










**Scale: 5" / 100'**  
**Measured Depth Log**

	UNKNOWN
	ANHYDRITE
	BENTONITE
	BRECCIA
	CHALK
	CEMENT
	CHERT
	CLAY CHOKE
	CLAYSTONE

## Operator

2022

## Geologist

leum Co.

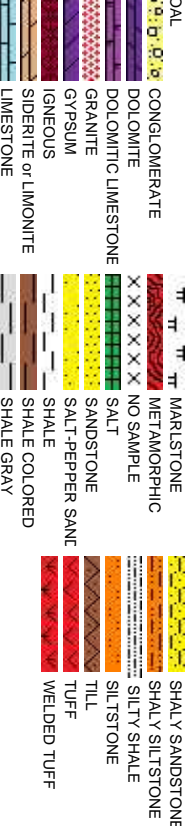
2022

## Other

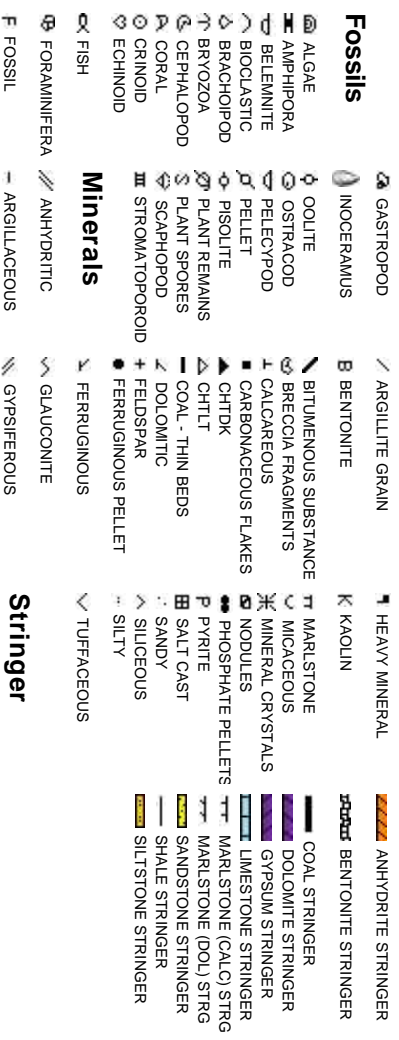
ine Logging Inc.

Lipan St.  
, CO

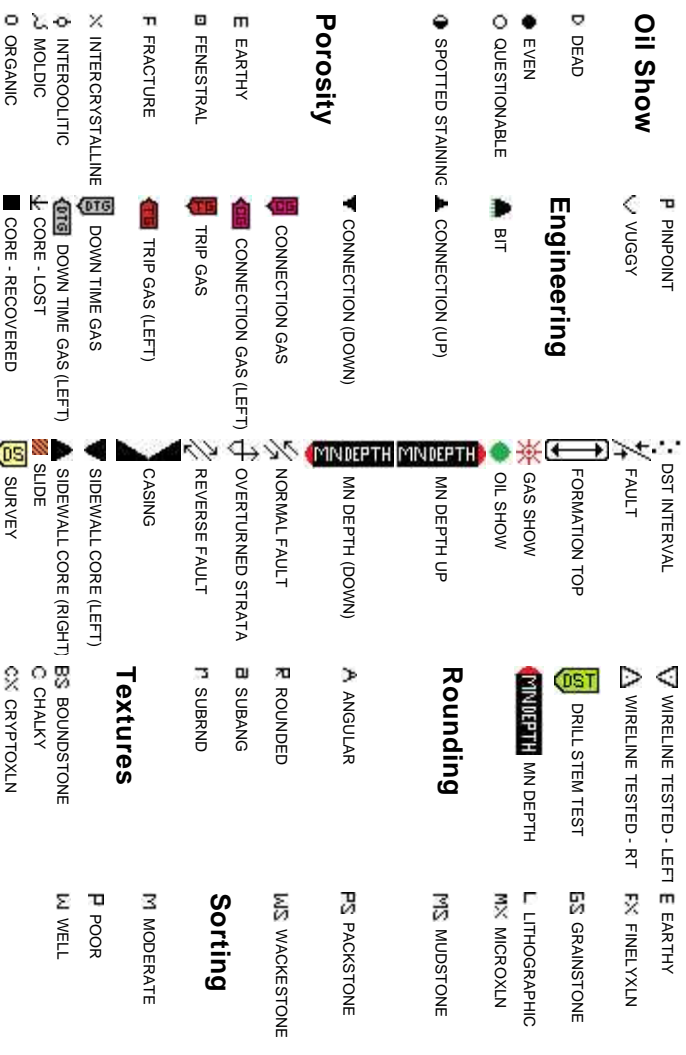
## Rock Types



## Accessories



## Other Symbols



Slide/Rotate

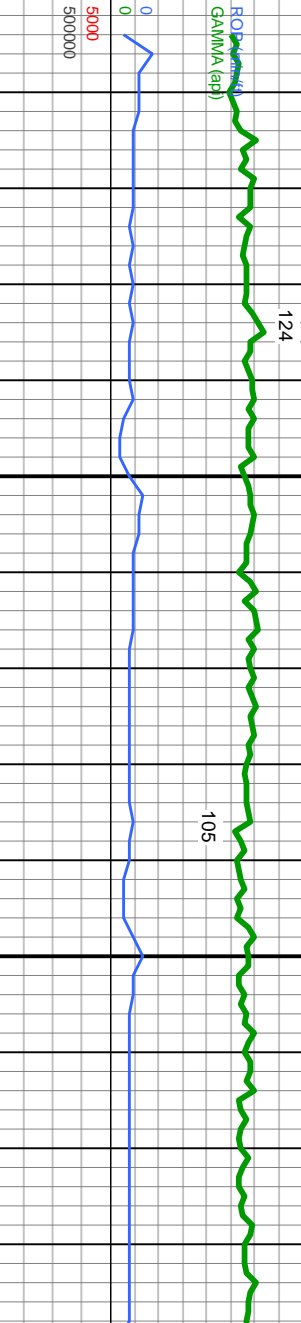
ROP  
ROF  
GAMMA

COLUMBINE LOGGING TWO MAN  
RIGGED UP ON 3/5/2014 @ 16:00HRS,  
BEGIN LOGGING  
@ 1:20 HRS 3/6/2014

KOP = 6604' MD

DRLG 8.75' HOLE W/ BIT  
#1, HUGHS DP306S,  
IN @ 1105' MD

GAS DETECTION  
PROVIDED BY  
TOTCO



ROP (ppm)

ROF (ppm)

GAMMA (api)

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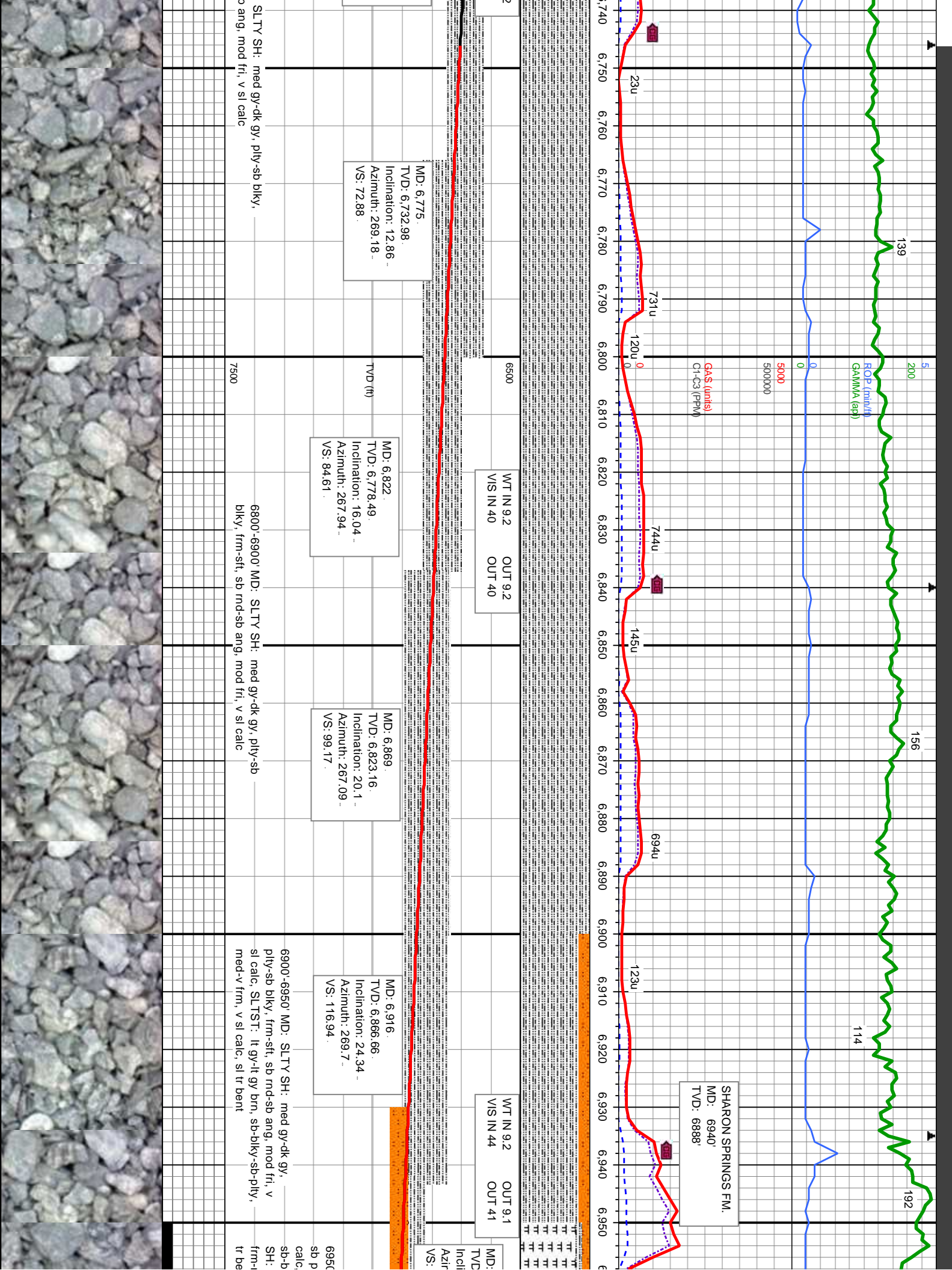
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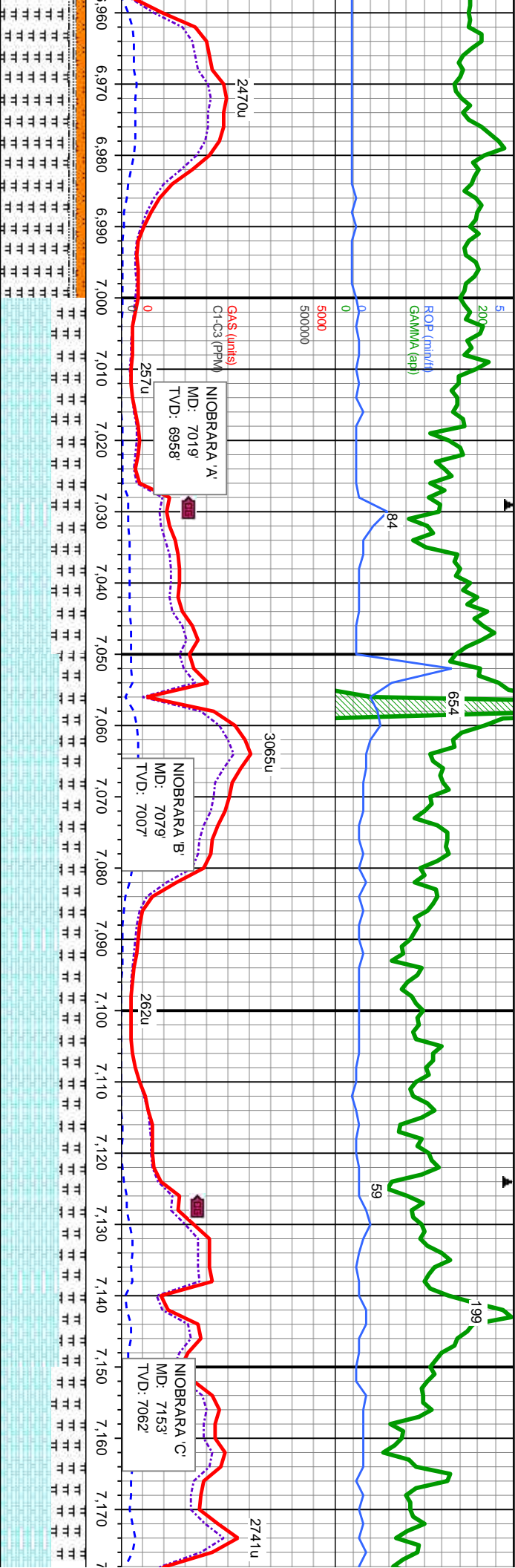
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6,964  
: 6,909.87  
nation: 27.32  
nuth: 273.32  
137.82

MD: 7,011  
TVD: 6,950.76  
Inclination: 31.68  
Azimuth: 272.92  
VS: 160.9

MD: 7,058  
TVD: 6,989.84  
Inclination: 35.79  
Azimuth: 272.26  
VS: 186.94

MD: 7,105  
TVD: 7,026.86  
Inclination: 40.23  
Azimuth: 271.41  
VS: 215.84

MD: 7,153  
TVD: 7,062.35  
Inclination: 44.41  
Azimuth: 271.03  
VS: 248.13

7,000'-7,000' MD MRLST: med-dk gy-gy brn, arg-sily, mod sft-frn, sb arg-sily, tr bent, SLTST: lt gy-lt gy brn, biky-sb ply, med-v frn, v sl calc, SLTY med gy-dk gy, sb ply-sb biky, lam, med sft, sb md-sb ang, mod fri, sl calc, nt, sl tr lt bl flr w/v slow-med halo cut

7,000'-7,050' MD MRLST: med-dk gy-gy brn, sb ply-sb biky, mod sft-frn, sb arg-sily, calc, tr bent, CHK: lt-med gy, mot, sb biky-sb ply, sft-sl frn, fri, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, sb ply-sb biky, mod sft-frn, sb arg-sily, calc, tr bent, lt bl flr w/v slow-med halo cut

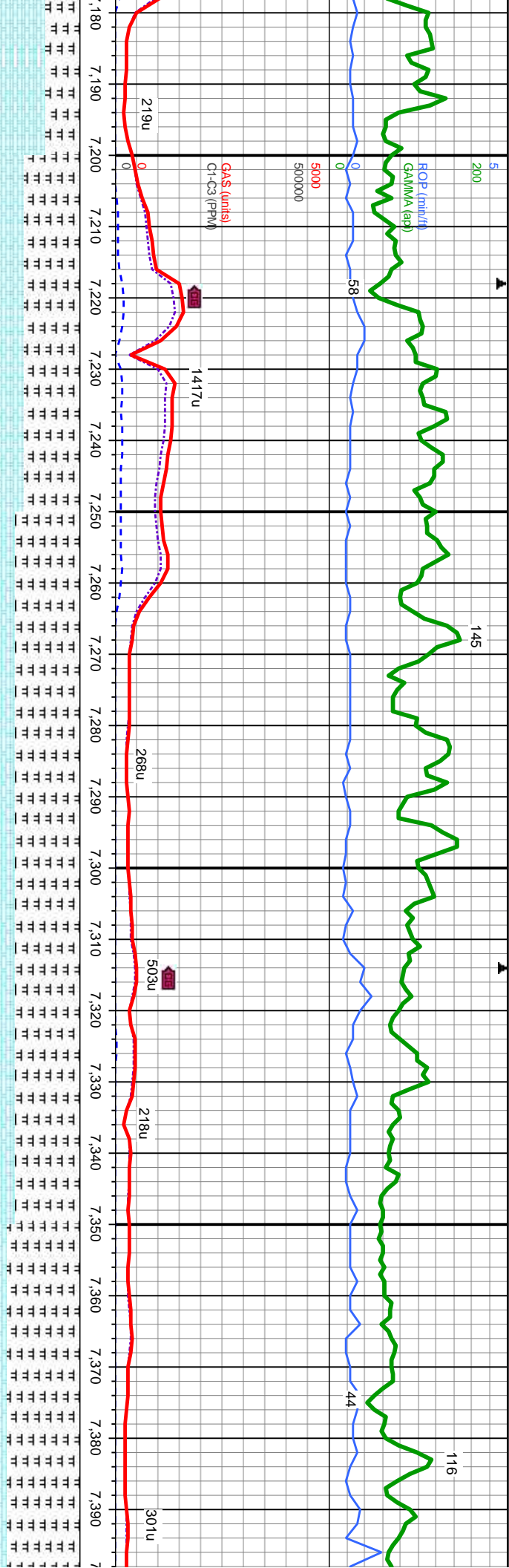
7,050'-7,100' MD: CHK: lt-med gy, mot, sb biky-sb ply, sft-sl frn, fri, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, sb ply-sb biky, mod sft-frn, sb arg-sily, calc, tr bent, lt bl flr w/v slow-med halo cut

7,100'-7,150' MD: CHK: lt-med gy, mot, sb biky-sb ply, sft-sl frn, fri, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, sb ply-sb biky, mod sft-frn, sb arg-sily, calc, tr bent, tr lt bl flr w/v slow-med halo cut

7,150'-7,200' MD: CHK: lt-med gy, mot, sb biky-sb ply, sft-sl frn, fri, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, sb ply-sb biky, mod sft-frn, sb arg-sily, calc, tr bent, tr lt bl flr w/v slow-med halo cut







WT IN 10.1 OUT 10.0+  
VIS IN 44 OUT 45

WT IN 10.1 OUT 10.0  
VIS IN 45 OUT 44

SCA

MD: 7,200.  
TVD: 7,094.55.  
Inclination: 49.06 -  
Azimuth: 270.78 -  
VS: 282.33.

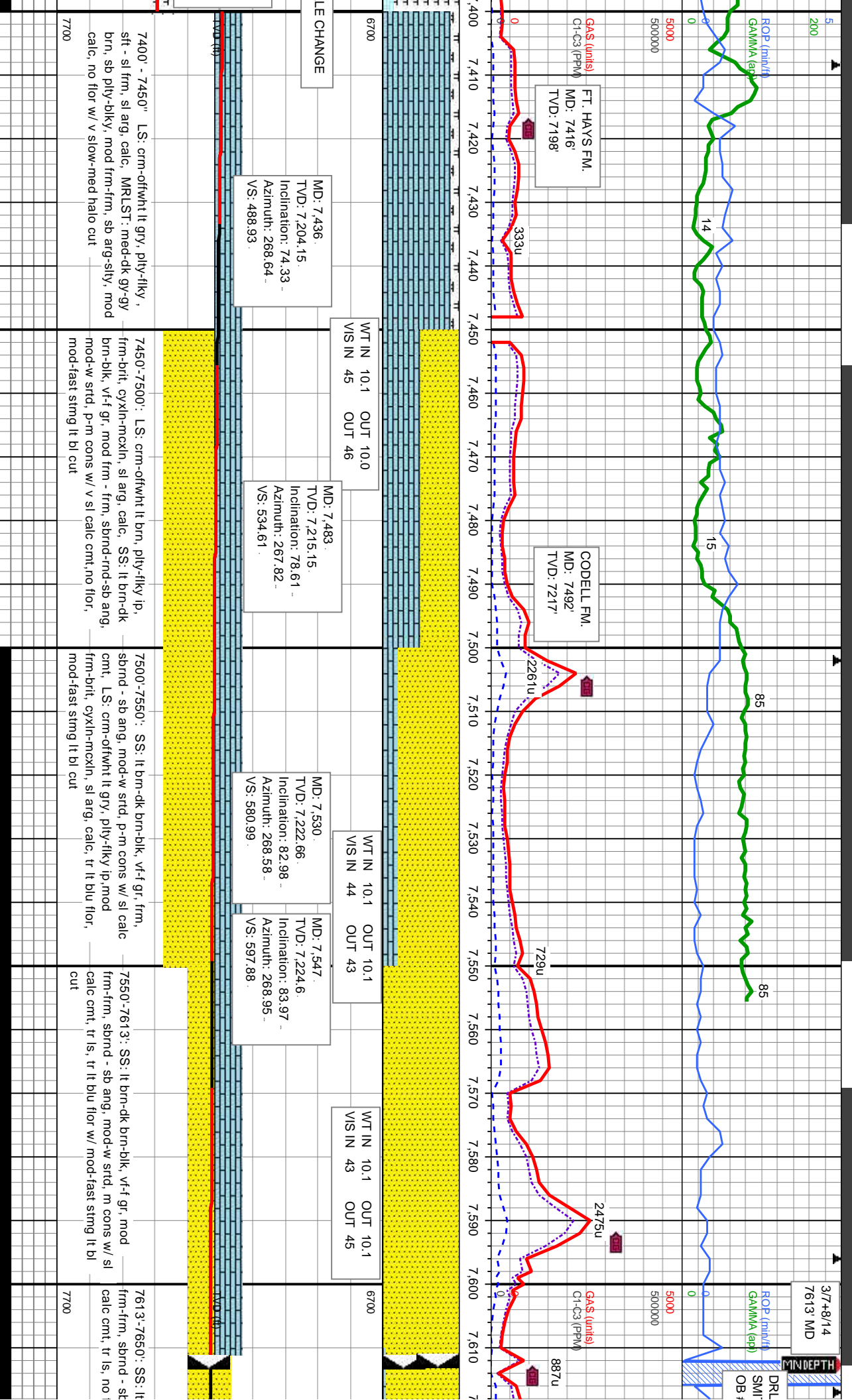
MD: 7,248.  
TVD: 7,124.43.  
Inclination: 53.92 -  
Azimuth: 269.57 -  
VS: 319.87.

