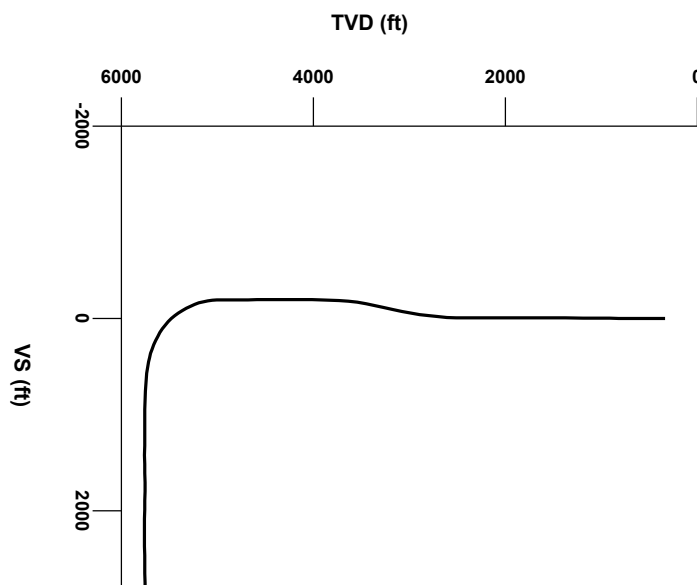


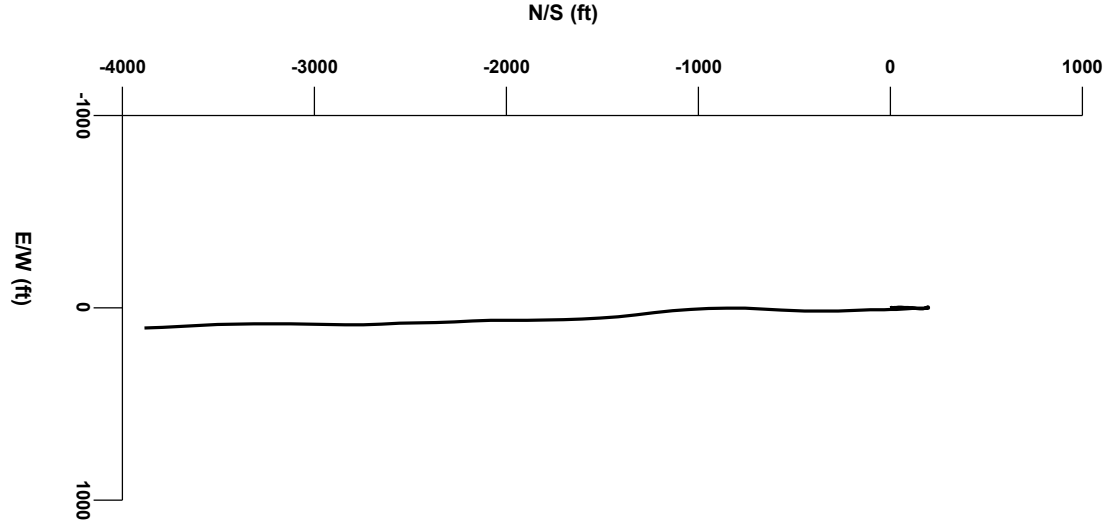
LOG created using Lplot VH Version 3.0, May 15, 2013, Copyright (C) 1999-2009 Pason Systems Corp.

OPERATOR: NOBLE ENERGY INC.
WELL: COOK STATE LD36-78HN
LOCATION: SEC 36 T9N R58W
COUNTY: WELD
STATE: COLORADO
SPOT: 250' FNL, 660' FWL
ELEVATION: GL: 4,744' KB: 4,768'
FIELD: WILDCAT
SPUD DATE: 5/6/2013
TD DATE: 5/12/2013
DATES LOGGED: 5/7/2013 - 5/12/2013
DEPTHS LOGGED: 1000' - 9977'
LOGGERS: JOHN T. READY, ANTHONY COX
DRILLING FLUID: WATER, MUD, POLY
DRILLING RIG: H&P 322
API: 05-123-36952
LOG TYPE: HORIZONTAL
SCALE: 1:240 (5 inches per 100 feet)
REMARKS: WELLSITE GEOLOGICAL SERVICES PROVIDED BY COLUMBINE LOGGING INC.



Survey Elevation

Survey Plan



4000

Chalk

Marl

Silty Shale

ENGINEERING SYMBOLS

▲

Casing

▲

Casing

⏏

Connection

⊗

Connection Gas

↱

Arrow

⚡

Midnight Depth

➡

Arrow

0

UNITS

2000

0

PPM

200000

0

PPM

200000

0

PPM

200000

0

PPM

200000

0

PPM

200000

DEPTH
(FEET)

4940

50

60

70

80

90

5000

10

20

30

40

50

60

ROP

FT/HR

400

184

89

Log Continued From:
Cook State LD36-78HN(VERT),ipilot

Resumed Drilling @ :4943' MD
04:32 hrs 5/9/2013

CHROMATAGRAPH
2027u

GAS LINE LEAK

REPAIRED GAS LINE

CUTTINGS
LITHOLOGY

50

API

250

137

50

API

250

100% SILTY SH. m gy-mg/bm occ v dk gy, firm -sft, sbdky - sdpity, rthy sl silty tex, hom

100% SILTY SH. m gy-mg/bm occ v dk gy, firm -sft, sbdky - sdpity, rthy sl silty tex, hom

100% SILTY SH. m gy-mg/bm occ v dk gy, firm -sft, sbdky - sdpity, rthy sl silty tex, hom

MD

INC

AZM

TVD

4976'

0.34°

260.01°

4960.02'

MD

INC

AZM

TVD

5023'

1.32°

148.20°

5007.02'

MI

IN

AZ

TV

TV

ft

5800

TV

ft

5800

TV

ft

5800

Oil Shows

TFG

5800

Oil Shows

TFG

5800

Oil Shows

TFG


5800


COLUMBINE LOGGING INC.
RIGGED UP ON 5/7/2013
MANNED 2-PERSON LOGGING
WITH BLOODHOUND GAS
CHROMATOGRAPH UNIT #0160


BHA #2
Bit: 8.750"
Manufacturer: NOV/ReedHycalog
Model: E1202
Serial Number: A174693
Nozzles: 5x15

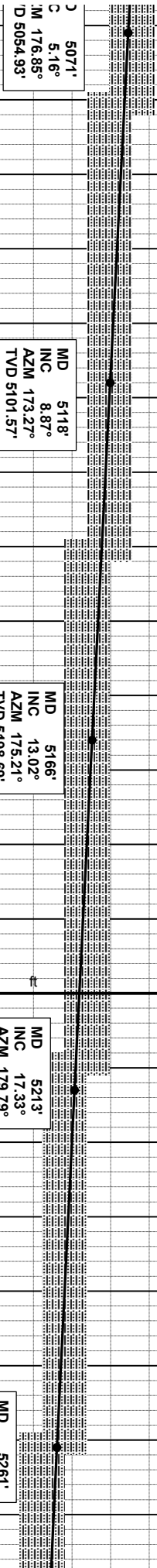
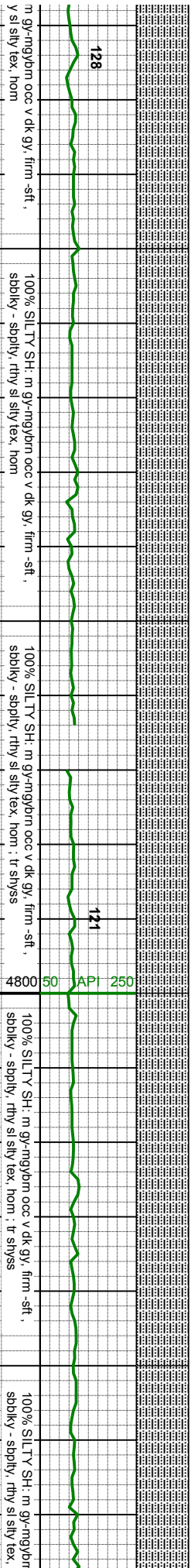
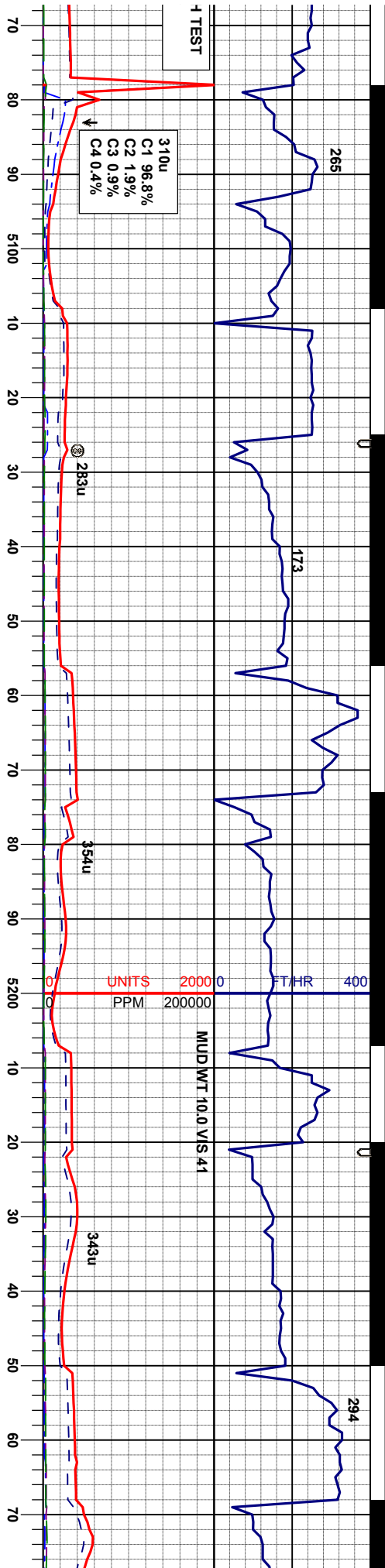
Motor: 6.75"
Manufacturer: SperryDrilling
Model: SperryDrill
Serial Number: 675-1200
Bend: 1.75

