

# COLUMBINE LOGGING

Scale: 5" / 100'  
Measured Depth Log

**Well Name** Carlson L-15-16HN

**Location** Sec15, T5N, R65W

**State** Colorado

**County** Weld

**Country** United States

**Rig Number** Frontier 8

**API Number** 05-123-41715

**AFE #** 41715

**Region** DJ Basin

**Field** Wattenberg

**Spud Date** 10/8/2015

**Drilling Completed** 10/27/2015

**Surface Coordinates** Lat/Long: 40.403698/-104.6414

SEC15, T5N, R65W

1054' FNL, 399' FEL

**Bottom Hole Coordinates** Projected

SEC16, T5N, R65W

2560' FNL, 2337' FWL

**Ground Elevation** 4621'

**K.B. Elevation** 4643'

**Logged Interval** 6000' To 14985'

**Total Depth** 14985'

**Formation** Niobrara

**Type of Drilling Fluid** Water/LSND

## Operator

**Company** Bayswater Exploration & Production, LLC.

**Address** 730 17th St.  
Denver, CO 80202

## Geologist

**Name** Mark E. Brown

**Company** Bayswater Exploration & Production, LLC.

**Address** 730 17th St.  
Denver, CO 80202



## Other

**Columbine Logging, Inc.** 602 S. Lipan St. Denver, CO

**Wellsite Geologists** Brad Wilson, Tracy Lawson

**Columbine Logging Computer** 148

**Bloodhound Unit** 331

Hole Profile

Bore Hole Records

Size	From	To
8.75	860.0	7528.0
0.0	7528.0	0.0

Casing Records

Size	Wgt	From	To	Test
9.625	36	24'	844'	
7	29	23'	7073'	

Zone Color Coding

- Oil

Note

Error
- Condensate

Core

Water
- Gas

Pressure

Seal

Rock Types

- UNKNOWN

ANHYDRITE

BENTONITE

BRECCIA

CHALK

CEMENT

CHELT

CLAY CHOKE SANC

CLAYSTONE
- COAL

CONGLOMERATE

DOLOMITE

DOLOMITIC LIMESTONE

GRANITE

GYPSUM

IGNEOUS

SIDERITE or LIMONITE

LIMESTONE
- MARLSTONE

METAMORPHIC

NO SAMPLE

SALT

SANDSTONE

SALT-PEPPER SANC

SHALE

SHALE COLORED

SHALE GRAY
- SHALY SANDSTONE

SHALY SILTSTONE

SILTY SHALE

SILTSTONE

TILL

TUFF

WELDED TUFF

Fossils

- GASTROPOD

INOCERAMUS

OOLITE

OSTRACOD

PELECYPOD

PELLET

PISOLITE

PLANT REMAINS

SCAPHOPOD

STROMATOPOROID
- ALGAE

AMPHIPORA

BELEMNITE

BIOCLASTIC

BRACHIOIPOD

BRYOZOA

CERHALOPOD

CORAL

CRINOID

ECHINOID
- FISH

FORAMINIFERA

FOSSIL

ANHYDRITIC

ARGILLACEOUS

Minerals

- P PINPOINT

V VUGGY

Oil Show

- DEAD

EVEN

QUESTIONABLE

SPOTTED STAINING
- Engineerin

BIT
- CONNECTION (U

Porosity

- CONNECTION (D

CONNECTION G

CONNECTION

TRIP GAS

TRIP GAS (LEF

DOWN TIME GA

DOWN TIME (

CORE - LOST

CORE - RECOVER
- E EARTHY

FENESTRAL

F FRACTURE

INTERROUTLIC












MOLDIC

ORGANIC
































## Accessories

✓ ARGILLITE GRAIN	✗ HEAVY MINERAL
B BENTONITE	K KAOLIN
✗ BITUMENOUS SUBSTANCE	A MARCASITE
✗ BRECCIA FRAGMENTS	U MARLSTONE
1 CALCAREOUS	U MICACEOUS
1 CARBONACEOUS FLAKES	✗ MINERAL CRYSTALS
▲ CHTDK	● NODULES
▲ CHTLT	● PHOSPHATE PELLETS
→ COAL - THIN BEDS	P PYRITE
✗ DOLOMITIC	田 SALT CAST
+ FELDSPAR	· SANDY
● FERRUGINOUS PELLETT	\$ SLICKERITE
✗ FERRUGINOUS	✓ SLICEOUS
✓ GLAUCONITE	✓ SILTY
✓ GYPSIFEROUS	✓ TUFFACEOUS

	<b>Stringer</b>
	ANHYDRITE STRINGER
	BENTONITE STRINGER
	COAL STRINGER
	DOLOMITIC STRINGER
	GYPSUM STRINGER
	LIMESTONE STRINGER
	MARLSTONE (CALC) STRG
	MARLSTONE (DOL) STRG
	SANDSTONE STRINGER
	SHALE STRINGER
	SILTSTONE STRINGER

## Other Symbols

 DST INTERVAL  FAULT  FORMATION TOP  GAS SHOW  OIL SHOW  MN DEPTH UP  MN DEPTH (DOWN)  NORMAL FAULT  GAS (LEFT)  OVERTURNED STRATA  REVERSE FAULT  CASING  SIDEWALL CORE (LEFT)  SLIDE  SURVEY	 WIRELINE TESTED - LEFT  WIRELINE TESTED - RT  DRILL STEM TEST  MN DEPTH  ANGULAR  ROUNDED  SUBANG  SUBREND	<h3>Rounding</h3> <p><b>ES</b> GRAINSTONE  <b>L</b> LITHOGRAPHIC  <b>MX</b> MICROXLN  <b>MS</b> MUDSTONE  <b>PS</b> PACKSTONE  <b>WS</b> WACKSTONE</p>
 E EARTHY  Fx FINELYXLN  ES GRAINSTONE  L LITHOGRAPHIC  MX MICROXLN  MS MUDSTONE  PS PACKSTONE  WS WACKSTONE	<h3>Sorting</h3> <p><b>P</b> POOR  <b>M</b> MODERATE  <b>W</b> WELL</p>	

Slide/Rotate

COLUMBINE LOGGING RIGGED UP ON  
10/9/2015 MANNED 2-PERSON LOGGING.  
STARTED LOGGING AT 6000' @10:50AM  
MDT 10/10/2015.

ROP

263 ft/hr

ROP DATA IMPORTED FROM PASON EDR

Total Gas & Chromatograph

GAS

C1

C2

C3

C4

GAS DATA FROM BLOODHOUND  
CHROMATOGRAPH UNIT #0331 JOB NUMBER  
53 via IBALL GAS CHART DATA BASE "Carlson  
L\_15\_16HN.mdb"

Depth Labels

% Lith

Gamma

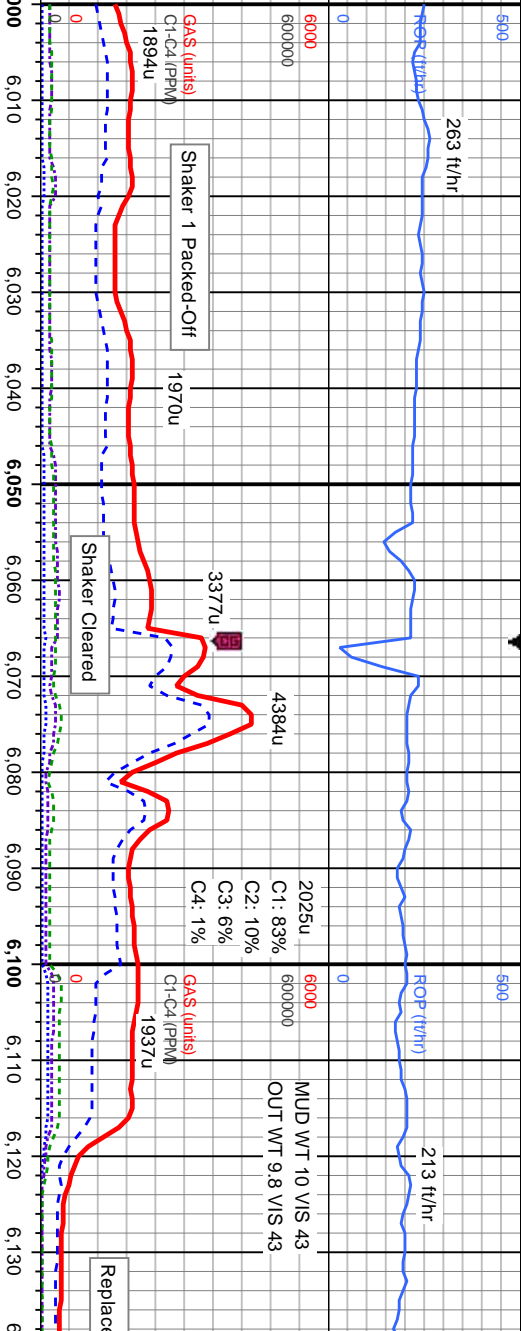
GAMMA

Well Bore

TVD

Oil Show

Images



SURVEY AND GAMMA DATA PROVIDED  
BY ENSIGN DIRECTIONAL SERVICES

MD: 6.016'  
TVD: 5,810.95'  
Inclination: 5.3°  
Azimuth: 157.8°  
VS: -74.15'

Bit Data  
Bit #: 2  
Type: Hughes/TTD30  
Size: 8.75  
Depth In: 860'  
Depth Out: 7,528'  
Jets: 6x14

SLTY SH: med gy-brnshgy, occ lt gy, pily-sb blkly, sl frn-frn occ sft, sl silty tex, sl rthy lstr, non calc SHY SLTST: lt-med gy, slt-vf gr, sl frm, pily-sb blkly, occ sl gt tex, r bdg, v sl calc, slow difse, slow string, blshwh cut, mod even ring

SLTY SH: med gy-brnshgy, occ lt gy, pily-sb blkly, sl frn-frn occ sft, sl silty tex, sl rthy lstr, non calc SHY SLTST: lt-med gy, slt-vf gr, sl frm, pily-sb blkly, occ sl gt tex, r bdg, v sl calc, slow difse, slow string, blshwh cut, mod even ring

SLTY SH: med gy-brnshgy, occ lt gy, pily-sb blkly, sl frn-frn occ sft, sl silty tex, sl rthy lstr, non calc SHY SLTST: lt-med gy, slt-vf gr, sl frm, pily-sb blkly, occ sl gt tex, r bdg, v sl calc, r grdg- shy difse, slow string, blshwh cut, mod even ring

