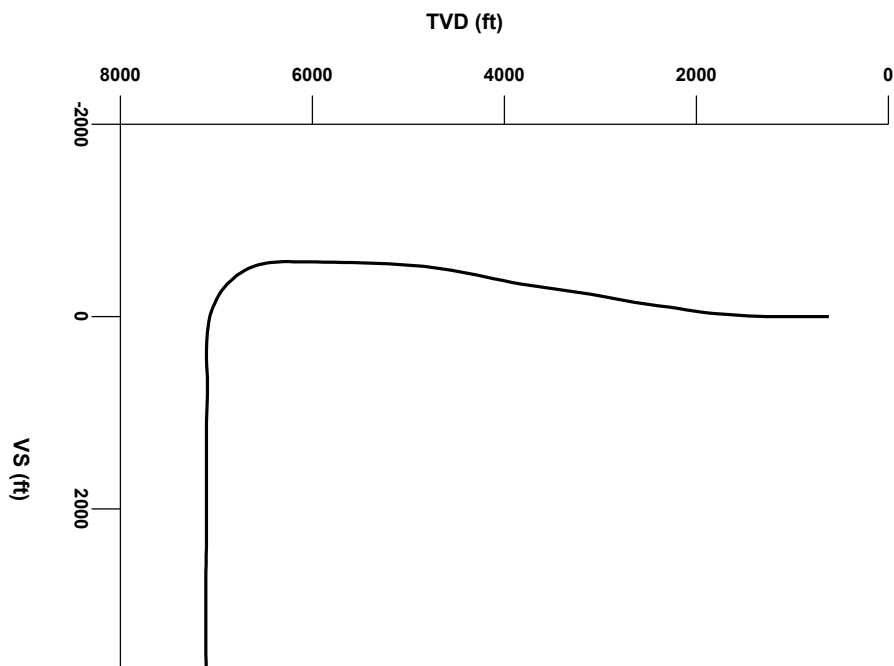




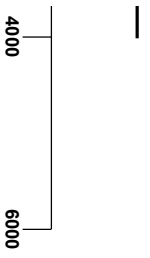
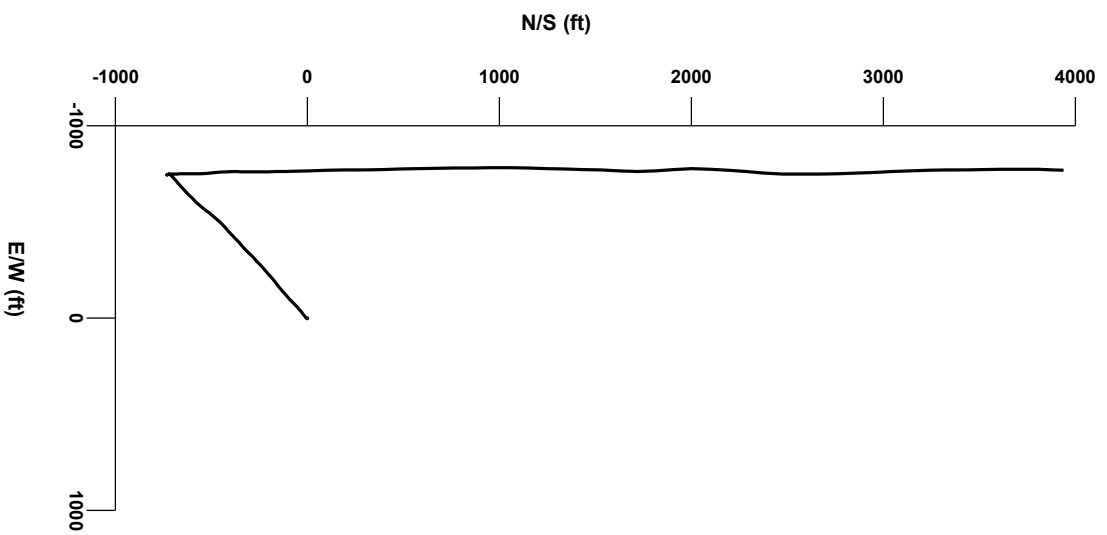
LOG created using LPLOT VH Version 3.0, October 31, 2012, Copyright (C) 1999-2009 Pason Systems Corp.

**OPERATOR:** NOBLE ENERGY INC.  
**WELL:** BOULTER STATE G16-75HN  
**LOCATION:** SW SE, SEC 16, T4N, R67W  
**COUNTY:** WELD  
**STATE:** COLORADO  
**SPOT:** 824' FSL, 1947' FEL  
**ELEVATION:** GL 4807' , KB 4831'  
**FIELD:** WATTENBURG  
**SPUD DATE:** 10/23/2012  
**TD DATE:** 10/31/2012  
**DATES LOGGED:** 10/24/2012 - 10/31/2012  
**DEPTHS LOGGED:** 1000' MD - 11589' MD  
**LOGGERS:** JOHN T. READY, CHRIS WILLATT  
**DRILLING FLUID:** WATER, WATER BASED MUD, POLY  
**DRILLING RIG:** H&P 323  
**API:** 05-123-35233  
**LOG TYPE:** HORIZONTAL  
**SCALE:** 1:240 (5 inches per 100 feet)  
**REMARKS:** WELLSITE GEOLOGIC SERVICES PROVIDED BY COLUMBINE LOGGING INC.



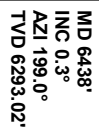
Survey Elevation

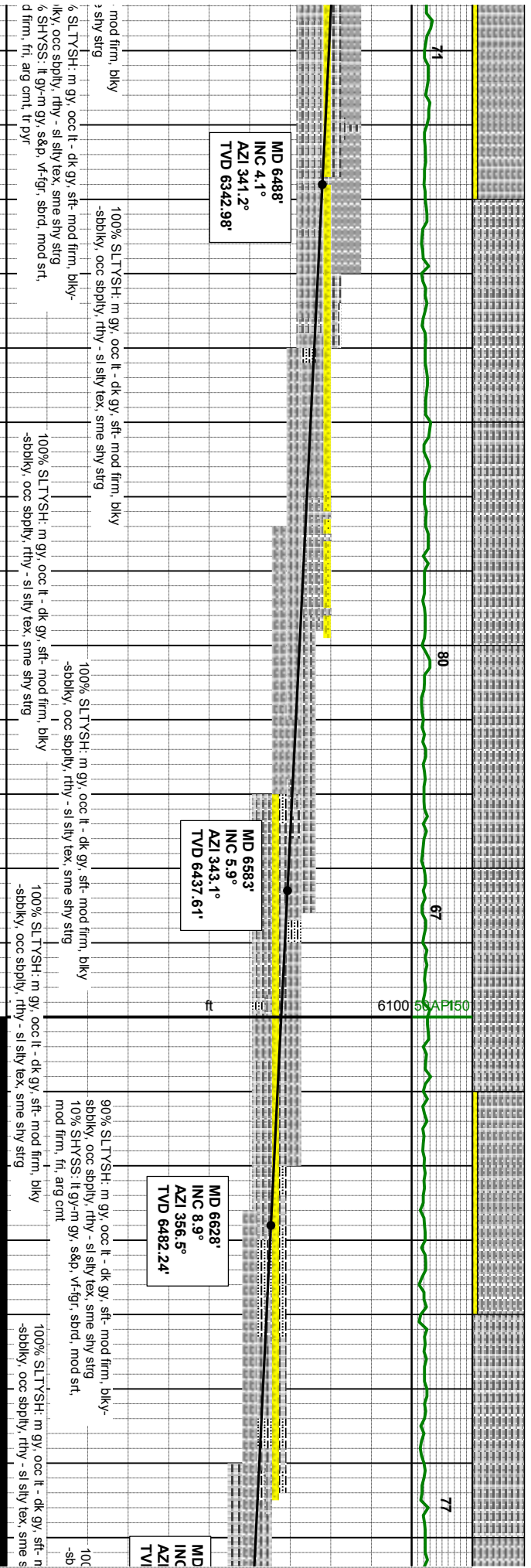
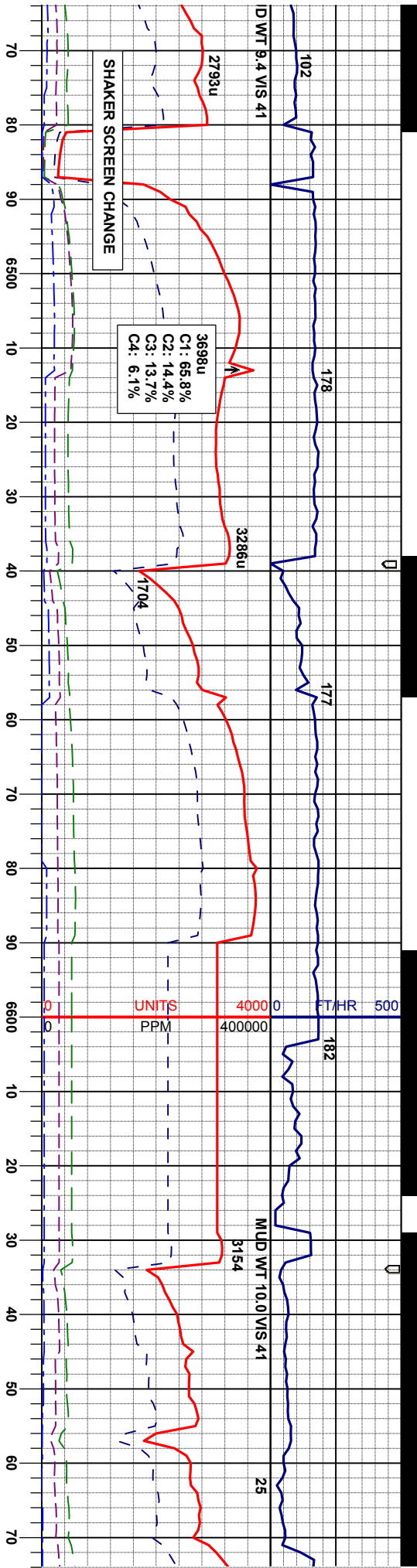
Survey Plan



