

COLUMBINE LOGGING

Scale: 5" / 100'
Measured Depth Log

Well Name Dugite 34N-35HZ

Location SEC.23-T2N-R67W

State COLORADO

Country USA

API Number 05123393280000

Region DJ BASIN

Spud Date 7/11/2014

Surface Coordinates 1020' FSL & 530' FWL

Bottom Hole Coordinates RELATIVE TO WELLHEAD:
10,626.53'S & 495.6' W

Ground Elevation 4994'

K.B. Elevation 5019'

Logged Interval 7300 To 17789'

Total Depth 17789'

Formation NIOBRARA

Type of Drilling Fluid FRESH WATER

County WELD

Rig Number H&P 307

AFE # 2089198

Field WATTENBERG

Drilling Completed 7/19/2014

Operator

Company Anadarko

Address 1099 18th St, Suite 1800
Denver , CO 80202

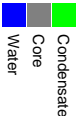
Geologist

Name Jim Frank, Earl Detra

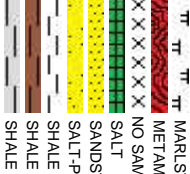
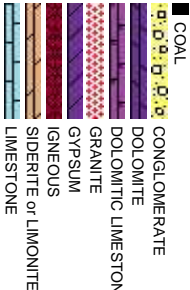
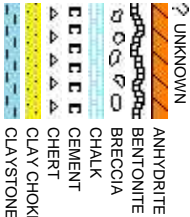
Company COLUMBINE LOGGING INC.

Address 2385 S. Lipan St.
Denver, CO 80223

Zone Color Coding



Rock Types



Accessories

Fossils

Fossils		Minerals		Stringer	
	GASTROPOD		ARGILLITE GRAIN		HEAVY MINERAL
	INOCERAMUS		B BENTONITE		K KAOLIN
	ALGAE		BIT BITUMENOUS SUBSTANCE		M MARCASITE
	AMPHIPORA		BRECCIA FRAGMENTS		TT MARLSTONE
	BELEMNITE		CALCAREOUS		U MICACEOUS
	BIOCLASTIC		CARBONACEOUS FLAKES		M MINERAL CRYSTALS
	BRACHIOPOD		CHERT		N NODULES
	BRYOZOA		COAL - THIN BEDS		P PHOSPHATE PELLETS
	CEPHALOPOD		DOLOMITIC		P PYRITE
	CORAL		FELDSPAR		B SALT CAST
	CRINOID		FERRUGINOUS PELLET		S SANDY
	ECHINOID		FERRUGINOUS		S SIDERITE
	FISH		GLAUCONITE		S SILICEOUS
	FORAMINIFERA		GYPSIFEROUS		U SILTY
	F FOSSIL		T TUFFACEOUS		

Stringer

Other Symbols

Oil Show

	P PINPOINT
	V VUGGY

Engineering

	D DEAD		DST INTERVAL		E EARTHY
	EVEN		FAULT		FX FINELYXLN
	QUESTIONABLE		FORMATION TOP		DS DRILL STEM TEST
	BIT		GAS SHOW		MN DEPTH
			OIL SHOW		L LITHOGRAPHIC
	SPOTTED STAINING		MN DEPTH UP		MX MICROXLN
	CONNECTION (UP)				
			Rounding		
			MN DEPTH (DOWN)		
			ANGULAR		
					PS PACKSTONE

Porosity

	CONNECTION (DOWN)		NORMAL FAULT		R ROUNDED		W WACKESTONE
	E EARTHY		CONNECTION GAS (LEFT)		B SUBANG		
	FENESTRAL		TRIP GAS		O OVERTURNED STRATA		
			REVERSE FAULT		S SUBRND		
	F FRACTURE		TRIP GAS (LEFT)				
			CASING				
	INTERCRYSTALLINE		DOWN TIME GAS				
	INTERGOLITIC		DOWN TIME GAS (LEFT)				
	MOLDIC		CORE - LOST				
	ORGANIC		CORE - RECOVERED				
			SIDEWALL CORE (LEFT)				
			SIDEWALL CORE (RIGHT)				
			SLIDE				
			SURVEY				

Textures

Sorting

	STONE		P POOR
	ORPHIC		M MODERATE
	SHALY SANDSTONE		
	SHALY SILTSTONE		
	SILTY SHALE		
	SILTSTONE		
	TILL		
	TUFF		
	WELDED TUFF		
	GRAY		

Slide/Rotate

ROP
ROF
GAMMA

ROP (min/hr)
GAMMA (app)

COLUMBINE LOGGING 1 MAN
RIGGED UP & LOGGING @
10:45 HRS 7/12/2014

DRLG 8.75" HOLE W/ BIT #2
SMITH SD1611MP
IN @ 1367' MD

Total Gas & Chromatograph

GAS
C1
C3

GAS (units)
C1-C3 (PPM)

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

Depth Labels

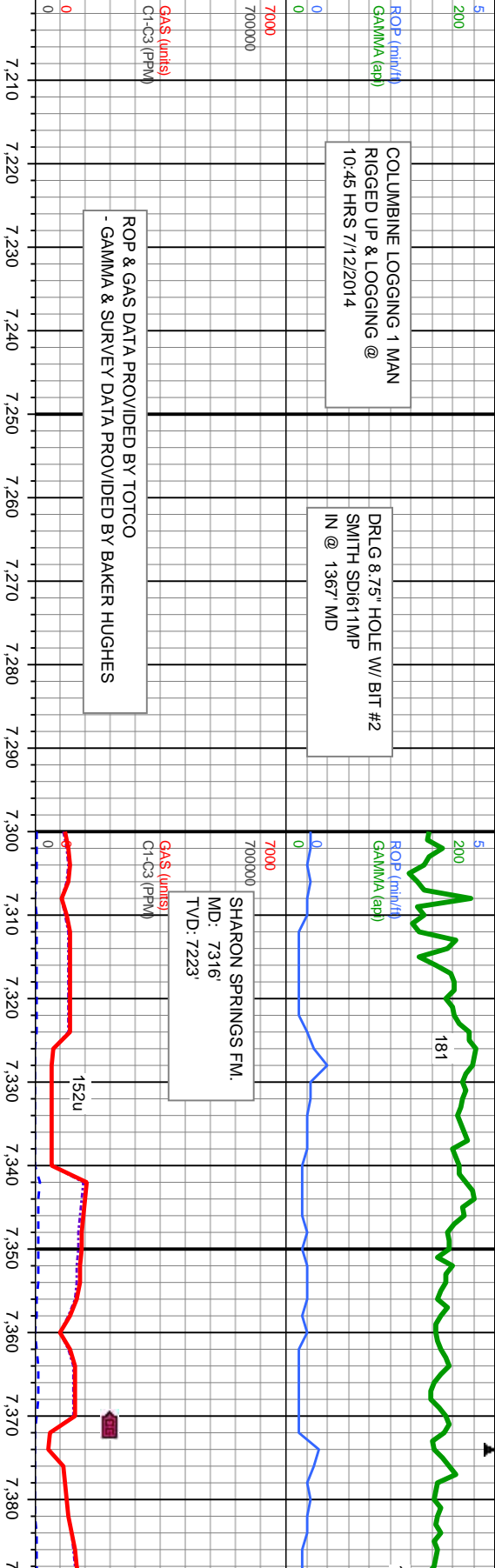
% Lith

Well Bore
TVD

Oil Show

EGMFTS

Images



DRILLING IN
SUSSEX FORM.

KOP = 6777' MD

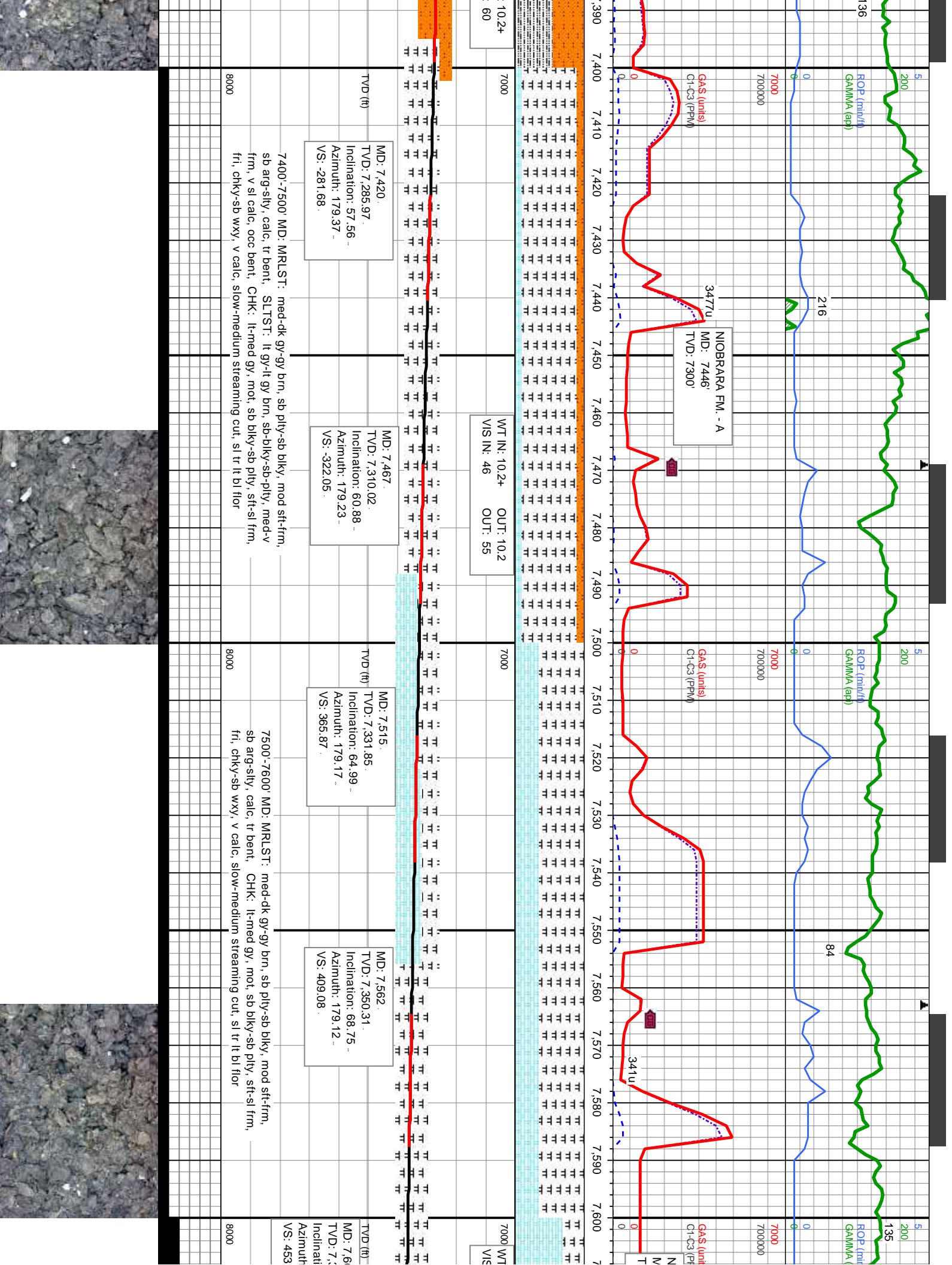
MD: 7,326.
TVD: 7,229.5.
Inclination: 47.59 -
Azimuth: 178.13 -
VS: -206.7

MD: 7,373
TVD: 7,259.36
Inclination: 53.47 -
Azimuth: 178.57 -
VS: -242.96

7300'-7400' MD SLTY SH: lt - m gy-m gy/brn, sft - frm,
sbbkly - sbbply, m-v slty, v sl calc, SLTST: lt gy-lt gy
brn, sb-bkly-sb-pity, med-v frm, v sl calc, occ bent

WT IN: 10.3 OUT:
VIS IN: 46 OUT:



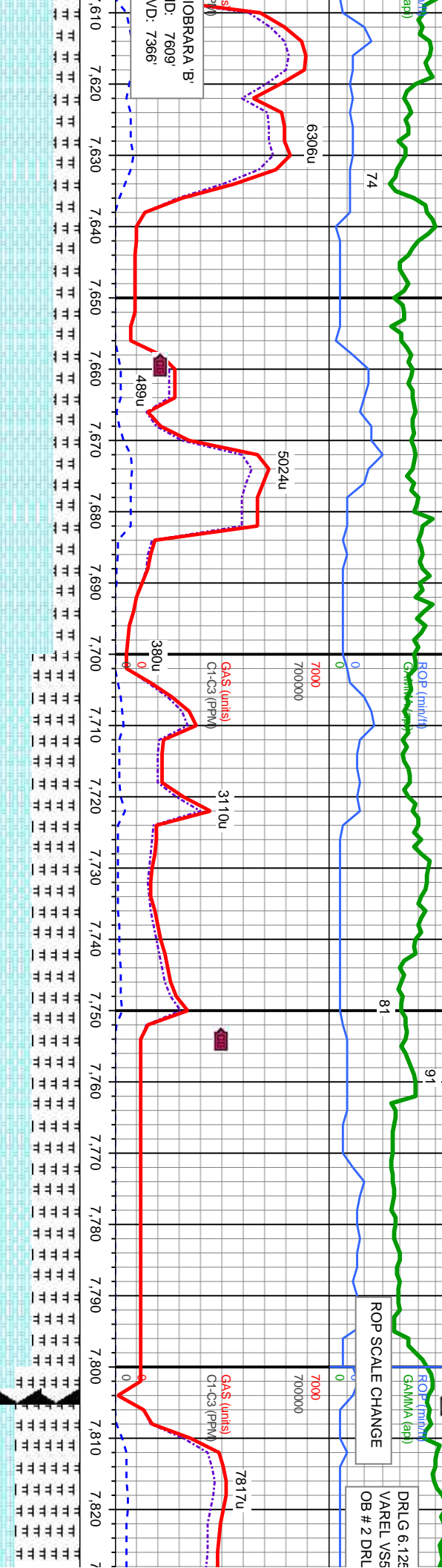


7" CASING SET
@ 7805' MD

7/13+14/14
7805' MD

ROP SCALE CHANGE

DRLG 6.12E
VAREL VS6
OB # 2 DRL



IN: 10.2 OUT: 10.1
IN: 48 OUT: 47

WT IN: 10.2 OUT: 10.0+
VIS IN: 44 OUT: 45

WT IN: 9.4 OUT: 9.4
VIS IN: 40 OUT: 39

MD: 7.656
TVD: 7.377.14
Inclination: 78.39
Azimuth: 180.63
VS: 499.05

MD: 7.704
TVD: 7.385.19
Inclination: 82.3
Azimuth: 181.17
VS: 546.36

MD: 7.756
TVD: 7.390.89
Inclination: 85.12
Azimuth: 181.99
VS: 598.02

MD: 7.828
TVD: 7.394
Inclination
Azimuth: 1
VS: 669.86

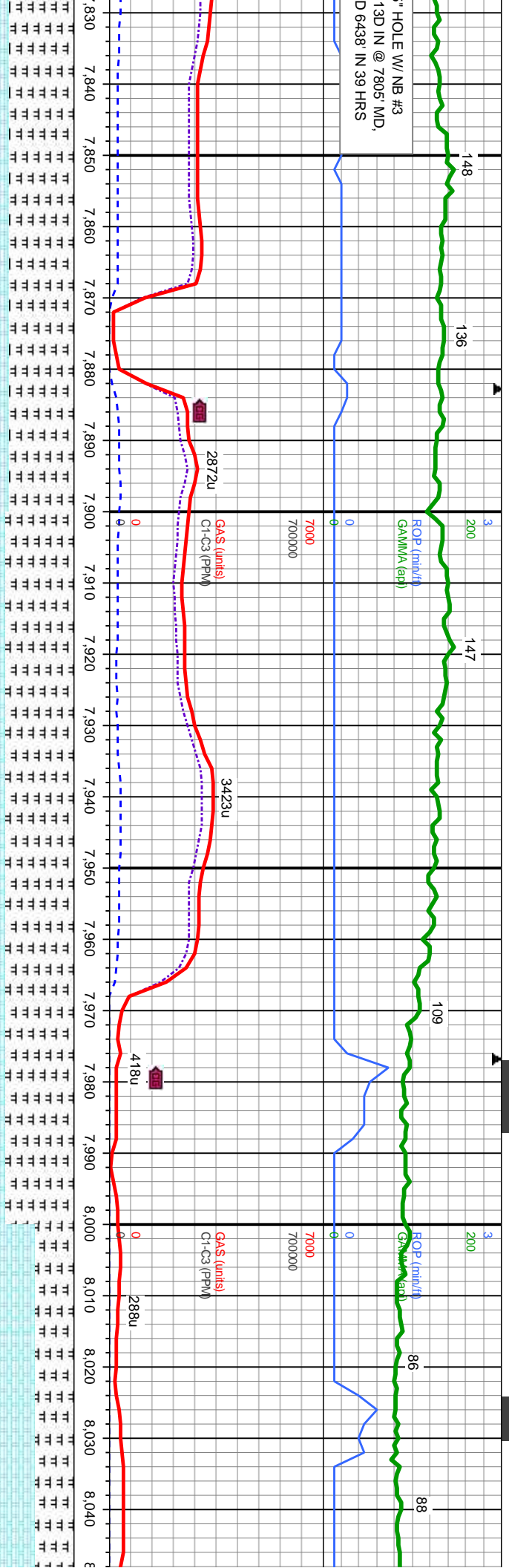
7600'-7700' MD: CHK: lt-med gy, mot, sb blk-y-sb pily, sft-sl frm, fri,
chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, sb pily-sb blk-y, mod
sft-frm, sb arg-sily, calc, tr bent, tr lt bl flwr w/ slw strng mlky cut

7700'-7805' MD: CHK: lt-med gy, mot, sb blk-y-sb pily, sft-sl frm, fri,
chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, sb pily-sb blk-y, mod
sft-frm, sb arg-sily, calc, tr bent, tr lt bl flwr w/ slw strng mlky cut

