



Scale: 5" / 100'
Measured Depth Log

Well Name B-Farm LD 18-391HNX

Location NENW SECTION 07, T1S, R67W

State COLORADO

County Adams

Country USA

Rig Number PRECISION 466

API Number 050011025800

AFE # 19DC0014

Geographic Region DJ BASIN

Field WATTENBERG

Ground Elevation 5124.5'

K.B. Elevation 5144.5'

Logged Interval 6000' MD To 18159' MD

Total Depth 18159' MD

Formation NIOBRARA A CHALK

Type of Drilling Fluid OIL BASED MUD

Operator

Company Great Western Oil and Gas

Address Great Western Operating Company, LLC
1001 17th Street, Suite 2000
Denver, CO 80202



Geologist

Name Gabriel Rubio, Wyatt Wicks

Company Terra Guidance

Address 67 W. Floyd Ave. Ste 105
Englewood, CO 80110

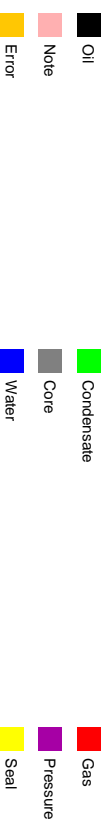


Other

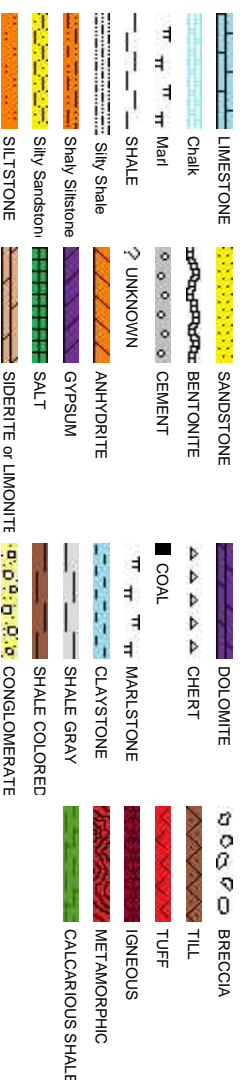
Mudlog Start Date 03/15/2019

Mudlog End Date 03/18/2019

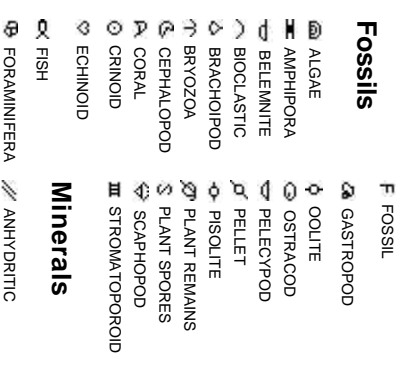
Color Coding



Rock Types



Fossils

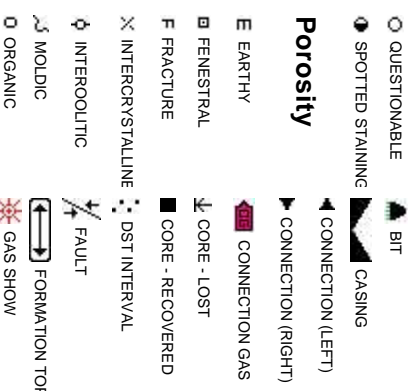


Minerals

Oil Show



Engineering



Accessories

ARGILLACEOUS	✓ GLAUCONITE		
ARGILLITE GRAIN	⚡ GYPSIFEROUS		
BENTONITE	⚡ HEAVY MINERAL	🔥 ANHYDRITE STRINGER	
BITUMENOUS SUBSTANCE	K KAOLIN	🔥 BENTONITE STRINGER	
BRECCIA FRAGMENTS	TT MARLSTONE	🔥 COAL STRINGER	
CALCAREOUS	⚡ MINERAL CRYSTALS	🔥 DOLOMITE STRINGER	
CARBONACEOUS FLAKES	🔥 NODULES	🔥 GYPSUM STRINGER	
CHTDK	🔥 PHOSPHATE PELLETS	🔥 LIMESTONE STRINGER	
CHTLT	P PYRITE	TT MARLSTONE (CALC) STRG	
COAL - THIN BEDS	⊞ SALT CAST	TT MARLSTONE (DOL) STRG	
DOLOMITIC	: SANDY	🔥 SANDSTONE STRINGER	
ELDSPAR	✓ SLICEOUS	— SHALE STRINGER	
FERRUGINOUS PELLET	✳ SILTY	🔥 SILTSTONE STRINGER	
FERRUGINOUS	✓ TUFFACEOUS		

Stringer

🔥 ANHYDRITE STRINGER
🔥 BENTONITE STRINGER
🔥 COAL STRINGER
🔥 DOLOMITE STRINGER
🔥 GYPSUM STRINGER
🔥 LIMESTONE STRINGER
TT MARLSTONE (CALC) STRG
TT MARLSTONE (DOL) STRG
🔥 SANDSTONE STRINGER
— SHALE STRINGER
🔥 SILTSTONE STRINGER

Other Symbols

MINDEPTH	R ROUNDED	WS WACKESTONE
NORMAL FAULT	▣ SUBANG	
OIL SHOW	P SUBRND	

Sorting

⇄ OVERTURNED STRATA M MODERATE

Textures

↗ REVERSE FAULT	P POOR
SIDEWALL CORE (LEFT)	BS BOUNDSTONE
SIDEWALL CORE (RIGHT)	W WELL
SLIDE	CX CRYPTOXLN

CALCARIUOS SHALE

OS SURVEY	E EARTHY
TRIP GAS	FX FINELYXLN

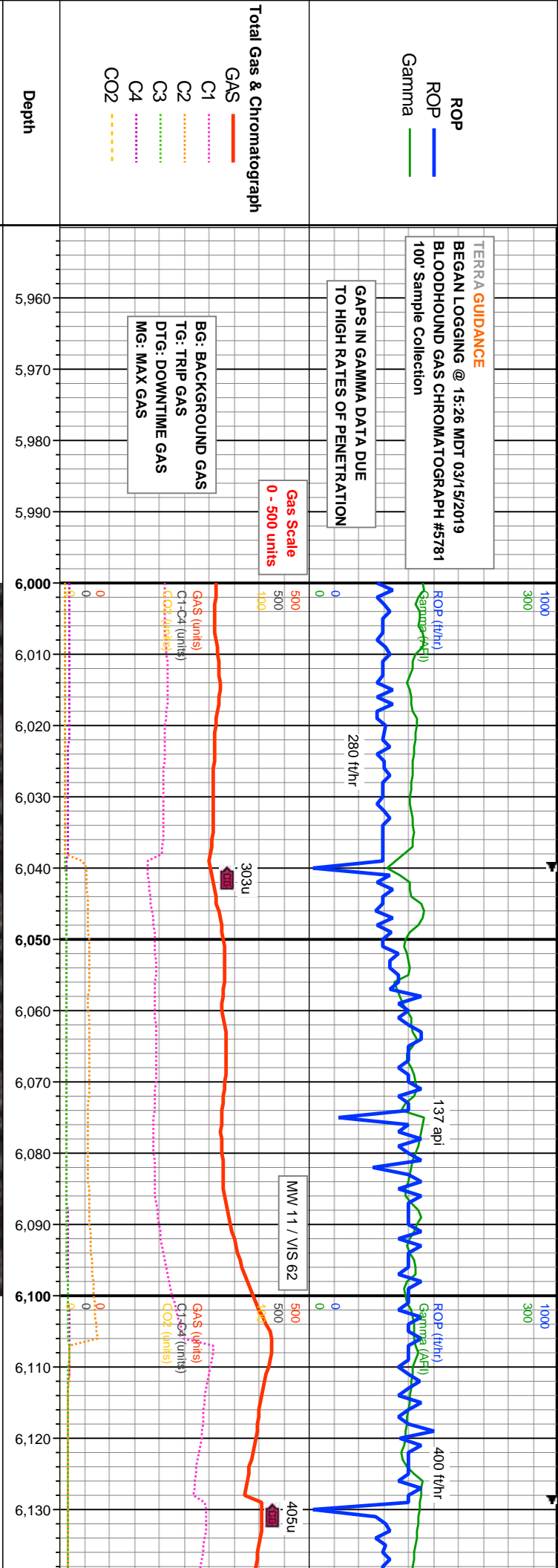
CALCARIOUS SHALE

WIRELINE TESTED - LEFT	GS GRAINSTONE
WIRELINE TESTED - RT	L LITHOGRAPHIC

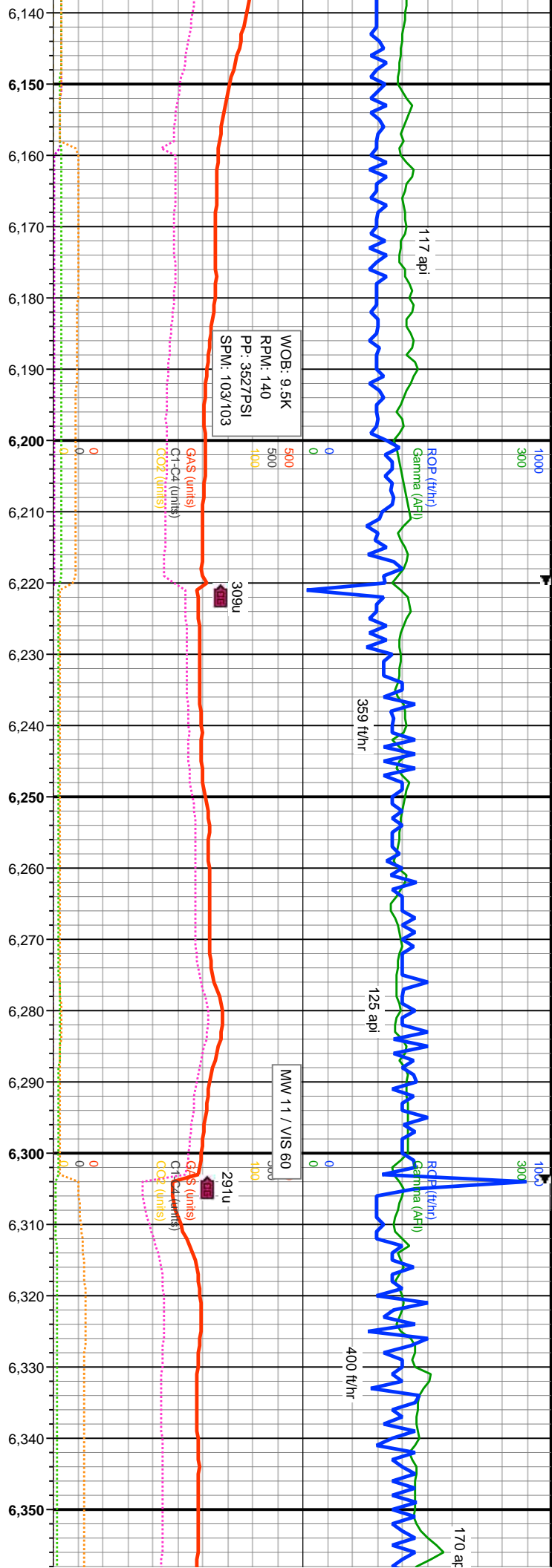
Top Chalk

Rounding

MX MICROXLN
MS MUDSTONE
PS PACKSTONE
A ANGULAR



Images			
% Lithology			
Well Bore TVD	<div>Bit #: 2 Size: 8.5 Make: Ulterra Model: SPL516 Depth In: 1,758 Jets: 4x11, 4x12 S/N: 45221</div> <div>TVD Scale 5900' - 8000'</div> <div>MD: 6,011' INC: 29.97° AZM: 29.06° TVD: 5,899.04' VS: -431.9'</div> <div>MD: 6,101' INC: 30.02° AZM: 28.1° TVD: 5,976.99' VS: -469.74'</div> <div>100% SHY SLTST: lt-meddy, sme dk brn, sme dk gry, sft-fri, sb blk-y-ply, tr fis, rthy, silty, p-mud cly rch mtb, v sl calc.</div> <div>100% SHY SLTST: lt-meddy, rthy, silty, p-mud cly rch mtb, ip</div>		