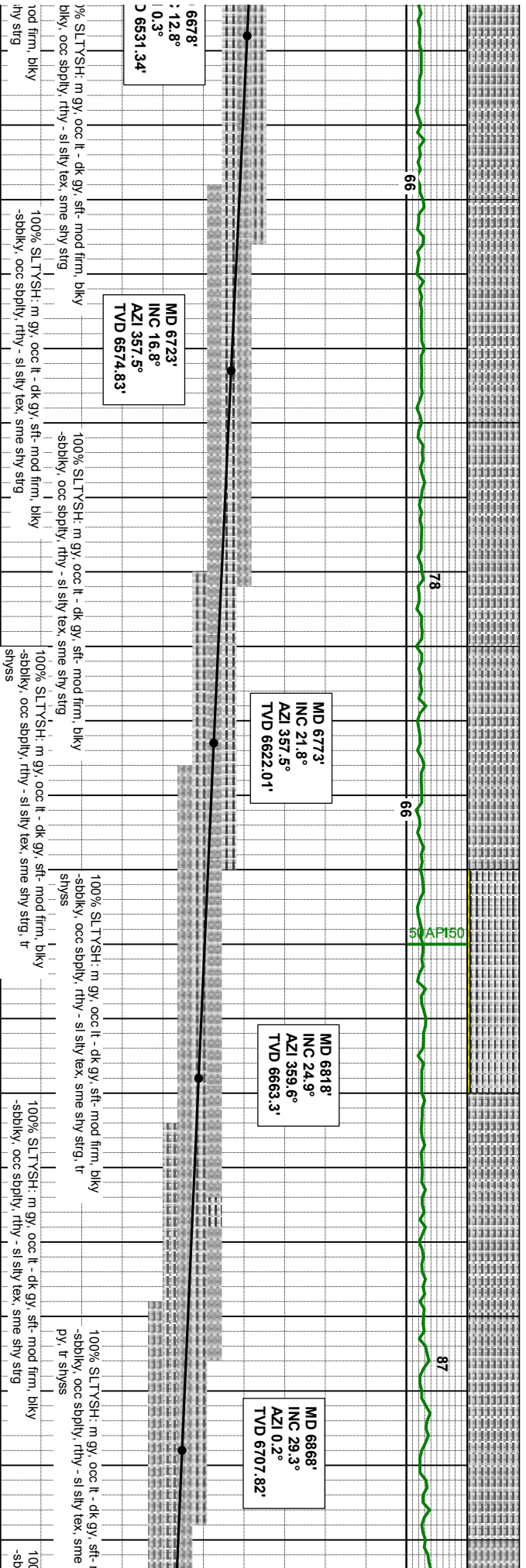
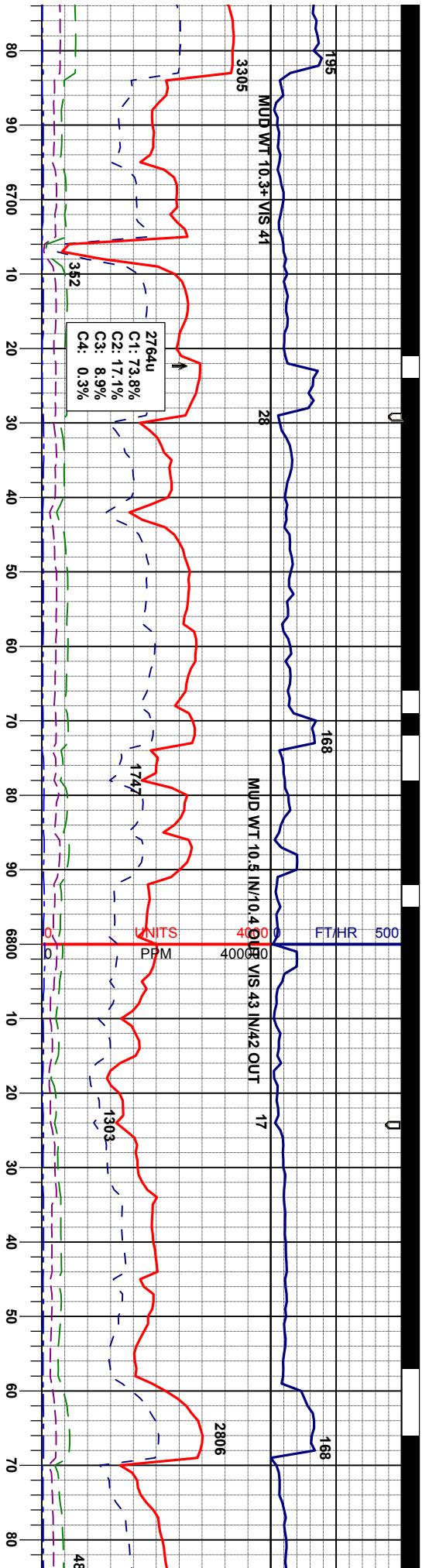
Silty Shale

Arrow

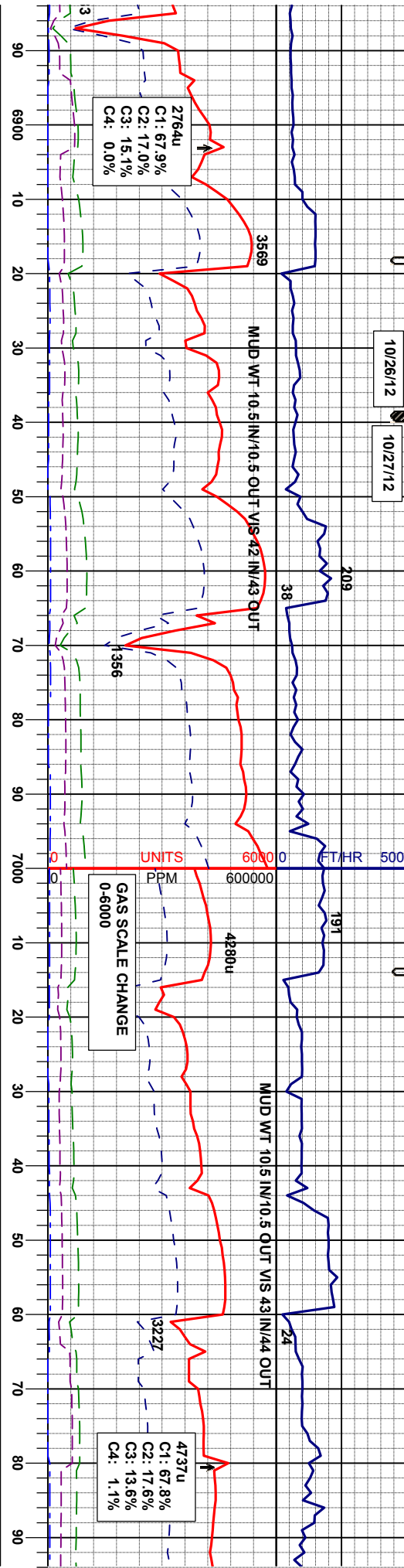








10/26/12 10/27/12



MD 6913'  
INC 33.2°  
AZI 359.8°  
TVD 6746.28'

MD 6963'  
INC 37.1°  
AZI 360.0°  
TVD 6787.16'

MD 7008'  
INC 40.3°  
AZI 359.1°  
TVD 6822.27'

MD 7058'  
INC 44.3°  
AZI 355.3°  
TVD 6859.25'

mod firm, blk  
shy strg, tr

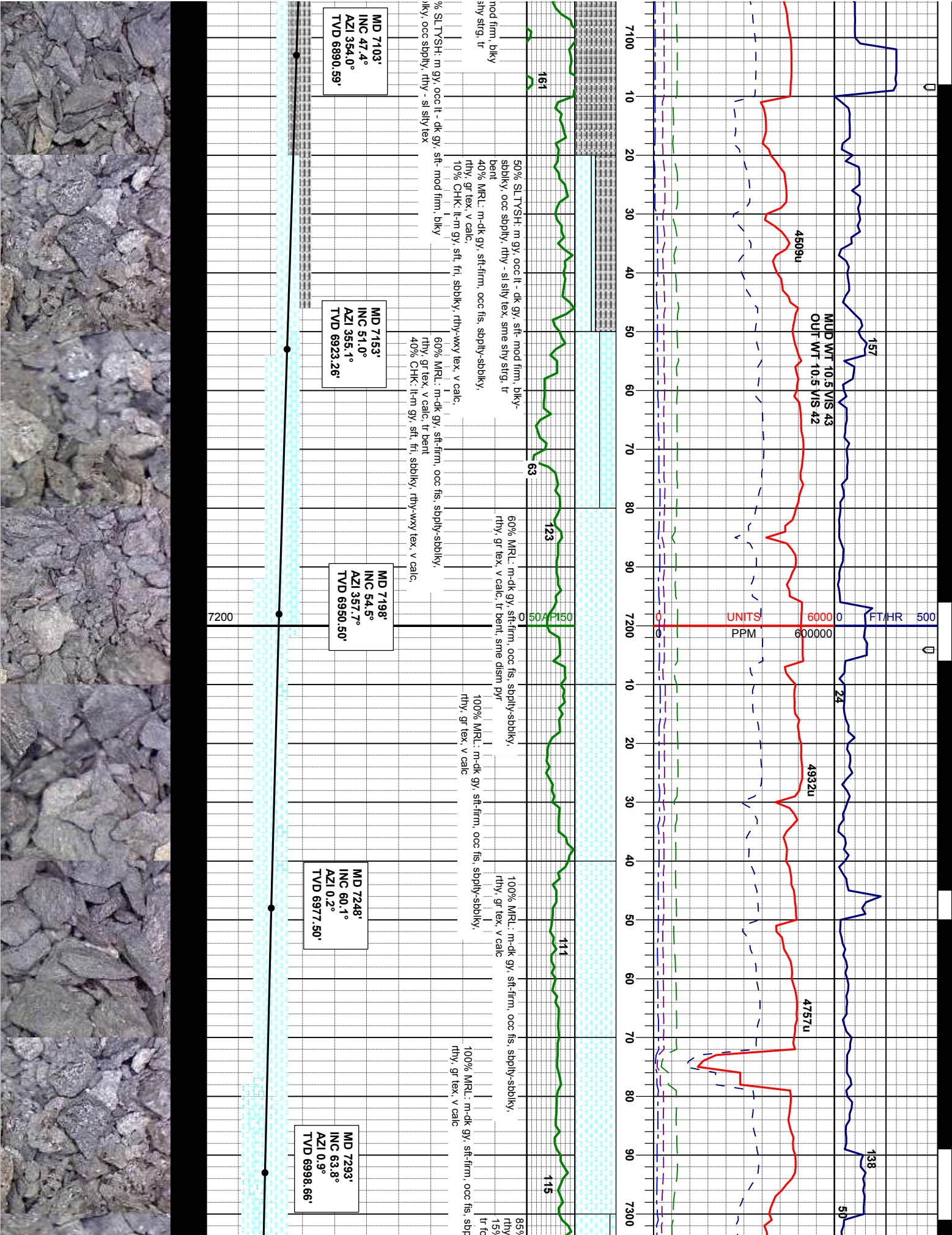
100% SLTYSH: m gy, occ lt - dk gy, sft- mod firm, blk  
-sbbky, occ sbply, rthy - sl sily tex, sme shy strg