E  
G  
M  
F  
T  
S

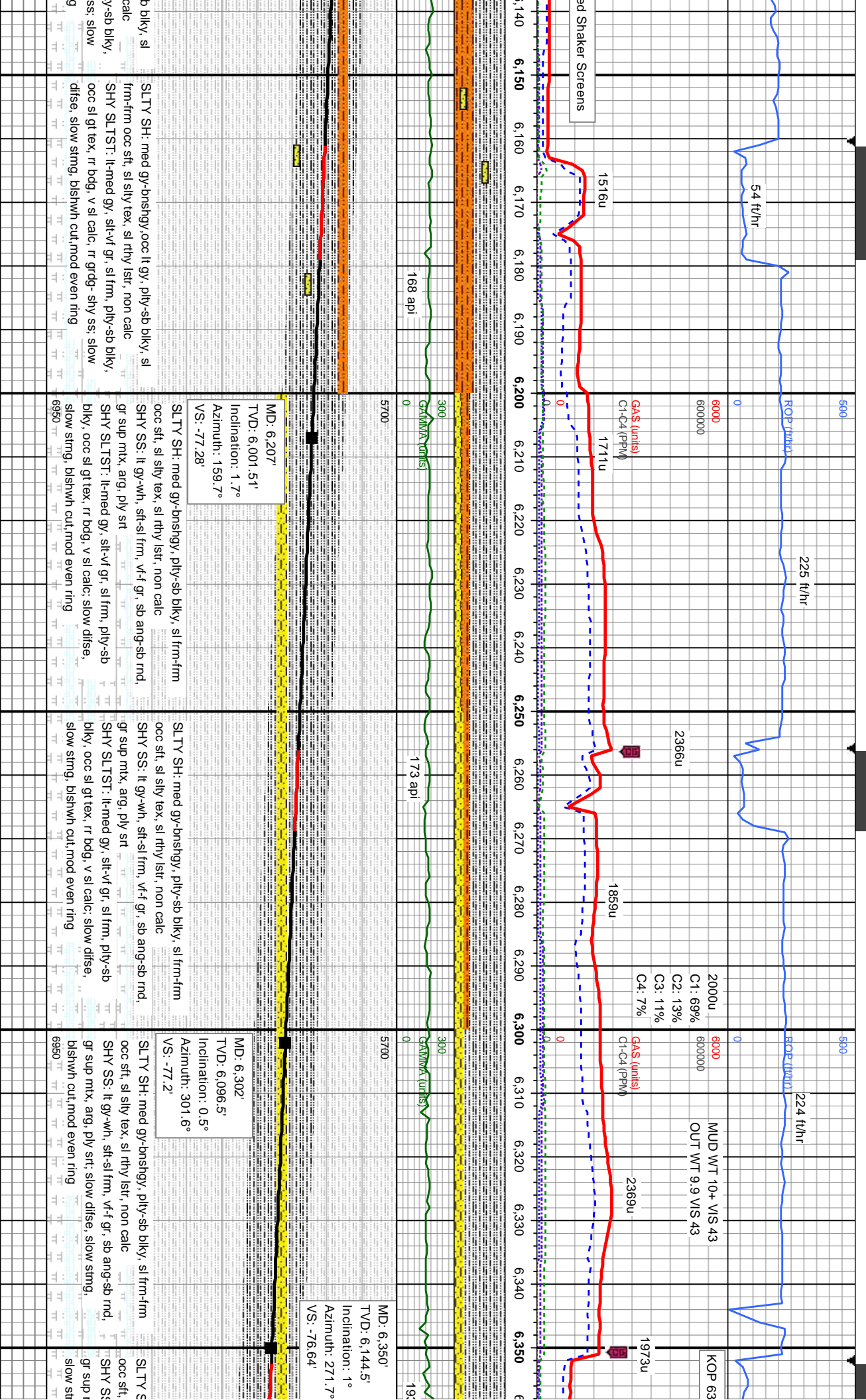
6950

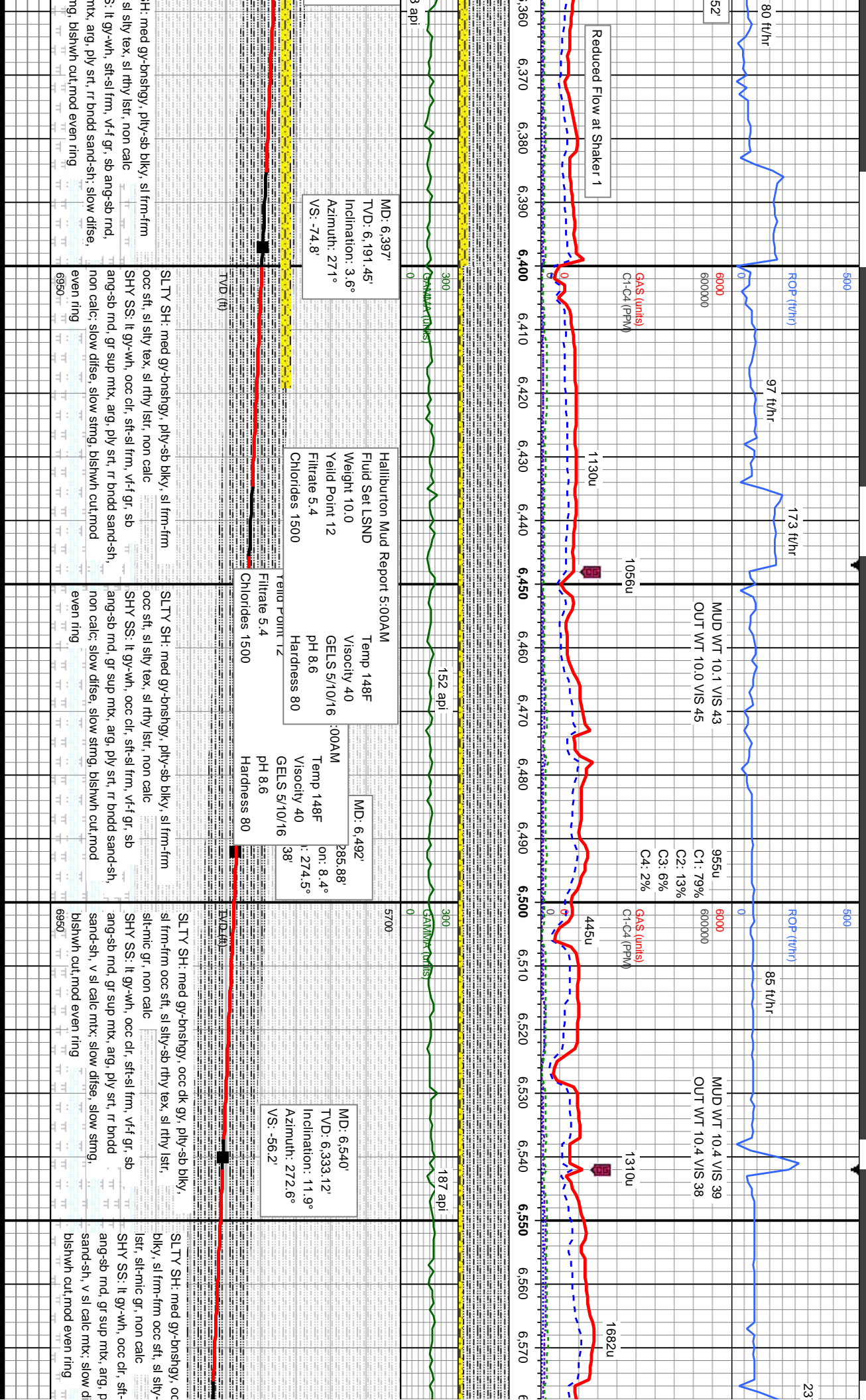
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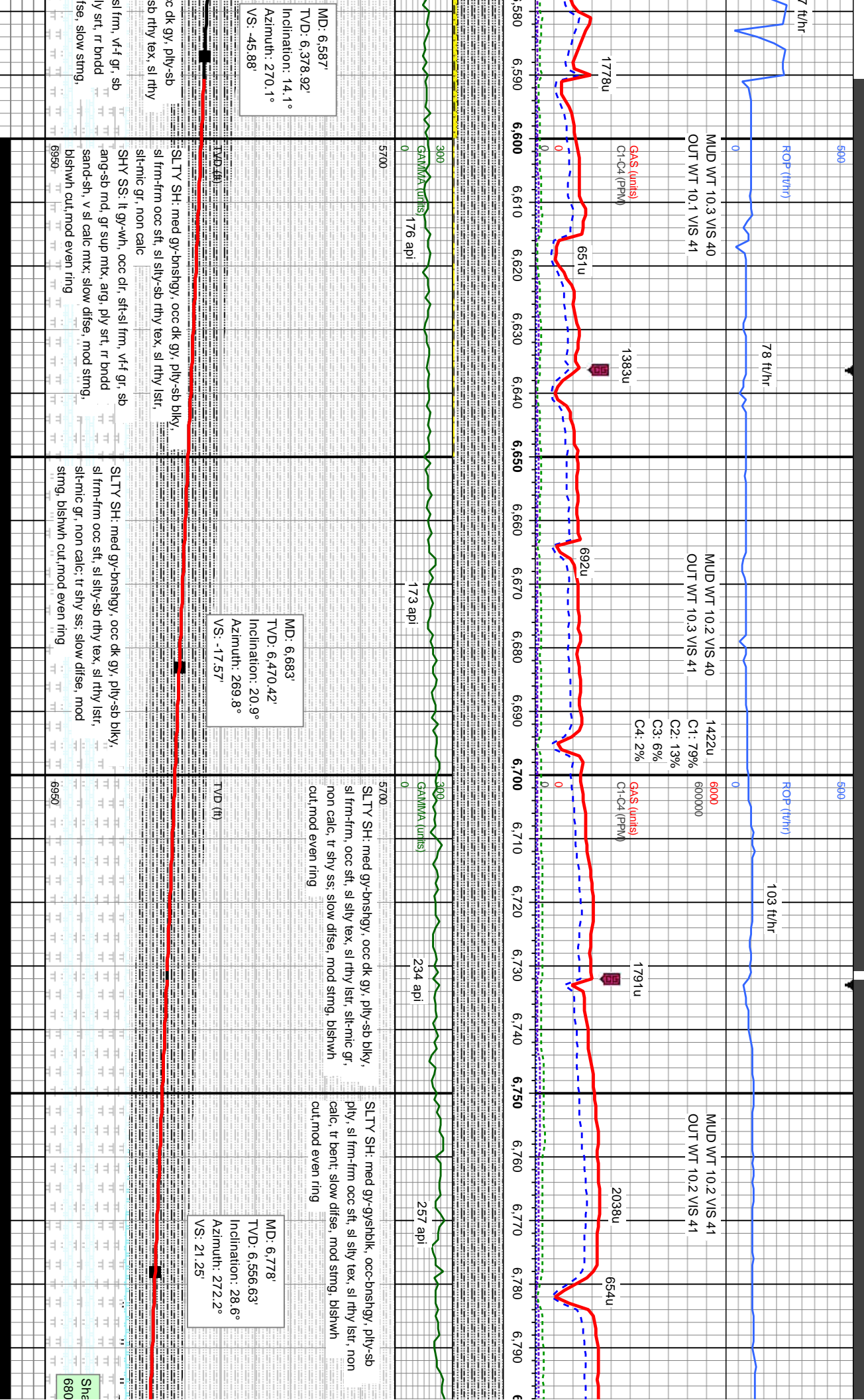
















ROP (ft/hr)

60 ft/hr

ROP (ft/hr)

88 ft/hr

MUD WT 10.1 VIS 41  
OUT WT 10 VIS 40

MUD WT 10 VIS 40  
OUT WT 9.9 VIS 40

MUD WT 9.9 VIS 40  
OUT WT 9.9 VIS 40

3669u

3579u

3567u

3168u

C1: 77%

C2: 14%

C3: 6%

C4: 3%

896u

3168u



211 api

152 api

140 api

181 api

390

187 e

mot-spec, slt gr, sl frm, sb  
r, sl mot, sb pily-biky, brlt, sl sft,  
calc, tr bent, tr dissn pyr, med  
r blshwh cut, bri even ring

CHK: lt-med gy, tr wh, sb blk-biky, mod sft-sl frm,  
mot, sl wxy tex, v calc;  
MRLST: med-dk gy - gysbhn, sb blk, sft - sl frm,  
rthy - sl sly, arg, sl mot, calc; med difse, mod string,  
bri blshwh cut, bri even ring

MRLST: med-dk gy, occ blk, occ str, occ mot, sb  
biky, sl sft - mod frm, rthy tex, sl sly;  
CHK: gy brn-brn -med gy, sb blk, sl frm, mot, sl  
wxy, v calc; tr inoc fos, occ cal, tr bent, med difse,  
mod string, bri blshwh cut, bri even ring

MRLST: med-dk gy, occ blk, occ str, occ mot, sb  
biky, sl sft - mod frm, rthy tex, sl sly;  
CHK: gy brn-brn -med gy, tr lt gy, sb blk, sl frm,  
mot, sl wxy, v calc; occ inoc fos, tr cal, tr bent,  
med difse, mod string, bri blshwh cut, bri even ring

MRLST: med-dk gy, occ blk, sb biky-sb plic  
mod frm, rthy tex, sl sly, v calc;  
CHK: lt-med gy, sb blk, sl frm, mod mot,  
calc; tr inoc fos, tr bent, sweep spl, med d  
string, bri blshwh cut, v bri even ring

B Chalk  
7073 MD / 6773' TVD

MD: 7,111'  
TVD: 6,794.52'  
Inclination: 59.6°  
Azimuth: 268.4°  
VS: 244.36'

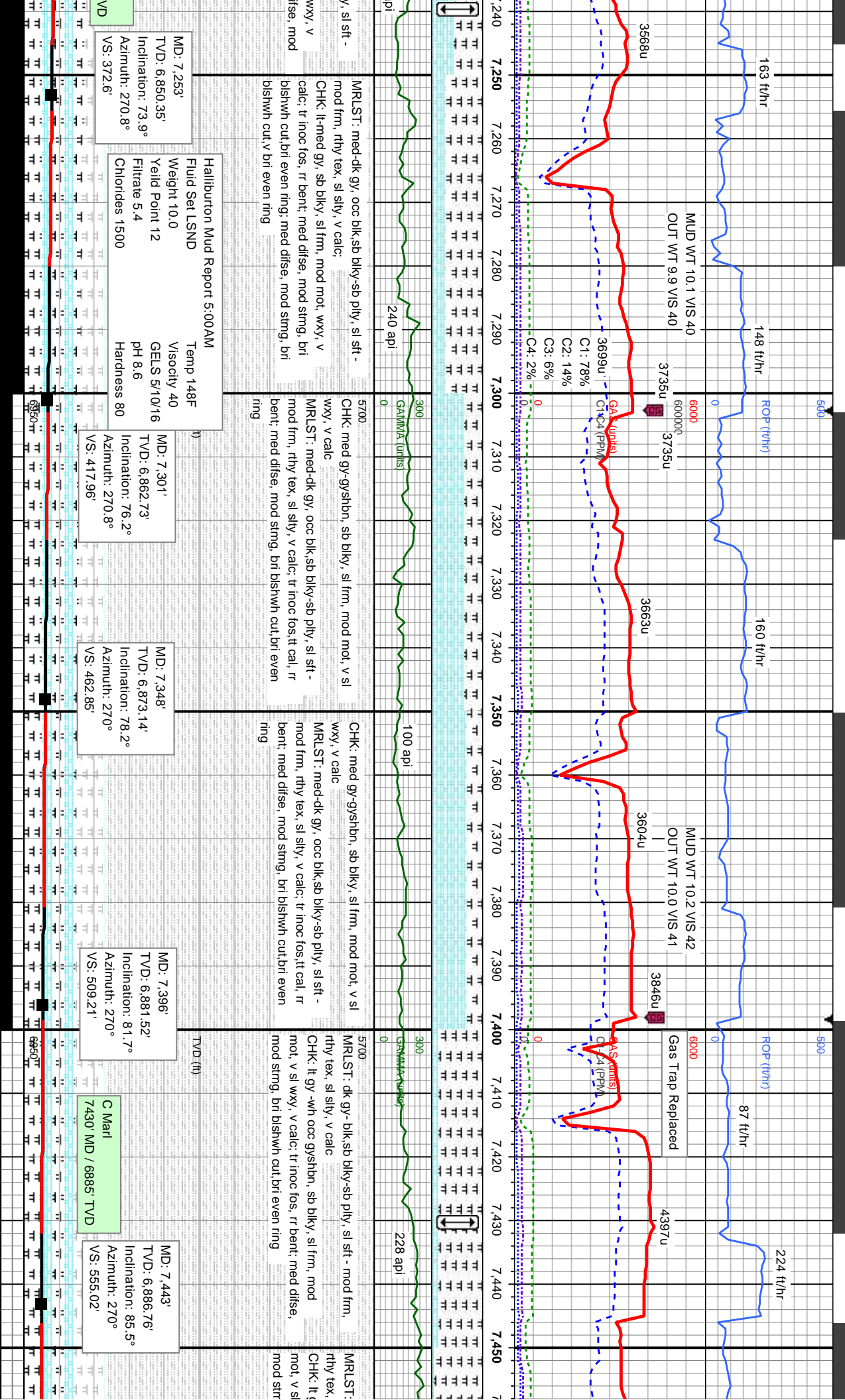
B Marl  
7127 MD / 6802' TVD

MD: 7,158'  
TVD: 6,816.65'  
Inclination: 64.2°  
Azimuth: 267.5°  
VS: 285.28'

MD: 7,206'  
TVD: 6,835.56'  
Inclination: 69.4°  
Azimuth: 268.6°  
VS: 328.81'

C Chalk  
7239 MD / 6845' T





MD: 7.253'  
TVD: 6.850.35'  
Inclination: 73.9°  
Azimuth: 270.8°  
VS: 372.6'

Halliburton Mud Report 5:00AM  
Fluid Set LSND  
Temp 148F  
Viscosity 40  
GELS 5/10/16  
pH 8.6  
Hardness 80  
Filtrate 5.4  
Chlorides 1500

MD: 7.301'  
TVD: 6.862.73'  
Inclination: 76.2°  
Azimuth: 270.8°  
VS: 417.96'

MD: 7.348'  
TVD: 6.873.14'  
Inclination: 78.2°  
Azimuth: 270°  
VS: 462.85'

MD: 7.396'  
TVD: 6.881.52'  
Inclination: 81.7°  
Azimuth: 270°  
VS: 509.21'

C Marl  
7430' MD / 6885' TVD

MD: 7.443'  
TVD: 6.886.76'  
Inclination: 85.5°  
Azimuth: 270°  
VS: 555.02'





10/12/2015 - 10/23/2015

ROP (ft/hr)

MINDEPTH

374 ft/hr

ROP (ft/hr)

106 ft/hr

4086u

4005u

3998u

3790u

412

MUD WT 9.3 VIS 38  
OUT WT 9.4 VIS 39

3995u

2299u

C1: 76%

C2: 15%

C3: 6%

C4: 3%

GAS (units)  
Cl-C4 (PPM)

GAS (units)  
Cl-C4 (PPM)

7,460

7,470

7,480

7,490

7,500

7,510

7,520

7,530

7,540

7,550

7,560

7,570

7,580

7,590

7,600

7,610

7,620

7,630

7,640

7,650

7,660

7,670

252 api

300

143 api

300

136 api

300

dk gy- blk, sb blk- sb ply, sl sft - mod frm,  
sl sily, v calc  
gy -wh occ gysbhn, sb blk- sl frm, mod  
wxy, v calc; tr inoc fos, tr bent; med difse,  
g, bri bishwn cut, bri even ring

MRLST: dk gy- blk sb blk- sb ply, sl sft - mod  
frm, rthy tex, sl sily, v calc; med difse, mod  
string, mod bishwn cut, fair even ring

CHK: lt-med gy, str, sb ply- blk- , brit, sl sft, sb  
rthy-sm tex, v calc, tr bent; MRLST: med-dk gy,  
mot-spec, slt gr, sl frm, sb ply- ply, gt tex, calc;  
fast difse, mod fast string, bri bl cut

