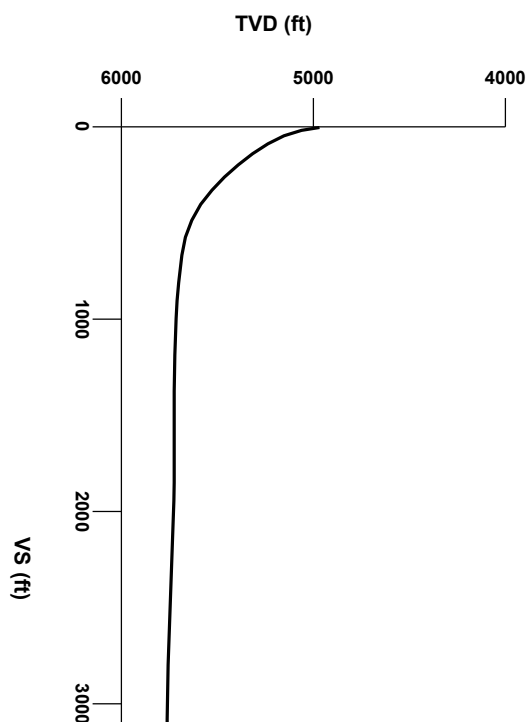


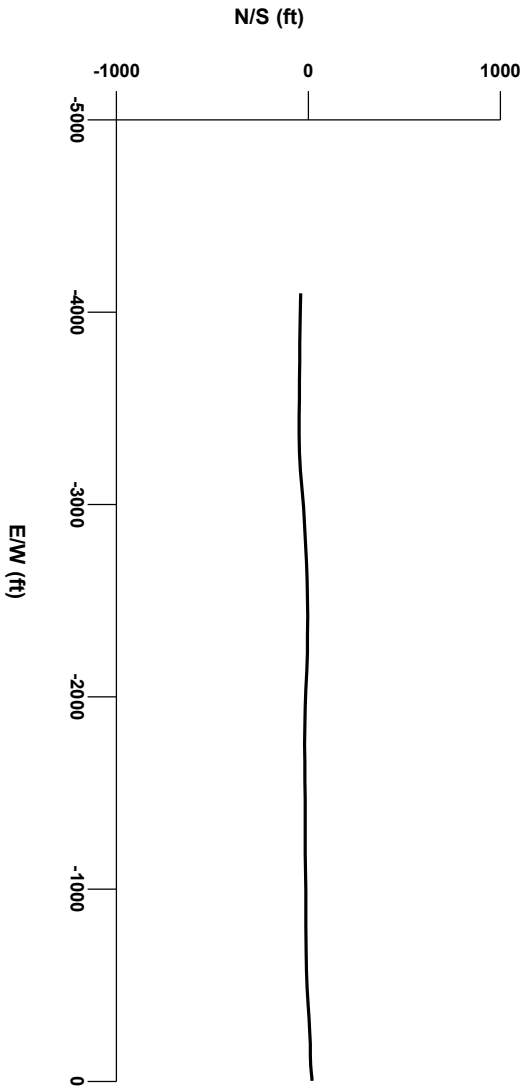
LOG created using LPLOT VH Version 3.0, October 17, 2013, Copyright (C) 1999-2009 Pason Systems Corp.

**OPERATOR:** NOBLE ENERGY INC  
**WELL:** ROHN STATE LD09-67-1HN  
**LOCATION:** SENE SEC 9 T9N R58W  
**COUNTY:** WELD  
**STATE:** COLORADO  
**SPOT:** 1688' FNL; 480' FEL  
**ELEVATION:** 4729' GL; 4753' KB  
**FIELD:** WILDCAT  
**SPUD DATE:** 10/12/2013  
**TD DATE:** 10/17/2013  
**DATES LOGGED:** 10/14/2013 - 10/17/2013  
**DEPTHS LOGGED:** 4933' - 9448' MD  
**LOGGERS:** LAURA KELLOGG; CAMERON NAKOS  
**DRILLING FLUID:** LSND  
**DRILLING RIG:** H&P 273  
**API:** 05-123-37537  
**LOG TYPE:** HORIZONTAL  
**SCALE:** 1:240 (5 inches per 100 feet)  
**REMARKS:** WELLSITE GEOLOGIC SERVICES  
 PROVIDED BY COLUMBINE LOGGING INC.



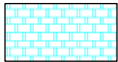
Survey Elevation

Survey Plan



4000

5000



Chalk



Marl



Silty Shale

ENGINEERING SYMBOLS



Casing



Casing



Connection



Connection Gas



Midnight Depth



Oil To Surface

SAMPLE PHOTOS

OIL SHOWS

TVD		GAMMA RAY	
7000	ft	40	API 350

Acetone was used as the cutting agent with the dimple filled to the rim

The ratings are based on 7 descriptors: None, Slight trace, Trace, Fair, Moderate, Good, and Excellent. The descriptor used is based on the loggers observations and best judgment of brilliance, color and longevity of the cut.

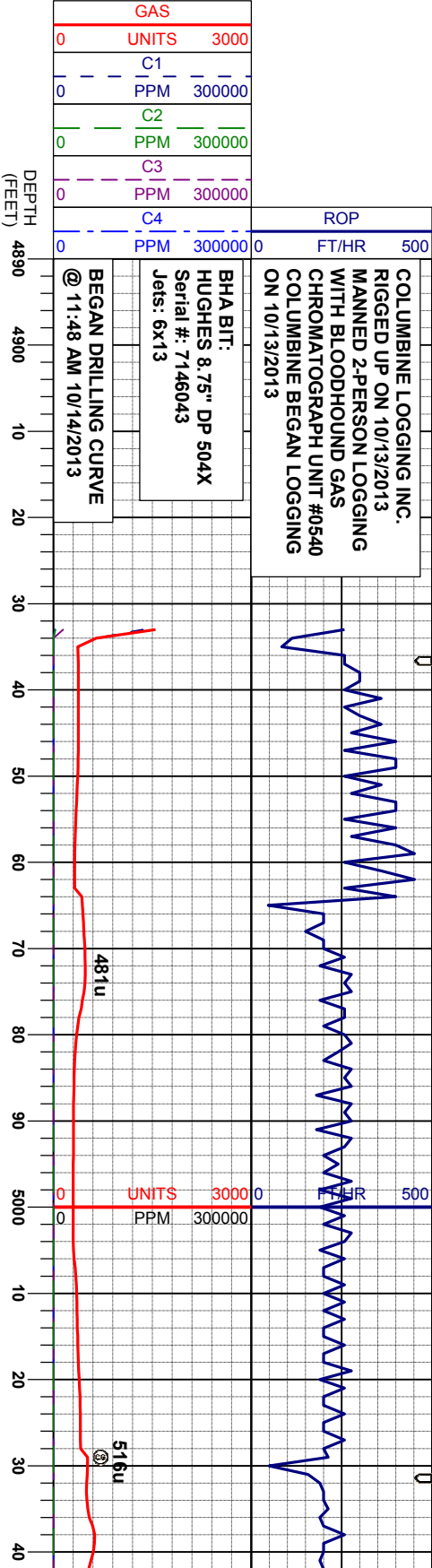
SLTYSH: gy-dkgy, occ blk, sbblky-sbply, sft - mod firm, gr-sdy tex, arg cnt

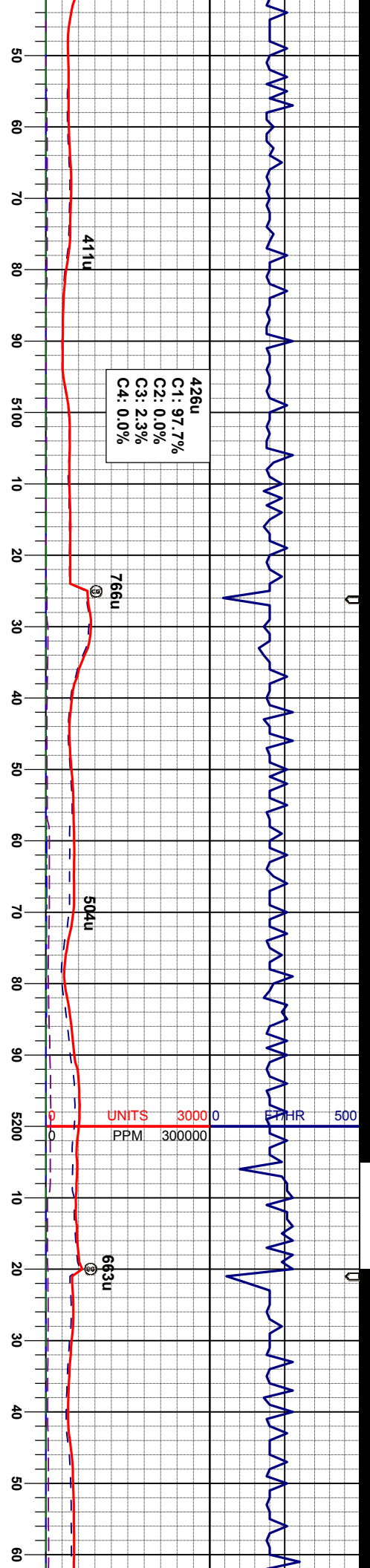
SLTYSH: gy-dkgy, occ blk, sbblky-sbply, sft - mod firm, gr-sdy tex, arg cnt

WT IN 9.40+ / OUT 9.30+  
VIS IN 35/ OUT 33

MD 4970'  
INC 3.7°  
AZM 275.4°  
TVD 4969.27'

CUTTINGS  
LITHOLOGY





MD 5065'  
INC 13.3°  
AZM 268.6°  
TVD 5063.12'

MD 5160'  
INC 22.3°  
AZM 264.0°  
TVD 5153.94'

MD 5254'  
INC 29.9°  
AZM 266.1°  
TVD 5237.84'

