



Scale: 5" / 100'
Measured Depth Log

Well Name Rohn State LD10-66HN

Location SENE SEC9, T9N, R58W, 6 PM

State COLORADO County WELD

Country USA Rig Number H&P 326

API Number 05-123-37631 Field WILDCAT

Region DJ BASIN Drilling Completed 10/8/2014

Spud Date 10/3/2014

Surface Coordinates 1725 FNL 330 FEL
40.76842/-103.86114

Bottom Hole Coordinates (Pro)
1980 FFNLL 660 FFELL

Ground Elevation 4729' K.B. Elevation 4759'

Logged Interval 5055' To 9544' Total Depth 9544'

Formation Niobrara A Marl

Type of Drilling Fluid LSND

Operator

Company Noble Energy Inc

Address 1625 Broadway Suite 2200
Denver, CO 80202

Geologist

Name EVAN HOWELL

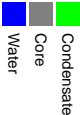
Company NOBLE ENERGY INC.

Address 1625 Broadway Suite 2200
Denver, CO 80202








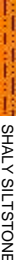














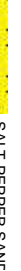





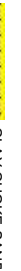

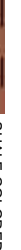



Other

Columbine Logging Matt Hopkins
Cameron Nakos


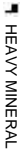
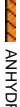


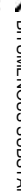

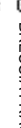
















Zone Color Coding



Rock Types

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

Accessories



 GASTROPOD	 ARGILLITE GRAIN	 HEAVY MINERAL	 ANHYDRITE STRINGER
 INOCERAMUS	 B BENTONITE	 K KAOLIN	 BENTONITE STRINGER
 OOLITE	 BITUMENOUS SUBSTANCE	 M MARLSTONE	 COAL STRINGER
 OSTRACOD	 BRECCIA FRAGMENTS	 M MICACEOUS	 DOLOMITE STRINGER
 PELECYPOD	 C CALCAREOUS	 M MINERAL CRYSTALS	 GYPSUM STRINGER
 PELLET	 C CARBONACEOUS FLAKES	 N NODULES	 LIMESTONE STRINGER
 PISOLITE	 CHTDK	 P PHOSPHATE PELLETS	 MARLSTONE (CALC) STRG
 PLANT REMAINS	 CHTLT	 P PYRITE	 MARLSTONE (DOL) STRG
 PLANT SPORES	 C COAL - THIN BEDS	 S SALT CAST	 SANDSTONE STRINGER
 SCAPHOPOD	 D DOLOMITIC	 S SANDY	 SHALE STRINGER
 STROMATOPOROID	 F FELDSPAR	 S SILICEOUS	 SILTSTONE STRINGER
 ECHINOID	 F FERRUGINOUS PELLET	 S SILTY	
 FISH	 F FERRUGINOUS	 T TUFFACEOUS	
 FORAMINIFERA	 A ANHYDRITIC	 G GLAUCONITE	
 F FOSSIL	 A ARGILLACEOUS	 G GYPSIFEROUS	

Stringer

Oil Show

-  PINPOINT
-  VUGGY

Engineering

-  DEAD
-  EVEN
-  QUESTIONABLE
-  BIT
-  SPOTTED STAINING
-  CONNECTION (UP)

Porosity

-  CONNECTION (DOWN)
-  CONNECTION GAS
-  E EARTHY
-  CONNECTION GAS
-  F FENESTRAL
-  TRIP GAS
-  F FRACTURE
-  TRIP GAS (LEFT)
-  X INTERCRYSTALLINE
-  DOWN TIME GAS
-  I INTEROOLITIC
-  DOWN TIME GAS
-  M MOLDIC
-  CORE - LOST
-  O ORGANIC
-  CORE - RECOVERED

Other Symbols

 DST INTERVAL  WIRELINE TESTED - LEFT **E** EARTHY

 FAULT  WIRELINE TESTED - RT **FX** FINELYXLN

 FORMATION TOP  DRILL STEM TEST **GS** GRAINSTONE

 GAS SHOW  **MINDEPTH** MN DEPTH **L** LITHOGRAPHIC


 OIL SHOW  **MINDEPTH** MN DEPTH **MX** MICROXLN


 **MINDEPTH** MN DEPTH UP **MS** MUDSTONE

Rounding

 **MINDEPTH** MN DEPTH (DOWN) **AX** ANGULAR **PS** PACKSTONE

 NORMAL FAULT **R** ROUNDED **WS** WACKESTONE

 **(LEFT)** OVERTURNED STRATA **B** SUBANG

 REVERSE FAULT **R** SUBRND

Sorting

 CASING **M** MODERATE

Textures

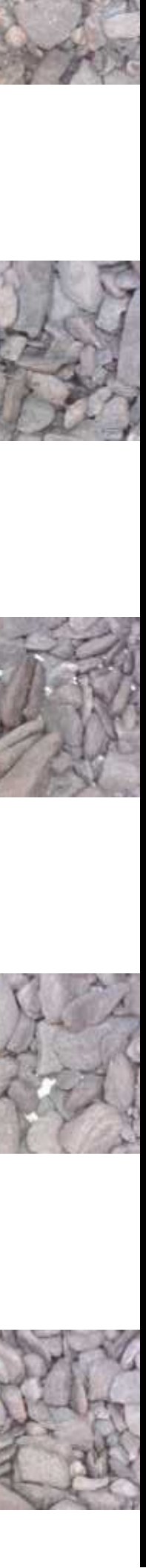
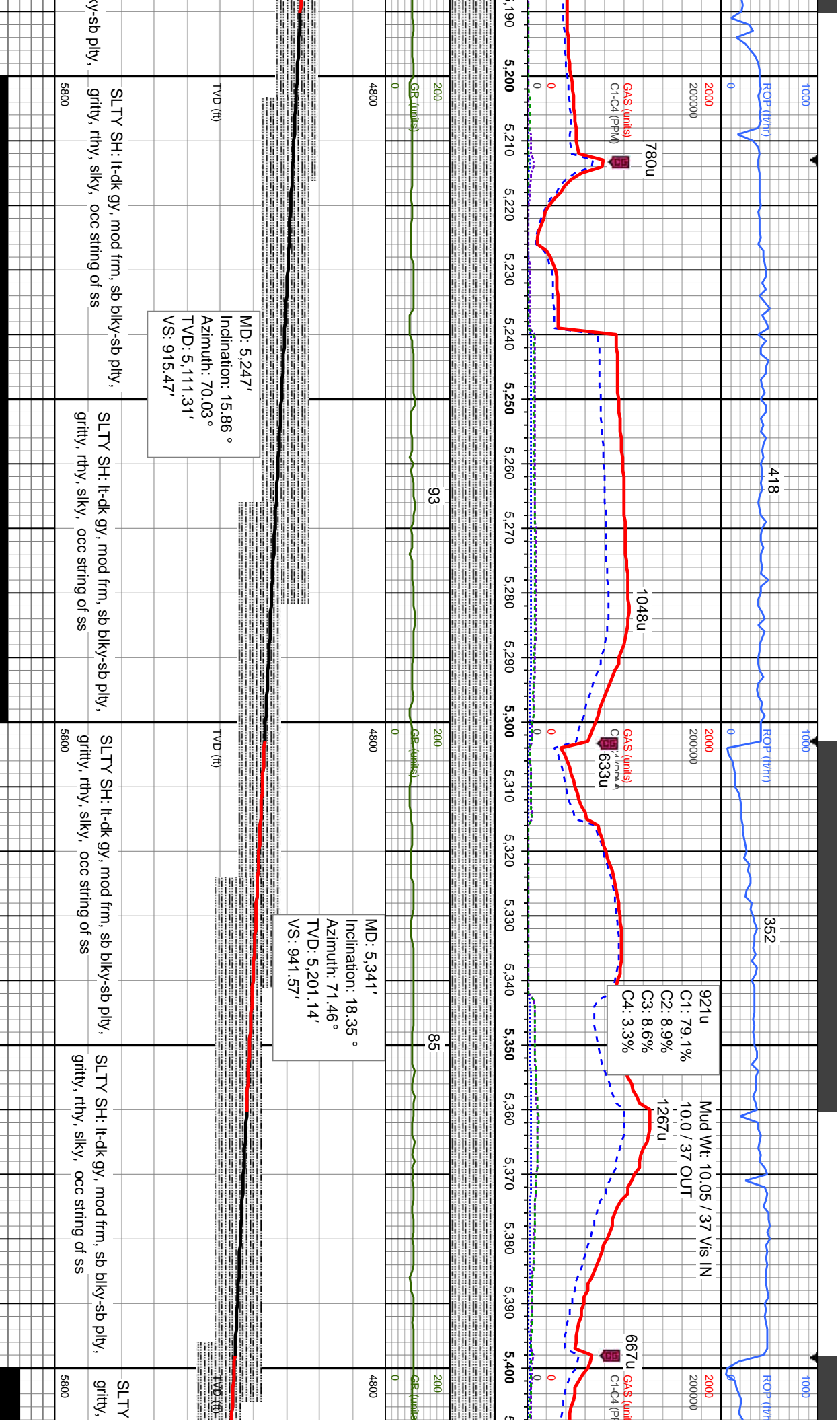
 SIDEWALL CORE (LEFT) **P** POOR

