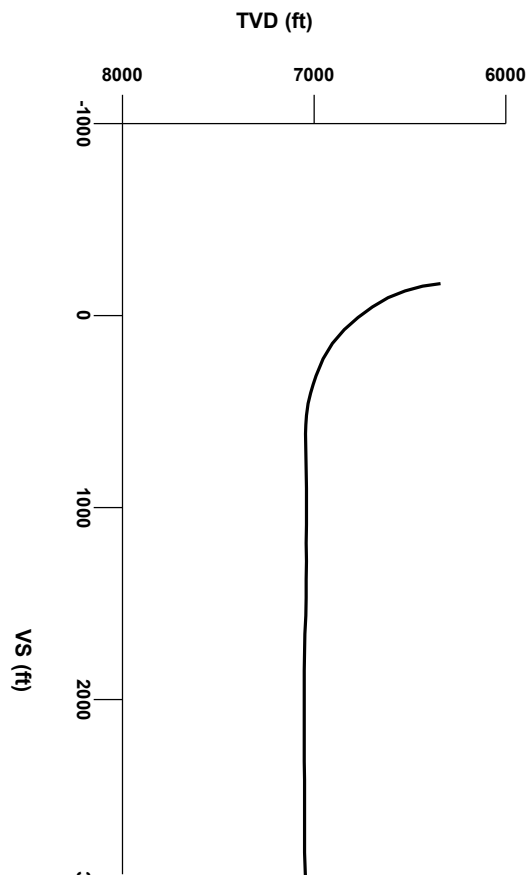
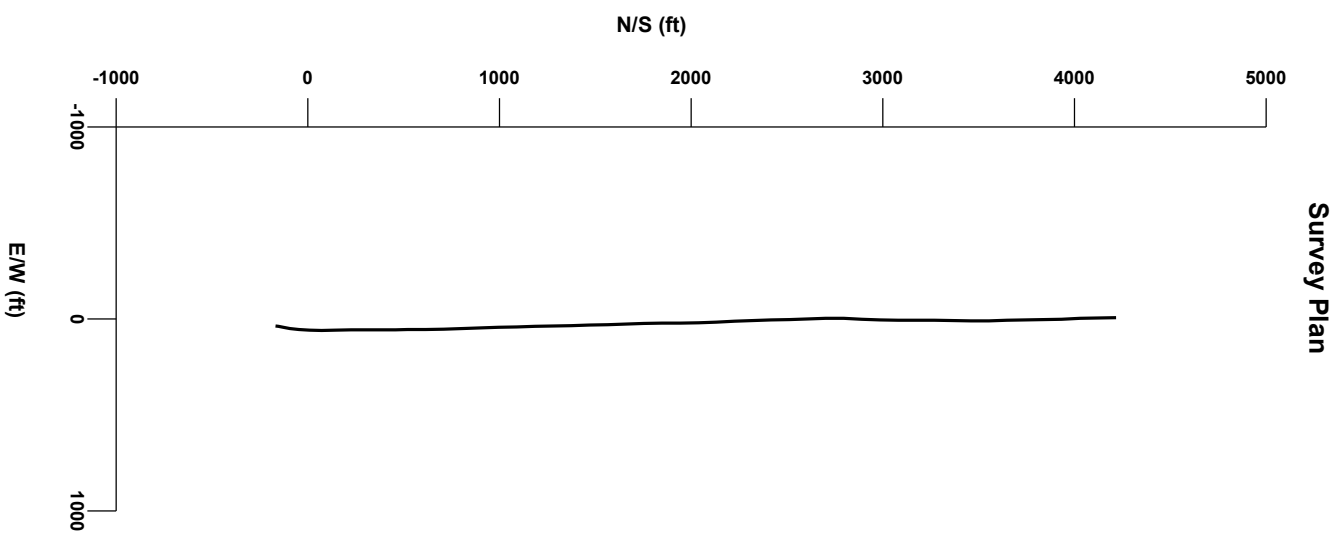
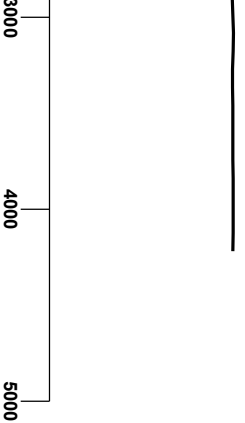




LOG created using Lplot VH Version 3.0, May 13, 2013, Copyright (C) 1999-2009 Pason Systems Corp.

**OPERATOR:** NOBLE ENERGY INC.  
**WELL:** SAUER F33-77-1HC  
**LOCATION:** SESW SEC 33 T5N R65W  
**COUNTY:** WELD  
**STATE:** COLORADO  
**SPOT:** 237' FSL, 1,609' FWL  
**ELEVATION:** 4,670' GL, 4,684' KB  
**FIELD:** WATTENBERG  
**SPUD DATE:** 05/04/2013  
**TD DATE:** 05/12/2013  
**DATES LOGGED:** 05/05/2013 - 05/12/2013  
**DEPTHS LOGGED:** 630' - 11,241'  
**LOGGERS:** KYLE KNIGHT, NATHAN MURPHY, D. HENSLEY  
**DRILLING FLUID:** FW, LSND  
**DRILLING RIG:** ENSIGN 121  
**API:** 05-123-36444  
**LOG TYPE:** Horizontal  
**SCALE:** 1:240 (5 inches per 100 feet)  
**REMARKS:** Wellsite Geological Services Provided By Columbine Logging Inc.  
LAT, LONG: 40.34913/-104.67208





Chalk

Sandstone

Limestone

Shaly Sandstone

Marl

Silty Shale

ENGINEERING SYMBOLS

Bit Change

Connection

Casing

Connection Gas

Casing

Midnight Depth

SLIDE/ROTATE

0

500

FT/HR

COLUMBINE LOGGING INC

RIGGED UP ON 05/05/2013

MANNED 2-PERSON LOGGING

WITH BLOODHOUND GAS

CHROMATOGRAPH UNIT #0570

BEGAN ON 05/05/2013

GAS

0

5000

UNITS

C1

0

500000

PPM

C2

0

500000

PPM

C3

0

500000

PPM

C4

0

500000

PPM

BHA #1 INFORMATION

BIT: 8.75" SMITH MD1516

NOZ. OR TFA: 5x13

BIT SERIAL NUMBER: 650054

MOTOR: 7/8, 5.0 STG .28 RPG

MWD: PONY SLICK MONEL

LOG CONTINUES ON L PLOT

SAUER F33-77-1HC HORIZONTAL

DEPTH (FEET)

6250

60

70

80

90

6300

10

20

30

40

50

60

70

2256u

CUTTINGS LITHOLOGY

GAMM

40AP200

105

SAMPLE INTERVAL 50'

SAMPLE DESCRIPTION INTERVAL 100'

BEGIN BUILDING CURVE

OILSHOWS BEGIN

TVD

ft

6200

7125

MUD WT: 10.4 VIS: 38 IN

MUD WT: 10.5 VIS: 38 OUT

MD 6353'

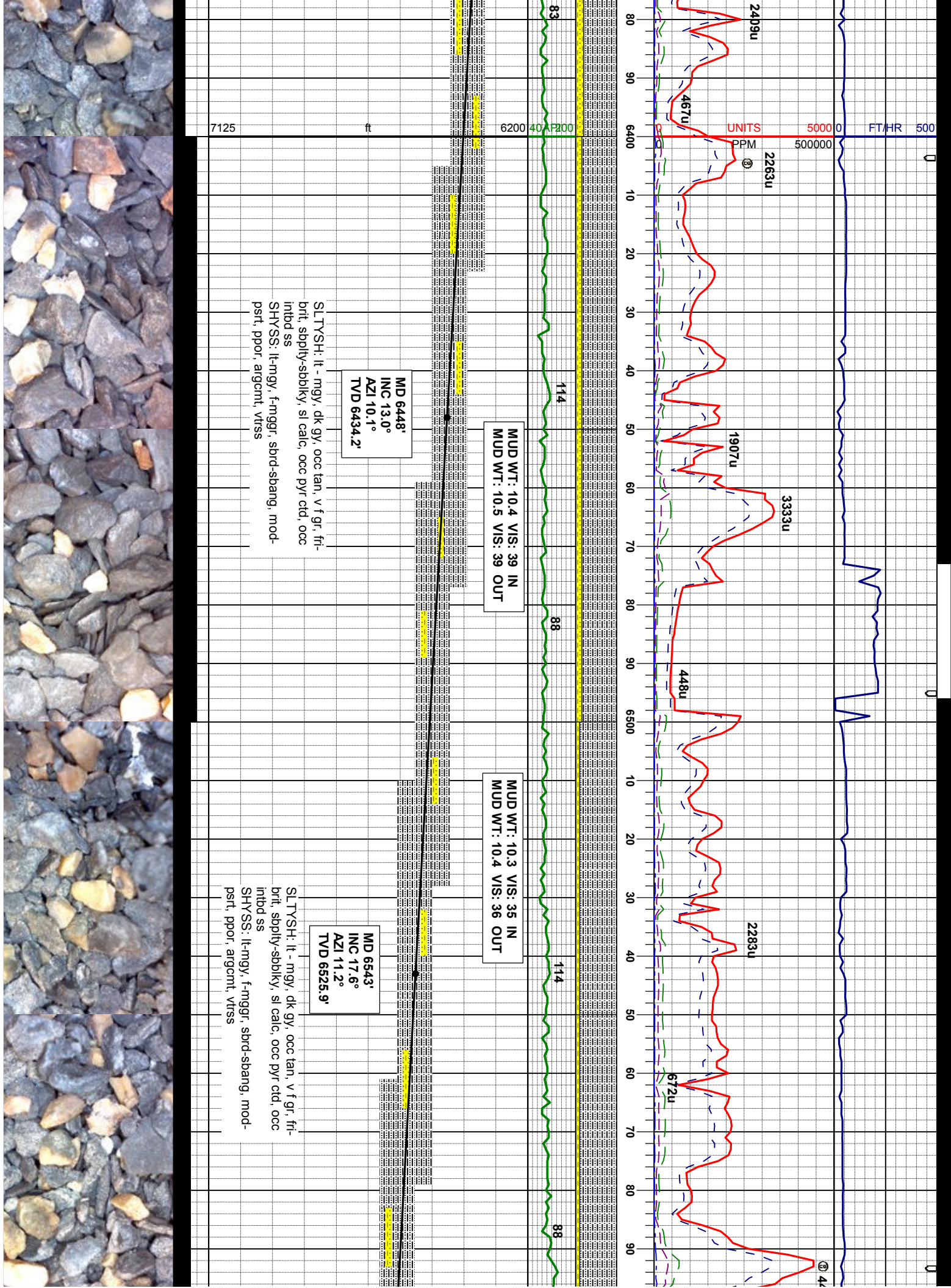
INC 4.7°

AZI 13.5°

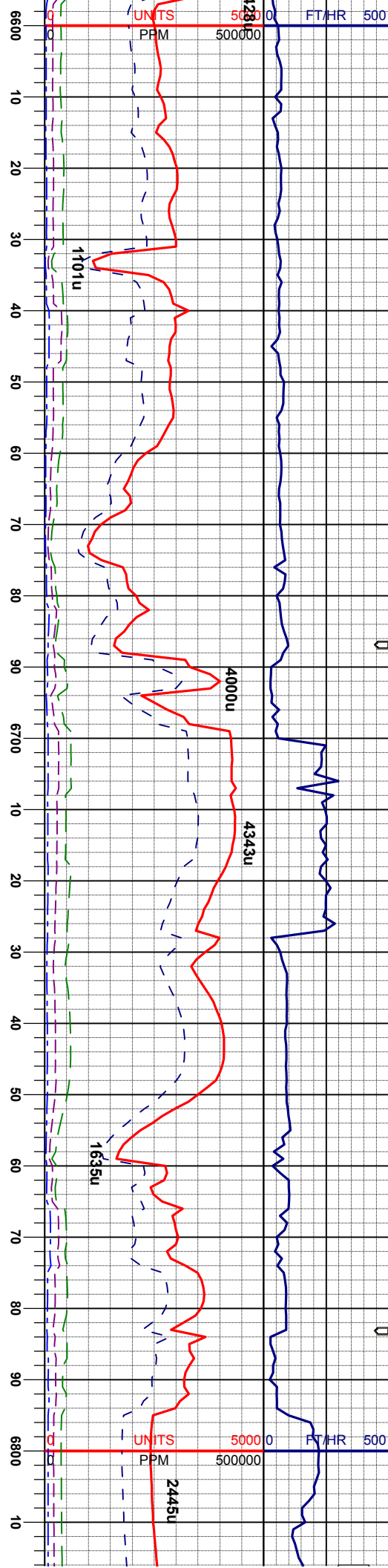
TVD 6340.5'

SLTYSH: lt - mgy, dk gy, occ tan, v f gr, fri-  
brt, sbply-sbkly, sl calc, occ pyr cld, occ  
intbd ss

