



Scale: 5" / 100'  
Measured Depth Log

Well Name Spurling 35C-34HZ

Location NWNW: SEC 34, TWP 2N 67W 6 PM

State COLORADO County WELD

Country USA Rig Number XTREME 6

API Number 0512339126 AFE # 2085789

Region D-J BASIN Field WATTENBERG

Spud Date 5/5/2014 Drilling Completed 5/12/2014

Surface Coordinates 377' FNL, 1178' FWL

Bottom Hole Coordinates 460' FFSSL, 2450' FFWLL

Ground Elevation 5,013' K.B. Elevation 5,033'

Logged Interval 7,200' To 12,139' Total Depth 12,139'

Formation CODELL

Type of Drilling Fluid LSND/ PHPA

## Operator

Company Anadarko

Address Granite Tower  
1099 18th St. #1800  
Denver, CO 80202  
(KB)

## Geologist

Name CHRISTIAN VENTURINO, THOMAS WRIGHT

Company COLUMBINE LOGGING

Address 2385 S. Lipan Street  
Denver, CO 80223  
Phone: 303-289-7764



























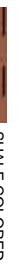
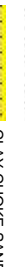





## Zone Color Coding

Oil  
Note  
Error




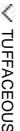
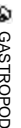
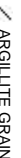
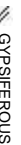

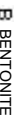







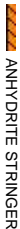



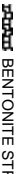



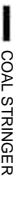






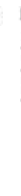


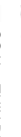











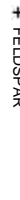
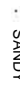
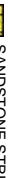




Condensate  
Core  
Water

G  
Pl  
S

Rock Types







 UNKNOWN	 COAL	 METAMORPHIC	 SHALY SILTSTONE
 ANHYDRITE	 CONGLOMERATE	 NO SAMPLE	 SHALY SHALE
 BENTONITE	 DOLOMITE	 SALT	 SILTSTONE
 BRECCIA	 GRANITE	 SANDSTONE	 TILL
 CHALK	 GYPSUM	 SALT-PEPPER SANC	 TUFF
 CEMENT	 IGNEOUS	 SHALE	 WELDED TUFF
 CHERT	 SIDERITE or LIMONITE	 SHALE COLORED	
 CLAY CHOKE SANC	 LIMESTONE	 SHALE GRAY	
 CLAYSTONE	 MARLSTONE	 SHALY SANDSTONE	

Accessories

 F FOSSIL	 ARGILLACEOUS	 GLAUCONITE	 TUFFACEOUS
 GASTROPOD	 ARGILLITE GRAIN	 GYPSIFEROUS	
 ALGAE	 B BENTONITE	 HEAVY MINERAL	
 AMPHIPORA	 BITUMENOUS SUBSTANCE	 INOCERAMUS	
 BELEMNITE	 BRECCIA FRAGMENTS	 K KAOLIN	 ANHYDRITE STRINGER
 BIOCLASTIC	 PELLET	 M MARLSTONE	 COAL STRINGER
 BRACHIOPOD	 PISOLITE	 MINERAL CRYSTALS	 DOLOMITE STRINGER
 BRYOZOA	 PLANT REMAINS	 N NODULES	 GYPSUM STRINGER
 CEPHALOPOD	 PLANT SPORES	 PHOSPHATE PELLETS	 LIMESTONE STRINGER
 CORAL	 SCAPHOPOD	 P PYRITE	 MARLSTONE (CALC) STRG
 CRINOID	 STROMATOPOROID	 S SALT CAST	 MARLSTONE (DOL) STRG
 ECHINOID	 F FELDSPAR	 S SANDY	 SANDSTONE STRINGER
 FISH	 FERRUGINOUS PELLET	 S SILICEOUS	 SHALE STRINGER
 FORAMINIFERA	 ANHYDRITIC	 S SILTY	 SILTSTONE STRINGER

Minerals

Oil Show

 MOLDIC	 O ORGANIC
 D DEAD	 P PINPOINT
 E EVEN	 V VUGGY

Engineering

-  QUESTIONABLE
-  SPOTTED STAINING

Porosity

-  CONNECTION (LEFT)
-  CONNECTION (RIGHT)
-  F FENESTRAL
-  CONNECTION GAS
-  F FRACTURE
-  CORE - LOST
-  INTERCRYSTALLINE
-  CORE - RECOVERED
-  I INTEROOLITIC
-  DST INTERVAL

# Other Symbols

 FAULT       WIRELINE TESTED - LEFT    **E** EARTHY

 FORMATION TOP       WIRELINE TESTED - RT    **FX** FINELYXLN

 GAS SHOW      **GS** GRAINSTONE

 **MINDEPTH** MN DEPTH      **L** LITHOGRAPHIC

## Rounding

 NORMAL FAULT      **A** ANGULAR      **MX** MICROXLN

 OIL SHOW      **R** ROUNDED      **MS** MUDSTONE

 OVERTURNED STRATA      **B** SUBANG      **PS** PACKSTONE

 REVERSE FAULT      **F** SUBRND      **WS** WACKESTONE


 SIDEWALL CORE (LEFT)

 SIDEWALL CORE (RIGHT)

## Textures

## Sorting

 SLIDE      **BS** BOUNDSTONE      **M** MODERATE

 **DS** SURVEY      **C** CHALKY      **P** POOR

 TRIP GAS      **CX** CRYPTOXLN      **W** WELL

Slide/Rotate

ROP  
ROF  
GAMMA

ROP & GAS DATA PROVIDED BY  
PASON - GAMMA & SURVEY DATA  
PROVIDED BY BAKER HUGHES

BEGIN SPURLING 35C-34HZ AT 7,200' MD.  
DRILLING 8.75" HOLE. BIT #1, SMITH, SD1611.  
DEPTH IN: 1045 MD. KOP: 7026 MD.

Total Gas & Chromatograph

GAS  
C1  
C2  
C3  
C4  
CO2

BEGIN COLUMBINE LOGGING INC.,  
1-MAN LOGGING 5/9/2014

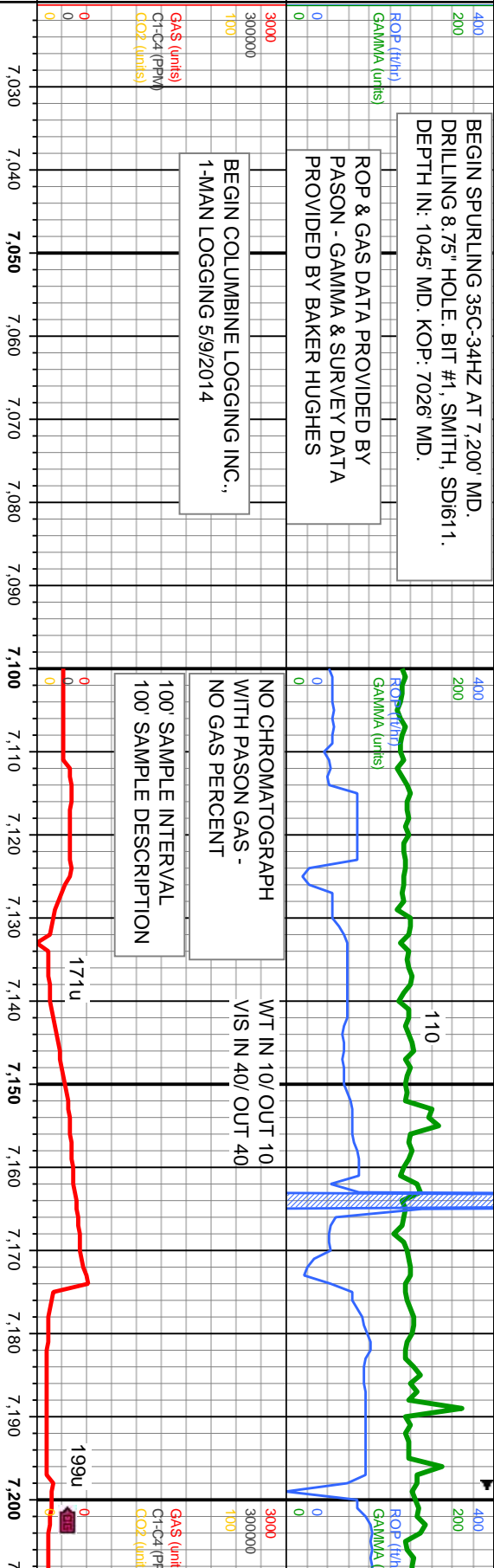
Depth Labels

% Lith

Well Bore  
TVD

Oil Show

Images



THE INTERPRETATION OF THE  
WELLBORE LITHOLOGY IS NOT TO  
SCALE

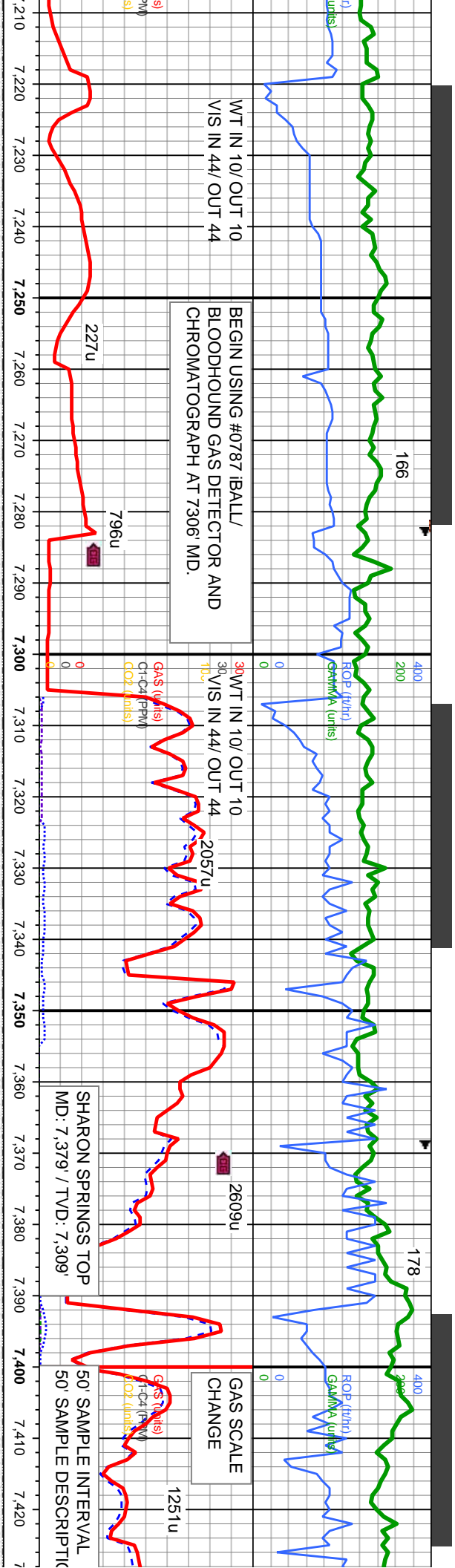
ACETONE WAS USED AS THE CUTTING AGENT WITH THE DIMPLE  
FILED TO THE RIM. THE RATINGS ARE BASED ON 7  
DESCRIPTORS: NONE, SLIGHT TRACE, TRACE, FAIR, MODERATE,  
GOOD, AND EXCELLENT. THE DESCRIPTOR USED IS BASED ON  
THE LOGGERS OBSERVATIONS AND BEST JUDGMENT OF  
BRILLIANCE, COLOR AND LONGEVITY OF THE CUT.

