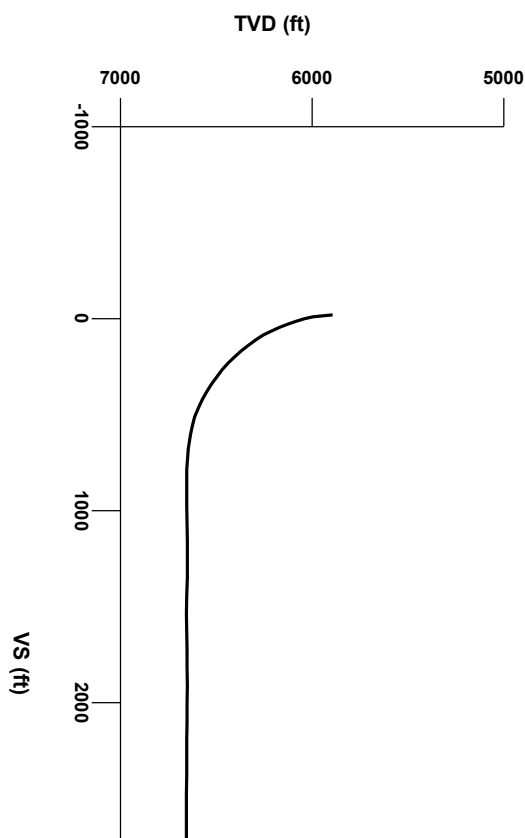


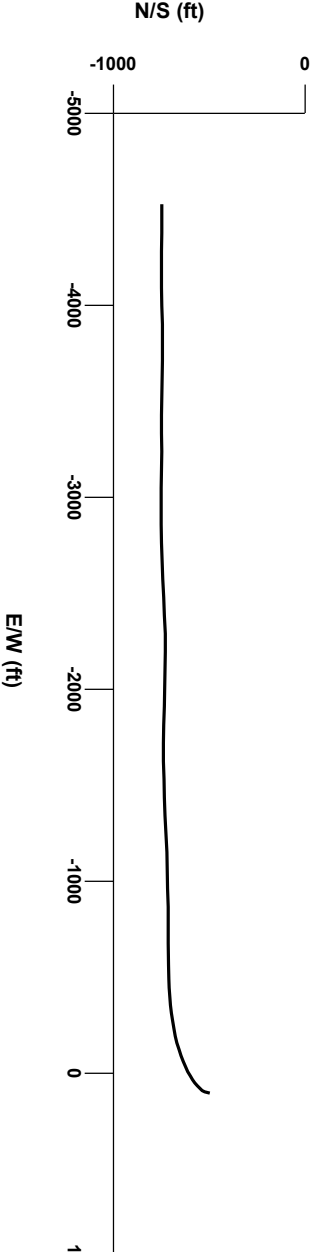
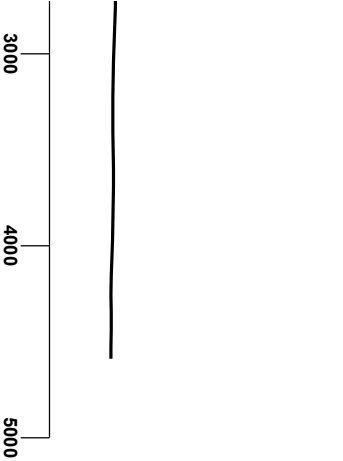
LOG created using L PLOT VH Version 3.0, September 10, 2012, Copyright (C) 1999-2009 Pason Systems Corp.

**OPERATOR:** NOBLE ENERGY INC.  
**WELL:** WELLS RANCH AA 12-62-1HN  
**LOCATION:** SEC 12 T6N R63W  
**COUNTY:** WELD  
**STATE:** COLORADO  
**SPOT:** 1,039' FSL; 215' FEL  
**ELEVATION:** 4,857' GL; 4,881' KB  
**FIELD:** WATTENBERG  
**SPUD DATE:** 9/5/2012  
**TD DATE:** 9/10/2012  
**DATES LOGGED:** 9/7/2012 - 9/10/2012 (HORIZONTAL)  
**DEPTHS LOGGED:** 5,967' - 11,038' (HORIZONTAL)  
**LOGGERS:** CHRIS SCAHEL; CHRIS COOK  
**DRILLING FLUID:** LSND  
**DRILLING RIG:** H&P 315  
**API:** 05-123-35628  
**LOG TYPE:** HORIZONTAL  
**SCALE:** 1:240 (5 inches per 100 feet)  
**REMARKS:** SEE CORRESPONDING VERTICAL LOG WELLS\_RANCH\_AA12\_62\_1HN\_VERT.  
 LAT/LON 40.496680/-104.375990



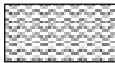
Survey Elevation

Survey Plan

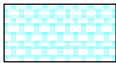





### LITHOLOGIES




Bentonite




Chalk




Marl



Shaly Sandstone




Shaly Siltstone




Silty Shale


### ENGINEERING SYMBOLS




Connection




Connection Gas



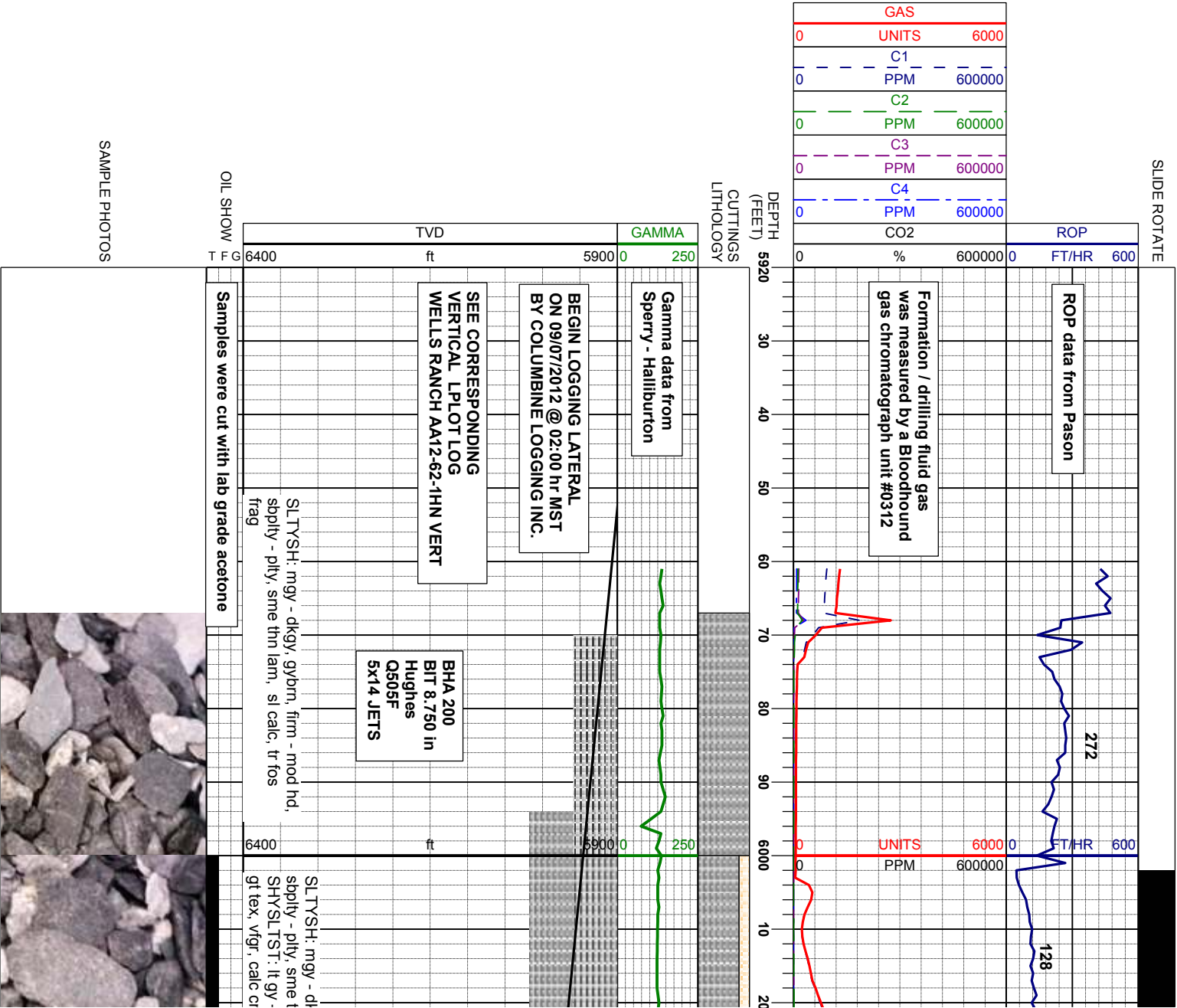
Arrow



Midnight Depth



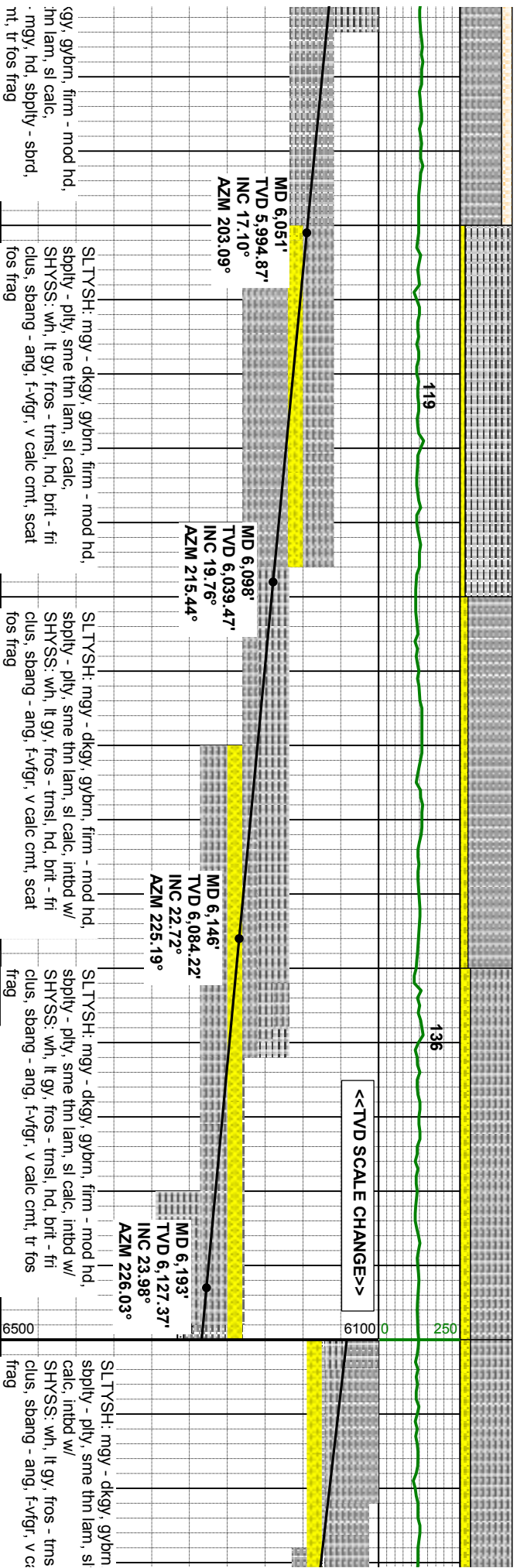
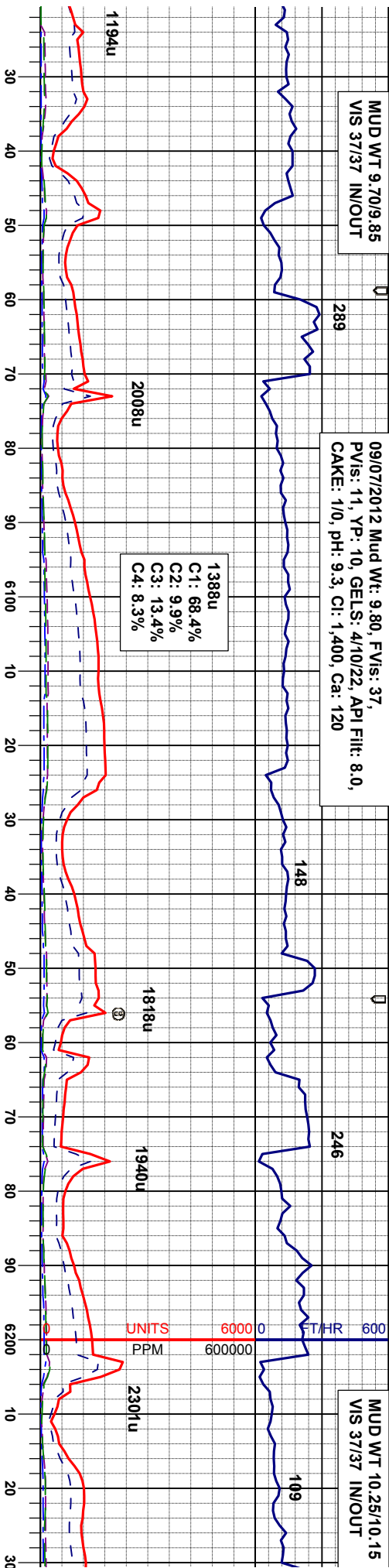
Normal Fault



