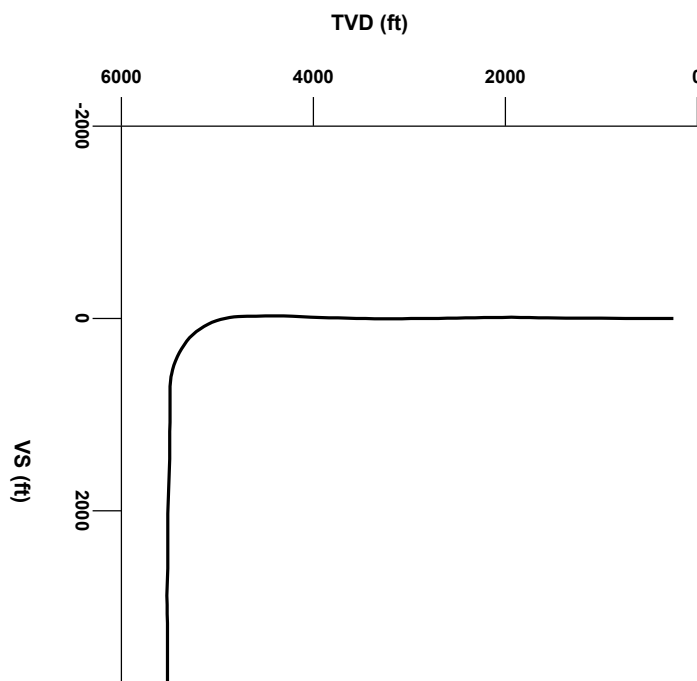


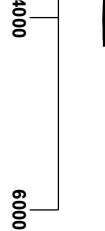
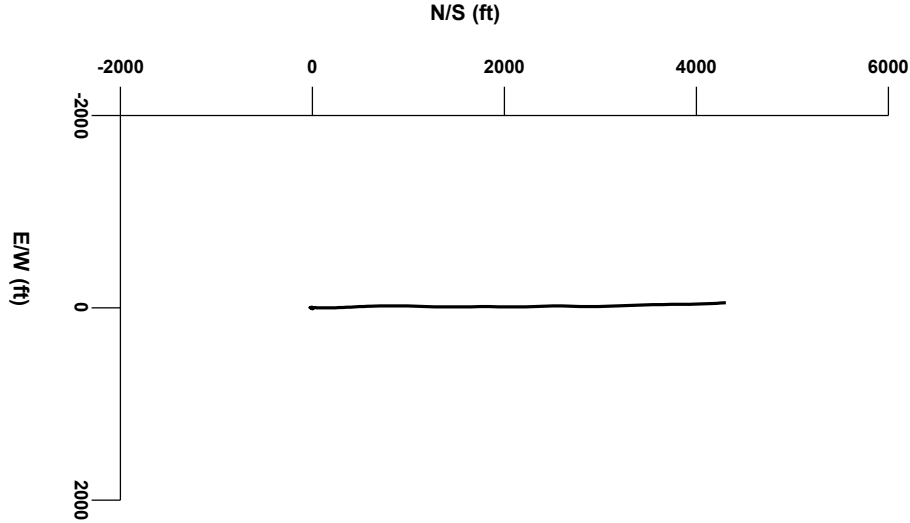
LOG created using L PLOT VH Version 3.0, May 22, 2013, Copyright (C) 1999-2009 Pason Systems Corp.

OPERATOR: NOBLE ENERGY INC.
WELL: CASTOR LD12-78HN
LOCATION: SEC 12, T9N, R58W
COUNTY: WELD
STATE: COLORADO
SPOT: 288' FSL, 660 FWL
ELEVATION: 4630' GL, 4654' KB
FIELD: WILDCAT
SPUD DATE: 5/16/2013
TD DATE: 5/21/2013
DATES LOGGED: 5/17/2013 - 5/21/2013
DEPTHS LOGGED: 1229' - 9505'
LOGGERS: JOHN T. READY, MOHAMMED ALMUBARAK
DRILLING FLUID: WATER, MUD, POLY
DRILLING RIG: H&P 322
API: 05-123-37096
LOG TYPE: HORIZONTAL
SCALE: 1:240 (5 inches per 100 feet)
REMARKS: WELLSITE GEOLOGICAL SERVICES PROVIDED BY COLUMBINE LOGGING INC.



Survey Elevation

Survey Plan



Chalk

Marl

Silty Shale

▲

Casing

▲

Casing

▮

Connection

⊗

Connection Gas

↱

Arrow

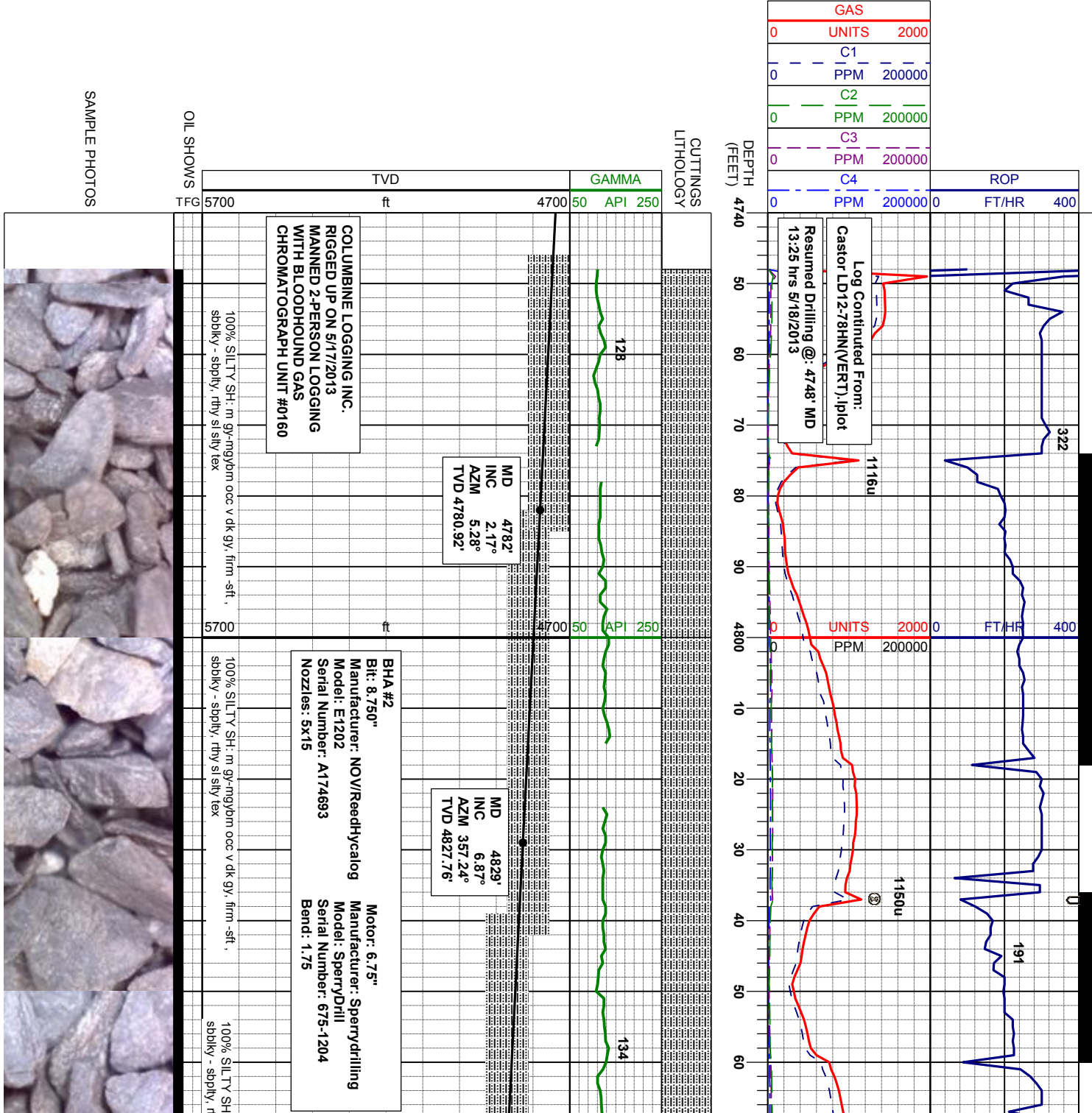
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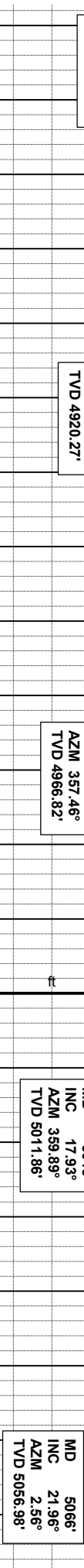
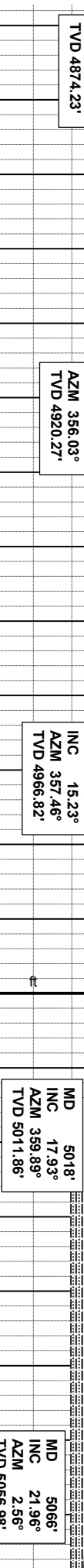
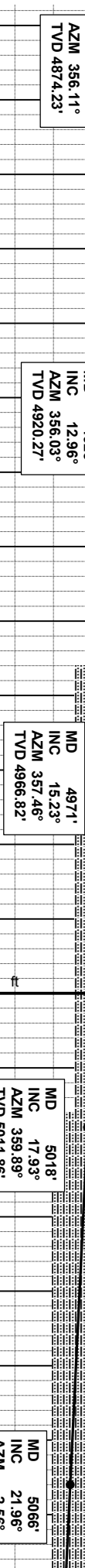
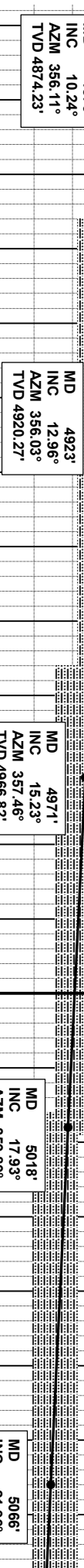
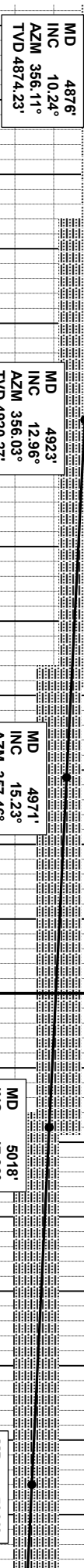
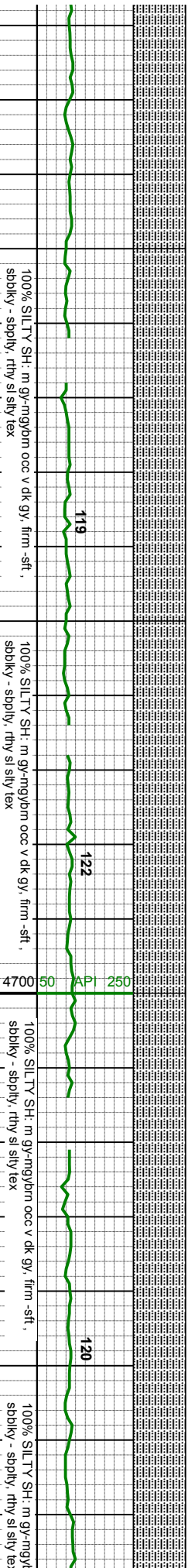
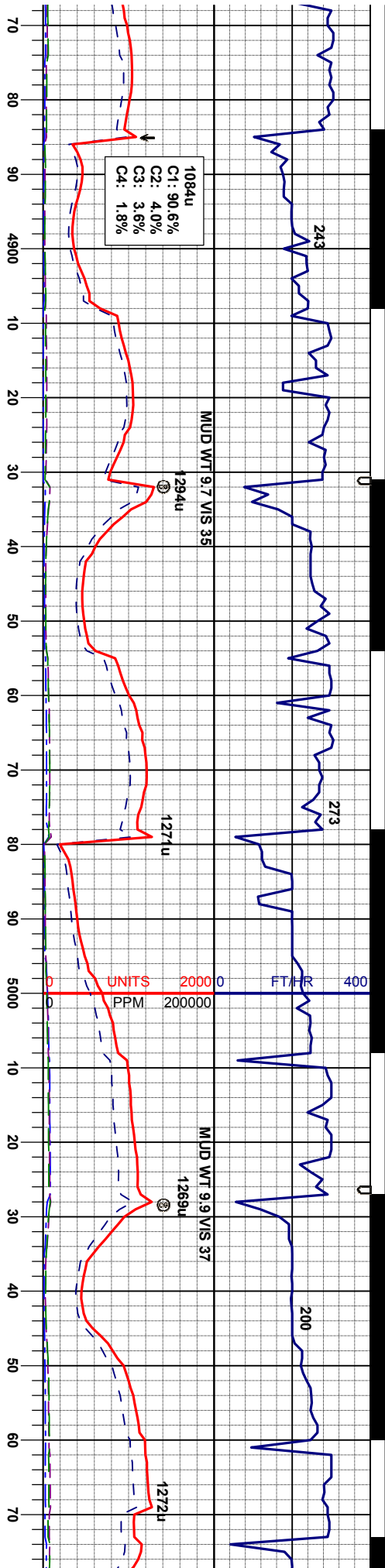
Midnight Depth