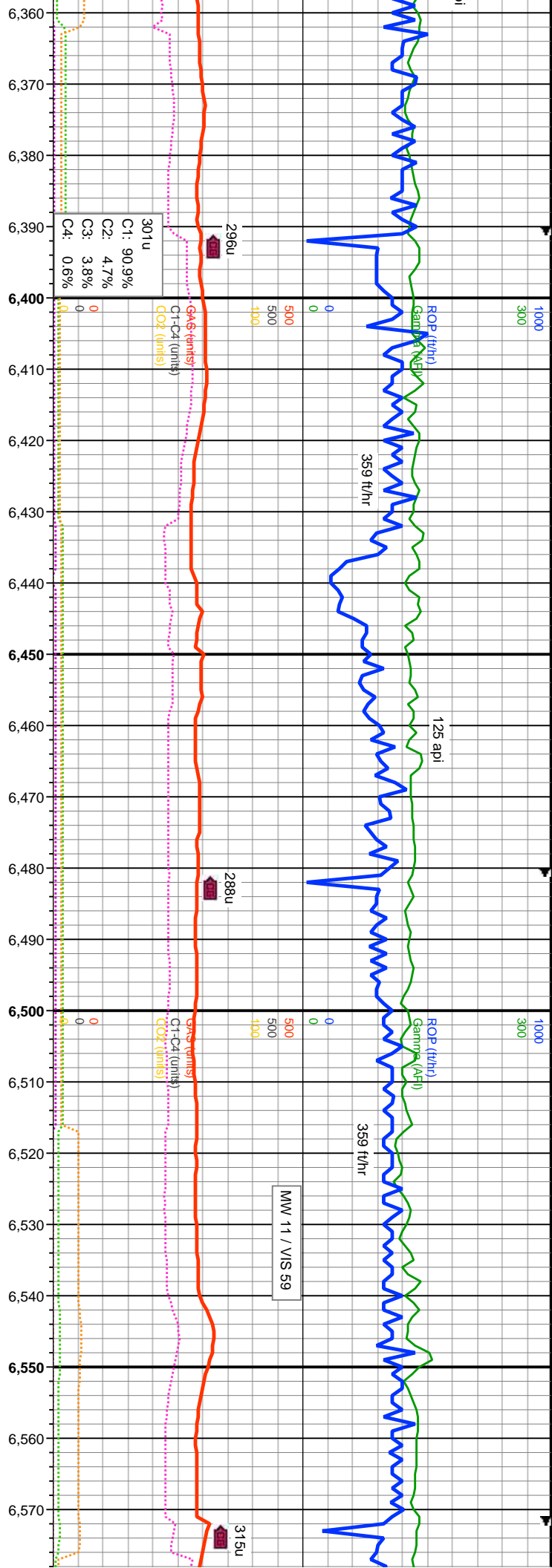
MD: 6.191'
INC: 30.15°
AZM: 26.99°
TVD: 6.054.86'
VS: -508.11'

MD: 6.280'
INC: 29.65°
AZM: 27.72°
TVD: 6.132.02'
VS: -545.93'

sme dk brn, sme dk gry, sft-fri, sb blkv-plty, tr fis, grty, v sl calc.

100% SHY SLTST: lt-medgy, sme dk brn, sme dk gry, sft-fri, sb blkv-plty, tr fis, rthy, silty, p-mod cly rch mtb, ip grty, v sl calc.

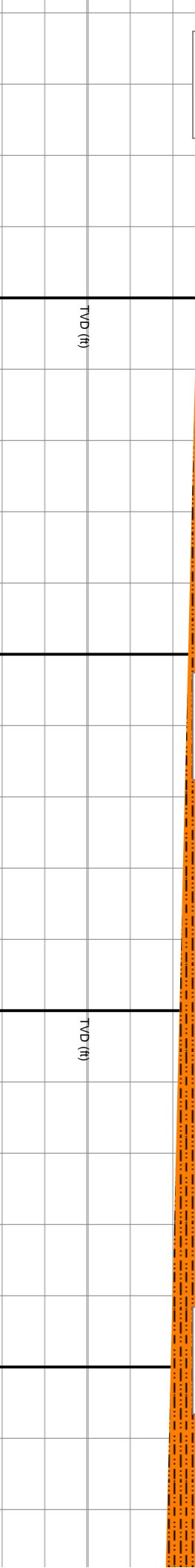
100% SHY SLTST: lt-medgy, sme dk brn, sme dk gry, sft-fri, sb blkv-plty, tr fis, rthy, silty, p-mod cly rch mtb, v sl calc.



MD: 6,370'
INC: 29.65°
AZM: 29.13°
TVD: 6,210.23'
VS: -583.43'

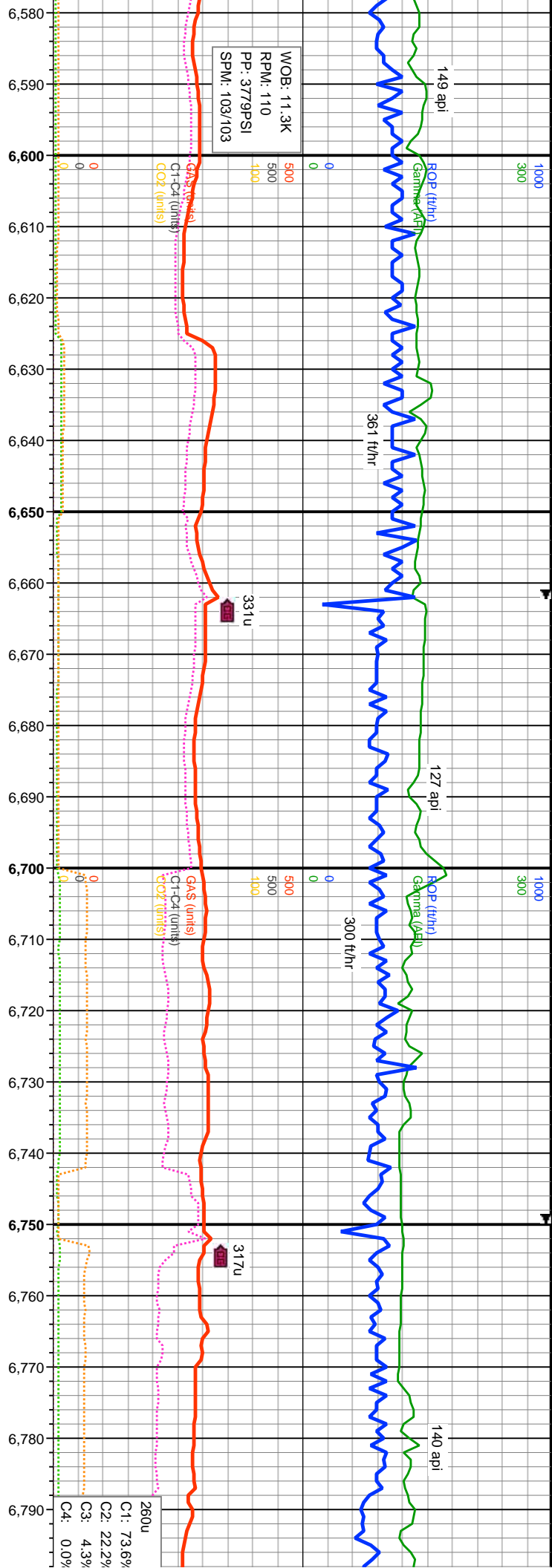
MD: 6,460'
INC: 30.26°
AZM: 29.86°
TVD: 6,288.21'
VS: -620.83'

MD: 6,549'
INC: 29.91°
AZM: 30.12°
TVD: 6,365.22'
VS: -657.74'

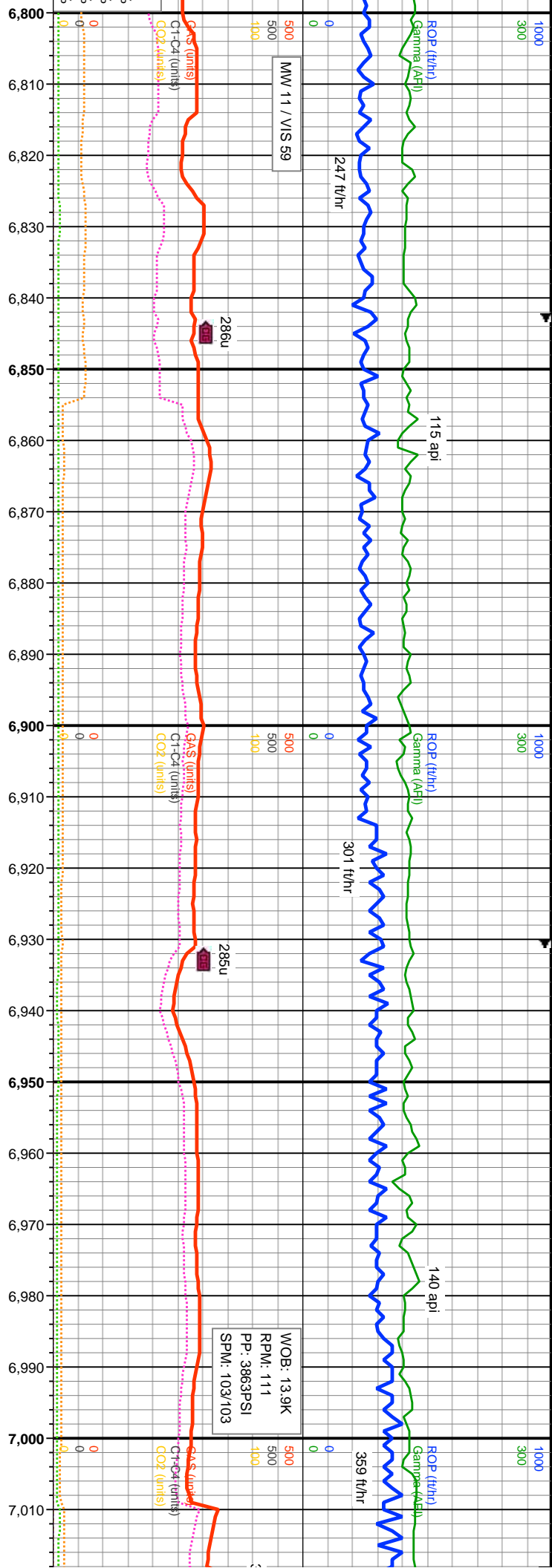


gry, sft-fri, sb blk-y-pity, tr fis,
100% SHY SLTST: lt-medgy, ip dk gy-dk brn, sme dk gry, sft-fri, sb blk-y-pity, tr fis,
rthy, silty, p-mod cly rch mix, v sl calc.