MUD WT 9.70/9.85  
VIS 37/37 IN/OUT

09/07/2012 Mud Wt: 9.80, FVis: 37,  
PVIS: 11, YP: 10, GELS: 4/10/22, API Filtr: 8.0,  
CAKE: 1/0, pH: 9.3, Cl: 1,400, Ca: 120

MUD WT 10.25/10.15  
VIS 37/37 IN/OUT



TRACE









MUD WT 10.55/10.40  
VIS 40/39 IN/OUT

249

MUD WT 10.50/10.50  
VIS 41/41 IN/OUT

299

345



53u

3285u

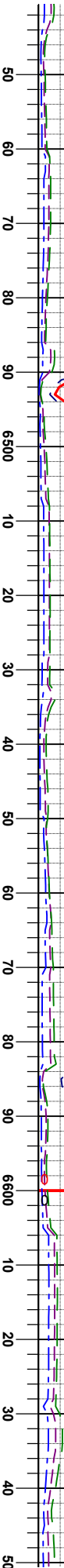
3343u

1526u  
C1: 72.1%  
C2: 13.7%  
C3: 10.3%  
C4: 3.9%

1825u

4515u

UNITS  
PPM



118

147

210

<<TVD SCALE CHANGE>>

SHARON SPRINGS MARKER @  
6629' MD, 6475' TVD

MD 6,477'  
TVD 6,368.40'  
INC 40.85°  
AZM 247.51°

MD 6,525'  
TVD 6,404.18'  
INC 42.76°  
AZM 249.56°

MD 6,572'  
TVD 6,437.50'  
INC 46.92°  
AZM 251.71°

MD 6,620'  
TVD 6,469.39'  
INC 49.82°  
AZM 255.16°

SLTYSH: mgy - dkgy, gybrn, firm - mod hd,  
od hd,  
sply - pily, sme thn lam, silty- gt tex, v sl  
calc, intbd w/  
SHYSS: wh, lt gy, fros, s&p, hd, brit - fri  
clus, sbang - sbnd, f-vfgr, calc cnt, scat fos  
frag

SLTYSH: lgy - dkgy, gybrn, firm - mod hd,  
sply - pily, sme thn lam, silty- gt tex, v sl  
calc, scat fos frag

SLTYSH: lgy - dkgy, gybrn, firm - mod hd,  
sply - pily, sme thn lam, silty- gt tex, v sl  
calc, tr bent

SLTYSH: lgy - dkgy, gybrn, firm - mod hd,  
sply - pily, sme thn lam, silty- gt tex, v sl  
calc, tr bent

TRACE

FAIR



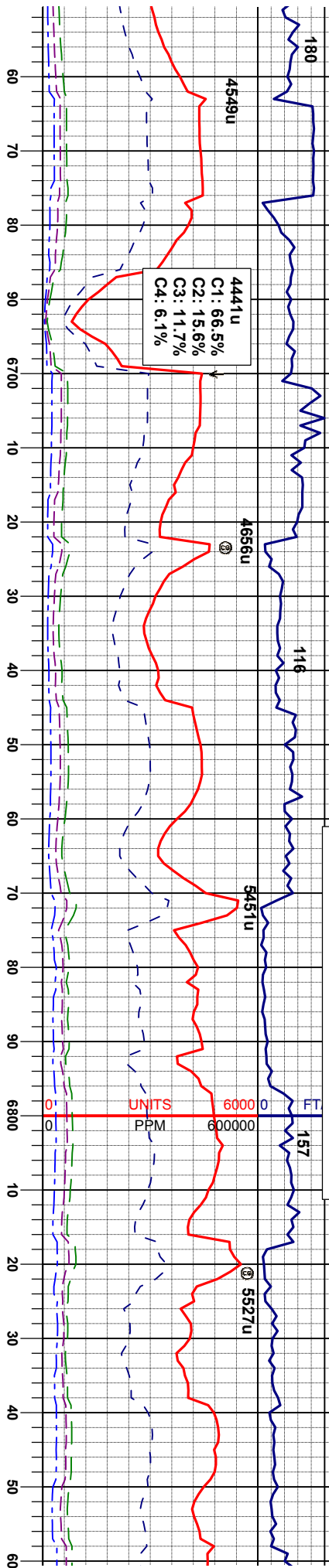


MUD WT 10.60/10.60  
VIS 42/42 IN/OUT

MUD WT 10.60/10.40  
VIS 42/42 IN/OUT

09/07/2012 Mud Wt: 10.55, FVIs: 41,  
PVIs: 12, YP: 13, GELS: 5/12/30, API Filtr: 8.0,  
CAKE: 1/0, pH: 9.2, Cl: 1.200, Ca: 80

MUD WT 10.55/10.50  
VIS 40/42 IN/OUT



MD 6,667'  
TVD 6,498.31'  
INC 54.22°  
AZM 257.54°

NIOBARA TOP @  
6705' MD, 6520' TVD

NIO A CHALK TOP @  
6750' MD, 6544' TVD

NIO A MARL @  
6807' MD, 6573' TVD

MD 6,715'  
TVD 6,525.49'  
INC 56.80°  
AZM 259.68°

MD 6,762'  
TVD 6,550.44'  
INC 59.07°  
AZM 261.89°

MD 6,810'  
TVD 6,574.12'  
INC 61.81°  
AZM 262.72°

MD 6,857'  
TVD 6,594.73'  
INC 66.16°  
AZM 263.32°

Sample Interval: 25'  
Sample Description Interval: 50'

SLT.YSH: lgy - dkgy, gybm, firm - mod hd, sbply - plty, sme thn lam, silty-gt tex, incr calc.  
BENT: yel, gy, olv gn, hd, v brit, plty - sply, w/dism pyr and bri yel-ormg mnrl flr

SLT.YSH: dkgy, blk, firm - mod hd, sbply - plty, sme thn lam, silty-gt tex, incr calc.  
MRL: mgy - dk gy, gybm, mot, crpxl, silty-gt, sft-firm, brit-frt,  
CHK: lt gy - m gy, bnd w/ cm wh, micxl - vigr xl, rthy-wxy, sft, frt, tr bent w/ dism pyr

MRL: mgy - dk gy, gybm, mot, crpxl, silty-gt, sft-firm, brit-frt,  
CHK: lt gy - m gy, bnd w/ cm wh, micxl - vigr xl, rthy-wxy, sft, frt, tr bent w/ dism pyr

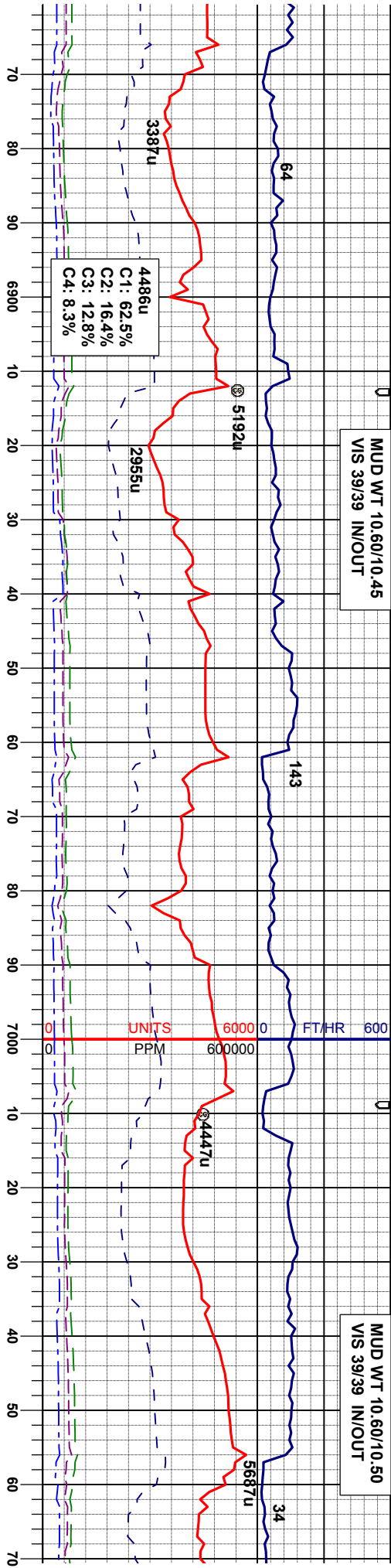
MRL: mgy - dk gy, gybm, mot, crpxl, silty-gt, sft-firm, brit-frt,  
CHK: lt gy - m gy, bnd w/ cm wh, micxl - vigr xl, rthy-wxy, sft, frt, tr bent w/ dism pyr