7805'-7900' MD: C
chky-sb wxy, v calc
sft-frm, sb arg-sily,



1" HOLE W/ NB #3
133D IN @ 7805' MD,
D 6438 IN 39 HRS



MD: 7,922
TVD: 7,396.82
Inclination: 88.15
Azimuth: 182.54
VS: 763.75

WT IN: 9.4
VIS IN: 40
OUT: 39

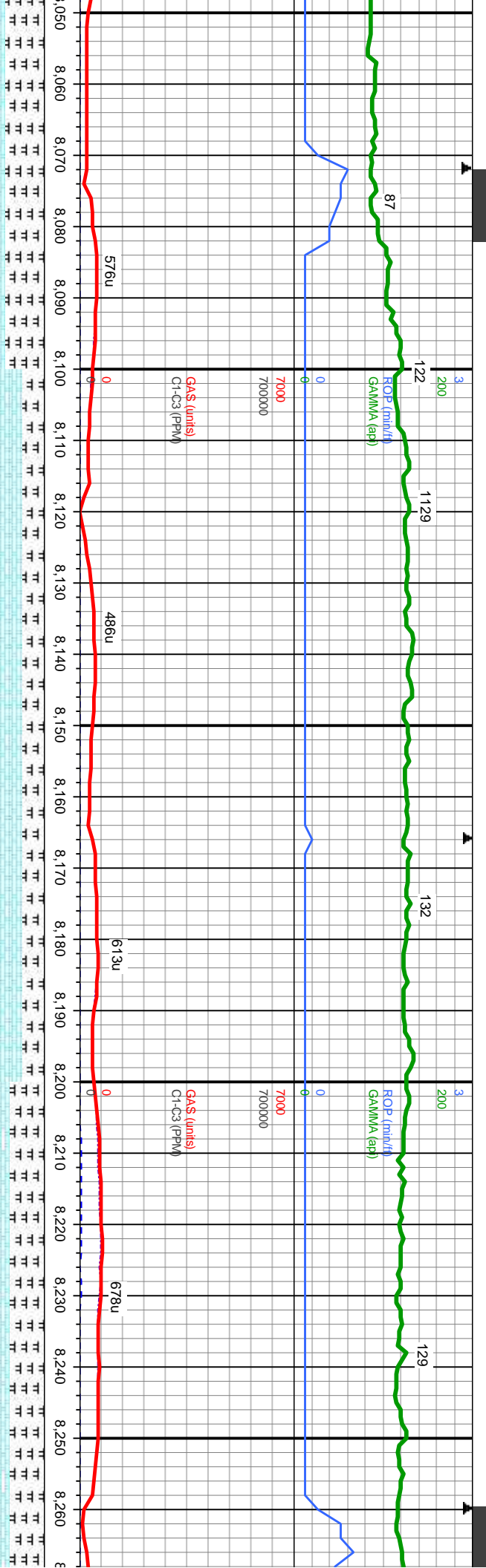
MD: 8,017
TVD: 7,399.4
Inclination: 88.73
Azimuth: 182.16
VS: 858.64

CHK: lt-med gy, mot, sb blk-y-sb ply, sft-sl frm, fri,
MRLST: med-dk gy-gy brn, sb ply-sb blk-y, mod
calc, tr bent, wk lt bl flr w/slow string mlky cut

7900'-8000' MD: CHK: lt-med gy, mot, sb blk-y-sb ply, sft-sl frm, fri,
chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, sb ply-sb blk-y, mod
sft-frm, sb rnd, sb arg-sly, calc, tr bent, wk lt bl flr w/slow string mlky
cut

8000'-8100' MD: CHK: lt-med gy, m
chky-sb wxy, v calc, MRLST: med-c
sft-frm, sb rnd, sb arg-sly, calc, tr b
string mlky cut



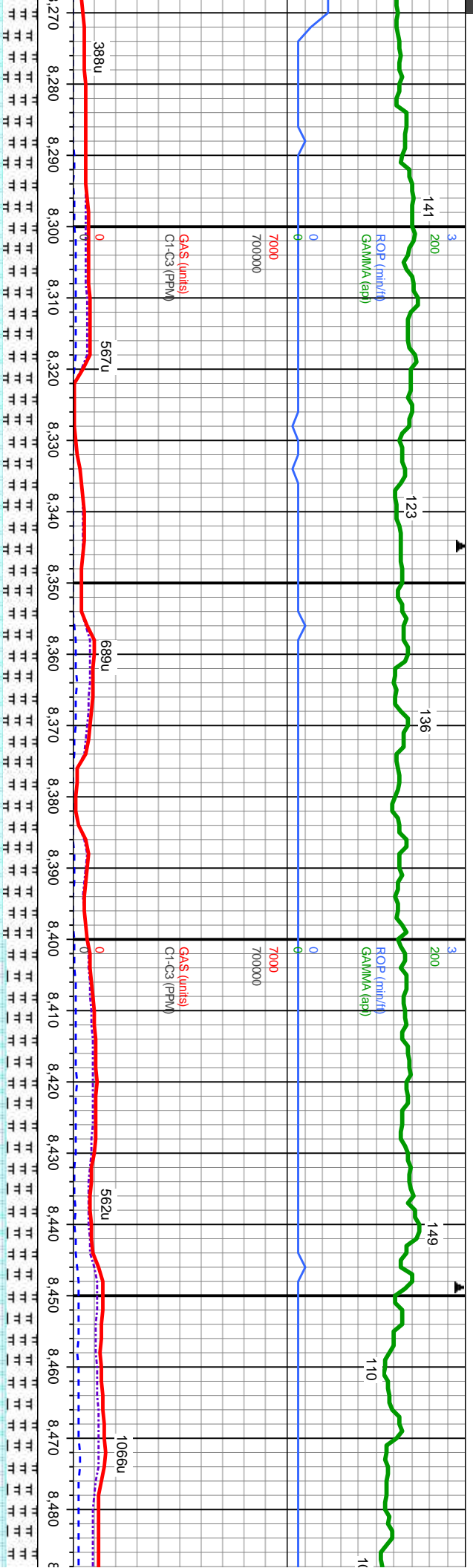


MD: 8,111
TVD: 7,400.15
Inclination: 90.36
Azimuth: 182.37
VS: 952.57

MD: 8,205
TVD: 7,399.93
Inclination: 89.9
Azimuth: 182.04
VS: 1,046.51

8,050-8,100' MD: CHK: lt-med gy, mot, sb blk-y-sb ply, sft-sl frm, fri, k gy-brn, sb ply-sb blk-y, mod ent; tr cal vn; med lt bl flr w/mod	8,100-8,200' MD: CHK: lt-med gy, mot, sb blk-y-sb ply, sft-sl frm, fri, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, sb ply-sb blk-y, mod sft-frm, sb md, sb arg-sily, calc, tr bent; tr cal vn; med lt bl flr w/mod	8,200-8,300' MD: CHK: lt-med gy, mot, sb blk-y-sb ply, sft-sl frm, fri, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, sb ply-sb blk-y, mod sft-frm, sb md, sb arg-sily, calc, tr bent; tr cal vn; wk lt lt
8000	8000	8000





MD: 8,300
TVD: 7,399.13
Inclination: 91.07
Azimuth: 182.51
VS: 1,141.44

WT IN: 9.4
VIS IN: 40
OUT: 9.4
OUT: 39

MD: 8,488
TVD: 7,396
Inclination:
Azimuth: 1
VS: 1,329

8300'-8400' MD: CHK: lt-med gy, mot, sb blk-y-sb pily, sft-sl frm, mod rmd, fri, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, sb pily-sb blk-y, mod sft-frm, sb rmd, sb arg-sily, calc, tr bent, tr cal vn; wk lt bl flr w/slow sting mlky cut	8000	TVD (ft)
8400'-8500' MD: CHK: lt-med gy, mot, sb blk-y-sb pily, sft-sl frm, mod rmd, fri, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, sb pily-sb blk-y, mod sft-frm, sb rmd, sb arg-sily, calc, tr bent, tr cal vn; wk lt bl flr w/mod sting mlky cut	8000	TVD (ft)



7/15/14
8546 MD

3
200

3

3
200

110

ROP (min/hr)

GAMMA (api)

82

81

91

89

ROP (min/hr)

GAMMA (api)

7000

7000

7000

7000

7000

7000

GAS (units)
Cl-C3 (PPM)

GAS (units)
Cl-C3 (PPM)

GAS (units)
Cl-C3 (PPM)

1162u

1188u

1074u

813u

949u

490

8,500

8,510

8,520

8,530

8,540

8,550

8,560

8,570

8,580

8,590

8,600

8,610

8,620

8,630

8,640

8,650

8,660

8,670

8,680

8,690

8,700

8,710

8,720

8,730

7000

WT IN: 9.4
VIS IN: 41

OUT: 9.4
39

7000

7000

MD: 8,583
TVD: 7,394.84
Inclination: 89.96
Azimuth: 180.98
VS: 1,424.21

MD: 8,677
TVD: 7,394.63
Inclination: 90.3
Azimuth: 180.27
VS: 1,518.21

67
91.04
82.41
25

TVD (ft)

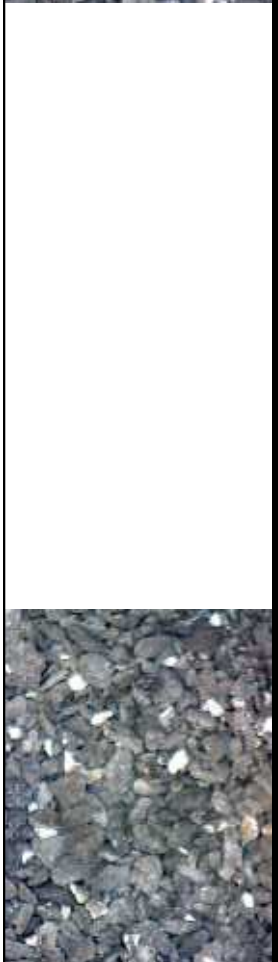
TVD (ft)

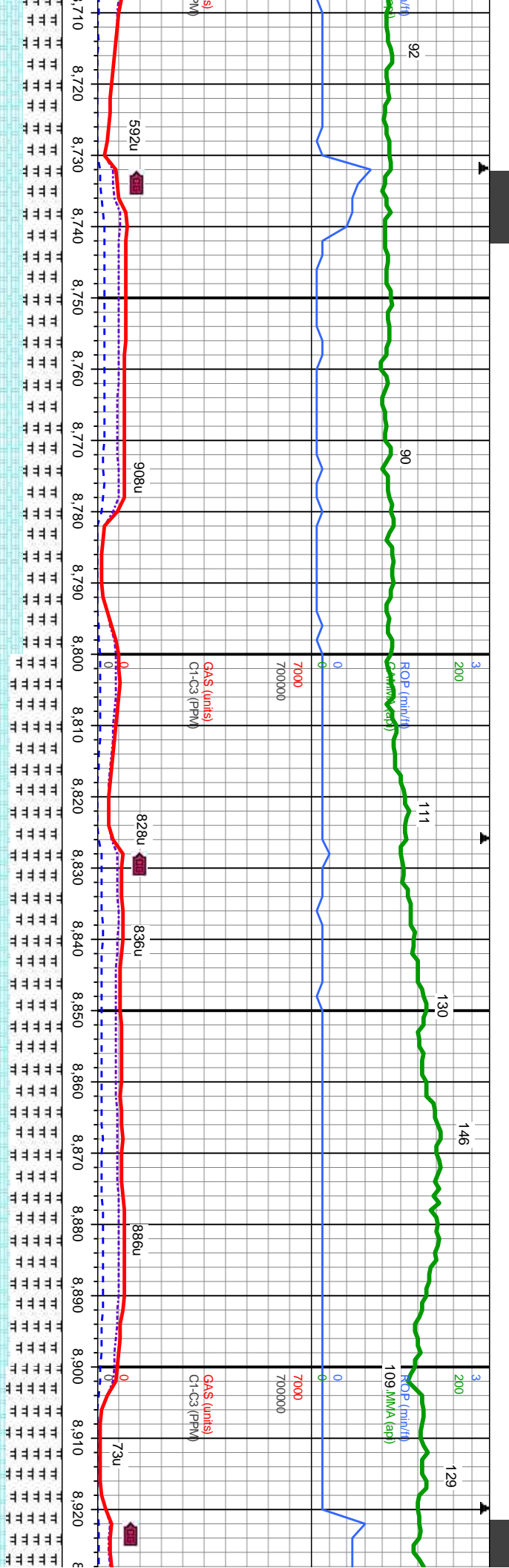
TVD (ft)

8500'-8600' MD: CHK: lt-med gy, mot, sb blk-y-sb pily, sft-sl frm, mod
rnd, fri, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, sb pily-sb blk-y,
mod sft-frm, sb rnd, sb arg-sily, calc, tr bent, mod lt bl flwr w/mod sting
mlky cut

8600'-8700' MD: CHK: lt-med gy, mot, sb blk-y-sb pily, sft-sl frm, mod
rnd, fri, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, sb pily-sb blk-y,
mod sft-frm, sb rnd, sb arg-sily, calc, tr bent, mod lt bl flwr w/mod sting
mlky cut

8000





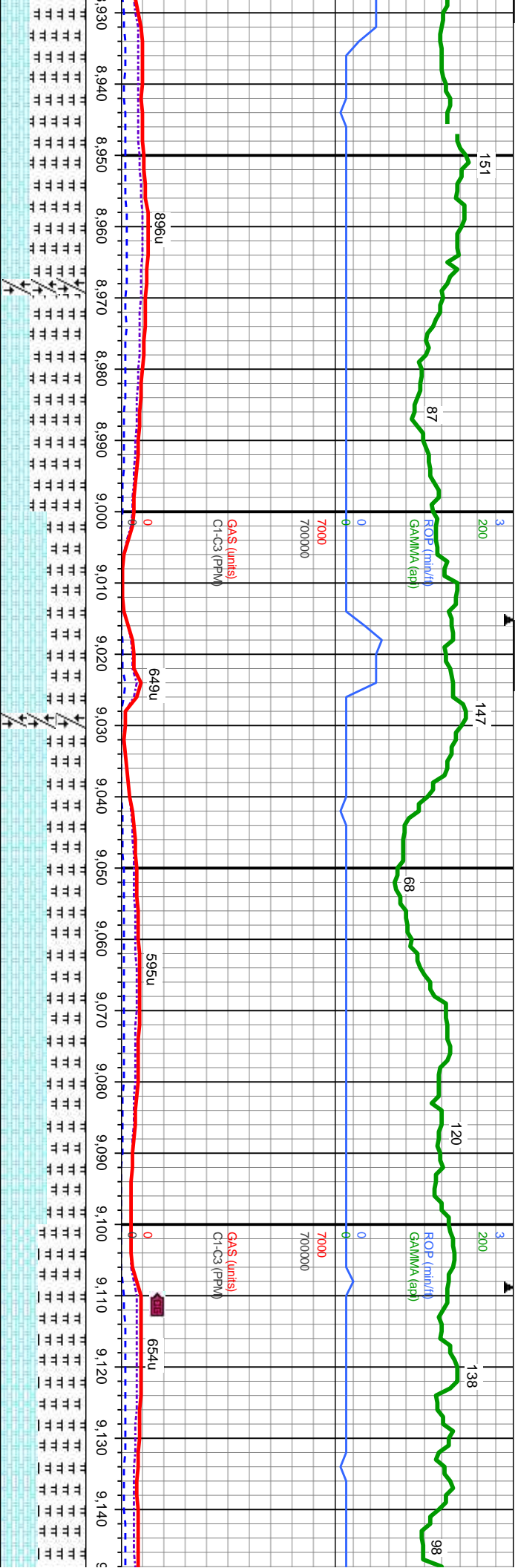
WT IN: 9.4 OUT: 9.4
VIS IN: 45 OUT: 43

MD: 8,771
TVD: 7,394.66
Inclination: 89.66
Azimuth: 178.88
VS: 1,612.2

MD: 8,866
TVD: 7,395.38
Inclination: 89.47
Azimuth: 179.06
VS: 1,707.18

8700'-8800' MD: CHK: lt-med gy, mot, sb blk-y-sb ply, sft-sl frm, mod rnd, fri, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, sb ply-sb blk-y, mod sft-frm, sb rnd, sb arg-sily, calc, tr bent, bri lt bl flr w/mod-str sting milky cut	8800'-8900' MD: CHK: lt-med gy, mot, sb blk-y-sb ply, sft-sl frm, mod rnd, fri, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, sb ply-sb blk-y, mod sft-frm, sb rnd, sb arg-sily, calc, tr bent, tr cal vn, bri lt bl flr w/mod-str sting milky cut	8900'-9000' MD: CHK: lt-med gy, mot, sb blk-y-sb ply, sft-sl frm, mod rnd, fri, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, sb ply-sb blk-y, mod sft-frm, sb rnd, sb arg-sily, calc, tr bent, bri lt bl flr w/mod-str sting milky cut
8000	8000	8000





MD: 8,960.
TVD: 7,396
Inclination: 89.78 -
Azimuth: 178.44 -
VS: 1,801.15.

7 WT IN: 9.4 OUT: 9.4
VIS IN: 43 41

MD: 9,054.
TVD: 7,396.18
Inclination: 90 -
Azimuth: 178.15 -
VS: 1,895.1

MD: 9,144.
TVD: 7,396
Inclination: 90
Azimuth: 178.15
VS: 1,990

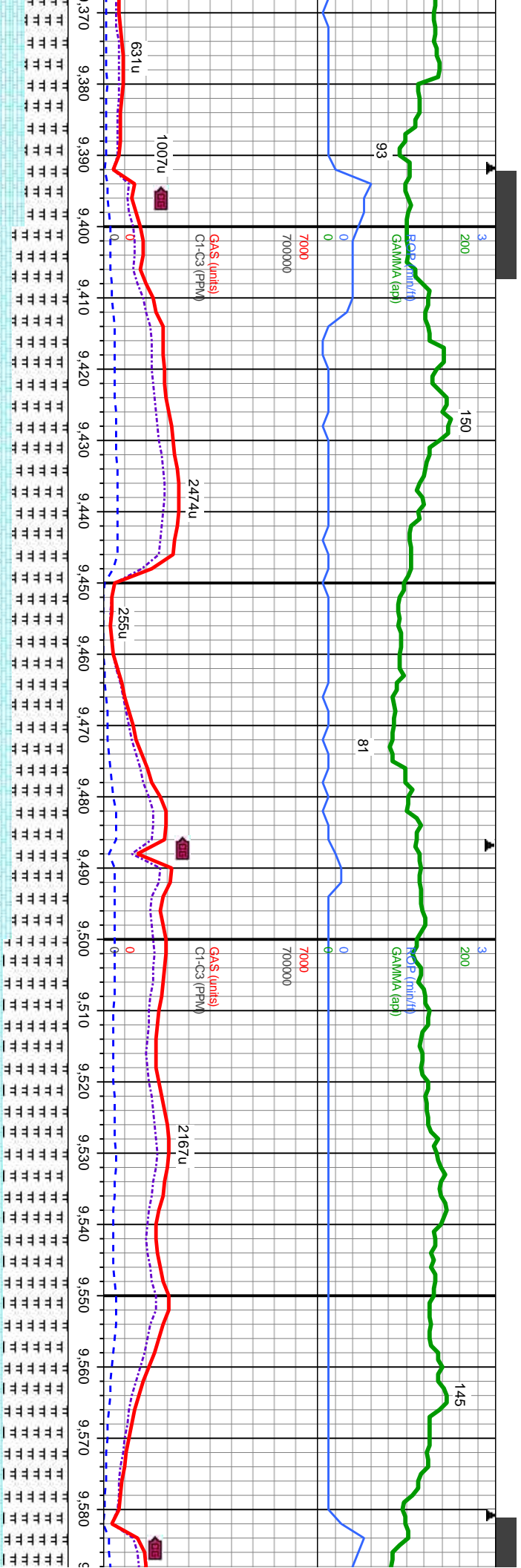
MD: 8,960. TVD: 7,396 Inclination: 89.78 - Azimuth: 178.44 - VS: 1,801.15.
MD: 9,054. TVD: 7,396.18 Inclination: 90 - Azimuth: 178.15 - VS: 1,895.1
MD: 9,144. TVD: 7,396 Inclination: 90 Azimuth: 178.15 VS: 1,990

CHK: lt-med gy, mot, sb blk-ly-sb ply, sft-sl frm, mod
sb wxy, v calc, MRLST: med-dk gy-gy brn, sb ply-sb blk-ly,
sb md, sb arg-sily, calc, tr bent; tr cal vn, lt bl flr
ng milky cut

