



Scale: 5" / 100'
Measured Depth Log

Well Name Wells Ranch AE19-615 HORZ

Location NWSW 20 6N 62W 6 PM

State COLODADO

County WELD

Country UNITED STATES

Rig Number H&P 330

API Number 05-123-39633

Field WATTENBERG

Region DJ BASIN

Drilling Completed 12/8/2014

Spud Date 11/28/2014

Surface Coordinates Sec 20, 6N, 62W

1535 FSL 65 FWL

Lat/Long: 40.46917/-104.35587

Bottom Hole Coordinates Sec 24, T6N 63W

330 FFSLL 235 FFELL

Ground Elevation 4,786'

K.B. Elevation 4,816'

Logged Interval 1,500' To 12,022'

Total Depth 12,022'

Formation Niobrara

Type of Drilling Fluid LSND

Operator

Company NOBLE ENERGY INC.

Address 1625 Broadway Suite 2200
Denver, CO 80202

Geologist

Name Teresa Malesardi

Company Noble Energy Inc.

Address 1625 Broadway Suite 2200
Denver, CO 80202

tmalesardi@nobleenergyinc.com

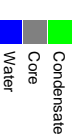
Other

Well Site Logging Company Columbine Logging Inc.



































Well Site Geologist (Days) Brad Wilson

Well Site Geologist (Nights) Nathan Murphy

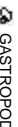
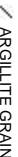









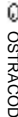





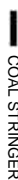
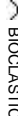


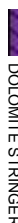



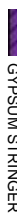

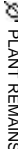
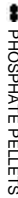
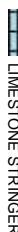
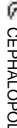
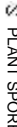
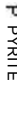
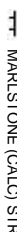


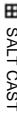




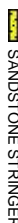











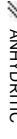

Zone Color Coding



Rock Types

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



Accessories

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

Oil Show

-  P PINPOINT
-  V VUGGY






































Engineering

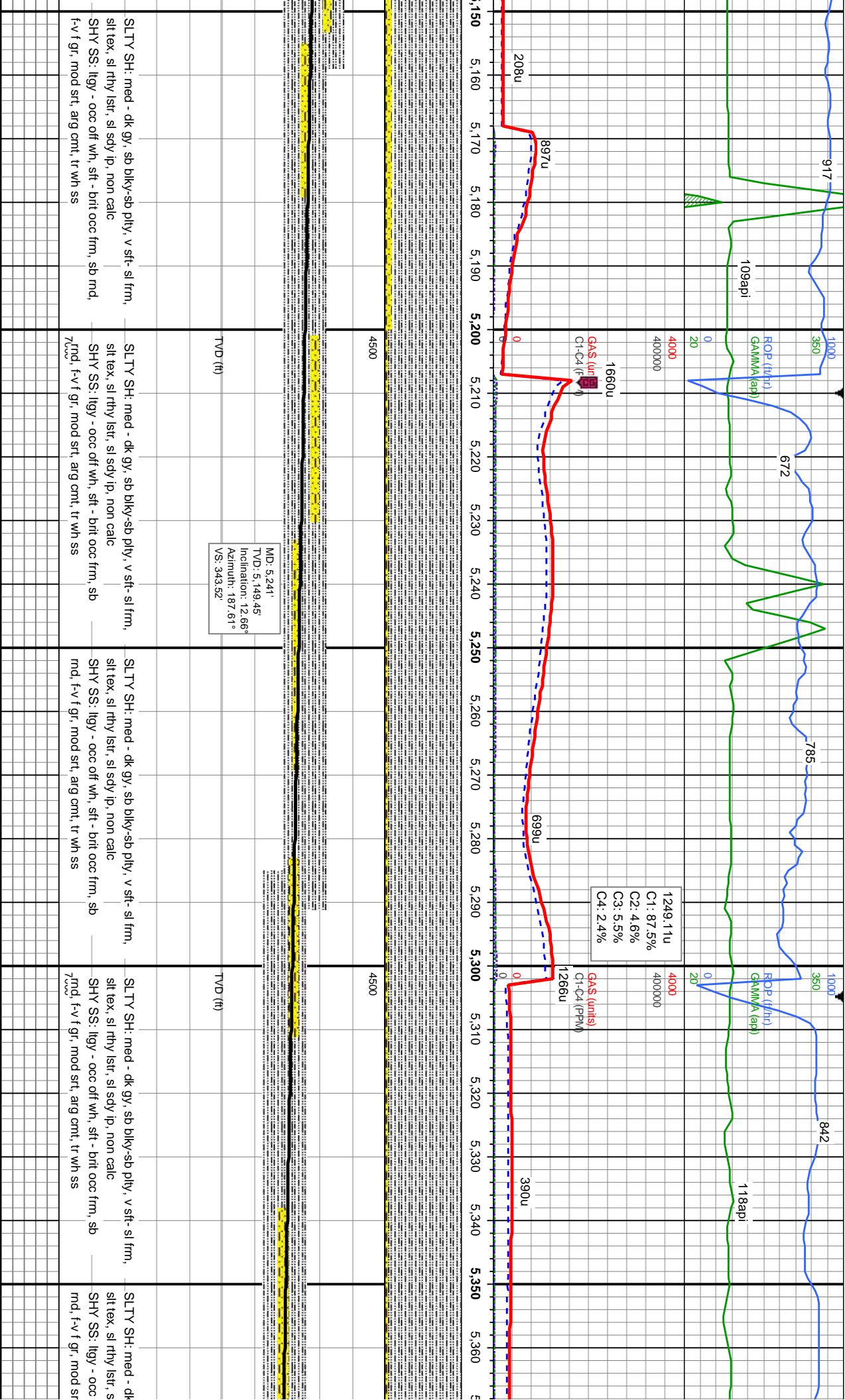
-  D DEAD
-  E EVEN
-  Q QUESTIONABLE
-  B BIT
-  S SPOTTED STAINING
-  C CONNECTION (UP)

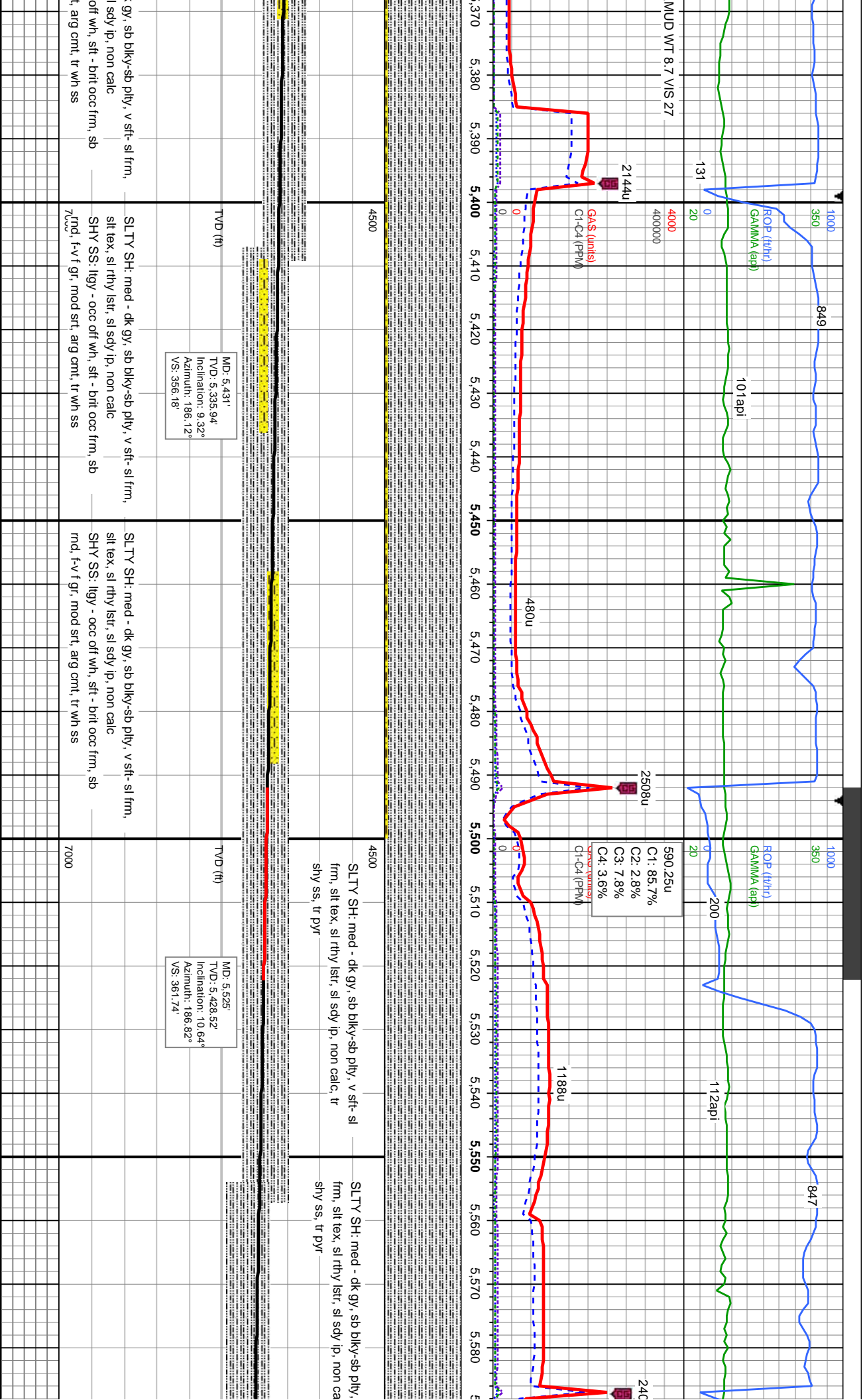
Porosity

-  C CONNECTION (DOWN)
-  CG CONNECTION GAS
-  E EARTHY
-  CG CONNECTION GAS
-  F FENESTRAL
-  TG TRIP GAS
-  F FRACTURE
-  TG TRIP GAS (LEFT)
-  IC INTERCRYSTALLINE
-  DTG DOWN TIME GAS
-  I INTEROOLITIC
-  DTG DOWN TIME GAS
-  M MOLDIC
-  CL CORE - LOST
-  O ORGANIC
-  CR 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		MIN DEPTH		L LITHOGRAPHIC
	OIL SHOW				MX MICROXLN
	MIN DEPTH UP	Rounding			
					MS MUDSTONE
	MIN DEPTH (DOWN)		ANGULAR		PS PACKSTONE
	NORMAL FAULT		ROUNDED		WS WACKSTONE
	OVERTURNED STRATA		SUBANG		
	REVERSE FAULT		SUBRND	Sorting	
	CASING				M MODERATE
Textures					
	SIDEWALL CORE (LEFT)				P POOR
	SIDEWALL CORE (RIGHT)		BS BOUNDSTONE		W WELL
	SLIDE		CHALKY		
	SURVEY		CRYPTOXLN		





MINDEPTH

ROP (ft/h)

GAMMA (api)

4000

400000

20

1.50

GAS (units)

C1-C4 (PPM)

399u

5,590

5,600

5,610

5,620

5,630

5,640

5,650

5,660

5,670

5,680

5,690

5,700

5,710

5,720

5,730

5,740

5,750

5,760

5,770

5,780

5,790

5,800

350

ROP (ft/h)

GAMMA (api)

4000

400000

20

702

GAS (units)

C1-C4 (PPM)

1498u

5,690

5,700

5,710

5,720

5,730

5,740

5,750

5,760

5,770

5,780

5,790

5,800

5,810

5,820

5,830

5,840

5,850

5,860

5,870

5,880

5,890

5,900

350

ROP (ft/h)

GAMMA (api)

4000

400000

20

700

GAS (units)

C1-C4 (PPM)

2214u

5,740

5,750

5,760

5,770

5,780

5,790

5,800

5,810

5,820

5,830

5,840

5,850

5,860

5,870

5,880

5,890

5,900

5,910

5,920

5,930

5,940

5,950

SLTY SH: med - dk gy, sb blk-y-sb pily, v sft- sl
frm, silt tex, sl rthy lstr, sl sdy ip, non calc, tr
shy ss, tr pyr

SLTY SH: med - dk gy, sb blk-y-sb pily, v sft- sl
frm, silt tex, sl rthy lstr, sl sdy ip, non calc, tr
shy ss, tr pyr

SLTY SH: med - dk gy, sb blk-y-sb pily, v sft- sl
frm, silt tex, sl rthy lstr, sl sdy ip, non calc, tr
shy ss, tr pyr

SLTY SH: med - dk gy, sb blk-y-sb pily, sft- sl
frm, silt tex, sl rthy lstr, sl sdy ip, non calc, tr
shy ss, tr pyr

SLTY SH: med - dk gy, sb blk-y-sb pily, sft- sl
frm, silt tex, sl rthy lstr, sl sdy ip, non calc, tr
shy ss, tr pyr

SLTY
sft- sl
calc, i

TVD (ft)

MD: 5,620'
TVD: 5,521.85'
Inclination: 10.9°
Azimuth: 194.02°
VS: 368.94'

TVD (ft)

MD: 5,714'
TVD: 5,613.85'
Inclination: 12.75°
Azimuth: 192.12°
VS: 377.52'

TVD (ft)

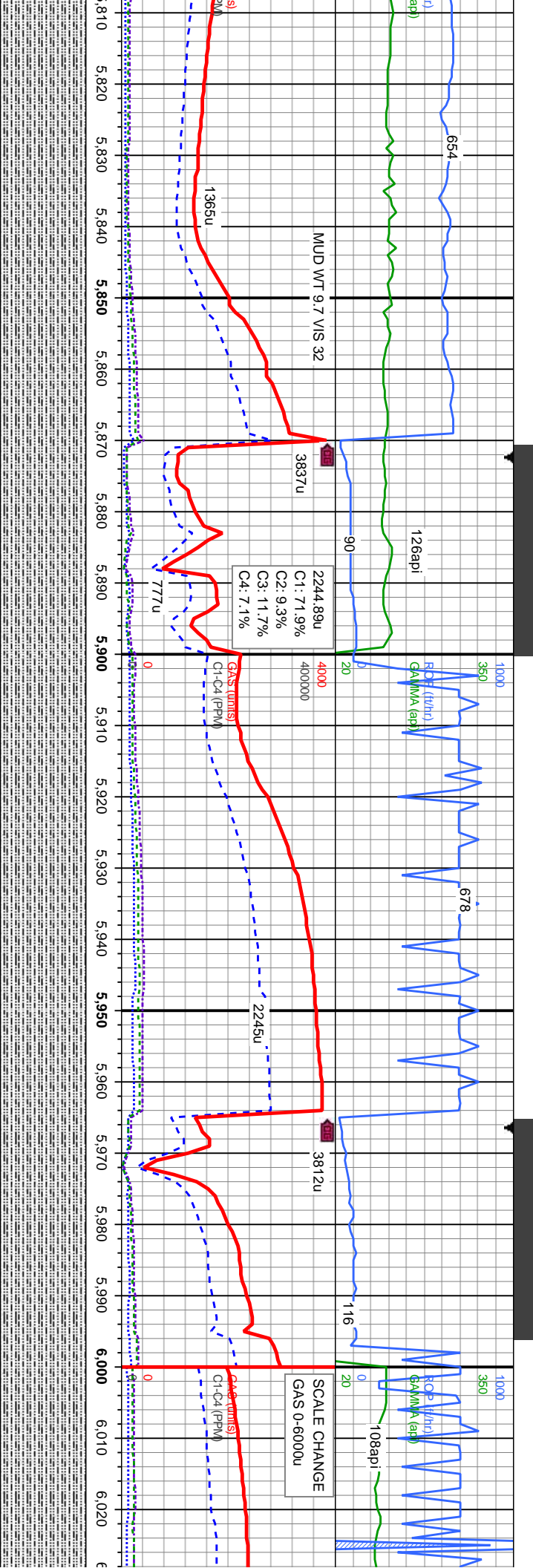
MD: 5,714'
TVD: 5,613.85'
Inclination: 12.75°
Azimuth: 192.12°
VS: 377.52'

