



Scale: 5" / 100'  
Measured Depth Log

Well Name	Helton 5-63-27-3340CDH		
Location	NWSW S27-T5N-R63W		
State	COLORADO	County	WELD
Country	USA	Rig Number	CADE 24
API Number	05-123-37959	AFE #	18430D
Region	DJ BASIN	Field	WATTENBERG
Spud Date	1/17/2014	Drilling Completed	1/28/2014
Surface Coordinates	LAT: 40.36999 N LONG: 104.42657 W		
Bottom Hole Coordinates	LAT: 40.36977 N LONG: 104.41384 W		
Ground Elevation	4542'	K.B. Elevation	4558'
Logged Interval	5300'	To	11064'
Formation	SHANNON SHALE-CODELL SANDSTONE	Total Depth	5764'
Type of Drilling Fluid	LSND - WATER POLY MUD		

Company BILL BARRETT  
Address 1099 18TH ST  
DENVER, CO 8

Name BLAINE MARTT  
Company BILL BARRETT  
Address 1099 18TH ST  
DENVER, CO 8

Wellsite Geologist #1: KYLL  
Wellsite Geologist #2: CHR  
Wellsite Geologist #3: ELIZ  
Wellsite Geological Service

Operator

CORPORATION

REET, SUITE 2300  
80202

Geologist

N

CORPORATION

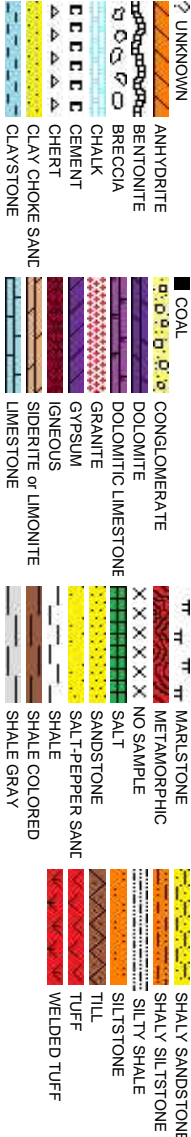
REET, SUITE 2300  
80202

Other

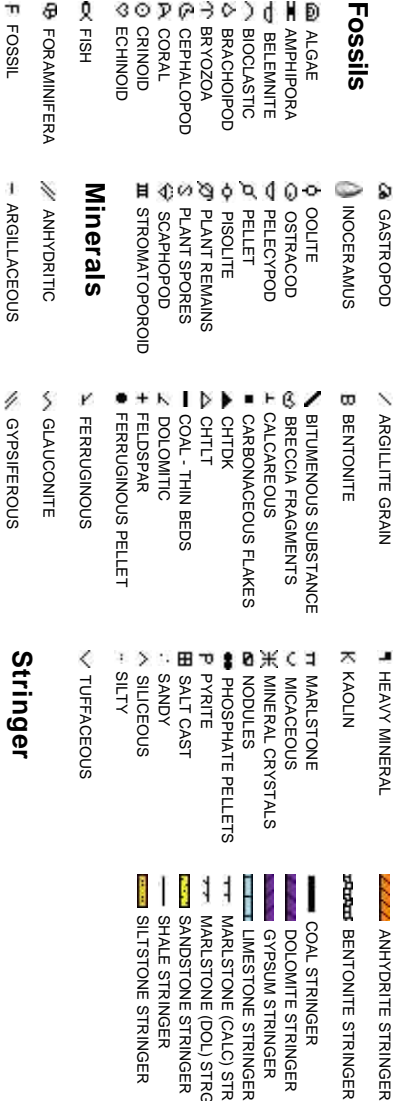
E KNIGHT  
IS COOK  
ABETH STOREY

s Provided By Columbine Logging Inc.

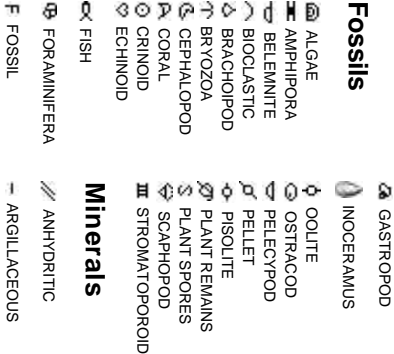
Rock Types



Accessories



Fossils



Minerals



Stringer

# Other Symbols

<b>Oil Show</b>	P PINPOINT V VUGGY	⋮ DST INTERVAL / FAULT	▽ WIRELINE TESTED - LEFT △ WIRELINE TESTED - RT	E EARTHY FX FINELY XLN
<b>Engineering</b>	D DEAD ● EVEN ○ QUESTIONABLE ▲ BIT ● SPOTTED STAINING ▲ CONNECTION (UP)	↕ FORMATION TOP ✱ GAS SHOW ● OIL SHOW MN DEPTH UP MN DEPTH (DOWN)	📏 DRILL STEM TEST MINDEPTH MN DEPTH MN DEPTH UP MN DEPTH (DOWN)	ES GRAINSTONE L LITHOGRAPHIC MX MICROXLN MS MUDSTONE
<b>Porosity</b>	▼ CONNECTION (DOWN) E EARTHY F FENESTRAL F FRACTURE X INTERCRYSTALLINE Ø INTERPOULTIC J MOLDIC O ORGANIC	CONNECTION GAS CONNECTION GAS (LEFT) TRIP GAS TRIP GAS (LEFT) DOWN TIME GAS DOWN TIME GAS (LEFT) CORE - LOST CORE - RECOVERED	▲ ANGULAR R ROUNDED B SUBANG M SUBRND NORMAL FAULT OVERTURNED STRATA REVERSE FAULT CASING SIDEWALL CORE (LEFT) SIDEWALL CORE (RIGHT) SLIDE SURVEY	PS PACKSTONE WS WACKSTONE M MODERATE P POOR W WELL
			<b>Textures</b>	
			BS BOUNDSTONE C CHALKY CX CRYPTOXLN	
			<b>Sorting</b>	

Slide/Rotate

ROP  
ROF  
GAMMA

COLUMBINE LOGGING INC.  
RIGGED UP ON 01/19/2014  
MANNED 2-PERSON LOGGING  
WITH BLOODHOUND GAS  
CHROMATOGRAPH UNIT #0263  
BEGAN LOGGING ON  
01/20/2014 @ 15:11 PM MST

Total Gas & Chromatograph  
GAS  
C1  
C2  
C3  
C4

Depth Labels

% Lith

50' Sample Intervals  
100' Sample Descriptions

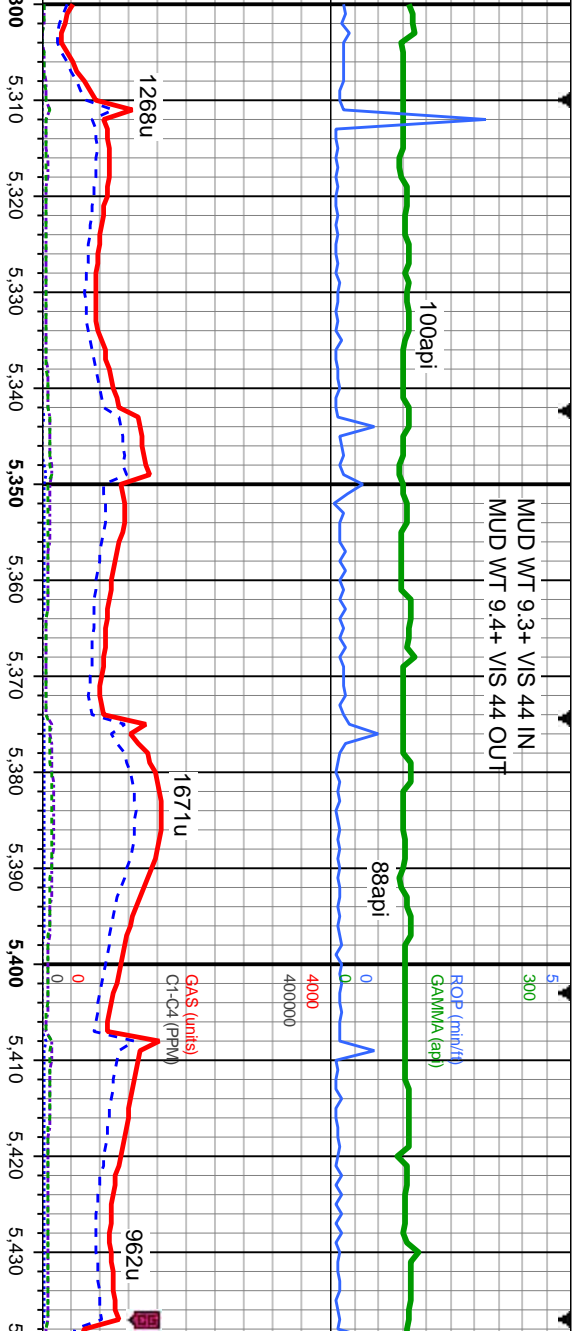
Bit Data  
Bit #: 1  
Type: SMITH MD516  
Size: 8.75  
Depth In: 757'  
Depth Out: 6,102'  
Hours: 21.4 hrs  
Avg Ft/Hr: 250 /hr  
Jets: 5X16  
S/N: JH0414

Oil Show

63  
66  
50  
33  
16

Images

MUD WT 9.3+ VIS 44 IN  
MUD WT 9.4+ VIS 44 OUT



MD: 5,333'  
TVD: 5,172.03'  
Inclination: 1.8 °  
Azimuth: 75 °  
VS: -1,105.94'

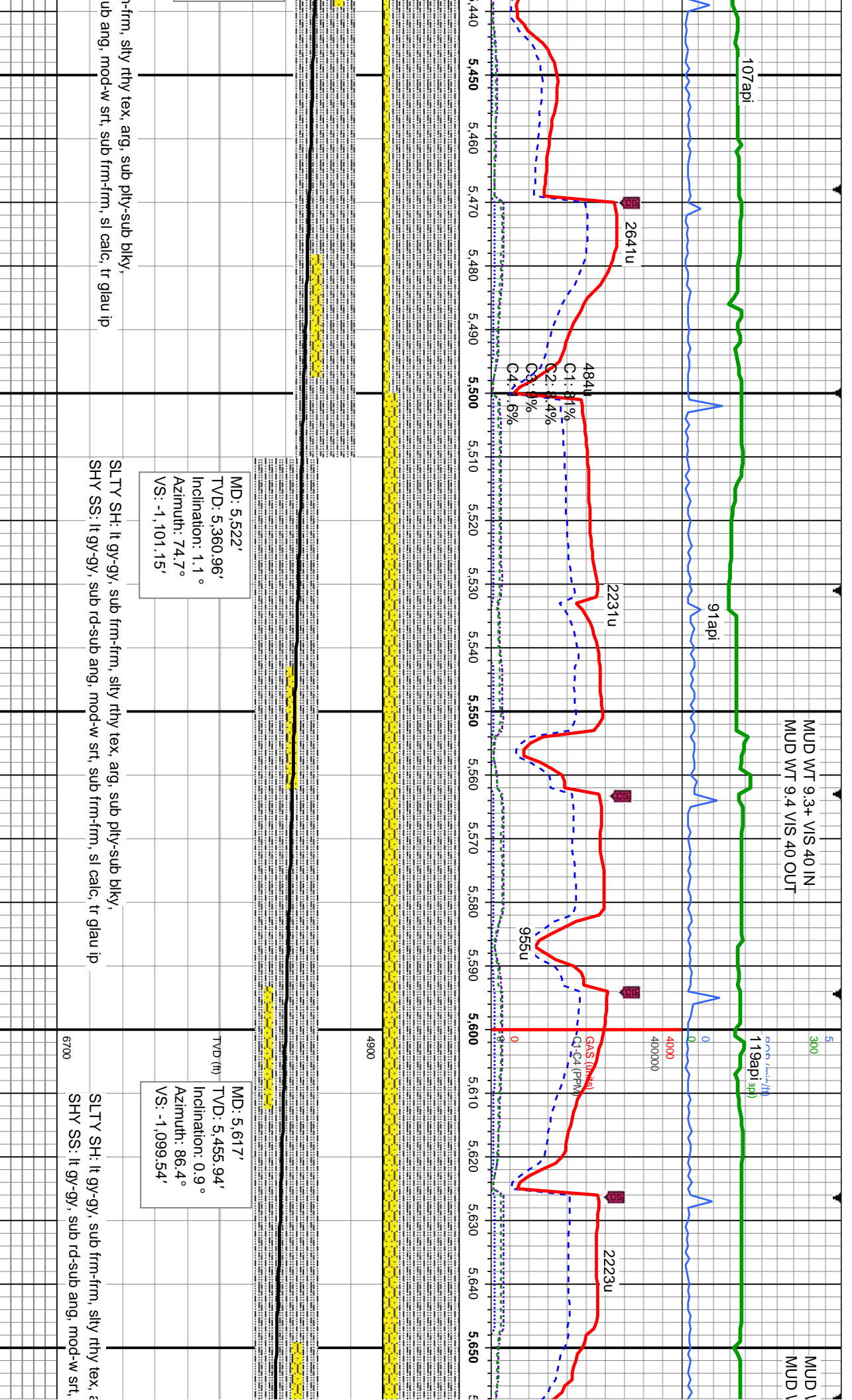
SLTY SH: It gy-gy, sub frm-firm, silty rthy tex, arg, sub pily-sub blkly,  
SHY SS: It gy-gy, sub rd-sub ang, mod-w srt, sub frm-firm, sl calc, tr glau ip