9000'-9100' MD: CHK: lt-med gy, mot, sb blk-ly-sb ply, sft-sl frm, mod
rd, fri, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, sb ply-sb blk-ly,
mod sft-frm, sb md, sb arg-sily, calc, tr bent; tr cal vn, tr yel org min flr:
sl tr lt bl flr w/mod-str sting milky cut

9100'-9200' MD: CHK: lt-med gy, m
rd, fri, chky-sb wxy, v calc, MRLST
mod sft-frm, sb md, sb arg-sily, calc
w/mod-str sting milky cut





WT IN: 9.4
VIS IN: 45
OUT: 9.4

MD: 9.432
TVD: 7,399.18
Inclination: 90.86
Azimuth: 178.87
VS: 2,272.84

7000

MD: 9.526
TVD: 7,398.36
Inclination: 90.15
Azimuth: 178.64
VS: 2,366.81

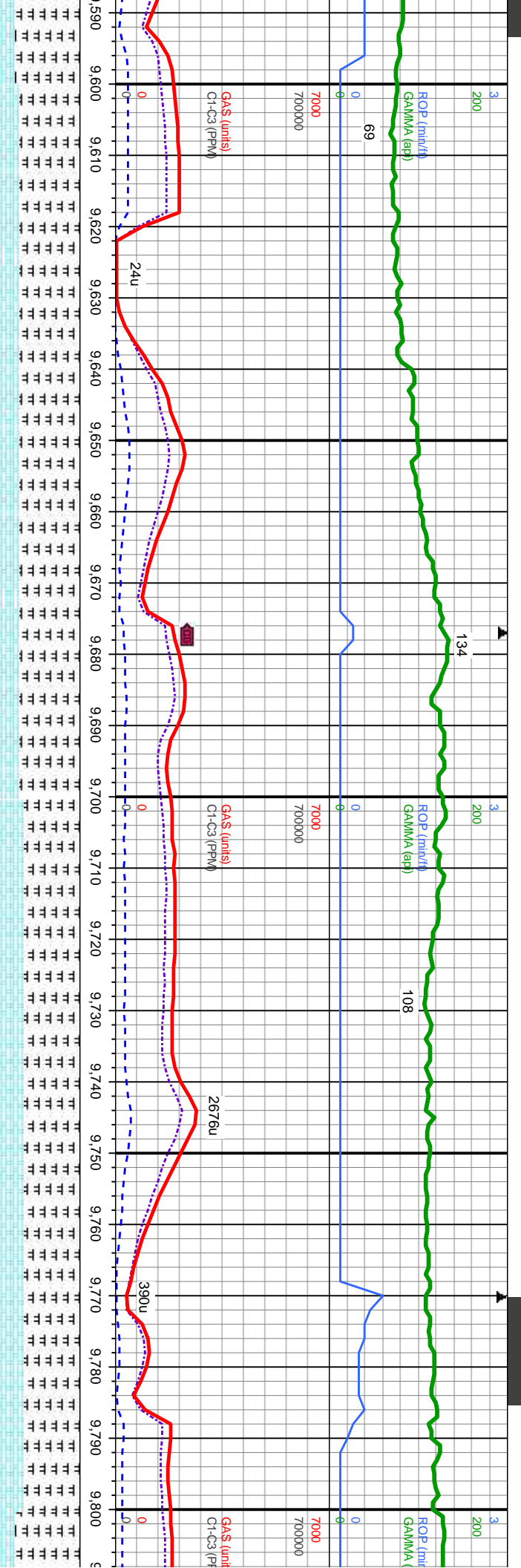
TVD (ft)

TVD (ft)

9400-9500' MD: MRLST: med-dk gy-gy brn, sb ply-sb blk, mod sft-frn, sb rnd, sb arg-sily, calc, tr bent, CHK: lt-med gy, mot, sb blk-sb ply, sft-sl frn, mod rnd, fri, chky-sb wxy, v calc, tr cal vn, tr slt; tr yel-org min flr, tr med bl flr w/mod-str stmg milky cut

9500-9600' MD: MRLST: med-dk gy-gy brn, sb ply-sb blk, mod sft-frn, sb rnd, sb arg-sily, calc, tr bent, CHK: lt-med gy, mot, sb blk-sb ply, sft-sl frn, mod rnd, fri, chky-sb wxy, v calc, tr cal vn, tr slt; tr yel-org min flr, tr med bl flr w/mod-str stmg milky cut





MD: 9.621
TVD: 7,397.34
Inclination: 91.07
Azimuth: 179.21
VS: 2,461.78

9500'-9600' MD: MRLST: med-dk gy-gy brn, ply-sb blkly, mod
sft-firm, sb arg-sily, calc, tr bent, CHK: lt-med gy, mot, sb
blkly-sb ply, sft-sl frm-fri, chky-sb wxy, v calc, tr cal vn, tr silt; tr
yel-org min flor, tr med bl flor w/mod-str milky halo cut

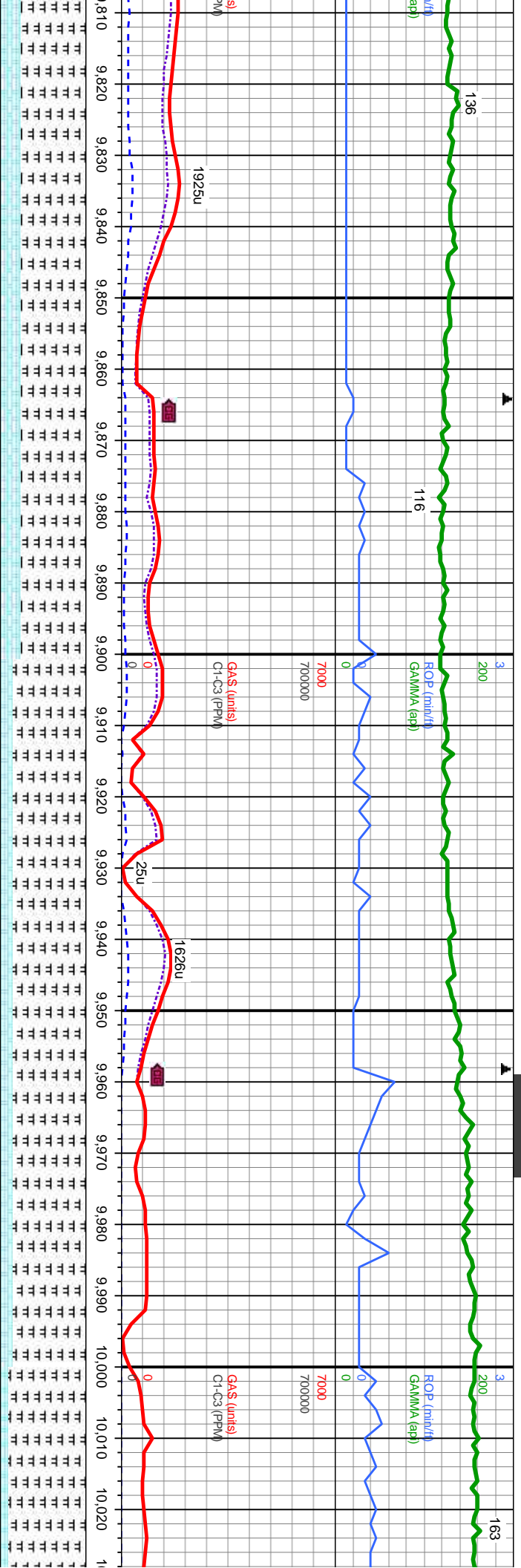
MD: 9.715
TVD: 7,396.27
Inclination: 90.24
Azimuth: 178.56
VS: 2,555.75

WT IN: 9.4+ OUT: 9.4
VIS IN: 44 OUT: 46

9700'-9800' MD: MRLST: med-dk gy-gy brn, ply-sb blkly, mod
sft-firm, sb arg-sily, calc, tr bent, CHK: lt-med gy, mot, sb
blkly-sb ply, sft-sl frm-fri, chky-sb wxy, v calc, tr cal vn, tr silt;
tr yel-org min flor, tr med bl flor w/mod-str milky halo cut

MD: 9.80
TVD: 7.3
Inclination:
Azimuth:
VS: 2,641





9,960.07 -
n.: 90 -
179.79 -
2.74.

MD: 9,904.
TVD: 7,396.41.
Inclination: 89.59 -
Azimuth: 179.53 -
VS: 2,744.73.

WT IN: 9.5
VIS IN: 48

OUT: 9.4+

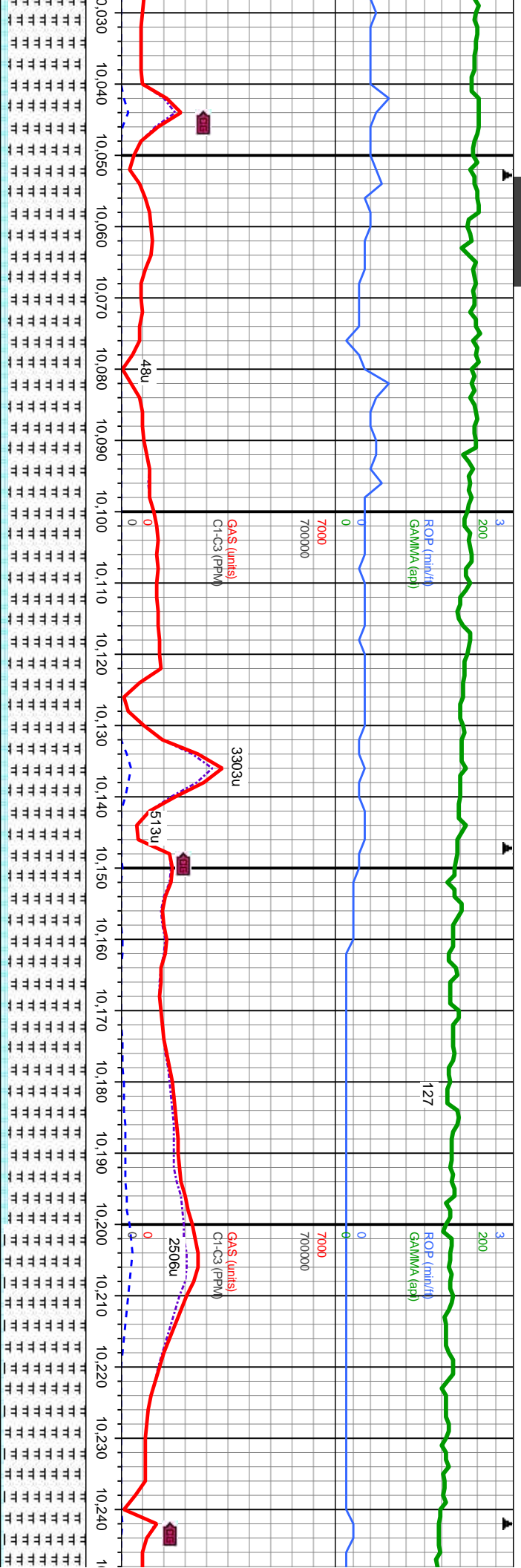
MD: 9,998.
TVD: 7,397.
Inclination: 89.69 -
Azimuth: 180.35 -
VS: 2,838.73.

9800'-9900' MD: MRLST: med-dk gy-gy brn, pily-sb blkly, mod
sft-frn, sb arg-sily, calc, tr bent, CHK: lt-med gy, mot, sb
blkly-sb pily, sft-sl frn-fri, chky-sb wxy, v calc, tr cal vn, tr slt;
tr yel-org min flor, tr med bl flor w/mod-str milky halo cut

9,900'-10,000' MD: MRLST: med-dk gy-gy brn, pily-sb blkly, mod
sft-frn, sl arg, m-v sily, calc, tr bent, tr pyr, CHK: lt-med gy, mot,
sb blkly-sb pily, sft-sl frn-fri, chky-sb wxy, v calc, tr cal vn, tr slt;
tr yel-org min flor, sl tr med bl flor w/mod-str milky halo cut

10,000'-10,020' MD: MRLST: med-dk gy-gy brn, pily-sb blkly, mod
sft-frn, sl arg, m-v sily, calc, tr bent, CHK: lt-med gy, mot,
sb blkly-sb pily, sft-sl frn-fri, chky-sb wxy, v calc, tr cal vn, tr slt;
tr yel-org min flor, sl tr med bl flor w/mod-str milky halo cut





MD: 10,092.
TVD: 7,396.13
Inclination: 91.38
Azimuth: 180.8
VS: 2,932.72

WT IN: 9.5
VS IN: 45
OUT: 9.5
46

MD: 10,187.
TVD: 7,394.27
Inclination: 90.86
Azimuth: 179.35
VS: 3,027.7

TVD (ft)

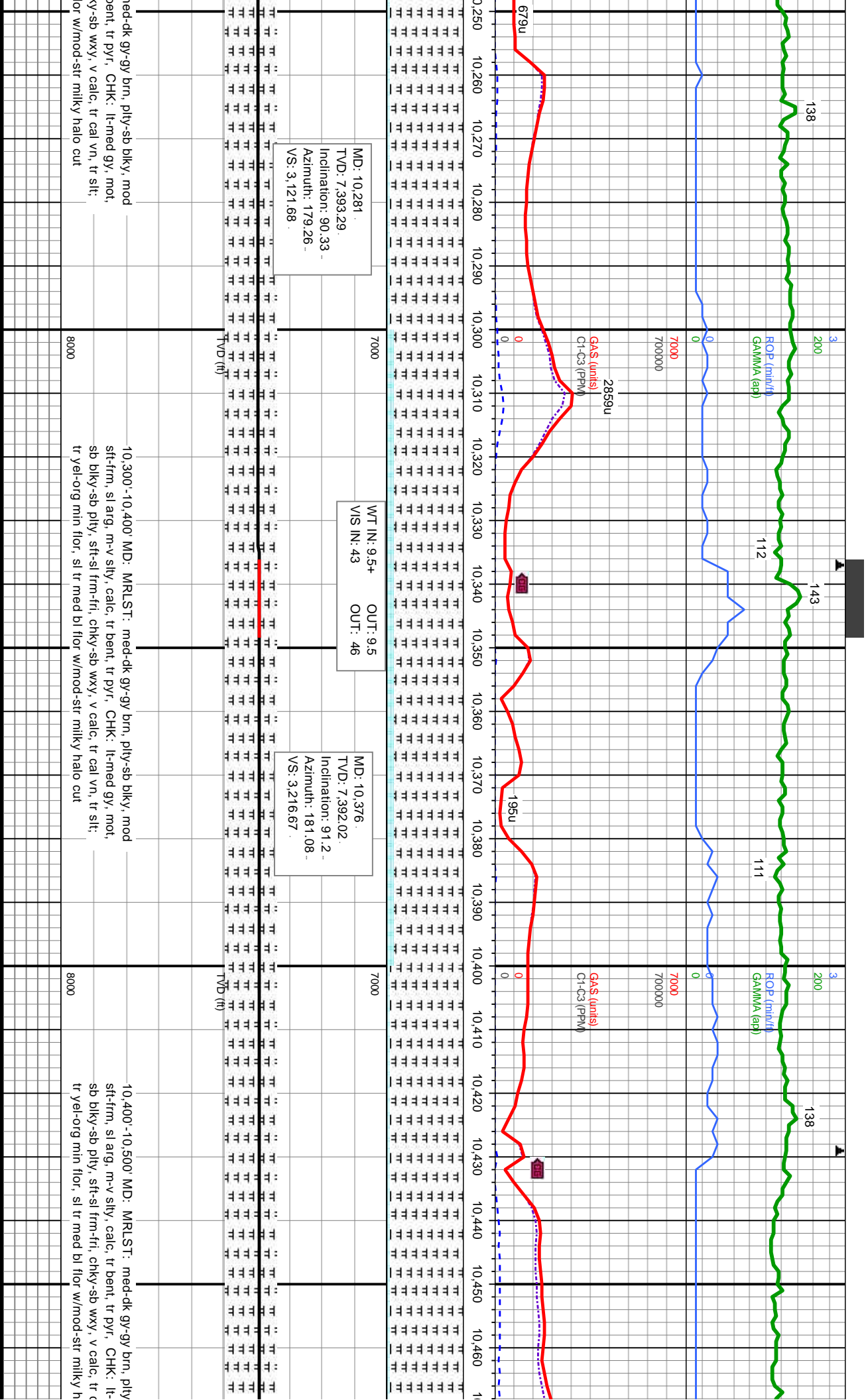
TVD (ft)

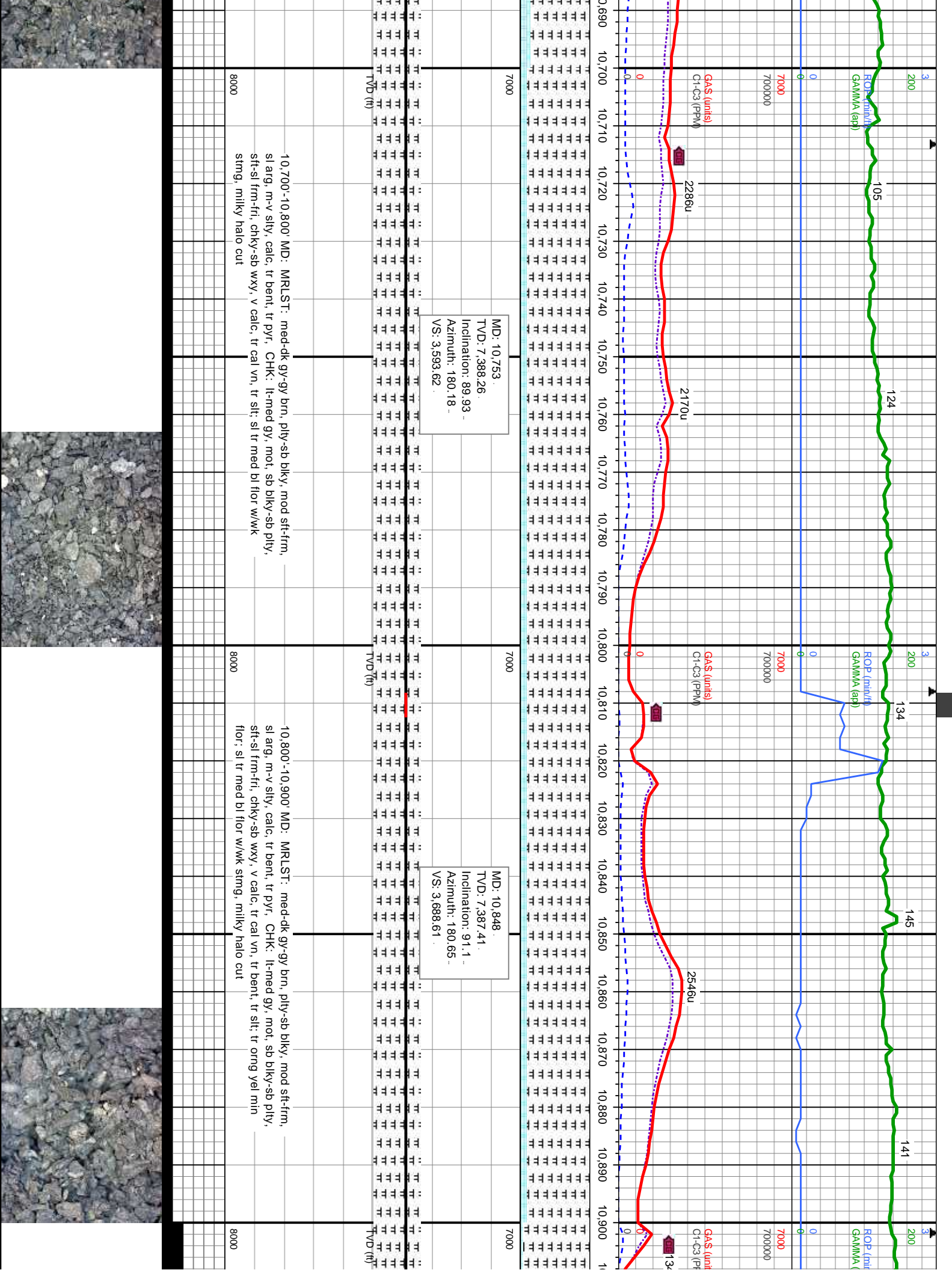
10,000-10,100' MD: MRLST: med-dk gy-gy brn, ply-sb blkly, mod arg, m-v silty, calc, tr bent, tr pyr, CHK: lt-med gy, mot, ply, sft-sl frm-fri, chky-sb wxy, v calc, tr cal vn, tr slt; min flr, sl tr med bl flr w/mod-str milky halo cut