MD: 7,295.  
TVD: 7,150.18.  
Inclination: 59.62 -  
Azimuth: 268.24 -  
VS: 359.16.

MD: 7,342.  
TVD: 7,172.06.  
Inclination: 64.85 -  
Azimuth: 267.39 -  
VS: 400.73.

MD: 7,389.  
TVD: 7,189.93.  
Inclination: 70.44 -  
Azimuth: 266.98 -  
VS: 444.16.

med gy, mot, sb	7200'-7250' MD: MRLST: med-dk gy-gy brn,	7250'-7300' MD: MRLST: med-dk gy-gy brn,	7300'-7350' MD: MRLST: med-dk gy-gy brn,	7350'-7400' MD: MRLST: med-dk gy-gy brn,
chky-sb wxy, v	sb pily-sb blk, mod sft-frn, sb arg-sily,	sb pily-sb blk, mod sft-frn, sb arg-sily,	sb pily-sb blk, mod sft-frn, sb arg-sily,	sb pily-sb blk, mod sft-frn, sb arg-sily,
-gy brn, sb pily-sb	calc, tr bent, CHK: lt-med gy, mot, sb	calc, tr bent, CHK: lt-med gy, mot, sb	calc, tr bent, CHK: lt-med gy, mot, sb	calc, tr bent, CHK: lt-med gy, mot, sb
sily, calc, tr bent,	blk, sb pily, sft-sl frn, fri, chky-sb wxy, v	blk, sb pily, sft-sl frn, fri, chky-sb wxy, v	blk, sb pily, sft-sl frn, fri, chky-sb wxy, v	blk, sb pily, sft-sl frn, fri, chky-sb wxy, v
halo cut	calc, tr lt bl flr w/ v slow-med halo cut	calc, tr lt bl flr w/ v slow-med halo cut	calc, tr lt bl flr w/ v slow-med halo cut	calc, tr lt bl flr w/ v slow-med halo cut
7500				

3/7+8/14  
7613' MD

ROP (min/ft)  
GAMMA (api)

OB  
SM

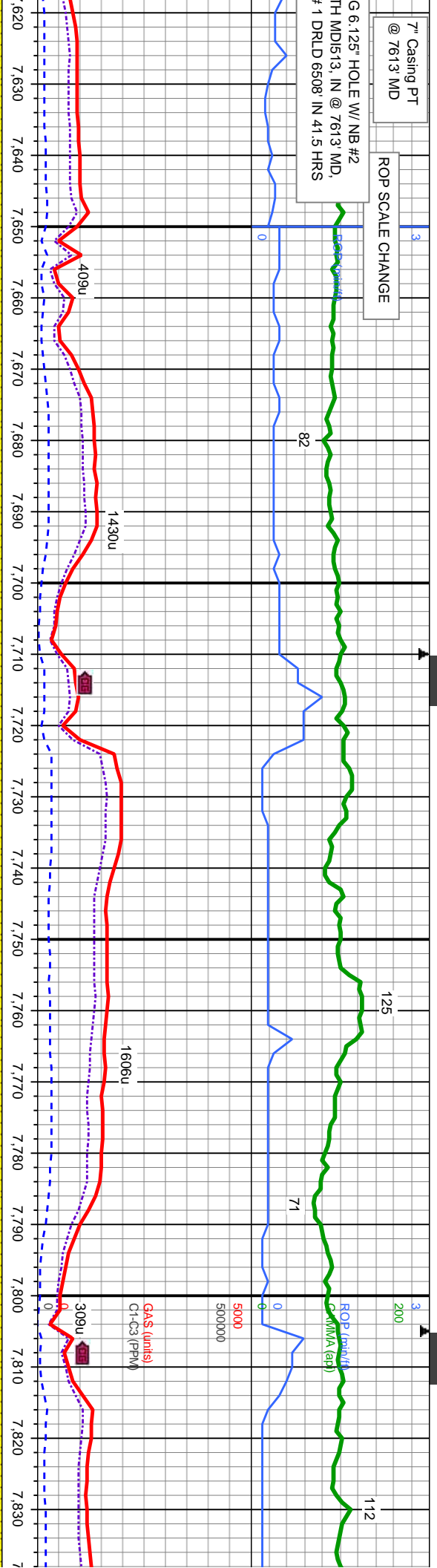
OB  
SM



7" Casing PT  
@ 7613 MD

ROP SCALE CHANGE

G 6.125" HOLE W/ NB #2  
TH MD613. IN @ 7613 MD,  
# 1 DRLD 6508 IN 41.5 HRS



WT IN 9.6+ OUT 9.7  
VIS IN 55 OUT 52

WT IN 9.6+ OUT 9.7  
VIS IN 50 OUT 53

WT  
VIS

MD: 7,645  
TVD: 7,231.23  
Inclination: 88.27  
Azimuth: 266.98  
VS: 695.61

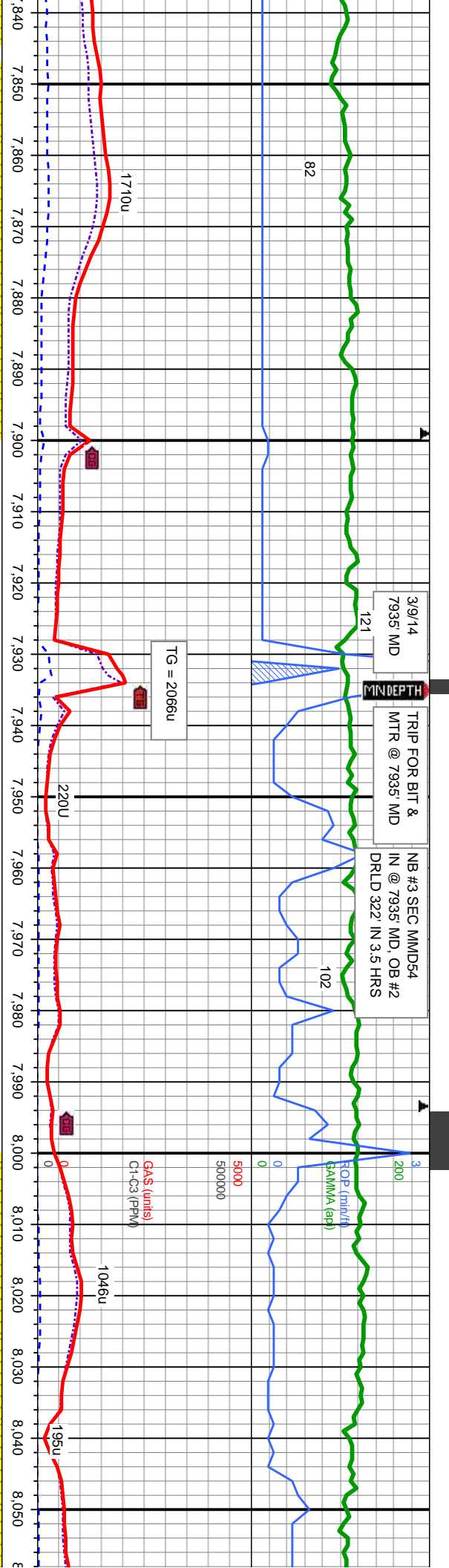
MD: 7,740  
TVD: 7,233.63  
Inclination: 88.83  
Azimuth: 267.74  
VS: 790.54

MD: 7,834  
TVD: 7,234.59  
Inclination: 90  
Azimuth: 268.4  
VS: 884.52

brn-dk brn-blk, vf-f gr, mod ang, mod-w strd, m cons w/ sl for w/ mod-fast stmg lt bl cut	7650'-7700': SS: lt brn-dk brn-blk, vf-f gr, mod frm-frm, sbnd - sb ang, mod-w strd, m cons w/ sl calc cnt, tr ls, v faint yel flr w/ fast stmg lt bl cut	7700'-7800': SS: dk brn-blk, vf-f gr, mod frm-frm, sbnd - rnd, mod-w strd, m cons w/ sl calc cnt, tr claycyst, tr pyr, no flr, no od, tr lt blu/yel flr w/ fast stmg lt bl cut	7800'-7900': SS: dk brn-bl w/ sl calc cnt, tr marl, no
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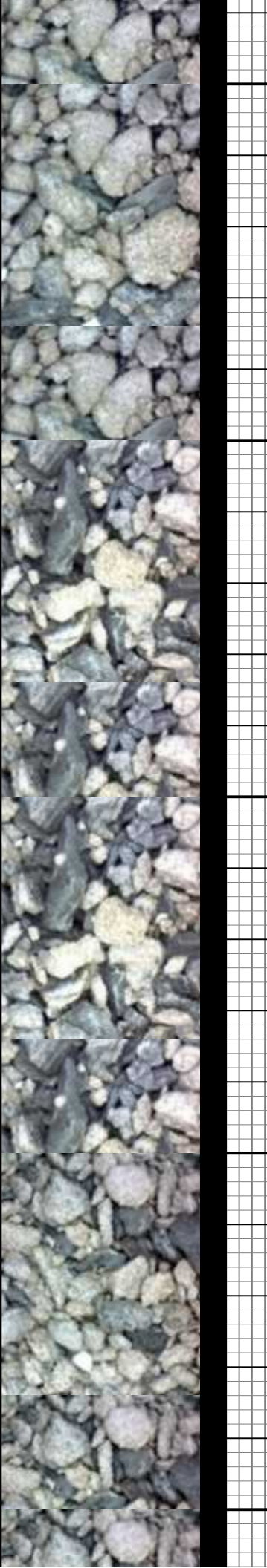


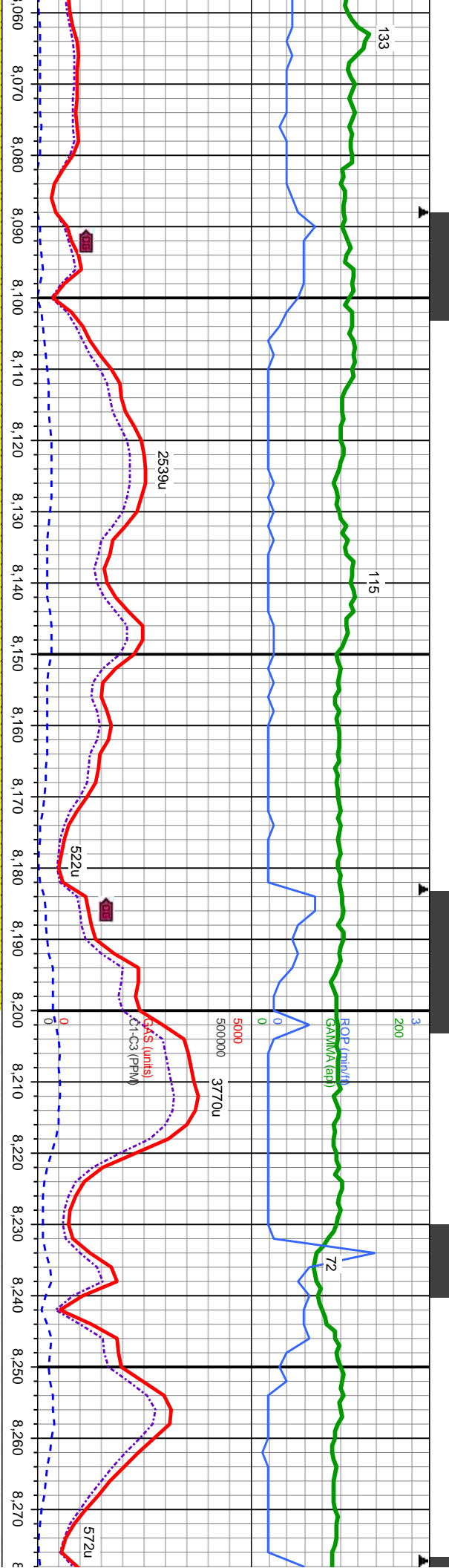
IN 9.6	OUT 9.6	MD: 7.871	TVD: 7.234.57	Inclination: 90.06	Azimuth: 268.42	VS: 921.52
IN 43	OUT 43	MD: 7.929	TVD: 7.234.59	Inclination: 89.9	Azimuth: 266.67	VS: 979.5
IN 9.6+	OUT 9.7	MD: 8.023	TVD: 7.234.85	Inclination: 89.78	Azimuth: 266.02	VS: 1,073.4

k, vf-f gr, mod frm-frn, sbnd -sb ang, w srt, m cons  
flor, no od, tr lt blu/yel flor w/ fast stmg lt bl cut

7900'-8000': SS: dk brn-blk, vf-f gr, mod frm-frn, sbnd -sb ang, w srt, m  
cons w/ sl calc cmt, tr marl, no flor, no od, SH: dk gy-blk, blkly-sbply,  
m-v frm, sl sily, sl-m calc, tr lt blu/yel flor w/ fast stmg lt bl cut

8000'-8100': SS: dk brn-lt gy-mot, vf-f gr,  
ang, w srt, p vis intgrn por, m cons w/ s  
blu/yel flor w/ fast stmg lt bl cut





WT IN 9.6 OUT 9.6  
VIS IN 50 OUT 49

MD: 8,118.  
TVD: 7,235.71  
Inclination: 89.19  
Azimuth: 265.23  
VS: 1,168.23

6700 WT IN 9.6 OUT 9.6  
VIS IN 55 OUT 49

MD: 8,212.  
TVD: 7,237.39  
Inclination: 88.76  
Azimuth: 266.05  
VS: 1,262.05

mod frm-frm, sbnd -sb  
sl calc cnt, no od, tr lt

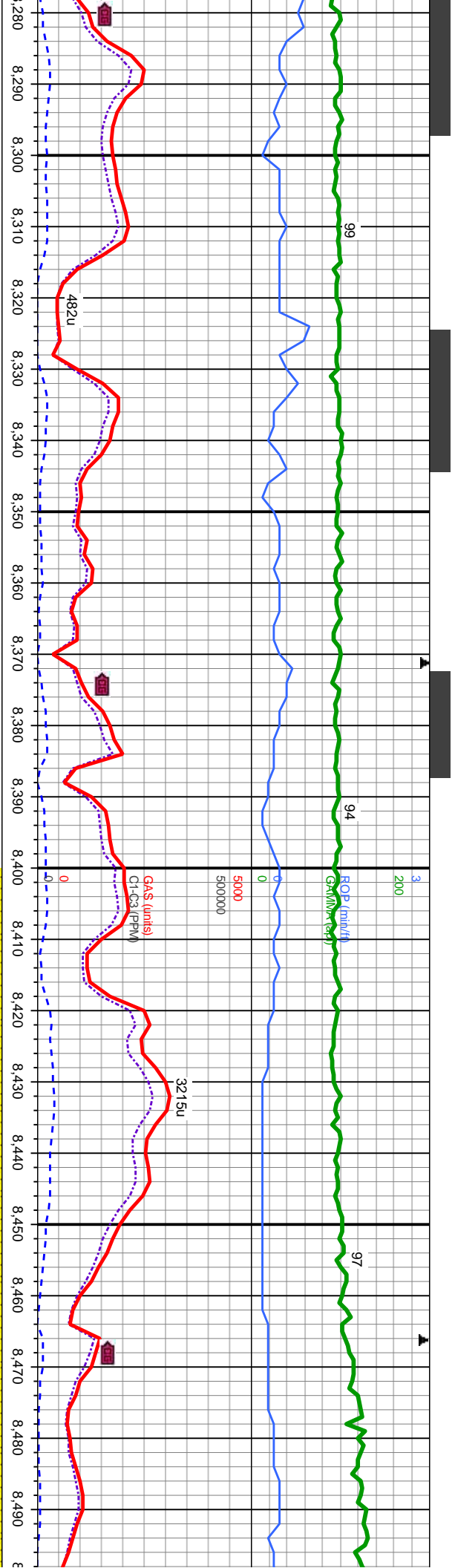
8100'-8200': SS: dk brn-lt gy-mol, vf-f gr, mod frm-frm, sbnd  
-sb ang, w strd, p vis intrgrn por, m cons w/ sl calc cnt, no  
od, tr lt blu/yel flr w/ fast sting lt bl cut

8200'-8300': SS: dk brn-lt gy, vf-f gr, mod frm-frm, sbnd -sb ang, w  
vis intrgrn por, cons w/ sl calc cnt, no od, tr lt blu/yel flr w/ fast s

7700 bl cut







WT IN 9.5+ OUT 9.5  
VIS IN 54 OUT 47

MD: 8,307.  
TVD: 7,238.62.  
Inclination: 89.75 -  
Azimuth: 268.5 -  
VS: 1,356.99.

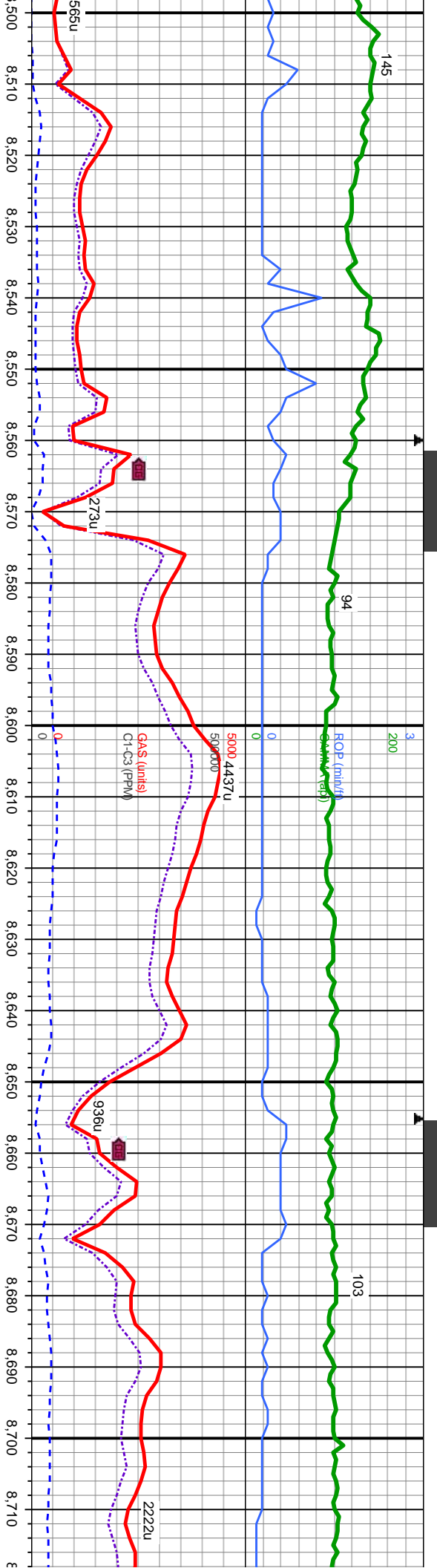
MD: 8,402.  
TVD: 7,237.43.  
Inclination: 91.69 -  
Azimuth: 268.74 -  
VS: 1,451.98.