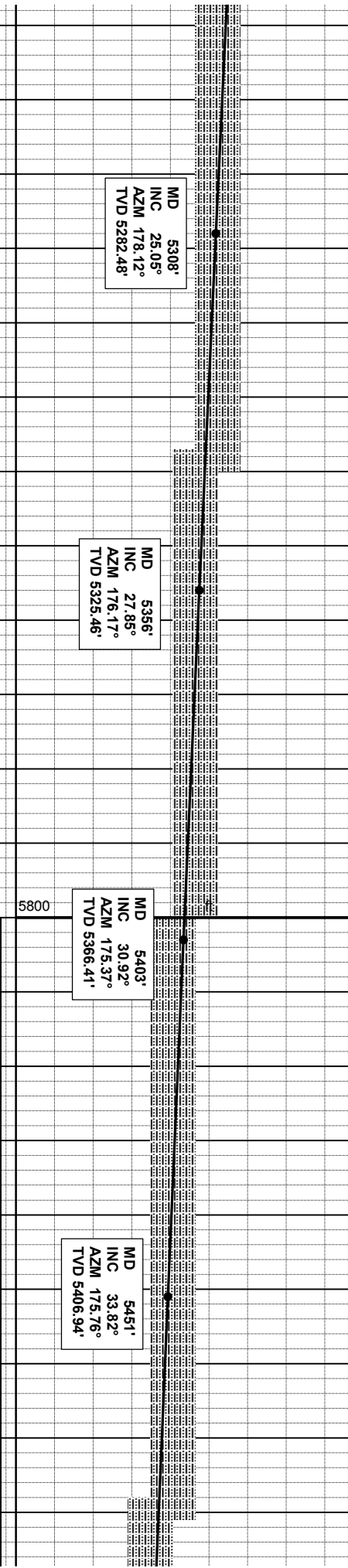
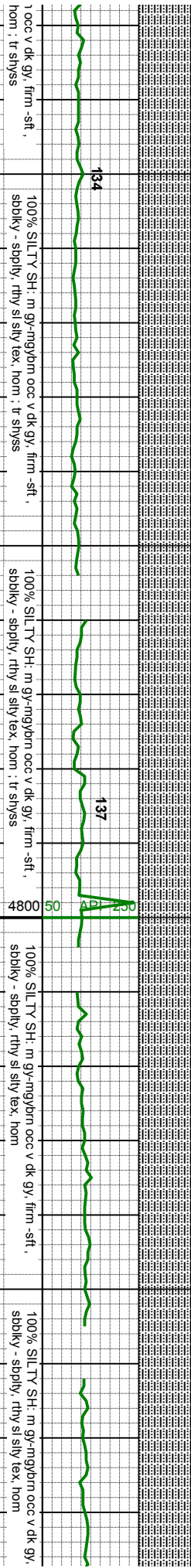
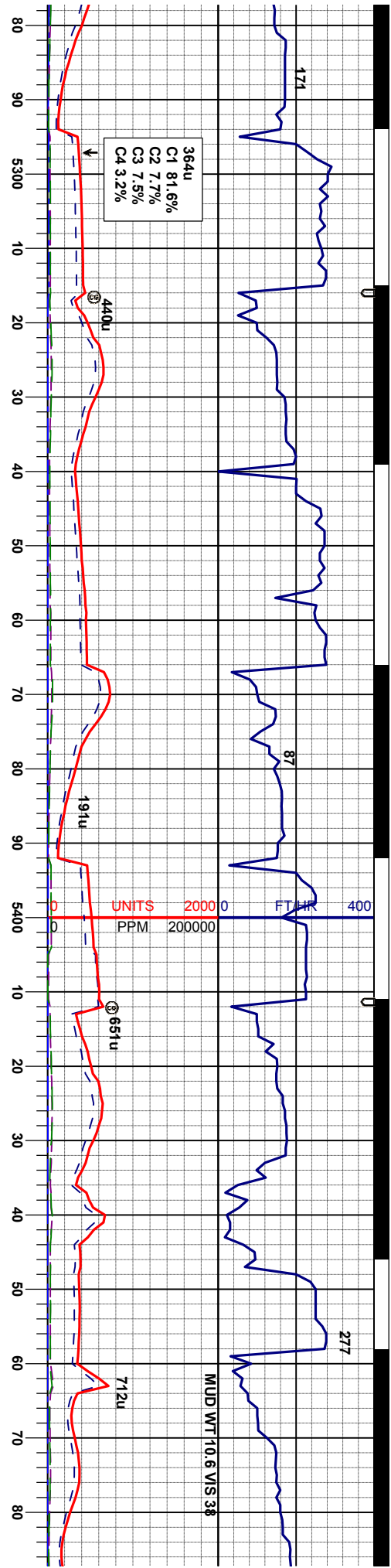
SAMPLE PHOTOS

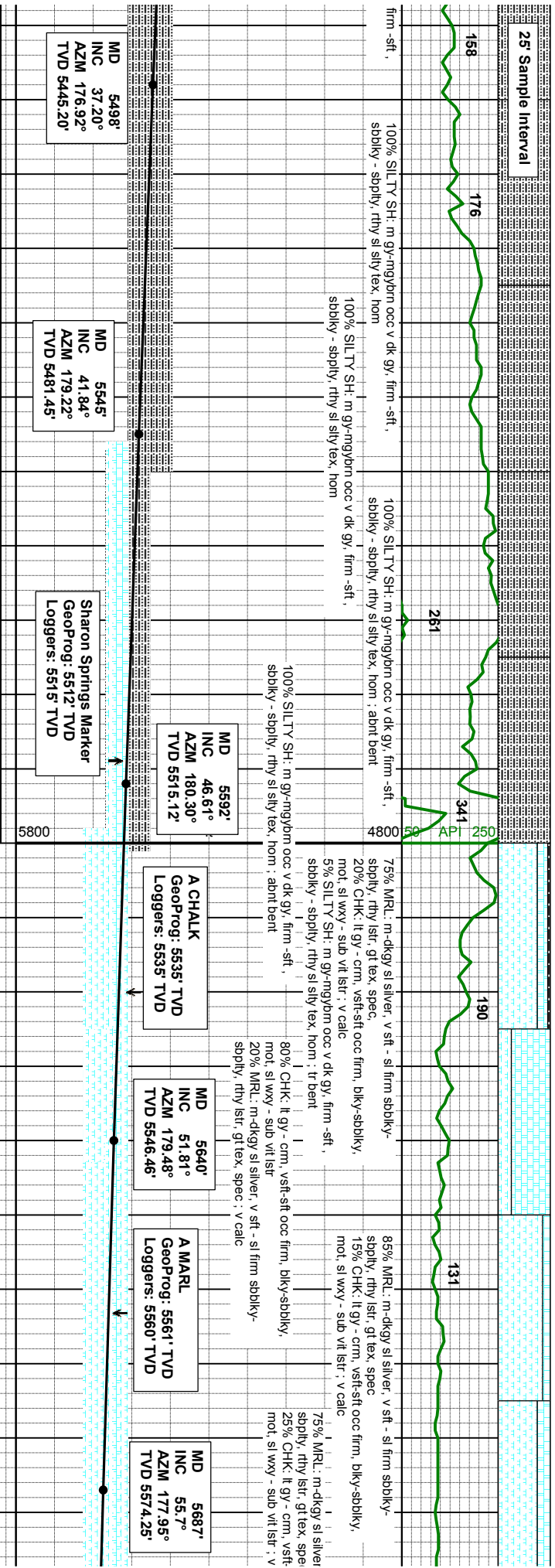
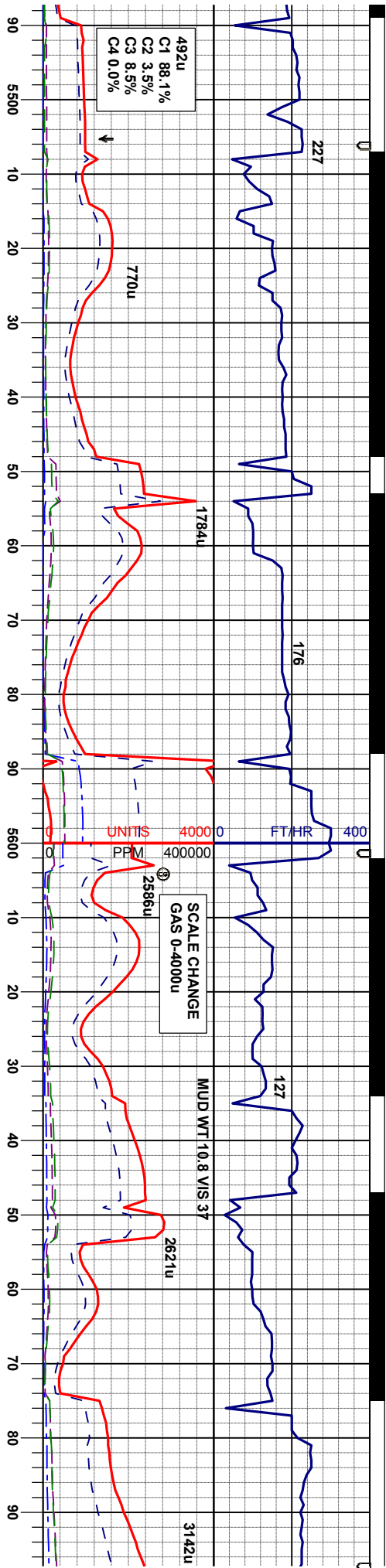


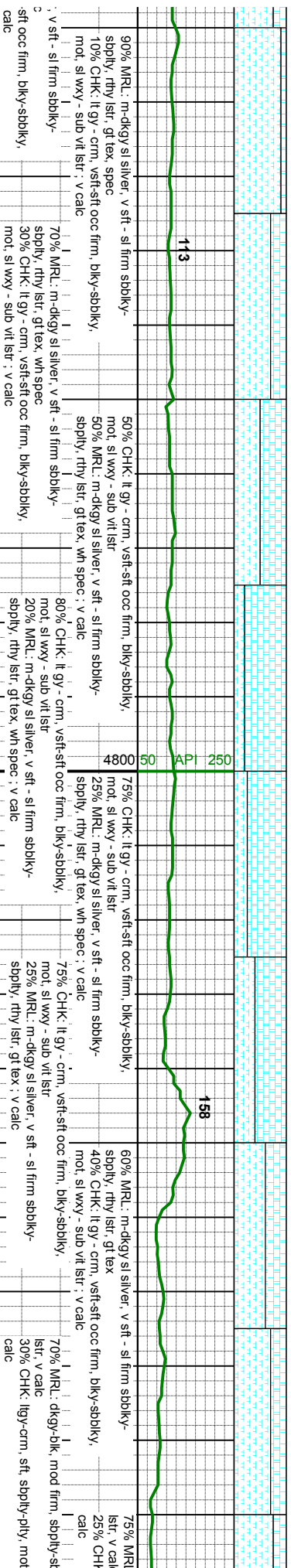
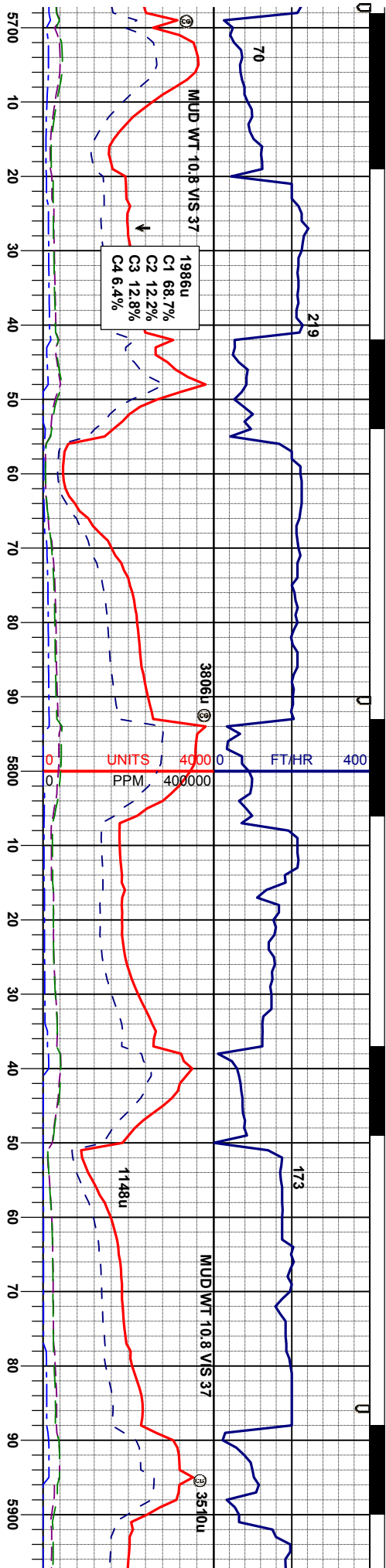












MD 5735'
INC 59.65°
AZM 177.17°
TVD 5599.91'