SLTYSH: gy-dkgy, occ blk, sbblky-sbply,  
sft, gt-sdy tex, arg cnt

SLTYSH: gy-dkgy, occ blk, sbblky-sbply,  
sft, gt-sdy tex, arg cnt

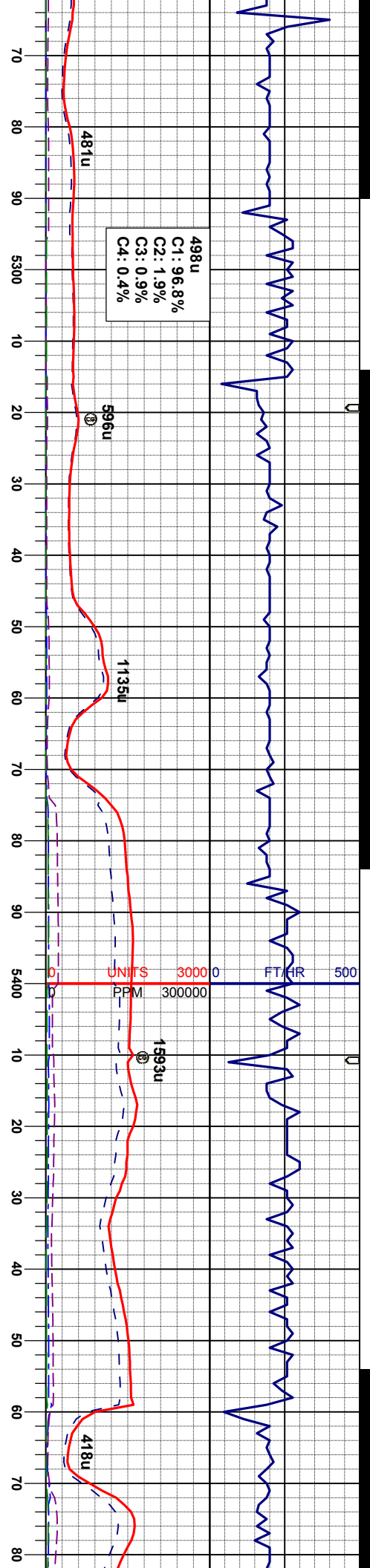
SLTYSH: gy-dkgy, occ blk, sbblky-sbply,  
sft, gt-sdy tex, arg cnt

SLTYSH: gy-dkgy, occ blk, sbblky-sbply,  
sft, gt-sdy tex, arg cnt, tr silty sh

SLTYSH: gy-dkgy, occ blk, sbblky-sbply,  
sft, gt-sdy tex, arg cnt







WT IN 10.10/ OUT 10.00+  
VIS IN 33/ OUT 34

MD 5349'  
INC 36.5°  
AZM 269.1°  
TVD 5317.30'

WT IN 10.50+ OUT 10.50+  
VIS IN 34/ OUT 34

MD 6343'  
INC 88.0°  
AZM 268.6°  
TVD 5715.01'

MD 5444'  
INC 38.9°  
AZM 269.5°  
TVD 5392.46'

gy-dkgy, occ blk, sbblky-sbply,  
sft, arg cnt, tr slty sh

SLTVSH: gy-dkgy, occ blk, sbblky-sbply,  
sft, gt-sdy tex, arg cnt, tr slty sh

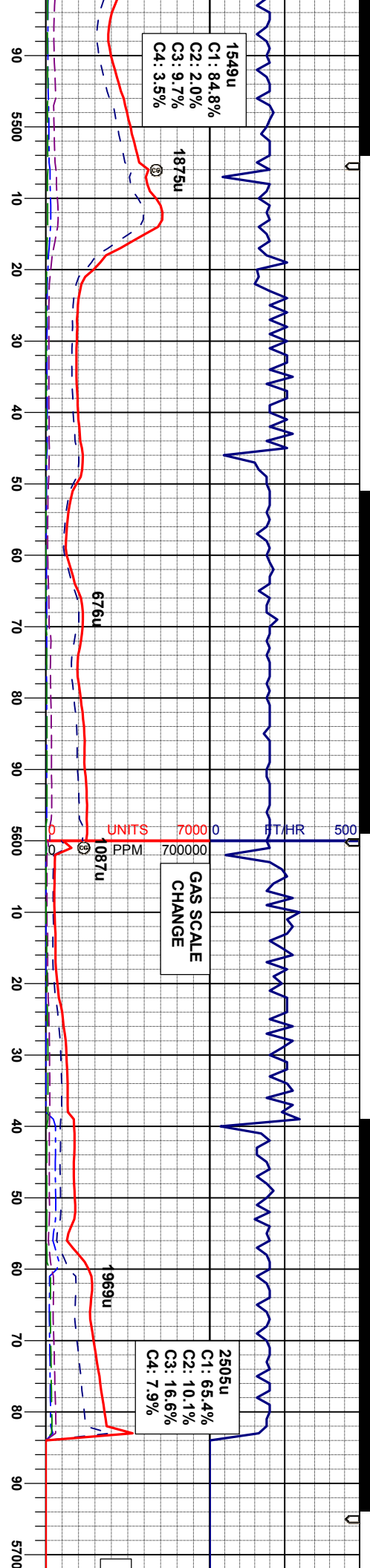
SLTVSH: gy-dkgy, occ blk, sbblky-sbply,  
sft - mod firm, gt-sdy tex, arg cnt, tr slty sh

SLTVSH: gy-dkgy, occ blk, sbblky-sbply,  
sft - mod firm, gt-sdy tex, arg cnt, tr slty sh

SLTVSH: gy-dkgy, occ blk,  
sft - mod firm, gt-sdy tex,







1549u  
C1: 84.8%  
C2: 2.0%  
C3: 9.7%  
C4: 3.5%

1875u

676u

1087u

1969u

2505u  
C1: 65.4%  
C2: 10.1%  
C3: 16.6%  
C4: 7.9%

MD 5539'  
INC 43.4°  
AZM 266.8°  
TVD 5463.98'

MD 5634'  
INC 48.7°  
AZM 266.3°  
TVD 5529.89'

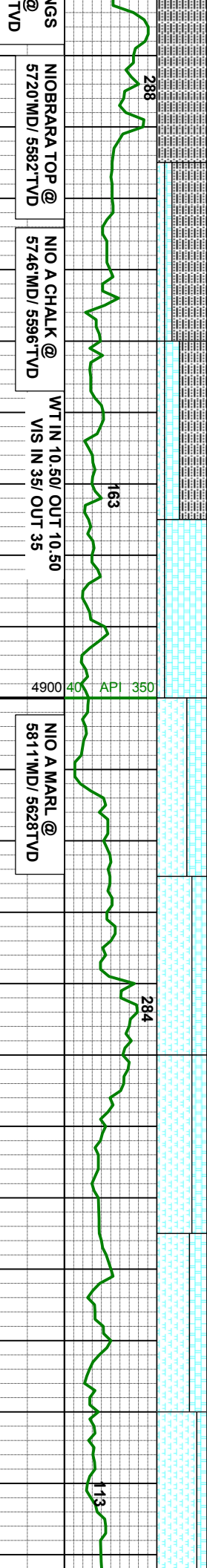
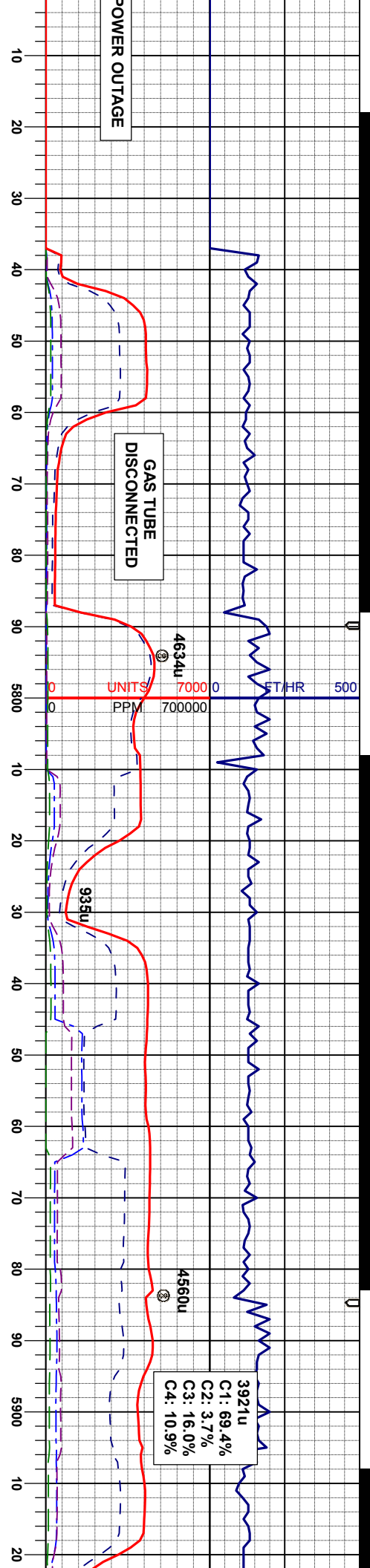
WT IN 10.50+ OUT 10.50+  
VIS IN 34/ OUT 34

SHARON SPRUI  
MARKER BED  
5706' MD/ 5671'

sbblky-sbply, arg cnt  
SLTYSH: gy-dkgy, occ blk, sbblky-sbply, sft - mod firm, gt-sdy tex, arg cnt  
SLTYSH: gy-dkgy, occ blk, sbblky-sbply, sft - mod firm, gt-sdy tex, arg cnt, tr silty sh  
SLTYSH: gy-dkgy, occ blk, sbblky-sbply, sft - mod firm, gt-sdy tex, arg cnt, tr silty sh







MD 5728'  
INC 55.8°  
AZM 266.1°  
TVD 5587.40'

NIOBRARA TOP @  
5720' MD / 5582' TVD

NIO A CHALK @  
5746' MD / 5596' TVD

WT IN 10.50 / OUT 10.50  
VIS IN 35 / OUT 35

NIO A MARL @  
5811' MD / 5628' TVD

MD 5823'  
INC 64.3°  
AZM 267.2°  
TVD 5634.78'

SLTYSH: lgy-gy, tr dkgy, sbblky-sbply, sft, gt-sdy tex, arg cnt, v sl calc, abnt bent  
CHK: lgy-crm, occ gy-dkg, sbblky, sft-firm, wxy tex, v calc  
MRL: dkgy-gybm, sbblky-sbply, sft, gt tex, v calc