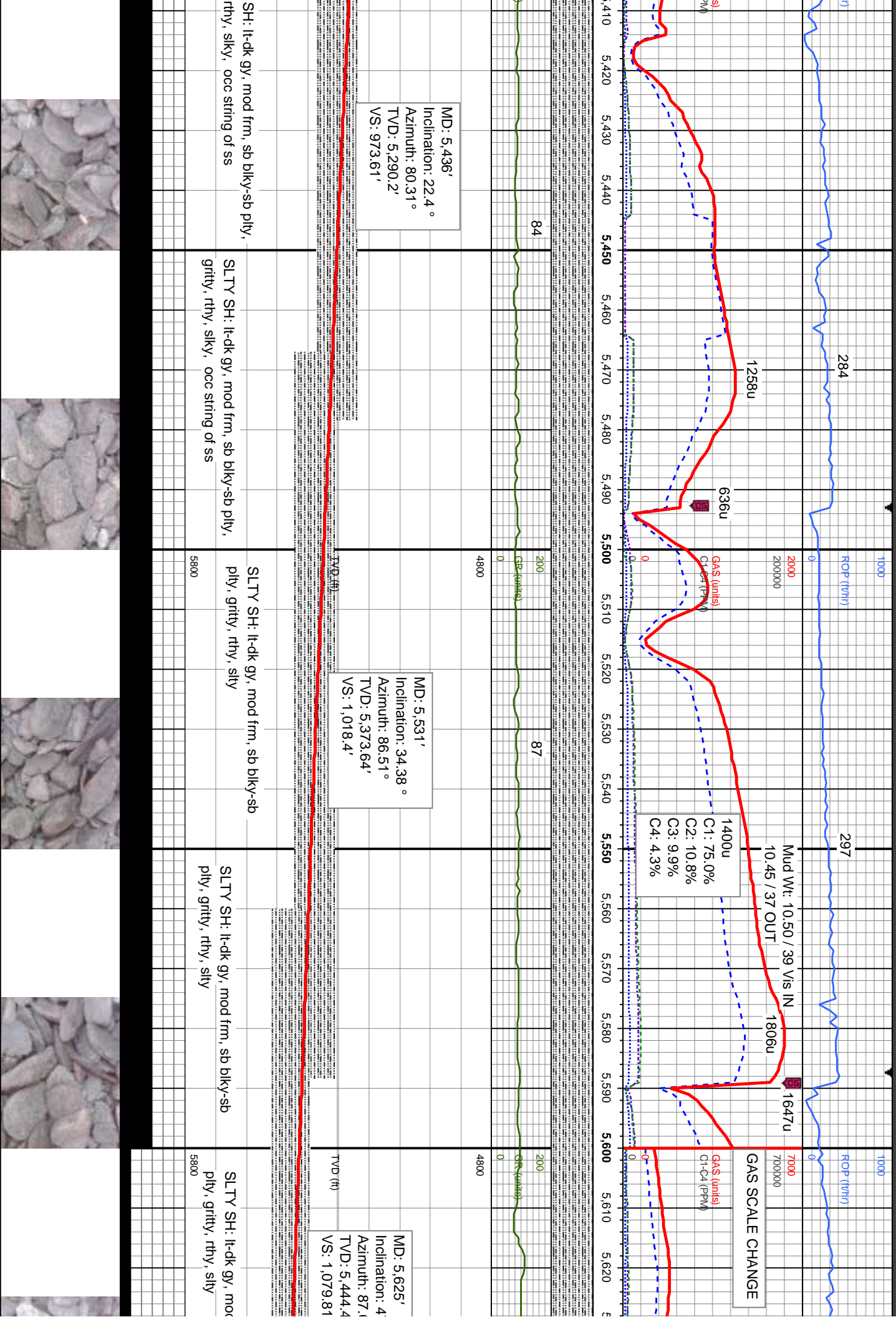
 **(LEFT)** SIDEWALL CORE (RIGHT) **BS** BOUNDSTONE **W** WELL