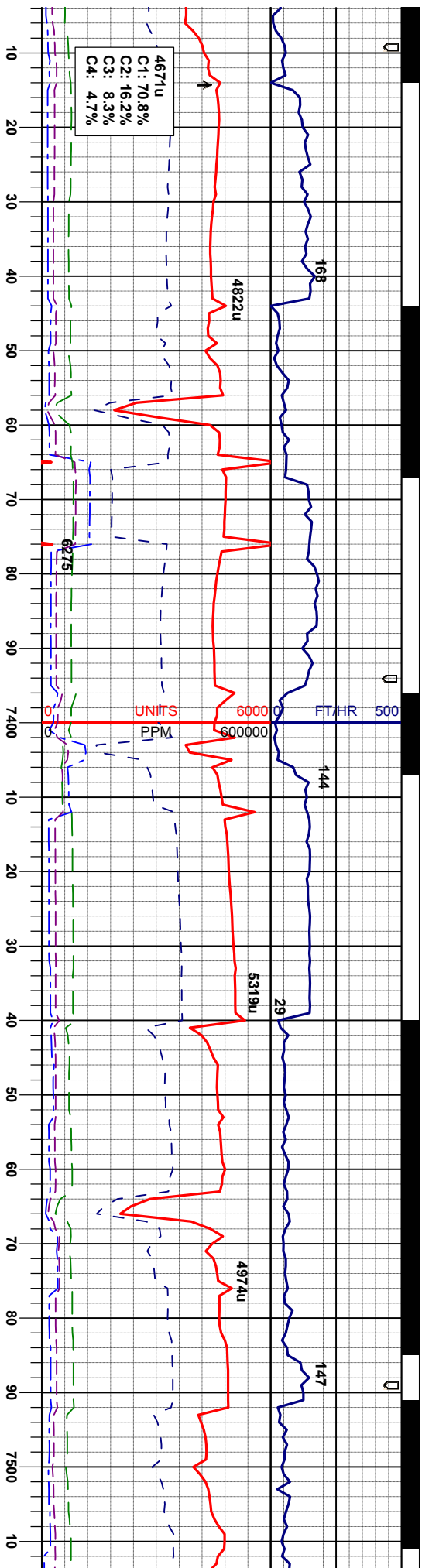
100% SLTYSH: m gy, occ lt - dk gy, sft- mod firm, blk  
-sbbky, occ sbply, rthy - sl sily tex, sme shy strg

pyr, tr qtz









MD 7343'  
INC 66.7°  
AZI 0.2°  
TVD 7019.59'

MD 7388'  
INC 68.3°  
AZI 359.6°  
TVD 7036.81'

MD 7438'  
INC 70.5°  
AZI 359.5°  
TVD 7054.4'

MD 7488'  
INC 75.8°  
AZI 359.3°  
TVD 7067.44'

ly-sbblky, 85% MRL: m-6

85% MRL: m-dk gy, sft-firm, occ fis, sbply-sbply, rthy, gr tex, v calc, 15% CHK: lt-m gy, sft, fi, sbply, rthy-wxy tex, v calc,

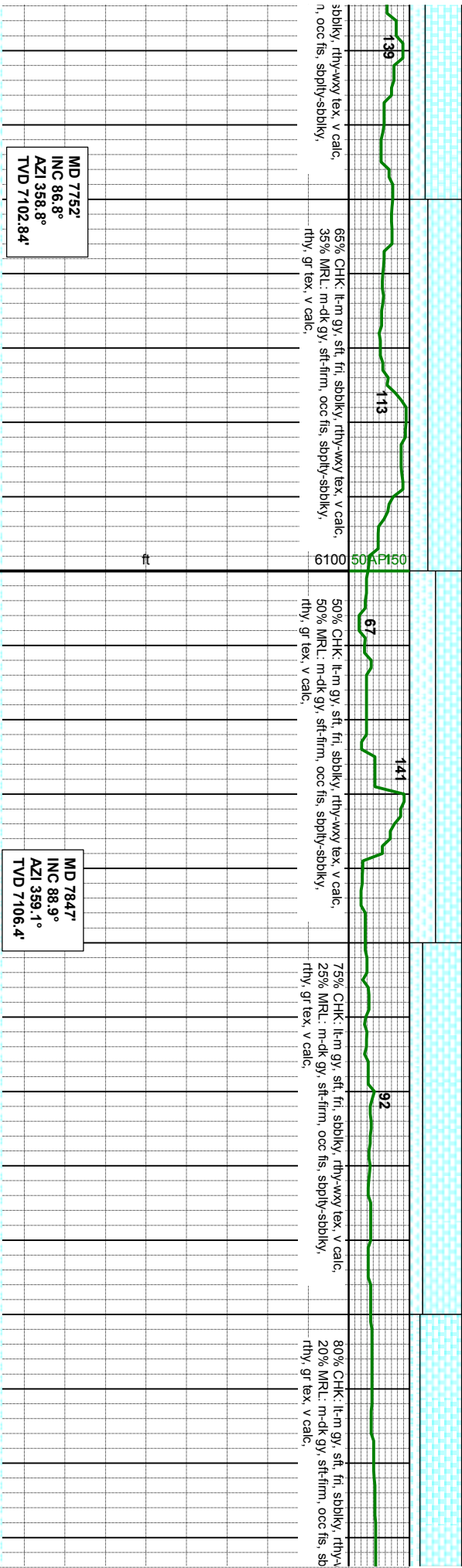
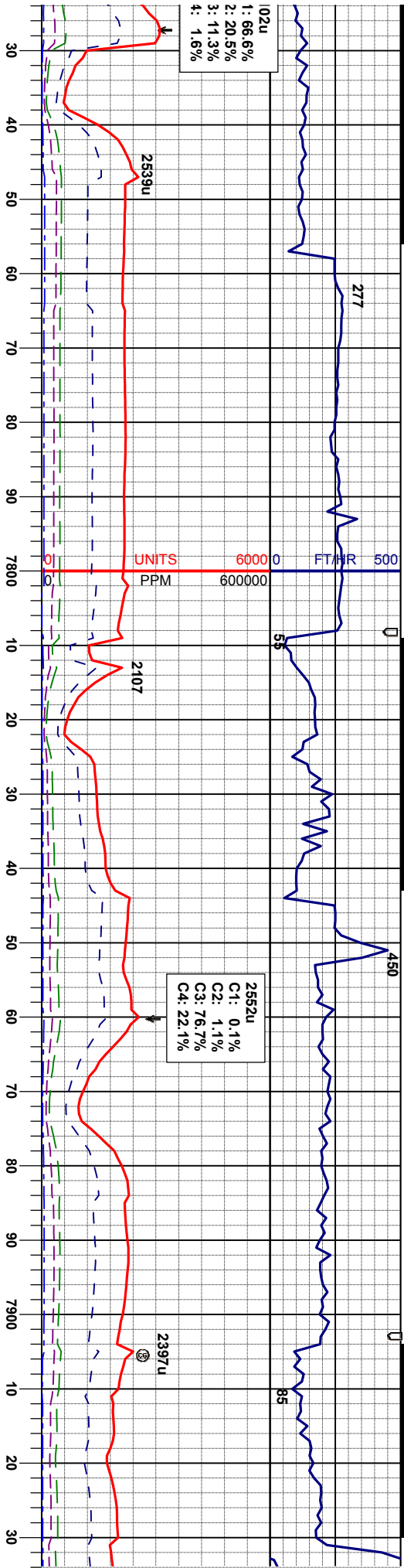
100% MRL: m-  
rthy, gr tex, v c

100% MRI: m-dk gy, stf-firm, occ fis, sbplyt-sbblky, rthy, gr tex, v calc,	100% MRI: n rthy, gr tex, v
sbplyt-sbblky,	

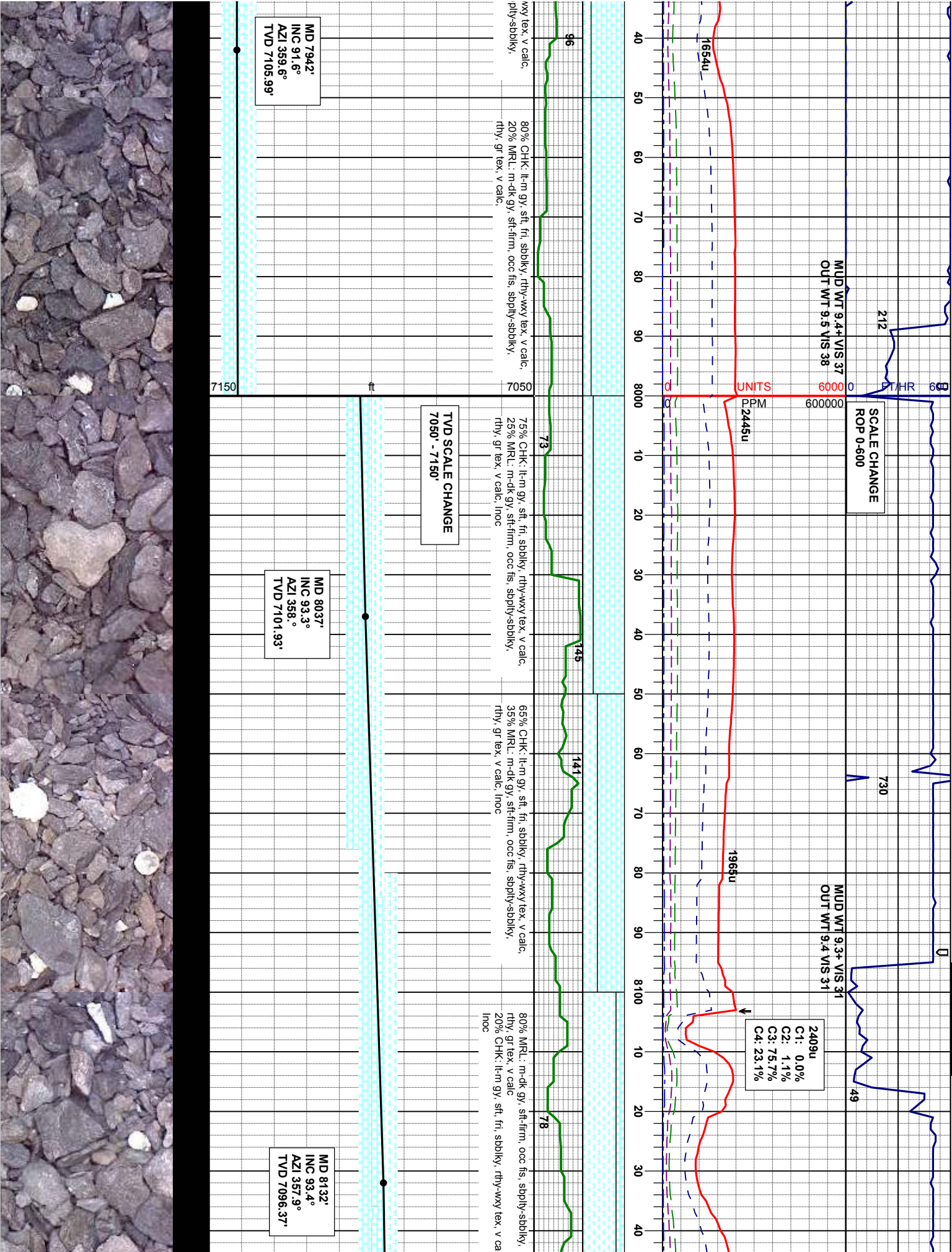
100% MRL: m-dk gy, stf-firm, occ fis, sbplit rthy, gr tex, v calc, tr pyr, abnt inoc fos frag fis, supply-sbolk,	100% MRL: m-dk gy, stf-firm, occ fis, sbplit rthy, gr tex, v calc, tr pyr, abnt inoc fos frag fis, supply-sbolk,