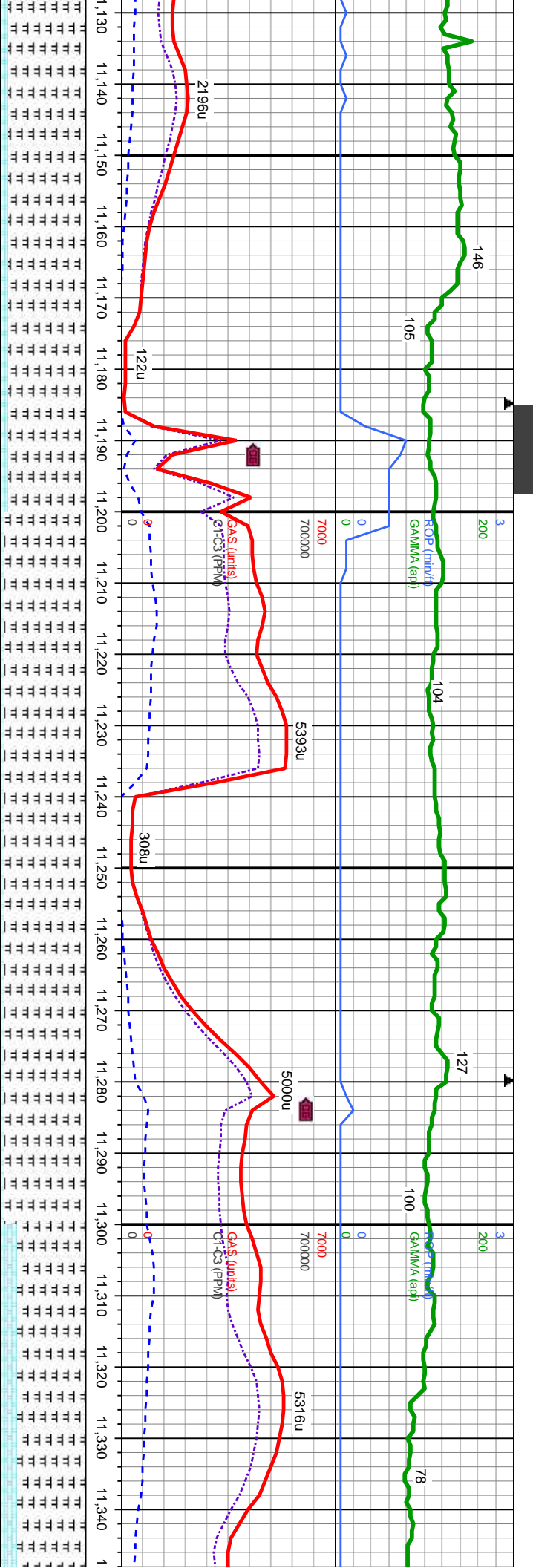
10,100'-10,200' MD: MRLST: med-dk gy-gy brn, ply-sb blkly, mod sft-frm, sl arg, m-v silty, calc, tr bent, tr pyr, CHK: lt-med gy, mot, sb blkly-sb ply, sft-sl frm-fri, chky-sb wxy, v calc, tr cal vn, tr slt; tr yel-org min flr, sl tr med bl flr w/mod-str milky halo cut

10,200'-10,300' MD: MRLST: n sft-frm, sl arg, m-v silty, calc, tr b blkly-sb ply, sft-sl frm-fri, chl tr yel-org min flr, sl tr med bl f









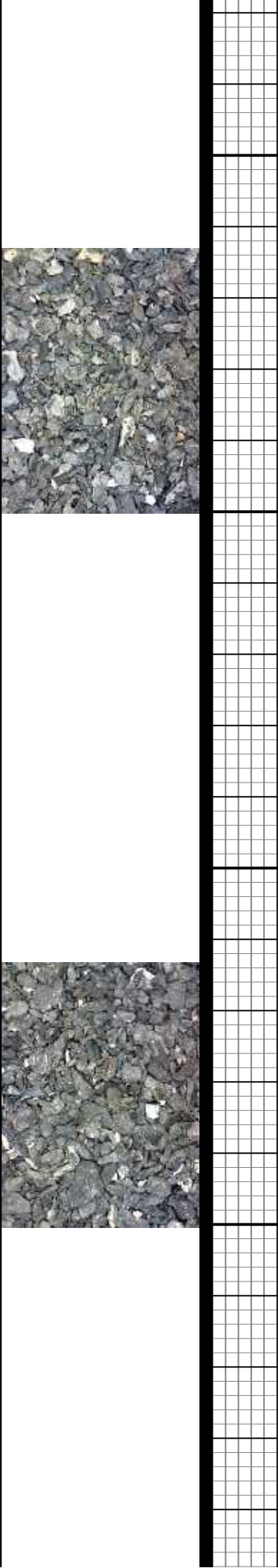
WT IN: 9.5
VIS IN: 44

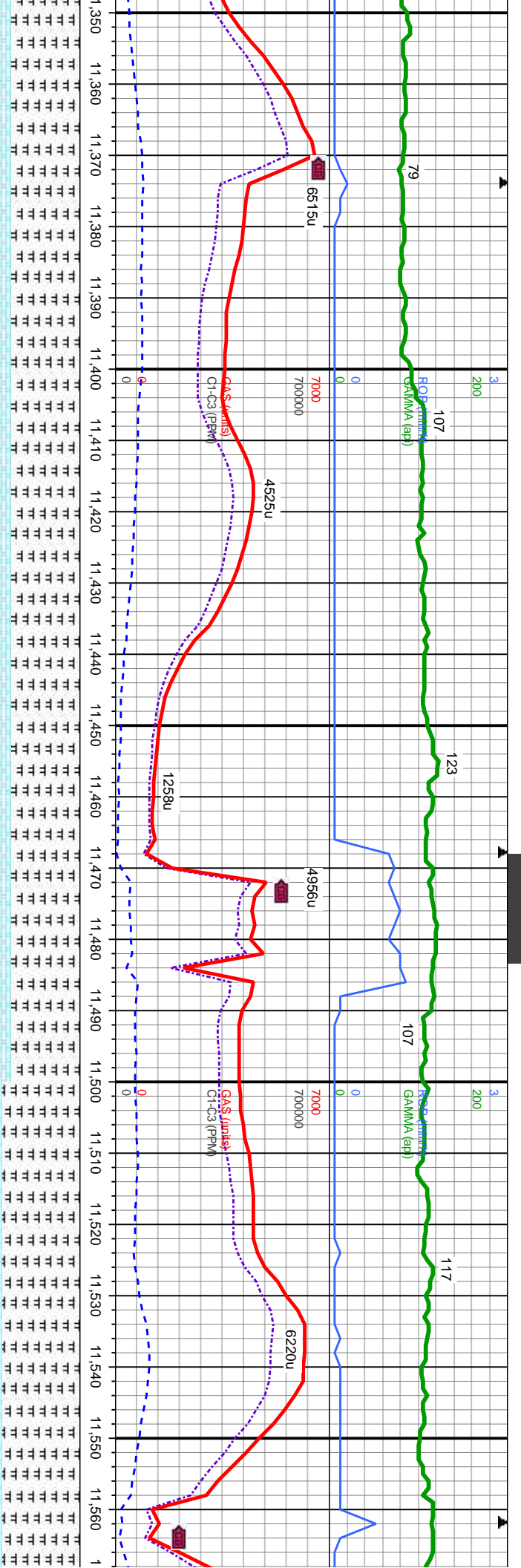
OUT: 9.5
OUT: 41

MD: 11,225
TVD: 7,385.97
Inclination: 91.13
Azimuth: 179.52
VS: 4,065.59



MD: 11,200-11,300' MD: MRLST: med-dk gy-gy brn, mot, pily-sb blkly, mod sft-frm, sl arg, m-v silty, calc, tr bent, tr pyr, CHK: lt-med gy, mot, sb blkly-sb pily, sft-sl frm-fri, chky-sb wxy, v calc, com cal vn, tr bent, tr slit, tr orng yel min flor, wk lt bl flor w/wk-mud string, milky halo cut





MD: 11,413
TVD: 7,384.35
Inclination: 89.69
Azimuth: 178.81
VS: 4,253.55

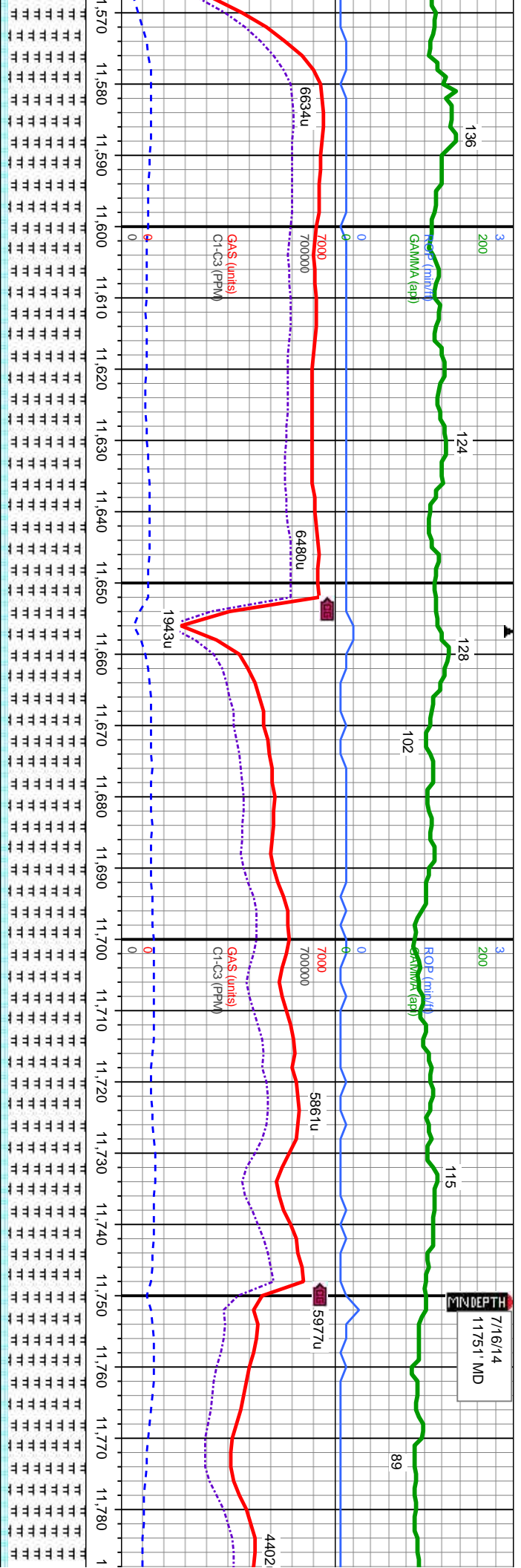
WT IN: 9.4
VIS IN: 42
OUT: 9.5
OUT: 42

MD: 11,507
TVD: 7,384.03
Inclination: 90.7
Azimuth: 178.46
VS: 4,347.51

11,400'-11,500' MD: MRLST: med-dk gy-gy brn, mot, pily-sb blk, mod stf-frm, sl arg, m-v silty, calc, tr bent, tr pyr, CHK: lt-med gy, mot, sb blk-sb pily, stf-sl frm-fri, chky-sb wxy, v calc, rr bent, tr silt, rr orng yel min flr; wk lt bl flr w/wk-mod stmg, wkmilky halo cut	8000
11,500'-11,600' MD: MRLST: med-dk gy-gy brn, mot, pily-sb arg, m-v silty, calc, tr bent, tr pyr, CHK: lt-med gy, mot, sb frm-fri, chky-sb wxy, v calc, rr bent, tr silt abnt cal vn; rr orng bl flr w/mod-str stmg, wk yel halo cut	8000



7/16/14
11751' MD



MD: 11,602
TVD: 7,383.22
Inclination: 90.27
Azimuth: 178.53
VS: 4,442.47

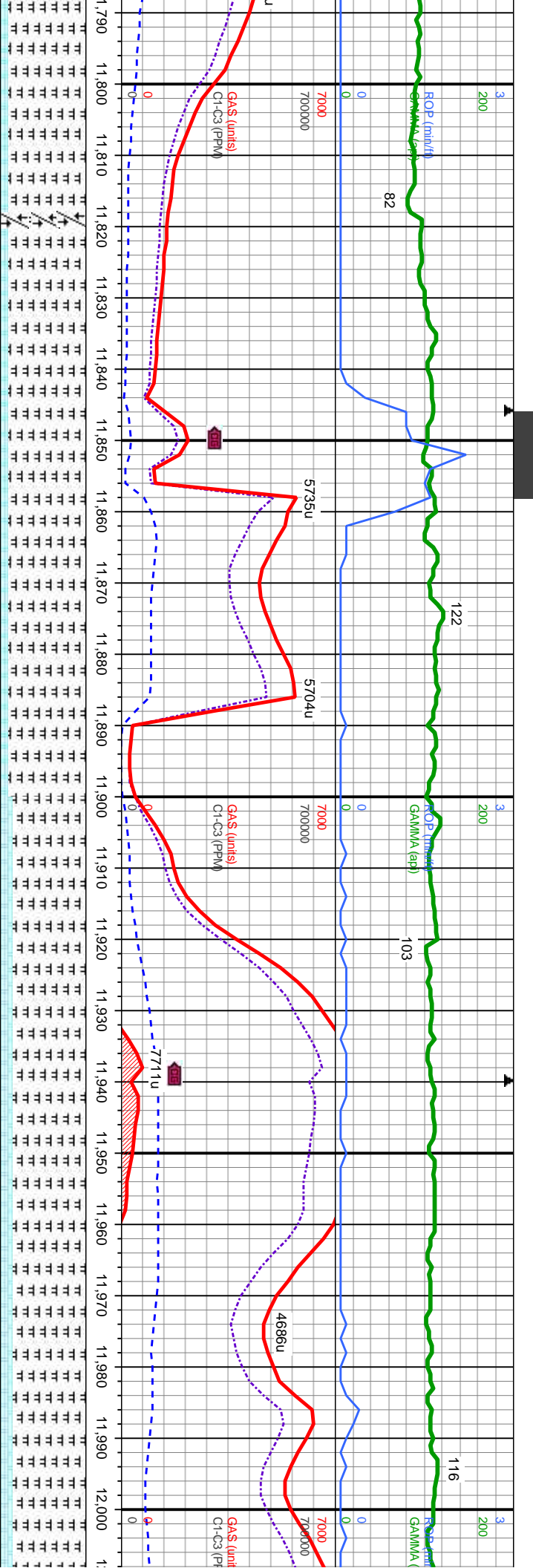
WT IN: 9.4
VIS IN: 45
OUT: 9.5
OUT: 43

MD: 11,696
TVD: 7,382.85
Inclination: 90.18
Azimuth: 179.14
VS: 4,536.44

MD: 11
TVD: 7
Inclination
Azimuth
VS: 4.6

blk, mod sft-firm, sl	11,600-11,700' MD: MRLST: med-dk gy-gy brn, mot, ply-sb blk, mod sft-firm, sl
blk-sb ply, sft-sl	arg, m-v silty, calc, tr bent, tr pyr, CHK: lt-med gy, mot, sb blk-sb ply, sft-sl
yel min flr, wk lt	frm-fri, chky-sb wxy, v calc, rr bent, tr sft, rr org yel min flr, wk lt bl flr w/str
	stmg, str brl bl halo cut
8000	8000



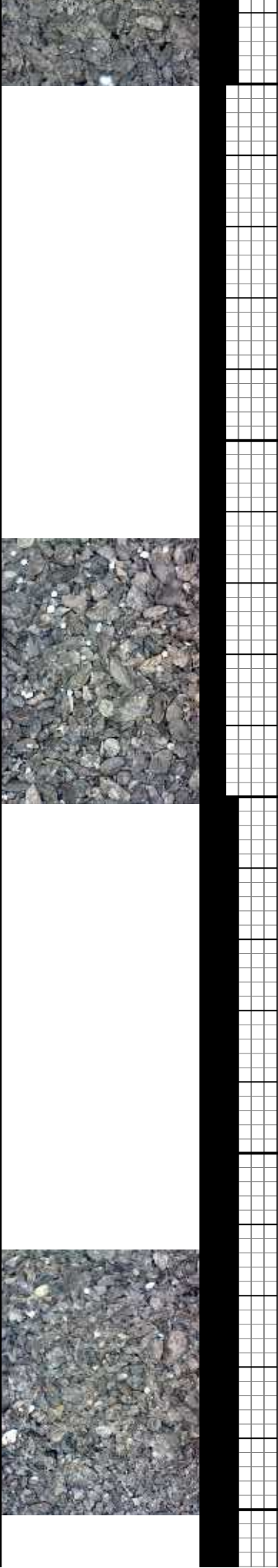


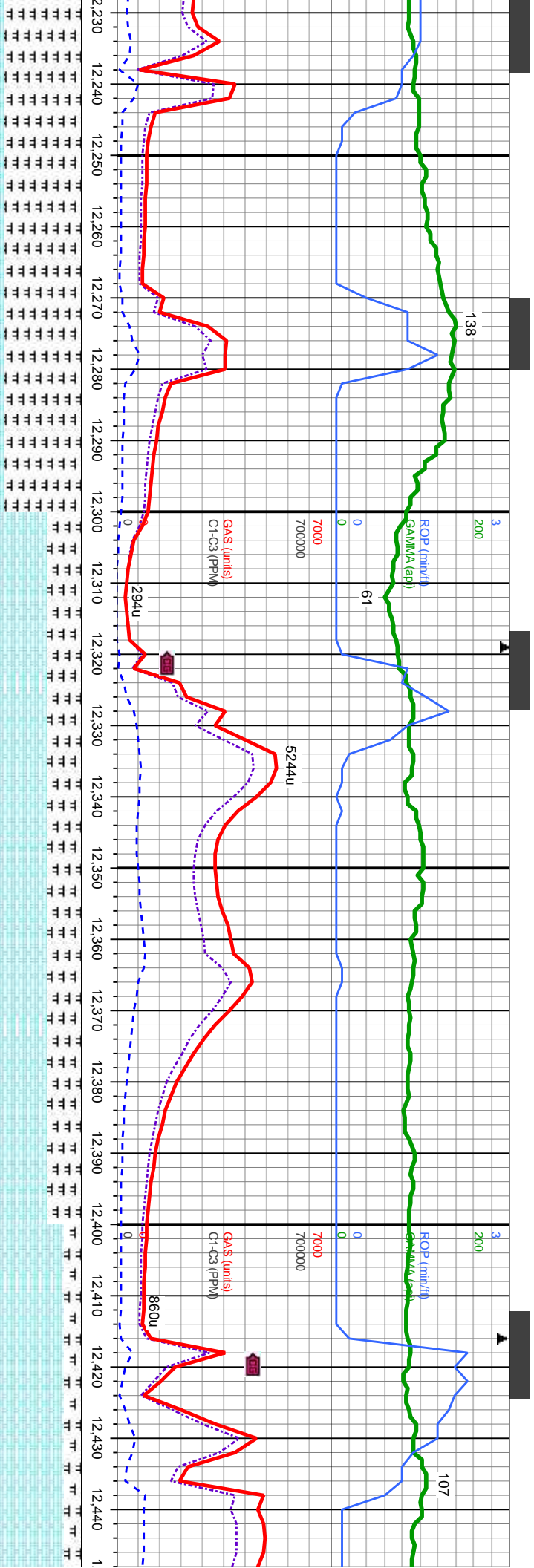
WT IN: 9.4 OUT: 9.5
VIS IN: 45 OUT: 43

MD: 11,885
TVD: 7,382.47
Inclination: 90.43
Azimuth: 178.5
VS: 4,725.38

11,800'-11,900' MD: MRLST: med-dk gy-gy brn, mot, pily-sb blk, mod sft-firm, sl arg, m-v silty, calc, tr bent, tr pyr, CHK: lt-med gy, mot, sb blk-sb pily, sft-sl frm-fri, chky-sb wxy, v calc, tr bent, tr silt, com cal vn; rr orng yel min flr; wk lt bl flr w/st stng, strong bri bl halo cut

8000





MD: 12.262.
TVD: 7,380.27.
Inclination: 91.57.
Azimuth: 178.64.
VS: 5,101.89.