➡

Arrow

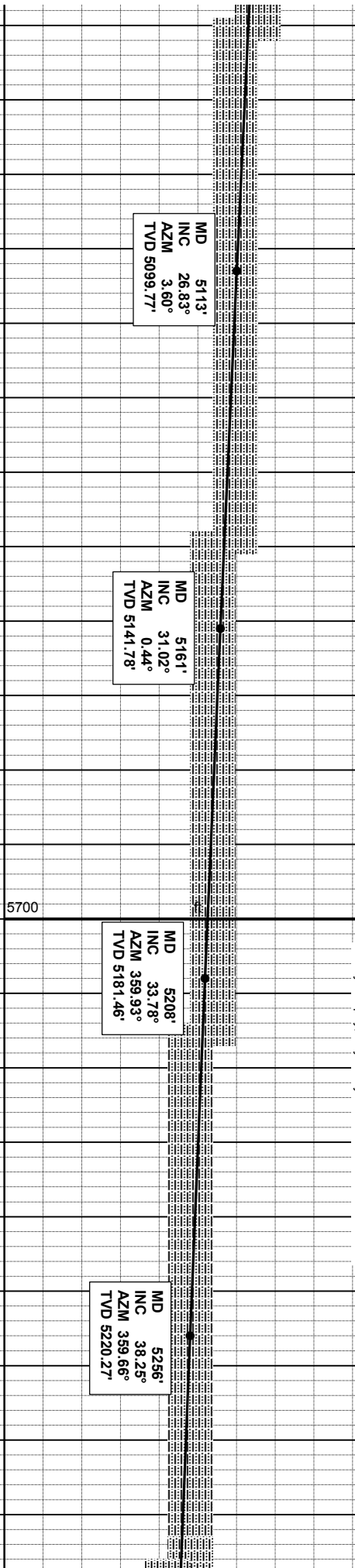
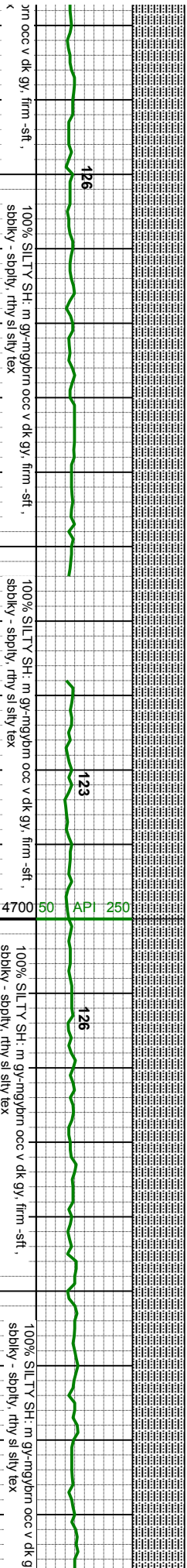
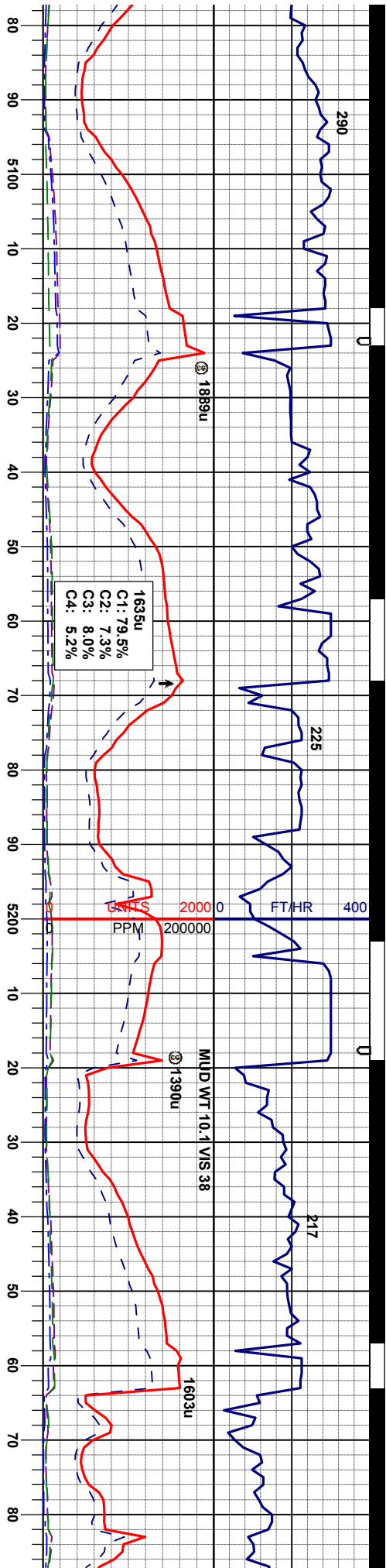
ENGINEERING SYMBOLS

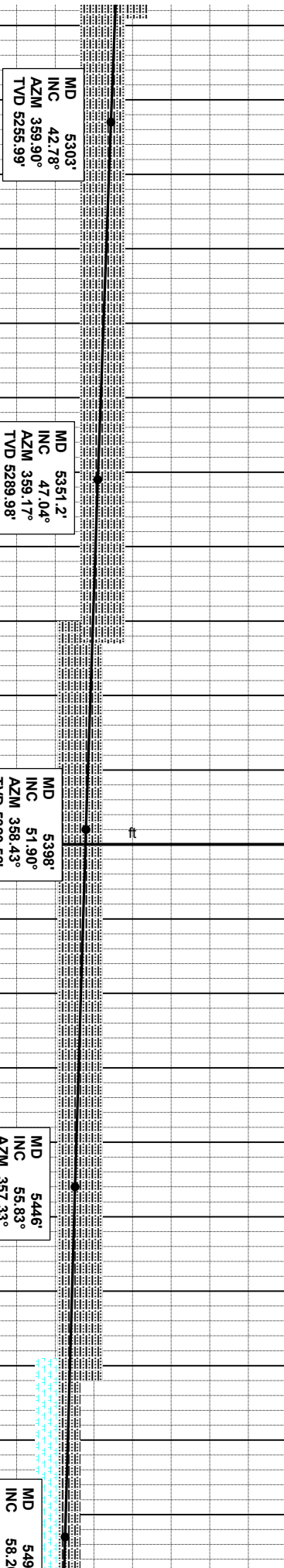
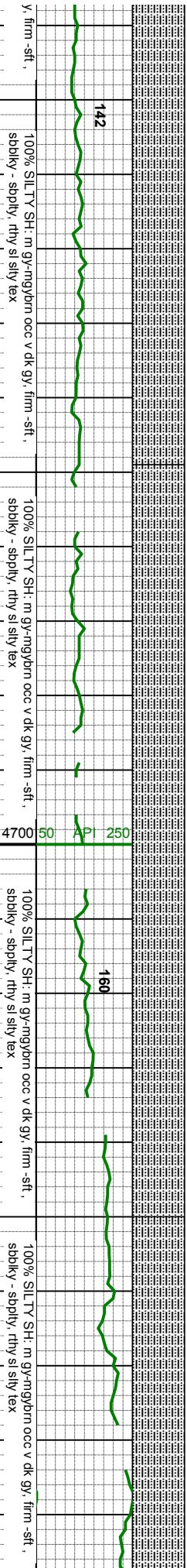
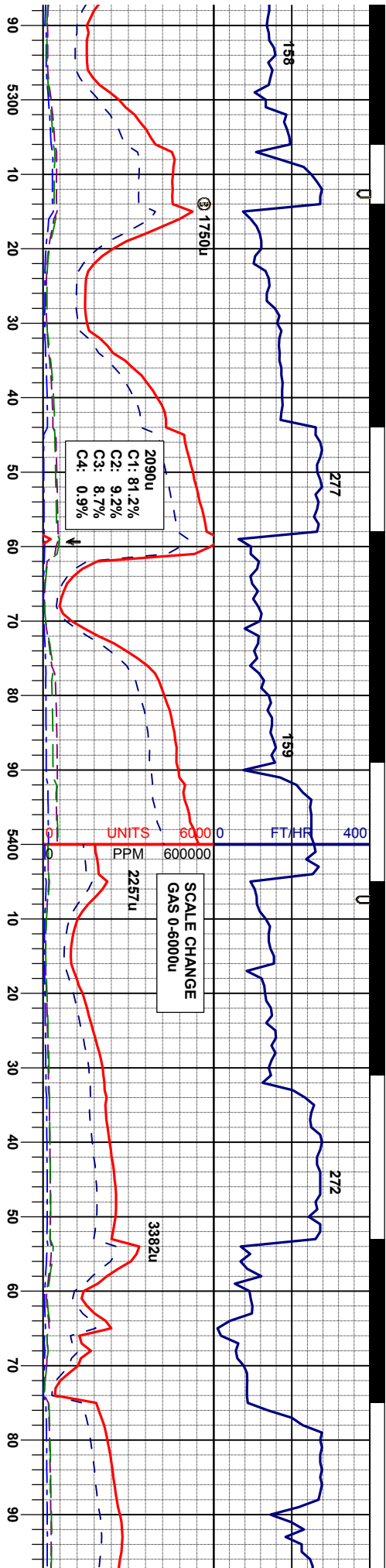


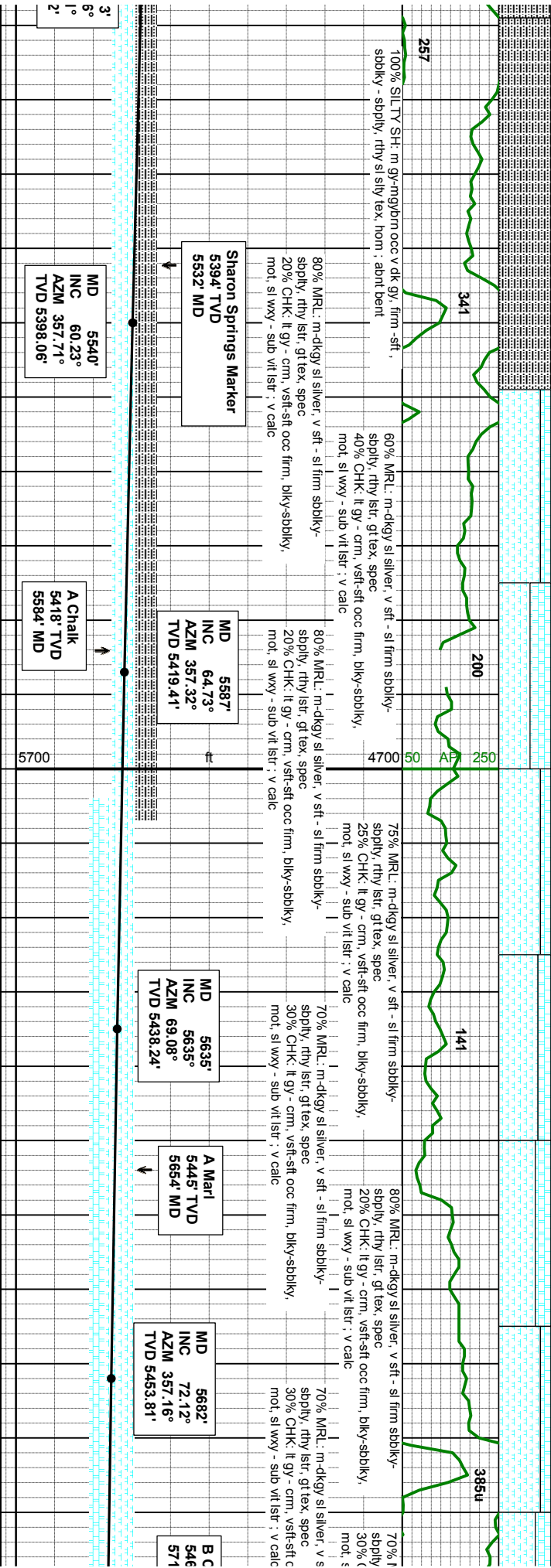
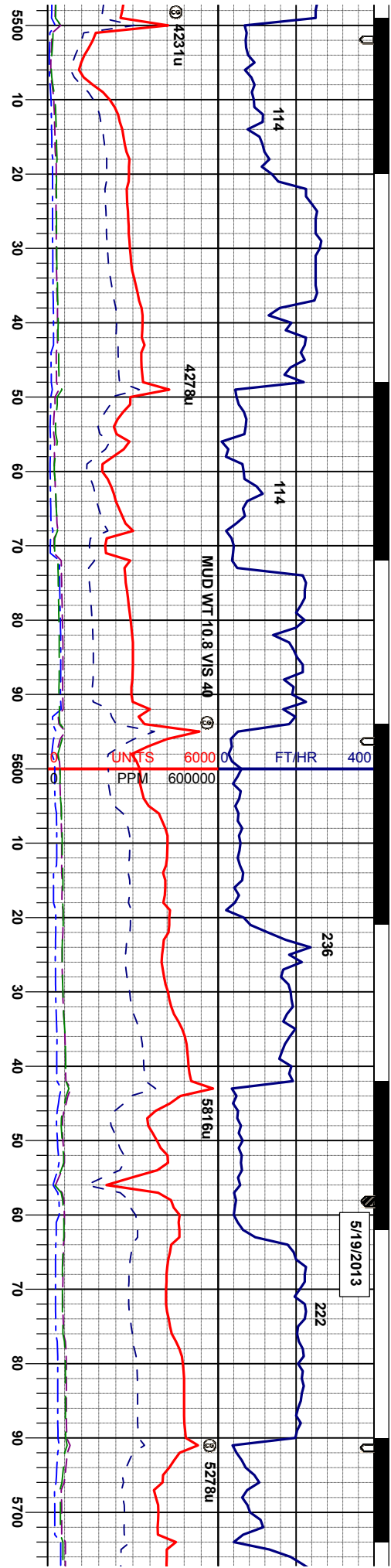