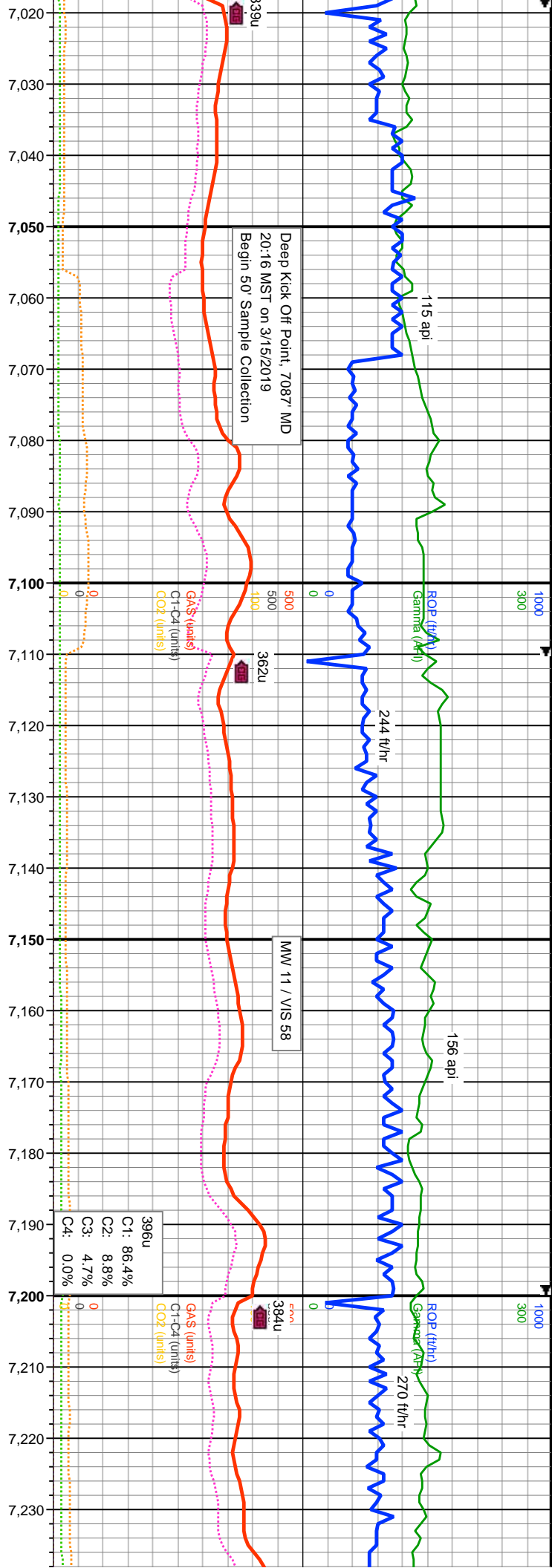
100% SHY SLTST: lt-medgy, ip dk gy-dk brn, sme dk gry, sft-fri, sb blk-y-pity, tr fis,
rthy, silty, p-mod cly rch mix, v sl calc.



100% SHY SLTST: lt-medgy, sme dk brn-dk gy, sme dk gry, sft-fri, sb blkly-plty, tr fis, rthy, silty, p-mod cly rch mtx, v sl calc.		5900	MD: 6.639' INC: 29.9° AZM: 33.74° TVD: 6.443.25' VS: -693.98'	5900	MD: 6.729' INC: 30.24° AZM: 36.48° TVD: 6.521.14' VS: -728.87'	8000	90% SHY SLTST: lt-medgy, sme dk brn-dk gy, sme dk gry, sft-fri, sb blkly-plty, tr fis, rthy, silty, p-modly cly rch mtx, v sl calc; 10% SLTY SH: med-dk gy, sl grdgy to blk, sme med-dk brn, modly sft-ip frm, sb blkly-ang, plty, silty, arg, sl calc.
100% SHY SLTST: lt-medgy, sme dk brn-dk gy, sme dk gry, sft-fri, sb blkly-plty, tr fis, rthy, silty, p-mod cly rch mtx, v sl calc.		8000		8000		8000	



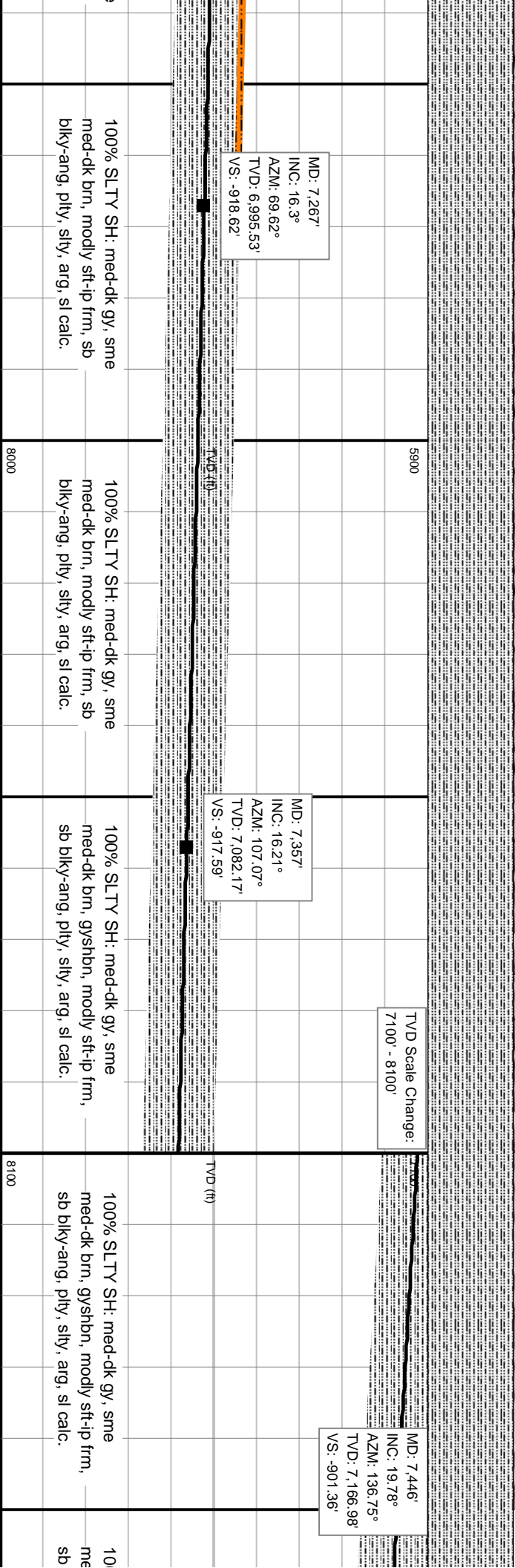
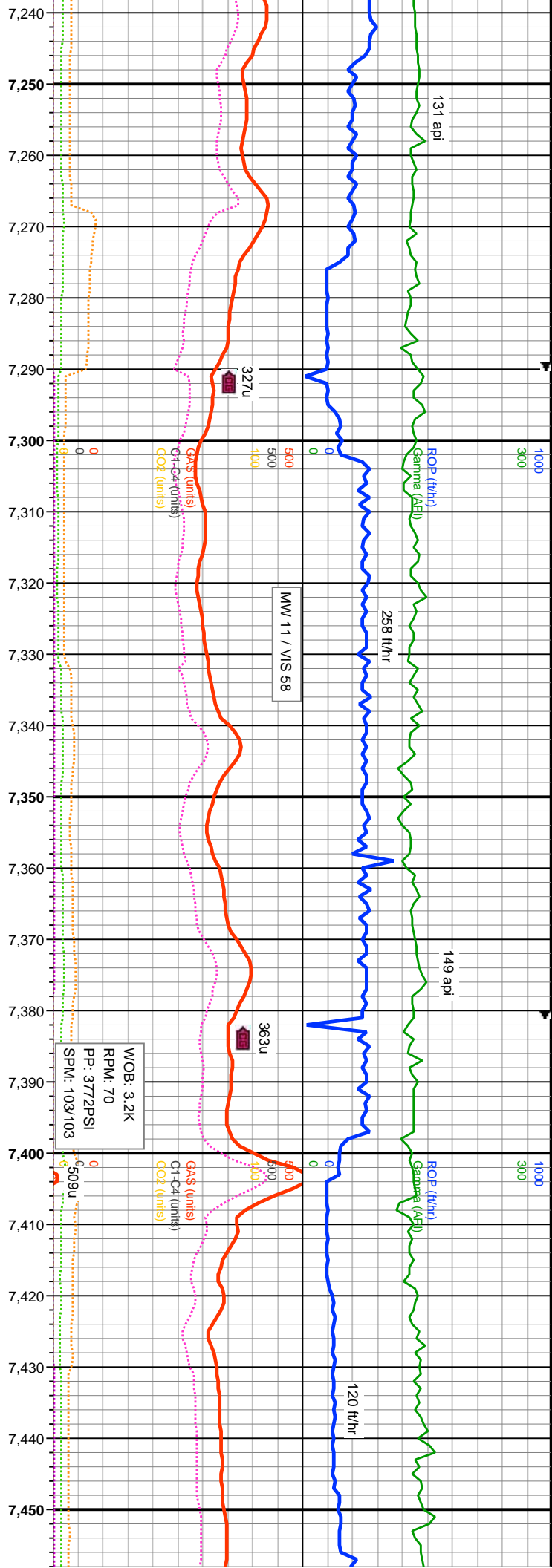
5900		MD: 6,818' INC: 30.18° AZM: 34.81° TVD: 6,598.05' VS: -763.26'	5900		MD: 6,908' INC: 30.01° AZM: 32.18° TVD: 6,675.92' VS: -798.97'	5900		MD: 6,998' INC: 30.18° AZM: 30.39° TVD: 6,753.79' VS: -835.72'
8000		80% SHY SLTST: lt-medgy, sme dk brn-dk gy, sme dk gry, sft-fri, sb blk-y-pty, tr fis, rthy, silty, p-modly cly rch mtx, v sl calc, 20% SLTY SH: med-dk gy, sl grdgy to blk, sme med-dk brn, modly sft-ip frm, sb blk-y-ang, pily, silty, arg, sl calc.	8000		70% SHY SLTST: lt-medgy, sme dk brn-dk gy, sme dk gry, sft-fri, sb blk-y-pty, tr fis, rthy, silty, p-modly cly rch mtx, v sl calc, 30% SLTY SH: med-dk gy, sl grdgy to blk, sme med-dk brn, modly sft-ip frm, sb blk-y-ang, pily, silty, arg, sl calc.	8000		50% SHY S fis, rthy, silty blk, sme me
TVD (ft)			TVD (ft)			TVD (ft)		