MD: 7,109'	MD: 7,152'	MD: 7,194'
TVD: 7,064.85'	TVD: 7,106.18'	TVD: 7,145.54'
Inclination: 13.05 °	Inclination: 18.85 °	Inclination: 21.98 °
Azimuth: 169.41 °	Azimuth: 171.78 °	Azimuth: 172.7 °
VS: -326.21'	VS: -314.56'	VS: -300.05'

SLTY SH: med-dk gy-blk, sb blk-ly-sb ply - ply, frm- mod  
frm, sl fri, slty, sl gr; mod dfse stmg dull bl cut, thin dull bl  
resd ring







MD: 7,237'  
TVD: 7,185.02'  
Inclination: 24.66 °  
Azimuth: 175.2 °  
VS: -283.13'

MD: 7,279'  
TVD: 7,222.76'  
Inclination: 27.37 °  
Azimuth: 177.92 °  
VS: -264.75'

MD: 7,322'  
TVD: 7,260.46'  
Inclination: 30.11 °  
Azimuth: 178.12 °  
VS: -244.09'

MD: 7,365'  
TVD: 7,297.05'  
Inclination: 33.27 °  
Azimuth: 179.26 °  
VS: -221.52'

MD: 7,407'  
TVD: 7,331.82'  
Inclination: 34.94 °  
Azimuth: 181.96 °  
VS: -197.97'

SLTY SH: med-dk gy-blk, sb blkly-sb plty - plty, frm-mod frm, sl fri, silty, sl gt: mod difse string dull amb cut, thn dull lt yel resdl ring

SLTY SH: med-dk gy-blk, sb blkly-sb plty - plty, frm-mod frm, sl fri, silty, sl gt: mod difse string dull bl cut, thn dull bl resdl ring

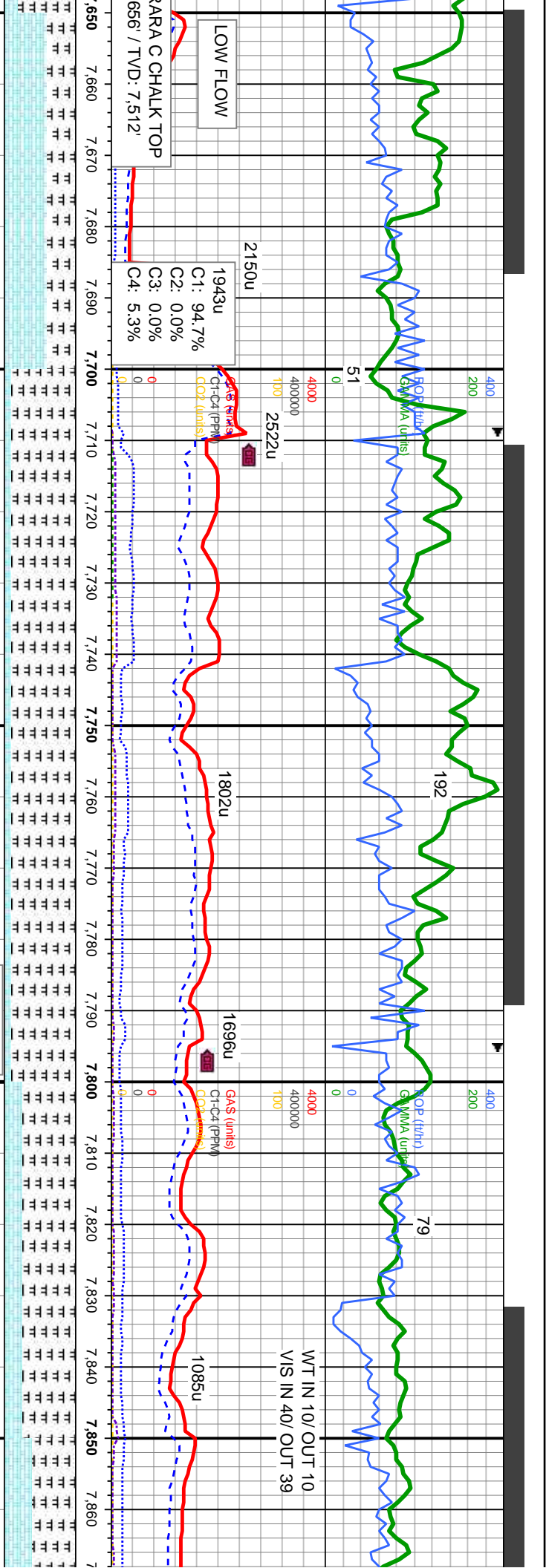
SLTY SH: med-dk gy-blk - plty, frm-mod frm, sl fri calc, tr mlst; mod difse 8c, thn dull bl resdl ring