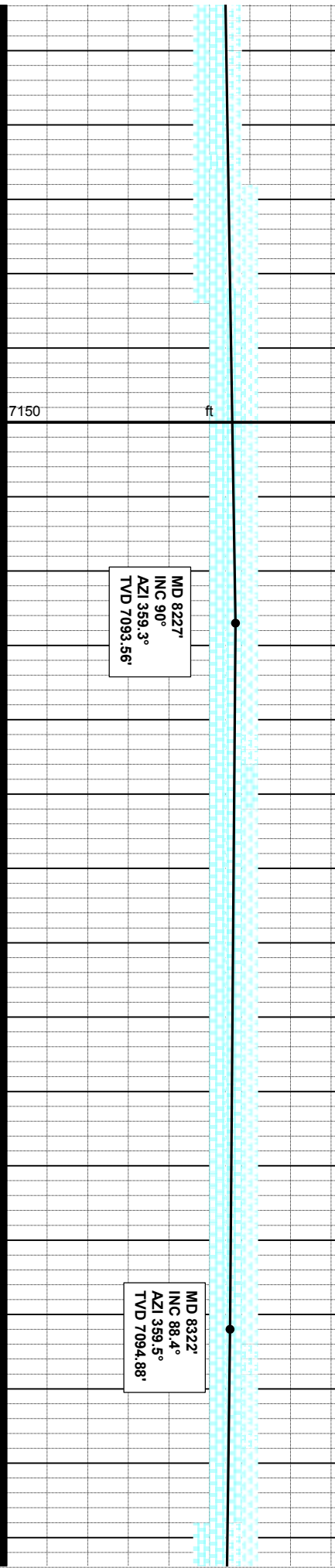
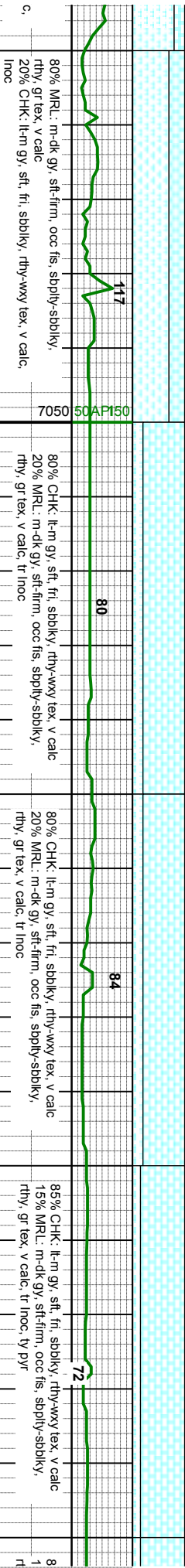
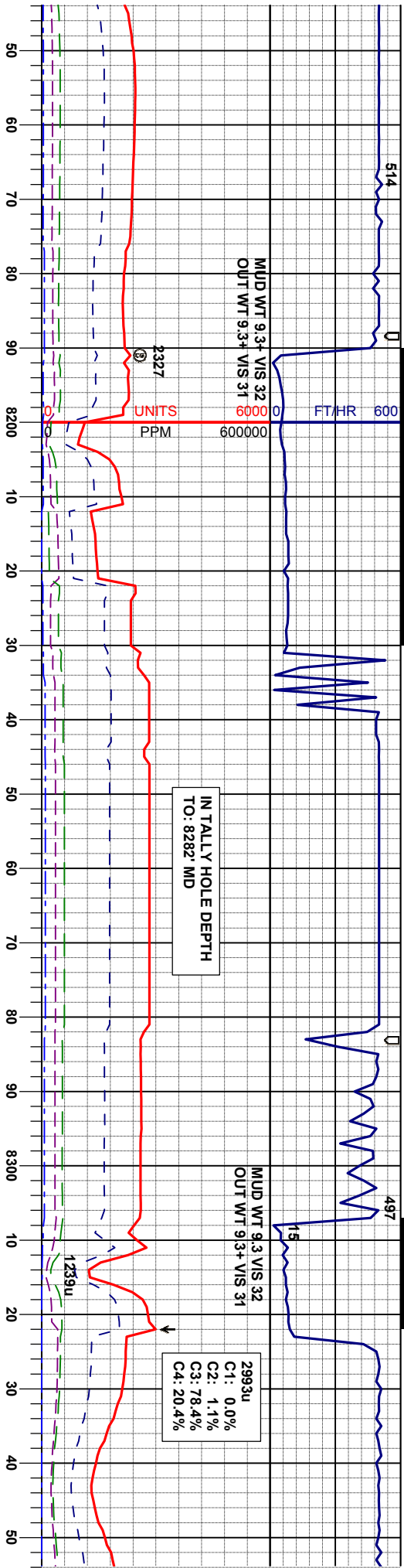




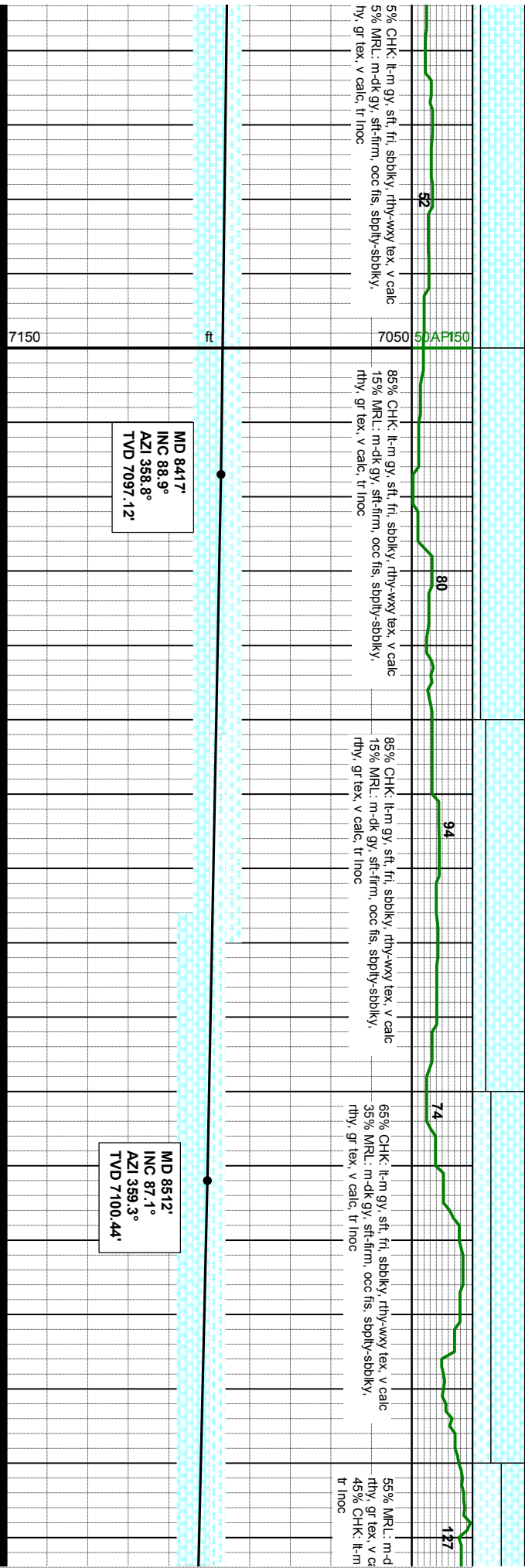
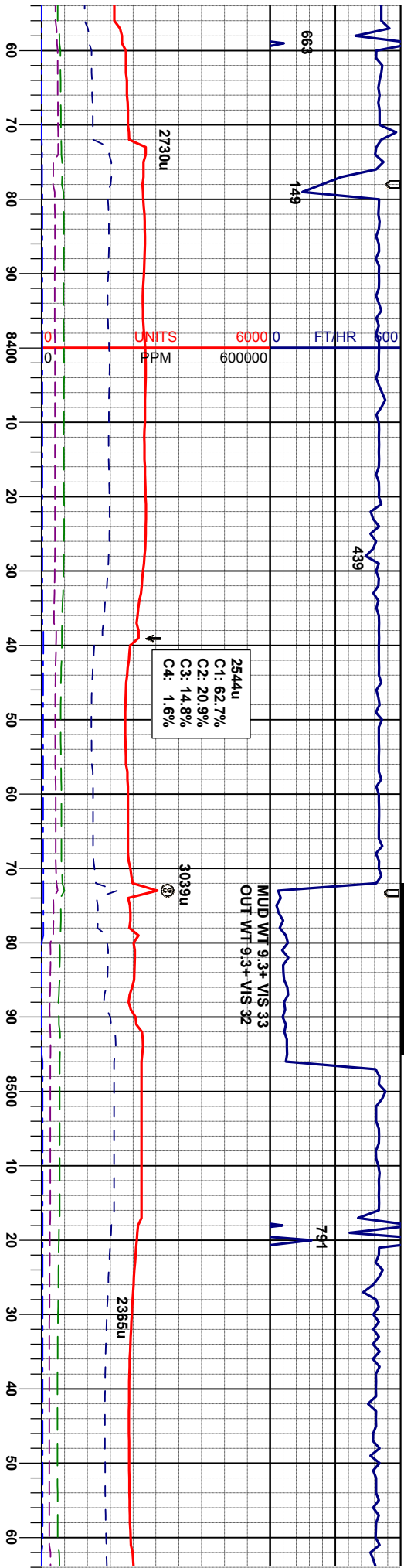


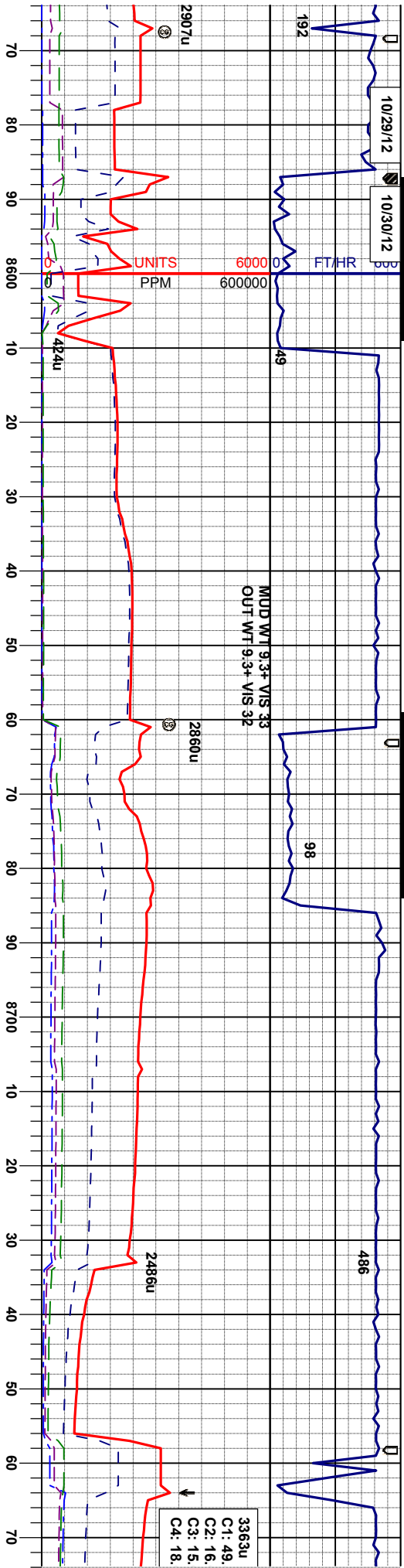












60% CHK: lt-m gy, sft, frt, sbblky, rthy-wxy tex, v calc, tr inoc  
40% MRU: m-dk gy, sft-firm, occ fis, sbply-sbblky, rthy, gr tex, v calc