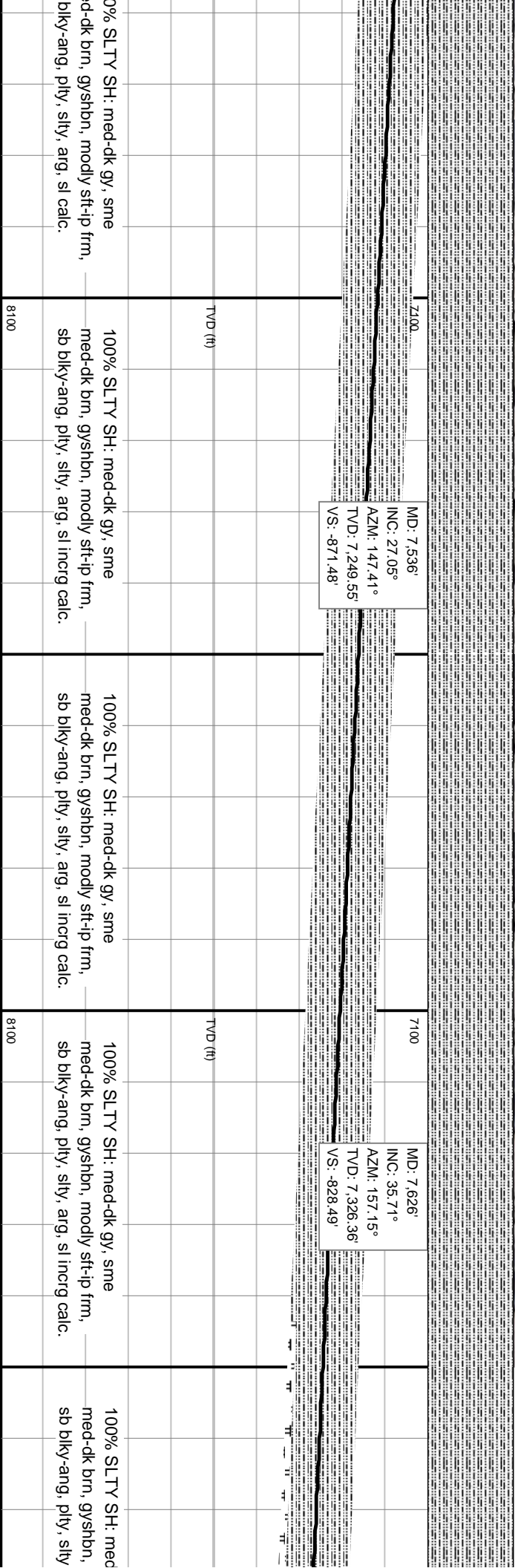
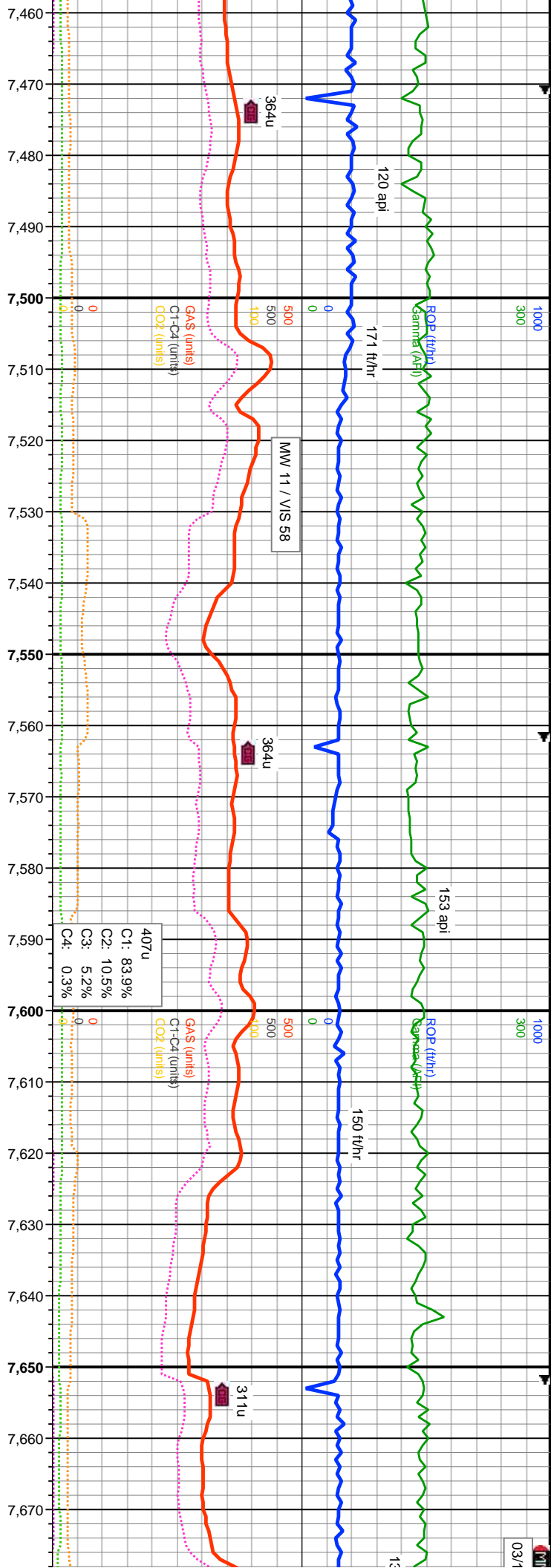


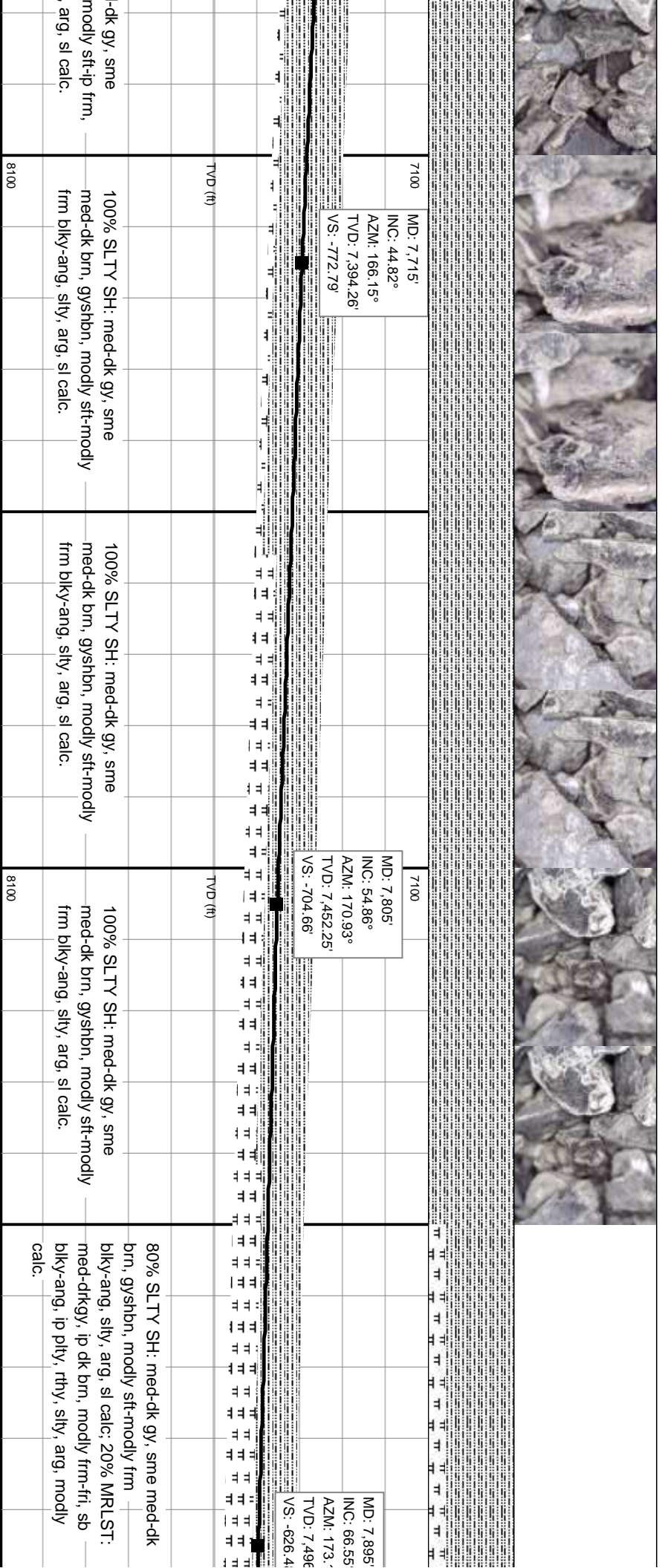
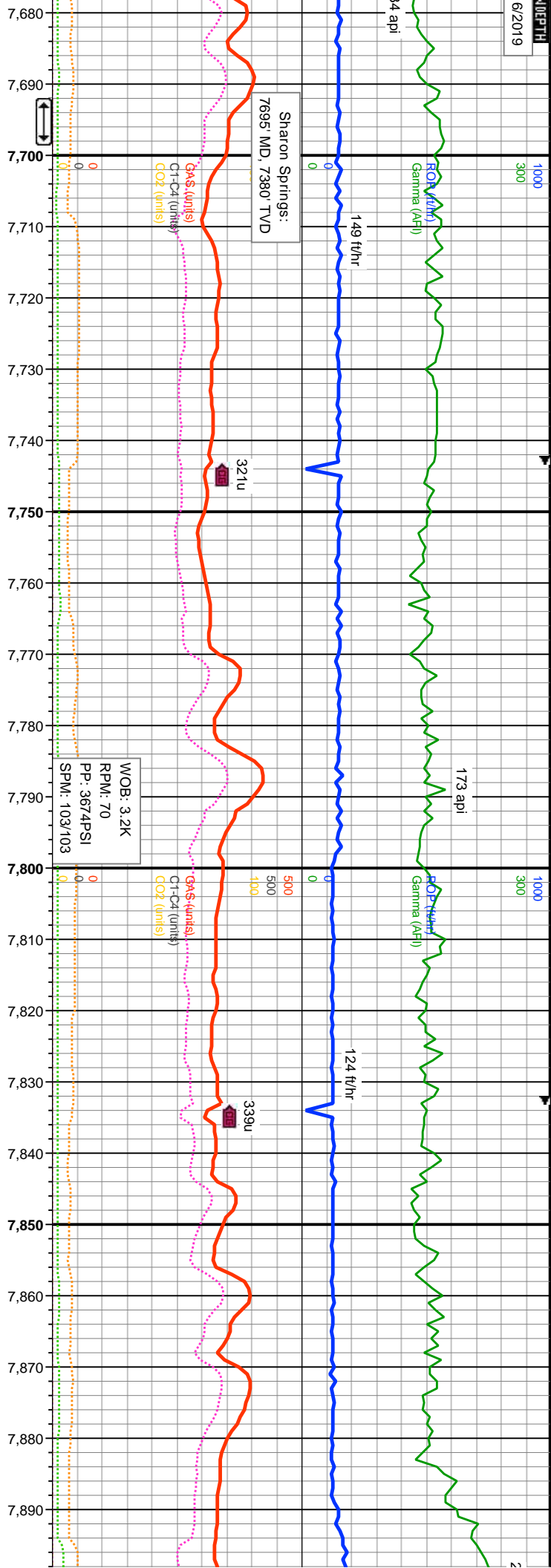
MD: 7.087'
INC: 30.2°
AZM: 29.87°
TVD: 6.830.72'
VS: -872.69'