CHK: lgy-crm, occ gy&lt;tr sbblky, sft-firm, wxy tex, v calc  
MRL: dkgy-gybm, sbblky-sbply, sft, gt tex, v calc, tr pyr, tr bent

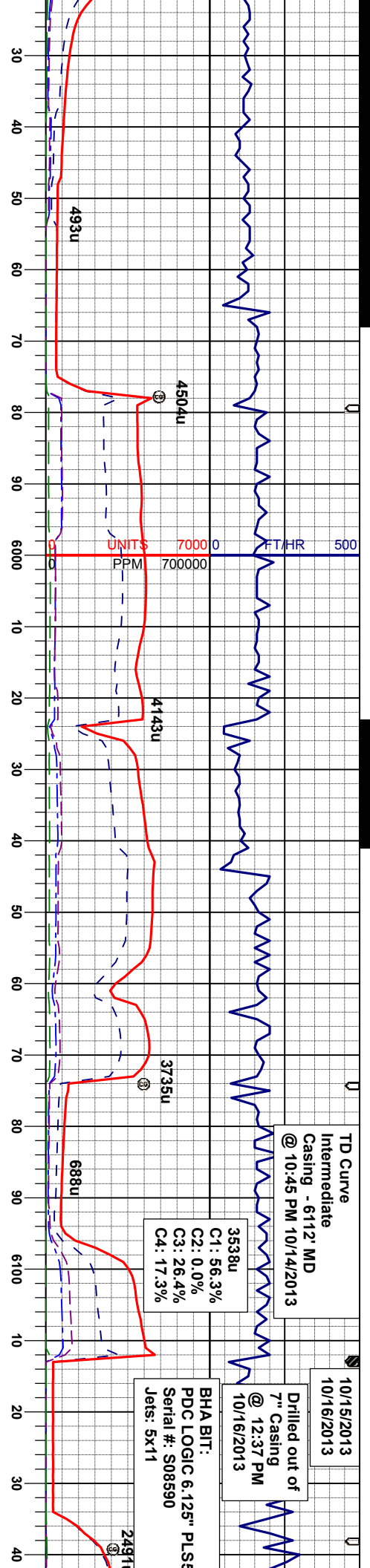
MRL: dkgy-gybm, sbblky-sbply, sft, gt tex, v calc, tr bent  
CHK: lgy-crm, occ gy&lt;tr sbblky, sft-firm, wxy tex, v calc

MRL: dkgy-gybm, sbblky-sbply, sft, gt tex, v calc, tr bent  
CHK: lgy-crm-gy, occ lt brn sbblky, sft-firm, wxy tex, v calc

MD 5937'  
INC 71°  
AZM 268°  
TVD 5667'

MRL: dkgy-gybm, s, sft, gt tex, v calc, tr bent, tr sc  
CHK: lgy-crm, occo, sft-firm, wxy tex, v calc





TD Curve  
Intermediate  
Casing - 6112' MD  
@ 10:45 PM 10/14/2013

10/15/2013  
10/16/2013  
Drilled out of  
7" Casing  
@ 12:37 PM  
10/16/2013

3538u  
C1: 56.3%  
C2: 0.0%  
C3: 26.4%  
C4: 17.3%

BHA BIT:  
PDC LOGIC 6.125" PLS  
Serial #: S08590  
Jets: 5x11

NIO B CHALK @  
6004' MD/ 5684' TVD  
WT IN 10.60/ OUT 10.60  
VIS IN 38/ OUT 38

MD 6013'  
INC 82.5°  
AZM 269.8°  
TVD 5685.82'

bbiky-sbply, sft, gt tex.  
at inoc fos  
gy&lt;it brn sbbiky, sft-  
MR.L: dkgy-gybrn, sbbiky-sbply, sft, gt tex,  
v calc, tr bent, tr scat inoc fos  
CHK: itgy-crm, occ gy&lt;it brn sbbiky, sft-  
firm, wxy tex, v calc, tr pyr, tr bent

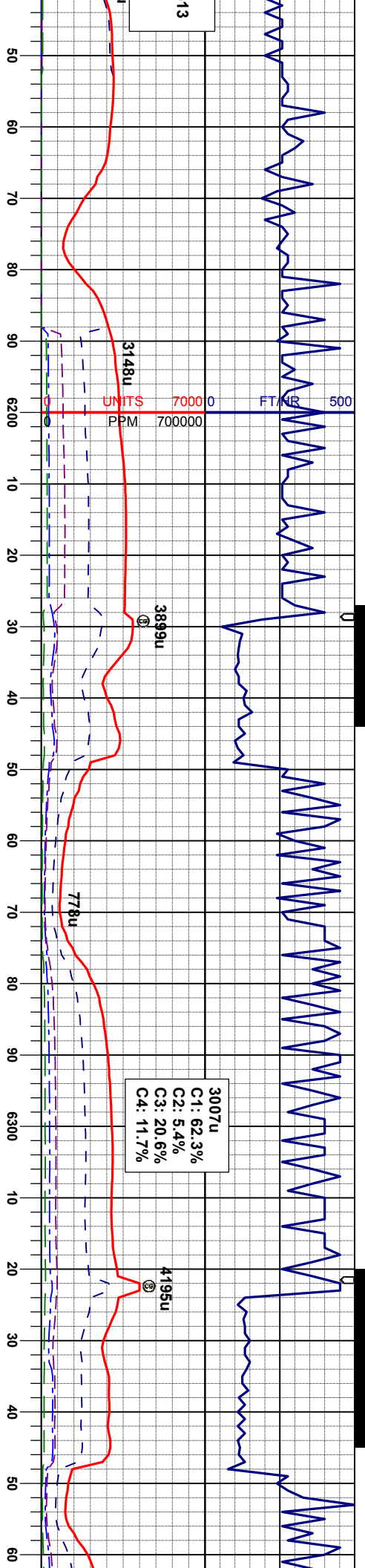
CHK: itgy-crm, occ gy&lt;it brn sbbiky, sft-  
firm, wxy tex, v calc  
MR.L: dkgy-gybrn, sbbiky-sbply, sft, gt tex,  
v calc, tr bent, tr scat inoc fos, tr pyr, tr bent

CHK: itgy-crm, occ gy&lt;it brn sbbiky, sft-  
firm, wxy tex, v calc  
MR.L: dkgy-gybrn, sbbiky-sbply, sft, gt tex,  
v calc, tr bent, tr scat inoc fos, tr pyr, tr bent

MR.L: dkgy-gybrn, sbbiky-sbply, sft, gt  
v calc  
CHK: itgy-crm, occ gy&lt;it brn sbbiky, sft  
firm, wxy tex, v calc







WT IN 10.30/ OUT 10.30  
VIS IN 33/ OUT 33

MD 6157'  
INC 84.5°  
AZM 269.5°  
TVD 5702.12'

CHK: lly-crm, occ gy&lt;it brn sbbly, sft-  
firm, wxy tex, v calc  
MRL: dkgy-gybrn, sbbly-sbply, sft, gt tex,  
v calc

7000 ft

4900 40 API 350

CHK: lly-crm, occ gy&lt;it brn sbbly, sft-  
firm, wxy tex, v calc  
MRL: dkgy-gybrn, sbbly-sbply, sft, gt tex,  
v calc, rr bent

MD 6250'  
INC 85.8°  
AZM 269.6°  
TVD 5709.98'

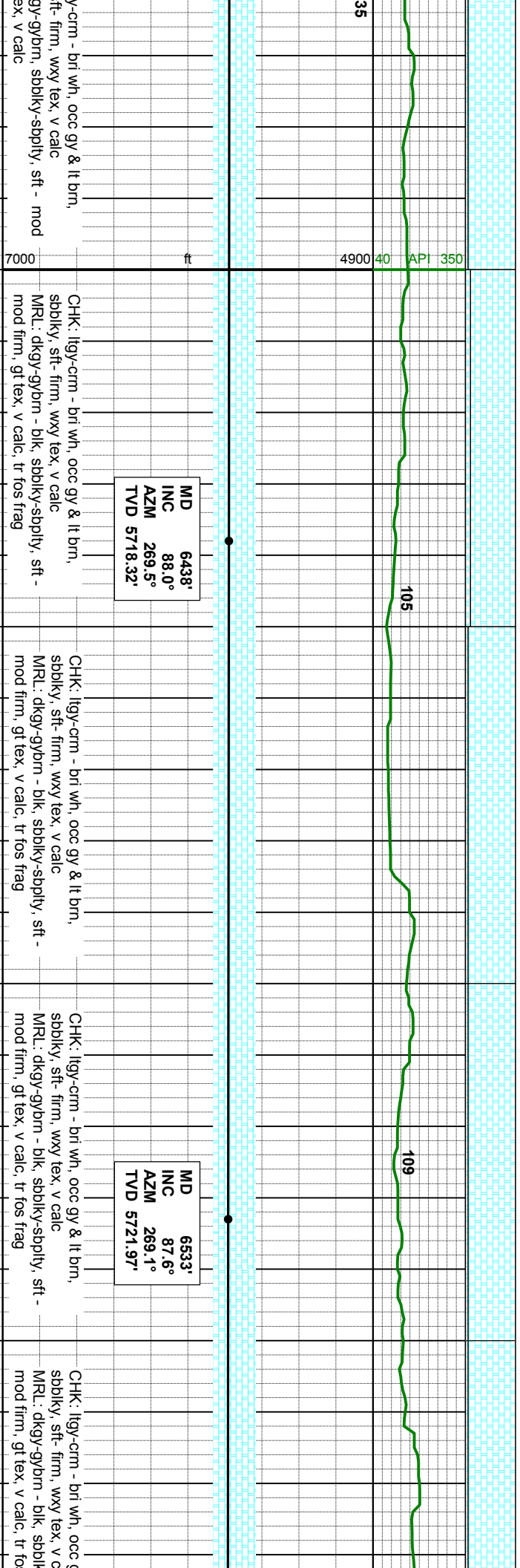
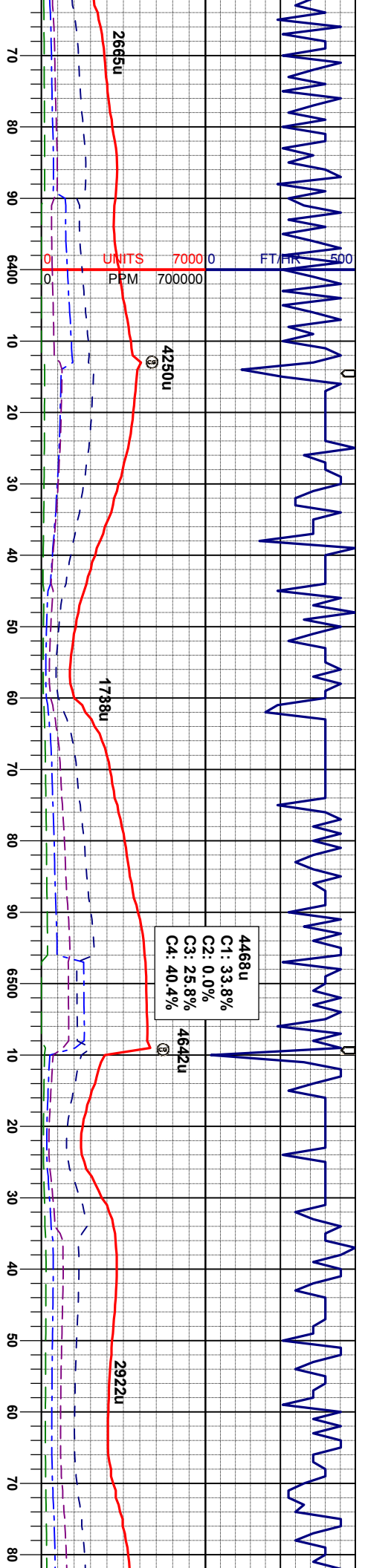
CHK: lly-crm, occ gy&lt;it brn, sbbly, sft-  
firm, wxy tex, v calc  
MRL: dkgy-gybrn, sbbly-sbply, sft - mod  
firm, gt tex, v calc