SHYSS: lt-mgy, f-mgr, sbtd-sbang, mod-  
pst, ppor, argcmt, vtrss







MUD WT: 10.4 VIS: 38 IN  
MUD WT: 10.4 VIS: 39 OUT

BEGIN 25' SAMPLE INTERVAL  
AND 50' SAMPLE DESCRIPTIONS

SHARON SPRINGS MARKER  
@ 6,733' MD / 6,696' TVD

MUD WT: 10.4 VIS: 38 IN  
MUD WT: 10.4 VIS: 38 OUT

LOGGERS TOP NIOBRARA A  
@ 6,812' MD / 6,760' TVD

MD 6638'  
INC 27.2°  
AZI 8.4°  
TVD 6613.6'

SLTYSH: lt - mgy, dk gy, occ tan, v f gr, fri-  
brt, sbply-sbblky, sl calc, occ pyr ctd, occ  
inbnd ss

MD 6733'  
INC 33.0°  
AZI 5.4°  
TVD 6695.7'

SLTYSH: lt - mgy, dk gy, occ tan, v f gr, fri-  
brt, sbply-sbblky, sl calc, occ pyr ctd, occ  
inbnd ss

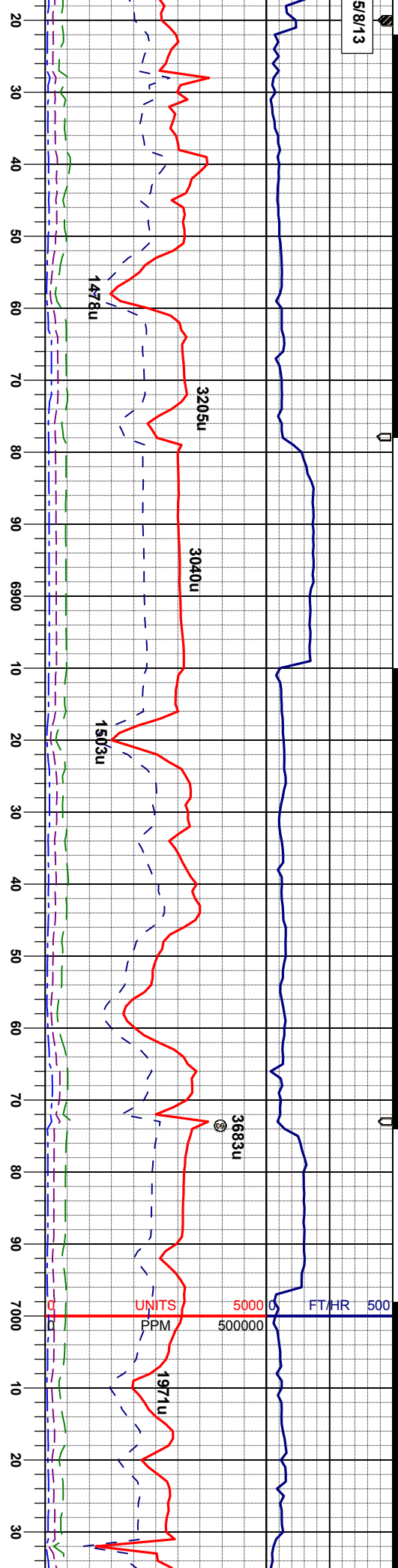
CHK: lt-m gy, occ whgy-crm, sft-sl firm,  
sbply-sbblky, mot-rthy, vcalc  
MRL: m gy- gyblk, sbblky - sbply, smefts,  
sl firm - modstf, sily-slmot, calc, sme pyr  
ctd, sme dent, tr lnoct

CHK: lt-m gy  
sbply-sbblky  
MRL: m gy-  
sl firm - mod  
ctd, sme den





5/8/13



CHALK

LOGGER'S TOP NIOBRARA A MARL  
@ 6,834' MD / 6,778' TVD

MUD WT: 10.4 VIS: 38 IN  
MUD WT: 10.4 VIS: 38 OUT

LOGGER'S TOP NIOBRARA B CHALK  
@ 6,953' MD / 6,863' TVD

LOGGER'S TOP NIOBRARA B M  
@ 7,003' MD / 6,895' TVD

MD 6827'  
INC 38.6°  
AZI 2.4°  
TVD 6771.9'

MD 6922'  
INC 45.3°  
AZI 359.2°  
TVD 6842.6'

MD 7017'  
INC 53.2°  
AZI 358.7°  
TVD 6904.5'

occ whgy-crm, sft-sl firm,  
mot-rthy, vcalc  
gyblk, sbblky - sbply, smefts,  
sft, sily-slmot, calc, sme pyr  
it, tr inoc

MRL: m gy- gyblk, sbblky - sbply, smefts,  
sl firm - modstf, sily-slmot, calc, sme pyr  
CHK: lt-m gy, occ whgy-crm, sft-sl firm,  
sbply-sbblky, mot-rthy, vcalc, sme bent

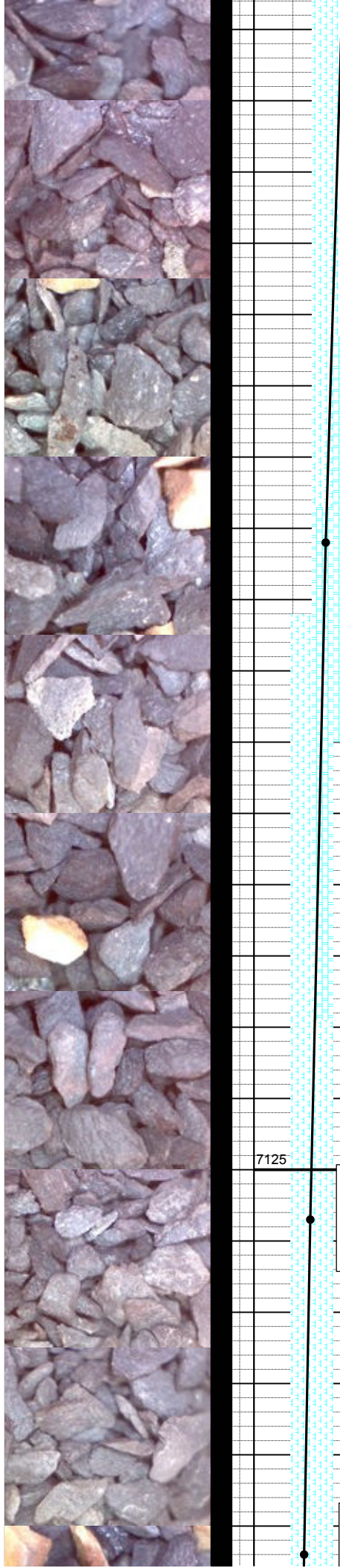
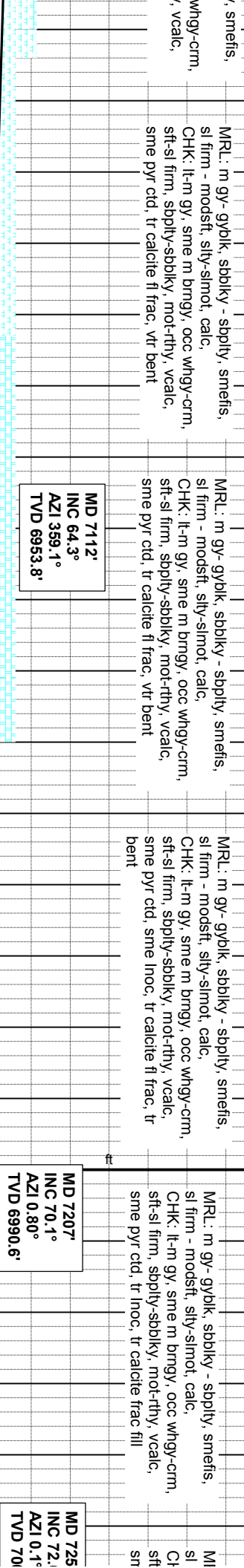
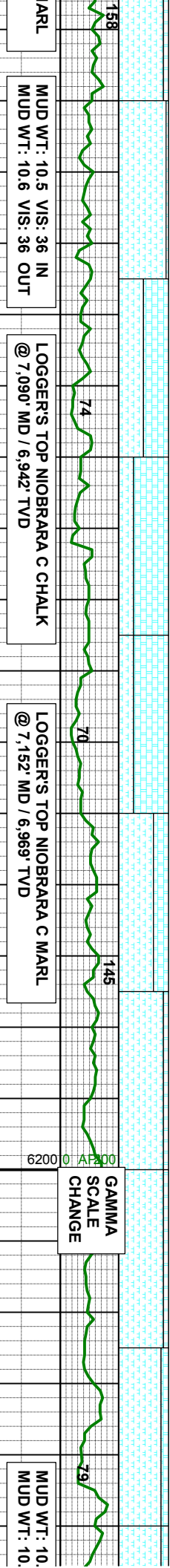
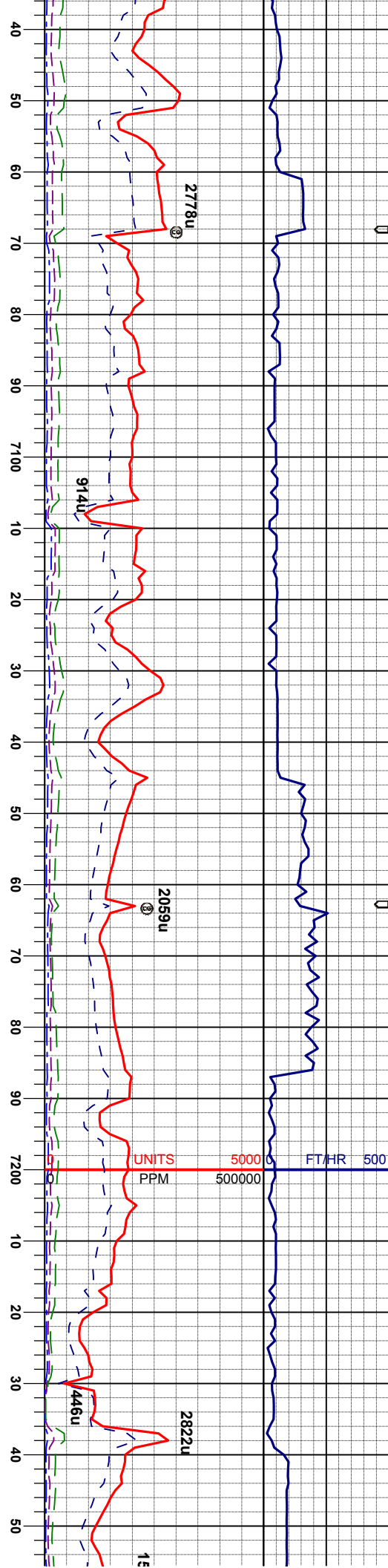
MRL: m gy- gyblk, sbblky - sbply, smefts,  
sl firm - modstf, sily-slmot, calc, sme pyr  
CHK: lt-m gy, occ whgy-crm, sft-sl firm,  
sbply-sbblky, mot-rthy, vcalc, sme bent

CHK: lt-m gy, sme m brngy, occ whgy-crm,  
sft-sl firm, sbply-sbblky, mot-rthy, vcalc  
MRL: m gy- gyblk, sbblky - sbply, smefts,  
sl firm - modstf, sily-slmot, calc, sme pyr  
cid, tr bent, tr calcite

MRL: m gy- gyblk, sbblky - sbply  
sl firm - modstf, sily-slmot, calc,  
CHK: lt-m gy, sme m brngy, occ  
sft-sl firm, sbply-sbblky, mot-rthy  
sme pyr cid, tr calcite fl frac

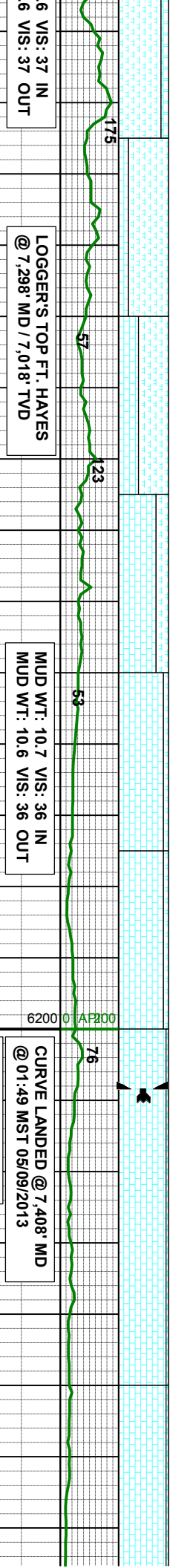
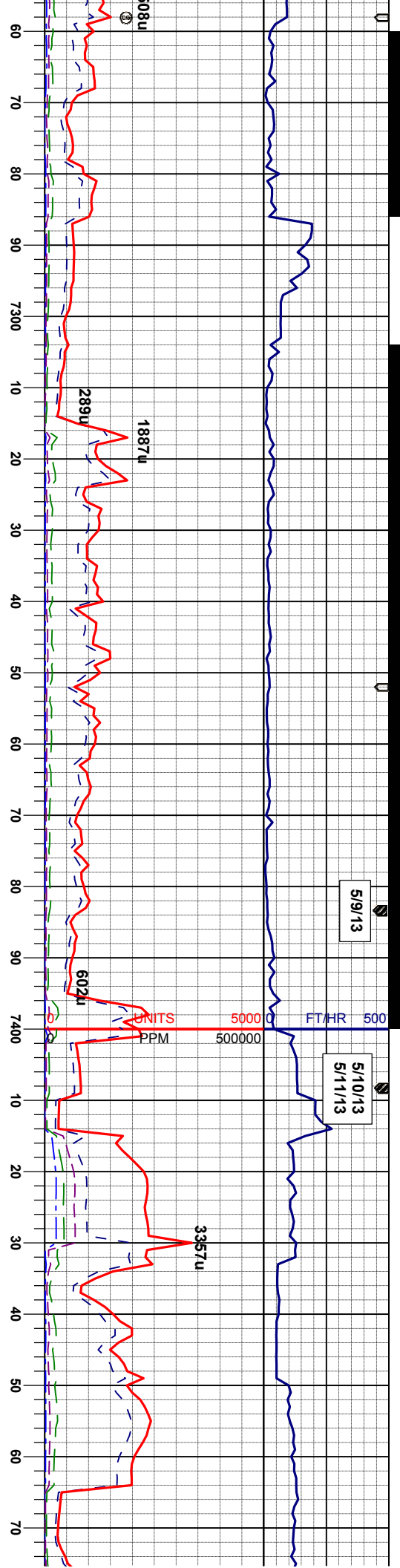