CHK: lt-med gy, str, sb ply- blk- , brit, sl sft, sb  
rthy-sm tex, v calc, tr bent, tr MRLST: fast difse,  
mod fast string, bri bl cut

CHK: lt-med gy, str, sb ply-  
rthy-sm tex, v calc, tr bent, l  
mod fast string, bri bl cut

TD Curve Section @ 7528 MD  
7:53hrs MDT 10/11/15

Began drilling lateral @  
08:10 hrs MST 10/23/2015

TVD SCALE CHANGE

MD: 7,478'  
TVD: 6,889.02'  
Inclination: 87.1°  
Azimuth: 270.5°  
VS: 569.26'

MD: 7,515'  
TVD: 6,890.47'  
Inclination: 88.4°  
Azimuth: 269.6°  
VS: 625.52'

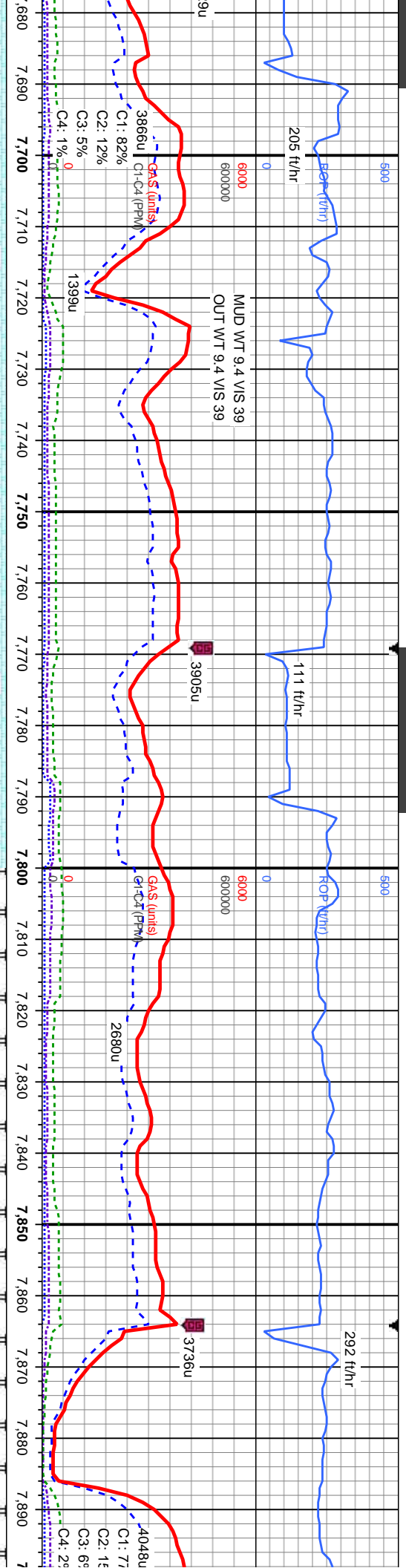
Faulted up into C Chalk  
+15 TVD

Bit Data  
Bit #: 3  
Type: TNZ/SKH1516M-E  
Size: 6.12  
Depth In: 7,528'  
Jets: 3/18, 3/16  
S/N: A211338

MD: 7,611'  
TVD: 6,893.57'  
Inclination: 87.9°  
Azimuth: 268.1°  
VS: 719.99'





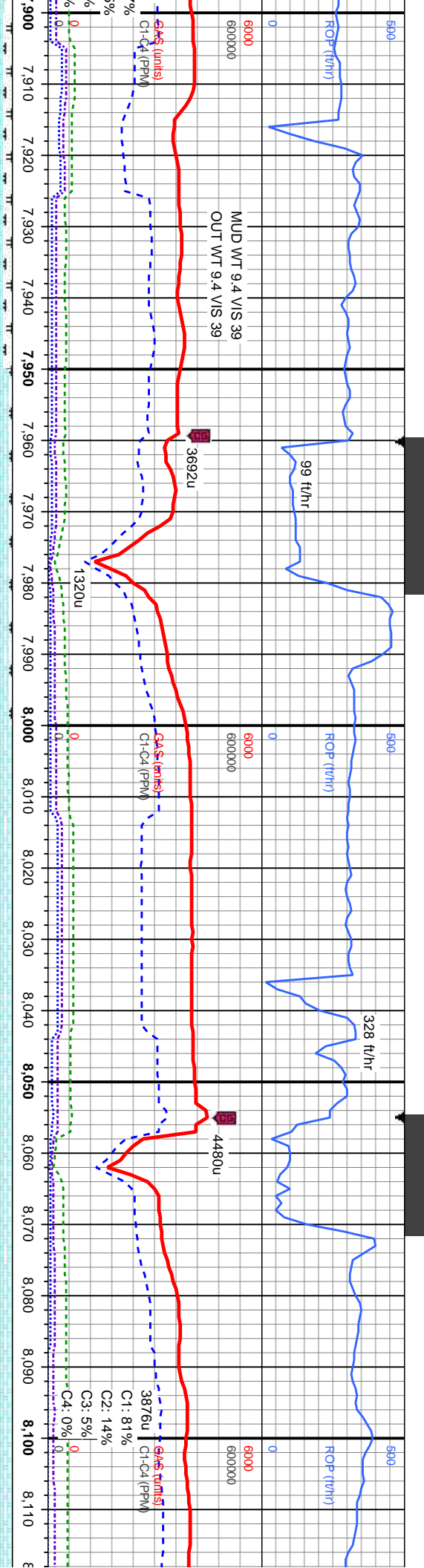


6800	154 api	300	GAUSS (units)	0
6800	161 api	300	GAUSS (units)	0
6800	136 api	300	GAUSS (units)	0

MD: 7,706'	MD: 7,802'	MD: 7,891'
TVD: 6,895.72'	TVD: 6,894.8'	TVD: 6,889.1'
Inclination: 89.5°	Inclination: 91.6°	Inclination: 89.5°
Azimuth: 268.6°	Azimuth: 269.1°	Azimuth: 268.6°
VS: 813.65'	VS: 908.17'	VS: 1,001'

CHK: lt-med gy, str, sb pty-bkly, brit, sl sft, sb rthy-sm tex, v calc, bent, tr MRLST; fast difse, mod fast sting, bri bl cut	CHK: lt-med gy, str, sb pty-bkly, brit, sl sft, sb rthy-sm tex, v calc; MRLST; med-dk gy, slt gr, sb pty-pty, gt tex, calc, difse, mod fast sting, bri bl cut	CHK: lt-med gy, str, sb pty-bkly, brit, sl sft, sb rthy-sm tex, v calc; MRLST; med-dk gy, mot-spec, slt gr, sl frm, sb pty-pty, gt tex, calc, bent, mod difse, mod fast sting, bri bl cut
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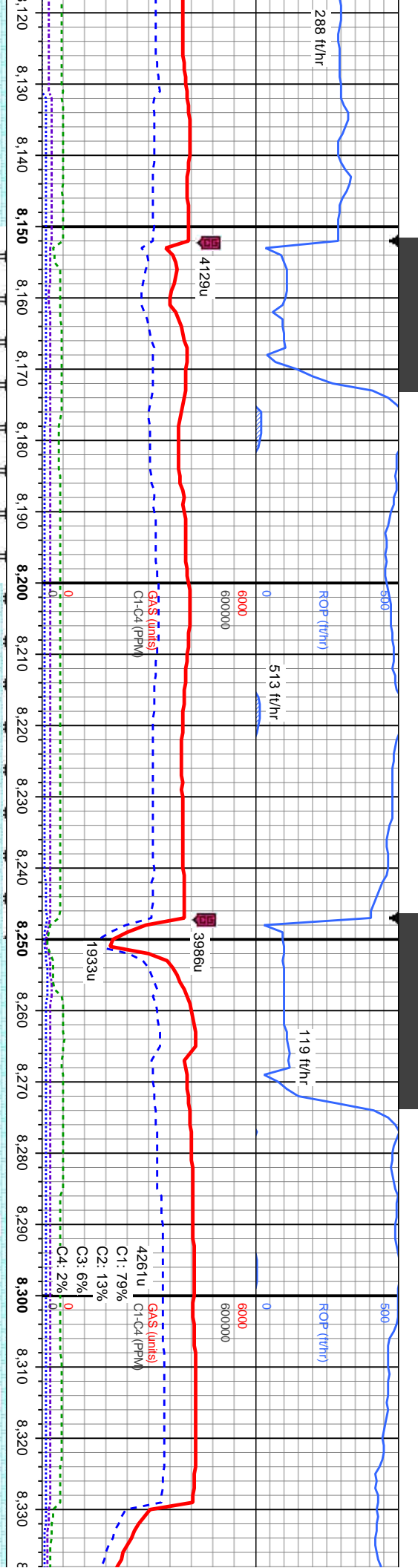




6800	CHK: lt-med gy, str, sb ply-biky, brit, sl sft, sb rthy-sm tex, v calc; MRLST: med-dk gy, mot-spec, sit gf, sl frm, sb ply-ply, gt tex, calc, tr bent; mod difse, mod fast sting, bri bl cut	6800	CHK: lt-med gy, str, sb ply-biky, brit, sl sft, sb rthy-sm tex, v calc; MRLST: med-dk gy, mot-spec, sit gf, sl frm, sb ply-ply, gt tex, calc, tr bent; mod difse, mod fast sting, bri bl cut	6800	CHK: lt-med gy, str, sb ply-biky, brit, sl sft, sb rthy-sm tex, v calc; MRLST: fast difse, mod fast sting, bri bl cut	6800	CHK: lt-med gy, str, sb ply-biky, brit, sl sft, sb rthy-sm tex, v calc; MRLST: fast difse, sting, bri bl cut
145 api		113 api			108 api		
MD: 7.992'		MD: 8.097'			MD: 8.097'		
TVD: 6.889.5'		TVD: 6.886.66'			TVD: 6.886.66'		
Inclination: 92.4°		Inclination: 90.7°			Inclination: 90.7°		
Azimuth: 269.8°		Azimuth: 268.8°			Azimuth: 268.8°		
VS: 1.095.02'		VS: 1.198.23'			VS: 1.198.23'		





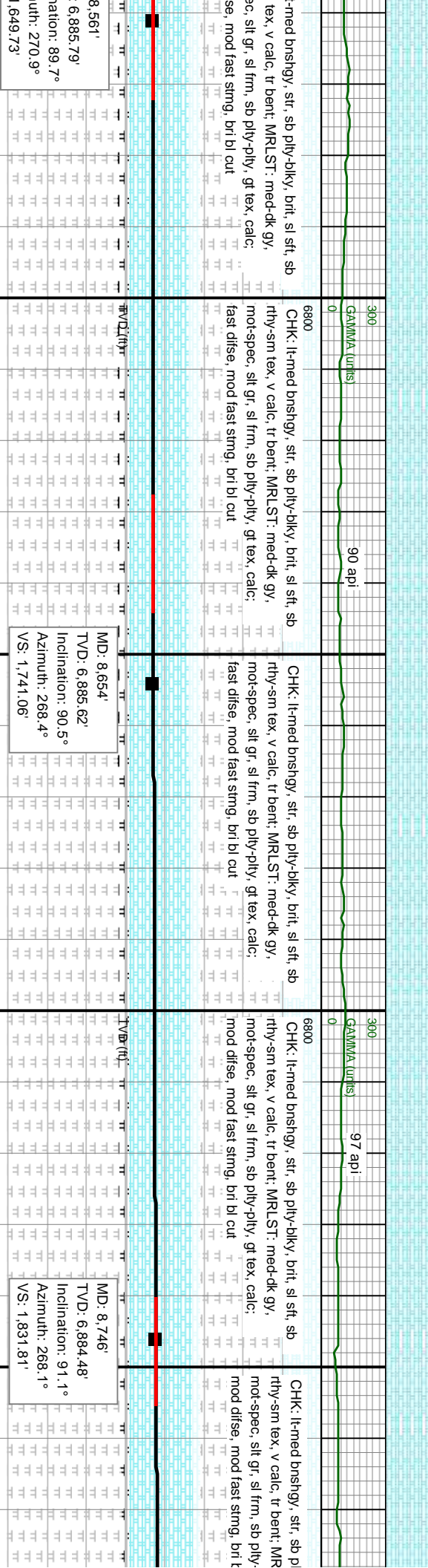


81 api	6800	59 api	6800	55 api
CHK: lt-med gy, str, sb ply-bkly, brt, sl sft, sb rthy-sm tex, v calc, rr bent, tr inoc, MRLST: med-dk gy, mot-spec, slt gr, sl frm, sb ply-pty, gt tex, calc, fast difse, mod fast stmg, brl bl cut	CHK: lt-med gy, str, sb ply-bkly, brt, sl sft, sb rthy-sm tex, v calc, rr bent, tr inoc, MRLST: med-dk gy, mot-spec, slt gr, sl frm, sb ply-pty, gt tex, calc, fast difse, mod fast stmg, brl bl cut	CHK: lt-med gy, str, sb ply-bkly, brt, sl sft, sb rthy-sm tex, v calc, rr bent, tr inoc, tr MRLST: fast difse, mod fast stmg, brl bl cut	CHK: lt-med gy, str, sb ply-bkly, brt, sl sft, sb rthy-sm tex, v calc, rr bent, tr inoc, tr MRLST: fast difse, mod fast stmg, brl bl cut	CHK: lt-med gy, str, sb ply-bkly, brt, sl sft, sb rthy-sm tex, v calc, rr bent, tr inoc, tr MRLST: fast difse, mod fast stmg, brl bl cut
MD: 8.183' TVD: 6,885.38' Inclination: 91° Azimuth: 268.6° VS: 1,282.94'	MD: 8.278' TVD: 6,884.39' Inclination: 90.2° Azimuth: 272.1° VS: 1,376'			

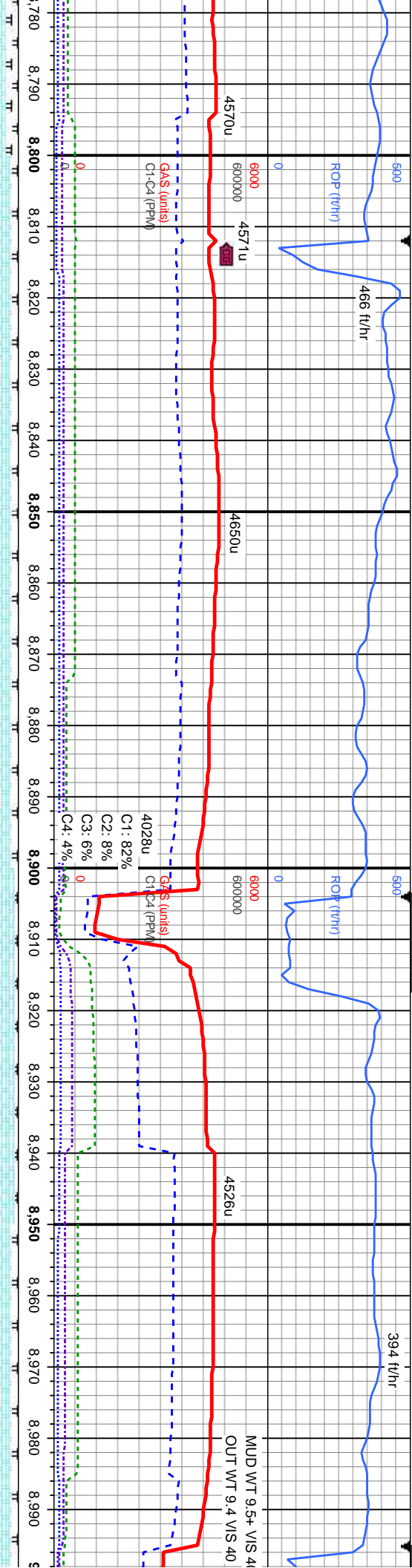






A vertical strip of a textured surface, possibly gravel or crushed stone, showing a mix of dark and light gray tones. The texture is granular and uneven, with small, irregular pieces of material. The colors range from dark charcoal to light gray, with some darker, almost black, fragments interspersed among the lighter ones. The overall appearance is that of a coarse aggregate or crushed rock.