MD: 8,496.  
TVD: 7,234.7.  
Inclination: 9  
Azimuth: 268  
VS: 1,545.94

TVD (ft)

Depth (ft)	Description
8300'-8400'	SS: dk brn-lt gy, vf-f gr, sft - mod frm, sb rnd -sb ang, mod-w strd, p vis por, w cons/ sl calc cnt, no od, no flwr w/ fast stmg lt bl cut
8400'-8500'	SS: dk brn-lt gy, vf-f gr, sft - mod frm, sb rnd - rnd, mod-w strd, w cons/ sl calc cnt, tr shale, tr pyr, no od, no flwr w/ fast stmg lt bl cut





WT IN 9.5 OUT 9.4  
VIS IN 52 OUT 55

MD: 8,590.  
TVD: 7,232.48  
Inclination: 91.26  
Azimuth: 268.49  
VS: 1,639.9

MD: 8,684.  
TVD: 7,231.68  
Inclination: 89.72  
Azimuth: 268.95  
VS: 1,733.89

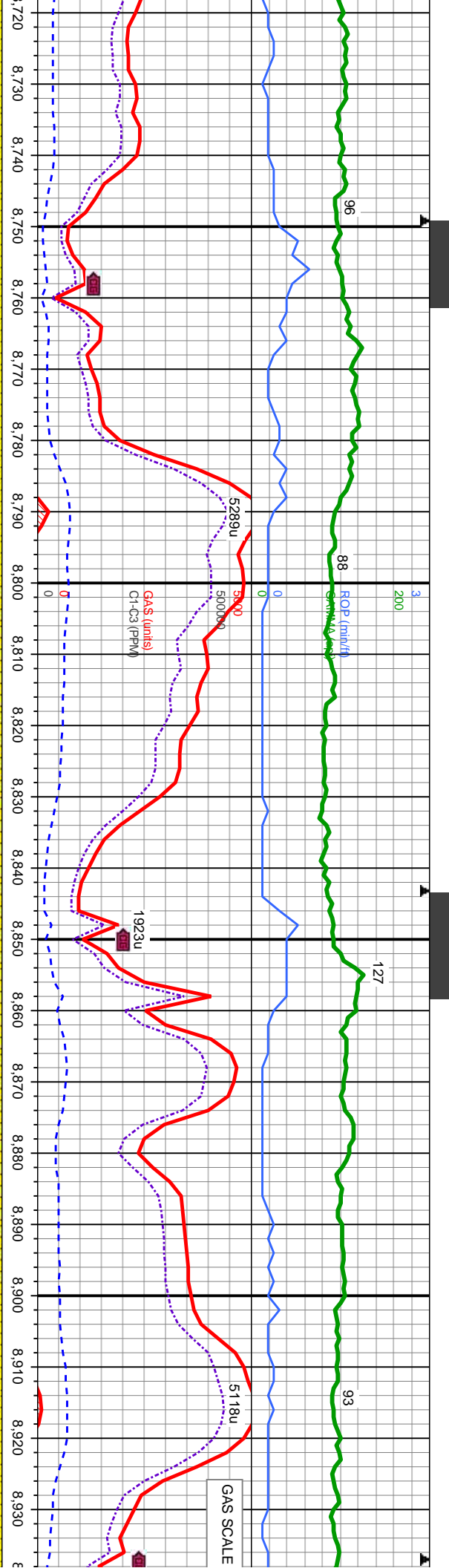
8500'-8600': SS: dk brn-lt gy, v-f gr, frm - mod frm, sb rnd - rnd, w strd, w cons/ sl calc cnt, tr shale, no od, no flwr w/ fast string lt bl cut

8600'-8700': SS: dk brn-lt gy-gy, f gr, sft - mod frm, sb rnd - sb ang, w strd, w cons/ sl calc cnt, tr sdy sh, no od, no flwr w/ fast string lt bl cut

8700' strd, cut







WT IN 9.6 OUT 9.5  
VIS IN 56 OUT 54

MD: 8.778.  
TVD: 7,233.22.  
Inclination: 88.4  
Azimuth: 269.61  
VS: 1,827.88

6700

TVD (ft)

MD: 8.873.  
TVD: 7,234.07.  
Inclination: 90.58  
Azimuth: 271.12  
VS: 1,922.84

WT IN 9.5 OUT 9.5  
VIS IN 60 OUT 54

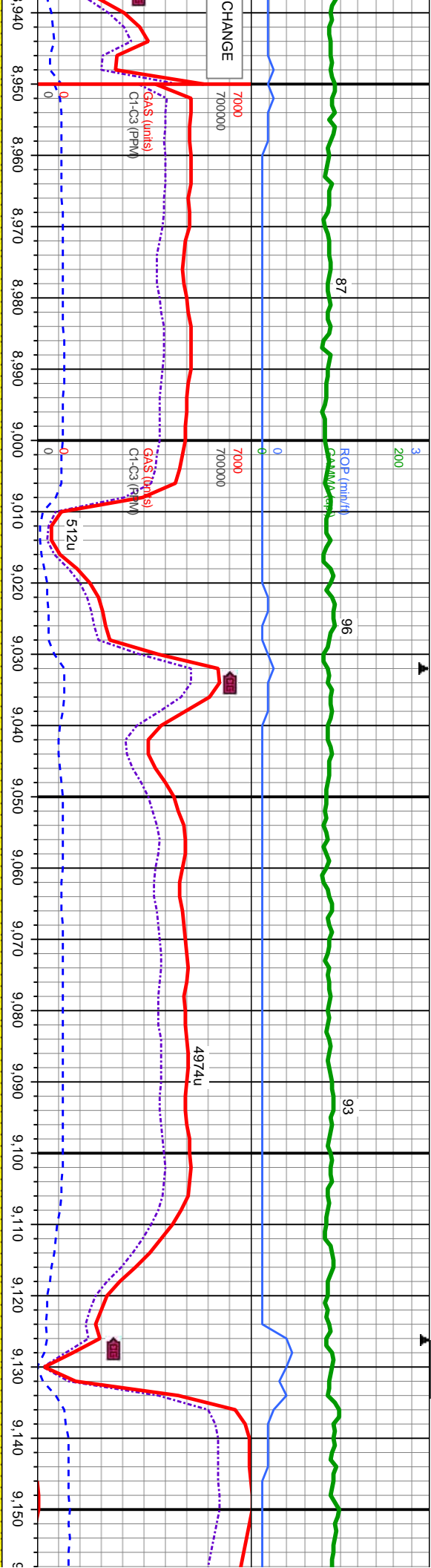
8800': SS: dk brn-lt gy-gy, v-f gr, sft - mod frm, sb rnd - sb ang, w w cons/ sl calc cnt, tr sdy sh, no od, no flor w/ mod fast sting lt bl

8800'-8900': SS: dk brn-lt gy-gy, v-f gr, sft - mod frm, sb rnd - rnd, mod-w strd, w cons/ sl calc cnt, tr sdy sh, no od, no flor w/ mod fast sting lt bl cut

8900'-9000': SS: dk t srt, mod w cons/ sl cut

7700





MD: 8.967.  
TVD: 7.233.7.  
Inclination: 89.87 -  
Azimuth: 270.29 -  
VS: 2.016.8.

MD: 9.061.  
TVD: 7.234.22.  
Inclination: 89.5 -  
Azimuth: 270.25 -  
VS: 2.110.77.

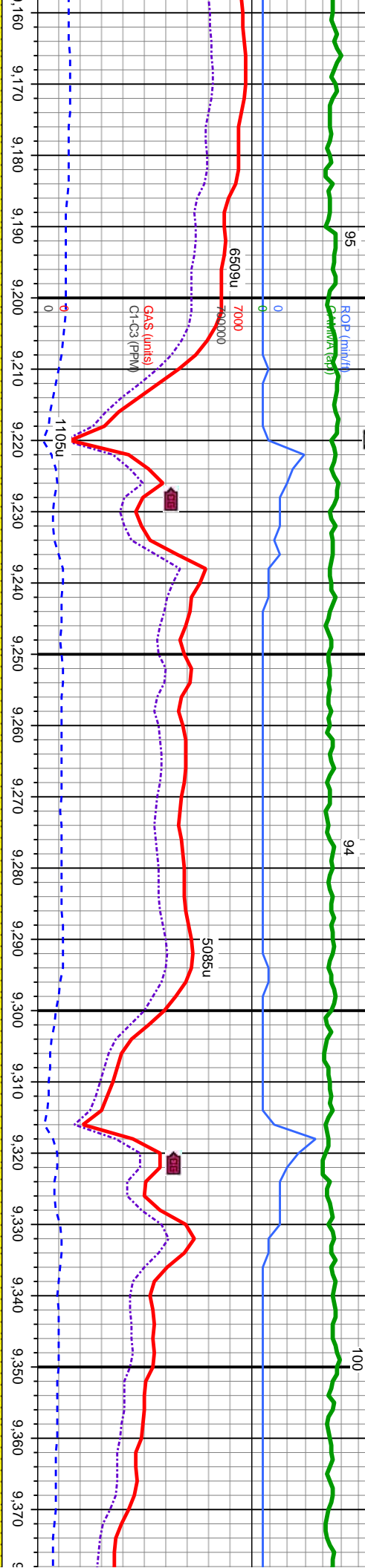
MD: 9.156.  
TVD: 7.235.2.  
Inclination: 89.5 -  
Azimuth: 270.25 -  
VS: 2.205.74.

9000'-9100': SS: dk brn-lt gy-gy, f gr, v sft-sft, sb rnd - rnd, mod-w srt'd, w cons/ sl calc cnt,no od, no flor w/ mod fast stmg lt bl cut		7700
9100'-9200': SS: dk brn-lt gy-gy, vf-f gr, sft, cons/ sl calc cnt,no od, no flor w/ mod fast		





3/10/14  
9220 MD



WT IN 9.5 OUT 9.5  
VIS IN 105 OUT 61

TV D (ft)

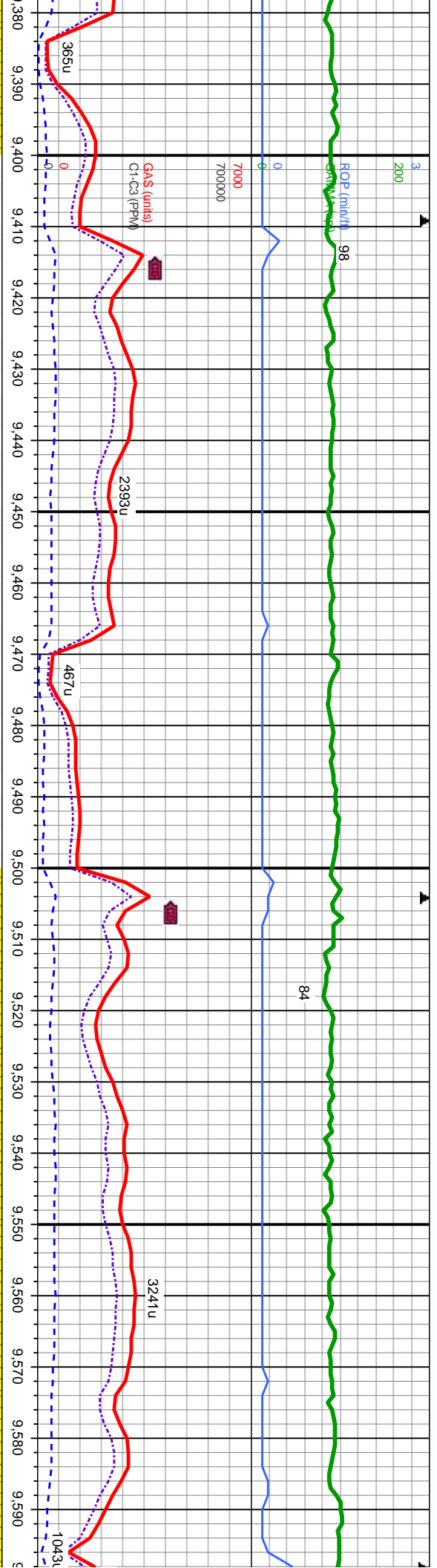
MD: 9,250.  
TV D: 7,236.08.  
Inclination: 89.72 -  
Azimuth: 271.12 -  
VS: 2,299.69.

WT IN 9.5 OUT 9.4  
VIS IN 105 OUT 80

MD: 9,344.  
TV D: 7,236.34.  
Inclination: 89.96 -  
Azimuth: 269.72 -  
VS: 2,393.66.

4. -9.26 -9.34 -  
sb rnd - rnd, w strd, w  
sting lt bl cut  
9200'-9300': SS: dk brn-lt gy-gy, f gr, v sft-sft, sb rnd - sb ang, w strd,  
w cons/ sl calc cntl, no od, no flor w/ mod fast sting lt bl cut  
7700  
9300'-9400': SS: dk brn-lt gy-gy, v f gr, v sft-sft, sb rnd - rnd, w strd,  
w cons/ sl calc cntl, tr sh, no od, no flor w/ mod fast sting lt bl cut





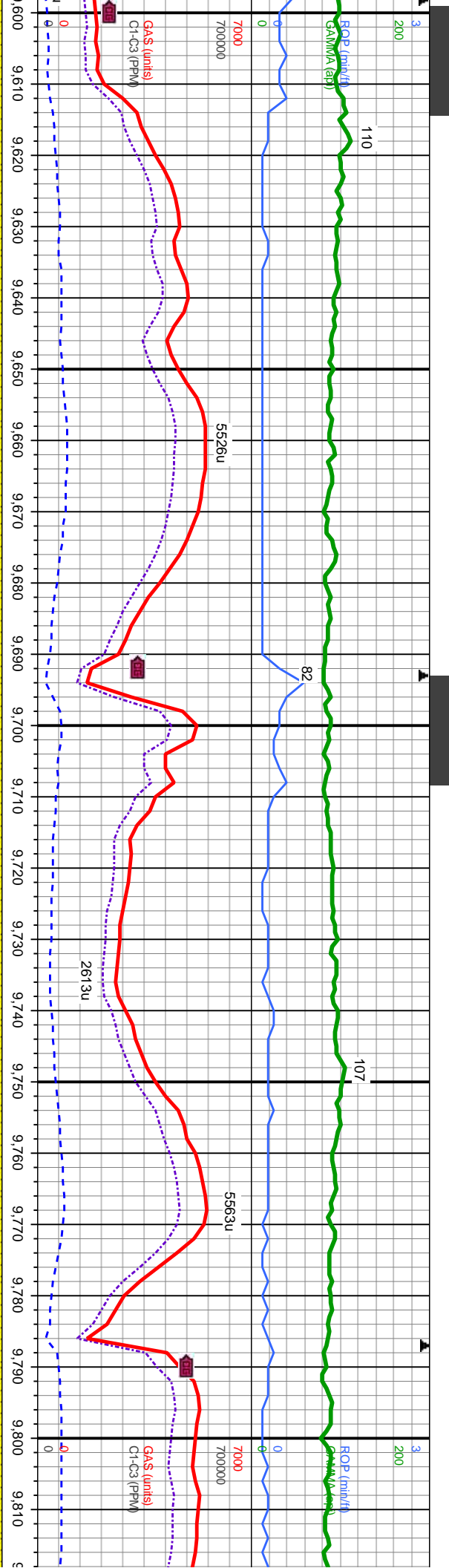
MD: 9.439  
TVD: 7,236.61  
Inclination: 89.72  
Azimuth: 269.83  
VS: 2.488.65

MD: 9.534  
TVD: 7,237.74  
Inclination: 88.92  
Azimuth: 268.95  
VS: 2.583.64

6700		WT IN 9.5 OUT 9.4 VIS IN 62 OUT 72	
TVD (ft)			
9400'-9500': SS: dk brn-lt gy-gy, v-f gr, sft - frm, sb rnd - sb ang, mod-w strd, w cons/ sl calc cnt, tr sh, no od, no flwr w/ mod fast string lt bl cut		9500'-9600': SS: dk brn-lt gy-mot, v-f gr, mod frm-frm, sb rnd -sb ang, w strd, p vis intgrm por, m cons w/ sl calc cnt, no od, tr lt bluvyl flwr w/ fast string lt bl cut	
7700			







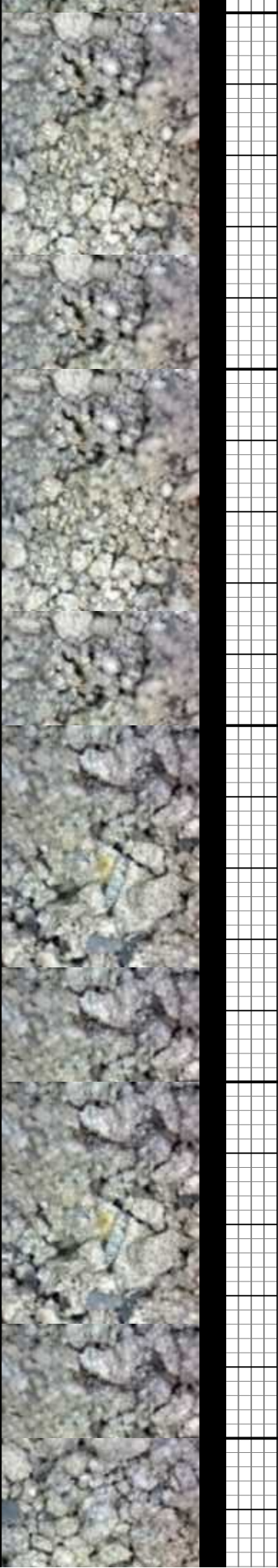
MD: 9.628.  
TVD: 7,239.03.  
Inclination: 89.5-  
Azimuth: 269.59-  
VS: 2.677.63.

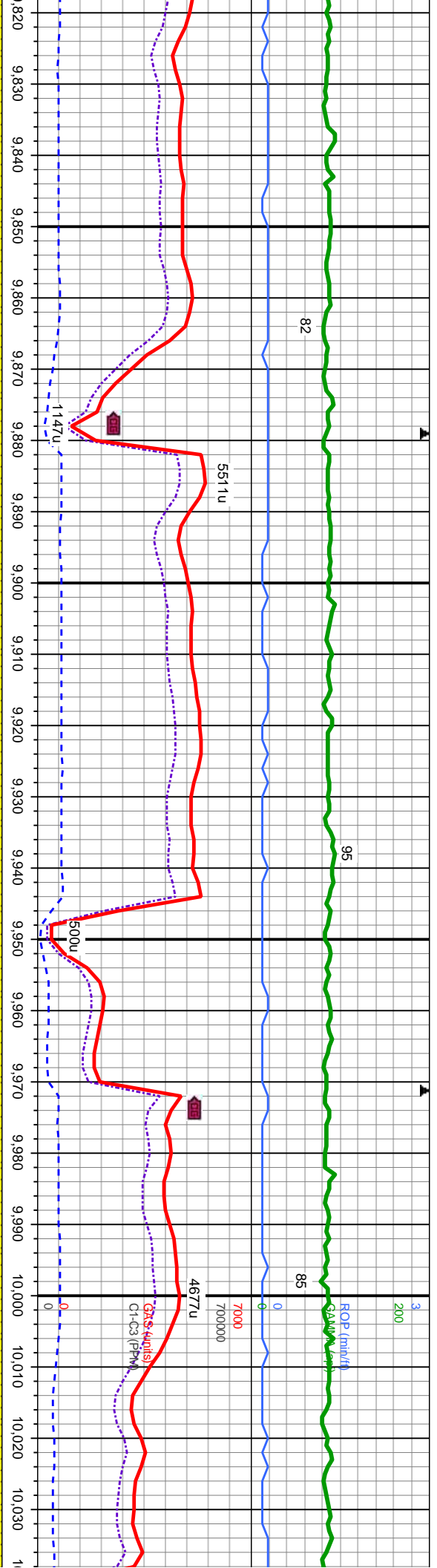
MD: 9.722.  
TVD: 7,239.55.  
Inclination: 89.87-  
Azimuth: 269.45-  
VS: 2.771.63.

MD: 9.814.  
TVD: 7,239.63  
Inclination: 90.  
Azimuth: 268.8  
VS: 2.863.62.

