



Scale: 5" / 100'
Measured Depth Log

Well Name Upchurch State LD02-76-1AHN

Location SESW SEC2, T9N, R58W, 6PM

State COLORADO **County** WELD

Country USA **Rig Number** H&P 326

API Number 05-123-39814 **Field** WILDCAT

Region DJ BASIN **Drilling Completed** 12/27/2014

Spud Date 12/22/2014

Surface Coordinates 615' FSL, 1604' FWL
40.77498/-103.83521

Bottom Hole Coordinates PROJ)
330' FFNLL, 2200' FFWLL

Ground Elevation 4742' **K.B. Elevation** 4772'

Logged Interval 4973' To 9758' **Total Depth** 9758'

Formation NIOBRARA A-CHALK

Type of Drilling Fluid LSND

Operator

Company Noble Energy Inc

Address 1625 Broadway Suite 2200
Denver, CO 80202

Geologist

Name RENEE CLACKLER

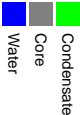
Company NOBLE ENERGY INC.

Address 1625 Broadway Suite 2200
Denver, CO 80202




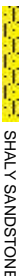



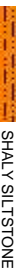





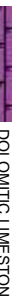








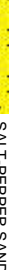





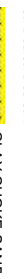

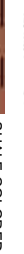



Other

COLUMBINE LOGGING MATT HOPKINS
ANDREW MARTENS

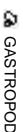
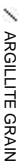
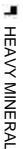










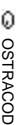
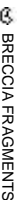










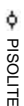


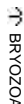
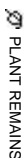


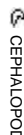
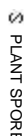
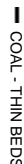



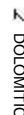




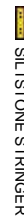
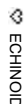


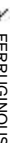
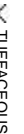




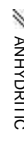
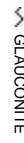
Zone Color Coding



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 SANIC	 SIDERITE or LIMONITE	 SHALE COLORED	
 CLAYSTONE	 LIMESTONE	 SHALE GRAY	

Accessories



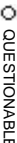



 GASTROPOD	 ARGILLITE GRAIN	 HEAVY MINERAL	 ANHYDRITE STRINGER
 INOCERAMUS	 B BENTONITE	 K KAOLIN	 BENTONITE STRINGER
 ALGAE	 Ø OOLITE	 BITUMENOUS SUBSTANCE	 COAL STRINGER
 AMPHIPORA	 Ø OSTRACOD	 BRECCIA FRAGMENTS	 DOLOMITE STRINGER
 BELEMNITE	 Ø PELECYPOD	 ⬇ CALCAREOUS	 GYPSUM STRINGER
 BIOCLASTIC	 ⌵ PELLET	 ■ CARBONACEOUS FLAKES	 LIMESTONE STRINGER
 ⚡ BRACHIOPOD	 ⚡ PISOLITE	 ▲ CHTDK	 T MARLSTONE (CALC) STRG
 ⚡ BRYOZOA	 ⚡ PLANT REMAINS	 ⚡ CHLT T	 T MARLSTONE (DOL) STRG
 ⚡ CEPHALOPOD	 \$ PLANT SPORES	 — COAL - THIN BEDS	 T SANDSTONE STRINGER
 ⚡ CORAL	 ⚡ SCAPHOPOD	 ⚡ DOLOMITIC	 — SHALE STRINGER
 ⚡ CRINOID	 III STROMATOPOROID	 + FELDSPAR	 T SILTSTONE STRINGER
 ⚡ ECHINOID		 ● FERRUGINOUS PELLET	
 ⚡ FISH		 ⚡ FERRUGINOUS	 ✓ TUFFACEOUS
 ⚡ FORAMINIFERA	 // ANHYDRITIC	 ✓ GLAUCONITE	
 F FOSSIL	 — ARGILLACEOUS	 // GYPSIFEROUS	

Stringer







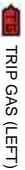

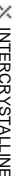

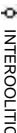
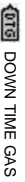




Oil Show

 P PINPOINT
 ✓ VUGGY

















Engineering

 D DEAD	
 ● EVEN	
 ○ QUESTIONABLE	 ⚡ BIT
 ● SPOTTED STAINING	 ▲ CONNECTION (UP)

Porosity

 ▼ CONNECTION (DOWN)	 📦 CONNECTION GAS
	 📦 TRIP GAS
 E EARTHY	 📦 CONNECTION GAS
 □ FENESTRAL	 📦 TRIP GAS (LEFT)
 F FRACTURE	
 X INTERCRYSTALLINE	 📦 DOWN TIME GAS
 Ø INTEROOLITIC	 📦 DOWN TIME GAS
 ⚡ MOLDIC	 ⬇ CORE - LOST
 O ORGANIC	 ■ CORE - RECOVERED

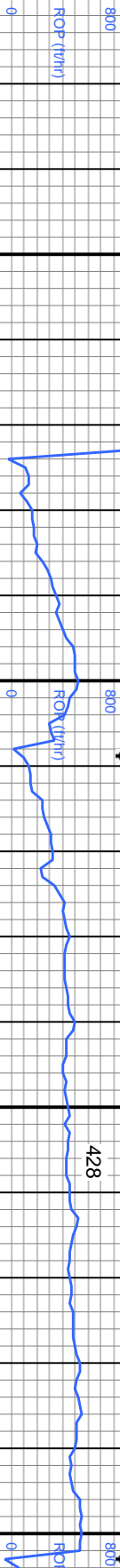
Other Symbols

	WIRELINE TESTED - LEFT	E EARTHY
	WIRELINE TESTED - RT	FX FINELYXLN
	DRILL STEM TEST	GS GRAINSTONE
	 MN DEPTH	L LITHOGRAPHIC
		MX MICROXLN
Rounding		
 MN DEPTH UP		MS MUDSTONE
 MN DEPTH (DOWN)	A ANGULAR	PS PACKSTONE
 NORMAL FAULT	R ROUNDED	WS WACKESTONE
(LEFT)  OVERTURNED STRATA	S SUBANG	
 REVERSE FAULT	P SUBRND	
Sorting		
 CASING		M MODERATE
Textures		
 SIDEWALL CORE (LEFT)		P POOR
(LEFT)  SIDEWALL CORE (RIGHT)	BS BOUNDSTONE	W WELL
 SLIDE	C CHALKY	
 SURVEY	CX CRYPTOXLN	
LEFT NORMAL FAULT		

Slide/Rotate

ROP

ROP



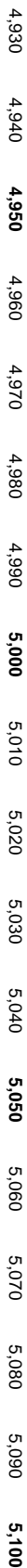
Total Gas & Chromatograph

GAS
C1
C2
C3
C4

COLUMBINE LOGGING INC.
RIGGED UP ON 12/23/2014
MANNED 2-PERSON LOGGING
WITH BLOODHOUND GAS
CHROMATOGRAPH UNIT #331

C1
C2
C3
C4

Depth Labels



% Lith

GAMMA
GR

50' Sample Intervals

Bit Data

Well Bore
TVD

Bit #: 1
Type: PDC
Size: 8.75
Depth In: 1,227'
Jets: 7x13
S/N: JJ5824

TVD (ft)

MD: 5,055'
Inclination: 14.25 °
Azimuth: 63.78 °
TVD: 5,010.72'
VS: 34.98'

TVD (ft)

SLTY SH: lt-dk gy, mod frm, sb blk-y-sb
plty, gritty, rthy, silky, occ string of shy ss

SLTY SH: lt-dk gy, mod frm, sb blk-y-sb
plty, gritty, rthy, silky, occ string of shy ss

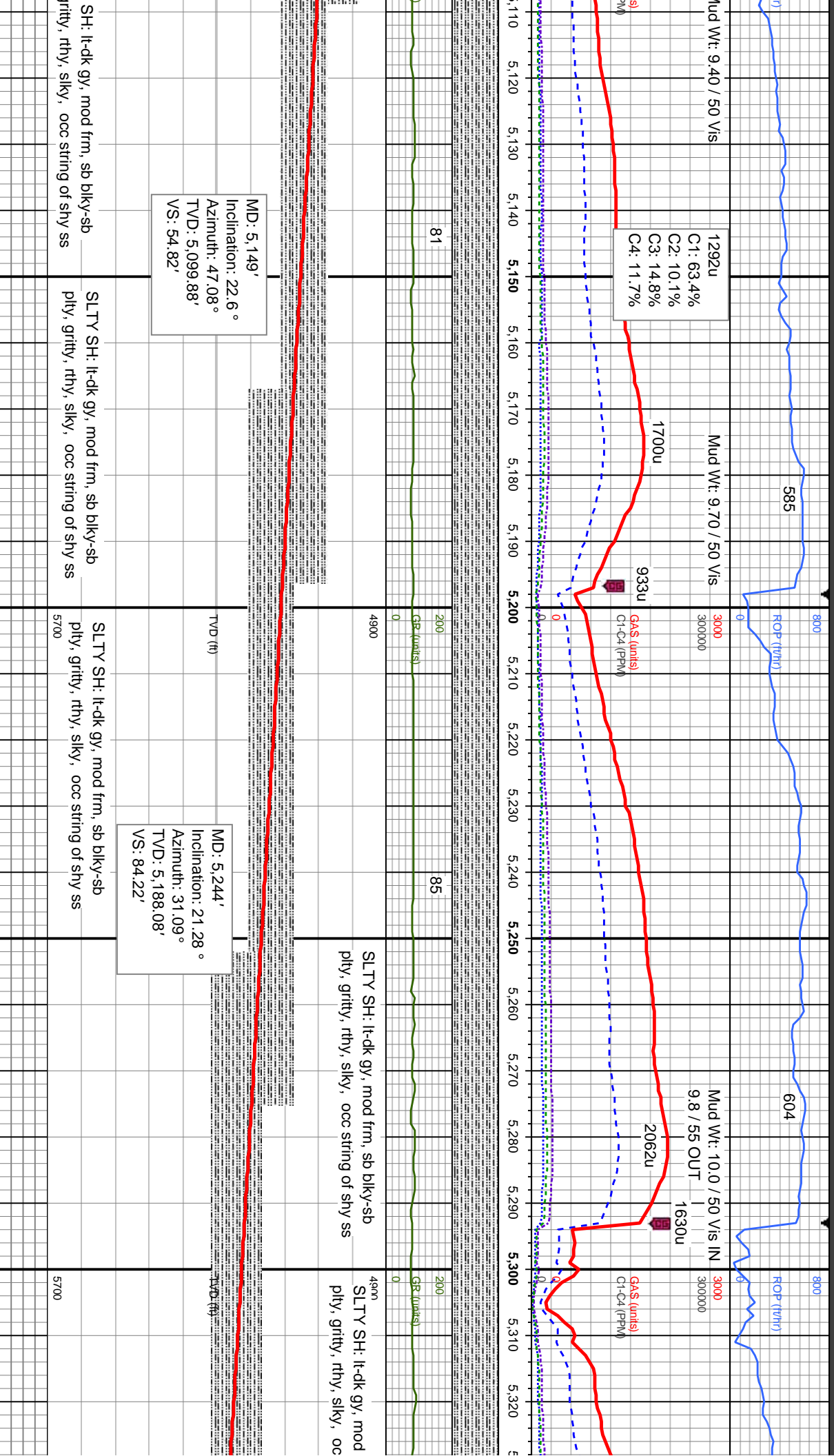
SLTY
plty, G

Oil Show

Oil Show

Images





SH: It-dk gy, mod frm, sb blk-y-sb
gritty, rthy, silky, occ string of shy ss

SLTY SH: It-dk gy, mod frm, sb blk-y-sb
ply, gritty, rthy, silky, occ string of shy ss