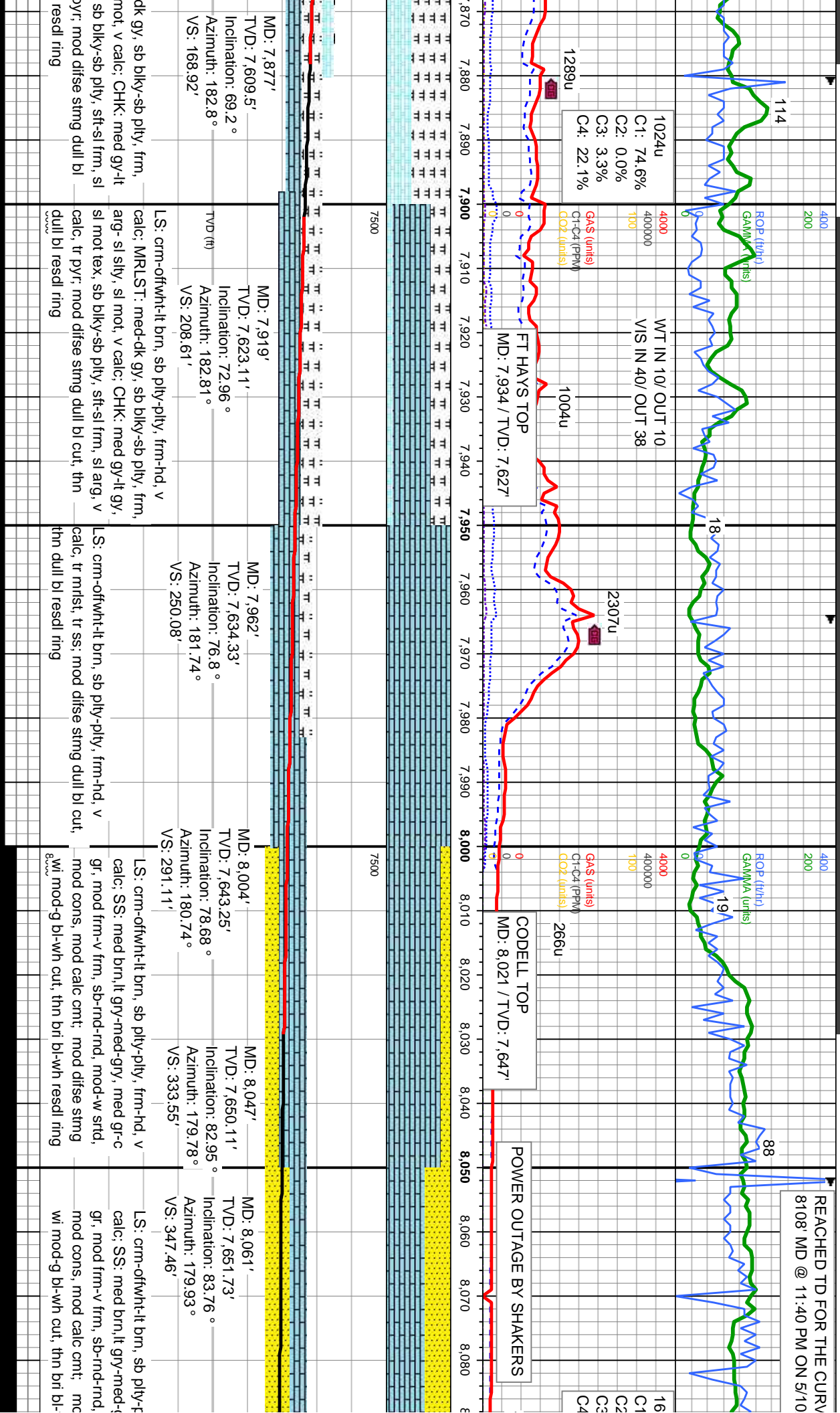


MD: 7.664' TVD: 7.515.93' Inclination: 56.99 ° Azimuth: 182.38 ° VS: -21.83'		MD: 7.706' TVD: 7.537.7' Inclination: 60.58 ° Azimuth: 182.81 ° VS: 14.05'		MD: 7.749' TVD: 7.558.03' Inclination: 62.98 ° Azimuth: 182.97 ° VS: 51.9'		MD: 7.792' TVD: 7.576.68' Inclination: 65.61 ° Azimuth: 182.47 ° VS: 90.6'		MD: 7.834' TVD: 7.593.51' Inclination: 67.14 ° Azimuth: 182.58 ° VS: 129.05'	
CHK: med gy-it gy, sl mot tex, sb blk-y-sb pily, sft-sl frm, sl arg, v calc; MRLST: med-dk gy, sb blk-y-sb pily, frm, arg-sl sily, sl mot, v calc, tr use fos frags, tr pyr: mod difse string dull bl cut, thn dull bl resdl ring		MRLST: med-dk gy, sb blk-y-sb pily, frm, arg-sl sily, sl mot, v calc; CHK: med gy-it gy, sl mot tex, sb blk-y-sb pily, sft-sl frm, sl arg, v calc, tr pyr: mod difse string dull bl cut, thn dull bl resdl ring		MRLST: med-dk gy, sb blk-y-sb pily, frm, arg-sl sily, sl mot, v calc; CHK: med gy-it gy, sl mot tex, sb blk-y-sb pily, sft-sl frm, sl arg, v calc, tr pyr: mod difse string dull bl cut, thn dull bl resdl ring		MRLST: med-dk gy, sb blk-y-sb pily, frm, arg-sl sily, sl mot, v calc; CHK: med gy-it gy, sl mot tex, sb blk-y-sb pily, sft-sl frm, sl arg, v calc, tr pyr: mod difse string dull bl cut, thn dull bl resdl ring		MRLST: med-dk gy, sb blk-y-sb pily, frm, arg-sl sily, sl mot, v calc; CHK: med gy-it gy, sl mot tex, sb blk-y-sb pily, sft-sl frm, sl arg, v calc, tr pyr: mod difse string dull bl cut, thn dull bl resdl ring	



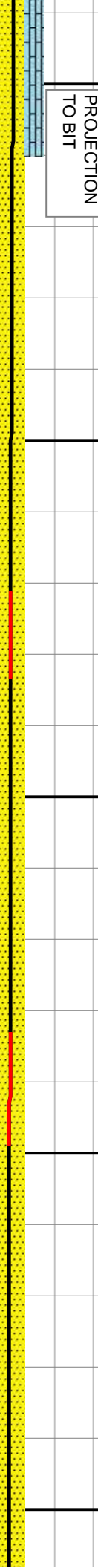
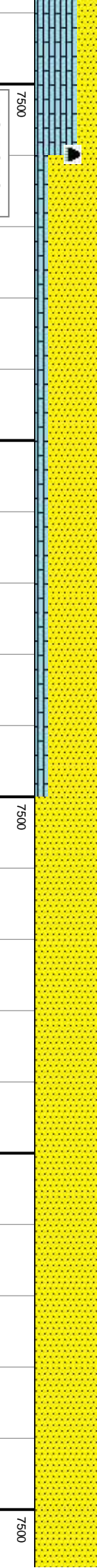
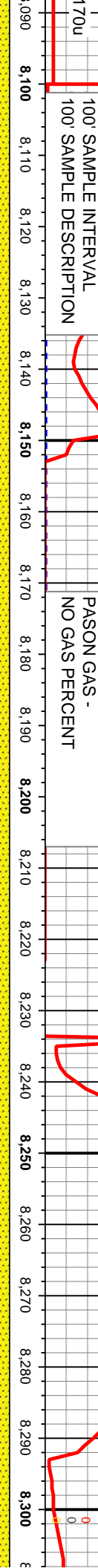
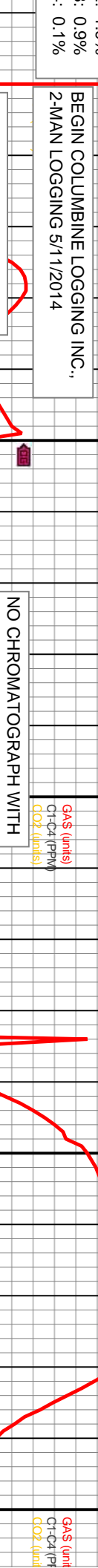
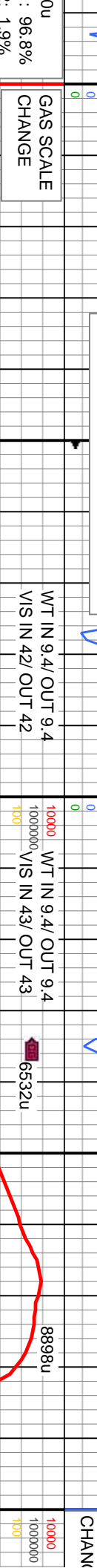
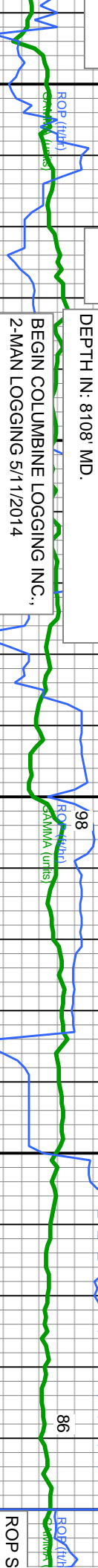


REACHED TD FOR THE CURV  
8108' MD @ 11:40 PM ON 5/10



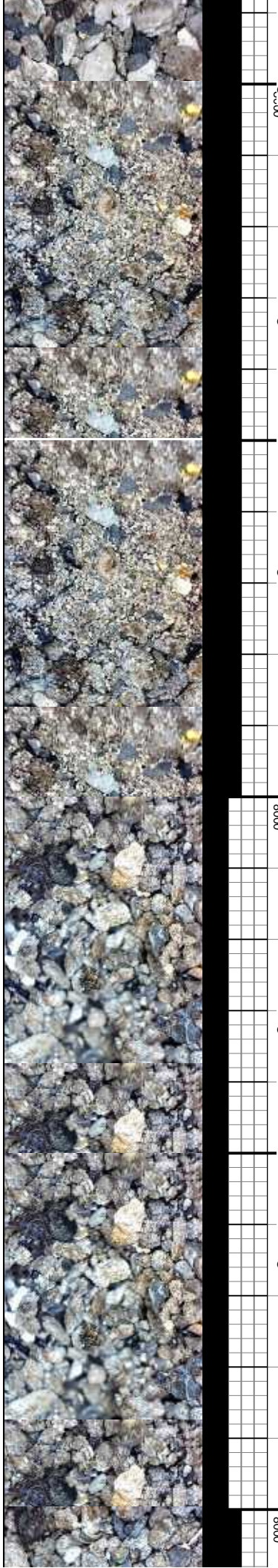


EAT 5/9/14 5/10/14 5/11/14  
DEPTH  
BEGIN DRILLING LATERAL ON 5/11/14  
AT 3:22PM. 6.125" HOLE WITH BIT #3.  
DEPTH IN: 8108' MD.

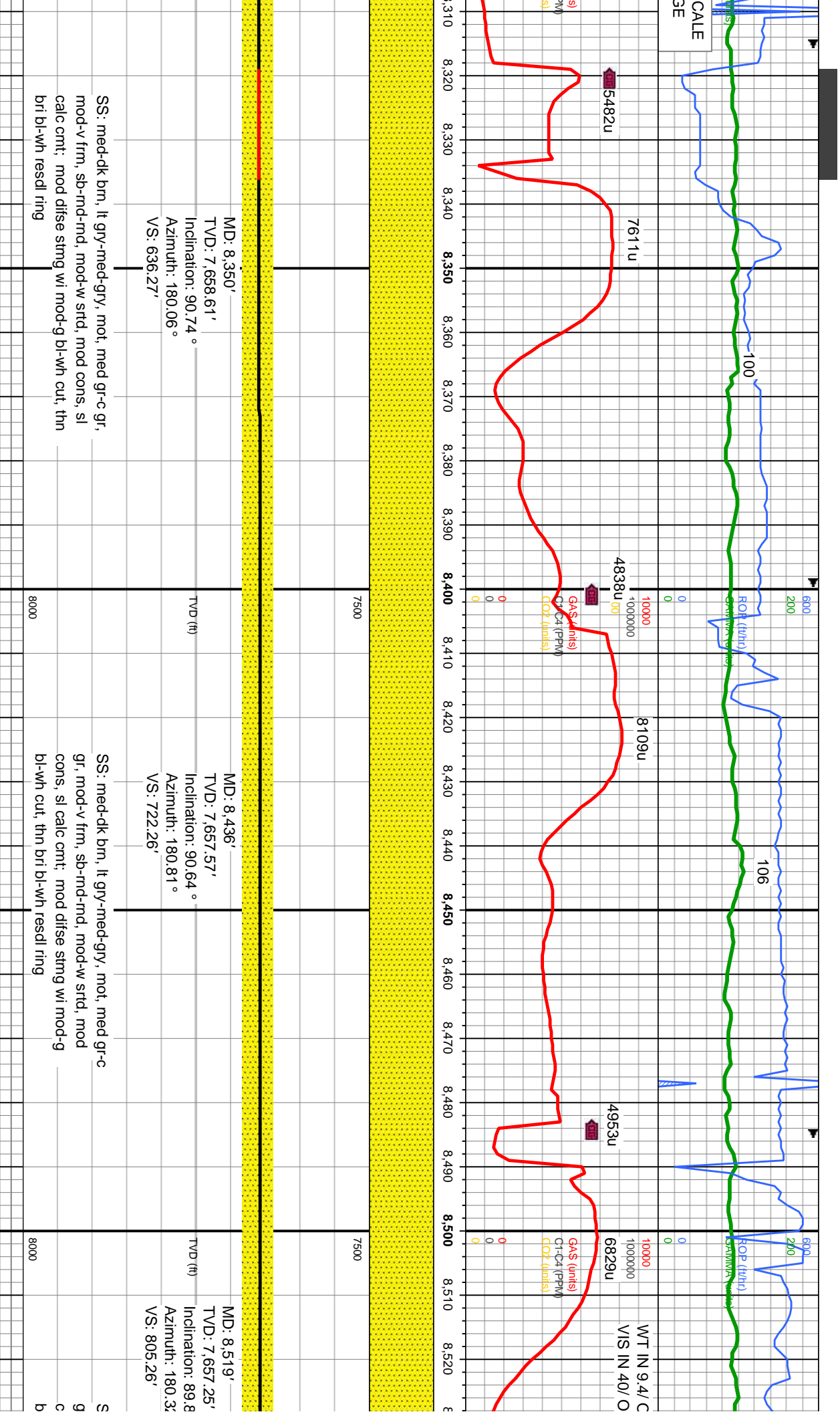


MD: 8,108'	MD: 8,120'	MD: 8,182'	MD: 8,265'
TVD: 7,654.59'	TVD: 7,655.74'	TVD: 7,657.31'	TVD: 7,658.72'
Inclination: 89.26 °	Inclination: 88.45 °	Inclination: 88.64 °	Inclination: 89.41 °
Azimuth: 179.93 °	Azimuth: 179.86 °	Azimuth: 180.43 °	Azimuth: 179.16 °
VS: -254.46'	VS: 406.31'	VS: 468.29'	VS: 551.27'

