



Scale: 5" / 100'
Measured Depth Log

Well Name Raindance FC 23-232HNX

Location SECTION 30 T6N R67W

State COLORADO

County WELD

Country UNITED STATES

Rig Number PD 462

API Number 05123515800000

APE # 20DC0373

Geographic Region DJ BASIN

Field WATTENBERG

Ground Elevation 4788'

K.B. Elevation 4808'

Logged Interval 6000' MD To 21014' MD

Total Depth 21014' MD

Formation NIOBRARA A CHALK

Type of Drilling Fluid OIL BASED MUD

Operator

Company Great Western Petroleum, LLC

Address 1001 17th Street, Suite 2000
Denver, CO 80202



Geologist

Name THOMAS YULL, TODD NAKATA, GERARDO CARRASCO

Company TERRA GUIDANCE, LLC


Address 67 W FLOYD AVE
STE 105
ENGLEWOOD, CO 80110

Other


MUDLOG START DATE 10/06/2021

MUDLOG END DATE 10/11/2021


Rock Types




Chalk




Silty Shale



BENTONITE



Marl



Shaly Siltstone

Minerals

B BENTONITE
P PYRITE

Stringer

BPB BENTONITE STRINGER

Accessories

Other Symbols

Engineering



CONNECTION (RIGHT)



CONNECTION GAS



FAULT



MN DEPTH

RPINTEYRO

Onsite Geological Services provided by
Terra **Guidance**

Loggers on Location: 10/5/2021

Logging Depth Reached:

06:37 MT, 10/6/2021

Bloodhound Unit: #5951

Sample Collection/Description Interval:

Curve 50'

Tangent/Lateral 100'

Drilling Data

ROP —
GAMMA —

ROP SCALE (FT/HR): 0-1000
GAMMA SCALE (API): 0-300

GAS SCALE: 0-2000u

Total Gas & Chromatograph

GAS —
C1 —
C2 —
C3 —
C4 —
CO2 —

Depth



Images



% Lithology

TVD SCALE: 5000' - 8500'

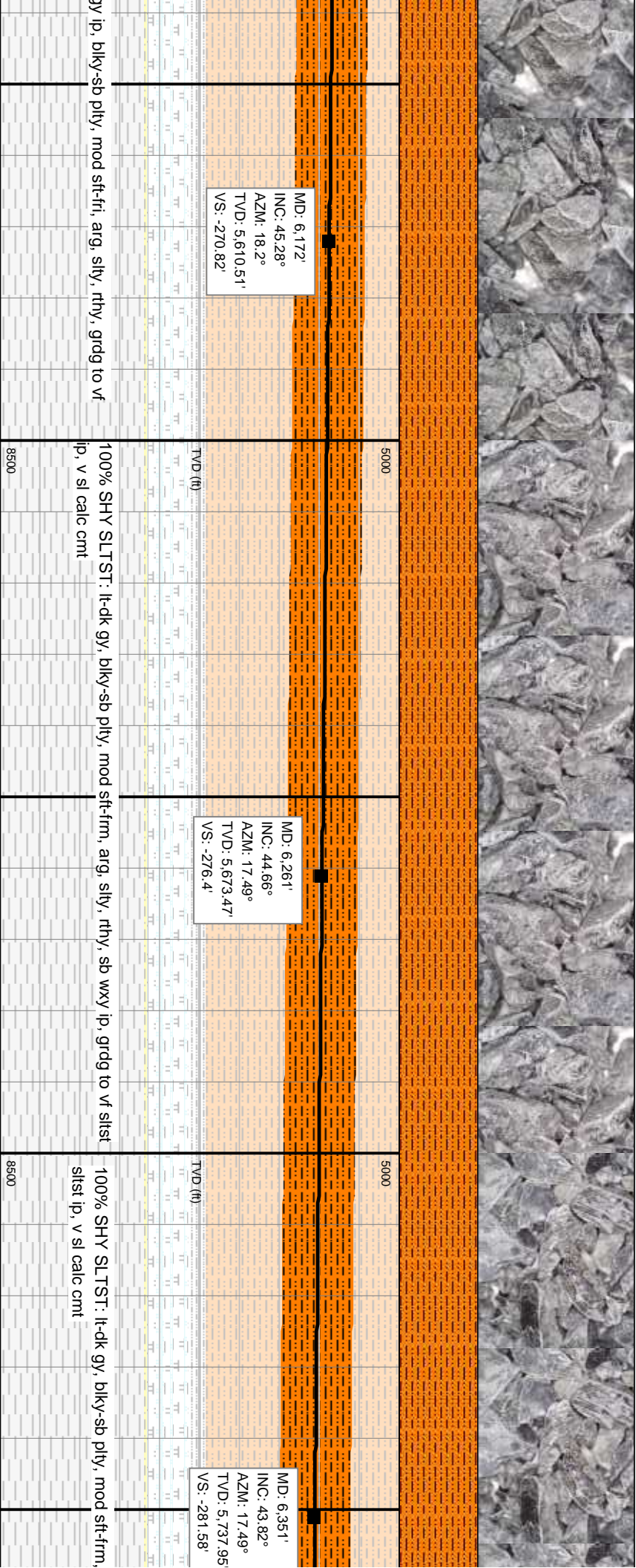
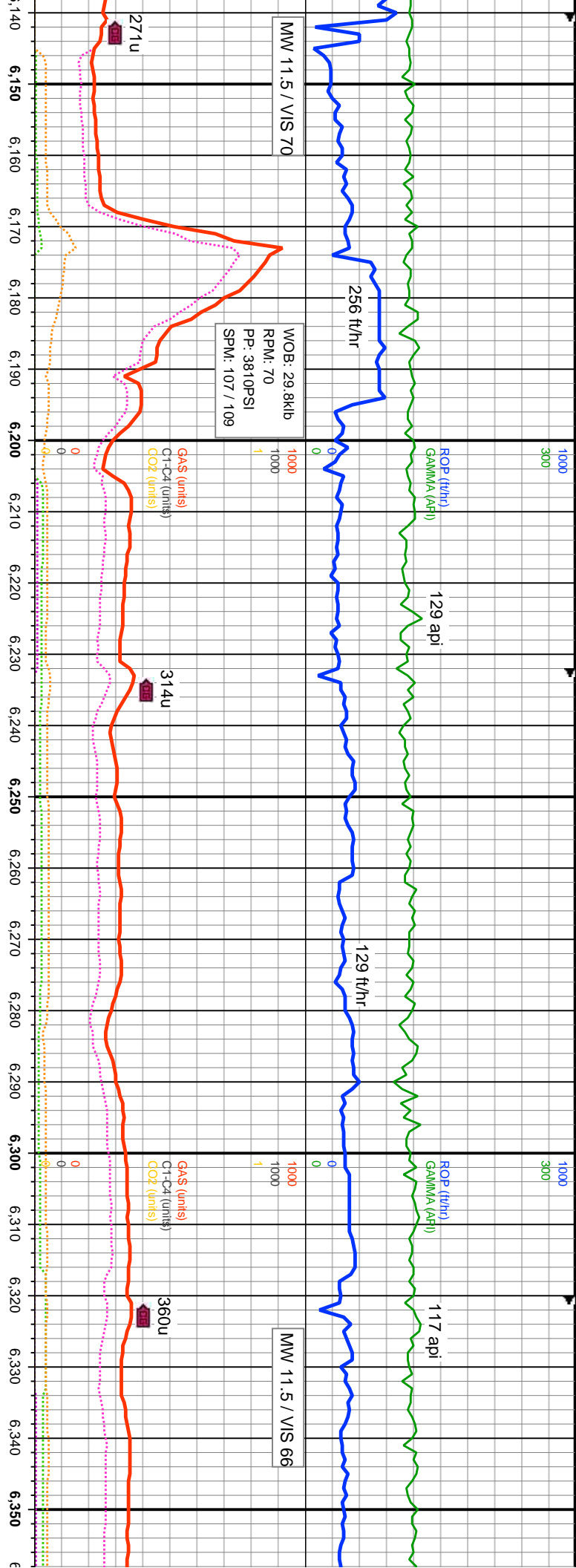
Well Bore
TVD —

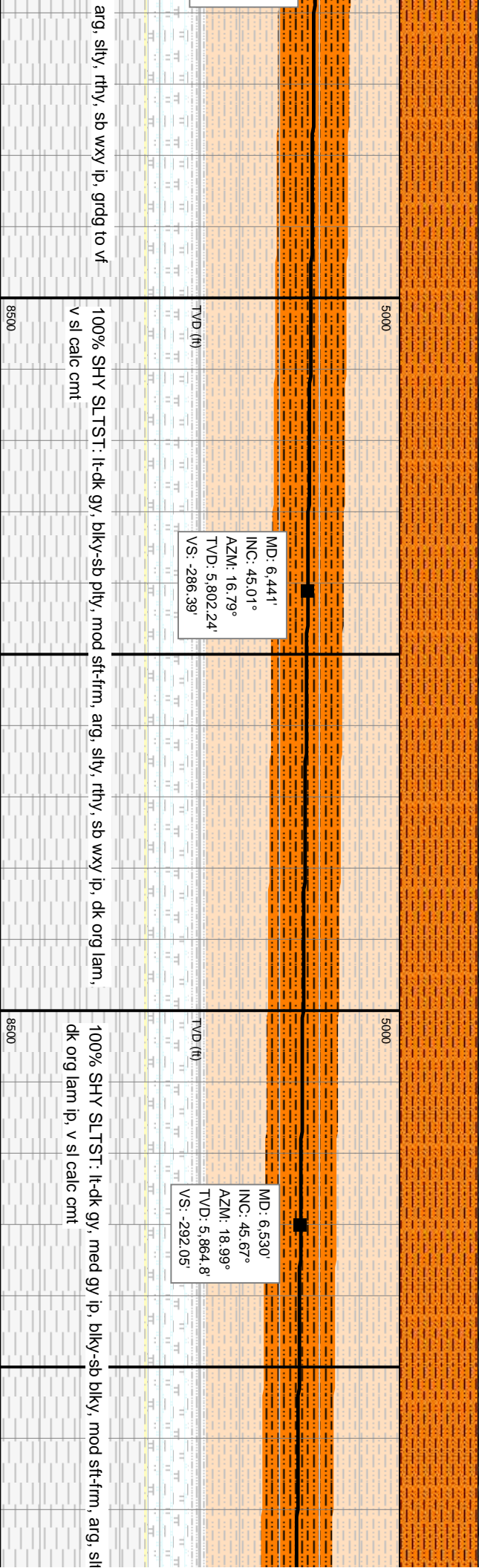
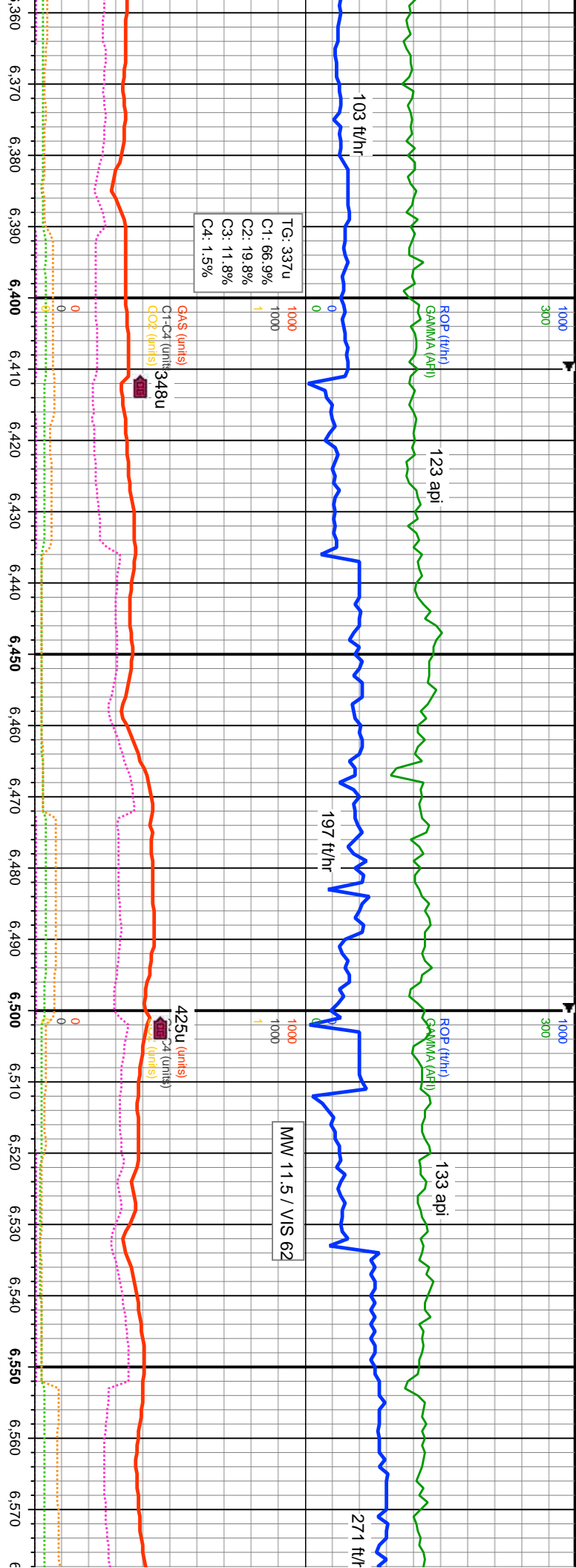
Bit #: 2
Size: 8.5"
Make: Ulterra
Model: PDC
Jets: 7 X 14's, 1 X 13's
S/N: 82118
Depth In: 3,191'

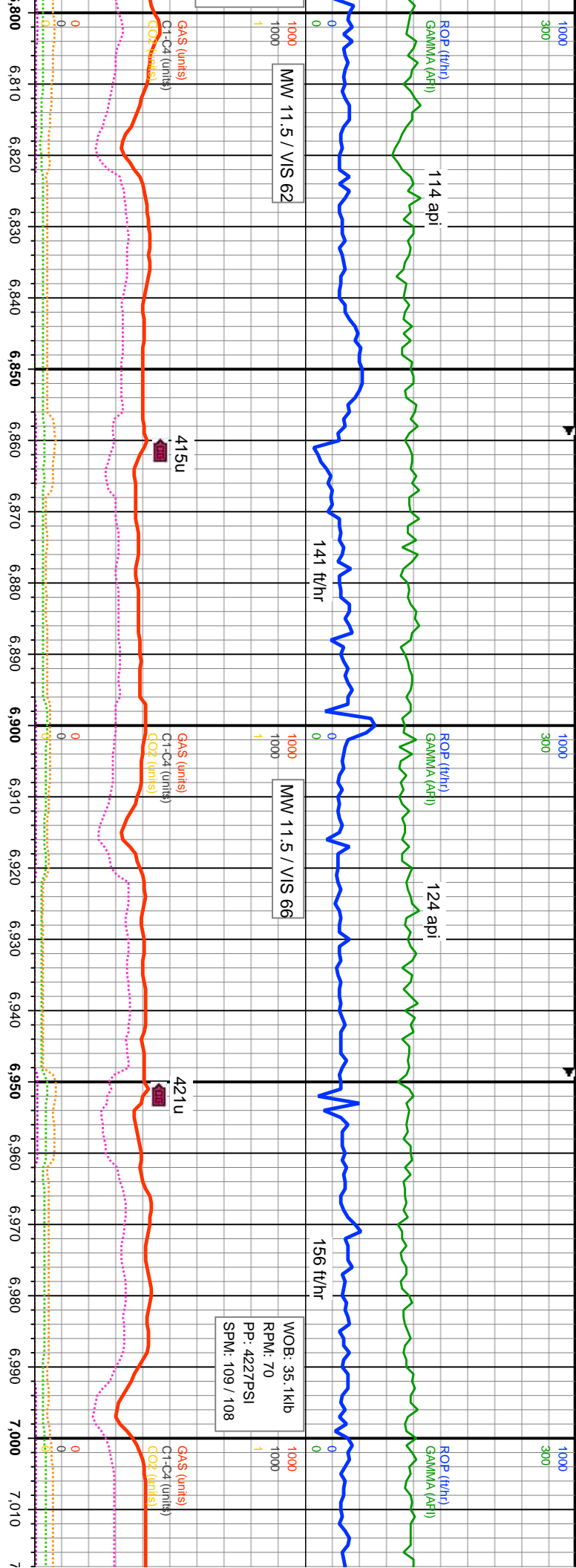
MD: 6.082'
INC: 43.6°
AZM: 18.28°
TVD: 5,546.25'
VS: -264.81'

100% SHY SLTST: lt-med gy, dk gy ip, blk-y-sb phty, mod sft-frt, arg, slty, rthy, grdg to vf
silst ip, v sl calc cnt

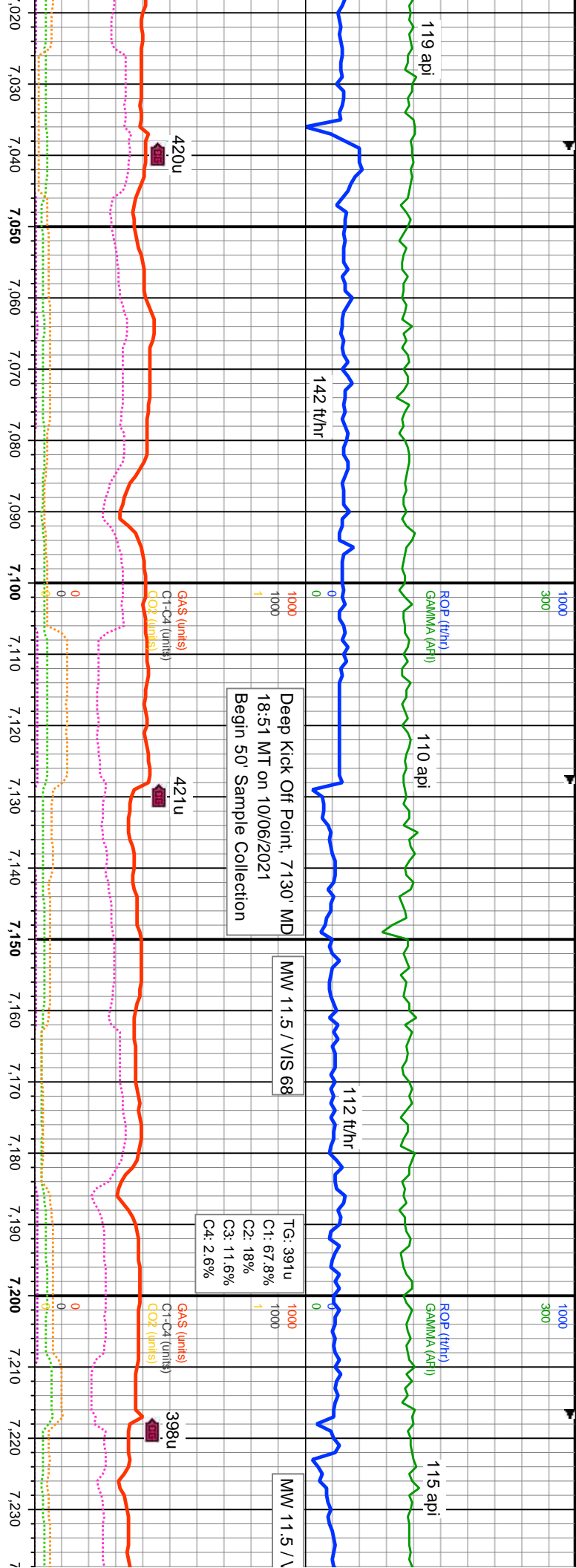
100% SHY SLTST: lt-med gy, dk c
silst ip, v sl calc cnt



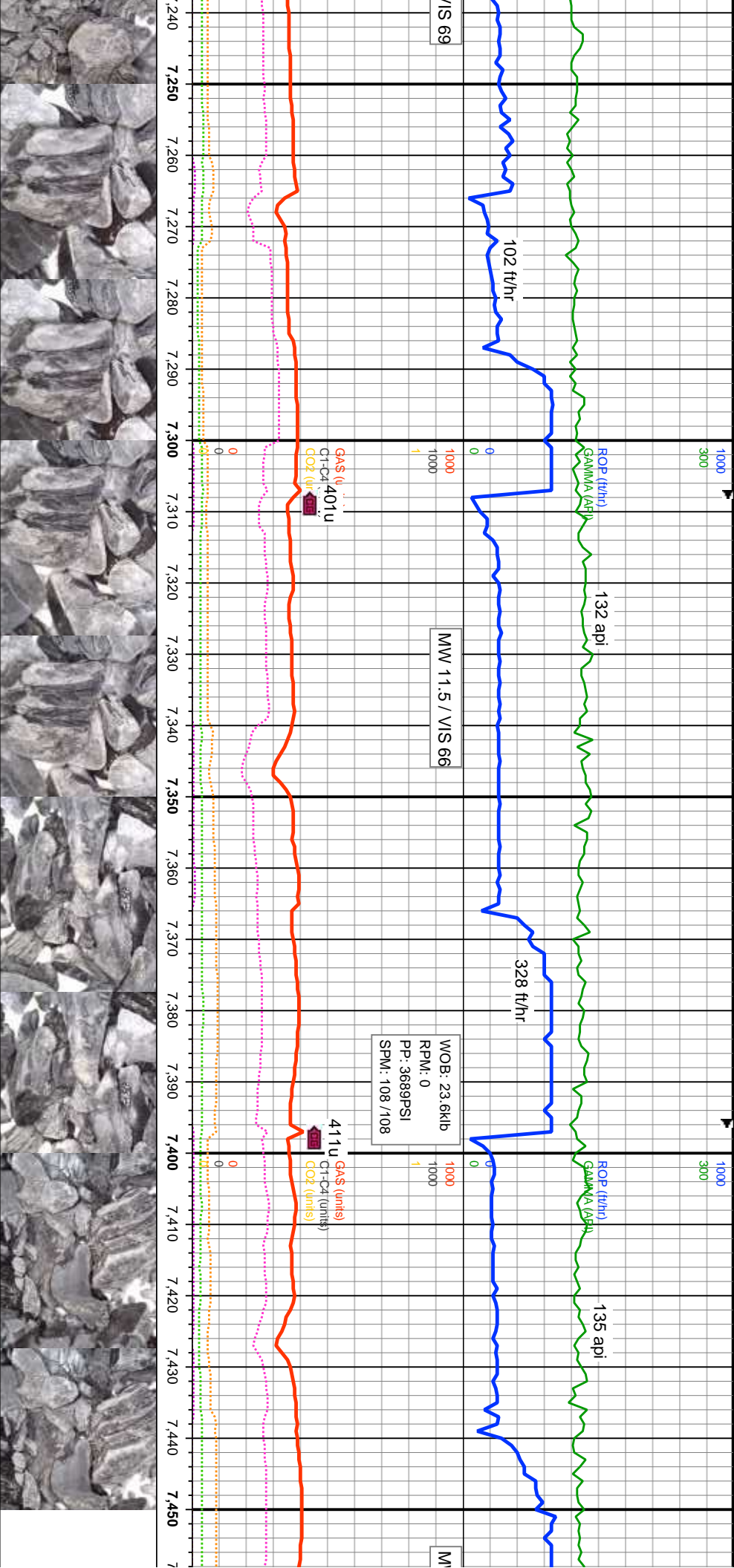




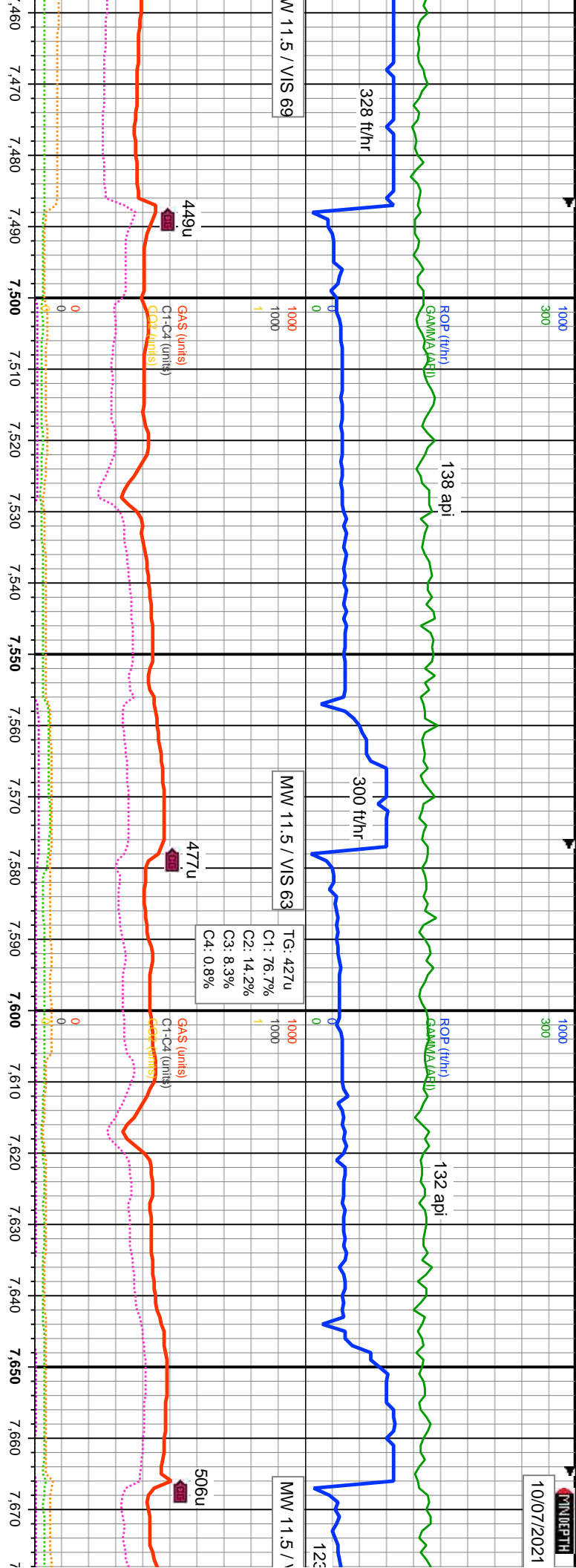
80% SHY SLTST: med gy-gy, sb blk-y-biky, mod sft-frm, arg, silty, sb wxy, grdg to silty sh ip, v sl calc cnt; 20% SLTY SH: med gy-brn, mod sft-sl frm, sb blk-y, silty, arg, v sl calc;		90% SLTY SH: med gy-brn, mod sft-sl frm, sb blk-y, silty, arg, v sl calc; 10% SHY SLTST: med gy-gy, sb blk-y-biky, mod sft-frm, arg, silty, sb wxy, grdg to silty sh ip, v sl calc cnt		90% SLTY SH med gy-gy, sb	
MD: 6.888' INC: 46.64° AZM: 18.28° TVD: 6.119.67' VS: -317.12'		MD: 6.978' INC: 46.29° AZM: 17.23° TVD: 6.181.67' VS: -322.8'			
TVD (ft)		TVD (ft)		TVD (ft)	
8500		8500		8500	