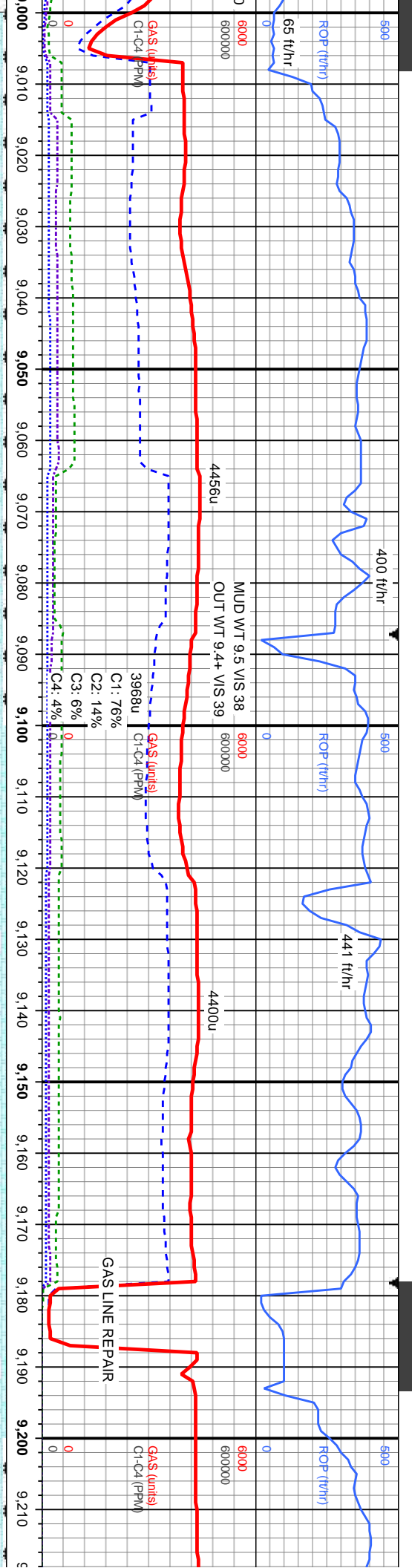




lv-bkly, brlt, sl sft, sb	CHK: lt-med bnsngy, str, sb ply-bkly, brlt, sl sft, sb	CHK: lt-med bnsngy, str, sb ply-bkly, brlt, sl sft, sb	CHK: lt-med bnsngy, str, sb ply-bkly, brlt, sl sft, sb
LST: med-dk gy,	rthy-sm tex, v calc, tr bent; MRLST: med-dk gy,	rthy-sm tex, v calc, tr bent; MRLST: med-dk gy,	rthy-sm tex, v calc, tr bent; MRLST: med-dk gy,
ply, gt tex, calc;	mod-spec, slt gr, sl frm, sb ply-ply, gt tex, calc;	mod-spec, slt gr, sl frm, sb ply-ply, gt tex, calc;	mod-spec, slt gr, sl frm, sb ply-ply, gt tex, calc;
mod difse, mod fast stimg, bri bl cut	mod difse, mod fast stimg, bri bl cut	mod difse, mod fast stimg, bri bl cut	mod difse, mod fast stimg, bri bl cut
TVD (ft)	TVD (ft)	TVD (ft)	TVD (ft)
MD: 8.838'	MD: 8.929'	MD: 8.879.46'	
TVD: 6.882.08'	TVD: 6.879.46'	Inclination: 91.4°	
Inclination: 91.9°	Inclination: 91.4°	Azimuth: 267.7°	
Azimuth: 266.4°	Azimuth: 267.7°	VS: 2.012.31'	
VS: 1.922.53'	VS: 2.012.31'		







300	130 api	6800	300	154 api	6800	300	GAMMA (units)
0	GAMMA (units)	0	0	GAMMA (units)	0	0	GAMMA (units)
CHK: lt-med brnshgy, str, sb pily-biky, brlt, sl sft, sb rthy-sm tex, v calc, tr bent, tr inoc: MRLST: med-dk gy, mot-spec, slt gr, sl frm, sb pily-pily, gt tex, calc, fast difse, mod fast stmg, bri bl cut							
MD: 9.021' TVD: 6.877.69' Inclination: 90.8° Azimuth: 268.1° VS: 2.103.14'							
TVD (ft)	TT	TT	TT	TT	TT	TT	TT
7000							
CHK: lt-med brnshgy, str, sb pily-biky, brlt, sl sft, sb rthy-sm tex, v calc, tr bent, tr inoc: MRLST: med-dk gy, mot-spec, slt gr, sl frm, sb pily-pily, gt tex, calc, fast difse, mod fast stmg, bri bl cut							
MD: 9.113' TVD: 6.876.16' Inclination: 91.1° Azimuth: 267.9° VS: 2.193.94'							
TVD (ft)	TT	TT	TT	TT	TT	TT	TT
7000							
CHK: lt-med brnshgy, ooc lt-brn - dfwmt ip, str, sb pily-biky, brlt, sl sft, sb rthy-sm tex, v calc, tr bent, tr inoc, tr MRLST: fast difse, mod fast stmg, bri bl cut							
MD: 9.205' TVD: 6.874.72' Inclination: 90.7° Azimuth: 268.2° VS: 2.284.74'							
TVD (ft)	TT	TT	TT	TT	TT	TT	TT
7000							
CHK: lt-med brnshgy, ooc lt-brn - dfwmt ip, str, sb pily-biky, brlt, sl sft, sb rthy-sm tex, v calc, tr bent, tr inoc, tr MRLST: fast difse, mod fast stmg, bri bl cut							
CHK: lt-med brnshgy, ooc lt-brn - dfwmt ip, str, sb pily-biky, brlt, sl sft, sb rthy-sm tex, v calc, tr bent, tr inoc, tr MRLST: fast difse, mod fast stmg, bri bl cut							

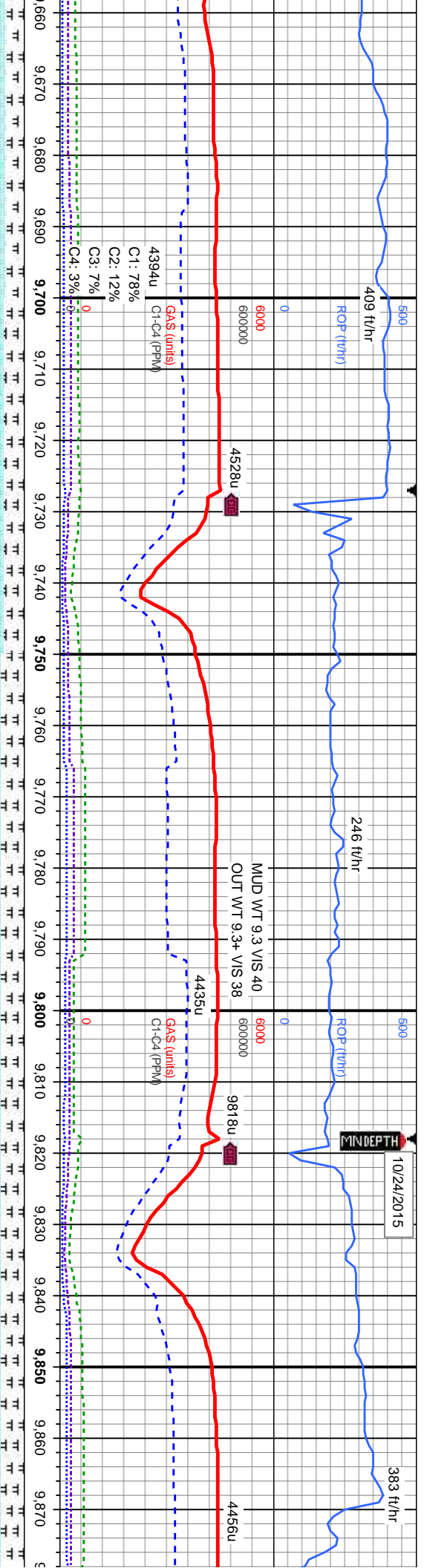








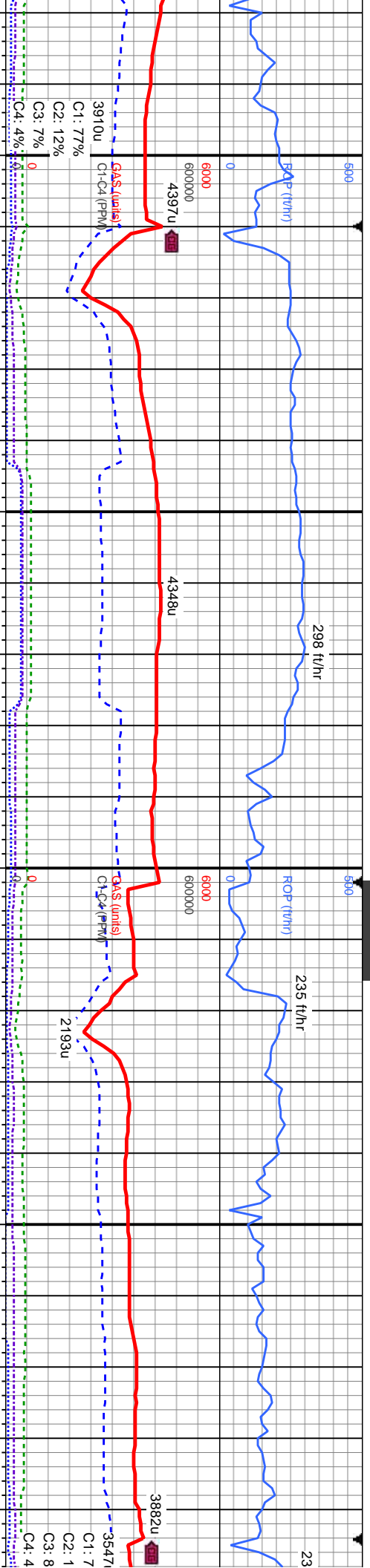
10/24/2015



D: 9.664'		D: 6.870.62'		D: 9.756'		D: 6.870.29'		D: 9.847'	
Inclination: 90.4°		Inclination: 90.4°		Inclination: 90°		Inclination: 90°		Inclination: 90°	
Azimuth: 269.5°		Azimuth: 269.5°		Azimuth: 268.9°		Azimuth: 268.9°		Azimuth: 269.1°	
VS: 2.735.85'		VS: 2.735.85'		VS: 2.826.34'		VS: 2.826.34'		VS: 2.915.91'	
TVD (ft)		TVD (ft)		TVD (ft)		TVD (ft)		TVD (ft)	
CHK: Il-med brnsngy, str, sb ply-biky, brt, sl sft, sb		CHK: Il-med brnsngy, str, sb ply-biky, brt, sl sft, sb		CHK: Il-med brnsngy, str, sb ply-biky, brt, sl sft, sb		CHK: Il-med brnsngy, str, sb ply-biky, brt, sl sft, sb		CHK: Il-med brnsngy, str, sb ply-biky, brt, sl sft, sb	
rthy-sm tex, v calc, tr bent, tr inoc: MRLST:		rthy-sm tex, v calc, tr bent, tr inoc: MRLST:		rthy-sm tex, v calc, tr bent, tr inoc: MRLST:		rthy-sm tex, v calc, tr bent, tr inoc: MRLST:		rthy-sm tex, v calc, tr bent, tr inoc: MRLST:	
med-dk gy, mot-spec, slt gr, sl frm, sb ply-pily, gt		med-dk gy, mot-spec, slt gr, sl frm, sb ply-pily, gt		med-dk gy, mot-spec, slt gr, sl frm, sb ply-pily, gt		med-dk gy, mot-spec, slt gr, sl frm, sb ply-pily, gt		med-dk gy, mot-spec, slt gr, sl frm, sb ply-pily, gt	
tex, calc, mod difse, mod fast string, bri bl cut		tex, calc, mod difse, mod fast string, bri bl cut		tex, calc, mod difse, mod fast string, bri bl cut		tex, calc, mod difse, mod fast string, bri bl cut		tex, calc, mod difse, mod fast string, bri bl cut	







MD: 9,939'  
TVD: 6,871.1'  
Inclination: 89°  
Azimuth: 267.5°  
VS: 3,006.64'

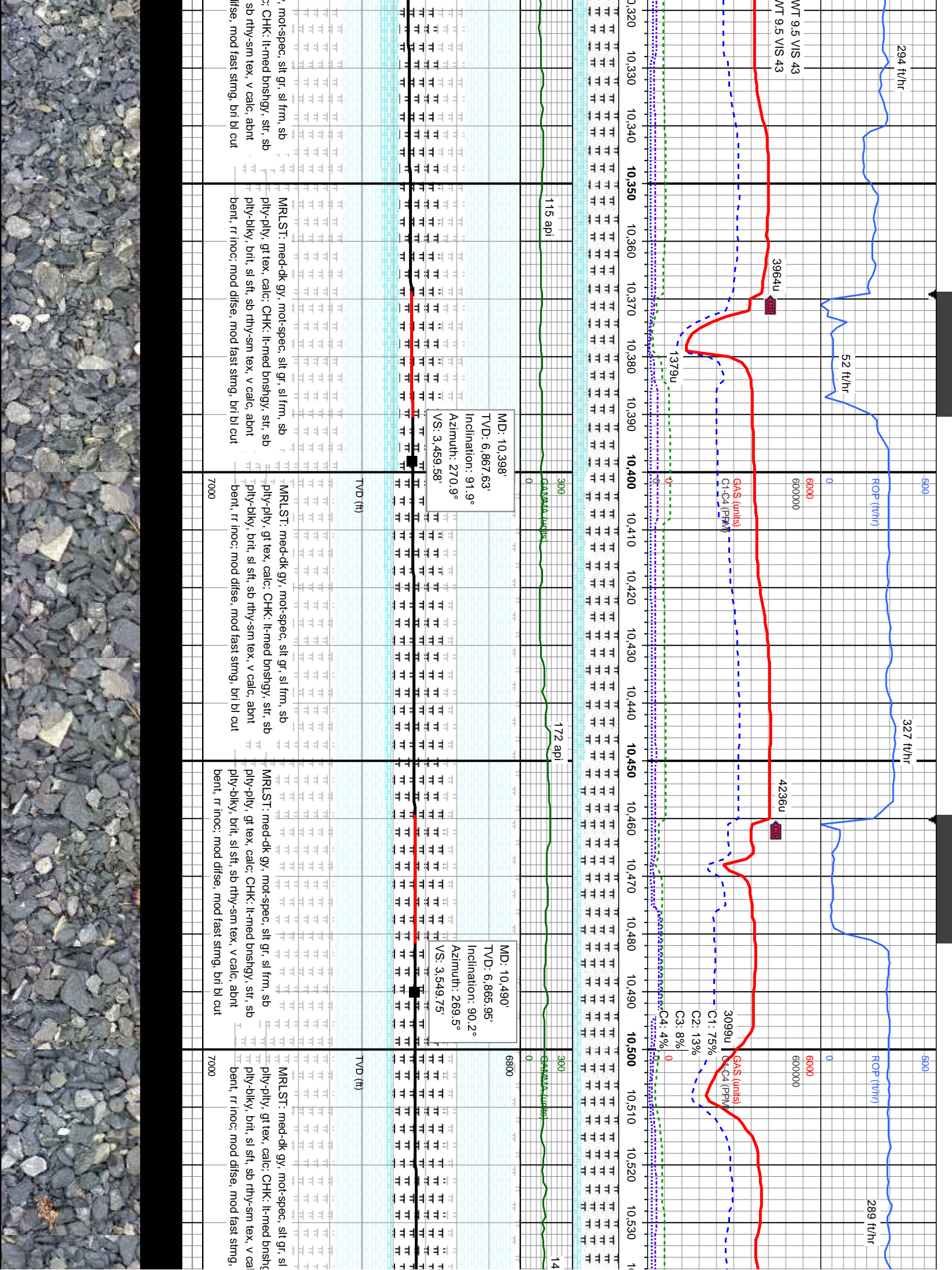
MD: 10,031'  
TVD: 6,871.74'  
Inclination: 90.2°  
Azimuth: 268.2°  
VS: 3,097.49'