MD: 5,428'  
TVD: 5,266.98'  
Inclination: 1.6 °  
Azimuth: 72 °  
VS: -1,103.26'

SLTY SH: It gy-gy, sub frm  
SHY SS: It gy-gy, sub rd-s







WT 9.3+ VIS 41 IN  
WT 9.4 VIS 41 OUT

99api

114api

109api

90api

5  
300  
MUD WT 9.4 VIS 46 IN  
MUD WT 9.5 VIS 46 OUT

ROP (min/h)  
GAMMA (api)

0

4000

400000

2470u

2714u

1379u

2404u

1610u  
C1: 80.3%  
C2: 9.6%  
C3: 9.3%  
C4: 1.1%

505u

4900

MD: 5,713'  
TVD: 5,551.93'  
Inclination: 0.7°  
Azimuth: 88.4°  
VS: -1,098.2'

MD: 5,809'  
TVD: 5,647.93'  
Inclination: 0.6°  
Azimuth: 60.8°  
VS: -1,097.18'

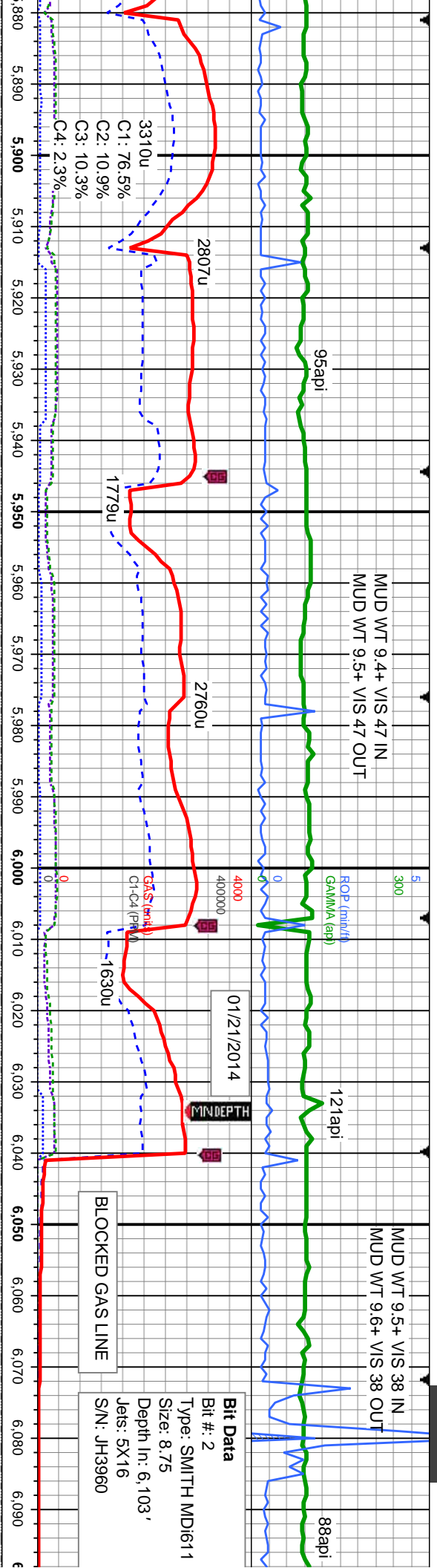
arg, sub pily-sub blkly  
sub frm-frm, sl calc, tr glau ip

SLTY SH: lt gy-gy, sub frm-frm, silty rthy tex, arg, sub pily-sub blkly  
SHY SS: lt gy-gy, sub rd-sub ang, mod-w srt, sub frm-frm, sl calc, tr glau ip

SLTY SH: lt gy-gy, sub frm-frm, silty rthy tex, arg, sub pily-sub blkly  
SHY SS: lt gy-gy, sub rd-sub ang, mod-w srt, sub frm-frm, sl calc







MD: 5,904'  
TVD: 5,742.92'  
Inclination: 0.5°  
Azimuth: 32.2°  
VS: -1,096.54'

MD: 5,999'  
TVD: 5,837.92'  
Inclination: 0.5°  
Azimuth: 24.1°  
VS: -1,096.17'

MD: 6,031'  
TVD: 5,869.92'  
Inclination: 0.4°  
Azimuth: 34°  
VS: -1,096.05'

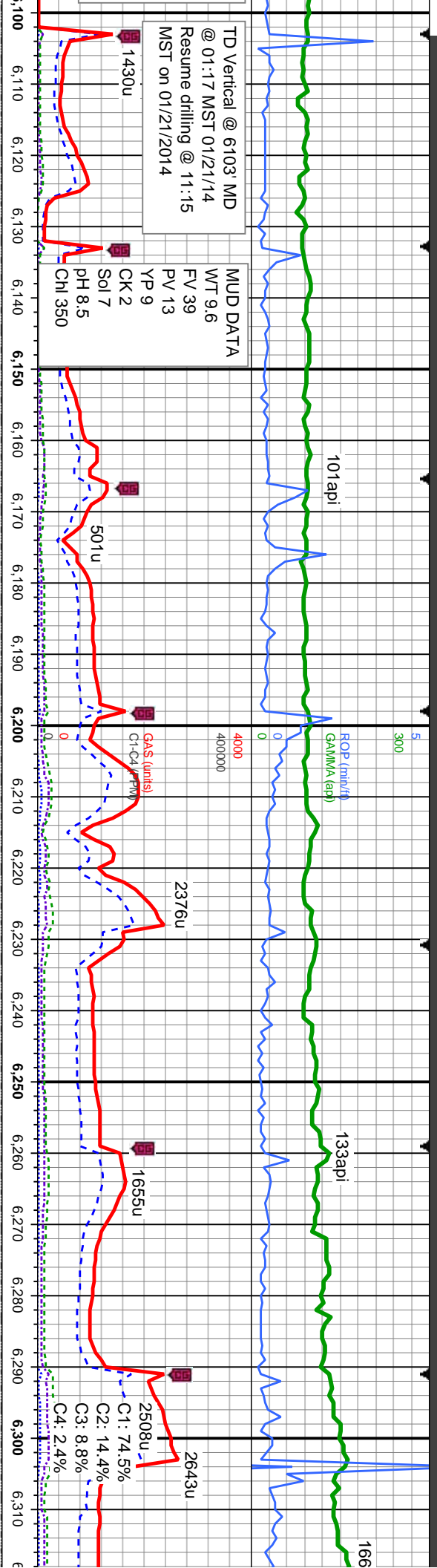
MD: 6,062'  
TVD: 5,900.92'  
Inclination: 0.4°  
Azimuth: 350.8°  
VS: -1,096.01'

MD: 6,094'  
TVD: 5,932.  
Inclination: (C  
Azimuth: 18  
VS: -1,095.5

SLTY SH: lt gy-gy, sub frm-firm, silty rthy tex, arg, sub pily-sub blkly  
SHY SS: lt gy-gy, sub rd-sub ang, mod-w srt, sub frm-firm, sl calc, tr glau ip

SLTY SH: lt gy-gy, sub frm-firm, silty rthy tex, arg, sub pily-sub blkly  
SHY SS: lt gy-gy, sub rd-sub ang, mod-w srt, sub frm-firm, sl calc, tr glau ip





TD Vertical @ 6103 MD  
@ 01:17 MST 01/21/14  
Resume drilling @ 11:15  
MST on 01/21/2014

MUD DATA

WT 9.6  
FV 39  
PV 13  
YP 9  
CK 2  
Sol 7  
pH 8.5  
Cnl 350

MD: 6,125'  
TVD: 5,963.89'  
Inclination: 3.8 °  
Azimuth: 63 °  
VS: -1,095'

MD: 6,157'  
TVD: 5,995.72'  
Inclination: 7.9 °  
Azimuth: 70.7 °  
VS: -1,092'

MD: 6,188'  
TVD: 6,026.29'  
Inclination: 11.1 °  
Azimuth: 65 °  
VS: -1,087.33'

MD: 6,220'  
TVD: 6,057.42'  
Inclination: 15.6 °  
Azimuth: 61.9 °  
VS: -1,080.82'

MD: 6,251'  
TVD: 6,086.99'  
Inclination: 19.2 °  
Azimuth: 61.7 °  
VS: -1,072.75'

MD: 6,283'  
TVD: 6,116.77'  
Inclination: 23.7 °  
Azimuth: 63.4 °  
VS: -1,062.49'