7000

7000

7000





SLTY SH: med - dk gy, sl brn, sb blk/sb ply,
frm, silt tex, sl rthy lstr, sl sdy ip, non
calc, tr shy ss

SLTY SH: med - dk gy, sl brn, sb blk/sb ply,
sft-sil frm, silt tex, sl rthy lstr, sl sdy ip, non
calc, tr shy ss

SLTY SH: med - dk gy, sl brn, sb blk/sb ply,
sft-sil frm, silt tex, sl rthy lstr, sl sdy ip, non
calc, tr shy ss

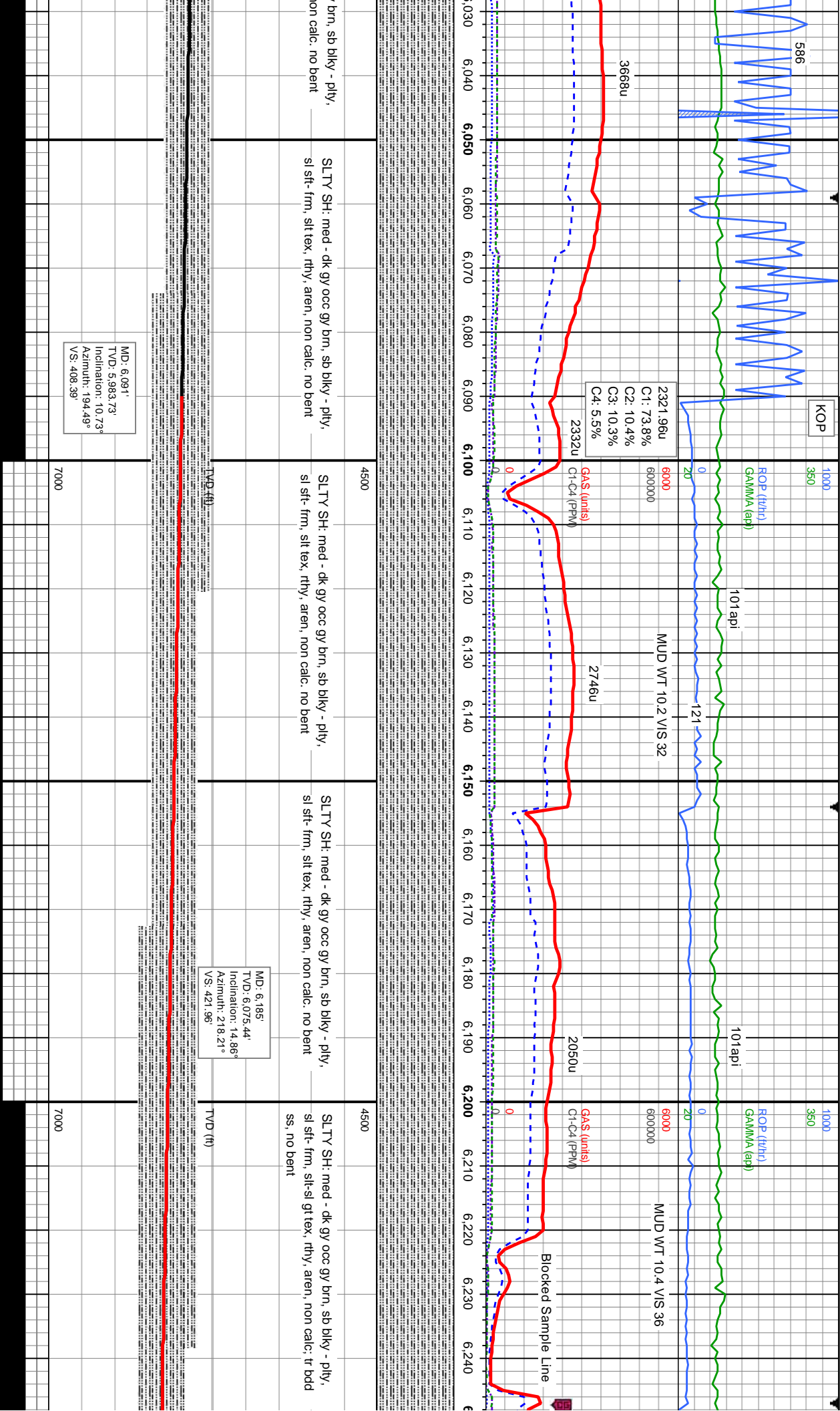
SLTY SH: med - dk gy, occ gy,
sl sft-frm, silt tex, rthy, aren, r

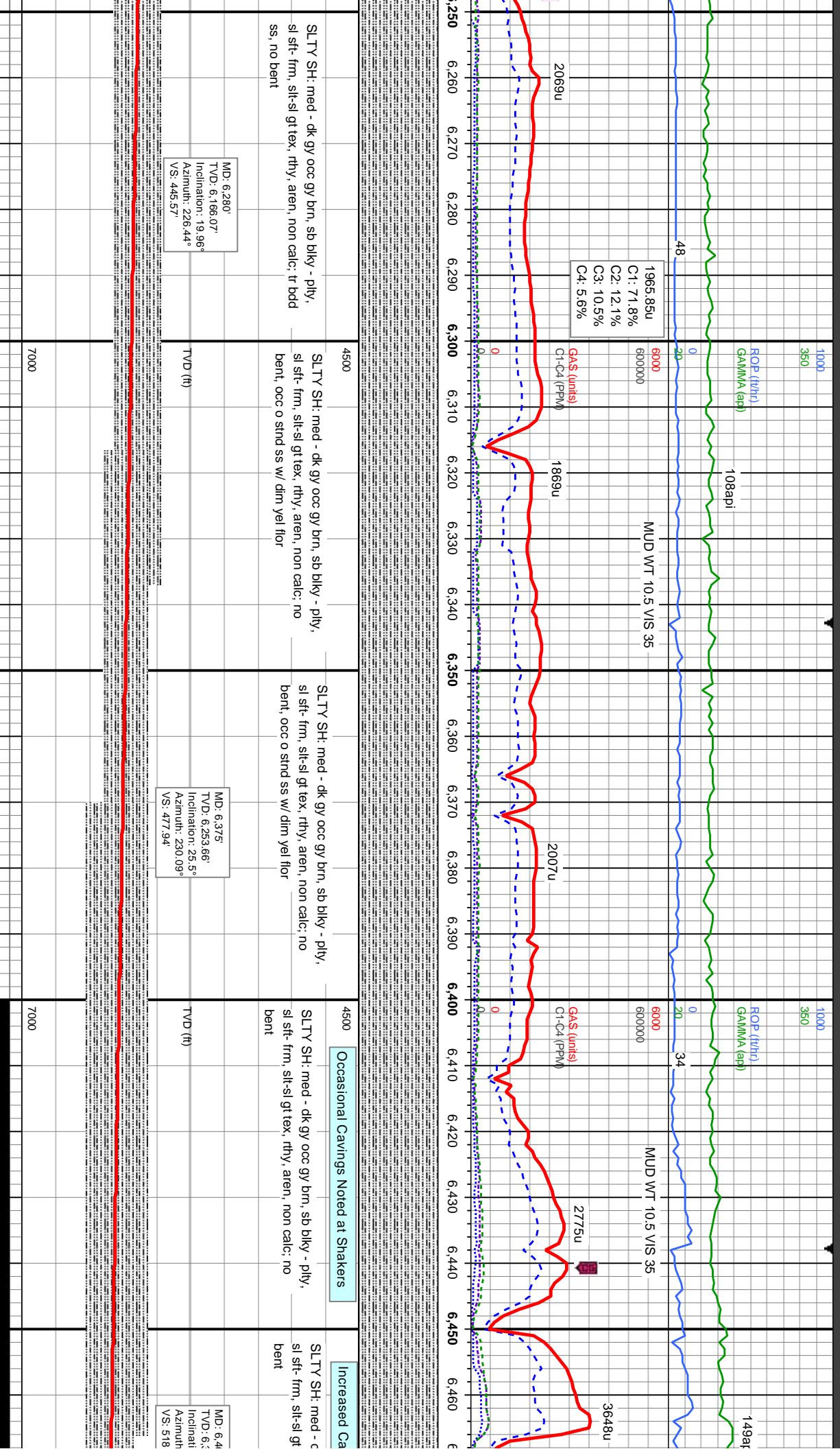


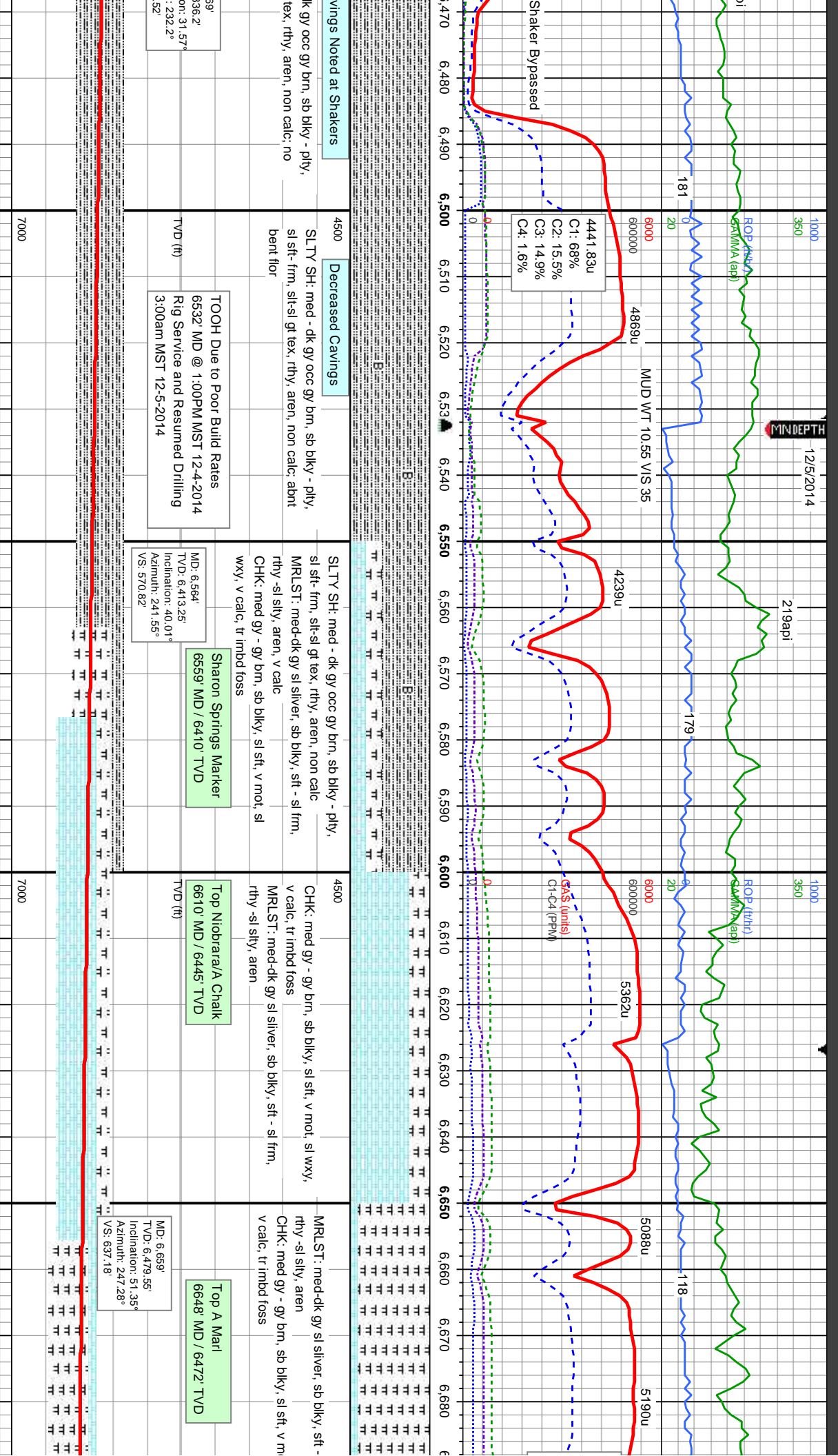
MD: 5.903'
TVD: 5.799.49'
Inclination: 10.9°
Azimuth: 190.45°
VS: 392.51'