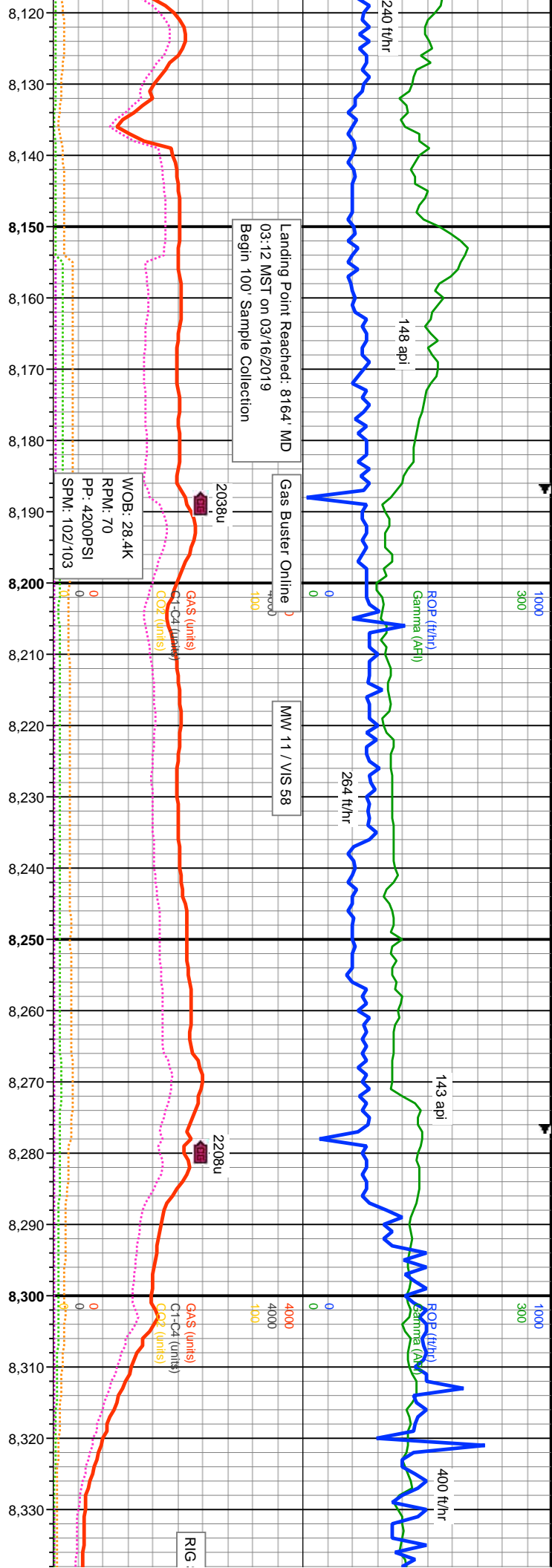
MD: 7.177'
INC: 23.9°
AZM: 45.62°
TVD: 6.910.94'
VS: -903.28'

SLTST: lt-medgy, sme dk brn-dk gy, sme dk gry, sft-fri, sb blkly-pty, tr p-modly cly rch mtx, v sl calc, 50% SLTY SH: med-dk gy, sl grdgc to p-dk brn, modly sft-ip frm, sb blkly-ang, pty, sily, arg, sl calc.	70% SLTY SH: med-dk gy, sl grdc to blk, sme med-dk brn, modly sft-ip frm, sb blkly-ang, pty, sily, arg, sl calc, 30% SHY SLTST: lt-medgy, sme dk brn-dk gy, sme dk gry, sft-fri, sb blkly-pty, tr fis, rthy, sily, p-modly cly rch mtx, v sl calc.	90% SLTY SH: med-dk gy, sl grdc to blk, sme med-dk brn, modly sft-ip frm, sb blkly-ang, pty, sily, arg, sl calc, 10% SHY SLTST: lt-medgy, sme dk brn-dk gy, sme dk gry, sft-fri, sb blkly-pty, tr fis, rthy, sily, p-modly cly rch mtx, v sl calc.	100% SLTY SH: med-dk gy, sme med-dk brn, modly sft-ip frm, sb blkly-ang, pty, sily, arg, sl calc.
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MD: 8,164'
INC: 89.94°
AZM: 180.51°
TVD: 7,552.21'
VS: -365.36'

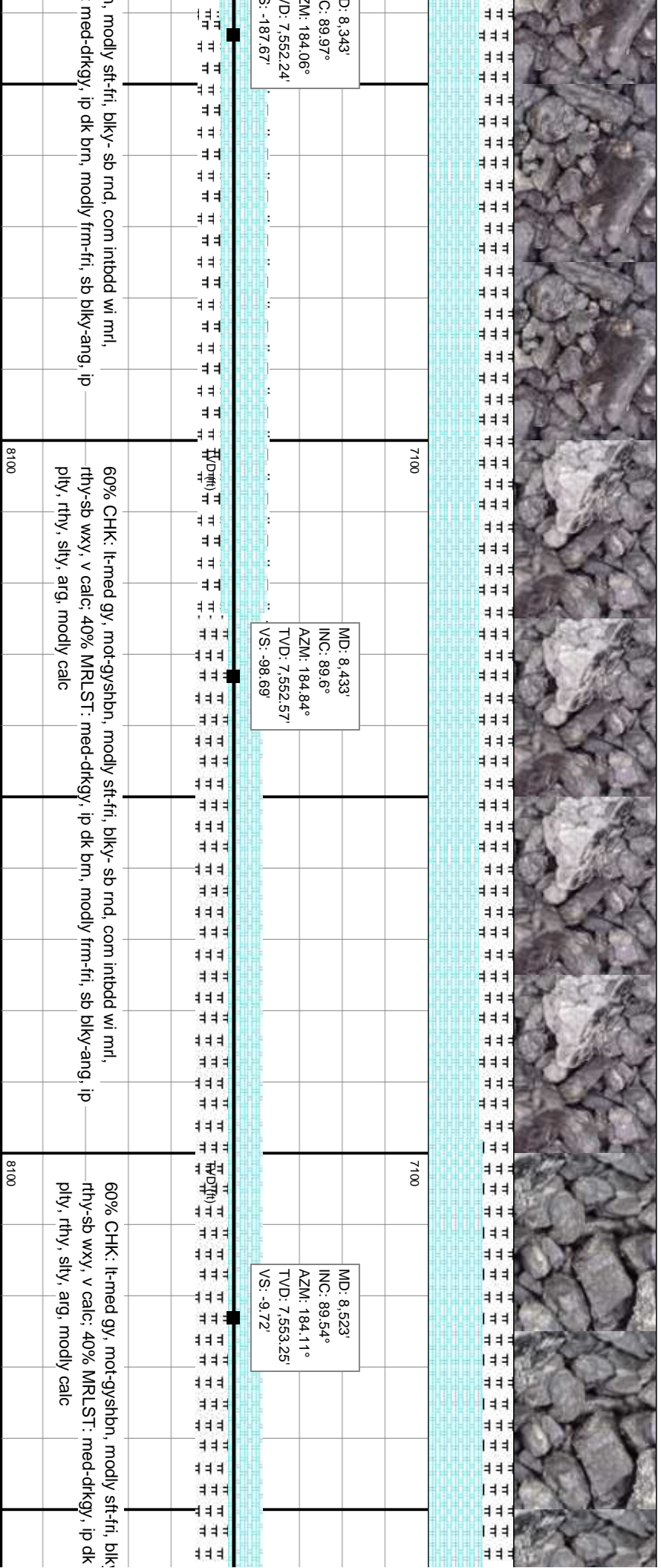
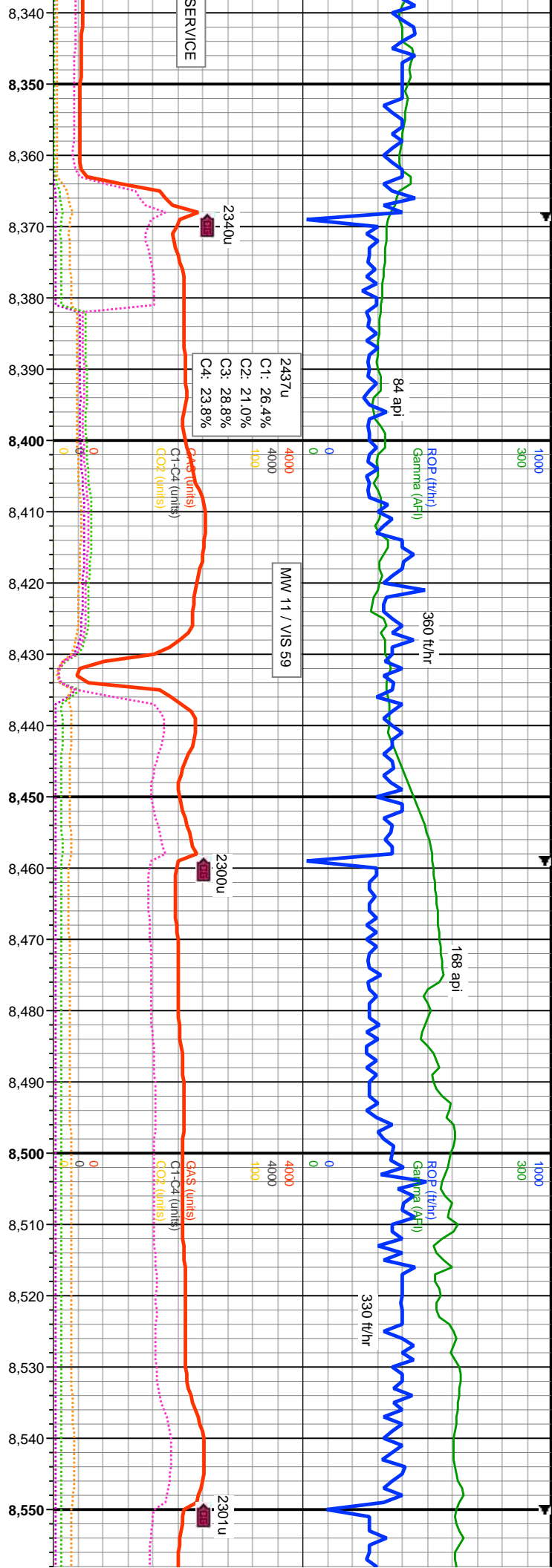
MD: 8,254'
INC: 90.03°
AZM: 183.08°
TVD: 7,552.24'
VS: -275.85'