60% CHK: lt-m gy, sft, frt, sbblky, rthy-wxy tex, v calc, tr inoc  
40% MRU: m-dk gy, sft-firm, occ fis, sbply-sbblky, rthy, gr tex, v calc

60% CHK: lt-m gy, sft, frt, sbblky, rthy-wxy tex, v calc, tr inoc  
40% MRU: m-dk gy, sft-firm, occ fis, sbply-sbblky, rthy, gr tex, v calc

60% CHK: lt-m gy, sft, frt, sbblky, rthy-wxy tex, v calc, tr inoc  
40% MRU: m-dk gy, sft-firm, occ fis, sbply-sbblky, rthy, gr tex, v calc

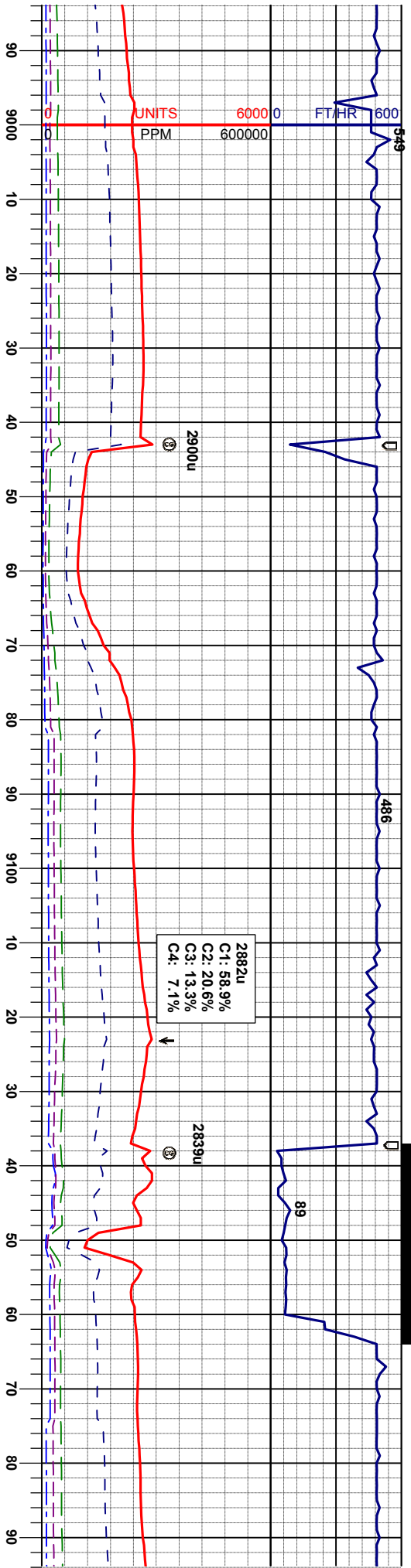
MD 8607'  
INC 88°  
AZI 359.6°  
TVD 7104.5'

MD 8702'  
INC 90.3°  
AZI 1.2°  
TVD 7105.91'

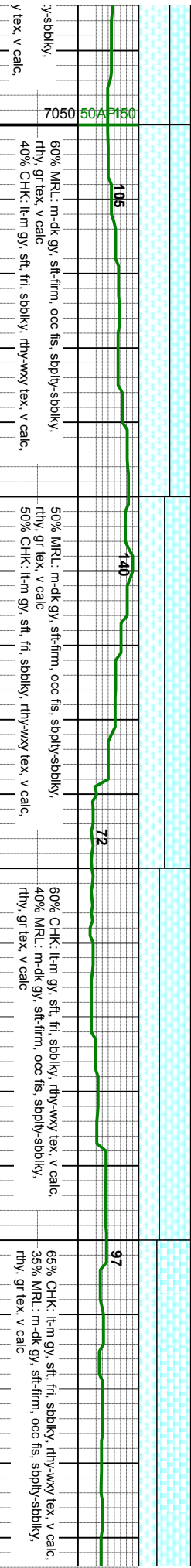








2882u  
C1: 58.9%  
C2: 20.6%  
C3: 13.3%  
C4: 7.1%



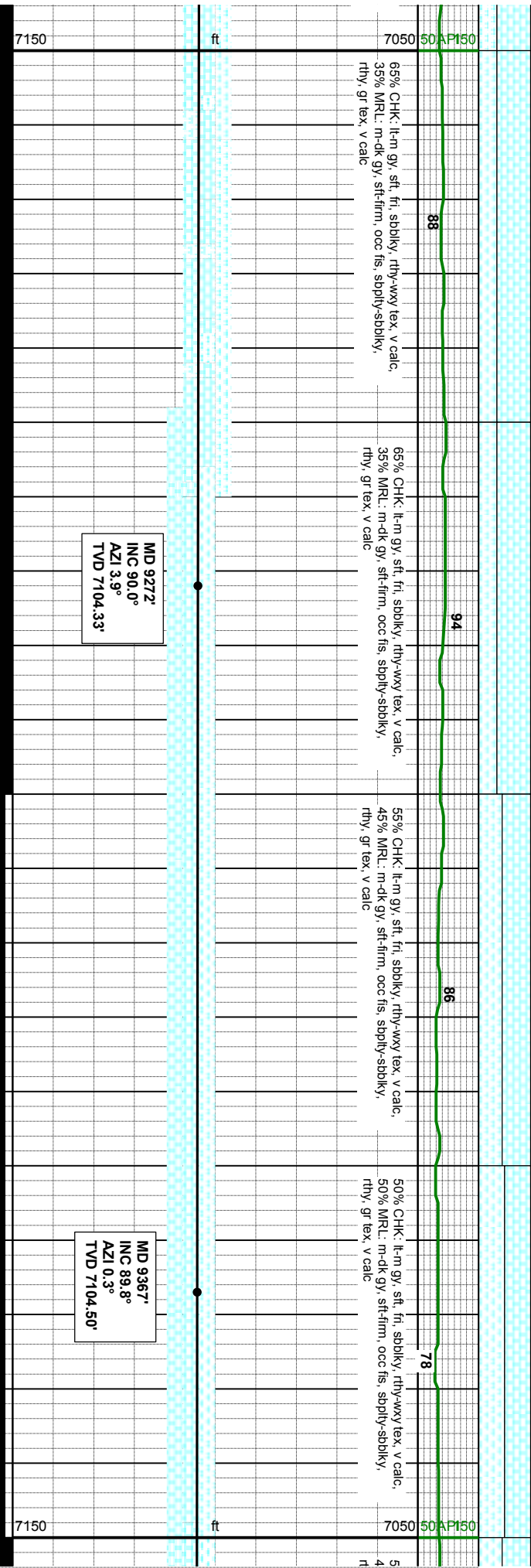
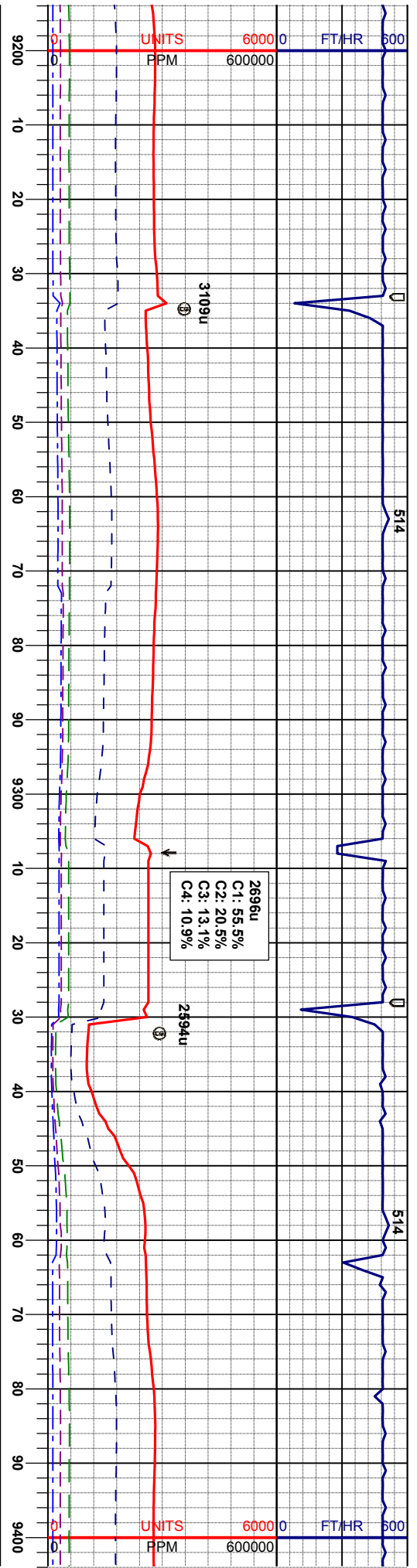
1987'  
30.0°  
4°  
7104.83'

MD 9082'  
INC 90.7°  
AZI 1.4°  
TVD 7104.25'

MD 9177'  
INC 89.6°  
AZI 2.1°  
TVD 7104.00'