MRL: n sft-firm  
CHK: lt vigr xl



MUD WT 10.60/10.45  
VIS 39/39 IN/OUT

MUD WT 10.60/10.50  
VIS 39/39 IN/OUT



MD 6,905'  
TVD 6,612.11'  
INC 71.36°  
AZM 265.33°

MD 6,952'  
TVD 6,625.10'  
INC 76.54°  
AZM 266.86°

MD 7,000'  
TVD 6,634.72'  
INC 80.34°  
AZM 268.98°

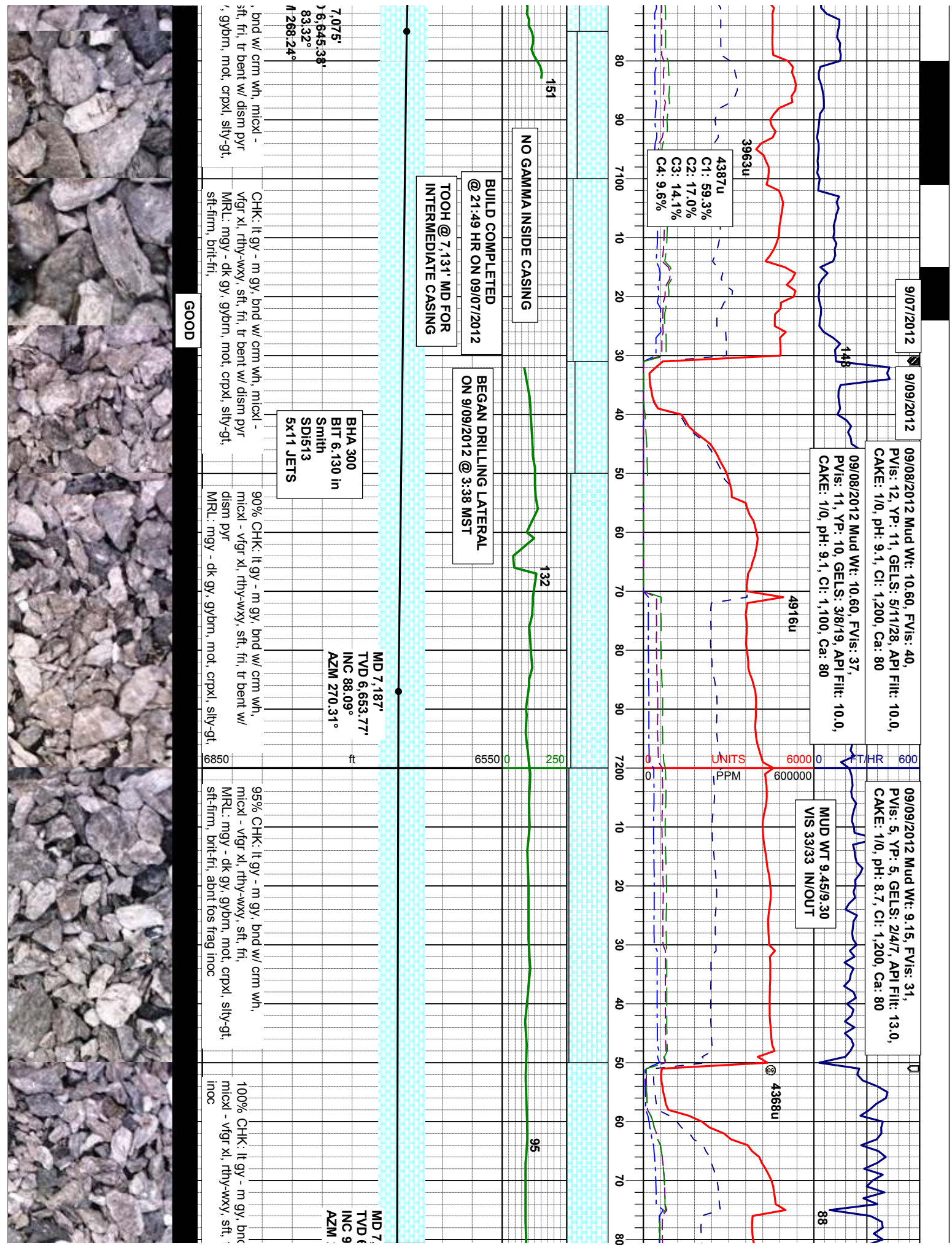
NIO B CHALK @  
7023' MD, 6638' TVD

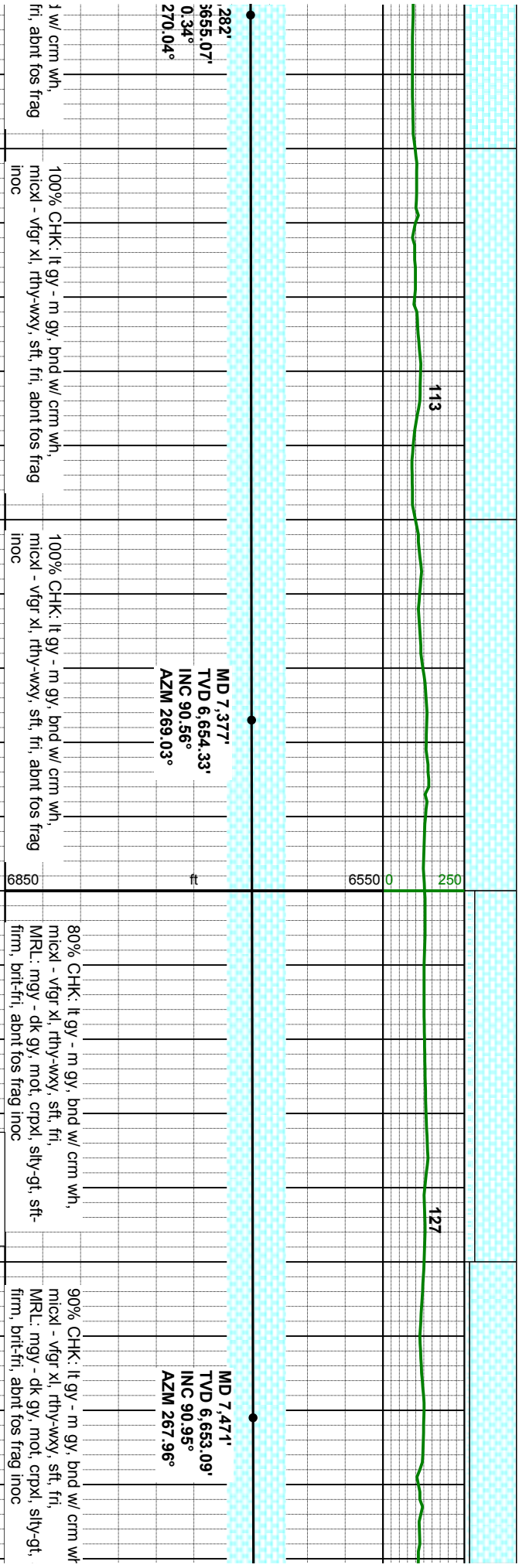
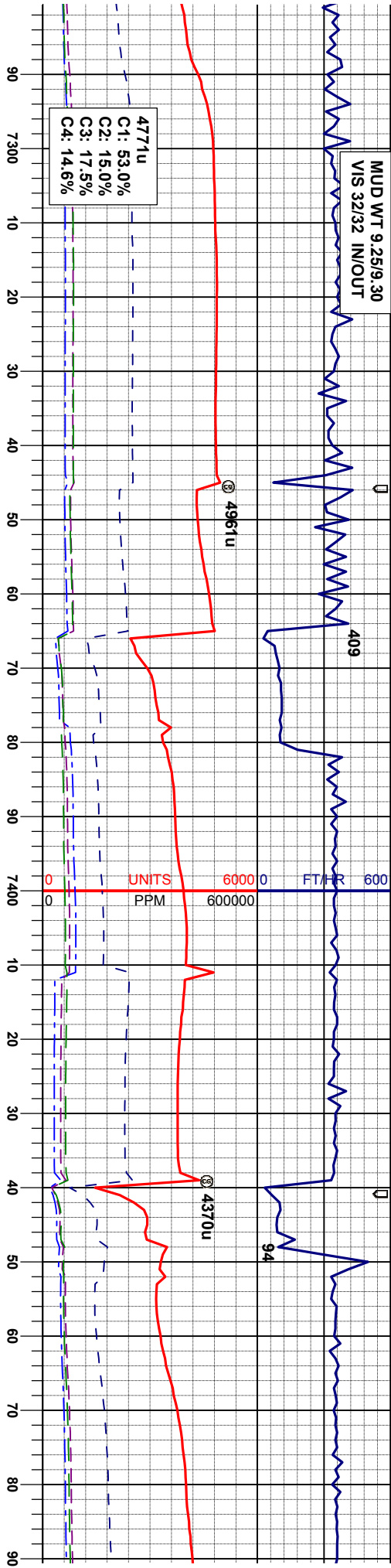
gy - dk gy, gybrn, mot, crpxl, silty-gt, brt-fti,	MRL: mgy - dk gy, gybrn, mot, crpxl, silty-gt, sft-firm, brt-fti,	CHK: lt gy - m gy, bnd w/ cm wh, micxl - vgr xl, rthy-wxy, sft, fti, tr bent w/ disn pyr
gy - m gy, bnd w/ cm wh, micxl - rthy-wxy, sft, fti, tr bent w/ disn pyr	MRL: mgy - dk gy, gybrn, mot, crpxl, silty-gt, sft-firm, brt-fti,	CHK: lt gy - m gy, bnd w/ cm wh, micxl - vgr xl, rthy-wxy, sft, fti, tr bent w/ disn pyr

