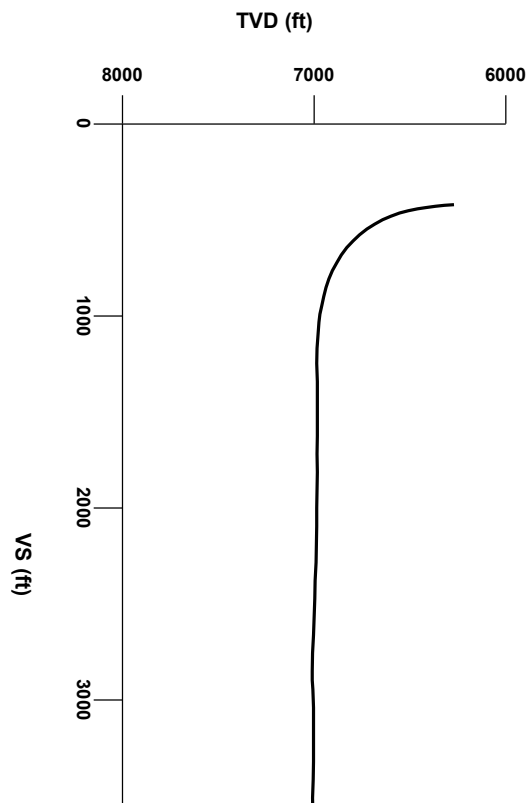


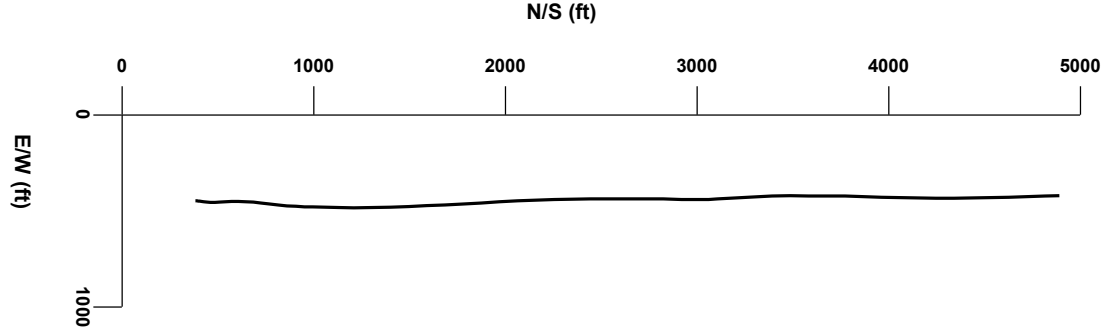
LOG created using LPLOT VH Version 3.0, July 29, 2012, Copyright (C) 1999-2009 Pason Systems Corp.

OPERATOR: NOBLE ENERGY INC
WELL: KERN GW17-78HN
LOCATION: NWNW, SEC 20, T8N, R63W
COUNTY: WELD
STATE: COLORADO
SPOT: 280' FNL 250' FWL
ELEVATION: GE 4977' KB 5001'
FIELD: WILDCAT
SPUD DATE: JULY 20, 2012
TD DATE: JULY 28, 2012
DATES LOGGED: 7/23/12- 7/29/2012
DEPTHS LOGGED: 6400'- 11342'
LOGGERS: MIKE KERSCHEN, JOHN READY
DRILLING FLUID: LSND
DRILLING RIG: H&P 322
API: 05-123-35652
LOG TYPE: HORIZONTAL
SCALE: 1:240 (5 inches per 100 feet)
REMARKS:



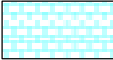
Survey Elevation

Survey Plan

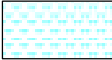


4000

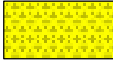
5000



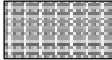
Chalk



Marl




Shaly Sandstone




Silty Shale


ENGINEERING SYMBOLS




Connection




Connection Gas




Arrow



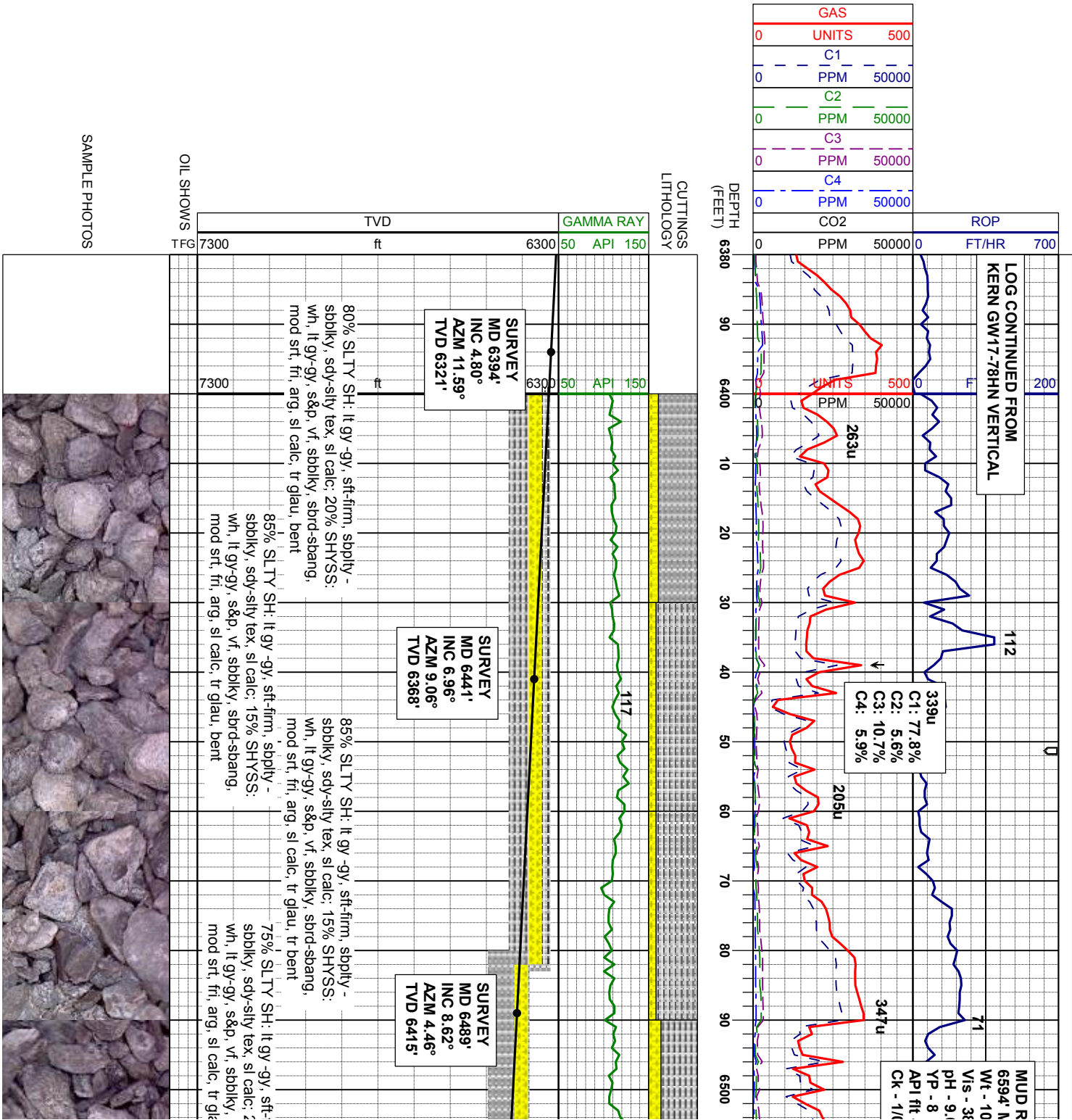
Midnight Depth

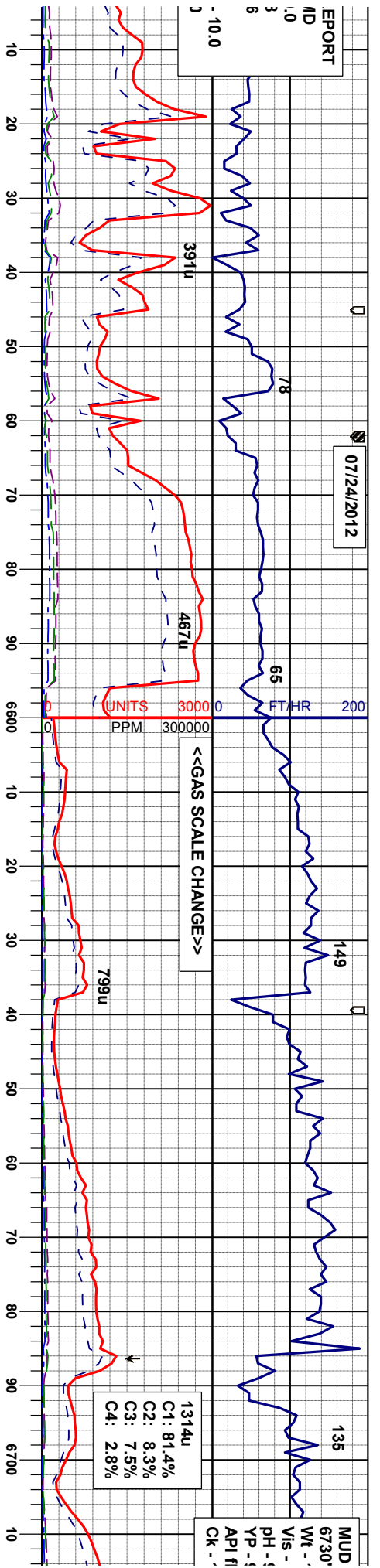


Oil To Surface



Arrow





TOOH @
6594' MD
00:52 hrs
07/24/2012

SURVEY
MD 6536'
INC 10.49°
AZM 5.44°
TVD 6462'

SURVEY
MD 6584'
INC 12.64°
AZM 8.93°
TVD 6508'

SURVEY
MD 6631'
INC 16.91°
AZM 6.44°
TVD 6554'

SURVEY
MD 6679'
INC 21.88°
AZM 5.15°
TVD 6599'