CHK: lly-crm, occ gy&lt;it brn, sbbly, sft-  
firm, wxy tex, v calc  
MRL: dkgy-gybrn, sbbly-sbply, sft - mod  
firm, gt tex, v calc

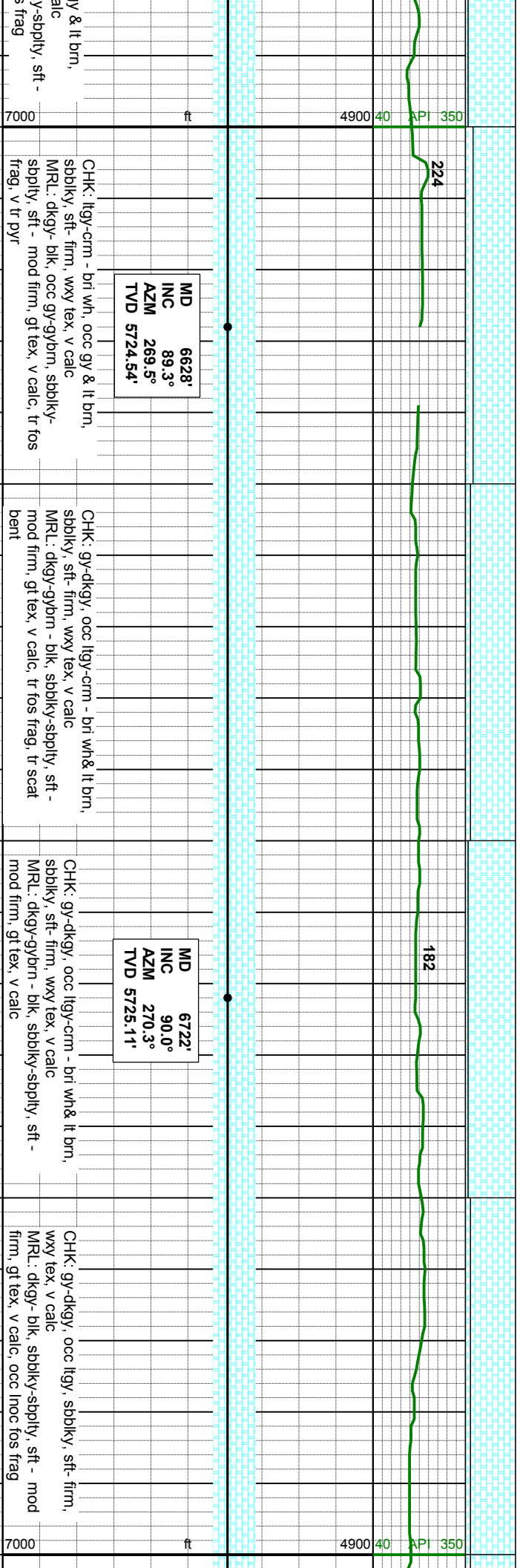
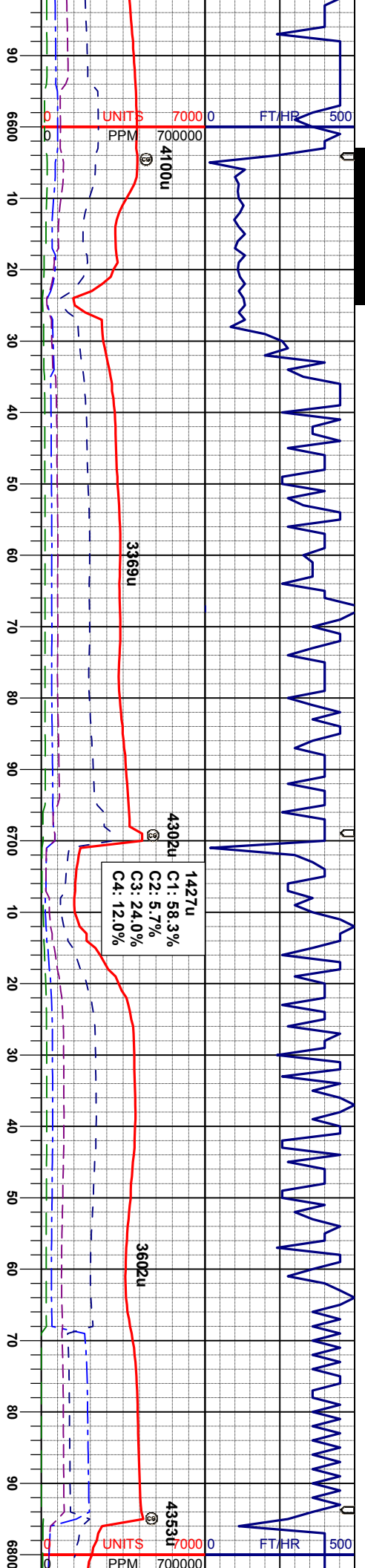
MD 6343'  
INC 88.0°  
AZM 268.6°  
TVD 5715.01'

CHK: lly-gybrn, sbbly, sft-  
firm, gt tex, v calc

WT IN 10.35/ OUT 10  
VIS IN 30/ OUT 30







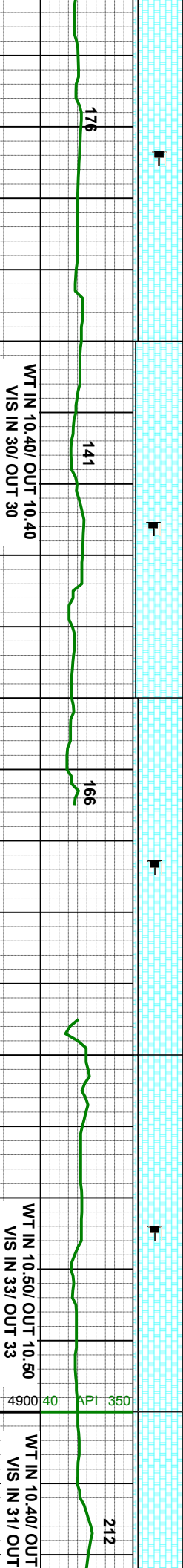
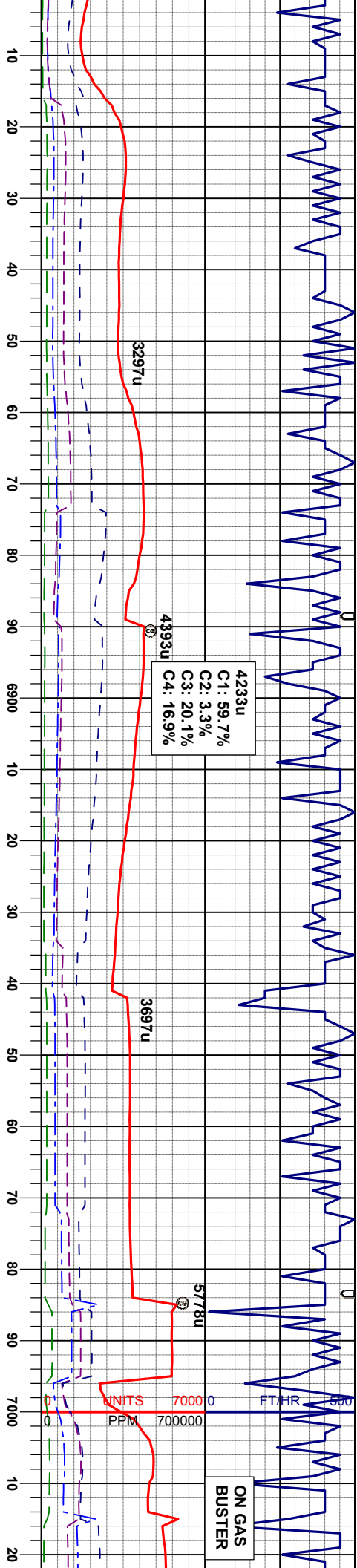
CHK: lly-crm - bri wh, occ gy & lt brn, sblky, sft- firm, wxy tex, v calc  
MRL: dkgy- blk, occ gy-gybrn, sblky-sblky, sft- mod firm, gt tex, v calc, tr fos frag, v tr pyr