MODERATE





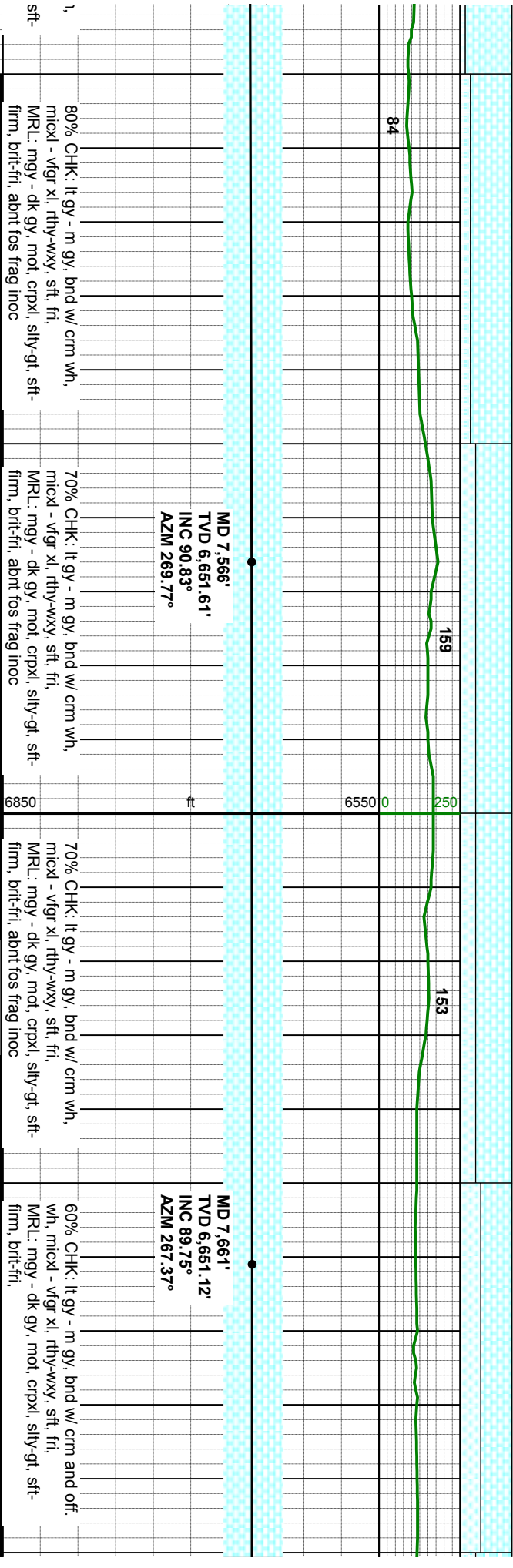
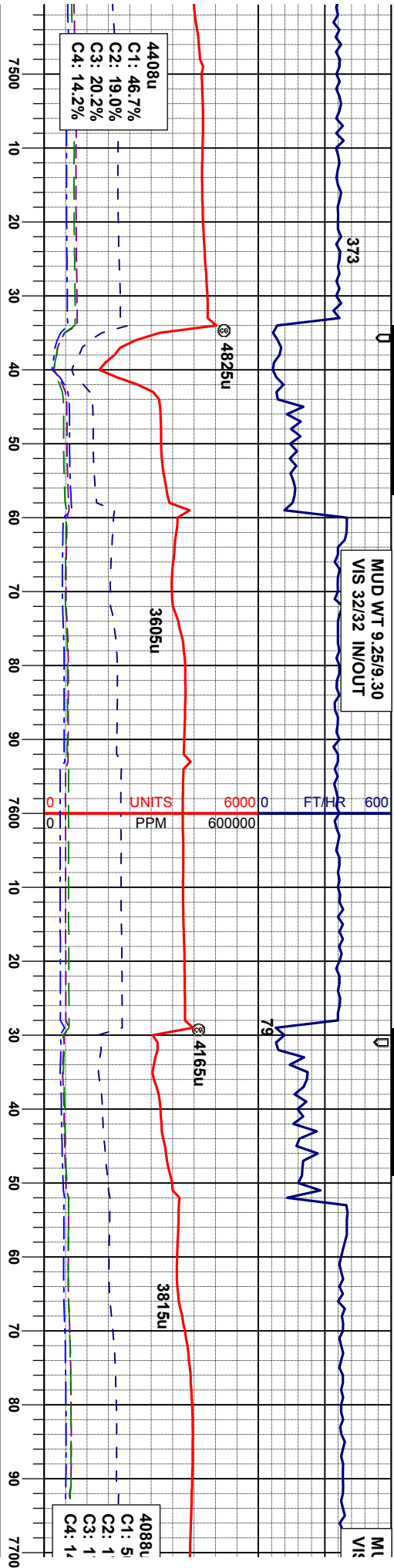




MODERATE





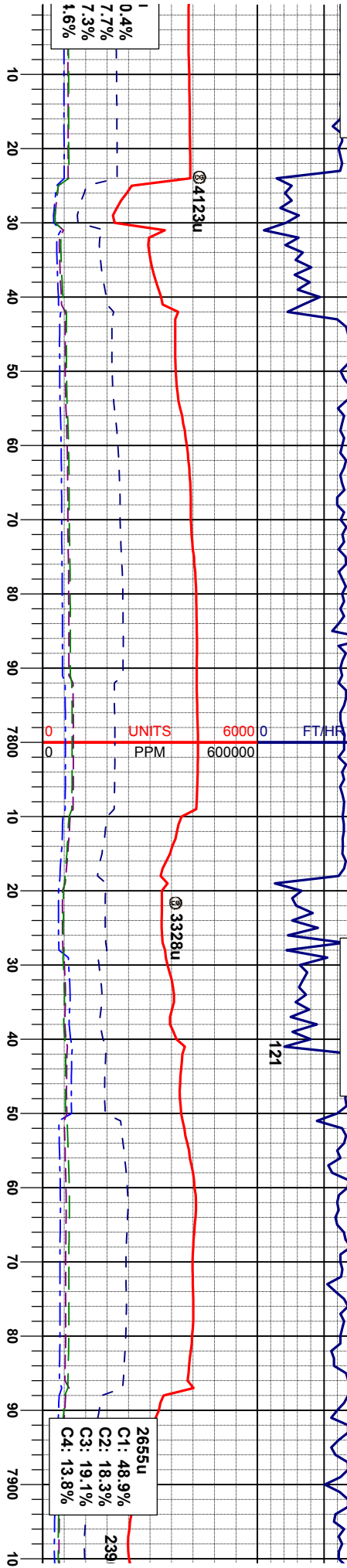


EXCELLENT



JD WT 8.95/8.95  
3/28/28 IN/OUT

MUD WT 9.05/8.9  
VIS 30/28 IN/OUT



MD 7.756'  
TVD 6,651.46'  
INC 89.85°  
AZM 267.32°

MD 7.851'  
TVD 6,653.96'  
INC 87.13°  
AZM 267.55°

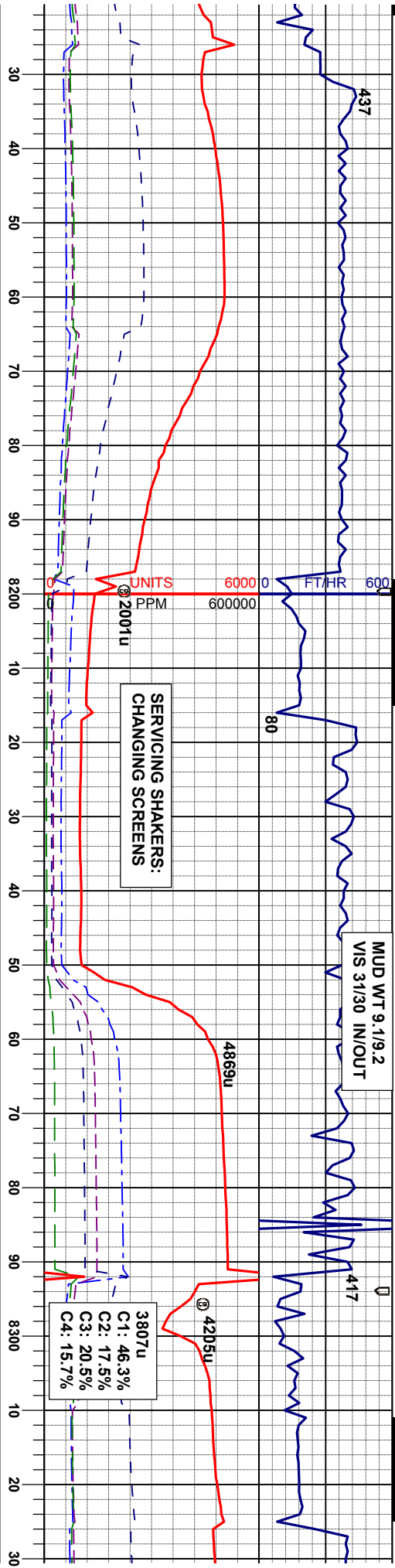
70% CHK: lt gy - m gy, bnd w/ crm and off. wh, micxl - vfg xl, rthy-wxy, sft, frt, MRL: mgy - dk gy, mot, crpxl, slty-gt, sft- firm, brlt-frt,	60% CHK: lt gybrn - m gybrn, bnd w/ crm and off. wh, micxl - vfg xl, rthy-wxy, sft, frt, MRL: mgy - dk gy, mot, crpxl, slty-gt, sft- firm, brlt-frt,	70% CHK: lt gybrn - m gybrn, bnd w/ crm and off. wh, micxl - vfg xl, rthy-wxy, sft, frt, MRL: mgy - dk gy, mot, crpxl, slty-gt, sft- firm, brlt-frt,	80% CHK: lt gybrn - m gybrn, bnd w/ crm and off. wh, micxl - vfg xl, rthy-wxy, sft, frt, MRL: mgy - dk gy, mot, crpxl, slty-gt, sft- firm, brlt-frt,	90% C and off. MRL: m firm, brl
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EXCELLENT