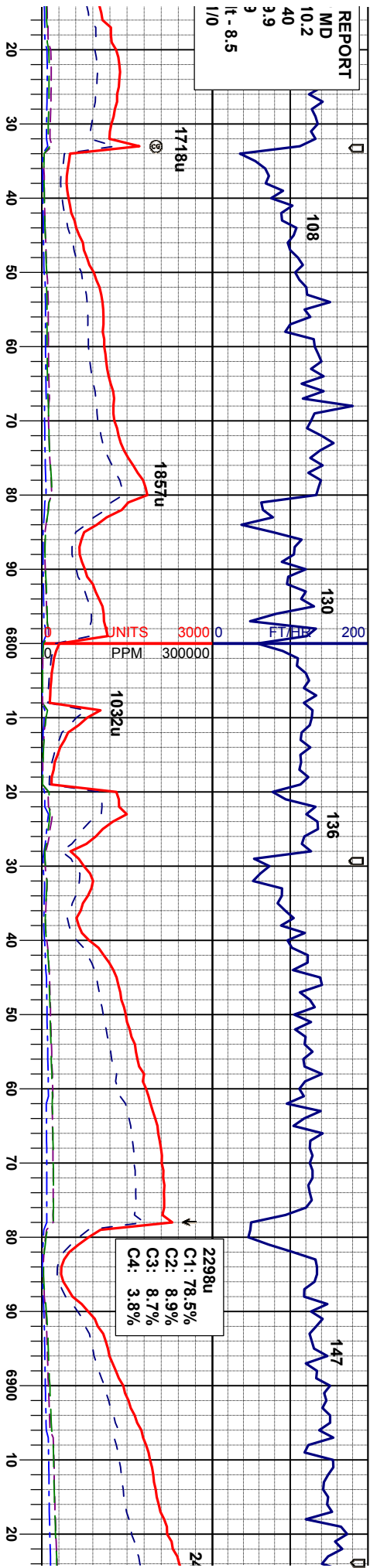
85% SLTY SH: It gy -gy, sft-firm, sbply -
sbbky, sdy-sily tex, sl calc: 15% SHYSS:
wh, It gy-gy, s&p, vf, sbbky, sbdr-sbang,
mod srt, fti, arg, sl calc, tr glau

75% SLTY SH: It gy -gy, sft-firm, sbply -
sbbky, sdy-sily tex, sl calc: 25% SHYSS:
wh, It gy-gy, s&p, vf, sbbky, sbdr-sbang,
mod srt, fti, arg, sl calc, tr glau

60% SLTY SH: It gy -gy, sft-firm, sbply -
sbbky, sdy-sily tex, sl calc: 40% SHYSS:
wh, It gy-gy, s&p, vf, sbbky, sbdr-sbang,
mod srt, fti, arg, sl calc, tr glau

90% SLTY SH: It gy -gy, sft-firm, sbply -
sbbky, sdy-sily tex, sl calc: 10% SHYSS:
wh, It gy-gy, s&p, vf, sbbky, sbdr-sbang,
mod srt, fti, arg, sl calc, tr glau





SURVEY
MD 6726'
INC 25.87°
AZM 3.26°
TVD 6642'

SURVEY
MD 6775'
INC 30.97°
AZM 359.51°
TVD 6685'

SURVEY
MD 6822'
INC 34.64°
AZM 355.85°
TVD 6725'

SURVEY
MD 6870'
INC 40.45°
AZM 356.41°
TVD 6762.89'

SURVEY
MD 6917'
INC 45.95°
AZM 358.08°
TVD 6797'

Scale Change

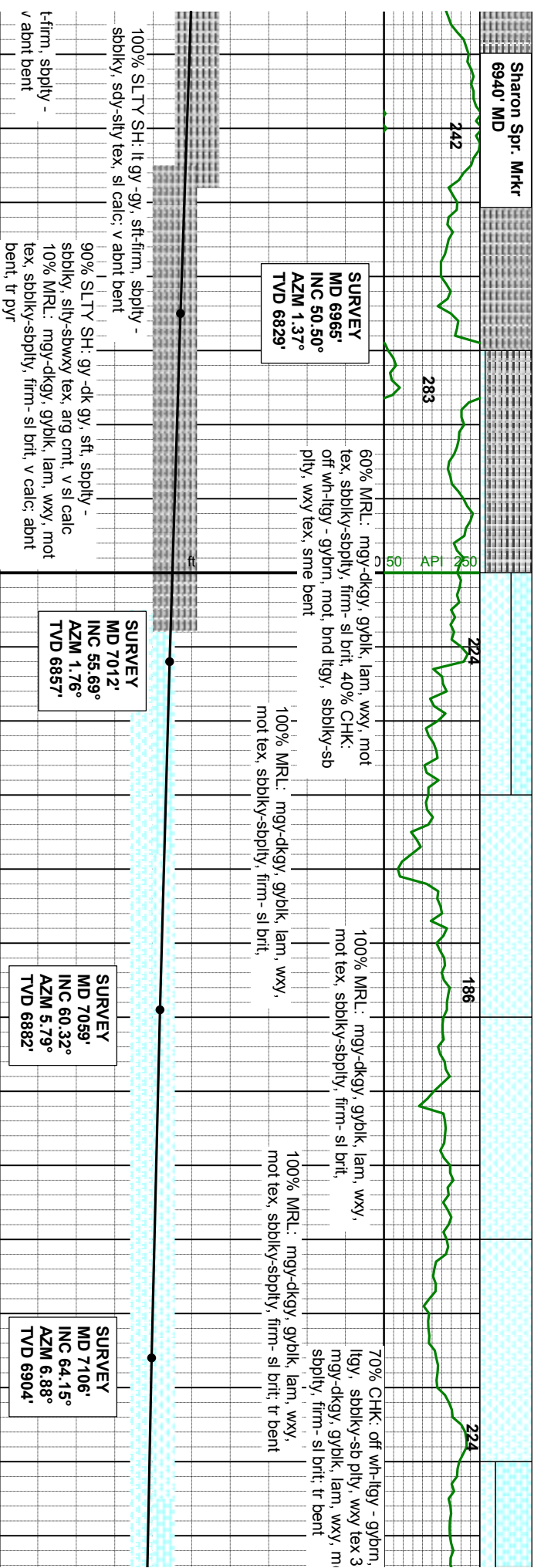
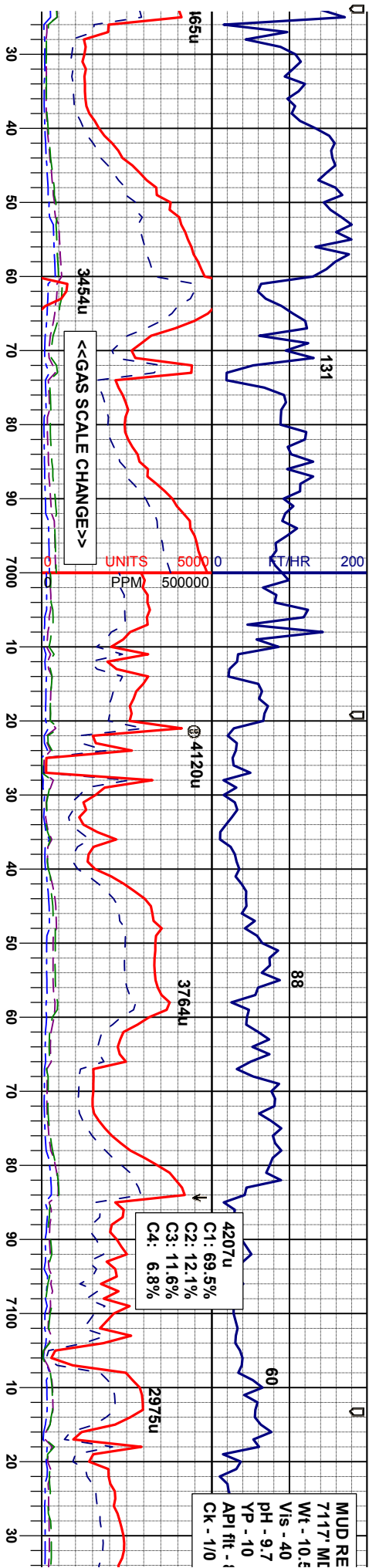
100% SLTY SH: It gy -gy, sft-firm, sbply -
sbply, sdy-sily tex, sl calc; tr SHYSS: wh,
It gy-gy, s&p, vf, sbply, sbdr-sbang, mod
srt, fri, arg, sl calc, tr glau

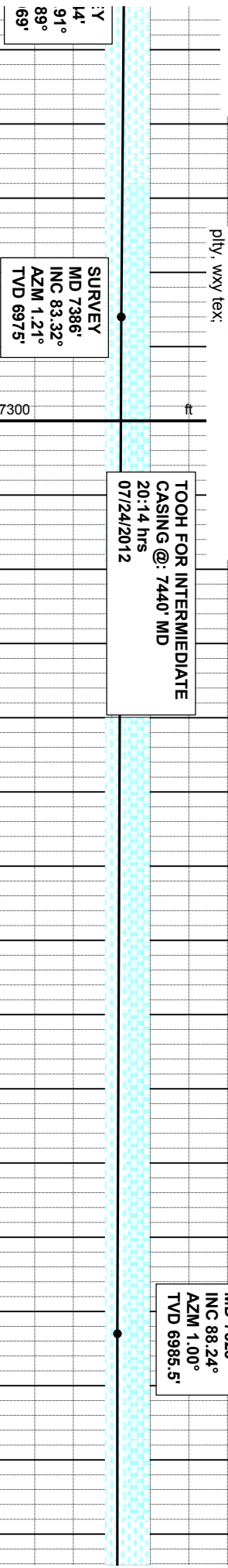
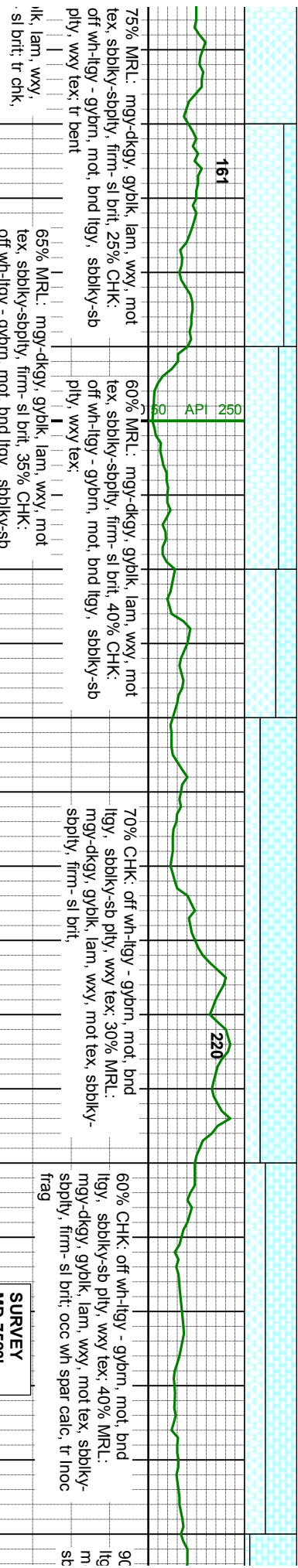
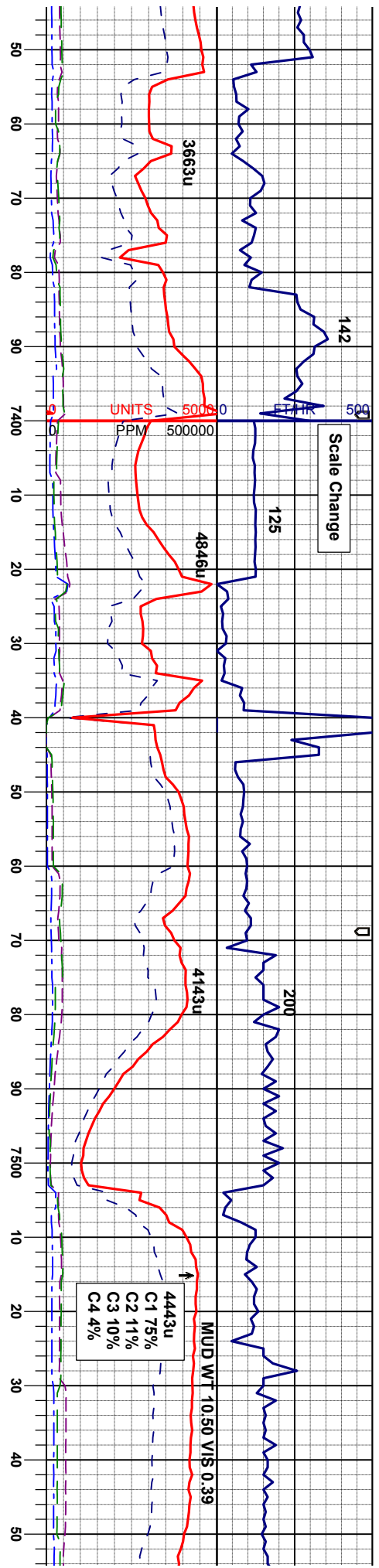
100% SLTY SH: It gy -gy, sft-firm, sbply -
sbply, sdy-sily tex, sl calc; tr SHYSS: wh,
It gy-gy, s&p, vf, sbply, sbdr-sbang, mod
srt, fri, arg, sl calc, tr glau