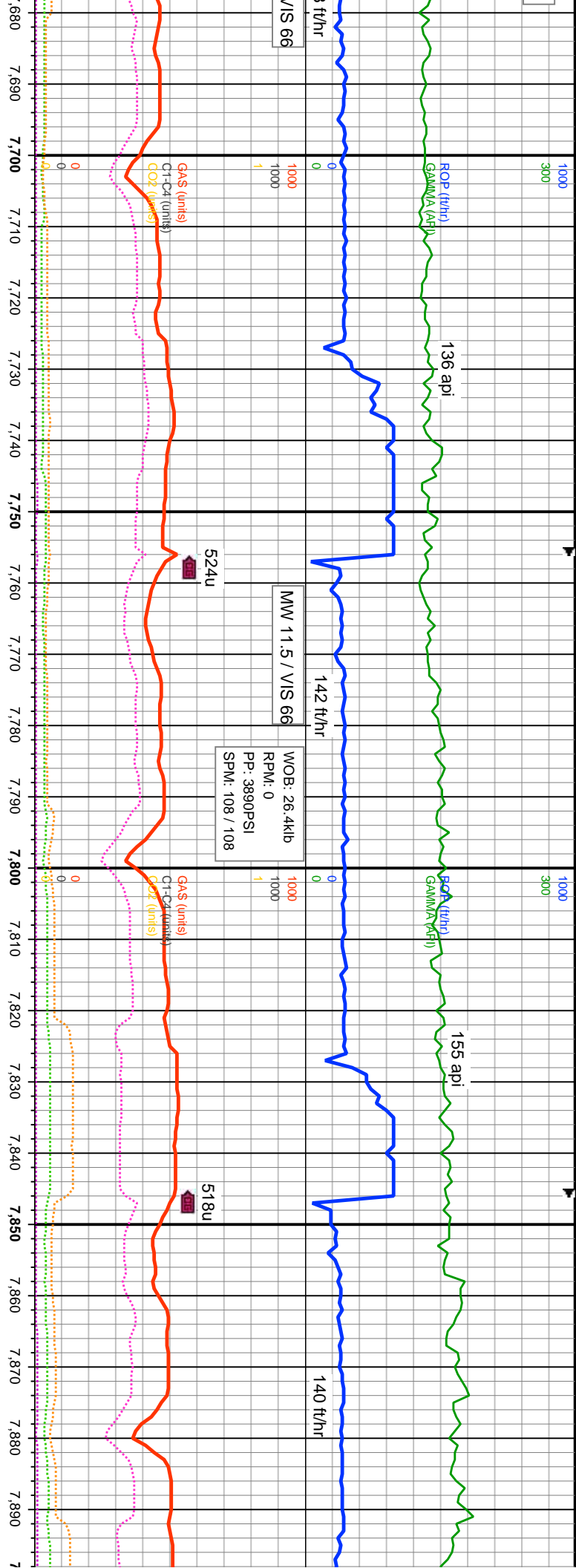
MD: 7,068' INC: 45.58° AZM: 16.7° TVD: 6,244.26' VS: -327.55'		5000	TVD (ft)	100% SLTY SH: med-dkgy, dk gysbhn, mod sft-sl frm, ip brit, sb blkv-ang, rr plty, com fis, slty, arg, v sl calc	8500
MD: 7,157' INC: 43.6° AZM: 10.9° TVD: 6,307.66' VS: -328.73'		5000	TVD (ft)	100% SLTY SH: med-dkgy, dk gysbhn, mod sft-sl frm, ip brit, sb blkv-ang, rr plty, com fis, slty, arg, v sl calc	8500



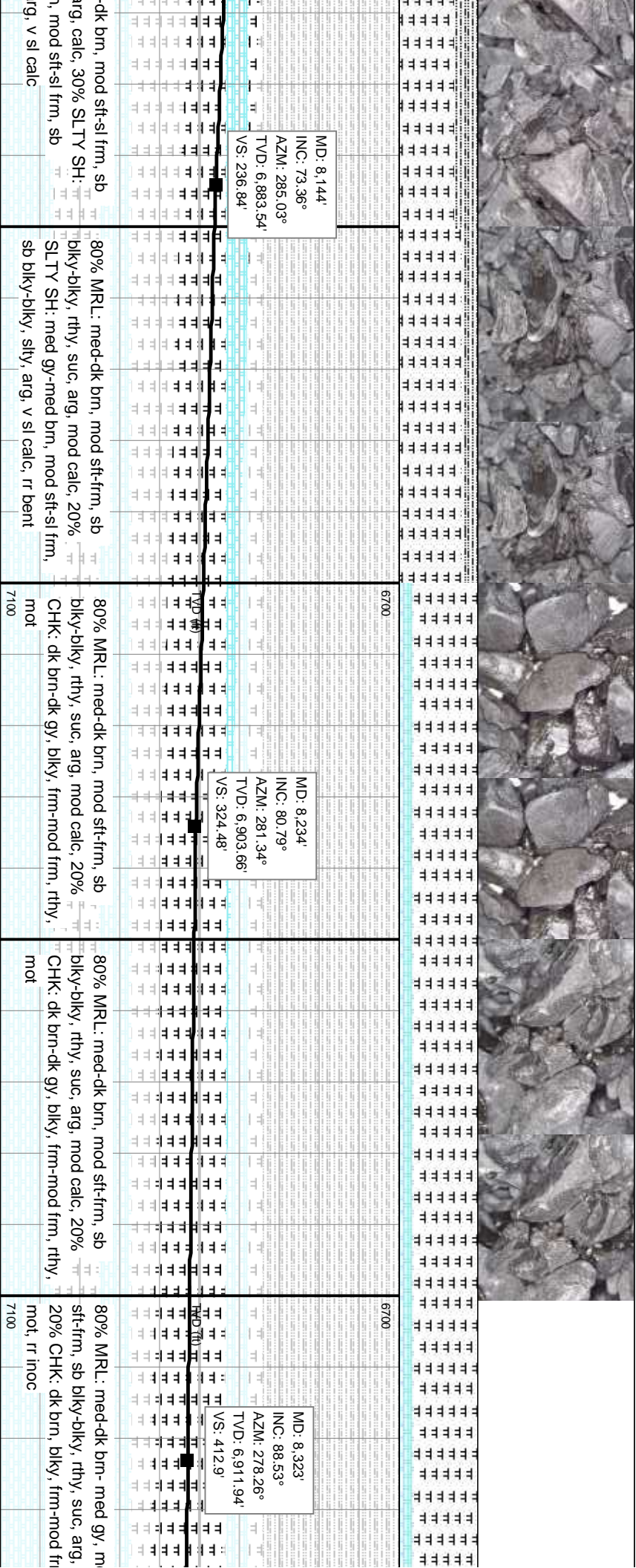
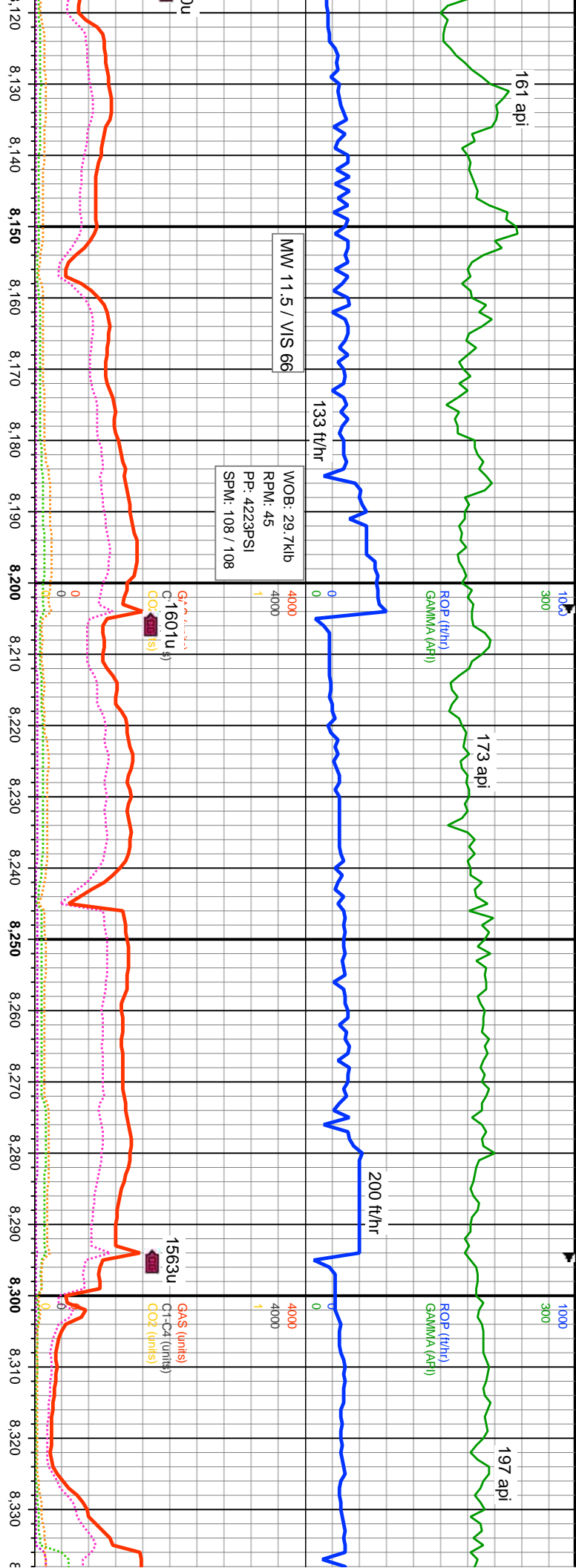
100% SLTY SH: med-dkgy, dk gysbhn, mod sft-sl frm, ip brit, sb blk-ang, rr pty, com fis, slty, arg, v sl calc	100% SLTY SH: med-dkgy, dk gysbhn, mod sft-sl frm, ip brit, sb blk-ang, rr pty, com fis, slty, arg, v sl calc	100% SLTY SH: med-dkgy, dk gysbhn, mod sft-sl frm, ip brit, sb blk-ang, rr pty, com fis, slty, arg, v sl calc	100% SLTY SH: med-dkgy, dk gysbhn, mod sft-sl frm, ip brit, sb blk-ang, rr pty, com fis, slty, arg, v sl calc
VS: -320.48'	VS: -300.98'	VS: -271.44'	

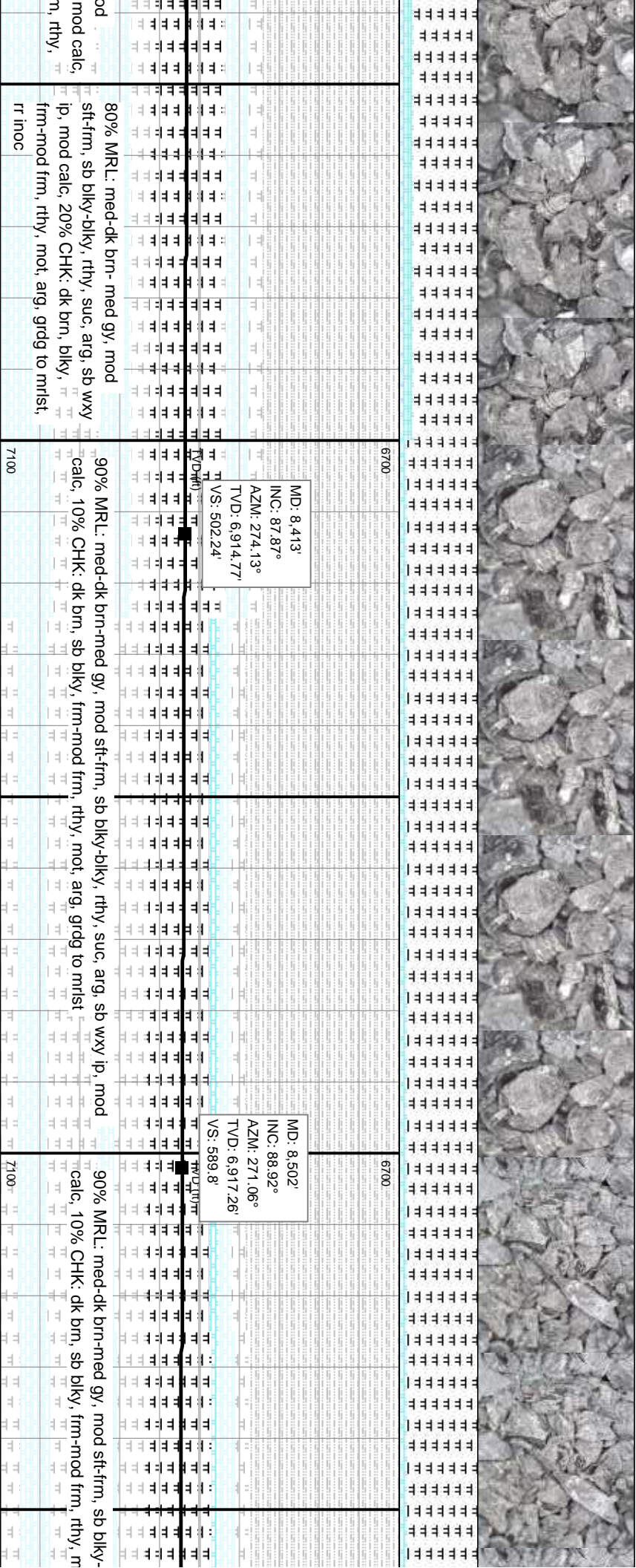
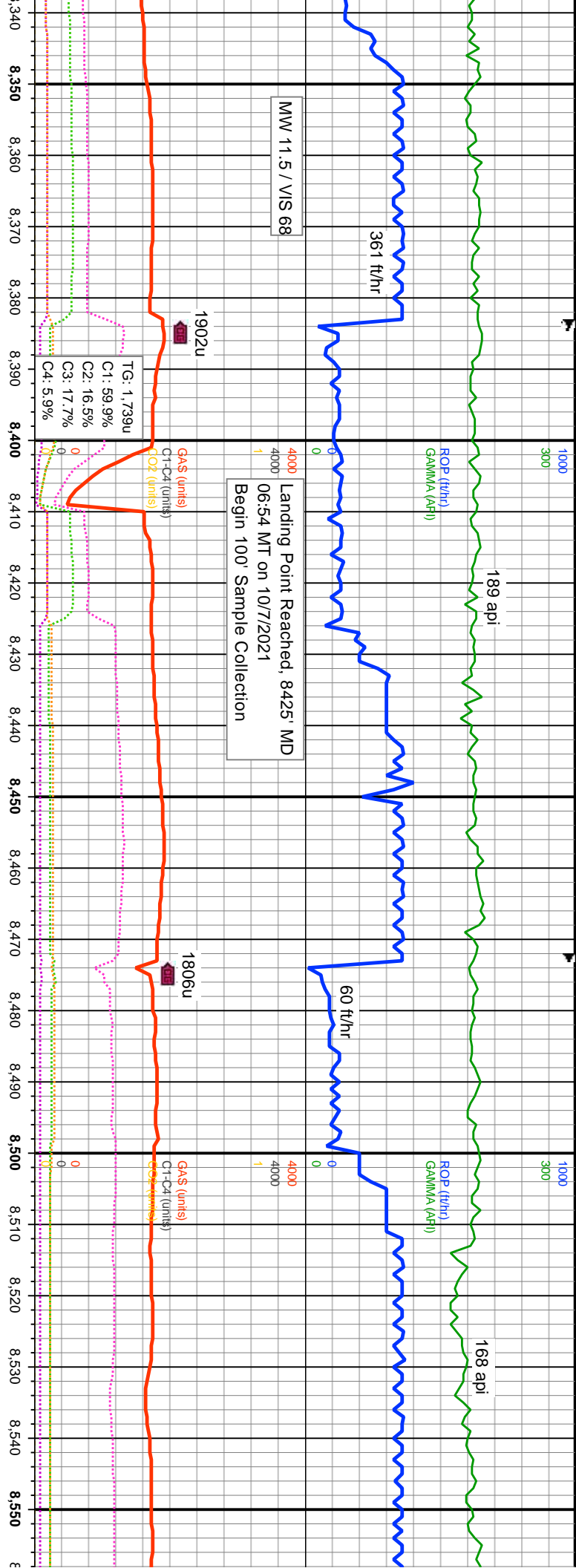


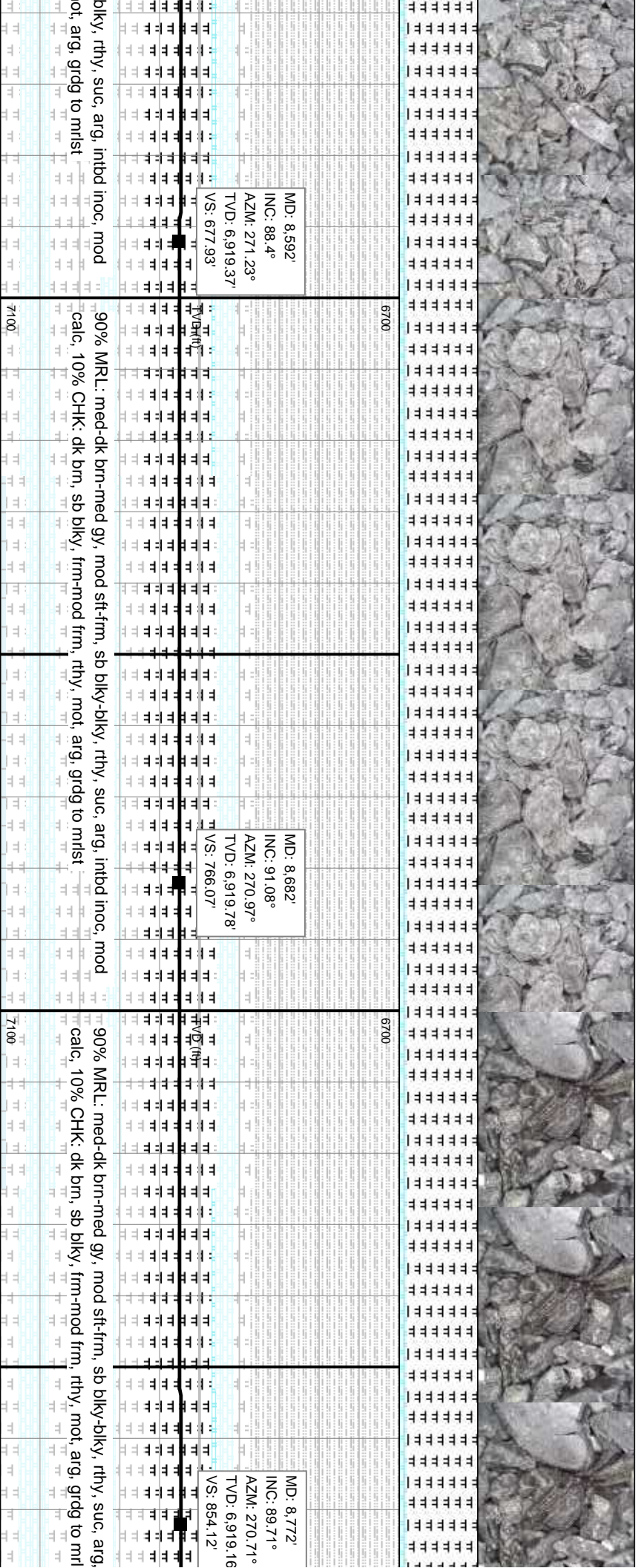
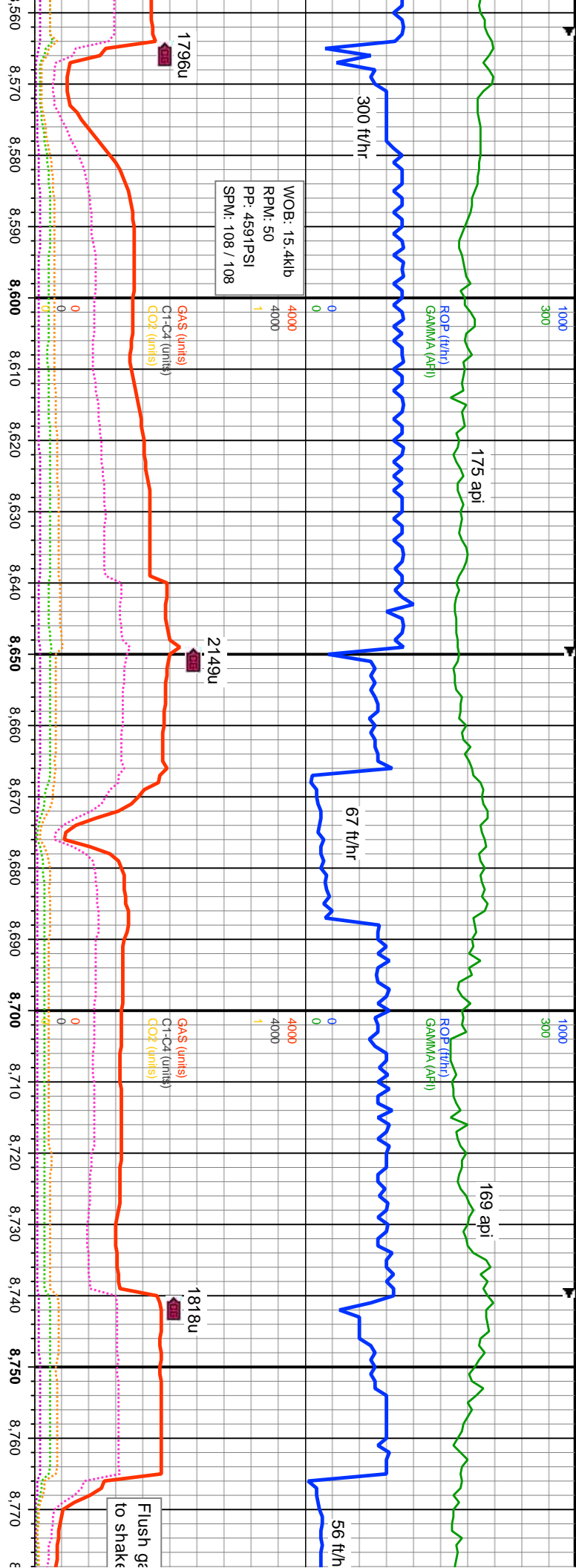
SLTY SH: med-dkgy, dk gysbhn, mod sft-sl frm, ip brit, sb blk-ang, rr pily, com fis, silty, arg	MD: 7.516' INC: 47.12° AZM: 335.48° TVD: 6.551.58' VS: -234.6'	SLTY SH: med-dkgy, dk gysbhn, mod sft-sl frm, ip brit, sb blk-ang, rr pily, com fis, silty, arg	MD: 7.606' INC: 47.6° AZM: 324.23° TVD: 6.612.65' VS: -189.65'	SLTY SH: med-dkgy, dk gysbhn, mod sft-sl frm, ip brit, sb blk-ang, rr pily, com fis, silty, arg	MD: 7.606' INC: 47.6° AZM: 324.23° TVD: 6.612.65' VS: -189.65'
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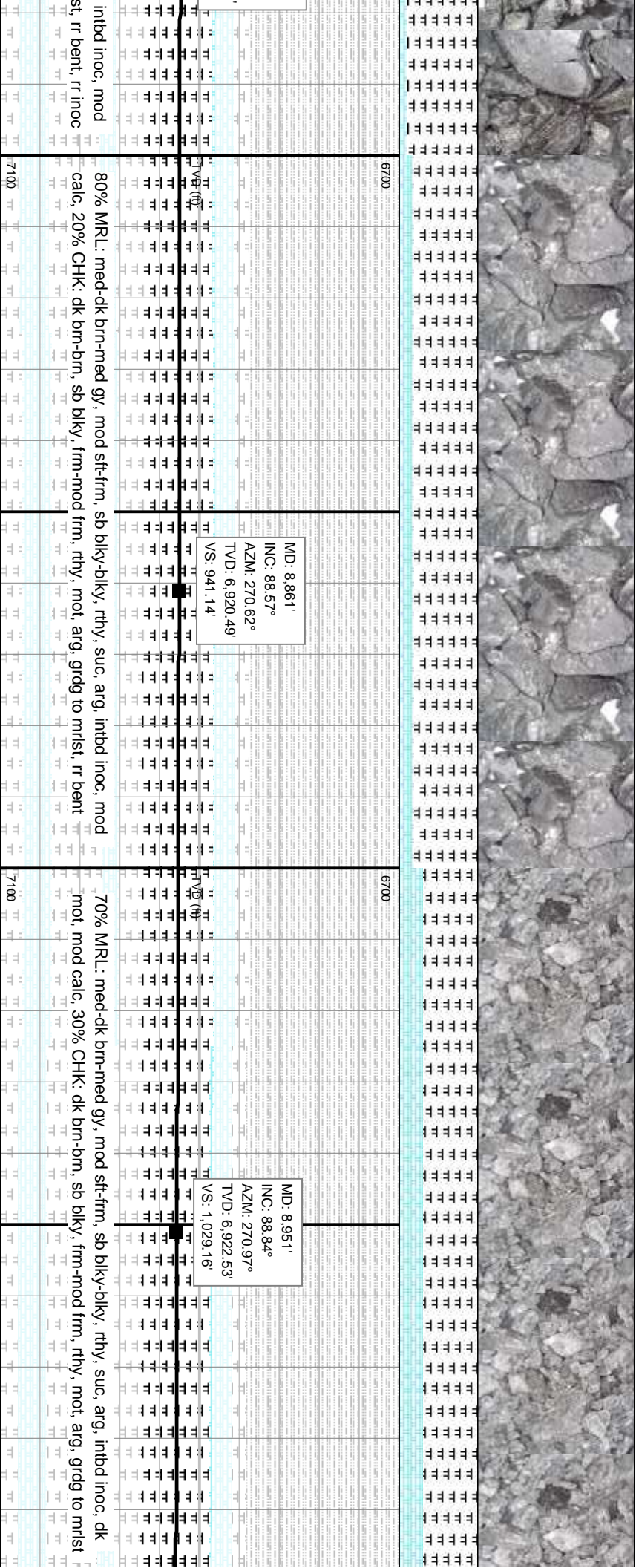
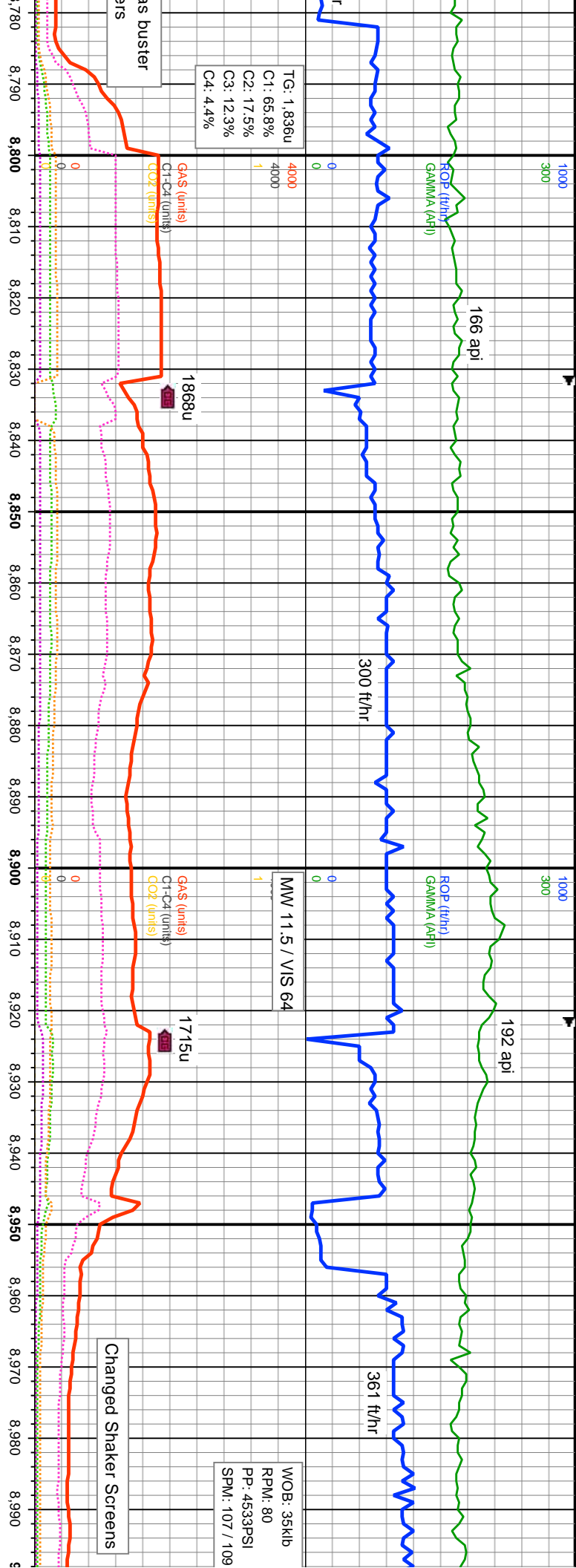