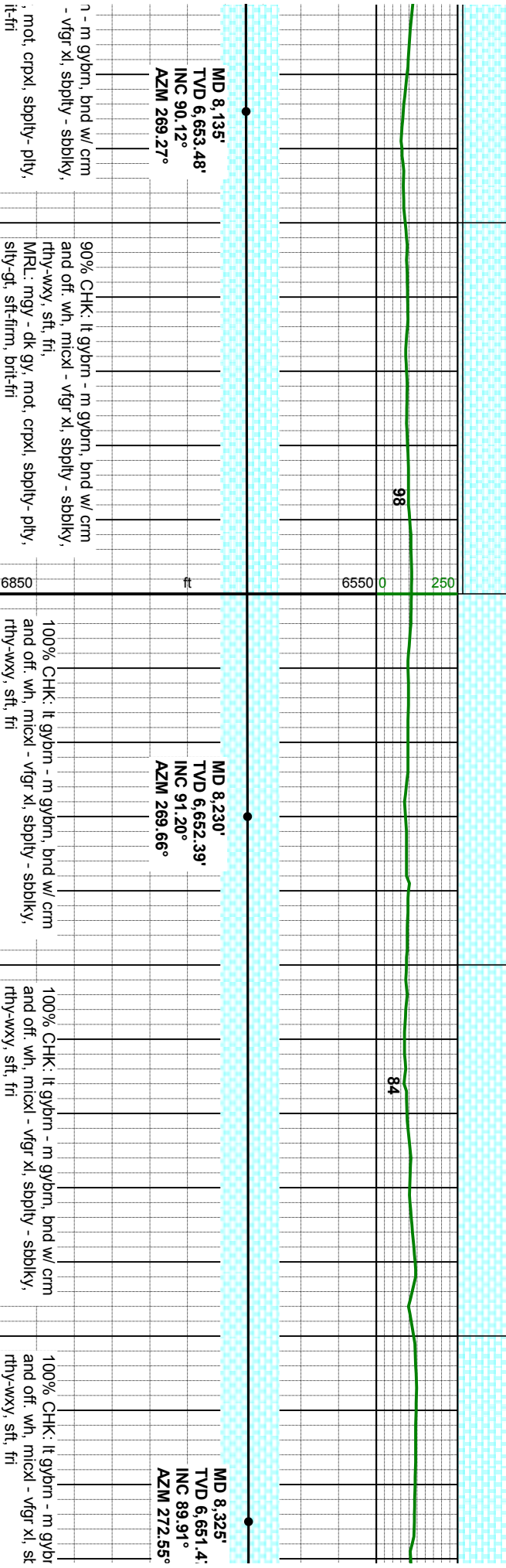






MUD WT 9.1/9.2  
VIS 31/30 IN/OUT

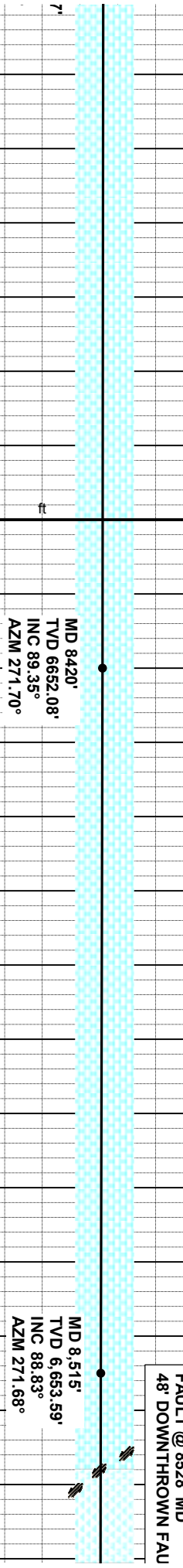
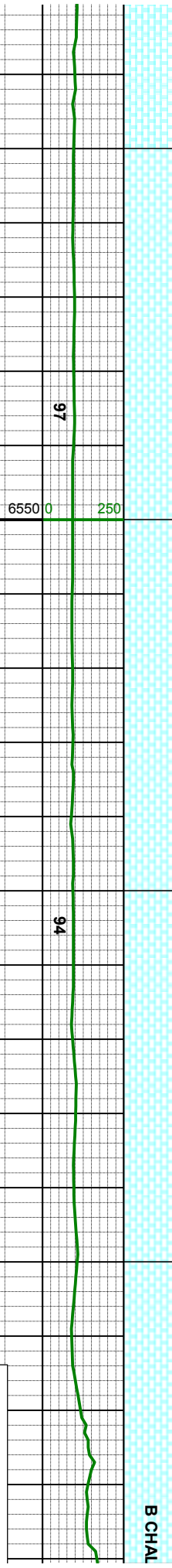
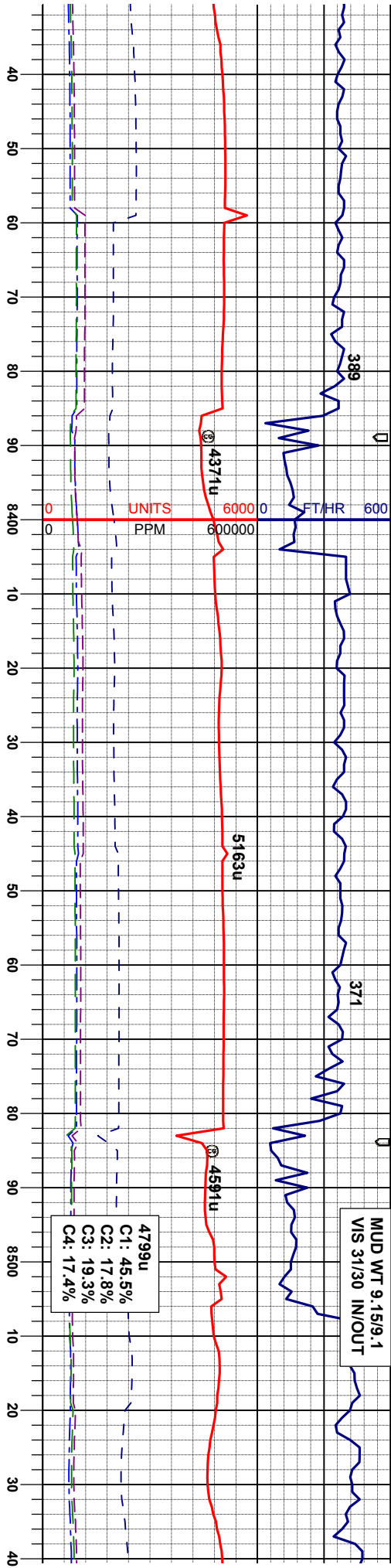
SERVICING SHAKERS:  
CHANGING SCREENS



EXCELLENT





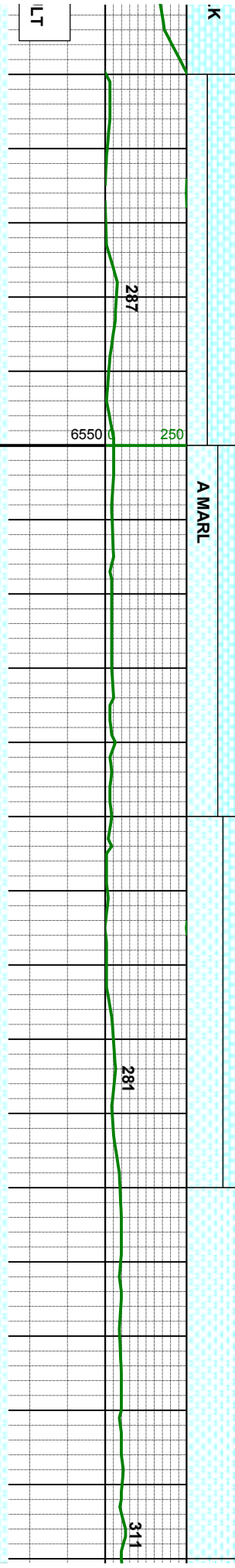
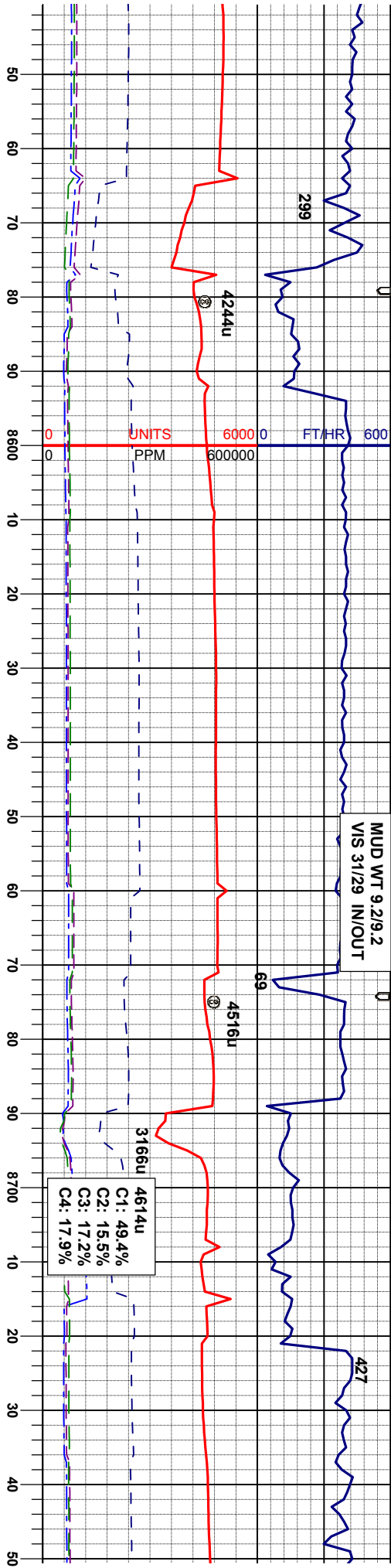


100% CHK: lt gybrn - m gybrn, bnd w/ crm and off. wh, micxl - vfgr xl, sbply - sbblky, rthy-wxy, sft, ftr

100% CHK: lt gybrn - m gybrn, bnd w/ crm and off. wh, micxl - vfgr xl, sbply - sbblky, rthy-wxy, sft, ftr

100% CHK: lt gybrn - m gybrn, bnd w/ crm and off. wh, micxl - vfgr xl, sbply - sbblky, rthy-wxy, sft, ftr



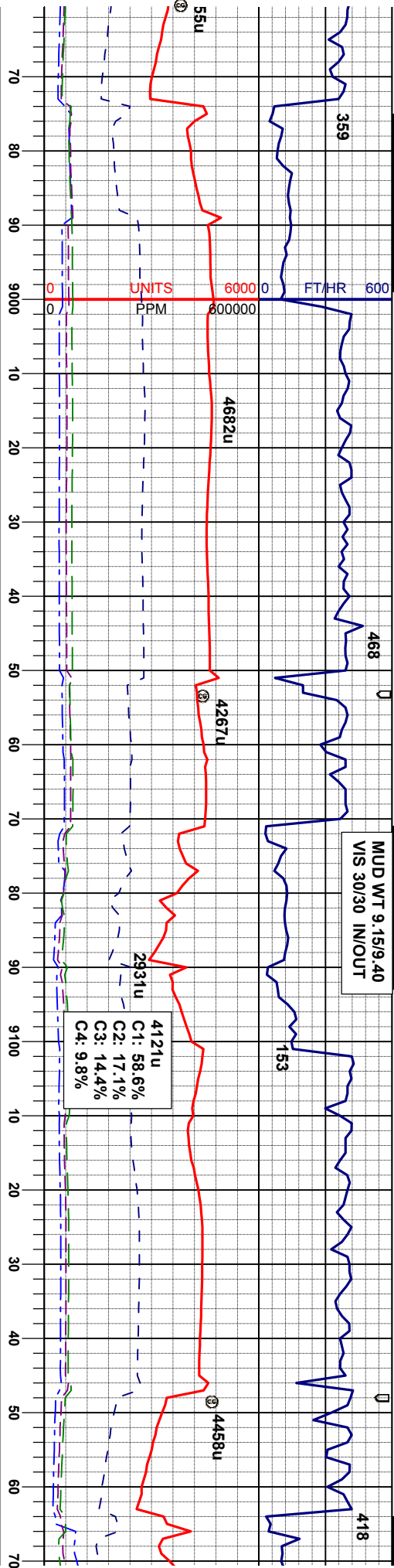


/ crm rthy, MRL: mgy - dk gy, mot, crpxl, sbply- pily, sily-gt, sft-firm, brt-fri	GOOD	60% CHK: lt gybrn - m gybrn, bnd w/ crm and off. wh, micxl - vgr xl, sbply - sbblky, rthy-wxy, sft, fri, MRL: mgy - dk gy, mot, crpxl, sbply- pily, sily-gt, sft-firm, brt-fri	6850	MD 8,610' TVD 6,654.31' INC 90.31° AZM 270.32°	40% CHK: lt gybrn - m gybrn, bnd w/ crm and off. wh, micxl, sbply - sbblky, rthy-wxy, sft, fri, MRL: mgy - dk gy, mot, crpxl, sbply- pily, sily-gt, sft-firm, brt-fri	6850	MD 8,705' TVD 6,653.82' INC 90.28° AZM 270.97°	100% MRL: mgy - dk gy, mot, crpxl, sbply- pily, sily-gt, sft-firm, brt-fri, tr bent w/ dism pyr









MD 8,989'  
TVD 6,656.06'  
INC 90.86°  
AZM 267.32°

MD 9,084'  
TVD 6,655.34'  
INC 90.00°  
AZM 267.35°

MRL: mgy - dk gy, mot, crpxl, sbply-  
/gt, sft-firm, brlt-frt, tr bent w/ dism

100% MRL: mgy - dk gy, mot, crpxl, sbply-  
ply, sily-gt, sft-firm, brlt-frt, tr bent w/ dism  
pyr

100% MRL: mgy - dk gy, mot, crpxl, sbply-  
ply, sily-gt, sft-firm, brlt-frt, tr bent w/ dism  
pyr