MD: 6,314'  
TVD: 6,144.  
Inclination: 2  
Azimuth: 68  
VS: -1,050.5

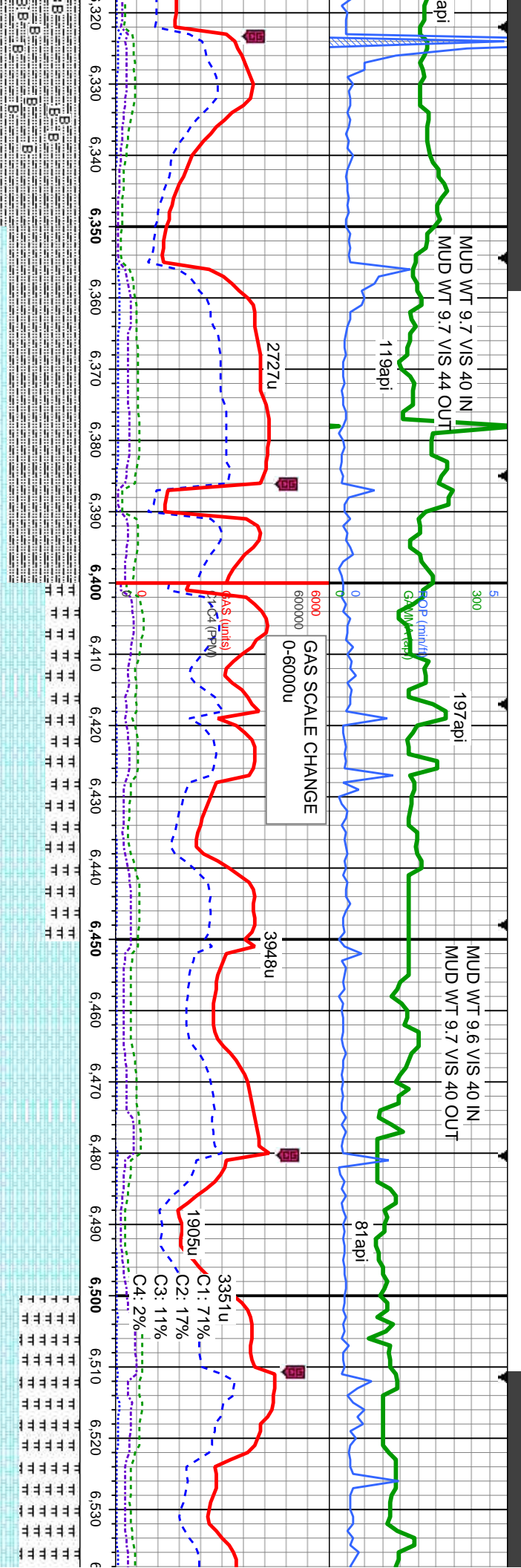
SLTY SH: medgy-ck gy, some blk, sub frm-frm, silty rthy tex, arg, sub  
ply-sub blk, sl calc, tr bent, tr shly ss

SLTY SH: medgy-ck gy, some blk, sub frm-frm, silty rthy tex, arg, sub  
ply-sub blk, sl calc, tr bent, tr shly ss

SLTY  
ply-sub  
CH







Haron Springs Top  
307' MD/6,138' TVD

Nio Top  
6,387' MD/6,207' TVD

4900

MD: 6,346'  
TVD: 6,173.04'  
Inclination: 29.1°  
Azimuth: 77.8°  
VS: -1,036.26'

MD: 6,377'  
TVD: 6,199.67'  
Inclination: 32.5°  
Azimuth: 85.9°  
VS: -1,020.63'

MD: 6,409'  
TVD: 6,226.05'  
Inclination: 36.5°  
Azimuth: 92.2°  
VS: -1,002.54'

MD: 6,440'  
TVD: 6,250.47'  
Inclination: 39.5°  
Azimuth: 92.7°  
VS: -983.46'

MD: 6,472'  
TVD: 6,275'  
Inclination: 40.4°  
Azimuth: 92.7°  
VS: -962.92'

MD: 6,503'  
TVD: 6,298.61'  
Inclination: 40.4°  
Azimuth: 93.6°  
VS: -942.84'

MD: 6,534'  
TVD: 6,322'  
Inclination: 40.4°  
Azimuth: 96°  
VS: -922.74'

TY SH: medgy-dk gy, some blk, sub frm frm, stly rthy tex, arg, sub  
-sub blk, sl calc, abnt bent, tr shy ss  
K: lt-med gy, mot, v sft-sft, sb pty-blky, rthy wxy tex, v calc



MUD WT 9.6 VIS 44 IN  
MUD WT 9.6+ VIS 44 OUT

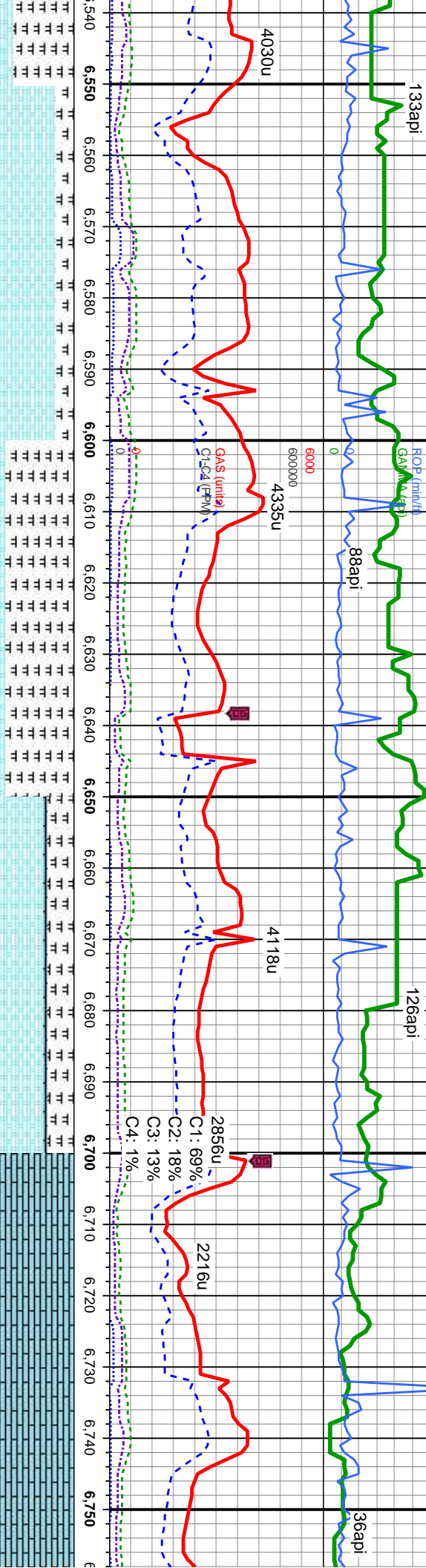
133api

MUD WT 9.6 VIS 38 IN  
MUD WT 9.6+ VIS 38 OUT

126api

MUD WT 9.6 VIS 36 IN  
MUD WT 9.6+ VIS 36 OUT

36api



sb pty-pty, fri-brit, sl shy tex, arg, mod calc, tr bent, tr  
mod-bri bl-wh resd ring

Nio C Chalk Top  
6,594' MD/6,367' TVD

MR LST: dk gy, stri, sft-fm, sb pty-pty, fri-brit, sl shy tex, arg, mod calc, tr bent, tr  
cal  
CHK: lt-med gy, mot, v sft-sft, sb pty-blky, rthy-wxy tex, v calc, tr bent, tr dissim pyr  
fst mky-stmg bl cut, mod-thk, mod-bri bl-wh resd ring

FT. Hays Top  
6,679' MD/6,423' TVD

LS: crm-gy brn-wh, sb pty-blky, fm, brit, silty mtx;  
dissim pyr

Code  
6,752

MD: 6,566'  
TVD: 6,346.39'  
Inclination: 40.9 °  
Azimuth: 97.4 °  
VS: -901.94'

MD: 6,597'  
TVD: 6,369.52'  
Inclination: 42.6 °  
Azimuth: 96.4 °  
VS: -881.4'

MD: 6,629'  
TVD: 6,392.18'  
Inclination: 47.2 °  
Azimuth: 93.6 °  
VS: -858.87'

MD: 6,660'  
TVD: 6,412.29'  
Inclination: 51.9 °  
Azimuth: 91.5 °  
VS: -835.29'

MD: 6,692'  
TVD: 6,430.54'  
Inclination: 58.5 °  
Azimuth: 91.3 °  
VS: -809.03'

MD: 6,724'  
TVD: 6,445.68'  
Inclination: 65 °  
Azimuth: 91.9 °  
VS: -780.85'

MD: 6,755'  
TVD: 6,450.00'  
Inclination: 65 °  
Azimuth: 91.9 °  
VS: -752.1'

6700



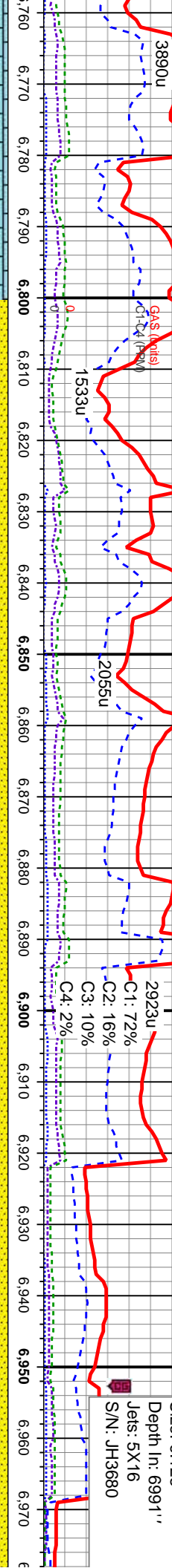
VT 9.6 VIS 48 IN  
VT 9.6+ VIS 48 OUT

MUD WT 9.6 VIS 39 IN  
MUD WT 9.6+ VIS 39 OUT

ROP (min/h)  
GAMMA (api)

01/22/2014

MINDEPTH



SS: clt-lt brn-dk brn, sb md-rnd, frm, p-mod str, sl calc, f-vf gr, frm, p  
LS: crm-gy brn-wh, sb pty- blk, frm, brt, silty mx; v calc, mic xln wxy tex, v tr bent w/  
dism pyr

ISS Top  
MD/6,456' TVD

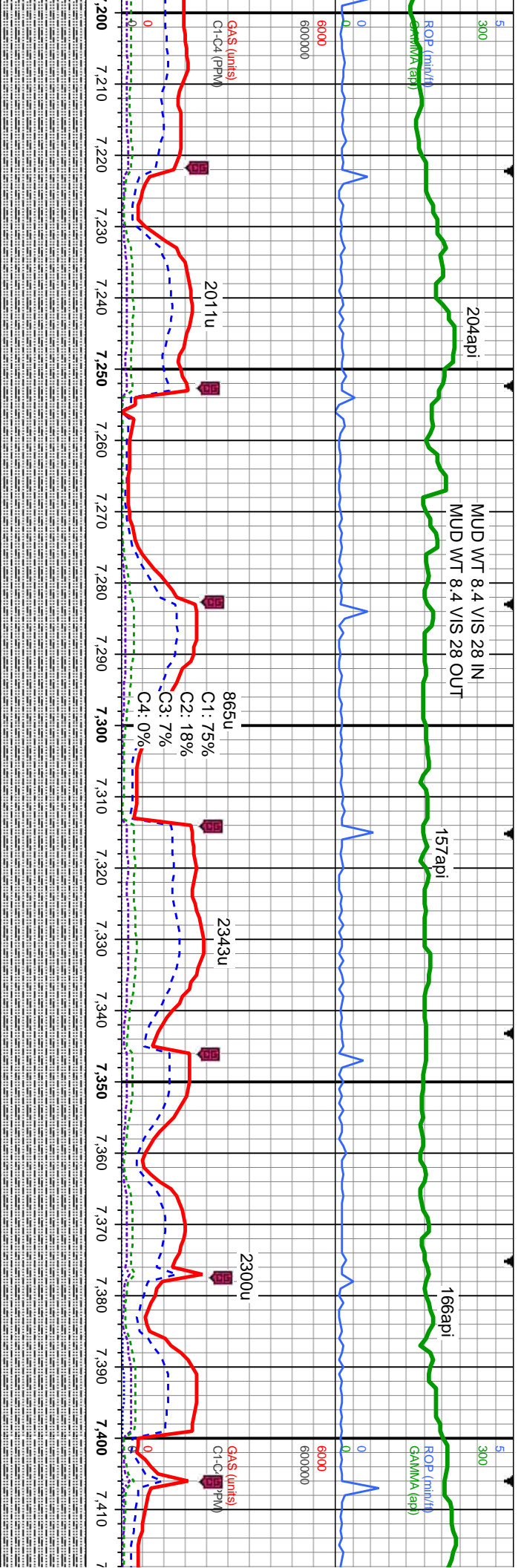
MD	TVD	Inclination	VS
6,787'	6,467.16'	73.5 °	-721.91'
6,818'	6,475.65'	74.7 °	-692.48'
6,850'	6,483.47'	77 °	-661.96'
6,881'	6,489.81'	79.4 °	-632.16'
6,913'	6,494.76'	82.8 °	-601'