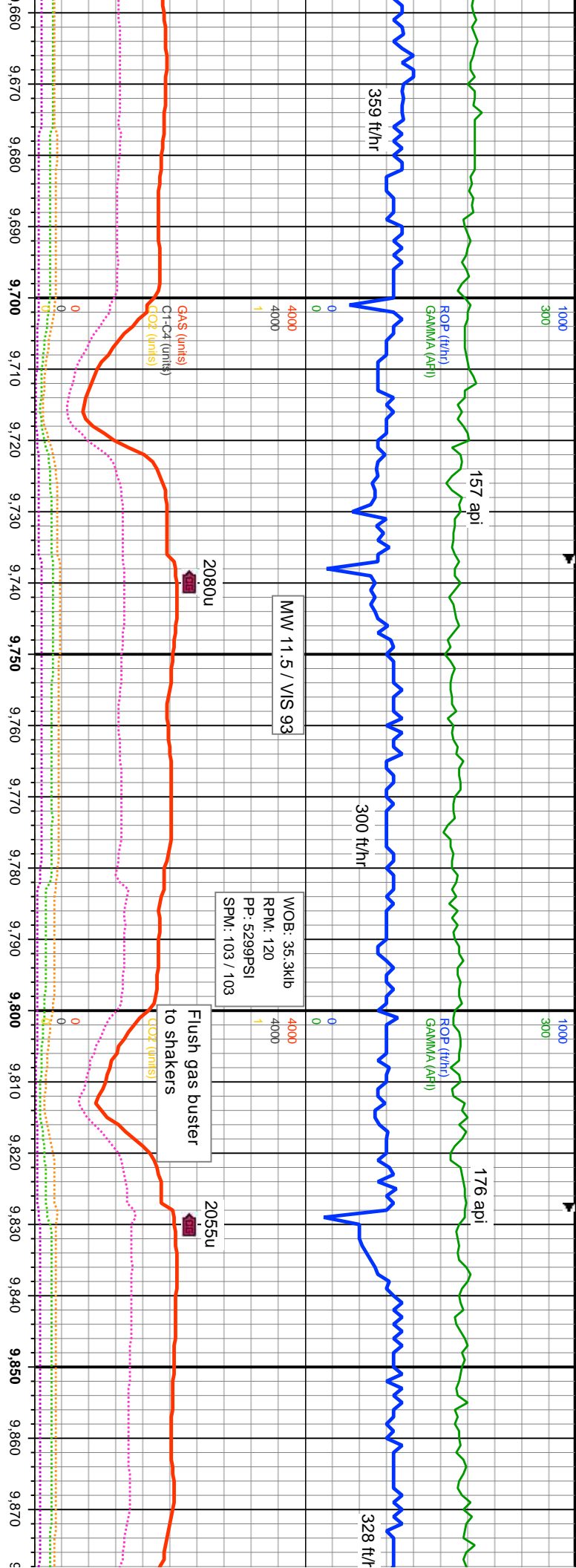
<p>MD: 7.696' INC: 50.81° AZM: 315.88° TVD: 6,671.51' VS: -136.47'</p> <p>100% SLTY SH: med-dkgy, dk gysbn, mod sft-sl frm, ip brt, sb blk-y-ang, rr plty, com fls, slty, arg</p>	<p>MD: 7.785' INC: 53.85° AZM: 308.76° TVD: 6,725.93' VS: -74.23'</p> <p>100% SLTY SH: med gy-med brn, sb blk-y-blky, mod sft-sl frm, slty, arg, non calc, grdg to vf slst ip</p>	<p>MD: 7.875' INC: 58.37° AZM: 300.59° TVD: 6,776.16' VS: -4.98'</p> <p>100% SLTY SH: med gy-med brn, sb blk-y-blky, mod sft-sl frm, slty, arg, non calc, grdg to vf slst ip</p>
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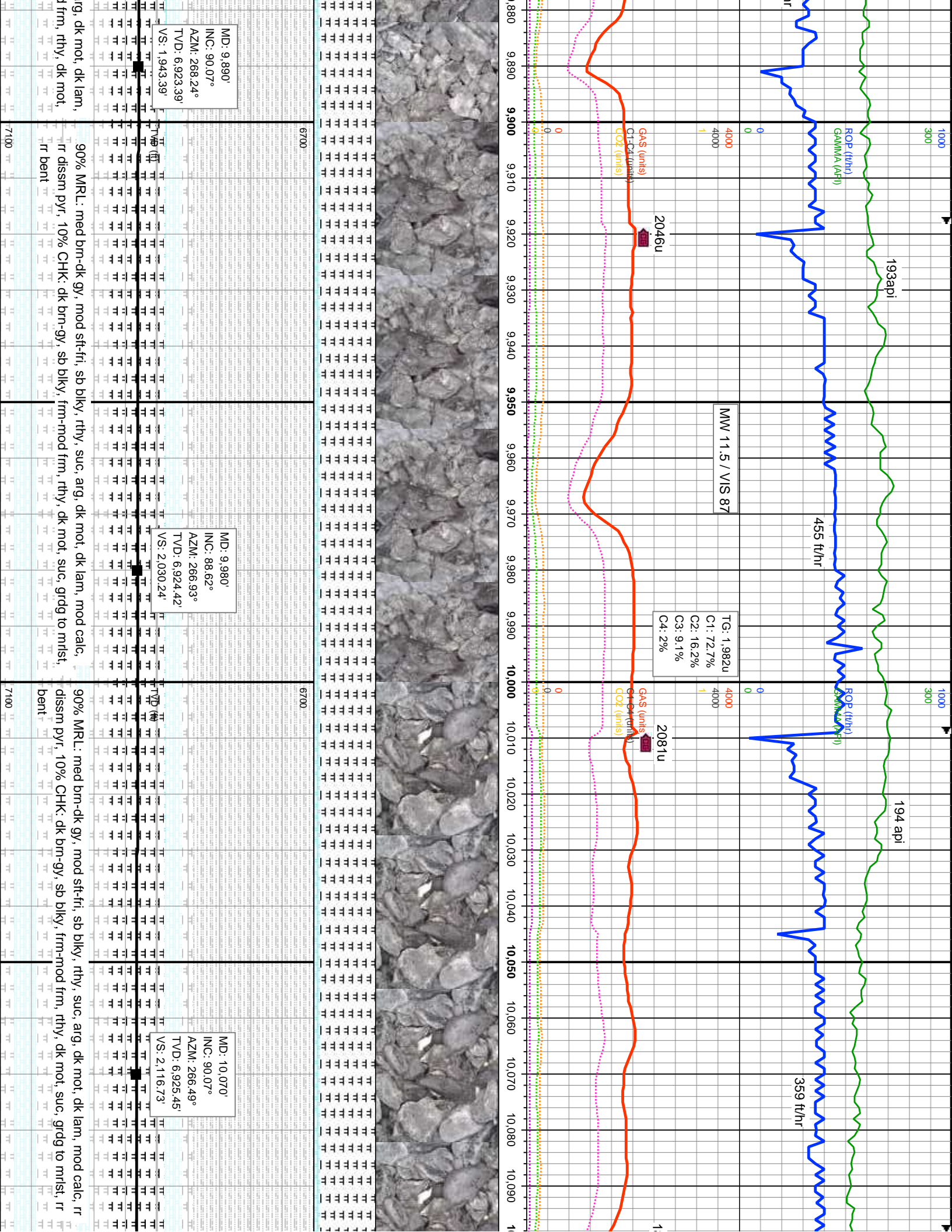


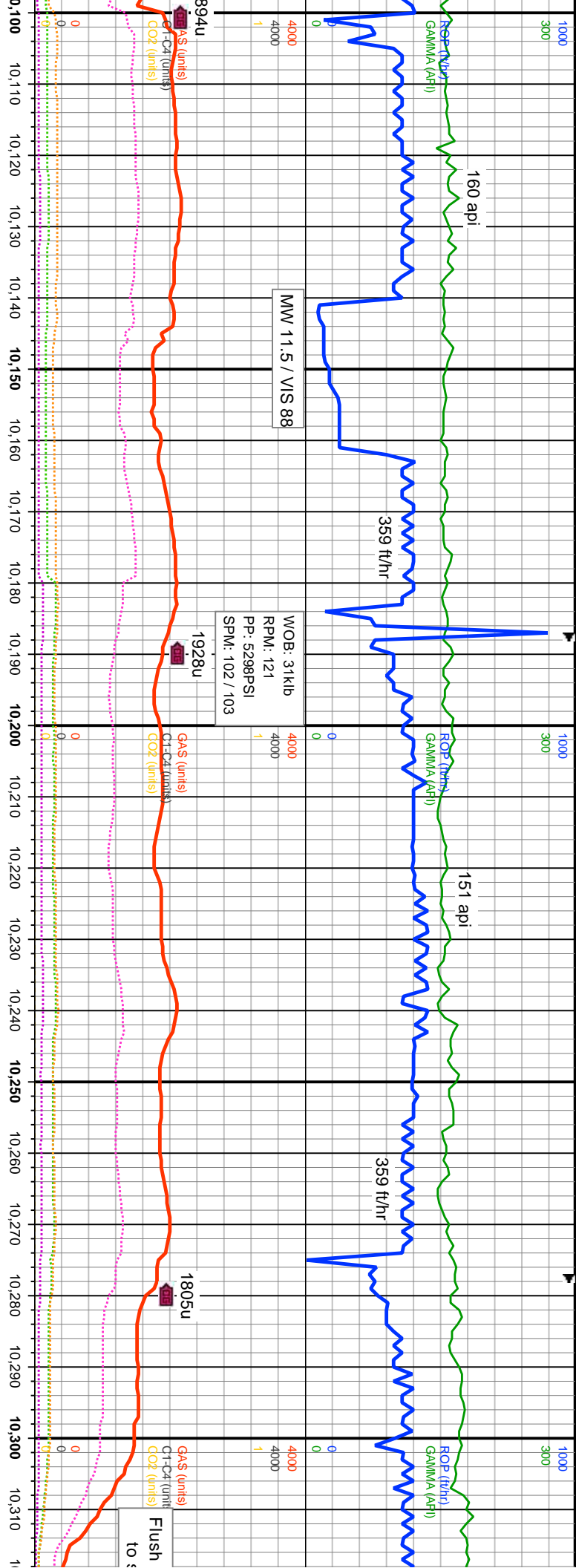
blky, rthy, suc, arg, dk mot, dk lam,	90% MRL: med br-dk gy, mod sft-fr, sb blk-y-blky, sb ply ip, rthy, suc, arg, dk mot, dk lam,
h, rthy, dk mot, suc, grdg to mlst	mod calc, inbd inoc, rr dissn pyr, 10% CHK: dk br-gy, sb blk-y, frm-mod frm, rthy, dk mot,
suc, grdg to mlst, rr bent	suc, grdg to mlst, rr bent

MD: 9.711'
INC: 90.15°
AZM: 268.42°
TVD: 6.923.68'
VS: 1.770.14'

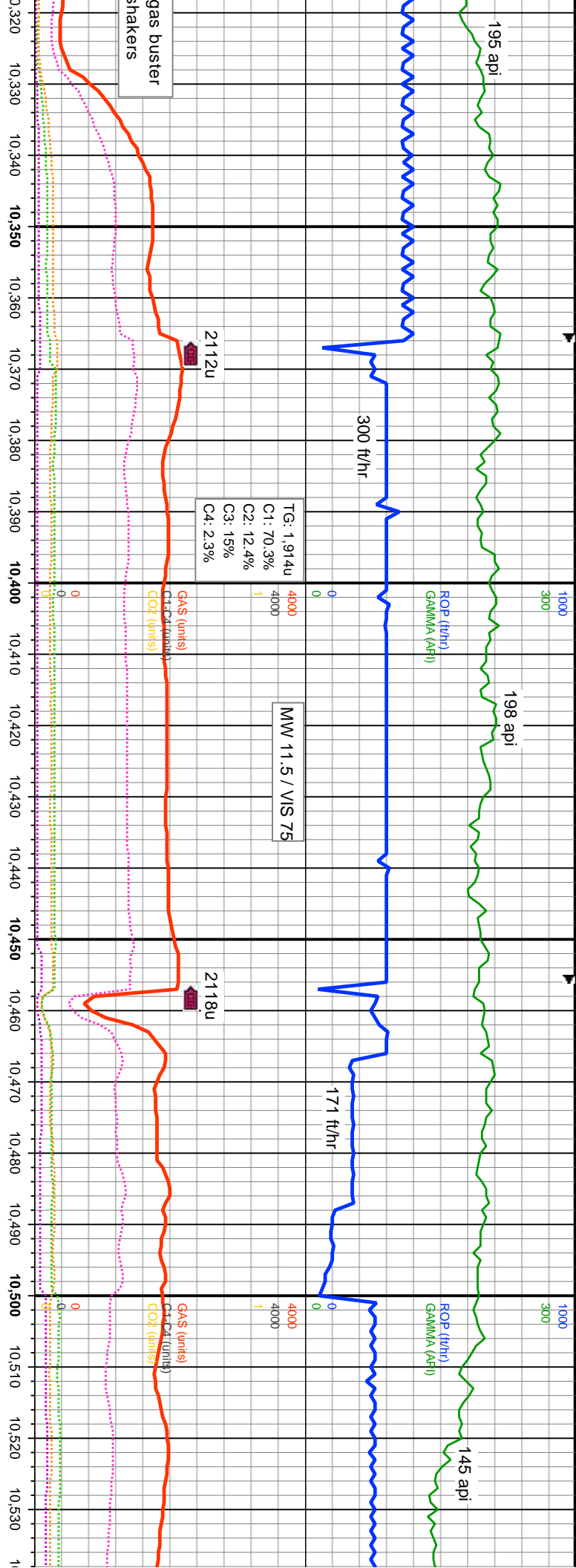
MD: 9.801'
INC: 90.07°
AZM: 268.07°
TVD: 6.923.5'
VS: 1.857.27'

7100	90% MRL: med br-dk gy, mod sft-fr, sb blk-y-blky, sb ply ip, rthy, suc, arg, dk mot, dk lam,
7100	mod calc, inbd inoc, rr dissn pyr, 10% CHK: dk br-gy, sb blk-y, frm-mod frm, rthy, dk mot,
7100	suc, grdg to mlst, rr bent





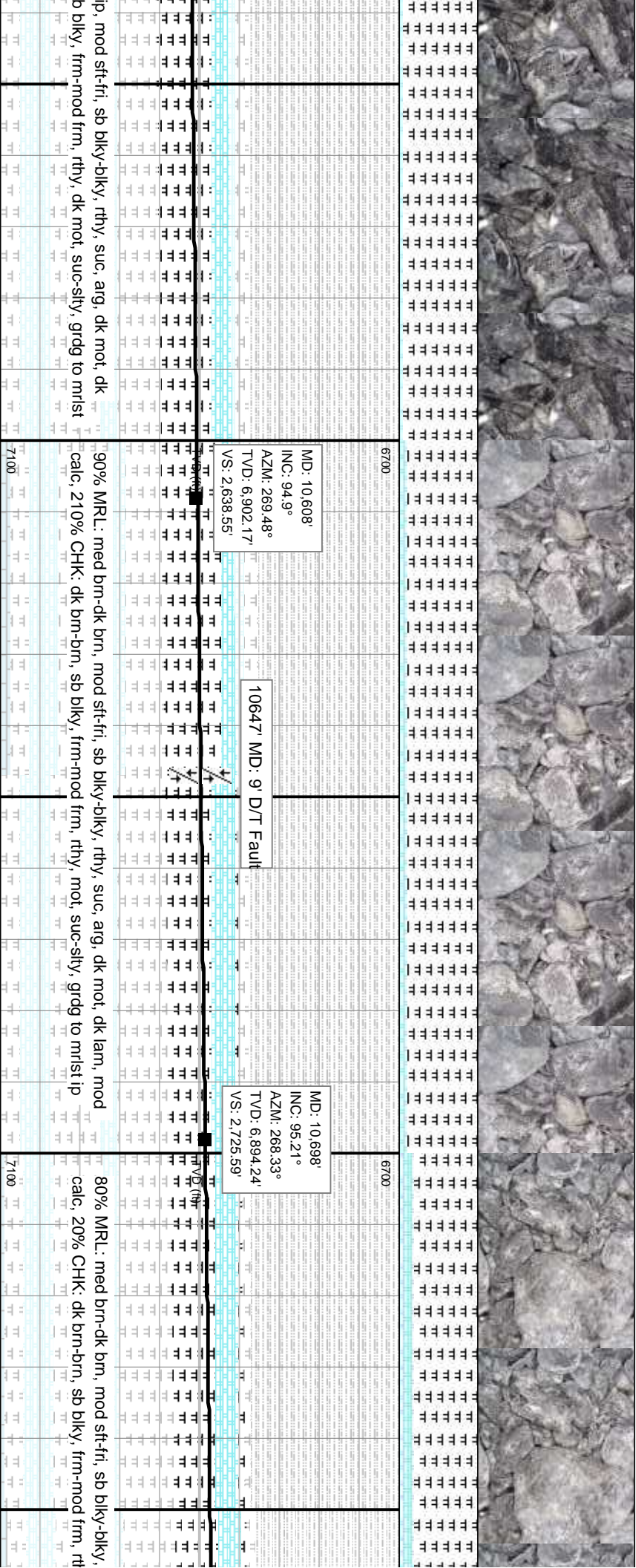
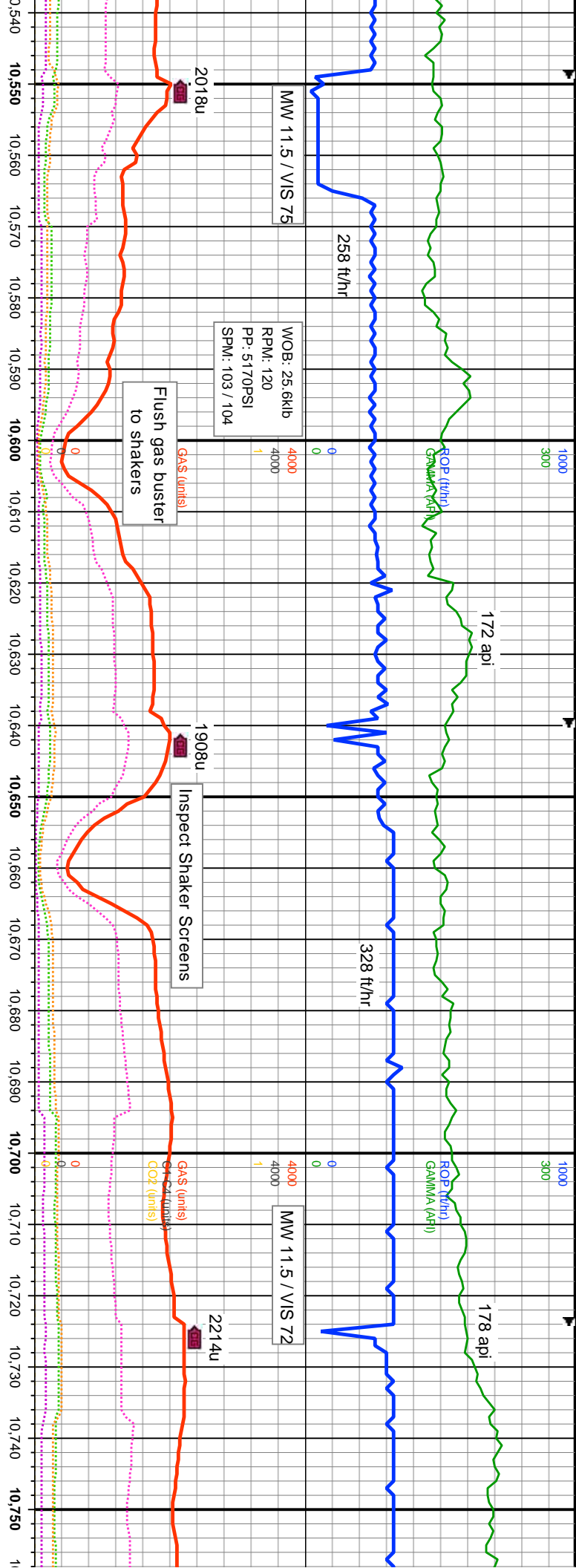
6700	MD: 10.159° INC: 90.29° AZM: 267.81° TVD: 6.925.17° VS: 2.202.44°	90% MRL: med brn-dk gy, mod sft-frt, sb blk-y-sb pty, rthy, suc, arg, dk mot, dk lam, mod calc, rr pyr lam, 10% CHK: dk brn-gy, sb blk-y, frm-mod frm, rthy, dk mot, suc, grdg to mlst, rr bent
6700	MD: 10.249° INC: 91.39° AZM: 270.62° TVD: 6.923.85° VS: 2.289.92°	90% MRL: med brn-brn-dk gy, mod sft-frt, sb blk-y-blky, rthy, suc, arg, dk mot, dk lam, mod calc, 10% CHK: dk brn, sb blk-y, frm-mod frm, rthy, dk mot, suc-slt-y, grdg to mlst, rr bent
6700	MD: 10.249° INC: 91.39° AZM: 270.62° TVD: 6.923.85° VS: 2.289.92°	90% MRL: med brn-brn-dk gy, mod sft-frt, sb blk-y-blky, rthy, suc, arg, dk mot, dk lam, mod calc, 10% CHK: dk brn, sb blk-y, frm-mod frm, rthy, dk mot, suc-slt-y, grdg to mlst, rr bent