5/9/13  
5/10/13  
5/11/13



6 VIS: 37 IN  
6 VIS: 37 OUT

LOGGER'S TOP FT. HAYES  
@ 7,298' MD / 7,018' TVD

MUD WT: 10.7 VIS: 36 IN  
MUD WT: 10.6 VIS: 36 OUT

RESUME DRILLING  
@ 01:57 ON 5/11

CURVE LANDED @ 7,408' MD  
@ 01:49 MST 05/09/2013

LS: lt-mgy-crm, sft-sl firm, sbply-sbbky, rthy, vcalc, MRU: m gy- gybolk, sbply- smetfs, sl firm - modstf, slty-slmot, calc, sme pyr ctd, sme chk, tr lse fos, tr shys

MD 7302' INC 74.8° AZI 359.6° TVD 7019.1'

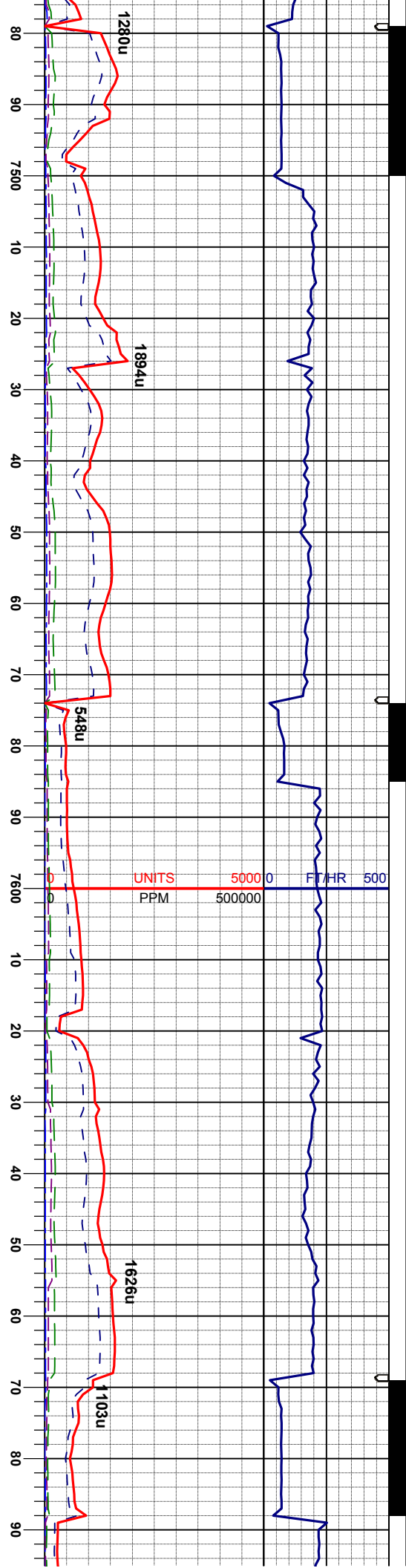
MD 7358' INC 79.9° AZI 358.7° TVD 7031.3'

MD 7421' INC 84.1° AZI 0.1° TVD 7040.1'

MD 7468' INC 86.9° AZI 0.1° TVD 7044.0'







MUD WT: 9.4 VIS: 31 IN  
MUD WT: 9.4 VIS: 32 OUT

LS: lt-mgy-crm, sft-sl firm, sbply-sbblky,  
rthy, vcalc,  
TR: MRL: m gy- gyblk, sbblky - sbply,  
smefts, sl firm - modstf, silty-slimot, calc,  
sme pyr cld, sme chk, tr lse fos, tr shyss

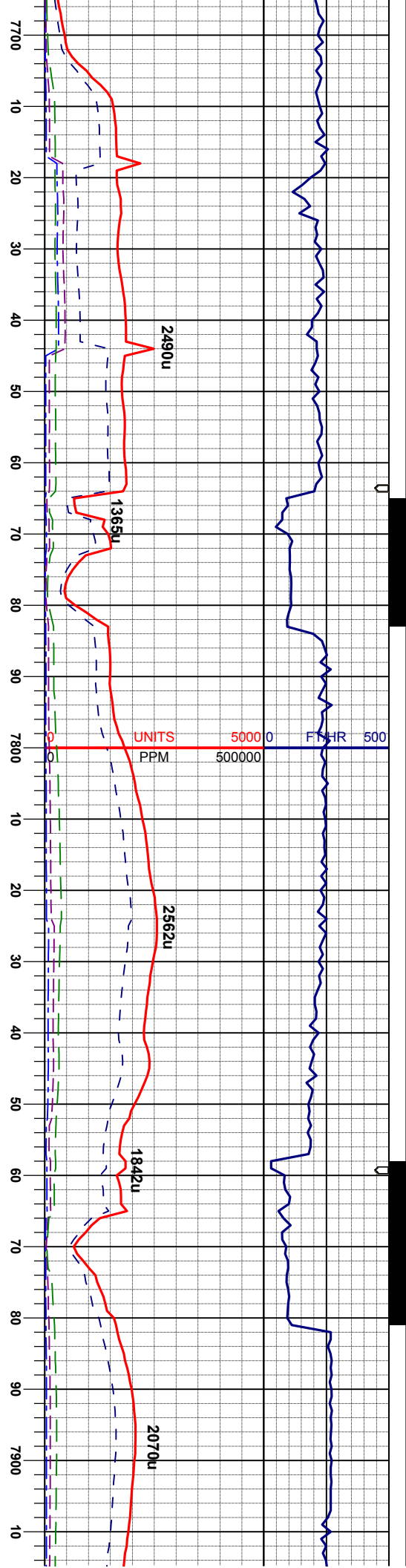
LS: lt-mgy-crm, sft-sl firm, sbply-sbblky,  
rthy, vcalc,  
TR: MRL: m gy- gyblk, sbblky - sbply,  
smefts, sl firm - modstf, silty-slimot, calc,  
sme pyr cld, sme chk, tr lse fos, tr shyss

LS: lt-mgy-crm, sft-sl firm, sbply-sbblky,  
rthy, vcalc,  
TR: MRL: m gy- gyblk, sbblky - sbply,  
smefts, sl firm - modstf, silty-slimot, calc,  
sme pyr cld, sme chk, tr lse fos, tr shyss

LS: lt-mgy-crm, sft-sl firm, sbply-sbblky,  
rthy, vcalc,  
TR: MRL: m gy- gyblk, sbblky - sbply,  
smefts, sl firm - modstf, silty-slimot, calc,  
sme pyr cld, sme chk, tr lse fos, tr shyss

MD 7516'  
INC 90.1°  
AZI 359.8°  
TVD 7045.0'





MUD WT: 9.3 VIS: 32 IN  
MUD WT: 9.5 VIS: 31 OUT

LS: lt-mgy-crm, sft-sl firm, sbply-sbblky,  
rthy, vcalc,  
TR: MRL: m gy- gyblk, sbblky - sbply,  
smefts, sl firm - modstf, slty-slmot, calc,  
sme pyr ctd, sme chk, tr lse fos, tr shys

LS: lt-mgy-crm, sft-sl firm, sbply-sbblky,  
rthy, vcalc,  
TR: MRL: m gy- gyblk, sbblky - sbply,  
smefts, sl firm - modstf, slty-slmot, calc,  
sme pyr ctd, sme chk, tr lse fos, tr shys

LS: lt-mgy-crm, sft-sl firm, sbply-sbblky,  
rthy, vcalc,  
TR: MRL: m gy- gyblk, sbblky - sbply,  
smefts, sl firm - modstf, slty-slmot, calc,  
sme pyr ctd, sme chk, tr lse fos, tr shys

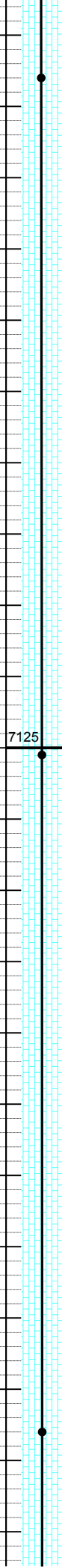
LS: lt-mgy-crm, sft-sl firm, sbply-sbblky,  
rthy, vcalc,  
TR: MRL: m gy- gyblk, sbblky - sbply,  
smefts, sl firm - modstf, slty-slmot, calc,  
sme pyr ctd, sme chk, tr lse fos, tr shys

LS: lt-mgy-crm, sft-sl firm, sbply-sbblky,  
rthy, vcalc,  
TR: MRL: m gy- gyblk, sbblky - sbply,  
smefts, sl firm - modstf, slty-slmot, calc,  
sme pyr ctd, sme chk, tr lse fos, tr shys

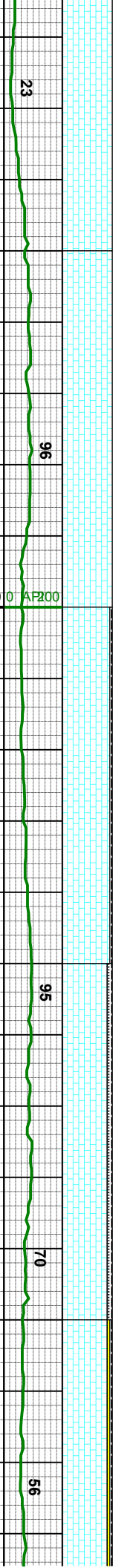
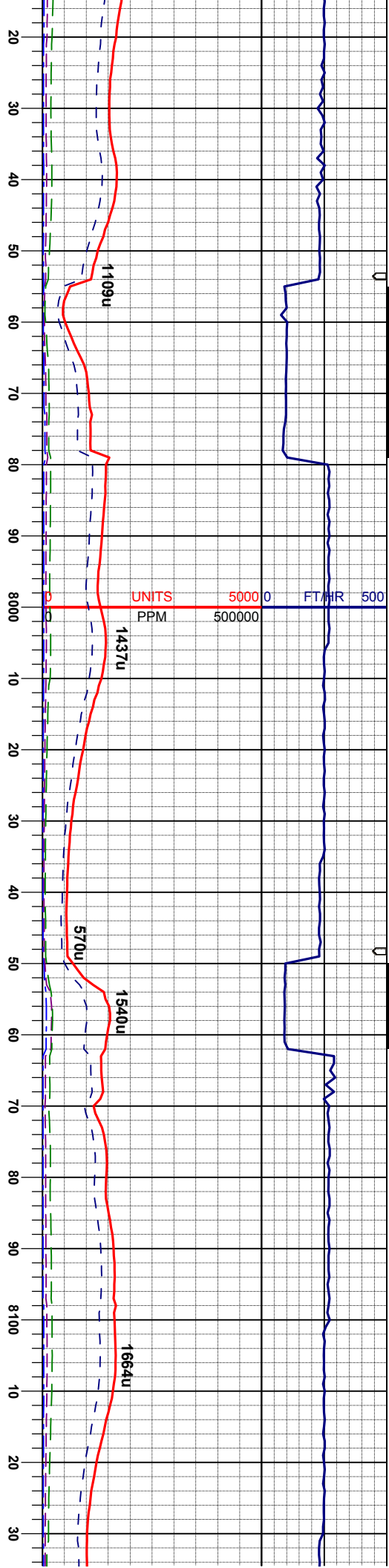
MD 7706'  
INC 91.0°  
AZI 357.7°  
TVD 7041.5'

MD 7801'  
INC 90.6°  
AZI 358.0°  
TVD 7040.1'

MD 7896'  
INC 90.2°  
AZI 359.3°  
TVD 7039.5'