6700

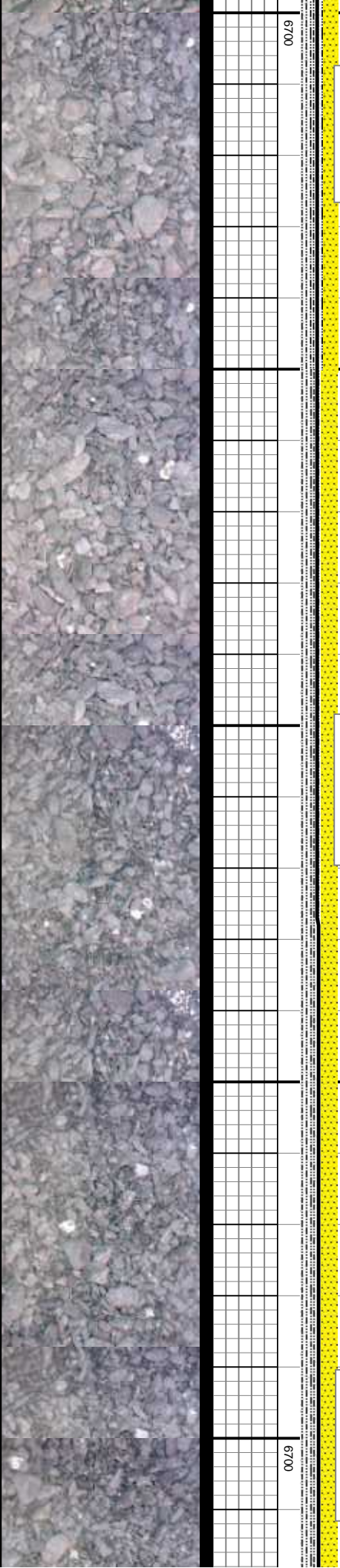




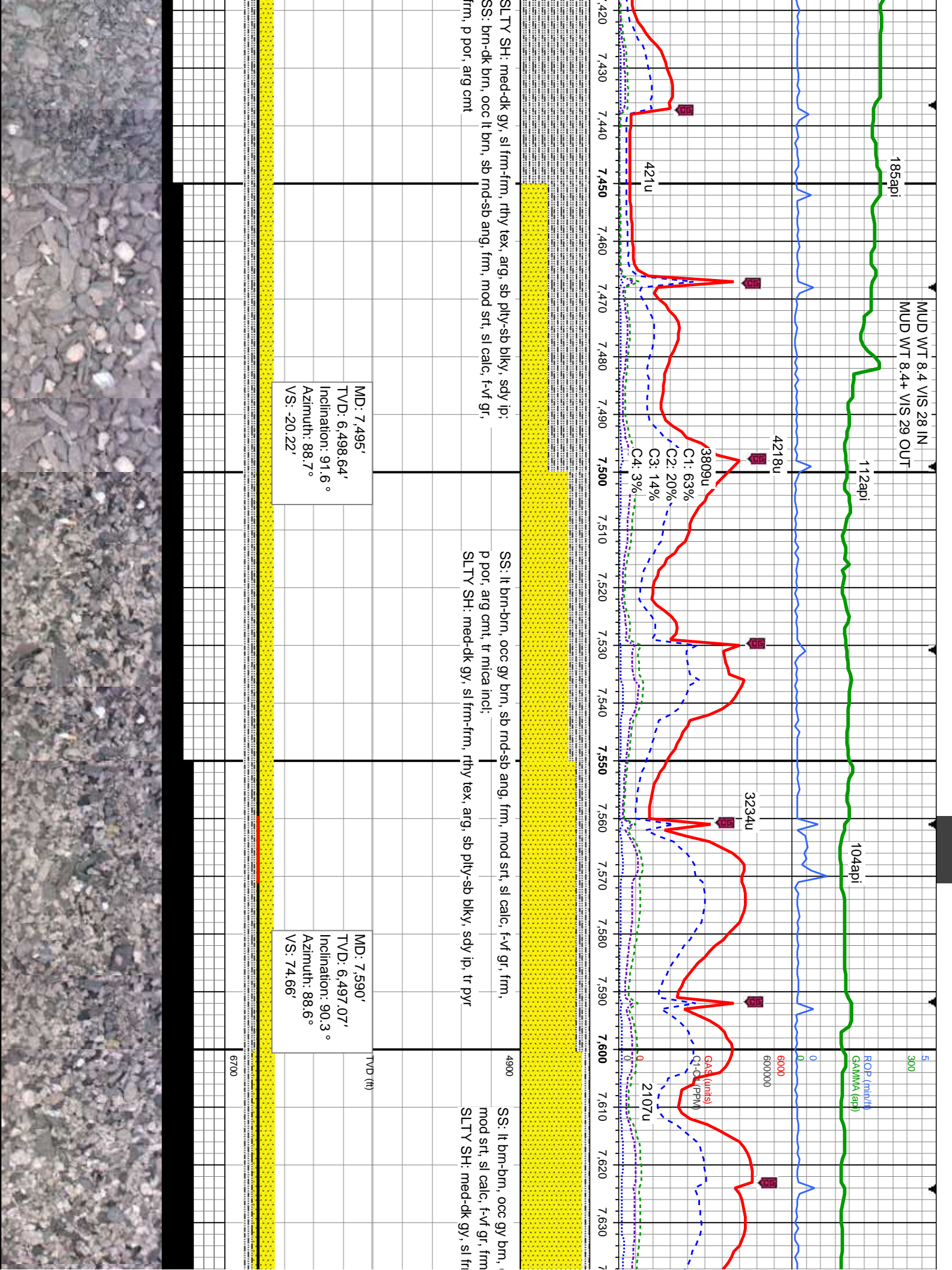




4900	SLTY SH: med-dk gy, sl frm-firm, rhy tex, arg, sb pily-sb blk, sdy ip	SLTY SH: med-dk gy, sl frm-firm, rhy tex, arg, sb pily-sb blk, sdy ip	4900
MD: 7,217' TVD: 6,505.44' Inclination: 91 ° Azimuth: 90.7° VS: -298.01'			
MD: 7,309' TVD: 6,503.6' Inclination: 91.3 ° Azimuth: 89.8° VS: -206.04'			
MD: 7,401' TVD: 6,501.27' Inclination: 91.6 ° Azimuth: 89.4° VS: -114.11'			









MUD WT 8.4 VIS 29 IN  
MUD WT 8.4+ VIS 29 OUT

119api

156api

115api

111api

ROP (min/hr)  
600000

4742u

4736u

C1: 66%

C2: 27%

C3: 13%

C4: 4%

2477u

GAS (units)  
CL-C4 (PPM)

4884u

7,640 7,650 7,660 7,670 7,680 7,690 7,700 7,710 7,720 7,730 7,740 7,750 7,760 7,770 7,780 7,790 7,800 7,810 7,820 7,830 7,840 7,850

cl-trnsl gr, occ clr qtz gr, sb rnd-sb ang, frm,  
p por, arg cmnt, tr mica incl;  
n-frm, rthy tex, arg, sb pily-sb blkly, sdy ip, tr pyr

SS: lt brn-brn, occ gy brn, clr-trnsl gr, occ clr qtz gr, sb rnd-sb ang, frm,  
mod srt, sl calc, f-vf gr, frm, p por, arg cmnt, tr mica incl;  
SLTY SH: med-dk gy, sl frm-frm, rthy tex, arg, sb pily-pily, sdy ip, tr pyr

SS: lt brn-brn, occ gy brn, clr-trnsl gr, occ cl  
mod srt, sl calc, f-vf gr, frm, p por, arg cmnt,  
SLTY SH: med-dk gy, sl frm-frm, rthy tex, a

MD: 7,684'  
TVD: 6,496.25'  
Inclination: 90.7°  
Azimuth: 88.4°  
VS: 168.55'

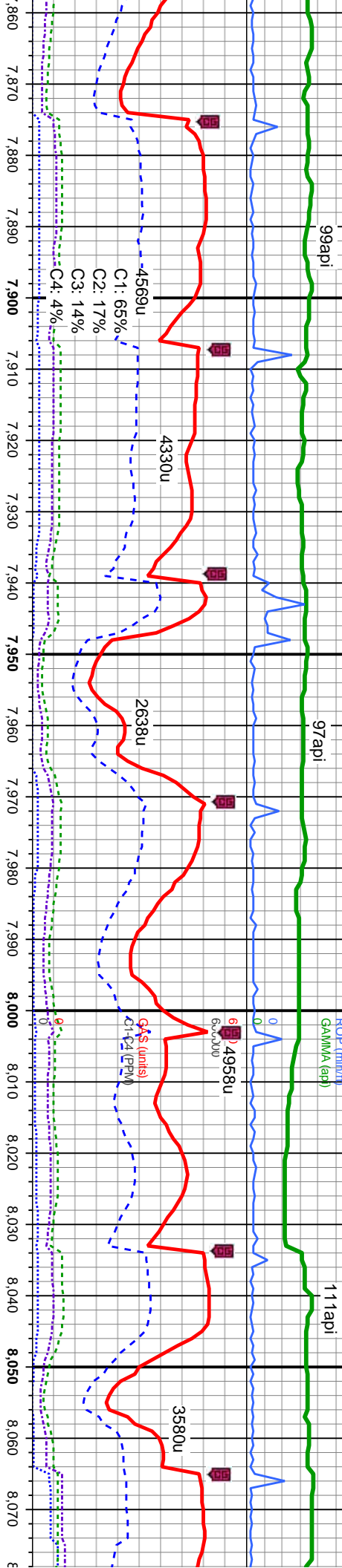
MD: 7,778'  
TVD: 6,495.51'  
Inclination: 90.2°  
Azimuth: 90.3°  
VS: 262.48'

TVD (ft)

6700



MUD WT 8.4 VIS 29 IN  
MUD WT 8.4+ VIS 28 OUT



tr qtz gr, sb rnd-sb ang, frm,  
tr mica incl;  
arg, sb pily-pily, sdy ip, tr pyr

SS: lt brn-brn, occ gy brn, clr-trnsl gr, occ clr qtz gr, sb rnd-sb ang, frm,  
mod srt, sl calc, f-vf gr, frm, p por, arg cnt, tr mica incl;  
SLTY SH: med-dk gy, sl frm-frm, rthy tex, arg, sb pily-pily, sdy ip, tr pyr

SS: lt brn-brn, occ gy brn, clr-trnsl gr, occ clr qtz gr, sb rnd-sb ang,  
mod srt, sl calc, f-vf gr, frm, p por, arg cnt, tr mica incl;  
SLTY SH: med-dk gy, sl frm-frm, rthy tex, arg, sb pily-pily, sdy ip,

MD: 7,873'  
TVD: 6,495.18'  
Inclination: 90.2 °  
Azimuth: 89.6 °  
VS: 357.46'