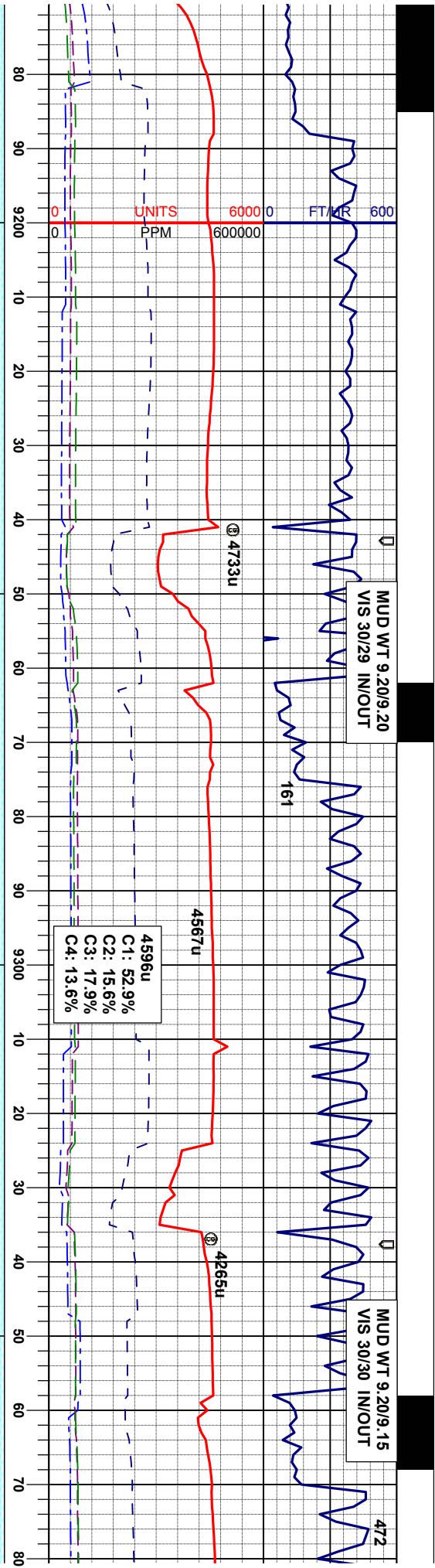
35% CHK: lt gybm - m gybm - wh, bnd w/  
crm and off, wh, micxl - vfgx xl, sbply -  
sbbkly, rthy-wxy, sft, frt,  
MRL: mgy - dk gy, mot, crpxl, sbply- ply,  
sily-gt, sft-firm, brlt-frt, tr bent w/ dism pyr

35% CHK: lt gyt  
crm and off, wh,  
sbbkly, rthy-wxy  
MRL: mgy - dk g  
sily-gt, sft-firm, t

GOOD



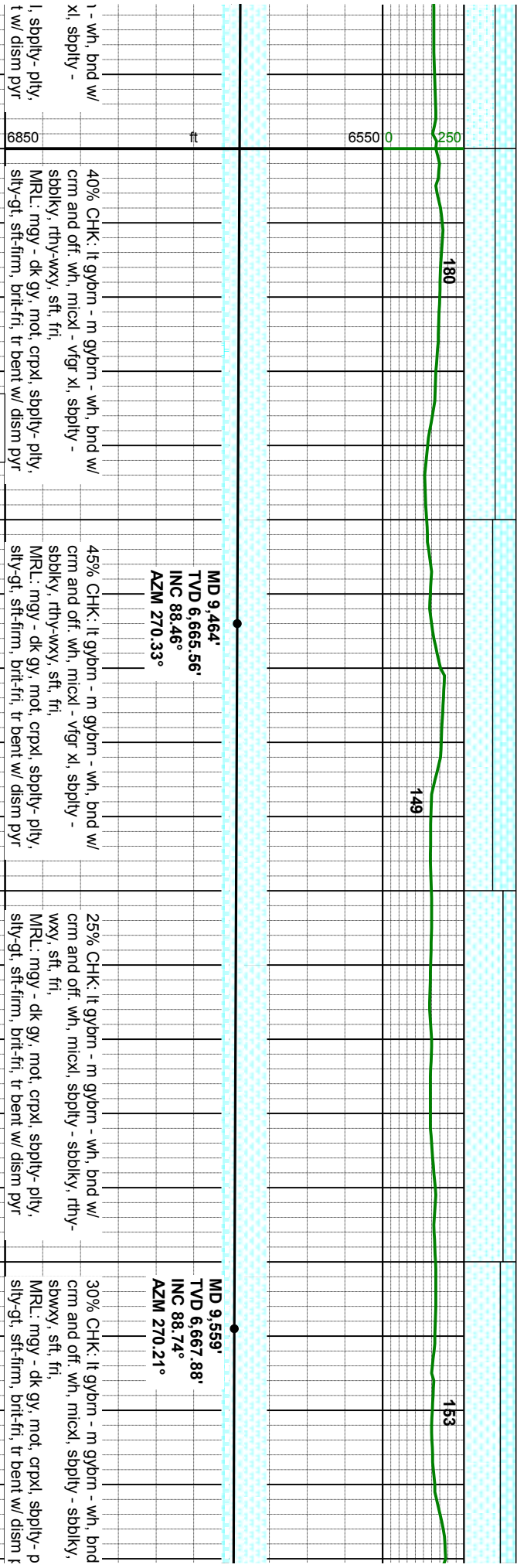
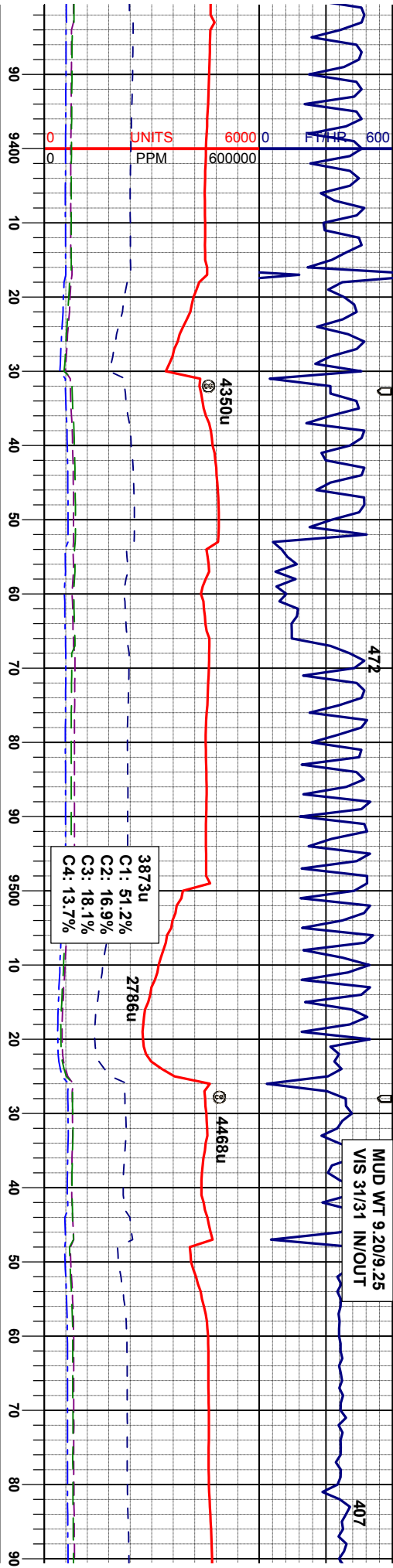




MD 9,179' TVD 6,656.51' INC 88.58° AZM 268.23°		30% CHK: It gybrn - m gybrn - wh, bnd w/ cm and off. wh, micxl - vfgr xl, sbply - sbblky, rthy-wxy, sft, frt, MRL: mgy - dk gy, mot, crpxl, sbply- plty, sily-gt, sft-firm, brt-frt, tr bent w/ dism pyr
MD 9,274' TVD 6,659.40' INC 87.93° AZM 268.67°		30% CHK: It gybrn - m gybrn - wh, bnd w/ cm and off. wh, micxl - vfgr xl, sbply - sbblky, rthy-wxy, sft, frt, MRL: mgy - dk gy, mot, crpxl, sbply- plty, sily-gt, sft-firm, brt-frt, tr bent w/ dism pyr
MD 9,369' TVD 6,662.70' INC 88.09° AZM 269.36°		40% CHK: It gybrn - m gybrn - wh, bnd w/ cm and off. wh, micxl - vfgr xl, sbply - sbblky, rthy-wxy, sft, frt, MRL: mgy - dk gy, mot, crpxl, sbply- plty, sily-gt, sft-firm, brt-frt, tr bent w/ dism pyr