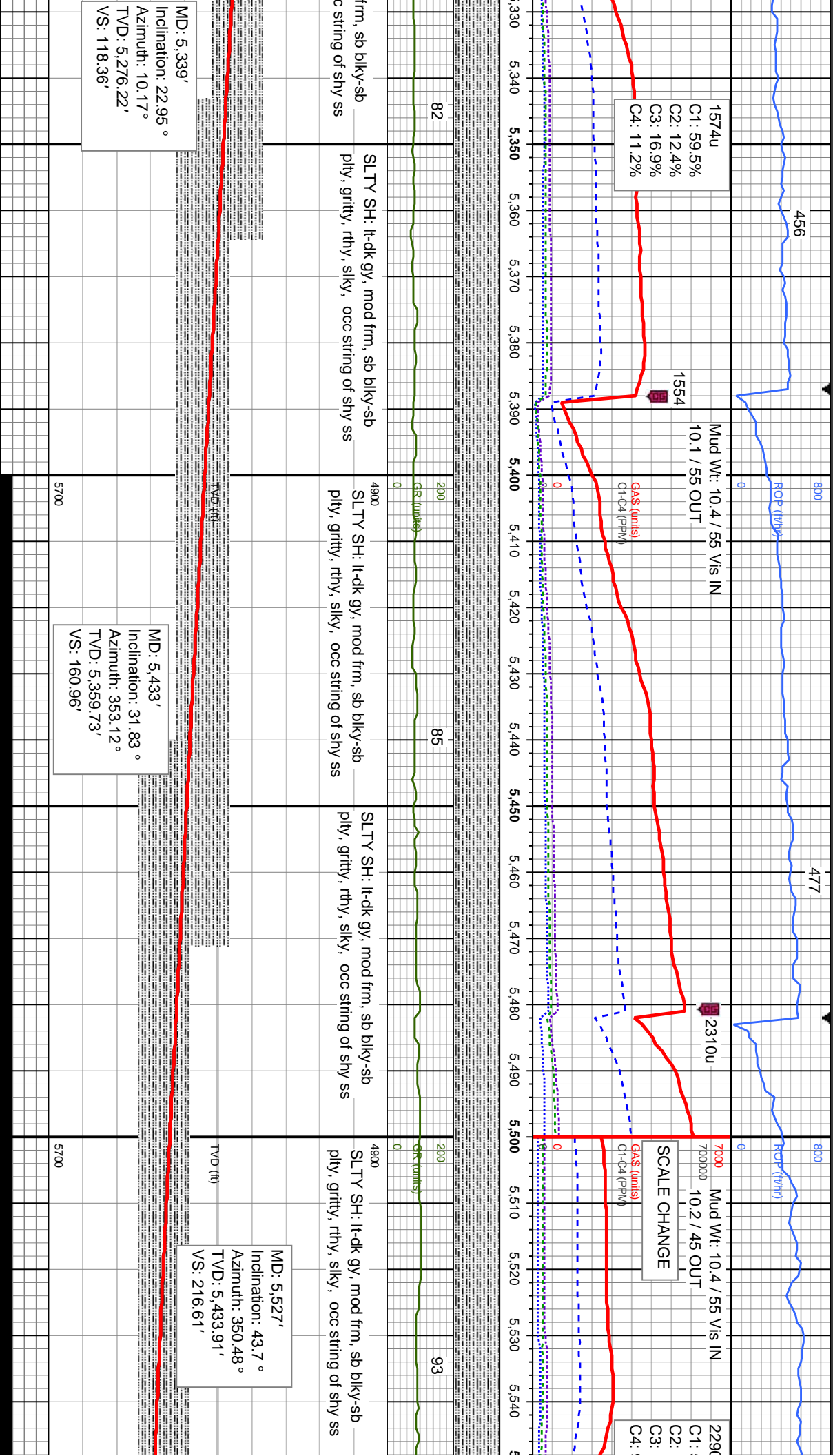
	SLTY SH: It-dk gy, mod frm, sb blkly-sb ply, gritty, rthy, silky, occ string of shy ss			
5700				

MD: 5,149'
Inclination: 22.6°
Azimuth: 47.08°
TVĐ: 5,099.88'
VS: 54.82'

MD: 5,244'
Inclination: 21.28 °
Azimuth: 31.09 °
TVD: 5,188.08'
VS: 84.22'

SLTY SH: It-dk gy, mod frm, sb blk-y-sb
plty, gritty, rthy, silky, occ string of shy ss

SLTY SH: It-dk gy, mod
ply, gritty, rthy, silky, oc

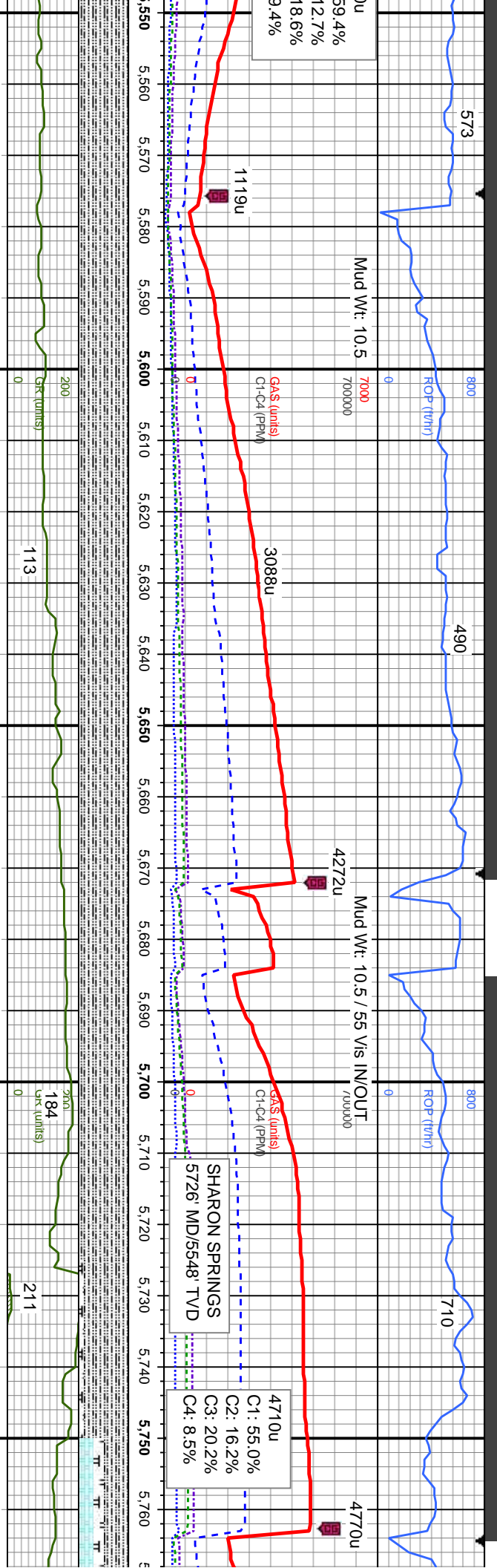


1574u
C1: 59.5%
C2: 12.4%
C3: 16.9%
C4: 11.2%

Mud Wt: 10.4 / 55 Vis IN
10.1 / 55 OUT

Mud Wt: 10.4 / 55 Vis IN
10.2 / 45 OUT

229c
C1: :
C2: :
C3: :
C4: :



SLTY SH: lt-dk gy, mod frm, sb blk-y-sb ply, gritty, rthy, silky, occ string of shy ss

SLTY SH: lt-dk gy, mod frm, sb blk-y-sb ply, gritty, rthy, silky, occ string of shy ss

SLTY SH: lt-dk gy, mod frm, sb blk-y-sb ply, gritty, rthy, silky, occ string of shy ss, tr bent

SLTY SH: lt-dk gy, mod frm, sb blk-y-sb ply, gritty, rthy, silky, abnt bent, MRLST: medgy - gy blk-dk brn, blk-y-sb ply, mod frm, rthy

SLTY SH: lt-dk gy, mod frm, sb blk-y-sb ply, gritty, rthy, silky, medgy, mod sft sb wxy tex - mo blk-dk brn, blk-y-sb

25' Sample Intervals

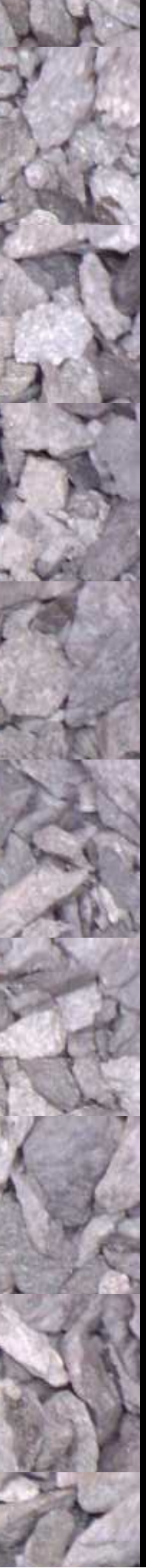
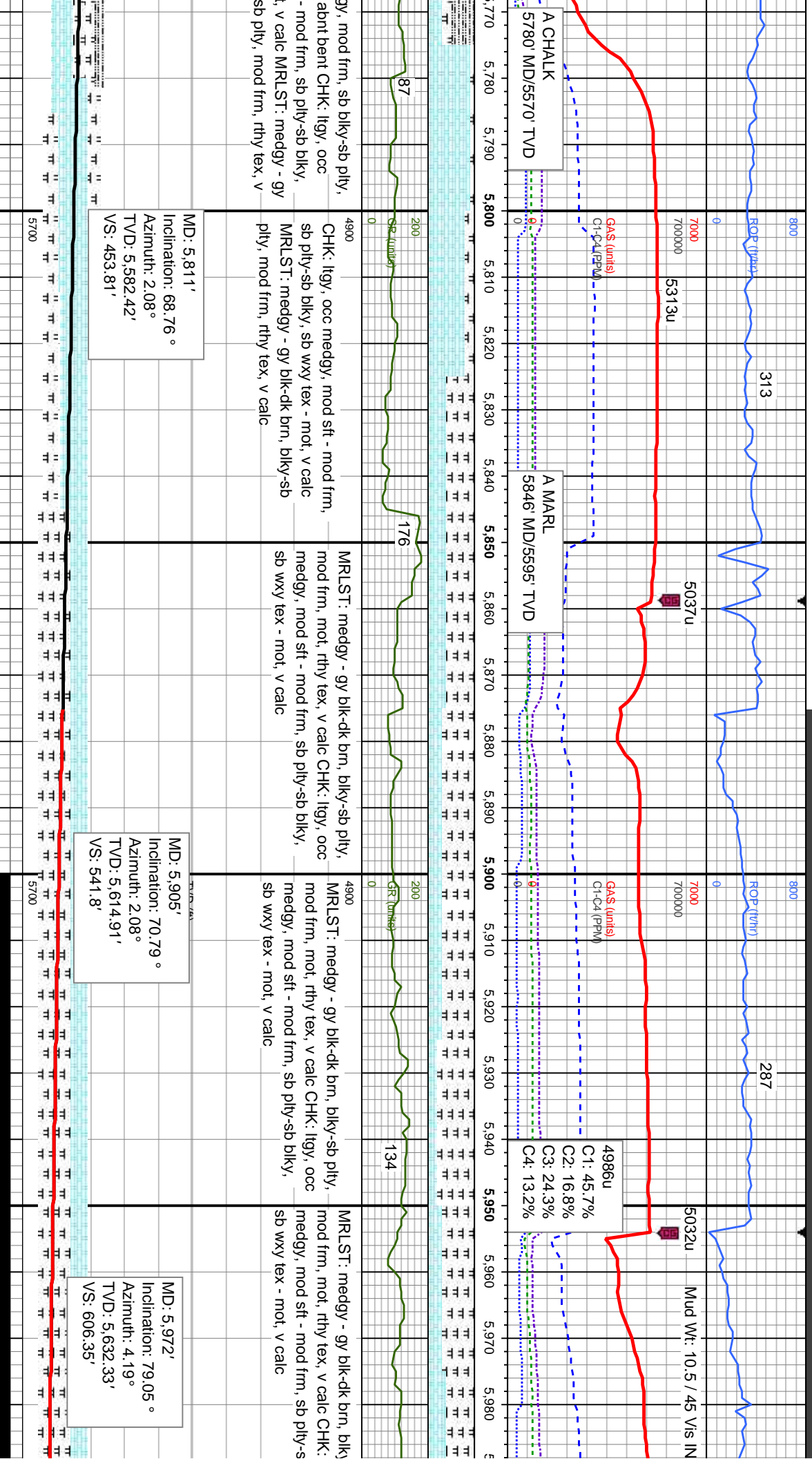
MD: 5,621'
Inclination: 54.17 °
Azimuth: 358.74 °
TVD: 5,495.64'
VS: 285.95'