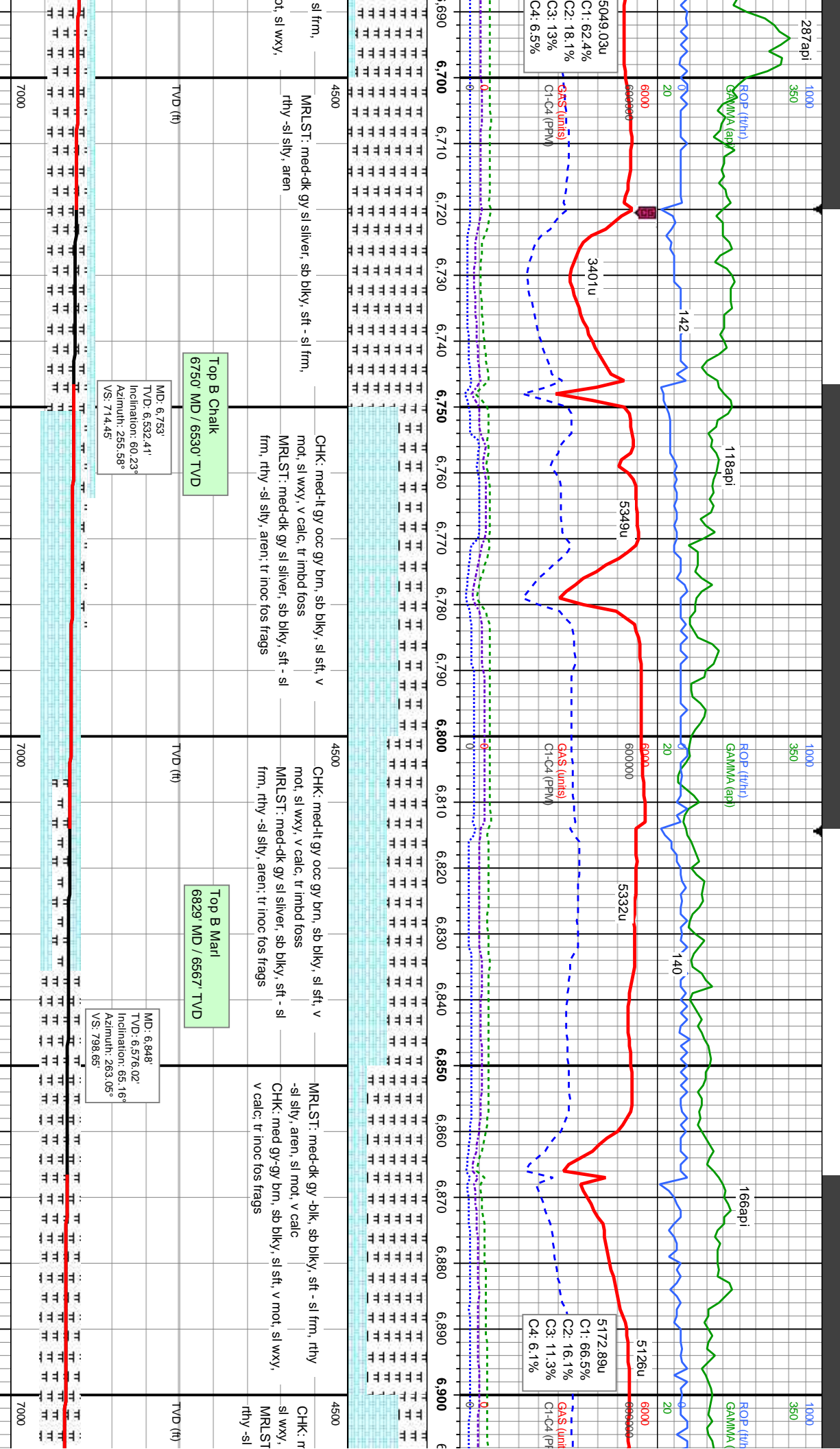
MD: 5.998'
TVD: 5.892.57'
Inclination: 12.13°
Azimuth: 190.96°
VS: 400.28'

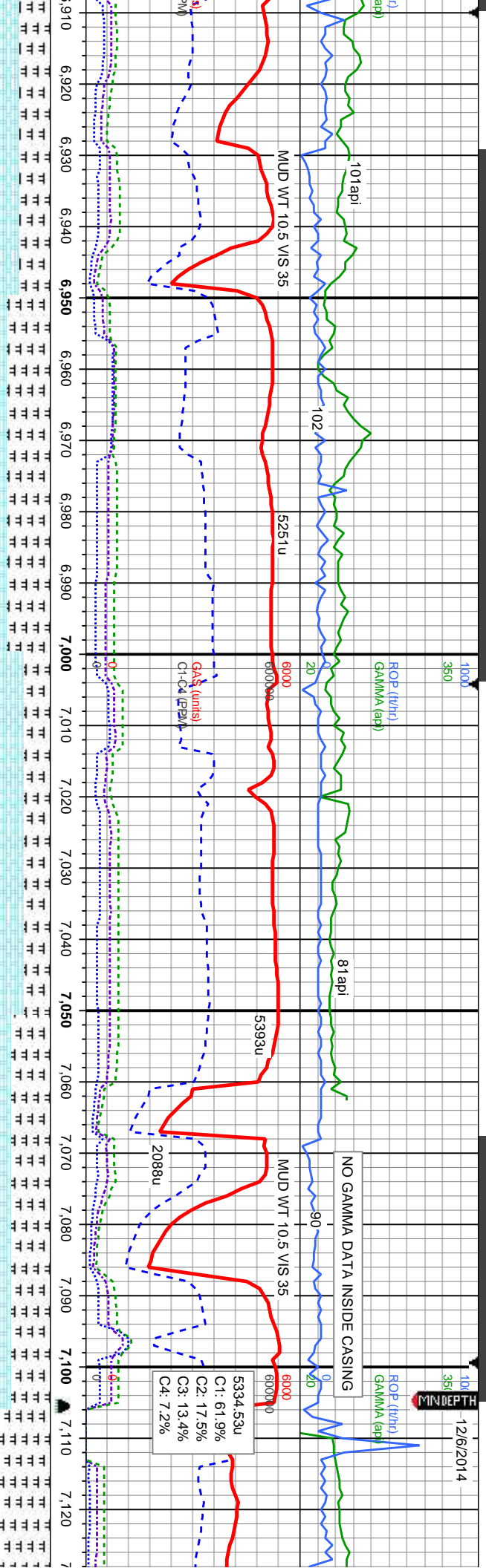












med-it gy occ gy brn, sb blkly, sl sft, v mot, v calc, tr imbd foss
med-dk gy sl silver, sb blkly, sft - sl frm, rthy - sl sily, aren, sl mot, v calc, tr inoc fos frags

CHK: med-it gy occ gy brn, sb blkly, sl sft, v mot, sl wxy, v calc, tr imbd foss
MRLST: med-dk gy sl silver, sb blkly, sft - sl frm, rthy - sl sily, aren, sl mot, v calc, tr inoc fos frags

CHK: med-it gy occ gy brn, sb blkly, sl sft, v mot, sl wxy, v calc, tr imbd foss
MRLST: med-dk gy sl silver, sb blkly, sft - sl frm, rthy - sl sily, aren, sl mot, v calc, tr inoc fos frags

MRLST: med-dk gy sl silver, s rthy - sl sily, aren, sl mot, v cal

CHK: med-it gy occ gy brn, sb

CHK: med-it gy occ gy brn, sb

Top C Chaik
6945' MD / 6609' TVD

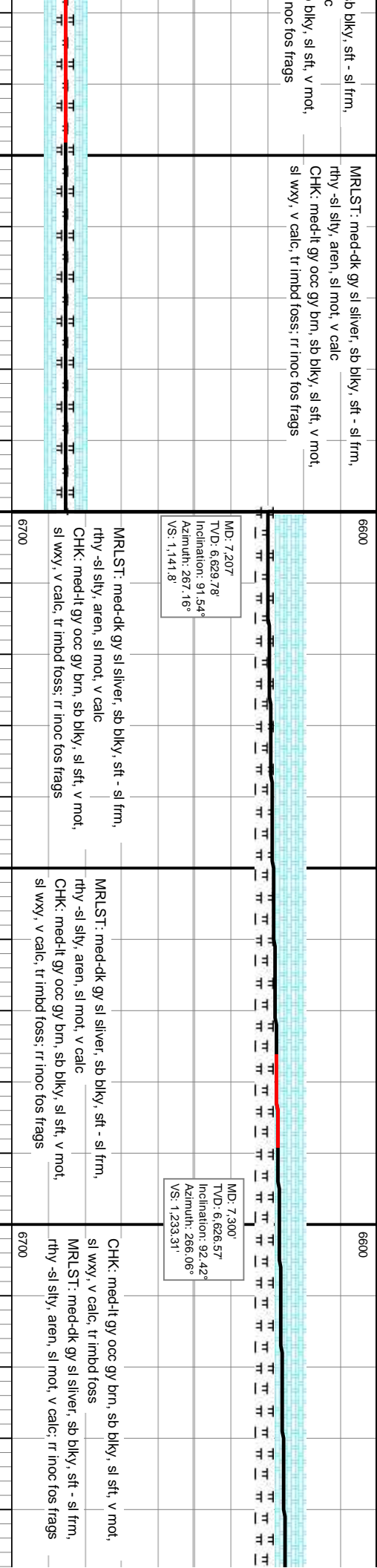
MD: 6.942'
TVD: 6.608.63'
Inclination: 74.22°
Azimuth: 268.05°
VS: 885.57'

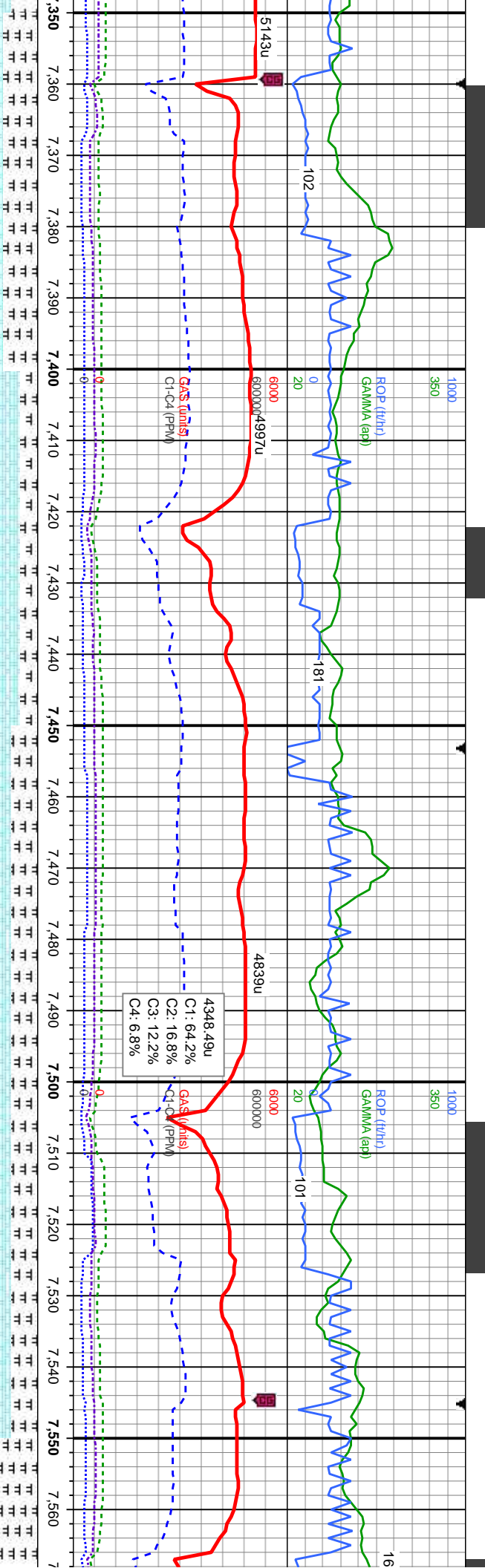
MD: 7.043'
TVD: 6.627.4'
Inclination: 84.33°
Azimuth: 269.9°
VS: 982.33'

TD Build Section and TOO H
For 7\" Casing @ 7105' MD
11:45am MST 12-5-2014

MD: 7.115'
TVD: 6.630.98'
Inclination: 89.96°
Azimuth: 271.24°
VS: 1,052.08'







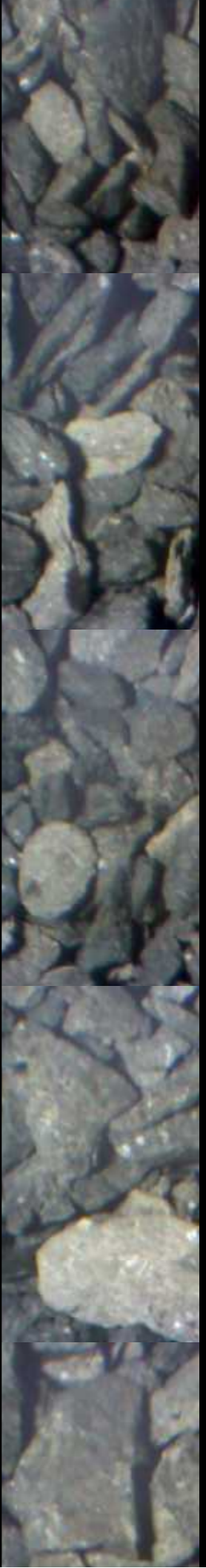
MD: 7.394'
TVD: 6,623.39'
Inclination: 91.45°
Azimuth: 266.84°
VS: 1.325.85'

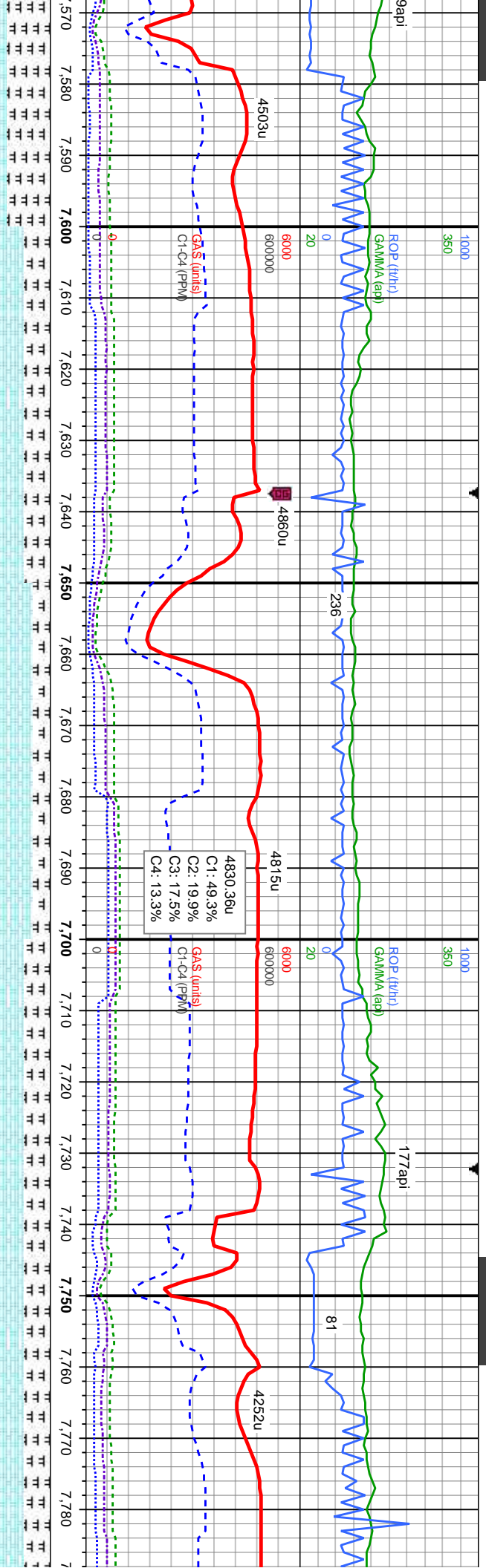
MD: 7.486'
TVD: 6,621.2'
Inclination: 91.28°
Azimuth: 266.78°
VS: 1.416.34'