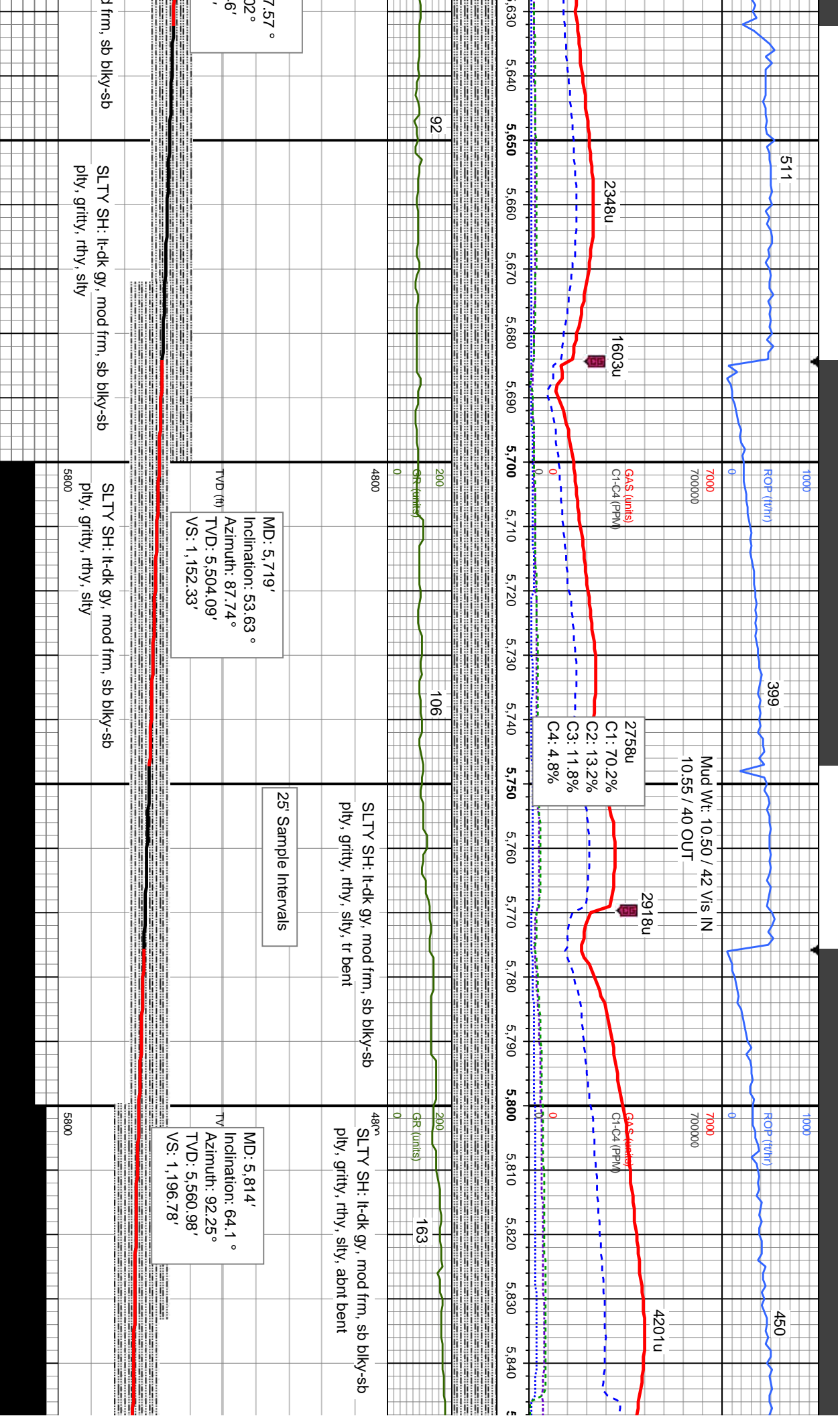
 SLIDE **C** CHALKY

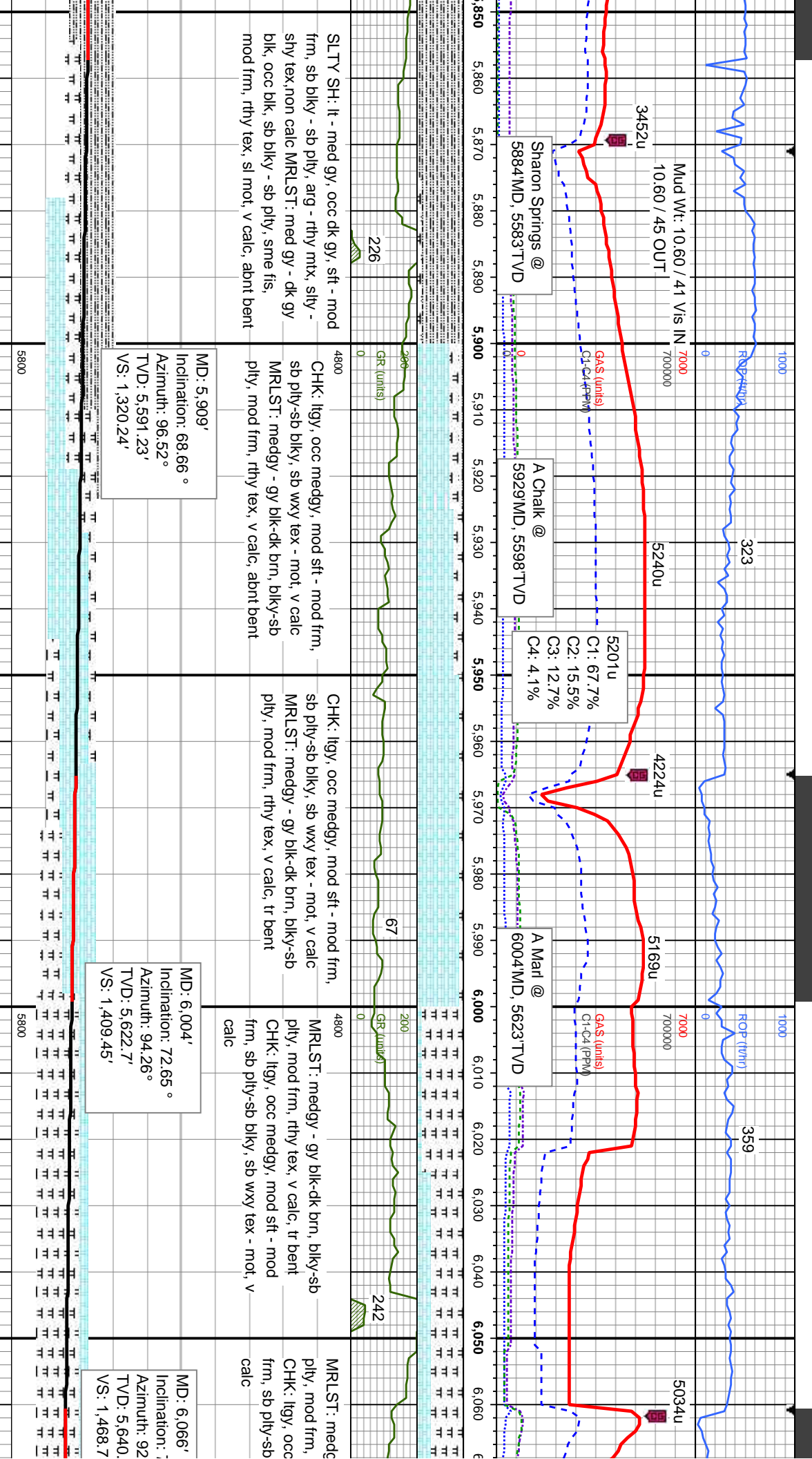
 **SD** SURVEY **CX** CRYPTOXLN

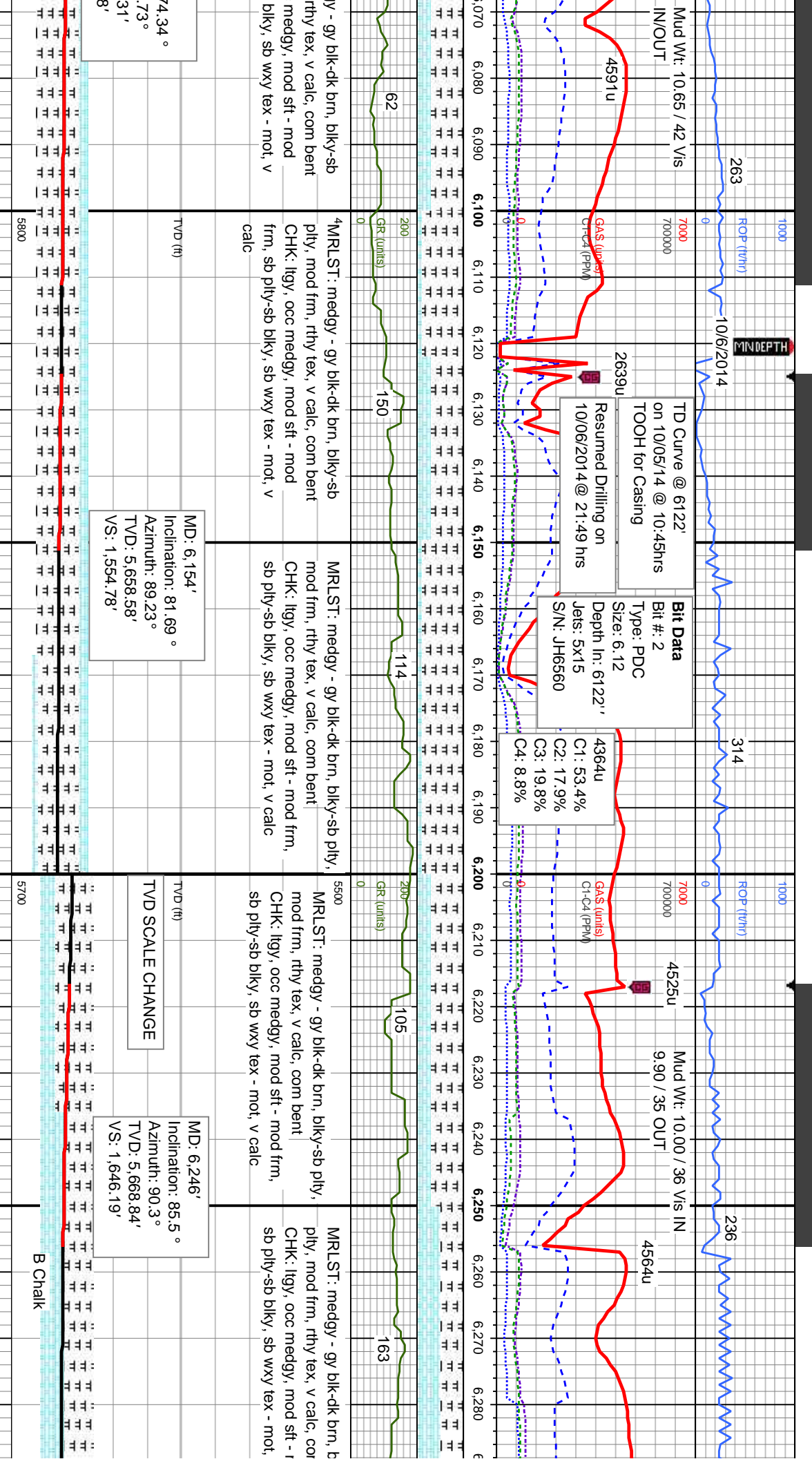
Slide/Rotate					
ROP ROP (ft/hr)					
Total Gas & Chromatograph					
GAS (units) C1 - C2 - C3 - C4					
CONTINUED FROM Rohn State LD10-66HN(VERT)					
AGITATOR UNPLUGGED					
COLUMBINE LOGGING INC. RIGGED UP ON 10/04/2014 MANNED 2-PERSON LOGGING WITH BLOODHOUND GAS CHROMATOGRAPH UNIT #331					
Depth Labels					
% Lith					
GAMMA GR (units)					
Oil Show					
Images					