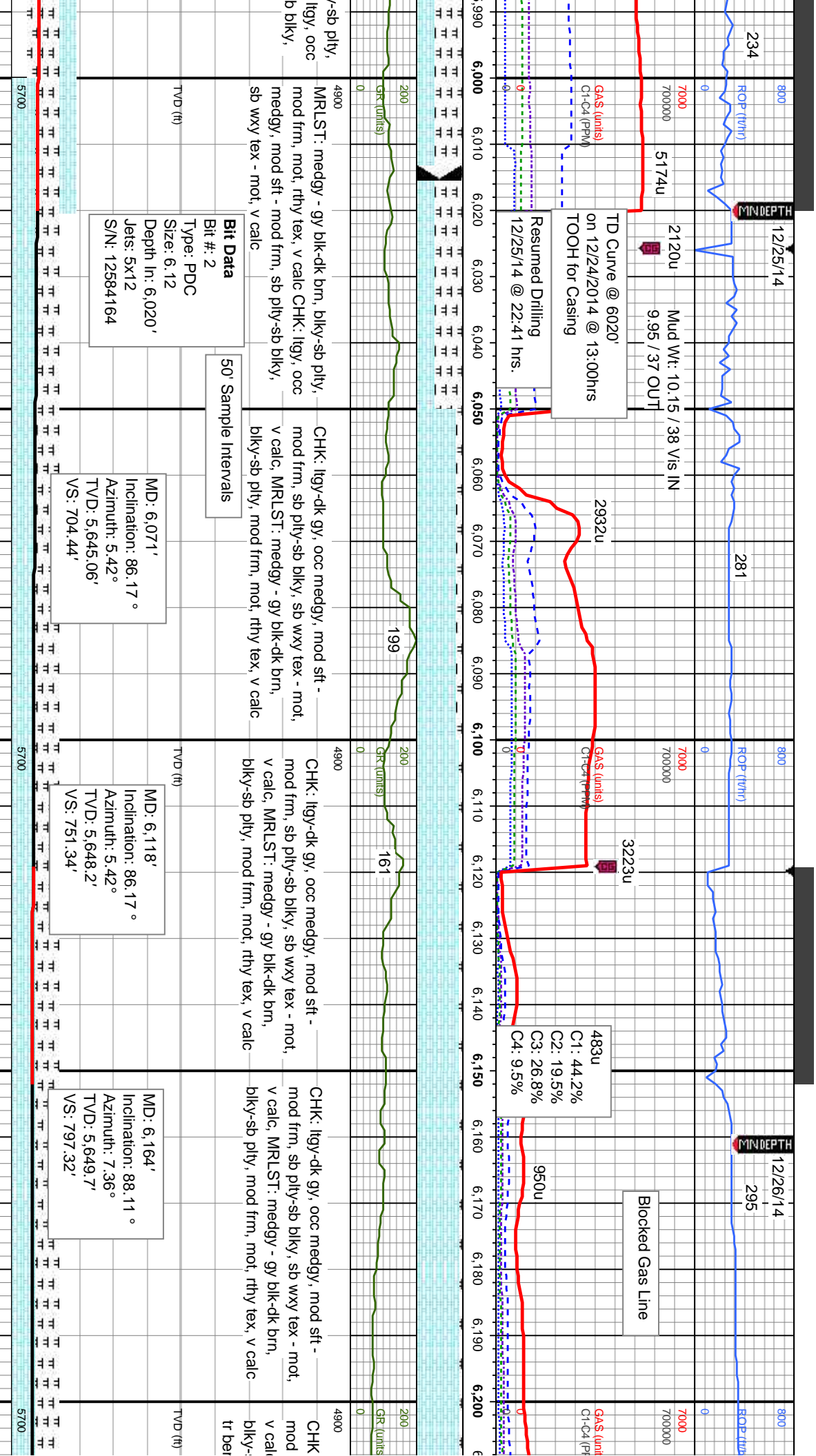
MD: 5,716'
Inclination: 64.02 °
Azimuth: 2.26 °
TVD: 5,544.38'
VS: 366.98'

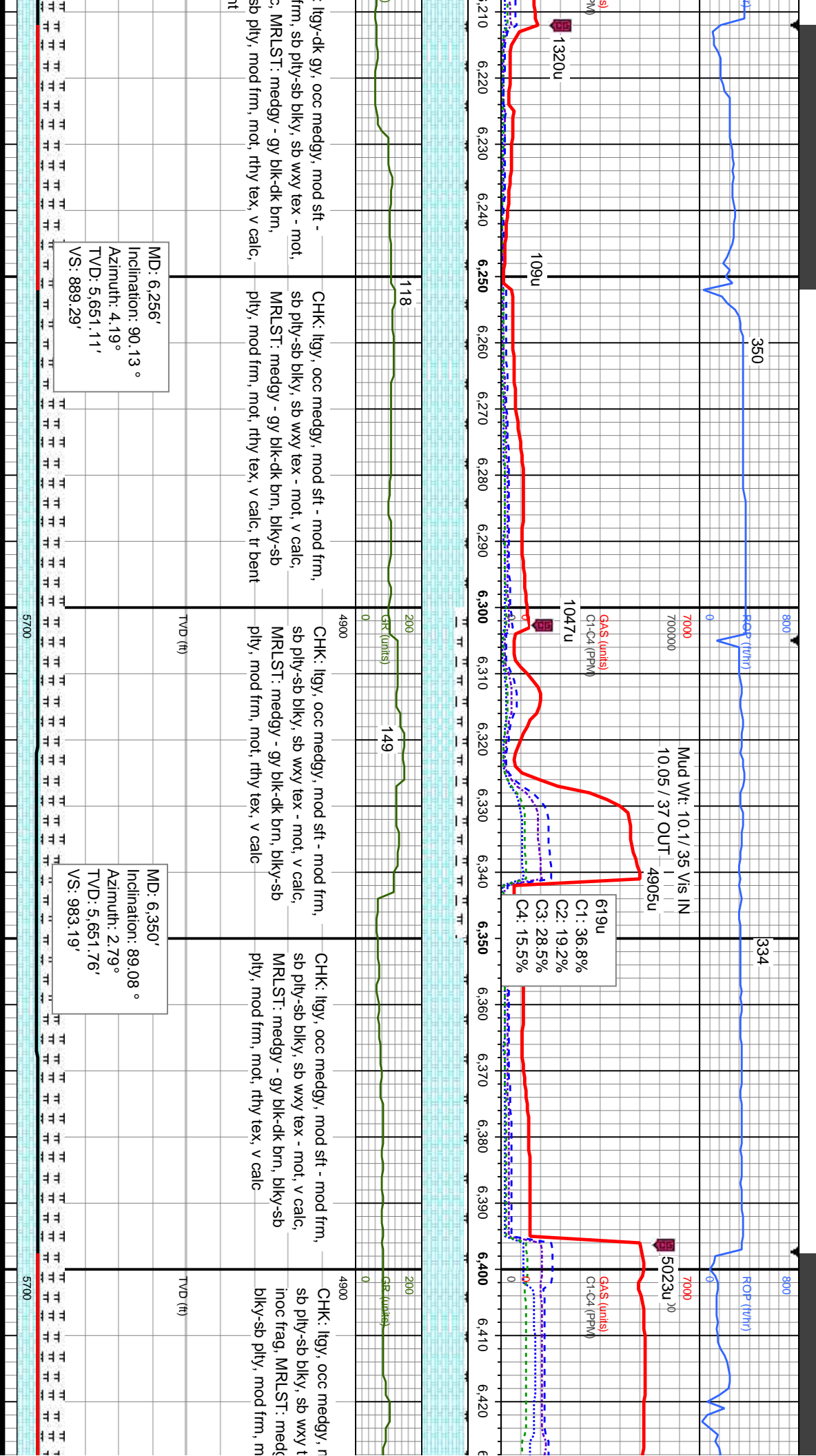
SHARON SPRINGS
5726' MD/5548' TVD

4710u
C1: 55.0%
C2: 16.2%
C3: 20.2%
C4: 8.5%









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

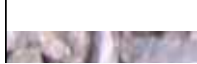
CHK: lgy, occ medgy, mod sft - mod frm,
sb pty-sb blk, sb wxy tex - mot, v calc,
MRLST: medgy - gy blk-dk brn, blk-pty,
pty, mod frm, mot, rthy tex, v calc

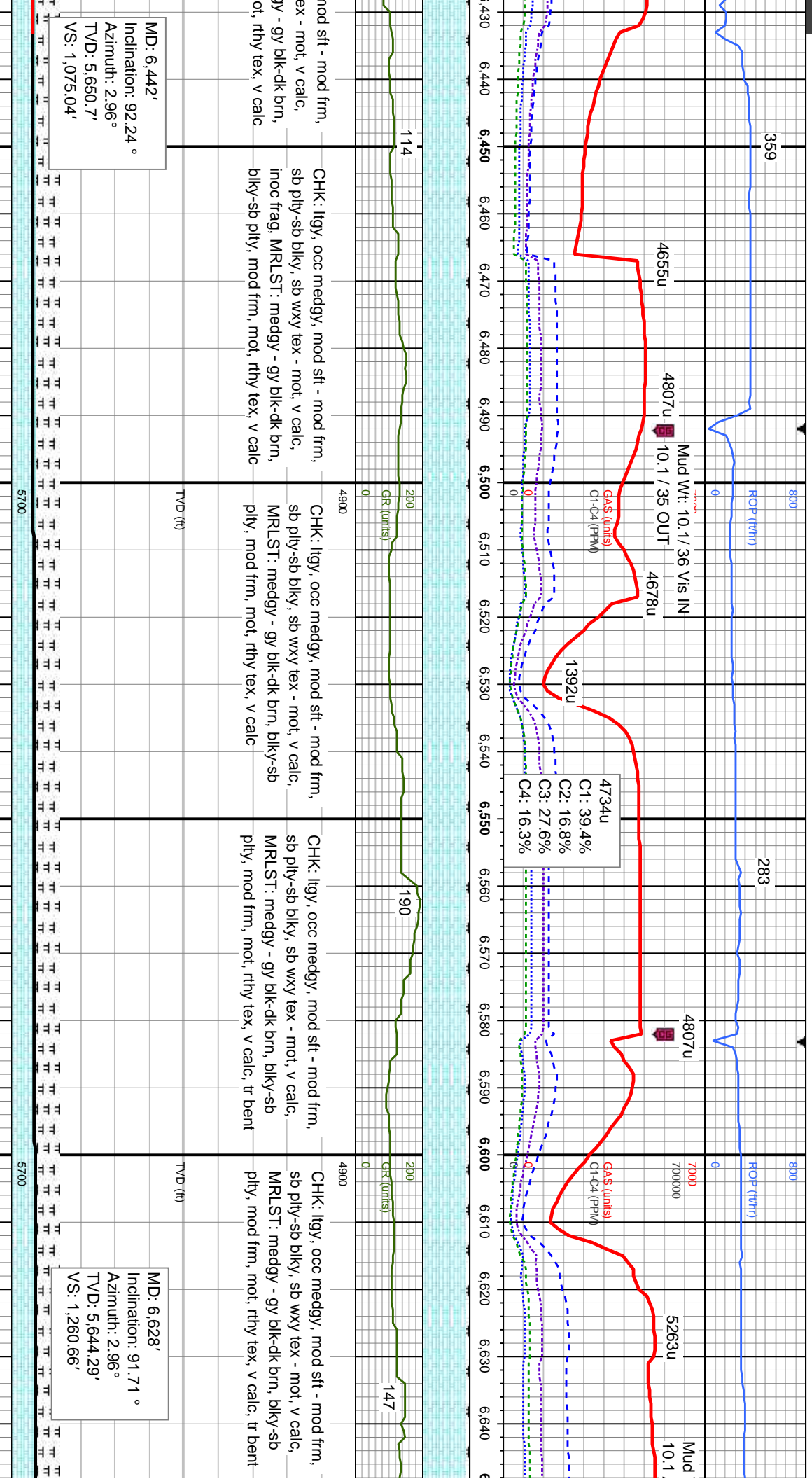
CHK: lgy, occ medgy, mod sft - mod frm,
sb pty-sb blk, sb wxy tex - mot, v calc,
MRLST: medgy - gy blk-dk brn, blk-pty,
pty, mod frm, mot, rthy tex, v calc