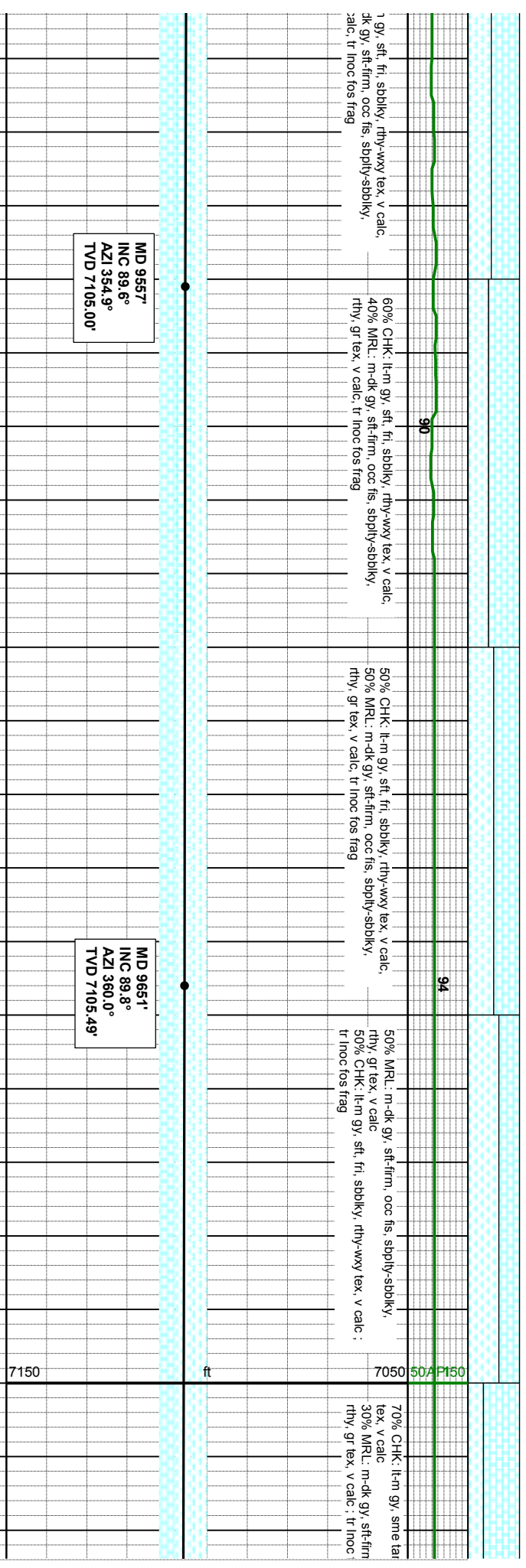
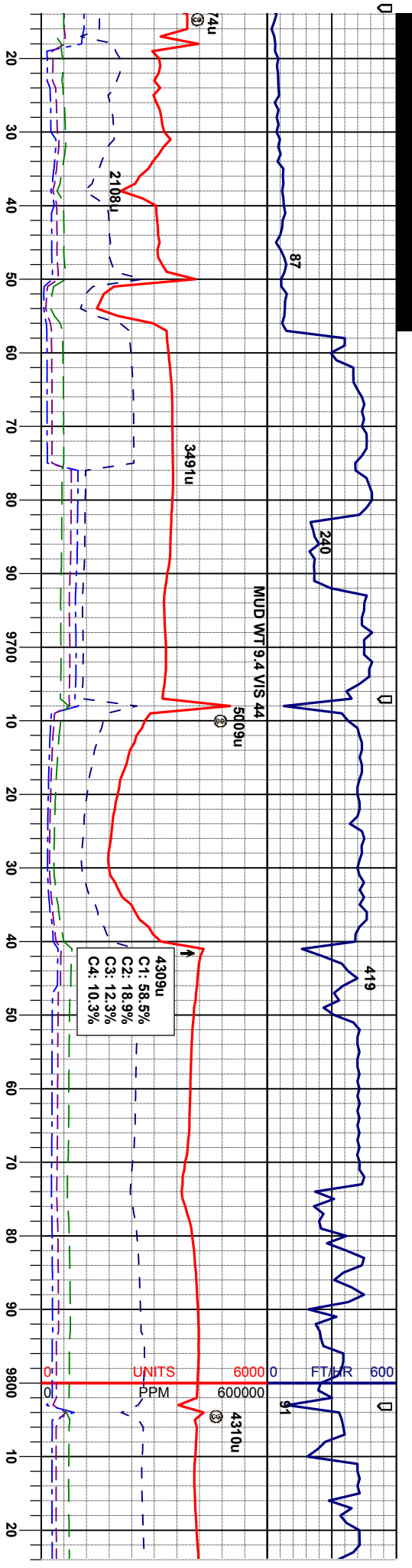












MD 9557'  
INC 89.6°  
AZI 354.9°  
TVD 7105.00'

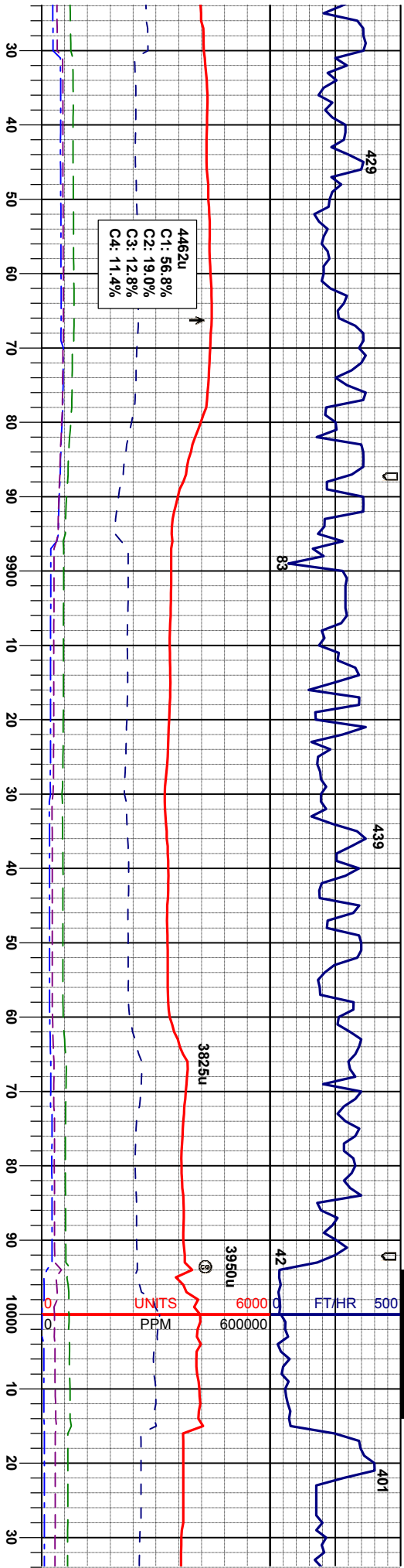
MD 9651'  
INC 89.8°  
AZI 360.0°  
TVD 7105.49'

7150

ft

7050 504P150

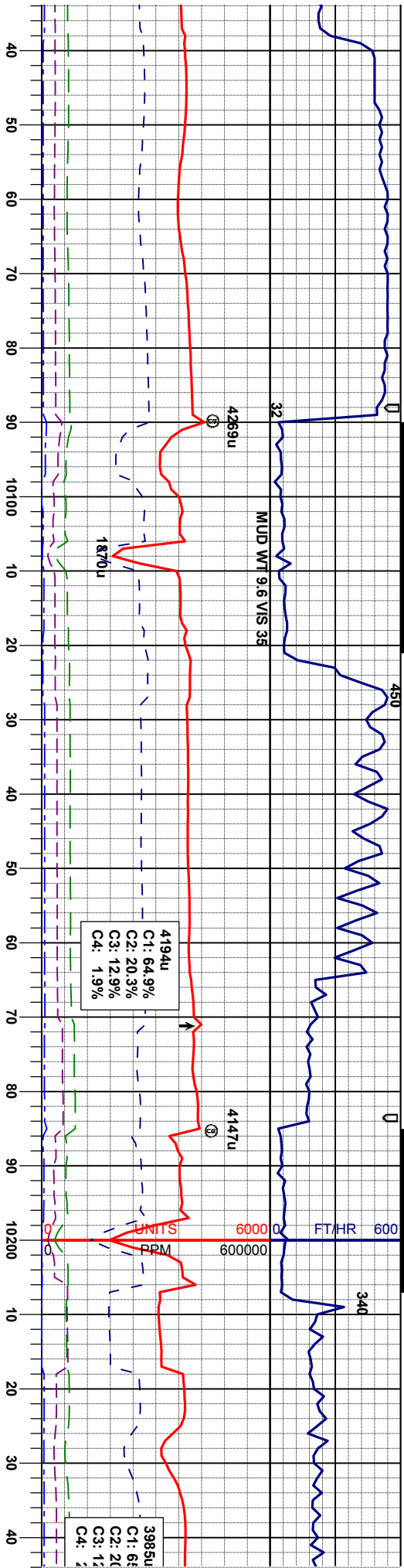




94	65% CHK: lt-m gy, sme tan, sft, fr, sbbly, rthy-wxy tex, v calc 35% MRL: m-dk gy, sft-firm, occ fis, sbbly-sbbly, rthy, gr tex, v calc; tr inoc fos frag	94	60% CHK: lt-m gy, sme tan, sft, fr, sbbly, rthy-wxy tex, v calc 40% MRL: m-dk gy, sft-firm, occ fis, sbbly-sbbly, rthy, gr tex, v calc; tr inoc fos frag	92	70% CHK: lt-m gy, sme tan, sft, fr, sbbly tex, v calc 30% MRL: m-dk gy, sft-firm, occ fis, sb rthy, gr tex, v calc
MD 9841' INC 89.6° AZI 3.9° TVD 7105.99'		MD 9936' INC 90.0° AZI 4.9° TVD 7106.32'		MD 10032' INC 89.0° AZI 4.4° TVD 7107	





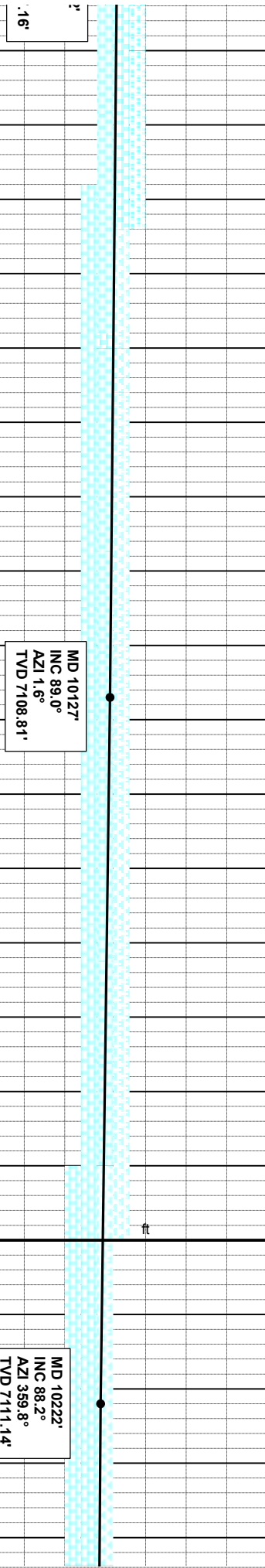


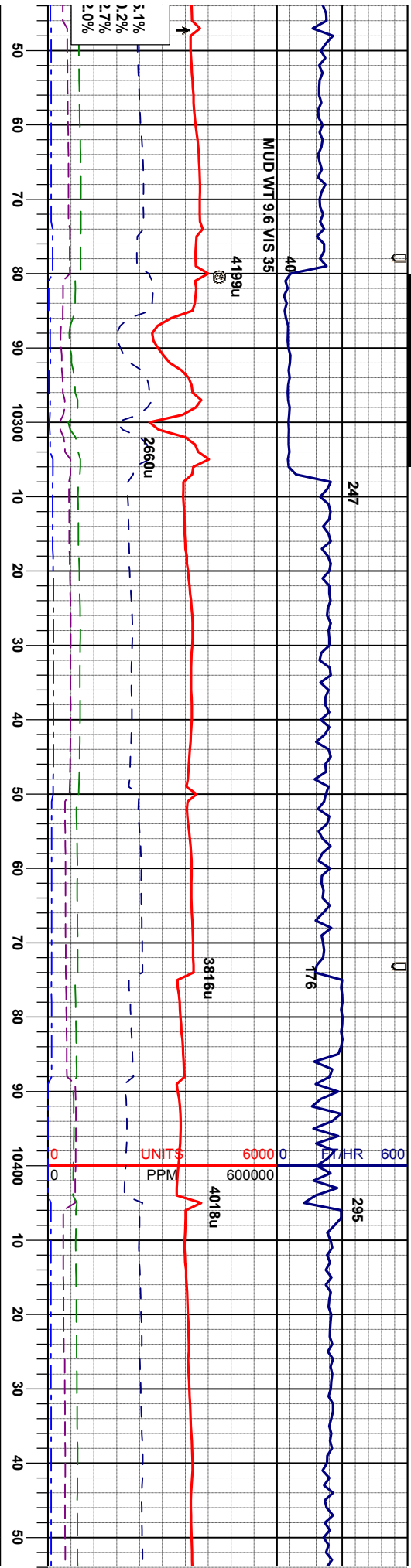
55% CHK: lt-m gy, sme tan-brn, sft, fri, sbdky, rthy-wxy tex, v calc, tr styl  
45% MRL: m-dk gy, sft-firm, occ fis, sbply-sbdky, rthy, gr tex, v calc, tr pyr