SS: med brn, lt gry-med-gry, med gr-c gr, mod  
firm-v firm, sb-rnd-rnd, mod-w strd, mod cons,  
mod calc cnt; LS: crn-offwh-lt brn, sb  
ply-ply, firm-hd, v calc: mod difse stmg wi  
mod-g bl-wh cut, thn bri bl-wh resdl ring







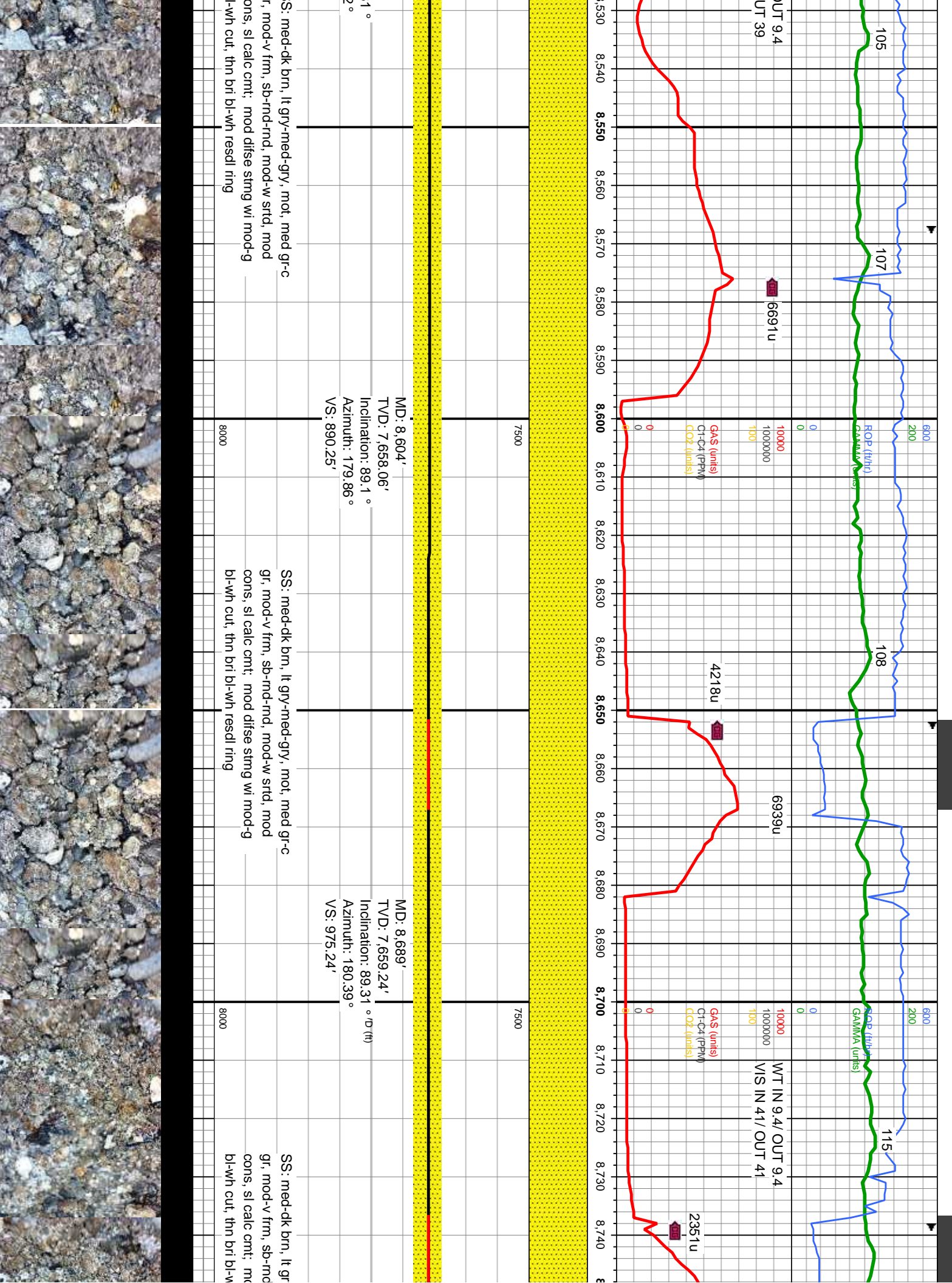
SS: med-dk brn, lt gry-med-gry, mot, med gr-c-gr, mod-v frm, sb-mnd-mnd, mod-w strd, mod cons, sl calc cnt; mod difse stmg wi mod-g bl-wh cut, thn bri bl-wh resdl ring

SS: med-dk brn, lt gry-med-gry, mot, med gr-c-gr, mod-v frm, sb-mnd-mnd, mod-w strd, mod cons, sl calc cnt; mod difse stmg wi mod-g bl-wh cut, thn bri bl-wh resdl ring

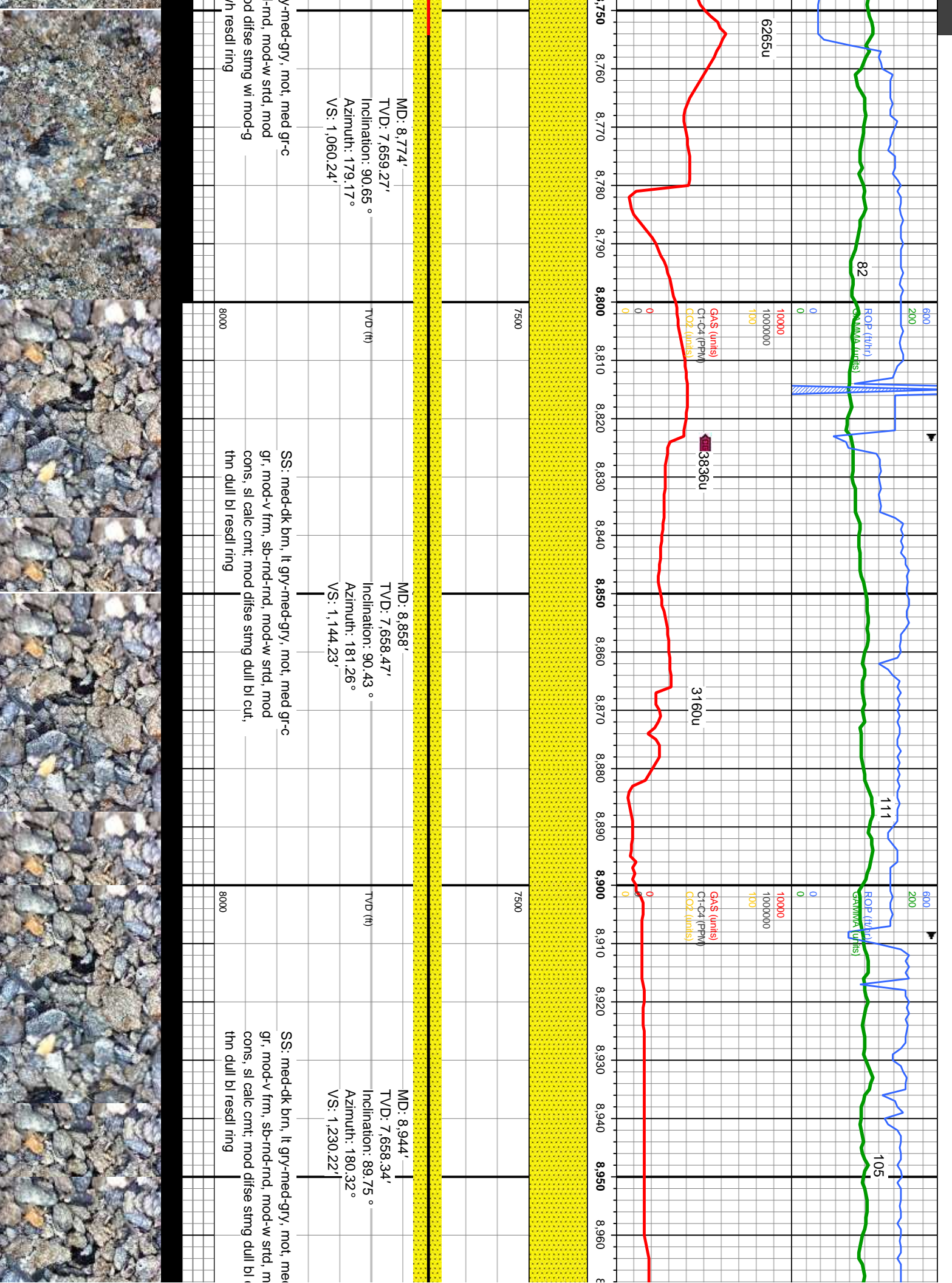
SS: med-dk brn, lt gry-med-gry, mot, med gr-c-gr, mod-v frm, sb-mnd-mnd, mod-w strd, mod cons, sl calc cnt; mod difse stmg wi mod-g bl-wh cut, thn bri bl-wh resdl ring