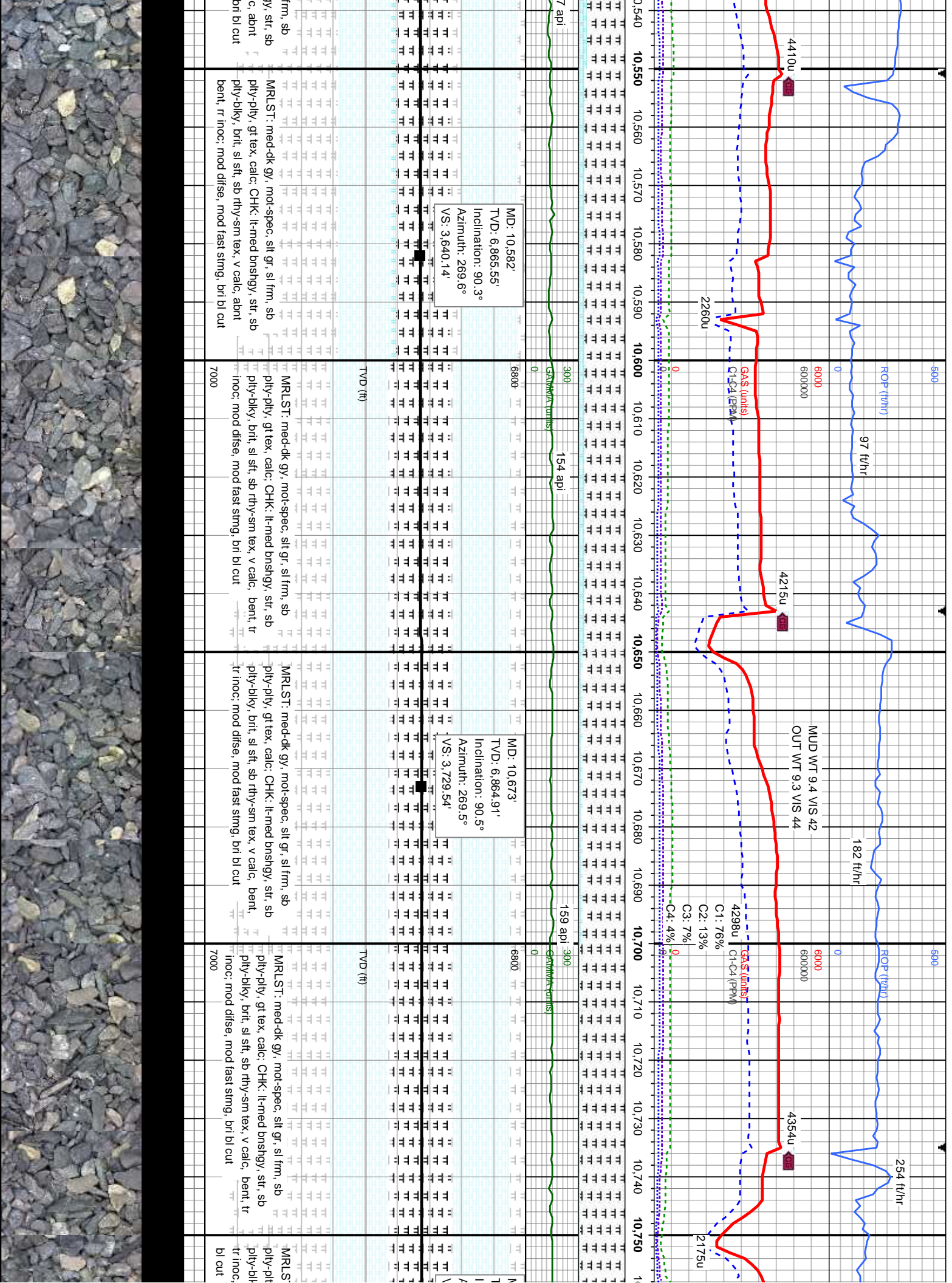
300	140 api	300	150 api
6800	6800	6800	6800
TVD (ft)		TVD (ft)	
MRSLST: med-dk gy, mot-spec, slt gr, sl frm, sb	MRSLST: med-dk gy, mot-spec, slt gr, sl frm, sb	MRSLST: med-dk gy, mot-spec, slt gr, sl frm, sb	MRSLST: med-dk gy, mot-spec, slt gr, sl frm, sb
ply-pty, gt tex, calc: CHK: lt-med brnshgy, str, sb	ply-pty, gt tex, calc: CHK: lt-med brnshgy, str, sb	ply-pty, gt tex, calc: CHK: lt-med brnshgy, str, sb	ply-pty, gt tex, calc: CHK: lt-med brnshgy, str, sb
ply-bkly, brt, sl sft, sb rthy-sm tex, v calc, abnt	ply-bkly, brt, sl sft, sb rthy-sm tex, v calc, abnt	ply-bkly, brt, sl sft, sb rthy-sm tex, v calc, abnt	ply-bkly, brt, sl sft, sb rthy-sm tex, v calc, abnt
bent, tr inoc, mod difse, mod fast stmg, bri bl cut	bent, tr inoc, mod difse, mod fast stmg, bri bl cut	bent, tr inoc, mod difse, mod fast stmg, bri bl cut	bent, tr inoc, mod difse, mod fast stmg, bri bl cut
7000	7000	7000	7000



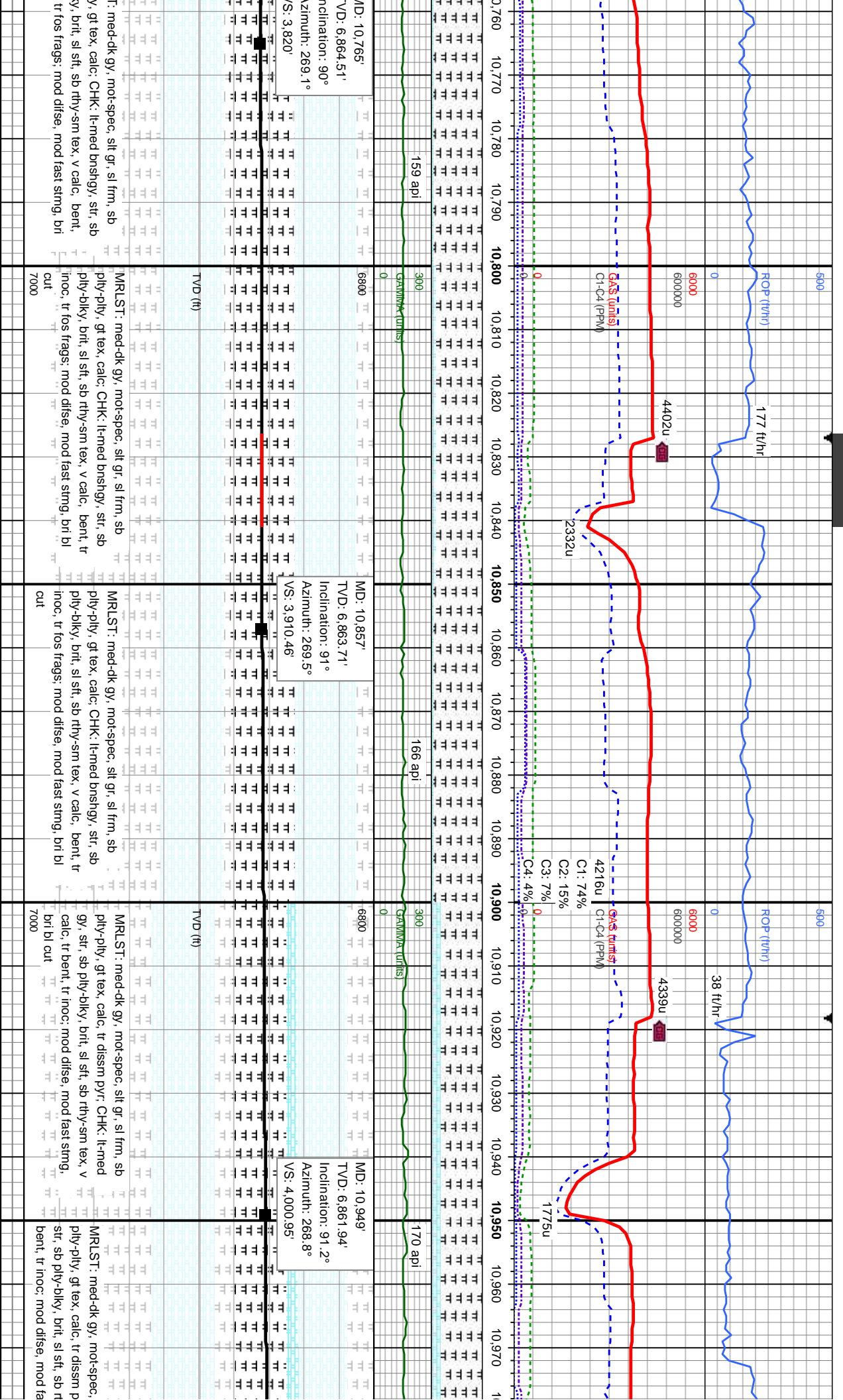


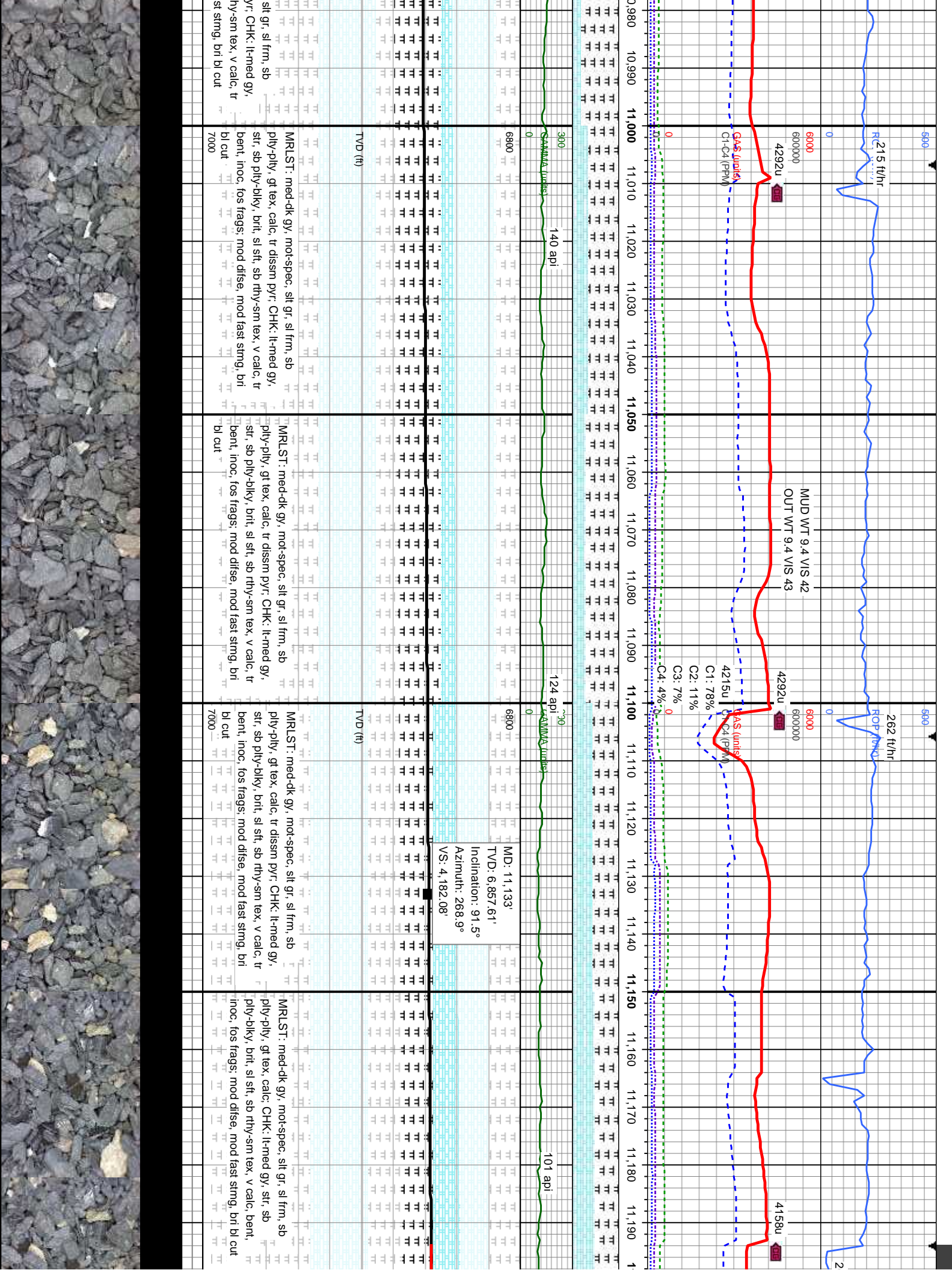




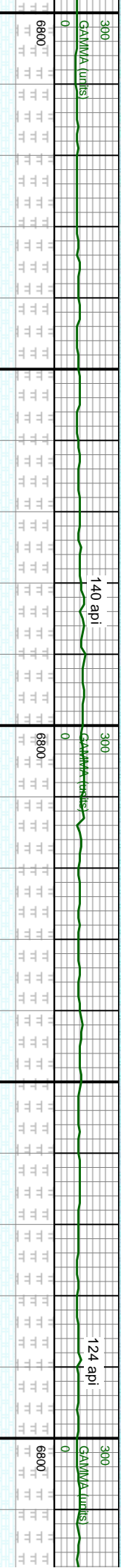
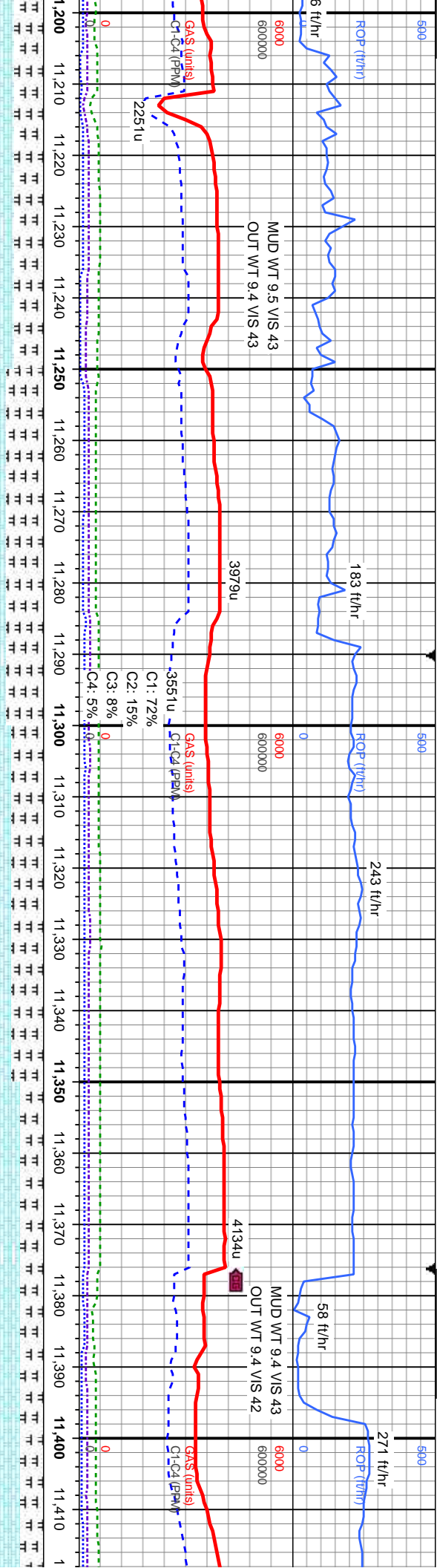