50% CHK: lt-m gy, sme tan-brn, sft, fri, sbdky, rthy-wxy tex, v calc, tr styl  
50% MRL: m-dk gy, sft-firm, occ fis, sbply-sbdky, rthy, gr tex, v calc, tr pyr

60% MRL: m-dk gy, sft-firm, occ fis, sbply-sbdky, rthy, gr tex, v calc, tr styl  
40% CHK: lt-m gy, sme tan-brn, sft, fri, sbdky, rthy-wxy tex, v calc, tr pyr

55% CHK: lt-m gy, sme tan-brn, sft, fri, sbdky, rthy-wxy tex, v calc, tr styl  
45% MRL: m-dk gy, sft-firm, occ fis, sbply-sbdky, rthy, gr tex, v calc, tr pyr





55% CHK: lt-m gy, sme tan, sft, fn, sbdky, rthy-wxy  
tex, v calc  
45% MRL: m-dk gy, sft-firm, occ fis, sppty-sbdky,  
rthy, gr tex, v calc

55% CHK: lt-m gy, sme tan, sft, fn, sbdky, rthy-wxy  
tex, v calc  
45% MRL: m-dk gy, sft-firm, occ fis, sppty-sbdky,  
rthy, gr tex, v calc

65% CHK: lt-m gy, sme tan, sft, fn, sbdky, rthy-wxy  
tex, v calc  
35% MRL: m-dk gy, sft-firm, occ fis, sppty-sbdky,  
rthy, gr tex, v calc

60% CHK: lt-m gy, sme tan, sft, fn, sbdky, rthy-wxy  
tex, v calc  
40% MRL: m-dk gy, sft-firm, occ fis, sppty-sbdky,  
rthy, gr tex, v calc

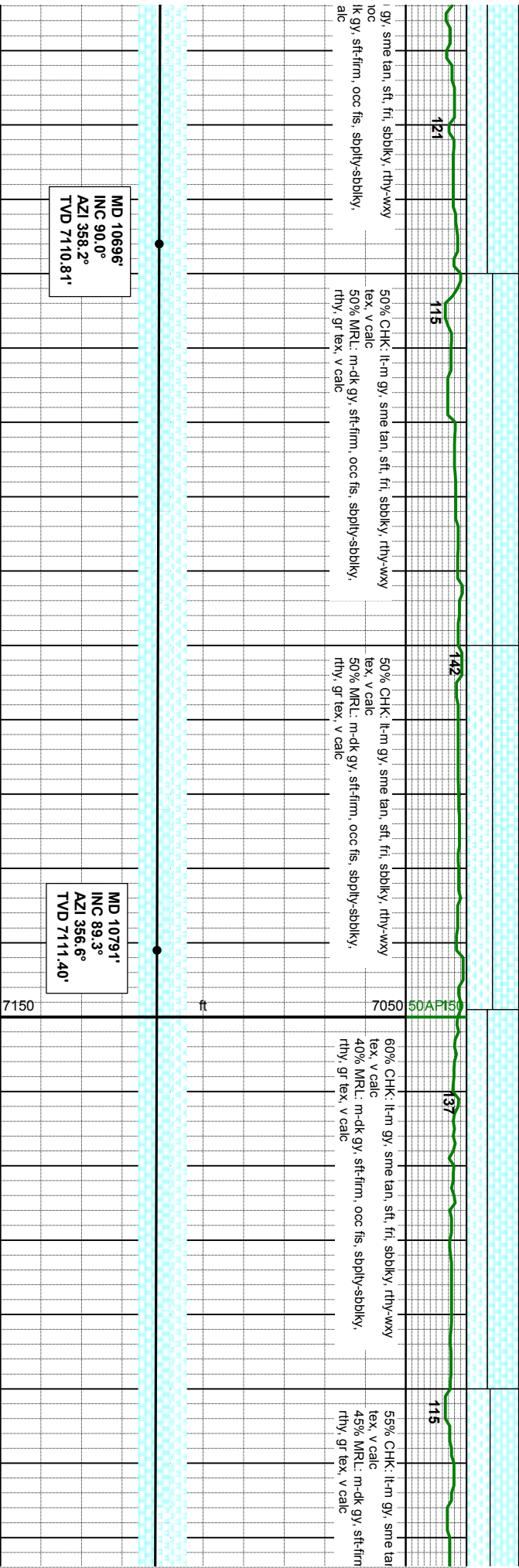
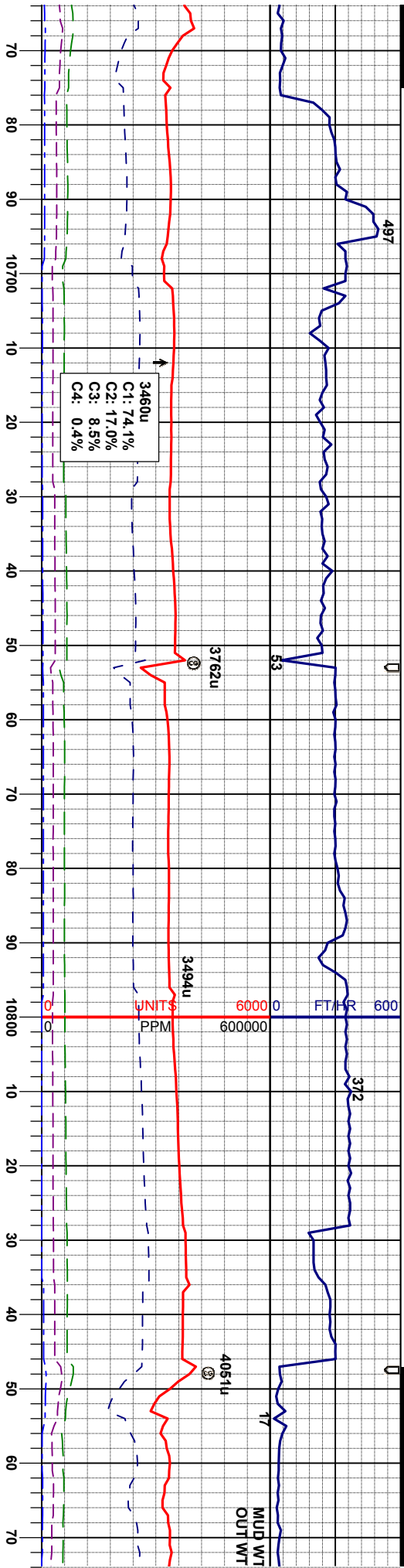
MD 10317'  
INC 90.3°  
AZI 358.9°  
TVD 7112.38'

MD 10411'  
INC 90.7°  
AZI 358.6°  
TVD 7111.56'









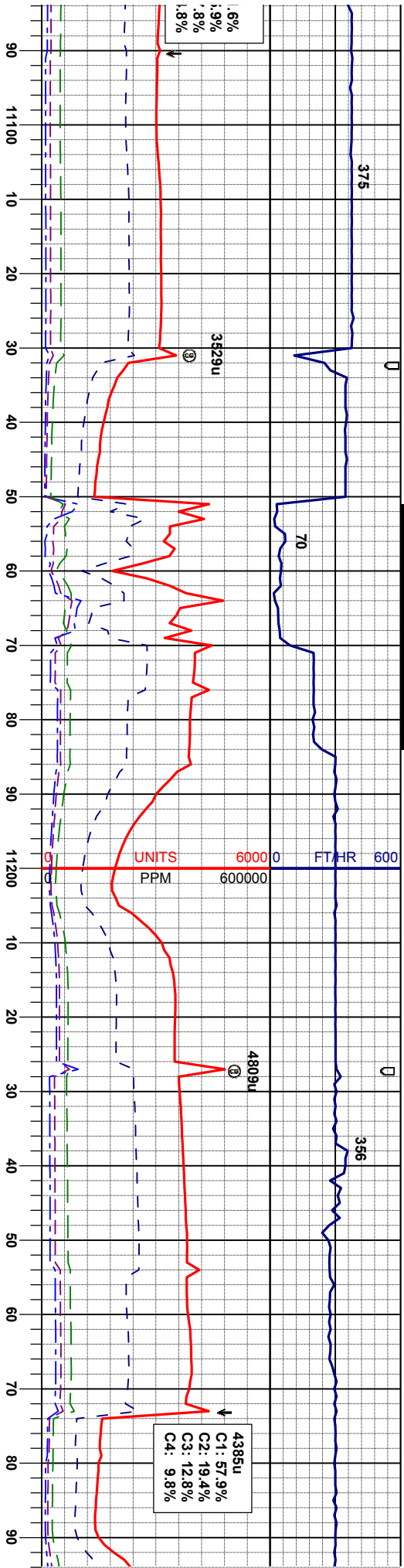
MD 10696'  
INC 90.0°  
AZI 358.2°  
TVD 7110.81'

MD 10791'  
INC 89.3°  
AZI 356.6°  
TVD 7111.40'