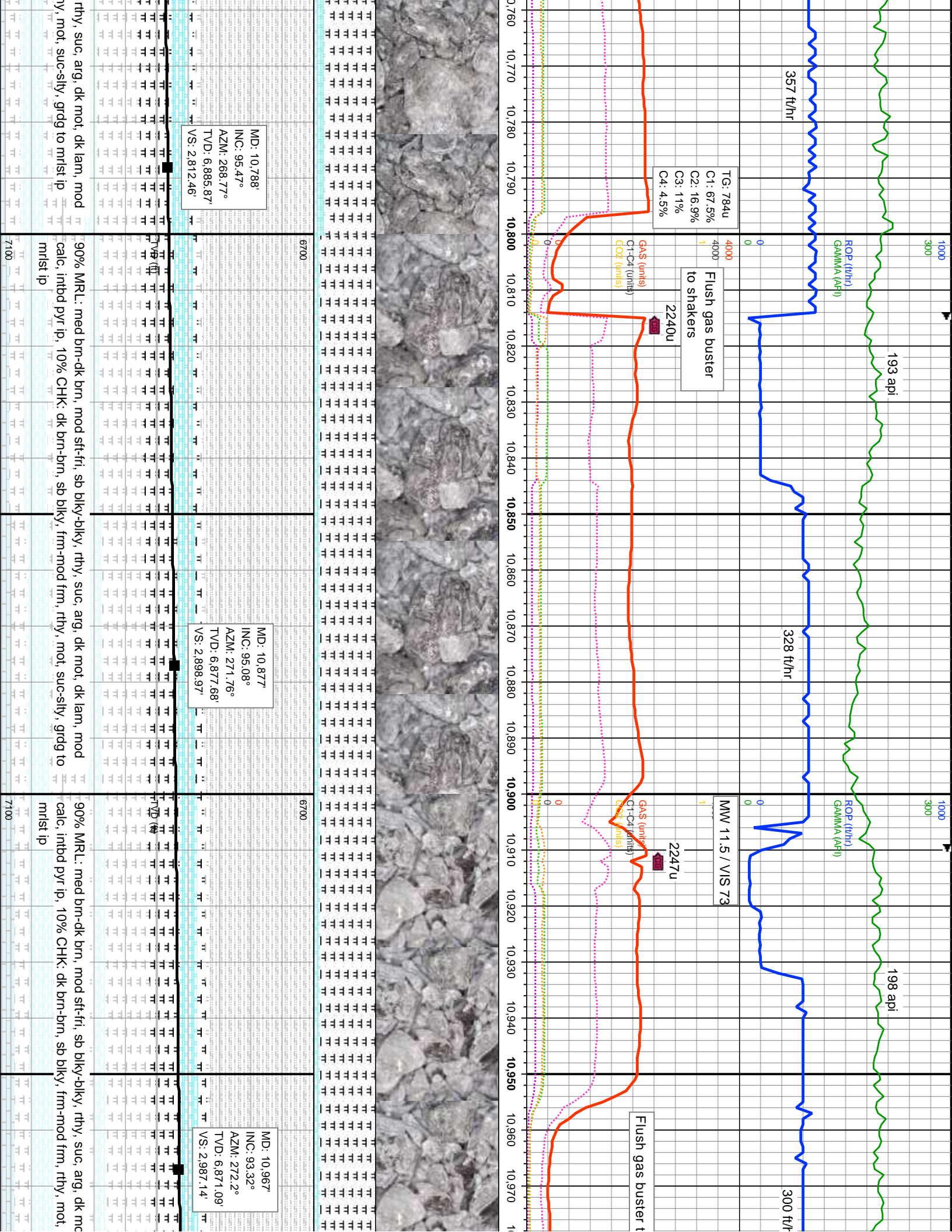


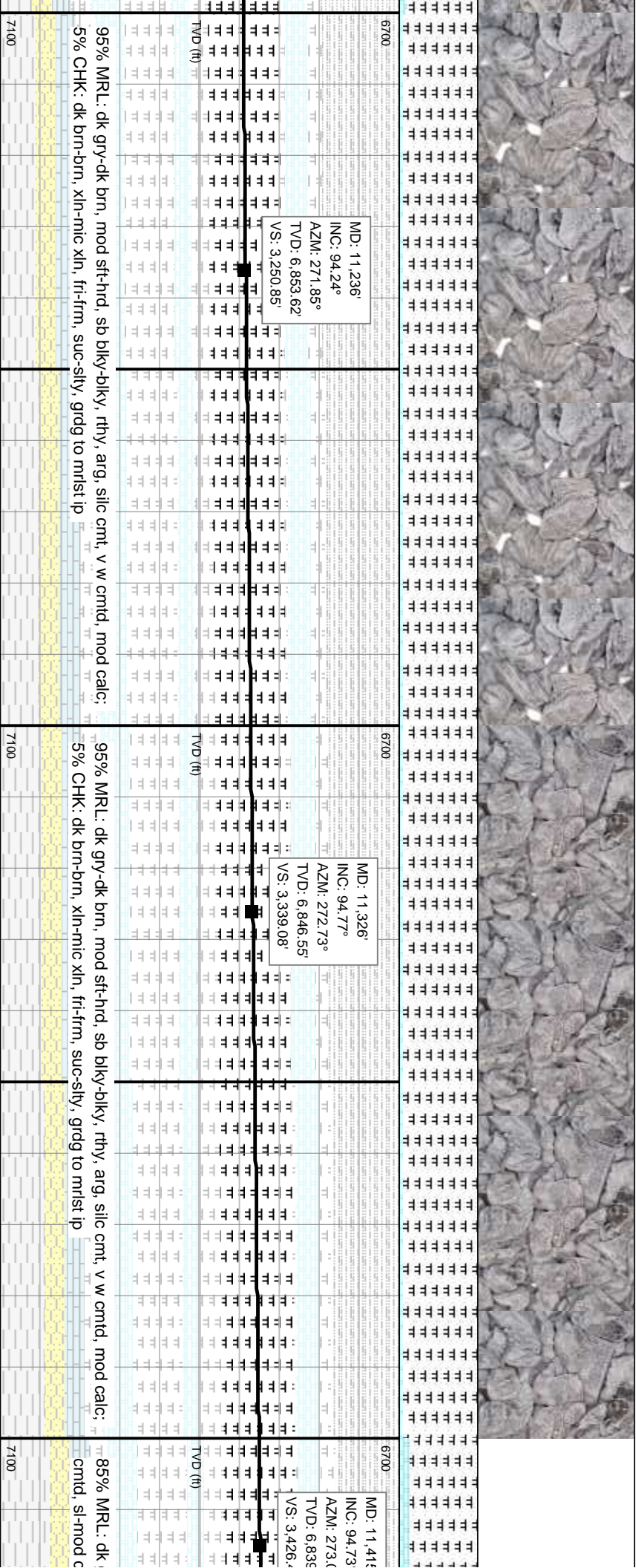
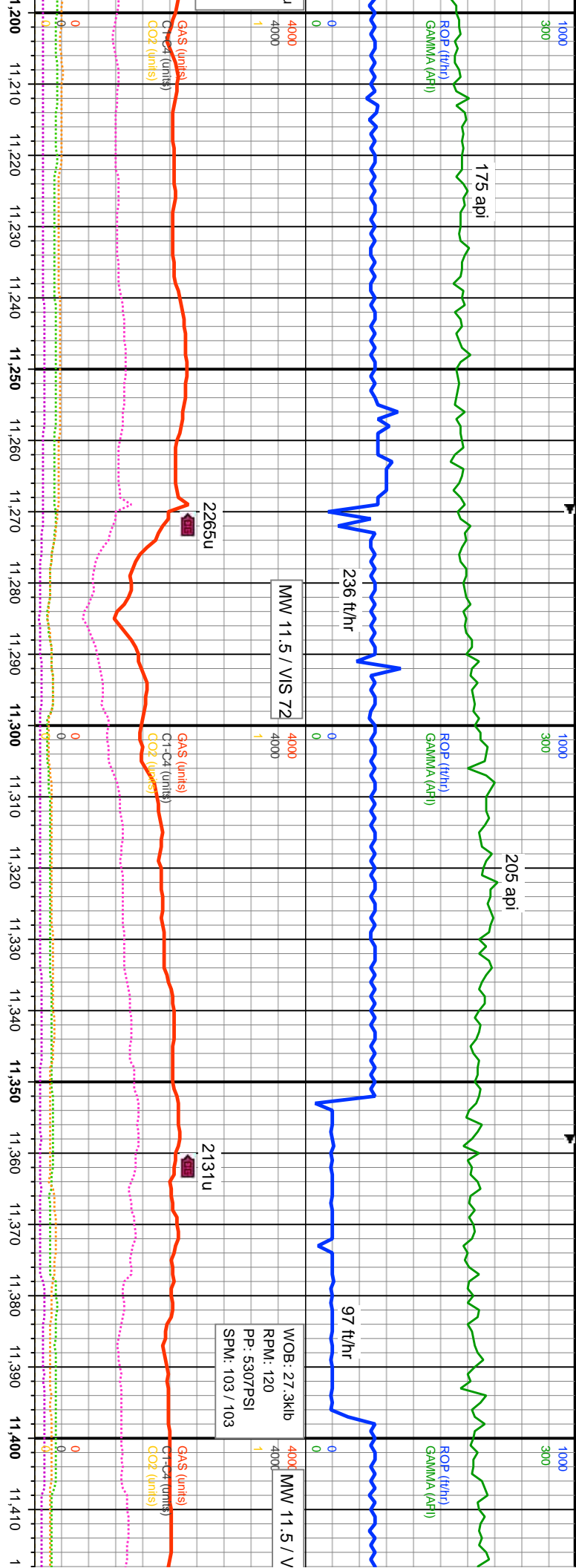
6700	MD: 10.339' INC: 92.84° AZM: 268.68° TVD: 6.920.53' VS: 2.377.51'									
	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
6700	MD: 10.429' INC: 93.58° AZM: 268.51° TVD: 6.915.49' VS: 2.464.63'									
	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
6700	MD: 10.518' INC: 94.29° AZM: 270.53° TVD: 6.909.38' VS: 2.551.06'									
	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT

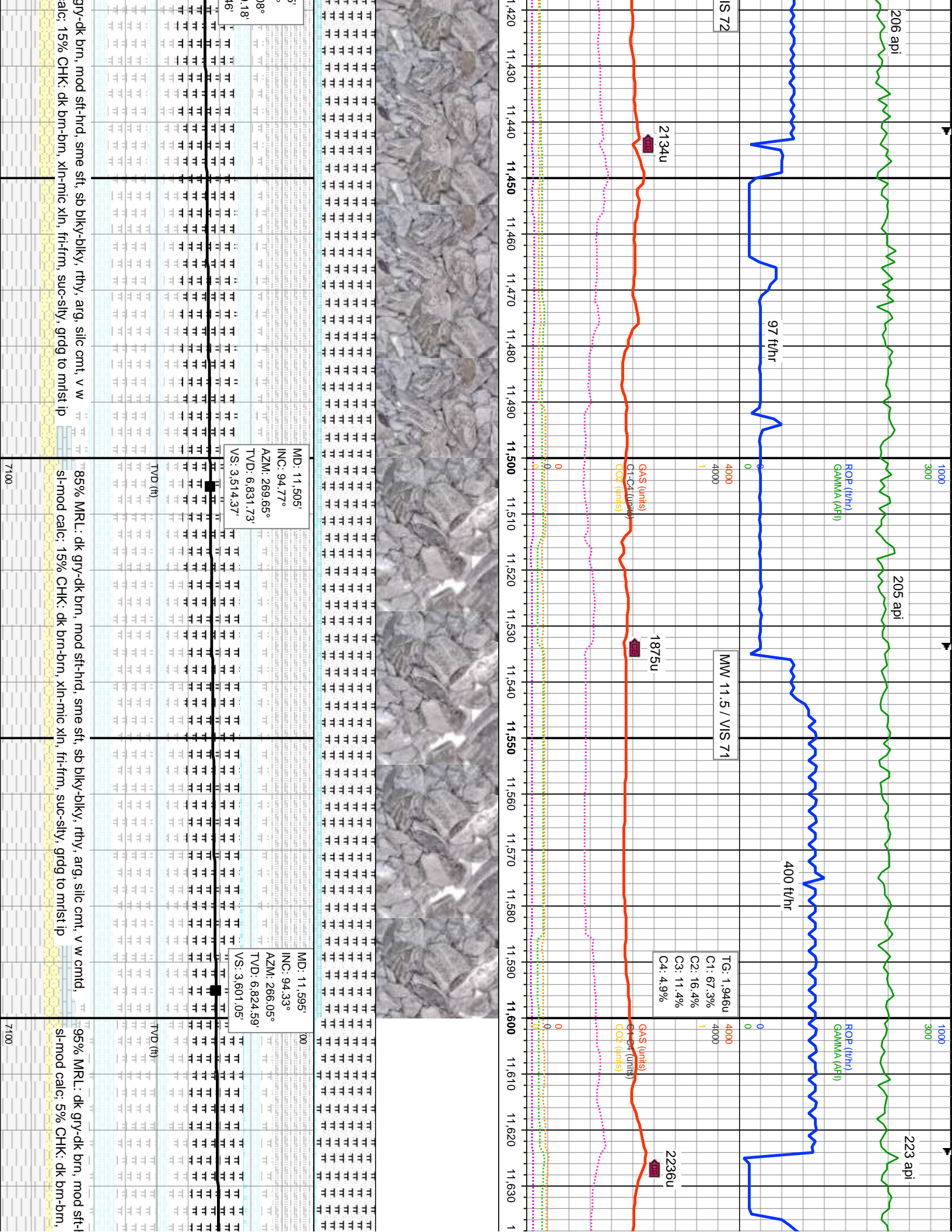
95% MR.L: med brn-dk brn, dk gy ip, mod sft-fr, sb blk-y-bkly, rthy, suc, arg, dk mot, dk lam, mod calc, 5% CHK: dk brn, sb blk-y, frm-mod frm, rthy, dk mot, suc-sily, grdg to mlst

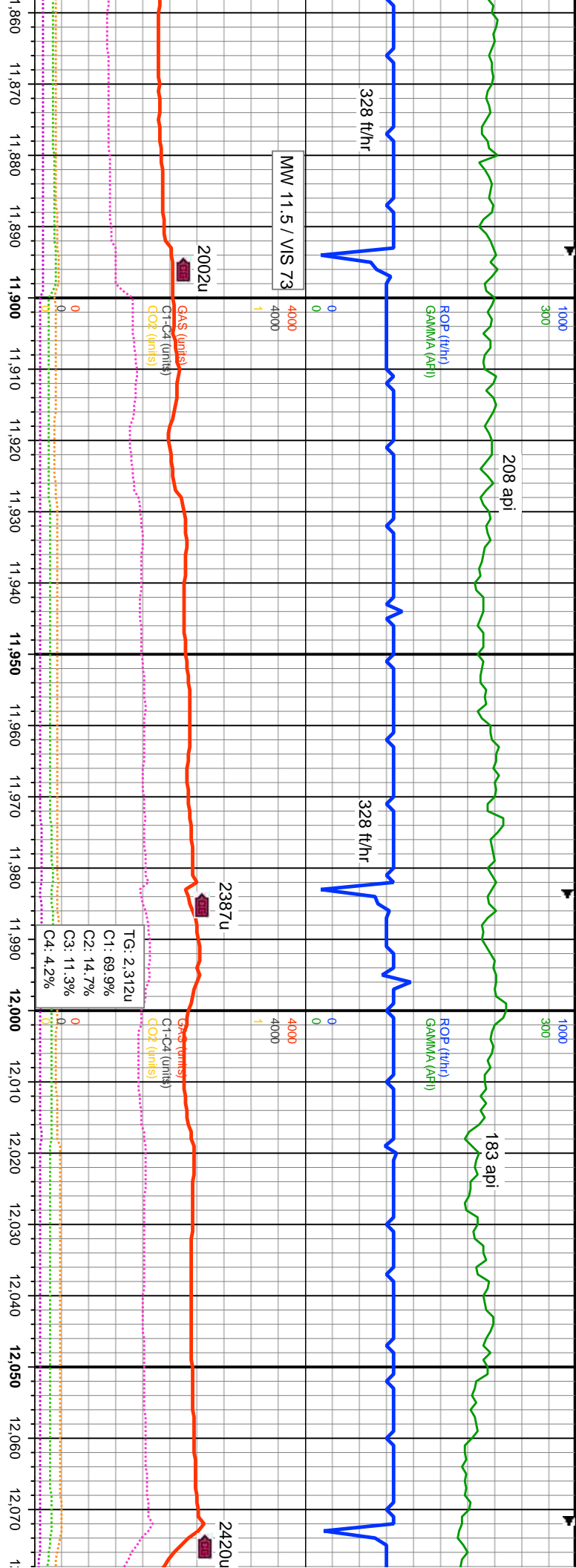
95% MR.L: med brn-dk brn, dk gy ip, mod sft-fr, sb blk-y-bkly, rthy, suc, arg, dk mot, dk lam, mod calc, 5% CHK: dk brn, sb blk-y, frm-mod frm, rthy, dk mot, suc-sily, grdg to mlst



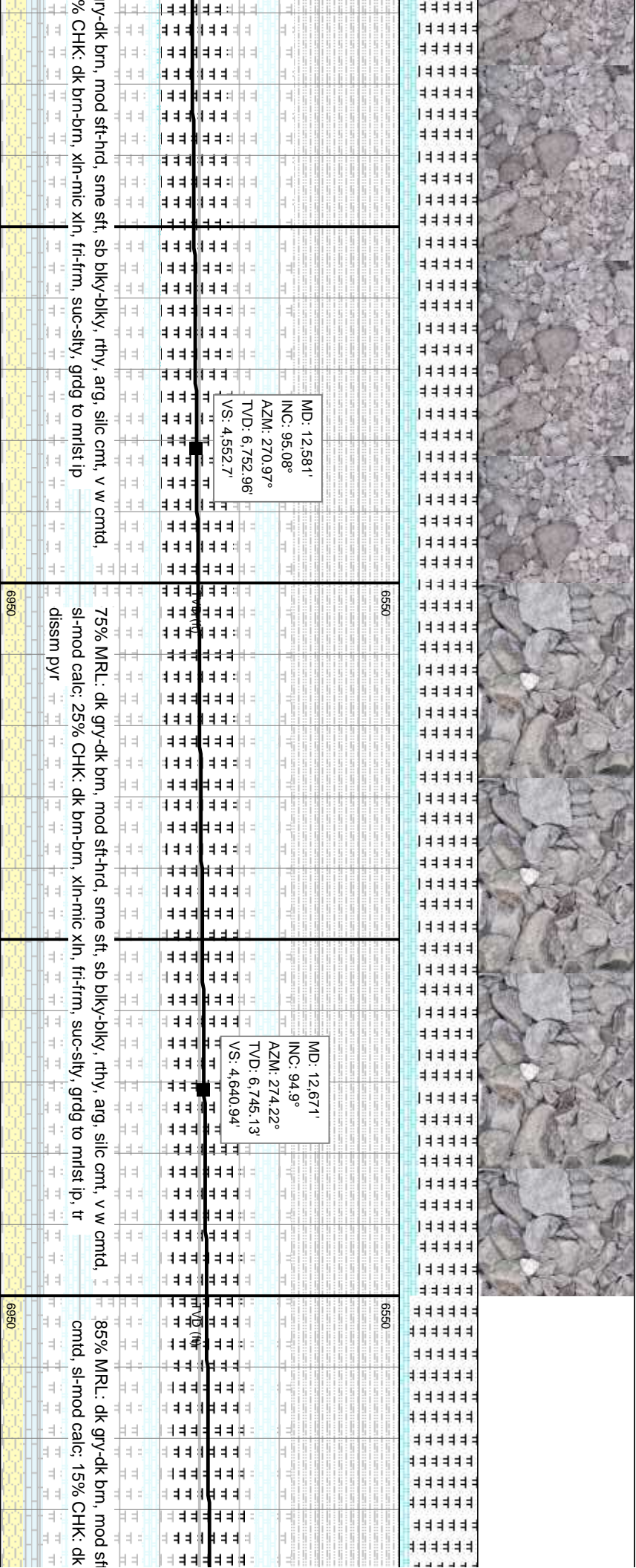
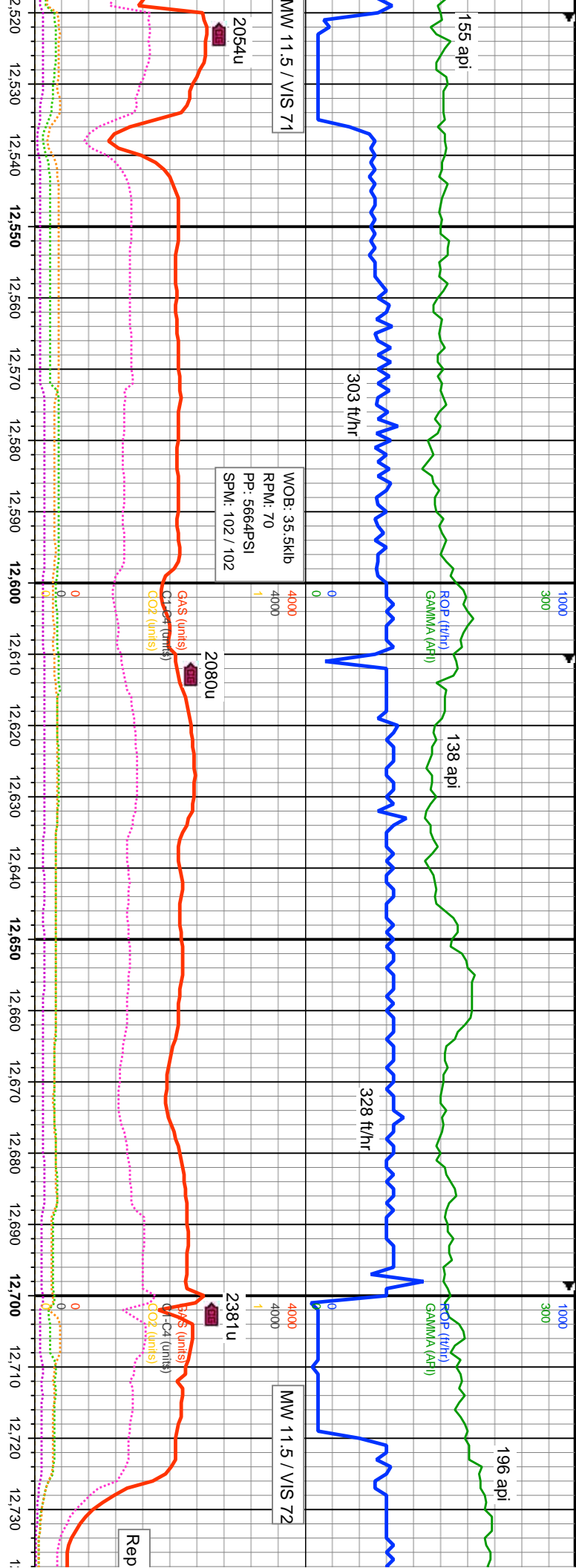


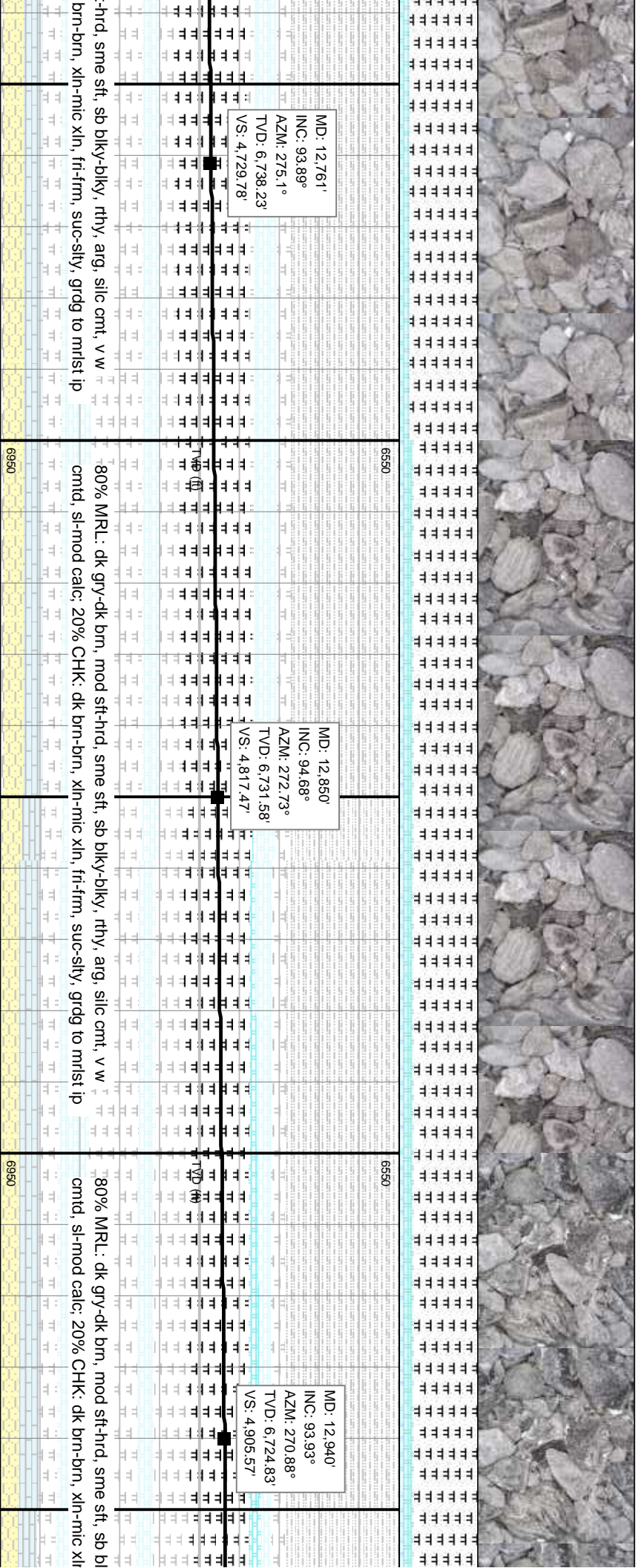
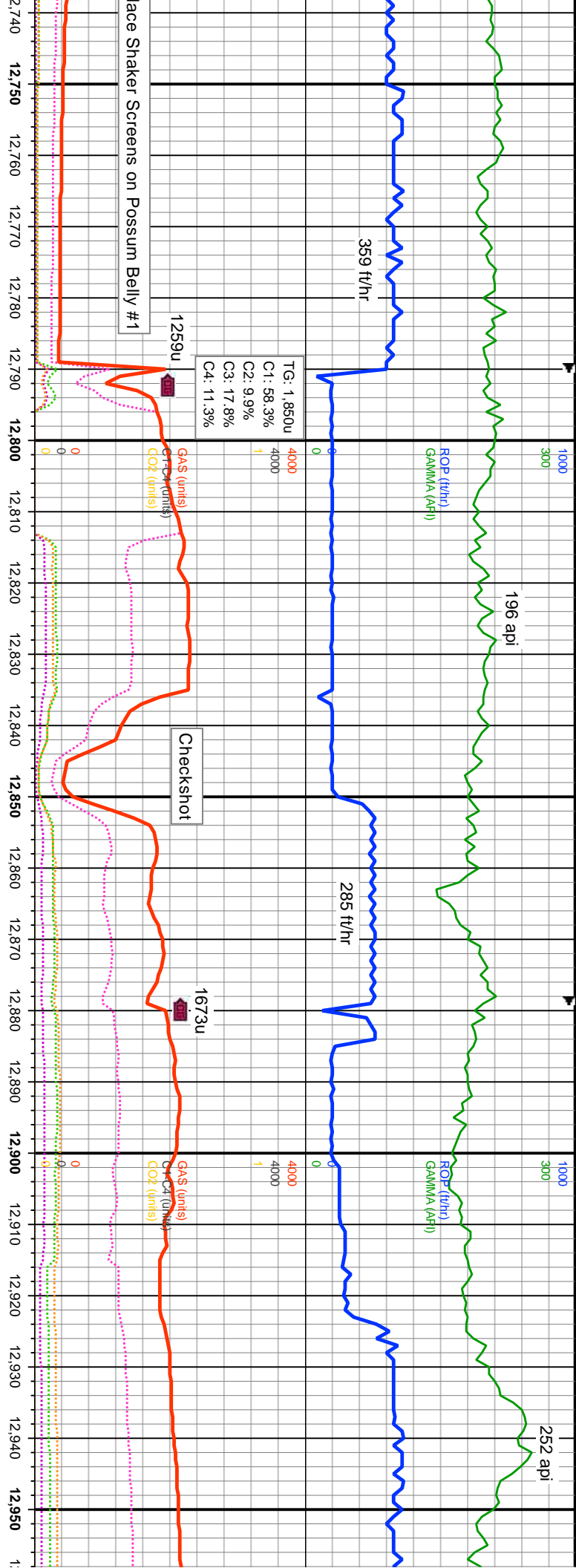