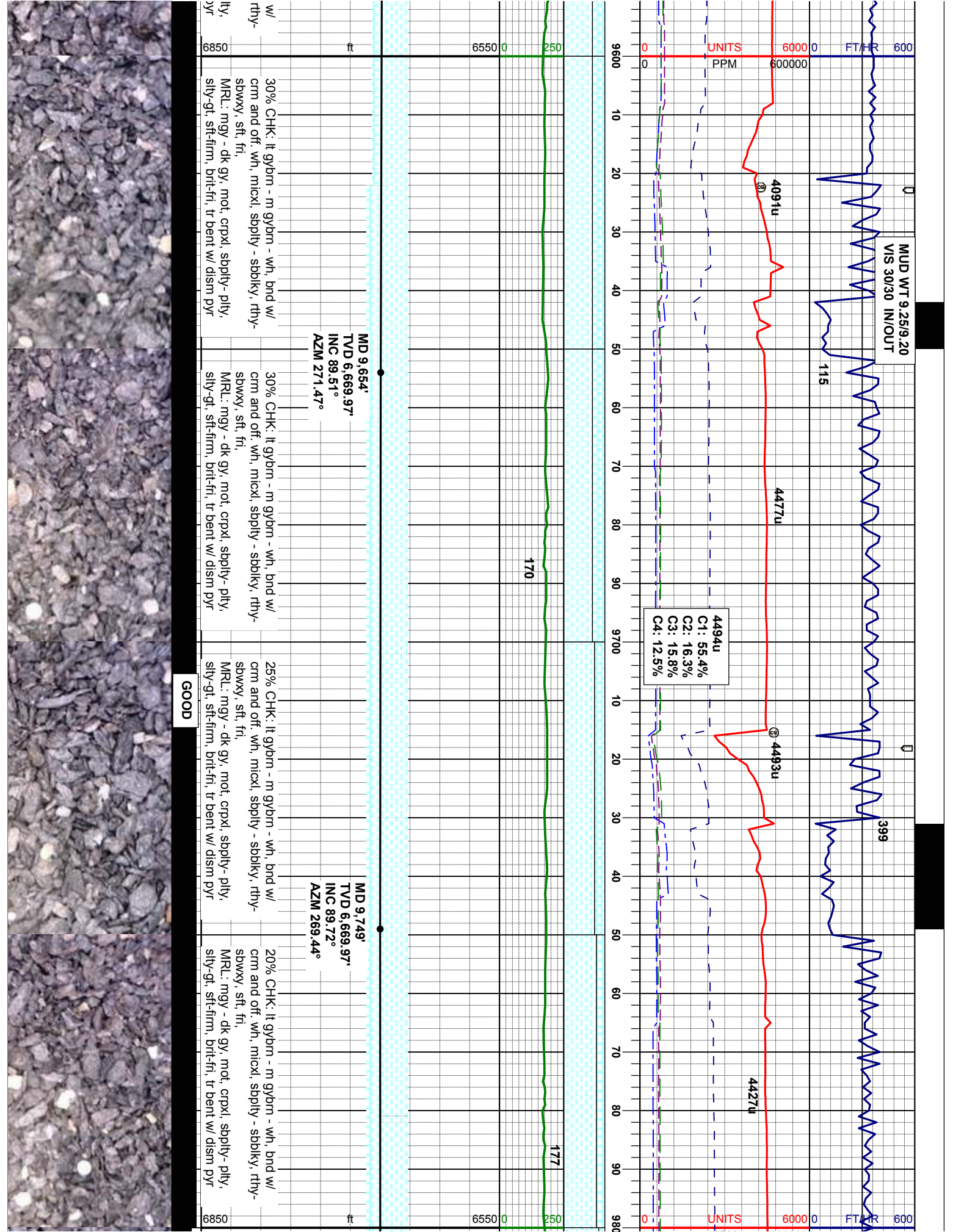




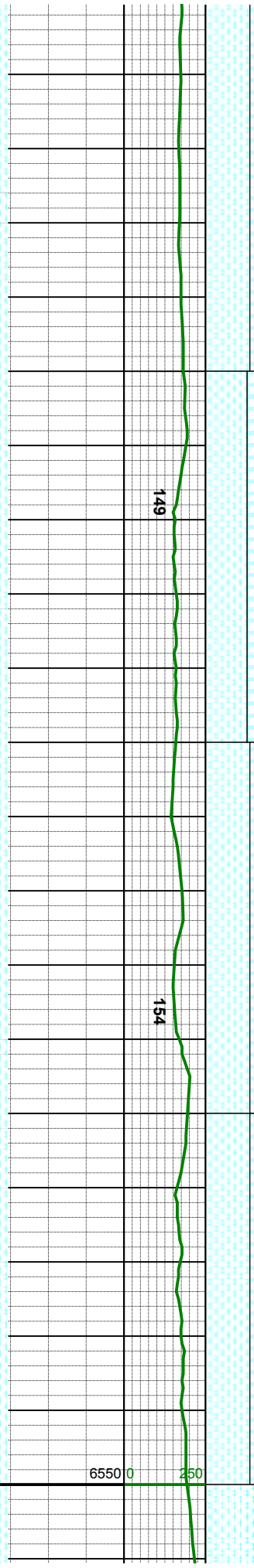
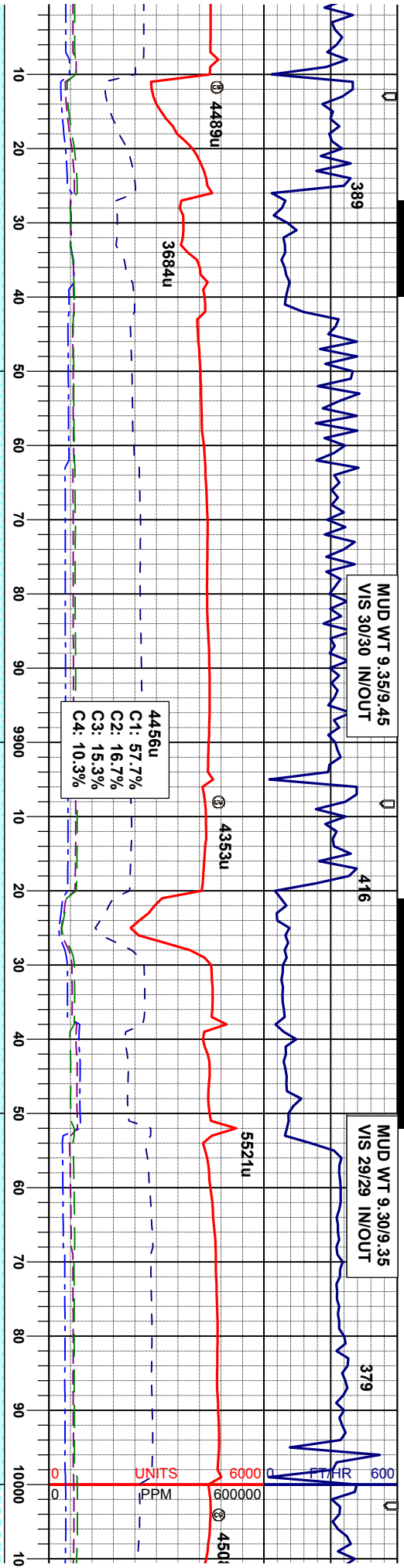
GOOD











MD 9,844'  
TVD 6,669.74'  
INC 90.55°  
AZM 269.86°

MD 9,939'  
TVD 6,668.18'  
INC 91.33°  
AZM 269.88°

15% CHK: lt gybrn - m gybrn - wh, bnd w/  
cm and off wh, micxl, sbply - sbbiky, rthy-  
sbwxy, sft, fr,  
MRL: mgy - dk gy, mot, cpxl, sbply- plty,  
sily-gt, sft-firm, brt-fr, tr bent w/ dism pyr

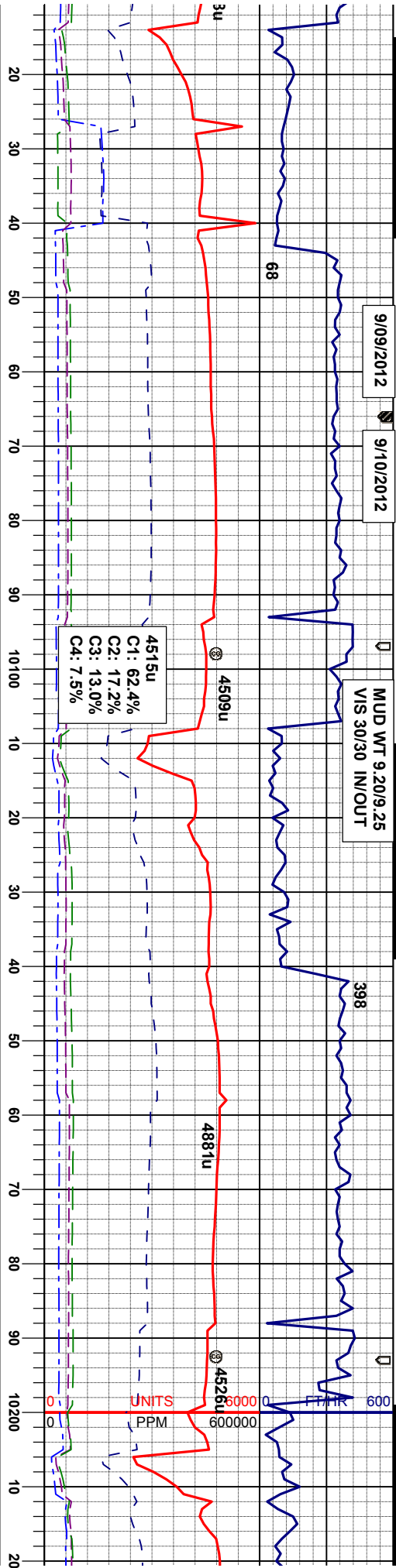
20% CHK: lt gybrn - m gybrn - wh, bnd w/  
cm and off wh, micxl, sbply - sbbiky, rthy-  
sbwxy, sft, fr,  
MRL: mgy - dk gy, mot, cpxl, sbply- plty,  
sily-gt, sft-firm, brt-fr, tr bent w/ dism pyr

15% CHK: lt gybrn - m gybrn - wh, bnd w/  
cm and off wh, micxl, sbply - sbbiky, rthy-  
sbwxy, sft, fr,  
MRL: mgy - dk gy, mot, cpxl, sbply- plty,  
sily-gt, sft-firm, brt-fr, tr bent w/ dism pyr

MODERATE







MD 10,033'  
TVD 6,666.71'  
INC 90.46°  
AZM 271.32°

MD 10,128'  
TVD 6,666.33'  
INC 90.00°  
AZM 271.12°

MD  
TVD  
INC  
AZM

FAUL  
67' U

RL: mgy - dk gy, mot, crpxl, sbply-  
-gt, sftfirm, britfri, tr bent w/ dism  
pyr

100% MRL: mgy - dk gy, mot, crpxl, sbply-  
ply, sily-gt, sftfirm, britfri, tr bent w/ dism  
pyr

100% MRL: mgy - dk gy, mot, crpxl, sbply-  
ply, sily-gt, sftfirm, britfri, tr bent w/ dism  
pyr

100% MRL: mgy -  
ply, sily-gt, sftfirm

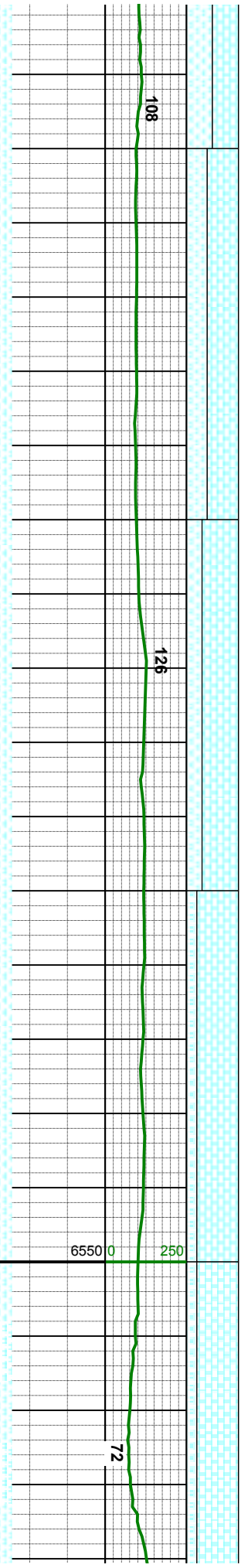
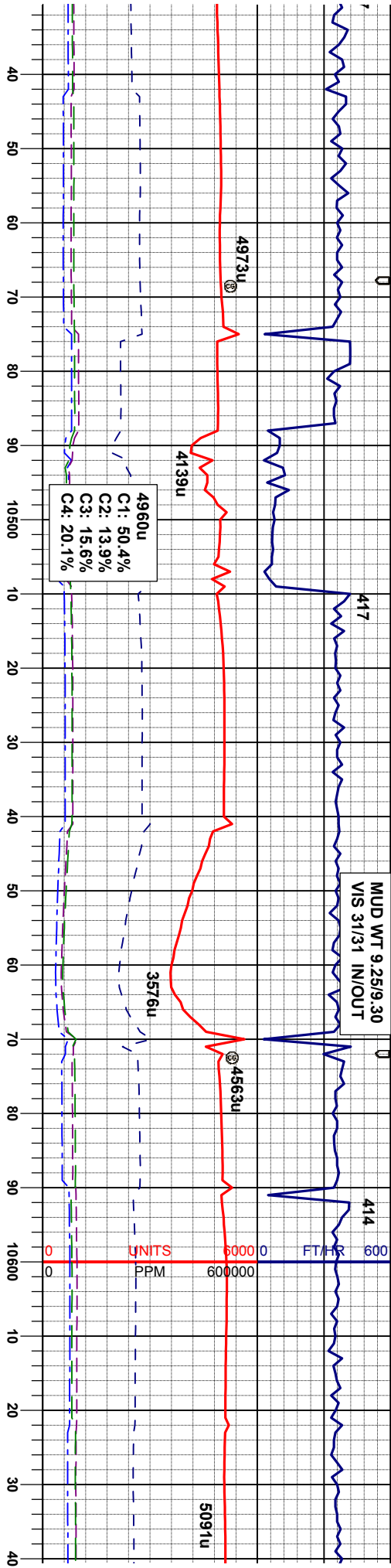
GOOD