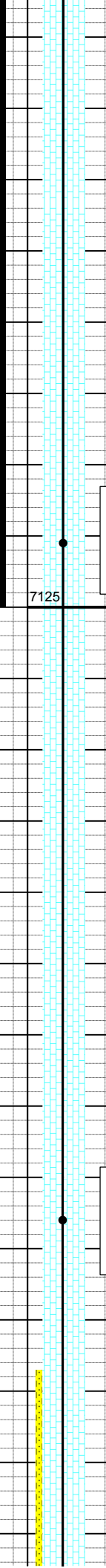


MUD WT: 9.4 VIS: 30 IN  
MUD WT: 9.5 VIS: 30 OUT

firm, stft-sl firm, sbpity-sbblky,

LS: lt-mgy-crm, stf-sl firm, sbply-sbby,  
rthy, vcalc,  
TR: MR.: m gy-gyblk, sbby - sbply,  
smets, sl firm - modst, slty-slmot, calc,  
sme pyr ctd, sme ctk, tr lse fos, tr shyss

MD	7991
INC	89.2°
AZI	357.8°
TVD	7039.9'



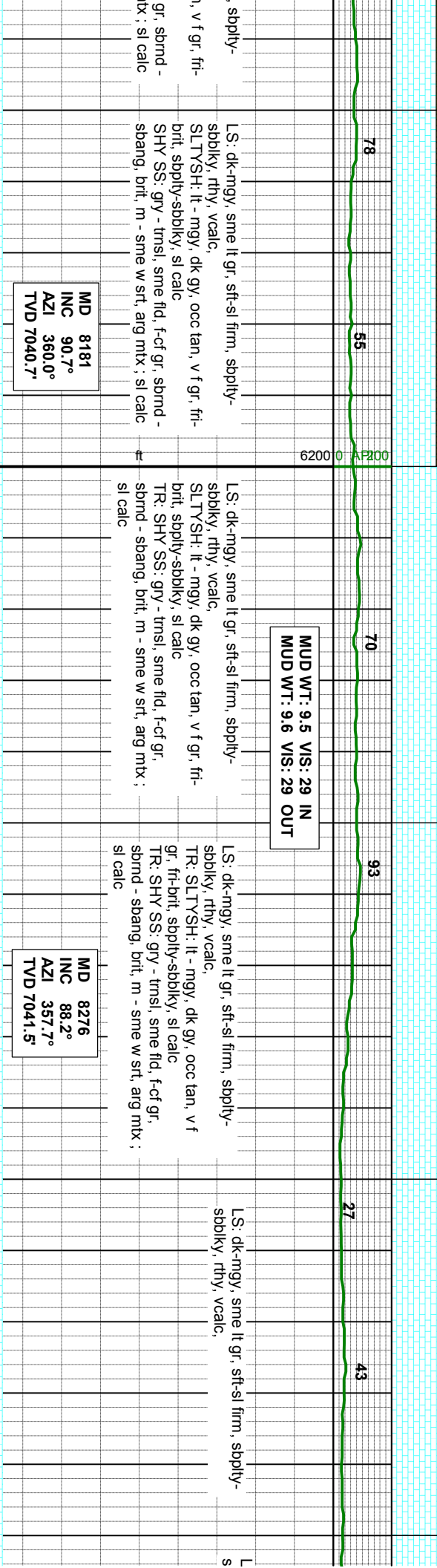
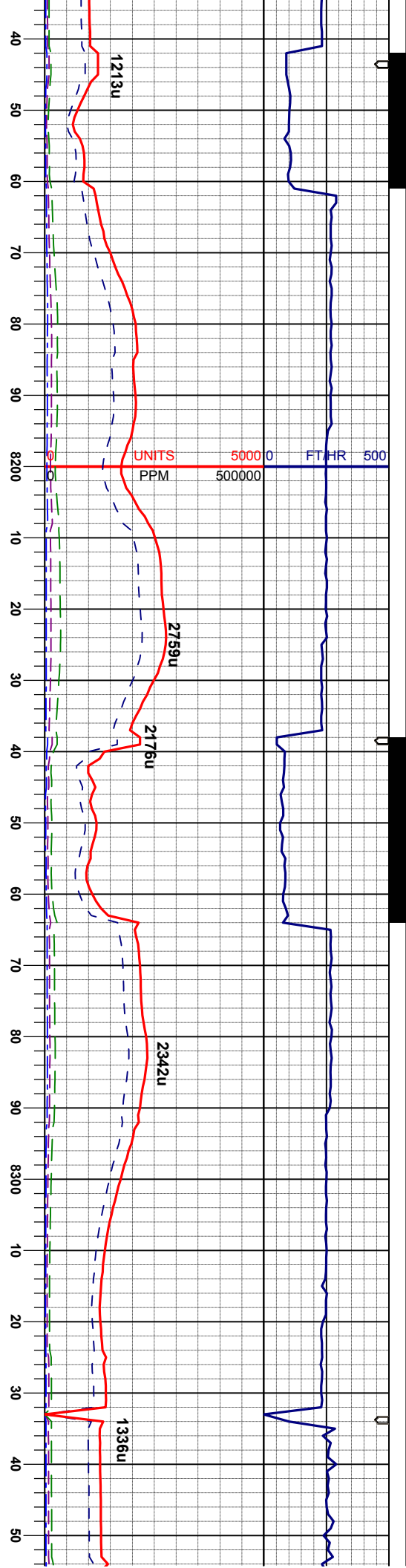
LS: lt-mgy-crm, st-sl firm, sbply-sbply, rthy, vcalc, SLTYSH: lt - mgy, dk gy, occ tan, v f gr, fr-brit, sbply-sbply, sl calc

LS: It-mgy-crm, stf-sl firm, sbply-sbply, rthy, vcalc, TR: MRL: m gy-gyblk, sbply - sbply, smefis, sl firm - modfst, slty-slmot, calc, sme pyr cid, sme cnk, tr lse fos, tr shyss

MD 8086  
INC 89.6°  
AZI 358.5°  
TVD 7040.9'

LS: dk-mgy, sme lt gr, sft-sl firm,  
sbbiky, rthy, vcalc,  
SLTYSH: lt - mgy, dk gy, occ tar  
brit, sbply-sbbiky, sl calc  
SHY SS: gry - tmsl, sme fld, f-cf  
sbang, brit, m - sme w srt, arg m

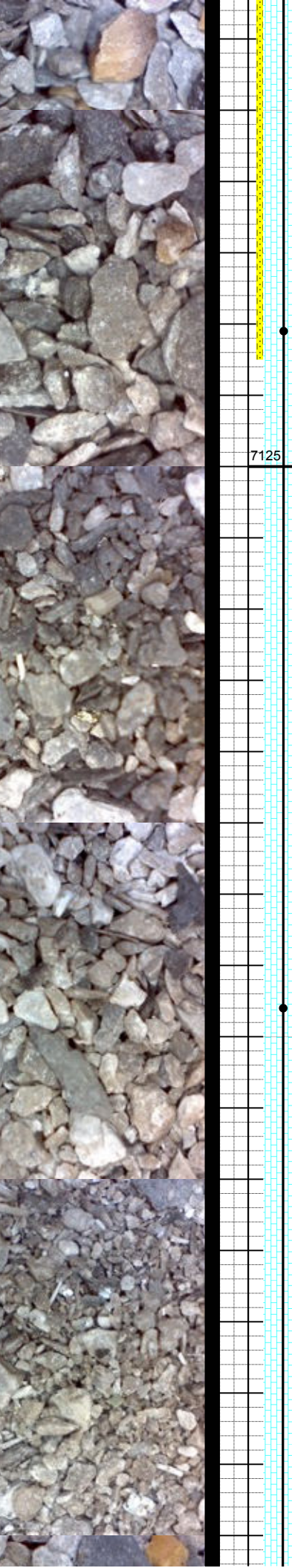




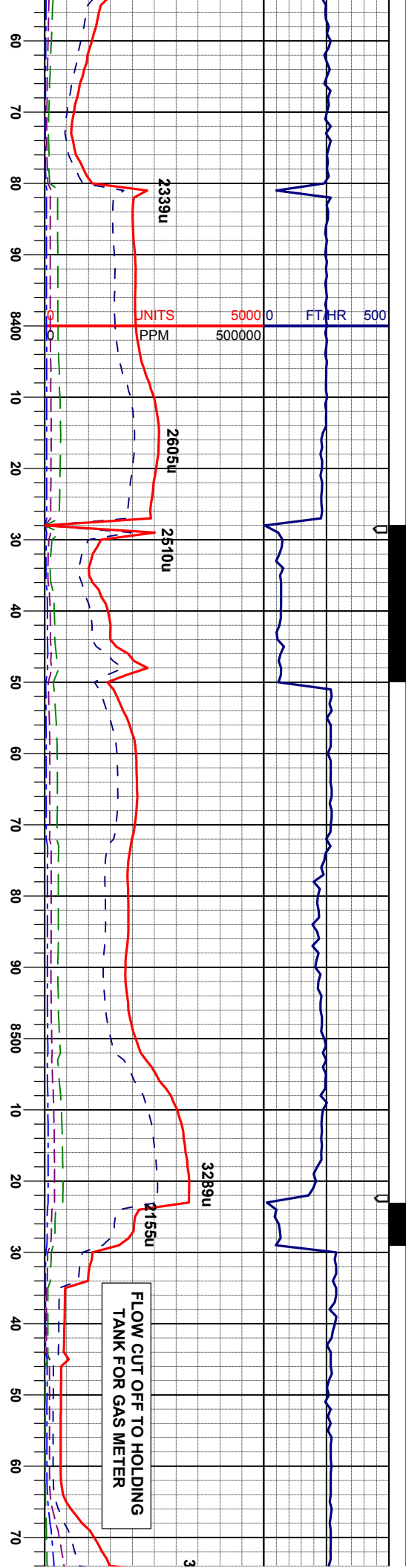
MD 8181  
INC 90.7°  
AZI 360.0°  
TVD 7040.7'

MUD WT: 9.5 VIS: 29 IN  
MUD WT: 9.6 VIS: 29 OUT

MD 8276  
INC 88.2°  
AZI 357.7°  
TVD 7041.5'







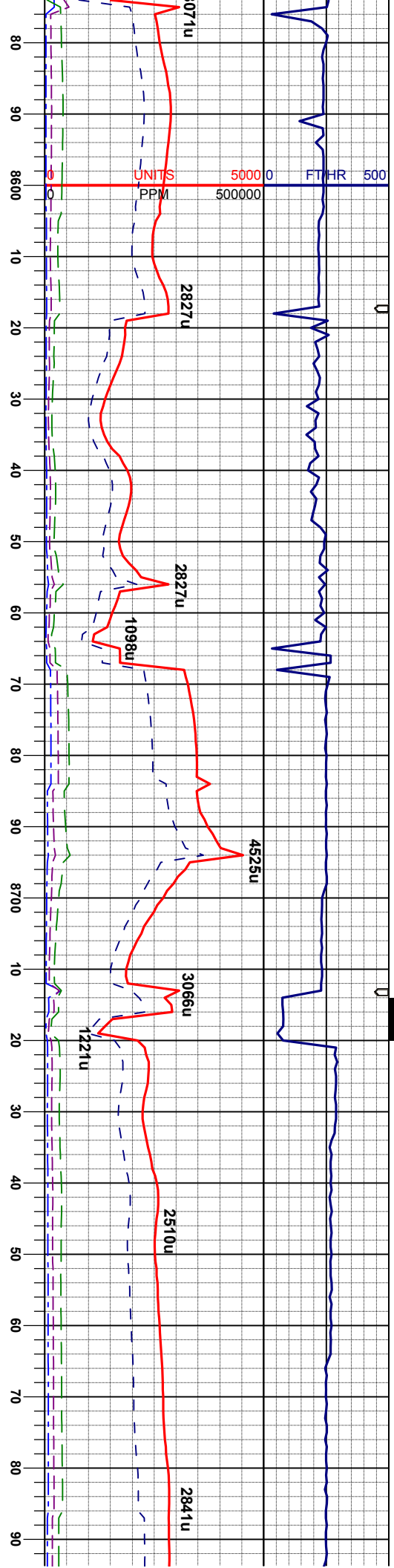
MUD WT: 9.4 VIS: 31 IN  
MUD WT: 9.5 VIS: 31 OUT

MD 8370  
INC 90.6°  
AZI 358.7°  
TVD 7042.6'

MD 8465  
INC 87.4°  
AZI 358.2°  
TVD 7044.3'

MD 8560  
INC 87.8°  
AZI 358.2°  
TVD 7048.2'