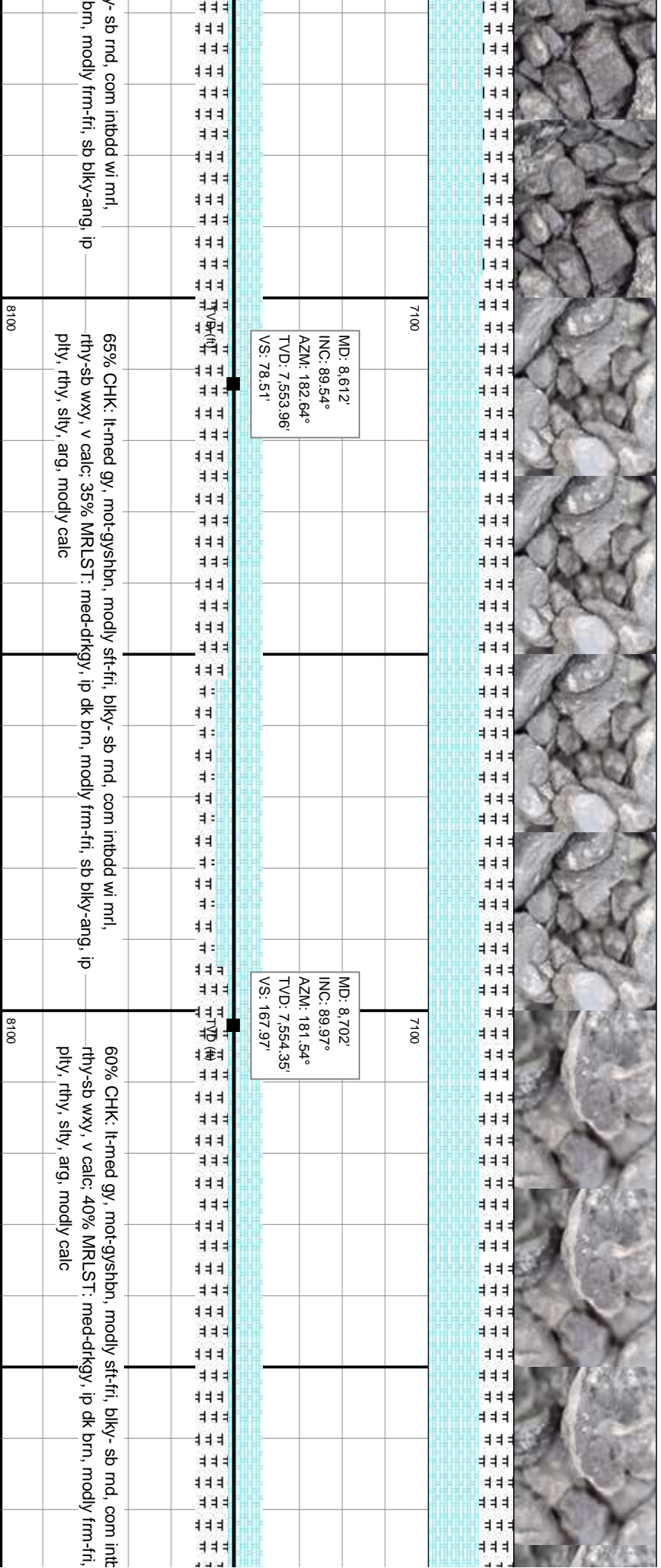
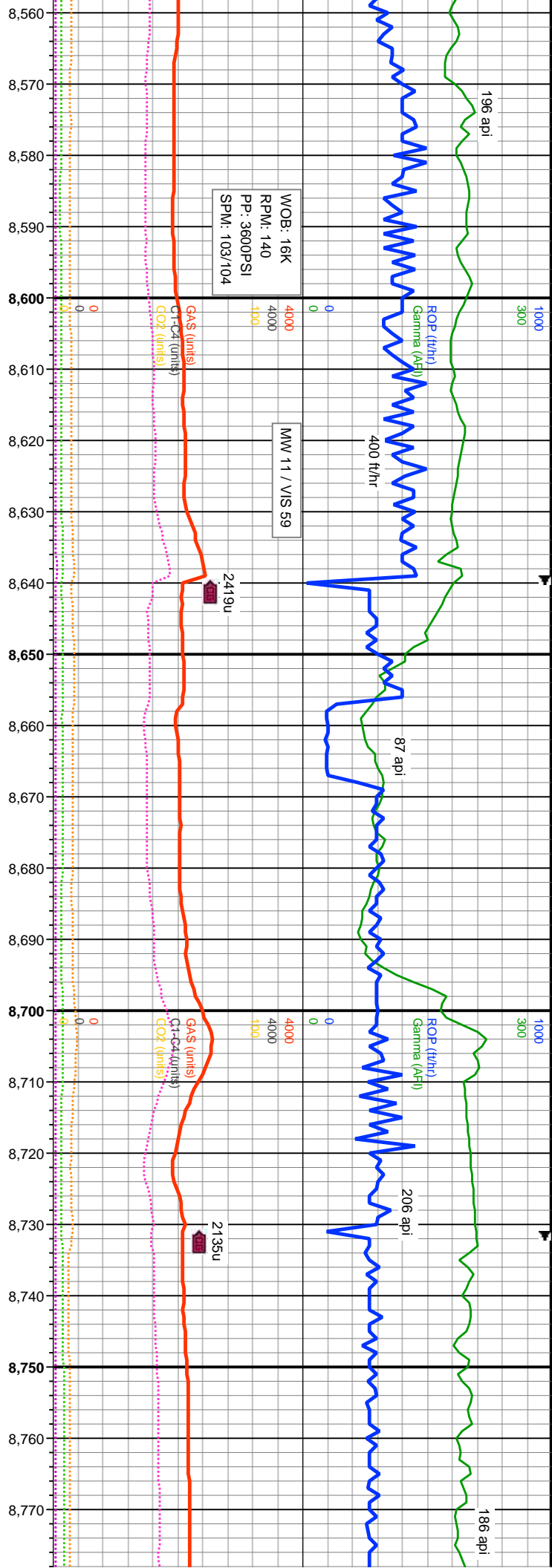
M
IN
AZ
TV
VS

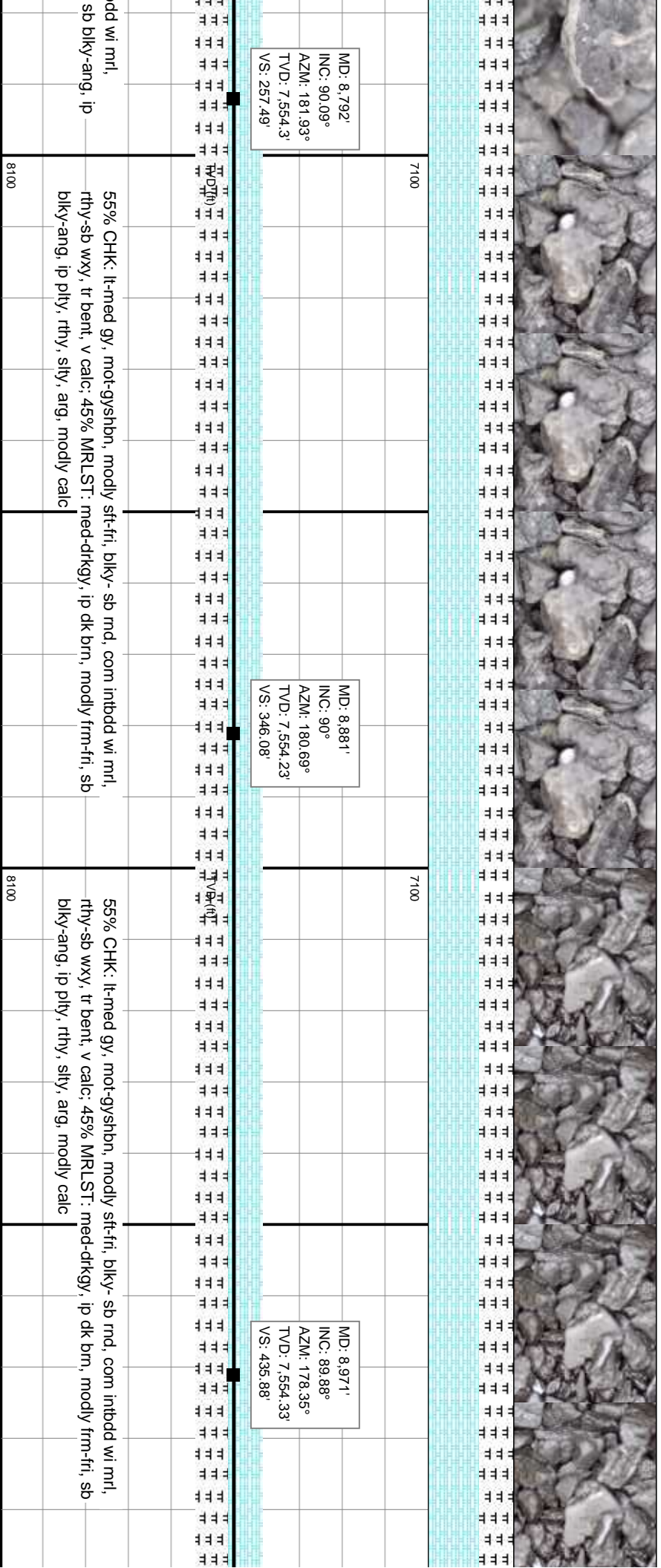
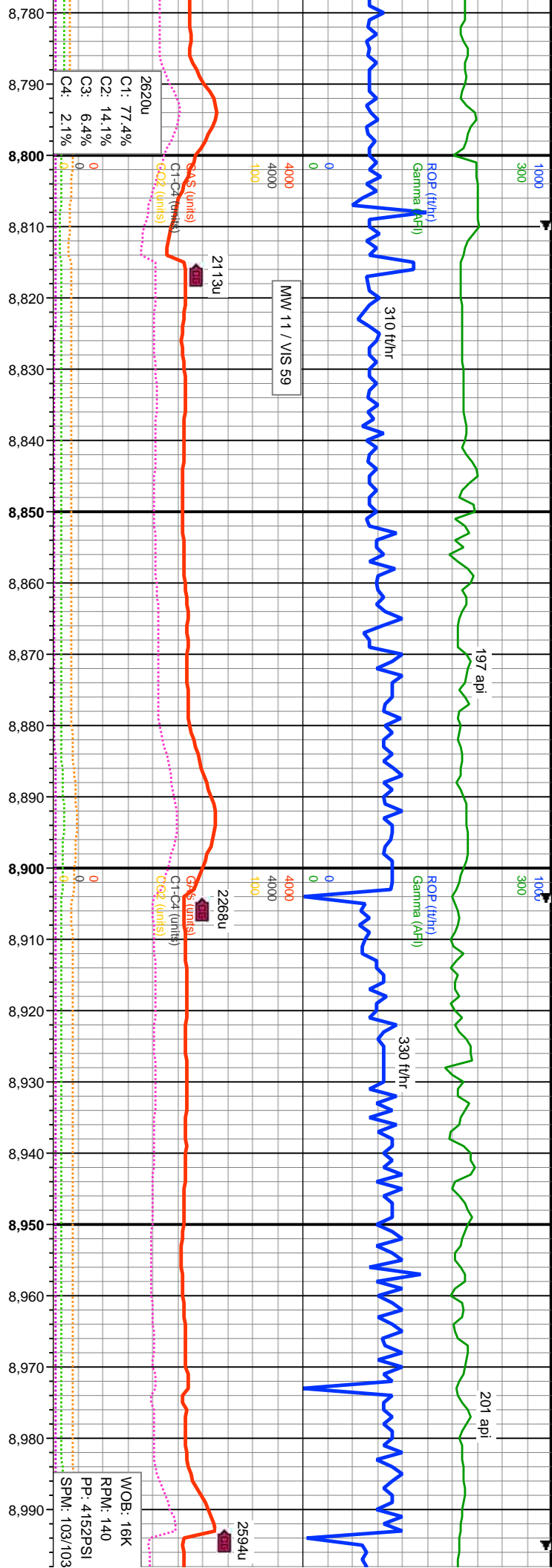
ed gy, mot-gyshbn,
ky-sb md, com intbdd wi
y, v calc: 40% MRLST:
dk brn, modly frm-fri, sb
y, rthy, silty, arg, modly