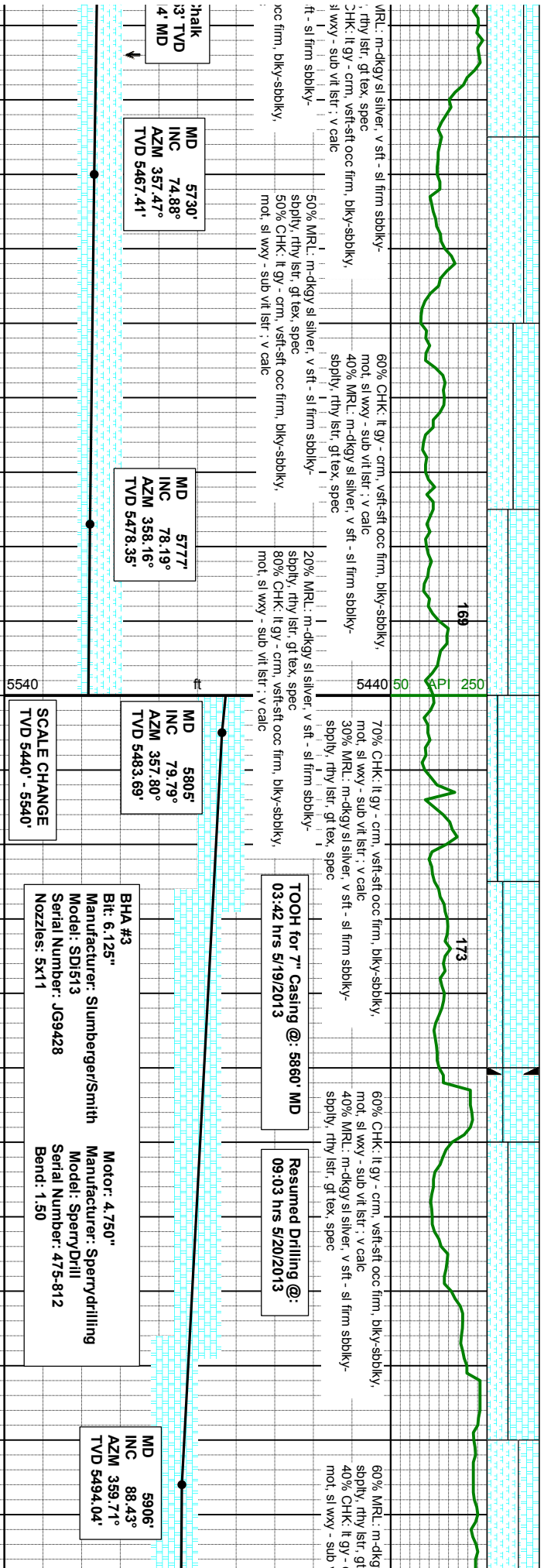
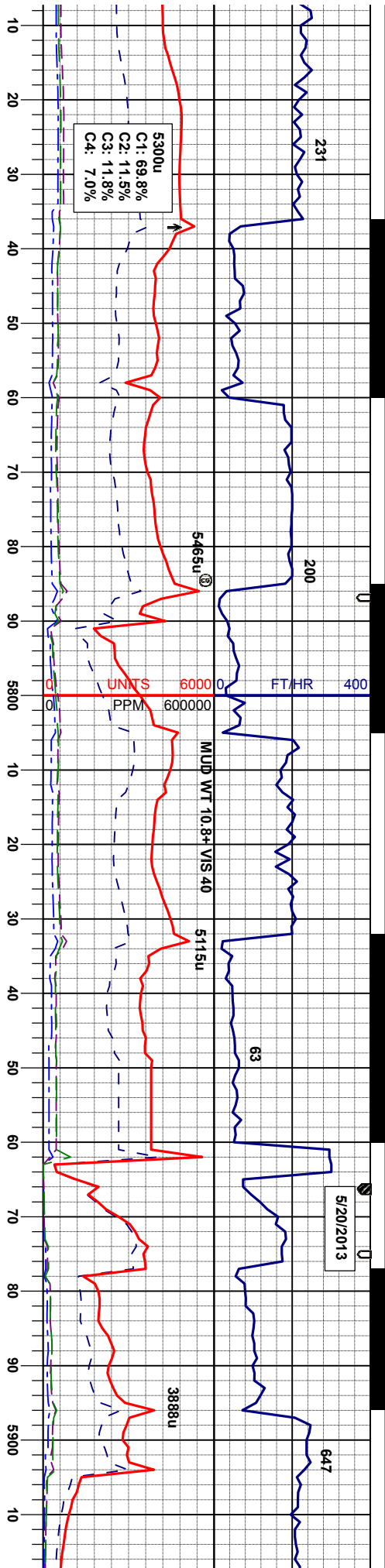
: m gy-mgym ooc v dk gy, firm -sft, lthy sl silty tex

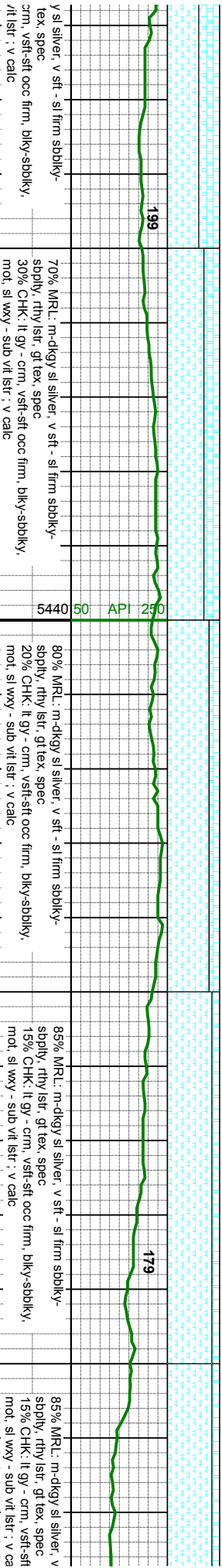
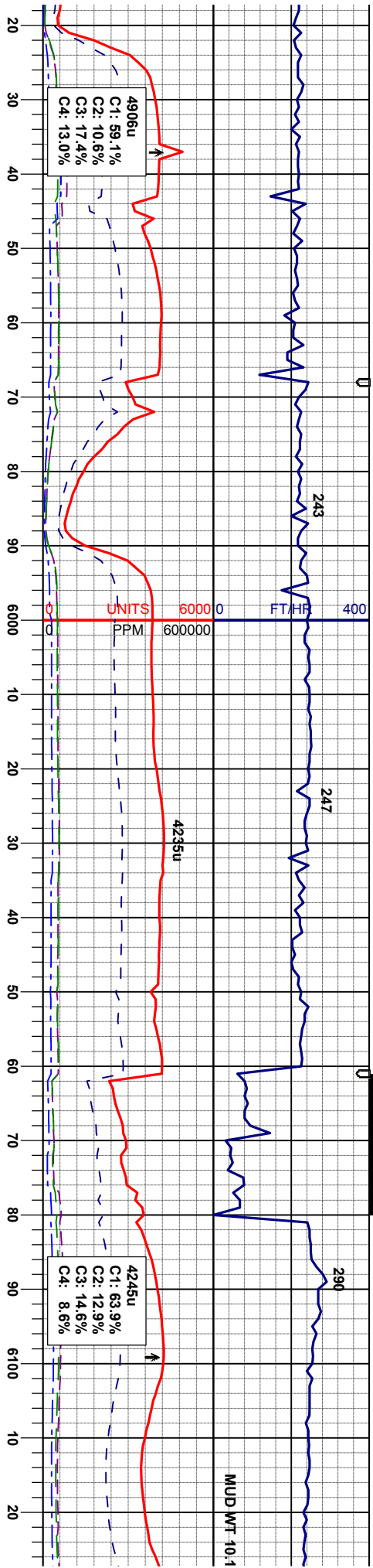


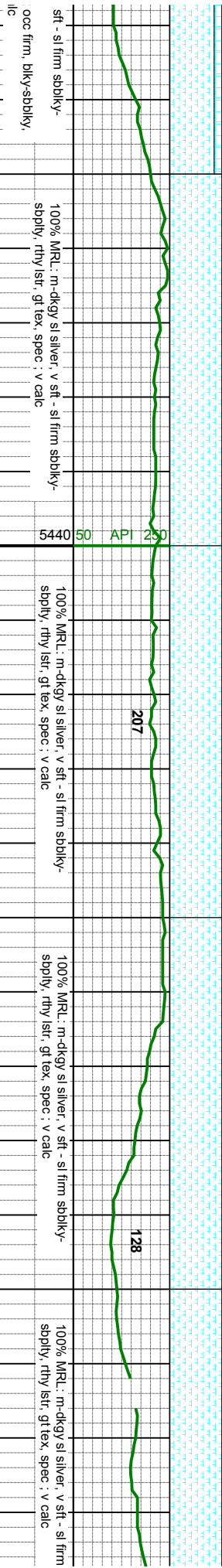
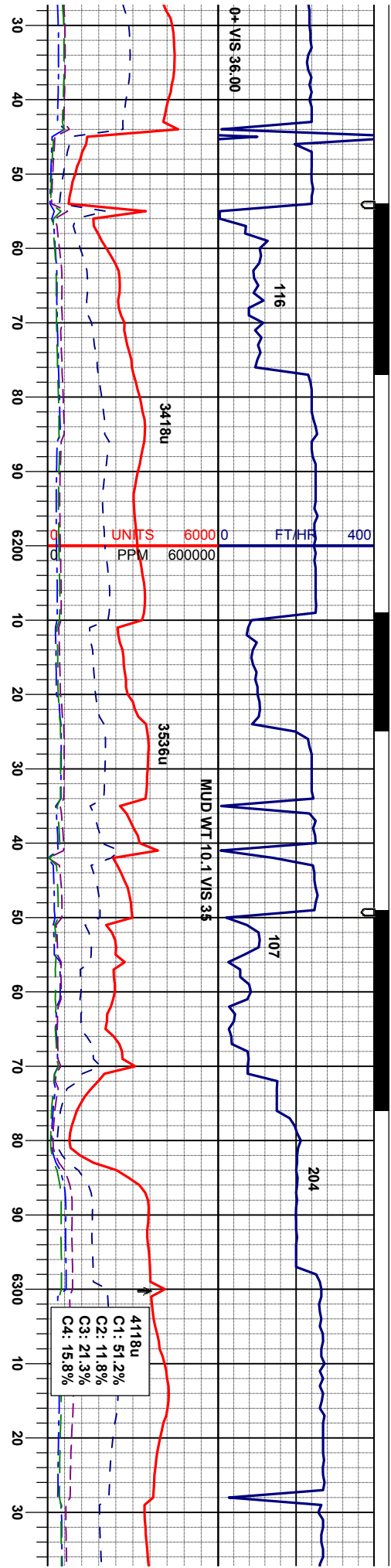








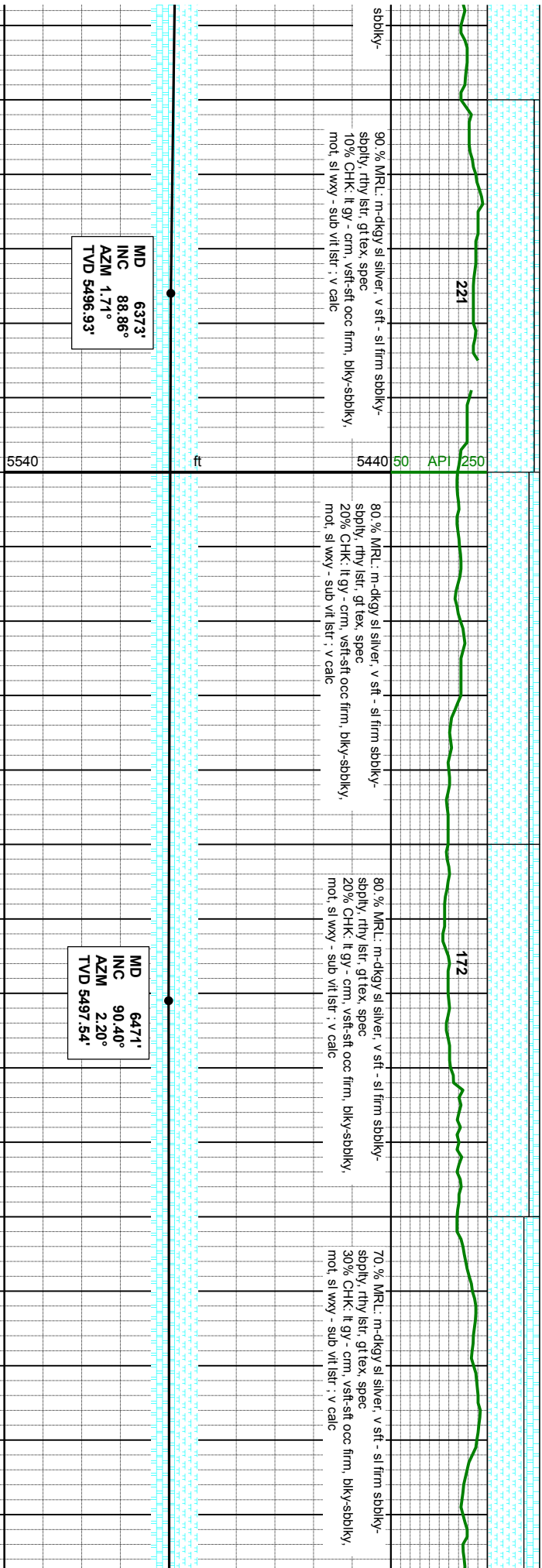
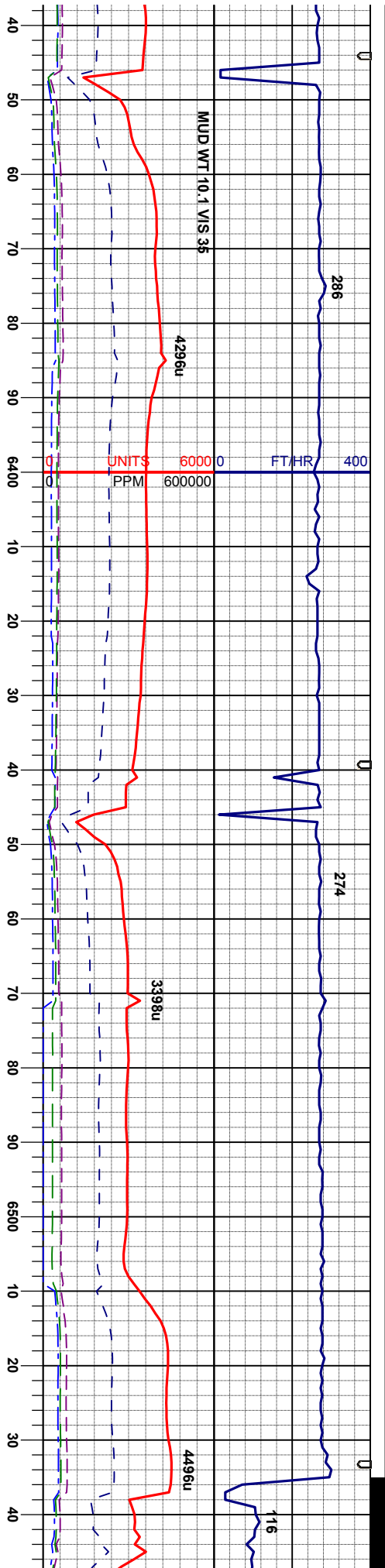