B CHALK
GeoProg: 5623' TVD
Loggers: 5618' TVD

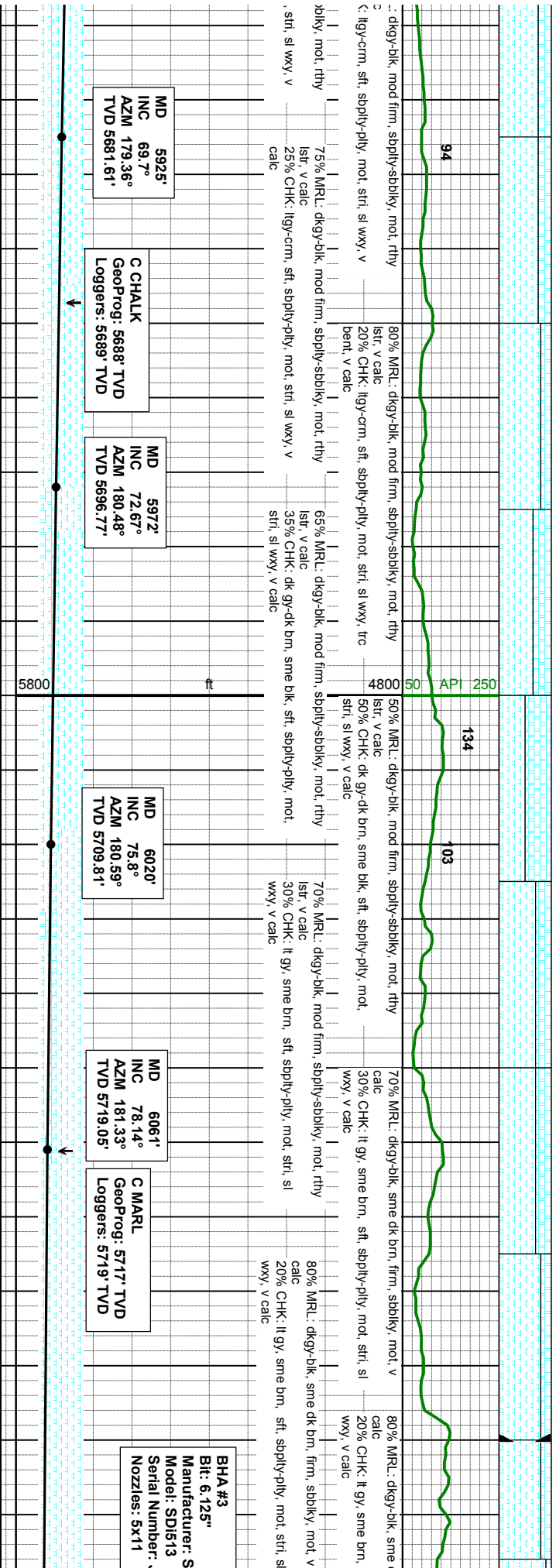
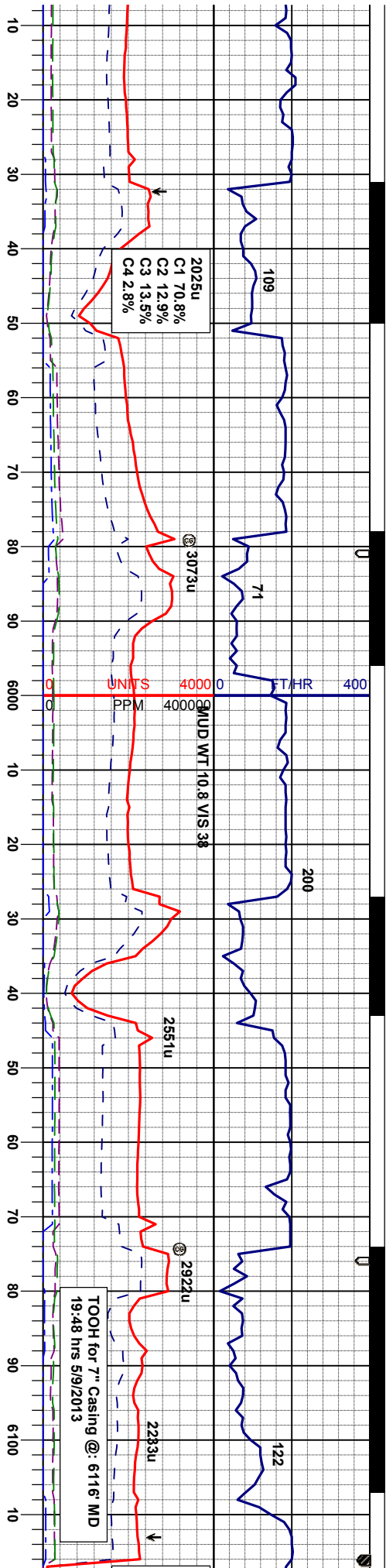
MD 5782'
INC 61.86°
AZM 177.39°
TVD 5622.87'

MD 5830'
INC 64.7°
AZM 178.16°
TVD 5644.45'

B MARL
GeoProg: 5653' TVD
Loggers: 5649' TVD

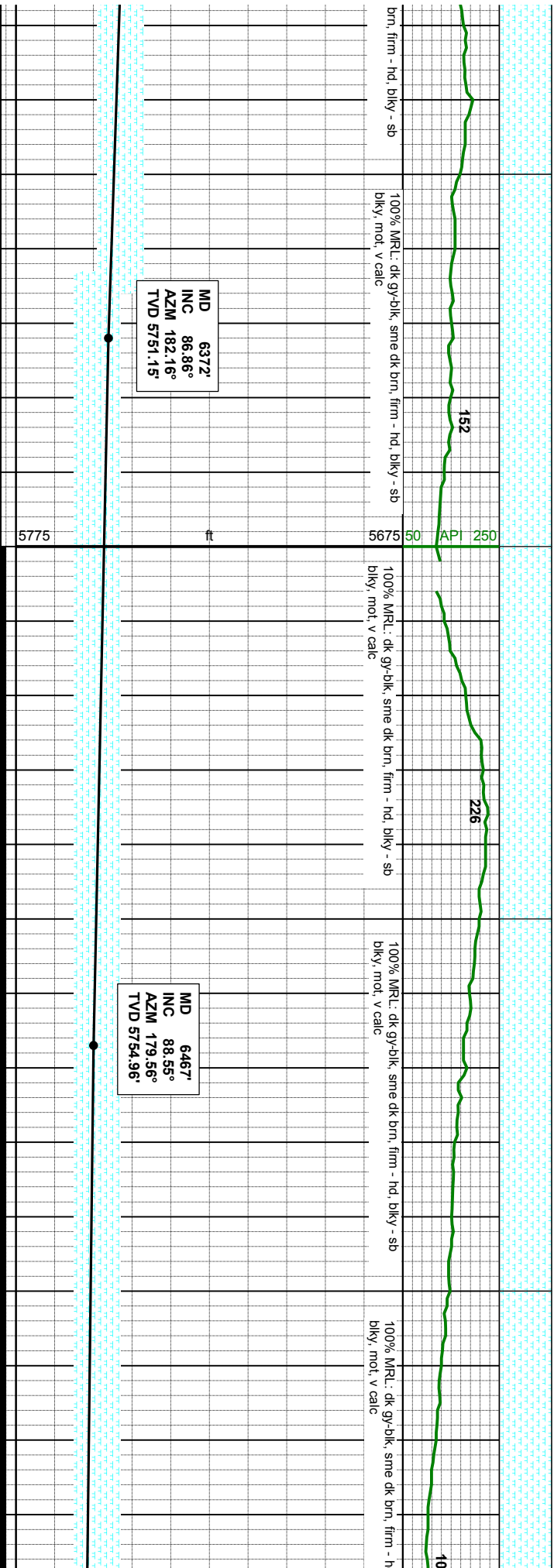
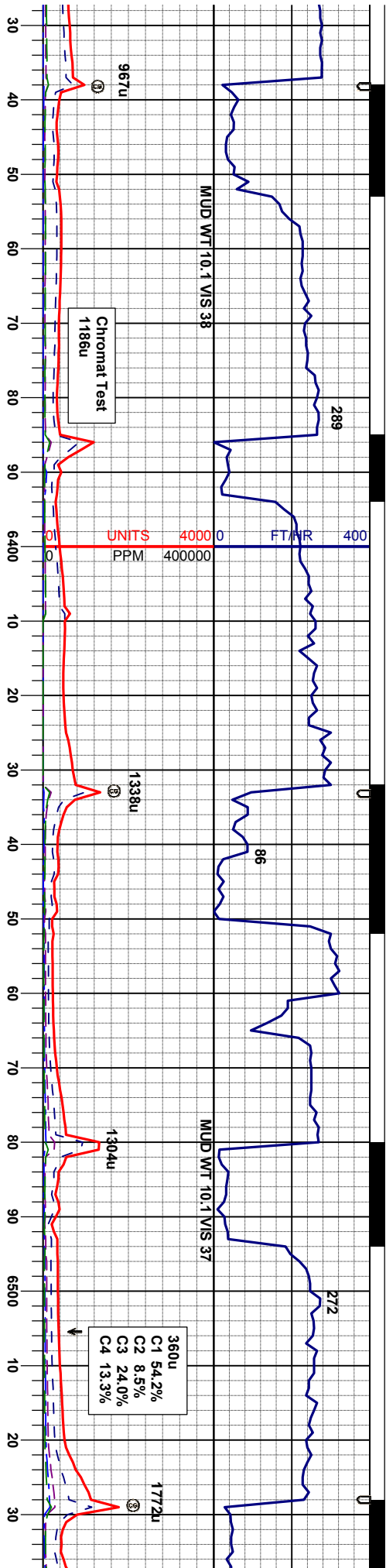
MD 5877'
INC 66.71°
AZM 178.79°
TVD 5663.79'

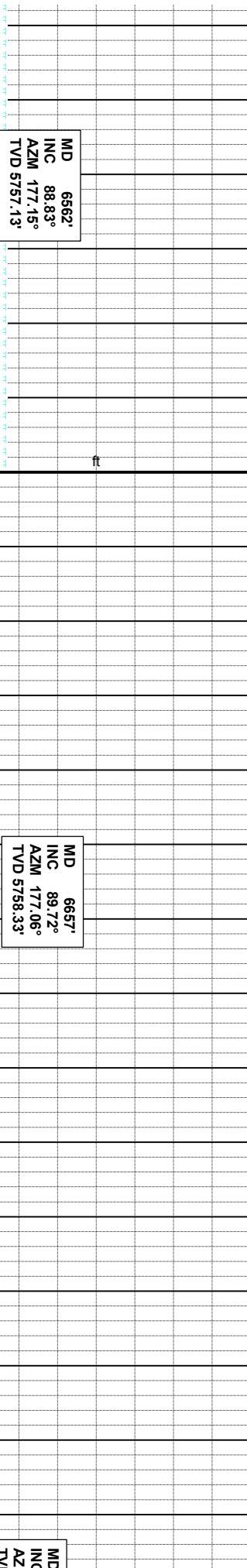
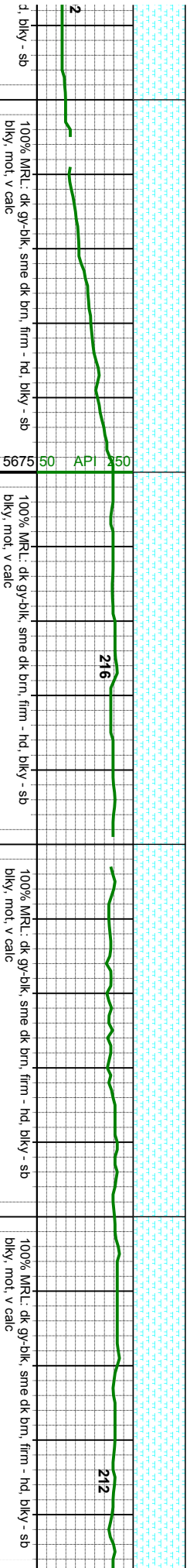
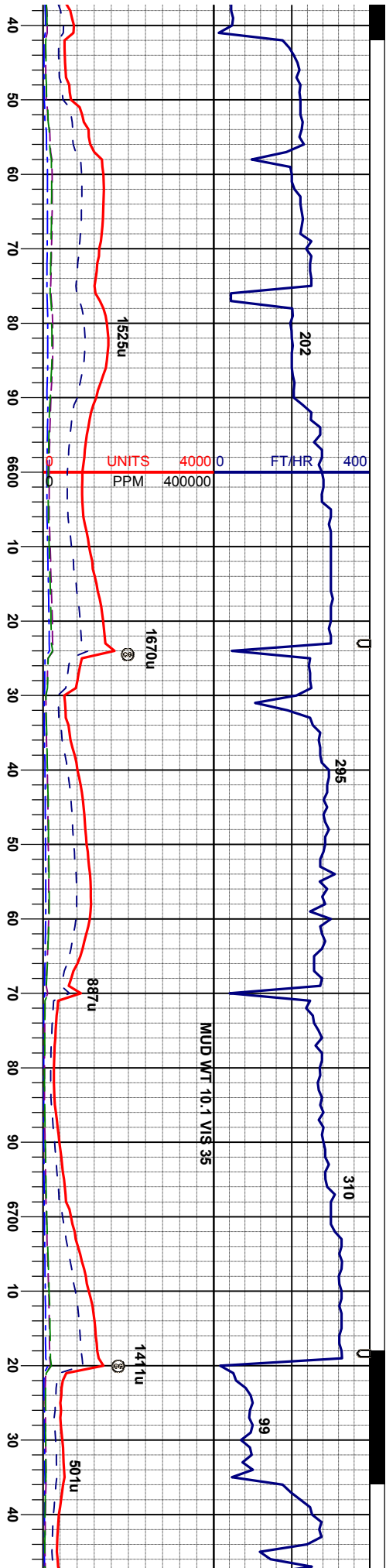