CHK: med-it gy occ gy brn, sb blk, sl sft, v mot,
sl wxy, v calc, tr imbd foss
MRLST: med-dk gy sl silver, sb blk, sft - sl frm,
rthy -sl silty, aren, sl mot, v calc; rr inoc fos frags

CHK: med-it gy occ gy brn, sb blk, sl sft, v mot,
sl wxy, v calc, tr imbd foss
MRLST: med-dk gy sl silver, sb blk, sft - sl frm,
rthy -sl silty, aren, sl mot, v calc; rr inoc fos frags

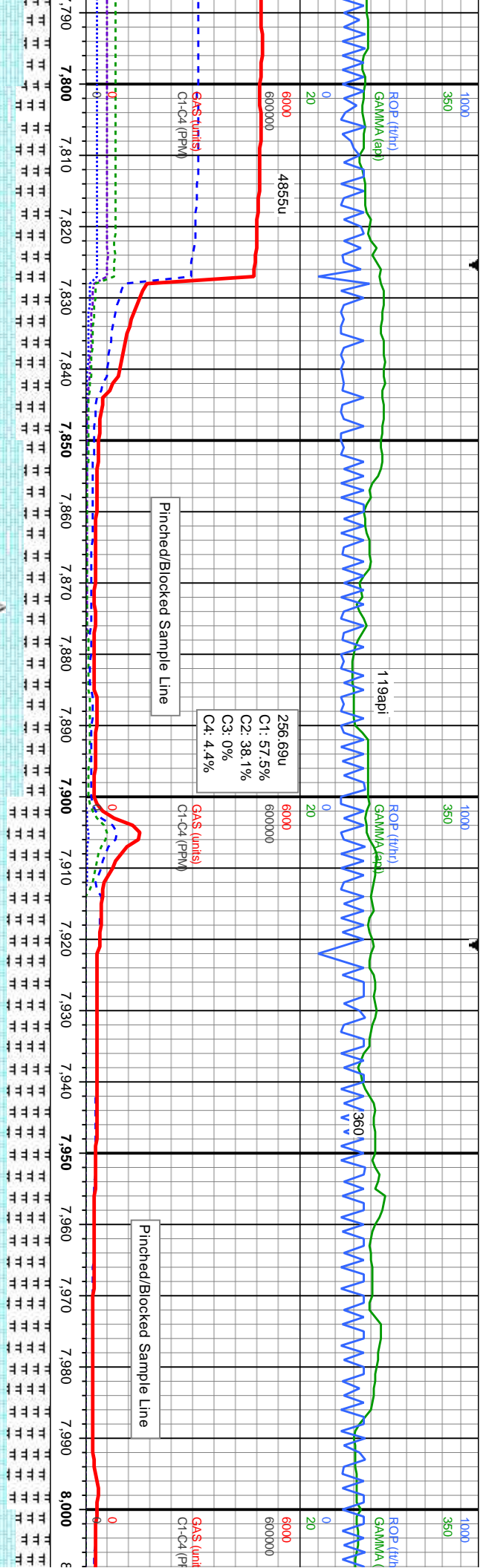
CHK: med-it gy occ gy brn, sb blk, sl sft, v mot,
sl wxy, v calc, tr imbd foss
MRLST: med-dk gy sl silver, sb blk, sft - sl frm,
rthy -sl silty, aren, sl mot, v calc; rr inoc fos frags





gy brn, sb blkly, sl sft, v mot, bod foss	CHK: med-lt gy occ gy brn, sb blkly, sl sft, v mot, sl wxy, v calc, tr imbd foss	MD: 7.579 TVD: 6,621.7' Inclination: 88.11° Azimuth: 266.29° VS: 1,507.91'	TVD (ft)
sl silver, sb blkly, sft - sl frm, rthy - sl sily, aren, sl mot, v calc, rr inoc fos frags	CHK: med-lt gy occ gy brn, sb blkly, sl sft, v mot, sl wxy, v calc, tr imbd foss	MD: 7.674 TVD: 6,623.81' Inclination: 89.34° Azimuth: 267.34° VS: 1,601.35'	TVD (ft)
	CHK: med-lt gy occ gy brn, sb blkly, sl sft, v mot, sl wxy, v calc, occ-rr cal nod	MD: 7.769 TVD: 6,625.92' Inclination: 88.11° Azimuth: 267.17° VS: 1,694.67'	TVD (ft)
	CHK: med-lt gy occ gy brn, sb blkly, sl sft, v mot, wxy, v calc, occ-rr cal nod		
	MRSLST: med-dk gy sl silver, sb blkly, sft - sl frm, rthy - sl sily, aren, sl mot, v calc, occ cal nod; occ ise inoc fos frags		



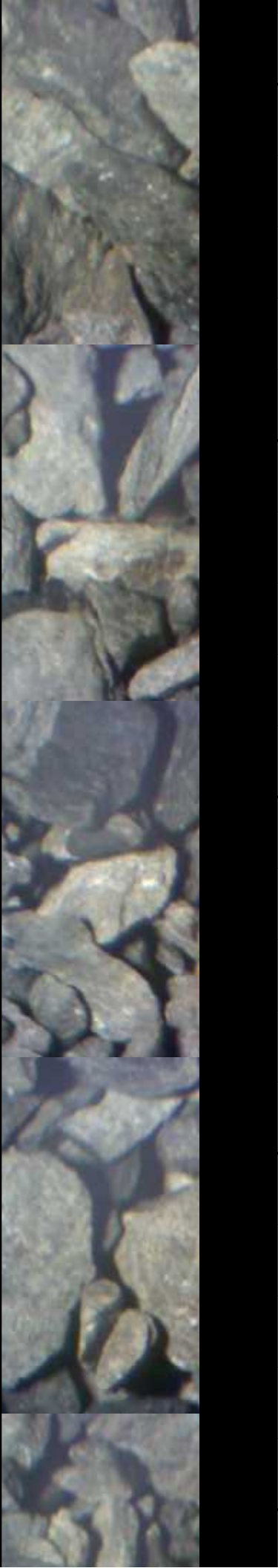


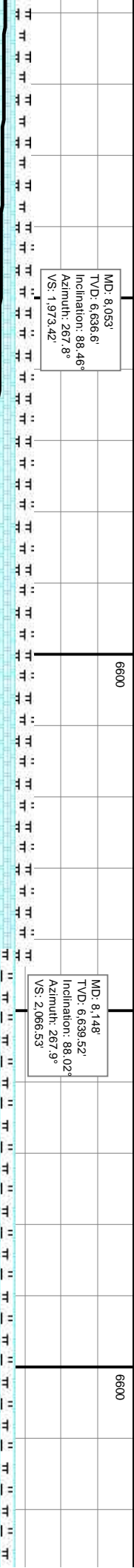
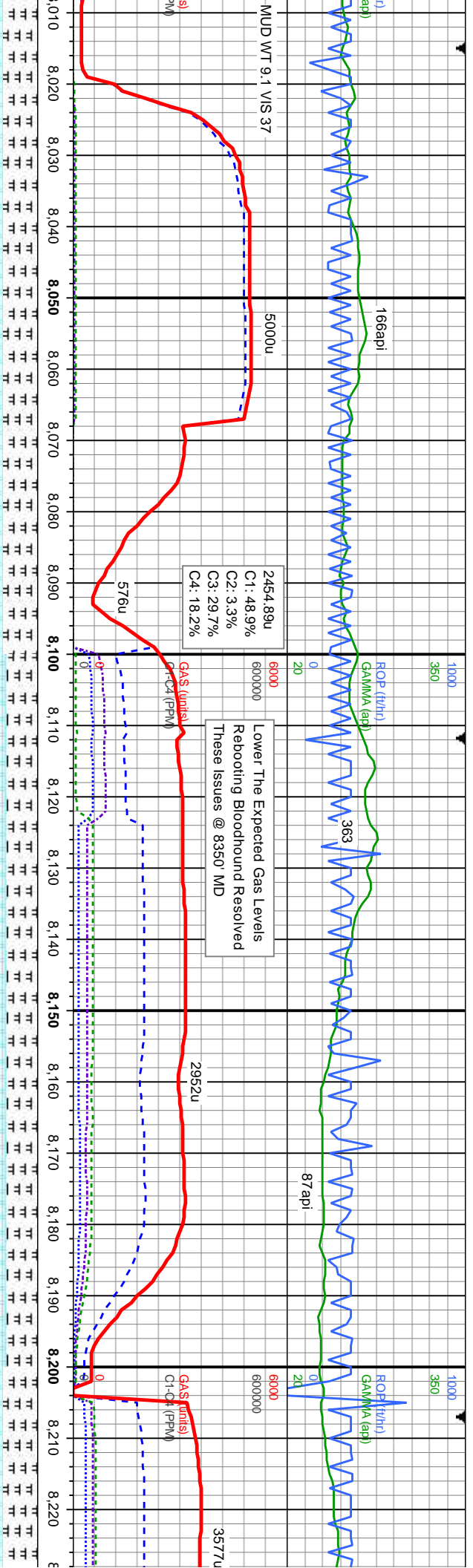
256.69u
C1: 57.5%
C2: 38.1%
C3: 0%
C4: 4.4%

MD: 7.864'
TVD: 6,629.79'
Inclination: 87.23°
Azimuth: 267.23°
VS: 1.787.94

MD: 7.956'
TVD: 6,633.88'
Inclination: 88.02°
Azimuth: 267.28°
VS: 1.880.22

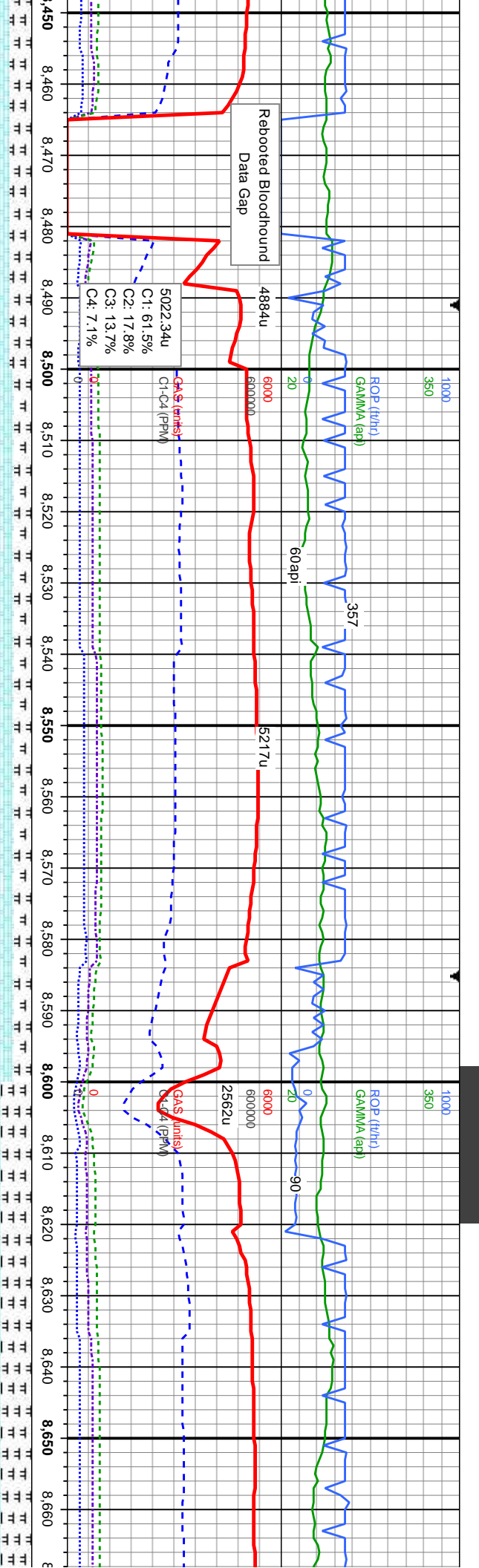
mot, sl	CHK: med-it gy occ gy brn, sb blk, sl sft, mot, sl	CHK: med-it gy occ gy brn, sb blk, sl sft, mot, sl	CHK: med-it gy occ gy brn, sb blk, sl sft, mot, sl
sl frm,	wxy, v calc, occ-tr cal nod	wxy, v calc, occ-tr cal nod	wxy, v calc, occ-tr cal nod
od:	MRLST: med-dk gy sl silver, sb blk, sft - sl frm,	MRLST: med-dk gy sl silver, sb blk, sft - sl frm,	MRLST: med-dk gy sl silver, sb blk, sft - sl frm,
	rthy -sl sily, aren, sl mot, v calc, occ cal nod:	rthy -sl sily, aren, sl mot, v calc, occ cal nod:	rthy -sl sily, aren, sl mot, v calc, occ cal nod:
	occ ise inoc fos frags	occ ise inoc fos frags	occ ise inoc fos frags
	6700	6700	6700





TVD (ft)		TVD (ft)	
med-It gy occ gy brn, sb blk, sl sft, mot, sl calc, tr cal nod	CHK: med-It gy occ gy brn, sb blk, sl sft, mot, sl wxy, v calc, tr cal nod MRLST: med-dk gy sl silver, sb blk, sft - sl frm, rthy -sl sily, aren, sl mot, v calc, tr cal nod	CHK: It gy occ med gy- gy brn, sb blk, sl sft, mot, sl wxy, v calc, tr cal nod MRLST: med-dk gy sl silver, sb blk, sft - sl frm, rthy -sl sily, aren, sl mot, v calc, tr cal nod	CHK: med gy - gy brn occ It mot, sl wxy, v calc MRLST: med-dk gy sl silver rthy -sl sily, aren, sl mot, v casing cnt
6700	6700	6700	6700