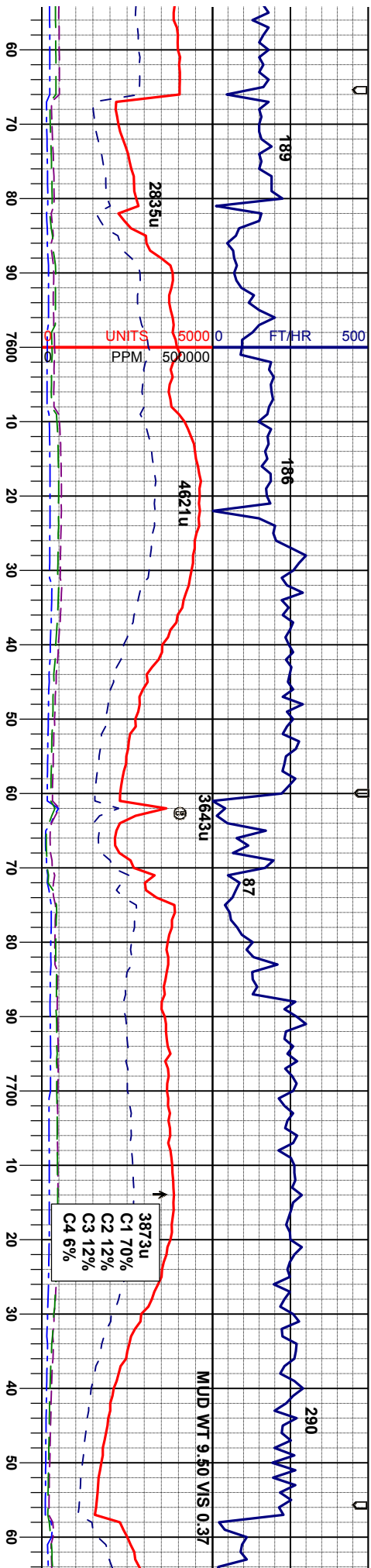
100% SLTY SH: It gy -gy, sft-firm, sbply -
sbply, sdy-sily tex, sl calc;

100% SLTY SH: It gy -gy, sft-firm, sbply -
sbply, sdy-sily tex, sl calc;









1% CHK: off wh-ltgy - gybrn, mot, bnd
ly, sbblky-sb pty, wxy tex: 10% MRL:
gy-dkgy, gyblk, lam, wxy, mot tex, sbblky-
ply, firm-si brit: tr wh spar calc, inoc frag

<<TVD SCALE CHANGE>>

SURVEY
MD 7602'
INC 91.02°
AZM 0.45°
TVD 6986.01'

55% CHK: off wh-ltgy - gybrn, mot, bnd
ltgy, sbblky-sb pty, wxy tex: 45% MRL:
mgy-dkgy, gyblk, lam, wxy, mot tex, sbblky-
sbply, firm-si brit: tr wh spar calc

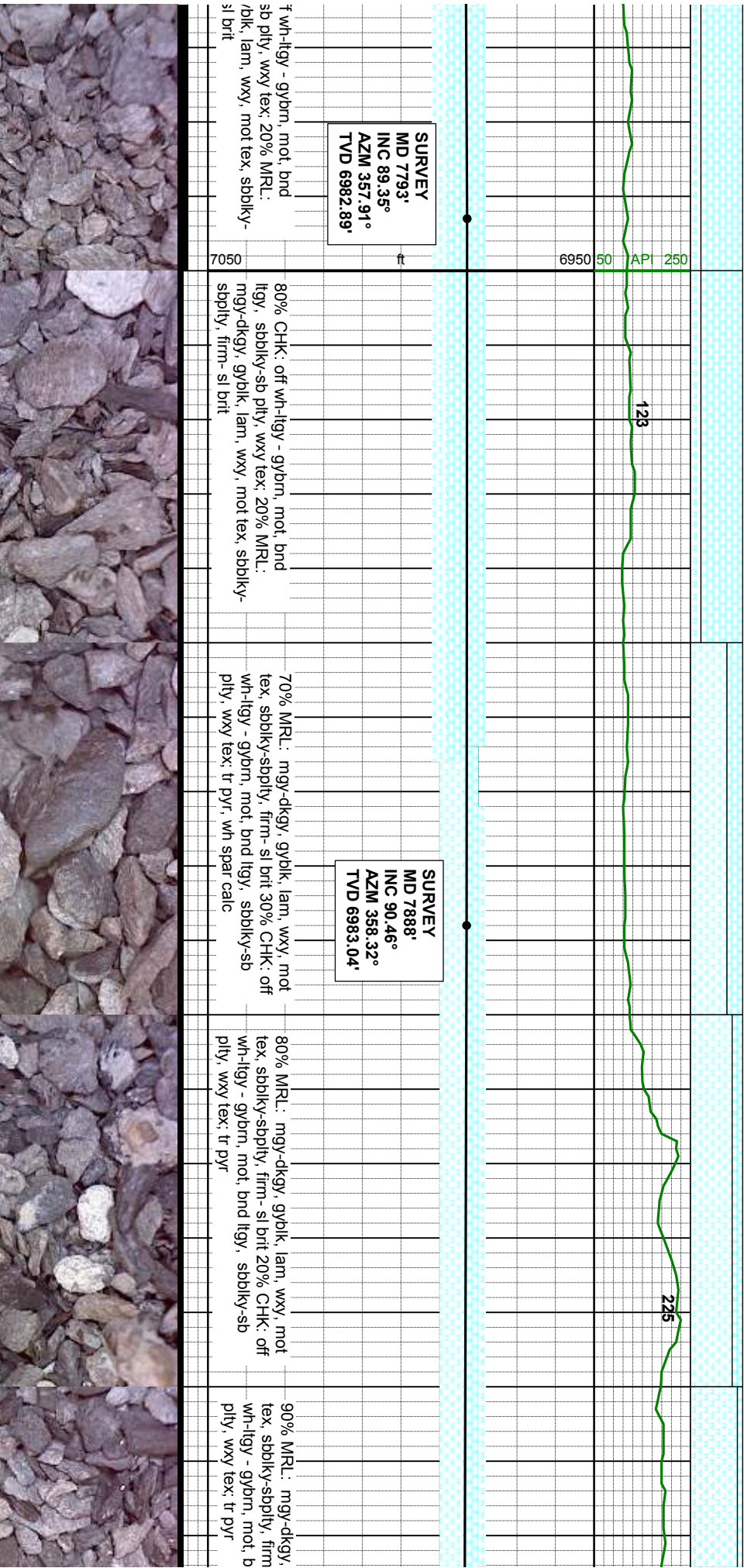
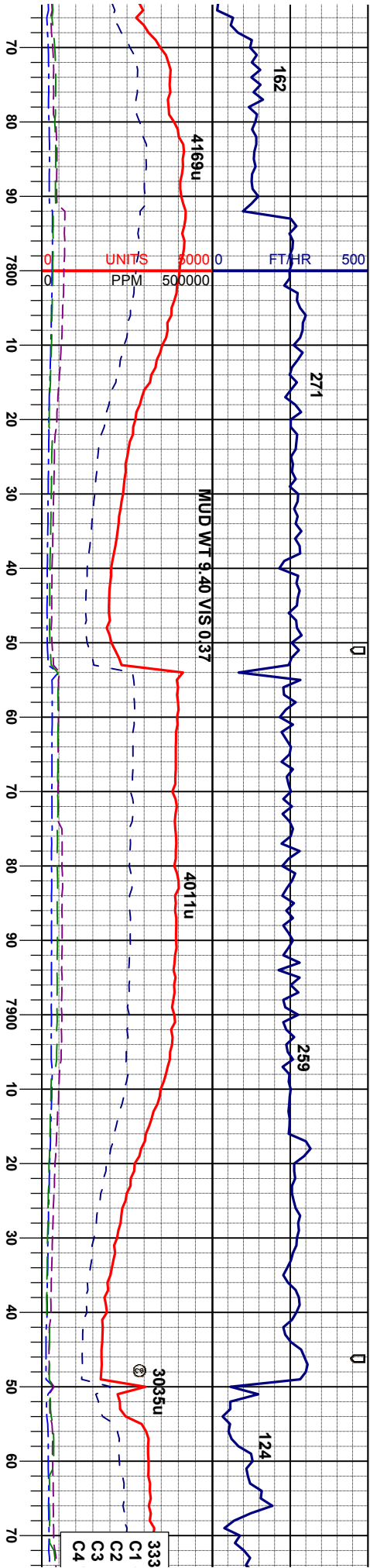
SURVEY
MD 7697'
INC 91.70°
AZM 358.88°
TVD 6983.77'