90% MRL: dk gy-blk, sme dk brn, firm - hd, bliky - sb
bliky, mot, v calc
10% CHK: lt gy - gy, sft-firm, sb plty, mot str, sl wxy, v
calc



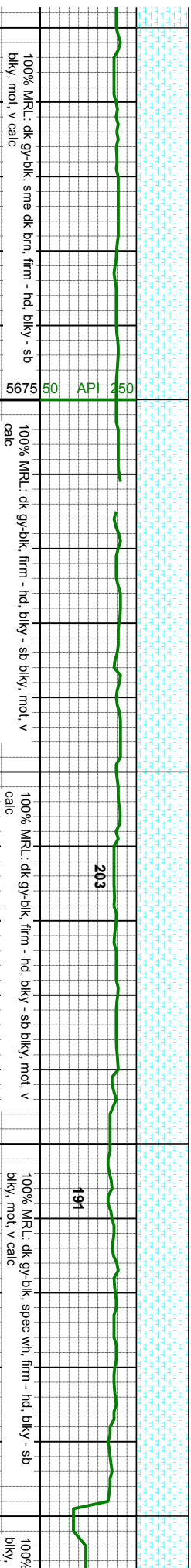


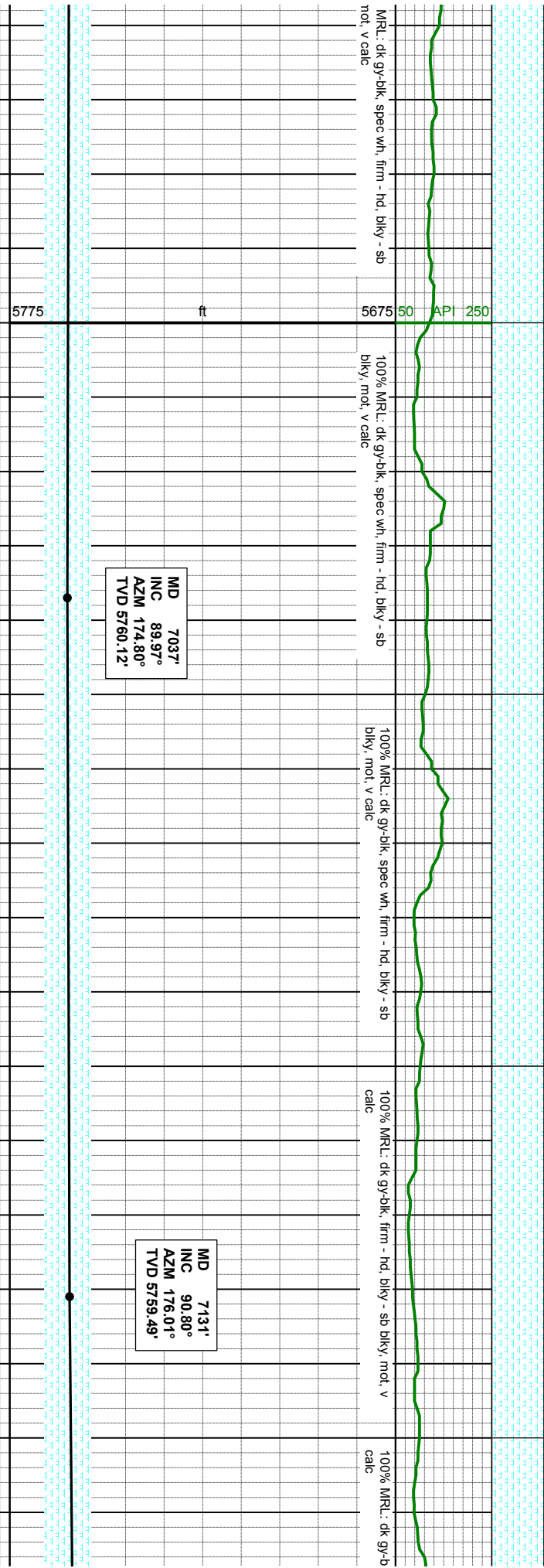
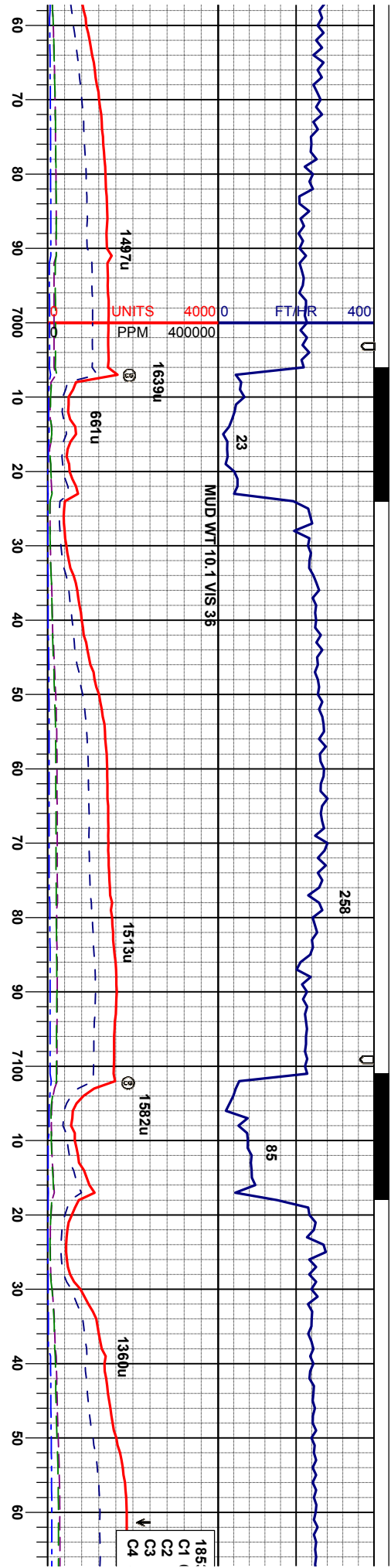
MD 6562'
INC 88.83°
AZM 177.15°
TVD 5757.13'

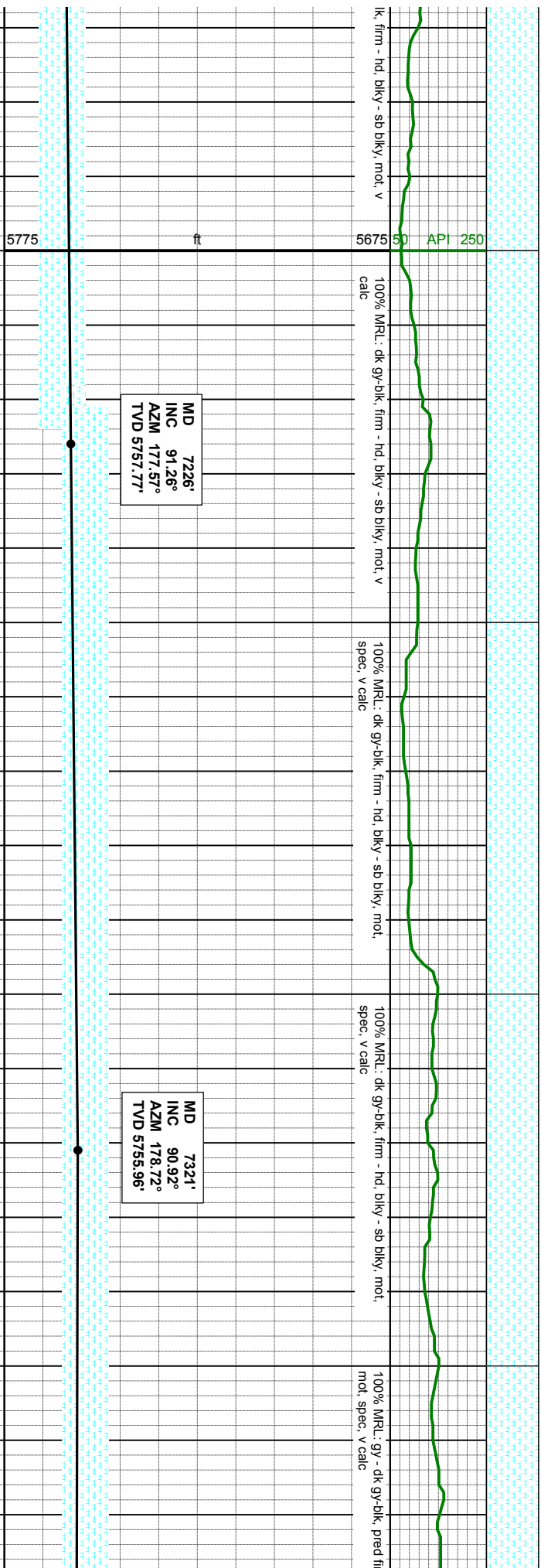
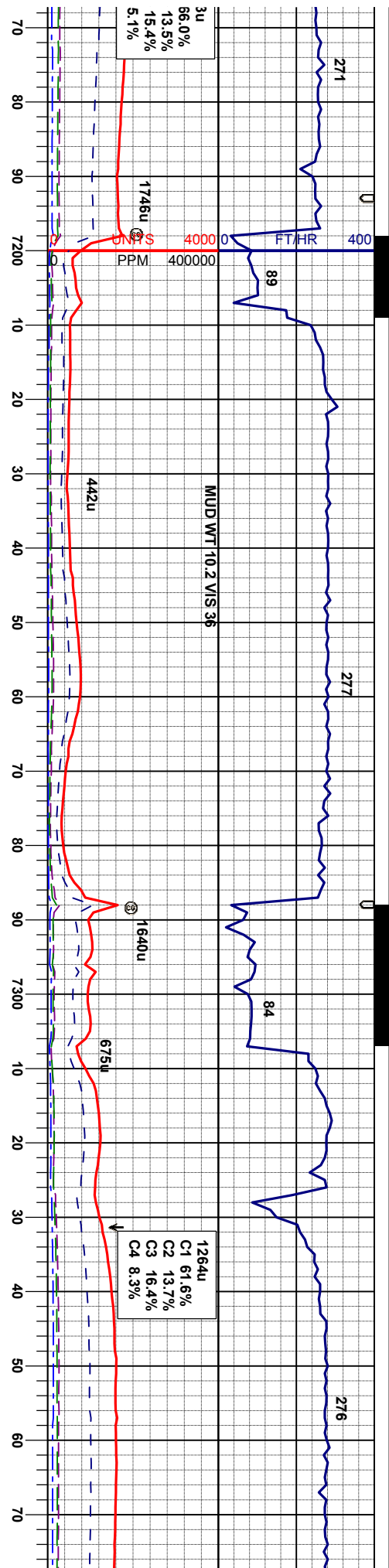
MD 6657'
INC 89.72°
AZM 177.06°
TVD 5758.33'