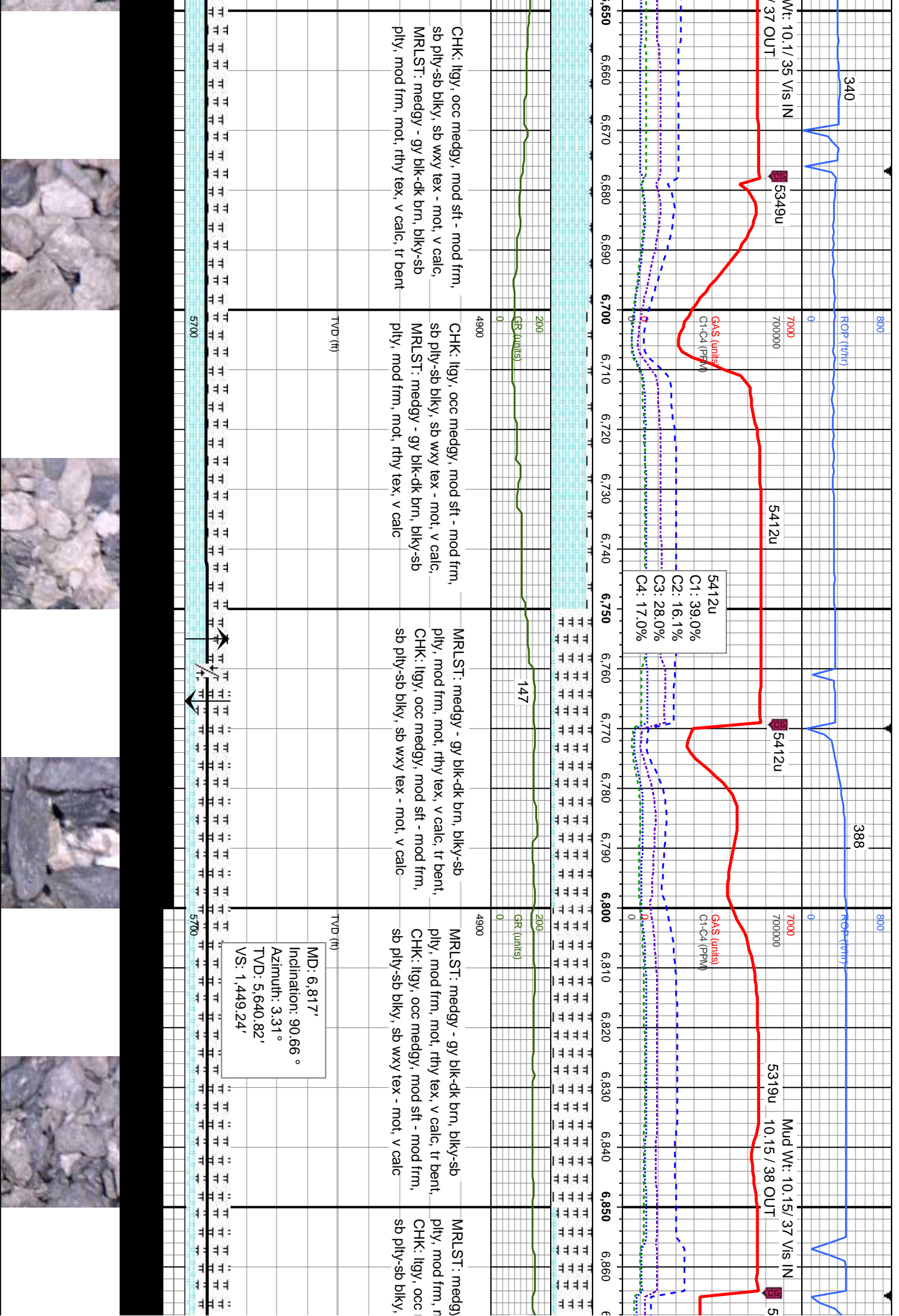
CHK: lgy, occ medgy, r
sb pty-sb blk, sb wxy t
inoc frag, MRLST: med
blk-pty, mod frm, m

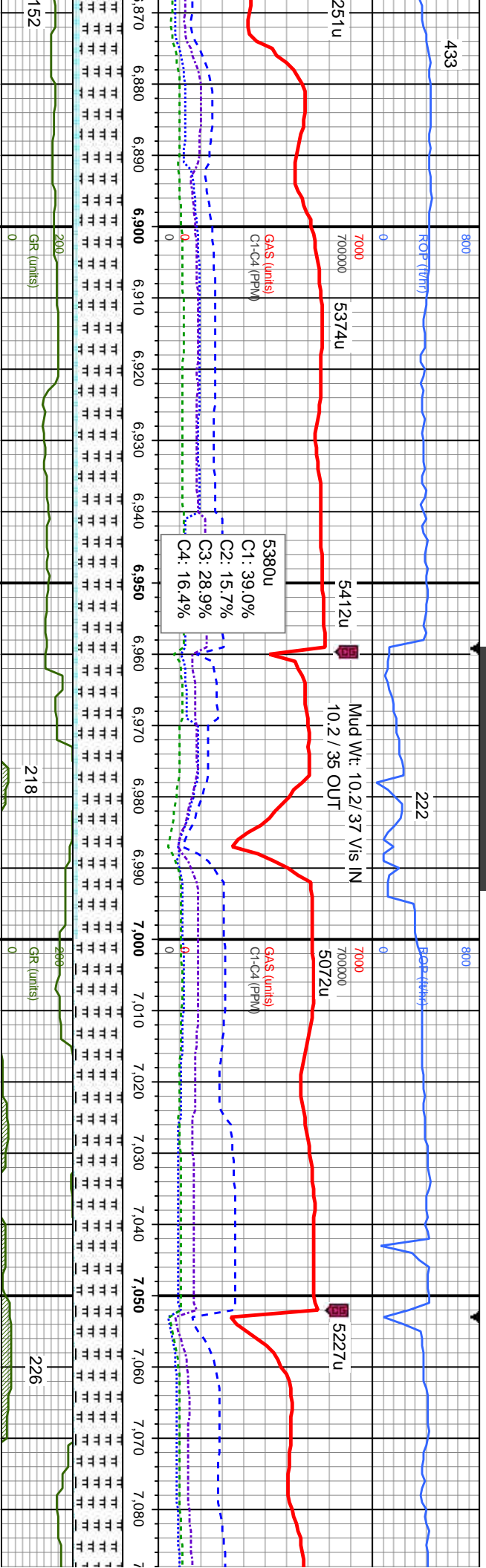
MD: 6,256'
Inclination: 90.13 °
Azimuth: 4.19°
TVD: 5,651.11'
VS: 889.29'

MD: 6,350'
Inclination: 89.08 °
Azimuth: 2.79°
TVD: 5,651.76'
VS: 983.19'









- gy blk-dk brn, blk-y-sb
mot, rthy tex, v calc, tr bent,
medgy, mod sft - mod frm,
sb wxy tex - mot, v calc

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

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

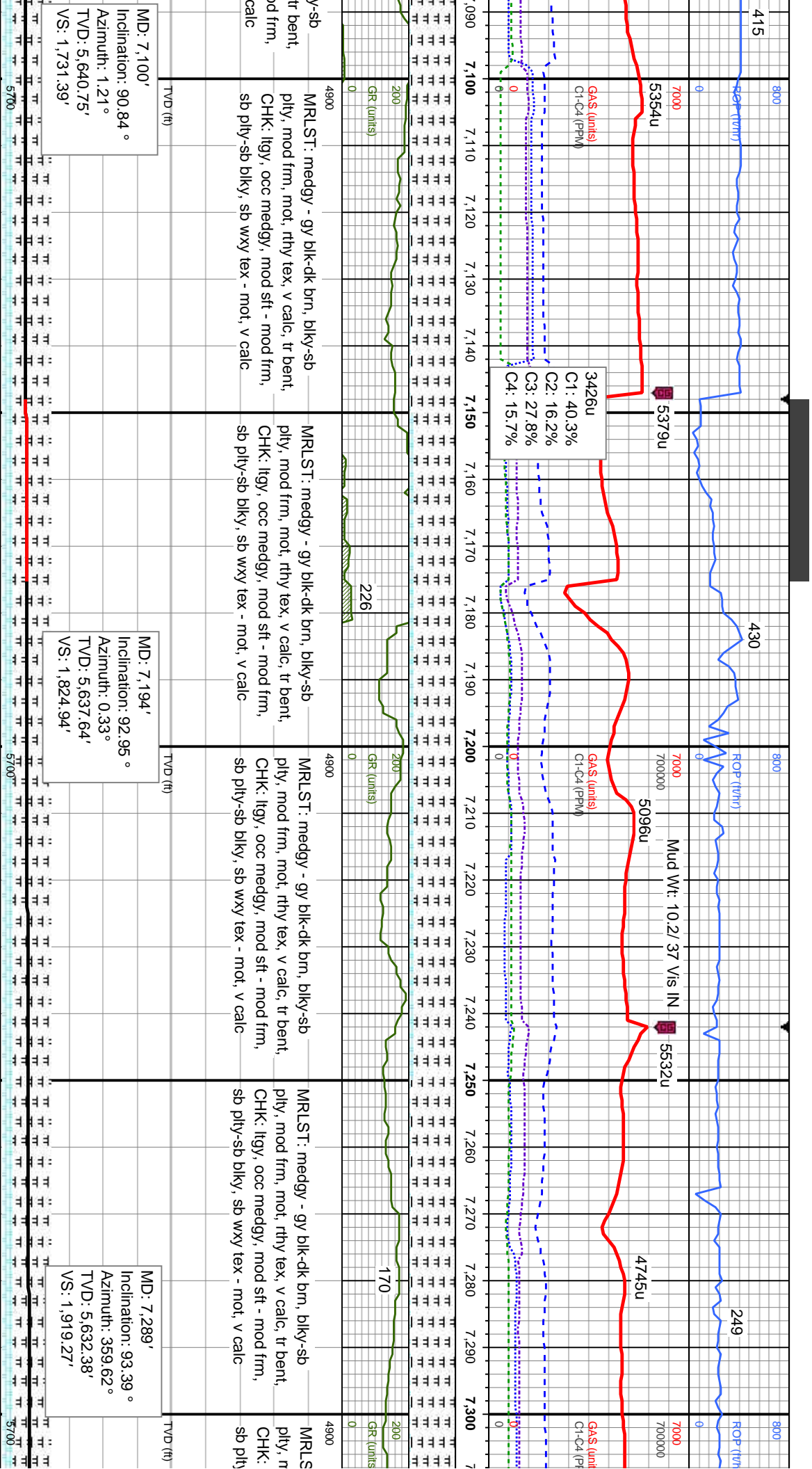
MRLST: medgy - gy blk-dk brn, blk-y-sb
ply, mod frm, mot, rthy tex, v calc, tr bent,
CHK: lgy, occ medgy, mod sft - mod frm,
sb ply-sb blk-y, sb wxy tex - mot, v calc