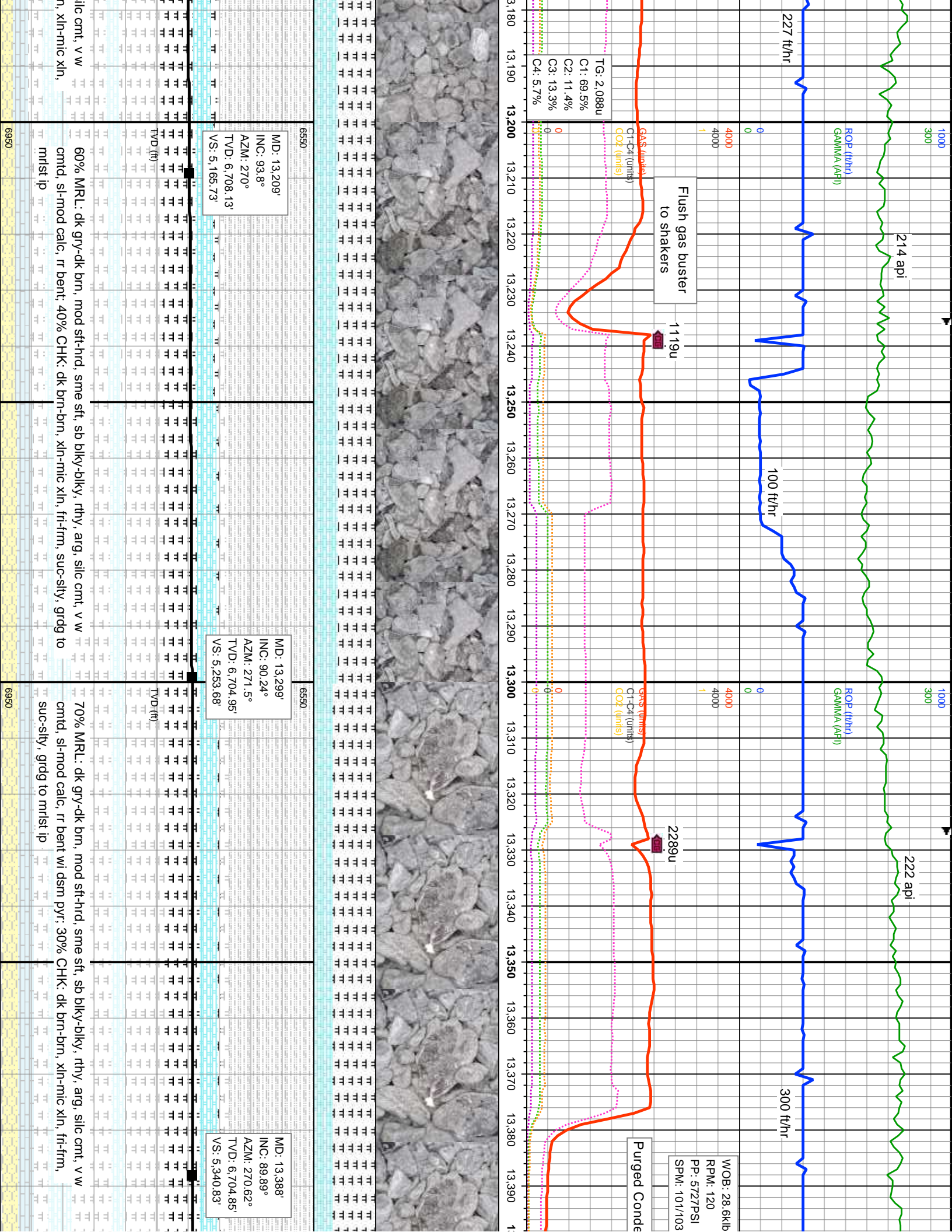


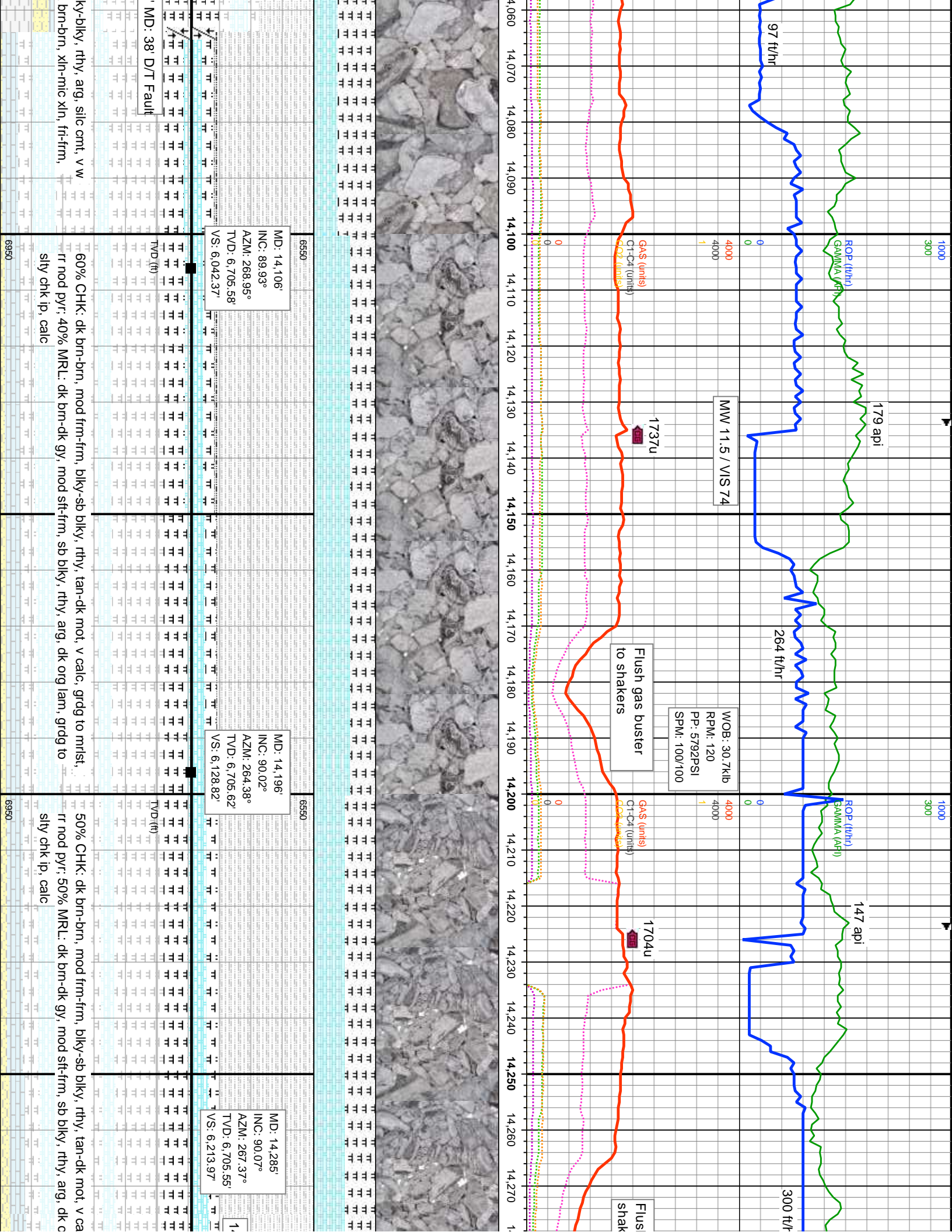


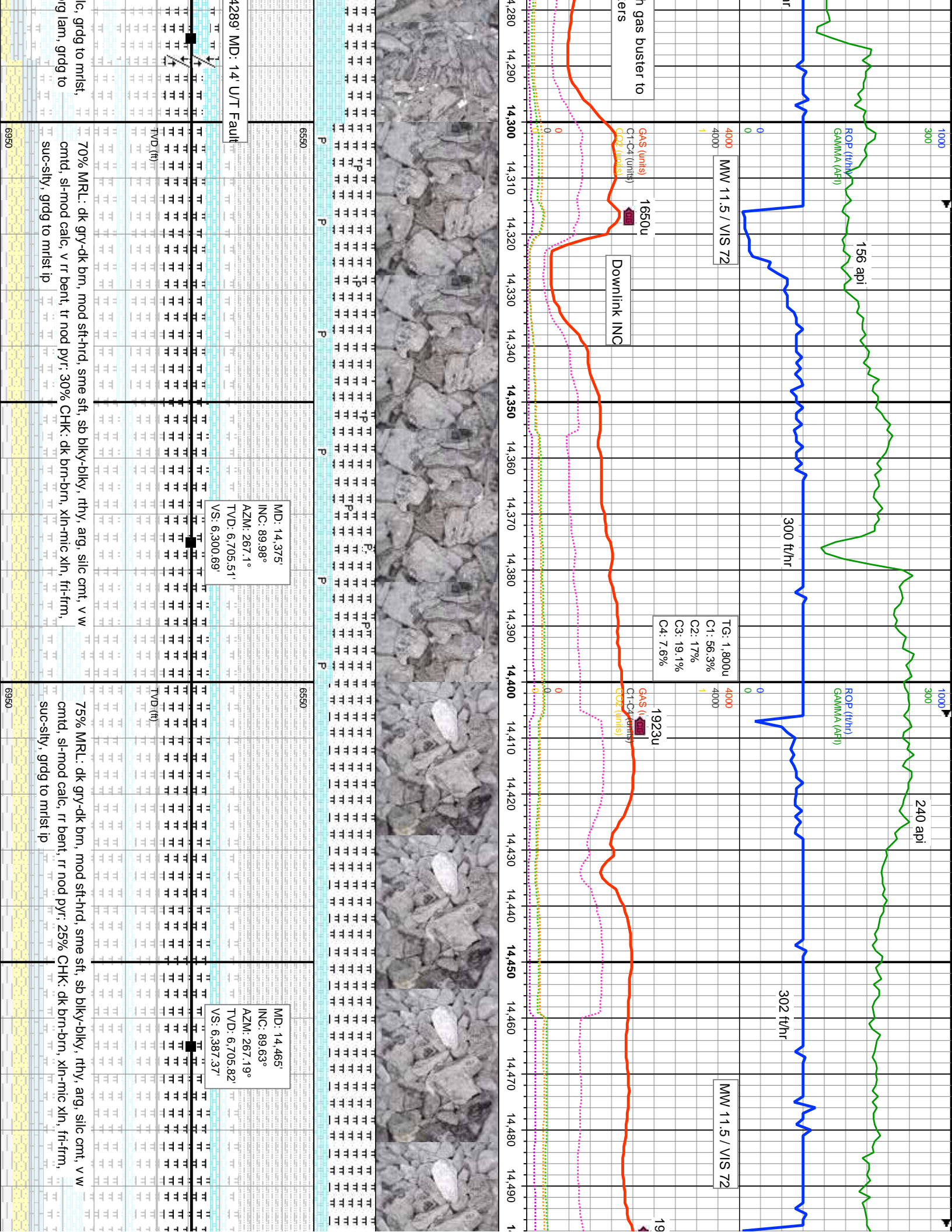
D: 11.863°		MD: 11.953°		MD: 12.043°	
C: 94.29°		INC: 94.59°		INC: 94.99°	
AZM: 267.98°		AZM: 267.54°		AZM: 268.07°	
D: 6.806.36°		TVD: 6.799.39°		TVD: 6.791.88°	
85% MRL: dk gry-dk brn, mod sft-hrd, sme sft, sb blk-y-bkly, rthy, arg, silic cnt, v w cntd, sl-mod calc: 15% CHK: dk brn-brn, xln-mic xln, fr-frn, suc-sily, grdg to mlst ip		90% MRL: dk gry-dk brn, mod sft-hrd, sme sft, sb blk-y-bkly, rthy, arg, silic cnt, v w cntd, sl-mod calc: 10% CHK: dk brn-brn, xln-mic xln, fr-frn, suc-sily, grdg to			
6950		6950		6950	

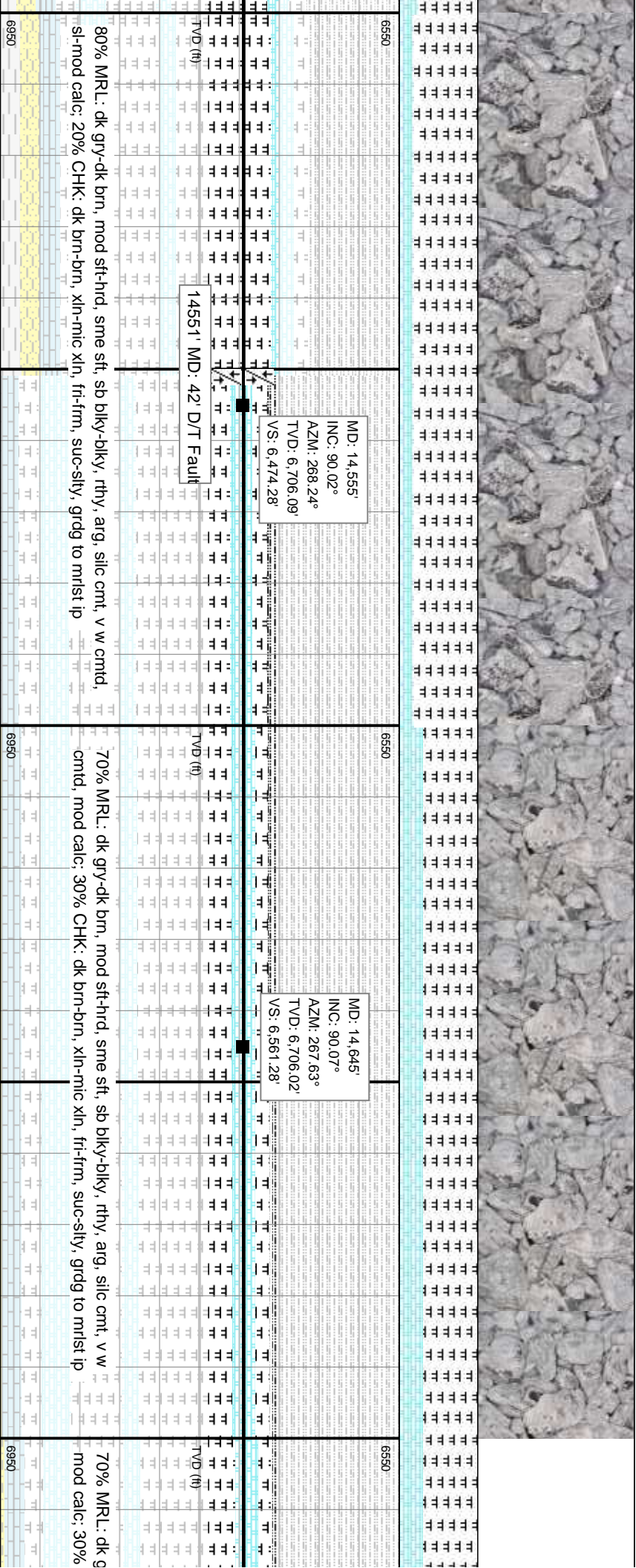
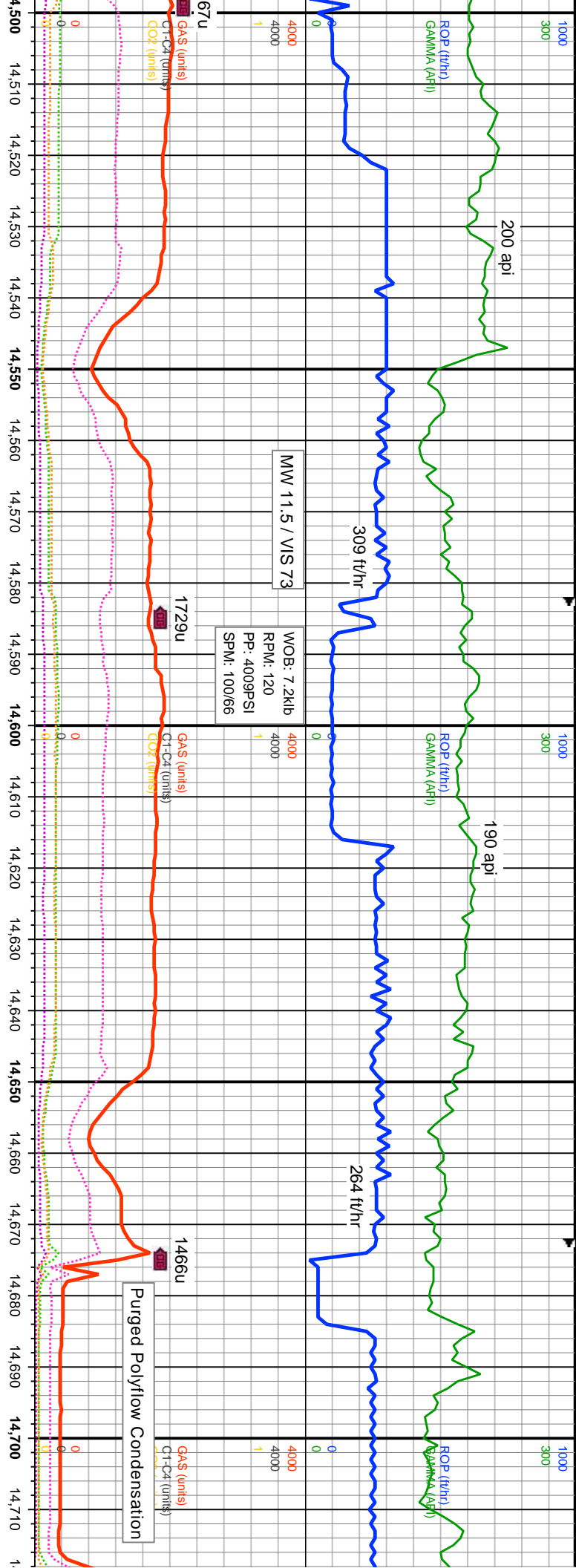