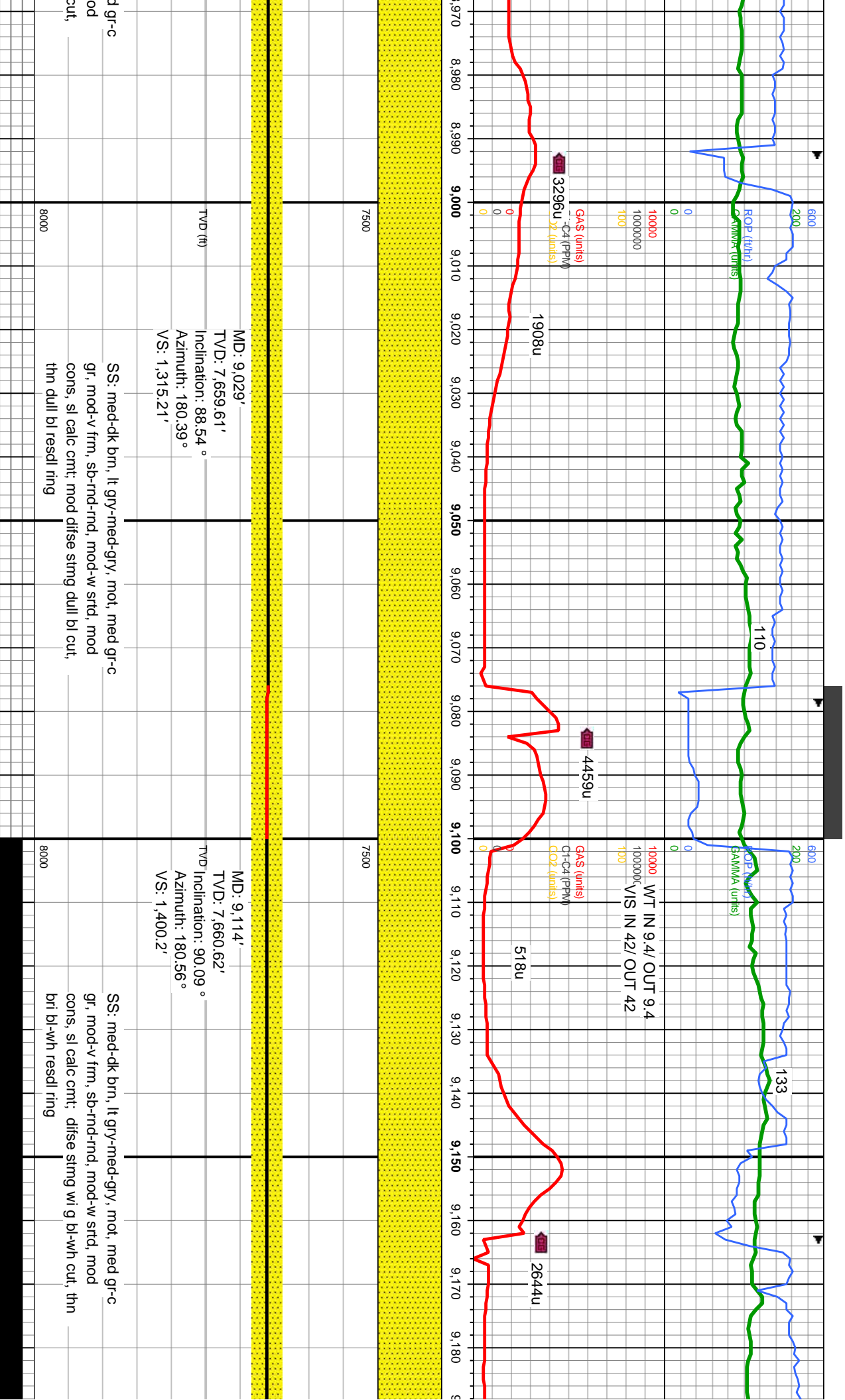












7500	MD: 9,029'	TVD: 7,659.61'	Inclination: 88.54 °	Azimuth: 180.39 °	VS: 1,315.21'
8000	TVD (ft)				

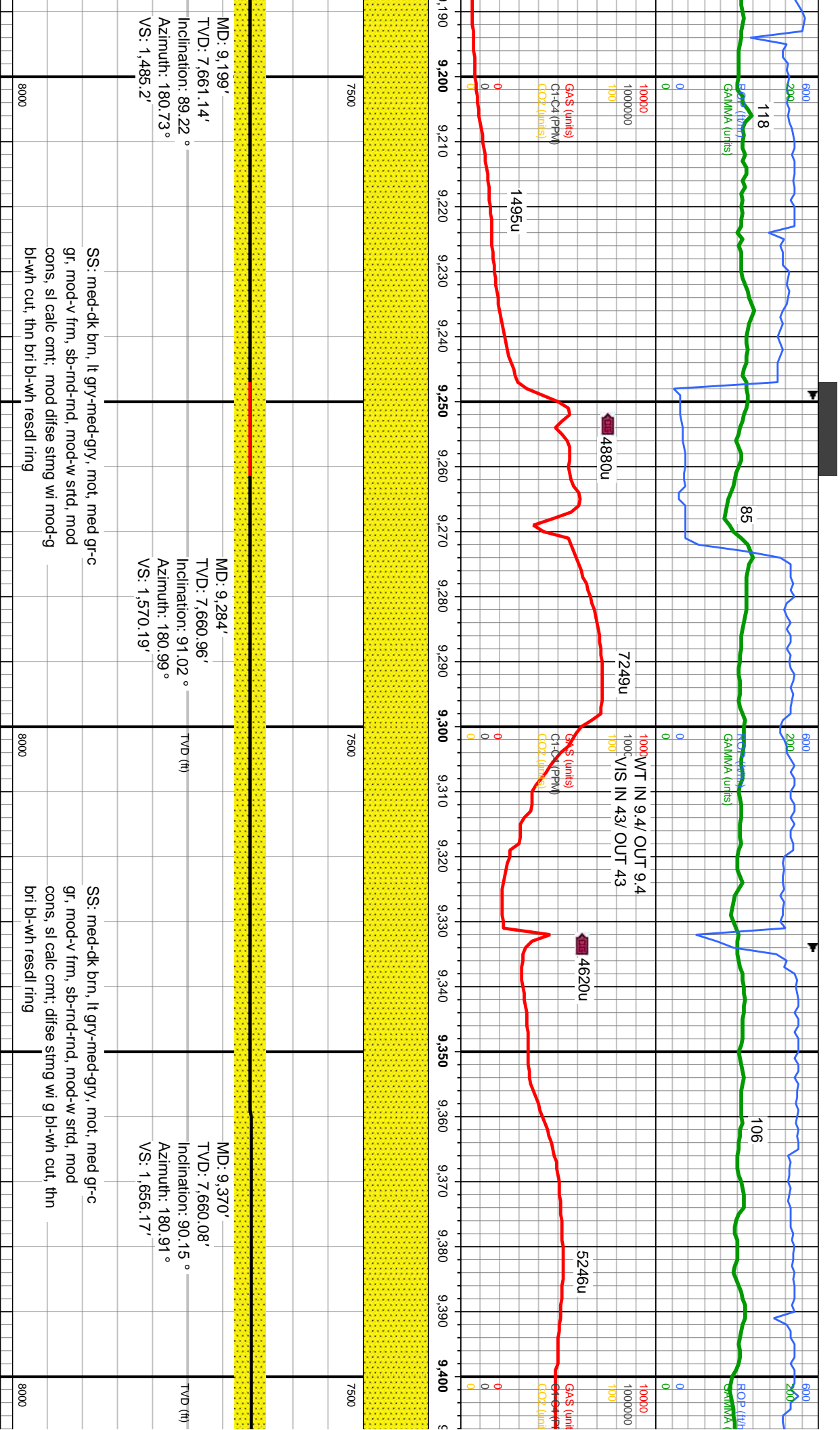
SS: med-dk brn, lt gry-med-gry, mot, med gr-c  
gr, mod-v frm, sb-rnd-rnd, mod-w strd, mod  
cons, sl calc cnt; mod difse stng dull bl cut,  
thn dull bl resdl ring

7500	MD: 9,114'	TVD: 7,660.62'	Inclination: 90.09 °	Azimuth: 180.56 °	VS: 1,400.2'
8000	TVD (ft)				

SS: med-dk brn, lt gry-med-gry, mot, med gr-c  
gr, mod-v frm, sb-rnd-rnd, mod-w strd, mod  
cons, sl calc cnt; difse stng wi g bl-wh cut, thn  
bri bl-wh resdl ring







MD: 9,199'  
TVD: 7,661.14'  
Inclination: 89.22 °  
Azimuth: 180.73 °  
VS: 1,485.2'

MD: 9,284'  
TVD: 7,660.96'  
Inclination: 91.02 °  
Azimuth: 180.99 °  
VS: 1,570.19'

MD: 9,370'  
TVD: 7,660.08'  
Inclination: 90.15 °  
Azimuth: 180.91 °  
VS: 1,656.17'

SS: med-dk brn, lt gry-med-gry, mot, med gr-c  
gr, mod-v frm, sb-rnd-rnd, mod-w strd, mod  
cons, sl calc cm; mod difse stmg wi mod-g  
bl-wh cut, thn bri bl-wh resd ring

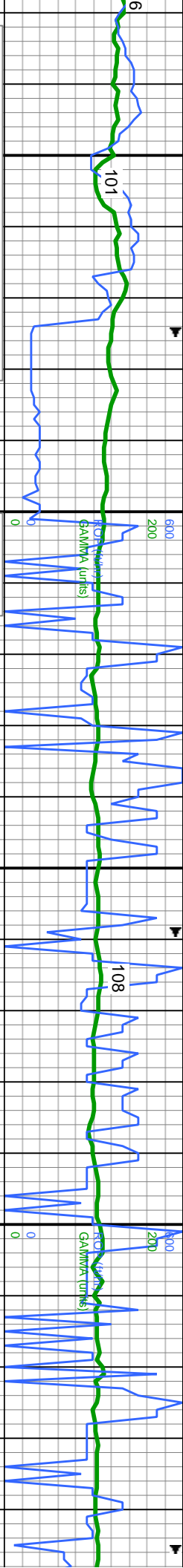
SS: med-dk brn, lt gry-med-gry, mot, med gr-c  
gr, mod-v frm, sb-rnd-rnd, mod-w strd, mod  
cons, sl calc cm; difse stmg wi g bl-wh cut, thn  
bri bl-wh resd ring





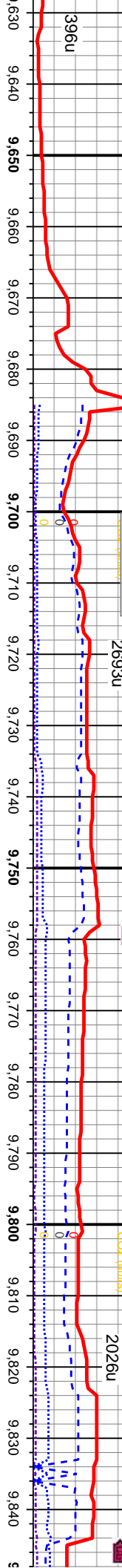






BEGIN USING #0787 IBALL/  
BLOODHOUND GAS DETECTOR AND  
CHROMATOGRAPH AT 9685 MD.