CHK: gy-dkgy, occ lly-crm - bri wh& lt brn, sblky, sft- firm, wxy tex, v calc  
MRL: dkgy-gybrn - blk, sblky-sblky, sft- mod firm, gt tex, v calc, tr fos frag, tr scat bent

CHK: gy-dkgy, occ lly-crm - bri wh& lt brn, sblky, sft- firm, wxy tex, v calc  
MRL: dkgy-gybrn - blk, sblky-sblky, sft- mod firm, gt tex, v calc

CHK: gy-dkgy, occ lly, sblky, sft- firm, wxy tex, v calc  
MRL: dkgy- blk, sblky-sblky, sft- mod firm, gt tex, v calc, occ lloc fos frag





MD 6817'  
INC 89.3°  
AZM 269.5°  
TVD 5725.70'

CHK: gy-dkgy, occ lgy, sbblky, sft- firm, wxy tex, mod calc  
MRL: dkgy- blk, sbblky-sbply, sft- mod firm, gt tex, mod calc, tr inoc fos frag

MD 6912'  
INC 90.1°  
AZM 269.5°  
TVD 5729.19'

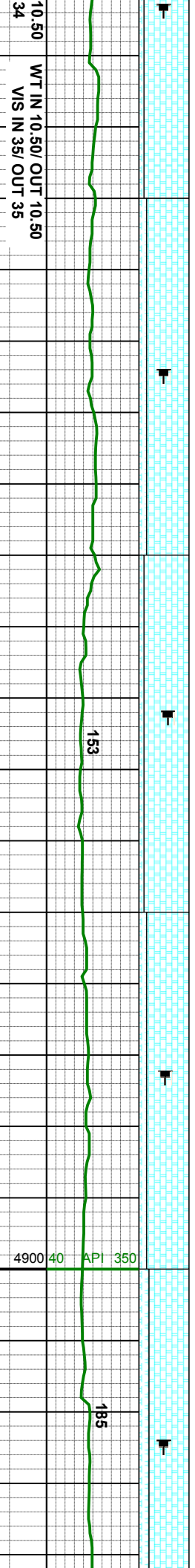
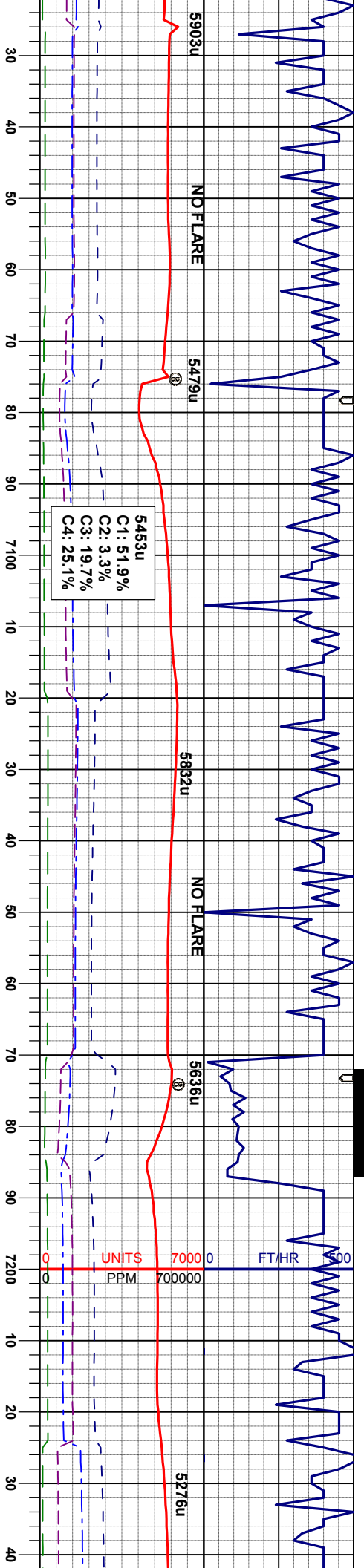
CHK: lgy-gy, occ dkgy, sbblky, sft- firm, wxy tex, mod calc  
MRL: dkgy- blk, sbblky-sbply, sft- mod firm, gt tex, mod calc, tr inoc fos frag

CHK: gy-dkgy & brn, occ lgy, sbblky, sft- firm, wxy tex, mod calc  
MRL: dkgy- blk, sbblky-sbply, sft- mod firm, gt tex, mod calc, tr inoc fos frag, tr bent

MD 7007'  
INC 90.0°  
AZM 269.1°  
TVD 5725.93'

CHK: gy-dkgy, s mod calc  
MRL: dkgy- blk, firm, gt tex, mod





MD 7102'  
INC 90.3°  
AZM 270.2°  
TVD 5725.68'

MD 7197'  
INC 88.8°  
AZM 271.0°  
TVD 5725.42'

bbly, sft- firm, wxy tex, CHK: lly-gy, occ dky, sbbly, sft- firm, wxy tex, mod calc MRL: dky- blk, sbbly-sply, sft- mod firm, gt tex, mod calc, scat lnoc fos frag

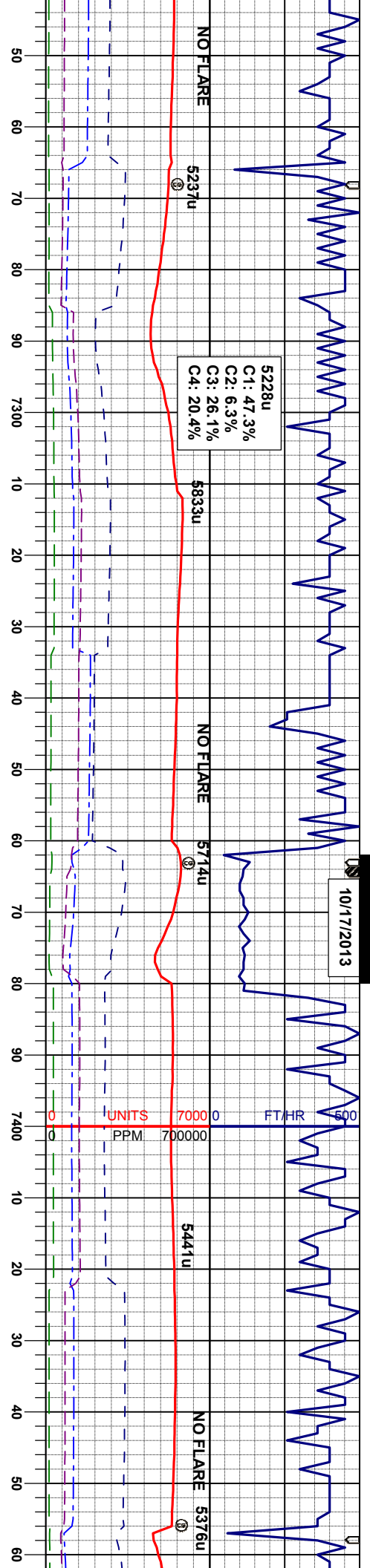
CHK: lly-gy, occ dky, sbbly, sft- firm, wxy tex, mod calc MRL: dky- blk, sbbly-sply, sft- mod firm, gt tex, mod calc, scat lnoc fos frag

CHK: lly-gy, occ dky, sbbly, sft- firm, wxy tex, mod calc MRL: dky- blk, sbbly-sply, sft- mod firm, gt tex, mod calc, scat lnoc fos frag

CHK: lly-gy, occ dky& lbrn, sbbly, firm, wxy tex, mod calc MRL: dky- blk, sbbly-sply, sft- mod firm, gt tex, mod calc, scat lnoc fos fra



US 10/17/2013



WT IN 10.50/ OUT 10.50  
VIS IN 33/ OUT 33

MD 7292'  
INC 89.4°  
AZM 271.9°  
TVD 5727.92'

CHK: ltgy-gy, occ dkgy, lbm, sbiky, sft-  
firm, wxy tex, mod calc  
MRL: dkgy- blk, sbiky-sply, sft - mod  
firm, gt tex, mod calc, scat inoc fos frag

CHK: crm-gy, occ dkgy, sbiky, sft- firm,  
wxy tex, mod calc  
MRL: dkgy- blk, sbiky-sply, sft - mod  
firm, gt tex, mod calc, scat inoc fos frag

MD 7386'  
INC 87.7°  
AZM 272.6°  
TVD 5730.30'

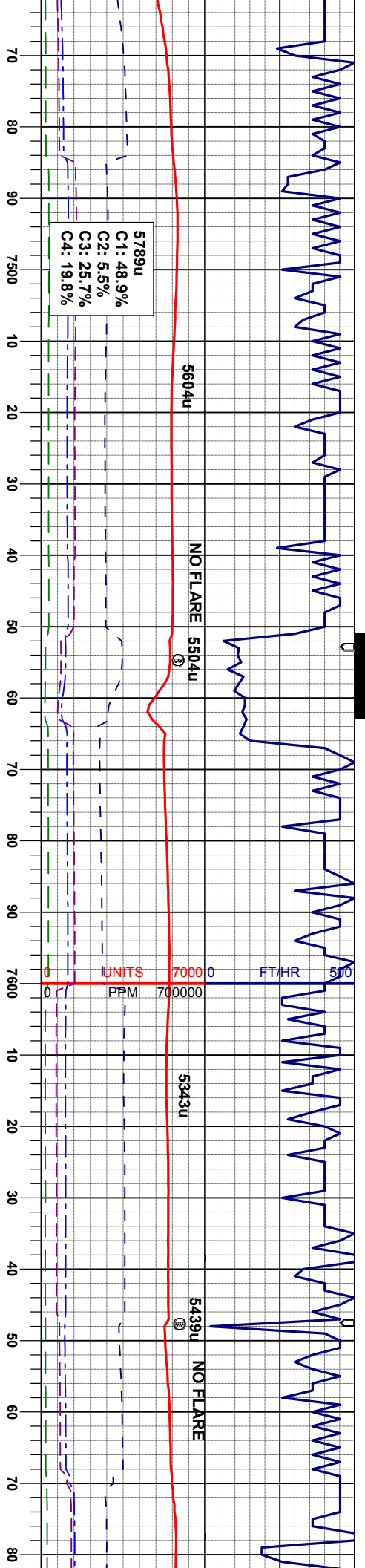
CHK: ltgy-gy, occ dkgy, sbiky, sft- firm,  
wxy tex, mod calc  
MRL: dkgy- blk, sbiky-sply, sft - mod  
firm, gt tex, mod calc, scat inoc fos frag