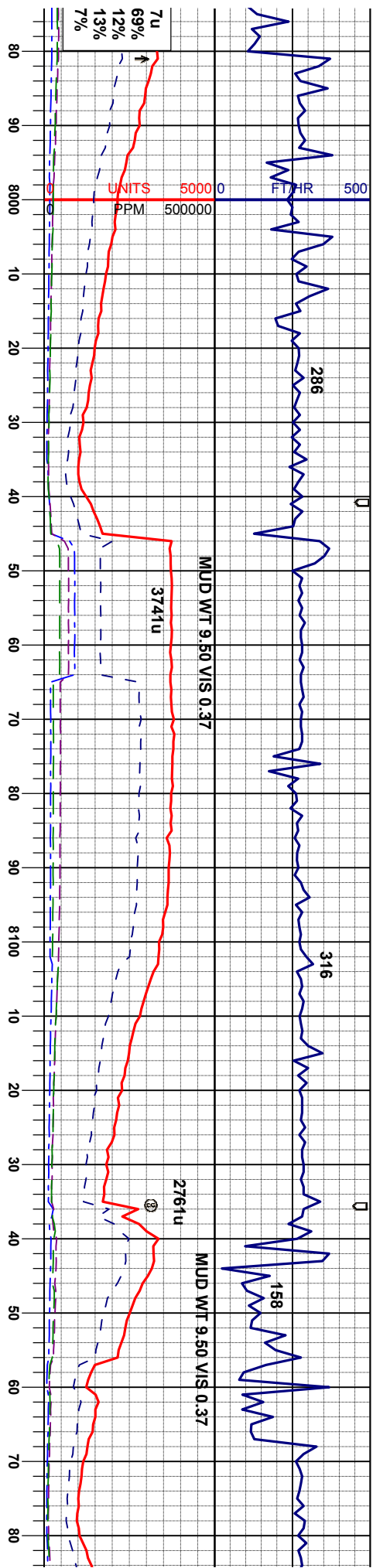
70% CHK: off wh-ltgy - gybrn, mot, bnd
ltgy, sbblky-sb pty, wxy tex: 30% MRL:
mgy-dkgy, gyblk, lam, wxy, mot tex, sbblky-
sbply, firm-si brit

60% CHK: off wh-ltgy - gybrn, mot, bnd
ltgy, sbblky-sb pty, wxy tex: 40% MRL:
mgy-dkgy, gyblk, lam, wxy, mot tex, sbblky-
sbply, firm-si brit

80% CHK: of
ltgy, sbblky-
mgy-dkgy, g)
sbply, firm-s







SURVEY
MD 7982'
INC 88.95°
AZM 356.86°
TVD 6983.52'

glybkl, lam, wxy, mot
-sl brit 10% CHK: off
nd ltgy, sbblky-sb

050

90% MRL: mgy-dkgy, gyblk, lam, wxy, mot
tex, sbblky-sbply, firm-sl bit 10% CHK: off
wh-ity - gybrn, mot, bnd itgy, sbblky-sb
ply, wxy tex: tr pyr

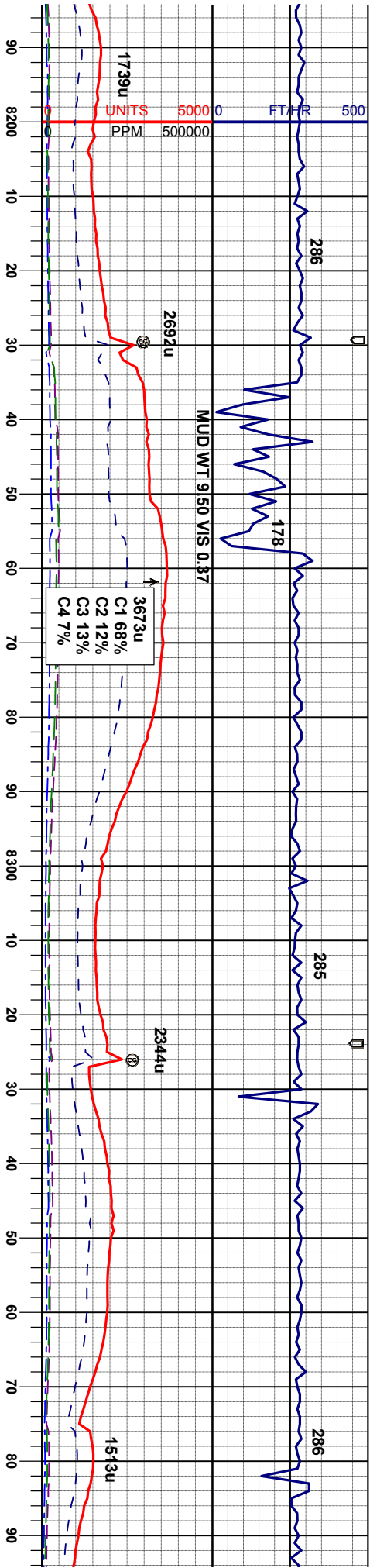
SURVEY
MD 8077'
INC 90.22°
AZM 357.80°
TVD 6984.21'

90% MRL: mgy-dkgy, gyblk, lam, wxy, mot
tex, sbblky-sply, firm-sl bit 10% CHK: off
wh-ity - gybrm, mot, bnd itgy, sbblky-sb
ply, wxy tex; tr pyr

95% MRL: mgy-dkgy, gyblyk, lam, wxy, mot
tex, sbblky-sbpty, firm-sl brit 5% CHK: off
wh-llgy - gybrn, mot, bnd ltyg, sbblky-sb
pty, wxy tex: tr pyr

SURVEY
MD 8172'
INC 90.09°
AZM 356.75°
TVD 6983.95'

90% MRL: mgy-dkgy, gybkl, lam,
tex, sbblky-sbpty, firm-si brit 10%
wh-ltgy - gybrn, mot, bnd ltgy, sbt
ply, wxy tex; tr pyr



6950 150 API 250

193

215

160

SURVEY
MD 8267'
INC 88.00°
AZM 356.28°
TVD 6985.54'

SURVEY
MD 8362'
INC 89.91°
AZM 356.89°
TVD 6987.27'

wxy, mot
% CHK: off
sbbkly-sb

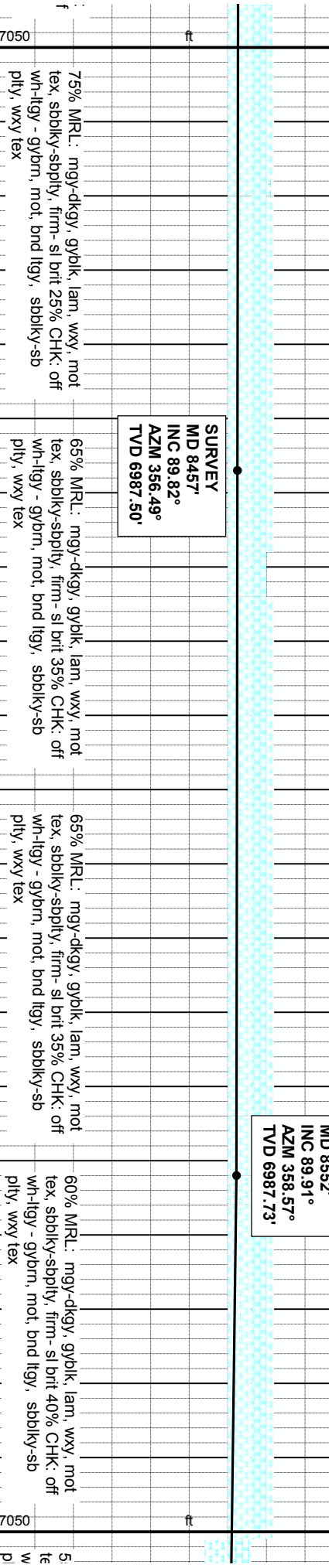
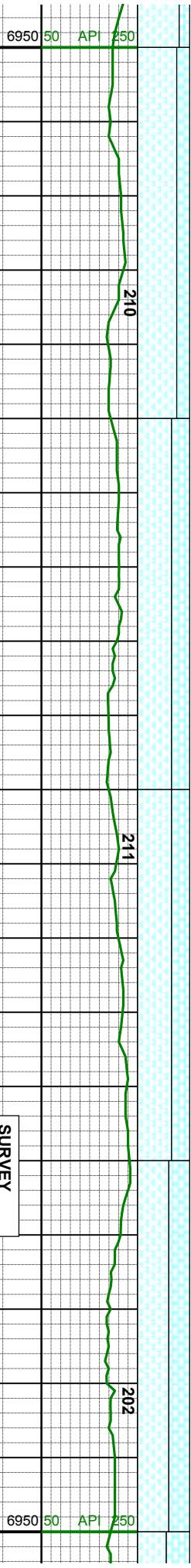
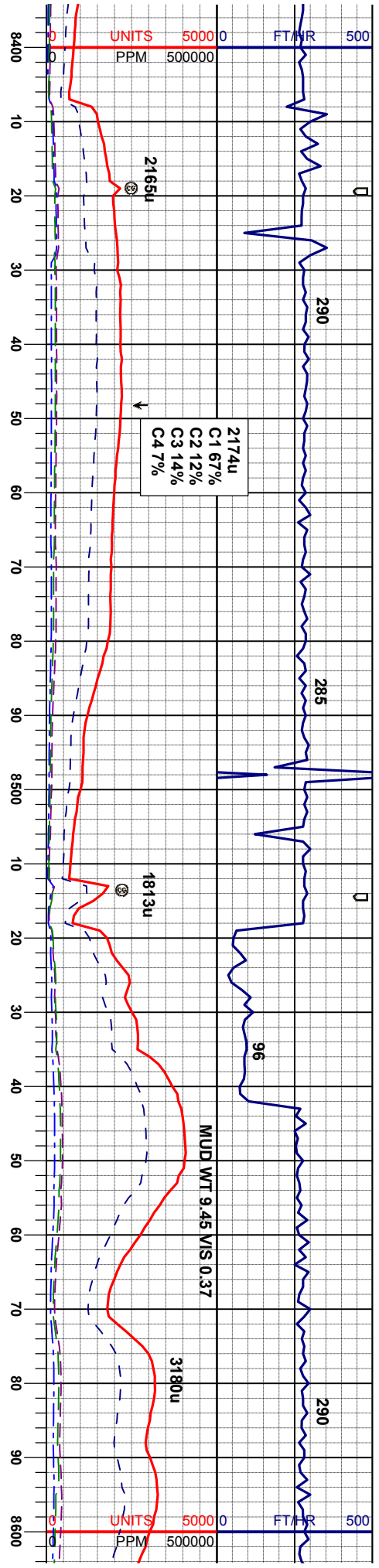
85% MRL: mgy-dkgy, gyblk, lam, wxy, mot
tex, sbbkly-sbply, firm-si brit 15% CHK: off
wh-ltgy - gybrn, mot, bnd ltgy, sbbkly-sb
ply, wxy tex; tr pyr

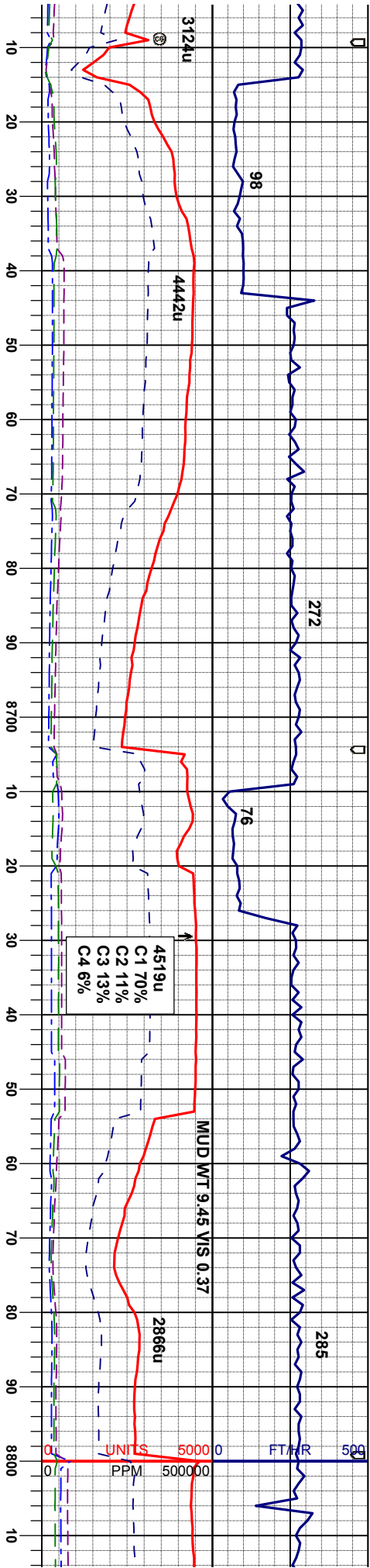
75% MRL: mgy-dkgy, gyblk, lam, wxy, mot
tex, sbbkly-sbply, firm-si brit 25% CHK: off
wh-ltgy - gybrn, mot, bnd ltgy, sbbkly-sb
ply, wxy tex; tr pyr