9600'-9700': SS: dk brn-lt gy-mot, v-f gr, mod frm-frn, sbnd -sb ang, w strd, p vis intrgrn por, m cons w/ sl calc cnt, no od, tr lt blu/yel flr w/ fast sting lt bl cut

9700'-9800': SS: dk brn-lt gy-mot, v-f gr, mod frm-frn, sbnd -sb ang, w strd, p vis intrgrn por, m cons w/ sl calc cnt, no od, tr lt blu/yel flr w/ fast sting lt bl cut





WT IN 9.5 OUT 9.4  
VIS IN 62 OUT 62

MD: 9.906  
TVD: 7,239.68  
Inclination: 89.9  
Azimuth: 268.87  
VS: 2,955.62

MD: 9.998  
TVD: 7,240.01  
Inclination: 89.69  
Azimuth: 268.68  
VS: 3,047.62

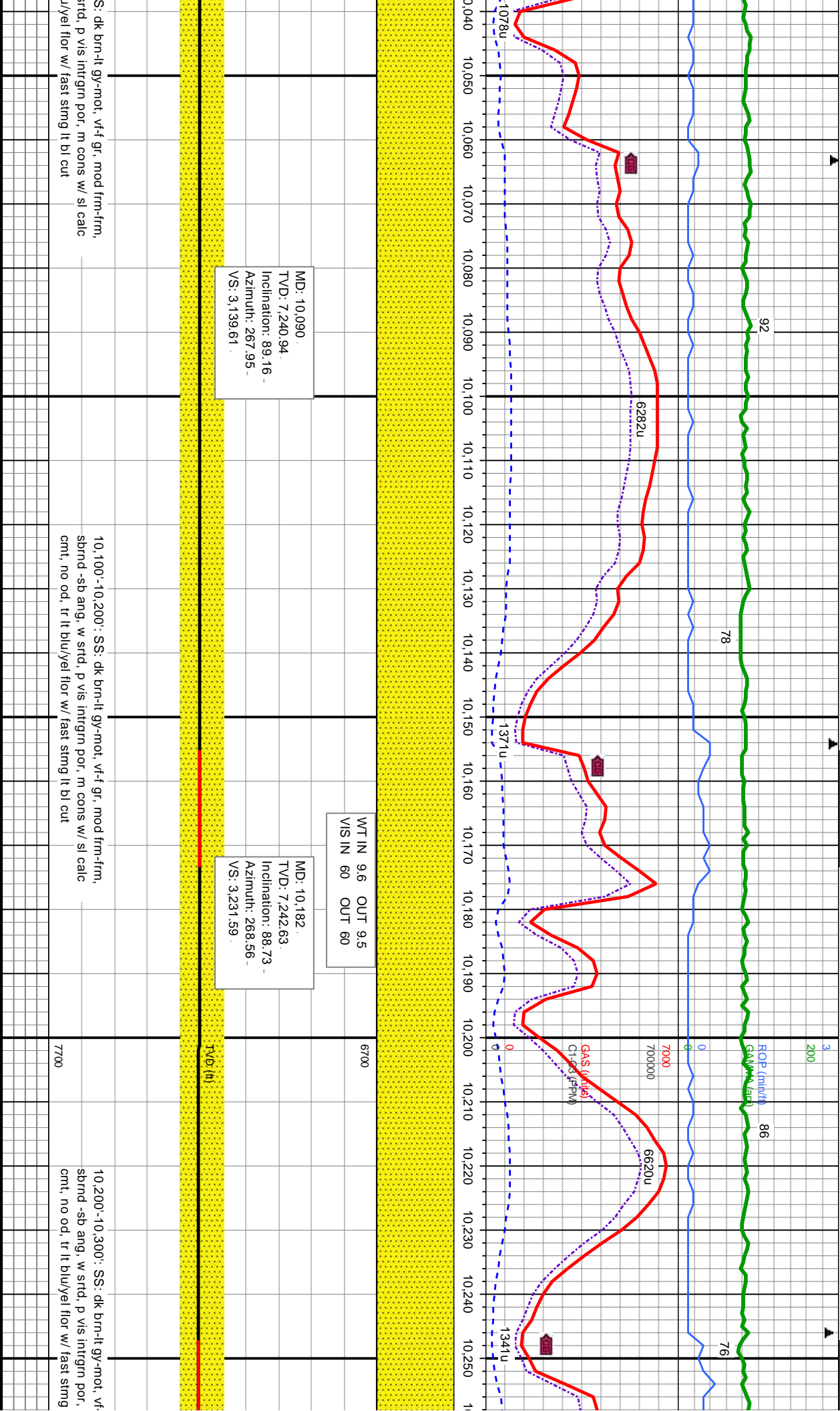
9800'-9900': SS: dk brn-lt gy-mot, vf-f gr, mod frm-frn, sbnd -sb ang, w strd, p vis intgrn por, m cons w/ sl calc cmt, no od, tr lt blu/yel flr w/ fast stmg lt bl cut

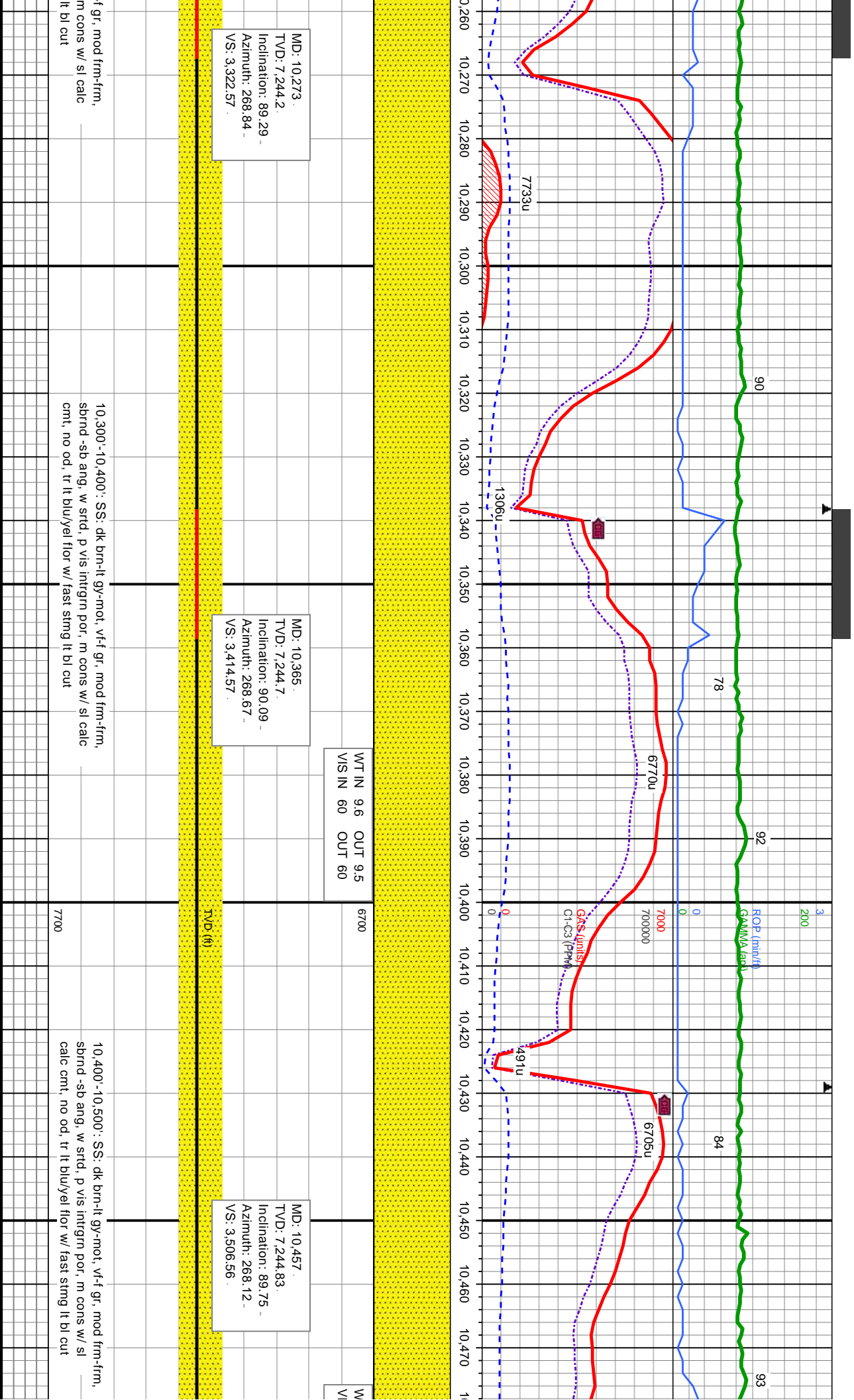
9,900'-10,000': SS: dk brn-lt gy-mot, vf-f gr, mod frm-frn, sbnd -sb ang, w strd, p vis intgrn por, m cons w/ sl calc cmt, no od, tr lt blu/yel flr w/ fast stmg lt bl cut

10,000'-10,100': S sbnd -sb ang, w strd, p vis intgrn por, m cons w/ sl calc cmt, no od, tr lt blu/yel flr w/ fast stmg lt bl cut

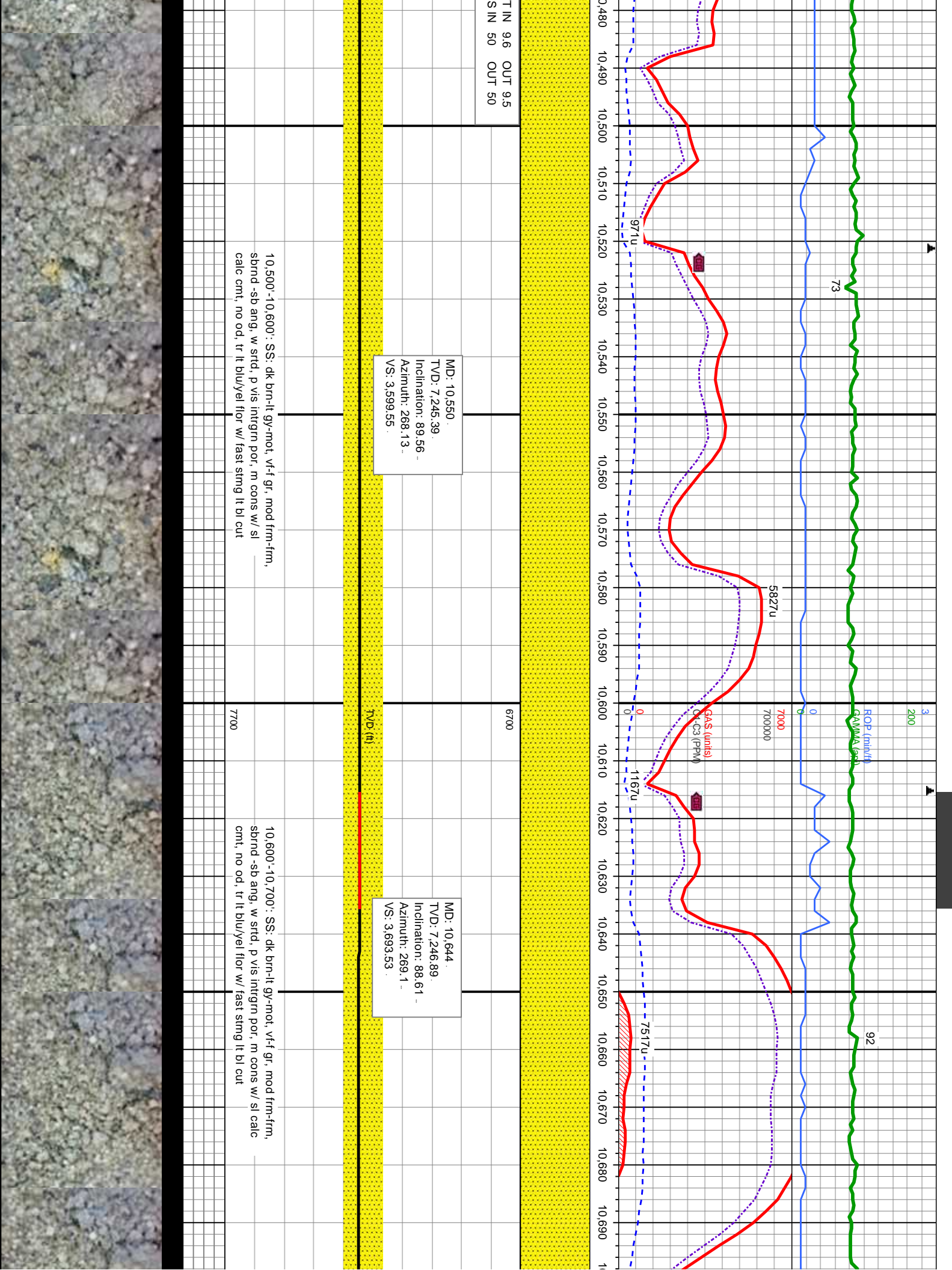


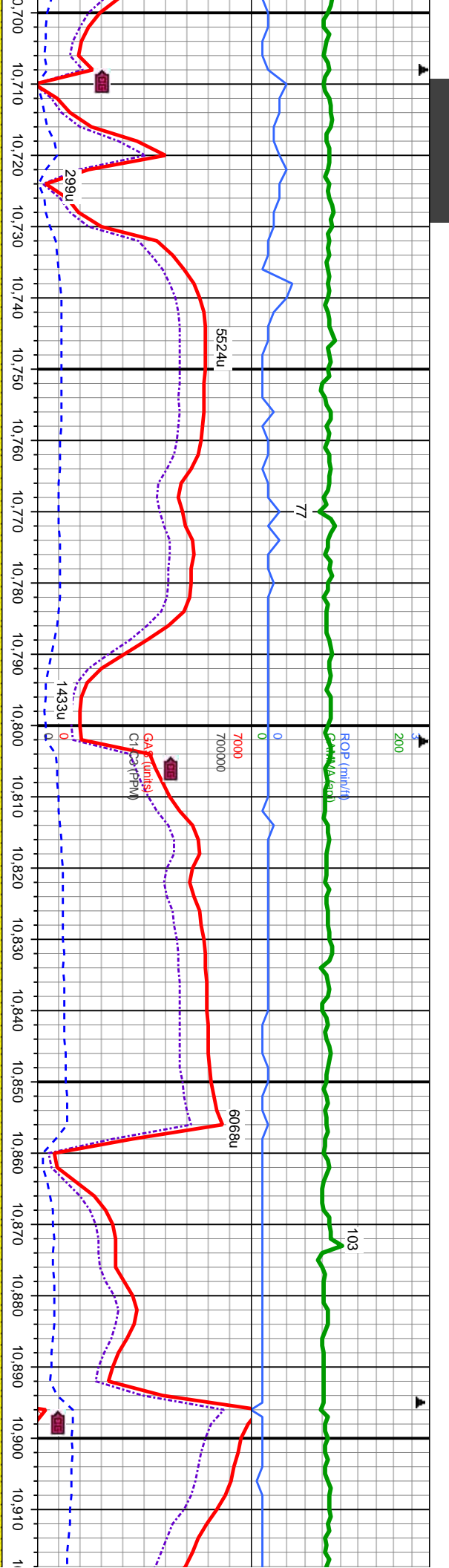












MD: 10,737.  
TVD: 7,248.5  
Inclination: 89.41  
Azimuth: 269.5  
VS: 3,786.52

10,700'-10,800': SS: dk brn-lt gy-mot, v-f gr, mod frm-frn, sbnd-sb ang, w srted, p vis intgrn por, m cons w/ sl calc cmt, no od, tr lt blu/yel flr w/ fast stmg lt bl cut

7700

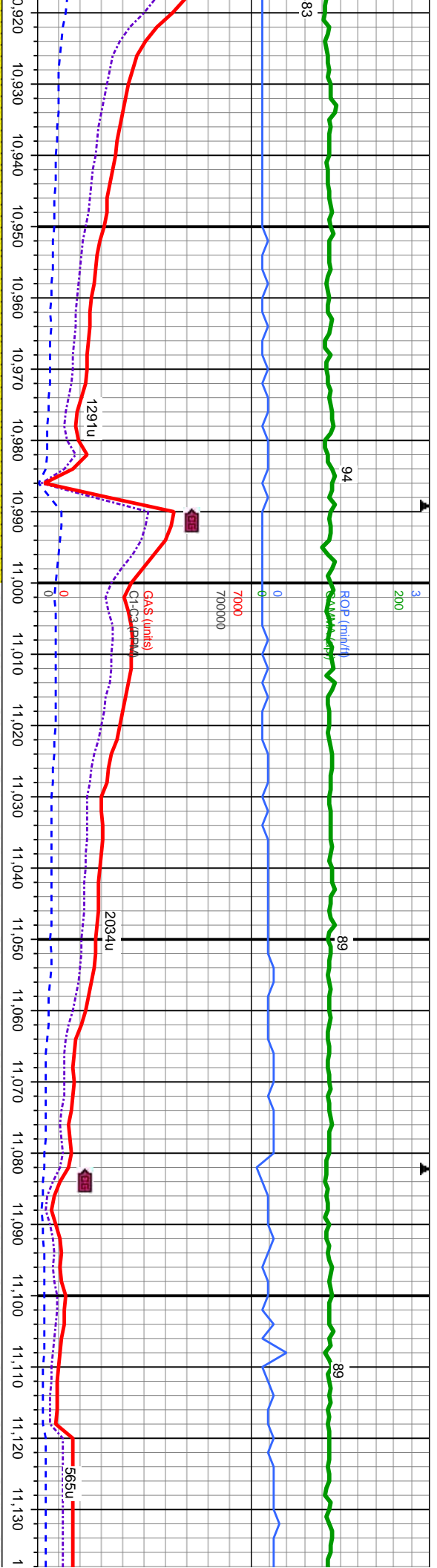
6700 WT IN 9.6 OUT 9.5  
VIS IN 60 OUT 59

MD: 10,831.  
TVD: 7,249.56  
Inclination: 89.29  
Azimuth: 269.64  
VS: 3,880.51

10,800'-10,900': SS: dk brn-lt gy-mot, v-f gr, mod frm-frn, sbnd-sb ang, w srted, p vis intgrn por, m cons w/ sl calc cmt, no od, tr lt blu/yel flr w/ fast stmg lt bl cut

MC  
TV  
Inc  
Azi  
VS





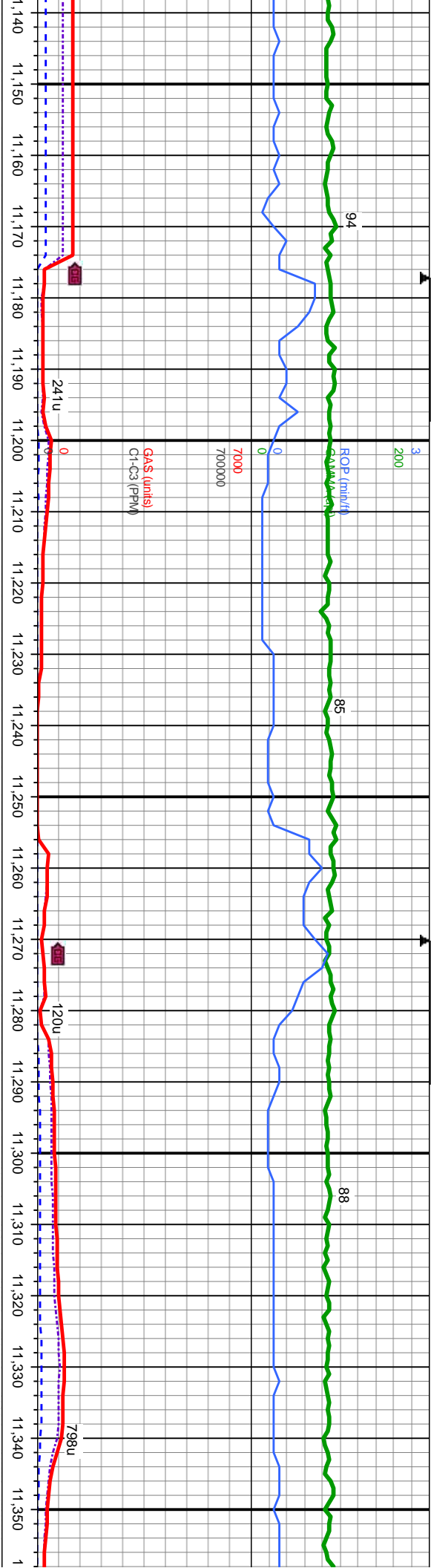
10,925. : 10,925.  
D: 7,250.48.  
Inclination: 89.59 -  
muth: 269.26 -  
3.974.5.