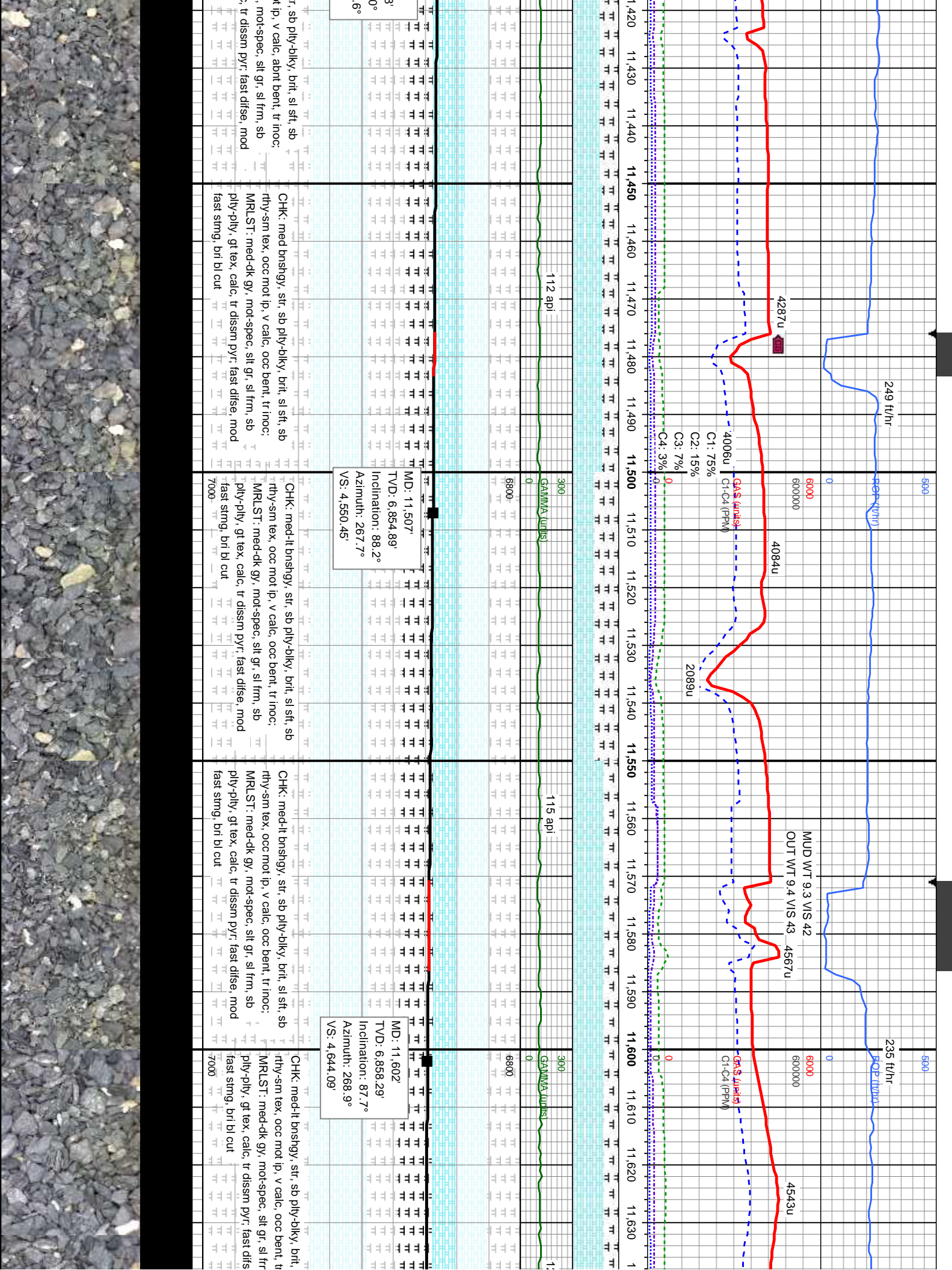


TVD (ft)		TVD (ft)		TVD (ft)		TVD (ft)		TVD (ft)	
MRLST: med-dk gy, mot-spec, slt gr, sl frm, sb		MRLST: med-dk gy, mot-spec, slt gr, sl frm, sb		MRLST: med-dk gy, mot-spec, slt gr, sl frm, sb		MRLST: med-dk gy, mot-spec, slt gr, sl frm, sb		MRLST: med-dk gy, mot-spec, slt gr, sl frm, sb	
ply-ply, gt tex, calc, CHK: lt-med gy, str, sb		ply-ply, gt tex, calc, tr dissn pyr, CHK: lt-med gy,		ply-ply, gt tex, calc, tr dissn pyr, CHK: lt-med gy,		ply-ply, gt tex, calc, tr dissn pyr, CHK: lt-med gy,		ply-ply, gt tex, calc, tr dissn pyr, CHK: lt-med gy,	
ply-biky, brlt, sl sft, sb rthy-sm tex, v calc, bent,		str, sb ply-biky, brlt, sl sft, sb rthy-sm tex, v calc,		str, sb ply-biky, brlt, sl sft, sb rthy-sm tex, v calc,		str, sb ply-biky, brlt, sl sft, sb rthy-sm tex, v calc,		str, sb ply-biky, brlt, sl sft, sb rthy-sm tex, v calc,	
inoc, fos frags, mod difse, mod fast string, bri bl		bent, inoc, fos frags, mod difse, mod fast string, bri		bent, inoc, fos frags, mod difse, mod fast string, bri		bent, inoc, fos frags, mod difse, mod fast string, bri		bent, inoc, fos frags, mod difse, mod fast string, bri	
cut		bl cut		bl cut		bl cut		bl cut	
7000		7000		7000		7000		7000	

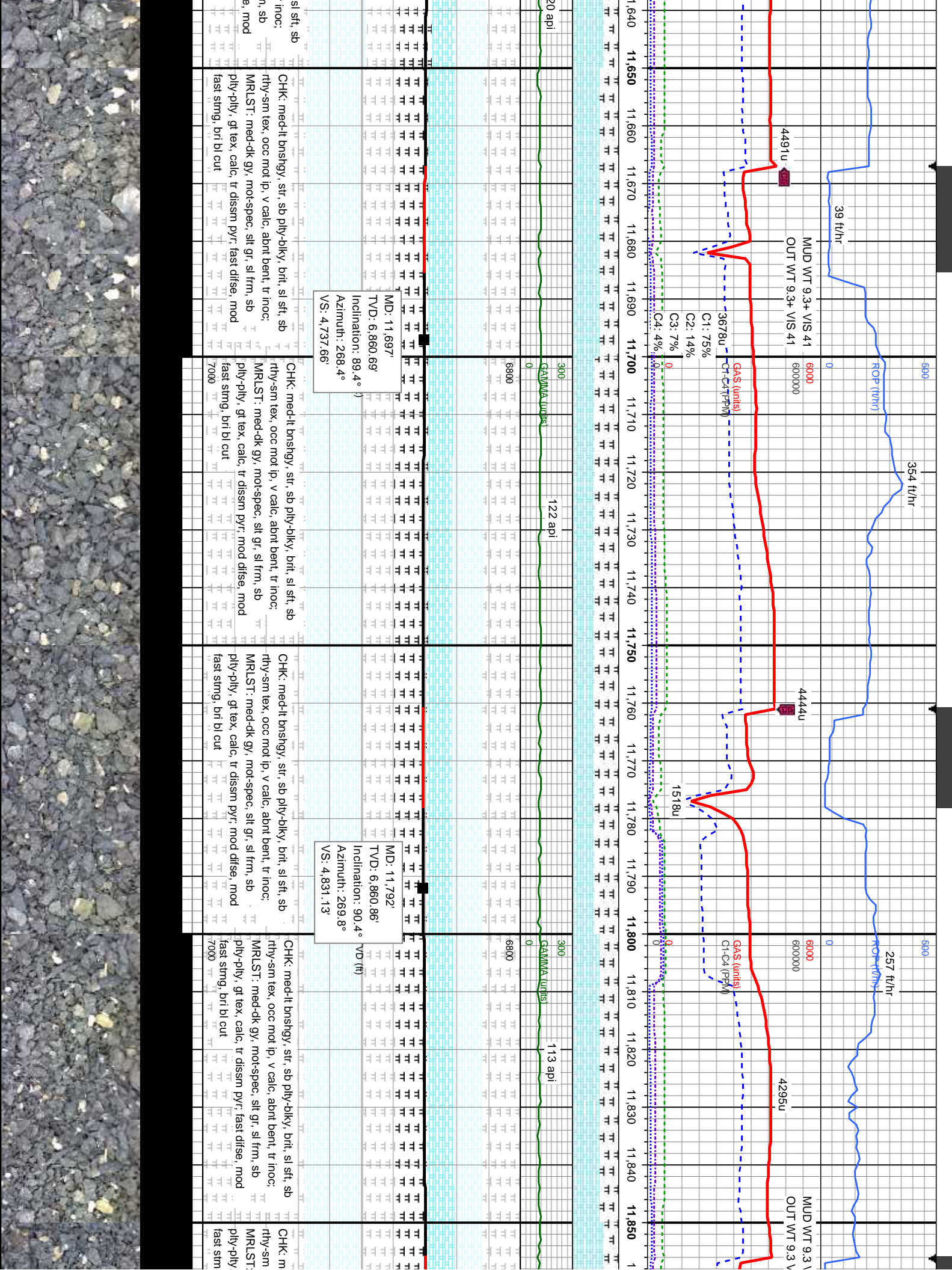
MD: 11,317'  
TVD: 6,853.27'  
Inclination: 91.2°  
Azimuth: 269.1°

MD: 11,412'  
TVD: 6,852.21'  
Inclination: 9  
Azimuth: 268



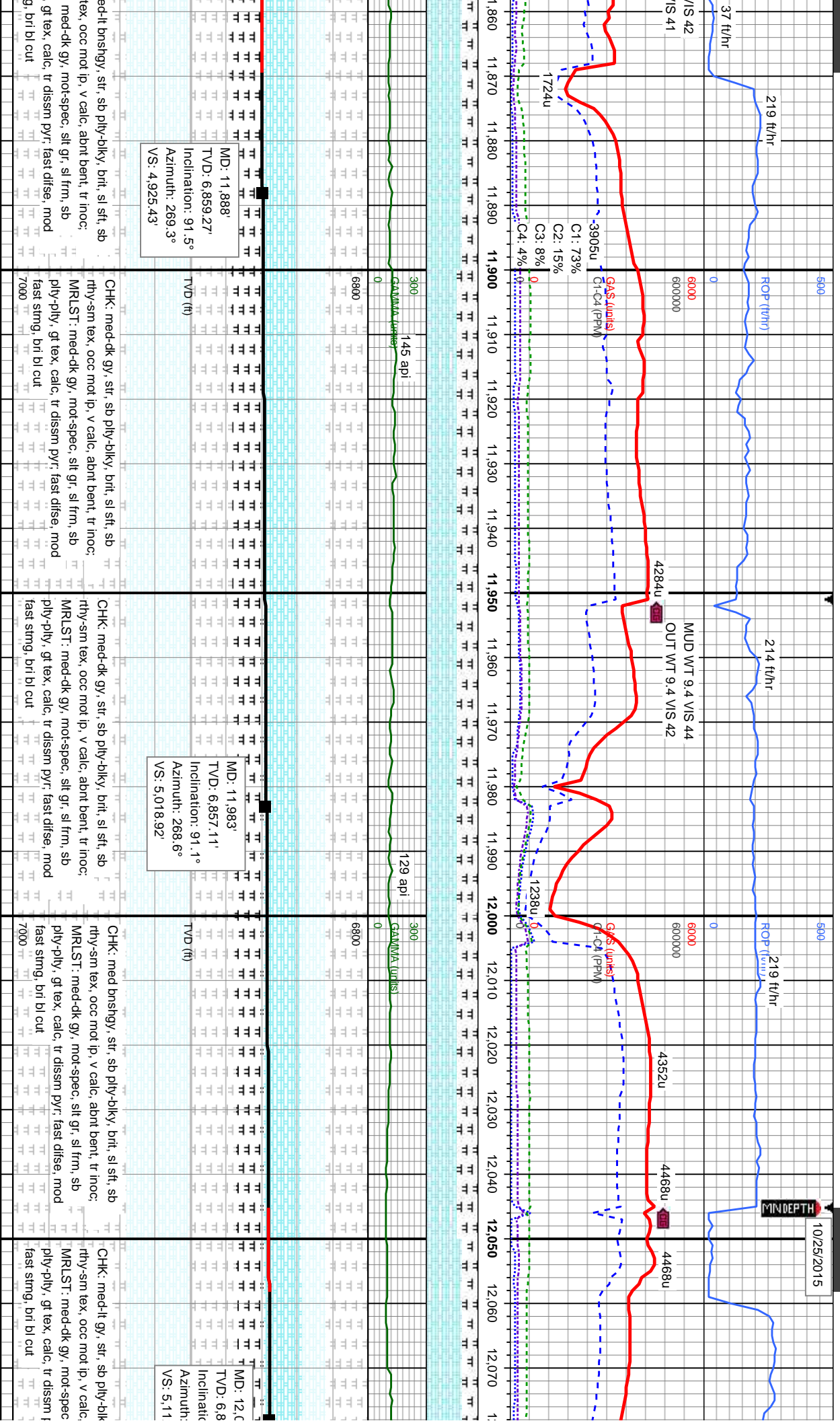






10/25/2015

MINDEPTH



MD: 11,888'  
TVD: 6,859.27'  
Inclination: 91.5°  
Azimuth: 269.3°  
VS: 4.925.43