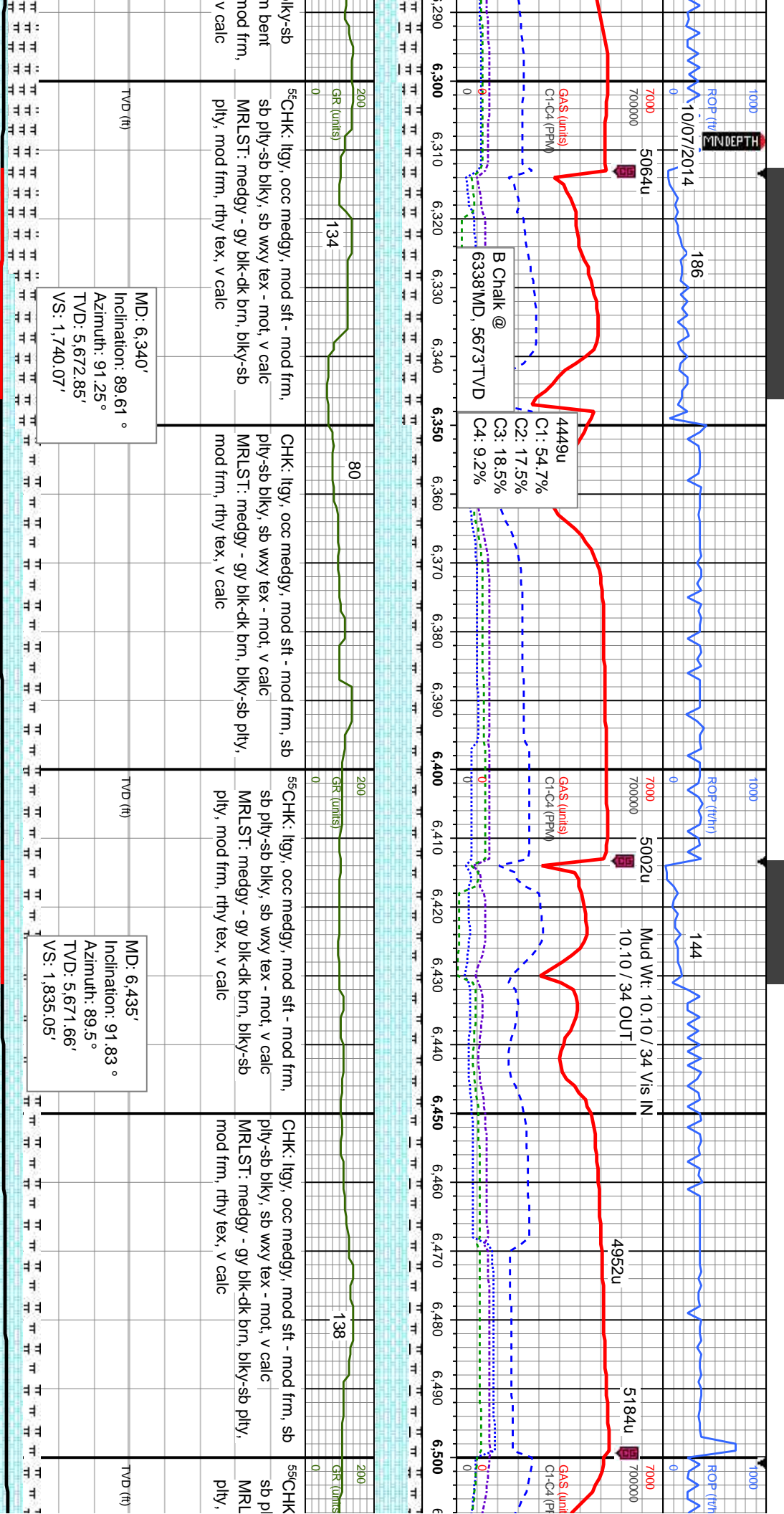


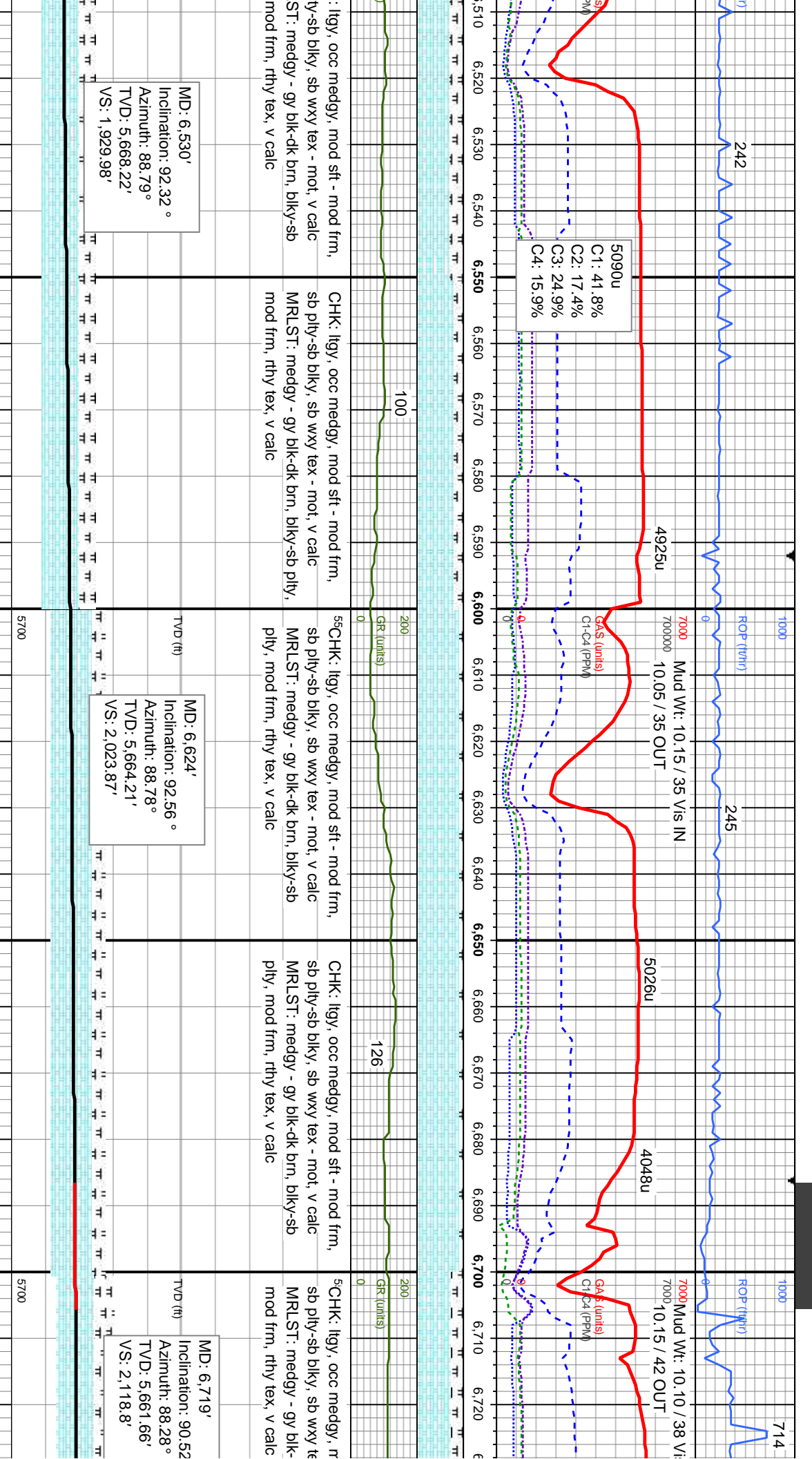


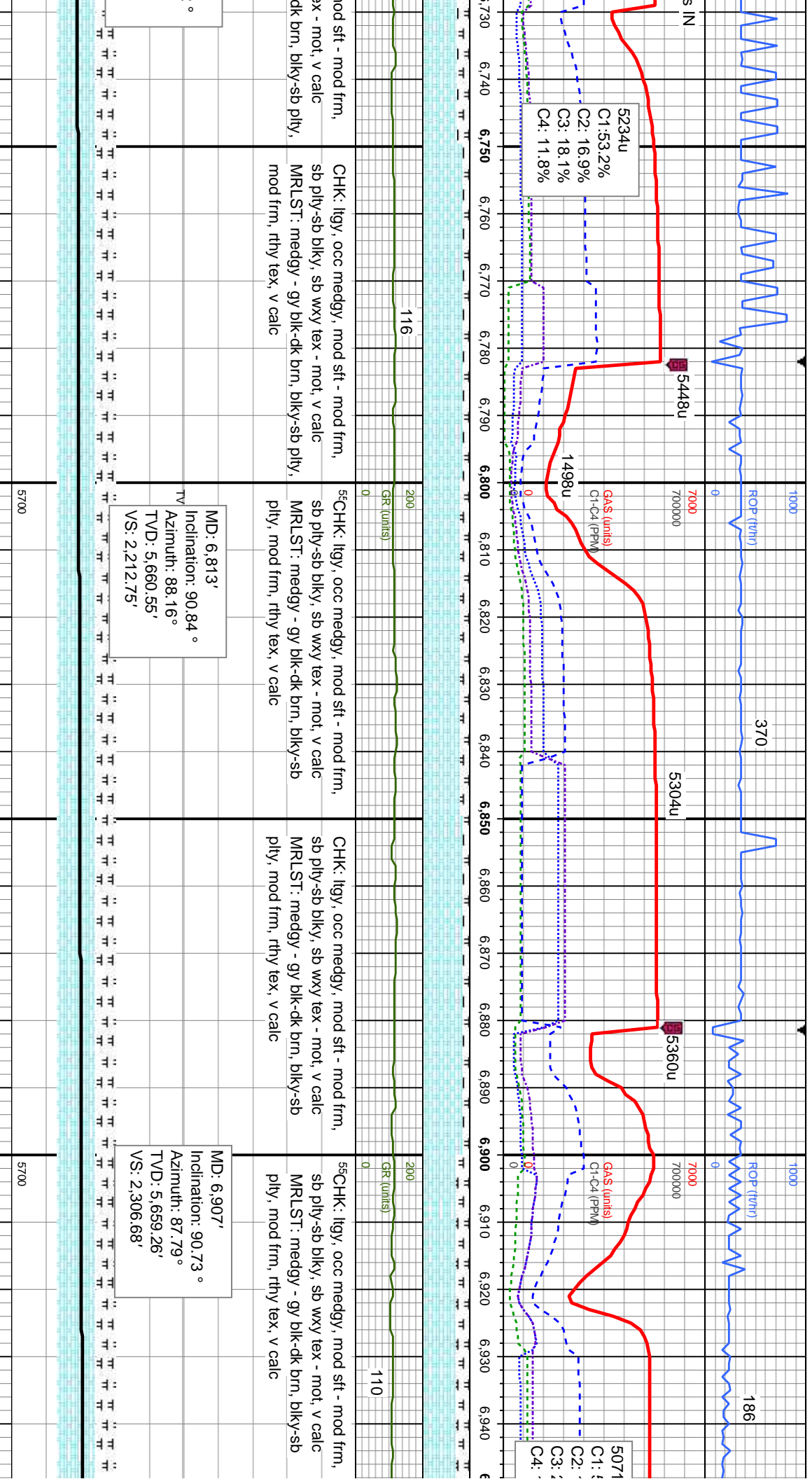


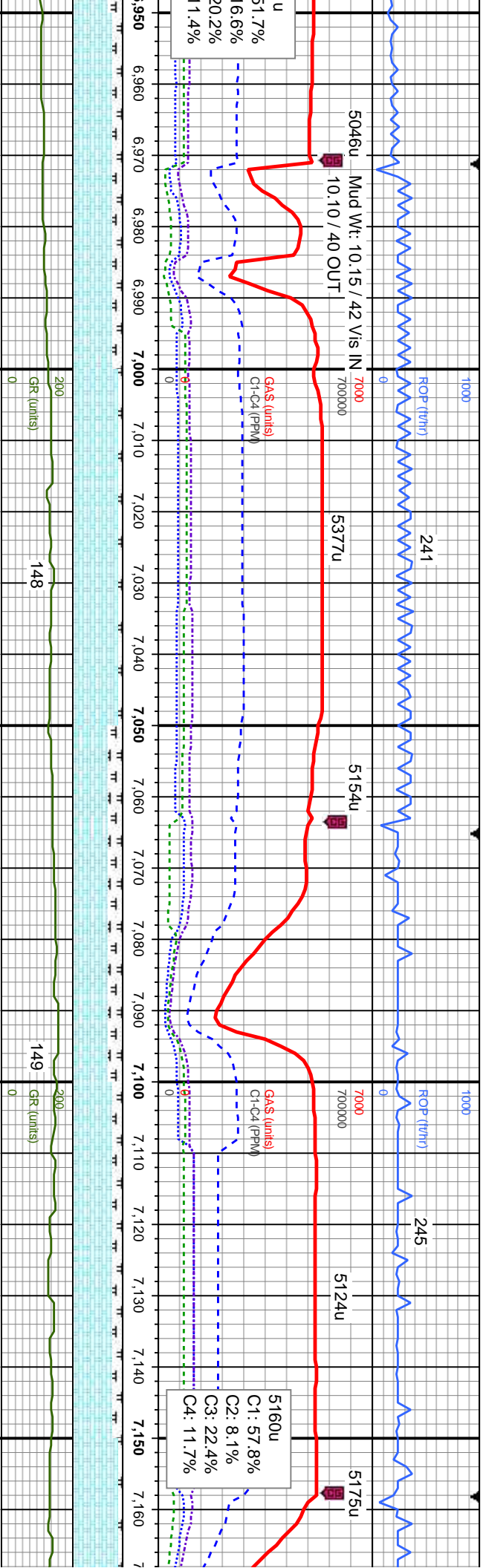












CHK: Itgy, occ medgy, mod sft - mod frm,
sb pily-sb blkly, sb wxy tex - mot, v calc
MRLST: medgy - gy blk-dk brn, blkly-sb
pily, mod frm, rthy tex, v calc

CHK: Itgy, occ medgy, mod sft - mod frm,
sb pily-sb blkly, sb wxy tex - mot, v calc
MRLST: medgy - gy blk-dk brn, blkly-sb
pily, mod frm, rthy tex, v calc

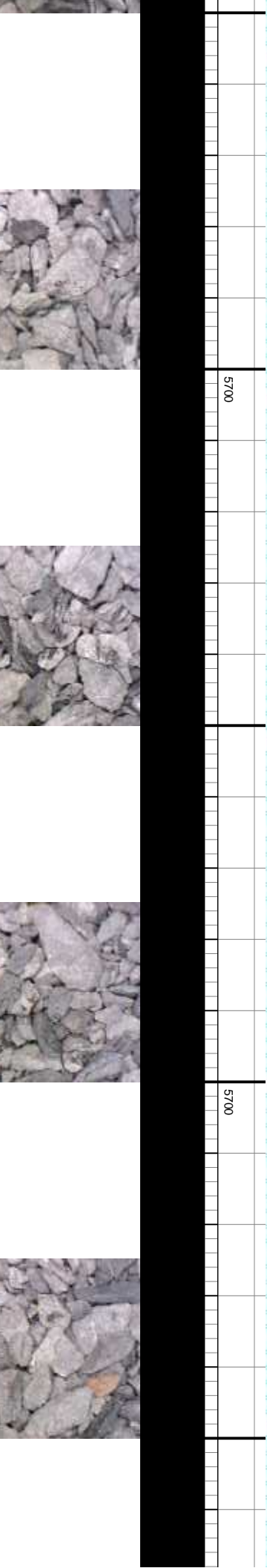
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sb pily-sb blkly, sb wxy tex - mot, v calc
MRLST: medgy - gy blk-dk brn, blkly-sb
pily, mod frm, rthy tex, v calc