MD: 11,018.  
TVD: 7,250.87.  
Inclination: 89.93 -  
Azimuth: 268.32 -  
VS: 4,067.5.

MD: 11,112.  
TVD: 7,250.88.  
Inclination: 90.06 -  
Azimuth: 267.55 -  
VS: 4,161.48.

WT IN 9.6	OUT 9.4+	6700
VIS IN 64	OUT 60	
10,900'-11,000': SS: dk brn-lt gy-mot, vf-f gr, mod frm-frn, sbnd -sb ang, w srtg, p vis intrgn por, m cons w/ sl calc cmt, no od, tr lt bluyel flr w/ fast stmg lt bl cut	11,000'-11,100': 90% SS: dk brn-lt gy-mot, vf-f gr, mod frm-frn, sbnd -sb ang, w srtg, p vis intrgn por, m cons w/ sl calc cmt, no od, tr lt bluyel flr w/ fast stmg lt bl cut	11,100'-11,200': 90% SS ang, w srtg, p vis intrgn gy-blk, stly-grty-rthy, pl mod fast stmg lt bl cut
7700		





MD: 11,205.  
TVD: 7,251.61  
Inclination: 89.04  
Azimuth: 268.44  
VS: 4,254.46

WT IN 9.5 OUT 9.5  
VIS IN 60 OUT 59

MD: 11,299.  
TVD: 7,252.07  
Inclination: 90.4  
Azimuth: 268.56  
VS: 4,348.45

dk brn-lt gy-mot, vf-f gr, mod frm-frm, sbnd -sb	11,200-11,300: 90% SS: dk brn-lt gy-mot, vf-f gr, mod frm, sbnd -sb ang, w
por, mod cons w/ sl calc cnt, 10% SH: dk	strd, p vis intrgn por, mod cons w/ sl calc cnt, 10% SH: dk gy-blk,
gy-sl blk, mod frm-frm, no od, tr lt blu/yel flr w/	slty-grty, pty-sl blk, mod frm-frm, no od, tr lt blu/yel flr w/ mod fast sting lt
	bl cut
7700	

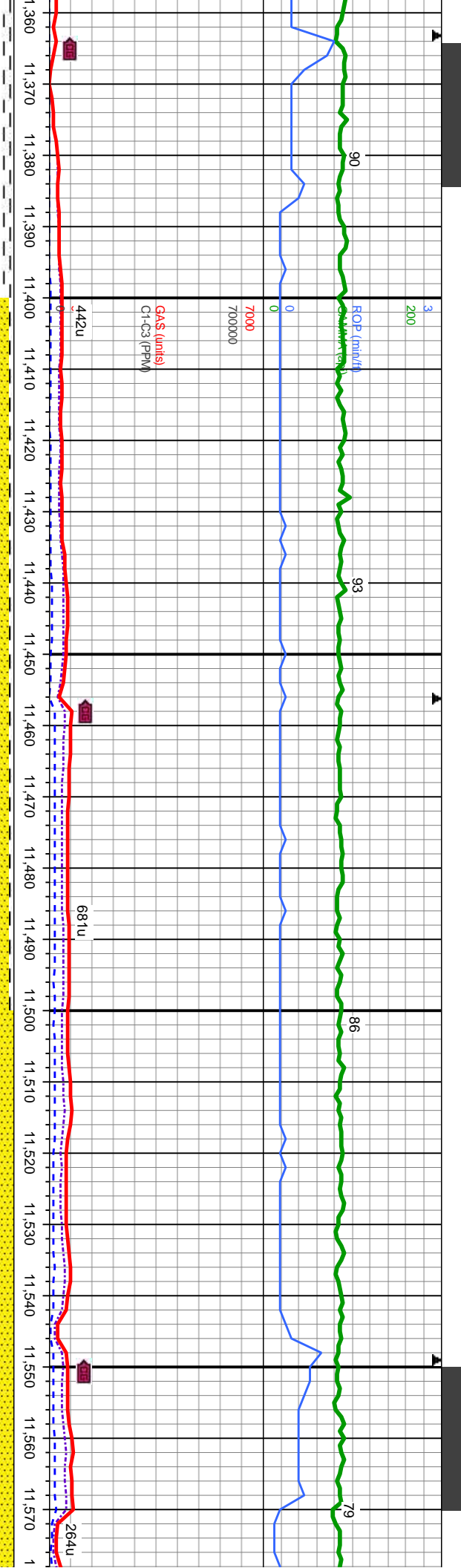
11,300-11,400: 85% SS: dk brn-lt gy-mot, f gr, n

strd, mod cons w/ sl calc cnt, 15% SH: dk gy-blk

frm-frm, no od, tr lt blu/yel flr w/ mod fast sting







MD: 11,391.  
TVD: 7,251.4.  
Inclination: 90.43 -  
Azimuth: 269.24 -  
VS: 4,440.45

WT IN 9.5 OUT 9.5  
VIS IN 68 OUT 67

TVD (ft)

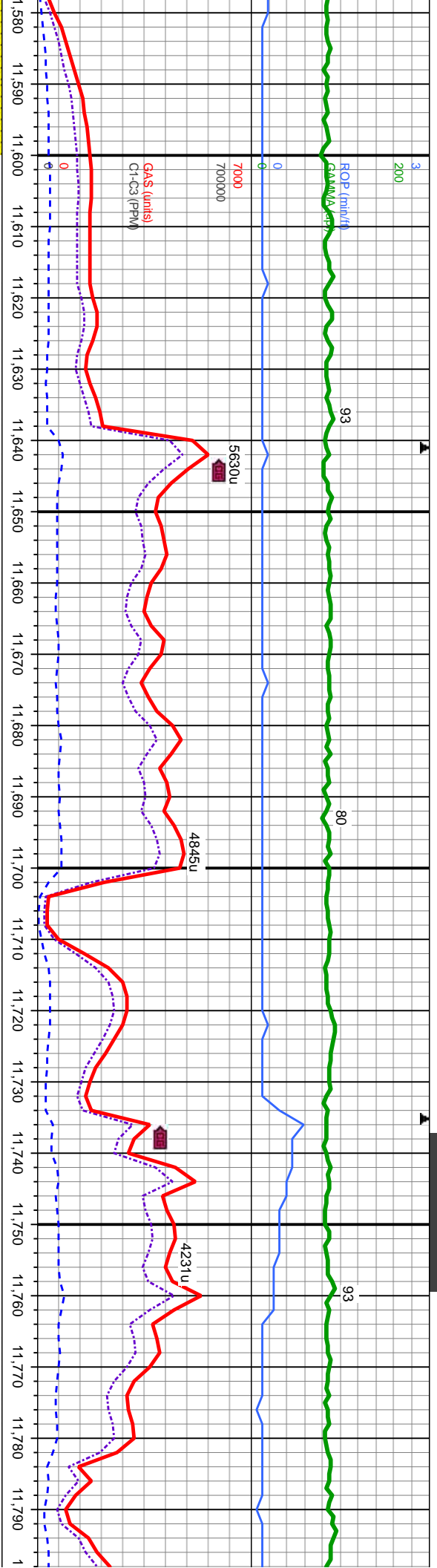
MD: 11,485.  
TVD: 7,251.  
Inclination: 90.06 -  
Azimuth: 268.76 -  
VS: 4,534.45

WT IN 9.5 OUT 9.5  
VIS IN 67 OUT 65

MD: 11,570.  
TVD: 7,256.  
Inclination:  
Azimuth: 2  
VS: 4,627.

mod frm, sbnd -sb ang, w	11,400'-11,500': SS: dk brn-lt gy-mot, vf-f gr, mod frm-frm, sbnd	11,400'-11,500': SS: dk brn-lt gy-mot, vf-f gr, Mmod sft-mod frm,
k, silty-grty, pily-sl blkly, mod	-sb ang, w srtf, m cons w/ sl calc cmt, no od, tr sh, tr lt blu/yel	-sb ang, mod w srtf, m cons w/ sl calc cmt, no od, tr sh, tr lt blu
lt bl cut	flor w/ fast sting lt bl cut	flor w/ fast sting lt bl cut
7700		





3  
0.9  
: 90.06  
-  
69.04  
-  
45.

TVD (ft)

6700

WT IN 9.5 OUT 9.5  
VIS IN 64 OUT 62

MD: 11.672.  
TVD: 7,250.99.  
Inclination: 89.84  
Azimuth: 268.68  
VS: 4,721.45.

MD: 11.765.  
TVD: 7,251.57.  
Inclination: 89.44  
Azimuth: 269.98  
VS: 4,814.44.

sbnd  
yel  
7700

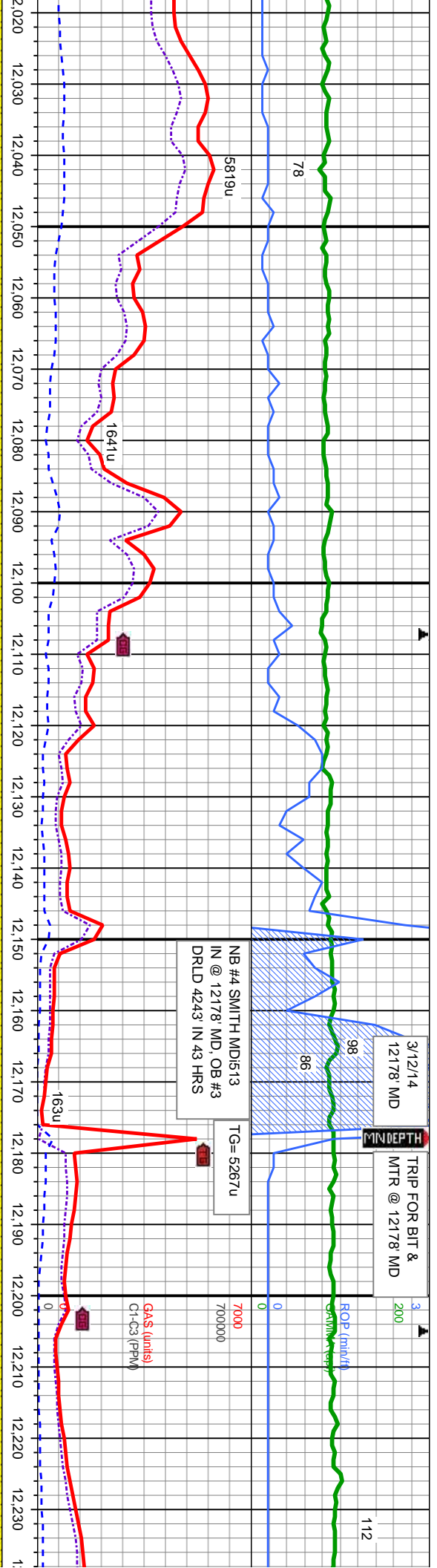
11,500'-11,600': SS: dk brn-lt gy-mot, v-f gr, mod stf-mod frm, sbnd  
-sb ang, w strd, mod cons w/ sl calc cmt, no od, tr sh, tr lt blu/yel  
flor w/ mod fast sting lt bl cut

11,600'-11,700': SS: dk brn-lt gy-gy, v-f gr, mod stf-mod frm, sbnd  
-sb ang, mod-w strd, mod cons w/ sl calc cmt, no od, tr sh, tr lt  
blu/yel flor w/ mod fast sting lt bl cut









MD: 12,046.  
TVD: 7,249.95.  
Inclination: 90.83 -  
Azimuth: 271.74 -  
VS: 5,095.15

WT IN 9.5 OUT 9.5  
VIS IN 57 OUT 52

MD: 12,138  
TVD: 7,249.01  
Inclination: 90.33 -  
Azimuth: 272.43 -  
VS: 5,187.01

WT IN 9.5 OUT 9.5  
VIS IN 68 OUT 64

TVD (ft)

MD: 12,230.  
TVD: 7,249.22.  
Inclination: 89.41 -  
Azimuth: 271.5 -  
VS: 5,278.89

-12,100': SS: dk brn-lt gy-gy, vf-f gr, mod stf-mod frm, sbnd -  
srt'd, mod cons w/ sl calc cmt, no od, tr ls, no flor w/ mod fast  
bl cut

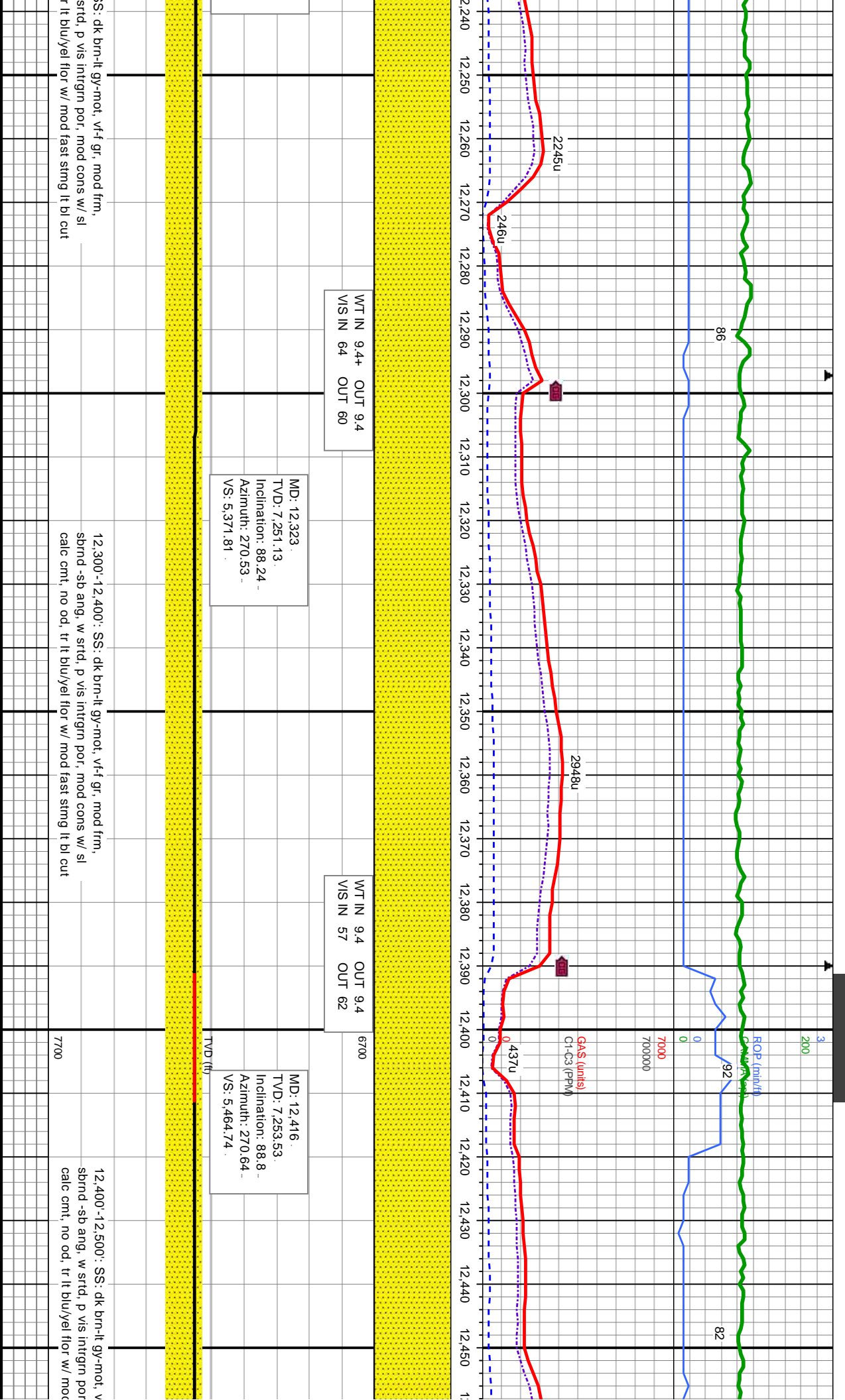
12,100'-12,200': SS: dk brn-lt gy-mot, vf-f gr, mod frm, sbnd  
-sb ang, w srt'd, p vis intgrn por, mod cons w/ sl calc cmt,  
no od, tr lt bluyel flor w/ mod fast stmg lt bl cut

7700

12,200'-12,300': S  
sbnd -sb ang, w  
calc cmt, no od, t

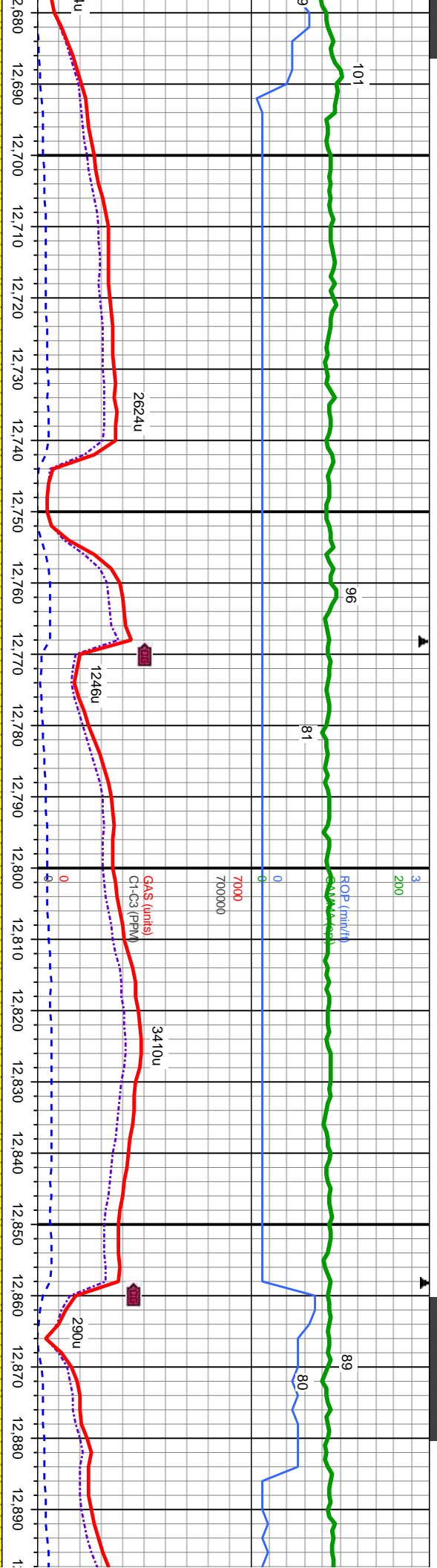












MD: 12.697.  
TVD: 7,254.76  
Inclination: 90.09  
Azimuth: 268.74  
VS: 5,745.71

WT IN 9.5 OUT 9.4+  
VIS IN 65 OUT 56

MD: 12.792.  
TVD: 7,254.87  
Inclination: 89.78  
Azimuth: 268.49  
VS: 5,840.7

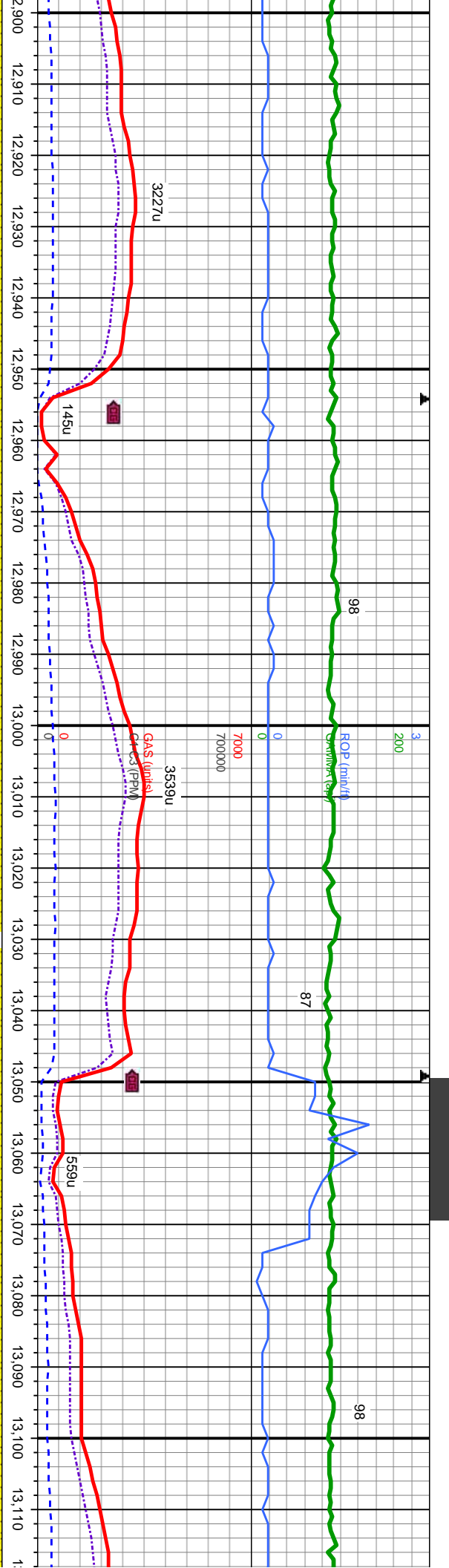
WT IN 9.5 OUT 9.5  
VIS IN 60 OUT 55

MD: 12.886.  
TVD: 7,254.72  
Inclination: 90.4  
Azimuth: 268.38  
VS: 5,934.7

12,700'-12,800': SS: dk brn-lt gy-mot, v-f gr, mod frm, sbnd -sband, w strd, p vis intgrn por, mod cons w/ sl calc cnt, tr lt blu/yel flr w/ mod fast stng lt bl cut

12,800'-12,900': SS: dk brn-lt gy-mot, v-f gr, mod frm, sbnd -sband, w strd, p vis intgrn por, mod cons w/ sl calc cnt, tr amt slty sh, tr lt blu/yel flr w/ mod fast stng lt bl cut





MD: 12,981.  
TVD: 7,254.36.  
Inclination: 90.03 -  
Azimuth: 267.65 -  
VS: 6.029.68.

