CHK: lt-mgy, dkgy, sme tan, sft-si firm,
sbply-sbbiky, mot-rthy, tr fos, v calc, pale
yel flor



MD 9891'
INC 90.7°
AZM 0.5°
TVD 5913.19'

MD 9986'
INC 89.9°
AZM 359.1°
TVD 5912.69'

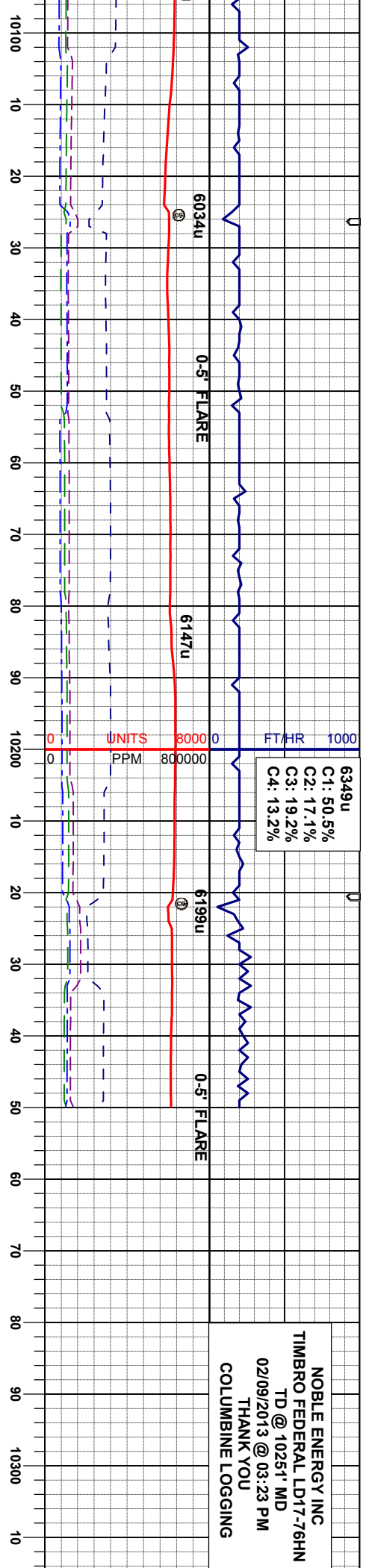
MD 10081'
INC 90.5°
AZM 357.0°
TVD 5912.36'

CHK: lt-mgy, sme tan, sft-sl firm, sbply-sbblky, mot-rthy, tr fos, v calc, pale yel flor
MR.L: mgy-gyblk, sbblky-sbply, smeifs, pty, sl firm, silt-slmot, tr calc incl, calc

CHK: lt-mgy, sme tan, sft-sl firm, sbply-sbblky, mot-rthy, tr fos, v calc, pale yel flor
MR.L: mgy-gyblk, sbblky-sbply, smeifs, pty, sl firm, silt-slmot, tr calc incl, calc

CHK: lt-mgy, sme tan, sft-sl firm, sbply-sbblky, mot-rthy, tr fos, v calc, pale yel flor
MR.L: mgy-gyblk, sbblky-sbply, smeifs, pty, sl firm, silt-slmot, tr calc incl, calc





MD 10176'
INC 91.4°
AZM 356.1°
TVD 5910.78'

MD 10207'
INC 91.5°
AZM 355.5°
TVD 5910.00'

PROJECTION
MD 10251'
INC 91.5°
AZM 355.5°
TVD 5908.84'

NOBLE ENERGY INC
TIMBRO FEDERAL LD17-76HN
TD @ 10251' MD
02/09/2013 @ 03:23 PM

CHK: lt-mgy, sme tan, sft-sl firm, sbply-sbbkly, mot-rthy, tr fos, v calc, pale yel flr

CHK: lt-mgy, sme tan, sft-sl firm, sbply-sbbkly, mot-rthy, tr fos, v calc, pale yel flr
MRL: mgy-gyblk, sbply-sbply, smefts, ply, sl firm, sft-slmot, tr calc incl, calc

CHK: lt-mgy, sme tan, sft-sl firm, sbply-sbbkly, mot-rthy, tr fos, v calc, pale yel flr
MRL: mgy-gyblk, sbply-sbply, smefts, ply, sl firm, sft-slmot, tr calc incl, calc