CHK: crm-gy, occ dkgy, sbiky, sft- firm,  
wxy tex, mod calc  
MRL: dkgy- blk, sbiky-sply, sft - mod  
firm, gt tex, mod calc, scat inoc fos frag

CHK: crm-gy, occ dkgy, sbiky, sft- firm,  
wxy tex, mod calc  
MRL: dkgy- blk, sbiky-sply, sft - mod  
firm, gt tex, mod calc, scat inoc fos frag







MD 7481'  
INC 87.2°  
AZM 272.3°  
TVD 5734.52'

cm-gy, occ dkgy, sbblky, sft- firm,  
x, mod calc  
dkgy- blk, sbblky-sbply, sft- mod  
t tex, mod calc, scat inoc fos frag

CHK: cm-lt gy, occ gy sbblky, sft- firm, wxy  
tex, mod calc  
MRL: dkgy- blk, sbblky-sbply, sft- mod  
firm, gt tex, mod calc, scat inoc fos frag

MD 7576'  
INC 88.4°  
AZM 270.9°  
TVD 5738.17'

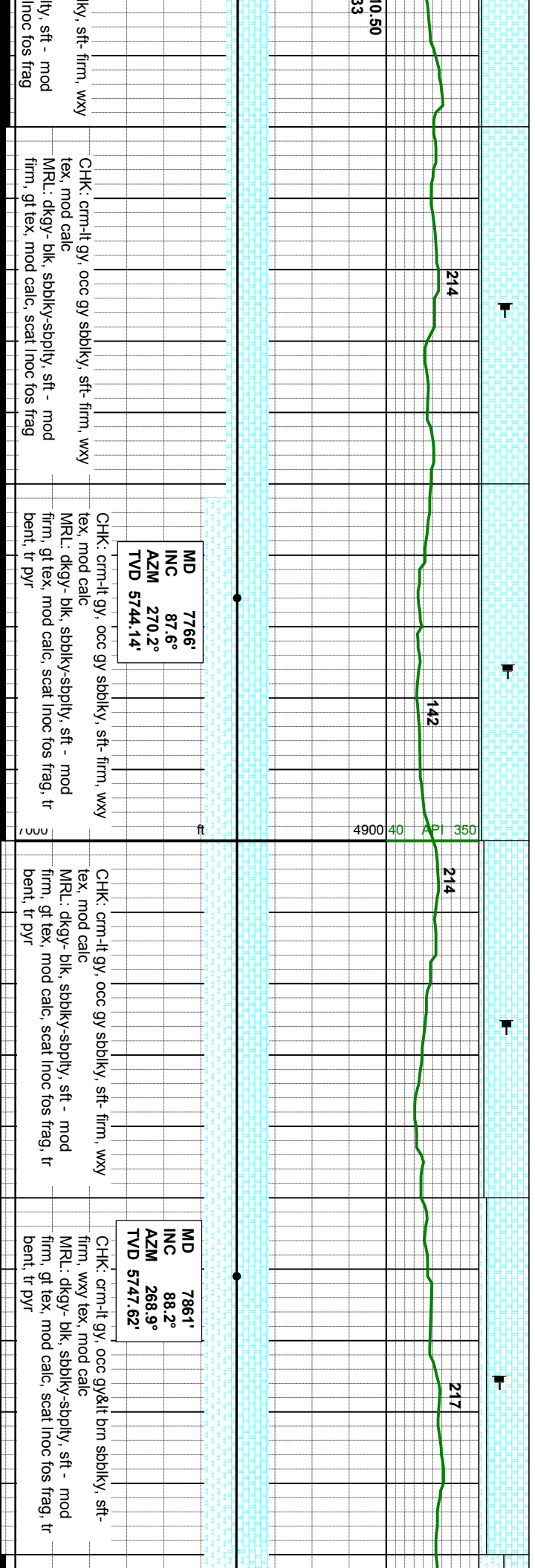
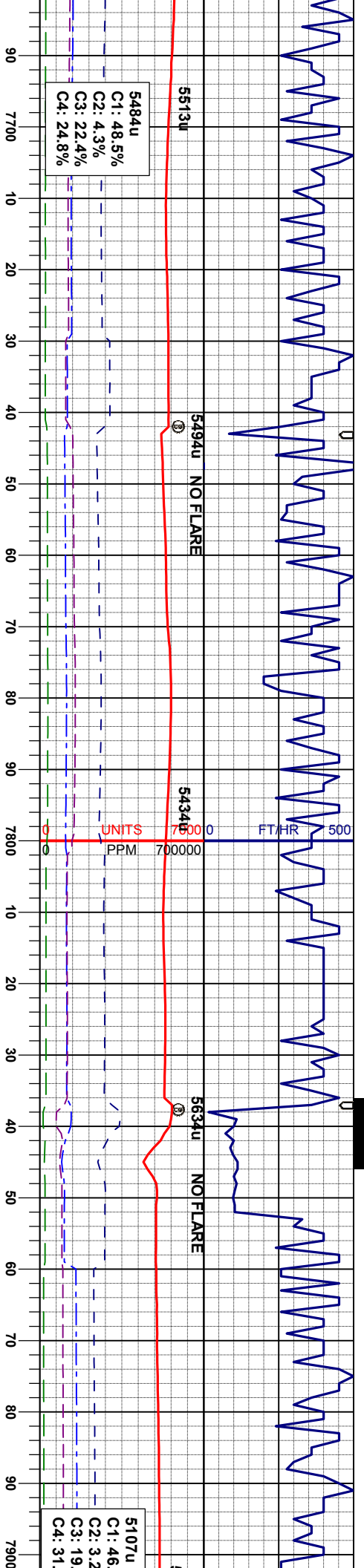
CHK: cm-lt gy, occ gy sbblky, sft- firm, wxy  
tex, mod calc  
MRL: dkgy- blk, sbblky-sbply, sft- mod  
firm, gt tex, mod calc, scat inoc fos frag

CHK: cm-lt gy, occ gy, sbblky, sft- firm,  
wxy tex, mod calc  
MRL: dkgy- blk, sbblky-sbply, sft- mod  
firm, gt tex, mod calc, scat inoc fos frag, tr  
bent

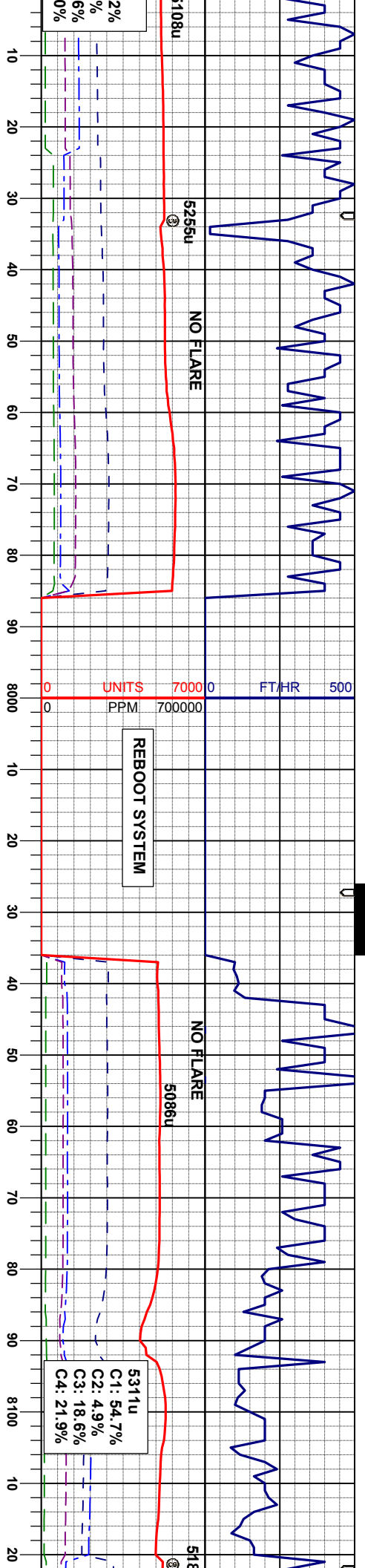
MD 7671'  
INC 88.4°  
AZM 270.7°  
TVD 5740.82'

CHK: cm-lt gy, occ gy sbblky, sft- firm,  
tex, mod calc  
MRL: dkgy- blk, sbblky-sbply, sft- mod  
firm, gt tex, mod calc, scat









MD 7956'  
INC 88.0°  
AZM 268.2°  
TVD 5750.77'

MR.L: dkgy- blk, sbblky-sbply, sft - mod  
firm, gt tex, mod calc  
CHK: crm-lt gy, occ gy, sbblky, sft- firm,  
wxy tex, mod calc, mod abnt inoc fos frag