77 79 99

ply-sbdky, rthy, gr tex, v calc, tr inoc

70% MRL: m-dk gy, sft-firm, occ fis, sbply-sbdky, rthy, gr tex, v calc, tr inoc

30% CHK: lt-m gy, sme tan-brn, sft, fri, sbdky, rthy-wxy tex, v calc

75% MRL: m-dk gy, sft-firm, occ fis, sbply-sbdky, rthy, gr tex, v calc, tr inoc

25% CHK: lt-m gy, sme tan-brn, sft, fri, sbdky, rthy-wxy tex, v calc

80% MRL: m-dk gy, sft-firm, occ fis, sbply-sbdky, rthy, gr tex, v calc, tr inoc

20% CHK: lt-m gy, sme tan-brn, sft, fri, sbdky, rthy-wxy tex, v calc

75% MRL: m-dk gy, sft-firm, occ fis, sbply-sbdky, rthy, gr tex, v calc, tr inoc

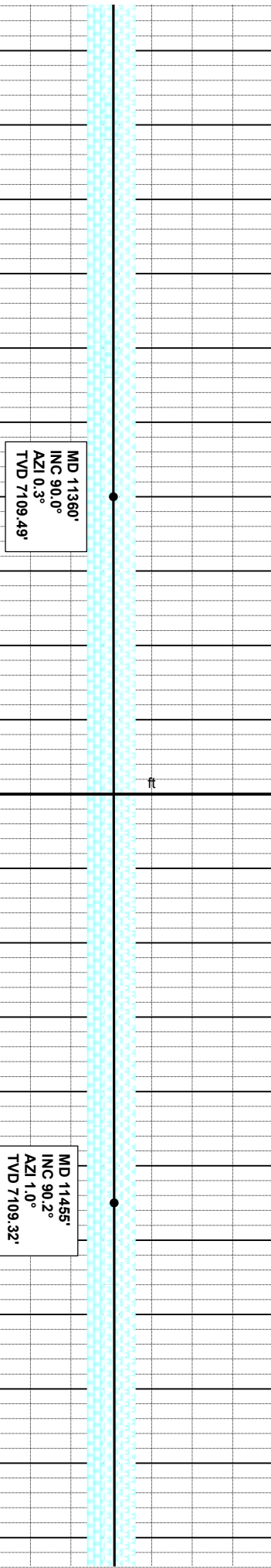
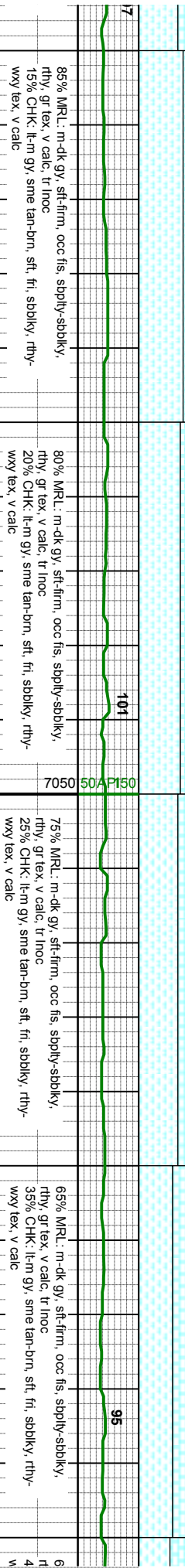
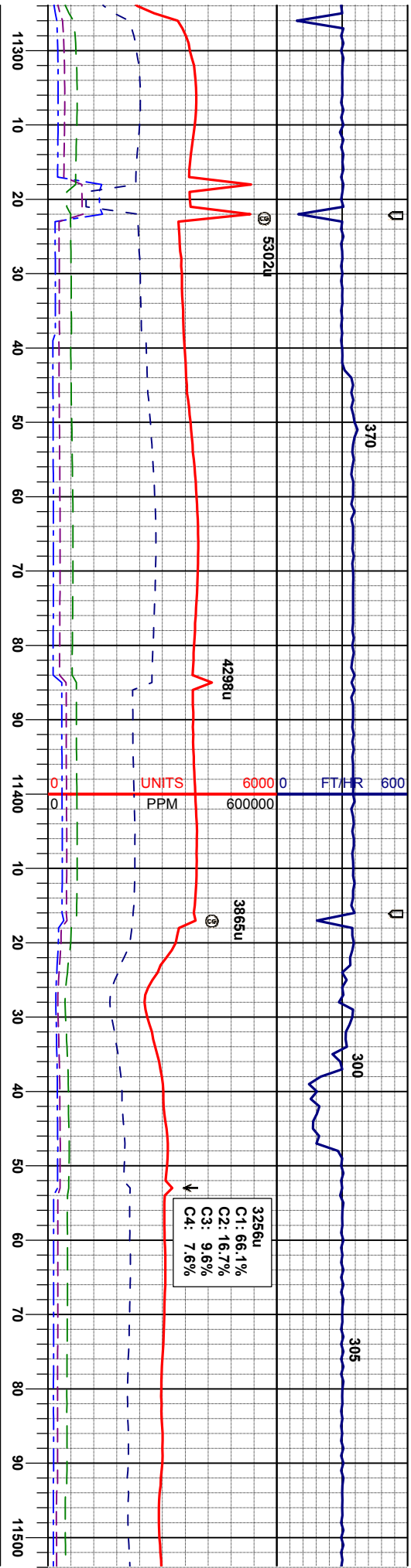
25% CHK: lt-m gy, sme tan-brn, sft, fri, sbdky, rthy-wxy tex, v calc

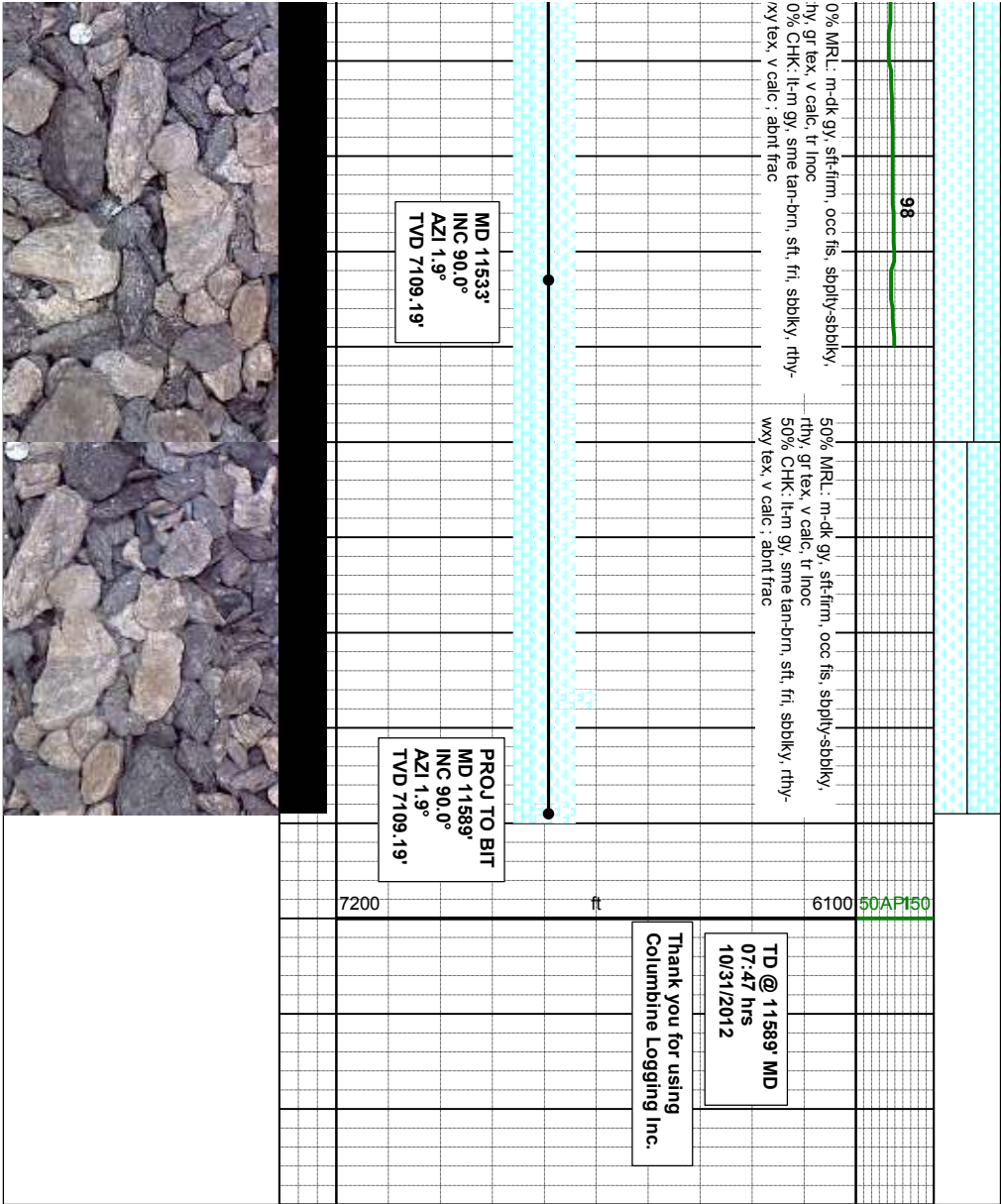
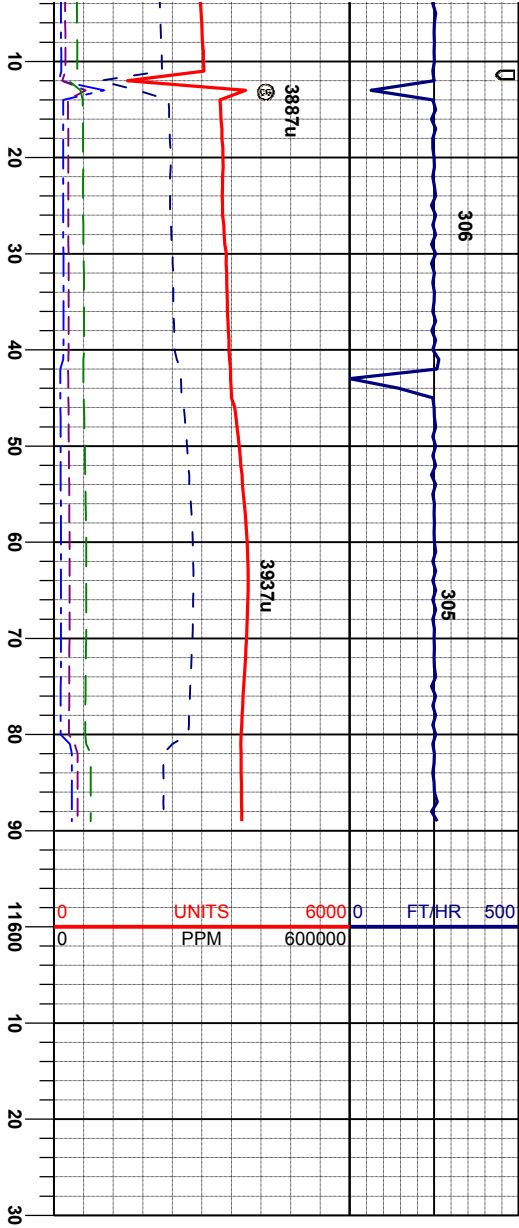
MD 11171'  
INC 90.1°  
AZI 358.4°  
TVD 7109.57'

MD 11265'  
INC 90.0°  
AZI 359.6°  
TVD 7109.49'









Thank you for using  
Columbine Logging Inc.

TD @ 11589' MD  
07:47 hrs  
10/31/2012