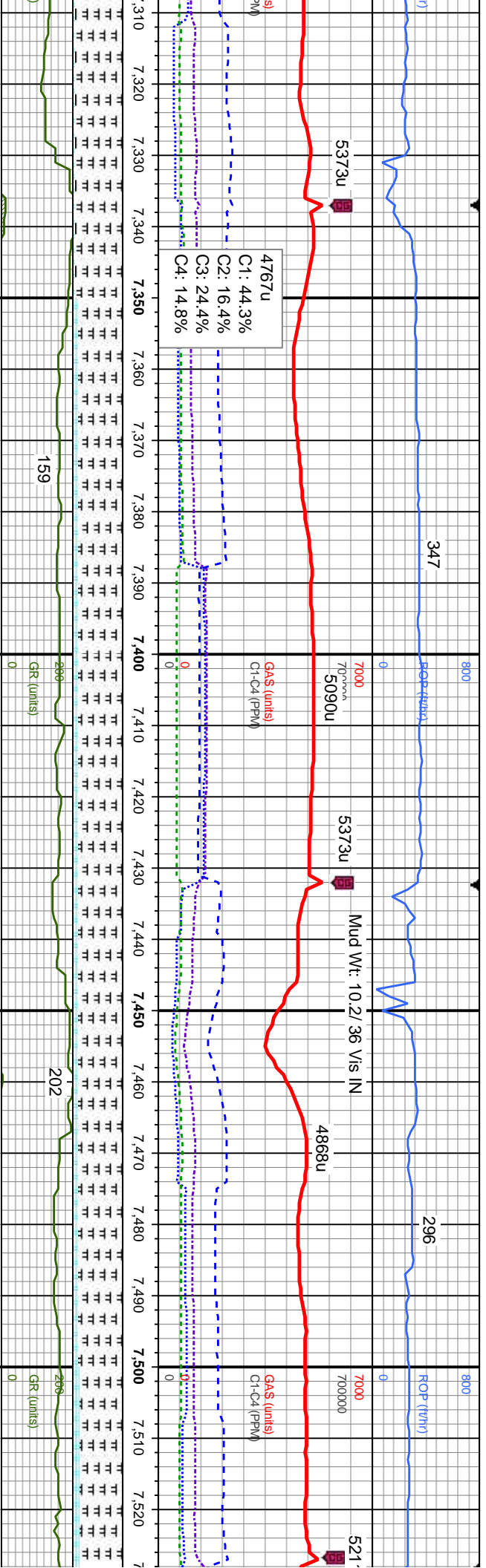
MRLST: medgy - gy blk-dk brn, blk-y-sb
ply, mod frm, mot, rthy tex, v calc,
CHK: lgy, occ medgy, mod sft - mod frm,
sb ply-sb blk-y, sb wxy tex - mot, v

MD: 6,911'
Inclination: 88.11 °
Azimuth: 1.73°
TVD: 5,641.83'
VS: 1,543.05'

MD: 7,006'
Inclination: 91.19 °
Azimuth: 1.21°
TVD: 5,642.41'
VS: 1,637.73'







T: medgy - gy blk-dk brn, blkly-sb
mod frm, mot, rthy tex, v calc, tr bent,
ltgy, occ medgy, mod sft - mod frm,
-sb blkly, sb wxy tex - mot, v calc

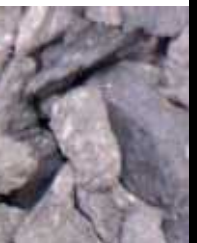
MRLST: medgy - gy blk-dk brn, blkly-sb
ply, mod frm, mot, rthy tex, v calc, tr bent,
CHK: ltgy, occ medgy, mod sft - mod frm,
sb ply-sb blkly, sb wxy tex - mot, v calc

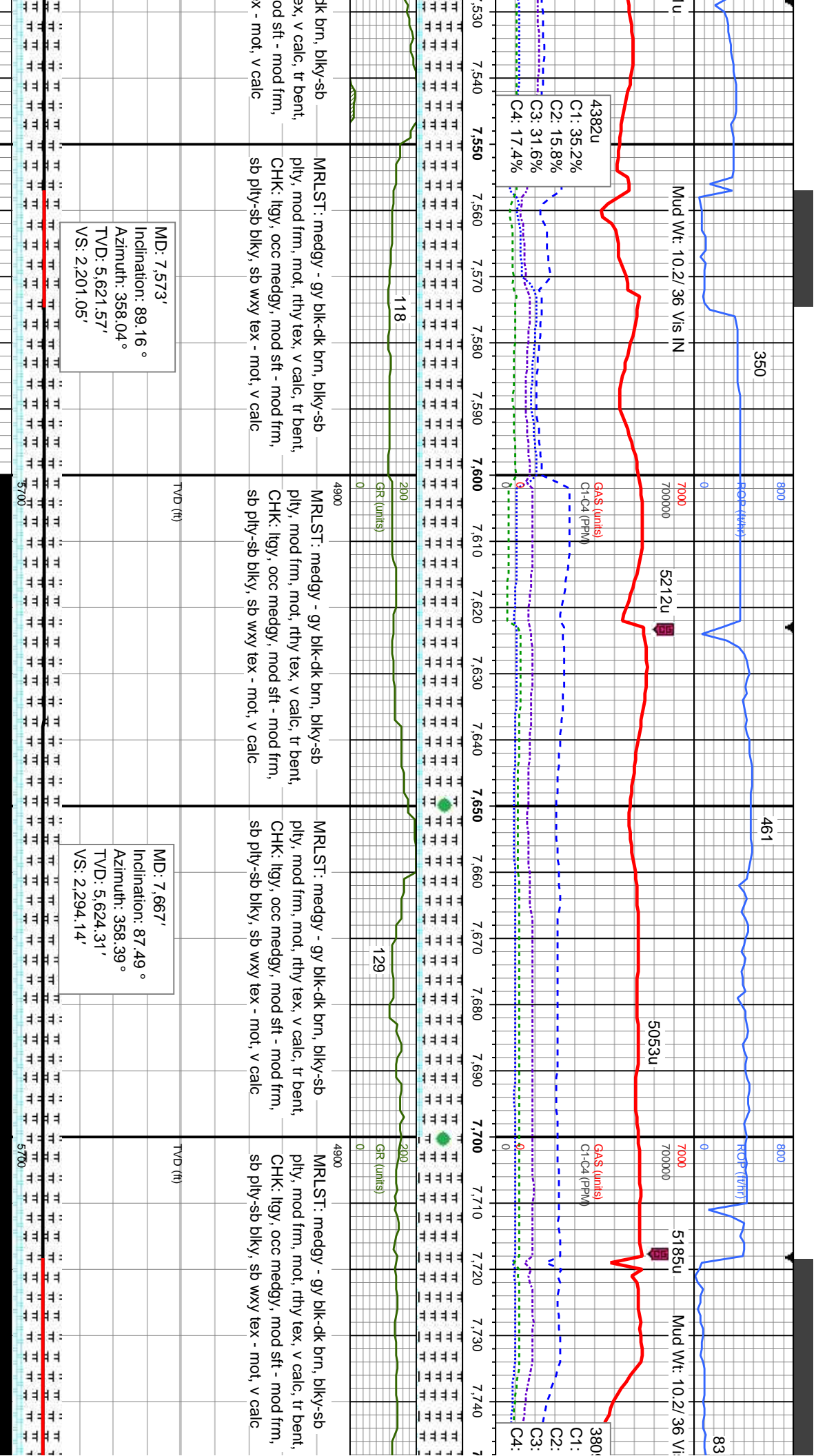
MRLST: medgy - gy blk-dk brn, blkly-sb
ply, mod frm, mot, rthy tex, v calc, tr bent,
CHK: ltgy, occ medgy, mod sft - mod frm,
sb ply-sb blkly, sb wxy tex - mot, v calc

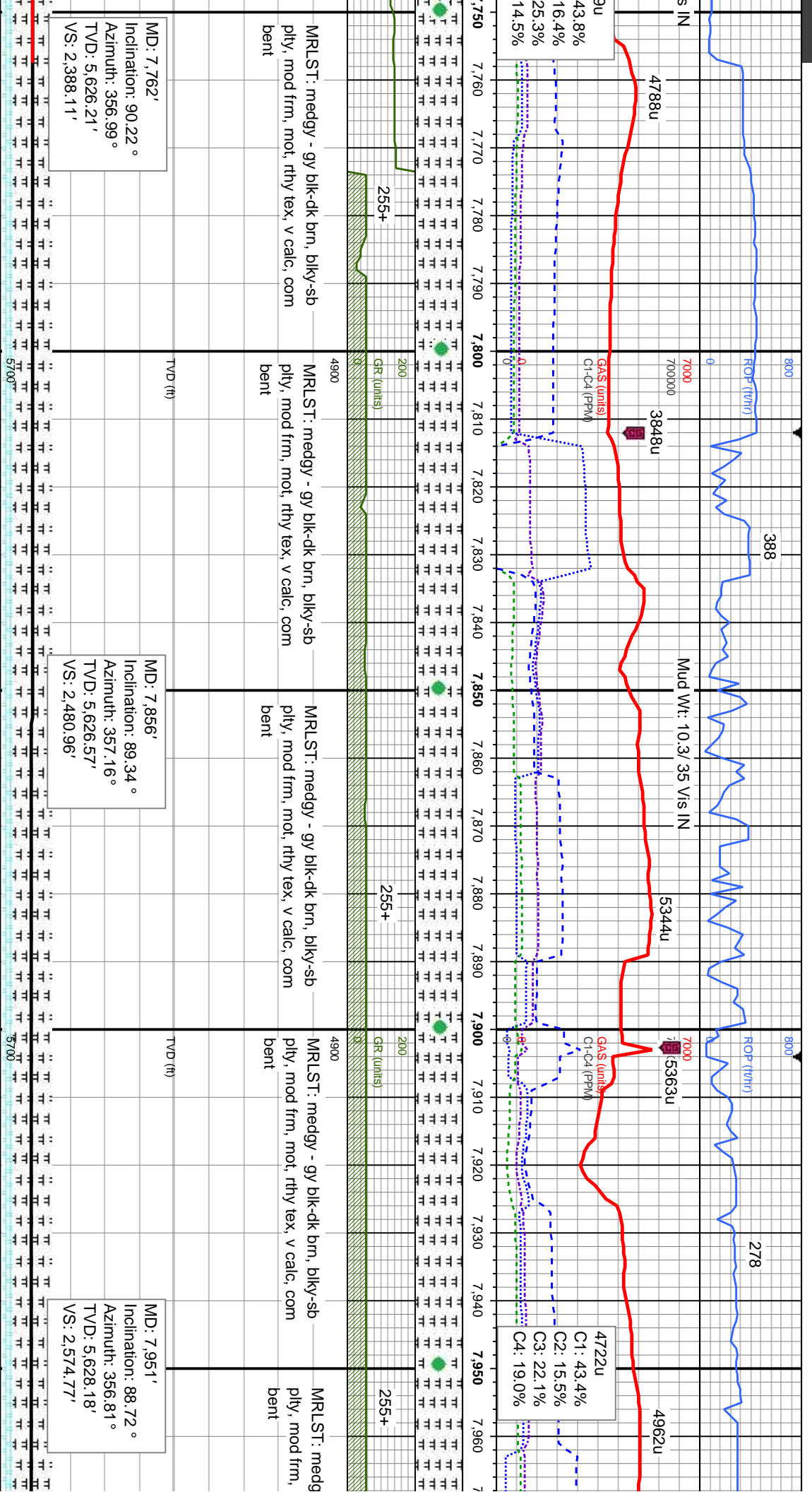
MRLST: medgy - gy blk-dk brn, blkly-sb
ply, mod frm, mot, rthy tex, v calc, tr bent,
CHK: ltgy, occ medgy, mod sft - mod frm,
sb ply-sb blkly, sb wxy tex - mot, v calc