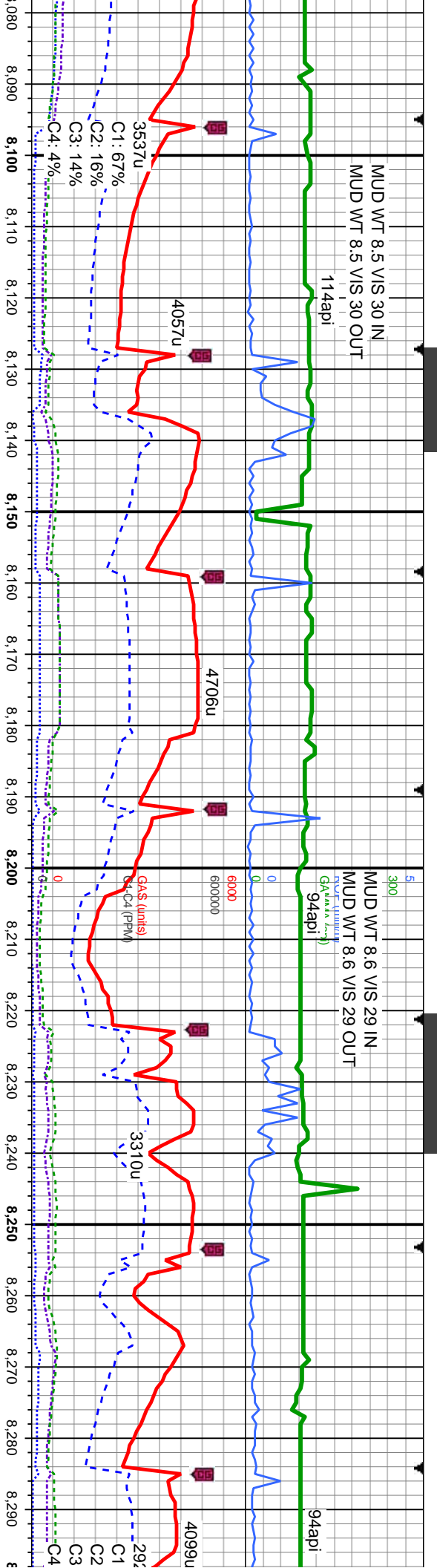
MD: 7,967'  
TVD: 6,495.67'  
Inclination: 89.2 °  
Azimuth: 90.3 °  
VS: 451.43'

MD: 8,062'  
TVD: 6,497.08'  
Inclination: 89.1 °  
Azimuth: 88.4 °  
VS: 546.36'

6700





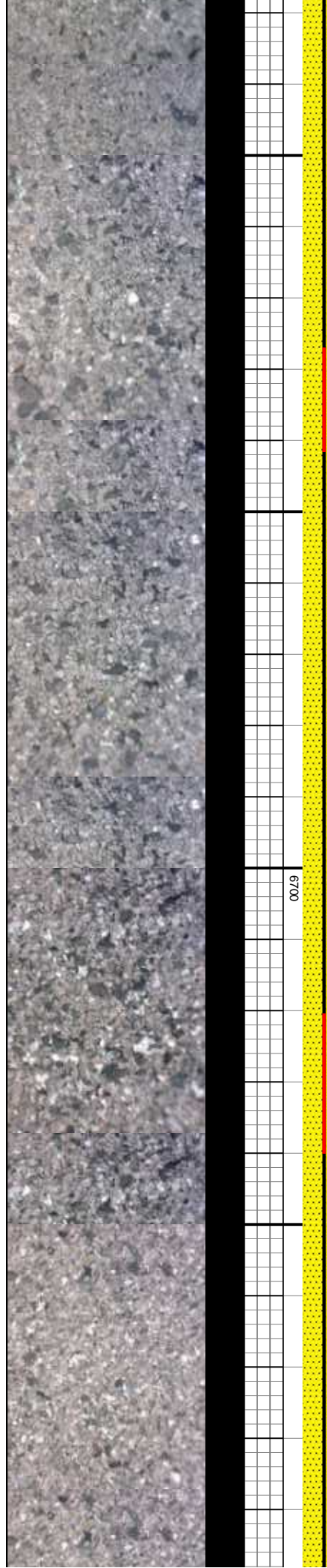


SS: lt brn-brn, occ gy brn, clr-trnsl gr, occ clr qtz gr, sb md-sb ang, frm, mod srt, sl calc, f-vf gr, frm, p por, arg cnt, tr mica incl

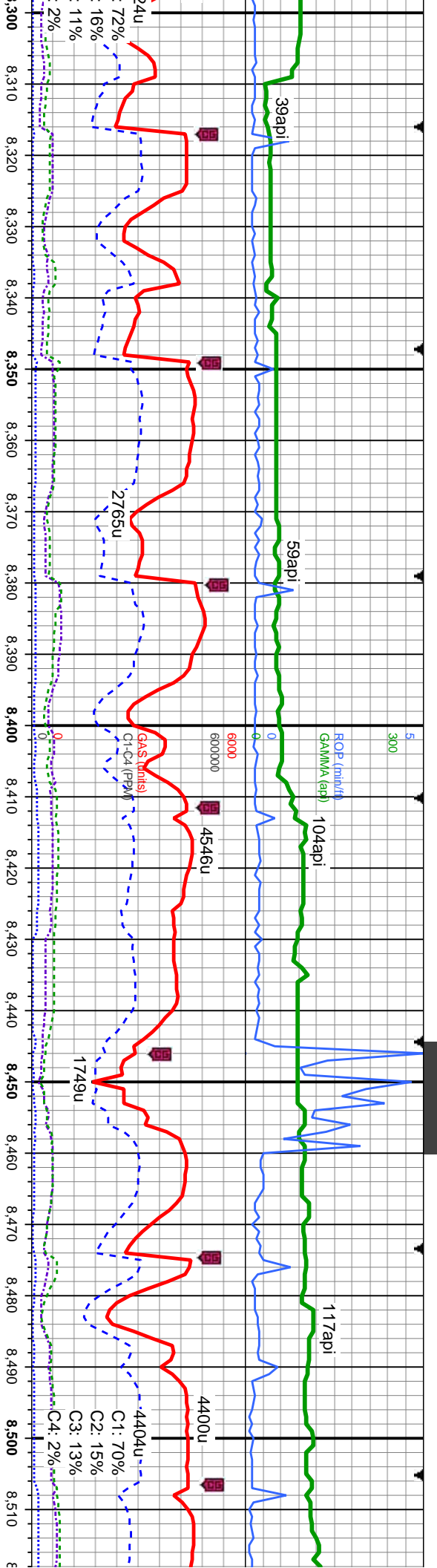
MD: 8,156'  
TVD: 6,498.56'  
Inclination: 89.1 °  
Azimuth: 90 °  
VS: 640.28'

SS: lt brn-brn, occ gy brn, clr-trnsl gr, occ clr qtz gr, sb rnd-sb ang, frm, mod srt, sl calc, f-vf gr, frm, p por, arg cnt, tr mica incl

MD: 8,251'  
TVD: 6,499.3'  
Inclination: 90 °  
Azimuth: 90.9 °  
VS: 735.27'







SS: lt brn-brn, occ gy brn, clr-trns gr, occ clr qtz gr, sb md-sb ang, frm, mod srt, sl calc, f-vf gr, frm, p por, arg cmt, tr mica incl;  
LS: crm-gy brn-wh, sb pty- blk, frm, brit, silty mtx: v calc, mic xln wxy tex, v tr bent w/ dism pyr

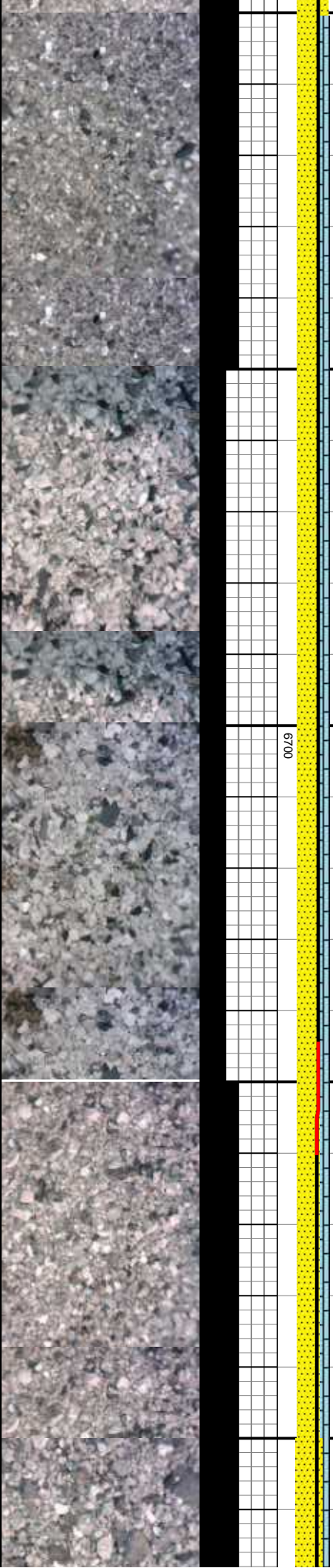
MD: 8,314'  
TVD: 6,499.36'  
Inclination: 89.9°  
Azimuth: 89.5°  
VS: 798.25'

MD: 8,377'  
TVD: 6,500.35'  
Inclination: 88.3°  
Azimuth: 88.6°  
VS: 861.2'

SS: lt brn-brn, occ gy brn, clr-trns gr, occ clr qtz gr, sb md-sb ang, frm, mod srt, sl calc, f-vf gr, frm, p por, arg cmt, tr mica incl;  
LS: crm-gy brn-wh, sb pty- blk, frm, brit, silty mtx: v calc, mic xln wxy tex, v tr bent w/ dism pyr

MD: 8,471'  
TVD: 6,503.71'  
Inclination: 87.6°  
Azimuth: 90°  
VS: 955.08'

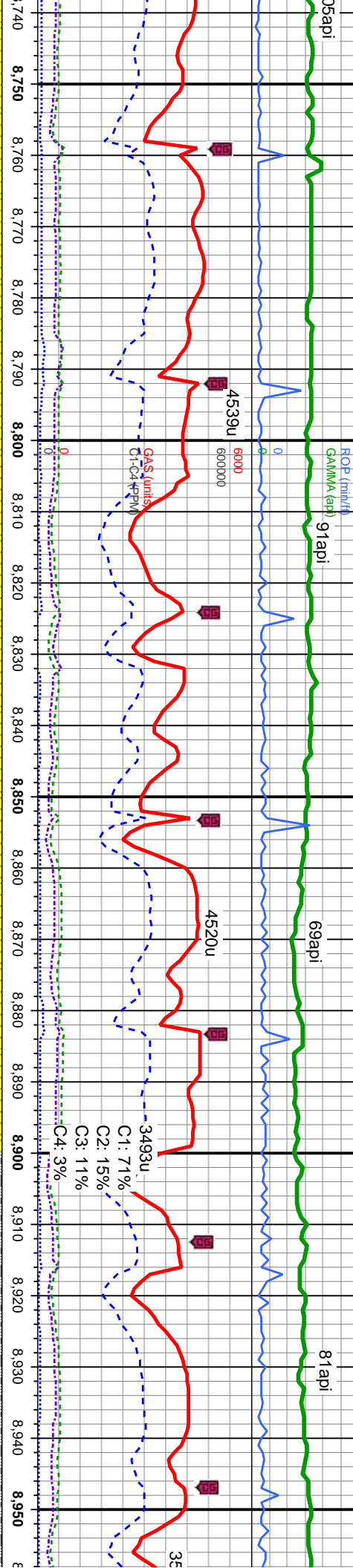
SS: l ang,







MUD WT 8.6 VIS 30 IN  
MUD WT 8.6+ VIS 30 OUT



frn, clr-trnsl gr, occ clr qtz gr, sb md-sb  
lc, f-vf gr, frm, p por, arg cmt, tr mica incl