75% MRL: mgy-dkgy, gyblk, lam, wxy, mot
tex, sbbkly-sbply, firm-si brit 25% CHK: off
wh-ltgy - gybrn, mot, bnd ltgy, sbbkly-sb
ply, wxy tex; tr pyr

80% MRL: mgy-dkgy, gyblk, lam, wxy, mot
tex, sbbkly-sbply, firm-si brit 20% CHK: of
wh-ltgy - gybrn, mot, bnd ltgy, sbbkly-sb
ply, wxy tex; tr pyr







SURVEY
MD 8647'
INC 87.19°
AZM 358.04°
TVD 6990.14'

SURVEY
MD 8742'
INC 87.69°
AZM 359.51°
TVD 6994.38'

5% MRL: mgy-dkgy, gyblk, lam, wxy, mot
x, sbblky-sbply, firm-si brt 45% CHK: off
h-ity - gybrn, mot, bnd itgy, sbblky-sb
ply, wxy tex

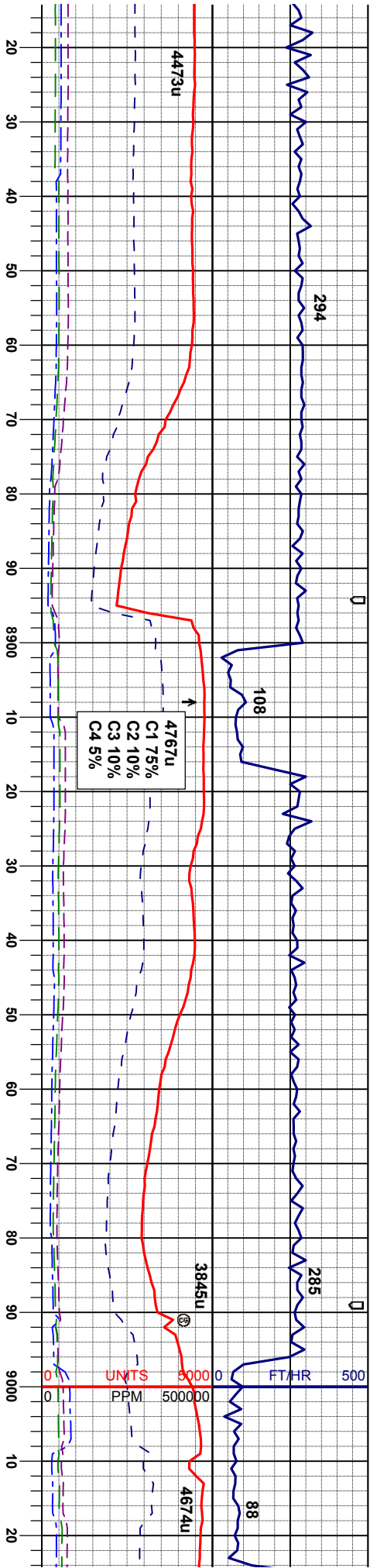
50% MRL: mgy-dkgy, gyblk, lam, wxy, mot
tex, sbblky-sbply, firm-si brt 50% CHK: off
wh-ity - gybrn, mot, bnd itgy, sbblky-sb
ply, wxy tex, sme fos frag

60% CHK: off wh-ity - gybrn, mot, bnd
ity, sbblky-sb ply, wxy tex, 40% MRL:
mgy-dkgy, gyblk, lam, wxy, mot tex, sbblky-
sbply, firm-si brt, sme fos frag

65% CHK: off wh-ity - gybrn, mot, bnd
ity, sbblky-sb ply, wxy tex, 35% MRL:
mgy-dkgy, gyblk, lam, wxy, mot tex, sbblky-
sbply, firm-si brt, sme fos frag

70% CHK:
ity, sbblk,
mgy-dkgy,
sbply, firm





SURVEY
MD 8837'
INC 88.64°
AZM 359.42°
TVD 6997.42'

SURVEY
MD 8932'
INC 88.74°
AZM 0.27°
TVD 6999.60'

SURV
MD 90
INC 8
AZM :
TVD 7

off wh-llgy - gybrn, mot, bnd
y-sb ply, wxy tex, 30% MRL:
gyblk, lam, wxy, mot tex, sbdky-
sl brt, sme fos frag

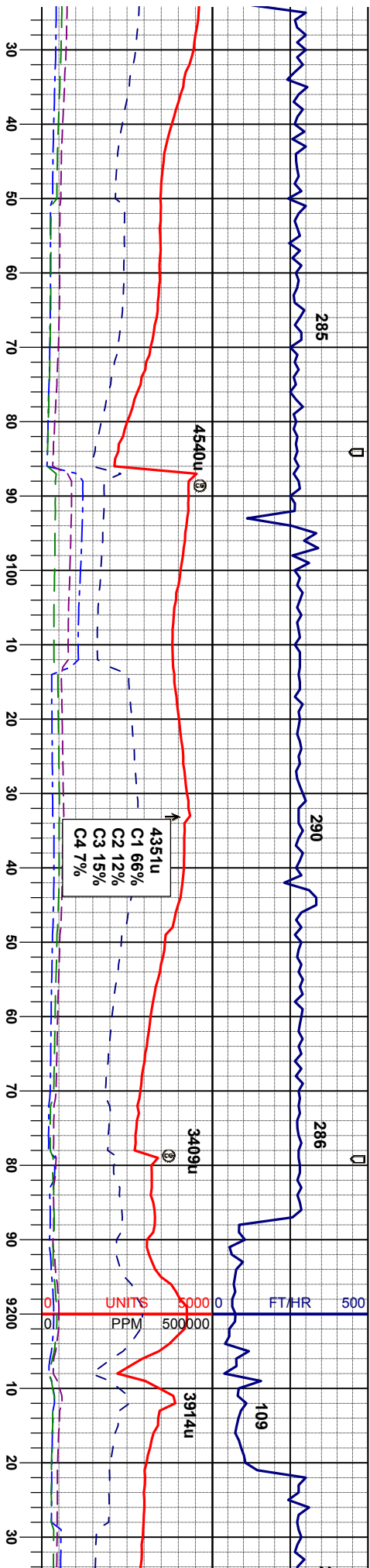
80% CHK: off wh-llgy - gybrn, mot, bnd
llgy, sbdky-sb ply, wxy tex, 20% MRL:
mgy-dkgy, gyblk, lam, wxy, mot tex, sbdky-
sbply, firm-si brt, sme fos frag

75% CHK: off wh-llgy - gybrn, mot, bnd
llgy, sbdky-sb ply, wxy tex, 25% MRL:
mgy-dkgy, gyblk, lam, wxy, mot tex, sbdky-
sbply, firm-si brt, sme fos frag

80% CHK: off wh-llgy - gybrn, mot, bnd
llgy, sbdky-sb ply, wxy tex, 20% MRL:
mgy-dkgy, gyblk, lam, wxy, mot tex, sbdky-
sbply, firm-si brt, sme fos frag

80% CHK: off wh-llgy
llgy, sbdky-sb ply, w
mgy-dkgy, gyblk, lam,
sbply, firm-si brt,





EY
127'
6.88°
359.73°
003.23°

SURVEY
MD 9122°
INC 87.50°
AZM 359.73°
TVD 7007.88°

SURVEY
MD 9217°
INC 89.66°
AZM 1.26°
TVD 7010.23°

- gybm, mot, bnd
xy tex, 20% MRL:
wxy, mot tex, sbdky-

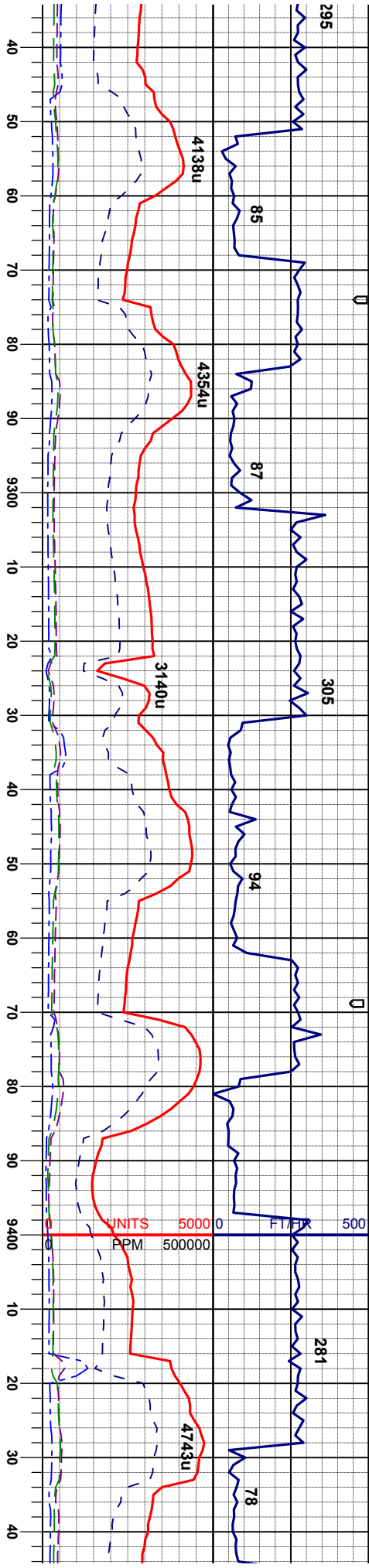
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ity, sbdky-sb pty, wxy tex, 15% MRL:
mgy-dkgy, gybik, lam, wxy, mot tex, sbdky-
sbply, firm-si brit,

75% CHK: off wh-ity - gybm, mot, bnd
ity, sbdky-sb pty, wxy tex, 25% MRL:
mgy-dkgy, gybik, lam, wxy, mot tex, sbdky-
sbply, firm-si brit,

65% CHK: off wh-ity - gybm, mot, bnd
ity, sbdky-sb pty, wxy tex, 35% MRL:
mgy-dkgy, gybik, lam, wxy, mot tex, sbdky-
sbply, firm-si brit,