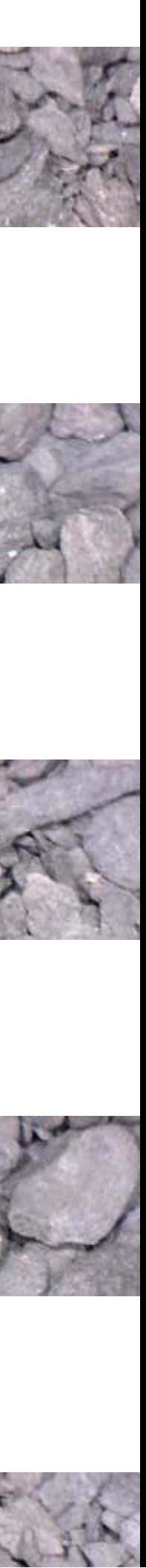
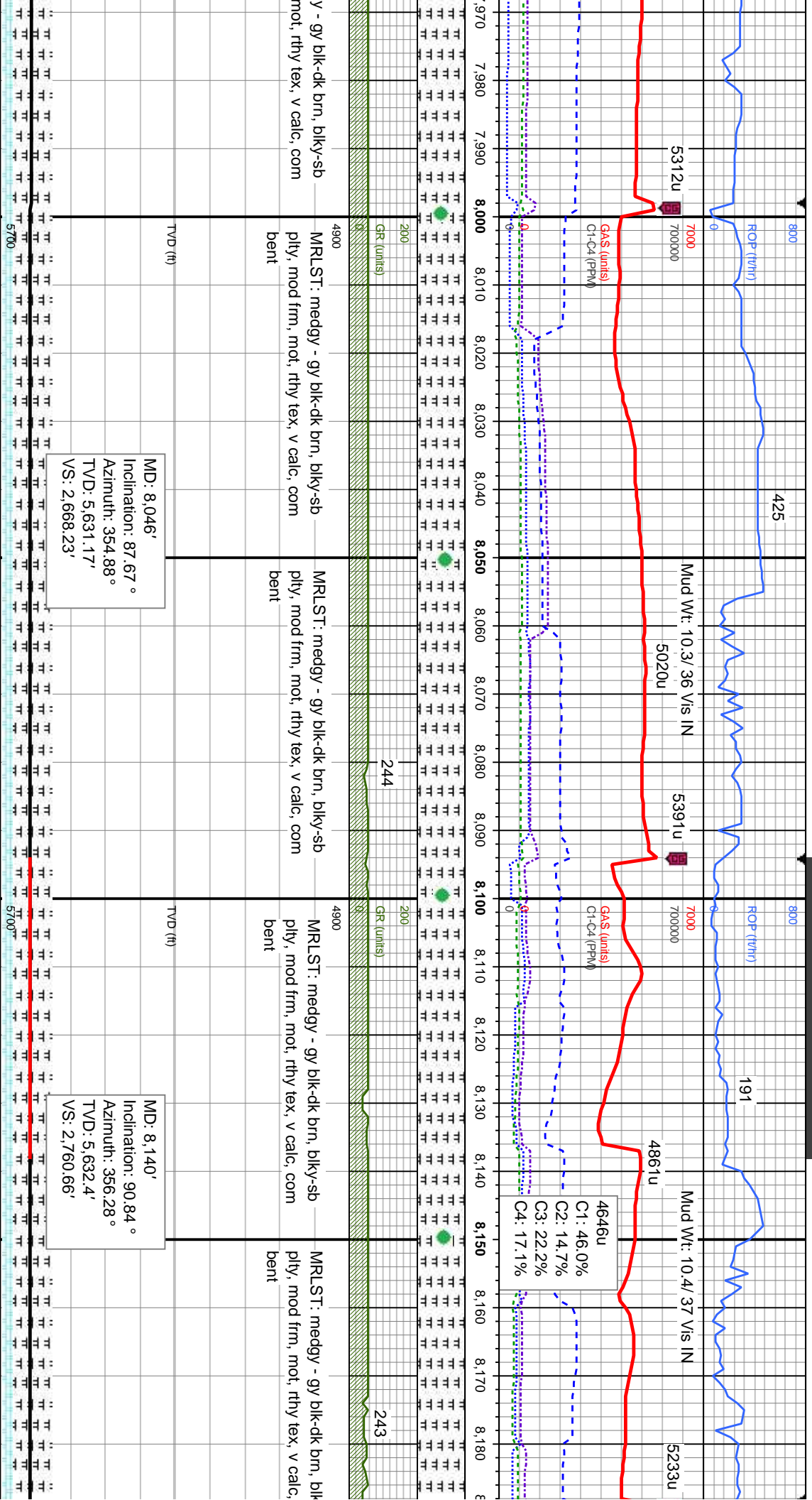
MD: 7,384'
Inclination: 92.95°
Azimuth: 358.92°
TVD: 5,627.13'
VS: 2,013.47'

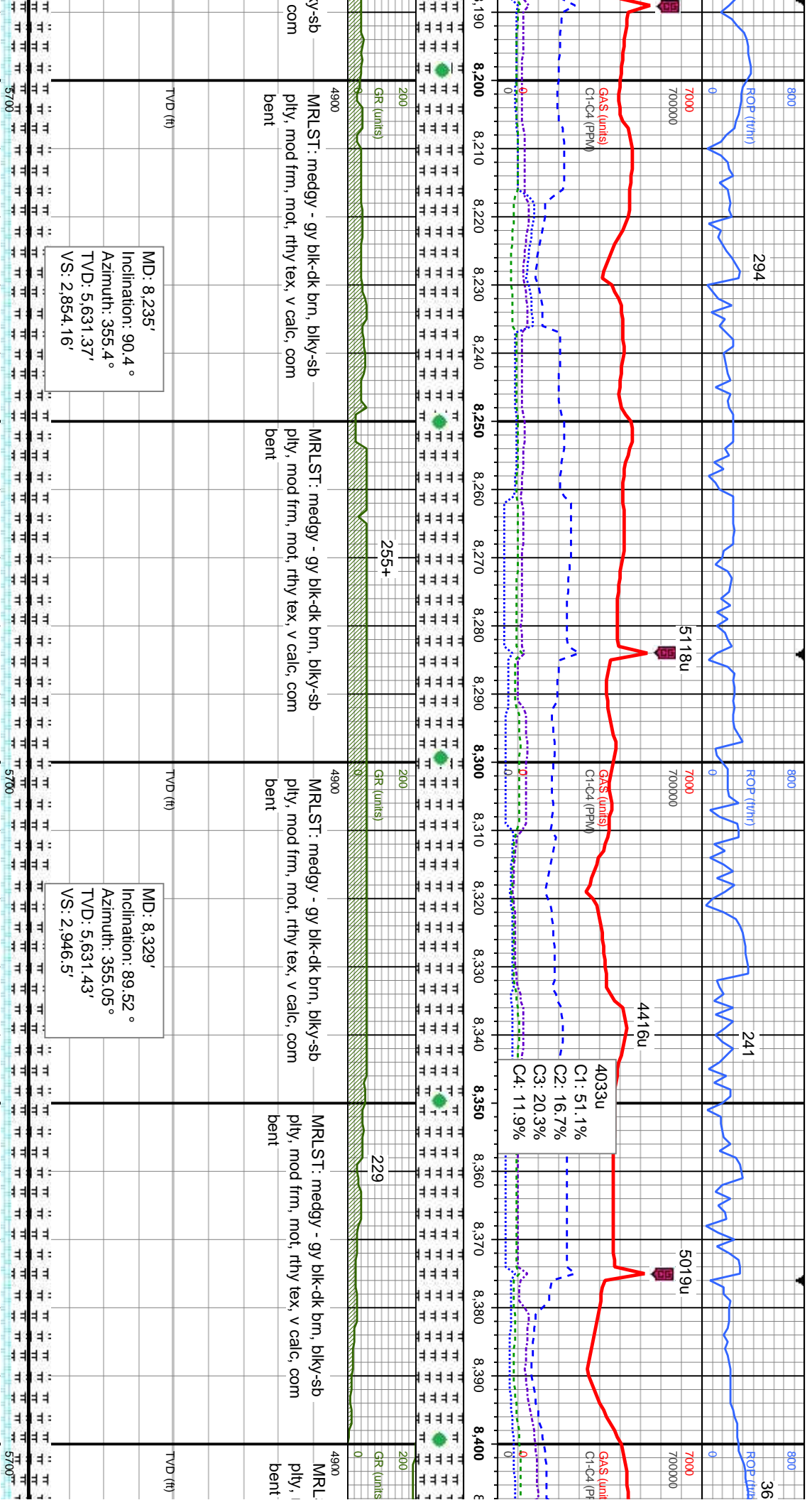
MD: 7,478'
Inclination: 92.33°
Azimuth: 0.15°
TVD: 5,622.8'
VS: 2,106.76'