2128u  
C1: 70.6%  
C2: 0.4%  
C3: 4.5%  
C4: 24.5%



7500

MD: 9,710'  
TVD: 7,660.67'  
Inclination: 89.87 °  
Azimuth: 358.81 °  
VS: 1,996.14'

SS: med-dk brn, lt gry-med-gry, mot, sme s&p, med  
gr-c-gr, mod-v frm, sb-rnd-rnd, mod-w strd, mod  
cons, sl calc cnt; mod difse stmg wi mod-g bl-wh  
cut, thn bri bl-wh resd ring

MD: 9,796'  
TVD: 7,660.83' VD (ft)  
Inclination: 90.09 °  
Azimuth: 358.16 °  
VS: 2,082.14'

SS: med-dk brn, lt gry-med-gr  
sb-rnd-rnd, mod-w strd, mod  
stmg wi mod-g bl-wh cut, thn l

med-dk brn, lt gry-med-gry, mot, sme  
gr-c-gr, mod-v frm, sb-rnd-rnd,  
mod-w strd, mod cons, sl calc cnt; mod  
stmg wi mod-g bl-wh cut, thn bri bl-wh  
dl ring

8000

8000



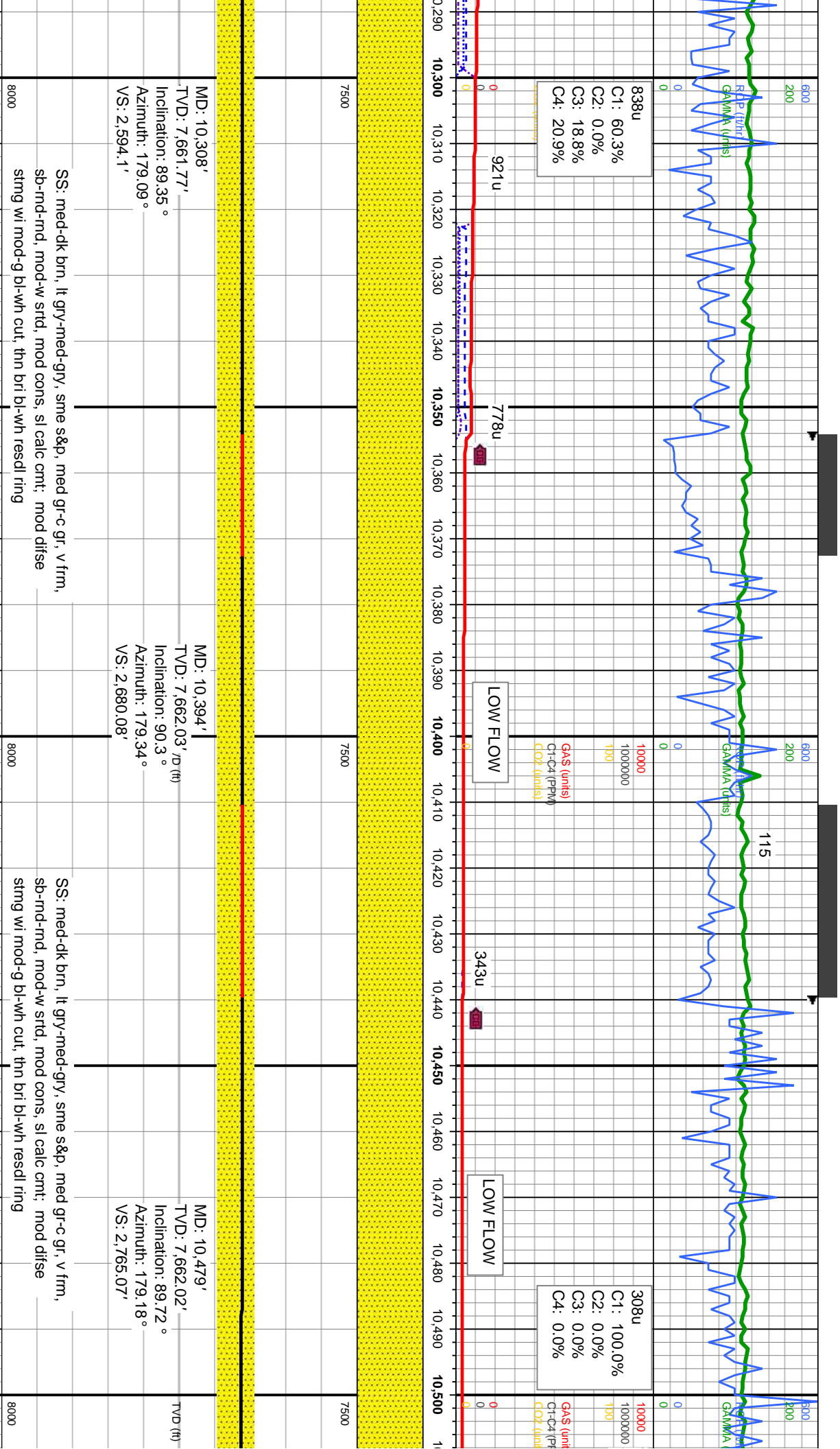












838u  
C1: 60.3%  
C2: 0.0%  
C3: 18.8%  
C4: 20.9%

LOW FLOW

308u  
C1: 100.0%  
C2: 0.0%  
C3: 0.0%  
C4: 0.0%

LOW FLOW

MD: 10,308'  
TVD: 7,661.77'  
Inclination: 89.35°  
Azimuth: 179.09°  
VS: 2,594.1'

MD: 10,394'  
TVD: 7,662.03' /D (ft)  
Inclination: 90.3°  
Azimuth: 179.34°  
VS: 2,680.08'

MD: 10,479'  
TVD: 7,662.02'  
Inclination: 89.72°  
Azimuth: 179.18°  
VS: 2,765.07'

SS: med-dk brn, lt gry-med-gry, sme s&p, med gr-c gr, v frm, sb-mnd-rnd, mod-w strd, mod cons, sl calc cnt; mod difse stng wi mod-g bl-wh cut, thn bri bl-wh resdl ring

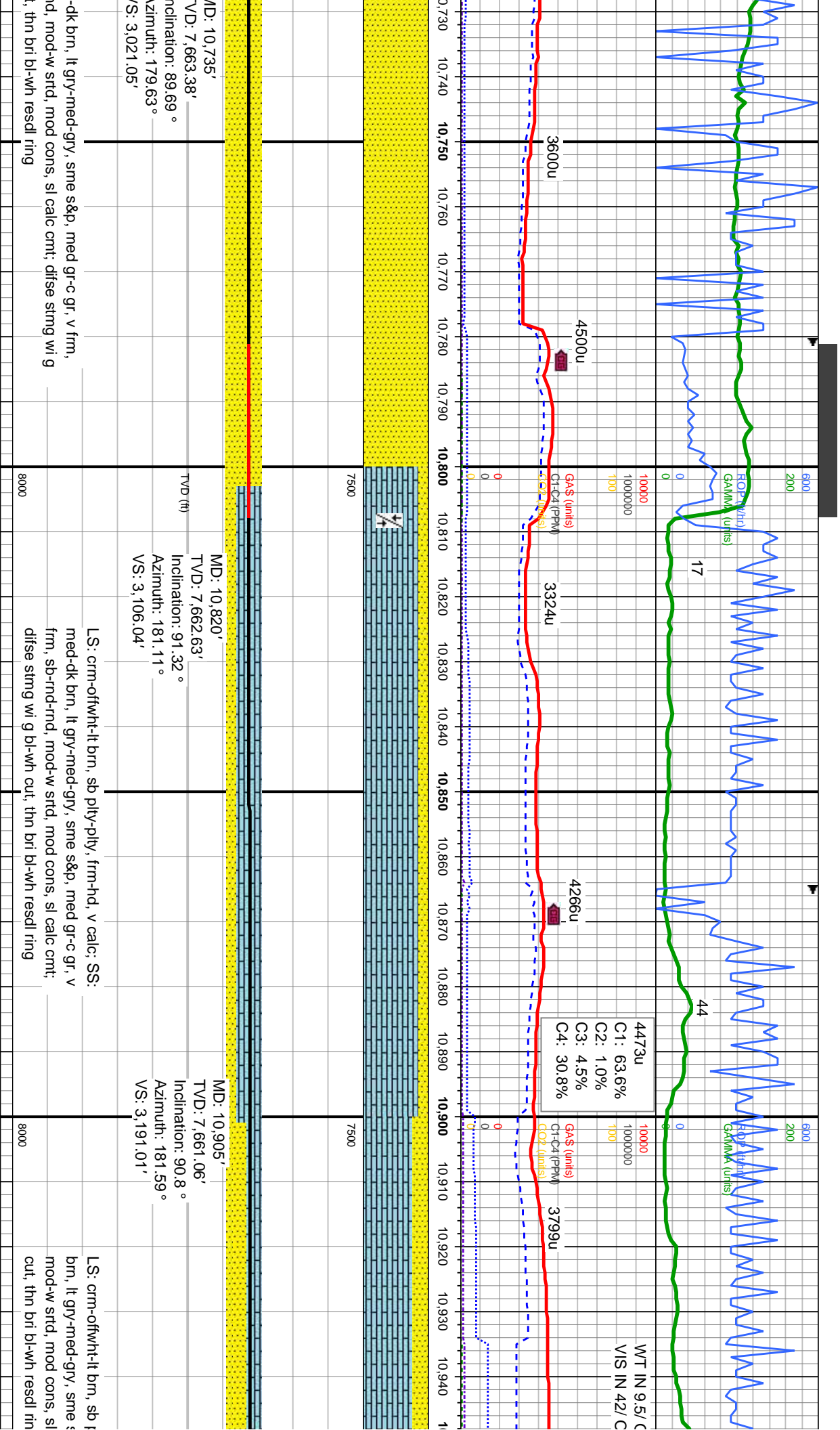
SS: med-dk brn, lt gry-med-gry, sme s&p, med gr-c gr, v frm, sb-mnd-rnd, mod-w strd, mod cons, sl calc cnt; mod difse stng wi mod-g bl-wh cut, thn bri bl-wh resdl ring