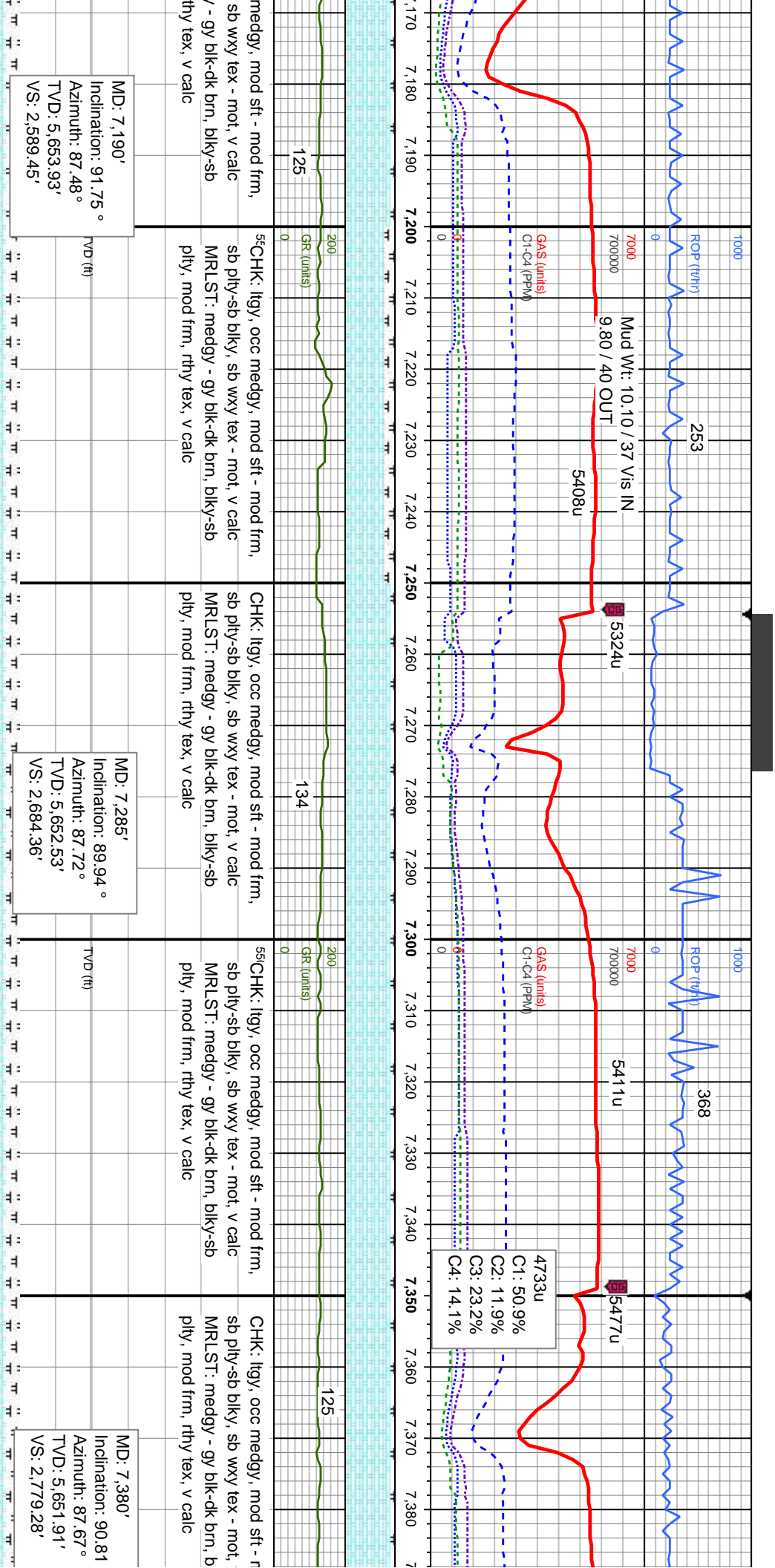
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sb pily-sb blkly, sb wxy tex - mot, v calc
MRLST: medgy - gy blk-dk brn, blkly-sb
pily, mod frm, rthy tex, v calc

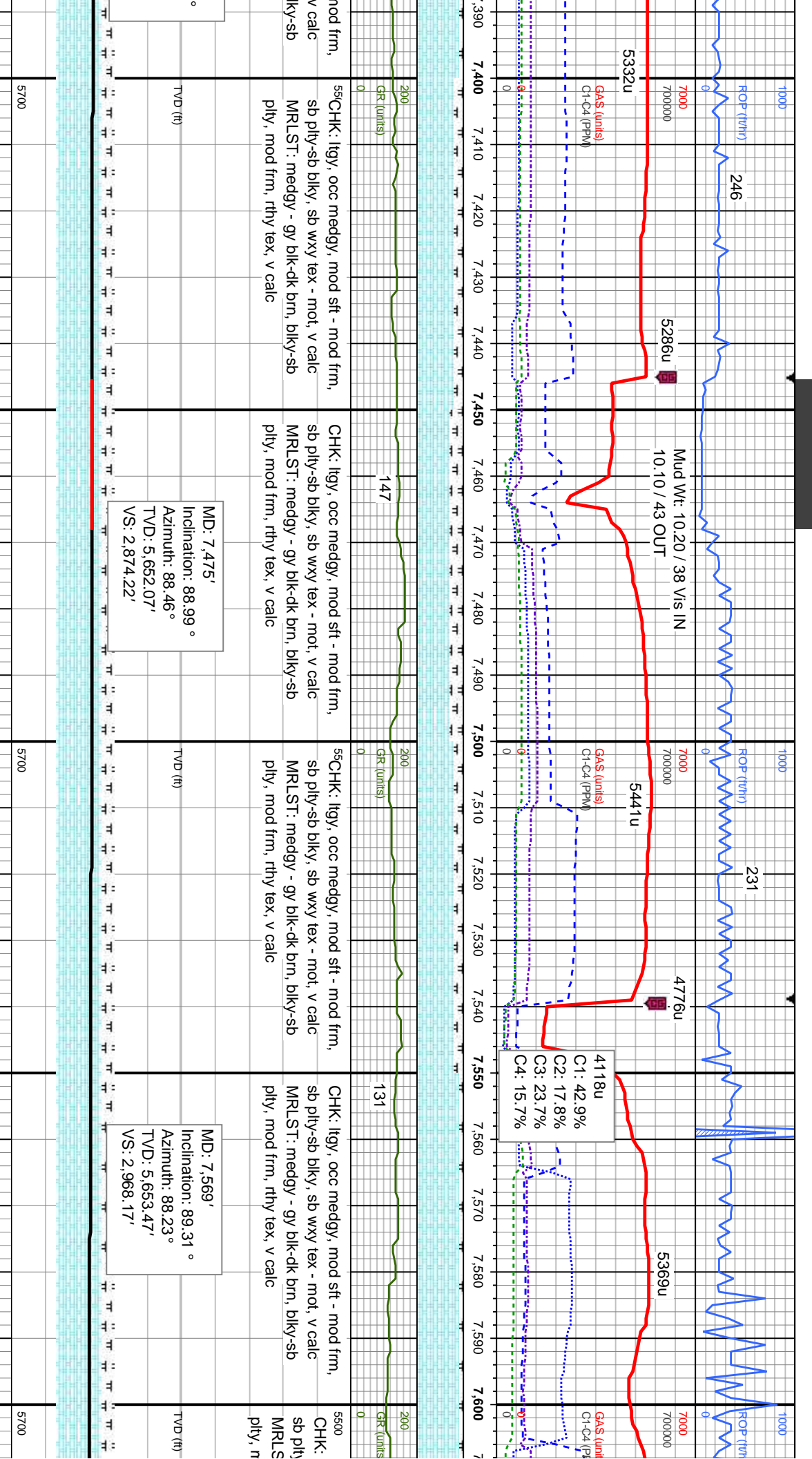
CHK: Itgy, occ
sb pily-sb blkly,
MRLST: medgy,
pily, mod frm, r

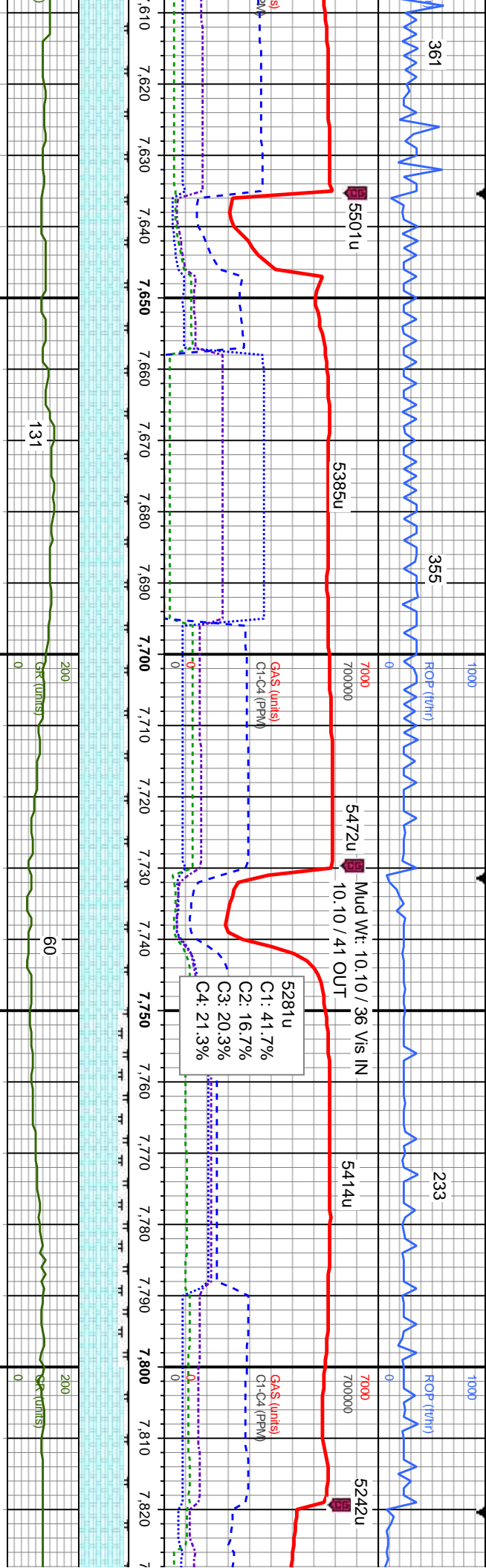
MD: 7.002'
Inclination: 90.92 °
Azimuth: 87.61 °
TVD: 5.657.89'
VS: 2.401.6'

MD: 7.096'
Inclination: 91.08 °
Azimuth: 88.81 °
TVD: 5.656.25'
VS: 2.495.53'









lgy, occ medgy, mod sft - mod frm, sb pty-sb blk, sb wxy tex - mot, v calc
MRLST: medgy - gy blk-dk brn, blk-
sly, mod frm, rthy tex, v calc

CHK: lgy, occ medgy, mod sft - mod frm, sb pty-sb blk, sb wxy tex - mot, v calc
MRLST: medgy - gy blk-dk brn, blk-
sly, mod frm, rthy tex, v calc

5501u
5385u
5472u
5414u
5242u

Gas (units)
C1-C4 (PPM)