WT IN 9.5 OUT 9.5  
VIS IN 52 OUT 55

MD: 13,075.  
TVD: 7,254.77.  
Inclination: 89.47 -  
Azimuth: 267.7 -  
VS: 6.123.66.

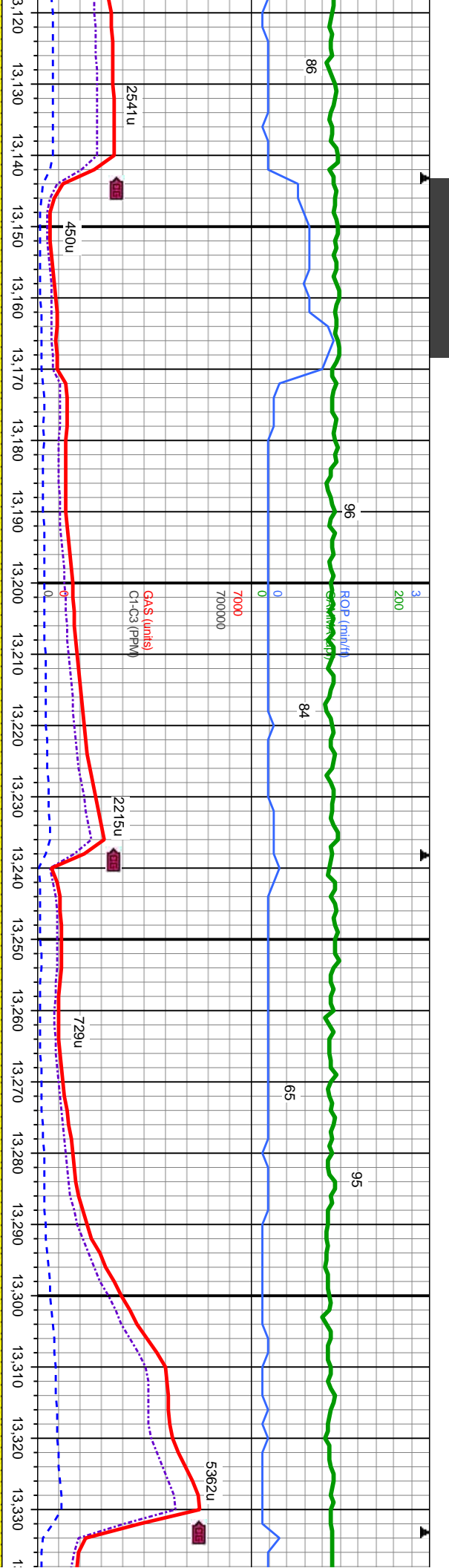
12,900'-13,000': SS: dk brn-lt gy-mot, vf-f gr, mod frm, sbnd  
-sbang, w std, p vis intgrm por, mod cons w/ sl calc cnt, tr  
amt slty sh, tr lt blu/yel flr w/ mod fast sting lt bl cut

13,000'-13,100': SS: dk brn-lt gy-mot, vf-f gr, mod frm, sbnd  
-sbang, w std, p vis intgrm por, mod cons w/ sl calc cnt, tr  
lt blu/yel flr w/ mod fast sting lt bl cut

13,100'  
vis int  
sl frm,







WT IN 9.5 OUT 9.5  
VIS IN 52 OUT 51

6700

MD: 13,170.  
TVD: 7,254.73.  
Inclination: 90.58 -  
Azimuth: 268.11 -  
VS: 6,218.64.

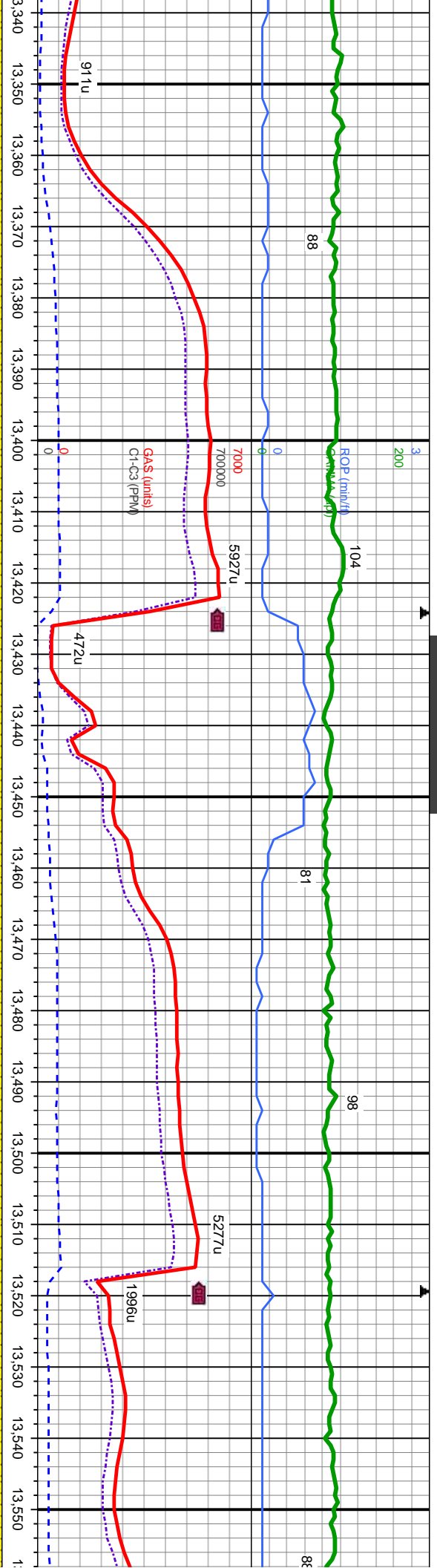
TVD (ft)

MD: 13,264.  
TVD: 7,254.31.  
Inclination: 89.93 -  
Azimuth: 267.65 -  
VS: 6,312.62.

-13,200': SS: dk brn-lt gy-mot, v-f gr, mod frm, sbnd -sbang, w srt, p gin por, mod cons w/ sl calc cnt, LS: crm-offwht lt gry, pty-ilty, sft - sl arg, calc, tr lt blu/yel flr w/ mod fast sting lt bl cut	13,200'-13,300': SS: dk brn-lt gy-mot, v-f gr, mod frm, sbnd -sbang, w srt, p vis intgrn por, mod cons w/ sl calc cnt, LS: crm-offwht lt gry, pty-ilty, sft - sl frm, sl arg, calc, tr lt blu/yel flr w/ mod fast sting lt bl cut	13,300'-13,400': SS: dk brn-lt gy-mot, v-f gr, mod frm, sbnd -sbang, w srt, p vis intgrn por, mod cons w/ sl calc cnt, LS: crm-offwht lt gry, pty-ilty, sft - sl frm, sl arg, calc, tr lt blu/yel flr w/ mod fast sting lt bl cut
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MD: 13,359  
TVD: 7,254.89  
Inclination: 89.38  
Azimuth: 267.93  
VS: 6,407.6

MD: 13,453  
TVD: 7,255.04  
Inclination: 90.43  
Azimuth: 268.11  
VS: 6,501.58

MD: 13,548  
TVD: 7,254.15  
Inclination: 90.64  
Azimuth: 267.59  
VS: 6,596.56

13,340-13,350: vt-f gr, mod frm, sbrnd -sbang, w srt, p  
w/ sl calc cmt, LS: crm-offwht lt gry, ply-fiky, stf -  
yel flr w/ mod fast stng lt bl cut

13,400-13,500: SS: dk brn-lt gy-mot, vt-f gr, mod frm, sbrnd -sbang, w srt, p  
vis intgrn por, mod cons w/ sl calc cmt, LS: crm-offwht lt gry, ply-fiky, stf -  
sl frm, sl arg, calc, tr lt blu/yel flr w/ mod fast stng lt bl cut

13,500-13,600: SS: dk brn-lt gy-mot, vt-f gr, mod frm, sbrnd -sbang, w srt, p  
vis intgrn por, mod cons w/ sl calc cmt, LS: crm-offwht lt gry, ply-fiky, stf -  
sl frm, sl arg, calc, tr lt blu/yel flr w/ mod fast stng lt bl cut





3/13/14  
13614' MD

MINDEPTH

ROP (min/hr)  
3.000000

0

7

7000

700000

5480u

83

34.5 (inches)  
GT-C3 (PPM)

2167u

876u

13,560 13,570 13,580 13,590 13,600 13,610 13,620 13,630 13,640 13,650 13,660 13,670 13,680 13,690 13,700 13,710 13,720 13,730 13,740 13,750 13,760 13,770

WT IN 9.5 OUT 9.5  
VIS IN 57 OUT 64

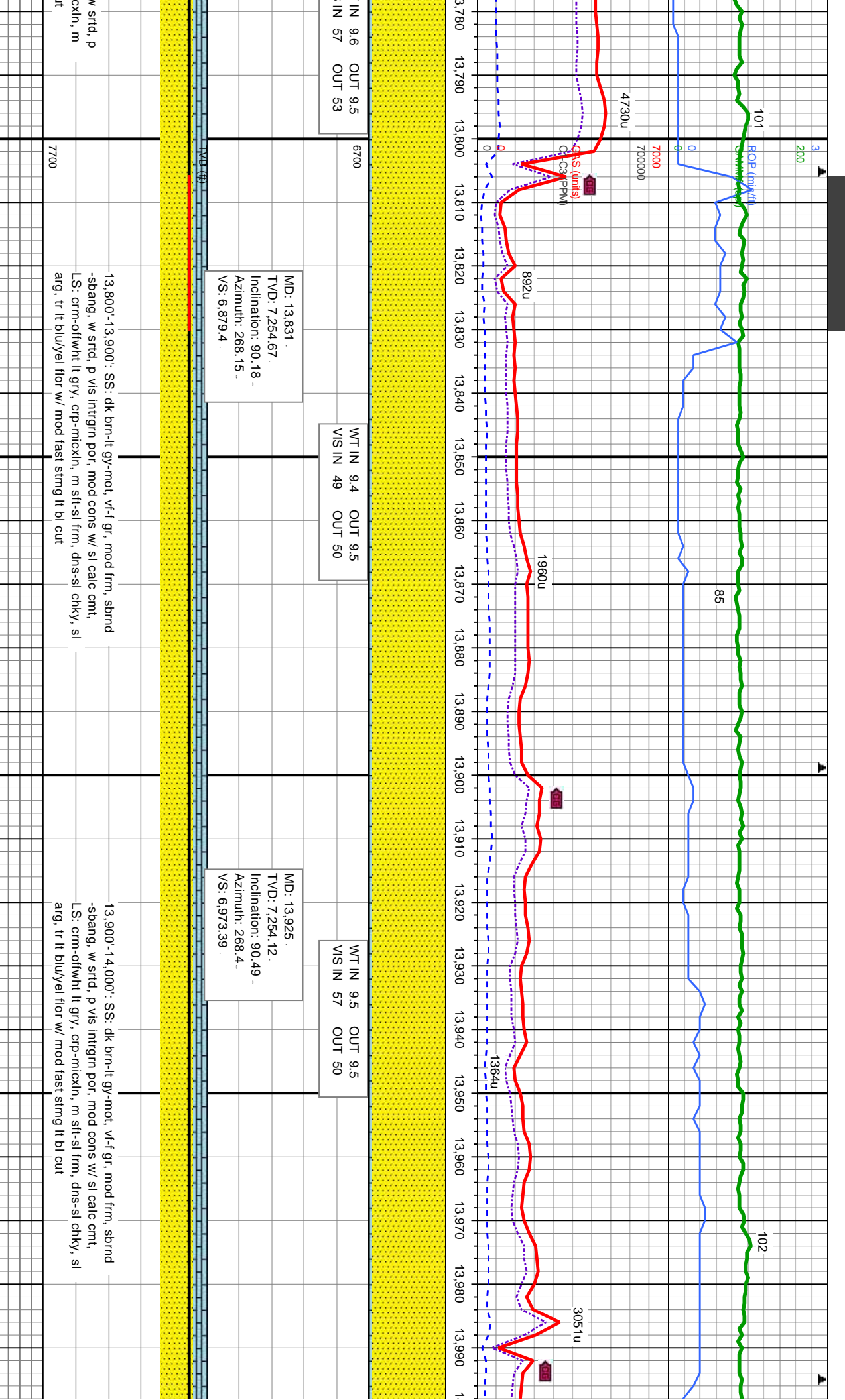
MD: 13,642  
TVD: 7,253.69  
Inclination: 89.93  
Azimuth: 266.83  
VS: 6,690.51

MD: 13,737  
TVD: 7,254.28  
Inclination: 89.35  
Azimuth: 266.87  
VS: 6,785.44

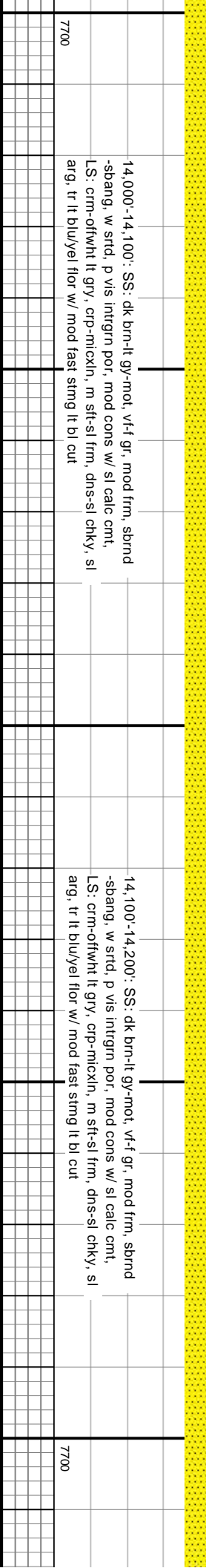
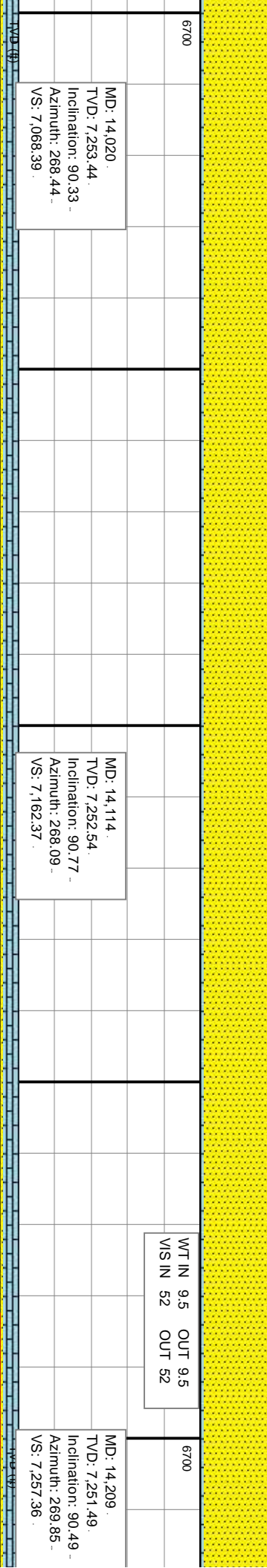
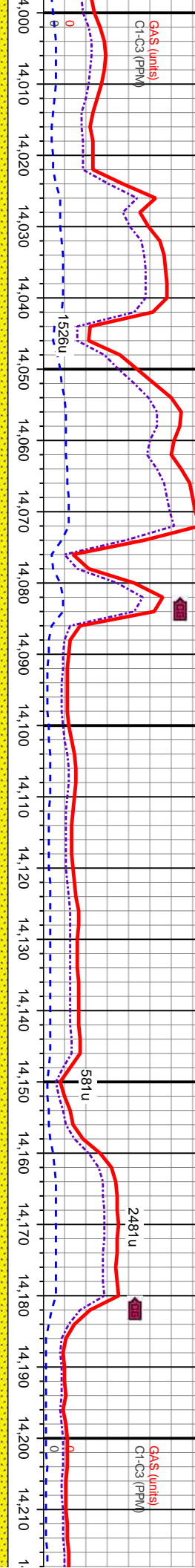
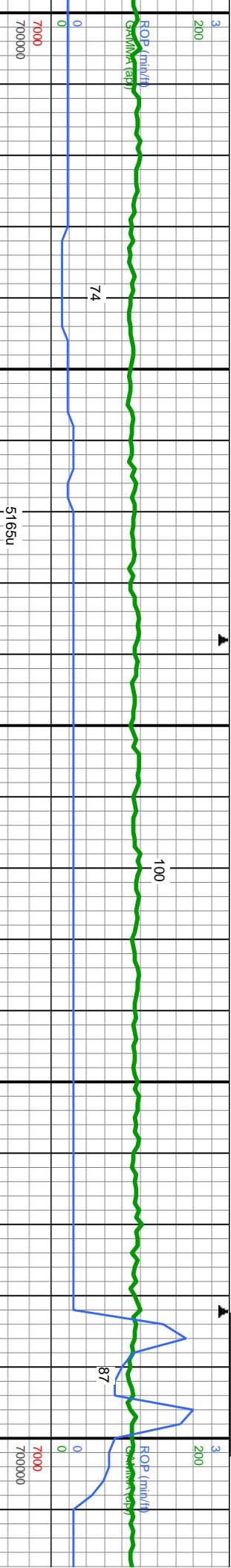
13,600'-13,700': SS: dk brn-lt gy-mot, vf-f gr, mod frm, sbnd -sbang, w srt, p  
vis intgrm por, mod cons w/ sl calc cnt, LS: crm-offwht lt gry, pty-flky, sft -  
sl frm, sl arg, calc, tr lt blu/yel flr w/ mod fast string lt bl cut