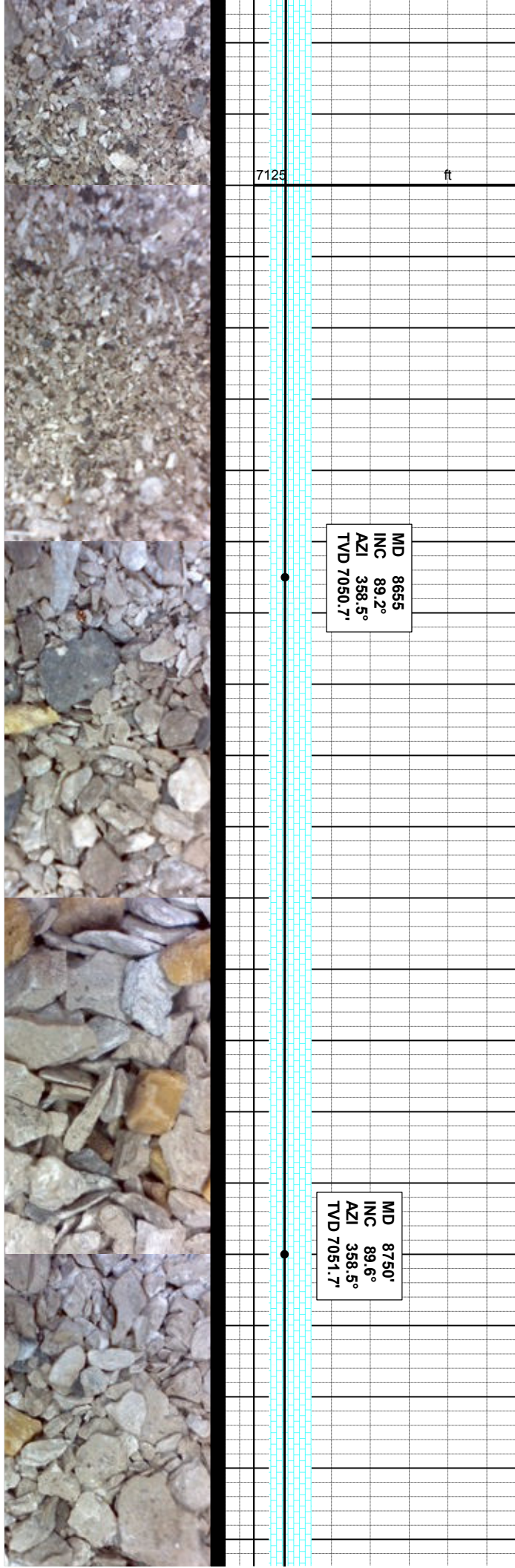


MUD WT: 9.4 VIS: 31 IN  
MUD WT: 9.5 VIS: 30 OUT

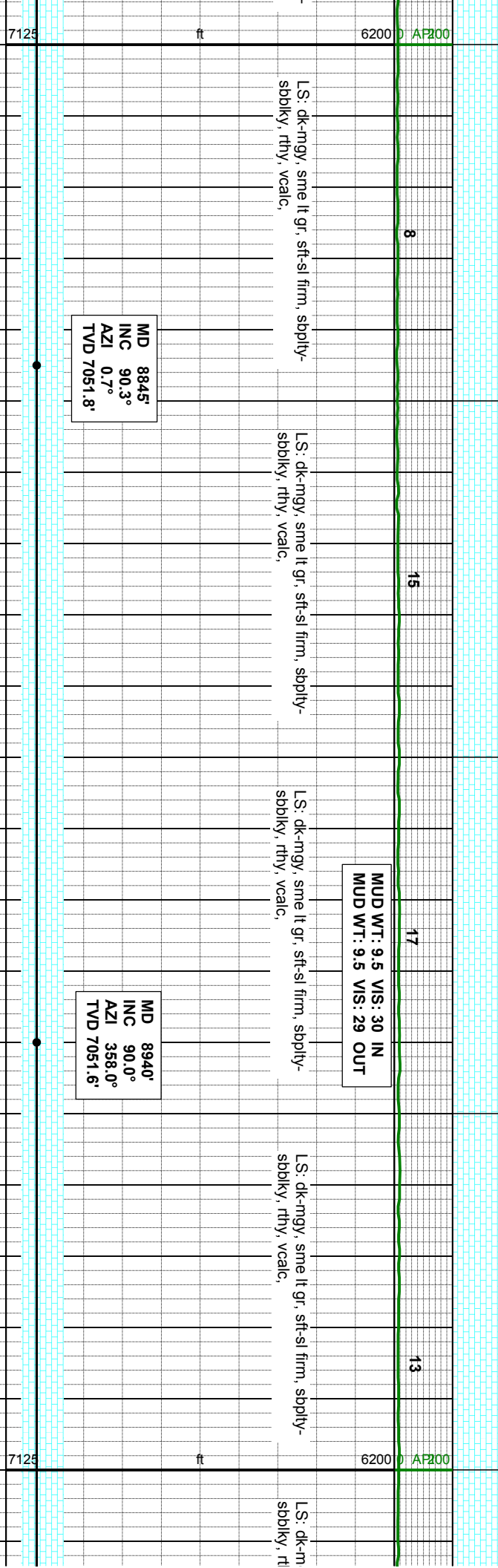
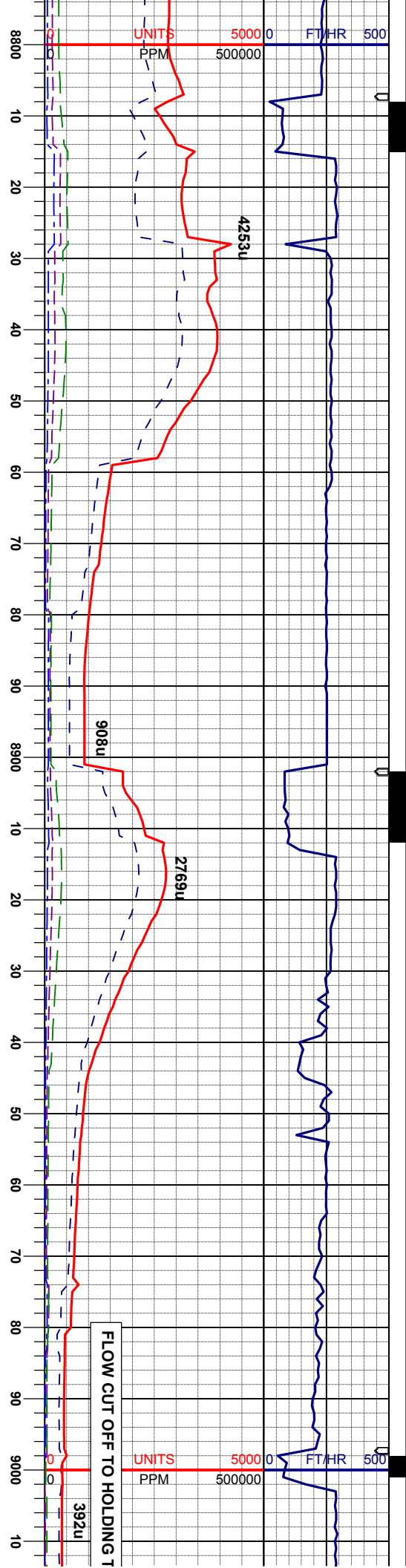
MD 8655  
INC 89.2°  
AZI 358.5°  
TVD 7050.7'

MD 8750'  
INC 89.6°  
AZI 358.5°  
TVD 7051.7'

gr, sft-sl firm, sbply-  
LS: dk-mgy, sme lt gr, sft-sl firm, sbply-  
sbply, rthy, vcalc.  
LS: dk-mgy, sme lt gr, sft-sl firm, sbply-  
sbply, rthy, vcalc.  
LS: dk-mgy, sme lt gr, sft-sl firm, sbply-  
sbply, rthy, vcalc.



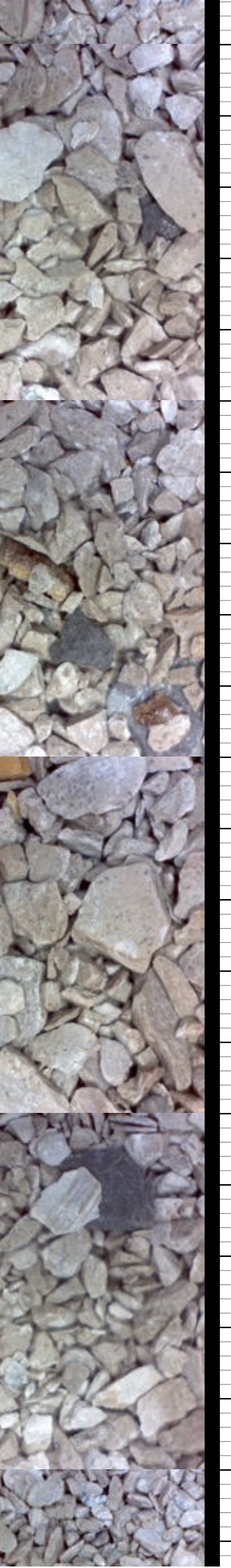


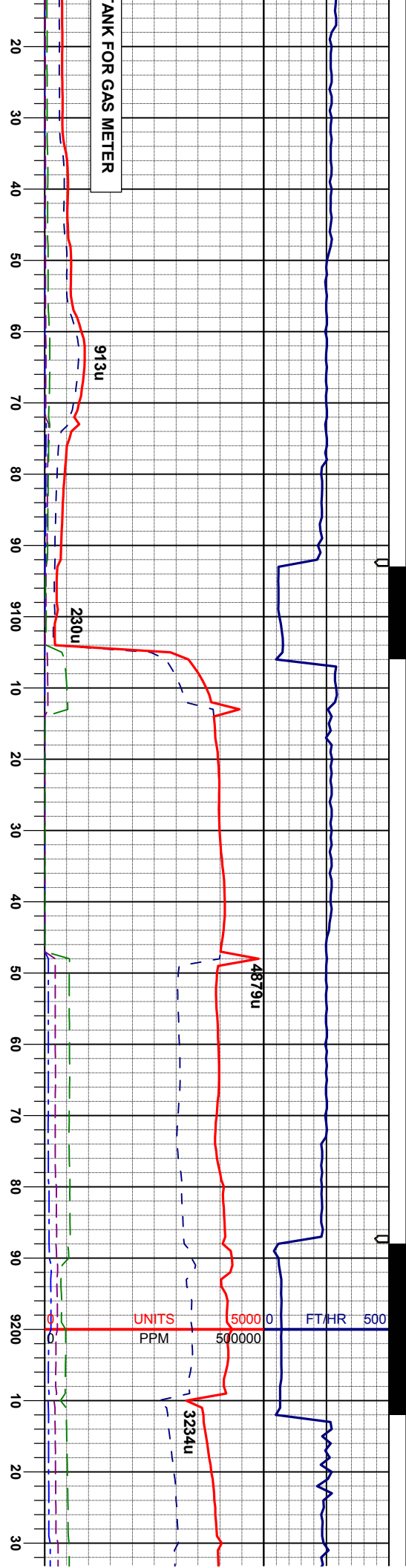


MD 8845'  
INC 90.3°  
AZI 0.7°  
TVD 7051.8'

MUD WT: 9.5 VIS: 30 IN  
MUD WT: 9.5 VIS: 29 OUT

MD 8940'  
INC 90.0°  
AZI 358.0°  
TVD 7051.6'





MUD WT: 9.5 VIS: 31 IN  
MUD WT: 9.5 VIS: 31 OUT

MD 9034'  
INC 90.2°  
AZI 357.3°  
TVD 7051.6'

MD 9129'  
INC 89.7°  
AZI 356.8°  
TVD 7051.6'

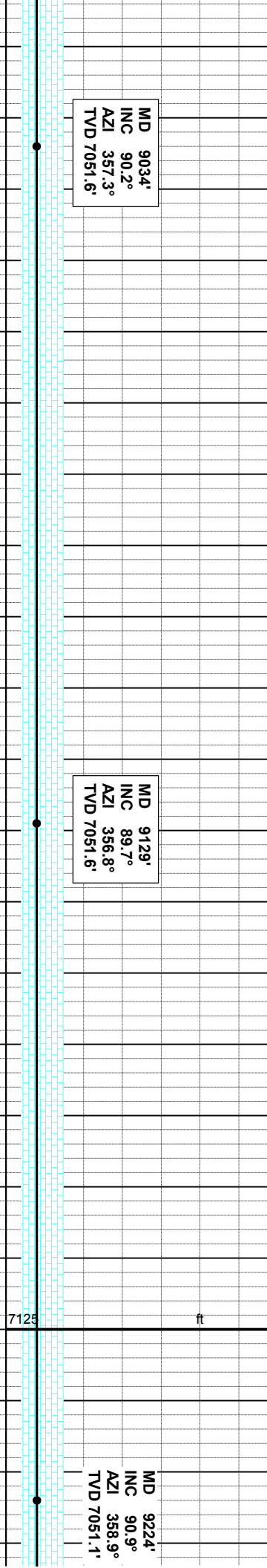
MD 9224'  
INC 90.9°  
AZI 358.9°  
TVD 7051.1'

gy, sme lt gr, sft-sl firm, sbply-  
hy, vcalc,

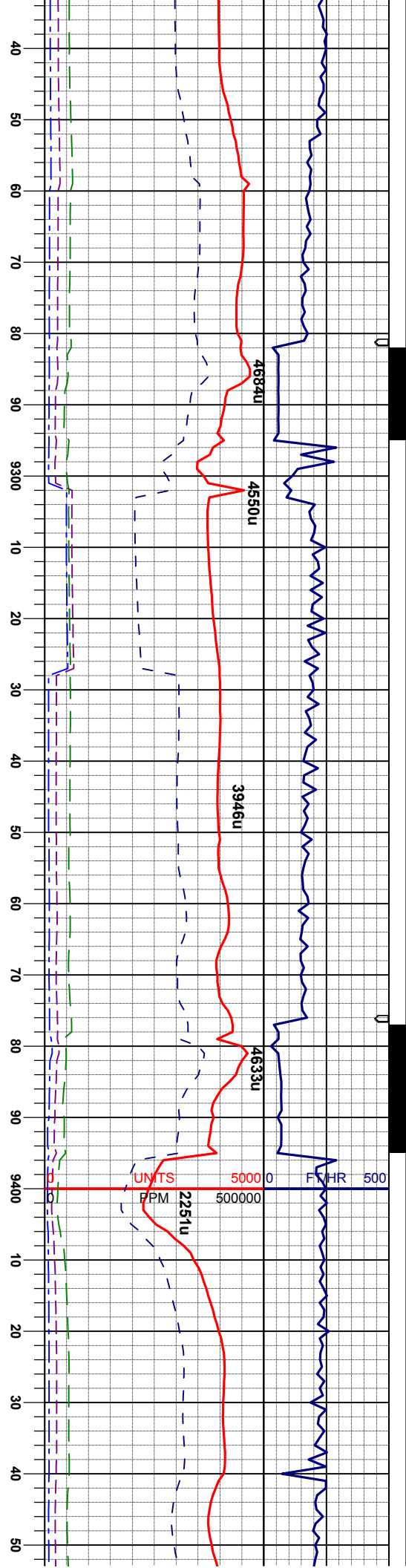
LS: dk-mgy, sme lt gr, sft-sl firm, sbply-  
sbply, rthy, vcalc,