MD 6187'
INC 90.09°
AZM 1.36°
TVD 5493.28'

MD 6282'
INC 88.31°
AZM 1.84°
TVD 5494.61'





MD 6373'
INC 88.86°
AZM 1.71°
TVD 5496.93'

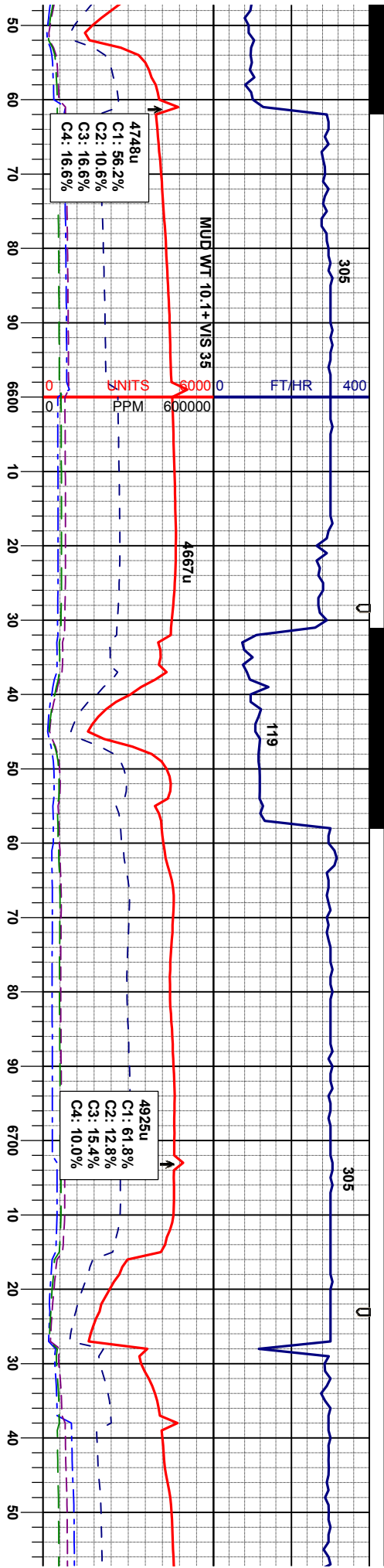
MD 6471'
INC 90.40°
AZM 2.20°
TVD 5497.54'

90 % MRL: m-dkgy sl silver, v sft - sl firm sbdky-
sdpky, rthy lstr, gt tex, spec
10% CHK: lt gy - cm, vsft-sft occ firm, bkly-sbdky,
mot, sl wxy - sub vit lstr : v calc

80 % MRL: m-dkgy sl silver, v sft - sl firm sbdky-
sdpky, rthy lstr, gt tex, spec
20% CHK: lt gy - cm, vsft-sft occ firm, bkly-sbdky,
mot, sl wxy - sub vit lstr : v calc

80 % MRL: m-dkgy sl silver, v sft - sl firm sbdky-
sdpky, rthy lstr, gt tex, spec
20% CHK: lt gy - cm, vsft-sft occ firm, bkly-sbdky,
mot, sl wxy - sub vit lstr : v calc

70 % MRL: m-dkgy sl silver, v sft - sl firm sbdky-
sdpky, rthy lstr, gt tex, spec
30% CHK: lt gy - cm, vsft-sft occ firm, bkly-sbdky,
mot, sl wxy - sub vit lstr : v calc



70% MRL: m-dkgy sl silver, v sft - sl firm sbbky-sbbly, rthy lstr, gt tex, spec
30% CHK: lt gy - crm, vsft-sft occ firm, bkly-sbbky, mod, sl wxy - sub vit lstr : v calc

60% MRL: m-dkgy sl silver, v sft - sl firm sbbky-sbbly, rthy lstr, gt tex, spec
40% CHK: lt gy - crm, vsft-sft occ firm, bkly-sbbky, mod, sl wxy - sub vit lstr : v calc

70% CHK: lt gy - crm, vsft-sft occ firm, bkly-sbbky, mod, sl wxy - sub vit lstr : v calc
30% MRL: m-dkgy sl silver, v sft - sl firm sbbky-sbbly, rthy lstr, gt tex, spec

70% CHK: lt gy - crm, vsft-sft occ firm, bkly-sbbky, mod, sl wxy - sub vit lstr : v calc
30% MRL: m-dkgy sl silver, v sft - sl firm sbbky-sbbly, rthy lstr, gt tex, spec

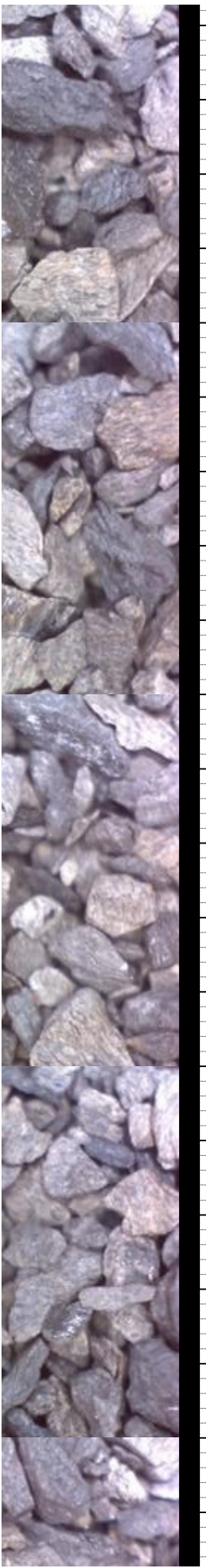
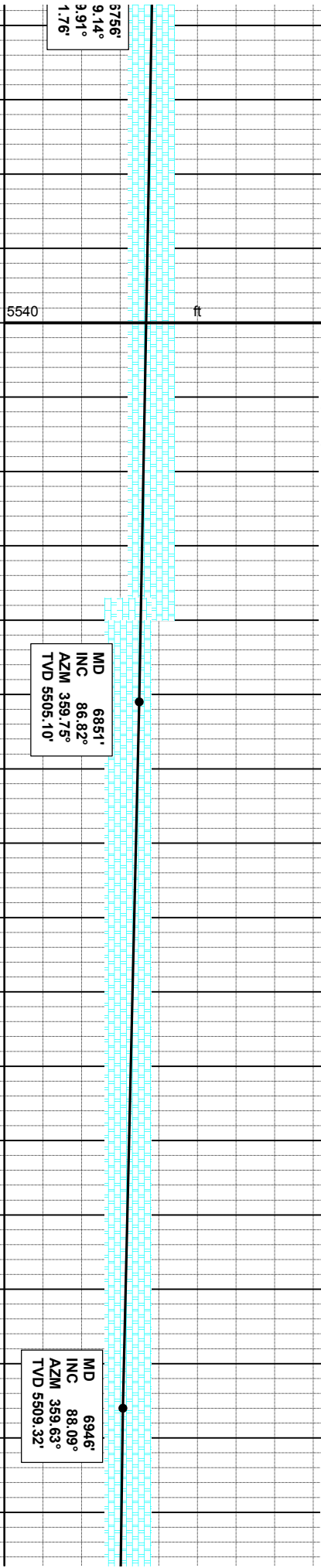
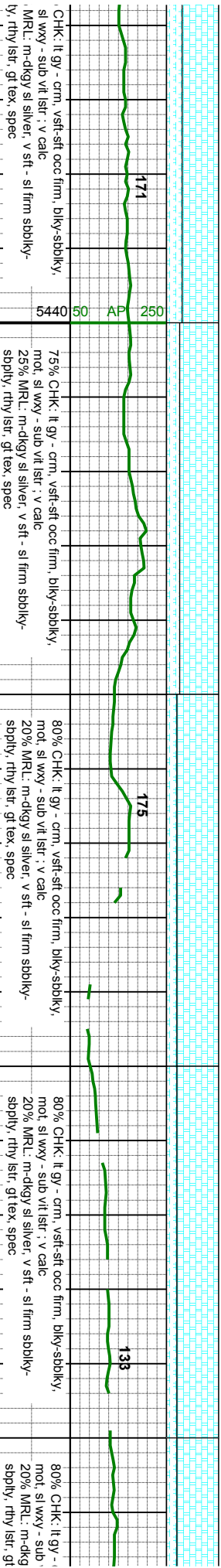
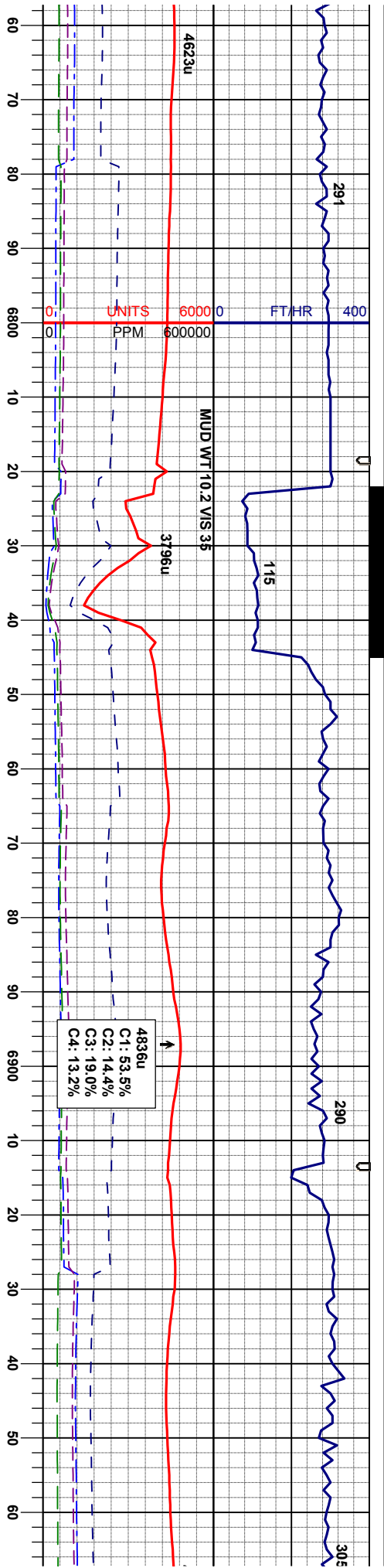
70% MRL: m-dkgy sl silver, v sft - sl firm sbbky-sbbly, rthy lstr, gt tex, spec

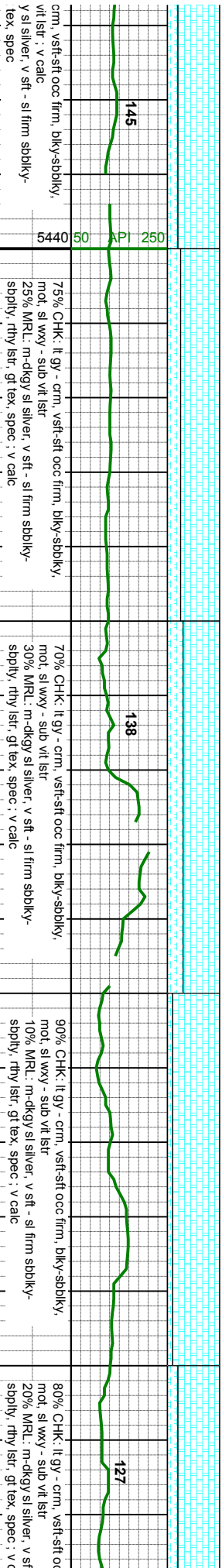
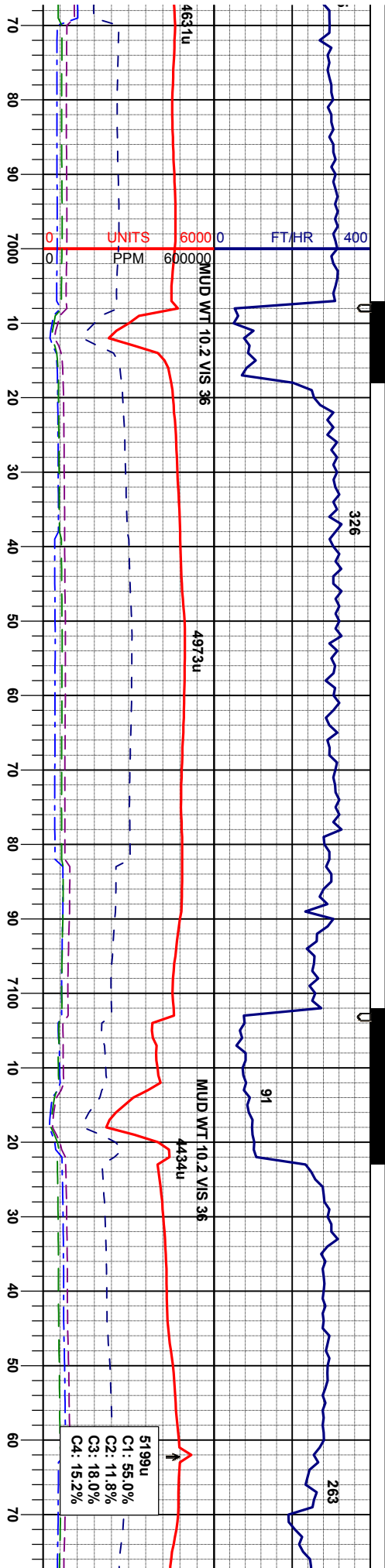
MD 6566'
INC 88.95°
AZM 359.46°
TVD 5497.34'

MD 6661'
INC 87.84°
AZM 359.57°
TVD 5499.25'

MD 8'
INC 35°
AZM 35°
TVD 550'