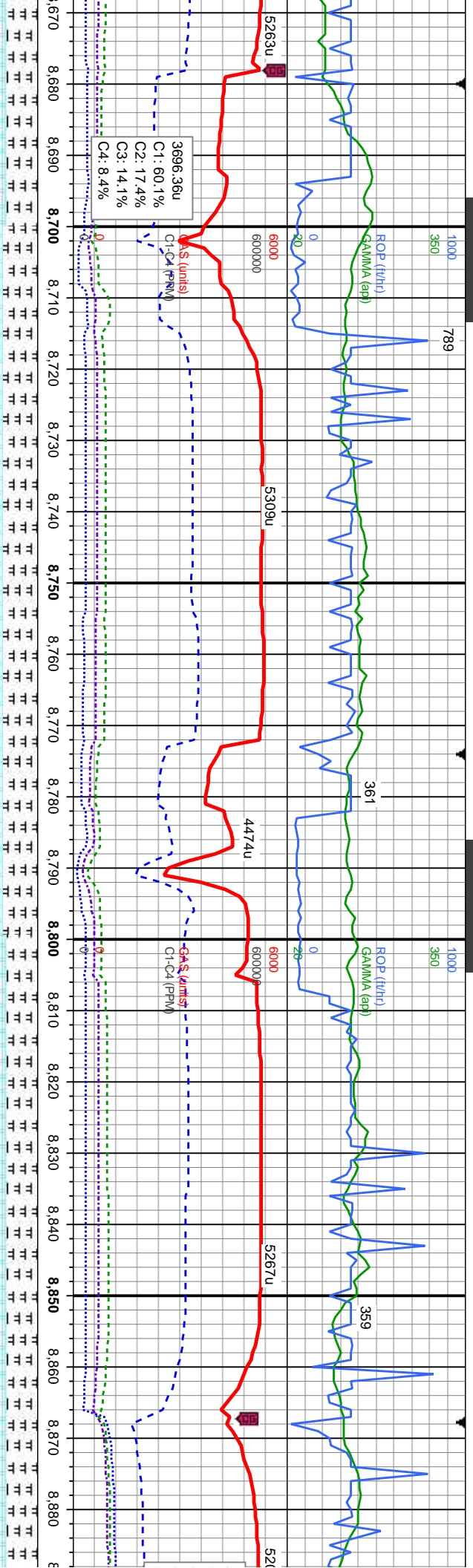
6600	MD: 8.526' TVD: 6,642.67' Inclination: 92.07° Azimuth: 268.75° VS: 2,436.65'
6700	

TVD (ft)	CHK: lgy- brn, sb blk, sl sft, mot, sl wxy, v calc, tr cal nod	CHK: lgy- brn, sb blk, sl sft, mot, sl wxy, v calc, tr cal nod	CHK: lgy- brn, sb blk, sl sft, mot, sl wxy, v calc, tr cal nod
	MRLST: med-dk gy- gy blk, sb blk, sft - sl frm, rthy -sl silty, aren, sl mot, v calc, tr cal nod	MRLST: med-dk gy- gy blk, sb blk, sft - sl frm, rthy -sl silty, aren, sl mot, v calc, tr cal nod	MRLST: med-dk gy- gy blk, sb blk, sft - sl frm, rthy -sl silty, aren, sl mot, v calc, tr cal nod
6700			

6600	MD: 8.620' TVD: 6,639.57' Inclination: 91.71° Azimuth: 265.92° VS: 2,528.92'
6700	

TVD (ft)	CHK: lgy- brn, sb blk, sl sft, mot, sl wxy, v calc, tr cal nod	CHK: lgy- brn, sb blk, sl sft, mot, sl wxy, v calc, tr cal nod	CHK: lgy- brn, sb blk, sl sft, mot, sl wxy, v calc, tr cal nod
	MRLST: med-dk gy- gy blk, sb blk, sft - sl frm, rthy -sl silty, aren, sl mot, v calc, tr cal nod	MRLST: med-dk gy- gy blk, sb blk, sft - sl frm, rthy -sl silty, aren, sl mot, v calc, tr cal nod	MRLST: med-dk gy- gy blk, sb blk, sft - sl frm, rthy -sl silty, aren, sl mot, v calc, tr cal nod
6700			



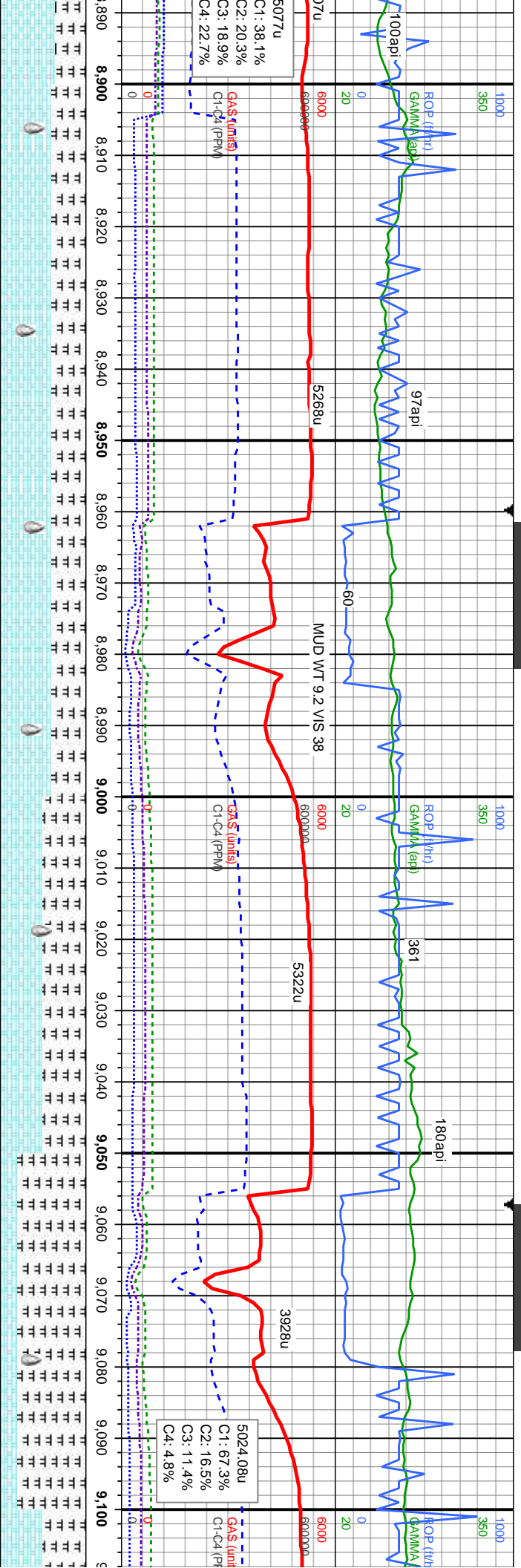


MD: 8,715'
TVD: 6,636.74'
Inclination: 91.71°
Azimuth: 285.39°
VS: 2,622.67'

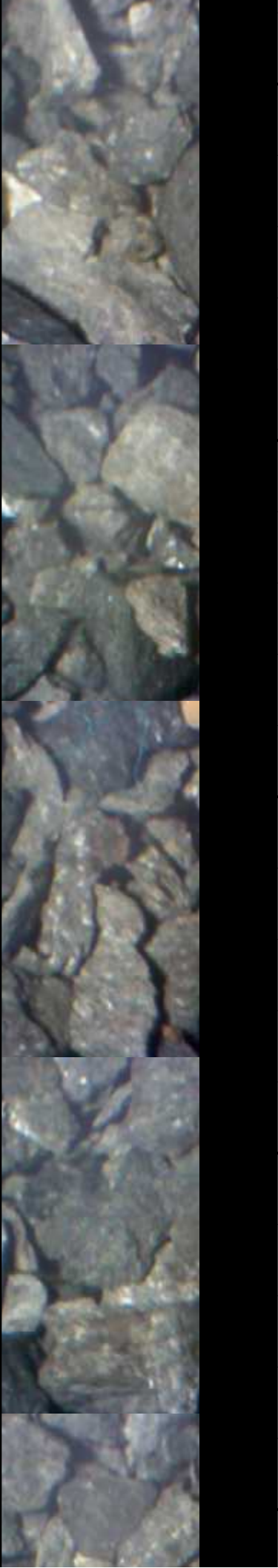
MD: 8,810'
TVD: 6,635.43'
Inclination: 89.87°
Azimuth: 265.66°
VS: 2,716.49'

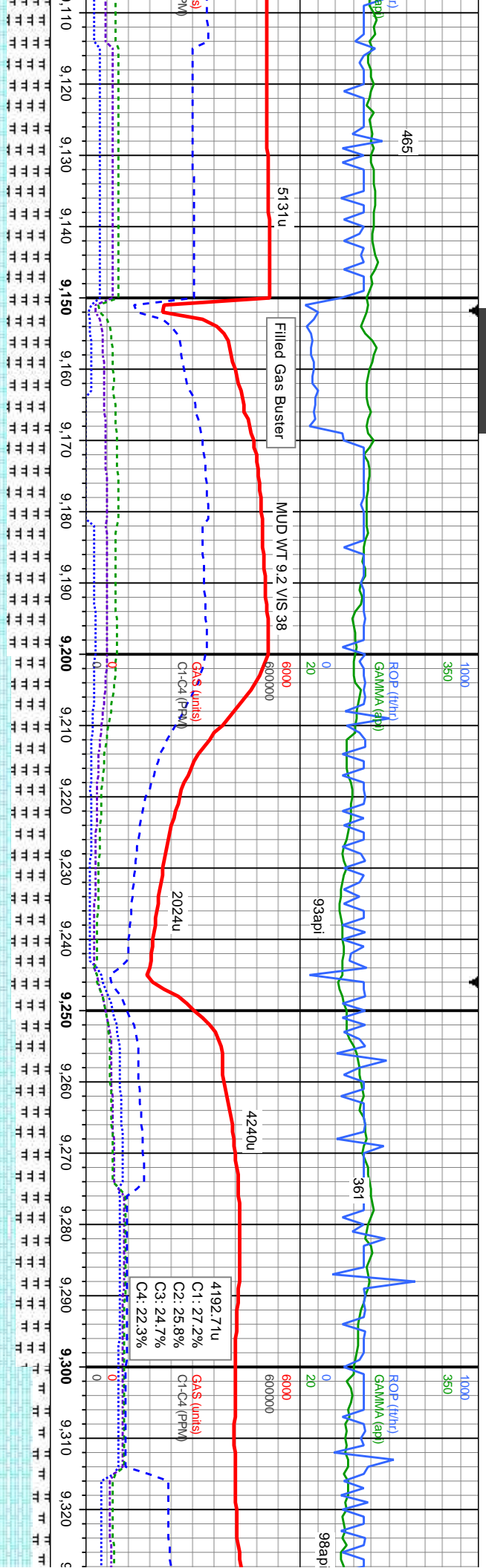
blky, sl sft, mot, sl wxy, v calc,	CHK: med gy -gy brn, sb blk, sl sft, mot, sl wxy, v calc; pos frac filled cal	CHK: med- gy brn, sb blk, sl sft, mot, sl wxy, v calc; pos frac filled cal	CHK: med- gy brn, sb blk, sl sft, mot, sl wxy, v calc; occ cal nod
- gy blk, sb blk, sft - sl frm,	MRLST: med-dk gy -gyblk, sb blk, sft - sl frm, rthy -sl sily, aren, sl mot, v calc; rr lse pyr	MRLST: med-dk gy -gyblk, sb blk, sft - sl frm, rthy -sl sily, aren, sl mot, v calc; rr lse pyr	MRLST: med-dk gy sl silver, sb blk, sft - sl frm, rthy -sl sily, aren, sl mot, v calc; occ cal nod
sl mot, v calc, tr cal nod			
6700			6700





6600	MD: 8.904' TVD: 6.635.5' Inclination: 90.04° Azimuth: 265.23° VS: 2.809.35'	6600	MD: 8.998' TVD: 6.635.86' Inclination: 89.52° Azimuth: 265.75° VS: 2.902.2'	6600	MD: 9.092' TVD: 6.636.8' Inclination: 89.34° Azimuth: 268.85° VS: 2.994.52'
TVD (ft)	CHK: med-lt gy occ gy brn, sb blk, sl sft, mot, sl wxy, v calc, occ-r cal nod MRLST: med-dk gy sl silver, sb blk, sft - sl frm, rthy -sl sly, aren, sl mot, v calc, occ cal nod; occ lse inoc fos frags	TVD (ft)	CHK: med-lt gy occ gy brn, sb blk, sl sft, mot, sl wxy, v calc, occ-r cal nod MRLST: med-dk gy sl silver, sb blk, sft - sl frm, rthy -sl sly, aren, sl mot, v calc, occ cal nod; occ lse inoc fos frags	TVD (ft)	CHK: med-lt gy occ gy brn, sb blk, sl sft, mot, sl wxy, v calc, occ-r cal nod MRLST: med-dk gy sl silver, sb blk, sft - sl frm, rthy -sl sly, aren, sl mot, v calc, occ cal nod; occ lse inoc fos frags
6700		6700		6700	