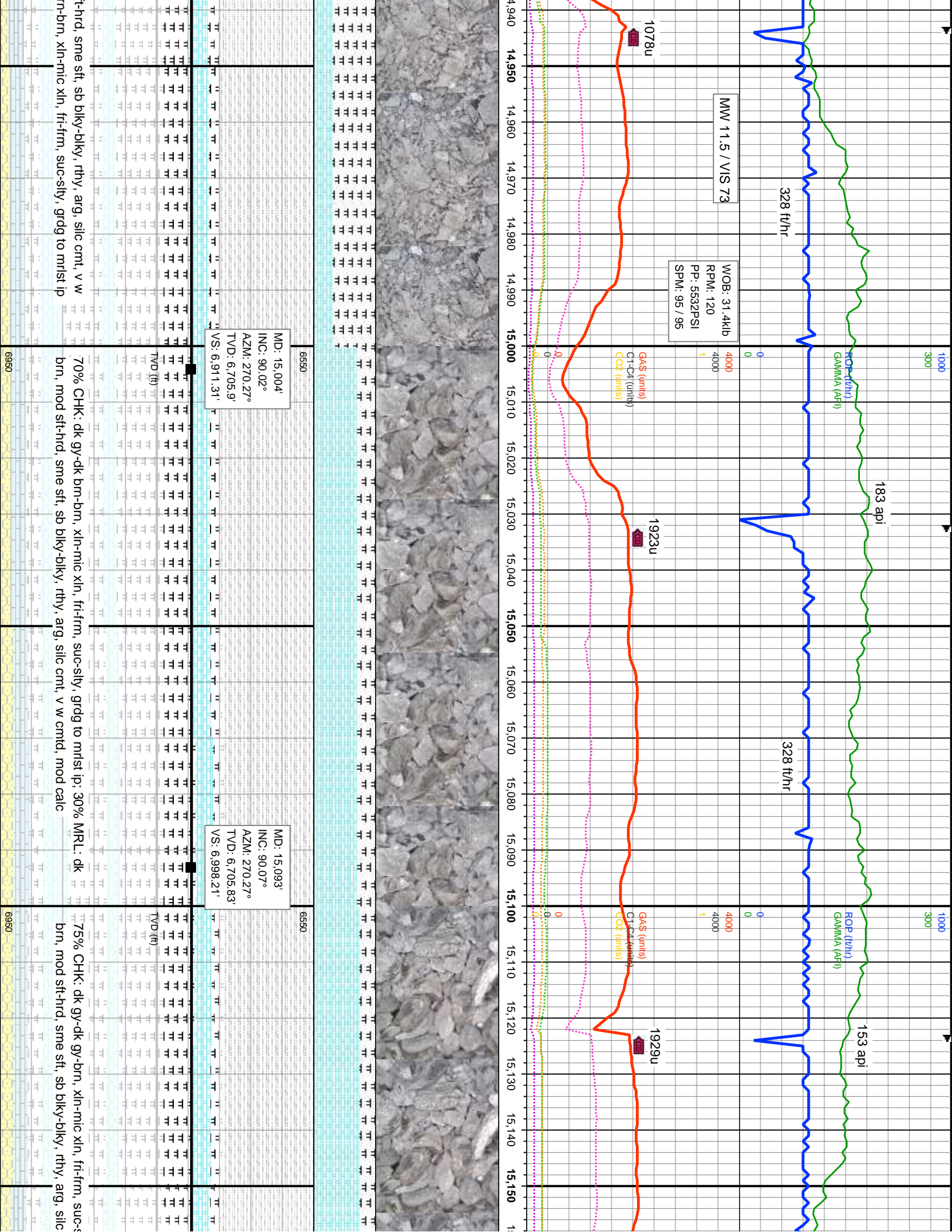


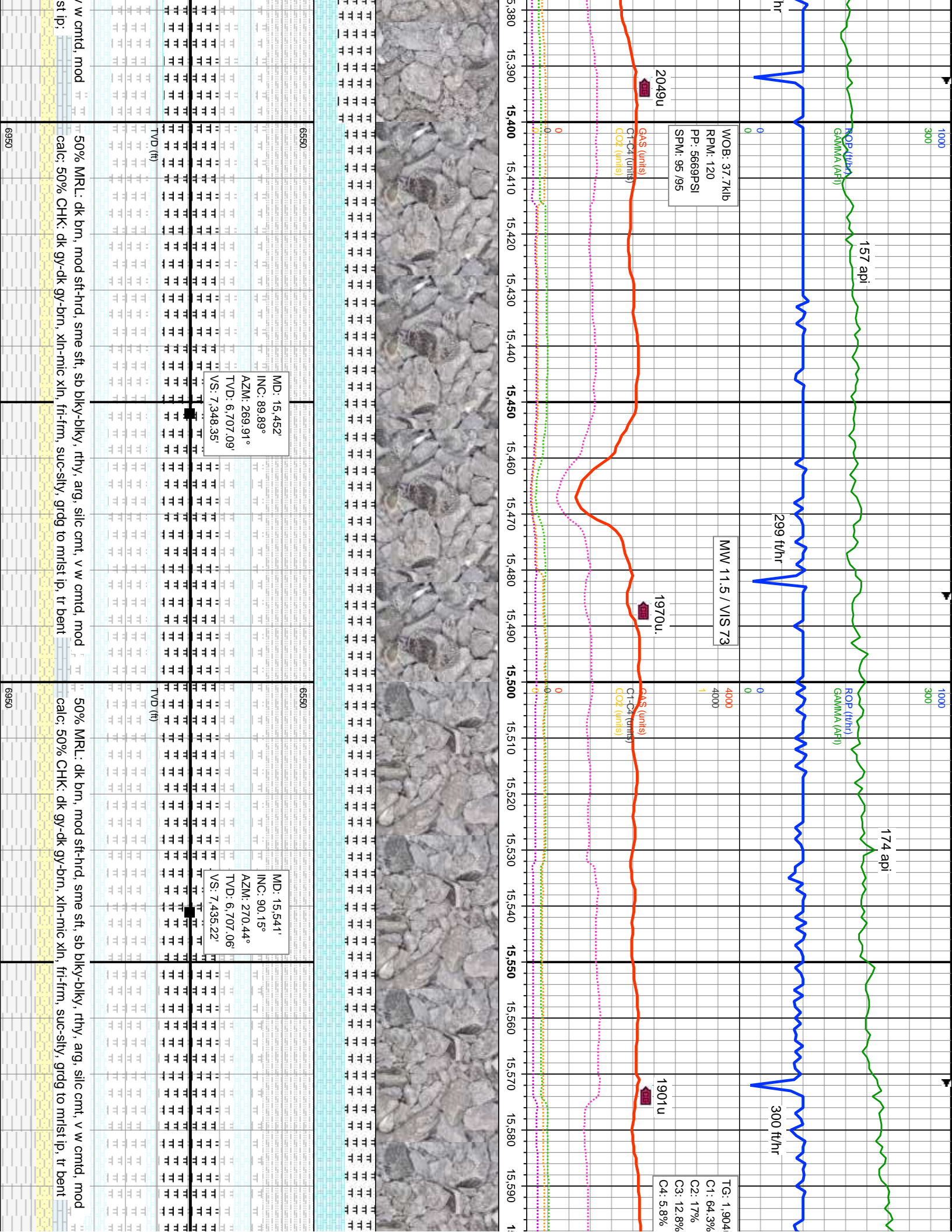


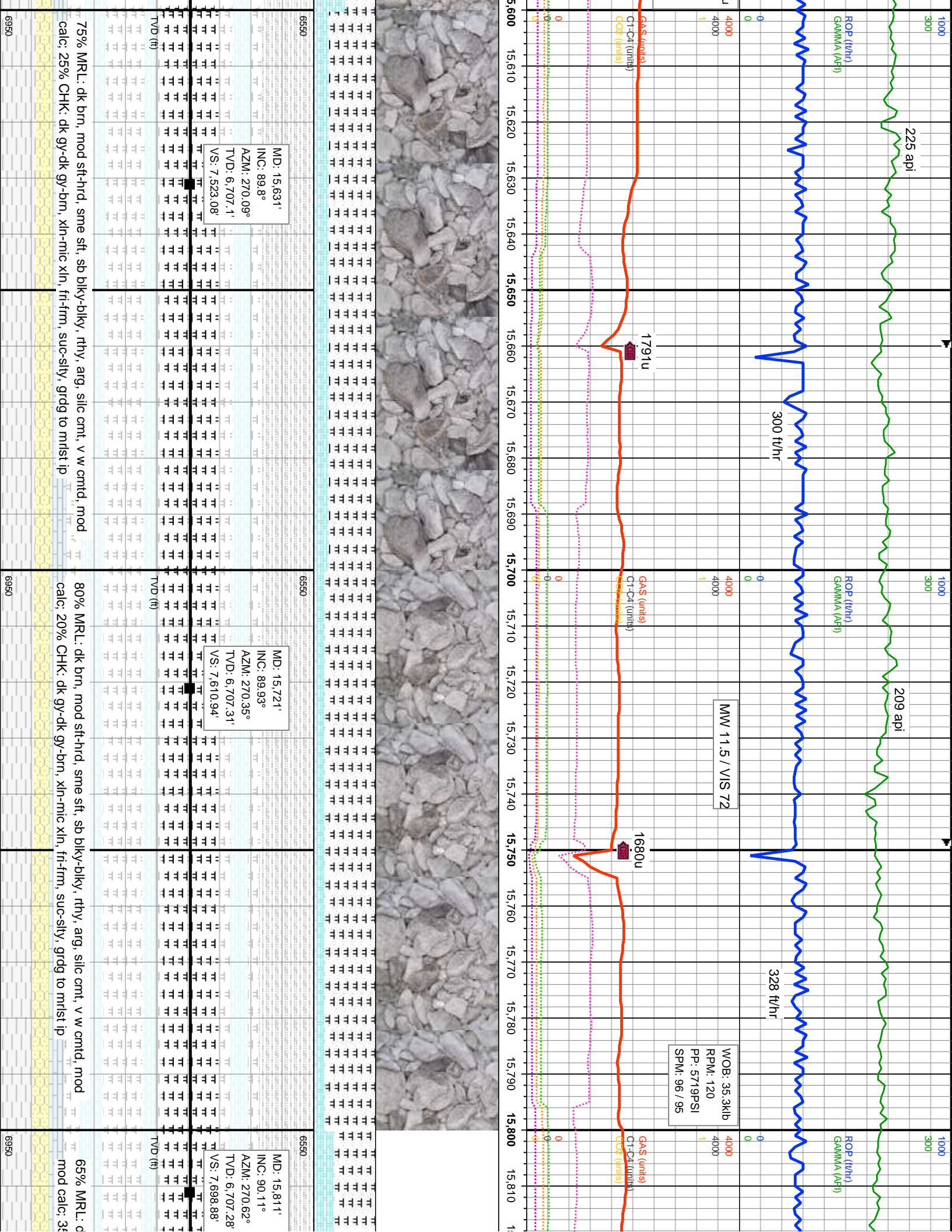


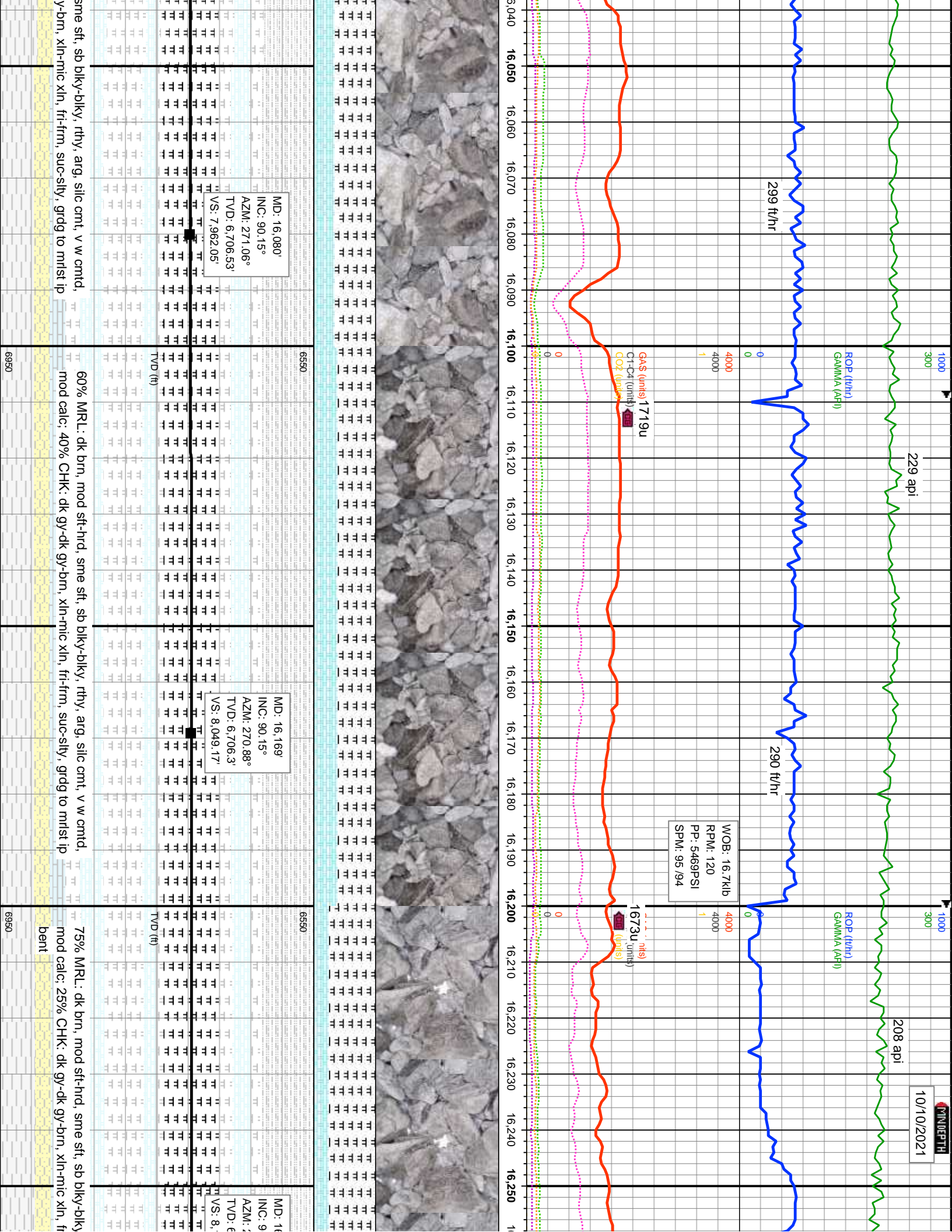


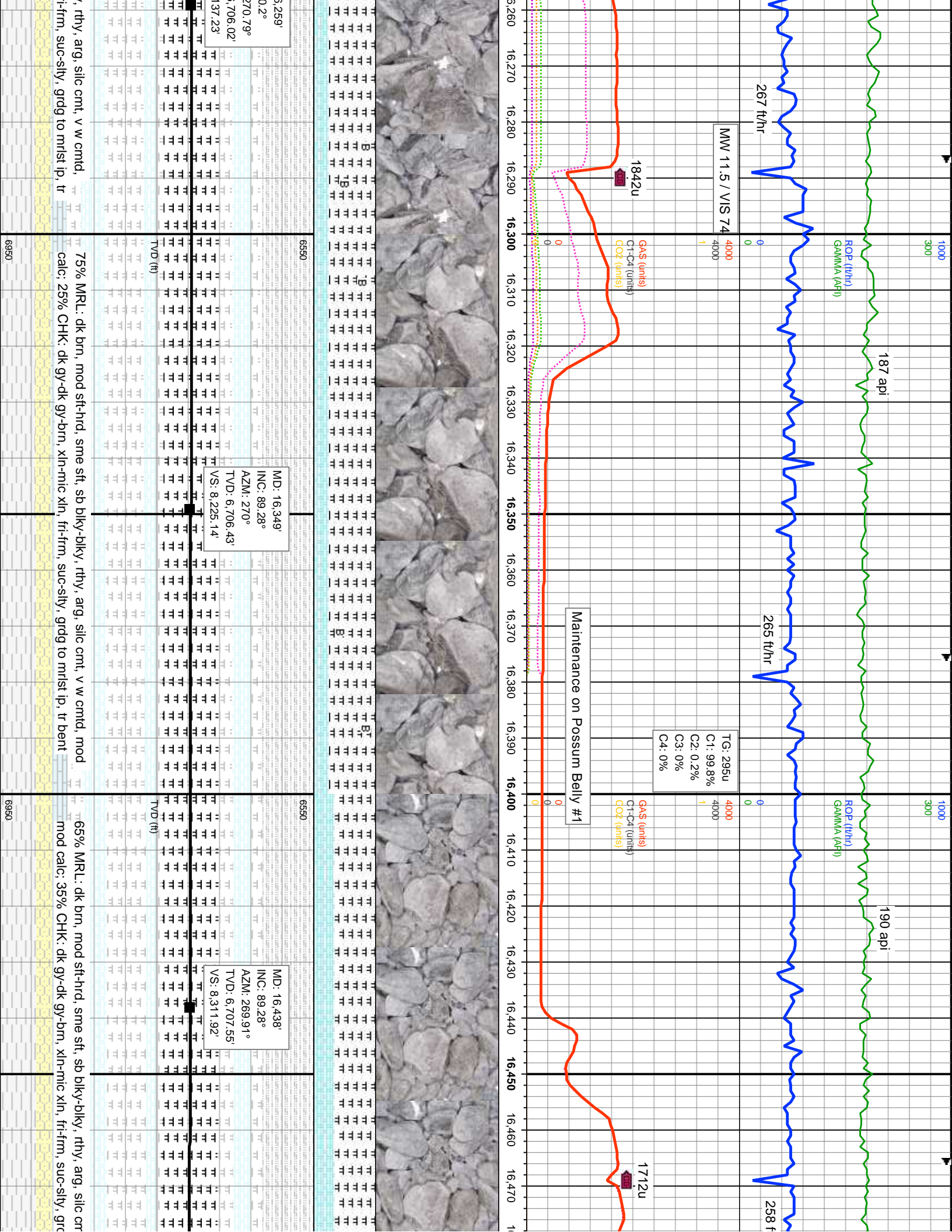


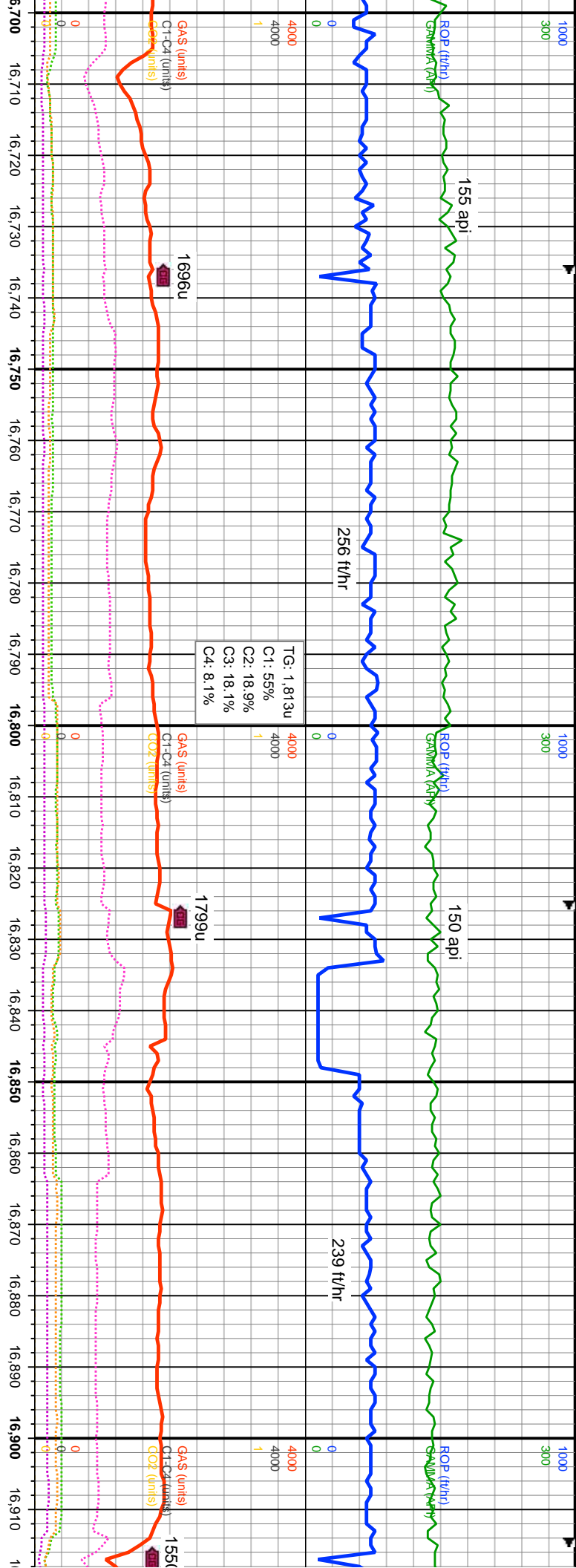




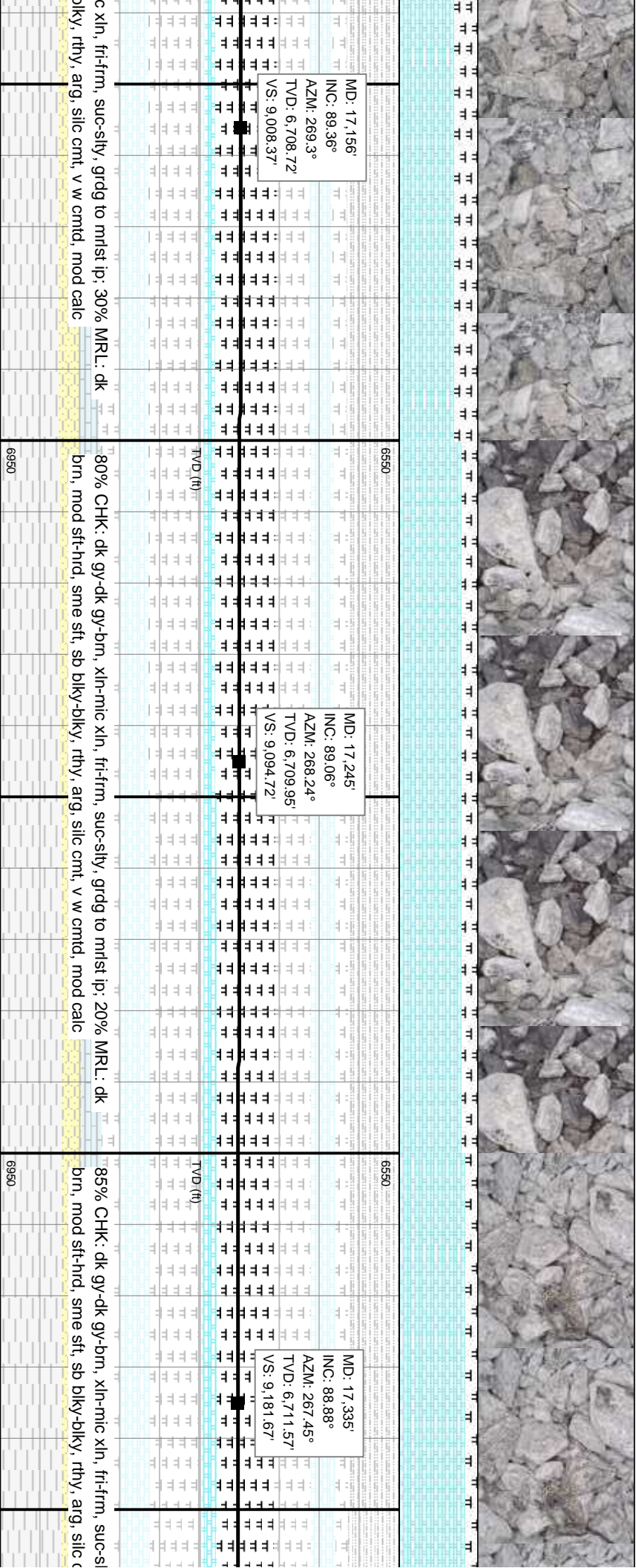
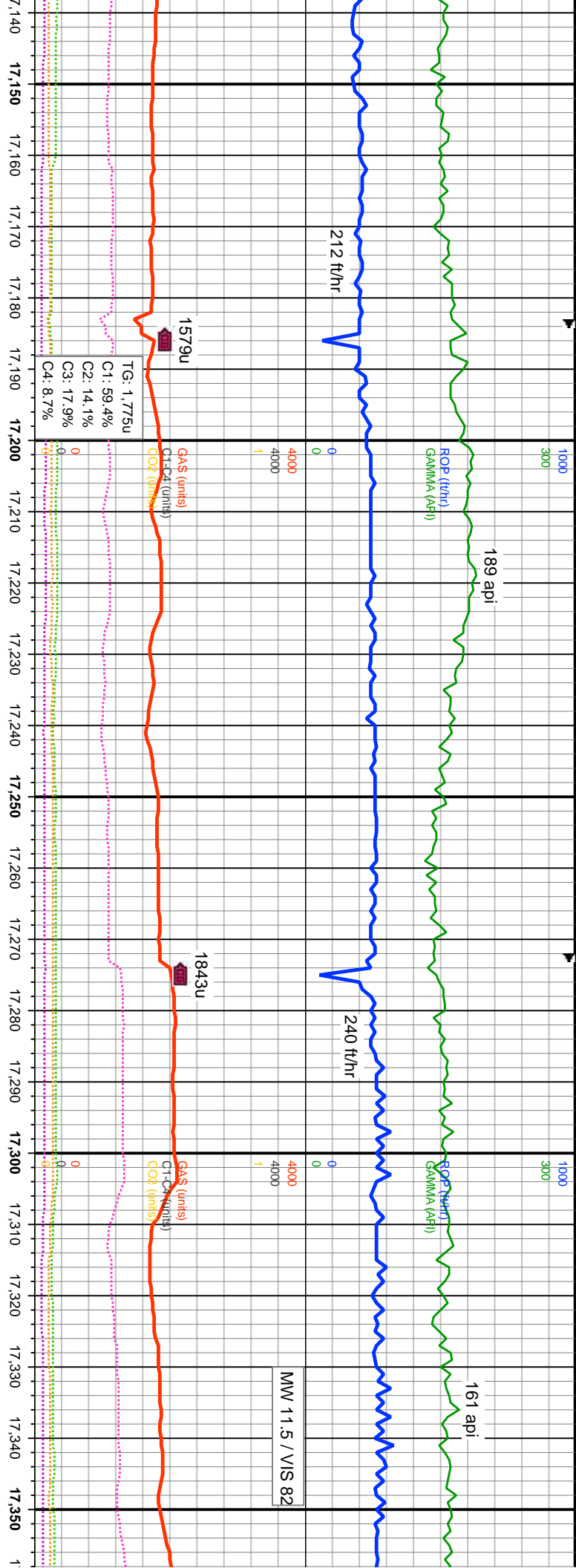


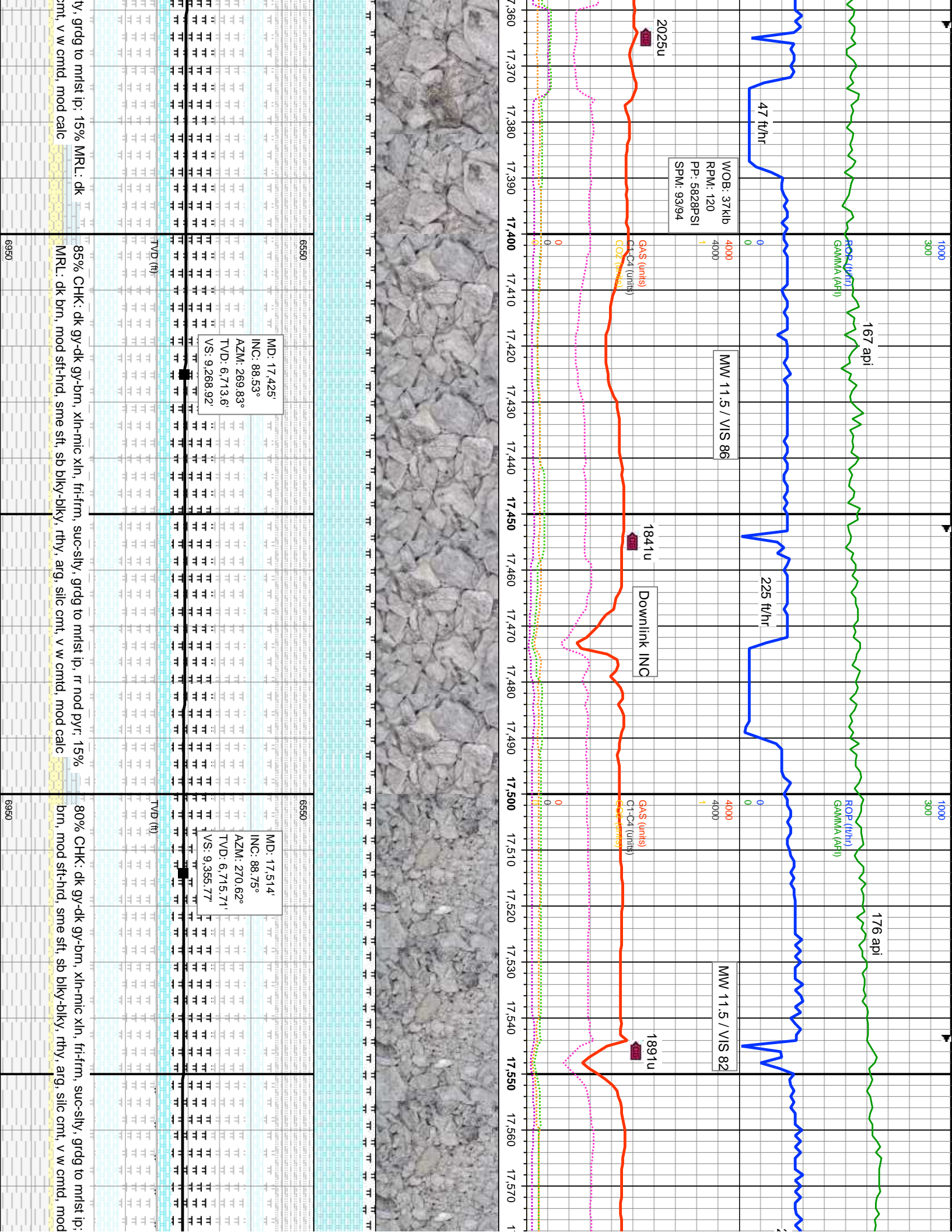


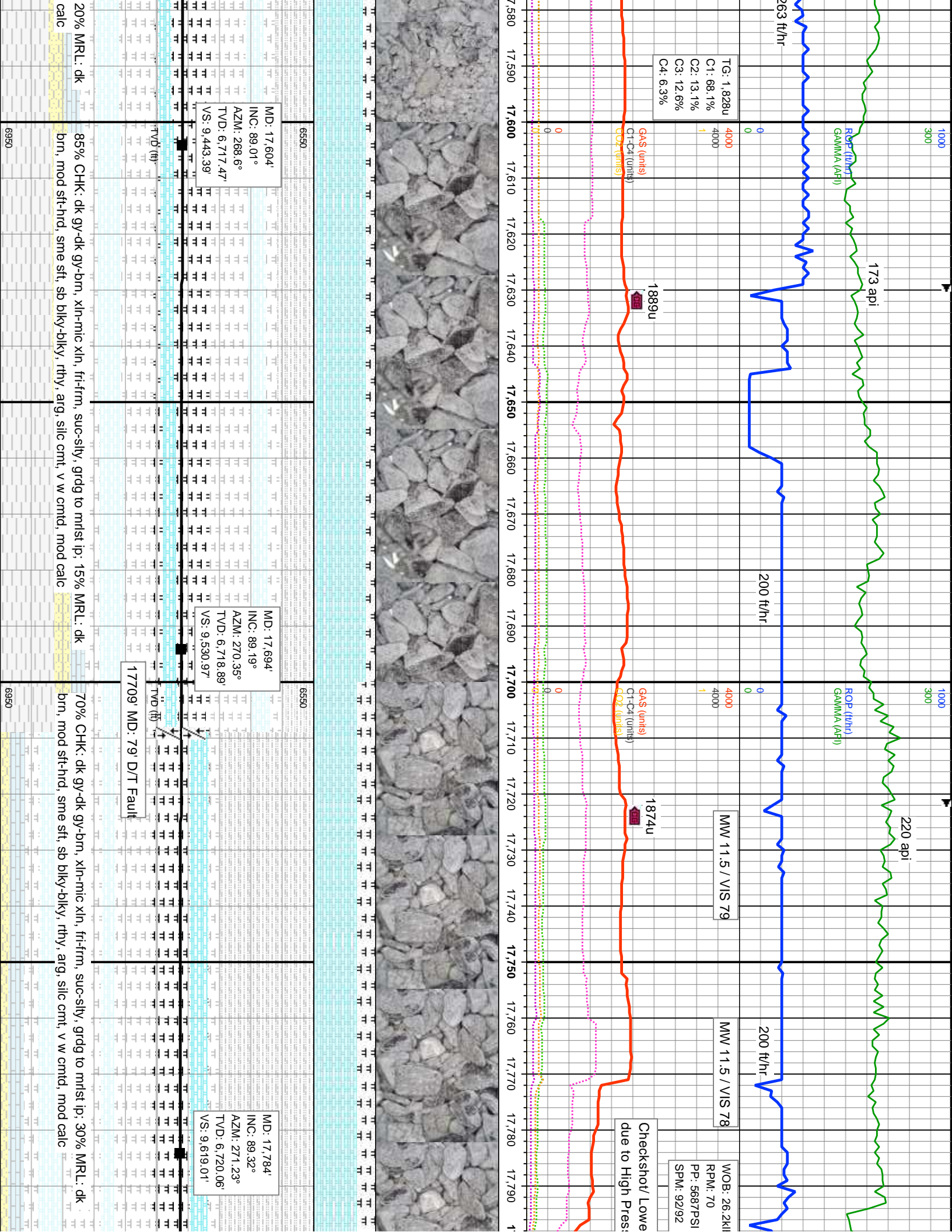


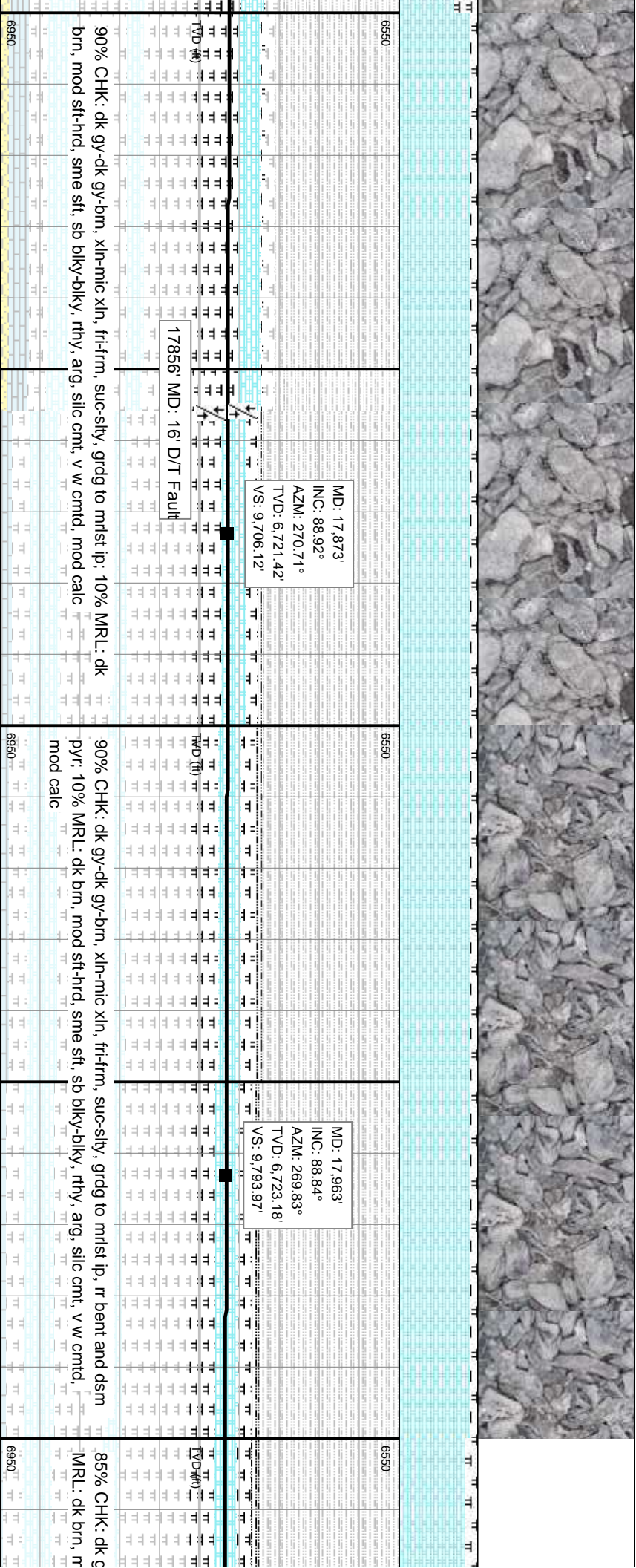
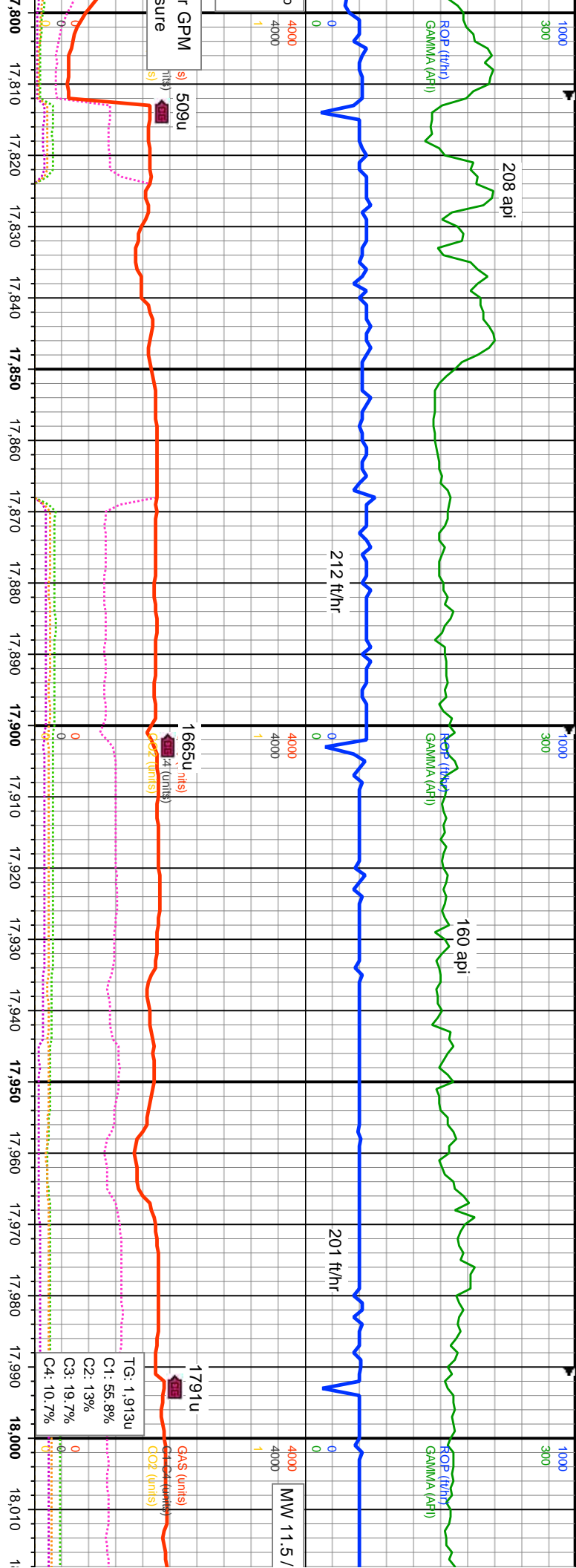