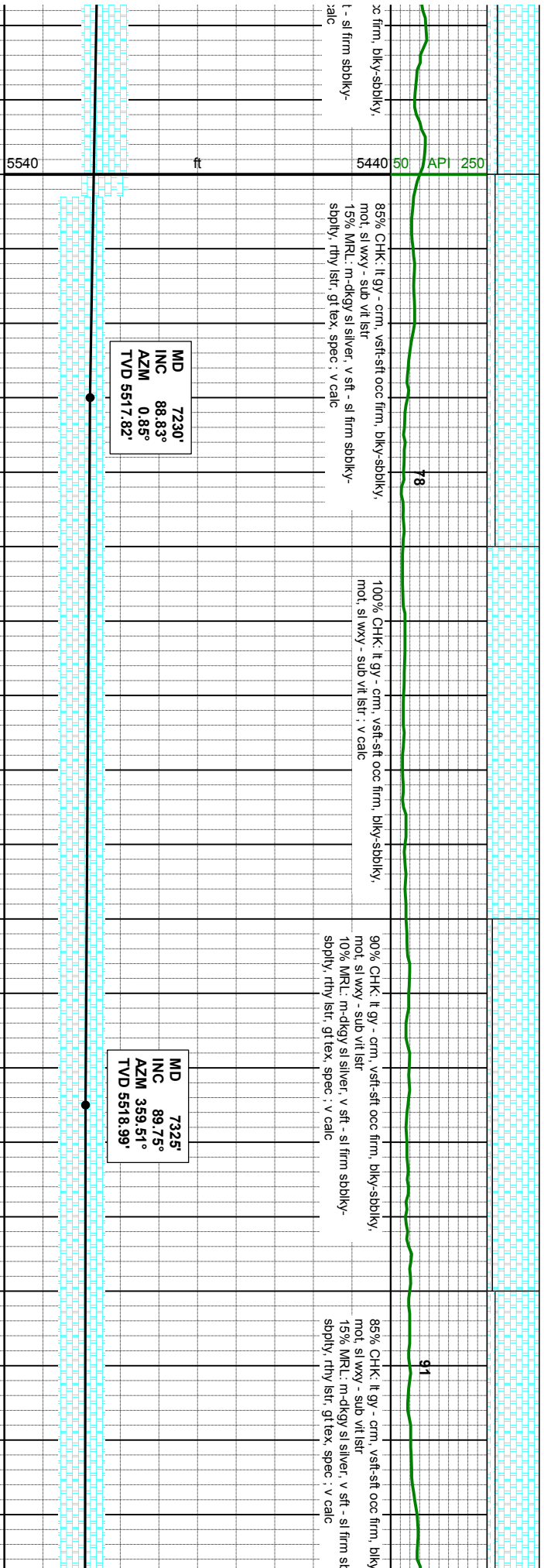
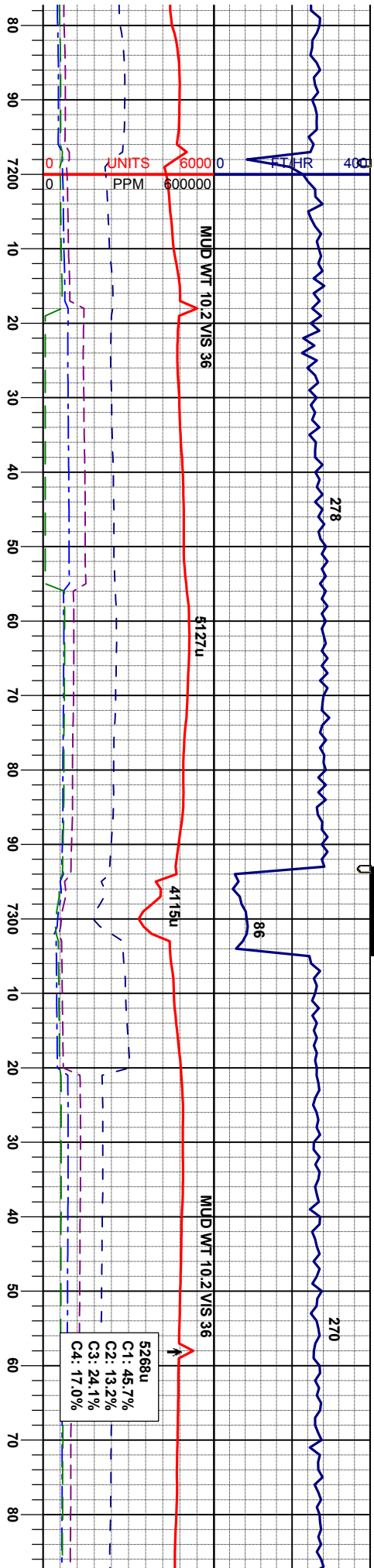


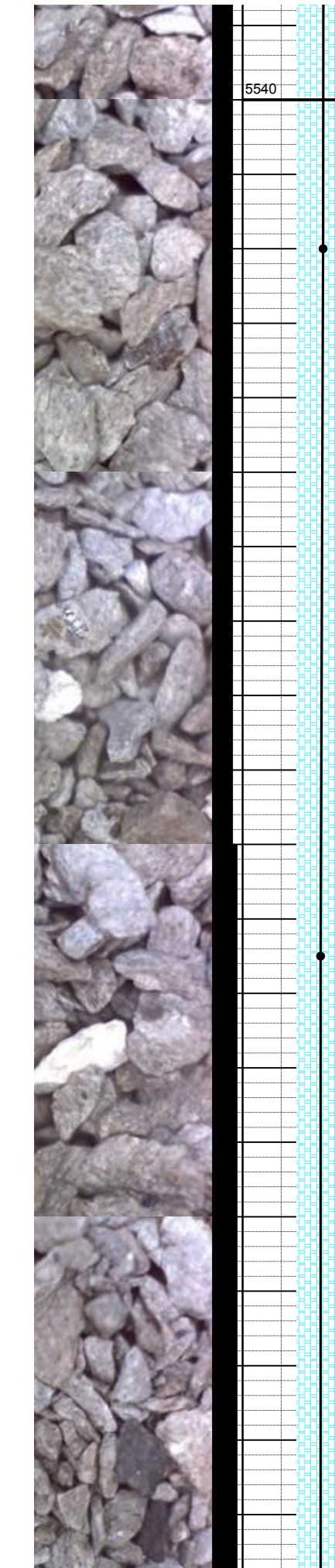
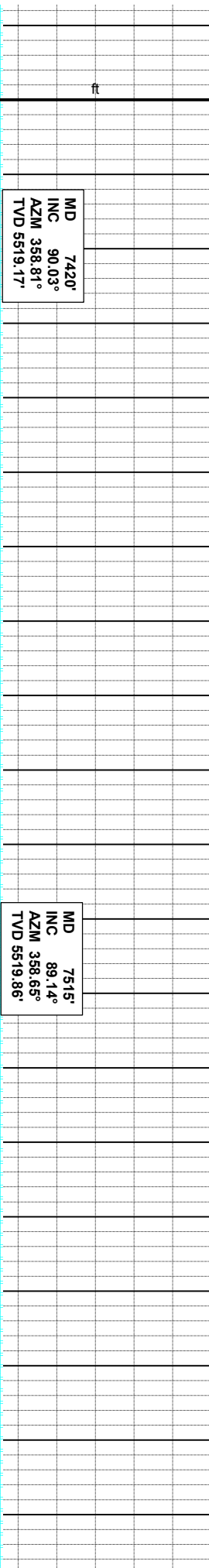
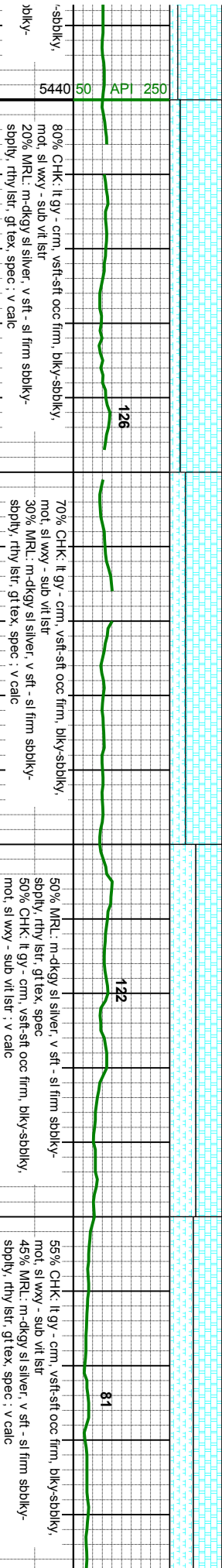
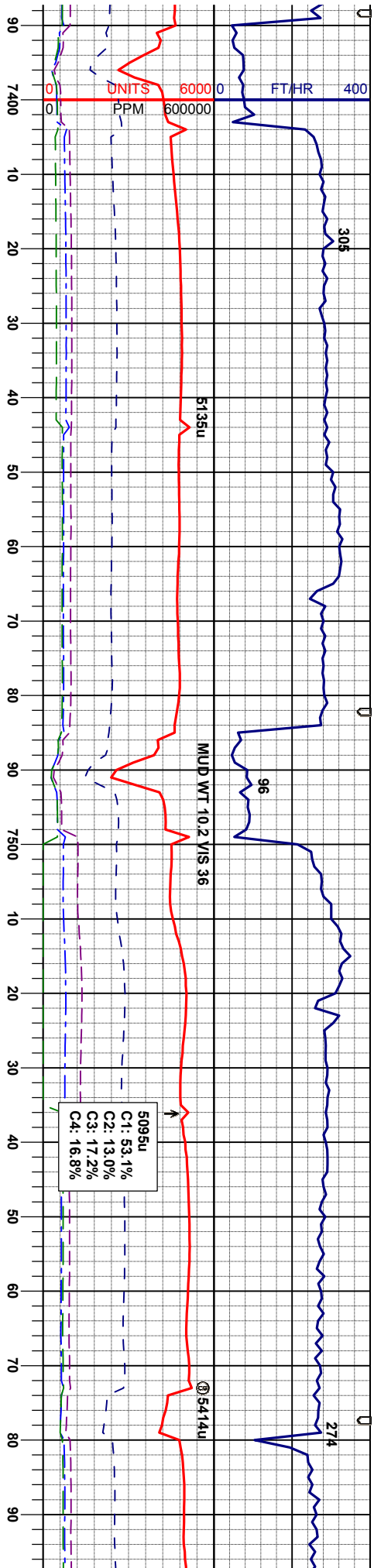


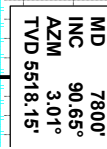
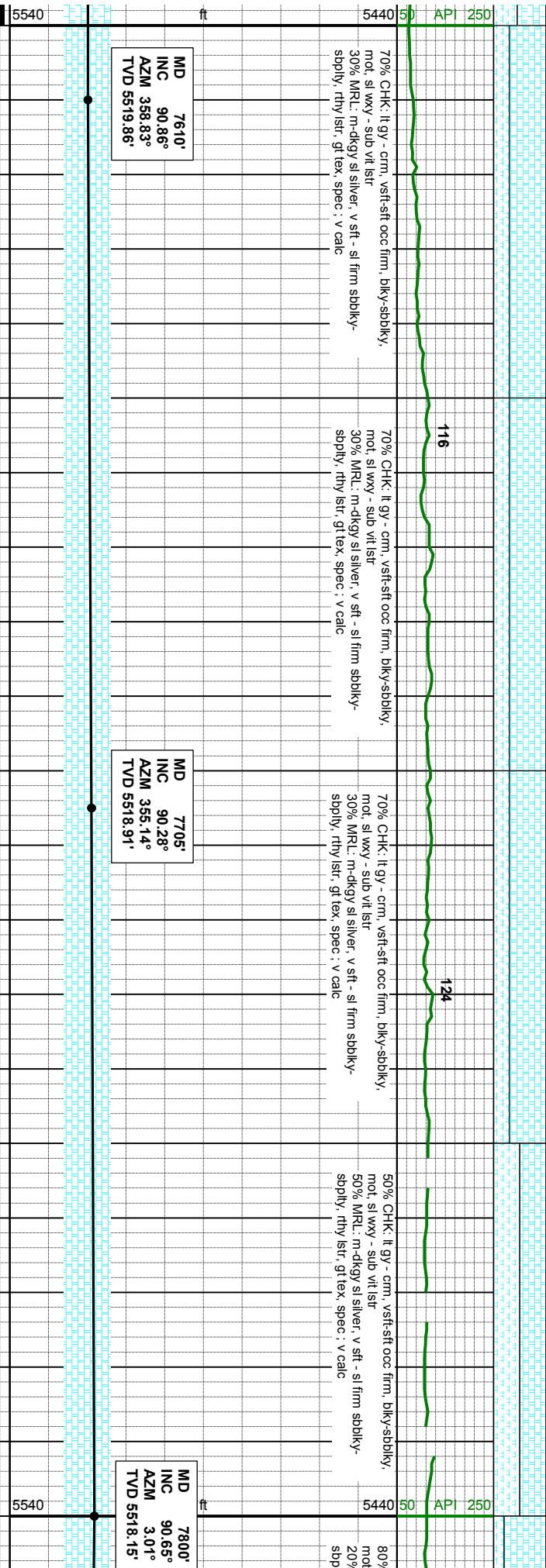
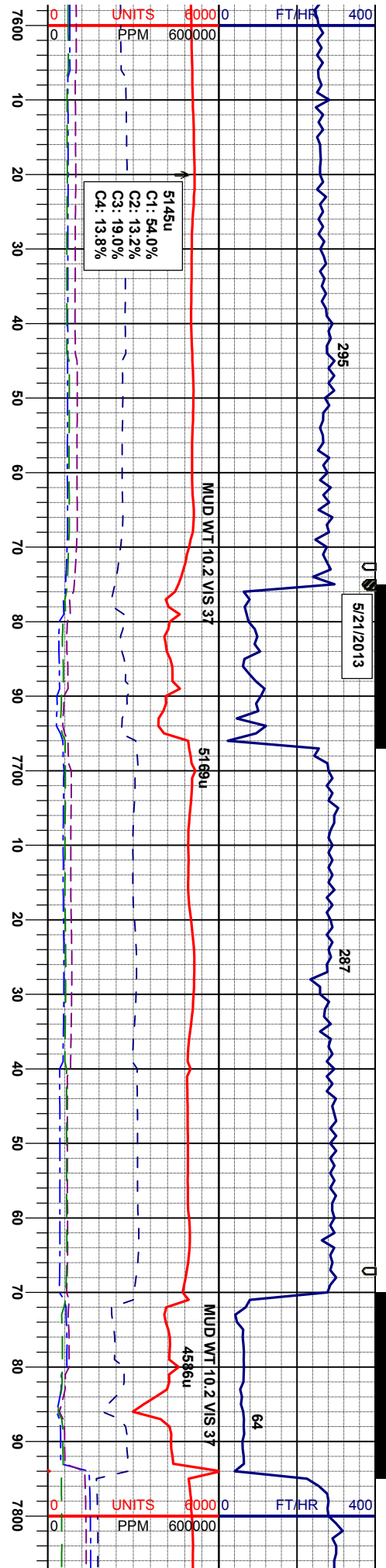
MD 70.41'
INC 88.89°
AZM 0.15°
TVD 5511.82'