SS: lt brn-brn, occ gy brn, clr-trnsl gr, occ clr qtz gr, sb rnd-sb ang, frm, mod srt,  
sl calc, f-vf gr, frm, p por, arg cmt, tr mica incl;  
LS: crm-gy brn-wh, sb ply-blky, frm, brt, slty mtx; v calc, mic xln wxy tex, v tr bent  
w/ dism pyr

SS: lt brn-brn, clr-trnsl gr, occ lse cl qtz gr, sb rnd  
f-vf gr, frm, p por, arg cmt, tr mica incl;  
LS: crm-offwht, sb ply-blky, frm, brt, slty mtx; v c

MD: 8,755'  
TVD: 6,506.93'  
Inclination: 90.5 °  
Azimuth: 91.7 °  
VS: 1,239'

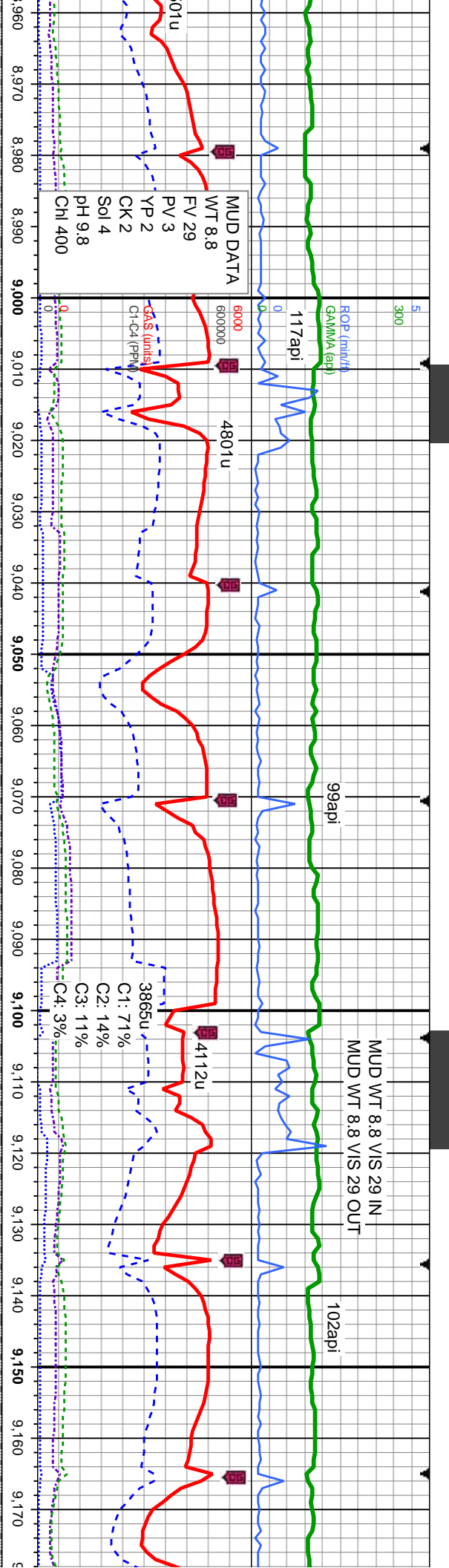
MD: 8,849'  
TVD: 6,506.52'  
Inclination: 90 °  
Azimuth: 91 °  
VS: 1,333'

MD: 8,944'  
TVD: 6,507.77'  
Inclination: 88.5 °  
Azimuth: 89.8 °  
VS: 1,427.98'

TVD (ft)  
6700







8,960 8,970 8,980 8,990 9,000 9,010 9,020 9,030 9,040 9,050 9,060 9,070 9,080 9,090 9,100 9,110 9,120 9,130 9,140 9,150 9,160 9,170

101u

117api

4801u

99api

4112u

102api

SS: lt brn-brn, mod srt, sl calc, calc, f-vf gr, frm, p por, arg cmt, tr mica incl; SLTY SH: med-dk gy, sl frm-frm, rthy tex, arg, sb pily-pily, sdy ip.

4900

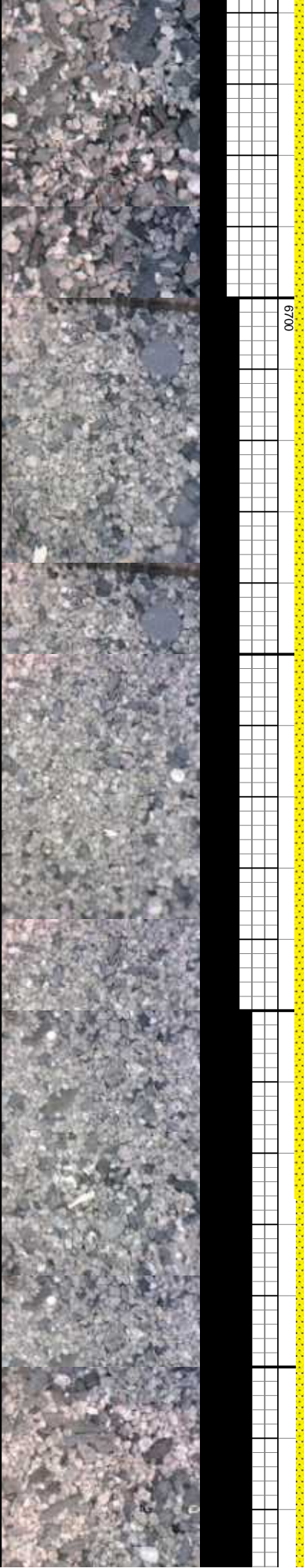
SS: lt brn-brn, occ gy brn, clr-trnsl gr, occ clr qtz gr, sb rnd-sb ang, frm, mod srt, sl calc, f-vf gr, frm, p por, arg cmt, tr mica incl; SLTY SH: med-dk gy, sl frm-frm, rthy tex, arg, sb pily-pily, sdy ip, tr pyr

TVD (ft)

MD: 9,038'  
TVD: 6,510.06'  
Inclination: 88.7°  
Azimuth: 89.8°  
VS: 1,521.92'

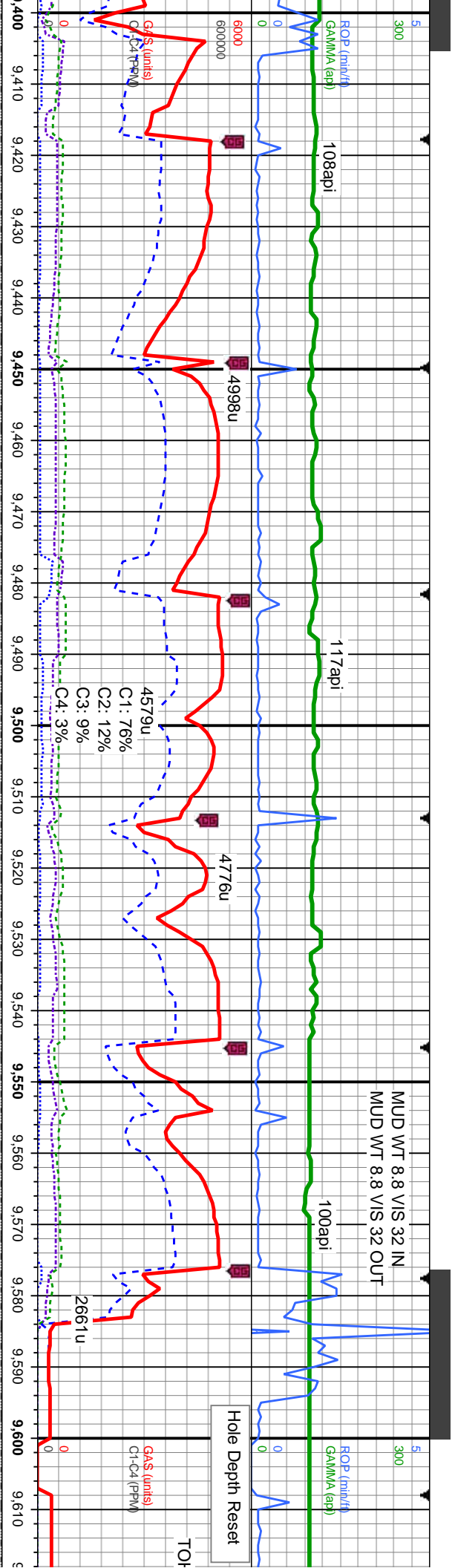
SS: lt brn-brn, clr-trnsl gr, com clr qtz gr, sb rnd-sb ang, frm, mod calc, f-vf gr, frm, p por, arg cmt, tr mica incl; SLTY SH: med-dk gy, sl frm-frm, rthy tex, arg, sb pily-pily, sdy ip.

MD: 9,133'  
TVD: 6,510.73'  
Inclination: 90.5°  
Azimuth: 91.2°  
VS: 1,616.9'