MD: 11,983'  
TVD: 6,857.11'  
Inclination: 91.1°  
Azimuth: 268.6°  
VS: 5.018.92

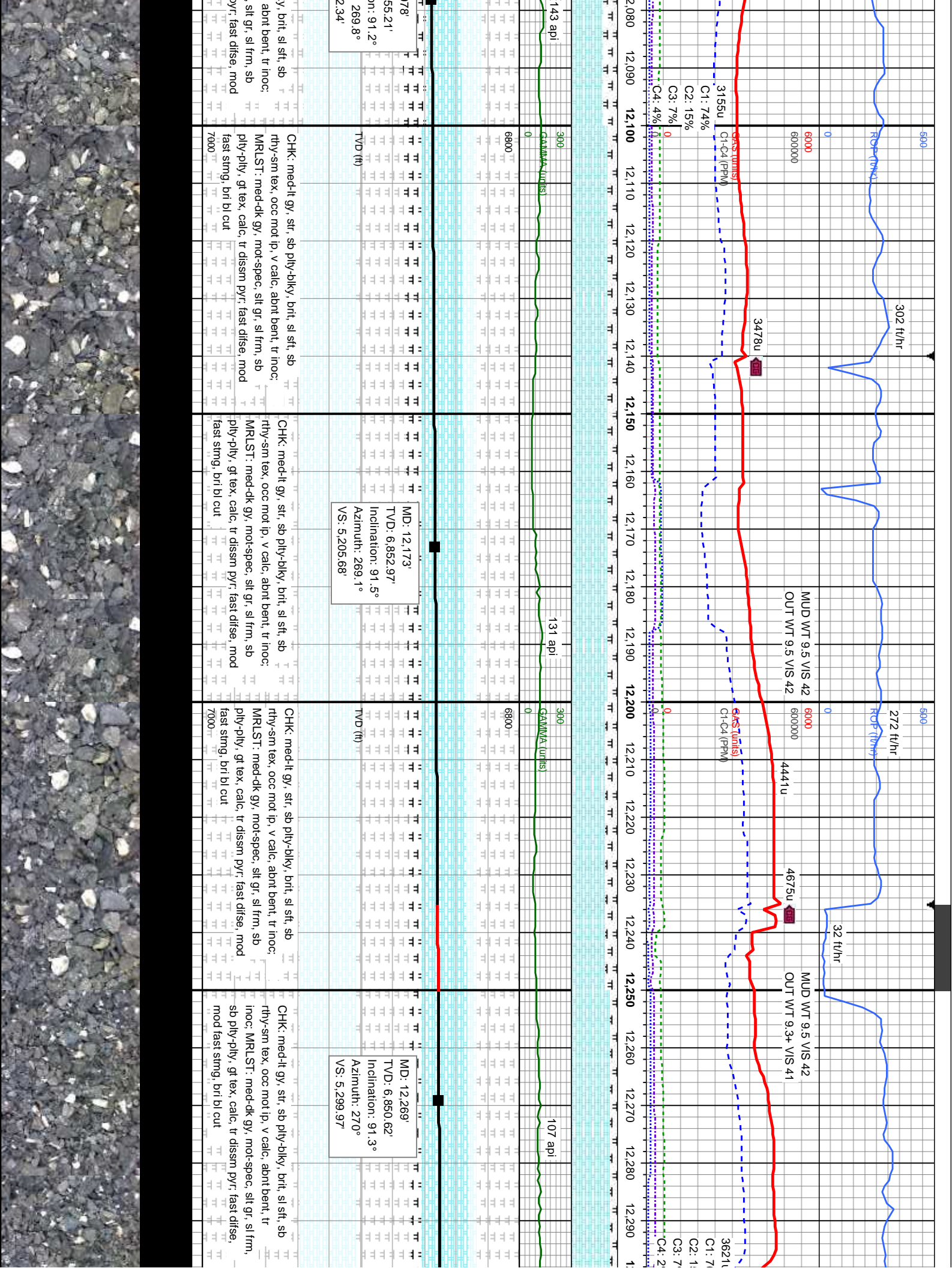
MD: 12.0  
TVD: 6.8  
Inclination:  
Azimuth:  
VS: 5.11

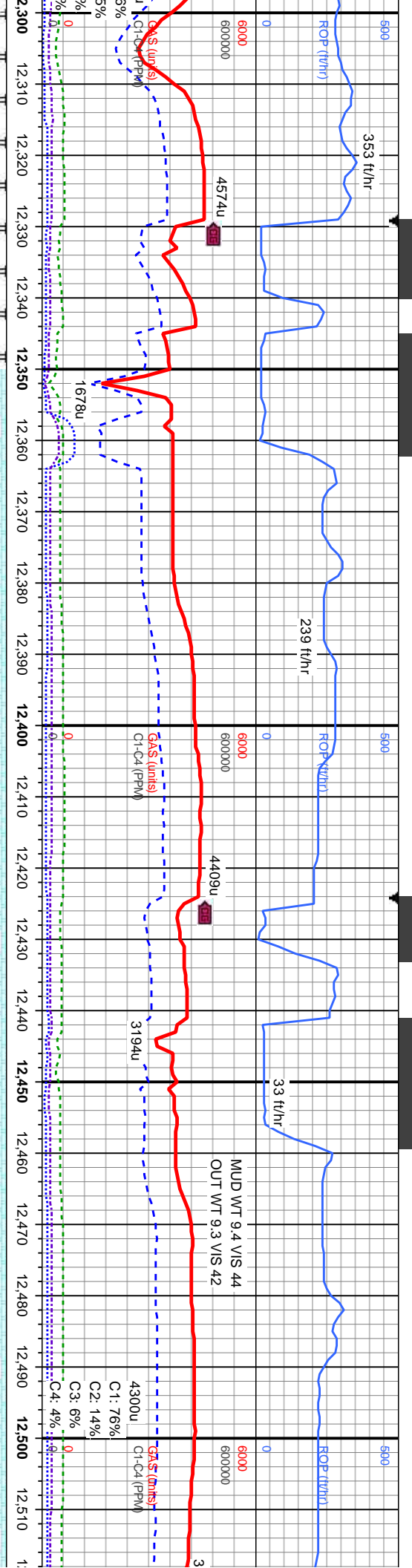
med-lt bnshgy, str, sb ply-blky, brnt, sl sft, sb  
rthy-sm tex, occ mot ip, v calc, abnt bent, tr inoc;  
MR.LST: med-dk gy, mot-spec, slt gr, sl frm, sb  
ply-pty, gt tex, calc, tr dissn pyr; fast difse, mod  
fast smng, bri bl cut

CHK: med-dk gy, str, sb ply-blky, brnt, sl sft, sb  
rthy-sm tex, occ mot ip, v calc, abnt bent, tr inoc;  
MR.LST: med-dk gy, mot-spec, slt gr, sl frm, sb  
ply-pty, gt tex, calc, tr dissn pyr; fast difse, mod  
fast smng, bri bl cut

CHK: med-lt gy, str, sb ply-blk  
rthy-sm tex, occ mot ip, v calc,  
MR.LST: med-dk gy, mot-spec  
ply-pty, gt tex, calc, tr dissn p  
fast smng, bri bl cut





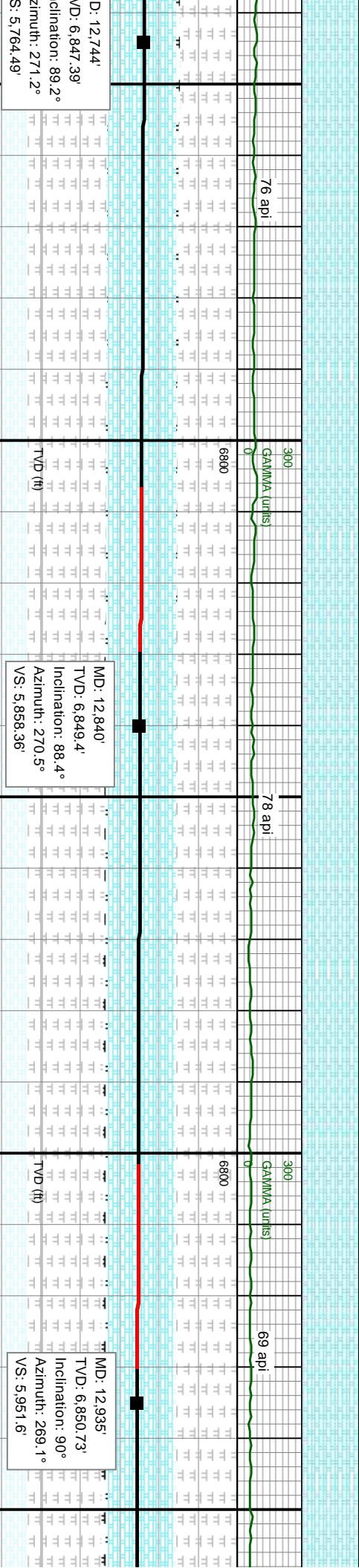
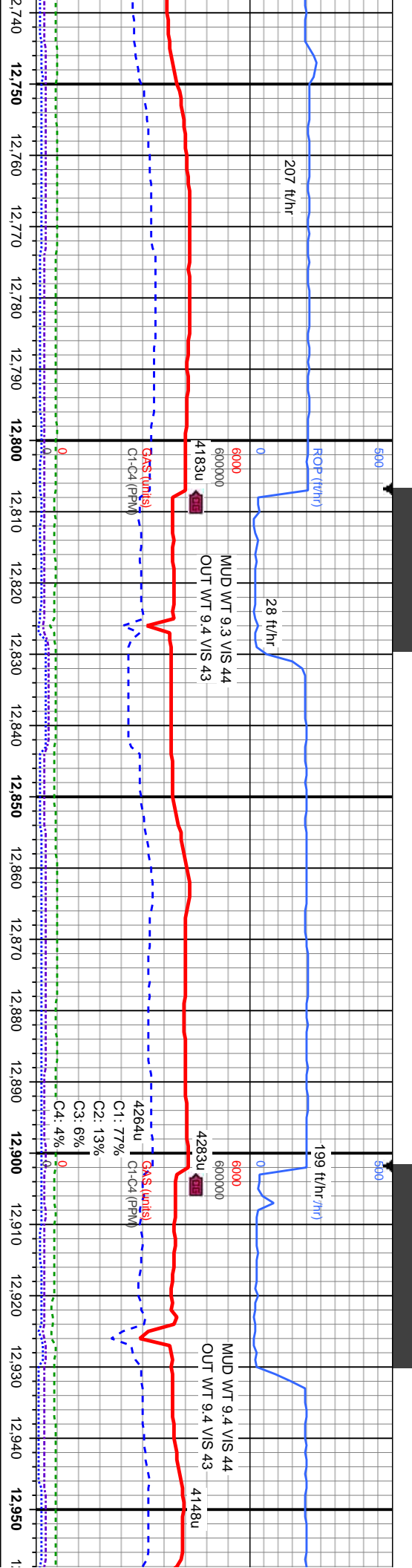


300	6800	300	6800	300	6800
GAMMA (units)	GAMMA (units)	GAMMA (units)	GAMMA (units)	GAMMA (units)	GAMMA (units)
0	0	0	0	0	0
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9
10	10	10	10	10	10
11	11	11	11	11	11
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96	96	96	96	96	96
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99	99	99	99	99	99
100	100	100	100	100	100







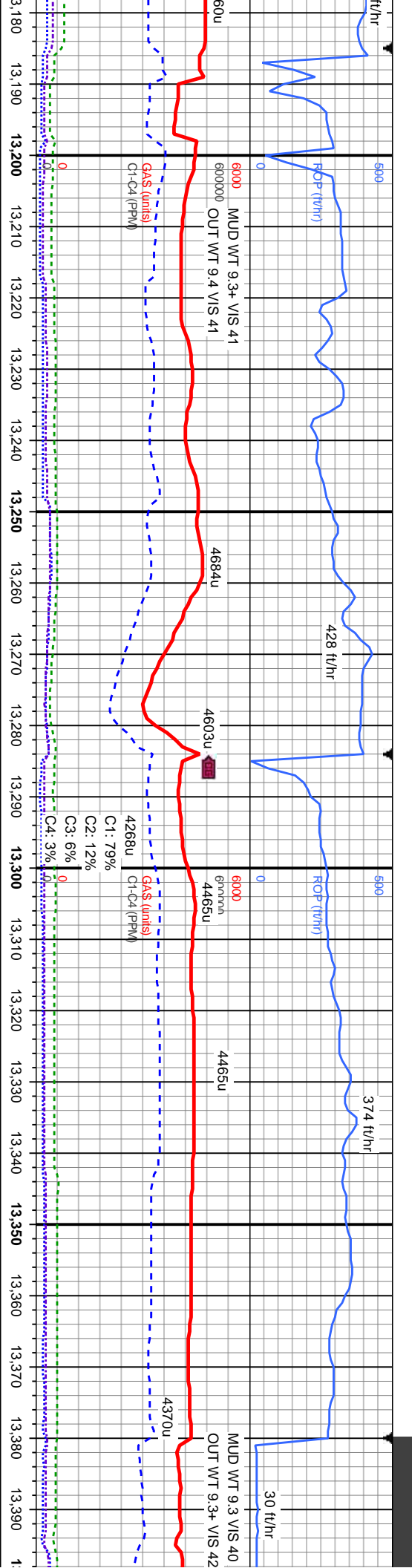


D: 12.744'	MD: 12.840'	MD: 12.935'
VD: 6.847.39'	TVD: 6.849.4'	TVD: 6.850.73'
Inclination: 89.2°	Inclination: 88.4°	Inclination: 90°
Azimuth: 271.2°	Azimuth: 270.5°	Azimuth: 269.1°
S: 5.764.49'	VS: 5.858.36'	VS: 5.951.6'
CHK: It-med gy, crm, str, sb ply-biky, brit, sl sft, sb rthy-sm tex, occ mot ip, v calc, tr bent, abnt inoc, fos frags: fast difse, mod fast string, bri bl cut	CHK: It-med gy, crm, str, sb ply-biky, brit, sl sft, sb rthy-sm tex, occ mot ip, v calc, tr bent, inoc, fos frags: fast difse, mod fast string, bri bl cut	CHK: It-med gy, crm, str, sb ply-biky, brit, sl sft, sb rthy-sm tex, occ mot ip, v calc, tr bent, inoc, fos frags: fast difse, mod fast string, bri bl cut









300	GA/MMA (units)	78 api
6800	GA/MMA (units)	104 api
MD: 13,221'		
TVD: 6,852.47'		
Inclination: 90.1°		
Azimuth: 269.1°		
VS: 6,233.37'		
MD: 13,316'		
TVD: 6,851.23'		
Inclination: 91.4°		
Azimuth: 269.5°		
VS: 6,326.77'		

CHK: med-ht gy, str, sb ply-blky, brit, sl sft, sb rthy-sm tex, occ mot ip, v calc, tr bent, tr inoc;

MR/ST: med-dk gy, mot-spec, slt gr, sl frm, sb ply-ply, gt tex, calc, fast difse, mod fast sting, bri

bl cut

7000

CHK: lt-med gy, crm, str, sb ply-blky, brit, sl sft, sb rthy-sm tex, occ mot ip, v calc, tr bent, inoc, fos frags; fast difse, mod fast sting, bri bl cut