LS: dk-mgy, sme lt gr, sft-sl firm, sbply-  
sbply, rthy, vcalc,

LS: dk-mgy, sme lt gr, sft-sl firm, sbply-  
sbply, rthy, vcalc,







MUD WT: 9.5 VIS: 31 IN  
MUD WT: 9.5 VIS: 32 OUT

LS: lt-mgy-crm, sft-sl firm, sbply-sbblky,  
rthy, vcalc,  
MRL: m gy- gyblk, sbblky - sbply, smeifs,  
sl firm - modstf, sly-slmot, calc, sme pyr  
ctd, sme chk, tr lse fos, tr shys

LS: lt-mgy-crm, sft-sl firm, sbply-sbblky,  
rthy, vcalc,  
MRL: m gy- gyblk, sbblky - sbply, smeifs,  
sl firm - modstf, sly-slmot, calc, sme pyr  
ctd, sme chk, tr lse fos, tr shys

LS: lt-mgy-crm, sft-sl firm, sbply-sbblky,  
rthy, vcalc,  
MRL: m gy- gyblk, sbblky - sbply, smeifs,  
sl firm - modstf, sly-slmot, calc, sme pyr  
ctd, sme chk, tr lse fos, tr shys

LS: lt-mgy-crm, sft-sl firm, sbply-sbblky,  
rthy, vcalc,  
MRL: m gy- gyblk, sbblky - sbply, smeifs,  
sl firm - modstf, sly-slmot, calc, sme pyr  
ctd, sme chk, tr lse fos, tr shys

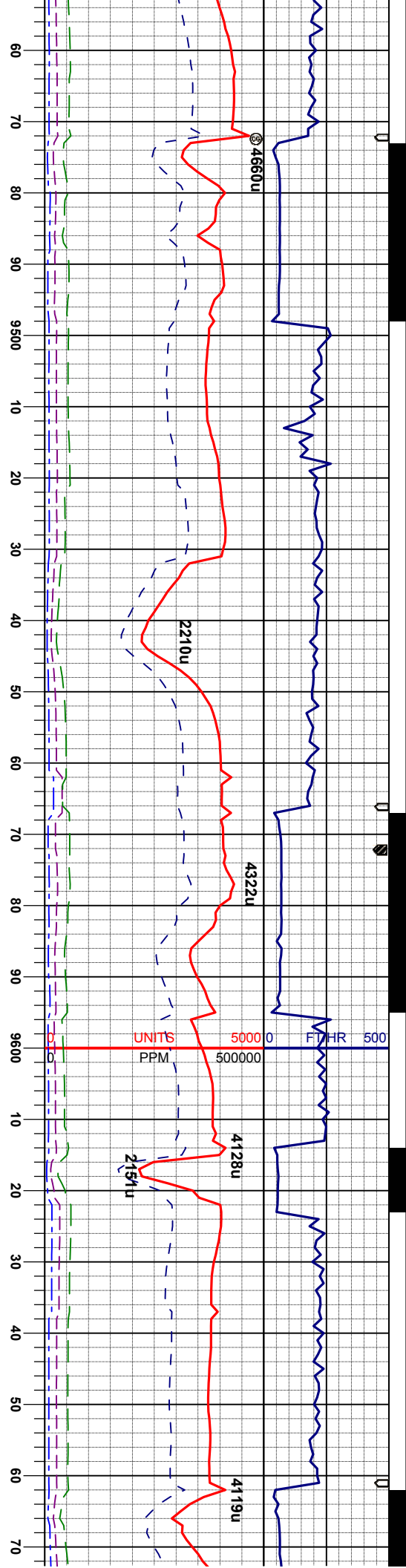
MD 9319'  
INC 90.0°  
AZI 358.9°  
TVD 7050.4'

MD 9414'  
INC 90.0°  
AZI 357.8°  
TVD 7050.4'

7125 ft 6200 0 AP200







MUD WT: 9.5 VS: 31 IN  
MUD WT: 9.5 VS: 31 OUT

LS: lt-mgy-crm, sft-sl firm, sbply-sbply,  
rthy, vcalc,  
MRL: m gy- gyblk, sbply - sbply, smeifs,  
sl firm - modstf, silty-slimot, calc, sme pyr  
cid, sme chk, tr lse tos, tr shys

LS: lt-mgy-crm, sft-sl firm, sbply-sbply,  
rthy, vcalc,  
MRL: m gy- gyblk, sbply - sbply, smeifs,  
sl firm - modstf, silty-slimot, calc, sme pyr  
cid, sme chk, tr lse tos, tr shys

LS: lt-mgy-crm, sft-sl firm, sbply-sbply,  
rthy, vcalc,  
MRL: m gy- gyblk, sbply - sbply, smeifs,  
sl firm - modstf, silty-slimot, calc, sme pyr  
cid, sme chk, tr lse tos, tr shys

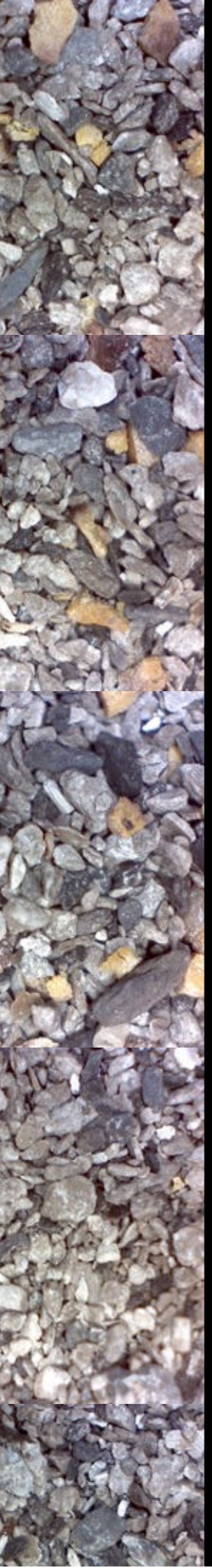
LS: lt-mgy-crm, sft-sl firm, sbply-sbply,  
rthy, vcalc,  
MRL: m gy- gyblk, sbply - sbply, smeifs,  
sl firm - modstf, silty-slimot, calc, sme pyr  
cid, sme chk, tr lse tos, tr shys

LS: lt-mgy-crm, sft-sl firm, sbply-sbply,  
rthy, vcalc,  
MRL: m gy- gyblk, sbply - sbply, smeifs,  
sl firm - modstf, silty-slimot, calc, sme pyr  
cid, sme chk, tr lse tos, tr shys

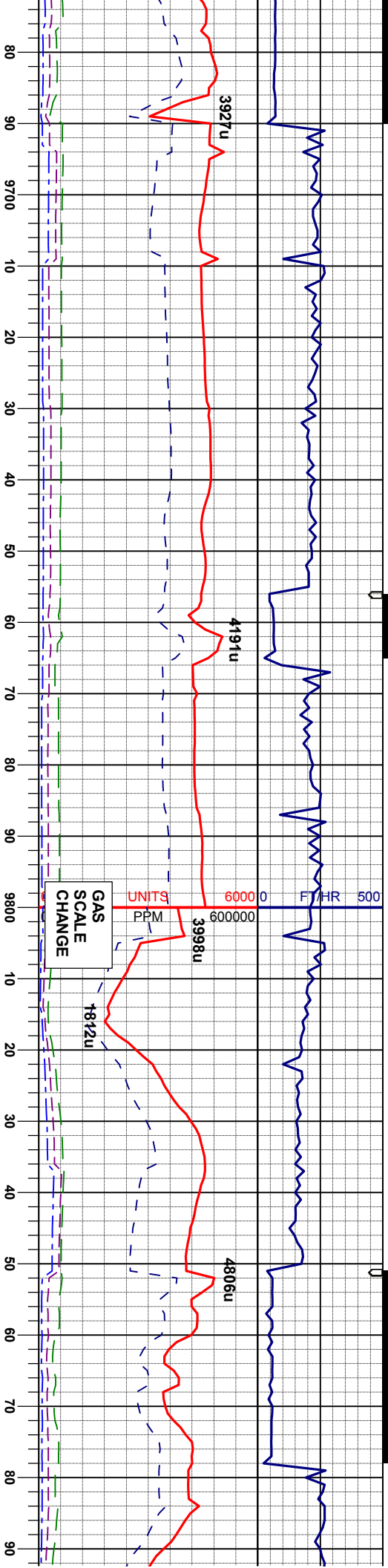
MD 9509'  
INC 89.9°  
AZI 357.8°  
TVD 7050.5'

MD 9604'  
INC 90.0°  
AZI 358.5°  
TVD 7050.6'

7125







MUD WT: 9.5 VIS: 31 IN  
MUD WT: 9.5 VIS: 31 OUT

MD 9699'  
INC 90.4°  
AZI 1.5°  
TVD 7050.2'

MD 9793'  
INC 93.3°  
AZI 4.5°  
TVD 7047.2'

MD 9888'  
INC 94.9°  
AZI 1.0°  
TVD 7042.5'

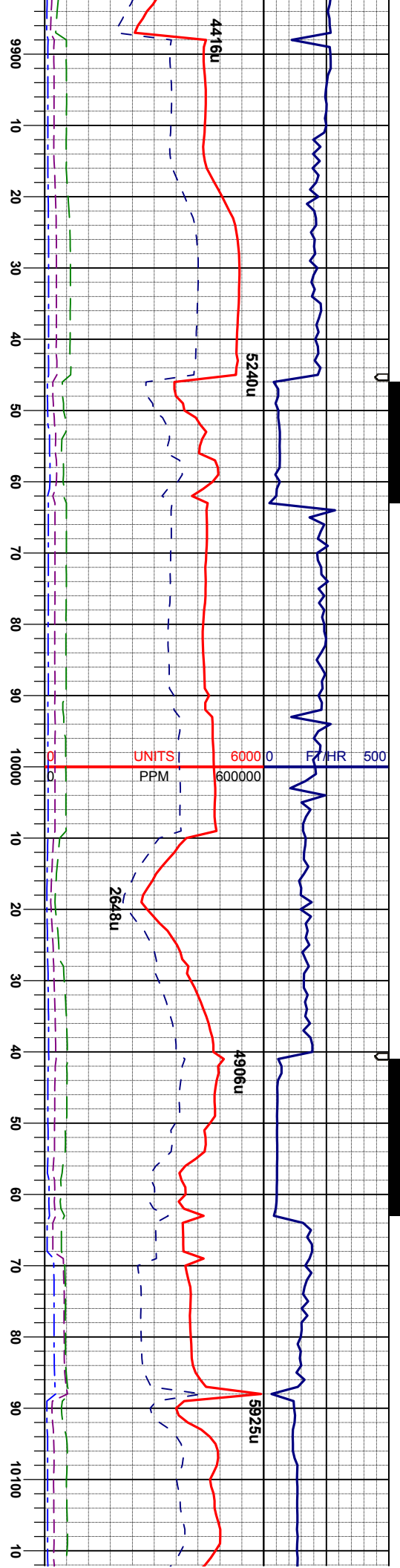
LS: lt-mgy-crm, sft-sl firm, sbply-sbblky,  
rthy, vcalc,  
MRL: m gy- gyblk, sbblky - sbply, smeifs,  
sl firm - modstf, slty-slmot, calc, sme pyr  
cid, sme chk, tr ise fos, tr shys

LS: lt-mgy-crm, sft-sl firm, sbply-sbblky,  
rthy, vcalc,  
MRL: m gy- gyblk, sbblky - sbply, smeifs,  
sl firm - modstf, slty-slmot, calc, sme pyr  
cid, sme chk, tr ise fos, tr shys

LS: lt-mgy-crm, sft-sl firm, sbply-sbblky,  
rthy, vcalc,  
MRL: m gy- gyblk, sbblky - sbply, smeifs,  
sl firm - modstf, slty-slmot, calc, sme pyr  
cid, sme chk, tr ise fos, tr shys