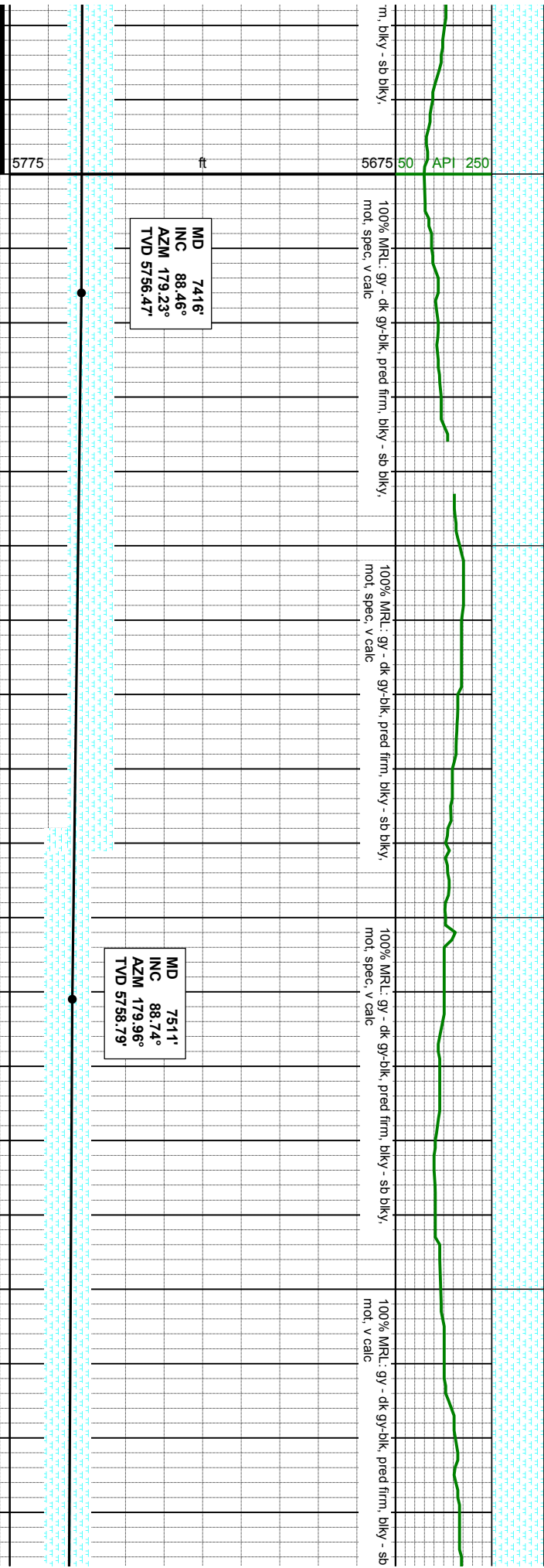
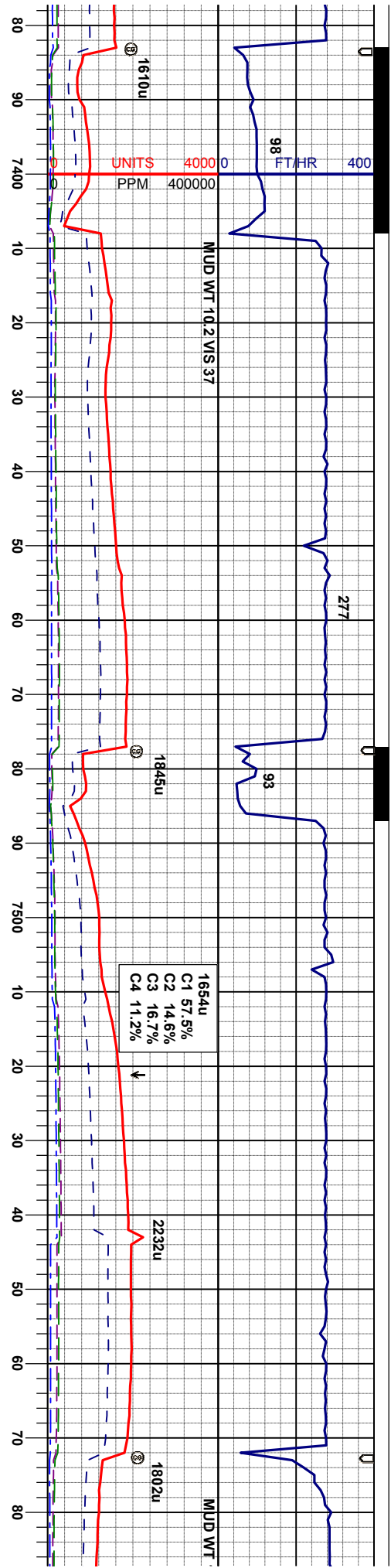
MD
INC
AZ
TV

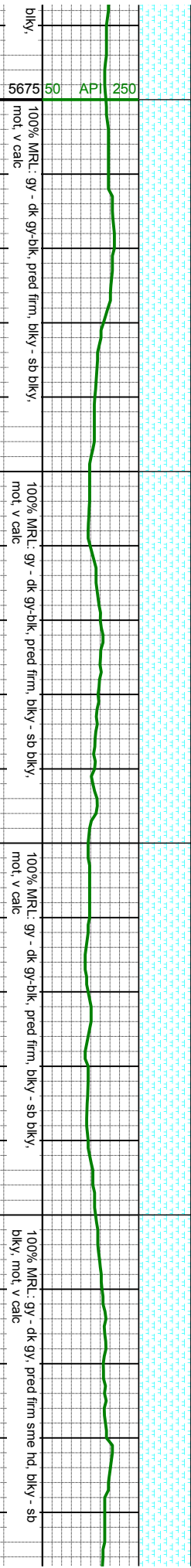
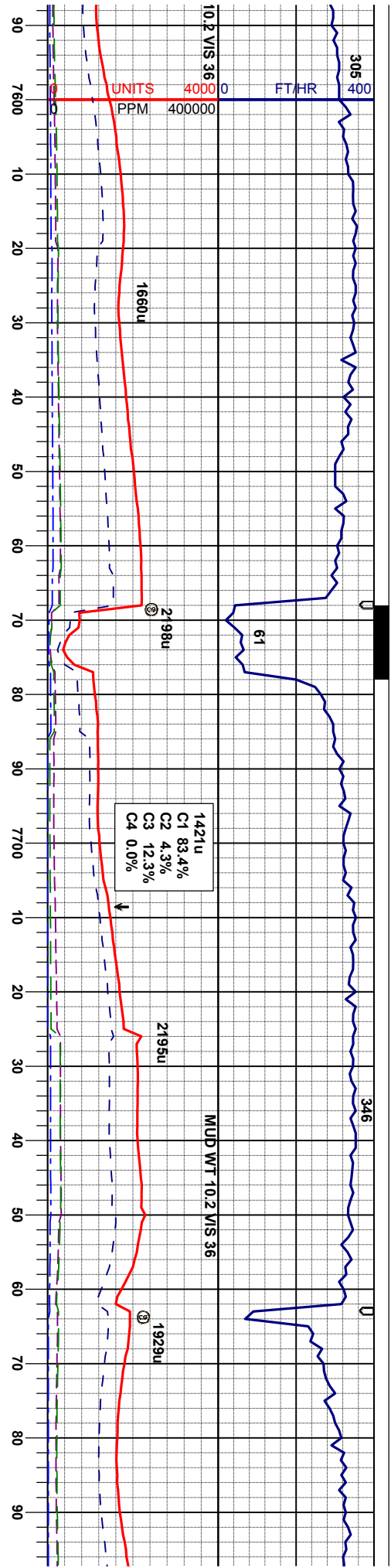