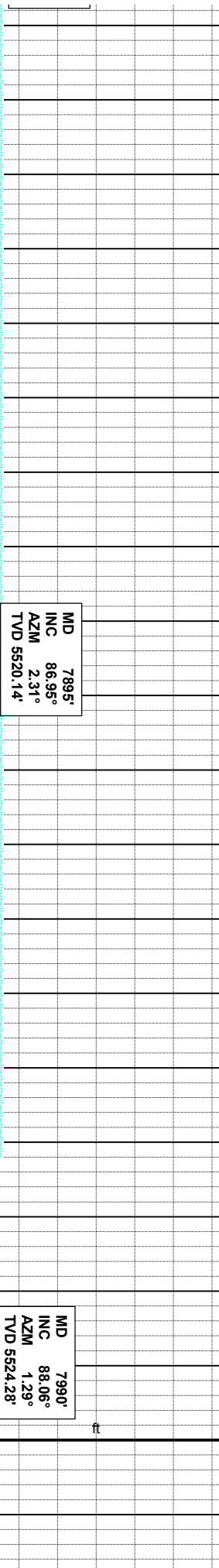
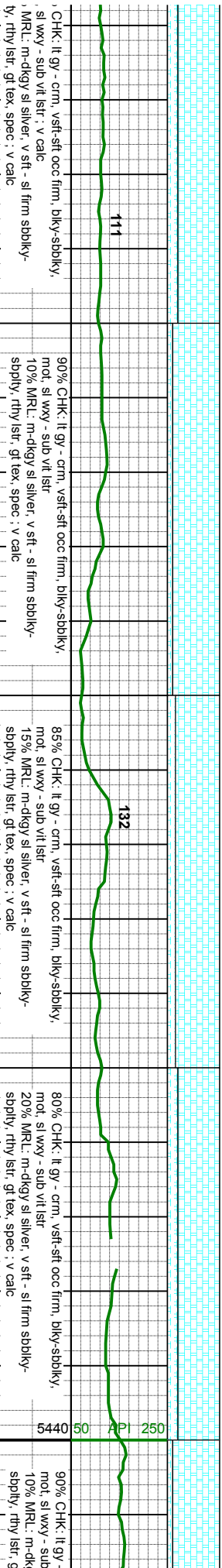
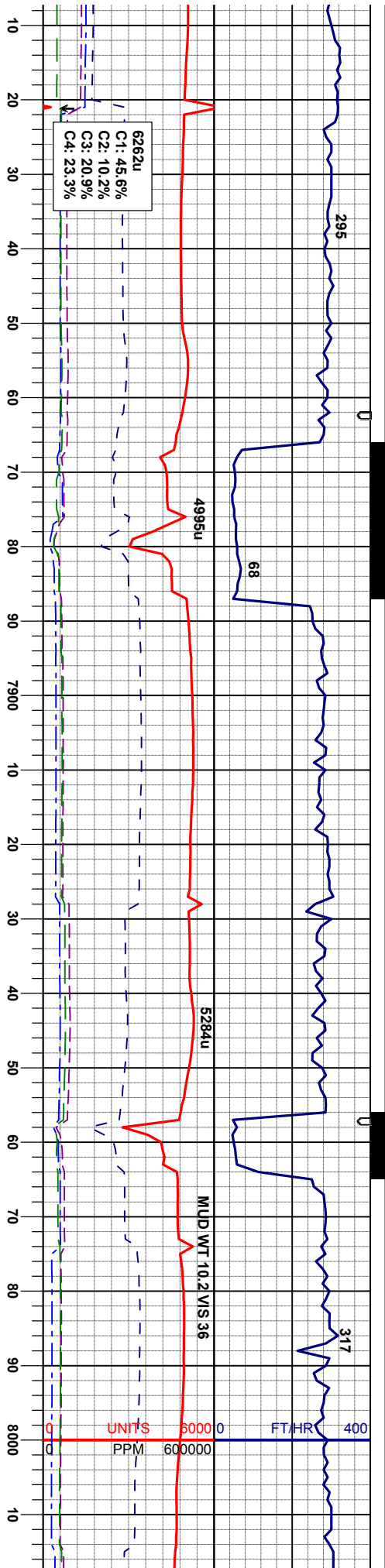
MD 71.35'
INC 87.50°
AZM 0.82°
TVD 5514.78'











MD 7990'
INC 88.06°
AZM 1.29°
TVD 5524.28'

5540

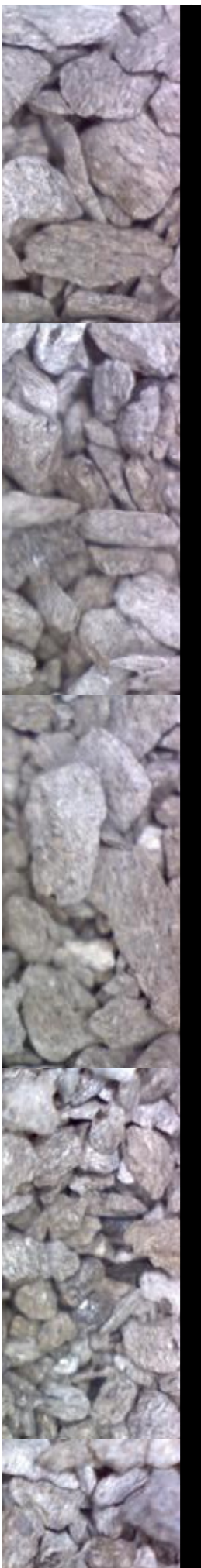
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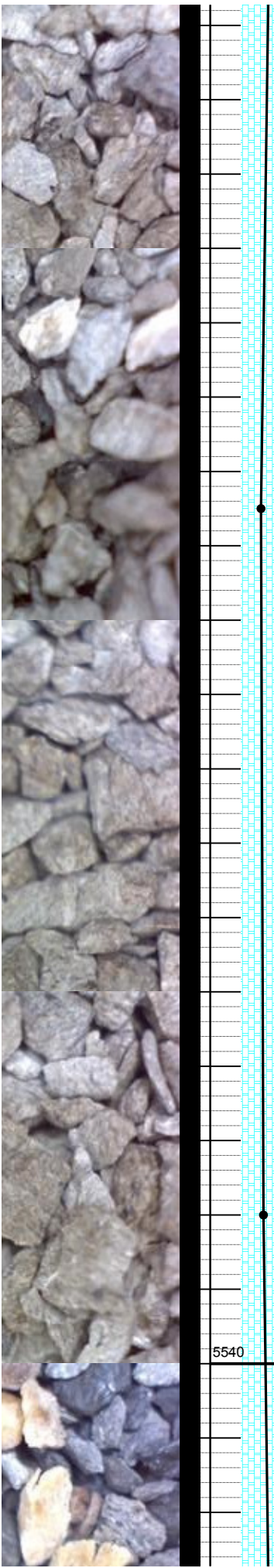
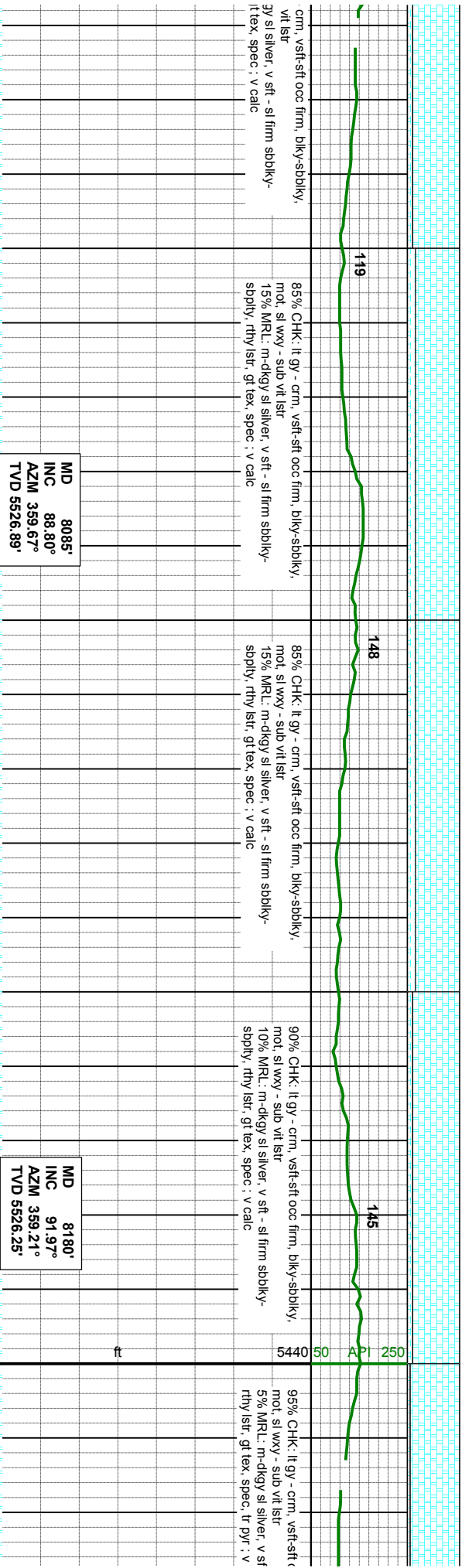
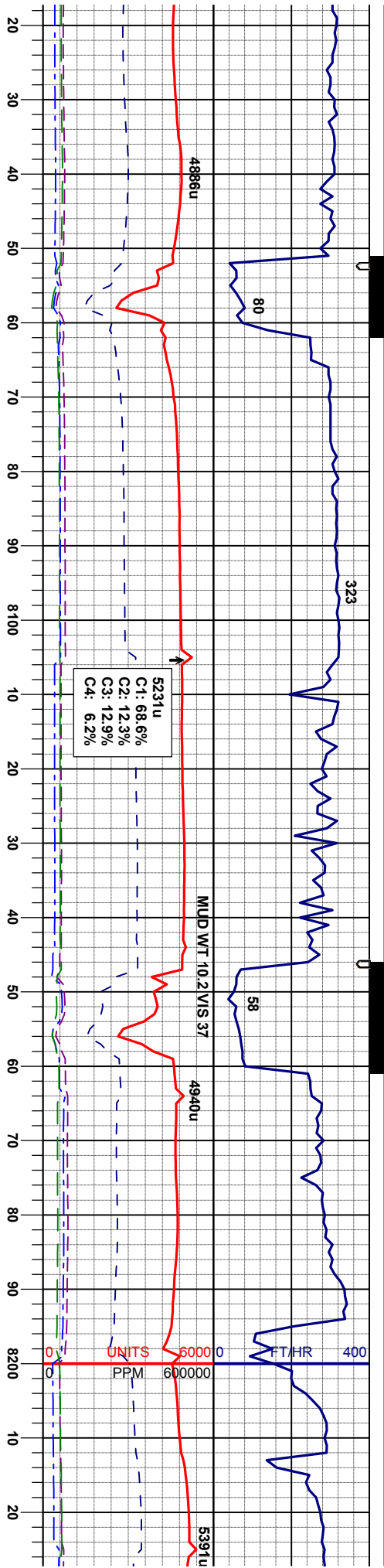
90% CHK: lt gy - crm, vsft-sft occ firm, bky-sbky,
mot, sl wxy - sub vit istr
10% MRL: m-dky sl silver, v sft - sl firm sbky-
sply, rthy istr, gt tex, spec : v calc