C1: 41.7%
C2: 16.7%
C3: 20.3%
C4: 21.3%

MD: 7,663'
Inclination: 89.66 °
Azimuth: 87.99 °
TVD: 5,654.31'
VS: 3,062.11'

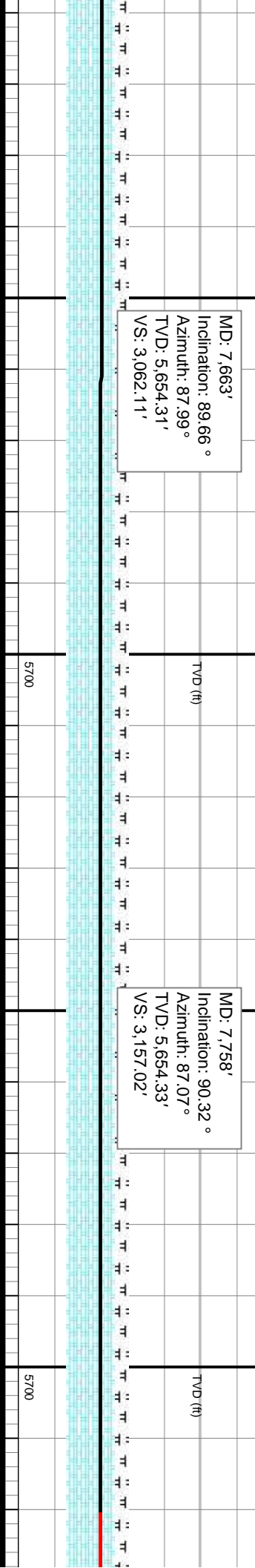
MD: 7,758'
Inclination: 90.32 °
Azimuth: 87.07 °
TVD: 5,654.33'
VS: 3,157.02'

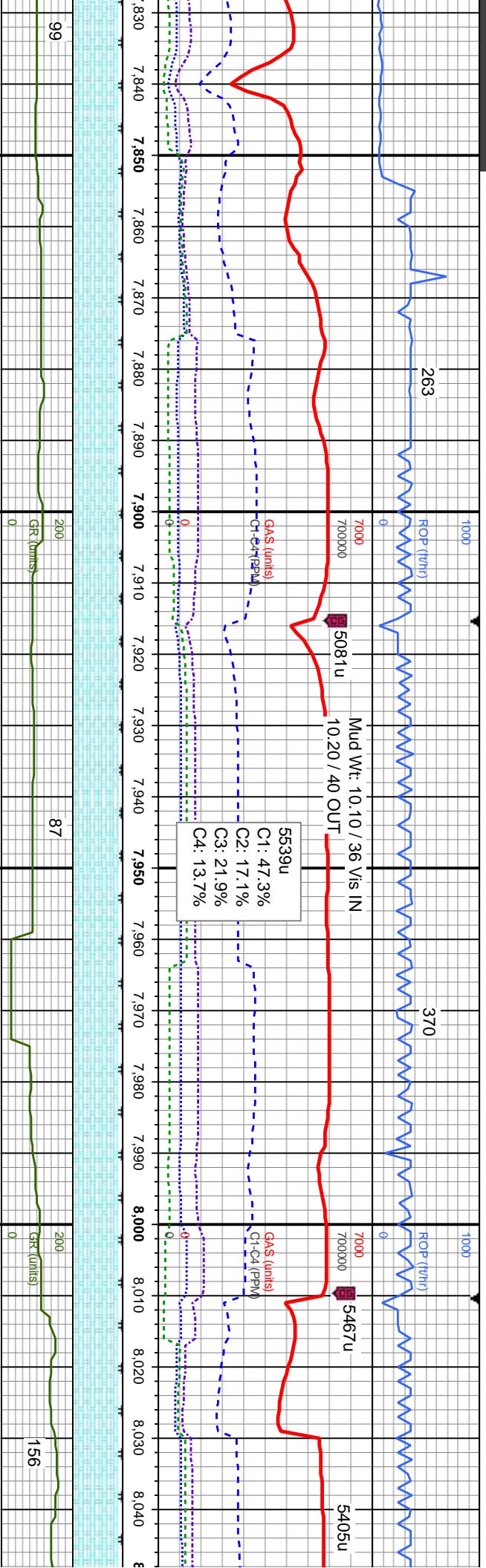
5501u
5385u
5472u
5414u
5242u

Gas (units)
C1-C4 (PPM)

C1: 41.7%
C2: 16.7%
C3: 20.3%
C4: 21.3%

MD: 7,758'
Inclination: 90.32 °
Azimuth: 87.07 °
TVD: 5,654.33'
VS: 3,157.02'





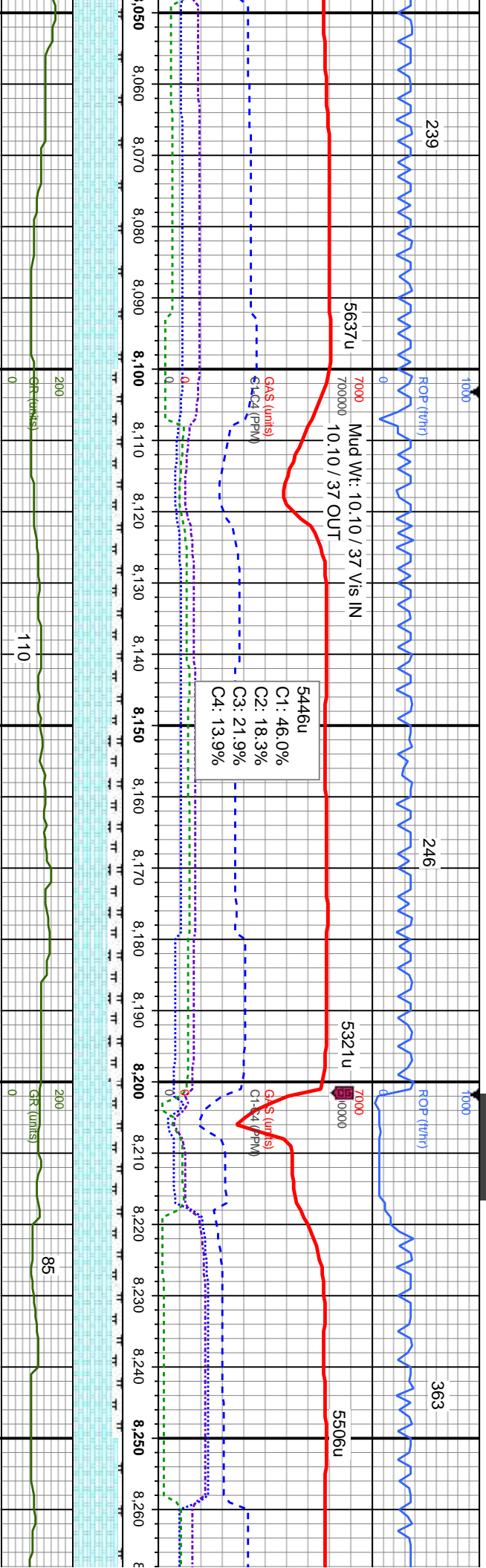
mod sft - mod frm, x - mot, v calc blk brn, blk-y-sb calc	CHK: ltgy, occ medgy, mod sft - mod frm, sb pily-sb blk-y, sb wxy tex - mot, v calc MRLST: medgy - gy blk-dk brn, blk-y-sb pily, mod frm, rthy tex, v calc	55CHK: ltgy, occ medgy, mod sft - mod frm, sb pily-sb blk-y, sb wxy tex - mot, v calc MRLST: medgy - gy blk-dk brn, blk-y-sb pily, mod frm, rthy tex, v calc	CHK: ltgy, occ medgy, mod sft - mod frm, sb pily-sb blk-y, sb wxy tex - mot, v calc MRLST: medgy - gy blk-dk brn, blk-y-sb pily, mod frm, rthy tex, v calc	55CHK: ltgy, occ medgy, mod sft - mod frm, sb pily-sb blk-y, sb wxy tex - mot, v calc MRLST: medgy - gy blk-dk brn, blk-y-sb pily, mod frm, rthy tex, v calc
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MD: 7,852'
Inclination: 88.91 °
Azimuth: 90.58 °
TVD: 5,654.96'
VS: 3,250.98'

MD: 7,946'
Inclination: 89.16 °
Azimuth: 90.61 °
TVD: 5,656.54'
VS: 3,344.96'

MD: 8,041'
Inclination: 89.52 °
Azimuth: 89.95 °
TVD: 5,657.64'
VS: 3,439.96'





CHK: ltgy, occ medgy, mod sft - mod frm,
sb pily-sb blkly, sb wxy tex - mot, v calc
MRLST: medgy - gy blk-dk brn, blkly-sb
pily, mod frm, rthy tex, v calc

5CHK: ltgy, occ medgy, mod sft - mod frm,
sb pily-sb blkly, sb wxy tex - mot, v calc
MRLST: medgy - gy blk-dk brn, blkly-sb
pily, mod frm, rthy tex, v calc

CHK: ltgy, occ medgy, mod sft - mod frm,
sb pily-sb blkly, sb wxy tex - mot, v calc
MRLST: medgy - gy blk-dk brn, blkly-sb
pily, mod frm, rthy tex, v calc

5CHK: ltgy, occ medgy, mod sft - mod frm,
sb pily-sb blkly, sb wxy tex - mot, v calc
MRLST: medgy - gy blk-dk brn, blkly-sb
pily, mod frm, rthy tex, v calc

CHK: ltgy, occ
sb pily-sb blkly,
MRLST: medgy
pily, mod frm, r

TVD (ft)