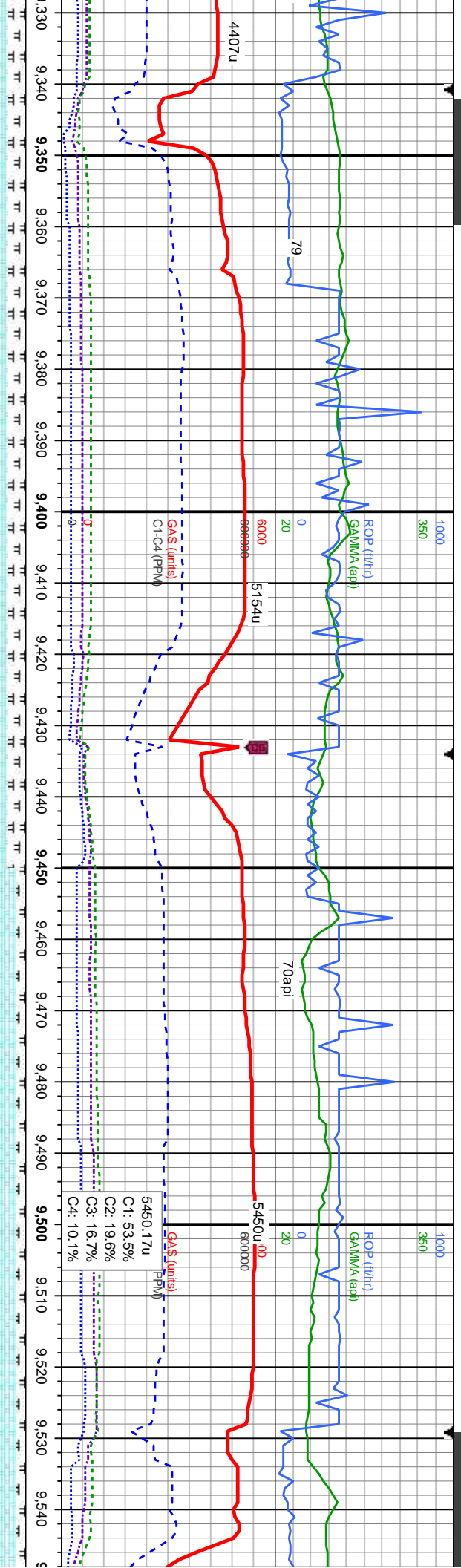




Filled Gas Buster, Samples Contaminated with Shale

med-dk gy sl silver, sb blk, sft - sl frm, rthy, aren, sl mot, v calc, occ cal nod	med-dk gy sl silver, sb blk, sft - sl frm, rthy - sl sily, aren, sl mot, v calc, occ cal nod	CHK: med gy occ lt gy-gy brn, sb blk, sl sft, v mot, sl wxy, v calc	CHK: med gy occ lt gy-gy brn, sb blk, sl sft, v mot, sl wxy, v calc	CHK: med gy occ lt gy-gy brn, sb blk, sl sft, v mot, sl wxy, v calc
med-lt gy occ gy brn, sb blk, sl sft, v mot, v calc, tr imbd cal nod, occ inoc fos	med-lt gy occ gy brn, sb blk, sl sft, v mot, v calc, tr imbd cal nod, occ inoc fos	CHK: med-lt gy occ gy brn, sb blk, rthy - sl sily, aren, sl mot, v calc, tr inoc fos frags, con sample	CHK: med-lt gy, sb blk, sft - sl frm, rthy - sl sily, aren, sl mot, v calc, tr inoc fos frags	CHK: med-dk gy, sb blk, sft - sl frm, rthy - sl sily, aren, sl mot, v calc, tr inoc fos frags
6700	6700	6700	6700	6700





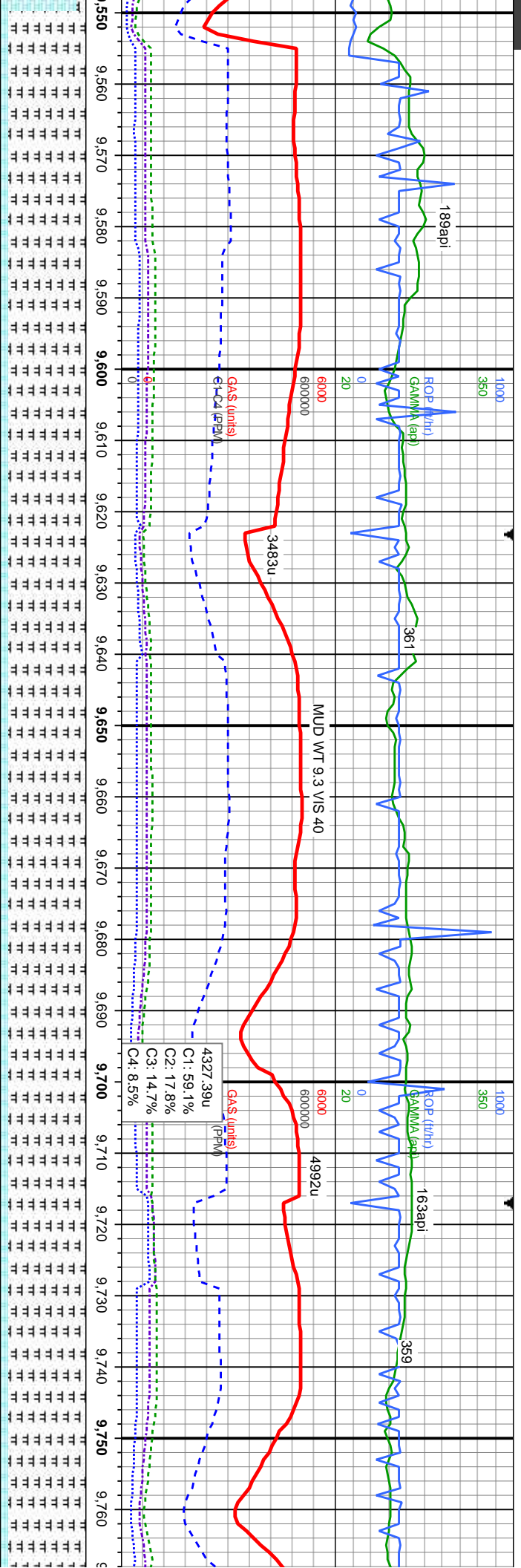
MD: 9.376'
TVD: 6,639.78'
Inclination: 88.64°
Azimuth: 269.31°
VS: 3.271.5

MD: 9.470'
TVD: 6,641.22'
Inclination: 89.6°
Azimuth: 269.19°
VS: 3.363.18'

5450.17u
C1: 53.5%
C2: 19.6%
C3: 16.7%
C4: 10.1%

sb blkly, sl sft, v	CHK: med gy occ lt gy-gy brn, sb blkly, sl sft, v	CHK: med gy occ lt gy-gy brn, sb blkly, sl sft, v	CHK: med gy occ lt gy-gy brn, sb blkly, sl sft, v
ft - sl frm, rthy - sl	mot, sl wxy, v calc	mot, sl wxy, v calc	mot, sl wxy, v calc
c fos frags	MRLST: med-dk gy, sb blkly, sft - sl frm, rthy - sl	MRLST: med-dk gy, sb blkly, sft - sl frm, rthy - sl	MRLST: med-dk gy, sb blkly, sft - sl frm, rthy - sl
	slty, aren, sl mot, v calc; rr inoc fos frags	slty, aren, sl mot, v calc; rr inoc fos frags	slty, aren, sl mot, v calc; rr inoc fos frags
	6700	6700	6700





MD: 9.564'
TVD: 6.642.66'
Inclination: 88.64°
Azimuth: 286.85°
VS: 3.455.27'

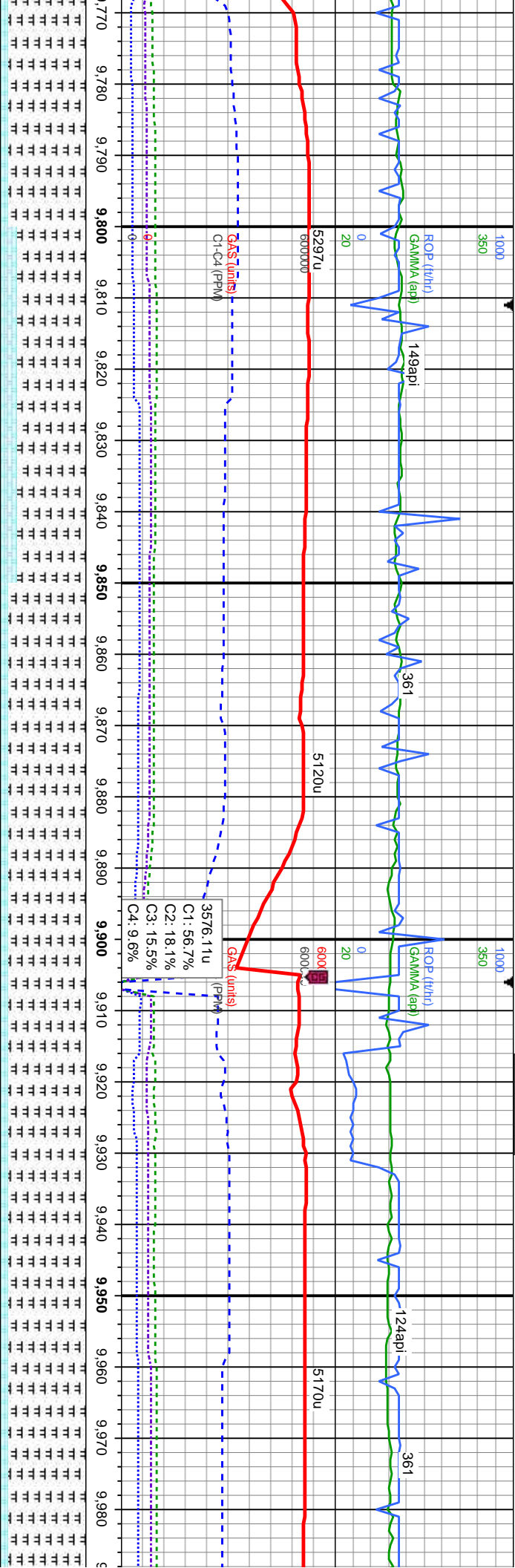
MD: 9.659'
TVD: 6.644.7'
Inclination: 88.9°
Azimuth: 287.25°
VS: 3.548.65'

4327.39u
C1: 59.1%
C2: 17.8%
C3: 14.7%
C4: 8.5%

MD: 9.753'
TVD: 6.645.64'
Inclination: 89.96°
Azimuth: 287.25°
VS: 3.641'

MRLST: med-dk gy, sb blk, sft - sl frm, rthy -sl	MRLST: med-dk gy, sb blk, sft - sl frm, rthy -sl	MRLST: med-dk gy, sb blk, sft - sl frm, rthy -sl	MRLST: med-dk gy, sb blk, sft - sl frm, rthy -sl
slty, aren, sl mot, v calc	slty, aren, sl mot, v calc	slty, aren, sl mot, v calc	slty, aren, sl mot, v calc
CHK: med gy occ lt gy-gy brn, sb blk, sl sft, v	CHK: med gy occ lt gy-gy brn, sb blk, sl sft, v	CHK: med gy occ lt gy-gy brn, sb blk, sl sft, v	CHK: med gy occ lt gy-gy brn, sb blk, sl sft, v
mot, sl wxy, v calc; rr inoc fos frags	mot, sl wxy, v calc; rr inoc fos frags	mot, sl wxy, v calc; rr inoc fos frags	mot, sl wxy, v calc; rr inoc fos frags
6700	6700	6700	6700

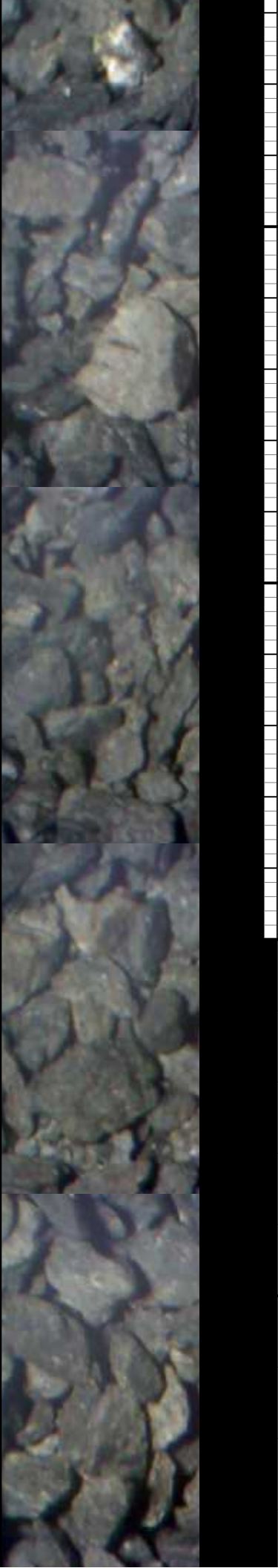


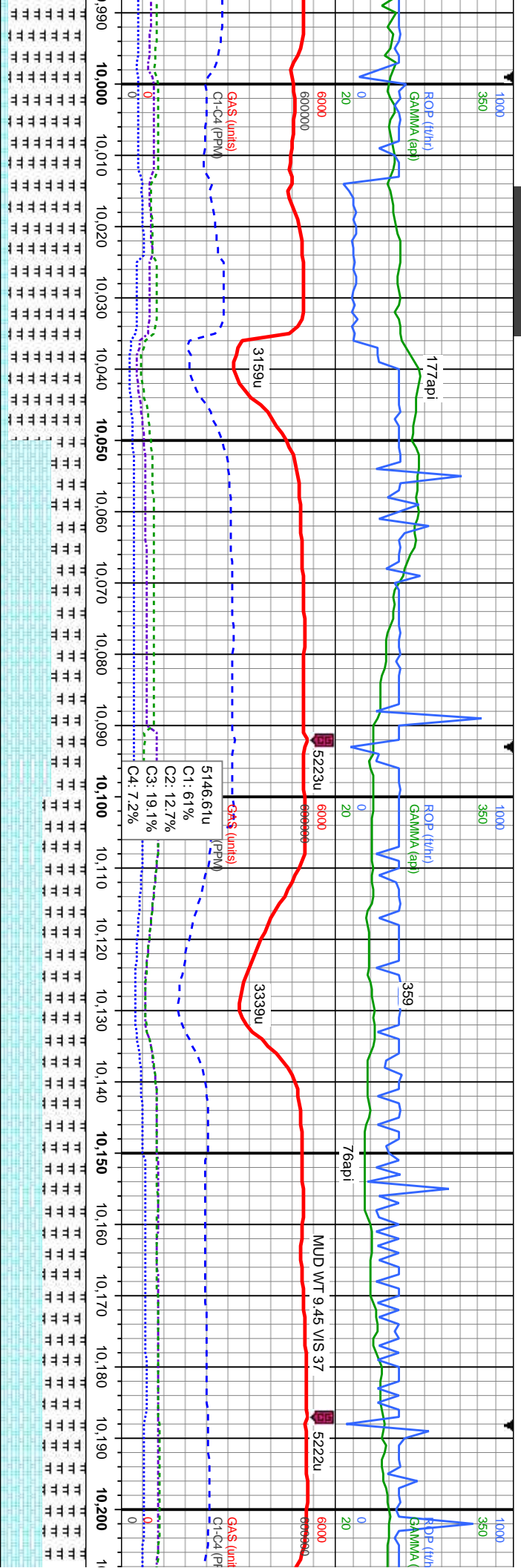


MD: 9.847'
TVD: 6,644.92'
Inclination: 90.92°
Azimuth: 266.94°
VS: 3,733.4'

MD: 9.941'
TVD: 6,643.83'
Inclination: 90.4°
Azimuth: 266.07°
VS: 3,825.97'