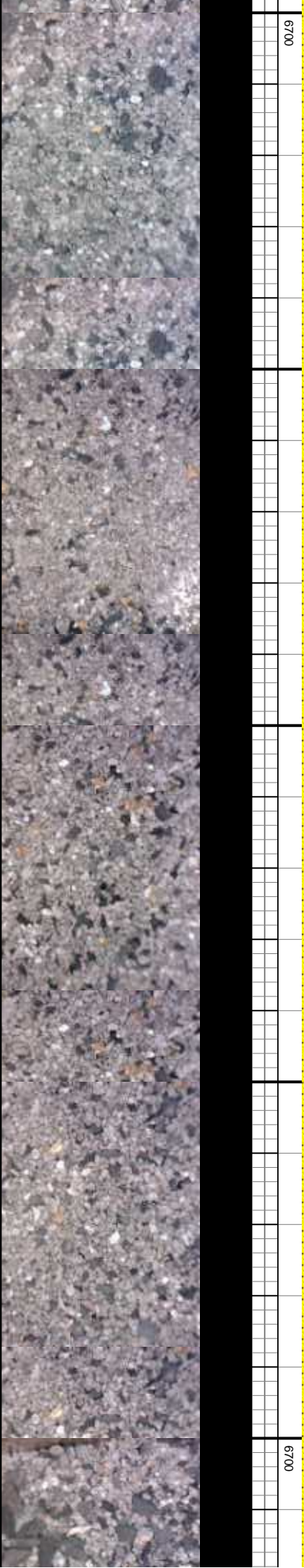


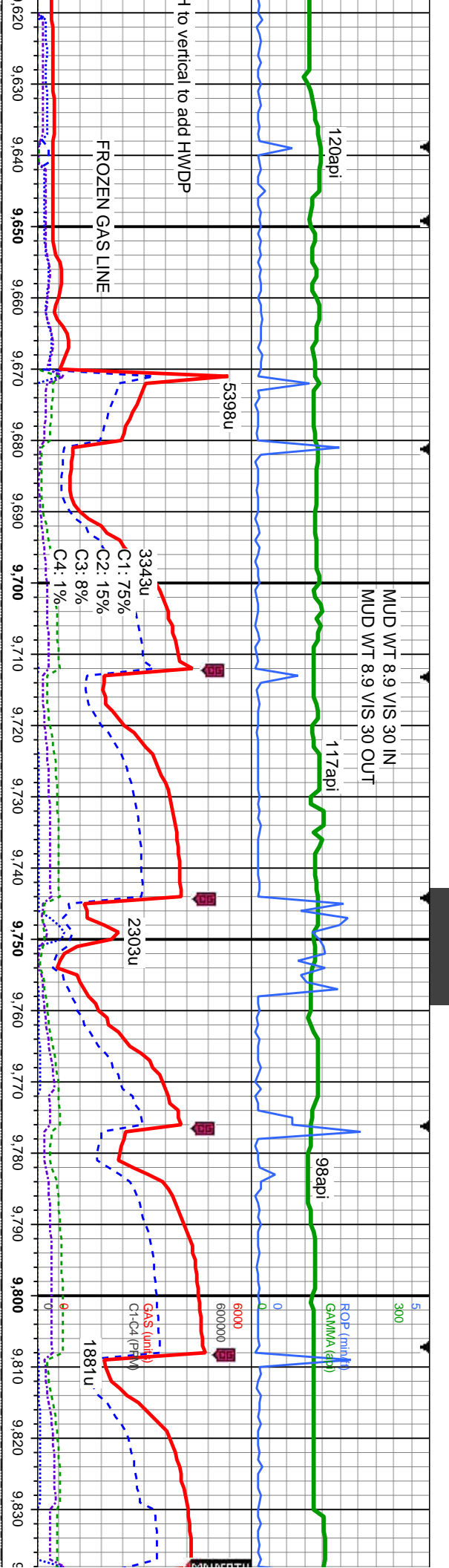






4900	SS: lt brn-brn, tr gy brn, clr-trnsl gr, occ clr qtz gr, sb md-sb ang, frm, mod srt, sl calc, f-vf gr, frm, p por, arg cnt, tr mica incl; SLTY SH: med-dk gy, sl frm-frm, rthy tex, arg, sb pty-pty, sdy ip, tr pyr	SS: brn, occ gy brn & lt brn, clr-trnsl gr, occ clr qtz gr, sb md-sb ang, frm, mod srt, sl calc, f-vf gr, frm, p por, arg cnt, tr mica incl; SLTY SH: med-dk gy, sl frm-frm, rthy tex, arg, sb pty-pty, sdy ip, tr pyr	4900
MD: 9,417' TVD: 6,511.63' Inclination: 90.4 ° Azimuth: 89.9 ° VS: 1,900.8'			
MD: 9,511' TVD: 6,511.14' Inclination: 90.2 ° Azimuth: 89 ° VS: 1,994.75'			
MD: 9,606' TVD: 6,511.39' Inclination: 89.5 ° Azimuth: 91 ° VS: 2,089.72'			





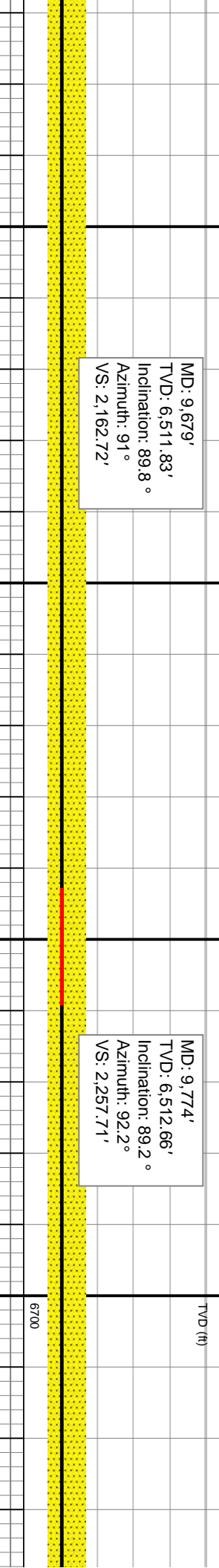
occ gy brn & lt brn, clr-trnsl gr, occ clr qtz gr, sb md-sb ang, frm, mod srt, sl calc, f-vf gr, frm, p por, arg cnt, tr mica incl; SLTY SH: med-dk gy, sl frm-frm, rthy tex, arg, sb pily-pily, sdy ip, tr pyr

SS: brn, occ gy brn & lt brn, clr-trnsl gr, occ clr qtz gr, sb md-sb ang, frm, mod srt, sl calc, f-vf gr, frm, p por, arg cnt, tr mica incl; SLTY SH: med-dk gy, sl frm-frm, rthy tex, arg, sb pily-pily, sdy ip, tr pyr

SS: brn, occ gy brn & lt brn, mod srt, sl calc, f-vf gr, frm, SLTY SH: med-dk gy, sl frm-

MD: 9,679'  
TVD: 6,511.83'  
Inclination: 89.8 °  
Azimuth: 91 °  
VS: 2,162.72'

MD: 9,774'  
TVD: 6,512.66'  
Inclination: 89.2 °  
Azimuth: 92.2 °  
VS: 2,257.71'







154api

1u

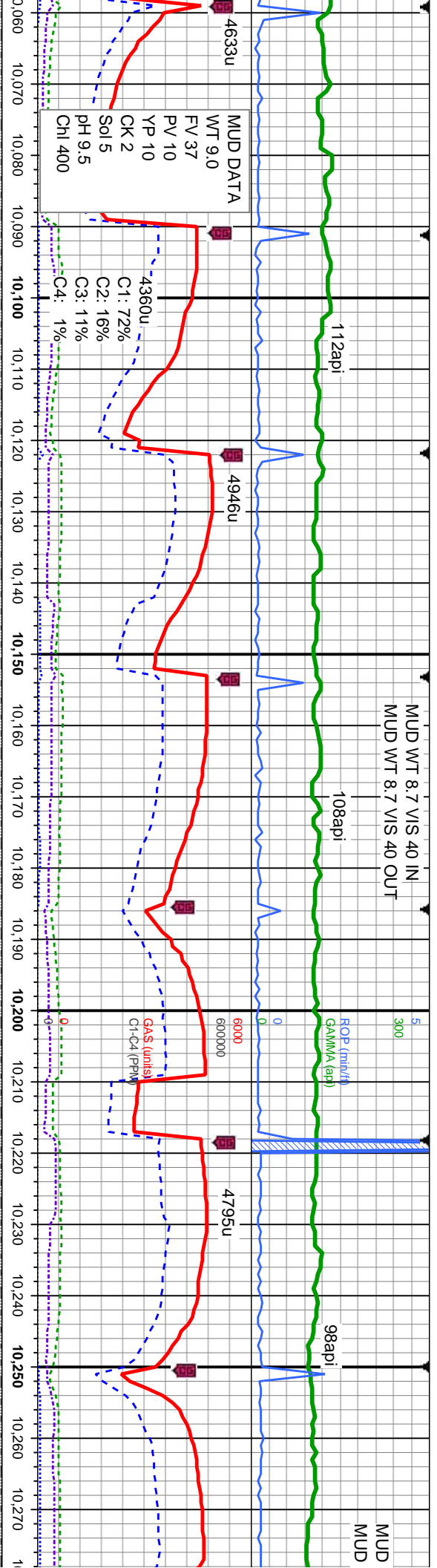
~~GAS (units)~~  
C1-C4 (PPM)

4900	SS: brn-occ gy brn, tr lt brn, clt-trns sl gr, tr clr c mod srl, sl calc, f-vl gr, frm, p por, arg cmt, tr SLTY SH: med-dk gy, sl frm-frm, slty-sl rthy te tr DVR
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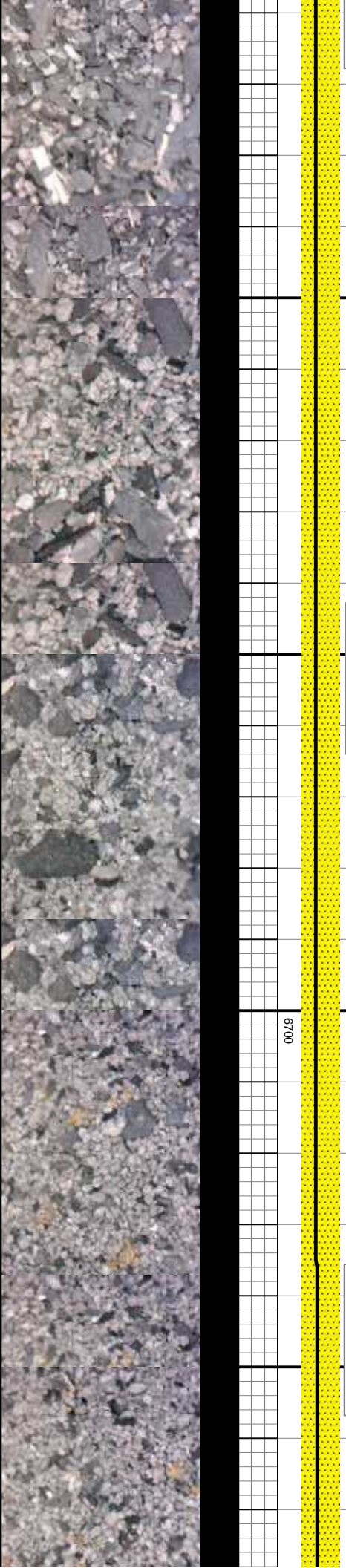
MD: 10,05  
TVD: 6,51  
Inclination  
Azimuth: 3  
VS: 2,540.







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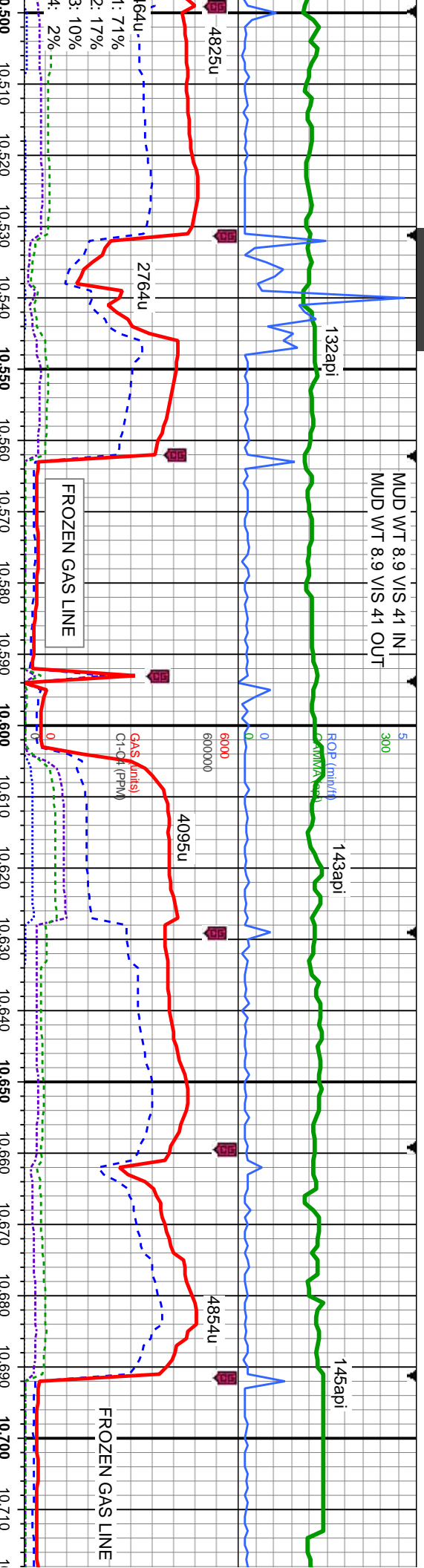








MUD WT 8.9 VIS 41 IN  
MUD WT 8.9 VIS 41 OUT



SS: brn-occ gy brn, lt brn, cl-trnsi gr, occ clr qtz gr, sb md-sb ang, frm,  
mod srl, sl calc, f-vf gr, frm, p por, arg cnt, com mica incl;  
SLTY SH: med-dk gy, sl frm-frm, silty-sl rthy tex, arg, pily-sb pily, tr pyr