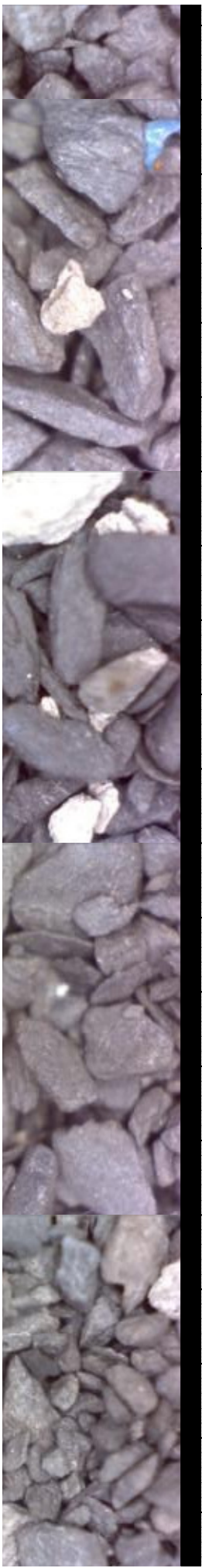


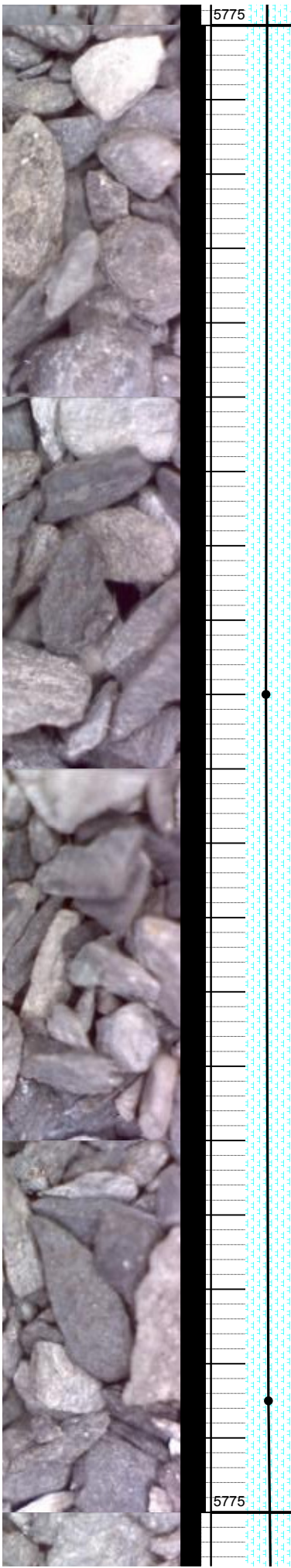
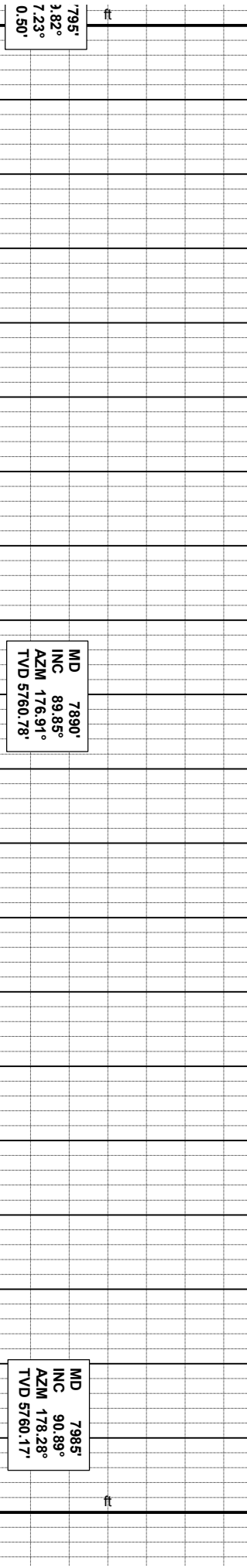
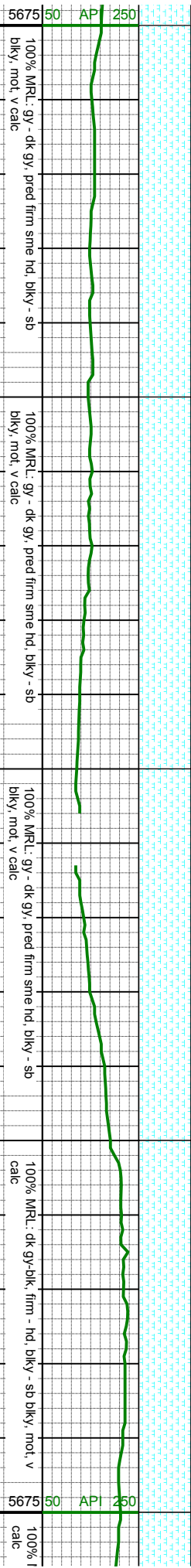
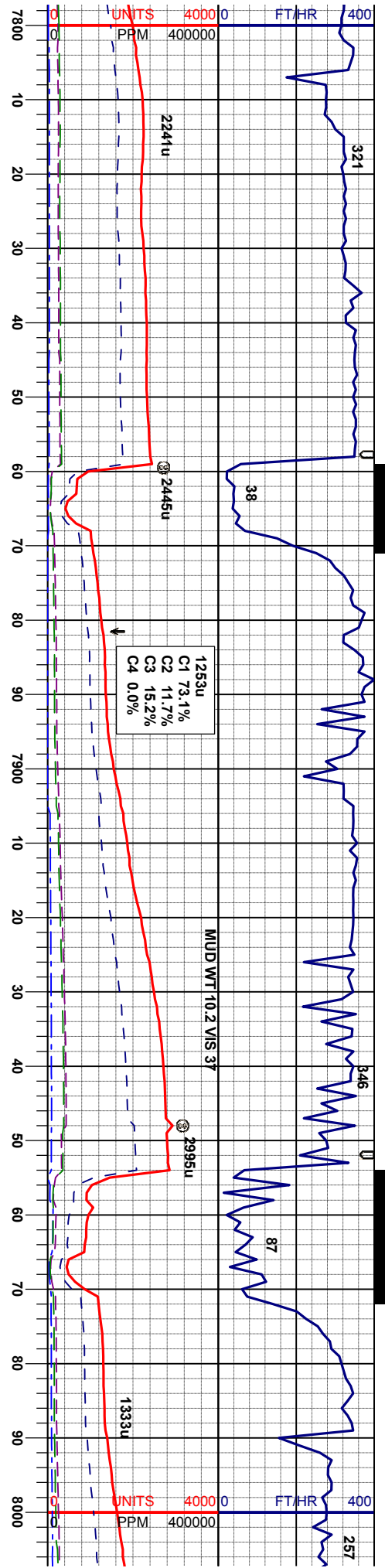


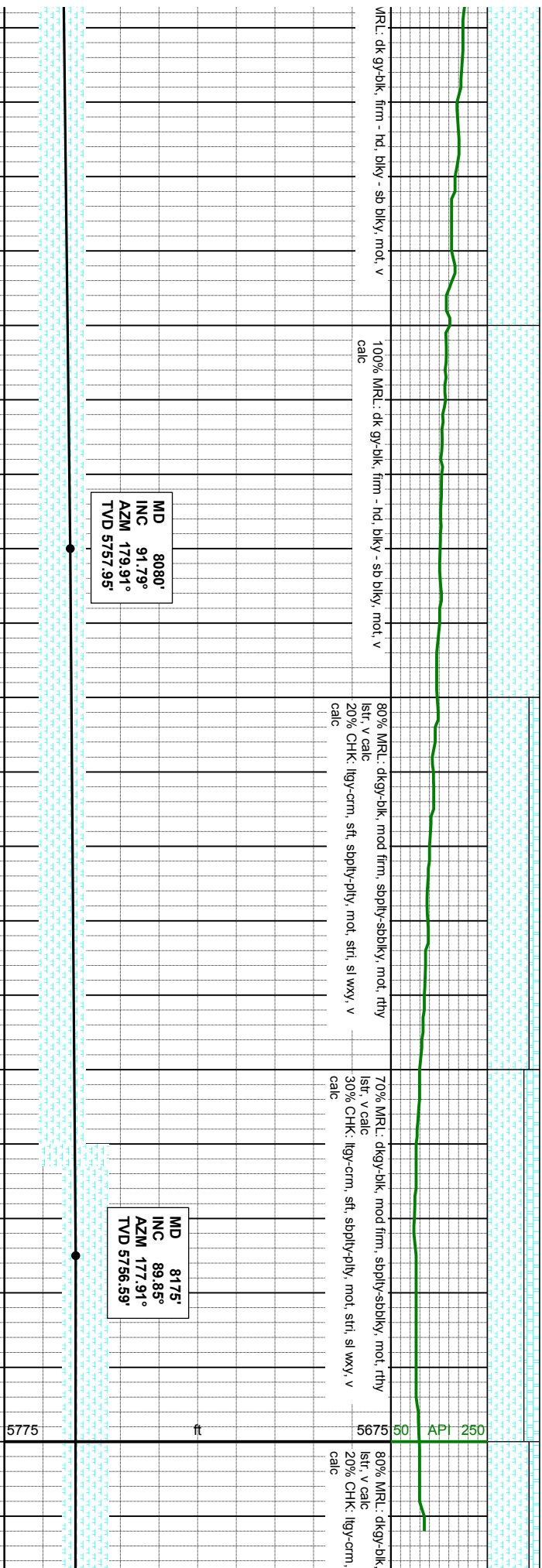
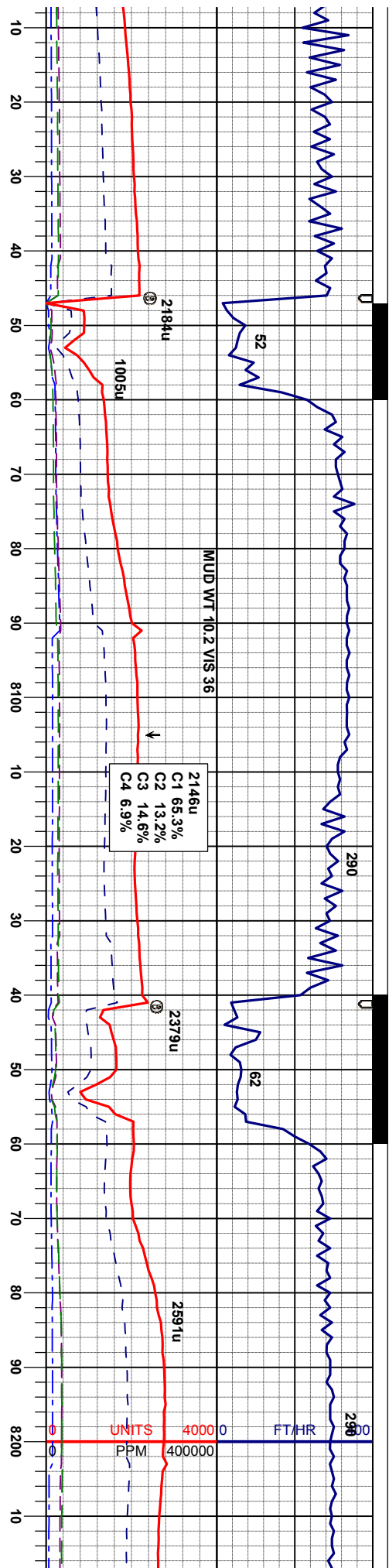
MD 7606'
INC 90.03°
AZM 180.06°
TVD 5759.82'

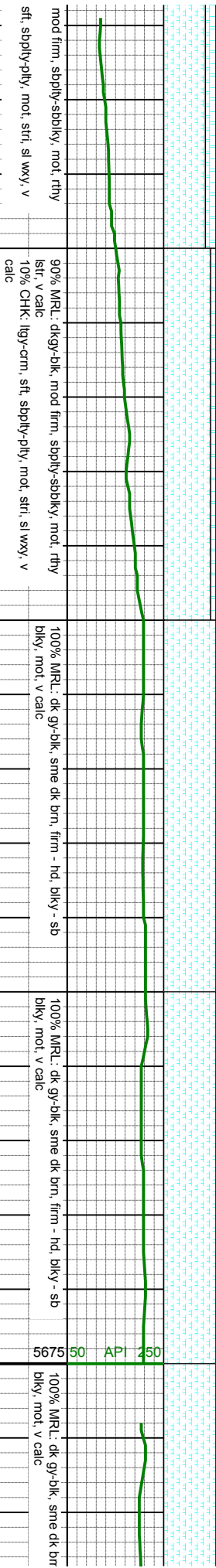
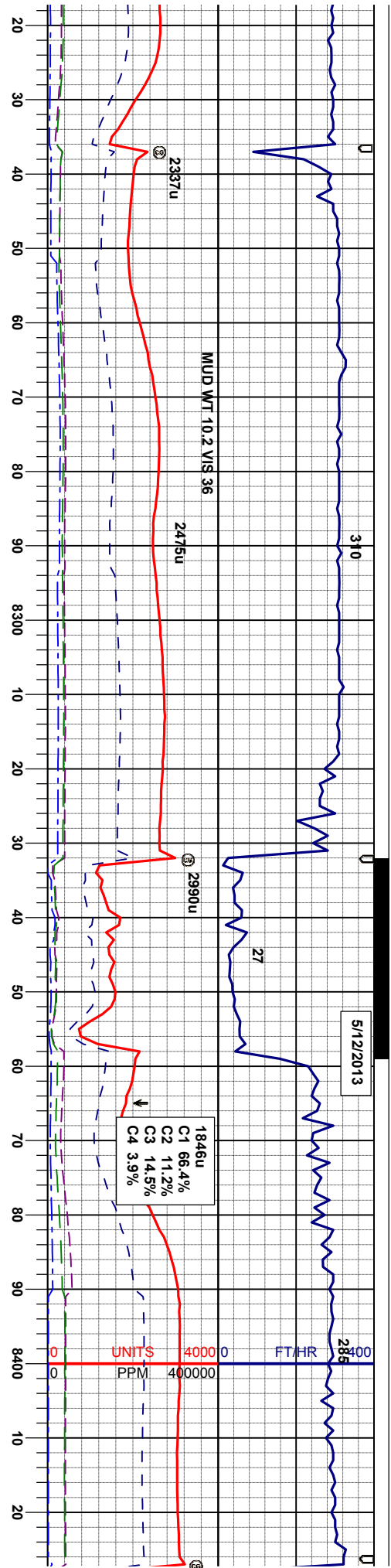
MD 7701'
INC 89.66°
AZM 178.93°
TVD 5760.07'