7000

CHK: lt-med gy, crm, str, sb ply-blky, brit, sl sft, sb rthy-sm tex, occ mot ip, v calc, tr bent, inoc, fos frags; fast difse, mod fast sting, bri bl cut

7000

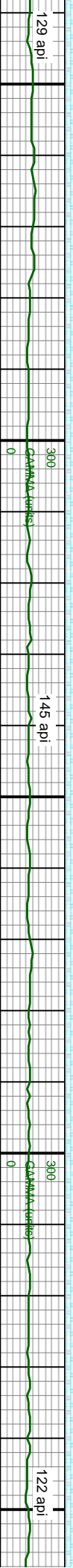
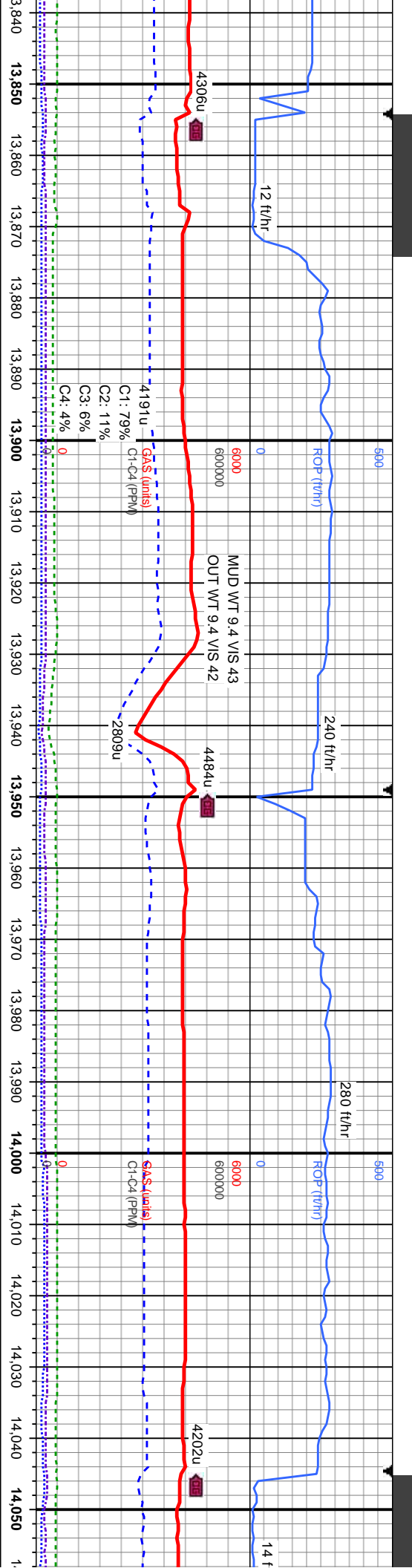












MD: 13.886'  
TVD: 6.852.8'  
Inclination: 89.1°  
Azimuth: 267.7°  
VS: 6.889.36'

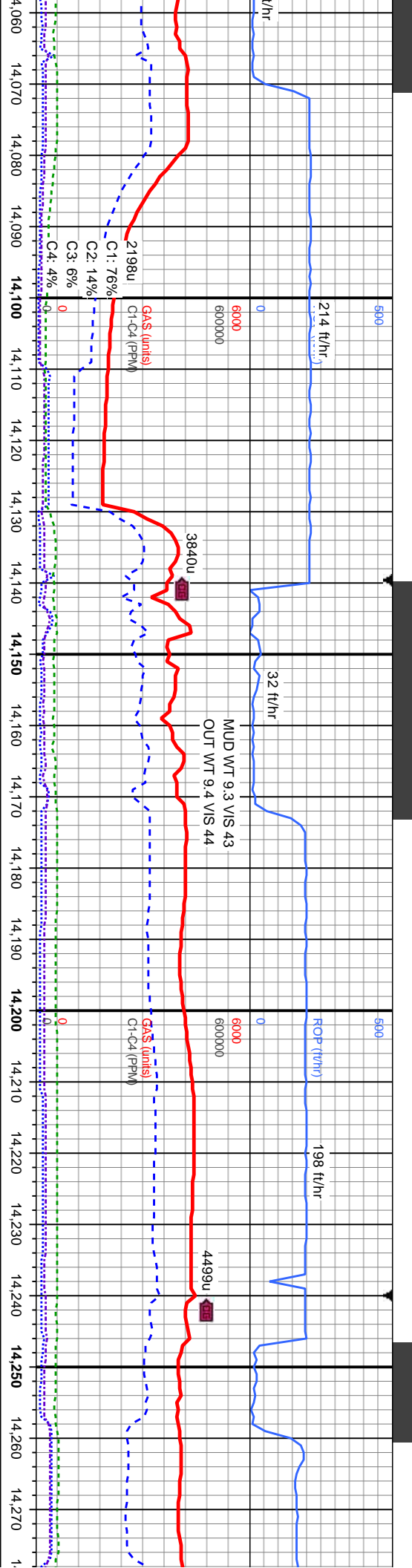
MD: 13.981'  
TVD: 6.853.96'  
Inclination: 89.5°  
Azimuth: 266.5°  
VS: 6.983.36'

sl sft, CHK: lt-med gy, crm, str, sb ply-biky, brit, sl sft, rthv-sm tex, ooc mot ip, v calic, tr bent, inoc, fms frags, tr MRLST; fast difse, mod fast stmg, bri bl cut

sl sft, CHK: lt-med gy, crm, str, sb ply-biky, brit, sl sft, rthv-sm tex, ooc mot ip, v calic, tr bent, inoc, fms frags, tr MRLST; fast difse, mod fast stmg, bri bl cut

sl sft, CHK: lt-med gy, crm, str, sb ply-biky, brit, sl sft, rthv-sm tex, ooc mot ip, v calic, tr bent, inoc, fms frags, tr MRLST; fast difse, mod fast stmg, bri bl cut





MD: 14.076  
TVD: 6,854.62'  
Inclination: 89.7°  
Azimuth: 268.2°  
VS: 7.077.3

MD: 14.171'  
TVD: 6,865.54'  
Inclination: 89.2°  
Azimuth: 268.6°  
VS: 7.170.97

MD: 14.266'  
TVD: 6,855.79'  
Inclination: 90.5°  
Azimuth: 270.2°  
VS: 7.264.35

med gy, crm, str, sb ply-blky, brit, sl sft, rthy-sm tex, occ mot ip, v calc, tr bent, inoc, MRSLST: med-dk gy, mot-spec, slt gr, sl frm, sb ply-ply, gt tex, calc, fast difse, mod fast strng, bri bl cut

CHK: It-med gy, crm, str, sb ply-blky, brit, sl sft, sb rthy-sm tex, occ mot ip, v calc, tr bent, inoc, fos frags, tr MRSLST: fast difse, mod fast strng, bri bl cut

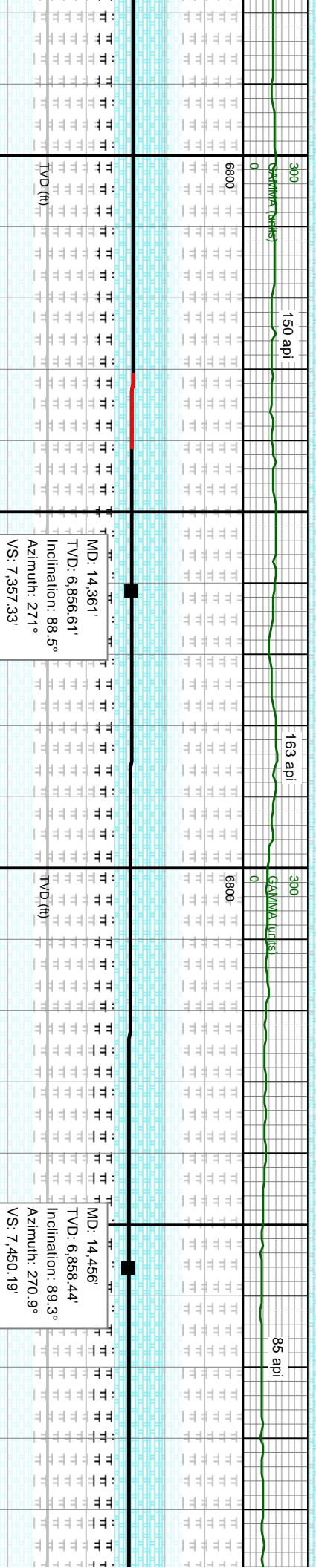
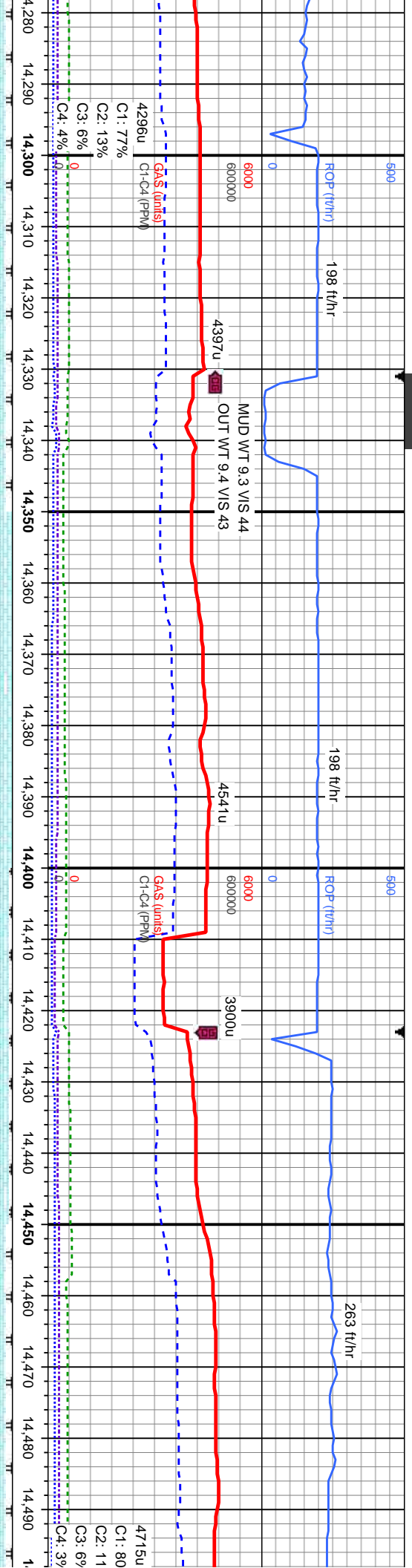
CHK: It-med gy, crm, str, sb ply-blky, brit, sl sft, sb rthy-sm tex, occ mot ip, v calc, tr bent, inoc, fos frags, tr MRSLST: fast difse, mod fast strng, bri bl cut

CHK: med-lt gy, str, sb ply-blky, brit, sl sft, sb rthy-sm tex, occ mot ip, v calc, tr bent, tr inoc, MRSLST: med-dk gy, mot-spec, slt gr, sl frm, sb ply-ply, gt tex, calc, fast difse, mod fast strng, bri bl cut

CHK: med-lt gy, str, sb ply-blk rthy-sm tex, occ mot ip, v calc, MRSLST: med-dk gy, mot-spec, ply-ply, gt tex, calc, fast difse, bl cut

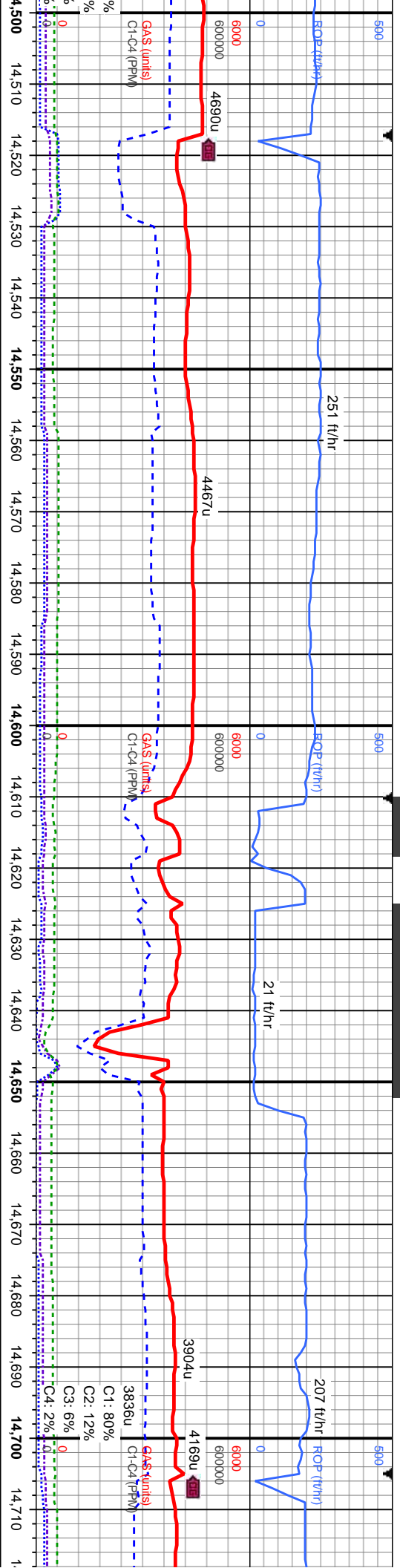






CHK: med-lt gy, str, sb pily-blky, brit, sl sft, sb	CHK: med-lt gy, str, sb pily-blky, brit, sl sft, sb	CHK: med-lt gy, str, sb pily-blky, brit, sl sft, sb
rthy-sm tex, occ mot ip, v calc, tr bent, tr inoc:	rthy-sm tex, occ mot ip, v calc, tr bent, tr inoc:	rthy-sm tex, occ mot ip, v calc, tr bent, tr inoc:
MRST: med-dk gy, mot-spec, slt gr, sl frm, sb	MRST: med-dk gy, mot-spec, slt gr, sl frm, sb	MRST: med-dk gy, mot-spec, slt gr, sl frm, sb
pily-pily, gt tex, calc: fast difse, mod fast string, bri	pily-pily, gt tex, calc: fast difse, mod fast string, bri	pily-pily, gt tex, calc: fast difse, mod fast string, bri
bl cut	bl cut	bl cut
7000	7000	7000





MD: 14,552  
TVD: 6,858.44'  
Inclination: 90.7°  
Azimuth: 271.4°  
VS: 7,543.97'

MD: 14,647  
TVD: 6,858.36'  
Inclination: 89.4°  
Azimuth: 270°  
VS: 7,636.33'

CHK: lt-med gy, crm, str, sb ply-blky, brt, sl sft, sb rthy-sm tex, occ mot ip, v calc, tr bent, inoc, fos frags, tr MRLST, fast difse, mod fast smng, brt bl cut	CHK: lt-med gy, crm, str, sb ply-blky, brt, sl sft, sb rthy-sm tex, occ mot ip, v calc, tr bent, inoc, fos frags, tr MRLST, fast difse, mod fast smng, brt bl cut	CHK: lt-med gy, crm, str, sb ply-blky, brt, sl sft, sb rthy-sm tex, occ mot ip, v calc, tr bent, inoc, fos frags, tr MRLST, fast difse, mod fast smng, brt bl cut
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