70% CHK: off wh-ity - gybm, mot, bnd
ity, sbdky-sb pty, wxy tex, 30% MRL:
mgy-dkgy, gybik, lam, wxy, mot tex, sbdky-
sbply, firm-si brit,





SURVEY
MD 9264'
INC 91.79°
AZM 1.54°
TVD 7009.64'

SURVEY
MD 9312'
INC 93.42°
AZM 2.31°
TVD 7007.45'

SURVEY
MD 9359'
INC 92.00°
AZM 0.13°
TVD 7005.23'

SURVEY
MD 9407'
INC 91.51°
AZM 359.28°
TVD 7003.76'

not, bnd
2% MRL:
t tex, sbblky-
yr

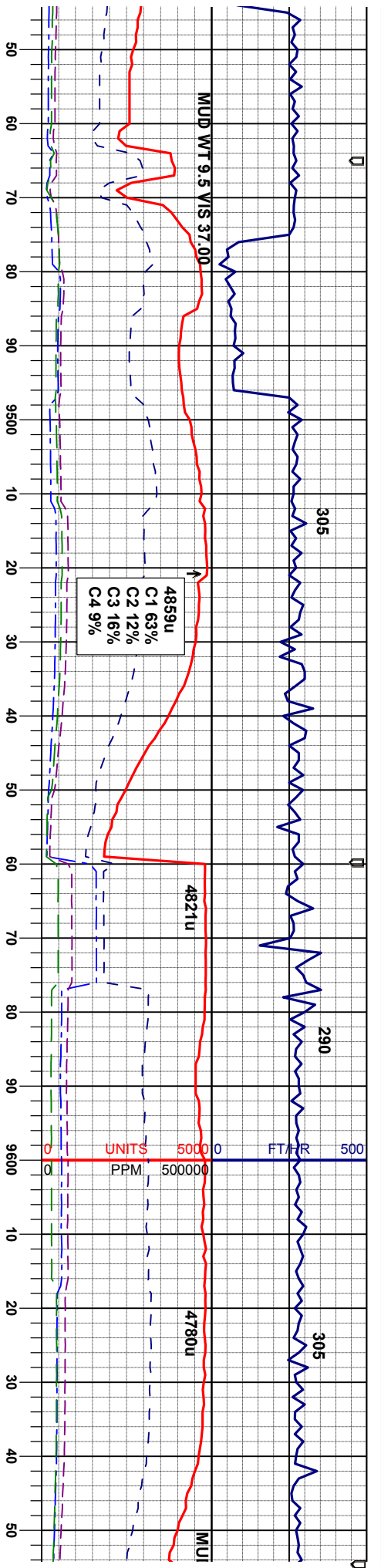
80% CHK: off wh-llgy - gybrn, mot, bnd
llgy, sbblky-sb pty, wxy tex, 20% MRL:
mgy-dkgy, gyblk, lam, wxy, mot tex, sbblky-
sbply, firm-si brt; sme disn pyr, sme fos
frag

75% CHK: off wh-llgy - gybrn, mot, bnd
llgy, sbblky-sb pty, wxy tex, 25% MRL:
mgy-dkgy, gyblk, lam, wxy, mot tex, sbblky-
sbply, firm-si brt;

60% CHK: off wh-llgy - gybrn, mot, bnd
llgy, sbblky-sb pty, wxy tex, 40% MRL:
mgy-dkgy, gyblk, lam, wxy, mot tex, sbblky-
sbply, firm-si brt;

90% CHK: off wh-llgy - gybrn, mot, bnd
llgy, sbblky-sb pty, wxy tex, 10% MRL:
mgy-dkgy, gyblk, lam, wxy, mot tex, sbblky-
sbply, firm-si brt





SURVEY
MD 9454'
INC 90.09°
AZM 357.80°
TVD 7003.10'

SURVEY
MD 9501
INC 89.01°
AZM 356.79°
TVD 7003.46'

SURVEY
MD 9596'
INC 91.11°
AZM 357.09°
TVD 7003.36'

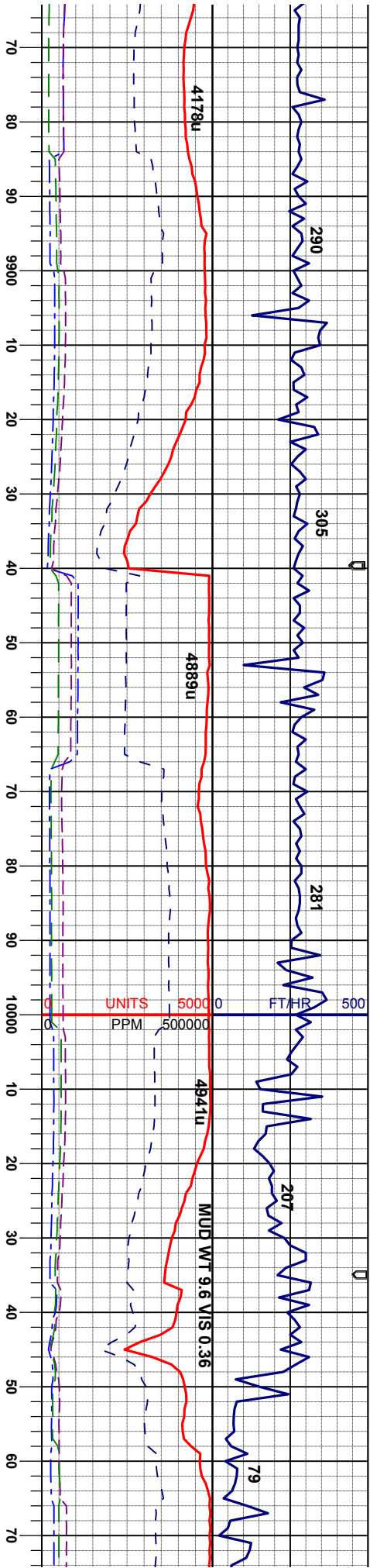
100% CHK: off wh-ltgy - gybrn, mot, bnd
ltgy, sbblky-sb pty, wxy tex, tr mri

90% CHK: off wh-ltgy - gybrn, mot, bnd
ltgy, sbblky-sb pty, wxy tex, 10% MRL:
mgy-dkgy, gyblk, lam, wxy, mot tex, sbblky-
sblpty, firm-si brt

80% CHK: off wh-ltgy - gybrn, mot, bnd
ltgy, sbblky-sb pty, wxy tex, 20% MRL:
mgy-dkgy, gyblk, lam, wxy, mot tex, sbblky-
sblpty, firm-si brt

90% CHK: off wh-ltgy - gybrn, mot, bnd
ltgy, sbblky-sb pty, wxy tex, 10% MRL:
mgy-dkgy, gyblk, lam, wxy, mot tex, sbblky-
sblpty, firm-si brt; occ spar calc





SURVEY
MD 9881'
INC 89.20°
AZM 0.26°
TVD 7007.76'

SURVEY
MD 9976'
INC 91.20°
AZM 0.39°
TVD 7007.43'

SURVEY
MD 1007'
INC 89.85°
AZM 359°
TVD 7006

off wh-ltgy - gybrn, mot, bnd
-sb ply, wxy tex, 10% MRL:
yblk, lam, wxy, mot tex, sbply-
sl brit

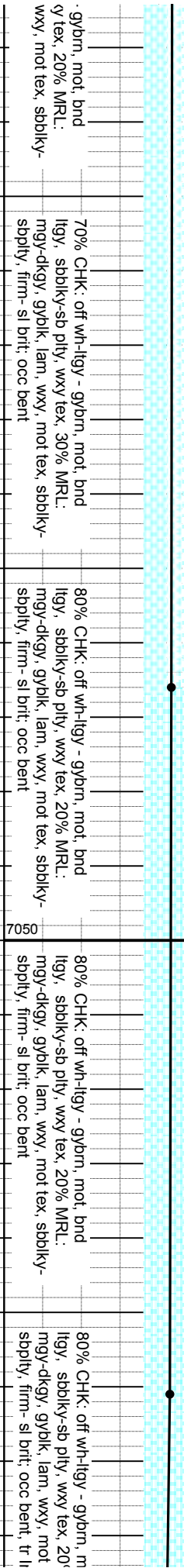
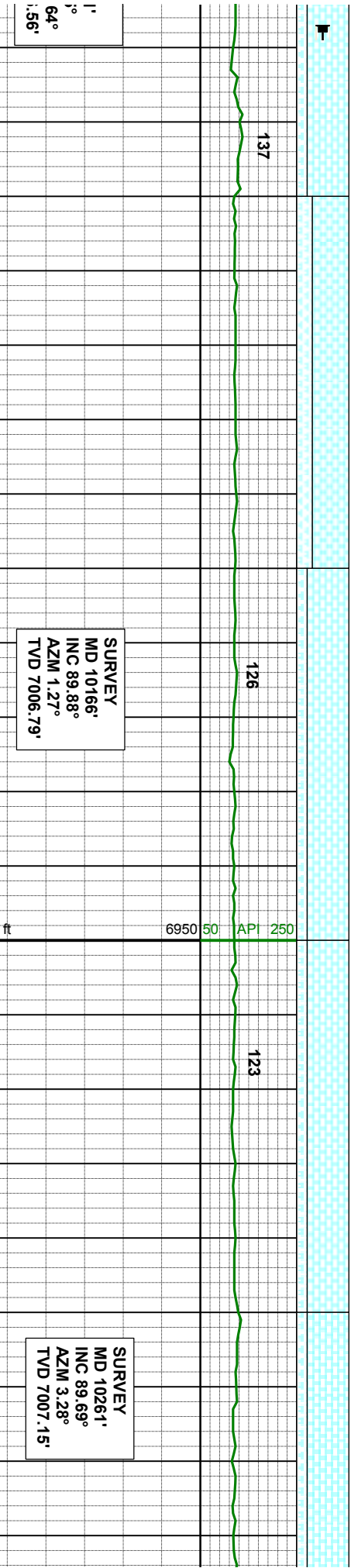
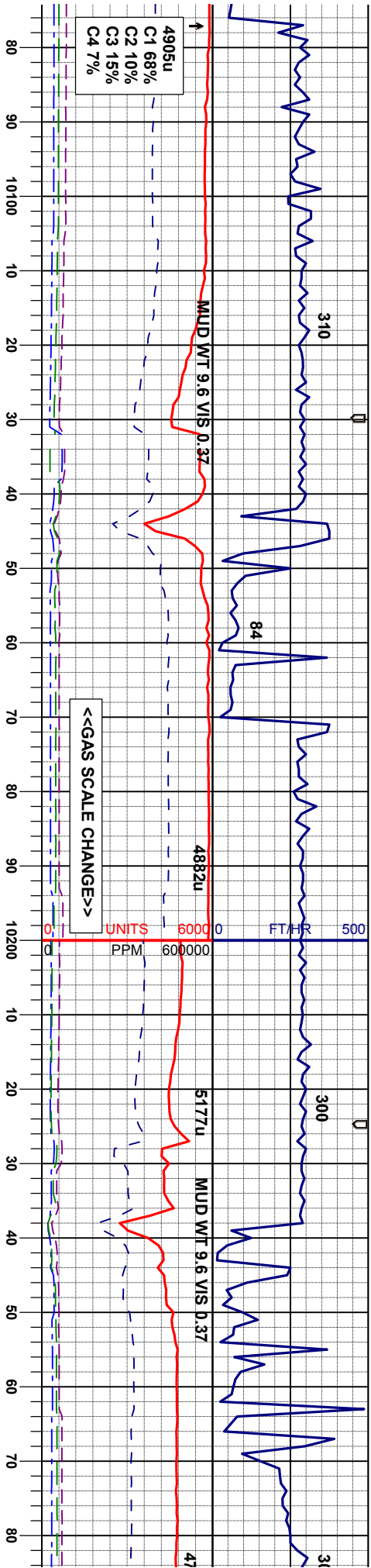
90% CHK: off wh-ltgy - gybrn, mot, bnd
ltgy, sbply-sb ply, wxy tex, 10% MRL:
mgy-dkgy, gyblk, lam, wxy, mot tex, sbply-
sbply, firm-si brit