MD 7
INC 8
AZM 17
TVD 576









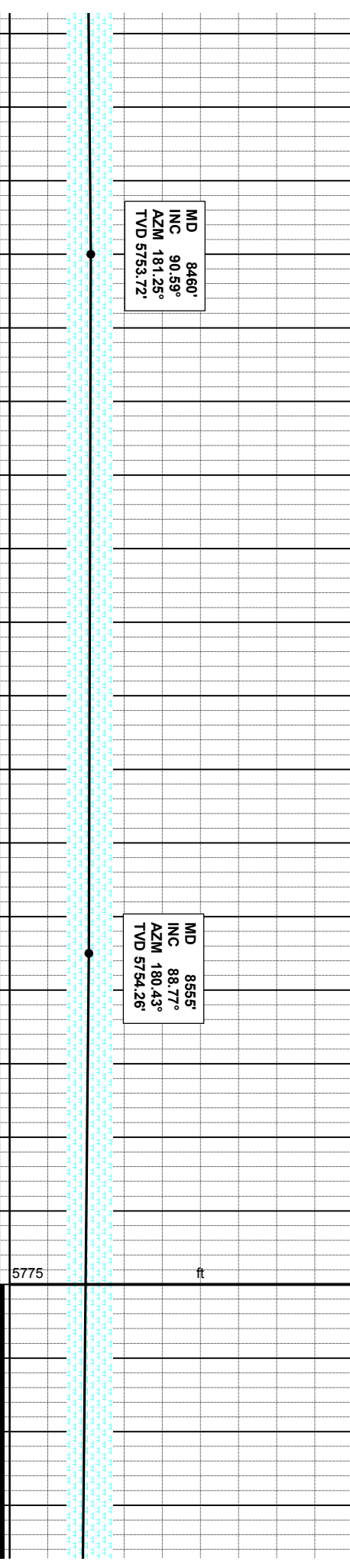
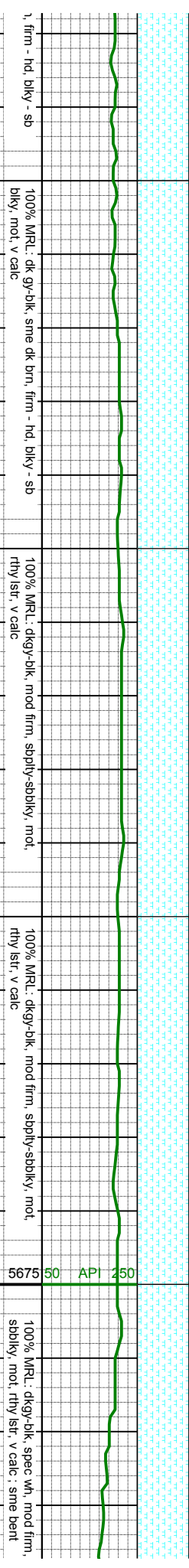
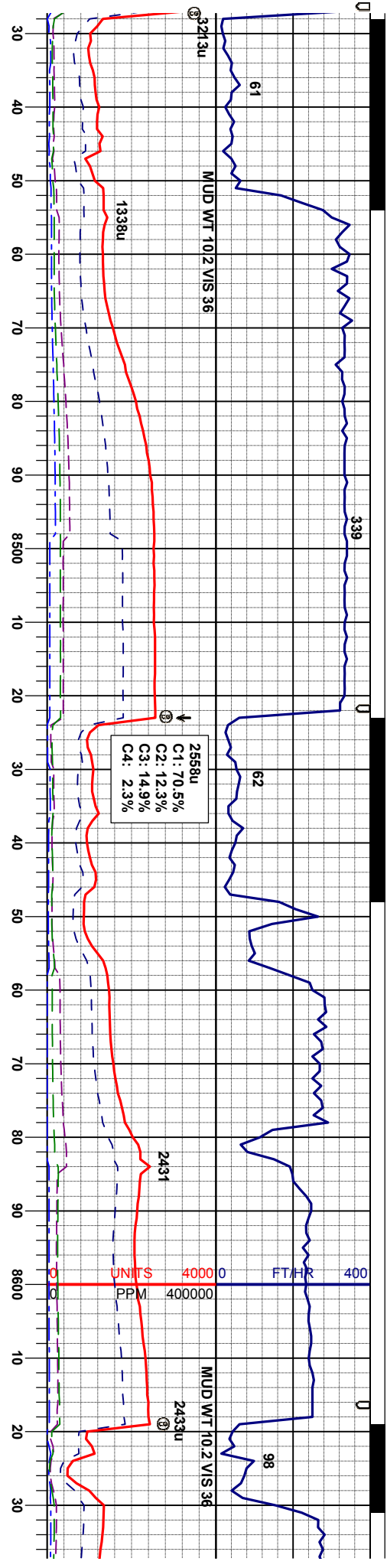
MD 8270'
INC 90.03°
AZM 176.92°
TVD 5756.69'

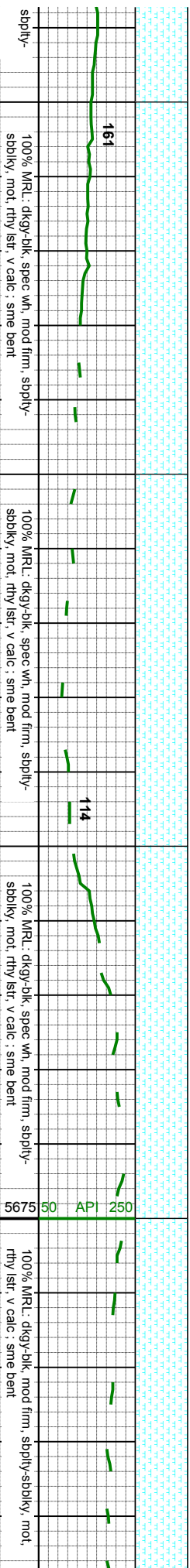
MD 8364'
INC 91.48°
AZM 179.25°
TVD 5755.46'

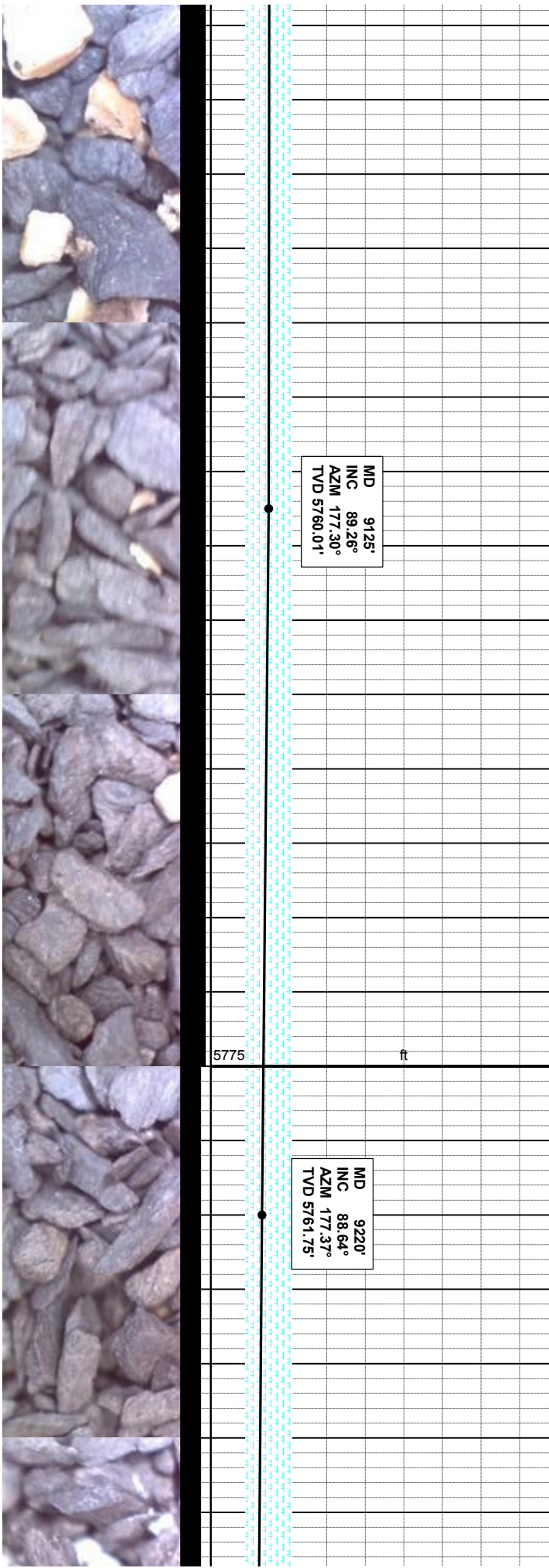
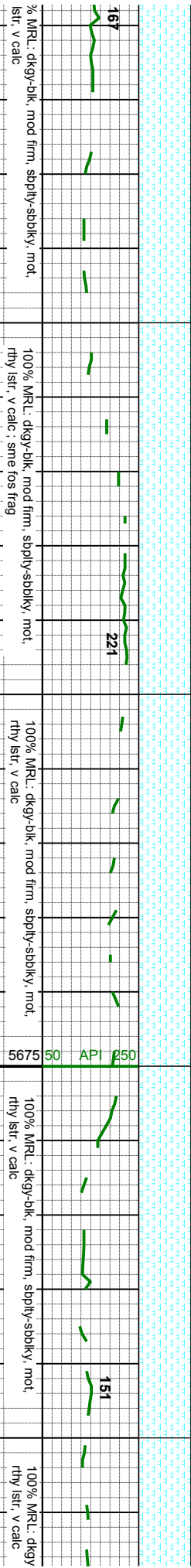
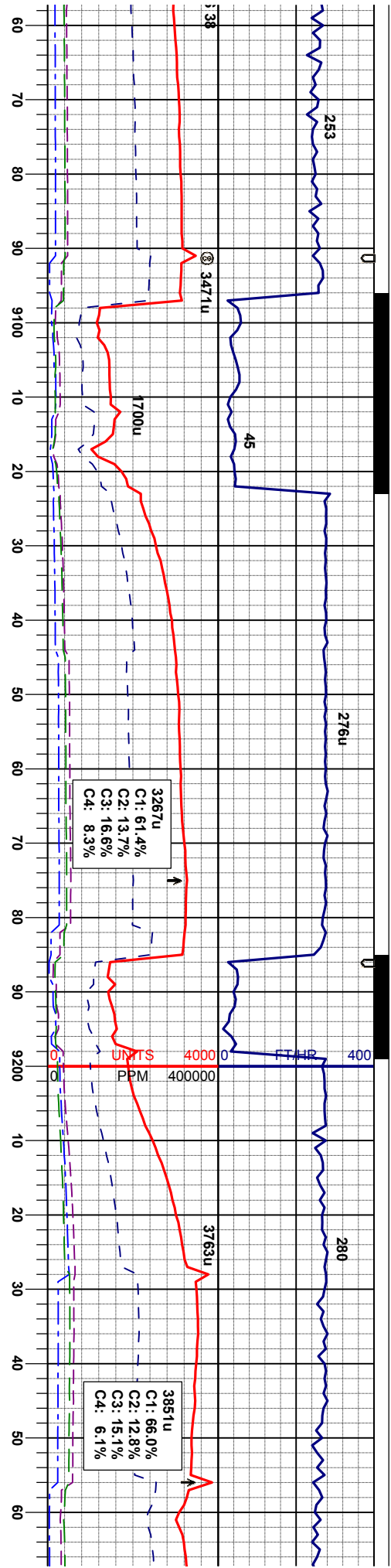
5775 ft