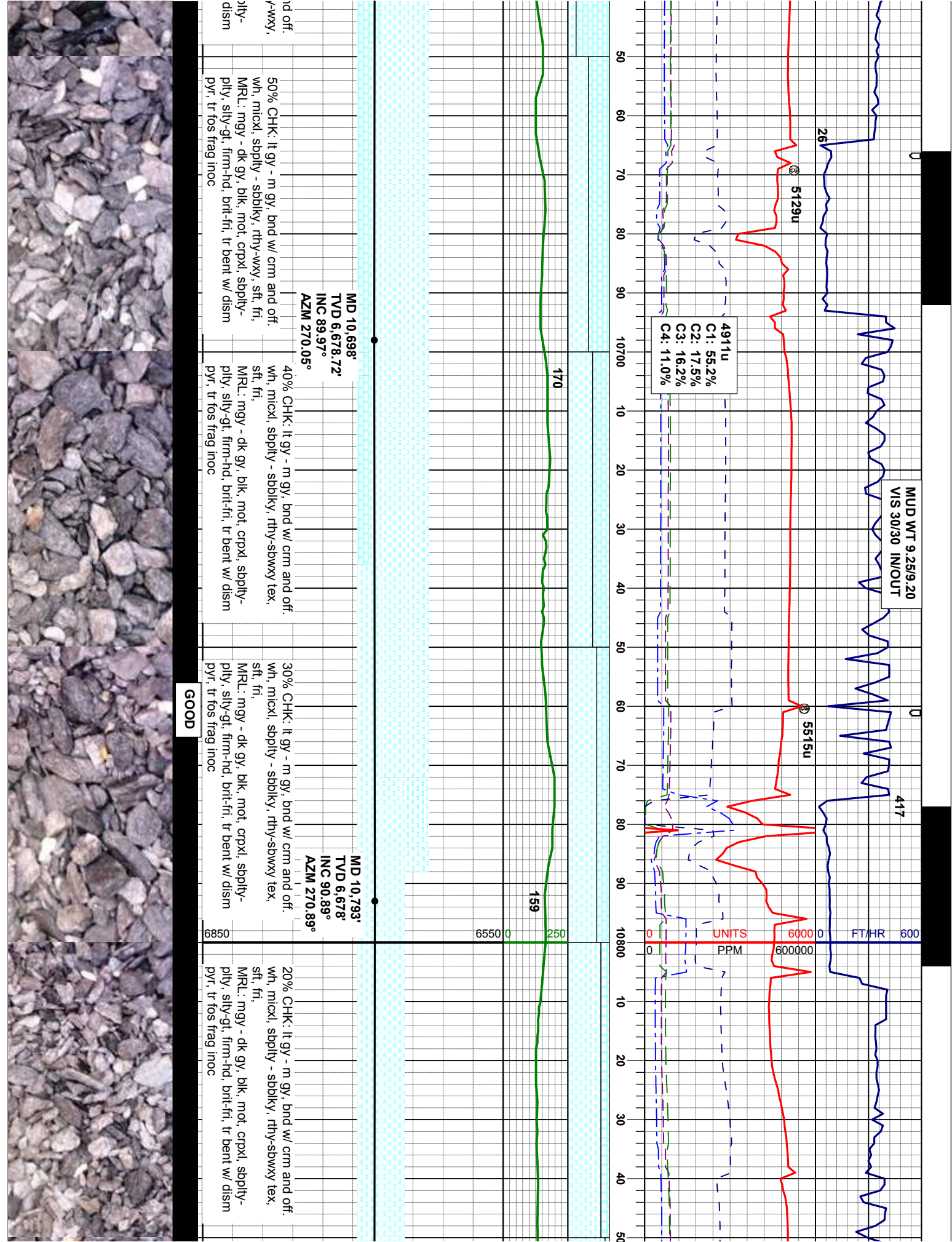




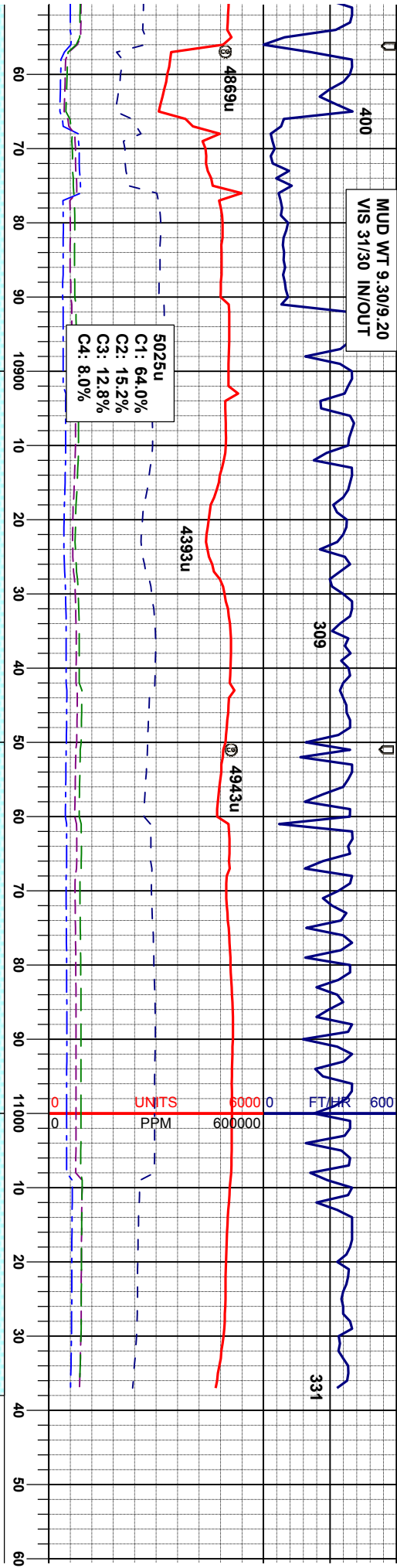
1 - wh, bnd w/ xl, sbply -	60% CHK: lt gybrn - m gybrn - wh, bnd w/ crm and off. wh, micxl - vfgt xl, sbply - sbblky, rthy-wxy, sft, fri, MRL: mgy - dk gy, blk, mot, crpxl, sbply - pty, silty-gt, firm-hd, brit-fri, tr bent w/ dism pyr	MD 10,508' TVD 6,675.09' INC 87.07° AZM 268.32°	70% CHK: lt gy - m gy, bnd w/ crm and off. wh, micxl - vfgt xl, sbply - sbblky, rthy-wxy, sft, fri, MRL: mgy - dk gy, blk, mot, crpxl, sbply - pty, silty-gt, firm-hd, brit-fri, tr bent w/ dism pyr, tr fos frag inoc	MD 10,603' TVD 6,678.13' INC 89.29° AZM 269.61°	80% CHK: lt gy - m gy, bnd w/ crm and off. wh, micxl - vfgt xl, sbply - sbblky, rthy-wxy, sft, fri, MRL: mgy - dk gy, blk, mot, crpxl, sbply - pty, silty-gt, firm-hd, brit-fri, tr bent w/ dism pyr, tr fos frag inoc
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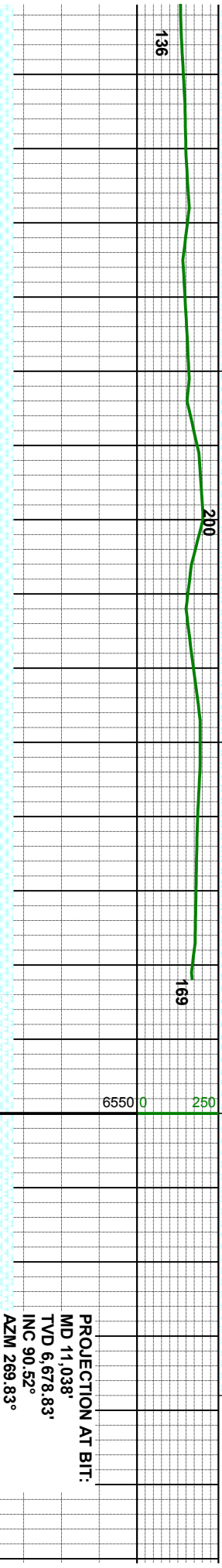








5025u  
C1: 64.0%  
C2: 15.2%  
C3: 12.8%  
C4: 8.0%



MD 10.888'  
TV D 6,678.59'  
INC 88.39°  
AZM 270.18°

MD 10.975'  
TV D 6,679.41'  
INC 90.52°  
AZM 269.83°

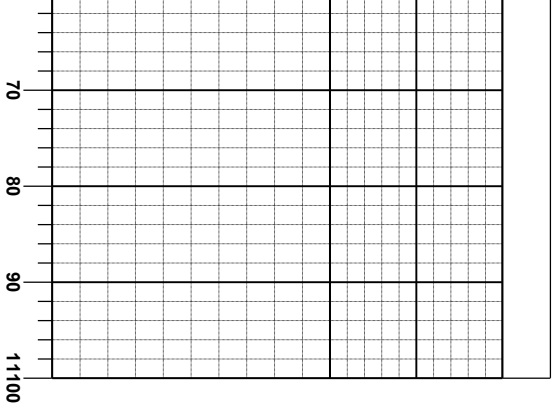
10% CHK: lt gy - m gy, bnd w/ crm and off, wh, micxl, sbply - sbolky, rthy-sbwxxy tex, sft, fri,  
MRL: mgy - dk gy, blk, mot, crpxl, sbply- pily, slty-gt, firm-hd, brit-fri, tr bent w/ dism pyr, tr tos frag inoc

10% CHK: lt gy - m gy, bnd w/ off, wh, micxl, sbply - sbolky, rthy-sbwxxy tex, sft, fri,  
MRL: mgy - dk gy, blk, mot, crpxl, sbply- pily, slty-gt, firm-hd, brit-fri, tr bent w/ dism pyr,

10% CHK: lt gybrn - m gybrn, bnd w/ off, wh, micxl, sbply - sbolky, rthy-sbwxxy tex, sft, fri,  
MRL: mgy - dk gy, blk, mot, crpxl, sbply- pily, slty-gt, firm-hd, brit-fri, tr bent w/ dism pyr,

10% CHK: lt gybrn - m gybrn, bnd w/ off, wh, micxl, sbply - sbolky, rthy-sbwxxy tex, sft, fri,  
MRL: mgy - dk gy, blk, mot, crpxl, sbply- pily, slty-gt, firm-hd, brit-fri, tr bent w/ dism pyr,





WELLBORE WELLS  
RANCH AA12-62-1HN  
TD @ 11,038' MD  
09/10/2012 @ 10:06 HRS

Thank you for using  
Columbine Logging Inc.