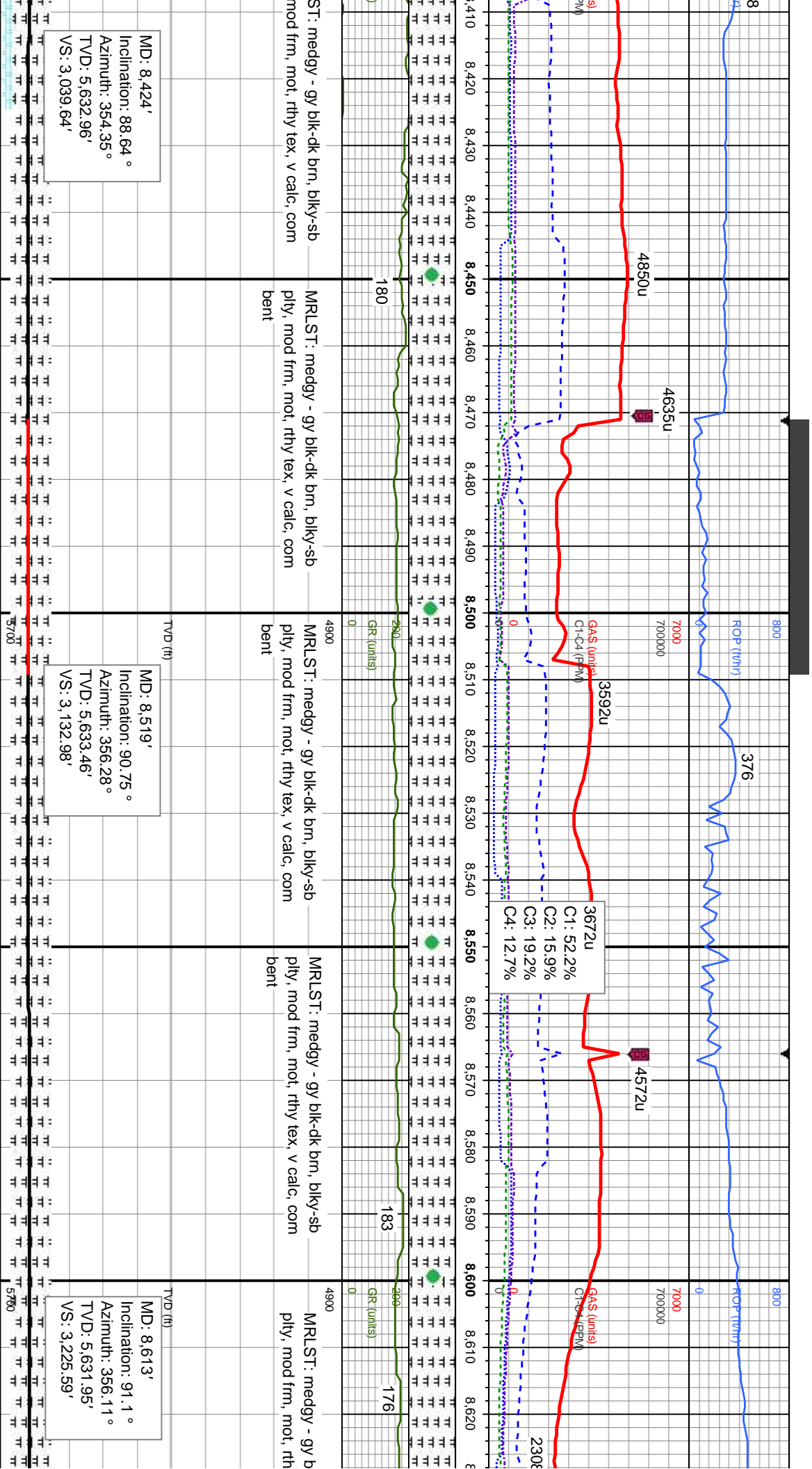


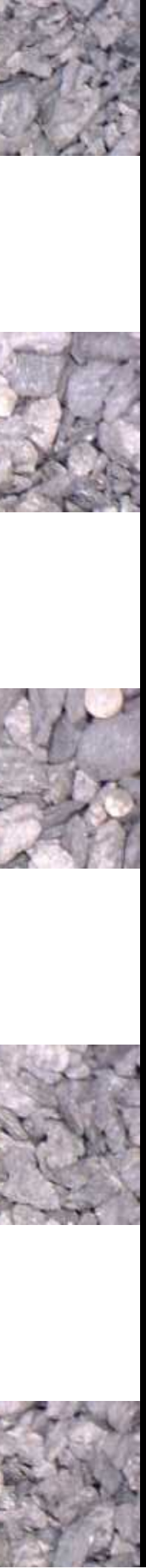
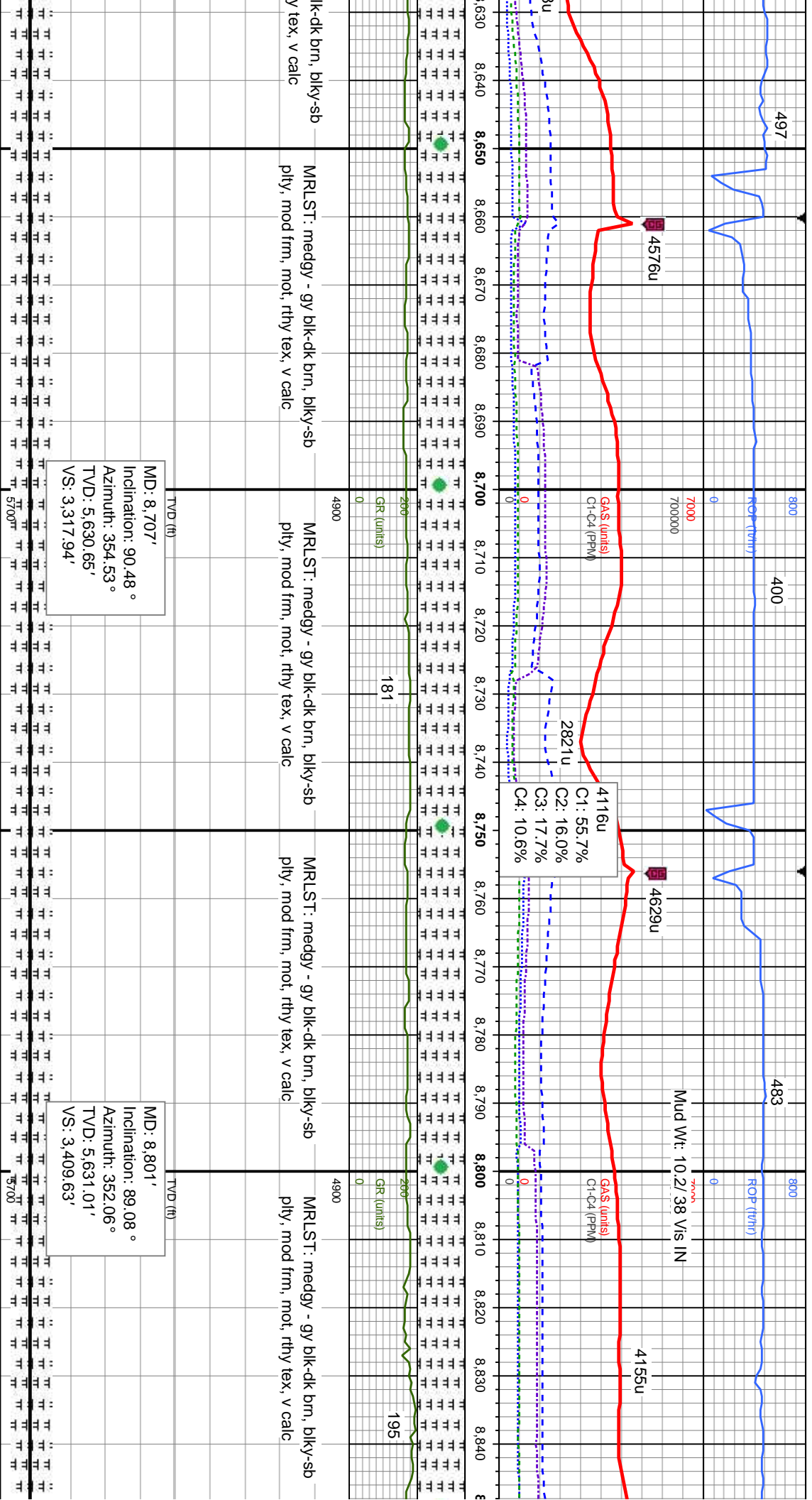