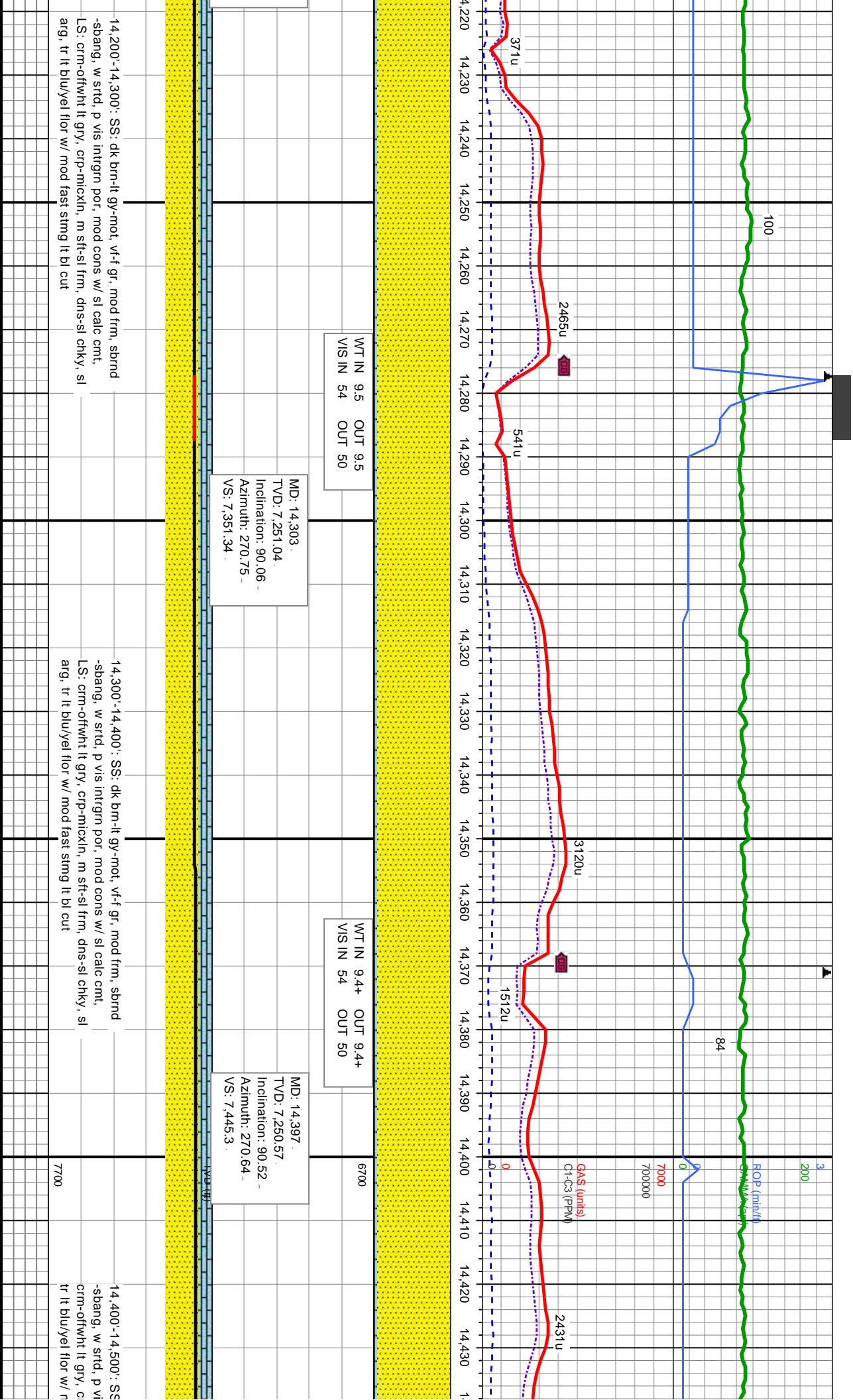
13,700'-13,800': SS: dk brn-lt gy-mot, vf-f gr, mod frm, sbnd -sbang, w srt, p  
vis intgrm por, mod cons w/ sl calc cnt, LS: crm-offwht lt gry, pty-flky, sft -  
sft-sl frm, dns-sl chky, sl arg, tr lt blu/yel flr w/ mod fast string lt bl cut



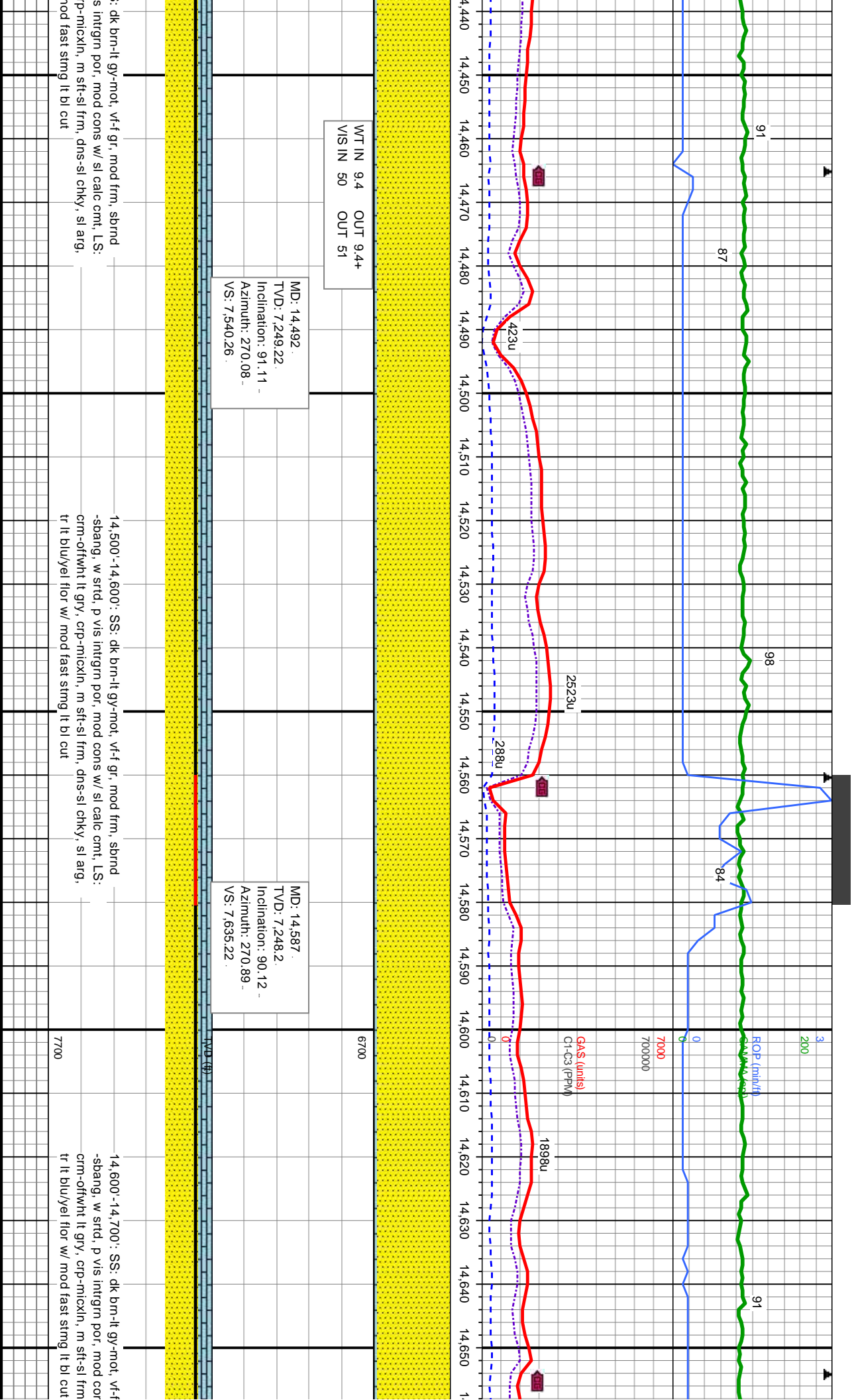
















3/14/14  
14936' MD  
MINDEPTH

101

85

161u

1116u

84

158u

WT IN 9.5 OUT 9.4  
VIS IN 85 OUT 55

MD: 14,965.  
TVD: 7,243.39  
Inclination: 90.09 -  
Azimuth: 270.61 -  
VS: 8,012.98

3

200

ROP (min/hr)

93

0

0

7000

700000

GAS (units)  
Cl-C3 (PPM)

1338u

304u

75

99

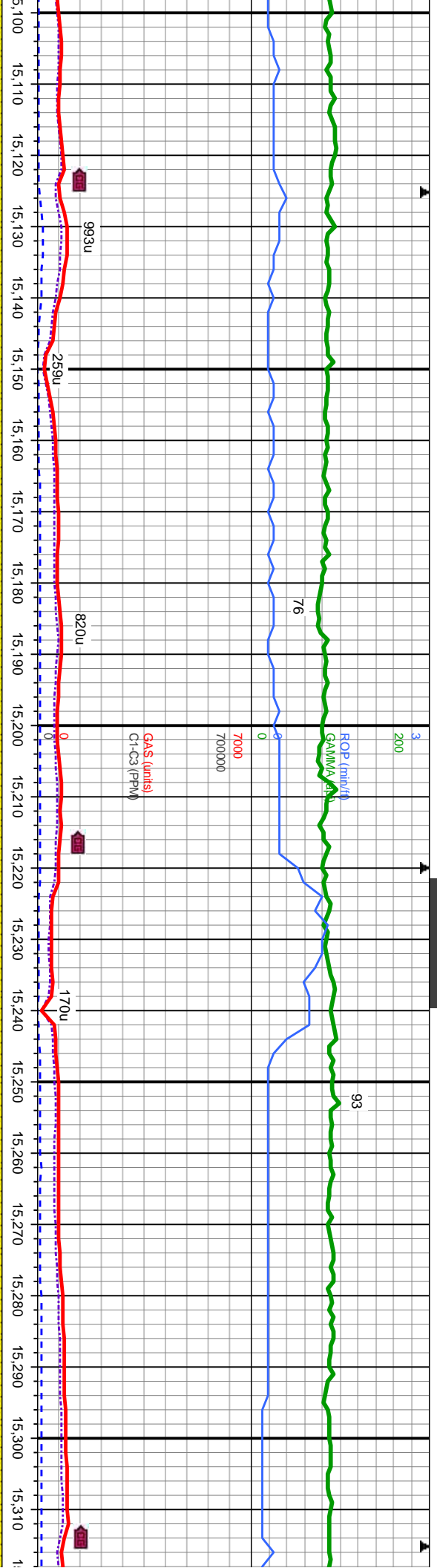
WT IN 9.4 OUT 9.4  
VIS IN 55 OUT 60

MD: 15,059.  
TVD: 7,243.22  
Inclination: 90.12 -  
Azimuth: 270.02 -  
VS: 8,106.95

14,900'-15,000': SS: dk bm-lt gy-not, vt-f gr, mod frm, sbnd  
-sbang, w srid, p vis intgrn por, mod cons w/ sl calc cnt, LS:  
crm-offwht lt gry, crp-micxin, m sft-sl frm, dns-sl chky, sl arg,  
tr lt blu/yel flr w/ mod fast sting lt bl cut

7700

15,000'-15,100': SS: dk bm-lt gy-not, vt-f gr, mod frm, sbnd  
-sbang, w srid, p vis intgrn por, mod cons w/ sl calc cnt, LS:  
crm-offwht lt gry, crp-micxin, m sft-sl frm, dns-sl chky, sl arg,  
tr lt blu/yel flr w/ mod fast sting lt bl cut



MD: 15,153.  
TVD: 7,242.87.  
Inclination: 90.3 -  
Azimuth: 269.54 -  
VS: 8,200.94.

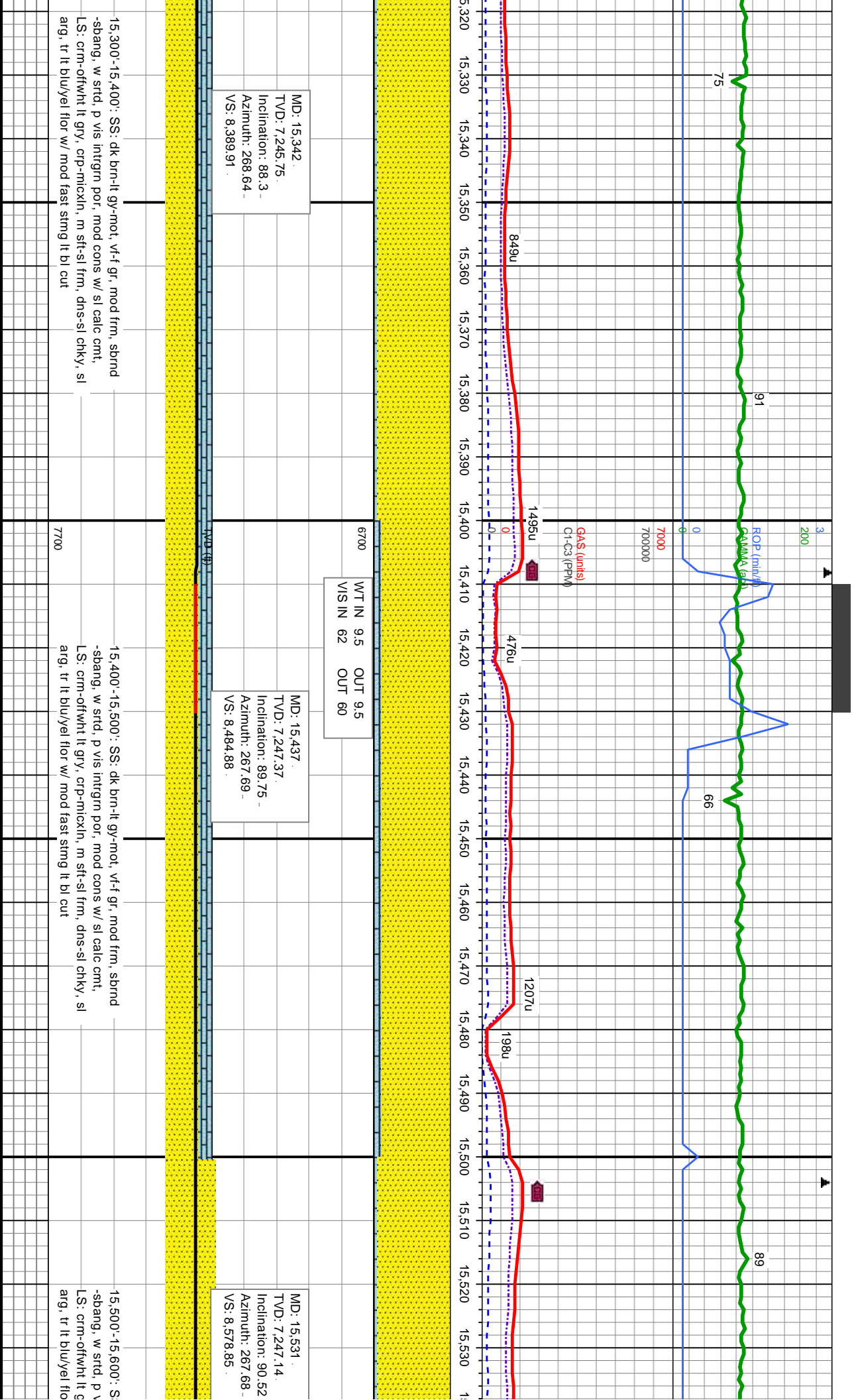
MD: 15,248.  
TVD: 7,243.49.  
Inclination: 88.95 -  
Azimuth: 269.64 -  
VS: 8,295.94.

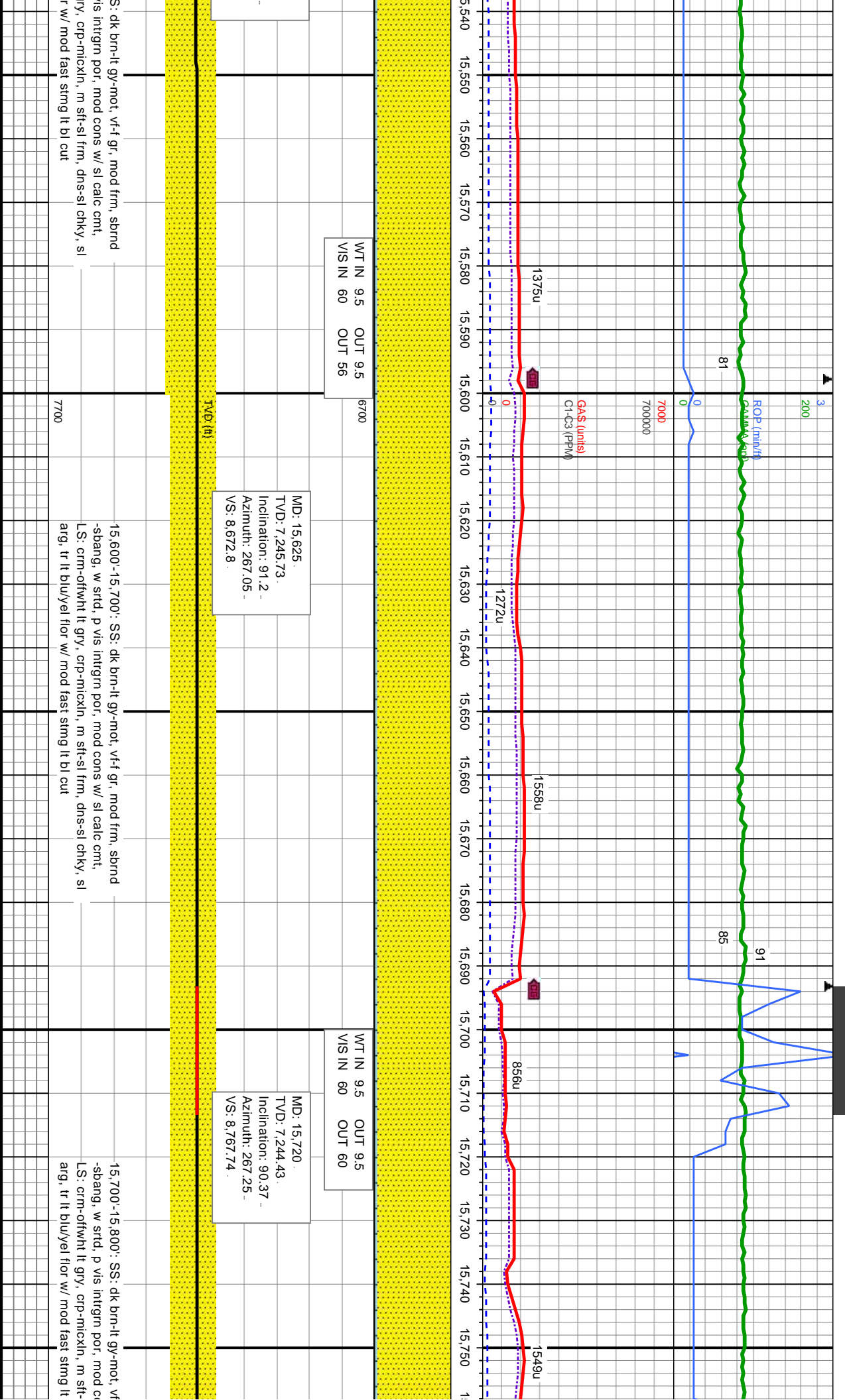
15,100'-15,200': SS: dk brn-lt gy-mot, vf-f gr, mod frm, sbnd  
-sbang, w strd, p vis intrgrn por, mod cons w/ sl calc cnt, LS:  
crm-offwht lt gry, crp-micxln, m sft-sl frm, dns-sl chky, sl arg,  
tr lt blu/yel flr w/ mod fast stmg lt bl cut

15,200'-15,300': SS: dk brn-lt gy-mot, vf-f gr, mod frm, sbnd  
-sbang, w strd, p vis intrgrn por, mod cons w/ sl calc cnt,  
LS: crm-offwht lt gry, crp-micxln, m sft-sl frm, dns-sl chky,  
sl arg, tr lt blu/yel flr w/ mod fast stmg lt bl cut

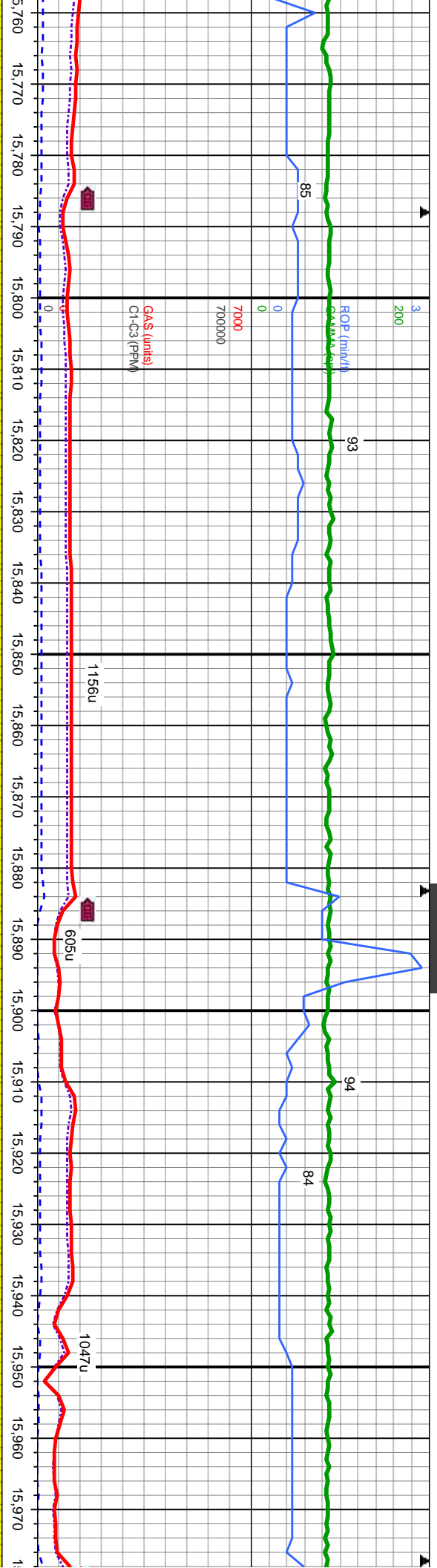












MD: 15,814.  
TVD: 7,243.68  
Inclination: 90.55 -  
Azimuth: 267.57 -  
VS: 8,861.7.