Y, sb blkly, sft - sl frm, rthy - sl	MRLST: med-dk gy, sb blkly, sft - sl frm, rthy - sl	MRLST: med-dk gy, sb blkly, sft - sl frm, rthy - sl	MRLST: med-dk gy, sb blkly, sft - sl frm, rthy - sl
v calc	slty, aren, sl mot, v calc	slty, aren, sl mot, v calc	slty, aren, sl mot, v calc
lt gy-gy brn, sb blkly, sl sft, v	CHK: med gy occ lt gy-gy brn, sb blkly, sl sft, v	CHK: med gy occ lt gy-gy brn, sb blkly, sl sft, v	CHK: med gy occ lt gy-gy brn, sb blkly, sl sft, v
; tr inoc fos frags	mot, sl wxy, v calc; tr inoc fos frags	mot, sl wxy, v calc; tr inoc fos frags	mot, sl wxy, v calc; tr inoc fos frags
6700	6700	6700	6700



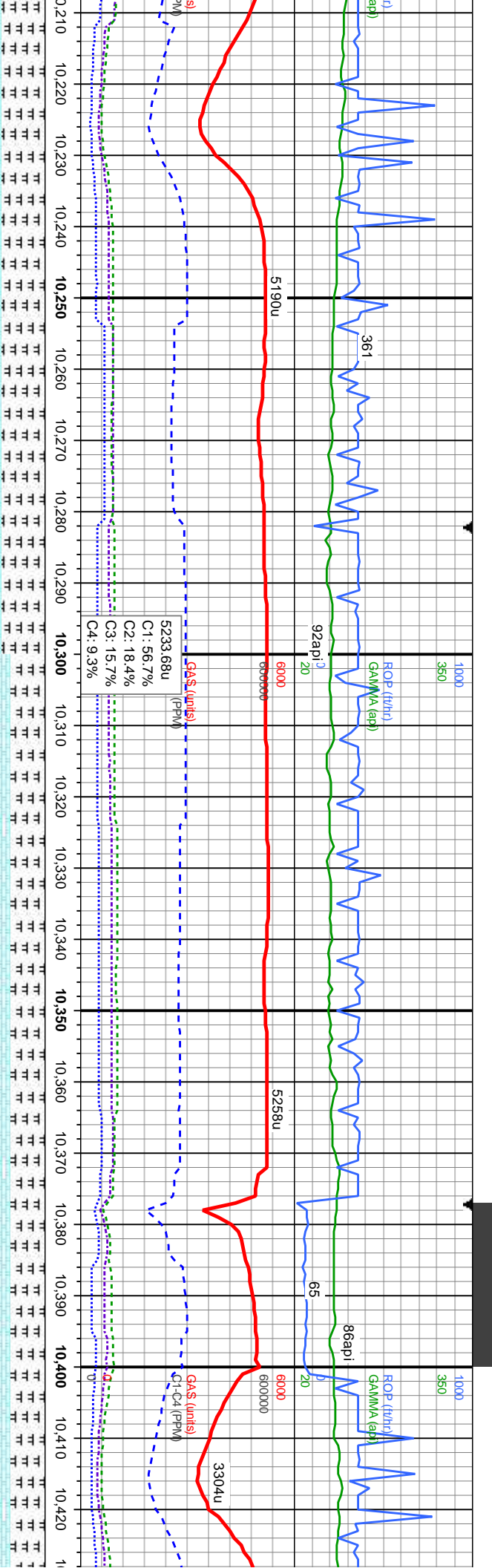


MD: 10.035'
TVD: 6,644.84'
Inclination: 88.37°
Azimuth: 267.48°
VS: 3.918.45

MD: 10.129'
TVD: 6,647.23'
Inclination: 88.72°
Azimuth: 268.06°
VS: 4.010.62'

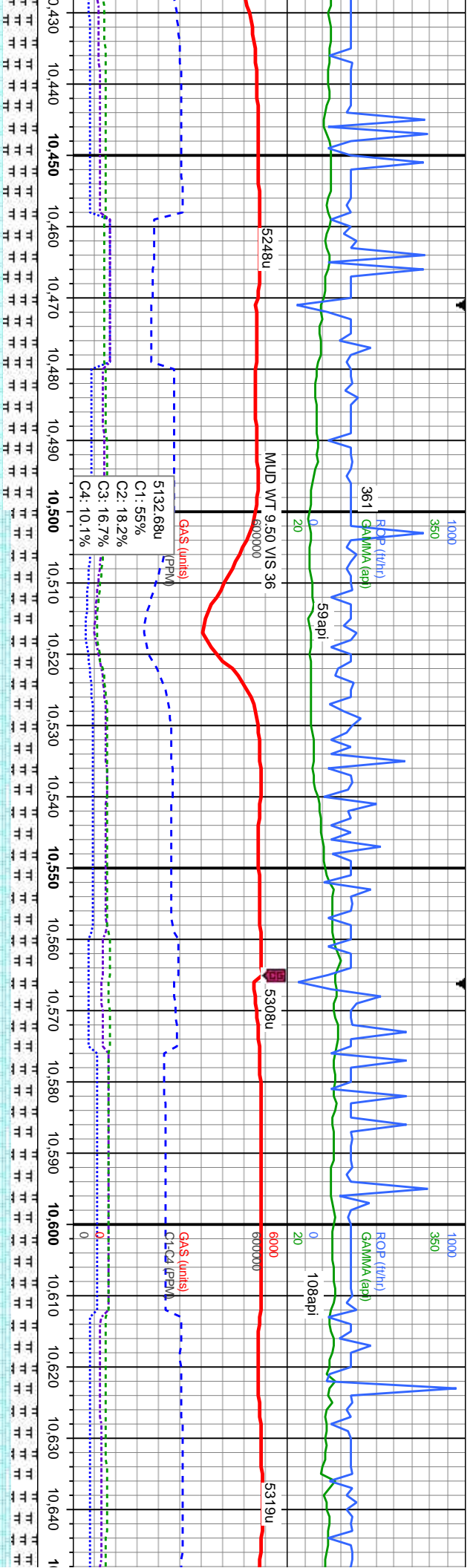
thly -sl	MRLST: med-dk gy, sb blkly, sft - sl frm, rthy -sl	CHK: med gy occ lt gy-gy brn, sb blkly, sl sft, v
sft, v	slty, aren, sl mot, v calc	mot, sl wxy, v calc
	CHK: med gy occ lt gy-gy brn, sb blkly, sl sft, v	MRLST: med-dk gy, sb blkly, sft - sl frm, rthy -sl
	mot, sl wxy, v calc; rr inoc fos frags	slty, aren, sl mot, v calc; rr inoc fos frags
6700		6700





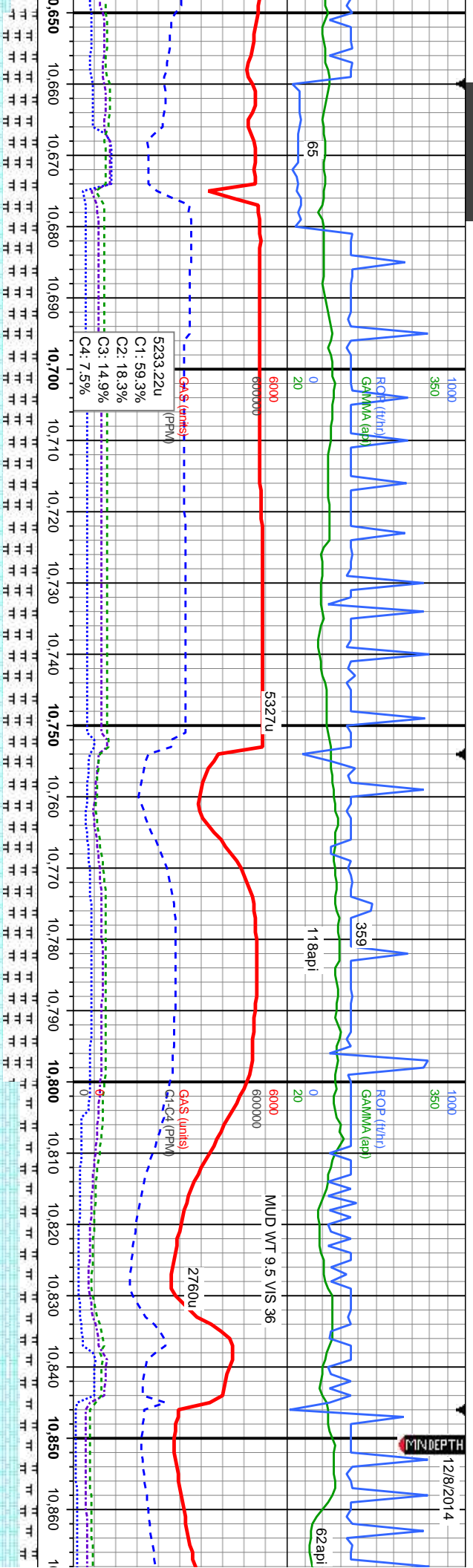
med gy occ lt gy-gy brn, sb blk, sl sft, v wxy, v calc	CHK: med gy occ lt gy-gy brn, sb blk, sl sft, v mot, sl wxy, v calc	CHK: med gy occ lt gy-gy brn, sb blk, sl sft, v mot, sl wxy, v calc	CHK: med gy occ lt gy-gy brn, sb blk, sl sft, v mot, sl wxy, v calc
T: med-dk gy, sb blk, sft - sl frm, rthy -sl	MRLST: med-dk gy, sb blk, sft - sl frm, rthy -sl	MRLST: med-dk gy, sb blk, sft - sl frm, rthy -sl	MRLST: med-dk gy, sb blk, sft - sl frm, rthy -sl
ten, sl mot, v calc; rr inoc fos frags	stly, aren, sl mot, v calc; rr inoc fos frags	stly, aren, sl mot, v calc; rr inoc fos frags	stly, aren, sl mot, v calc; rr inoc fos frags
6700	6700	6700	6700





sb biky, sl sft, v	CHK: med gy occ lt gy-gy brn, sb biky, sl sft, v	CHK: med gy occ lt gy-gy brn, sb biky, sl sft, v	CHK: med gy occ lt gy-gy brn, sb biky, sl sft, v
mod, sl wxy, v calc	mod, sl wxy, v calc	mod, sl wxy, v calc	mod, sl wxy, v calc
MRLST: med-dk gy, sb biky, sft - sl frm, rthy - sl	MRLST: med-dk gy, sb biky, sft - sl frm, rthy - sl	MRLST: med-dk gy, sb biky, sft - sl frm, rthy - sl	MRLST: med-dk gy, sb biky, sft - sl frm, rthy - sl
c tos frags	slty, aren, sl mot, v calc; rr inoc tos frags	slty, aren, sl mot, v calc; rr inoc tos frags	slty, aren, sl mot, v calc; sme inoc tos frags
6700	6700	6700	6700

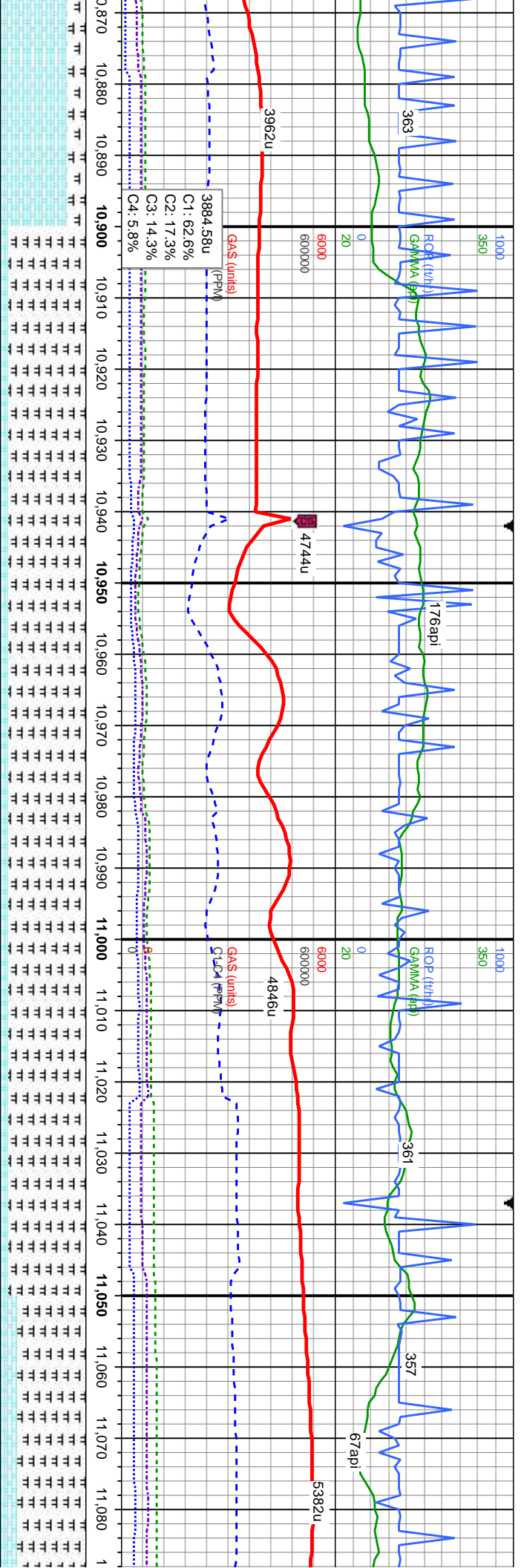




MD: 10.695'
TVD: 6,656.51'
Inclination: 88.02°
Azimuth: 289.1°
VS: 4,565.65'

MD: 10.790'
TVD: 6,659.57'
Inclination: 88.29°
Azimuth: 268.93°
VS: 4,658.35'

CHK: med gy occ lt gy-gy brn, sb blk, sl sft, v	CHK: med gy occ lt gy-gy brn, sb blk, sl sft, v	CHK: med-lt gy occ gy brn, sb blk, sl sft, v mot,	CHK: med-lt gy occ gy brn, sb blk, sl sft, v mot,	CHK: med-lt gy occ gy brn, sb blk, sl sft, v
mot, sl wxy, v calc	mot, sl wxy, v calc	sl wxy, v calc, tr imbd foss	sl wxy, v calc, tr imbd foss	sl wxy, v calc, tr in
MRLST: med-dk gy, sb blk, sft - sl frm, rthy - sl	MRLST: med-dk gy, sb blk, sft - sl frm, rthy - sl	MRLST: med-dk gy sl silver, sb blk, sft - sl frm,	MRLST: med-dk gy sl silver, sb blk, sft - sl frm,	MRLST: med-dk g
stly, aren, sl mot, v calc; tr inoc fos frags	stly, aren, sl mot, v calc; tr inoc fos frags	rthy -sl stly, aren, sl mot, v calc; tr inoc fos frags	rthy -sl stly, aren, sl mot, v calc; tr inoc fos frags	rthy -sl stly, aren,
6700	6700	6700	6700	6700