MD: 12.357.
TVD: 7,378.56.
Inclination: 90.49.
Azimuth: 179.89.
VS: 5,196.86.

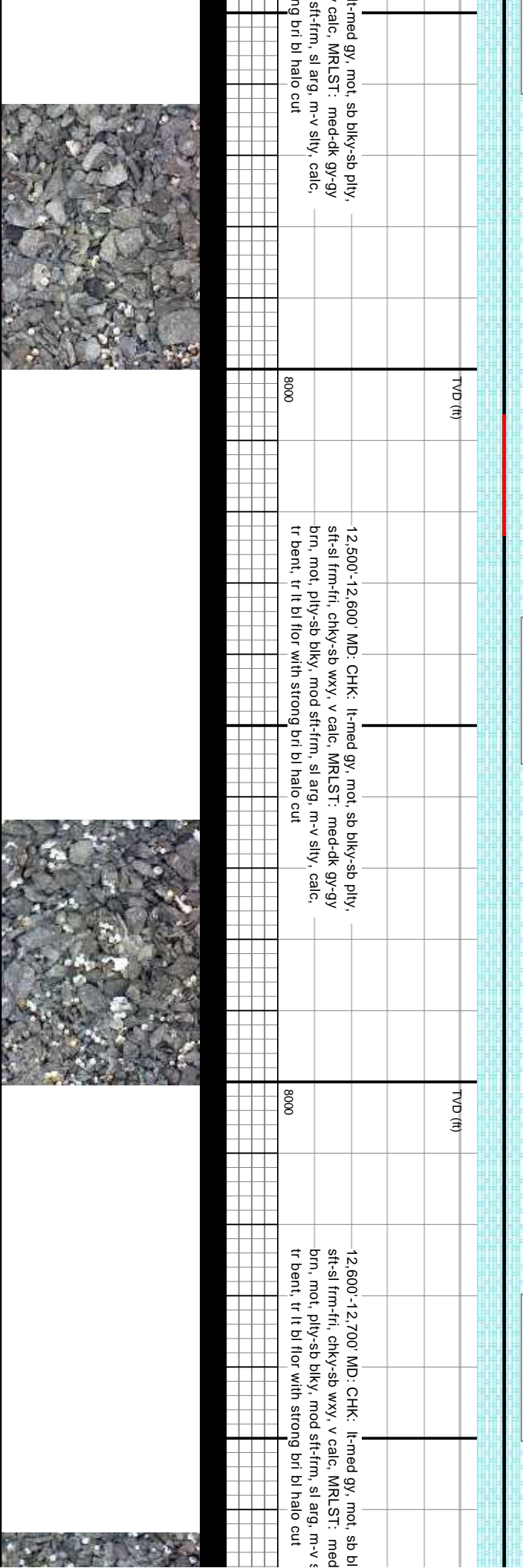
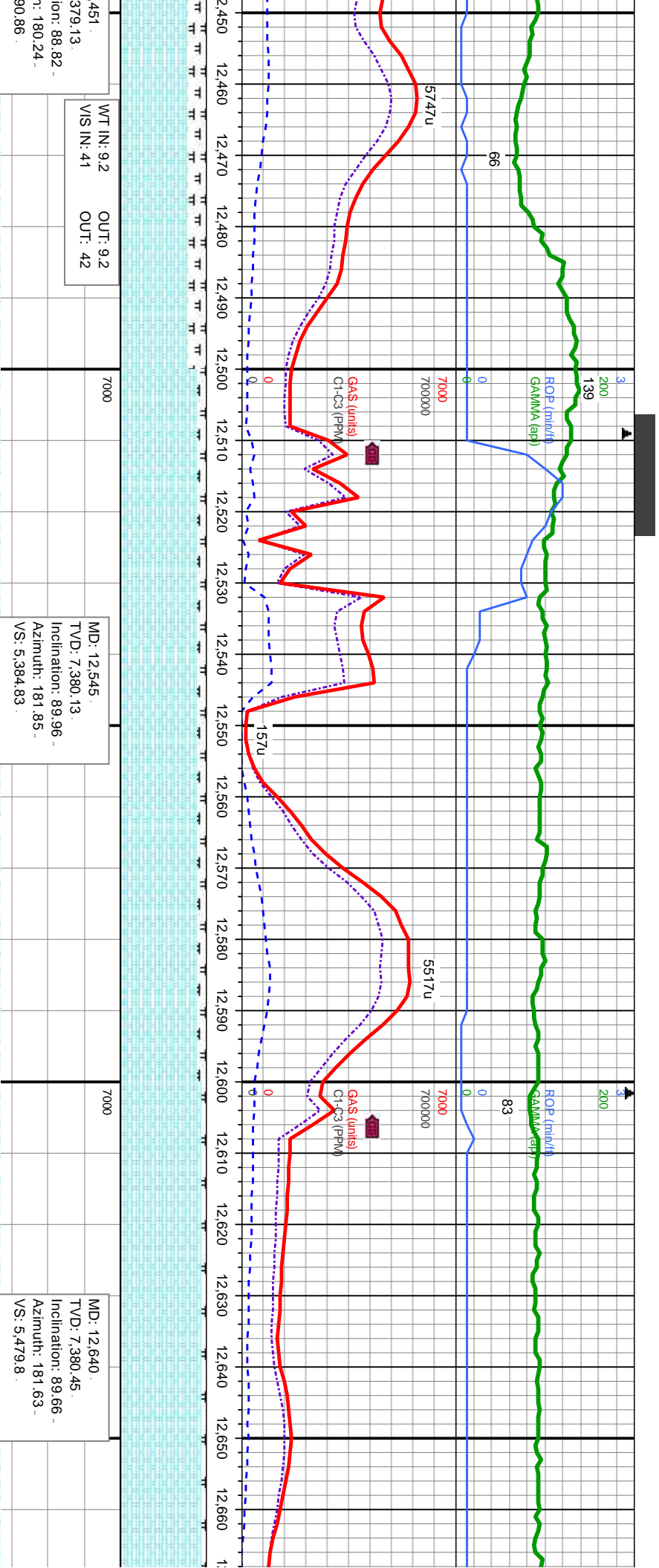
MD: 12.
TVD: 7.
Inclination:
Azimuth:
VS: 5.2

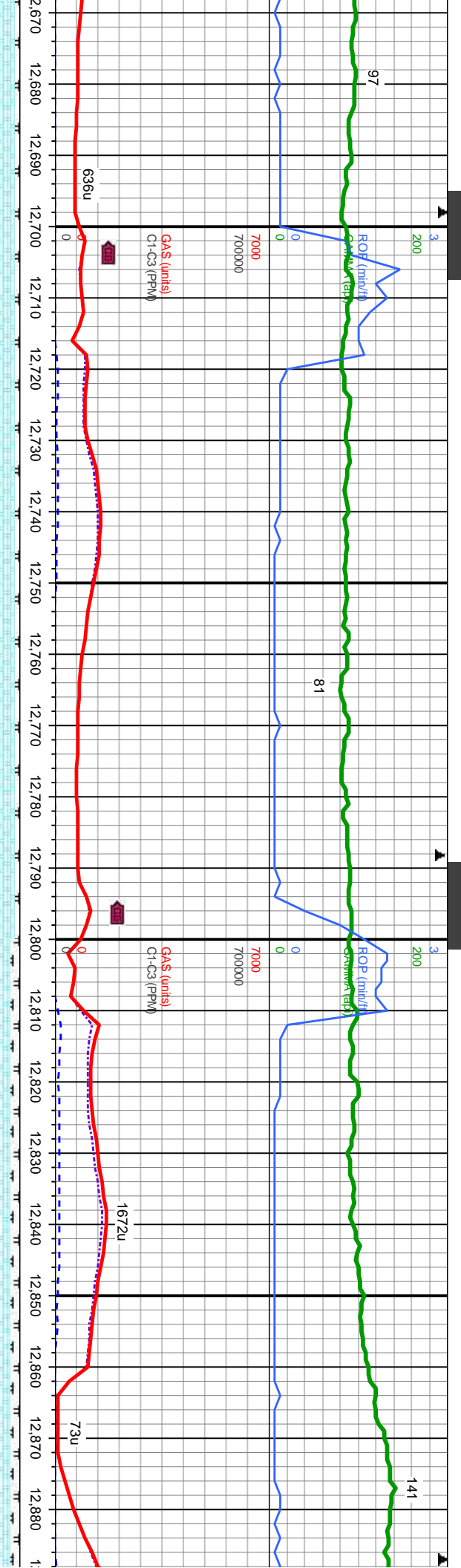
MD: 12.300-12.400 MD: CHK: lt-med gy, mot, sb blk-y-sb ply, sft-sl frm-fri, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, mot, ply-sb blk-y, mod sft-frm, sl arg, m-v slty, calc, tr bent, tr pyr, com cal vn, tr lt bl flr with strong bri bl halo cut

12,300'-12,400' MD: CHK: lt-med gy, mot, sb blk-y-sb ply, sft-sl frm-fri, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, mot, ply-sb blk-y, mod sft-frm, sl arg, m-v slty, calc, tr bent, tr pyr, com cal vn, tr lt bl flr with strong bri bl halo cut

12,400'-12,500' MD: CHK: sft-sl frm-fri, chky-sb wxy, v brn, mot, ply-sb blk-y, mod tr bent, tr lt bl flr with stro







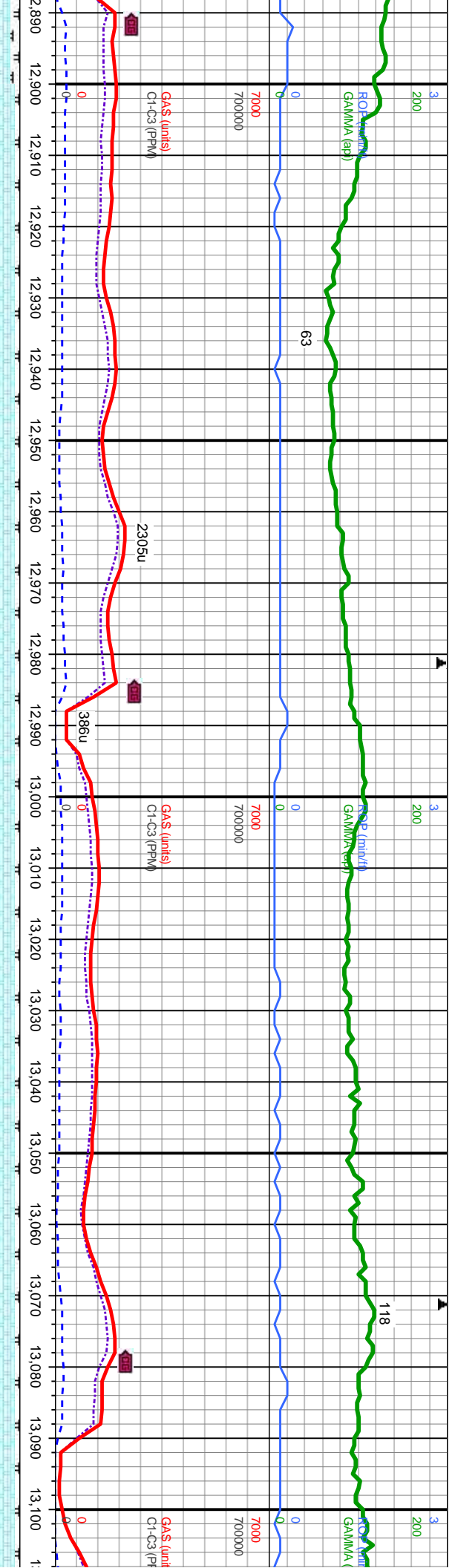
WT IN: 9.2 OUT: 9.2
VIS IN: 40 OUT: 41

MD: 12,734
TVD: 7,380.98
Inclination: 89.69
Azimuth: 182.24
VS: 5.573.75

MD: 12,828
TVD: 7,380.25
Inclination: 91.2
Azimuth: 182.84
VS: 5.667.66

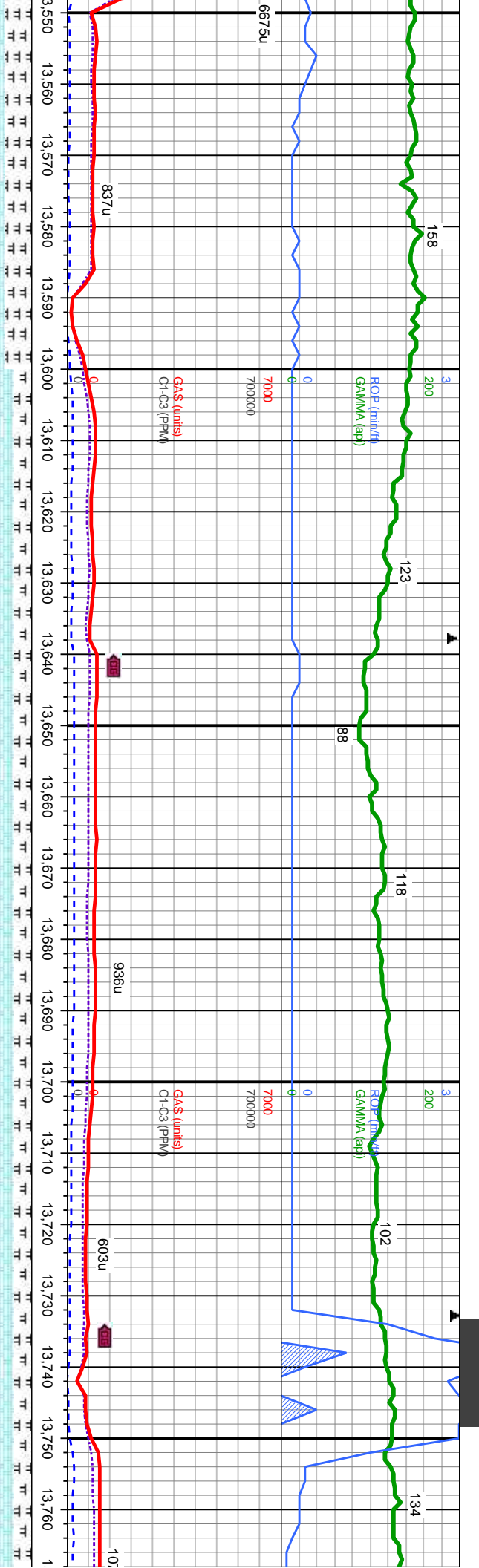
TVD (ft)		TVD (ft)	
8000		8000	
12,700'-12,800' MD: CHK: lt-med gy, mot, sb blk-ly-sb ply, sft-sl frm-frt, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, mot, ply-sb blk-ly, mod sft-frm, sl arg, m-v slty, calc, tr bent, tr lt bl flr with strong bri bl halo cut		12,800'-12,900' MD: CHK: lt-med gy, mot, sb blk-ly-sb ply, sft-sl frm-frt, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, mot, ply-sb blk-ly, mod sft-frm, sl arg, m-v slty, calc, tr bent, tr lt bl flr with strong bri bl halo cut	





7000	WT IN: 9.2 VIS IN: 43	OUT: 9.1 OUT: 42	7000	MD: 13.016. TVD: 7.376.57. Inclination: 91.04 - Azimuth: 182.05 - VS: 5.855.47.	MD: 13 TVD: 7. Inclination: Azimuth: VS: 5.9
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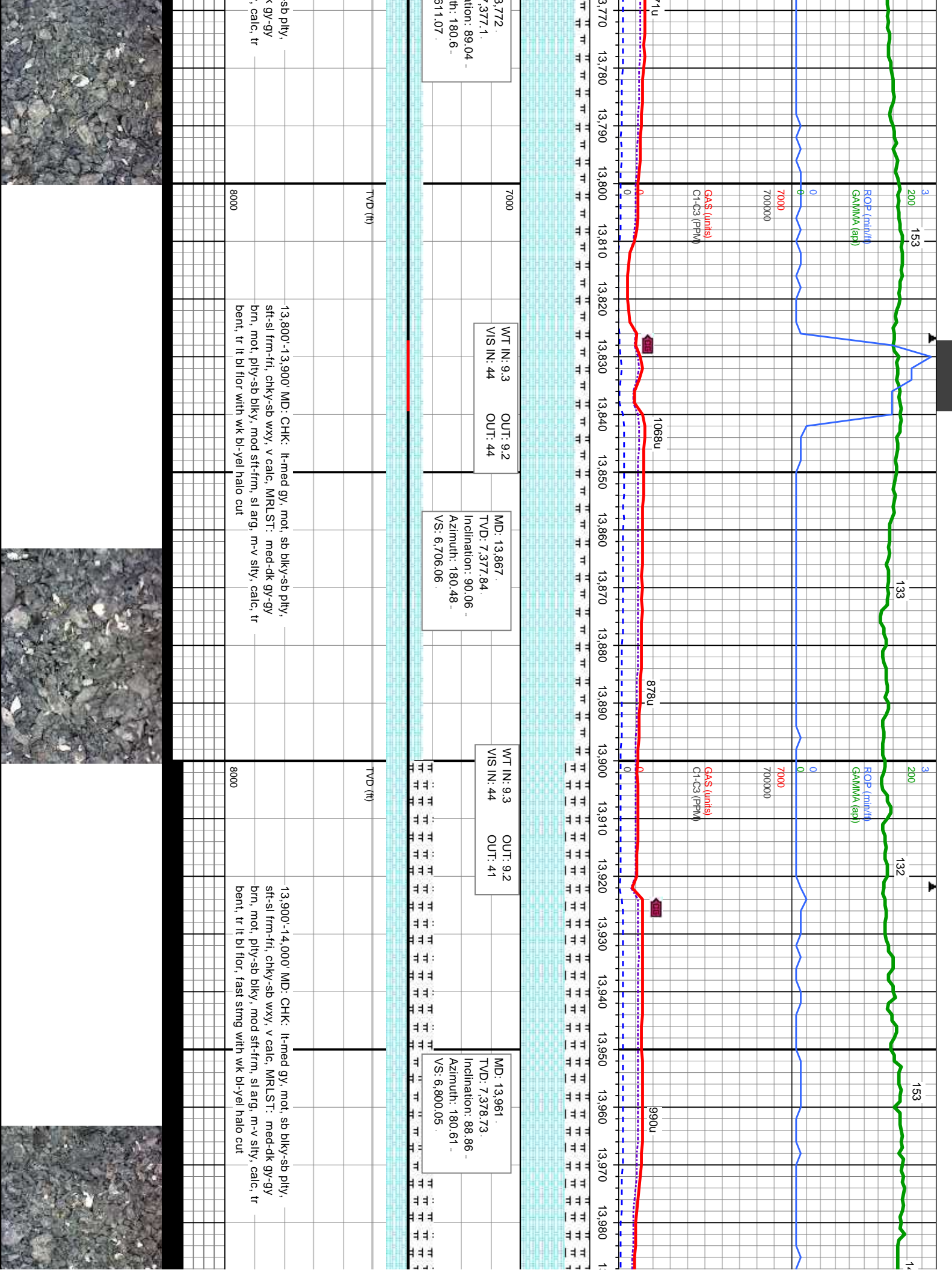
TVD (ft)	12,900'-13,000' MD: CHK: lt-med gy, mot, sb blk-y-sb ply, sft-sl frm-frt, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, mot, ply-sb blk-y, mod sft-frm, sl arg, m-v slty, calc, tr bent, tr lt bl flr with strong bri bl halo cut	TVD (ft)	13,000'-13,100' MD: CHK: lt-med gy, mot, sb blk-y-sb ply, sft-sl frm-frt, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, mot, ply-sb blk-y, mod sft-frm, sl arg, m-v slty, calc, tr bent, tr lt bl flr with strong bri bl halo cut	TVD (ft)
8000		8000		8000