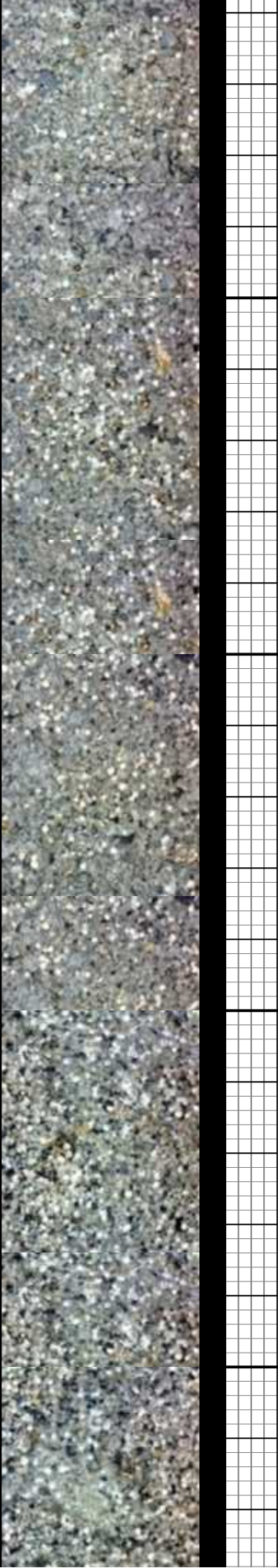
WT IN 9.5 OUT 9.5  
VIS IN 61 OUT 61

MD: 15,909.  
TVD: 7,243.59  
Inclination: 89.56 -  
Azimuth: 267.57 -  
VS: 8,956.67.

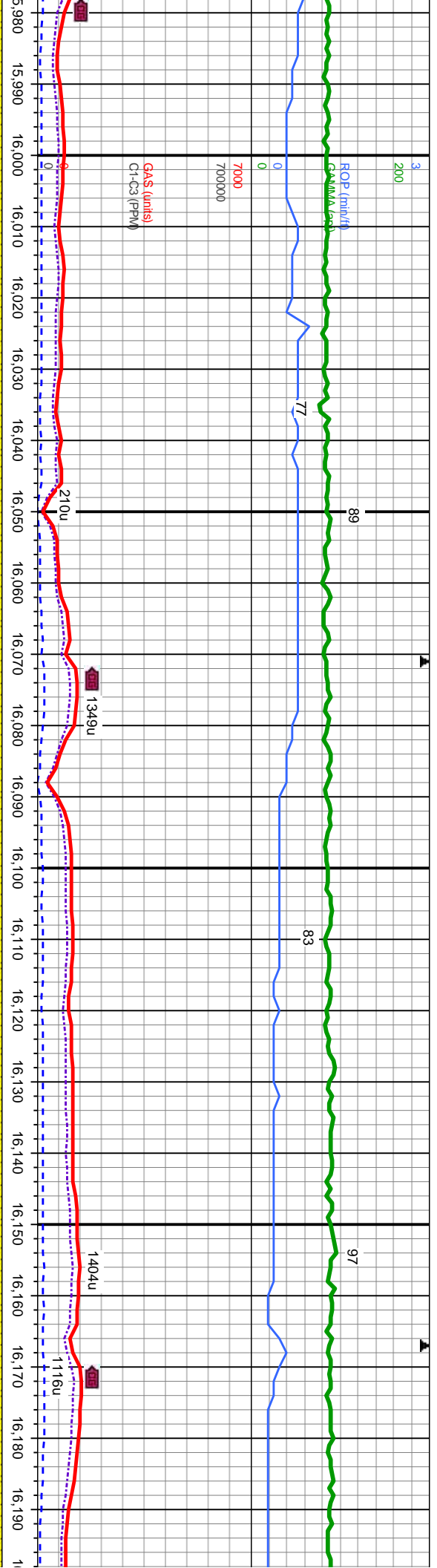
WT IN 9.5 OUT 9.5  
VIS IN 58 OUT 55

15,800'-15,900': SS: dk brn-lt gy-mot, vt-f gr, mod frm, sbnd  
-sband, w strd, p vis intgrn por, mod cons w/ sl calc cnt,  
LS: crm-offwht lt gry, crp-micxin, m sft-sl frm, dns-sl chky, sl  
arg, tr lt bluyel flr w/ mod fast stmg lt bl cut

15,900'-16,000': SS: dk brn-lt gy-mot, vt-f gr, mod frm, sbnd  
-sband, w strd, p vis intgrn por, mod cons w/ sl calc cnt,  
LS: crm-offwht lt gry, crp-micxin, m sft-sl frm, dns-sl chky, s  
arg, tr lt bluyel flr w/ mod fast stmg lt bl cut







WT IN 9.5 OUT 9.5  
VIS IN 60 OUT 56

WT IN 9.5 OUT 9.5  
VIS IN 65 OUT 57

WT IN 9.5 OUT 9.5  
VIS IN 67 OUT 56

MD: 16.003  
TVD: 7,244.05  
Inclination: 89.87  
Azimuth: 267.45  
VS: 9,050.64

MD: 16.097  
TVD: 7,244.27  
Inclination: 89.87  
Azimuth: 267.81  
VS: 9,144.61

MD: 16.191  
TVD: 7,244.1  
Inclination: 90.33  
Azimuth: 267.6  
VS: 9,238.59

16,000'-16,100': SS: dk brn-lt gy-mot, vt-f gr, mod frm, sbnd  
-sbang, w strd, p vis intgrn por, mod cons w/ sl calc cnt,  
LS: crm-offwht lt gry, crp-micxin, m sft-sl frm, dns-sl chky, sl  
arg, tr lt blv/yel flr w/ mod fast stmg lt bl cut

16,100'-16,200': SS: dk brn-lt gy-mot, vt-f gr, mod frm, sbnd  
-sbang, w strd, p vis intgrn por, mod cons w/ sl calc cnt,  
LS: crm-offwht lt gry, crp-micxin, m sft-sl frm, dns-sl chky, sl  
arg, tr lt blv/yel flr w/ mod fast stmg lt bl cut





3/15/14  
16347 MD

MINDEPTH

3  
200

ROP (min./hr)

90

90

85

95

ROP (min./hr)

0

7000

700000

0

7000

700000

GAS (units)  
Cl-C3 (PPM)

0

0

0

0

0

GAS (units)  
Cl-C3 (PPM)

0

16,200

16,210

16,220

16,230

16,240

16,250

16,260

16,270

16,280

16,290

16,300

16,310

16,320

16,330

16,340

16,350

16,360

16,370

16,380

16,390

16,400

16,410

1

1480u

348u

1372u

148u

WT IN 9.6 OUT 9.5  
VIS IN 67 OUT 58

WT IN 9.6 OUT 9.5  
VIS IN 67 OUT 59

MD: 16,286.  
TVD: 7,244.39.  
Inclination: 89.32 -  
Azimuth: 268.25 -  
VS: 9.333.57 .

MD: 16,380.  
TVD: 7,245.66.  
Inclination: 89.13 -  
Azimuth: 267.99 -  
VS: 9.427.55 .

TVD (ft)

TVD (ft)

16,200'-16,300': SS: dk brn-lt gy-mot, vf-f gr, mod frm, sbnd  
-sband, w strd, p vis intgrn por, mod cons w/ sl calc cnt,  
LS: crm-offwht lt gry, crp-micxln, m sft-sl frm, dns-sl chky, sl  
arg, tr lt bluyel flor w/ mod fast stmg lt bl cut

16,300'-16,400': SS: dk brn-lt gy-mot, vf-f gr, mod frm, sbnd  
-sband, w strd, p vis intgrn por, mod cons w/ sl calc cnt,  
LS: crm-offwht lt gry, crp-micxln, m sft-sl frm, dns-sl chky, sl  
arg, tr lt bluyel flor w/ mod fast stmg lt bl cut

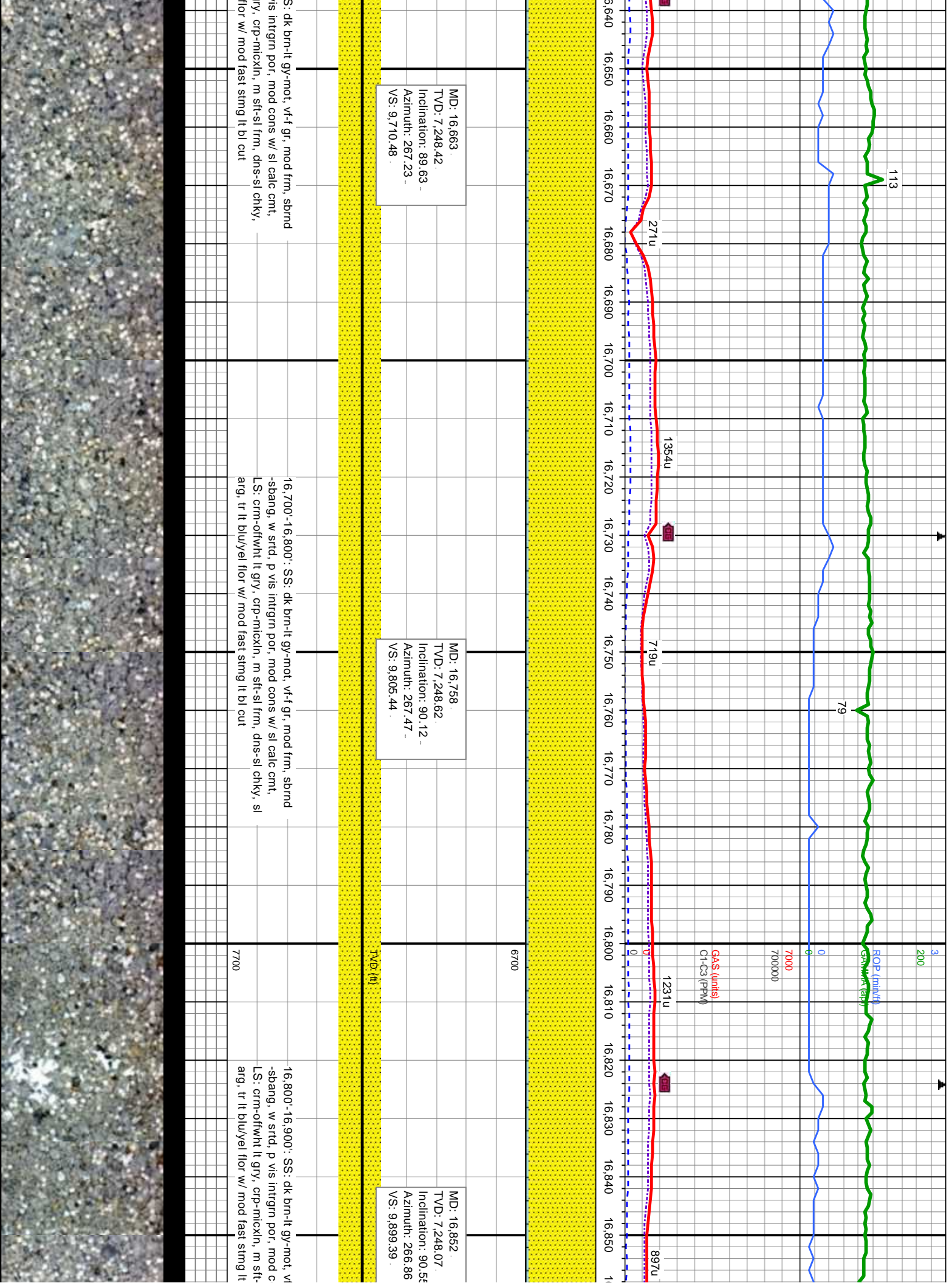
7700

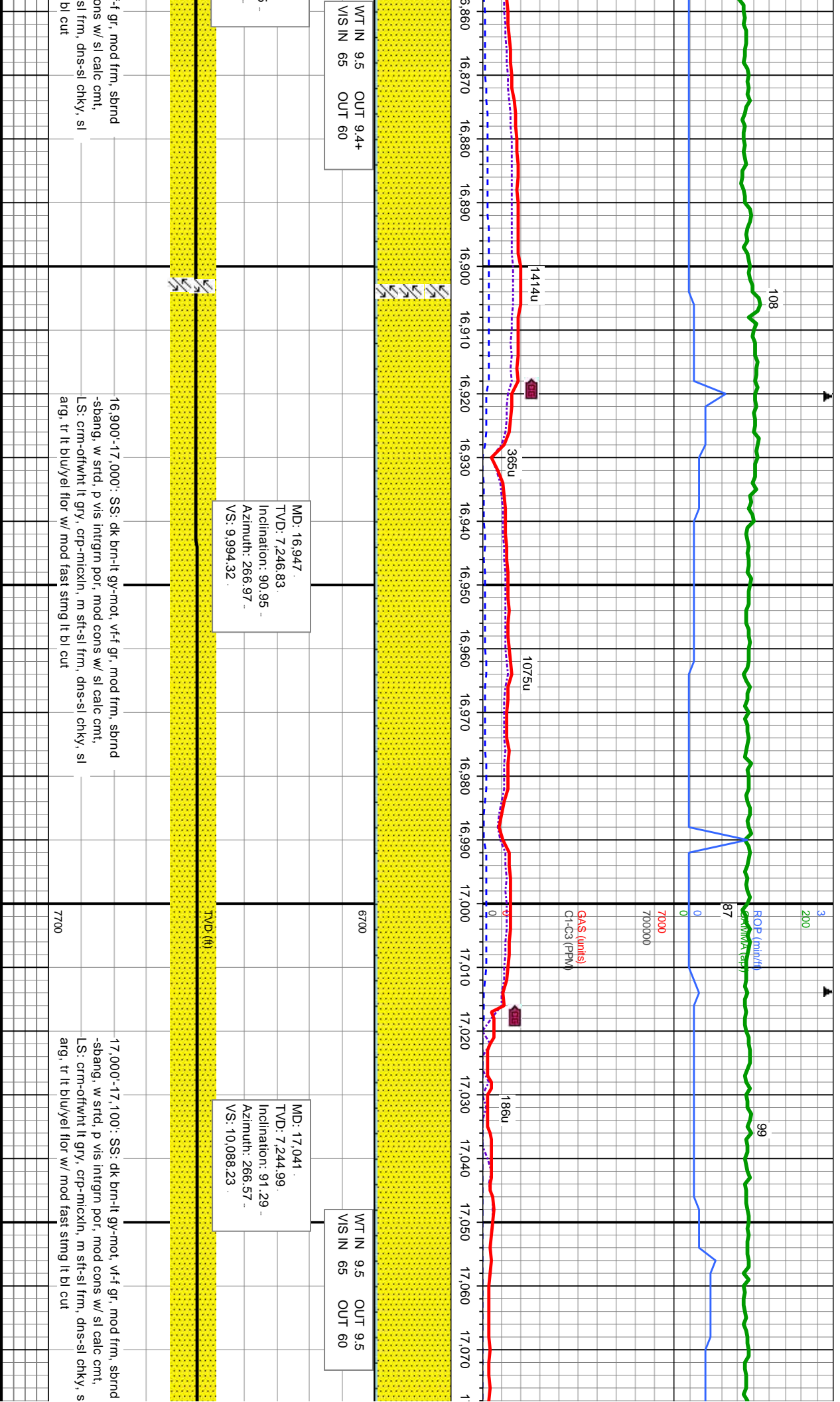
7700











WT IN 9.5 OUT 9.4+  
VIS IN 65 OUT 60

MD: 16.947  
TVD: 7,246.83  
Inclination: 90.95  
Azimuth: 266.97  
VS: 9.994.32

TVD (ft)

WT IN 9.5 OUT 9.5  
VIS IN 65 OUT 60

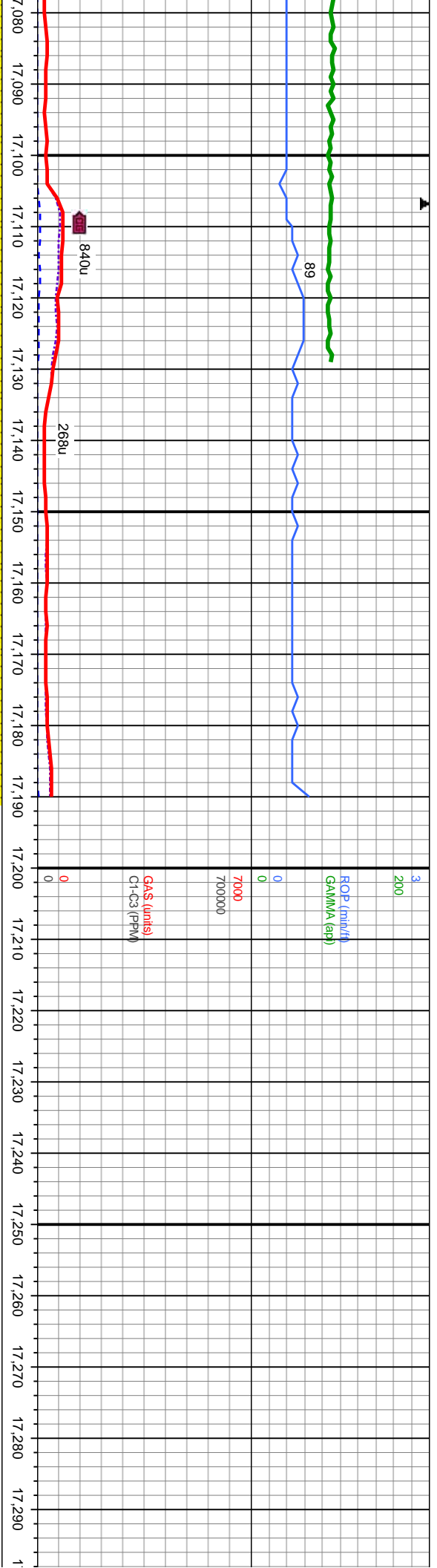
MD: 17.041  
TVD: 7,244.99  
Inclination: 91.29  
Azimuth: 266.57  
VS: 10.088.23

16,900'-17,000': SS: dk brn-lt gy-mot, vf-f gr, mod frm, sbnd  
-s-bang, w strd, p vis intgrn por, mod cons w/ sl calc cnt,  
LS: crm-offwht lt gry, crp-micxln, m sft-sl frm, dns-sl chky, sl  
arg, tr lt blu/yel flr w/ mod fast stmg lt bl cut

7700

17,000'-17,100': SS: dk brn-lt gy-mot, vf-f gr, mod frm, sbnd  
-s-bang, w strd, p vis intgrn por, mod cons w/ sl calc cnt,  
LS: crm-offwht lt gry, crp-micxln, m sft-sl frm, dns-sl chky, s  
arg, tr lt blu/yel flr w/ mod fast stmg lt bl cut





WT IN 9.5 OUT 9.5  
VIS IN 60 OUT 59

PROU TO BIT

MD: 17,123  
TVD: 7,243.11  
Inclination: 91.35  
Azimuth: 266.57  
VS: 10,170.13

MD: 17,191  
TVD: 7,241.5  
Inclination: 91.35  
Azimuth: 266.57  
VS: 10,238.05

Well TDd @ 17,191' MD  
ON 3/15/14 @ 11:00 HRS

THANK YOU FOR USING  
COLUMBINE LOGGING INC.

17,100'-17,191': SS: dk brn-lt gy-mol, v-f gr, mod frm, shnd  
-sbang, w strd, p vis intrgrn por, mod cons w/ sl calc cnt,  
LS: crm-offwht lt gry, crp-micxln, m sft-sl frm, dns-sl chky, sl  
arg, tr lt blu/yel flor w/ mod fast stmg lt bl cut