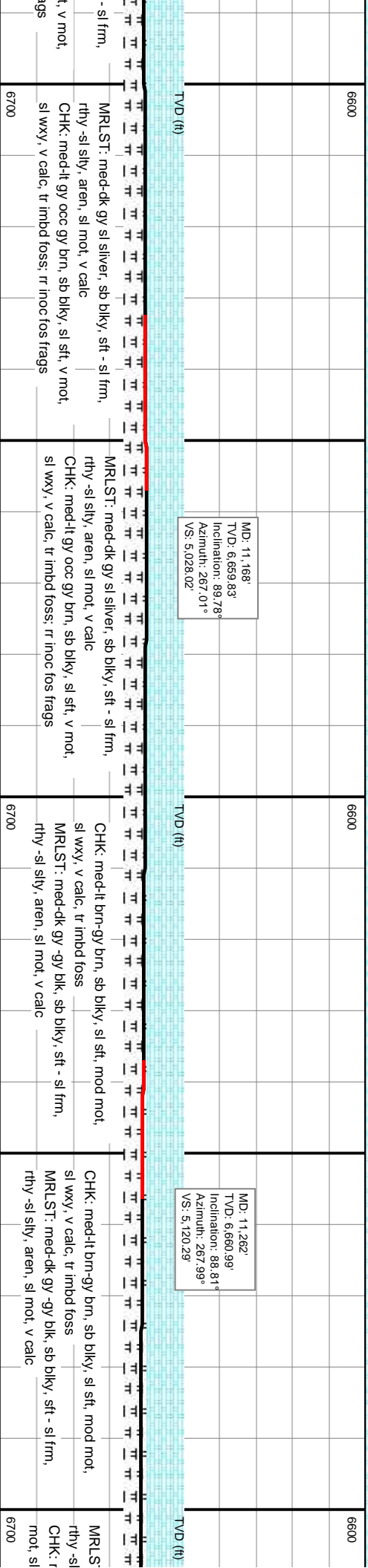
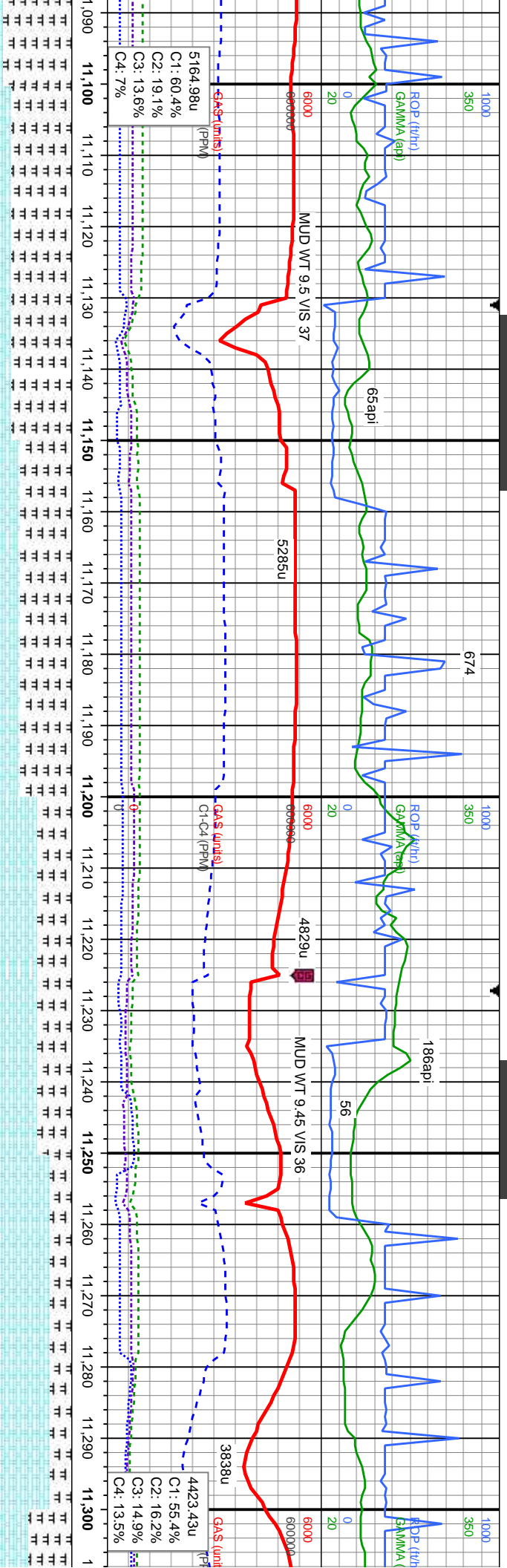


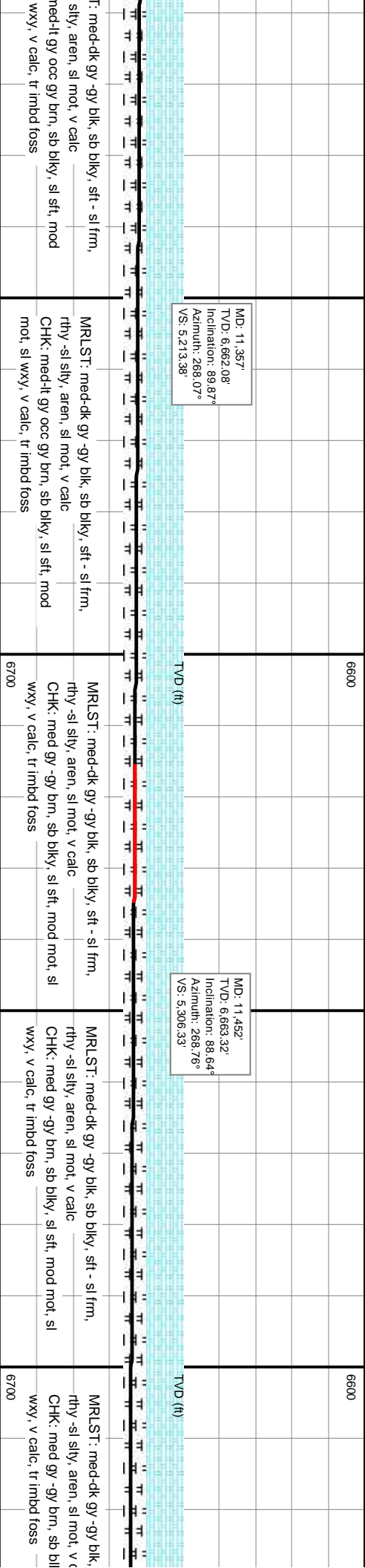
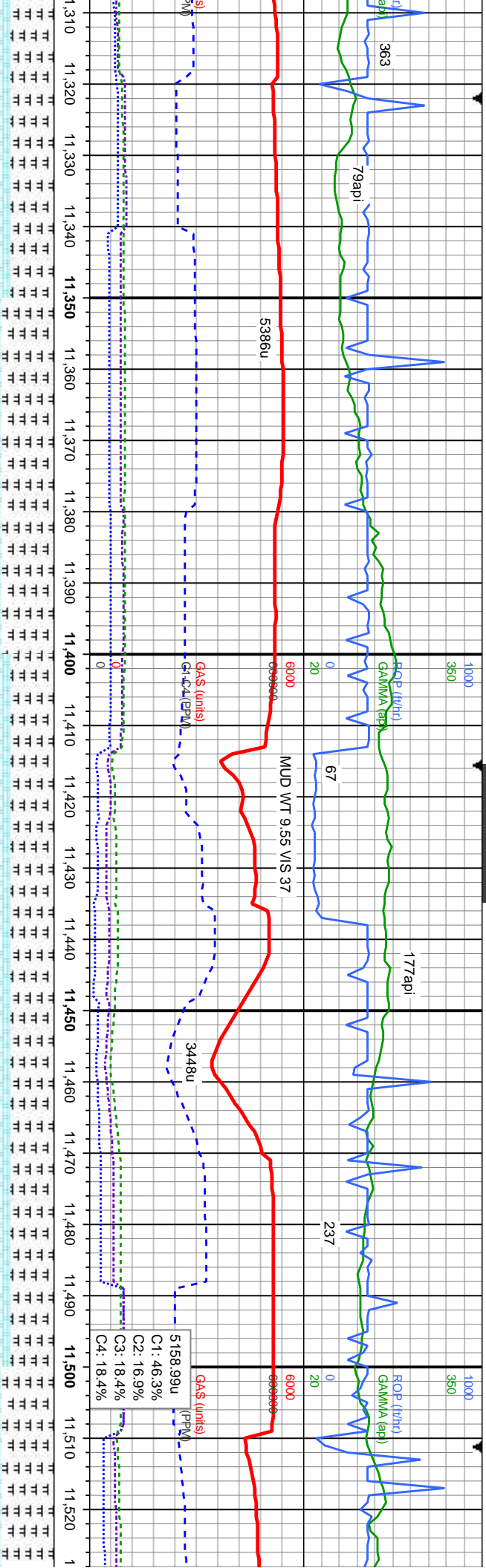
MD: 10,884'
TVD: 6,661.44'
Inclination: 89.43°
Azimuth: 268.57°
VS: 4,750.2

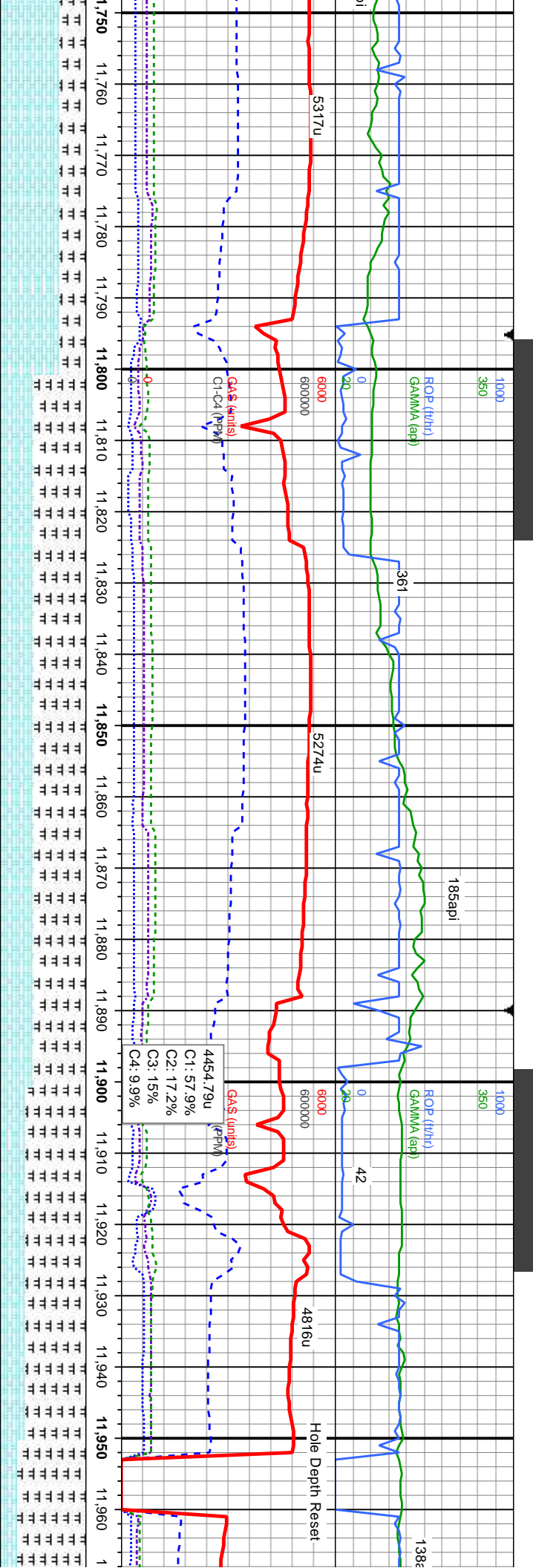
MD: 11,073'
TVD: 6,660.56'
Inclination: 91.1°
Azimuth: 268.89°
VS: 4,934.92

oc gy brn, sb blk, sl sft, v mot,	MRLST: med-dk gy sl silver, sb blk, sft - sl frm,	oc gy brn, sb blk, sl sft, v mot,	MRLST: med-dk gy sl silver, sb blk, sft - sl frm,
obd foss	rthy -sl sily, aren, sl mot, v calc	obd foss	rthy -sl sily, aren, sl mot, v calc
gy sl silver, sb blk, sft - sl frm,	CHK: med-ht gy ooc gy brn, sb blk, sl sft, v mot,	gy sl silver, sb blk, sft - sl frm,	CHK: med-ht gy ooc gy brn, sb blk, sl sft, v mot,
sl mot, v calc, tr imbd foss, rr inoc fos frags	sl wxy, v calc, tr imbd foss, rr inoc fos frags	sl mot, v calc, tr imbd foss, rr inoc fos frags	sl wxy, v calc, tr imbd foss, rr inoc fos frags









MD: 11,831'
TVD: 6,657.62'
Inclination: 91.28°
Azimuth: 270.35°
VS: 5.675,36

MD: 11,926'
TVD: 6,656.82'
Inclination: 89.69°
Azimuth: 270.77°
VS: 5.767,52

MD: 11,963'
TVD: 6,656.9'
Inclination: 90.0°
Azimuth: 270.7°
VS: 5.803,38

CHK: med-lt brn-gy brn, sb blk, sl sft, mod mot, sl wxy, v calc, tr imbd foss	MRLST: med-dk gy -gy blk, sb blk, sl sft - sl frm, rthy -sl sily, aren, sl mot, v calc	CHK: med gy -gy brn, sb blk, sl sft, mod mot, sl wxy, v calc, tr imbd foss	MRLST: med-dk gy -gy blk, sb blk, sl sft - sl frm, rthy -sl sily, aren, sl mot, v calc	CHK: med gy -dk gy brn, sb blk, sl sft, mod mot, sl wxy, v calc	MRLST: med-dk gy -gy blk, sb blk, sl sft - sl frm, rthy -sl sily, aren, sl mot, v calc
MRLST: med-dk gy -gy blk, sb blk, sl sft - sl frm, rthy -sl sily, aren, sl mot, v calc	CHK: med gy -gy brn, sb blk, sl sft, mod mot, sl wxy, v calc, tr imbd foss	MRLST: med-dk gy -gy blk, sb blk, sl sft - sl frm, rthy -sl sily, aren, sl mot, v calc	CHK: med gy -dk gy brn, sb blk, sl sft, mod mot, sl wxy, v calc	MRLST: med-dk gy -gy blk, sb blk, sl sft - sl frm, rthy -sl sily, aren, sl mot, v calc	CHK: med gy -dk gy brn, sb blk, sl sft, mod mot, sl wxy, v calc