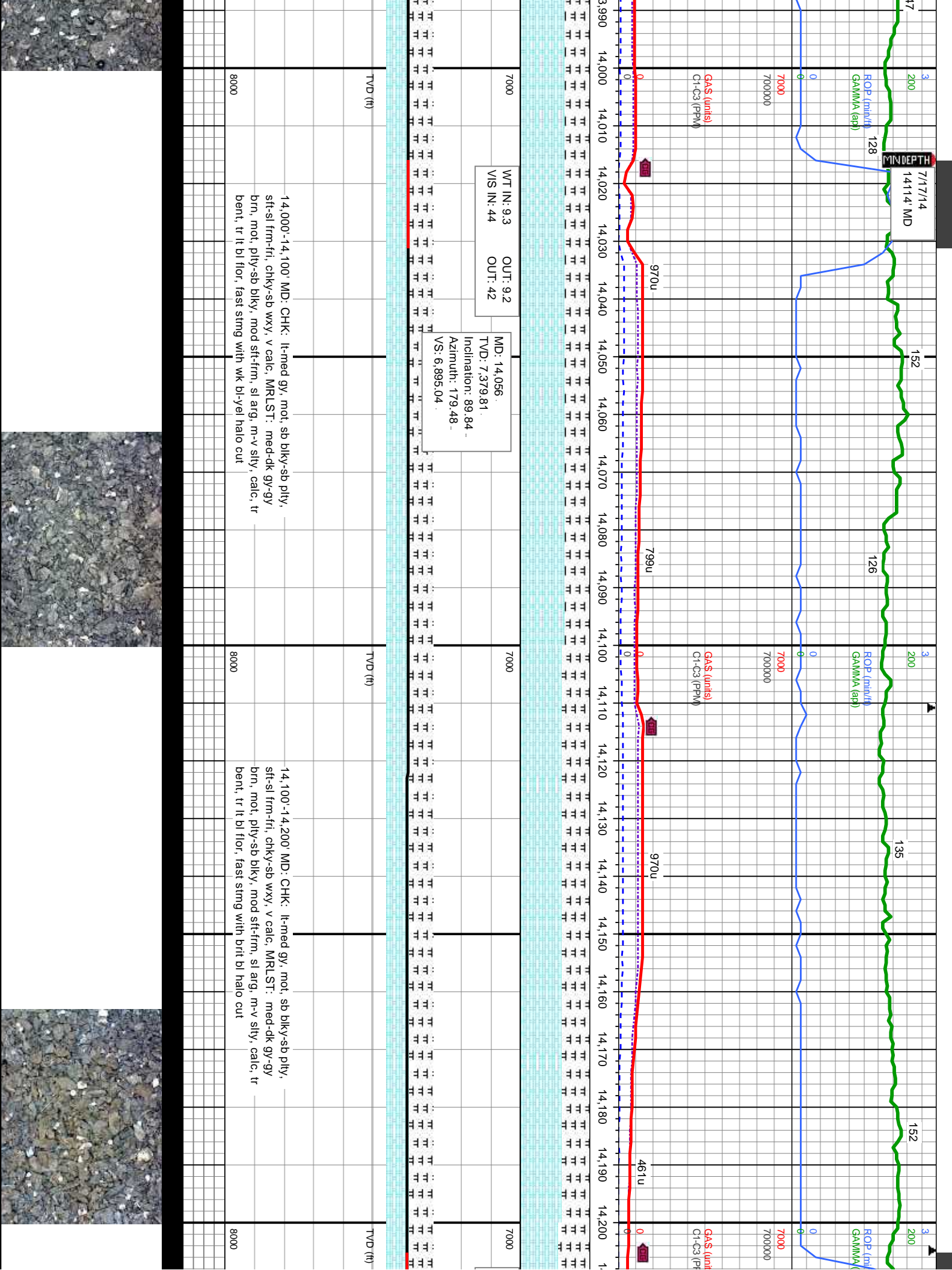


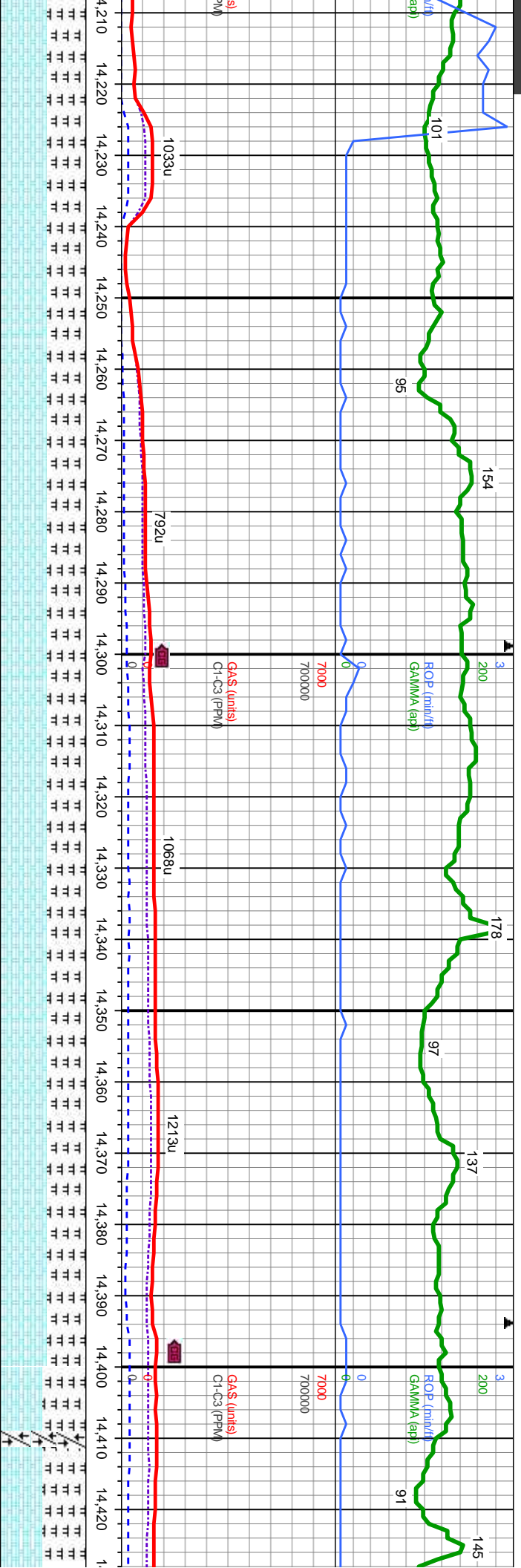
7000	MD: 13.678 TVD: 7.374.82 Inclination: 88.18 Azimuth: 181.93 VS: 6.517.12
7000	MD: 13.700 TVD: 7.374.82 Inclination: 88.18 Azimuth: 181.93 VS: 6.517.12

TVD (ft)	13,550'-13,600' MD: CHK: lt-med gy, mot, sb blk-y-sb wxy, v calc, MRLST: med-dk gy, mod sft-firm, sl arg, m-v slty, th strong bri bl halo cut
TVD (ft)	13,600'-13,700' MD: CHK: lt-med gy, mot, sb blk-y-sb pty, sft-sl firm-fri, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, mot, pty-sb blk-y, mod sft-firm, sl arg, m-v slty, calc, tr bent, tr lt bl flr with strong bri bl halo cut
TVD (ft)	13,700'-13,800' MD: CHK: lt-med gy, mot, sb blk-y-sft-sl firm-fri, chky-sb wxy, v calc, MRLST: med-dk brn, mot, pty-sb blk-y, mod sft-firm, sl arg, m-v slty bent, tr lt bl flr with bl-yei halo cut





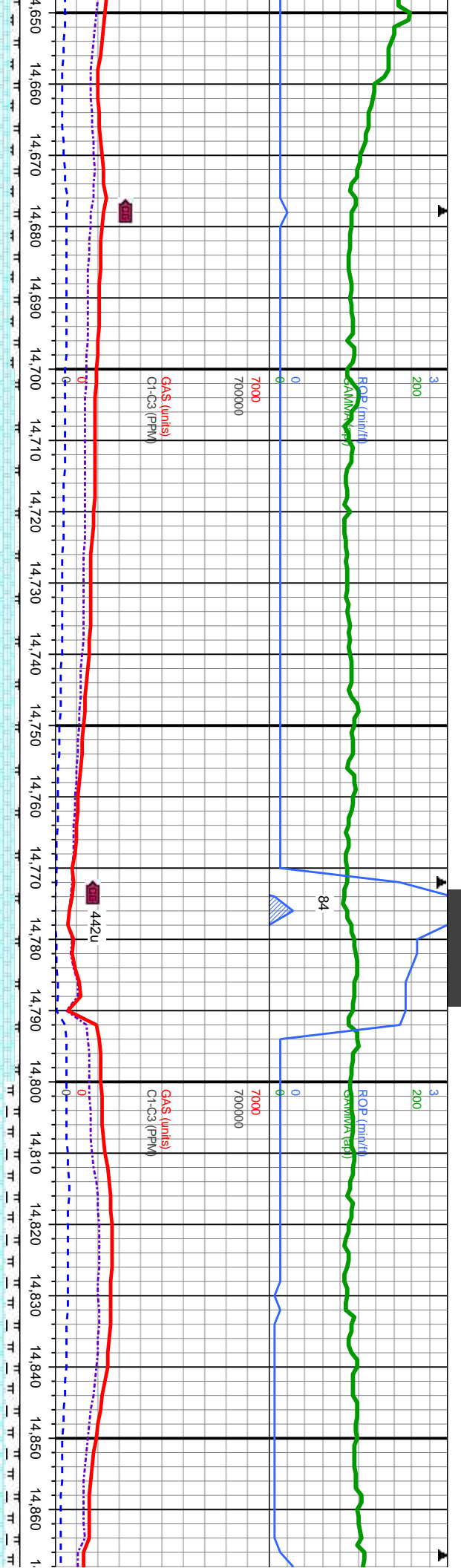




WT IN: 9.3	OUT: 9.2	MD: 14,244
VIS IN: 44	OUT: 42	TVD: 7,382.78
		Inclination: 90.06
		Azimuth: 180.47
		VS: 7.083.01

14,200'-14,300' MD: CHK: lt-med gy, mot, sb blk-y-sb ply, sft-sl frm-frt, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, mot, ply-sb blk-y, mod sft-frm, sl arg, m-v slty, calc, tr bent, tr lt bl flr, mod lt bl sting with bright bl halo cut	8000	TVD (ft)	14,300'-14,400' MD: CHK: lt-med gy, mot, sb blk-y-sb ply, sft-sl frm-frt, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, mot, ply-sb blk-y, mod sft-frm, sl arg, m-v slty, calc, tr bent, tr lt bl flr, mod lt bl sting with bright bl halo cut	8000	TVD (ft)	14,400'-14,420' MD: CHK: lt-med gy, mot, sb blk-y-sb ply, sft-sl frm-frt, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, mot, ply-sb blk-y, mod sft-frm, sl arg, m-v slty, calc, tr bent, tr lt bl flr, mod lt bl sting with bright bl halo cut
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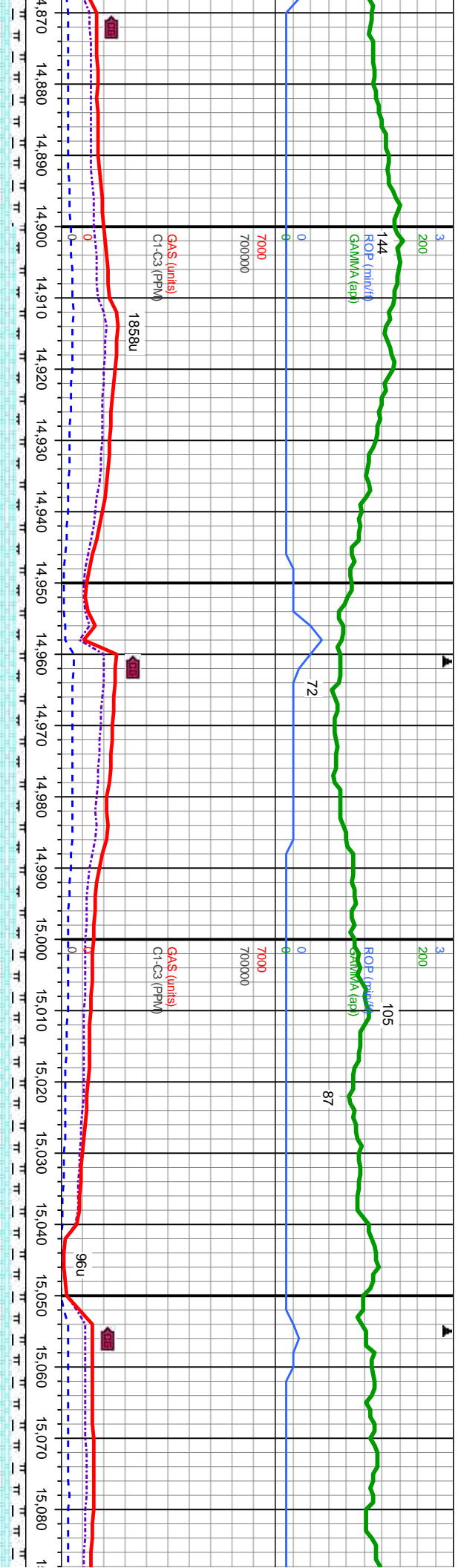




7000	MD: 14,718 TVD: 7,386.53 Inclination: 88.82 Azimuth: 179.78 VS: 7,556.98	7000	MD: 14,811 TVD: 7,387.11 Inclination: 90.46 Azimuth: 180.98 VS: 7,649.98
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	TVD (ft)		TVD (ft)
med gy, mot, sb blk-y-sb ply, calc, MRLST: med-dk gy-gy sft-frn, sl arg, m-v slty, calc, tr sting with bright bl halo cut	8000	14,700'-14,800' MD: CHK: lt-med gy, mot, sb blk-y-sb ply, sft-sl frn-frn, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, mot, ply-sb blk-y, mod sft-frn, sl arg, m-v slty, calc, tr bent, tr lt bl flr, strong lt bl sting with bright bl halo cut	8000





MD: 14,906.
TVD: 7,386.28.
Inclination: 90.55 -
Azimuth: 180.57 -
VS: 7,744.97.