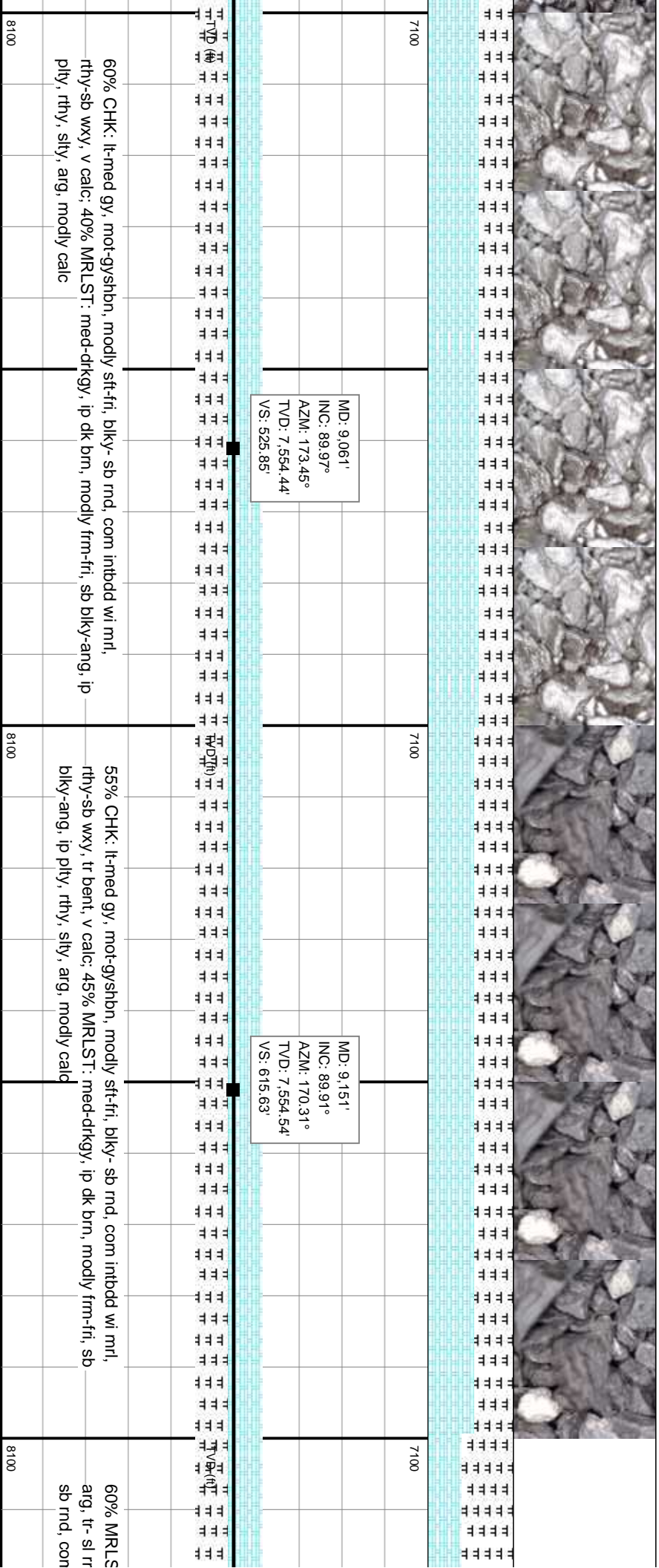
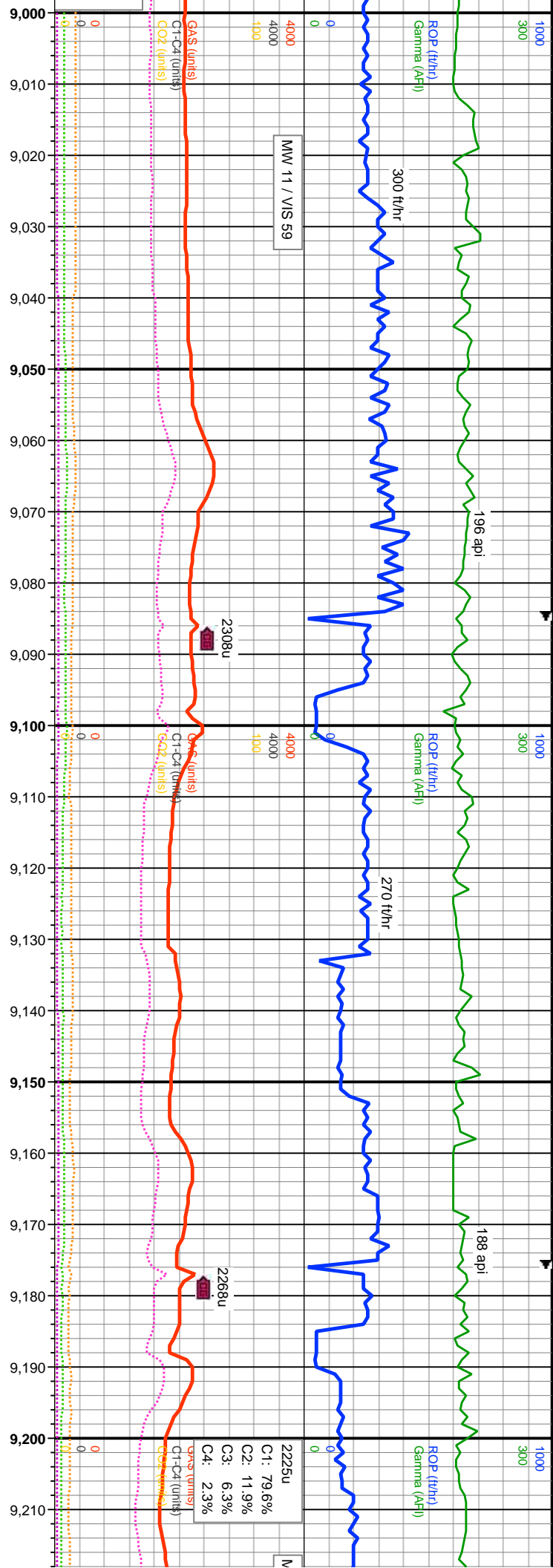
55% CHK: lt-med gy, mot-gyshbn,
modly sft-fri, blk-y-sb md, com intbdd wi
mrl, rthy-sb wxy, tr bent, v calc: 45%
MRLST: med-dtkgy, ip dk brn, modly
frm-fri, sb blk-y-ang, ip pty, rthy, silty, arg,
modly calc