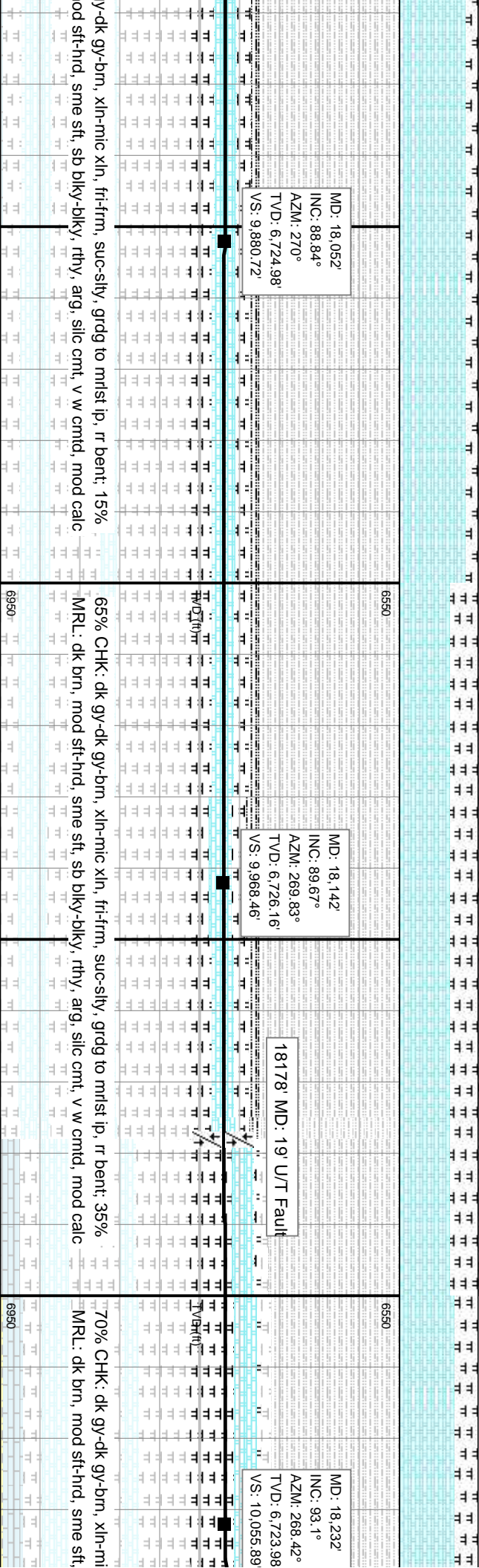
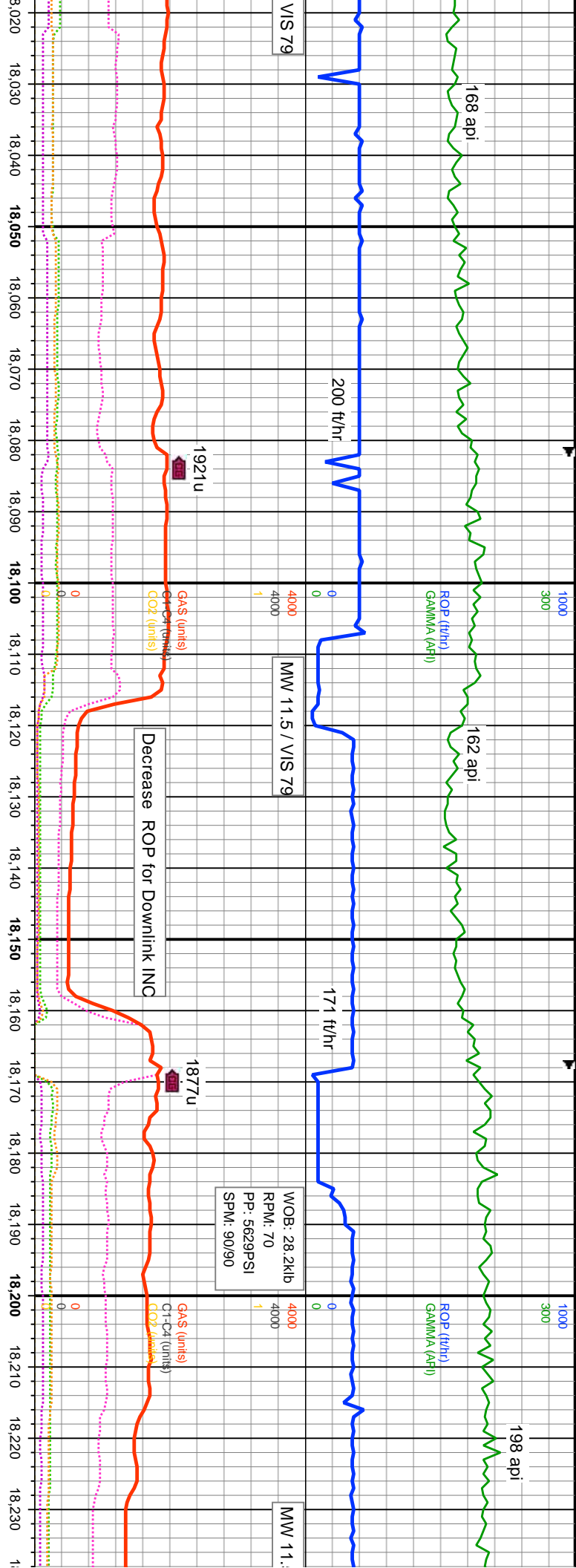
6550	MD: 16.707 INC: 89.93° AZM: 269.65° TVD: 6.710.43' VS: 8.574.18'	6550	MD: 16.797 INC: 89.45° AZM: 268.42° TVD: 6.710.91' VS: 8.661.61'	6550	MD: 16.887 INC: 90.81° AZM: 267.45° TVD: 6.710.71' VS: 8.748.61'
70% MRL: dk brn, mod sft-hrd, sme sft, sb blk-y-blky, rthy, arg, silc cnt, v w cntd, mod calc; 30% CHK: dk gy-dk gy-brn, xln-mic xln, fri-frn, suc-sily, grdg to mltst ip		65% MRL: dk brn, mod sft-hrd, sme sft, sb blk-y-blky, rthy, arg, silc cnt, v w cntd, mod calc; 35% CHK: dk gy-dk gy-brn, xln-mic xln, fri-frn, suc-sily, grdg to mltst ip, tr dsrn pyr		60% MRL: dk brn, mod sft-hrd, sme sft, sb blk-y-blky, rthy, arg, silc cnt, v w cntd, mod calc; 40%	
6950		6950		6950	

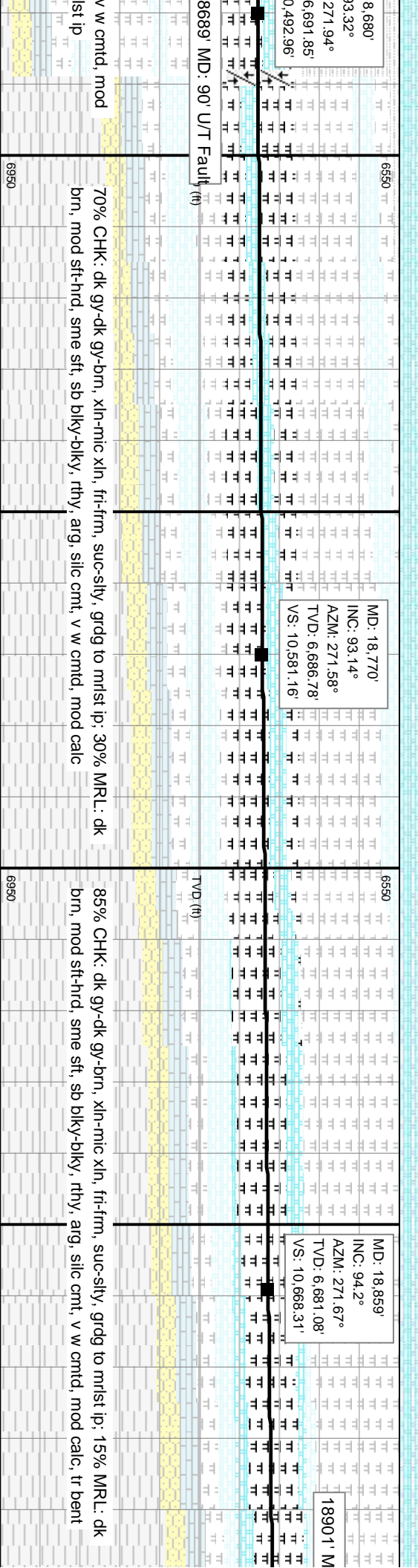
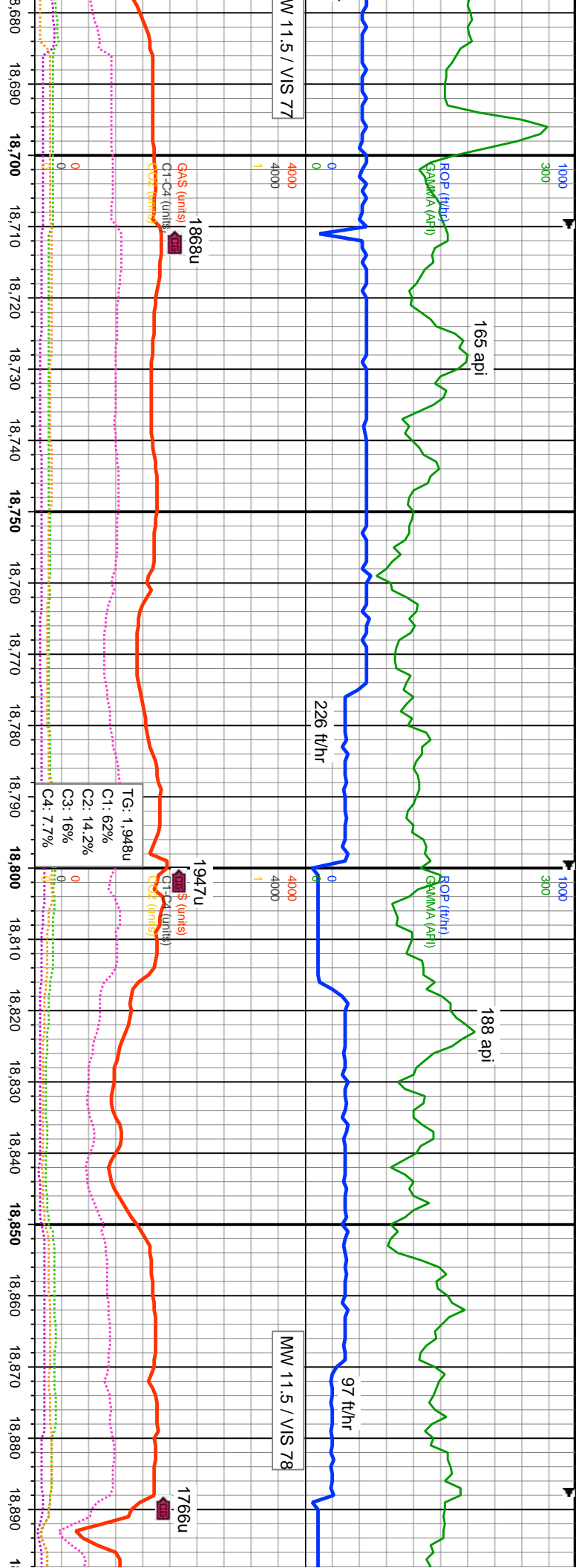


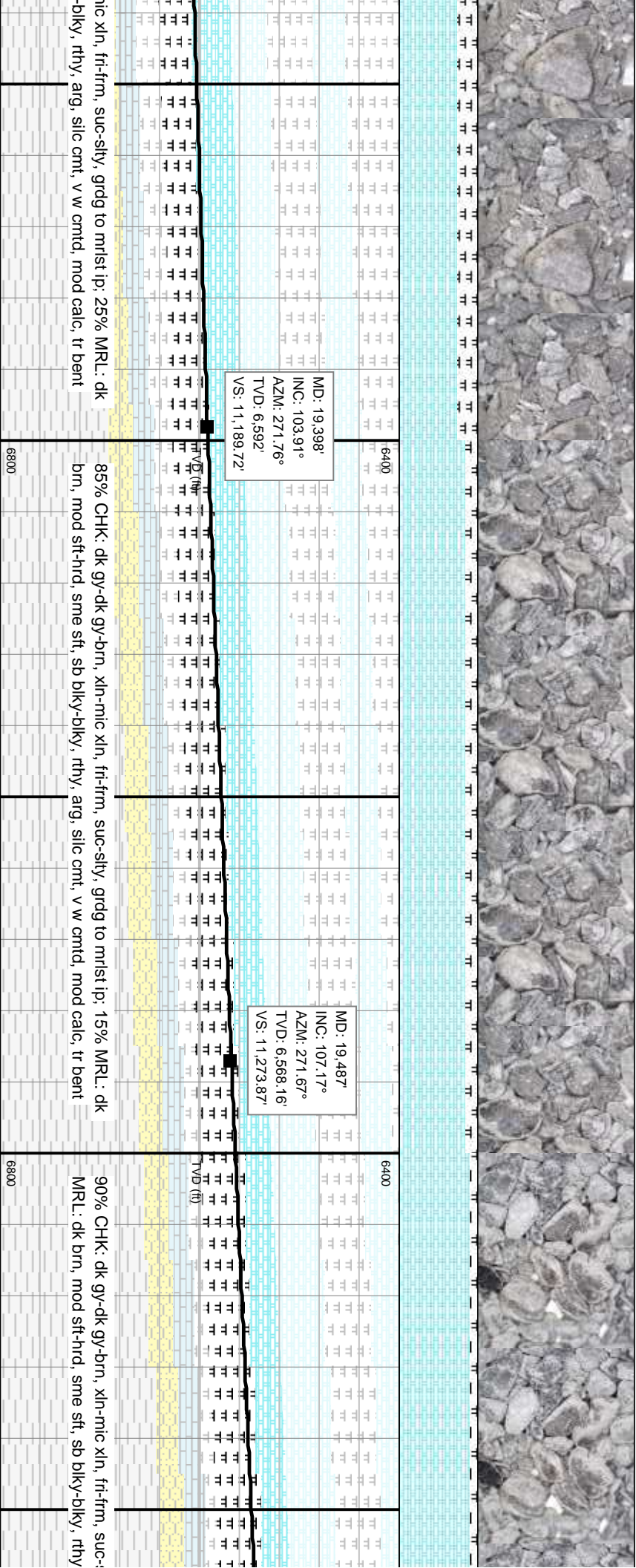
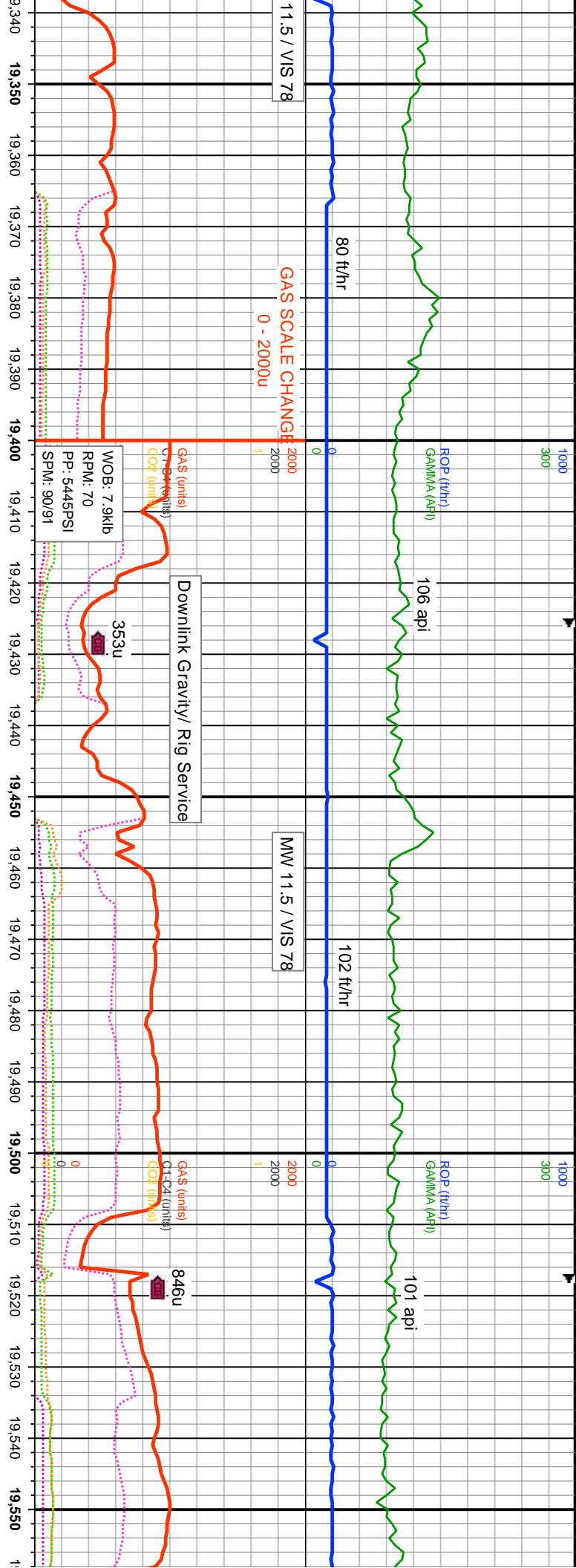


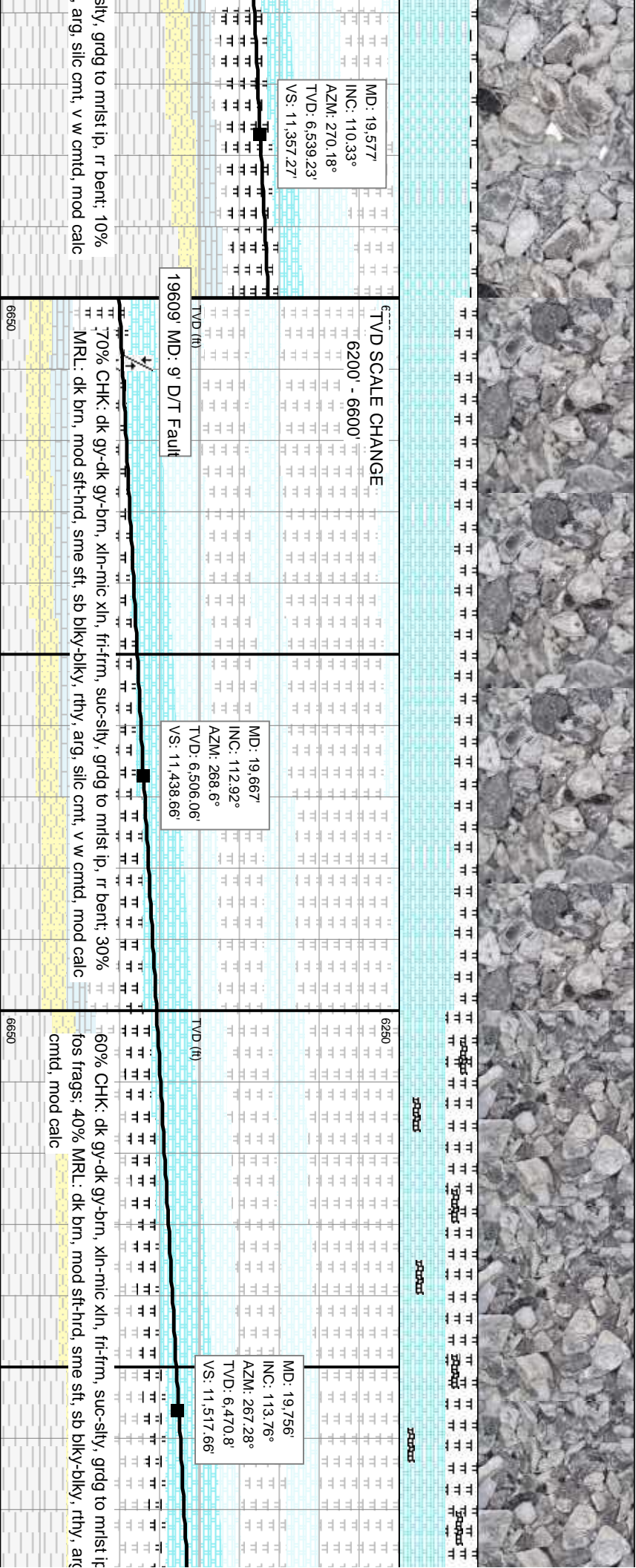
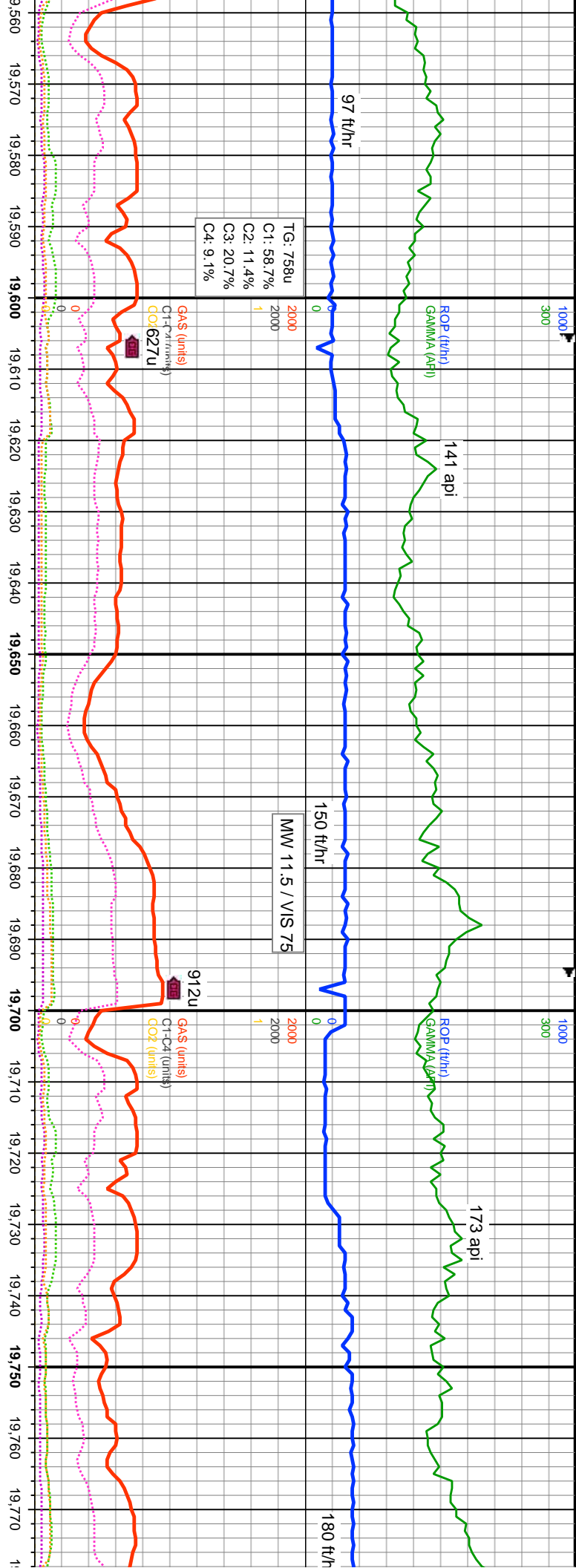


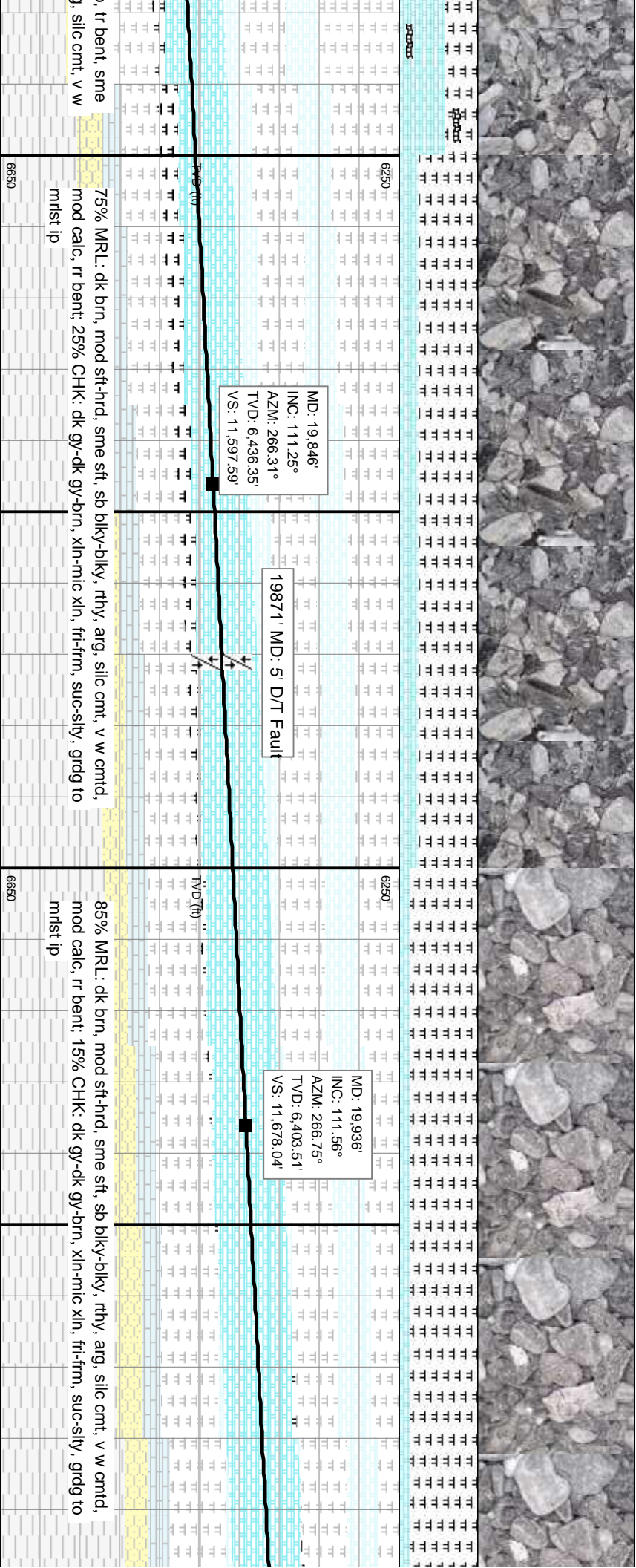
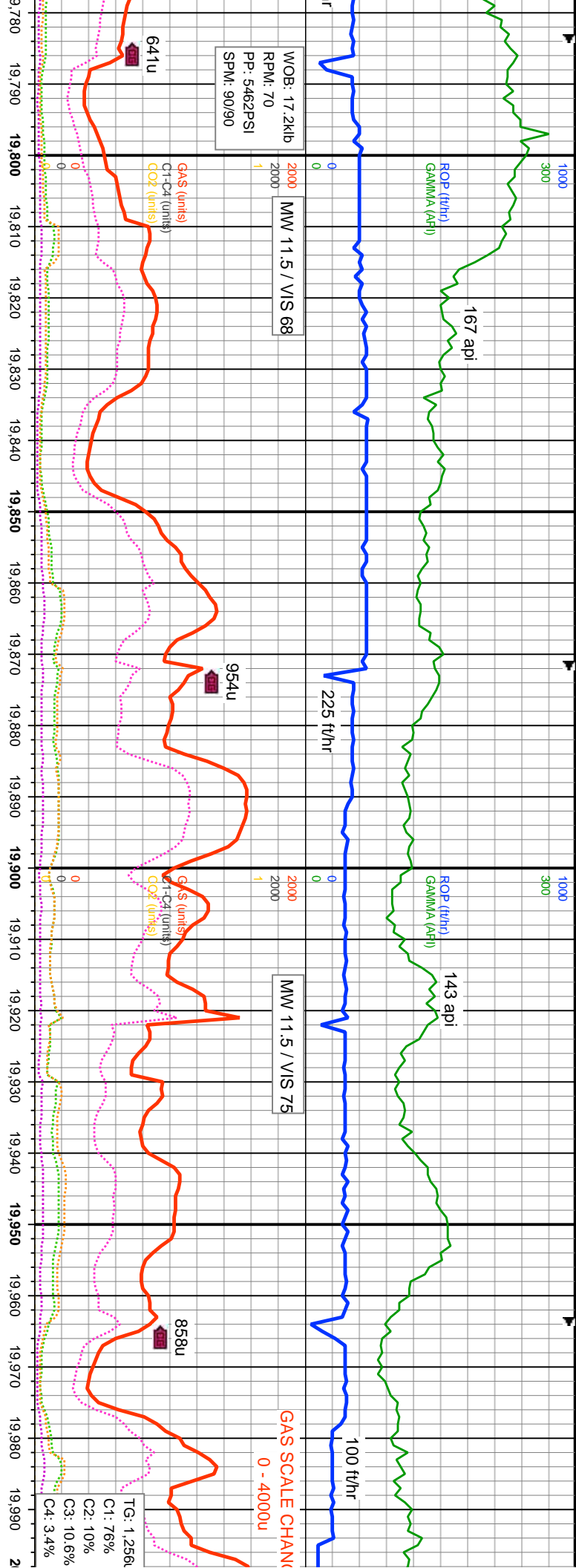