MUD WT: 9.5 VIS: 32 IN  
MUD WT: 9.5 VIS: 32 OUT

LS: lt-mgy-crm, sft-sl firm, sbply-sbply,  
rthy, vcalc,  
MRL: m gy- gyblk, sbply - sbply, smefts,  
sl firm - modstf, slty-slmot, calc, sme pyr  
ctd, sme chk, tr lse fos, tr shys

LS: lt-mgy-crm, sft-sl firm, sbply-sbply,  
rthy, vcalc,  
MRL: m gy- gyblk, sbply - sbply, smefts,  
sl firm - modstf, slty-slmot, calc, sme pyr  
ctd, sme chk, tr lse fos, tr shys

LS: lt-mgy-crm, sft-sl firm, sbply-sbply,  
rthy, vcalc,  
MRL: m gy- gyblk, sbply - sbply, smefts,  
sl firm - modstf, slty-slmot, calc, sme pyr  
ctd, sme chk, tr lse fos, tr shys

LS: lt-mgy-crm, sft-sl firm, sbply-sbply,  
rthy, vcalc,  
MRL: m gy- gyblk, sbply - sbply, smefts,  
sl firm - modstf, slty-slmot, calc, sme pyr  
ctd, sme chk, tr lse fos, tr shys

LS: lt-mgy-  
rthy, vcalc,  
MRL: m gy  
sl firm - mc  
ctd, sme cl

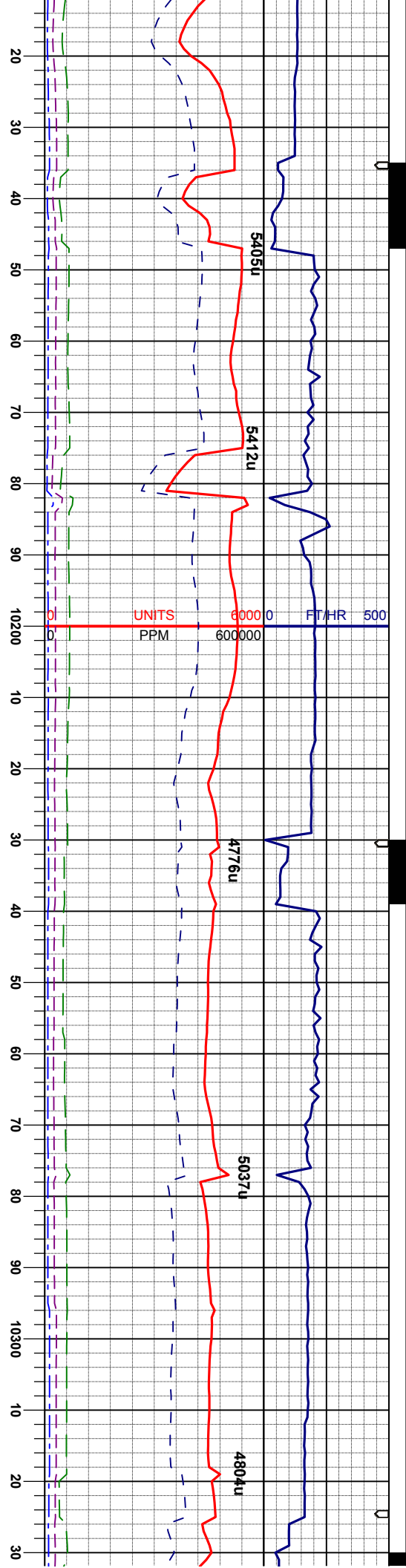
MD 9983'  
INC 91.0°  
AZI 0.8°  
TVD 7040.5'

MD 10078'  
INC 87.2°  
AZI 358.9°  
TVD 7042.0'

7125







cm, sft-si firm, sbply-sbbkly,  
- gybik, sbbkly - sbply, smeifs,  
sdstf, slty-slmot, calc, sme pyr  
k, tr lse fos, tr shyss

LS: lt-mgy-crm, sft-si firm, sbply-sbbkly,  
rthy, vcalc,  
TR: MRL: m gy- gybik, sbbkly - sbply,  
smeifs, sl firm - modstf, slty-slmot, calc,  
sme pyr ctd, sme chk, tr lse fos, tr shyss

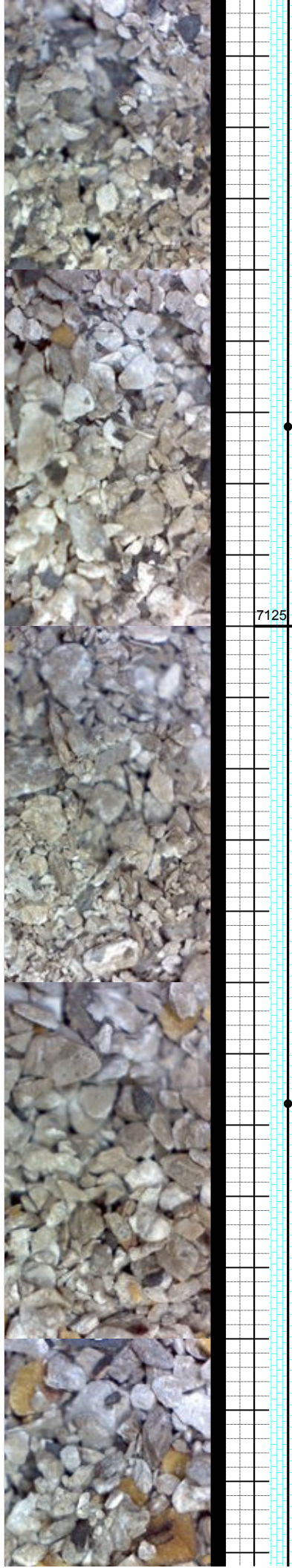
LS: lt-mgy-crm, sft-si firm, sbply-sbbkly,  
rthy, vcalc,  
MRL: m gy- gybik, sbbkly - sbply,  
sl firm - modstf, slty-slmot, calc, sme pyr  
ctd, sme chk, tr lse fos, tr shyss

LS: lt-mgy-crm, sft-si firm, sbply-sbbkly,  
rthy, vcalc,  
MRL: m gy- gybik, sbbkly - sbply,  
sl firm - modstf, slty-slmot, calc, sme pyr  
ctd, sme chk, tr lse fos, tr shyss

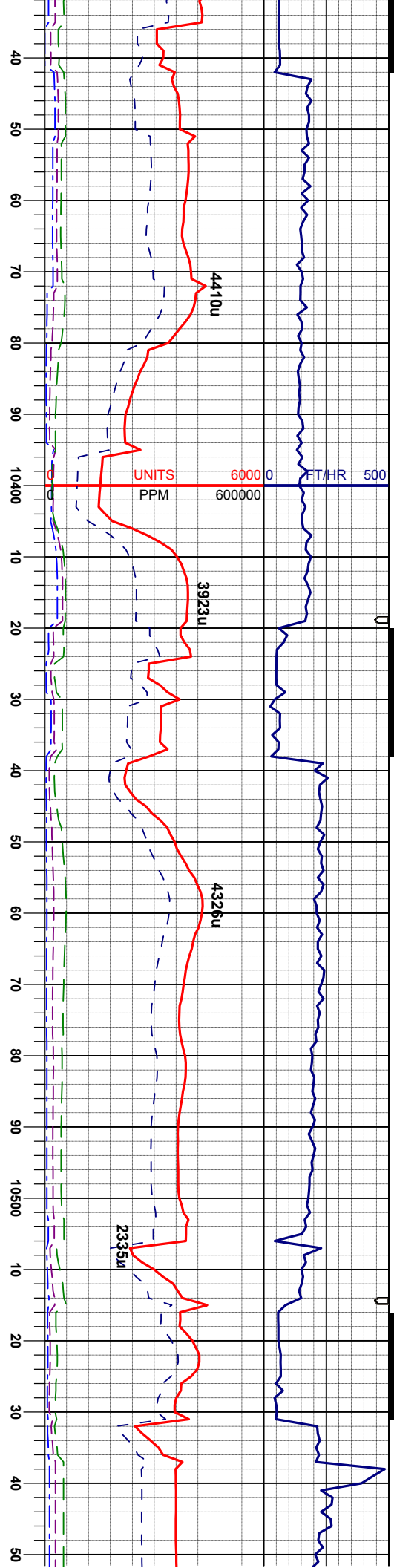
MD 10172'  
INC 89.5°  
AZI 0.5°  
TVD 7044.7'

MUD WT: 9.4 VIS: 33 IN  
MUD WT: 9.5 VIS: 32 OUT

MD 10267'  
INC 90.7°  
AZI 1.2°  
TVD 7044.5'







LS: lt-mgy-crm, sft-sl firm, sbply-sbblky, rthy, vcalc, MR.L: m gy- gyblk, sbblky - sbply, smeifs, sl firm - modstf, slty-slmot, calc, sme pyr ctd, sme chk, tr ise fos, tr shys

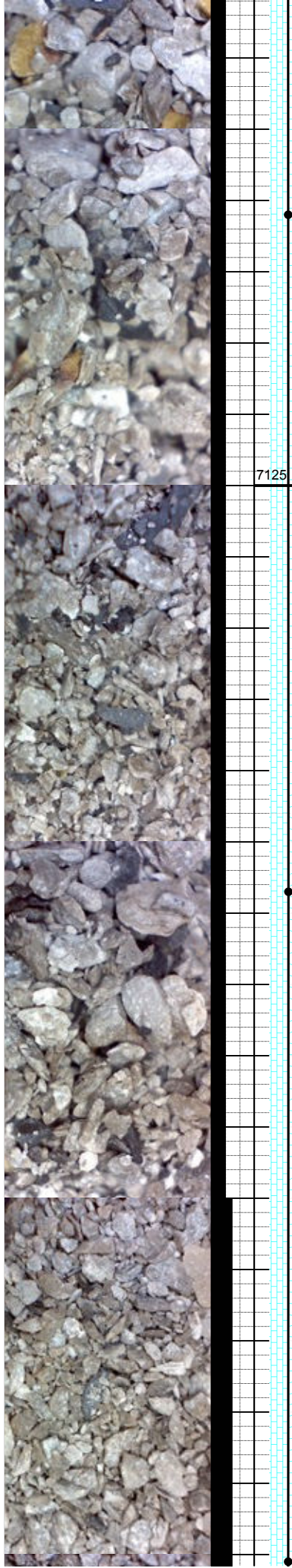
MD 10362' INC 90.3° AZI 0.7° TVD 7043.7'

MUD WT: 9.3 VIS: 30 IN MUD WT: 9.4 VIS: 30 OUT

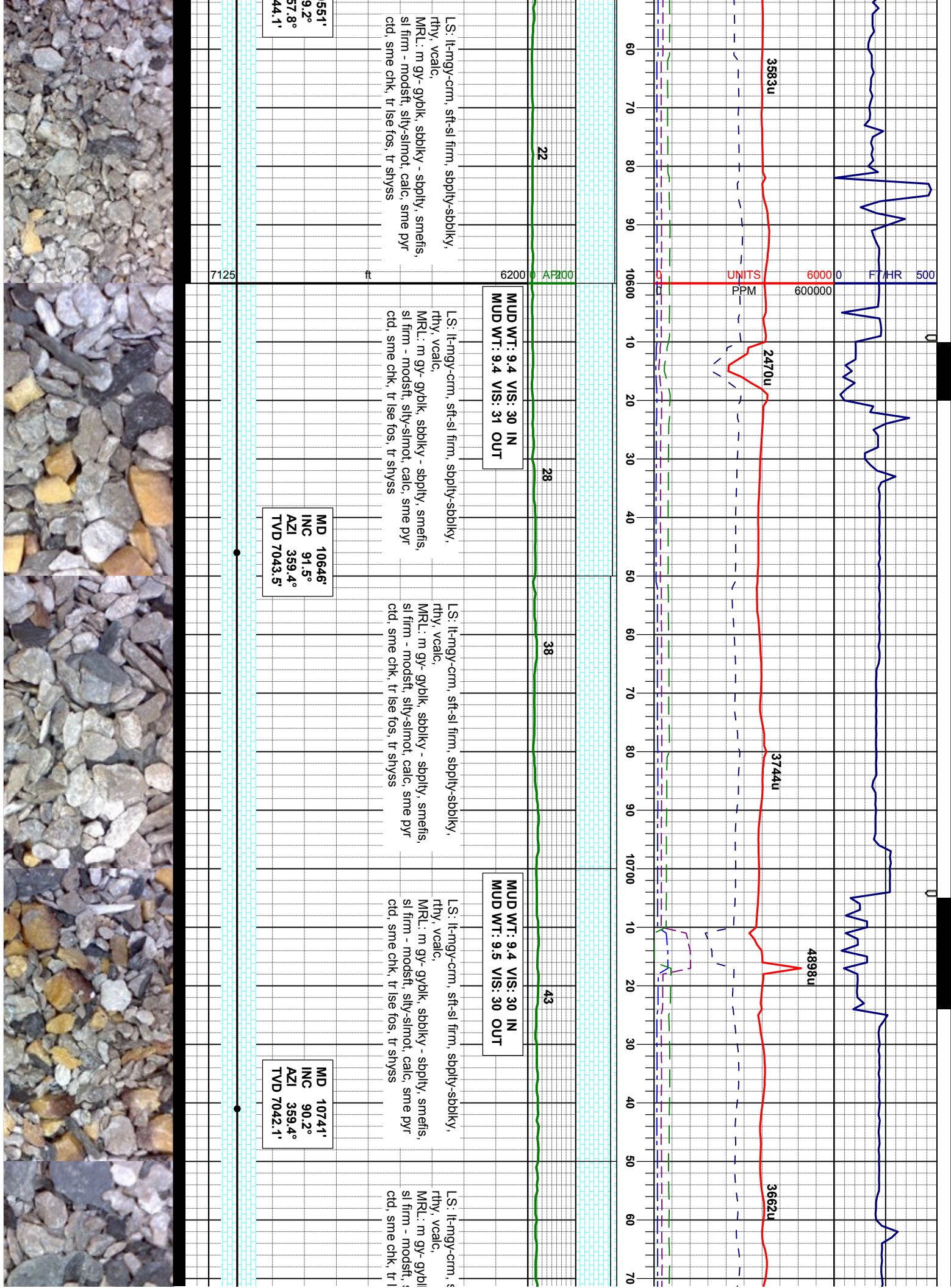
MD 10457' INC 90.0° AZI 90.0° TVD 7043.4'