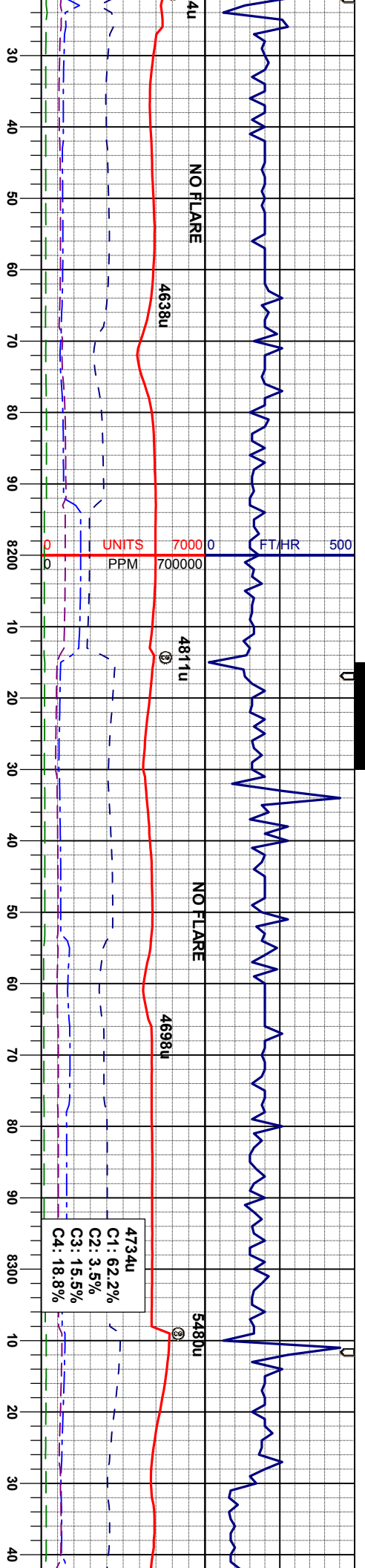
MD 8051'  
INC 88.4°  
AZM 267.2°  
TVD 5753.75'

MR.L: dkgy- blk, sbblky-sbply, sft - mod  
firm, gt tex, mod calc  
CHK: crm-lt gy, occ gy, sbblky, sft- firm,  
wxy tex, mod calc, abnt inoc fos frag

MR.L: dkgy- blk, sbblky-sbply, sft - mod  
firm, gt tex, mod calc  
CHK: crm-lt gy, occ gy, sbblky, sft- firm,  
wxy tex, mod calc, abnt inoc fos frag







WT IN 10.60/ OUT 10.60  
VIS IN 32/ OUT 32

MD 8145'  
INC 87.8°  
AZM 266.8°  
TVD 5756.87'

MR.L: dkgy- blk, sbblky-sbply, sft - mod  
firm, gt tex, mod calc  
CHK: crm-ll gy, occ gy, sbblky, sft- mod  
firm, wxy tex, mod calc, occ inoc fos frag

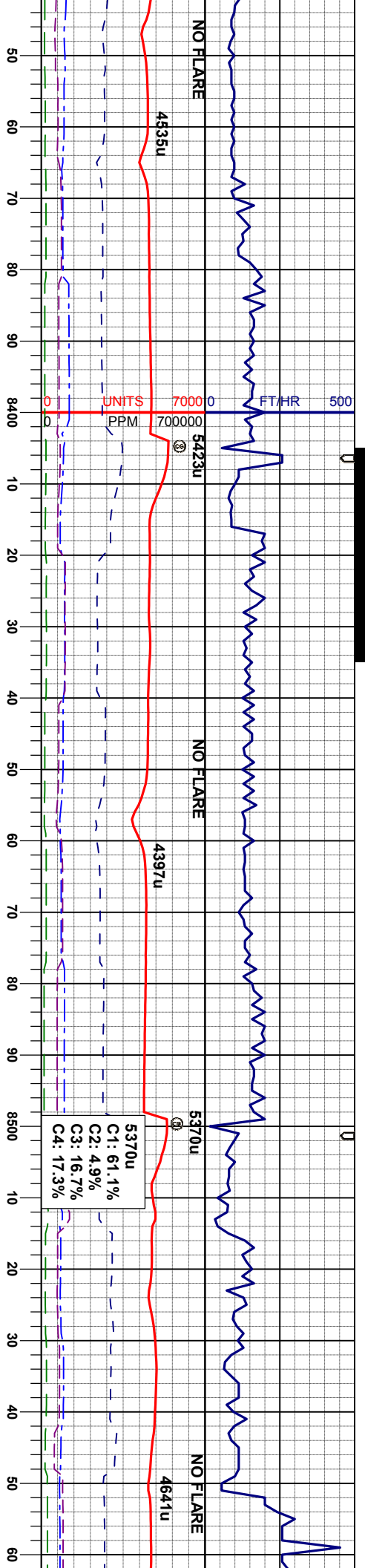
WT IN 10.70/ OUT 10.70  
VIS IN 32/ OUT 32

MD 8335'  
INC 89.3°  
AZM 266.3°  
TVD 5760.43'

MR.L: dkgy- blk, sbblky-sbply, sft - mod  
firm, gt tex, mod calc  
CHK: crm-ll gy, occ gy, sbblky, sft- mod  
firm, wxy tex, mod calc, abnt inoc fos frag, bent







WT IN 10.75/ OUT 10.75  
VIS IN 31/ OUT 31

WT IN 10.75/ OUT 10.75  
VIS IN 30/ OUT 30

MD 8430'  
INC 89.1°  
AZM 264.7°  
TVD 5761.76'

MD 8525'  
INC 89.7°  
AZM 265.4°  
TVD 5762.75'

MRL: dkgy- blk, sbbly-sbply, sft - mod  
firm, gt tex, mod calc  
CHK: crm-lt gy, occ gy, sbbly, sft- mod  
firm, wxy tex, mod calc, abnt fos frag, tr  
bent

MRL: dkgy- blk, sbbly-sbply, sft - mod  
firm, gt tex, mod calc  
CHK: crm-lt gy, occ gy, sbbly, sft- mod  
firm, wxy tex, mod calc, abnt fos frag, tr  
bent

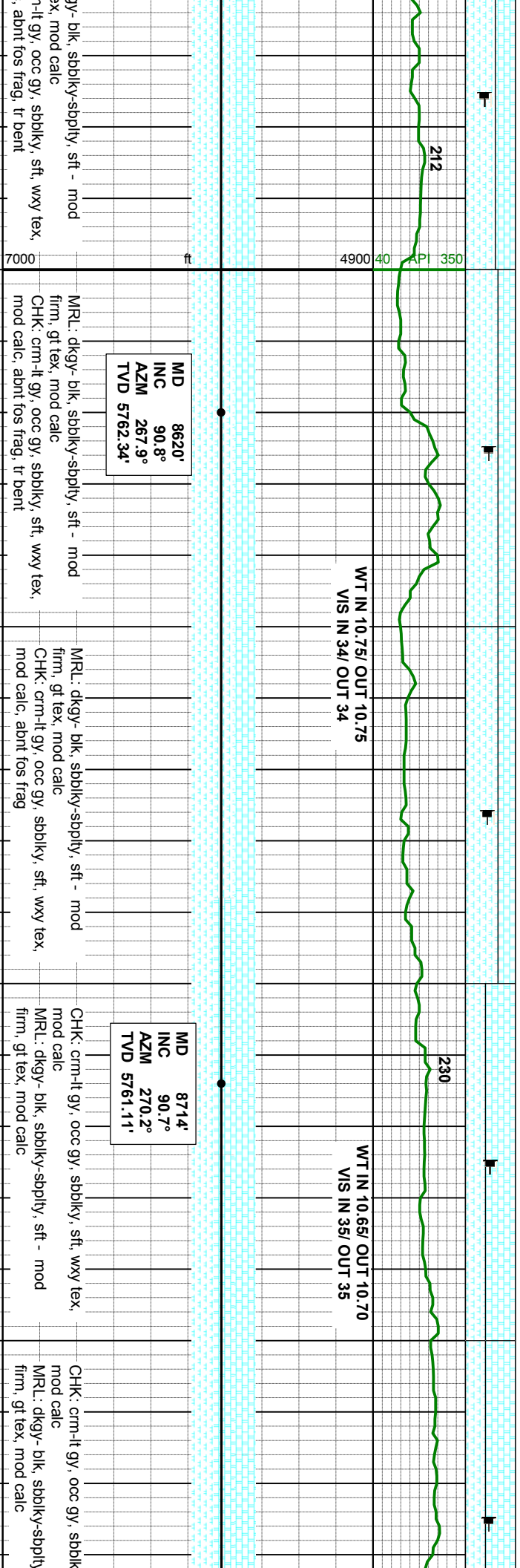
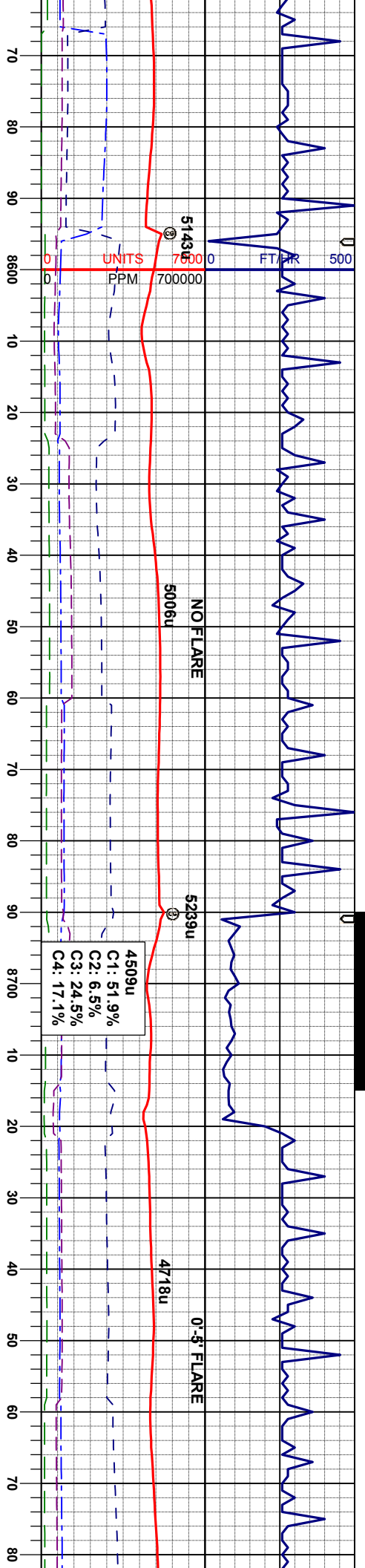
MRL: dkgy- blk, sbbly-sbply, sft - mod  
firm, gt tex, mod calc  
CHK: crm-lt gy, occ gy, sbbly, sft- mod  
firm, wxy tex, mod calc, abnt fos frag, tr  
bent