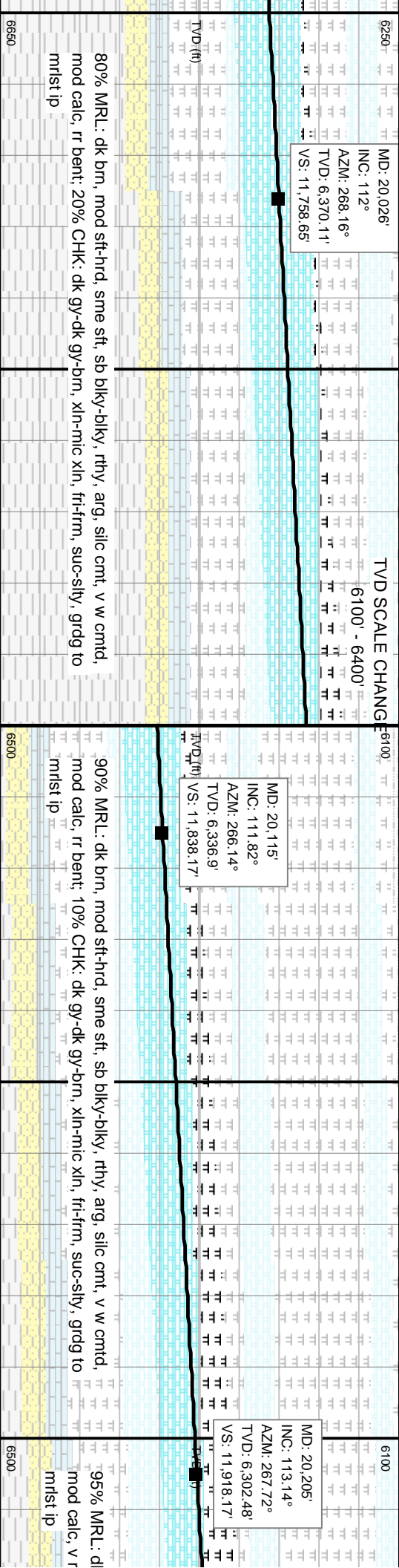
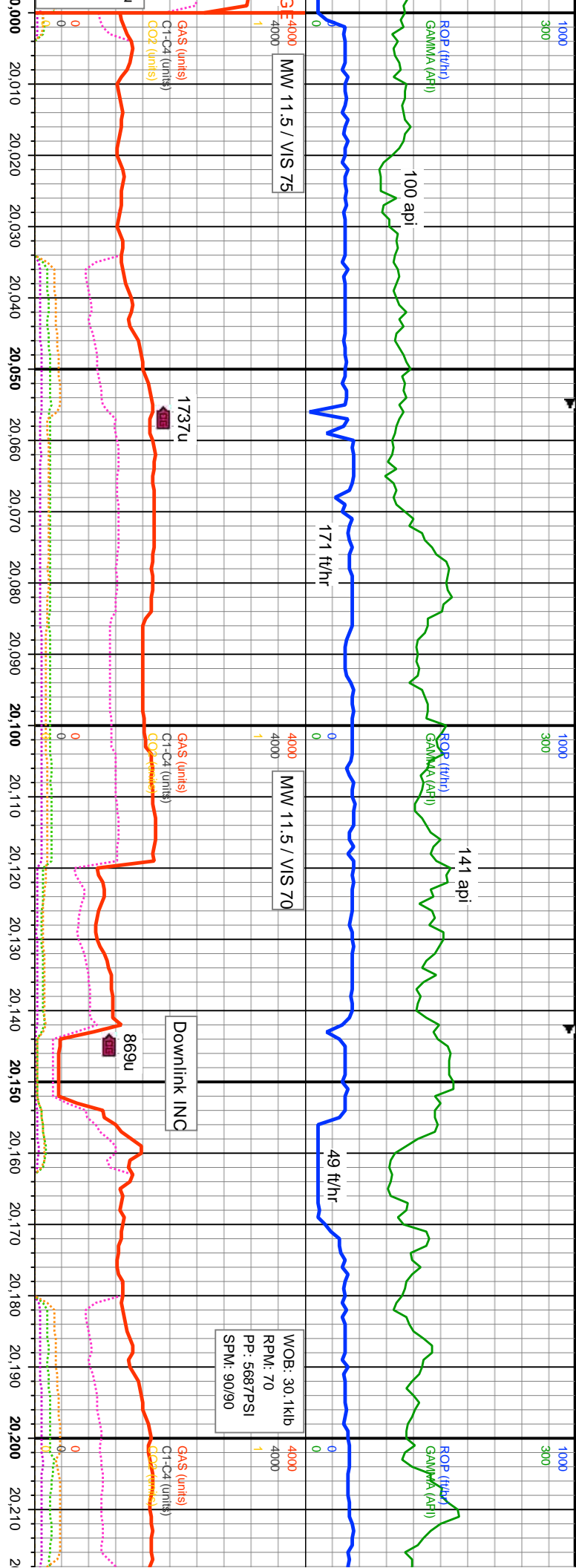


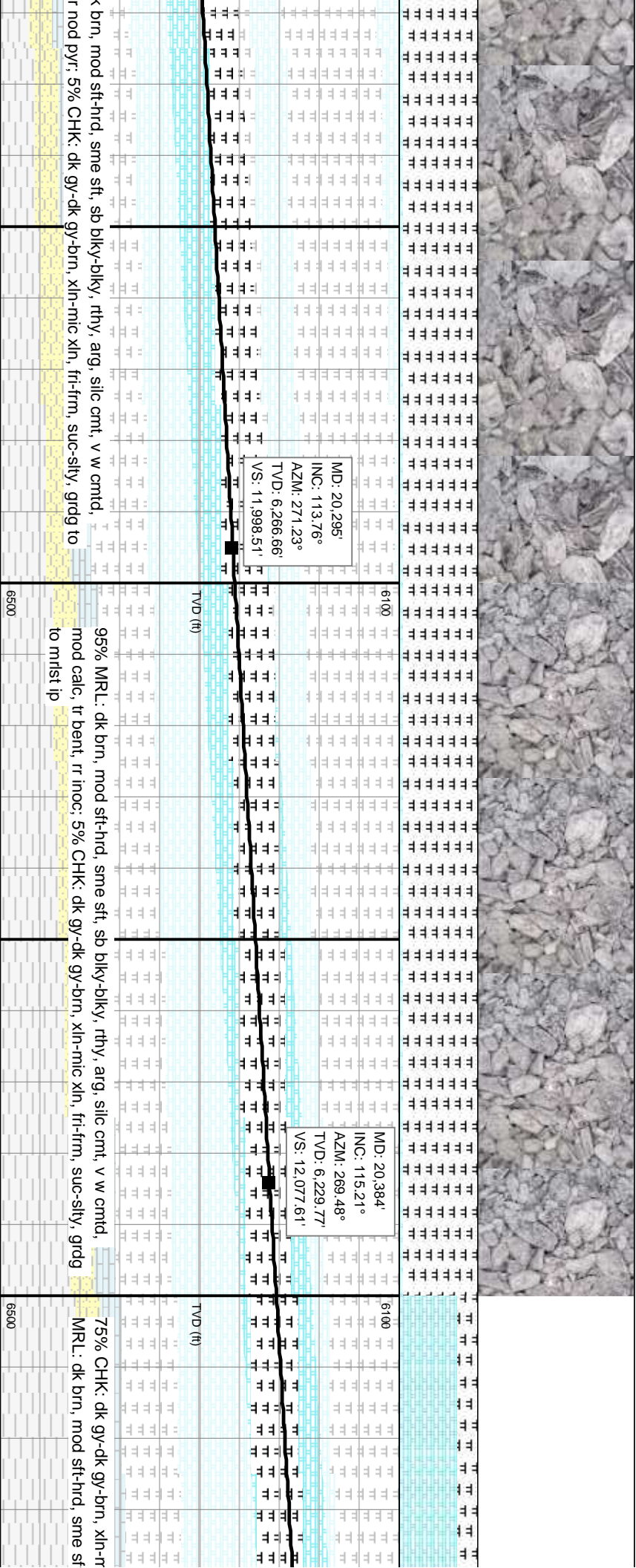
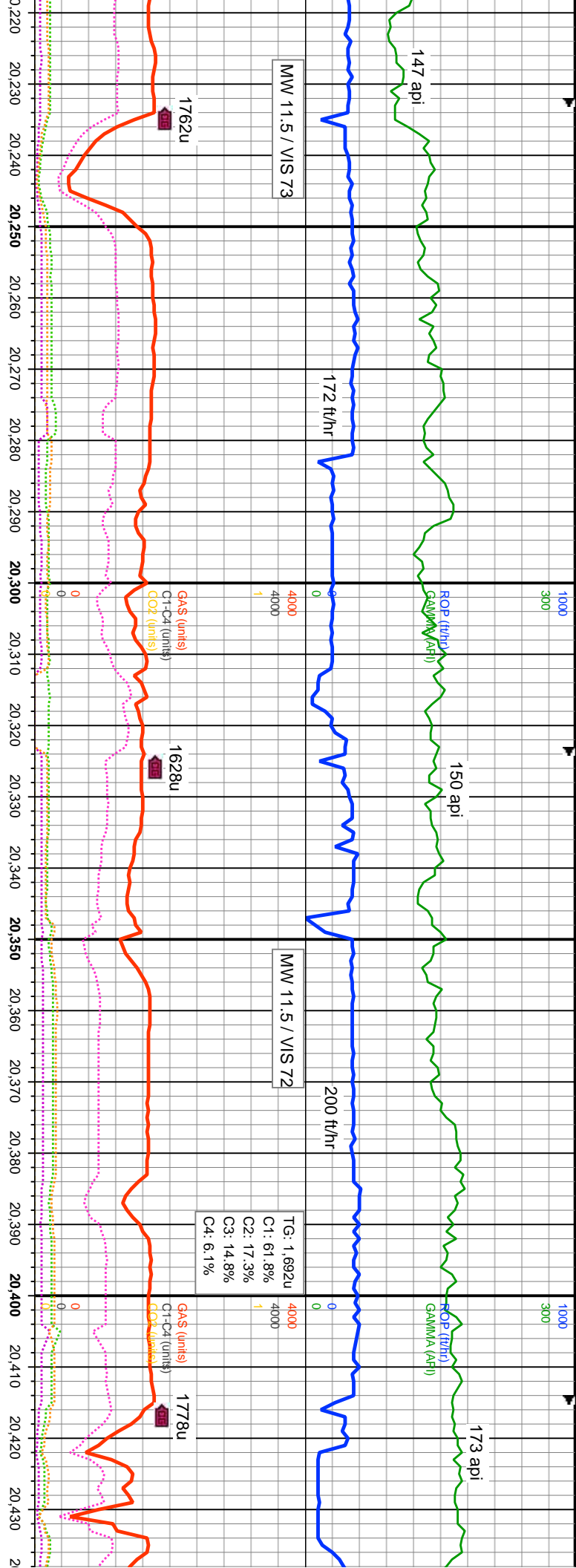


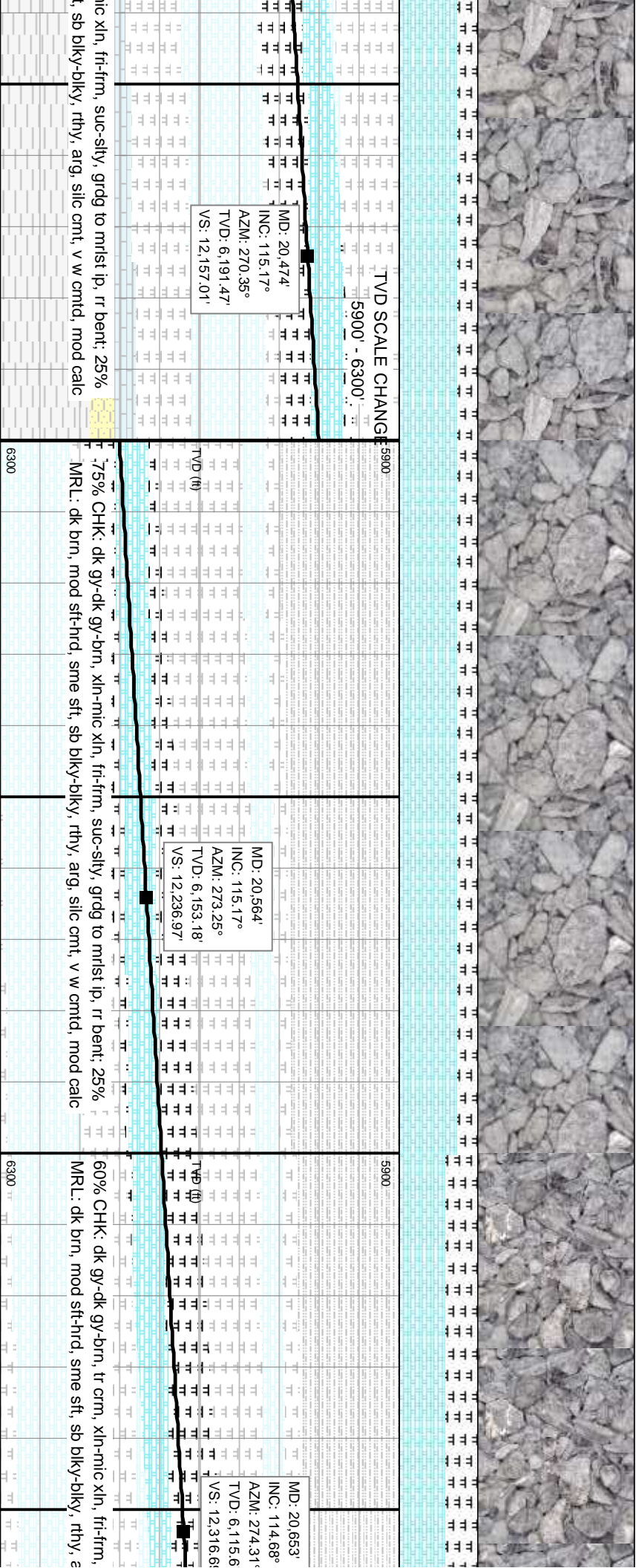
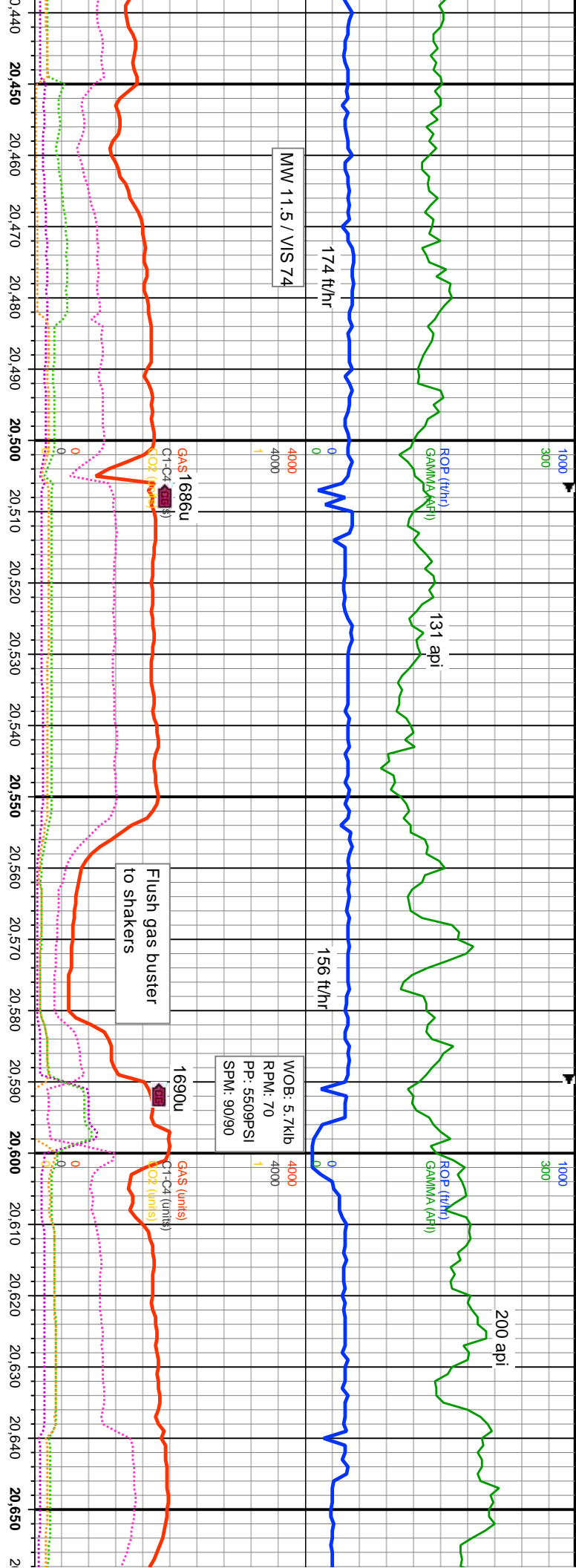


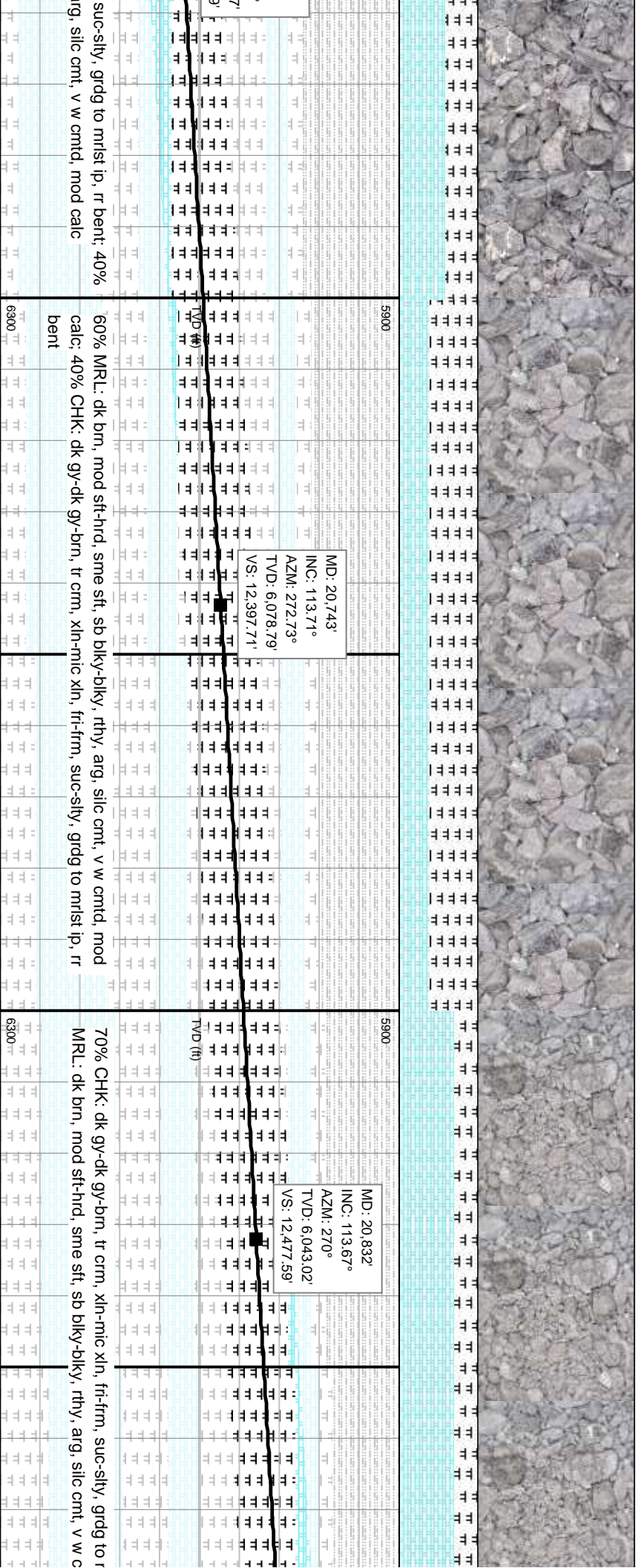
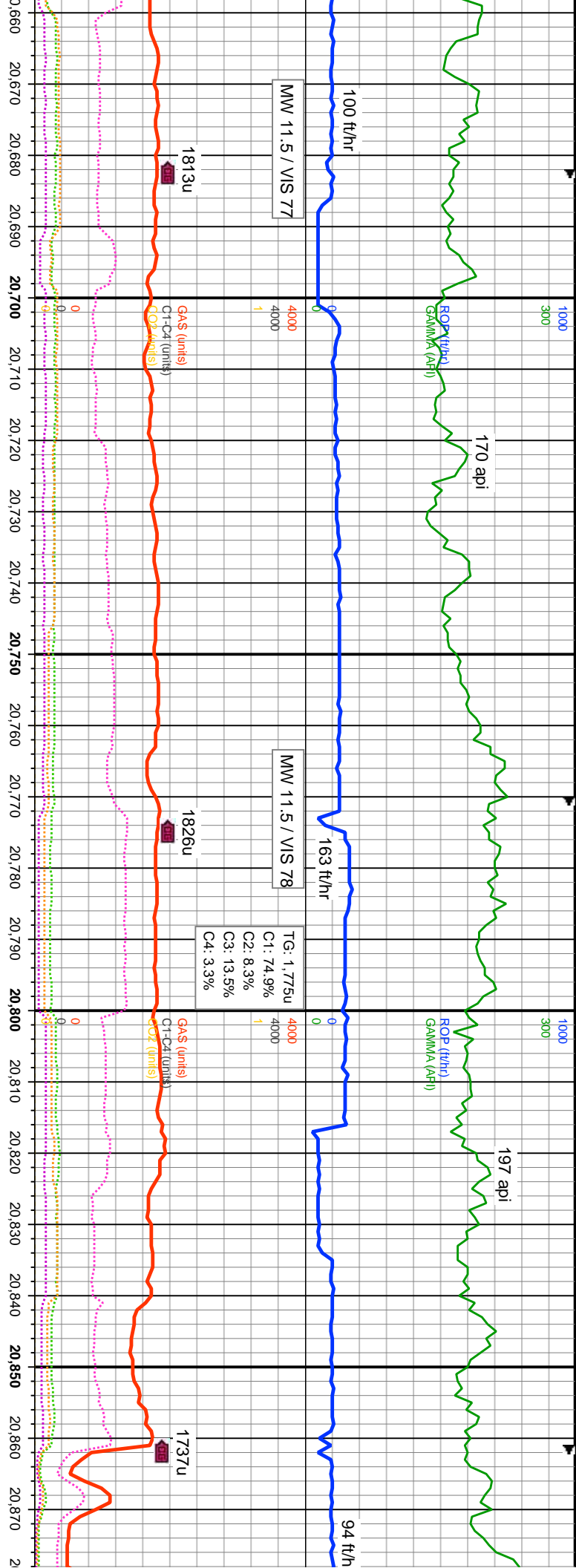


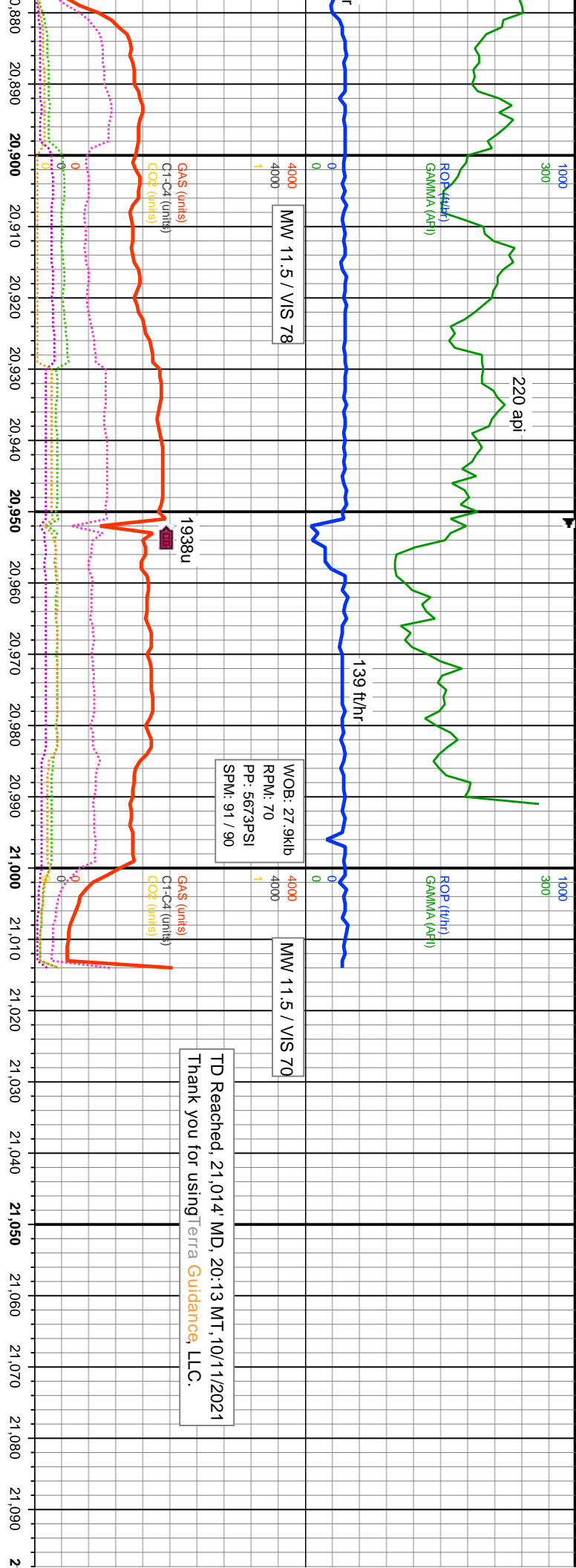












mst ip; 30% mt, mod calc		70% CHK: dk gy-dk gy-brn, tr crn, xln-mic xln, fri-frn, suc-slt, grdg to mst ip; 30% MRL: dk brn, mod sft-hrd, sme sft, sb blk-y-blky, rthy, arg, silc cnt, v w cntd, mod calc	
5900	VS: 12.557.25'	MD: 20.922' INC: 115.3° AZM: 268.6° TVD: 6.005.72'	6300
5900	VS: 12.637.27'	MD: 21.014' INC: 116.88° AZM: 268.95° TVD: 5.964.92'	6300