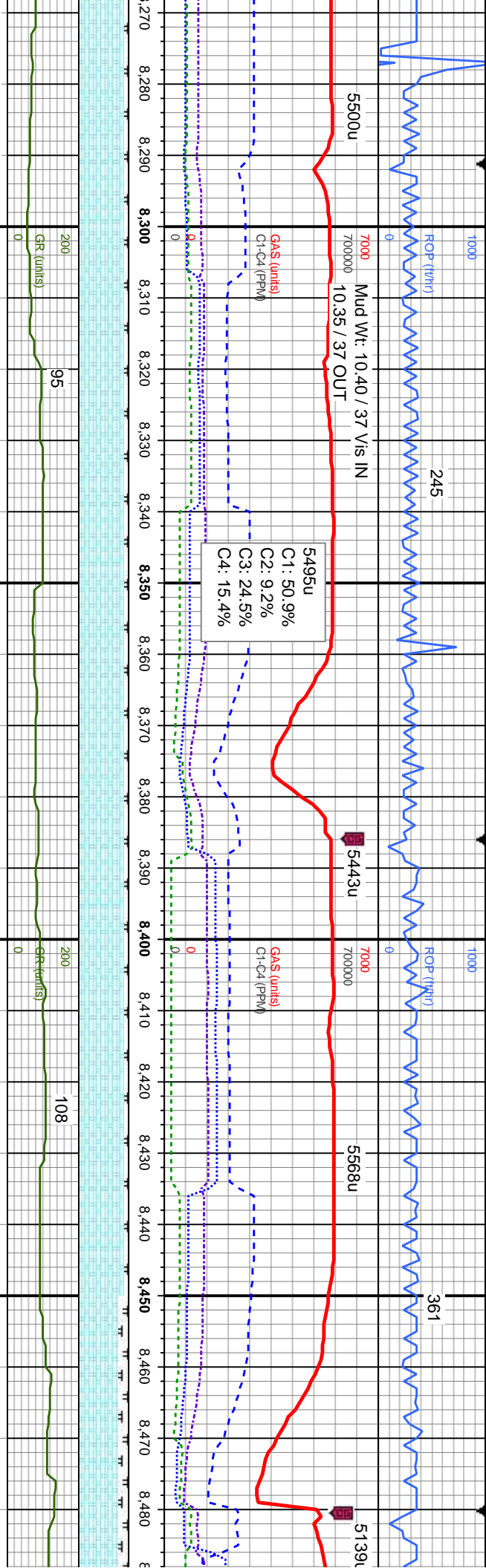
MD: 8,135'
Inclination: 90 °
Azimuth: 89.78 °
TVD: 5,658.03'
VS: 3,533.95'

TVD (ft)

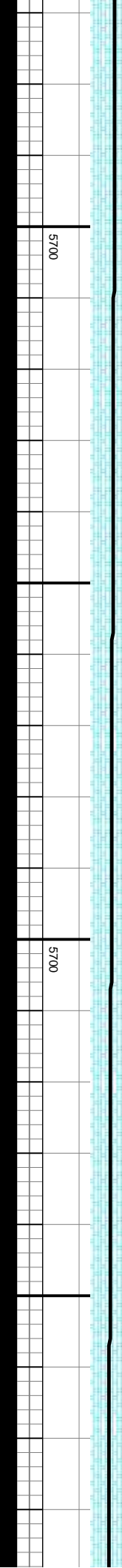
MD: 8,229'
Inclination: 88.76 °
Azimuth: 89.85 °
TVD: 5,659.05'
VS: 3,627.95'

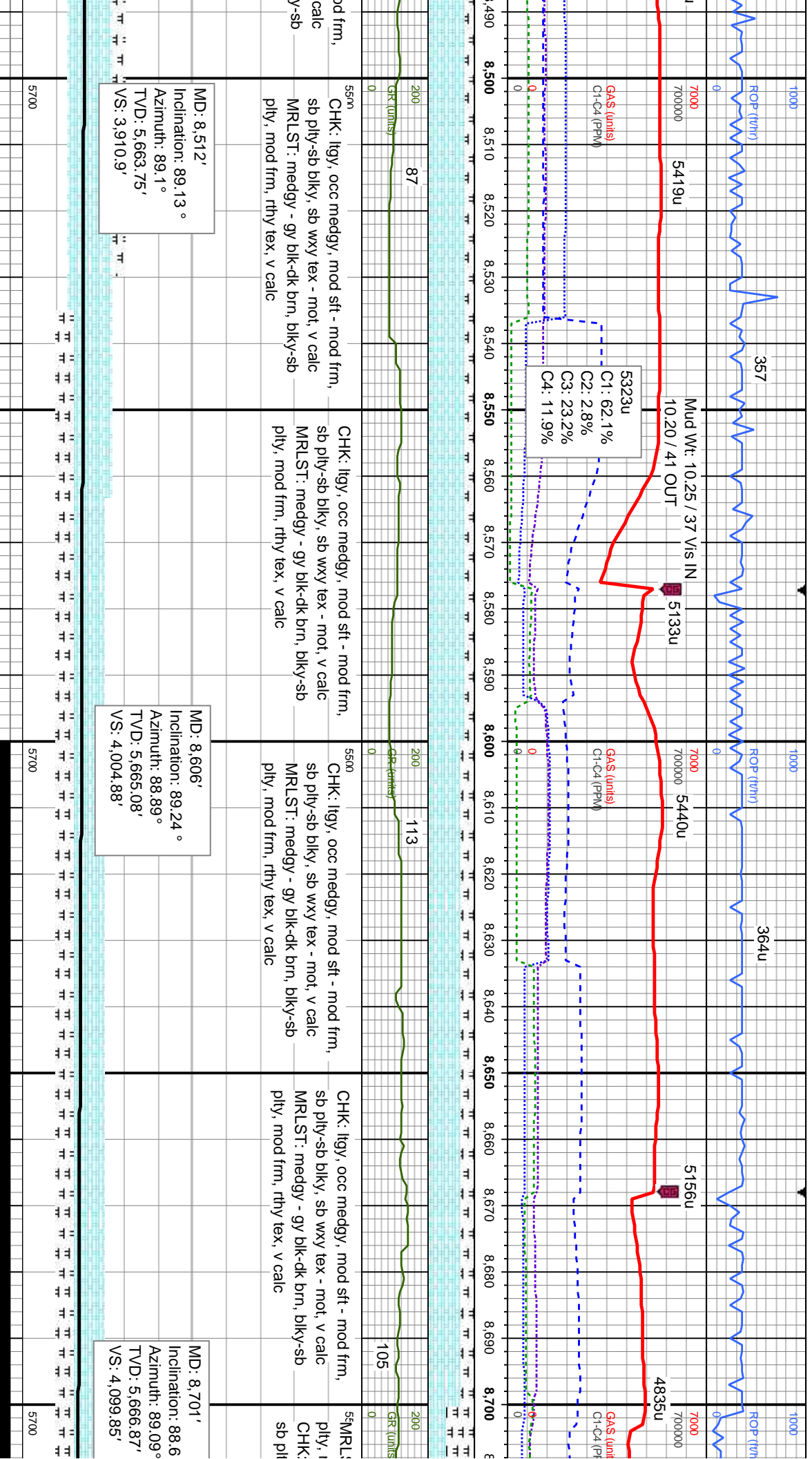
TVD (ft)

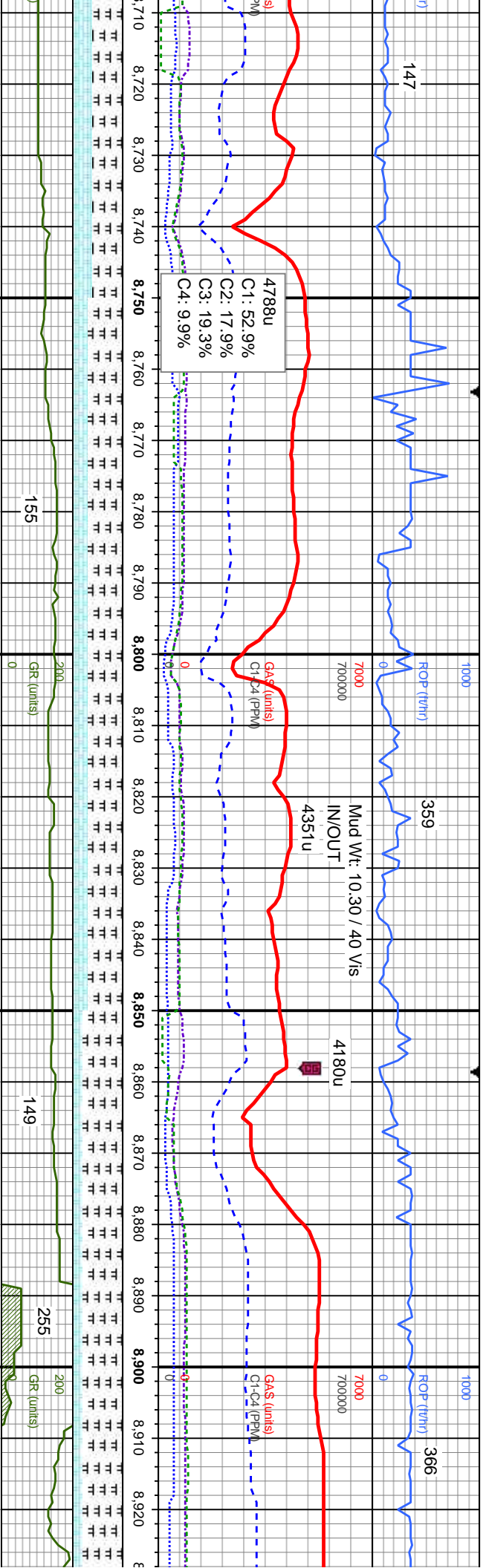




medgy, mod sft - mod frm, sb wxy tex - mot, v calc - gy blk-dk brn, blkly-sb rthy tex, v calc	5500 CHK: ltgy, occ medgy, mod sft - mod frm, sb pty-sb blkly, sb wxy tex - mot, v calc MRLST: medgy - gy blk-dk brn, blkly-sb pty, mod frm, rthy tex, v calc	5500 CHK: ltgy, occ medgy, mod sft - mod frm, sb pty-sb blkly, sb wxy tex - mot, v calc MRLST: medgy - gy blk-dk brn, blkly-sb pty, mod frm, rthy tex, v calc	5500 CHK: ltgy, occ medgy, mod sft - mod frm, sb pty-sb blkly, sb wxy tex - mot, v calc MRLST: medgy - gy blk-dk brn, blkly-sb pty, mod frm, rthy tex, v calc
MD: 8,323' Inclination: 89.11 ° Azimuth: 89.65 ° TVD: 5,660.79' VS: 3,721.93'			







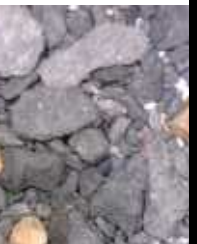
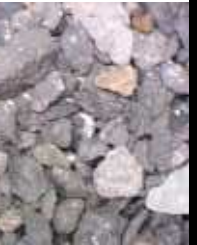
ST: medgy - gy blk-dk brn, blk-y-sb
mod frm, rthy tex, v calc, com cal xls,
lgy, occ medgy, mod sft - mod frm,
y-sb blk-y, sb wxy tex - mot, v calc