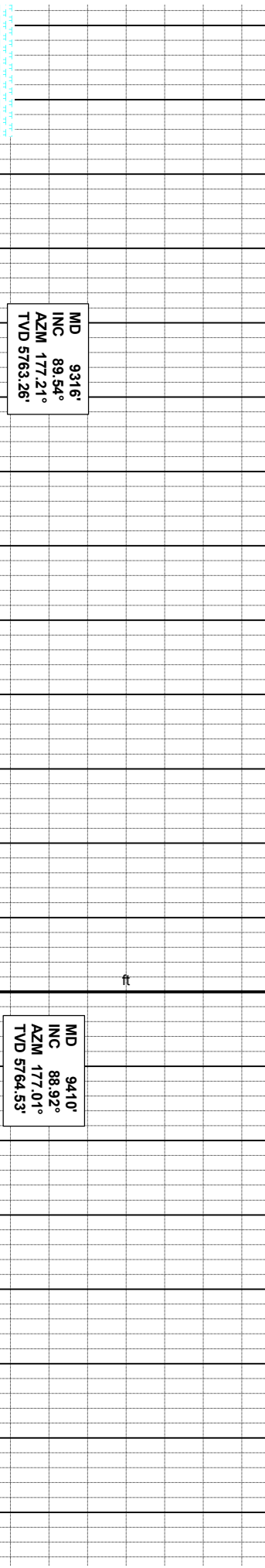
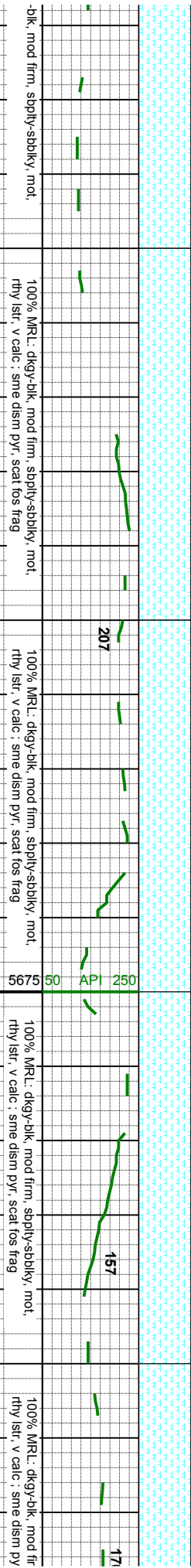
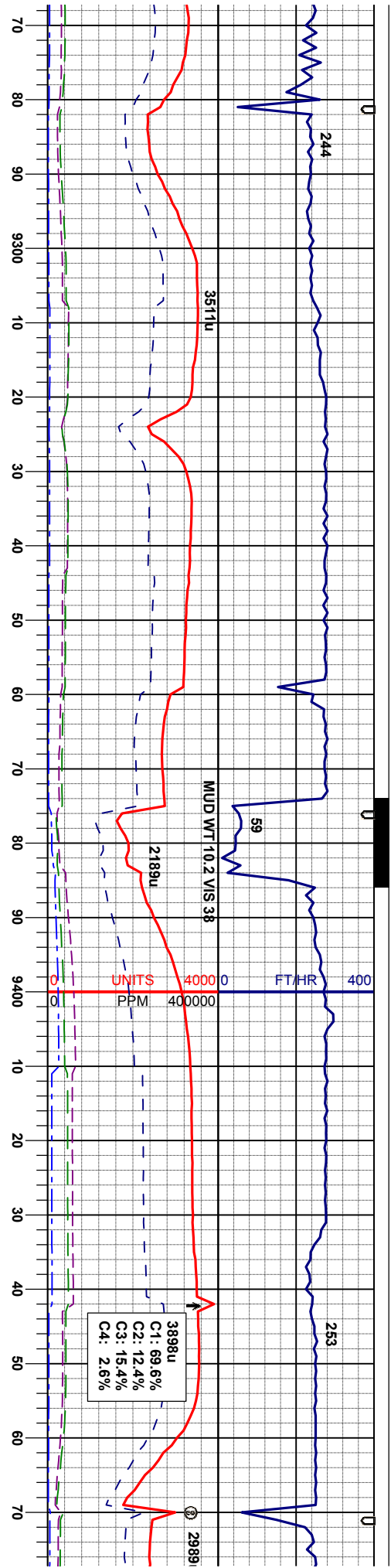
50 API 250

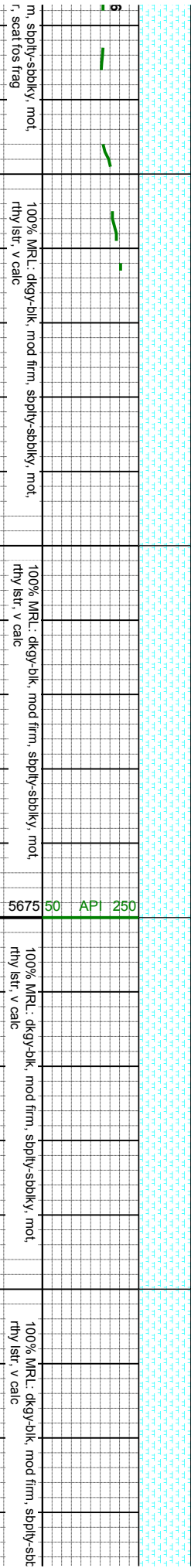
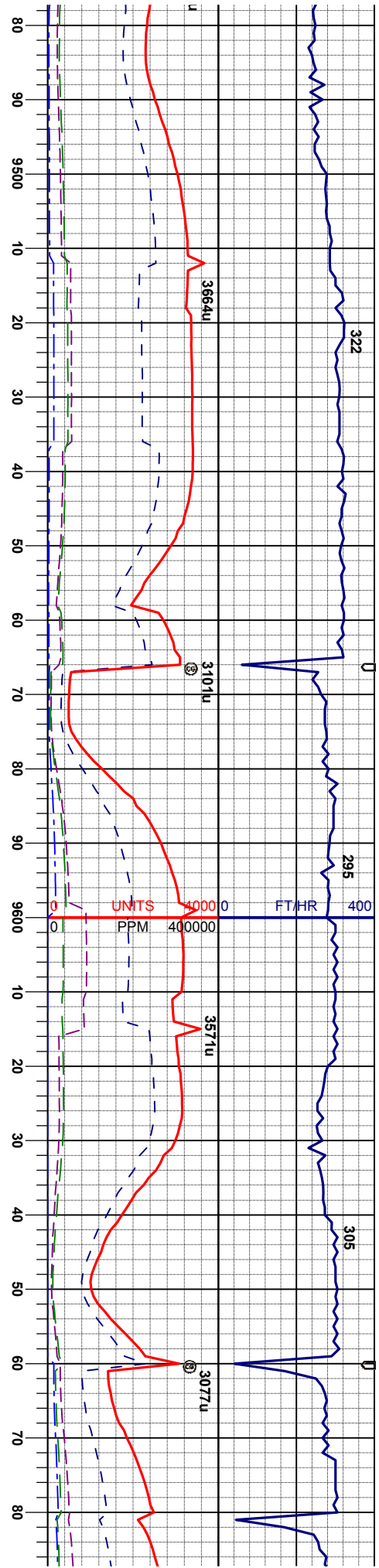








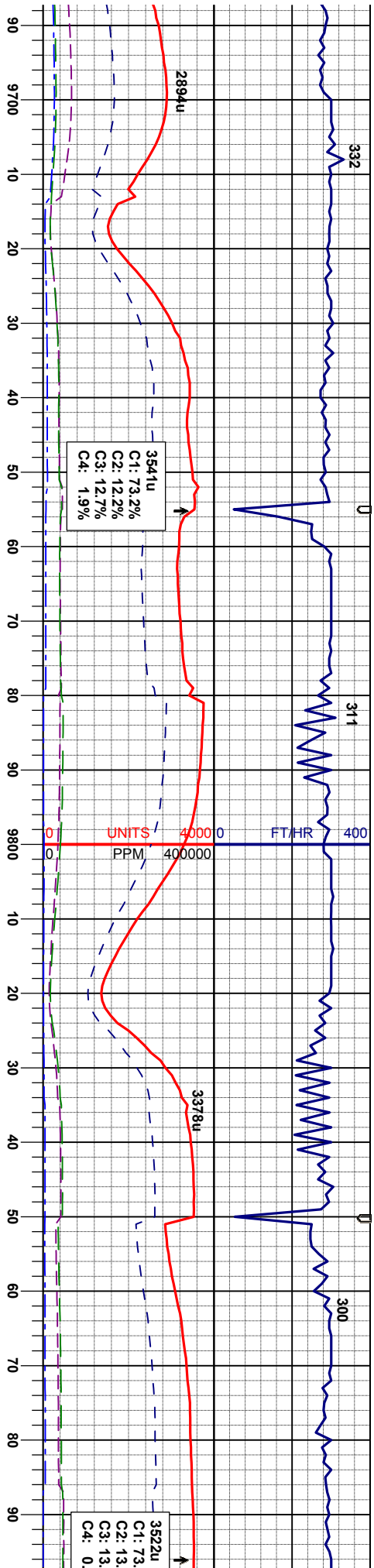




MWD TOOL FAILURE @ 9613' MD.
ROTATED REST OF WELL
WITHOUT GAMMA OR
SURVEYS.

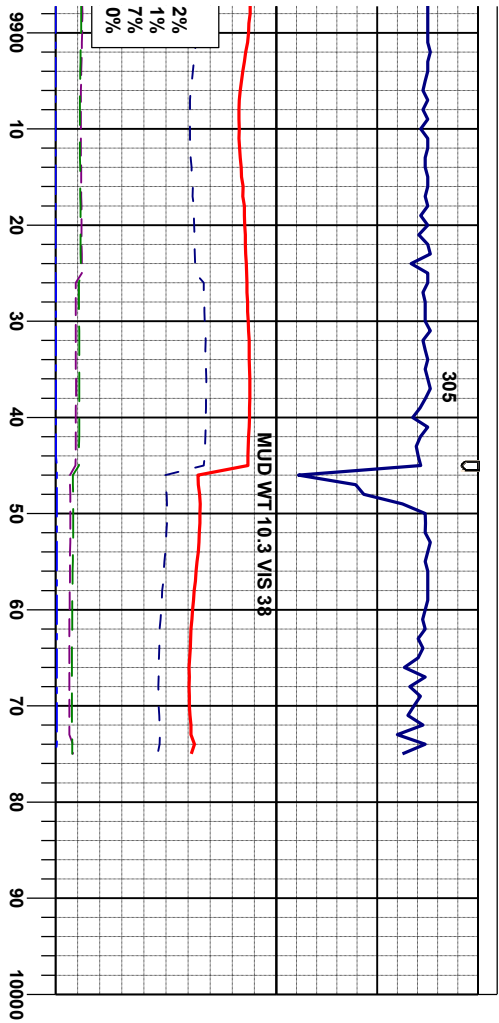
MD 9505'
INC 89.66°
AZM 177.22°
TVD 5764.71'





100% MRL: dkgy-blk, mod firm, sdpbly-sbdkly, mot, rthy istr, v calc ; sme bent	100% MRL: dkgy-blk, mod firm, sdpbly-sbdkly, mot, rthy istr, v calc ; sme bent	100% MRL: dkgy-blk, mod firm, sdpbly-sbdkly, mot, rthy istr, v calc ; sme bent	100% MRL: dkgy-blk, mod firm, sdpbly-sbdkly, mot, rthy istr, v calc ; sme bent	100% MRL: dkgy-blk, mod firm, sdpbly-sbdkly, mot, rthy istr, v calc ; sme bent
5775	5775	5775	5775	5775
ft	ft	ft	ft	ft





100% MRL: dkgy-blk, mod firm, sdpily-sbbiky, mot,
rtly str, v calc; tr bent

TD Well @ 9975' MD
16:42 hrs 5/12/2013

Thank you for choosing
Columbine Logging INC.