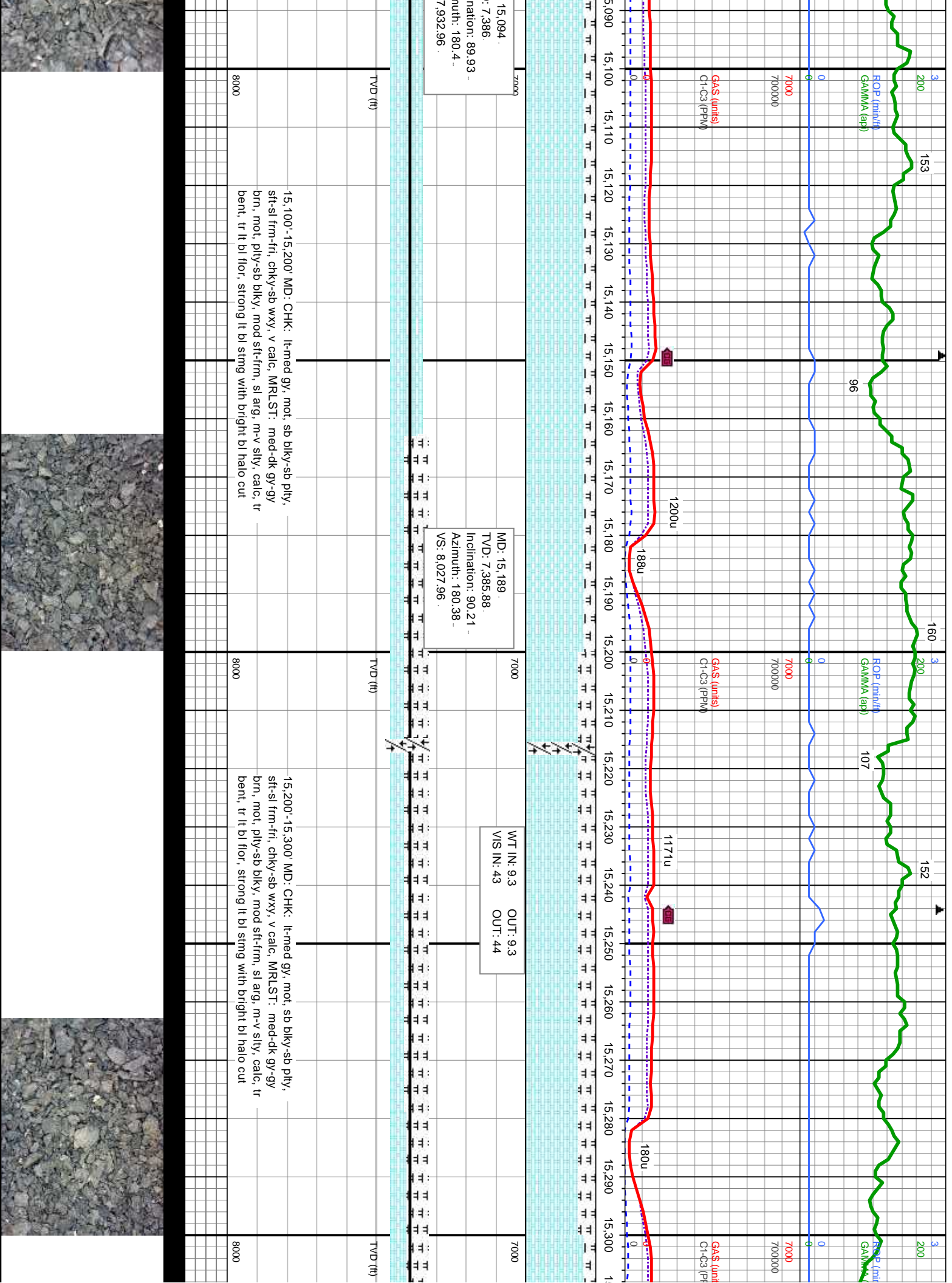
WT IN: 9.3 OUT: 9.3+
VIS IN: 42 OUT: 45

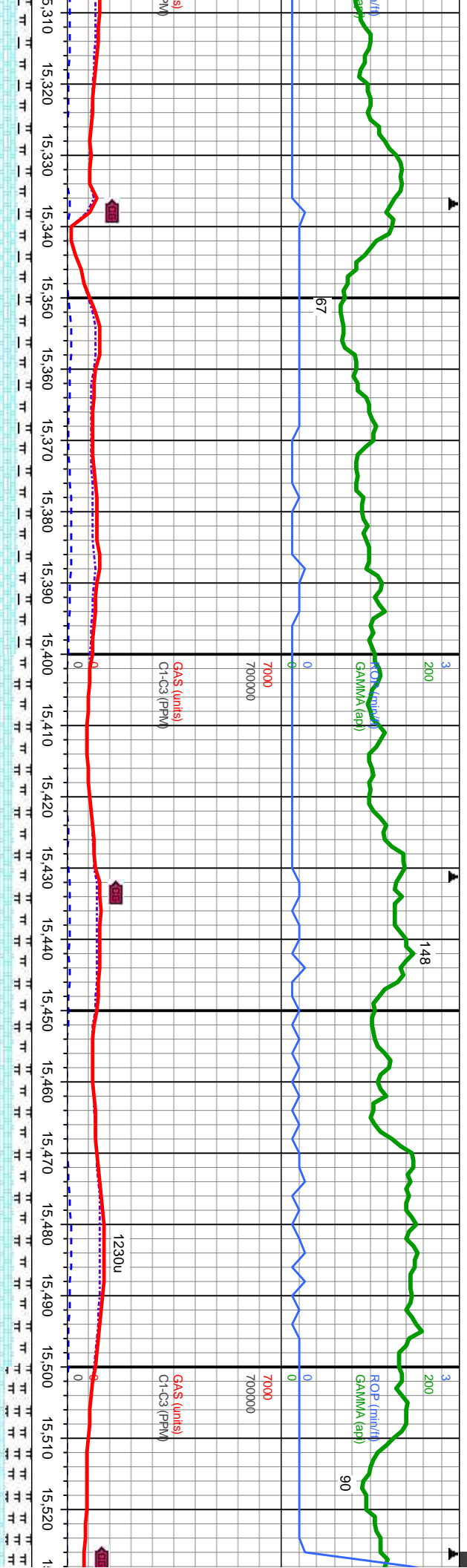
MD: 15,000.
TVD: 7,385.88.
Inclination: 89.93 -
Azimuth: 180.3 -
VS: 7,838.96.

MD:
TVD:
Incl:
Azir
VS:

ky-sb pily, -dk gy-gy pily, calc, tr halo cut	8000	14,900'-15,000' MD: CHK: lt-med gy, mot, sb biky-sb pily, sft-sl frm-fri, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, mot, pily-sb biky, mod sft-frm, sl arg, m-v sily, calc, tr bent, tr lt bl flor, strong lt bl sting with bright bl halo cut	8000	15,000'-15,100' MD: CHK: lt-med gy, mot, sb biky-sb pily, sft-sl frm-fri, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, mot, pily-sb biky, mod sft-frm, sl arg, m-v sily, calc, tr bent, tr lt bl flor, strong lt bl sting with bright bl halo cut
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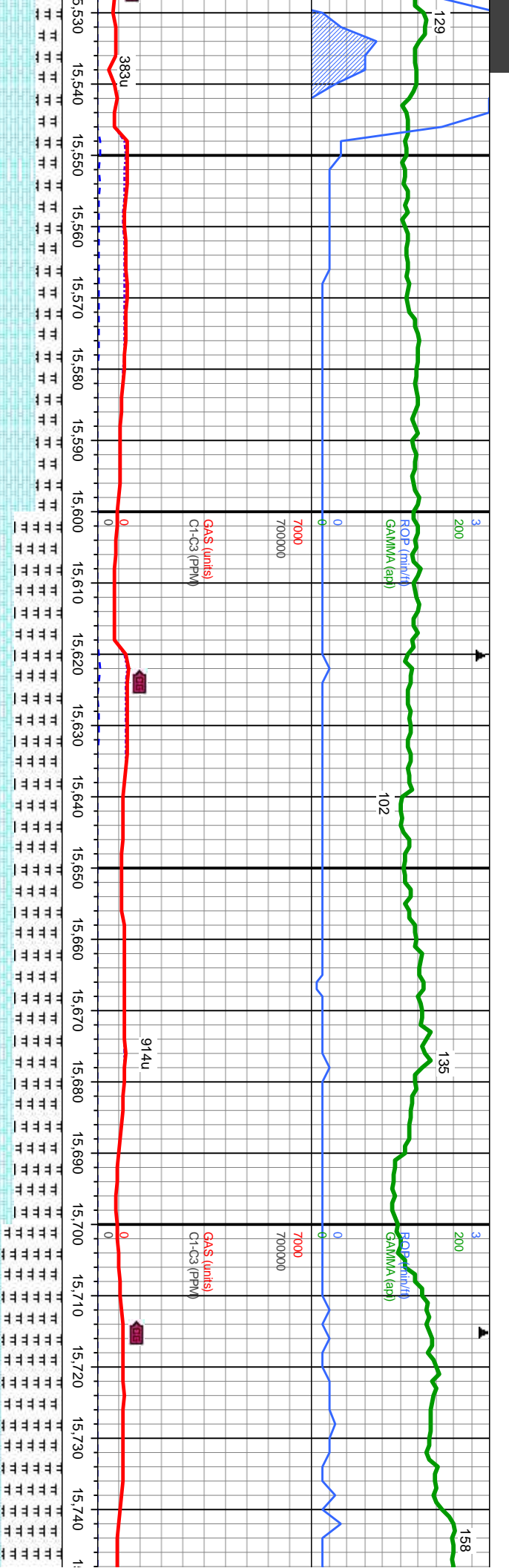






15,300'-15,400' MD: CHK: lt-med gy, mot, sb blk-y-sb ply, sft-sl frm-frt, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, mot, ply-sb blk-y, mod sft-frm, sl arg, m-v silty, calc, tr bent, tr lt bl flor, strong lt bl stmg with bright bl halo cut	7000	8000	TVD (ft)
15,400'-15,500' MD: CHK: lt-med gy, mot, sb blk-y-sb ply, sft-sl frm-frt, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, mot, ply-sb blk-y, mod sft-frm, sl arg, m-v silty, calc, tr bent, tr lt bl flor, strong lt bl stmg with bright bl halo cut	7000	8000	TVD (ft)
15,500'-15,520' MD: CHK: lt-med gy, mot, sb blk-y-sb ply, sft-sl frm-frt, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, mot, ply-sb blk-y, mod sft-frm, sl arg, m-v silty, calc, tr bent, tr lt bl flor, strong lt bl stmg with bright bl halo cut	7000	8000	TVD (ft)





MD: 15,566
TVD: 7,382.82
Inclination: 89.16
Azimuth: 180.42
VS: 8,404.94

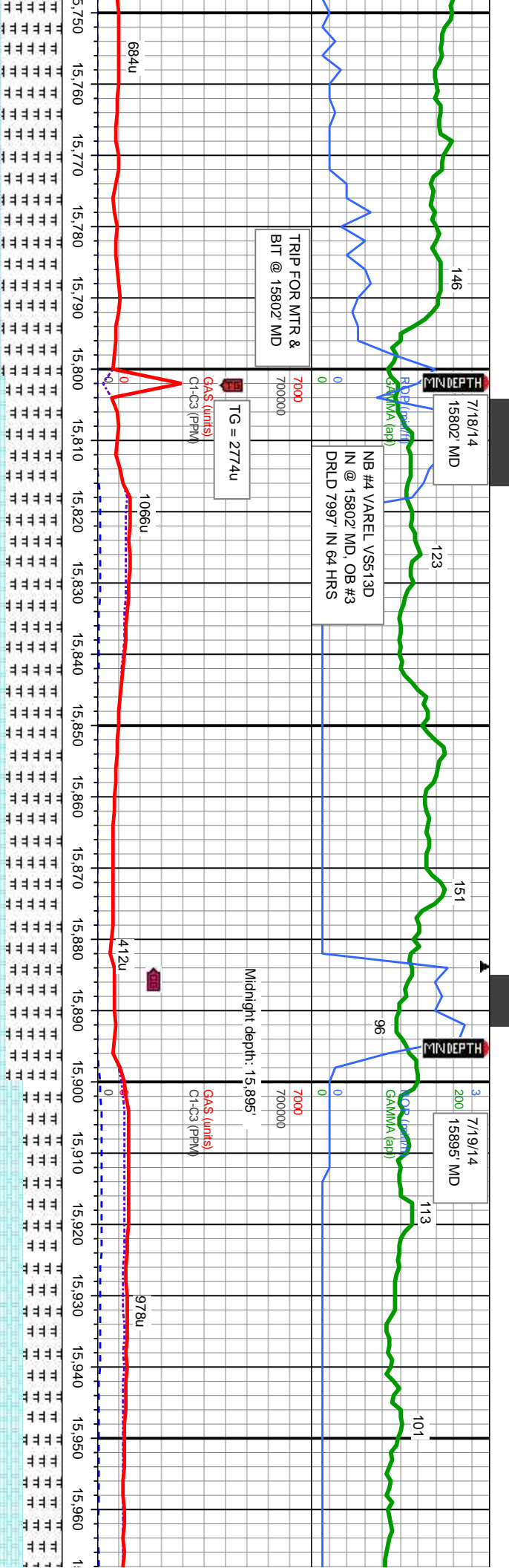
MD: 15,660
TVD: 7,384.7
Inclination: 88.55
Azimuth: 180.42
VS: 8,498.92

15,600' MD: CHK: lt-med gy, mot, sb blk-y-sb ply, m-fri, chky-sb wxy, v calc, MRLST: med-dk gy-gy t, ply-sb blk-y, mod sft-fm, sl arg, m-v sily, calc, tr lt bl flor, strong lt bl stmg with bright bl halo cut

15,600'-15,700' MD: MRLST: med-dk gy-gy brn, mot, ply-sb blk-y, mod sft-fm, sl arg, m-v sily, calc, tr bent, CHK: lt-med gy, mot, sb blk-y-sb ply, sft-sl frm-fri, chky-sb wxy, v calc, tr lt bl flor, strong lt bl stmg with bright bl halo cut

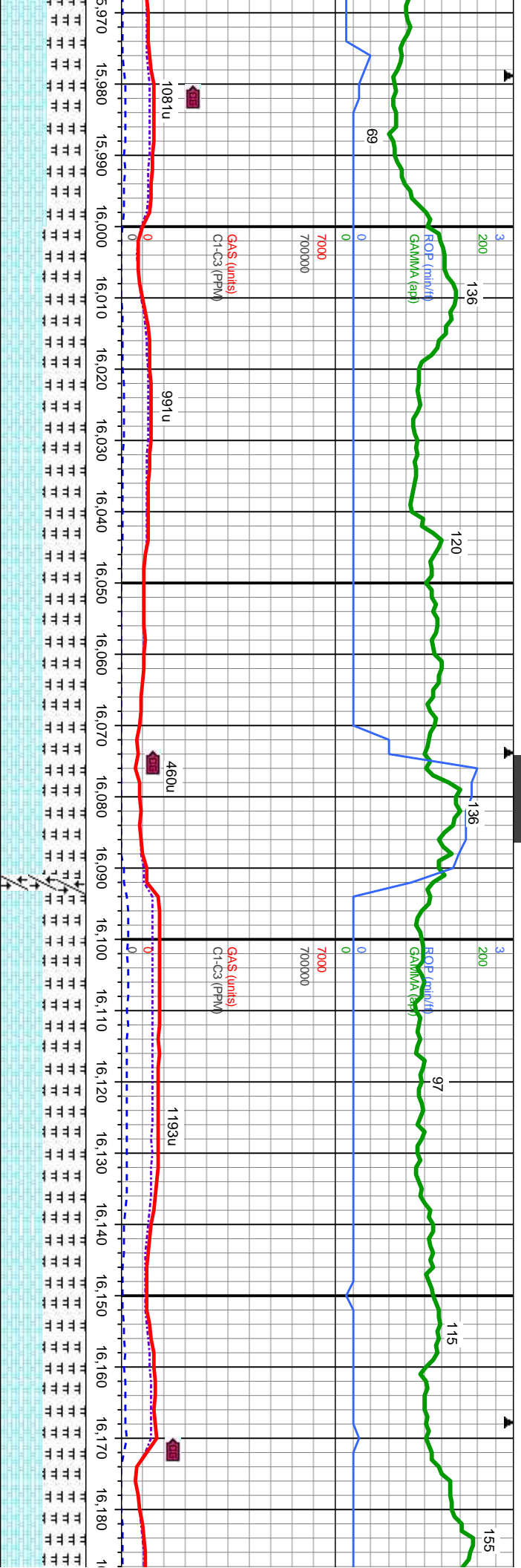
15,700'-15,802' MD: MRLST: blk-y, mod sft-fm, sl arg, m-gy, mot, sb blk-y-sb ply, sft-bl flor, strong lt bl stmg with





WT IN: 9.4	OUT: 9.3+	WT IN: 9.2	OUT: 9.2	WT IN: 9.2	OUT: 9.2	MD: 15,923
VIS IN: 41	OUT: 42	VIS IN: 44	OUT: 43	VIS IN: 43	OUT: 41	TVD: 7,389.94
MD: 15,829			MD: 15,900'			Inclination: 89.32
TVD: 7,388.47			TVD: 7,388.47			Azimuth: 180.42
Inclination: 88.89			Inclination: 88.89			VS: 8,761.86
Azimuth: 180.46			Azimuth: 180.46			
VS: 8,667.87			VS: 8,667.87			
MD: 15,802-15,900'			MD: 15,900-16,000'			
MRLST: med-dk gy-gy brn, mot, pty-sb			MRLST: med-dk gy-gy brn, mot, pty-sb			
biky, mod sft-frn, sl arg, m-v silty, calc, CHK: lt-med			biky, mod sft-frn, sl arg, m-v silty, calc, CHK: lt-med			
sb biky-sb pty, sft-sl frn-fri, chky-sb wxy, v calc, tr lt			sb biky-sb pty, sft-sl frn-fri, chky-sb wxy, v calc, tr lt			
flor, mod lt bl string with bright bl-yl halo cut.			flor, mod lt bl string with bright bl-yl halo cut.			
bright bl halo cut			bright bl halo cut			
8000			8000			

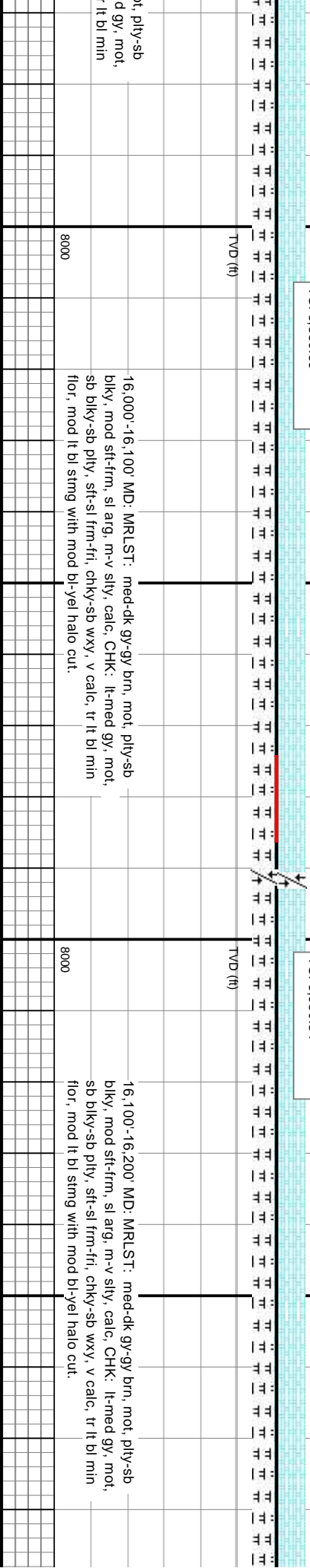




MD: 16,018
TVD: 7,391.07
Inclination: 89.32
Azimuth: 181.07
VS: 8,856.85

WT IN: 9.2 OUT: 9.2
VIS IN: 43 OUT: 41

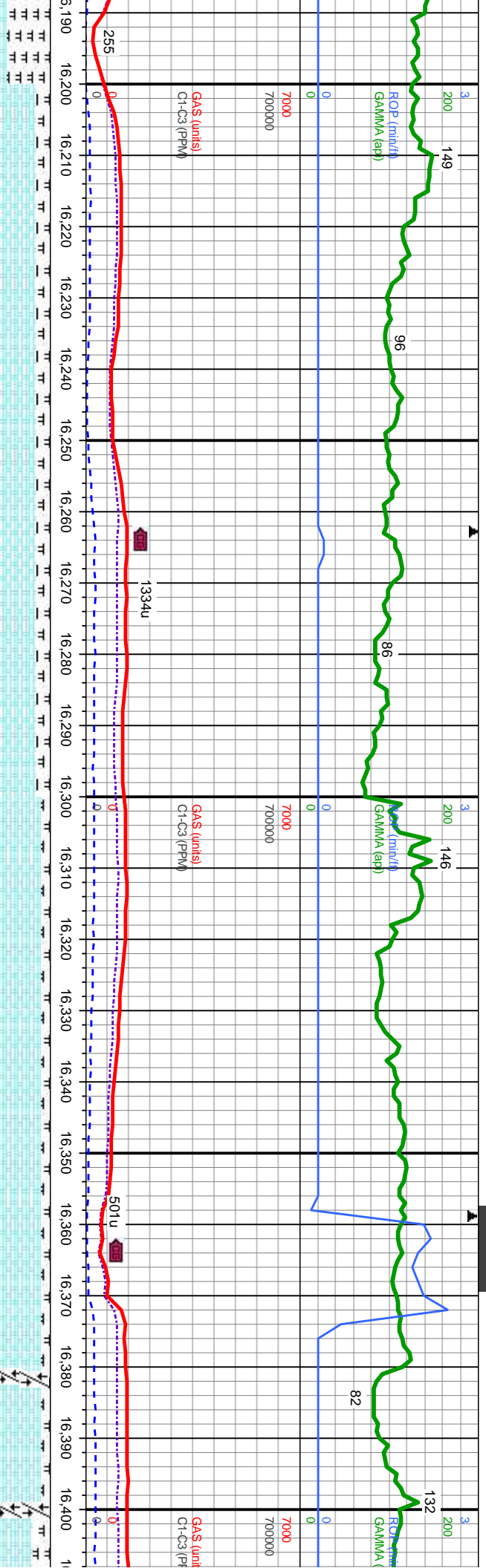
MD: 16,112
TVD: 7,391.5
Inclination: 90.15
Azimuth: 180.69
VS: 8,950.84



16,000'-16,100' MD: MRLST: med-dk gy-gy brn, mot, pily-sb
biky, mod sft-frn, sl arg, m-v silty, calc, CHK: lt-med gy, mot,
sb biky-sb pily, sft-sl frn-fri, chky-sb wxy, v calc, tr lt bl min
flor, mod lt bl sting with mod bl-yei halo cut.