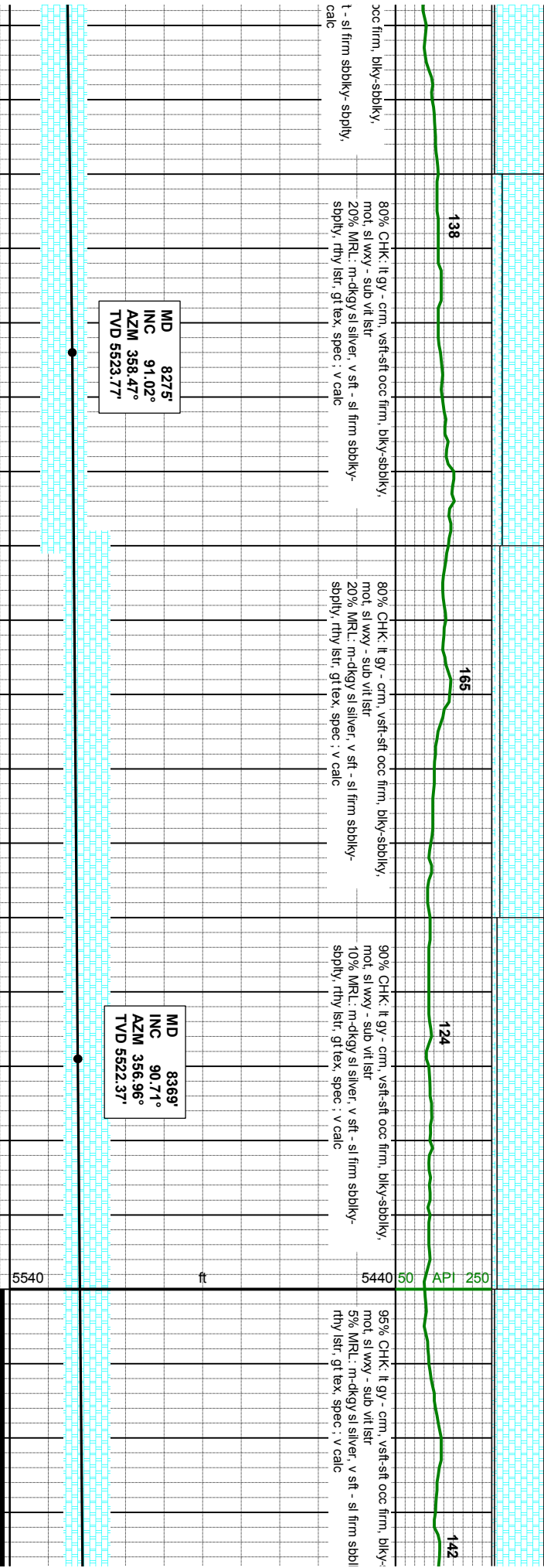
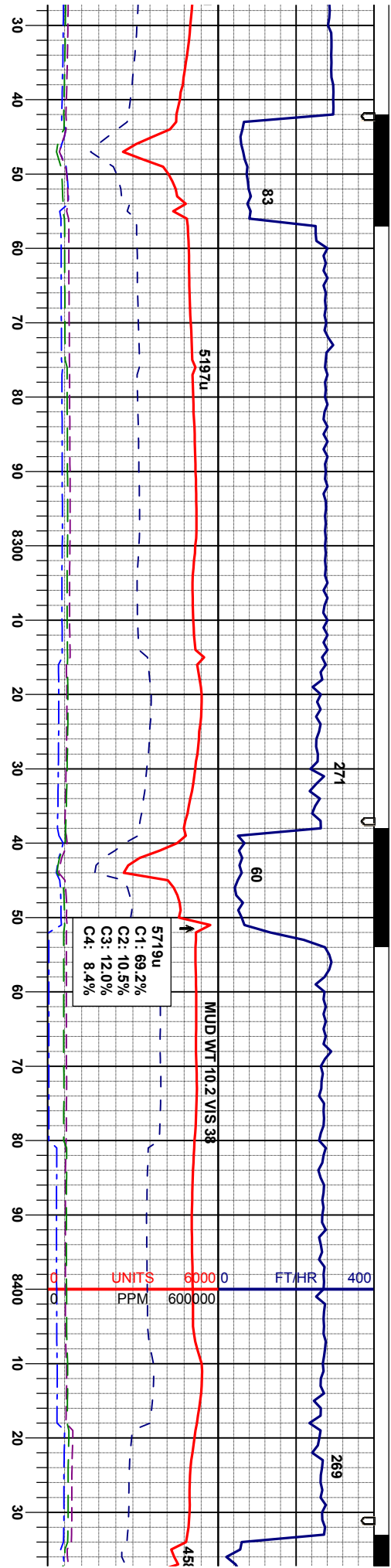
85% CHK: lt gy - crm, vsft-sft occ firm, bky-sbky,
mot, sl wxy - sub vit istr
15% MRL: m-dky sl silver, v sft - sl firm sbky-
sply, rthy istr, gt tex, spec : v calc

90% CHK: lt gy - crm, vsft-sft occ firm, bky-sbky,
mot, sl wxy - sub vit istr
10% MRL: m-dky sl silver, v sft - sl firm sbky-
sply, rthy istr, gt tex, spec : v calc

CHK: lt gy - crm, vsft-sft occ firm, bky-sbky,
sl wxy - sub vit istr : v calc
MRL: m-dky sl silver, v sft - sl firm sbky-
ly, rthy istr, gt tex, spec : v calc



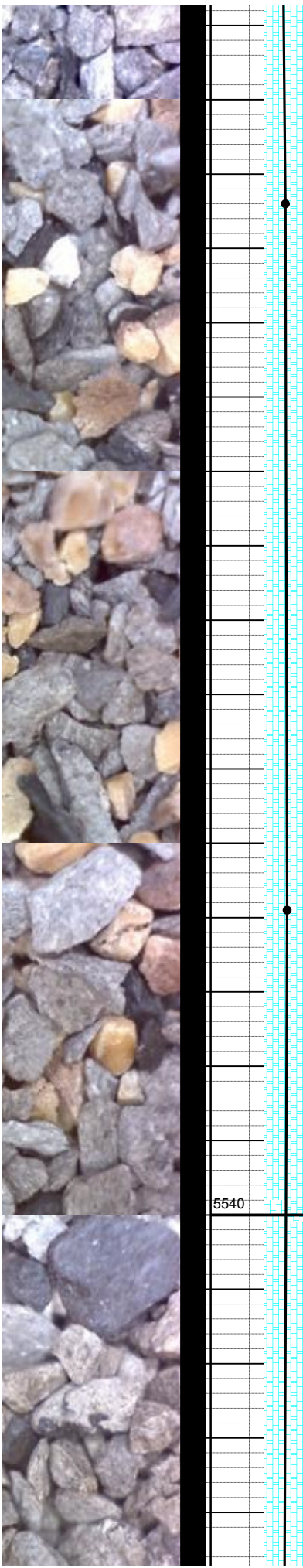
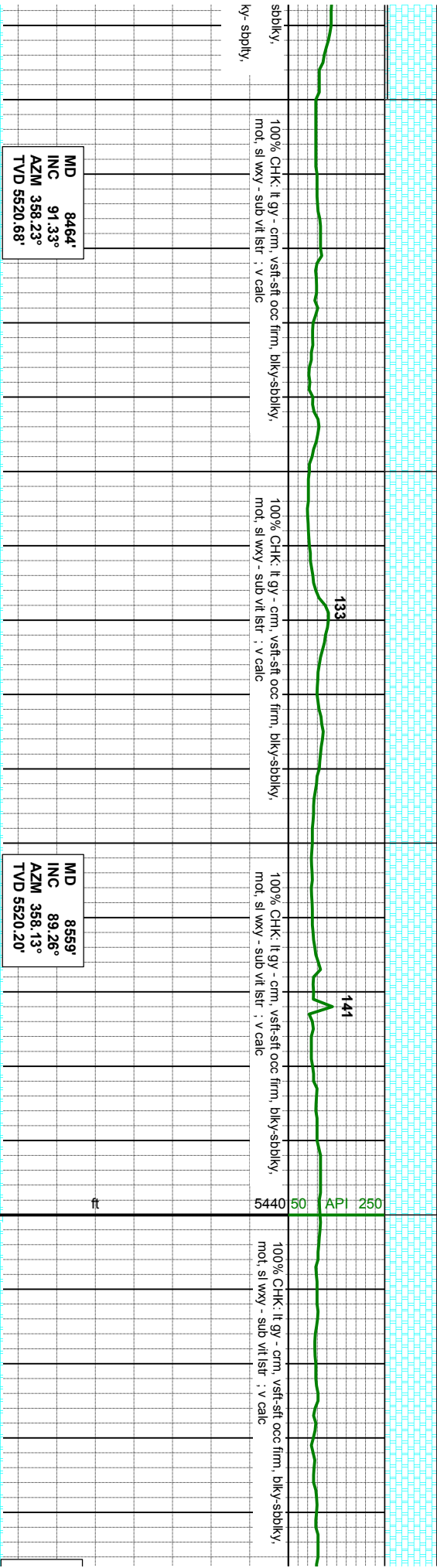
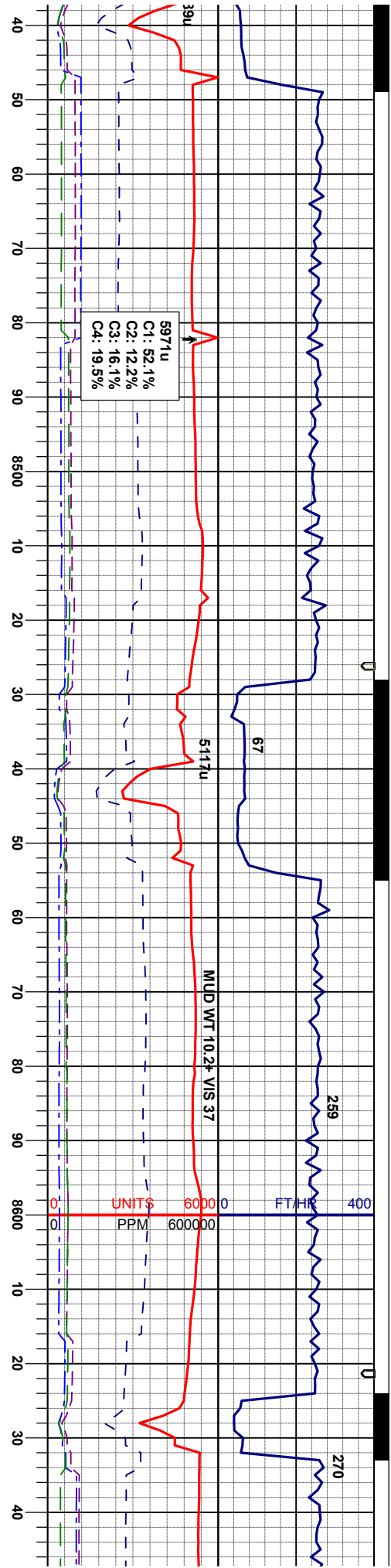


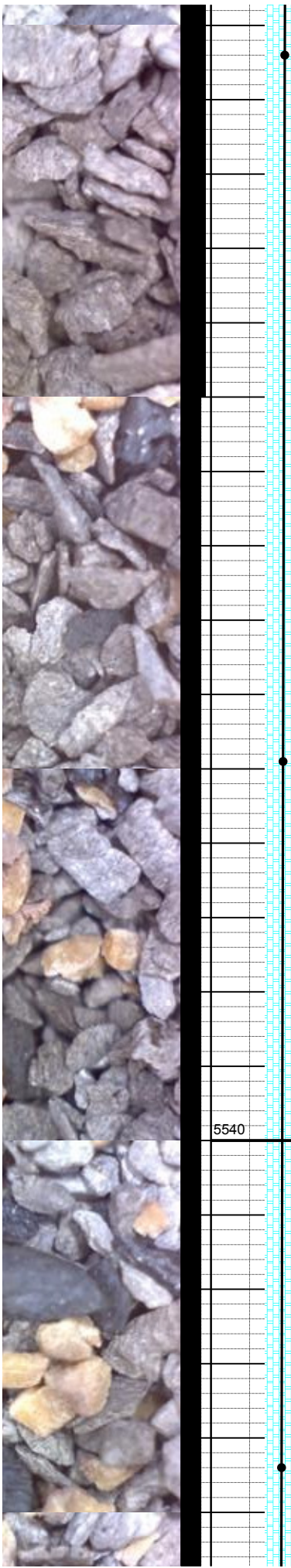
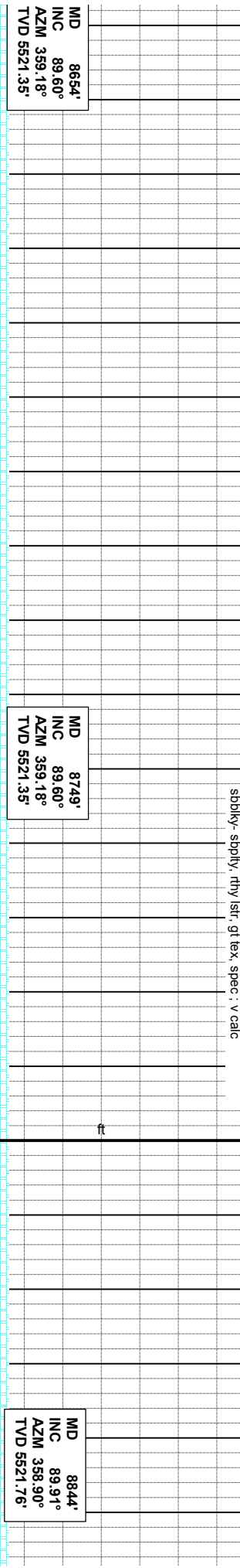
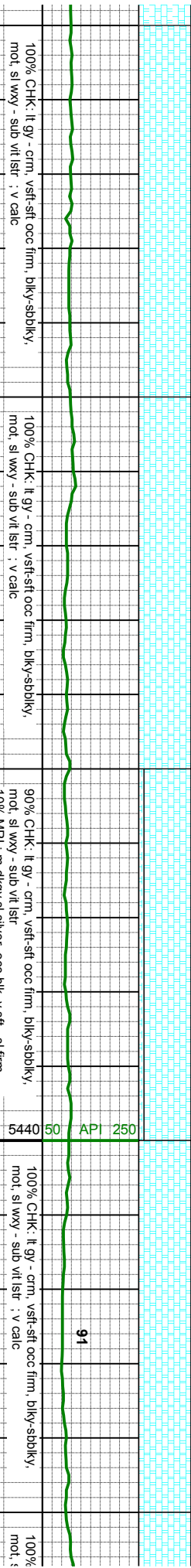
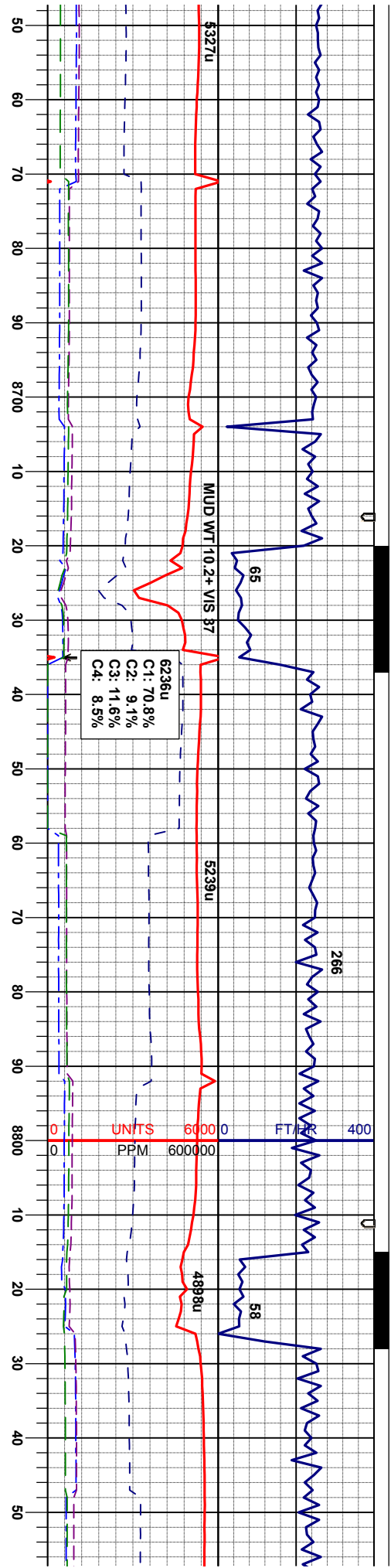