MD: 10,530'  
TVD: 6,511.92'  
Inclination: 89.5 °  
Azimuth: 89.7 °  
VS: 3,013.53'

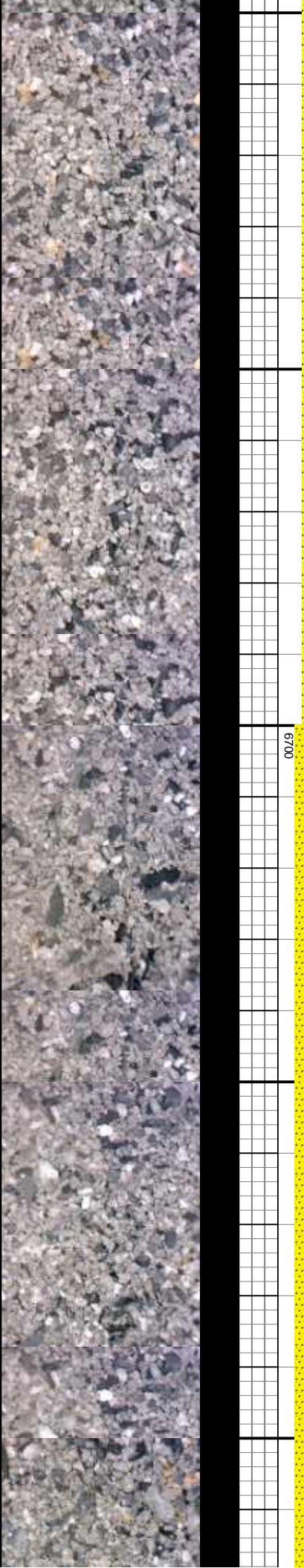
MD: 10,562'  
TVD: 6,512'  
Inclination: 90.2 °  
Azimuth: 89.6 °  
VS: 3,045.52'

MD: 10,625'  
TVD: 6,511.89'  
Inclination: 90 °  
Azimuth: 89.3 °  
VS: 3,108.48'

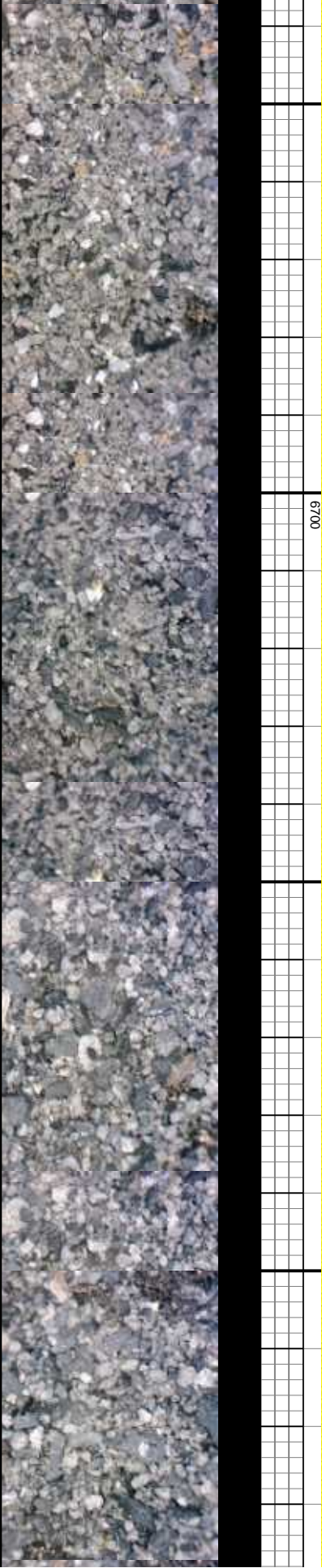
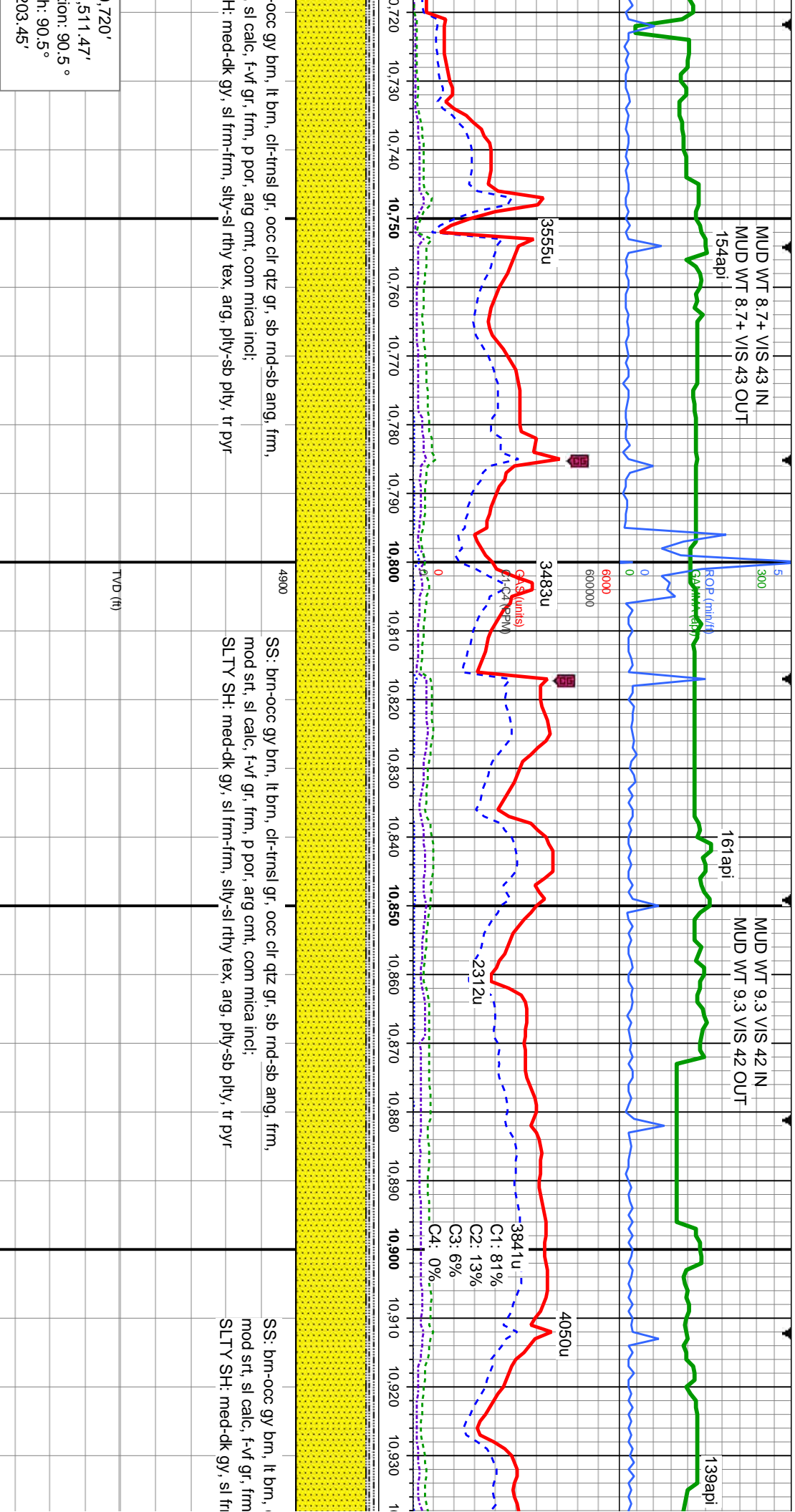
MD: 10,625'  
TVD: 6,511.89'  
Inclination: 90 °  
Azimuth: 89.3 °  
VS: 3,108.48'

SS: brn-occ gy brn, lt brn, cl-trnsi gr, occ clr qtz gr, sb md-sb ang, frm,  
mod srl, sl calc, f-vf gr, frm, p por, arg cnt, com mica incl;  
SLTY SH: med-dk gy, sl frm-frm, silty-sl rthy tex, arg, pily-sb pily, tr pyr

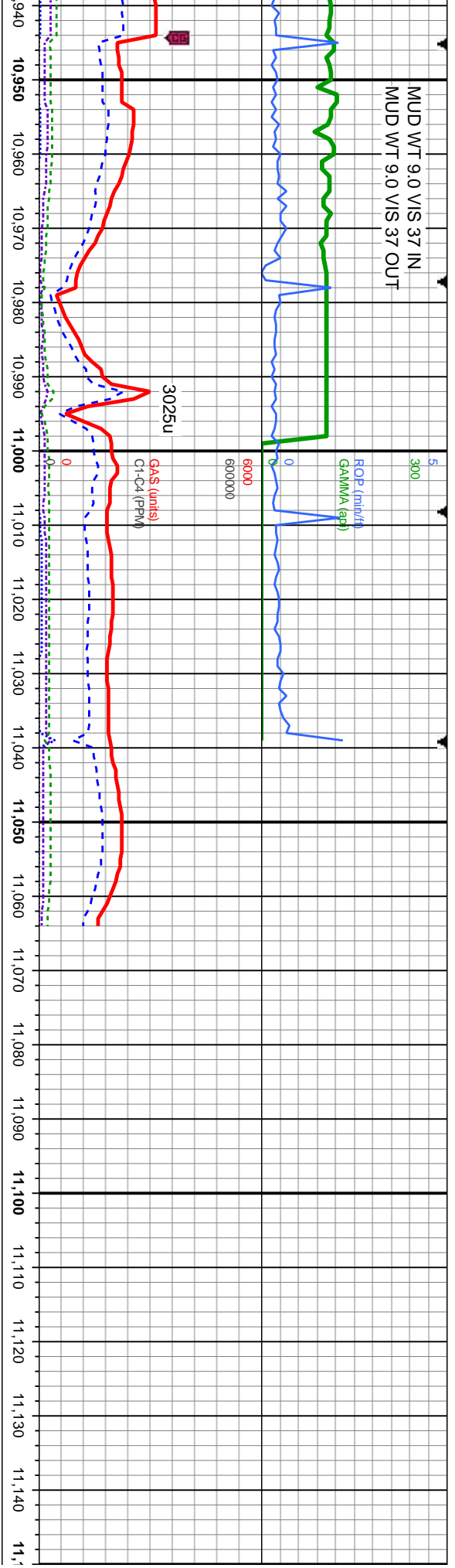
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mod srl, sl calc, f-vf gr, frm, p por, arg cnt, com mica incl;  
SLTY SH: med-dk gy, sl frm-frm, silty-sl rthy tex, arg, pily-sb pily, tr pyr







MUD WT 9.0 VIS 37 IN  
MUD WT 9.0 VIS 37 OUT



clt-trnsl gr, occ clr qtz gr, sb rnd-sb ang, frm,  
, p por, arg cnt, com mica incl;  
m-frm, slty-sl rthy tex, arg, pty-sb pty, tr pyr

SS: brn-occ gy brn, lt brn, clt-trnsl gr, occ clr qtz gr, sb rnd-sb ang, frm,  
mod srl, sl calc, f-vf gr, frm, p por, arg cnt, com mica incl;  
SLTY SH: med-dk gy, sl frm-frm, slty-sl rthy tex, arg, pty-sb pty, tr pyr

TVD (ft)

TD Lateral- 11,064' MD  
1/28/2014 @ 22:15 MST  
Thank you for using  
Columbine Logging Inc.