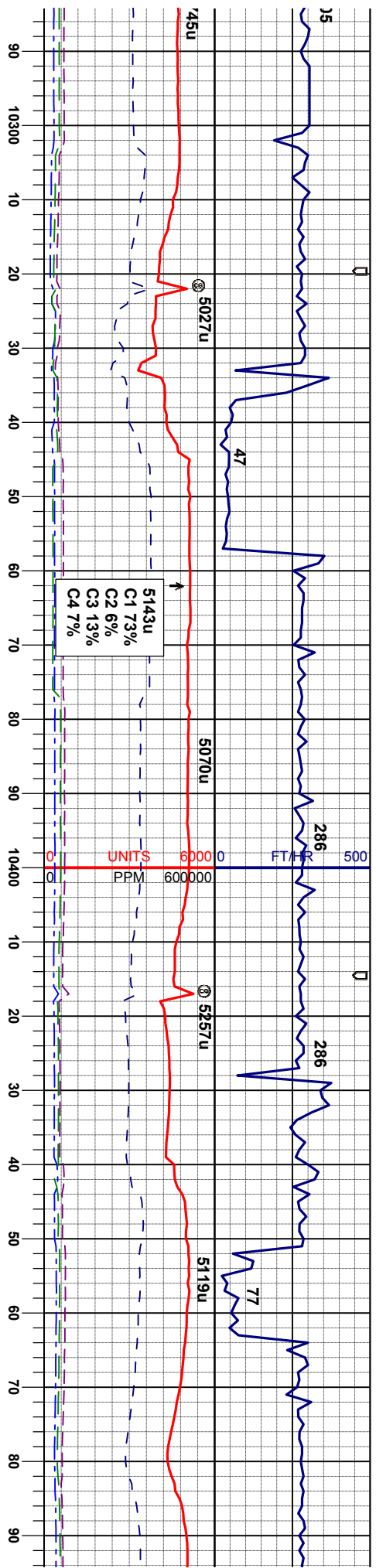
95% CHK: off wh-ltgy - gybrn, mot, bnd
ltgy, sbply-sb ply, wxy tex, 5% MRL:
mgy-dkgy, gyblk, lam, wxy, mot tex, sbply-
sbply, firm-si brit; occ spar calc

90% CHK: off wh-ltgy - gybrn, mot, bnd
ltgy, sbply-sb ply, wxy tex, 10% MRL:
mgy-dkgy, gyblk, lam, wxy, mot tex, sbply-
sbply, firm-si brit

80% CHK: off wh-ltgy -
ltgy, sbply-sb ply, w
mgy-dkgy, gyblk, lam,
sbply, firm-si brit







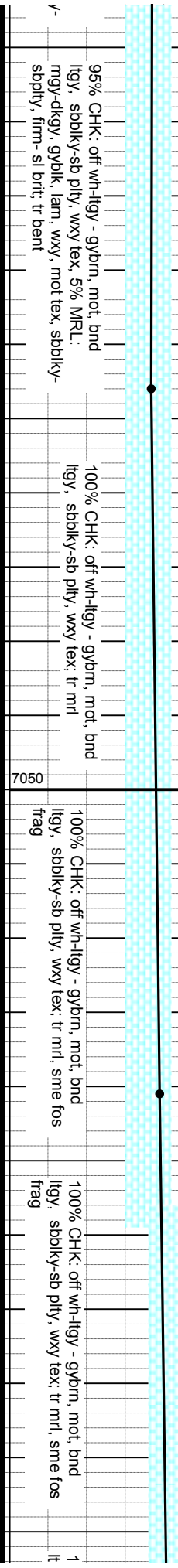
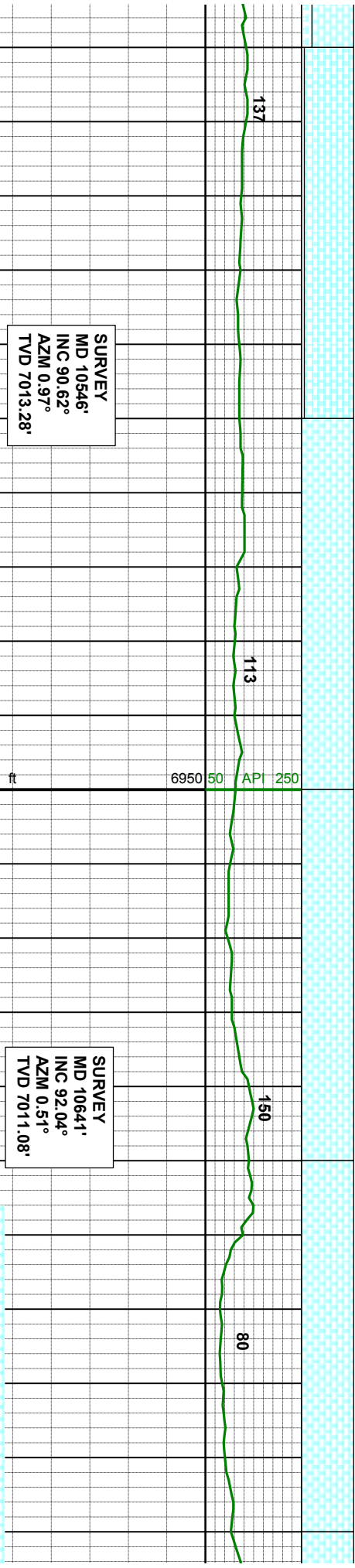
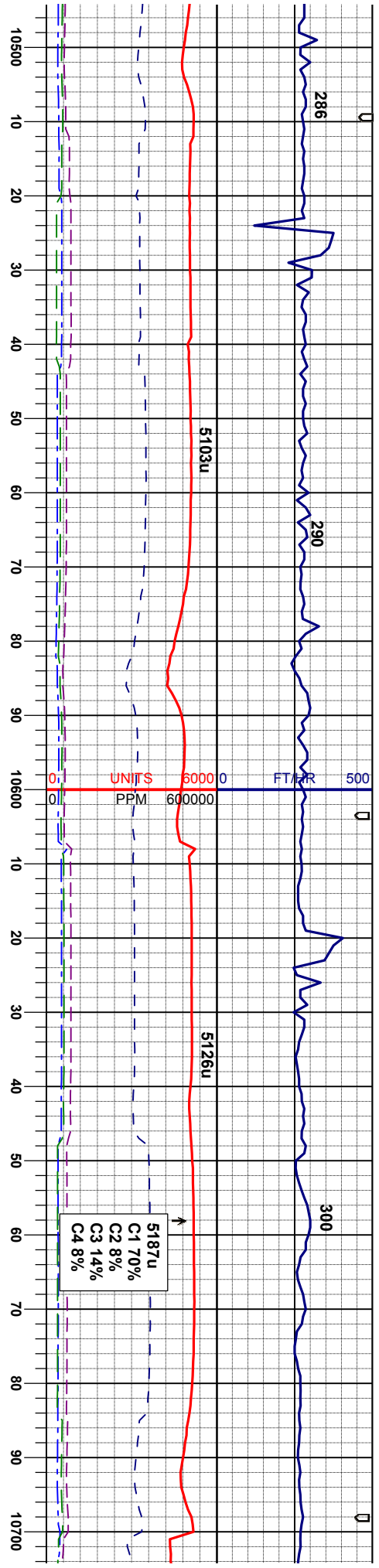
| | |
|-------------|--|
| ot, bnd | 80% CHK: off wh-ity - gydm, mot, bnd |
| % MRL: | ity, sbbky-sb ply, wxy tex, 20% MRL: |
| tex, sbbky- | my-dky, gybkl, lam, wxy, mot tex, sbbky- |
| noc frag | sbbly, firm-sl brit, r bent, inoc frag, o flor |

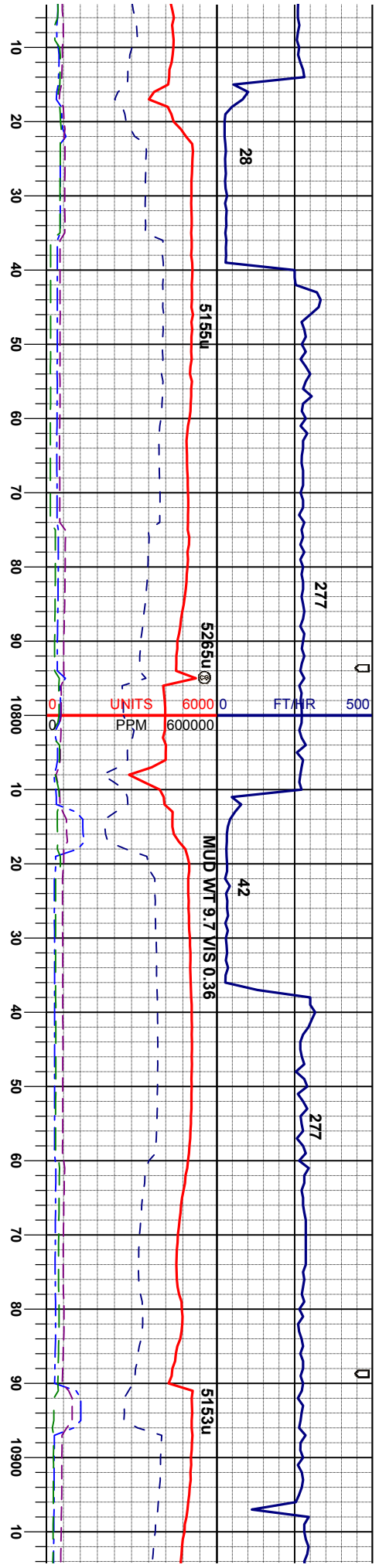
80% CHK: off wh-Itgy - gybrn, mot, bnd
Itgy, sbblky-sb pty, wxy tex. 20% MRL:
mgy-dkgy, gyblyk, lam, wxy, mot tex, sbblky-
sblpty, firm-si brty, tr bent, inoc frag, o flor