MUD WT: 9.4 VIS: 30 IN MUD WT: 9.4 VIS: 31 OUT

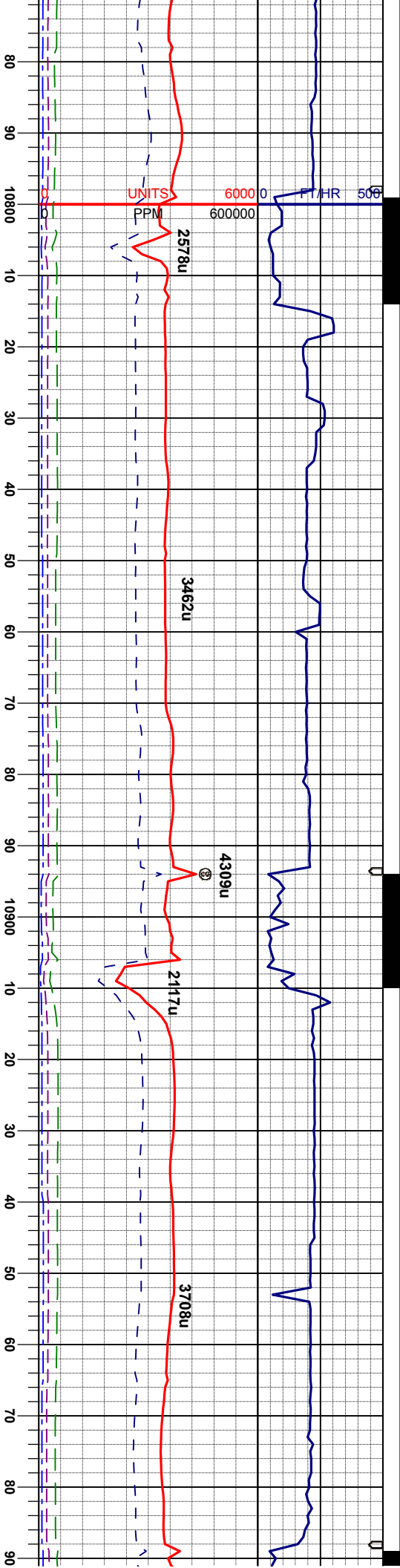
MD 10 INC 8 AZI 3: TVD 70











42

42

43

40

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MUD WT: 9.4 VIS: 30 IN  
MUD WT: 9.4 VIS: 30 OUT

MUD WT: 9.4 VIS: 30 IN  
MUD WT: 9.4 VIS: 31 OUT

stiff-si firm, supply-sbbkly,  
k, sbbkly - sbbply, smeifs,  
stiffy-slmot, calc, sme pyr  
sse fos, tr shys

LS: lt-mgy-crm, stf-si firm, supply-sbbkly,  
rthy, vcalc,  
MRL: m gy- gybik, sbbkly - sbbply, smeifs,  
si firm - modstf, stly-slmot, calc, sme pyr  
cld, sme chk, tr lse fos, tr shys

LS: lt-mgy-crm, stf-si firm, supply-sbbkly,  
rthy, vcalc,  
MRL: m gy- gybik, sbbkly - sbbply, smeifs,  
si firm - modstf, stly-slmot, calc, sme pyr  
cld, sme chk, tr lse fos, tr shys

LS: lt-mgy-crm, stf-si firm, sbbply-sbbkly,  
rthy, vcalc,  
MRL: m gy- gybik, sbbkly - sbbply, smeifs,  
si firm - modstf, stly-slmot, calc, sme pyr  
cld, sme chk, tr lse fos, tr shys

LS: lt-mgy-crm, stf-si firm, sbbply-sbbkly,  
rthy, vcalc,  
MRL: m gy- gybik, sbbkly - sbbply, sn  
si firm - modstf, stly-slmot, calc, sme  
cld, sme chk, tr lse fos, tr shys

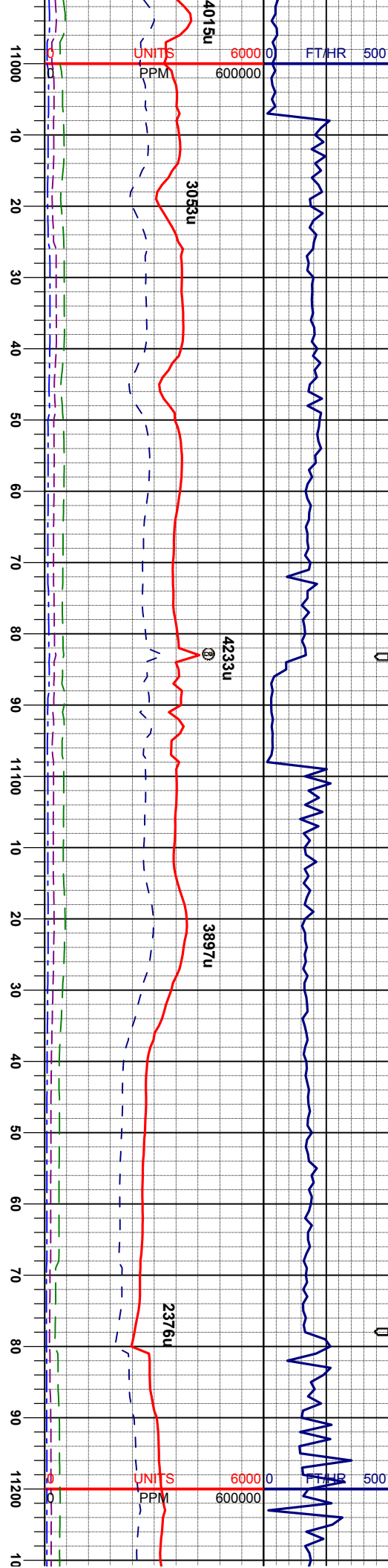
7125

MD 10836'  
INC 89.7°  
AZI 357.1°  
TVD 7042.2'

MD 10931'  
INC 89.8°  
AZI 357.5°  
TVD 7042.6'



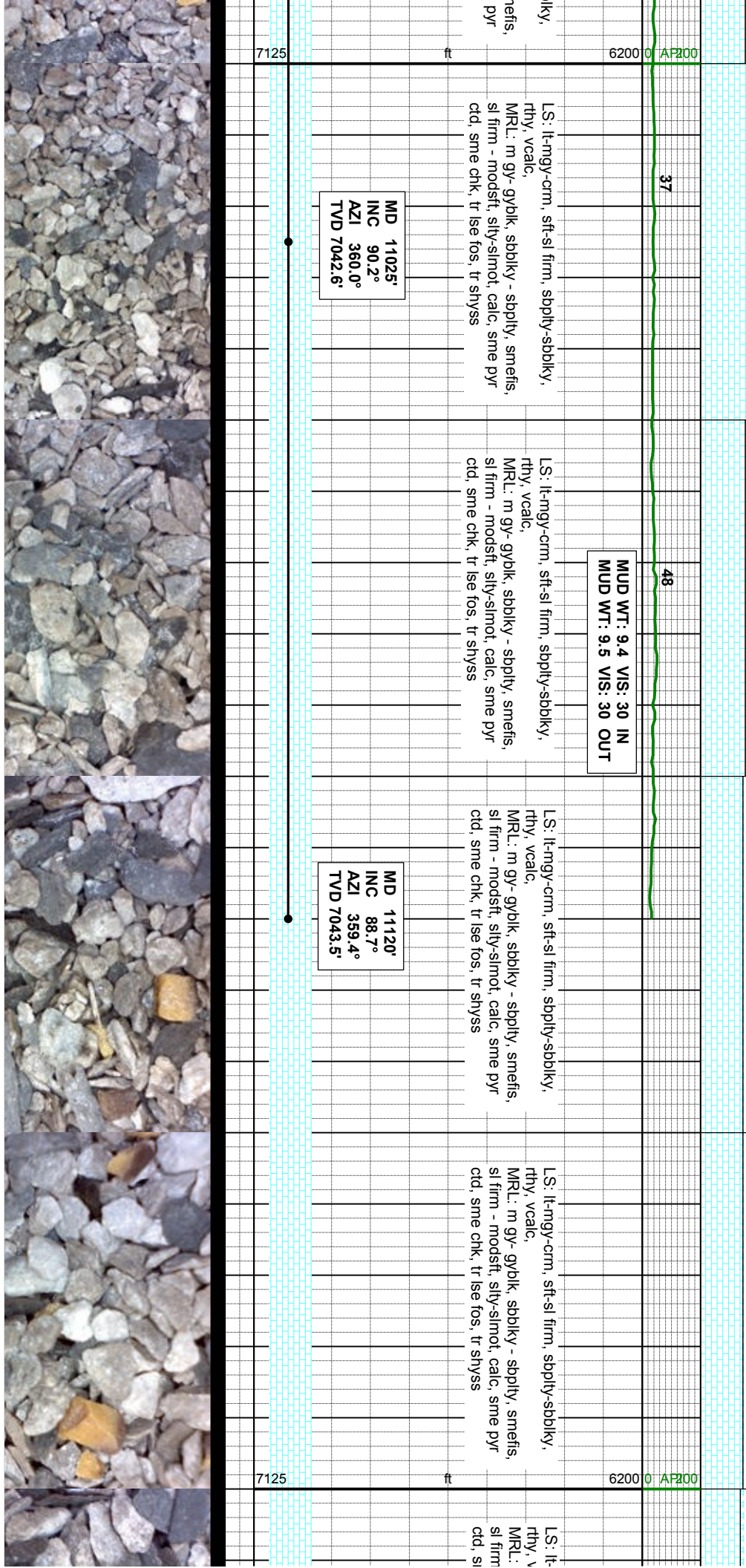


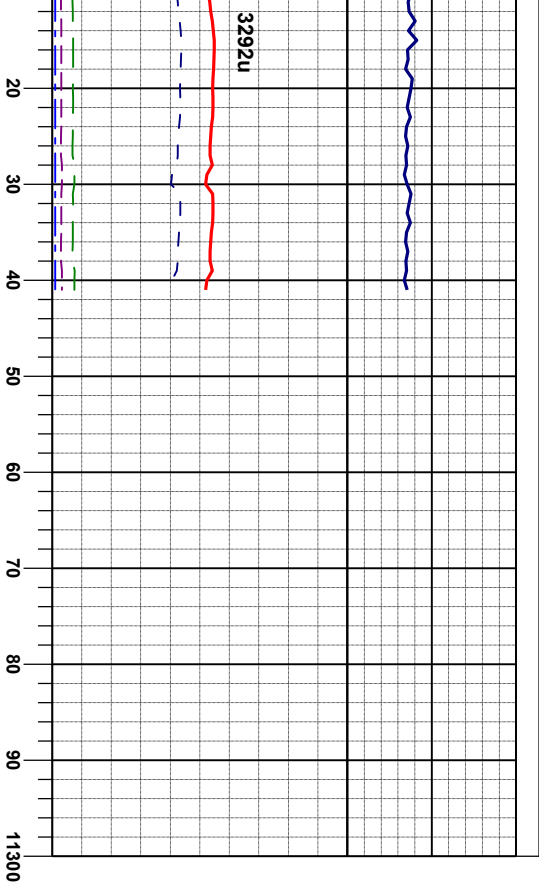


MUD WT: 9.4 VIS: 30 IN  
MUD WT: 9.5 VIS: 30 OUT

MD 11025'  
INC 90.2°  
AZI 360.0°  
TVD 7042.6'

MD 11120'  
INC 88.7°  
AZI 359.4°  
TVD 7043.5'





ngy-crm, sft-sl firm, sbply-sbblky,  
calc,  
m gy- gybik, sbblky - sbply, smets,  
- modstf, slly-slmot, calc, sme pyr  
me cnk, tr lse fos, tr snyss

NOBLE ENERGY  
SAUER F33-77-1HC  
ENSGN 121  
HORIZONTAL TD @ 11241' MD  
5/12/2013 @ 22:16 PM  
THANK YOU  
COLUMBINE LOGGING