MRL: dkgy- blk, sbbly-sbply, sft - mod  
firm, gt tex, mod calc  
CHK: crm-lt gy, occ gy, sbbly, sft- mod  
firm, wxy tex, mod calc, abnt fos frag, tr bent

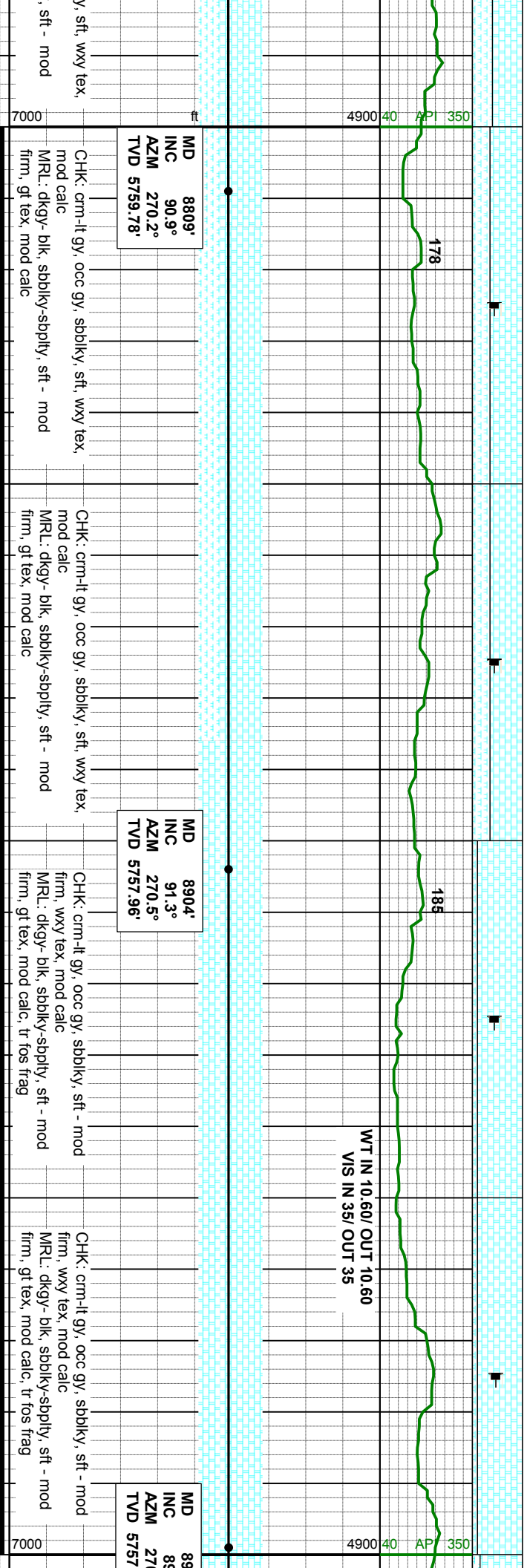
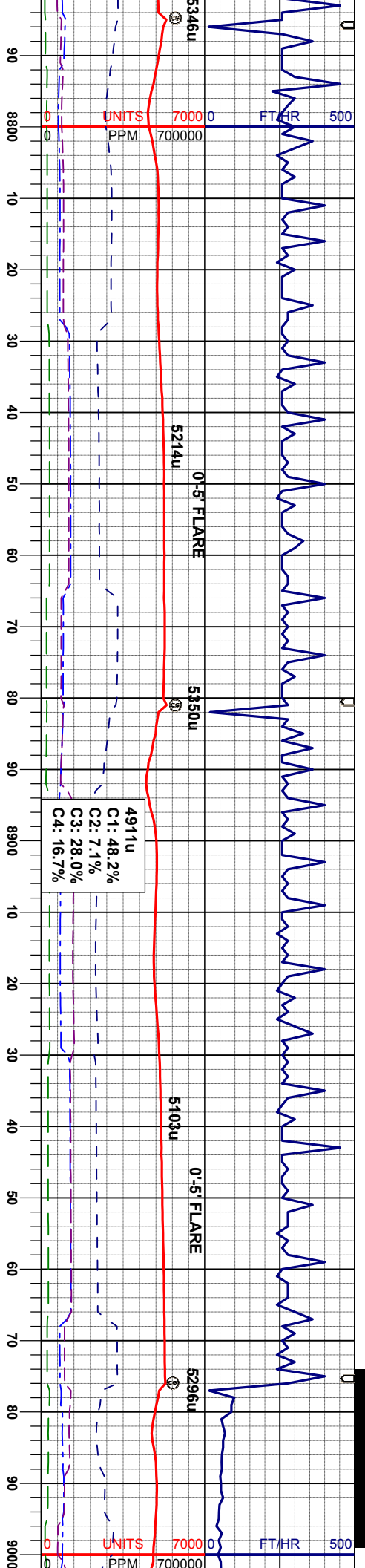
MRL: dkgy- blk, sbbly-sbply, sft - mod  
firm, gt tex, mod calc  
CHK: crm-lt gy, occ gy, sbbly, sft- mod  
firm, wxy tex, mod calc, abnt fos frag, tr bent

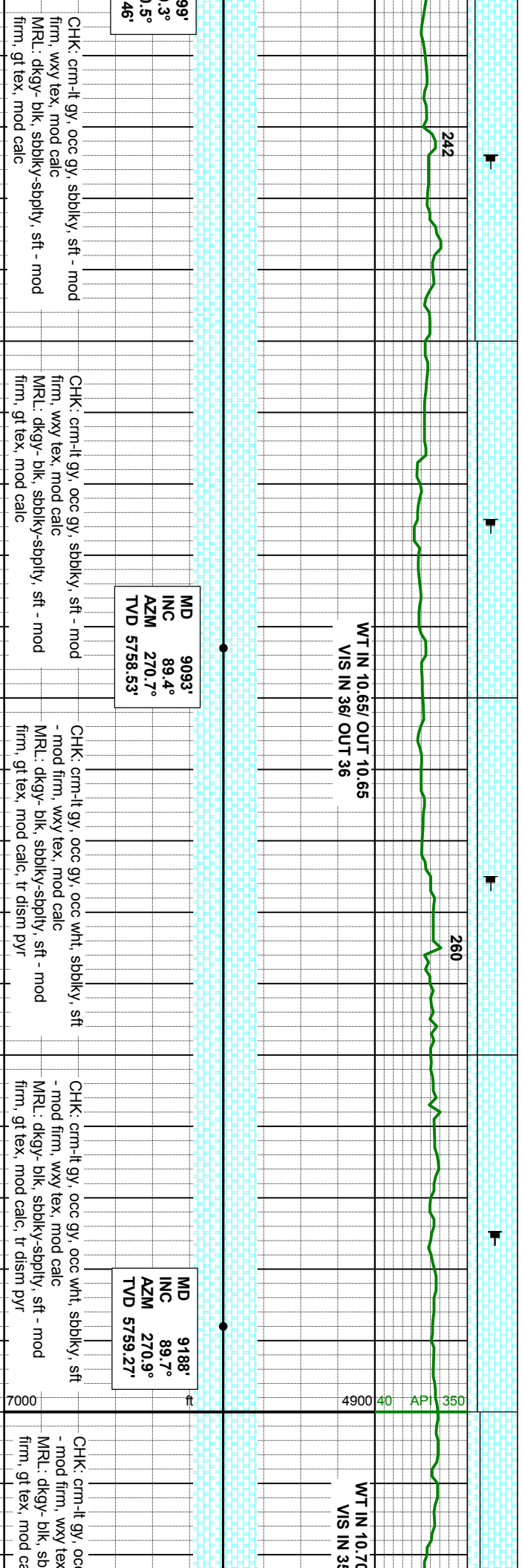
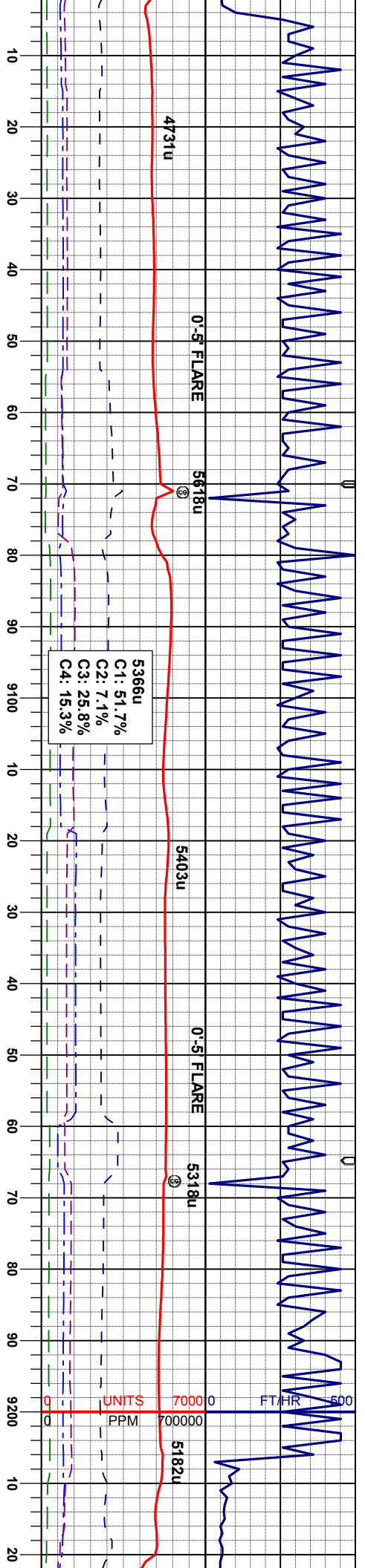
















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NOBLE ENERGY INC  
ROHN STATE LD09-67-1HN  
TD @ 9448' MD  
10/17/2013 @ 2:20 PM  
THANK YOU  
COLUMBINE LOGGING

6153u

50 60 70 80 90 9500 10

NOBLE ENERGY INC  
ROHN STATE LD09-67-1HN  
TD @ 9448' MD  
10/17/2013 @ 2:20 PM

PROJECTION  
ID 9448'  
NC 86.4°  
ZM 270.9°  
VD 5771.71'

sft