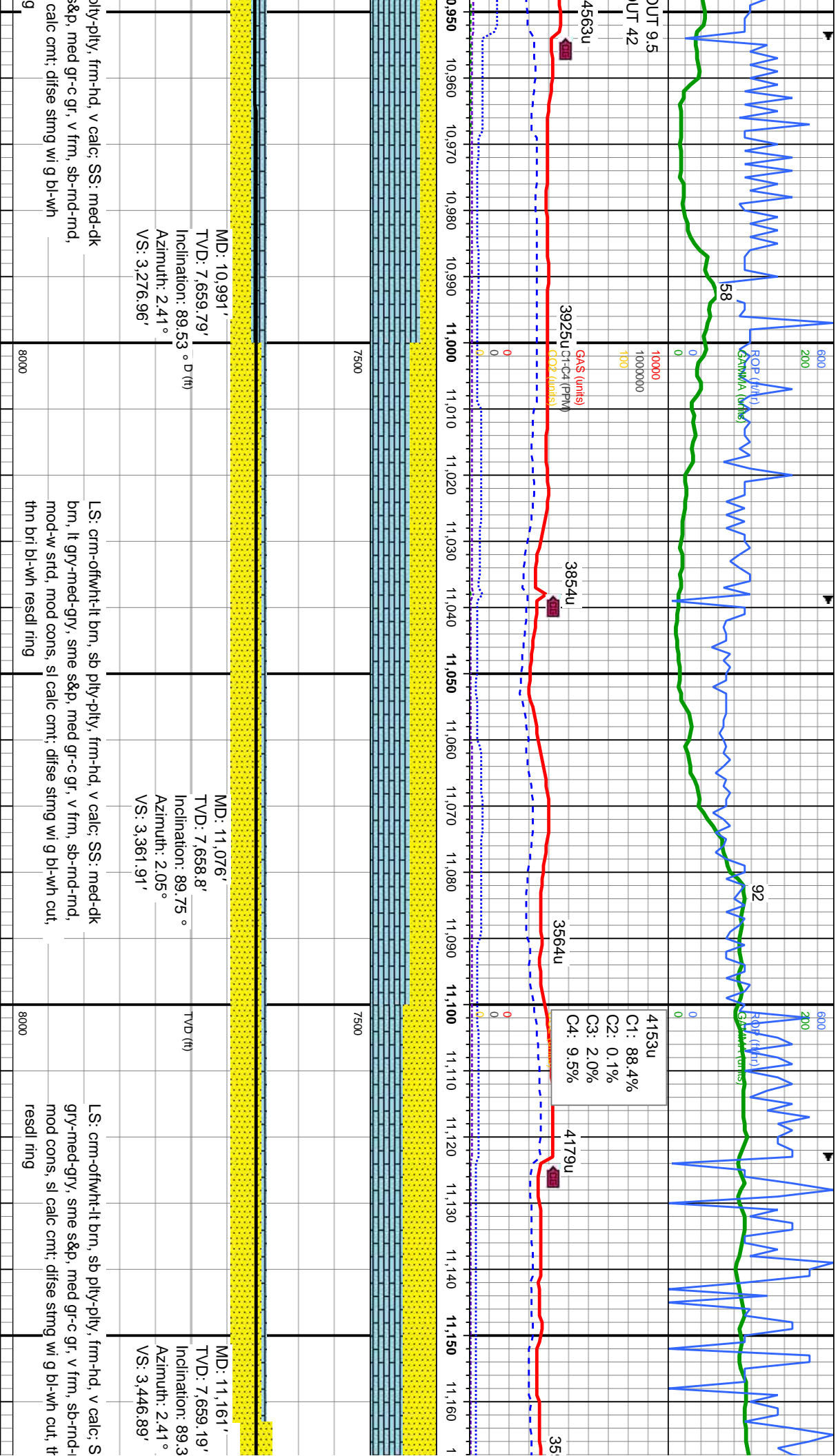




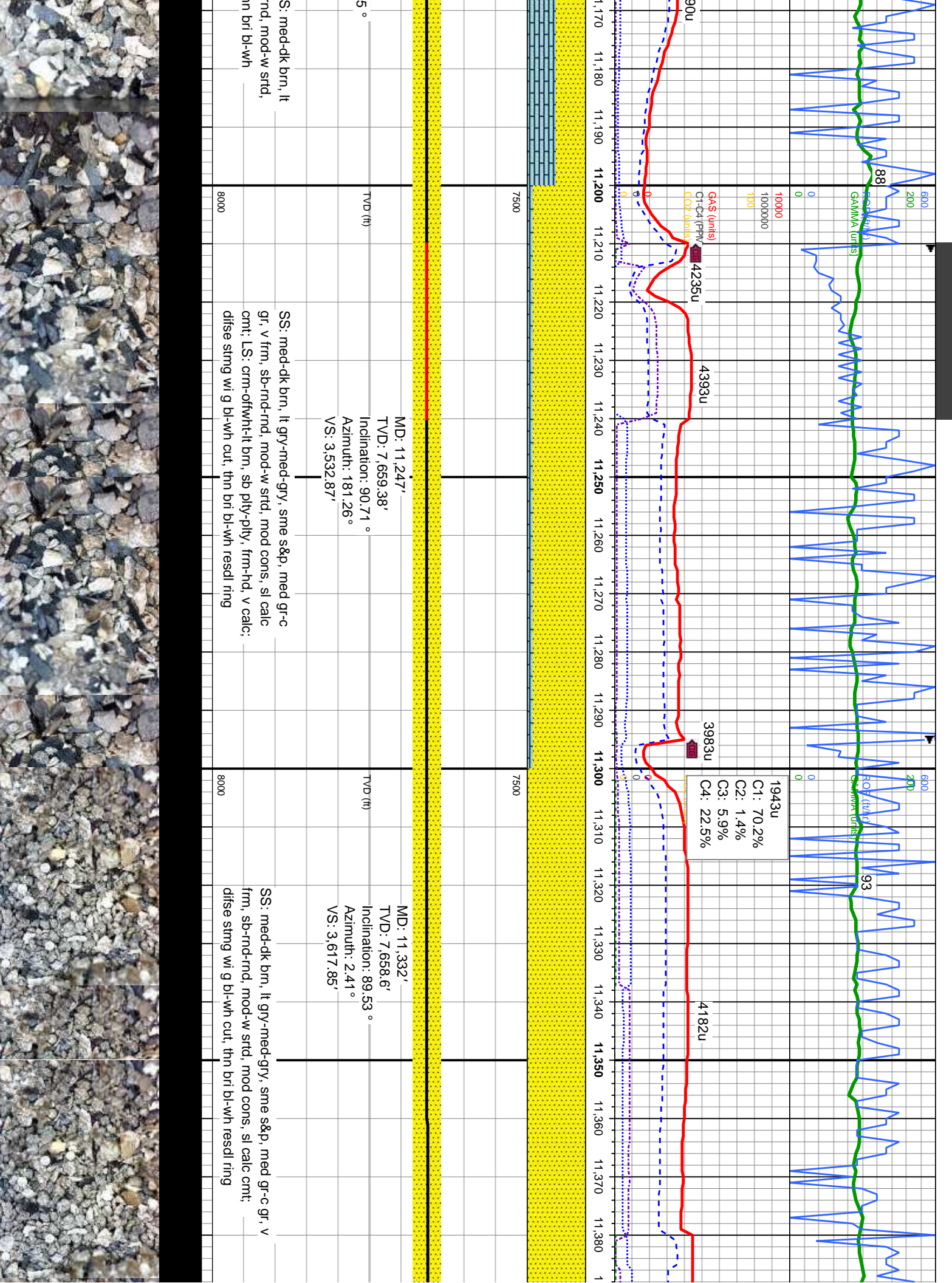




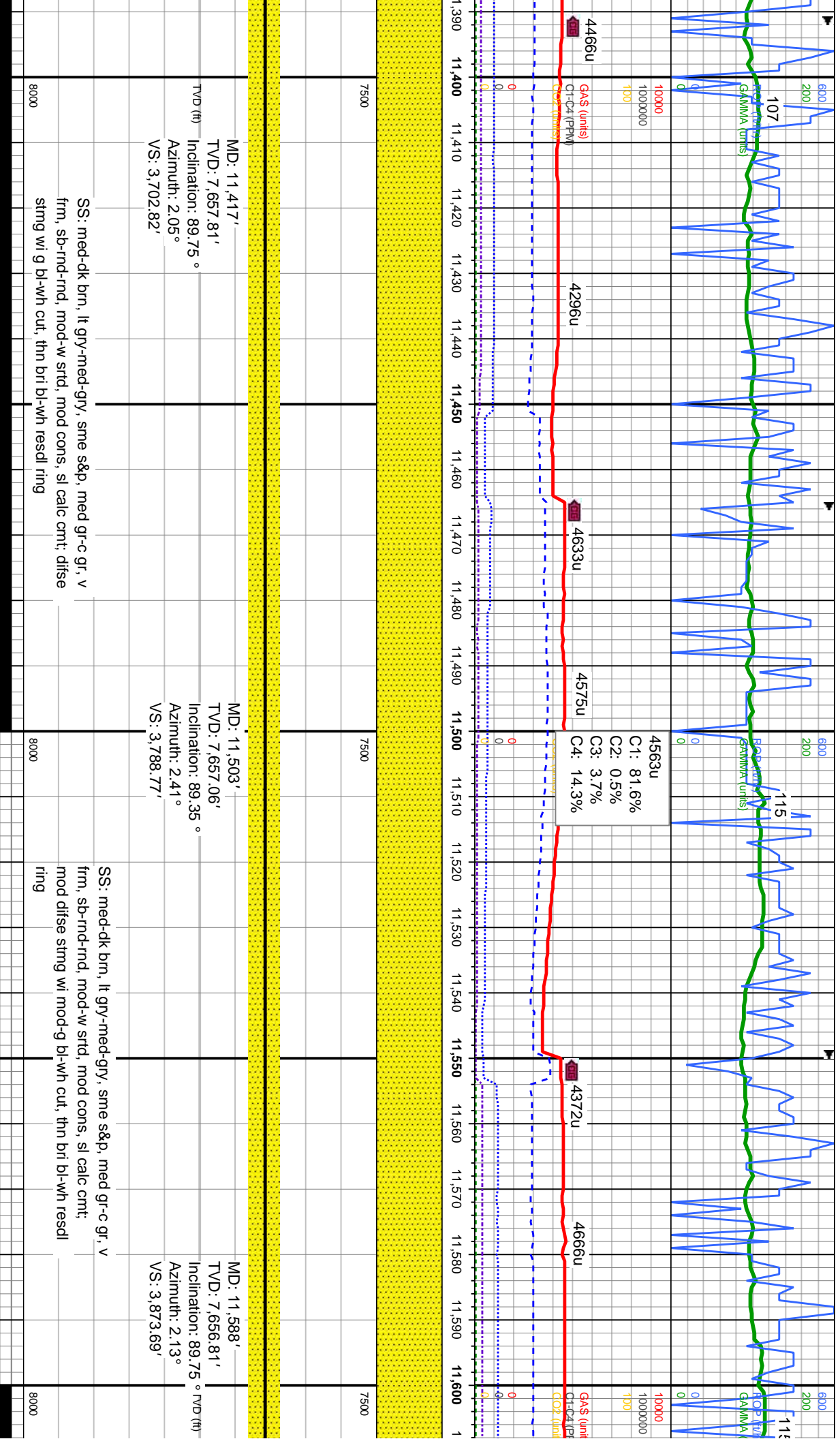








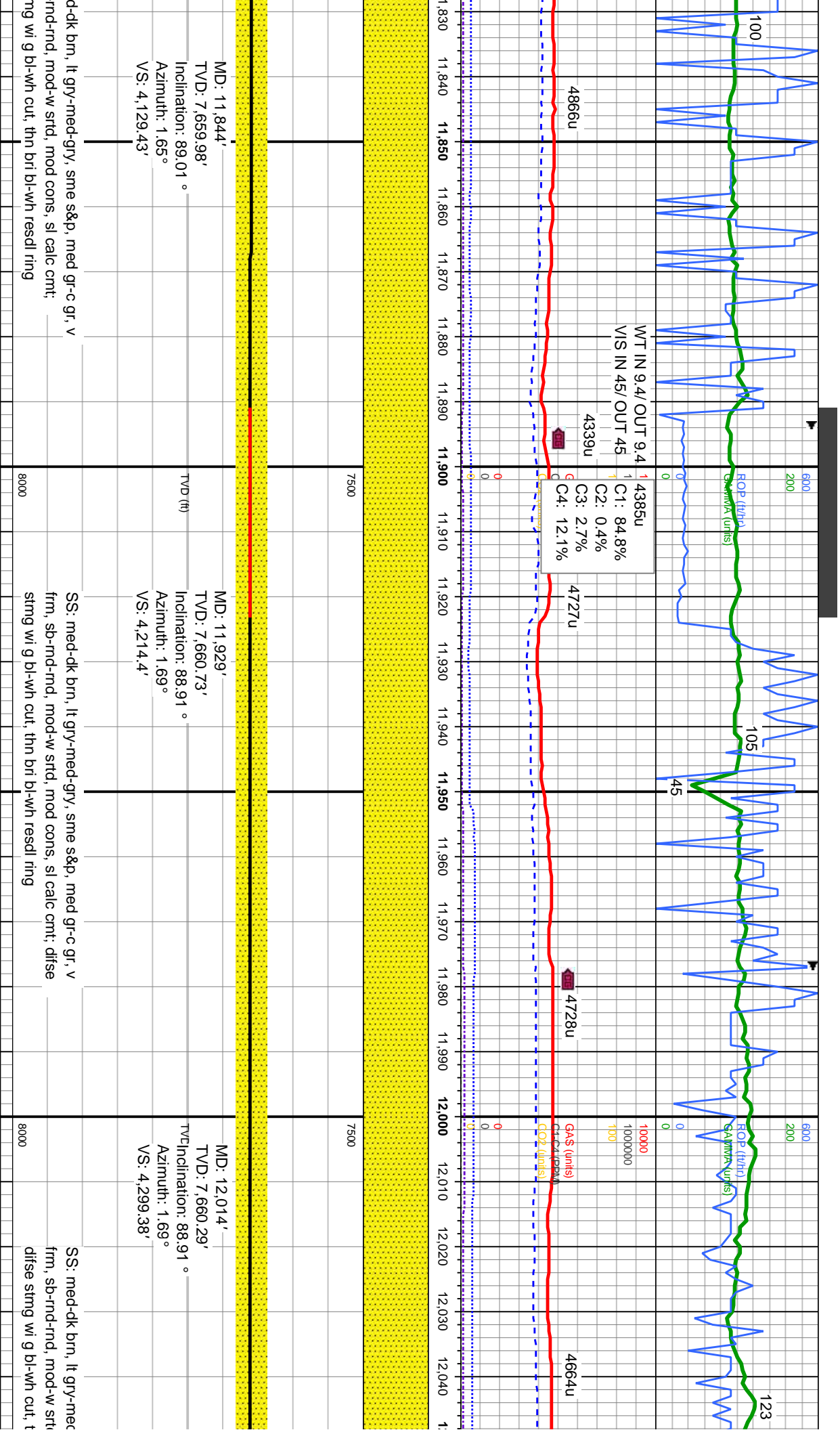












MD: 11,844'  
TVD: 7,659.98'  
Inclination: 89.01 °  
Azimuth: 1.65°  
VS: 4,129.43'

MD: 11,929'  
TVD: 7,660.73'  
Inclination: 88.91 °  
Azimuth: 1.69°  
VS: 4,214.4'

MD: 12,014'  
TVD: 7,660.29'  
Inclination: 88.91 °  
Azimuth: 1.69°  
VS: 4,299.38'

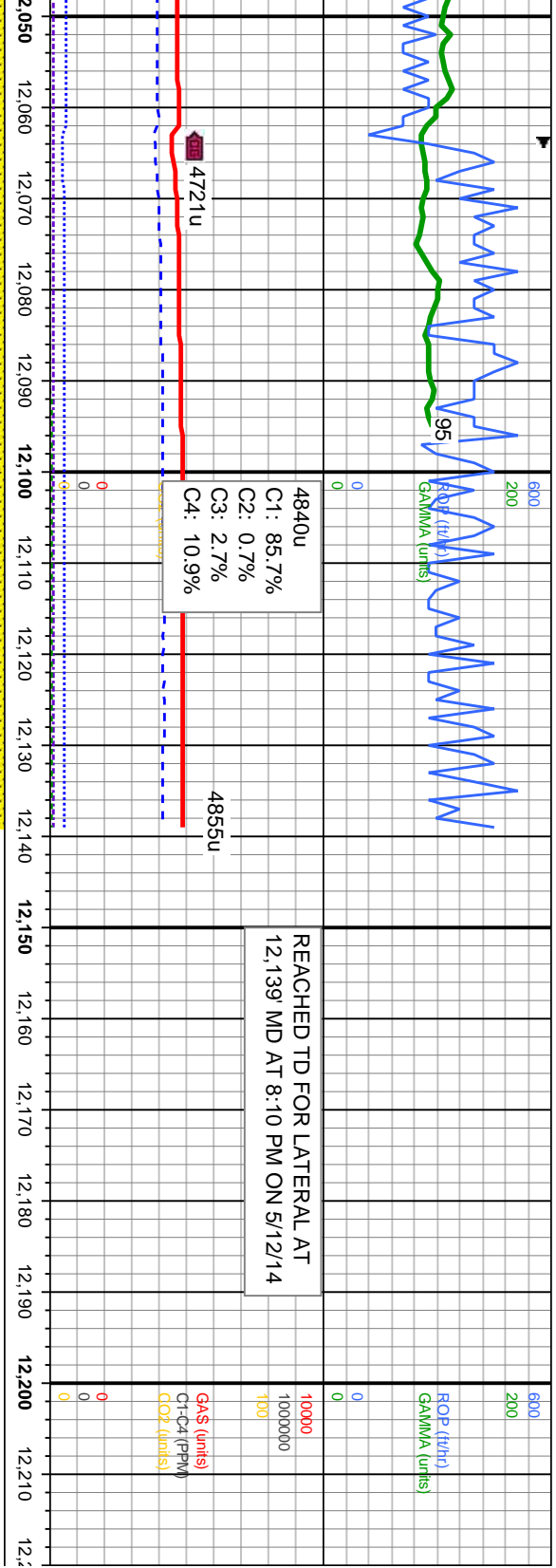
d-dk brn, lt gry-med-gry, sme s&p, med gr-c gr, v  
rnd-rnd, mod-w strd, mod cons, sl calc cmt;  
mg wi g bl-wh cut, thn bri bl-wh resdl ring

SS: med-dk brn, lt gry-med-gry, sme s&p, med gr-c gr, v  
frm, sb-rnd-rnd, mod-w strd, mod cons, sl calc cmt; difse  
stmg wi g bl-wh cut, thn bri bl-wh resdl ring

SS: med-dk brn, lt gry-med  
frm, sb-rnd-rnd, mod-w strd  
difse stmg wi g bl-wh cut, t







7500		7500	
PROJECTED TO BIT		THANK YOU FOR USING COLUMBINE LOGGING INC.!	
MD: 12,089' TVD: 7,660.23' Inclination: 89.81 ° VD (ft) Azimuth: 180.65 ° VS: 4,374.37'		MD: 12,139' TVD: 7,660.4' Inclination: 89.81 ° Azimuth: 180.65 ° VS: 4,424.37'	
d, mod cons, sl calc cmt; n bri bl-wh resd ring		SI: med-dk brn, lt gry-med-gry, sme s&p, med gr-c gr, v frm, sb-md-rnd, mod-w srtf, mod cons, sl calc cmt; disse sting wi g bl-wh cut, thn bri bl-wh resd ring	
		TVD (ft)	
		8000	