70% CHK: off wh-fty - gybrn, mot, bnd
fty, sbblky-sb pty, wxy tex. 30% MR.:
mgy-dkgy, gyb/kl, lam, wxy, mot tex, sbblky-
sblpy, firm-sl brt, tr bent, o flor

80% CHK: off wh-figy - gybrn, mot, bnd
itgy, sbbky-sb pty, wxy tex, 20% MR.:
mgy-dkgy, gyvbk, lam, wxy, mot tex, sbbk,
sbbpy, firm-si brit, tr bent, inoc frag, o flor





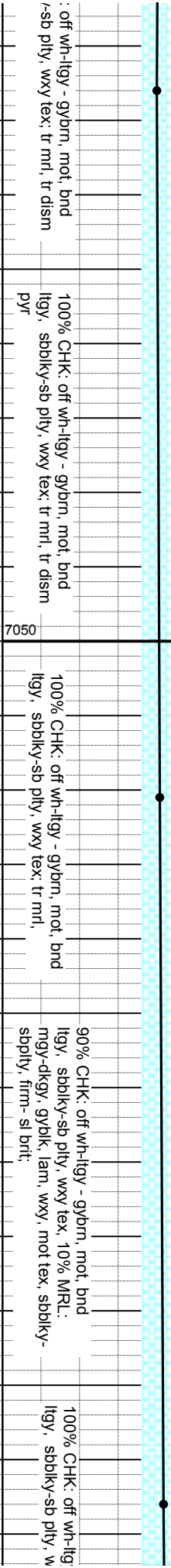
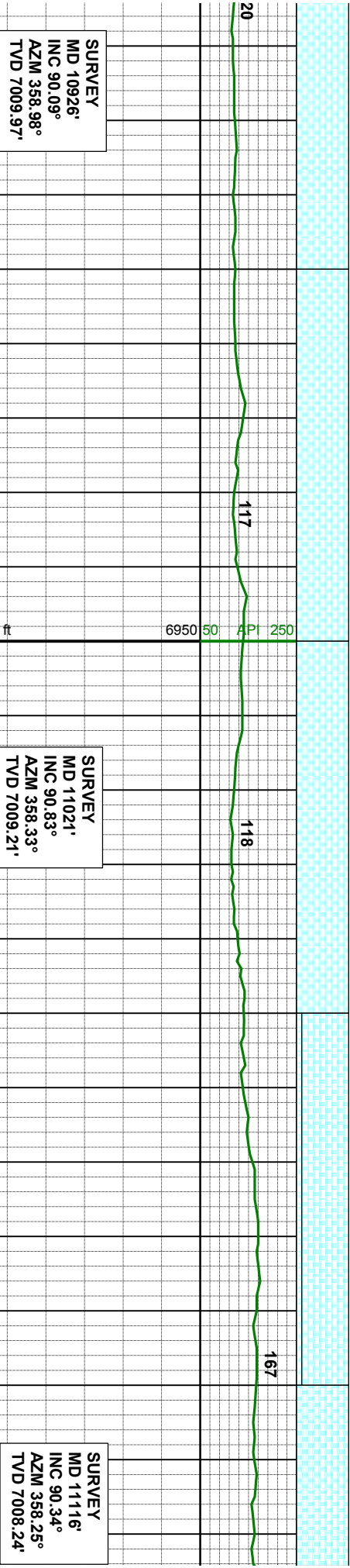
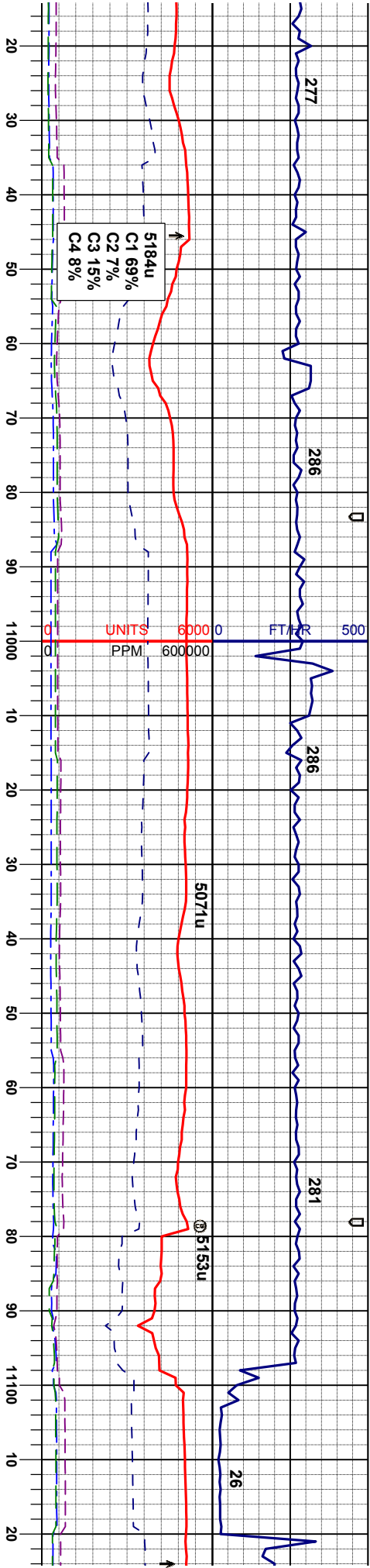


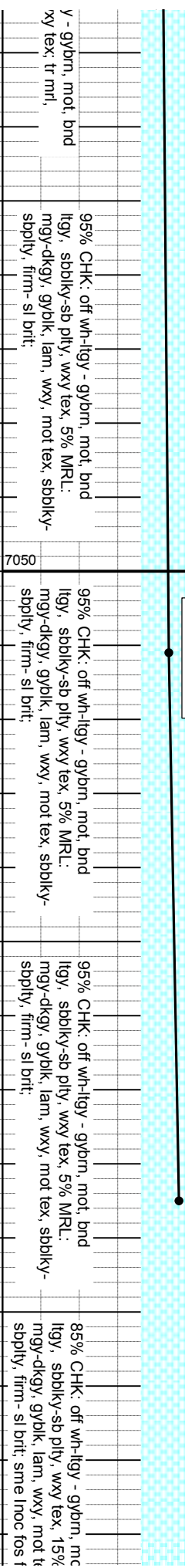
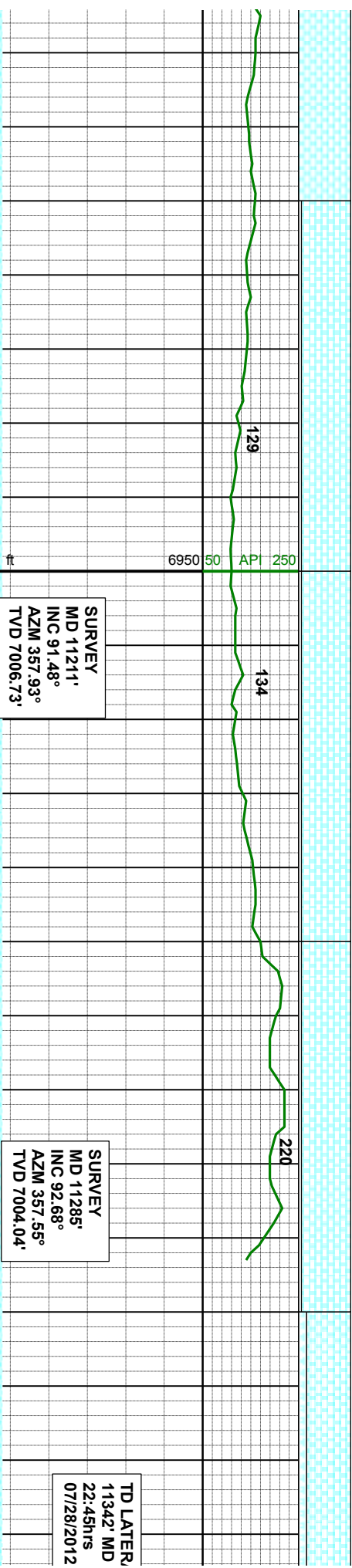
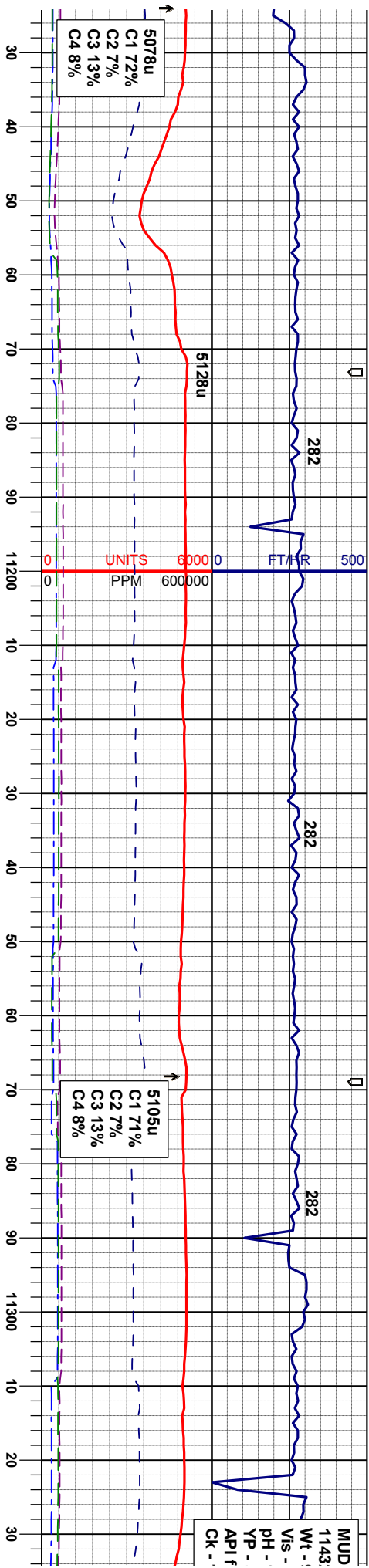
SURVEY
MD 10736'
INC 91.02°
AZM 359.83°
TVD 7008.54'

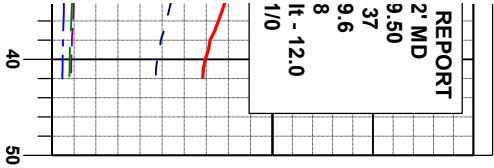
SURVEY
MD 10831'
INC 88.58°
AZM 358.96°
TVD 7008.88'

| | | | | |
|--|---|---|--|---------------------------------|
| 00% CHK: off wh-llgy - gybrn, mot, bnd gy, sbblky-sb plty, wxy tex; tr mrl, | 100% CHK: off wh-llgy - gybrn, mot, bnd llgy, sbblky-sb plty, wxy tex; tr mrl, | 100% CHK: off wh-llgy - gybrn, mot, bnd llgy, sbblky-sb plty, wxy tex; tr mrl, | 100% CHK: off wh-llgy - gybrn, mot, bnd llgy, sbblky-sb plty, wxy tex; tr mrl, tr dism pyr | 100% CHK llgy, sbblky pyr |
|--|---|---|--|---------------------------------|









AL @:



it, bnd
; MRL:
ex, sbdky-
tag