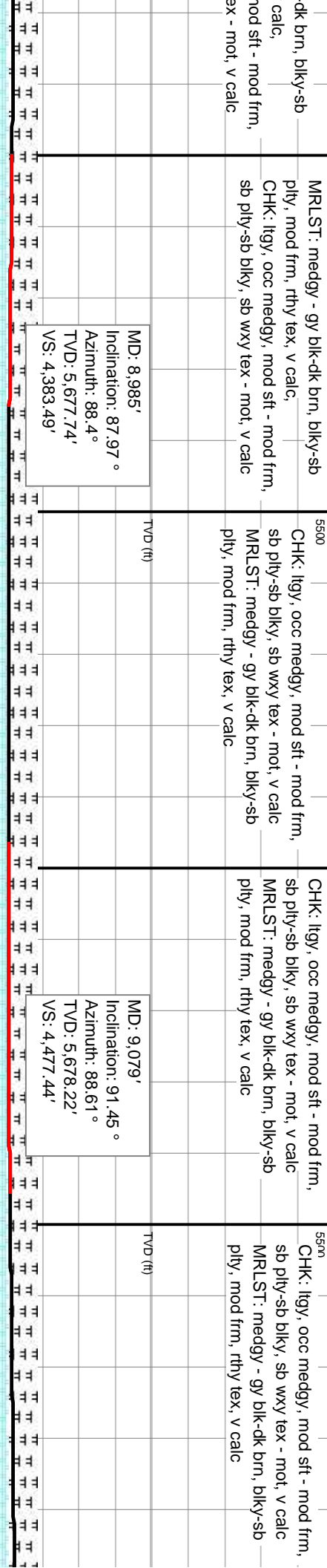
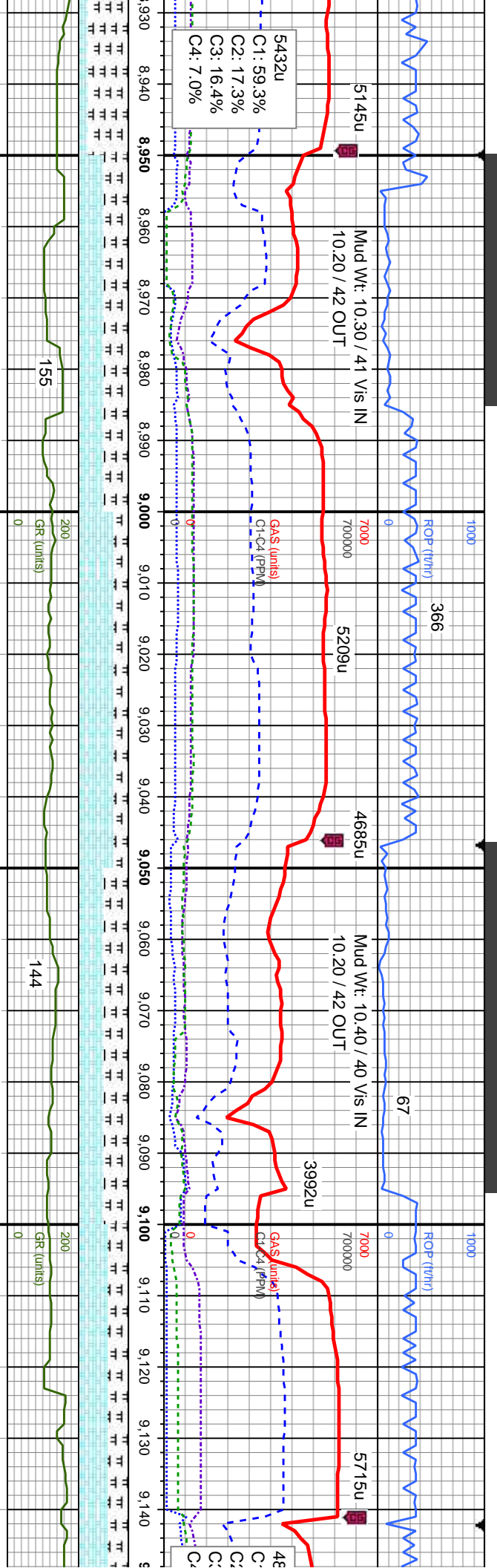
MRLST: medgy - gy blk-dk brn, blk-y-sb
ply, mod frm, rthy tex, v calc, com cal xls,
CHK: lgy, occ medgy, mod sft - mod frm,
sb ply-sb blk-y, sb wxy tex - mot, v calc

5500
MRLST: medgy - gy blk-dk brn, blk-y-sb
ply, mod frm, rthy tex, v calc,
CHK: lgy, occ medgy, mod sft - mod frm,
sb ply-sb blk-y, sb wxy tex - mot, v calc

MD: 8,795'
Inclination: 87.69 °
Azimuth: 88.29 °
TVD: 5,669.92'
VS: 4,193.77'

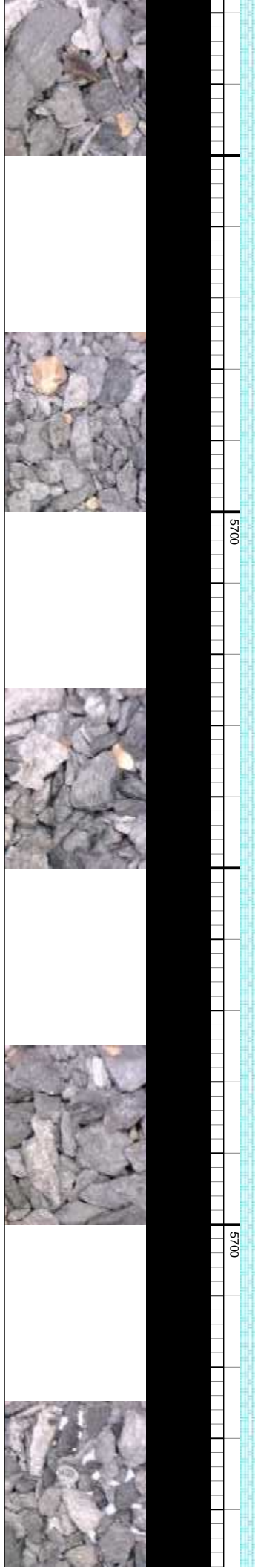
MD: 8,890'
Inclination: 87.45 °
Azimuth: 87.64 °
TVD: 5,673.95'
VS: 4,288.62'

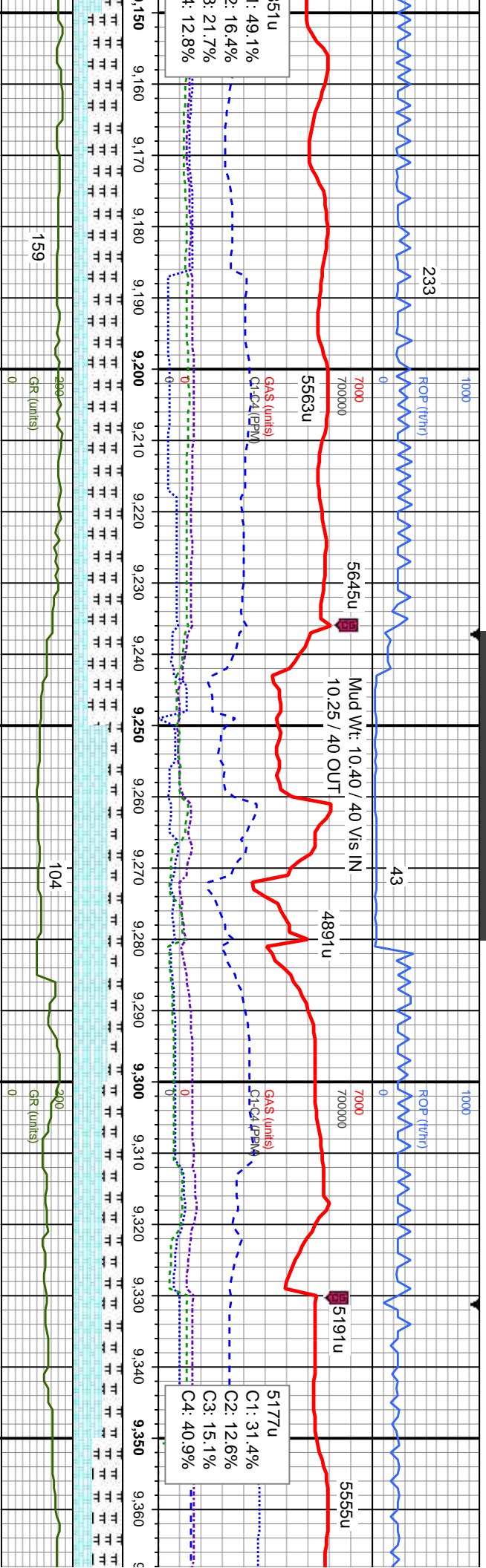




MD: 8,985'
Inclination: 87.97°
Azimuth: 88.4°
TVD: 5,677.74'
VS: 4,383.49'

MD: 9,079'
Inclination: 91.45°
Azimuth: 88.61°
TVD: 5,678.22'
VS: 4,477.44'





MD: 9,174'
Inclination: 93.76°
Azimuth: 84.98°
TVD: 5,673.9'
VS: 4,572.17'

MD: 9,269'
Inclination: 90.83°
Azimuth: 84.96°
TVD: 5,670.09'
VS: 4,666.72'

MD: 9,363'
Inclination: 88.
Azimuth: 85.12
TVD: 5,670.55
VS: 4,760.36'

MRLST: medgy - gy blk-dk brn, blkly-sb
ply, mod frm, rthy tex, v calc,
CHK: ltgy, occ medgy, mod sft - mod frm,
sb ply-sb blkly, sb wxy tex - mot, v calc

MRLST: medgy - gy blk-dk brn, blkly-sb
ply, mod frm, rthy tex, v calc,
CHK: ltgy, occ medgy, mod sft - mod frm,
sb ply-sb blkly, sb wxy tex - mot, v calc

CHK: ltgy, occ medgy, mod sft - mod frm,
sb ply-sb blkly, sb wxy tex - mot, v calc
MRLST: medgy - gy blk-dk brn, blkly-sb
ply, mod frm, rthy tex, v calc

CHK: ltgy, occ medgy, mod sft - mod frm,
sb ply-sb blkly, sb wxy tex - mot, v calc
MRLST: medgy - gy blk-dk brn, blkly-sb
ply, mod frm, rthy tex, v calc

MRLST: medgy
ply, mod frm, r
CHK: ltgy, occ
sb ply-sb blkly,