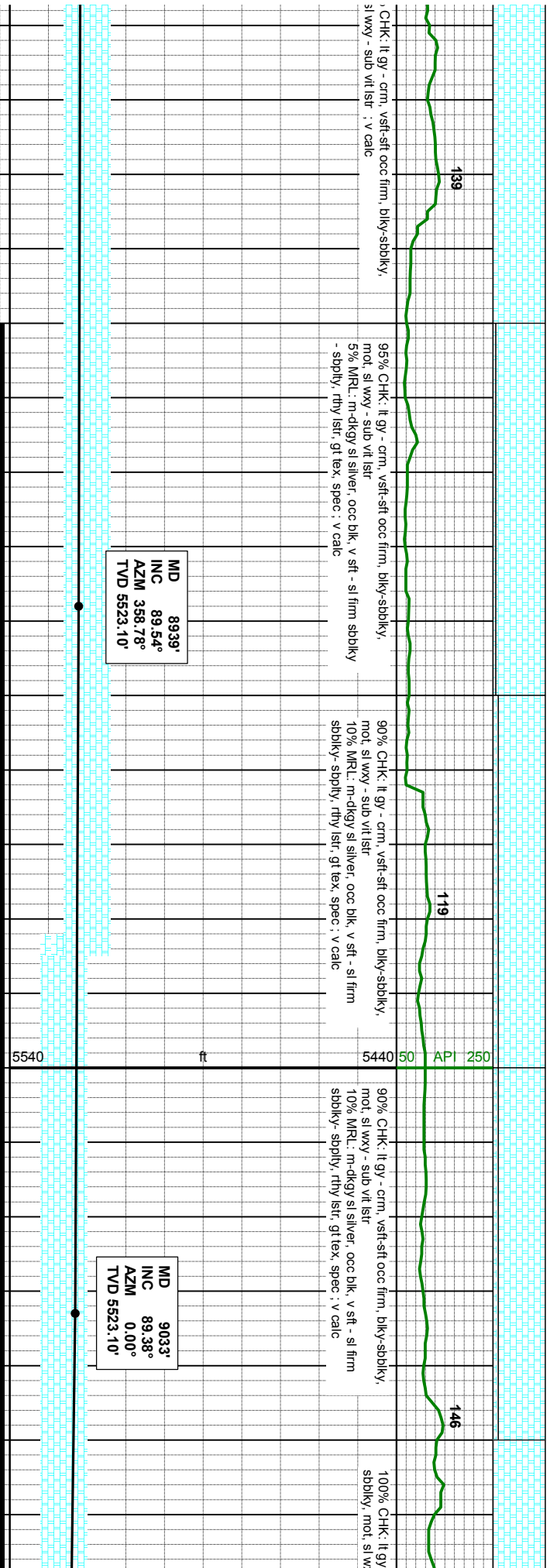
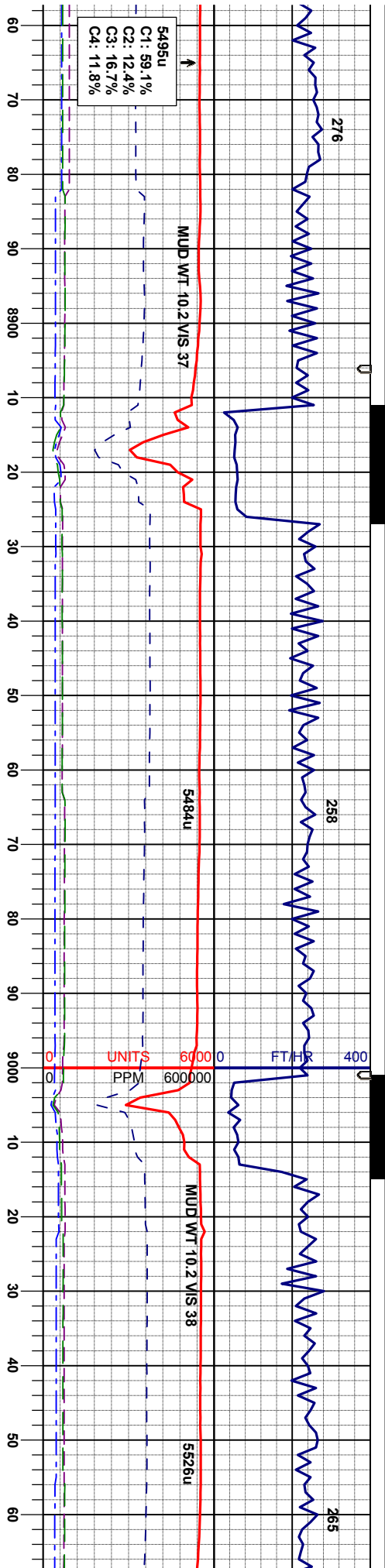
MD 8275'
INC 91.02°
AZM 358.47°
TVD 5523.77'

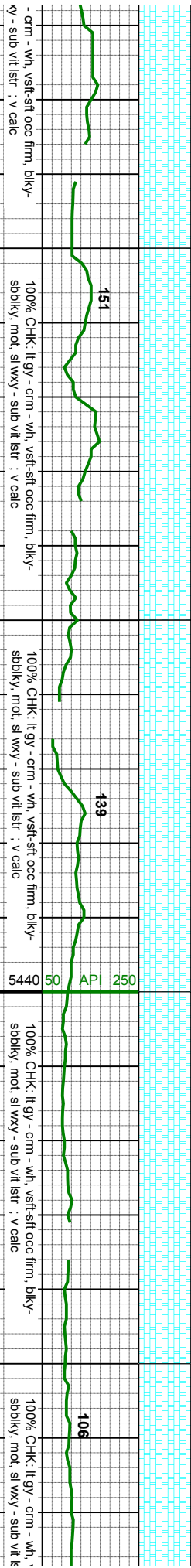
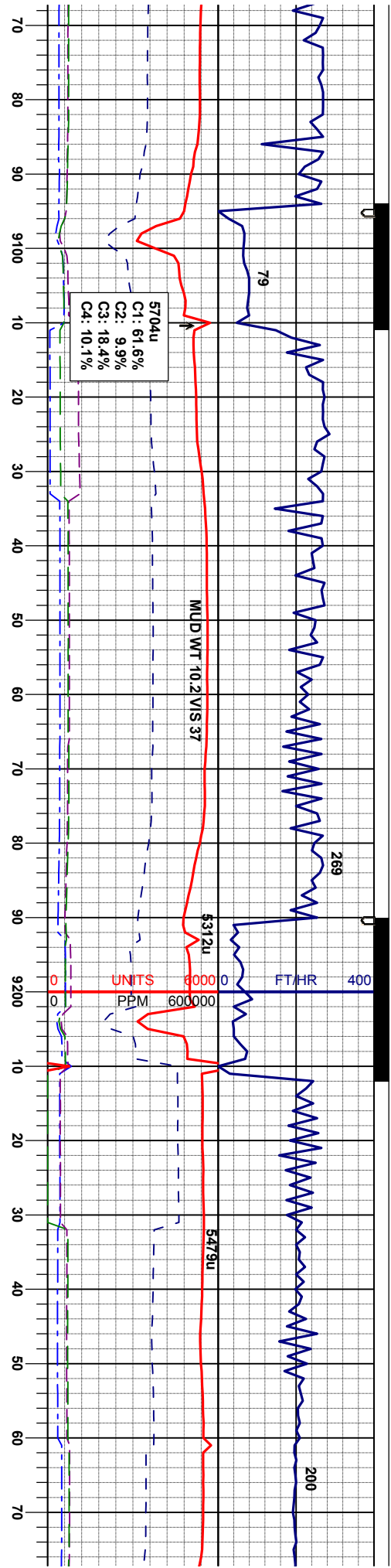
MD 8369'
INC 90.71°
AZM 356.96°
TVD 5522.37'







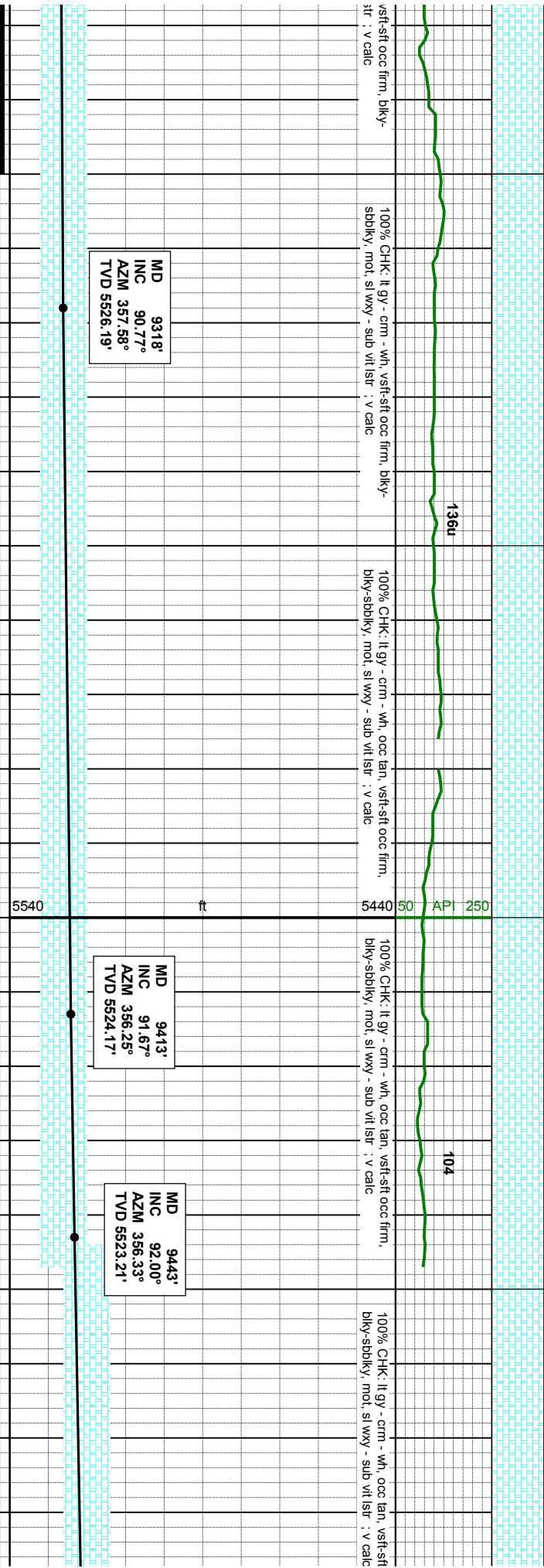
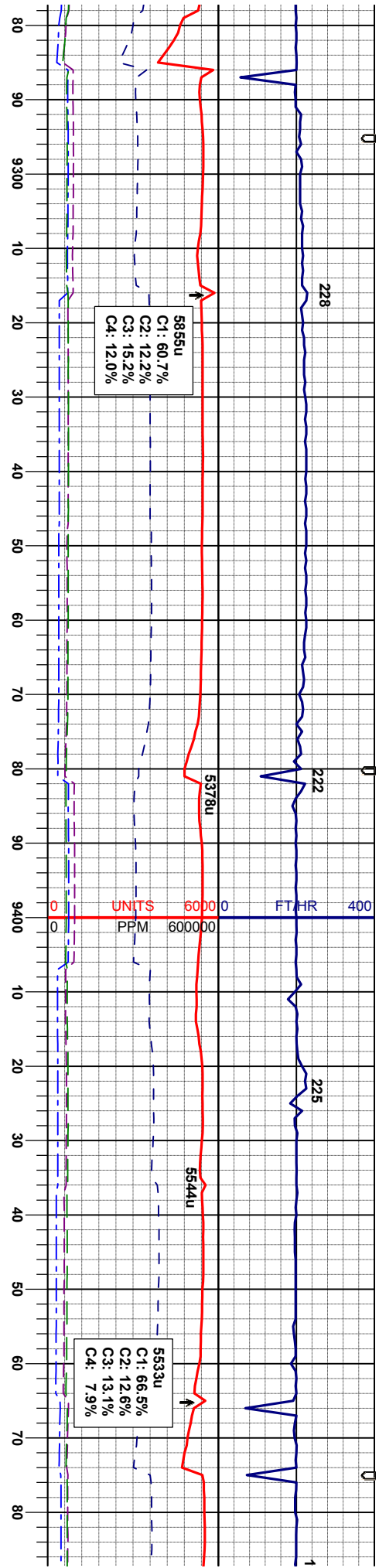


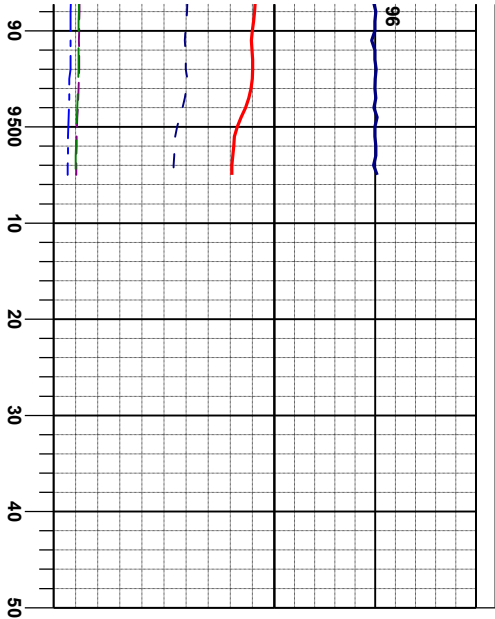



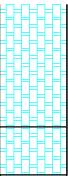
MD 9128'
INC 87.63°
AZM 359.63°
TVD 5625.58'

MD 9223'
INC 90.43°
AZM 358.08°
TVD 5627.19'









occ firm,

Thank you for choosing
Columbine Logging INC.

TD Well @ 9505' MD
16:20 hrs 5/21/2013

PROJ. TO BIT
MD 9509'
INC 92.00°
AZM 356.33°
TVD 5520.99'