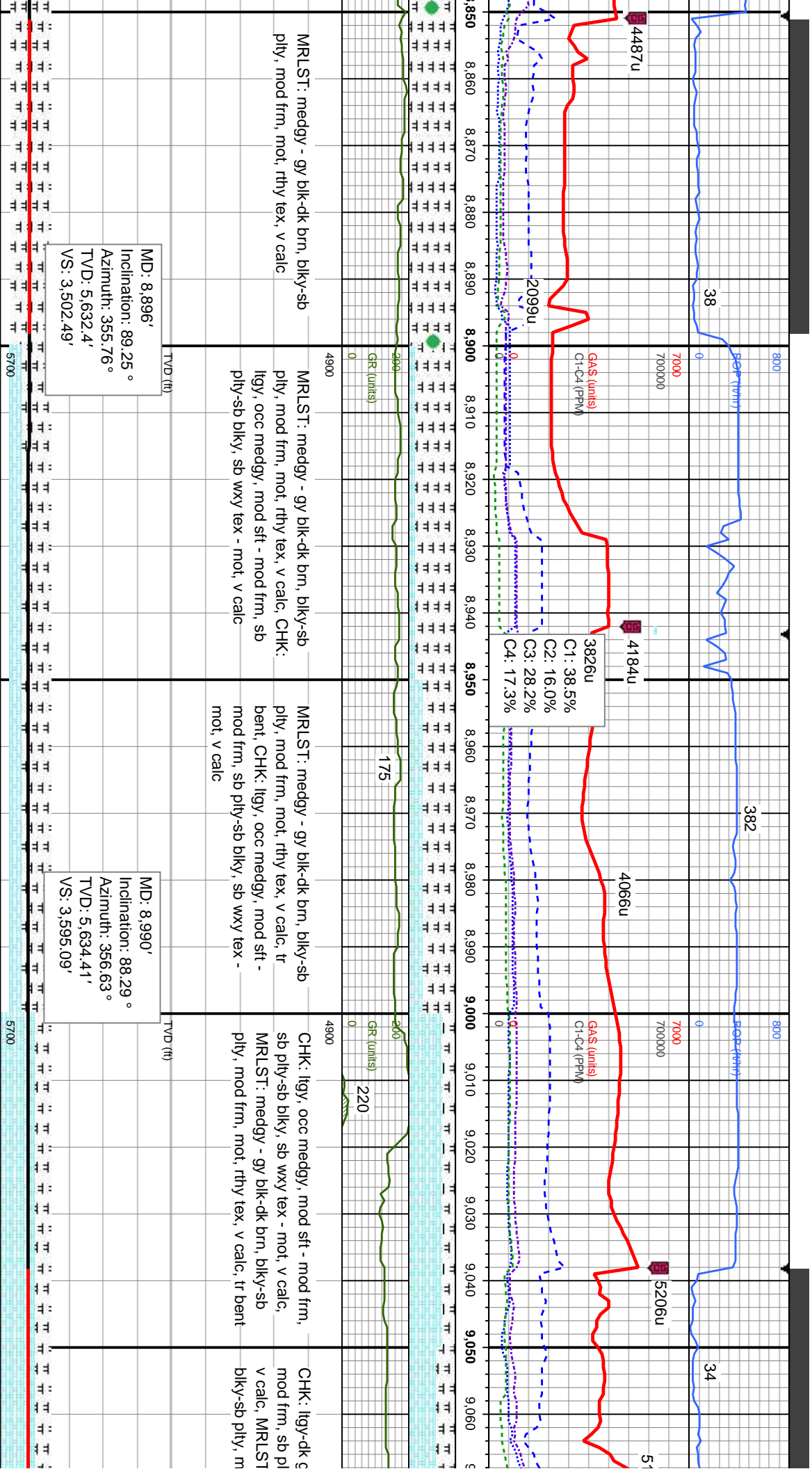


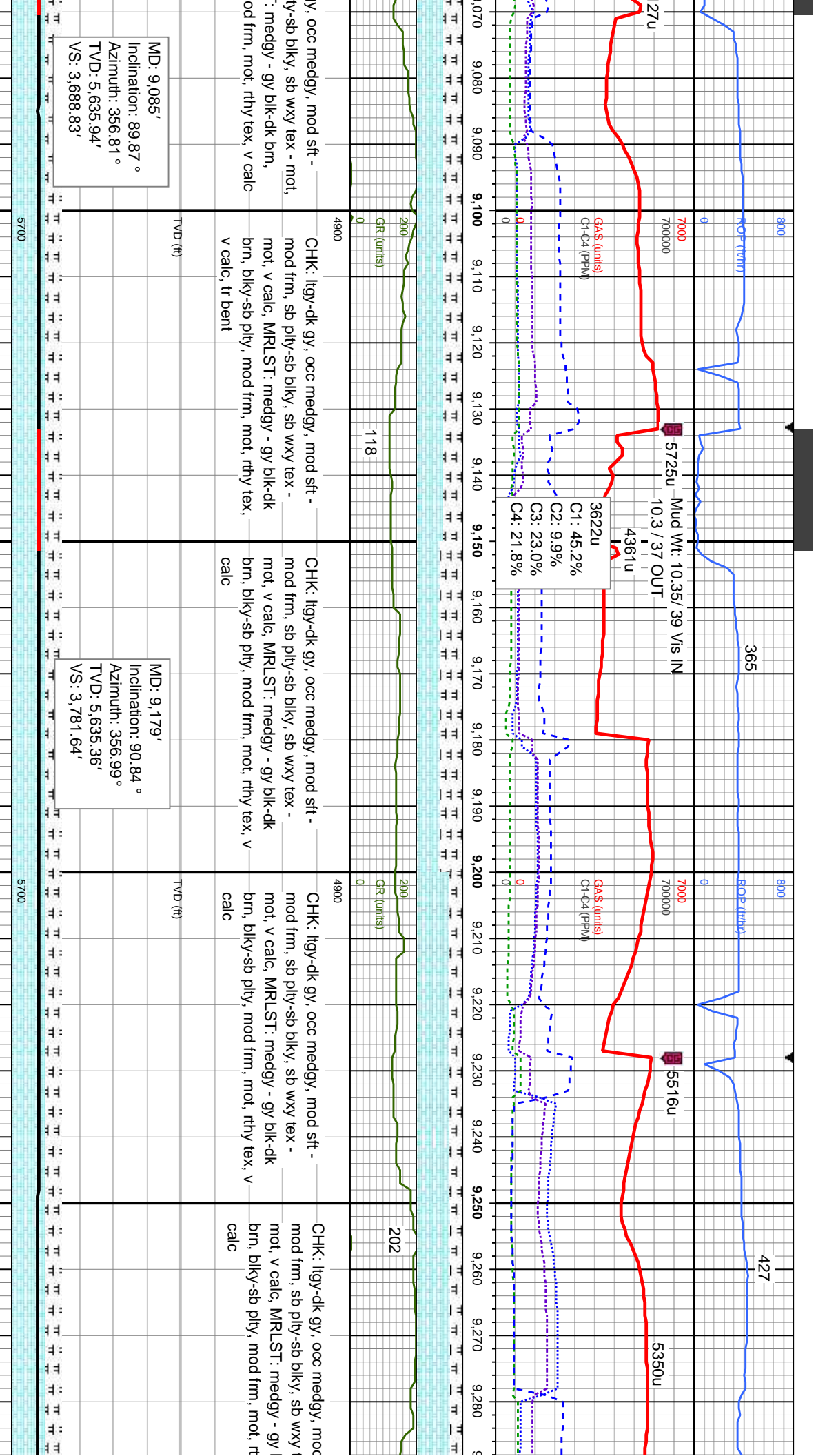












MD: 9,085'
Inclination: 89.87°
Azimuth: 356.81°
TVD: 5,635.94'
VS: 3,688.83'

C1: 45.2%
C2: 9.9%
C3: 23.0%
C4: 21.8%

MD: 9,179'
Inclination: 90.84°
Azimuth: 356.99°
TVD: 5,635.36'
VS: 3,781.64'

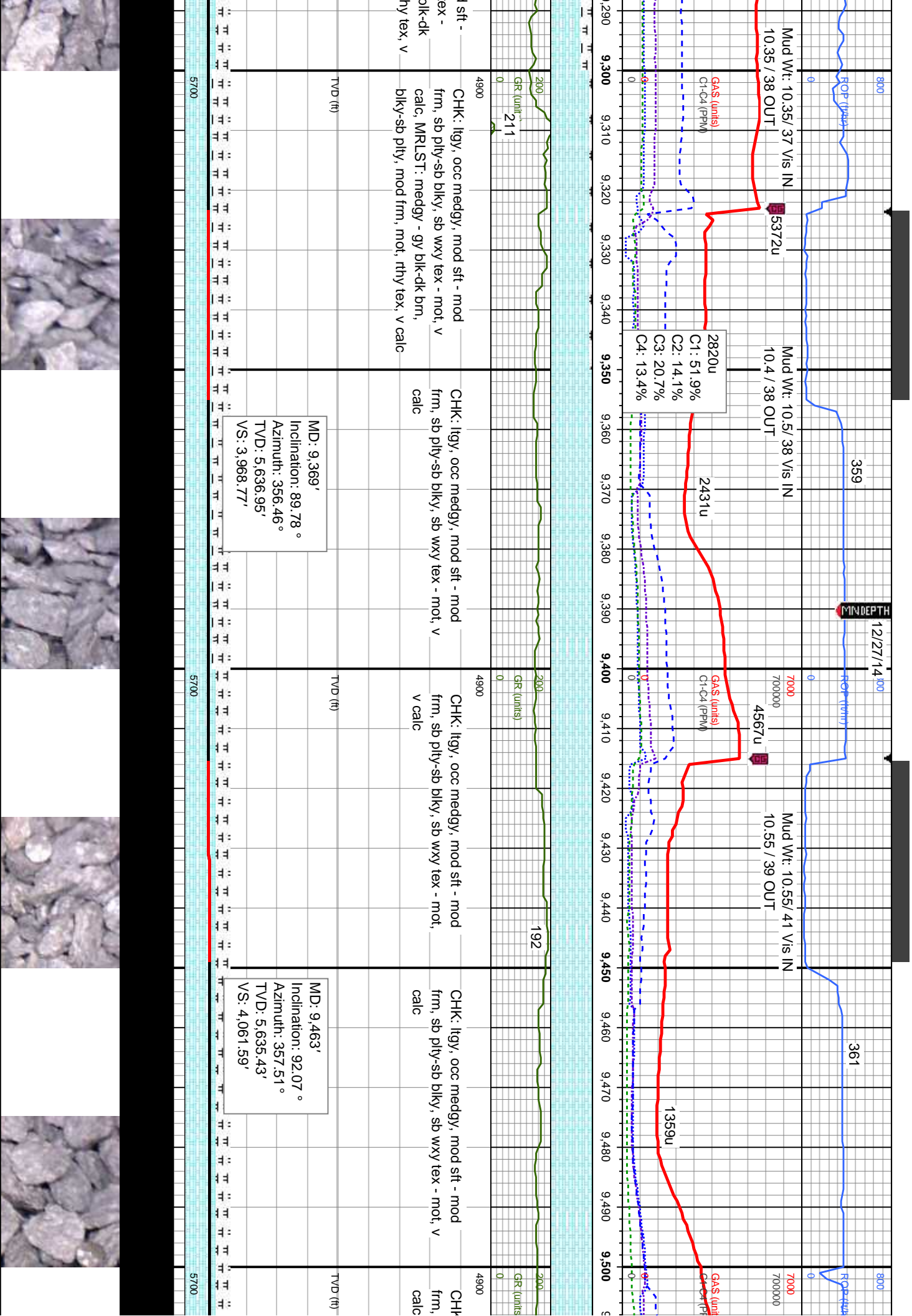
CHK: lgy-dk gy, occ medgy, mod sft -
mod frm, sb ply-sb blk, sb wxy tex -
mot, v calc, MRLST: medgy - gy blk-dk
brn, blk-sb ply, mod frm, mot, rthy tex,
v calc, tr bent

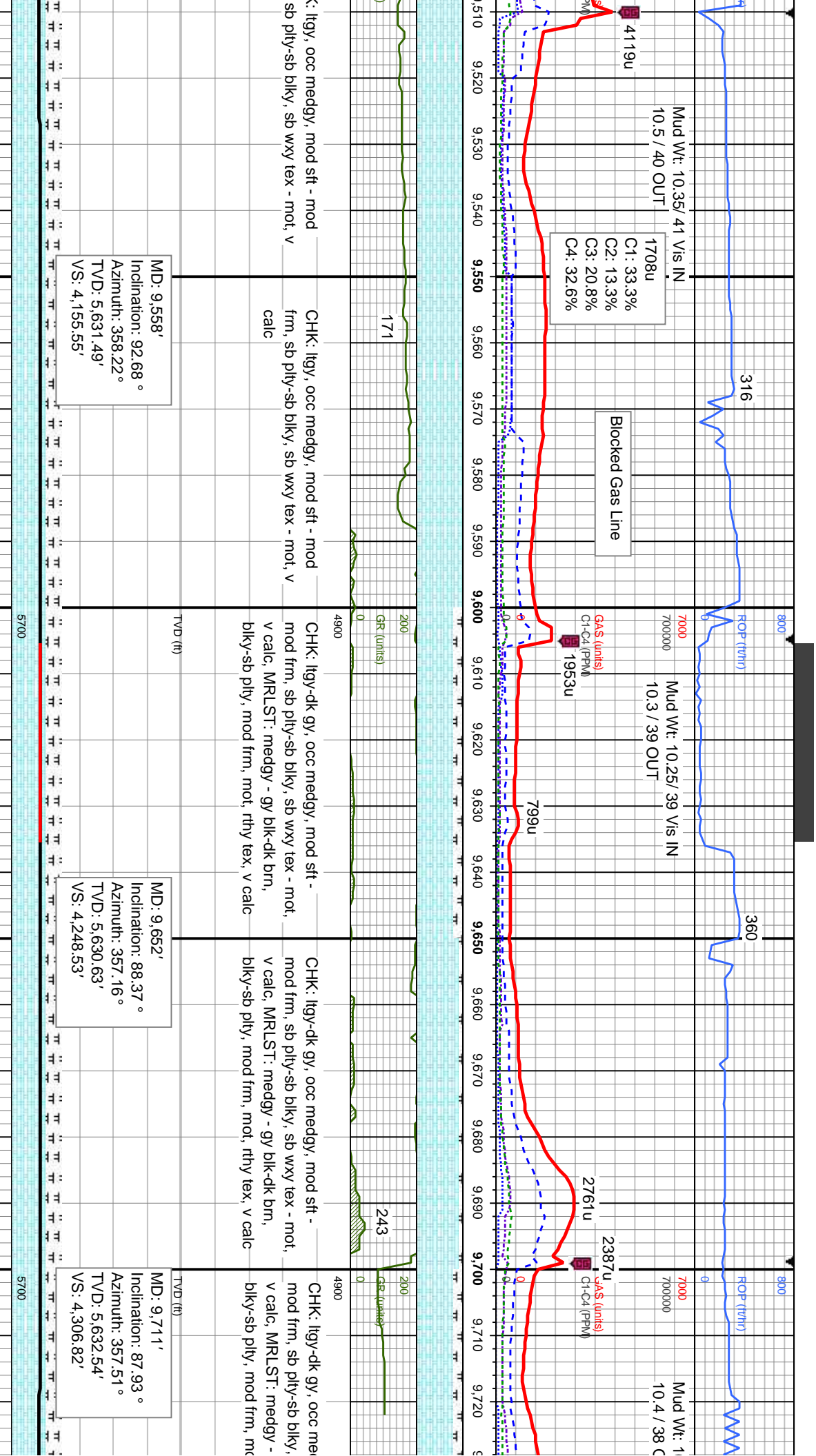
CHK: lgy-dk gy, occ medgy, mod sft -
mod frm, sb ply-sb blk, sb wxy tex -
mot, v calc, MRLST: medgy - gy blk-dk
brn, blk-sb ply, mod frm, mot, rthy tex, v
calc

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

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







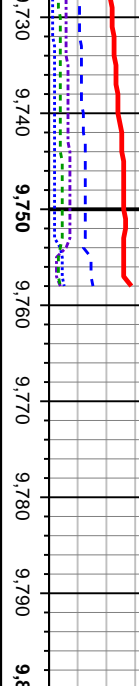
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3.5/ 40 Vis IN

1841u
C1: 48.6%
C2: 16.8%
C3: 27.3%
C4: 7.3%

TD @ 9758' MD
@ 04:15 hrs MDT
on 12/27/2014



9,730 9,740 9,750 9,760 9,770 9,780 9,790 9,8

ogy, mod sft -
sb wxy tex - mot,
gy blk-dk brn,
t, rthy tex, v calc

Wellsite Geological Services
Provided By Columbine
Logging, Thank You!

PTB

MD: 9,758'
Inclination: 87.93 °
Azimuth: 357.51 °
TVD: 5,634.23'
VS: 4,353.28'