16,100'-16,200' MD: MRLST: med-dk gy-gy brn, mot, pily-sb
biky, mod sft-frn, sl arg, m-v silty, calc, CHK: lt-med gy, mot,
sb biky-sb pily, sft-sl frn-fri, chky-sb wxy, v calc, tr lt bl min
flor, mod lt bl sting with mod bl-yei halo cut.





MD: 16,207
TVD: 7,391.66
Inclination: 89.66
Azimuth: 180.81
VS: 9,045.83

MD: 16,301
TVD: 7,392.65
Inclination: 89.13
Azimuth: 181.11
VS: 9,139.82

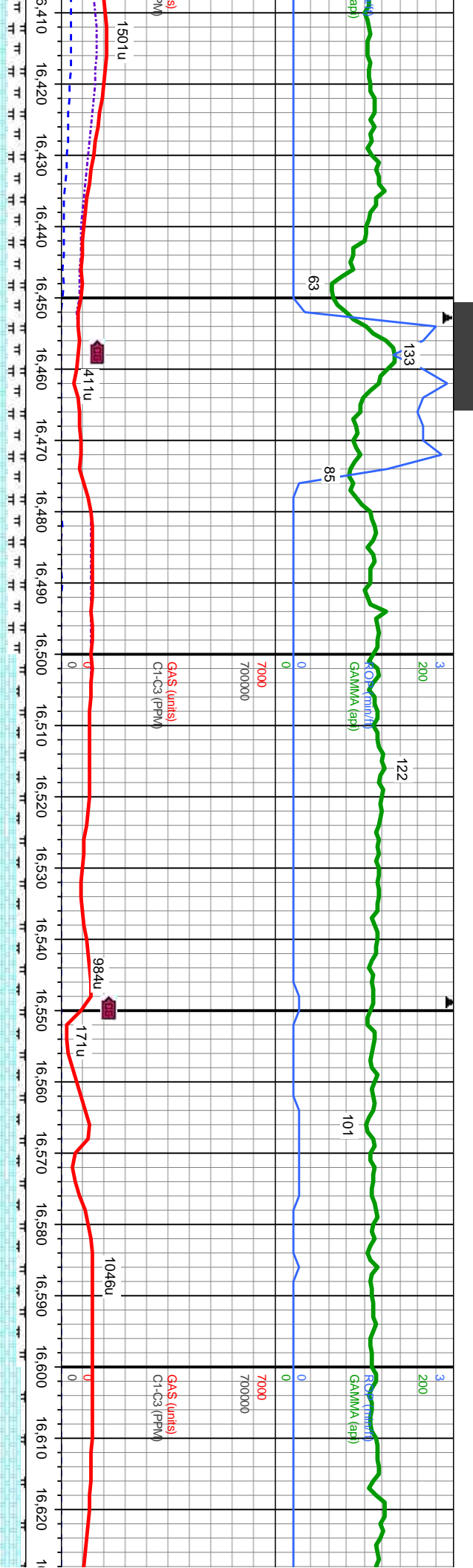
WT IN: 9.2
VS IN: 43
OUT: 9.2
OUT: 41

MD: 16,395
TVD: 7,393.98
Inclination: 89.26
Azimuth: 180.45
VS: 9,233.8

16,200'-16,300' MD: CHK: lt-med gy, mot, sb biky-sb ply, sft-sl frm-fri, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, mot, ply-sb biky, mod sft-frm, sl arg, m-v sily, calc, tr lt bl min flr, mod lt bl stmg with mod bi-vel halo cut.

16,300'-16,400' MD: CHK: lt-med gy, mot, sb biky-sb ply, sft-sl frm-fri, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, mot, ply-sb biky, mod sft-frm, sl arg, m-v sily, calc, tr lt bl min flr, mod lt bl stmg with mod bi-vel halo cut.





MD: 16,490
TVD: 7,394.34
Inclination: 90.3
Azimuth: 180.18
VS: 9,328.8

WT IN: 9.3
VIS IN: 42
OUT: 9.2+
OUT: 41

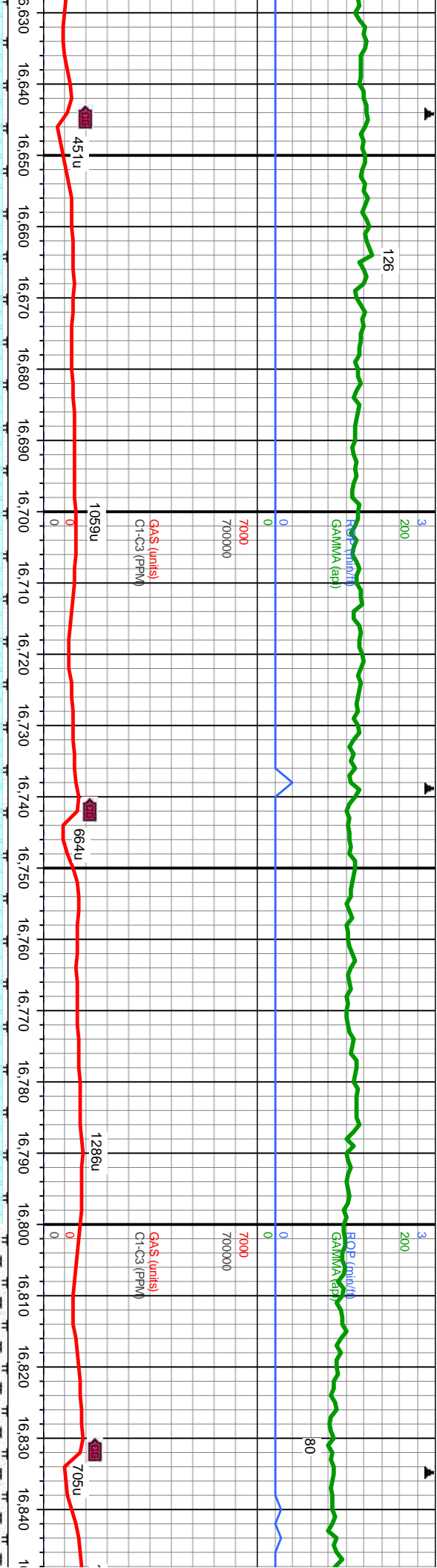
MD: 16,584
TVD: 7,393.74
Inclination: 90.43
Azimuth: 180.31
VS: 9,422.8

16,400'-16,500' MD: CHK: lt-med gy, mot, sb blk-y-sb ply, sft-sl frm-fri, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, mot, ply-sb blk-y, mod sft-frm, sl arg, m-v slty, calc, tr lt bl min flor, mod lt bl sting with mod bl-yei halo cut.

16,500'-16,600' MD: CHK: lt-med gy, mot, sb blk-y-sb ply, sft-sl frm-fri, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, mot, ply-sb blk-y, mod sft-frm, sl arg, m-v slty, calc, tr lt bl min flor, mod lt bl sting with mod bl-yei halo cut.

16,600'-16,620' MD: CHK: lt-med gy, mot, sb blk-y-sb ply, sft-sl frm-fri, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, mot, ply-sb blk-y, mod sft-frm, sl arg, m-v slty, calc, tr lt bl min flor, mod lt bl sting with mod bl-yei halo cut.





WT IN: 9.2+ OUT: 9.3
VIS IN: 47 OUT: 42

MD: 16,679
TVD: 7,392.93
Inclination: 90.55 -
Azimuth: 180.53 -
VS: 9,517.79

7000

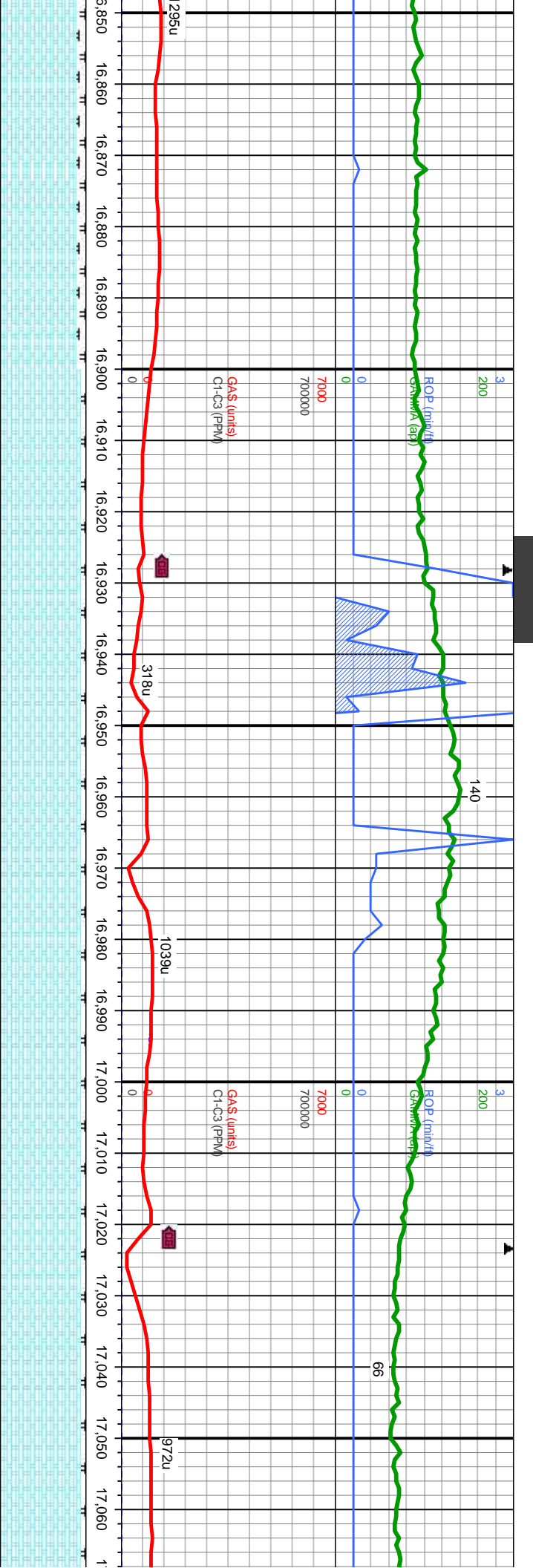
MD: 16,773
TVD: 7,392
Inclination: 90.58 -
Azimuth: 180.79 -
VS: 9,611.78

7000

WT IN: 9.2+ OUT: 9.3
VIS IN: 42 OUT: 41

16,670-16,700' MD: CHK: lt-med gy, mot, sb blk-y-sb ply, m-frt, chky-sb wxy, v calc, MRLST: med-dk gy-gy mot, ply-sb blk-y, mod sft-frm, sl arg, m-v sily, calc, tr in flor, mod lt bl smg with mod bl-yei halo cut.	TVD (ft)	8000	16,700-16,800' MD: CHK: lt-med gy, mot, sb blk-y-sb ply, sft-sl frm-frt, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, mot, ply-sb blk-y, mod sft-frm, sl arg, m-v sily, calc, tr lt bl min flor, mod lt bl smg with mod bl-yei halo cut.	TVD (ft)	8000	16,800-16,900' MD: CHK: l sft-sl frm-frt, chky-sb wxy, v brn, mot, ply-sb blk-y, mod tr lt bl min flor, mod lt bl sm
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MD: 16,867.
TVD: 7,391.07.
Inclination: 90.55 -
Azimuth: 181.13 -
VS: 9,705.77.

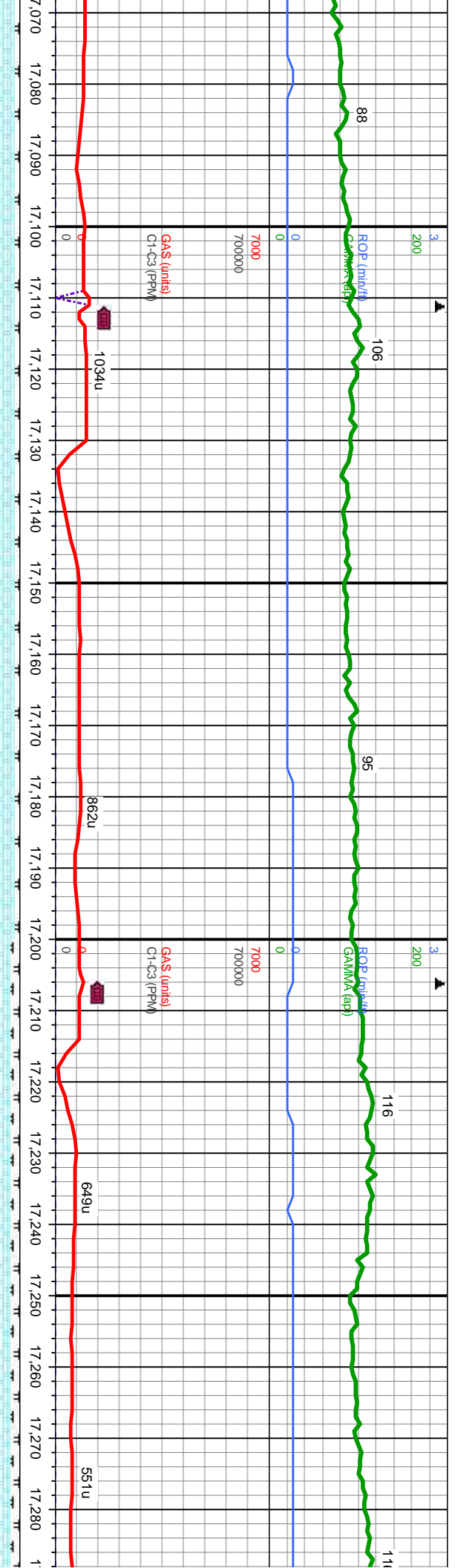
WT IN: 9.3 OUT: 9.3
VIS IN: 48 OUT: 44

MD: 16,961.
TVD: 7,389.97.
Inclination: 90.8 -
Azimuth: 179.92 -
VS: 9,799.76.

MD: 17,056.
TVD: 7,389.
Inclination: 90.37 -
Azimuth: 180.16 -
VS: 9,894.75.

TVD (ft)	
16,900'-17,000' MD: CHK: lt-med gy, mot, sb blk-y-sb pily, sft-sl frm-fri, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, mot, pily-sb blk-y, mod sft-frm, sl arg, m-v silty, calc, tr lt bl min flor, mod lt bl stmg with mod bl-yel halo cut.	
8000	



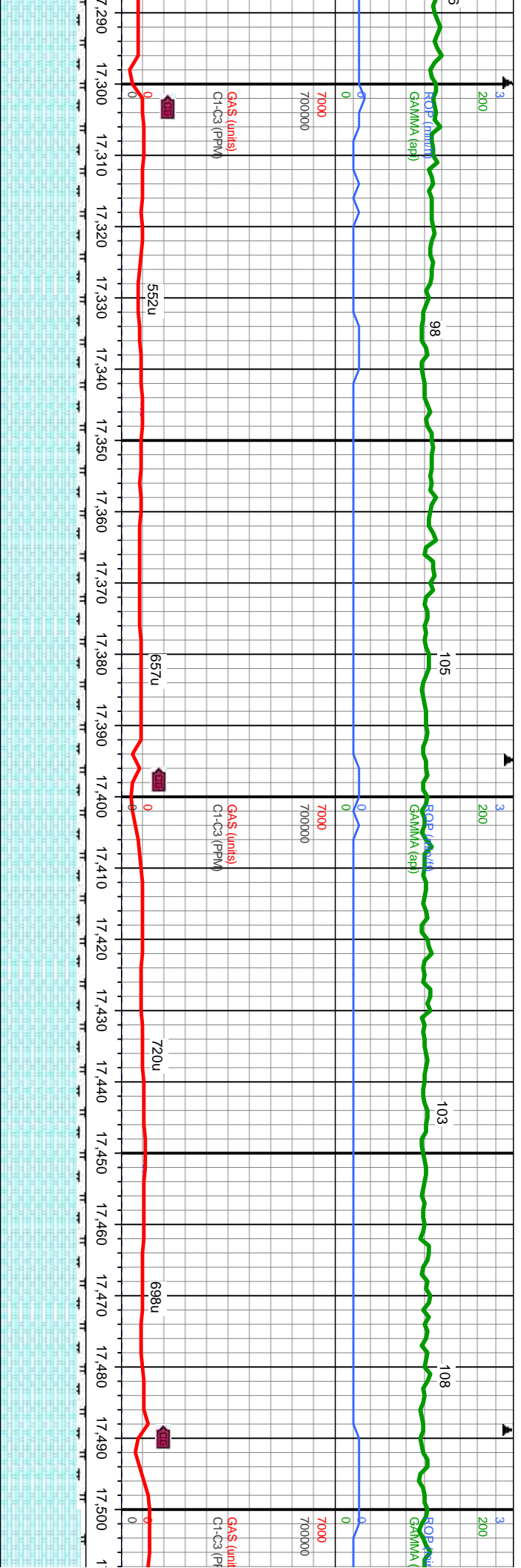


WT IN: 9.3
VIS IN: 42
OUT: 9.2+
OUT: 44

MD: 17,150
TVD: 7,388.42
Inclination: 90.33 -
Azimuth: 180.29 -
VS: 9.988.75

TVD (ft)	TVD (ft)
8000	8000
17,100-17,200' MD: CHK: lt-med gy, mot, sb blk-y-sb pily, sft-sl frm-fri, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, mot, pily-sb blk-y, mod sft-frm, sl arg, m-v slty, calc, tr lt bl min flor, mod lt bl sting with mod bl-yel halo cut.	
17,200-17,300' MD: CHK: lt-med gy, mot, sb blk-y-sb pily, sft-sl frm-fri, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, mot, pily-sb blk-y, mod sft-frm, sl arg, m-v slty, calc, tr lt bl min flor, slow lt bl sting with wk bl-yel halo cut.	





7000	MD: 17,339. TVD: 7,386.97. Inclination: 90.55 - Azimuth: 180.6 - VS: 10,177.74.	WT IN: 9.3 VIS IN: 46	OUT: 9.3 OUT: 45	7000
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TVD (ft)	17,300'-17,400' MD: CHK: lt-med gy, mot, sb blk-y-sb ply, sft-sl frm-fri, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, mot, ply-sb blk-y, mod sft-frm, sl arg, m-v silty, calc, tr lt bl min flwr, fast lt bl stmg with mod bl-yel halo cut.	TVD (ft)	17,400'-17,500' MD: CHK: lt-med gy, mot, sb blk-y-sb ply, sft-sl frm-fri, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, mot, ply-sb blk-y, mod sft-frm, sl arg, m-v silty, calc, tr lt bl min flwr, fast lt bl stmg with strong bl-yel halo cut.	TVD (ft)
8000		8000		8000