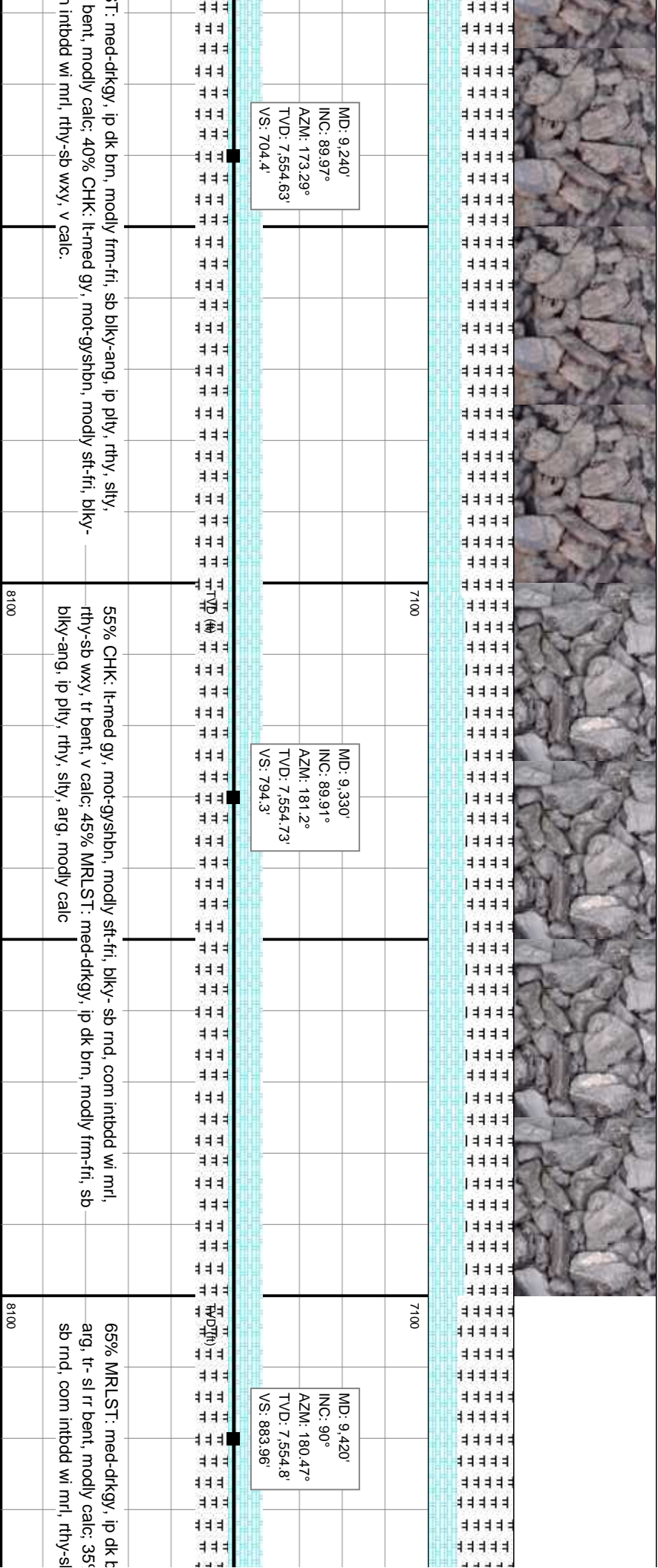
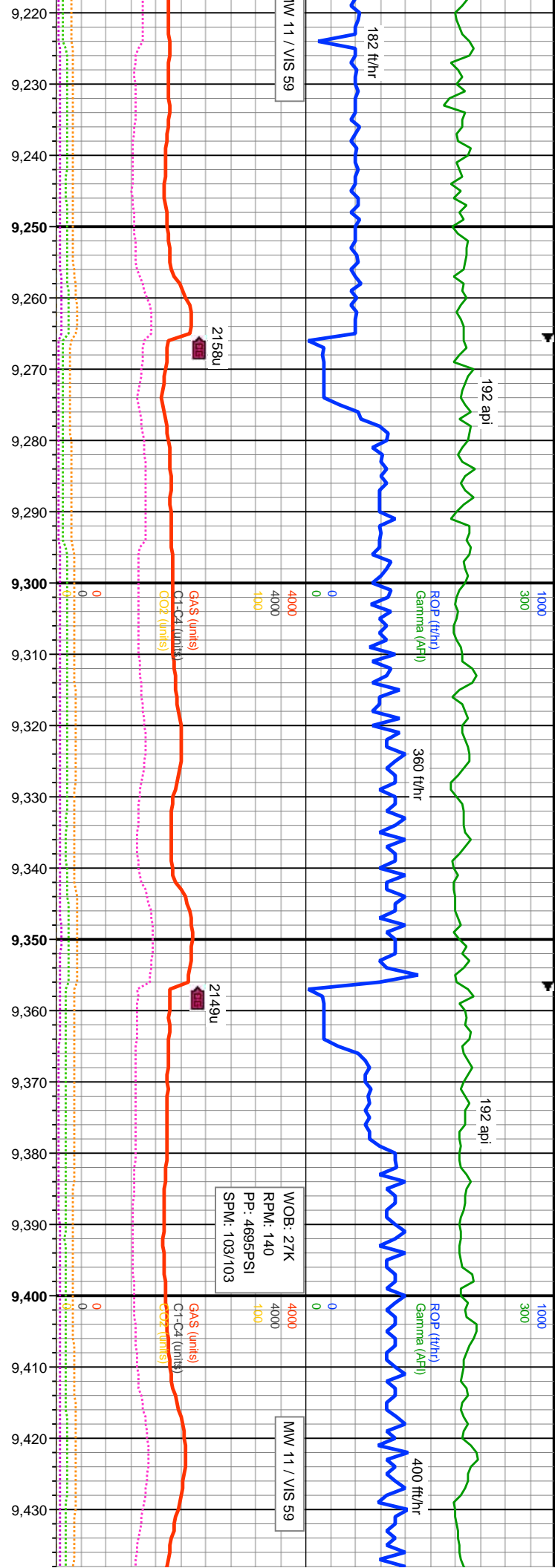
60% CHK: lt-med gy, mot-gyshbn, modly sft-fri, blk-y-sb rnd, com intbdd wi mrl,
rthy-sb wxy, v calc: 40% MRLST: med-dtkgy, ip dk brn, modly frm-fri, sb blk-y-ang, ip
pty, rthy, silty, arg, modly calc

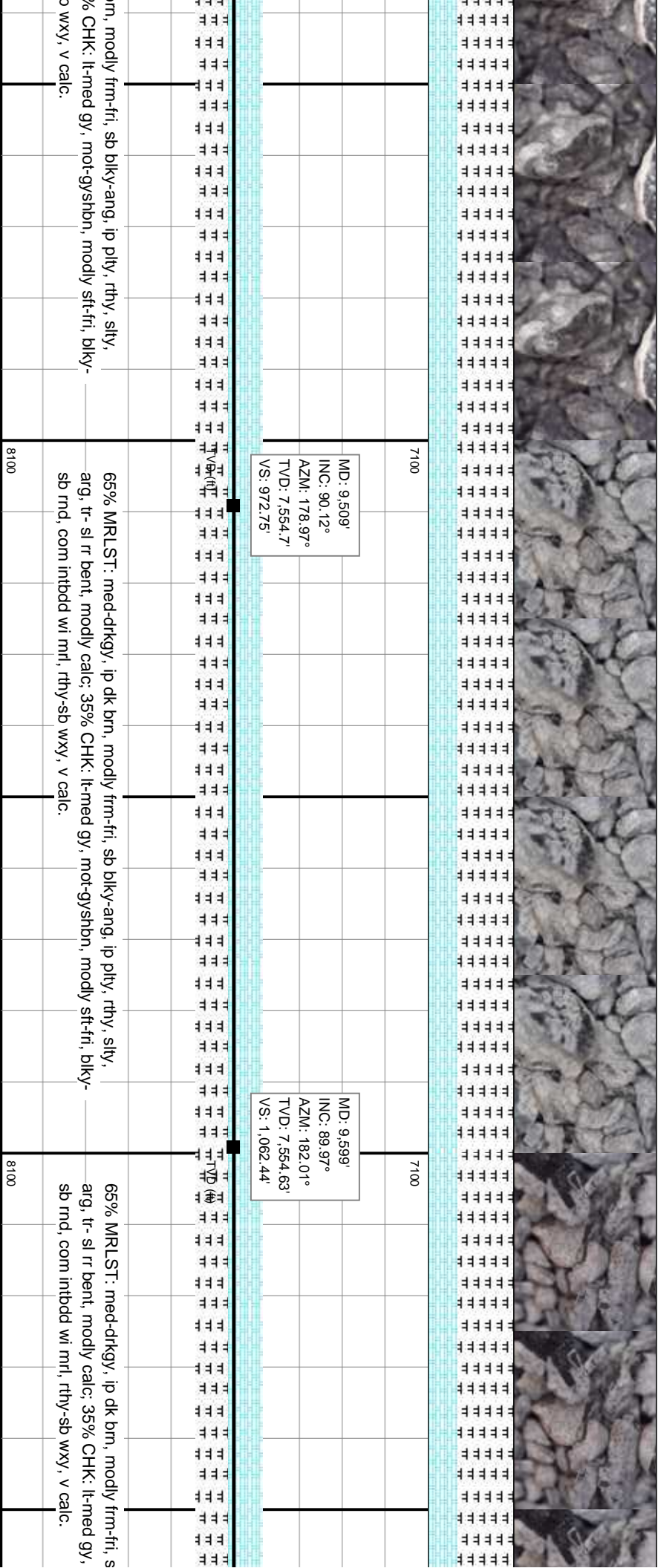
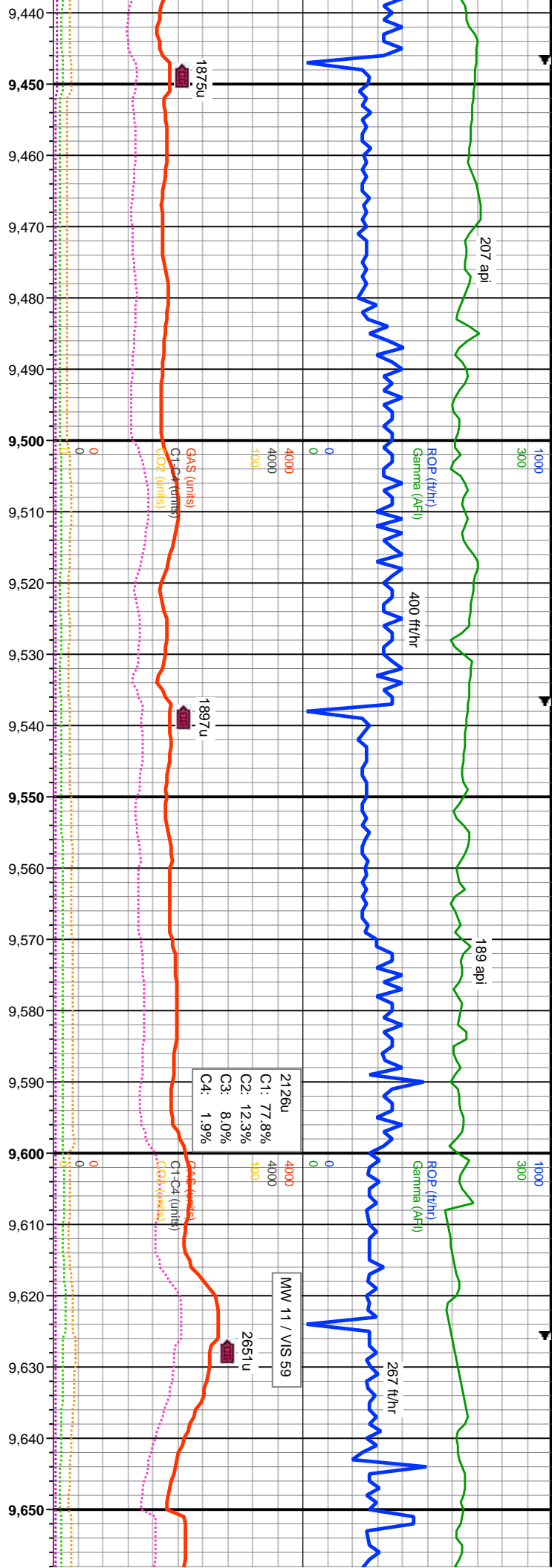


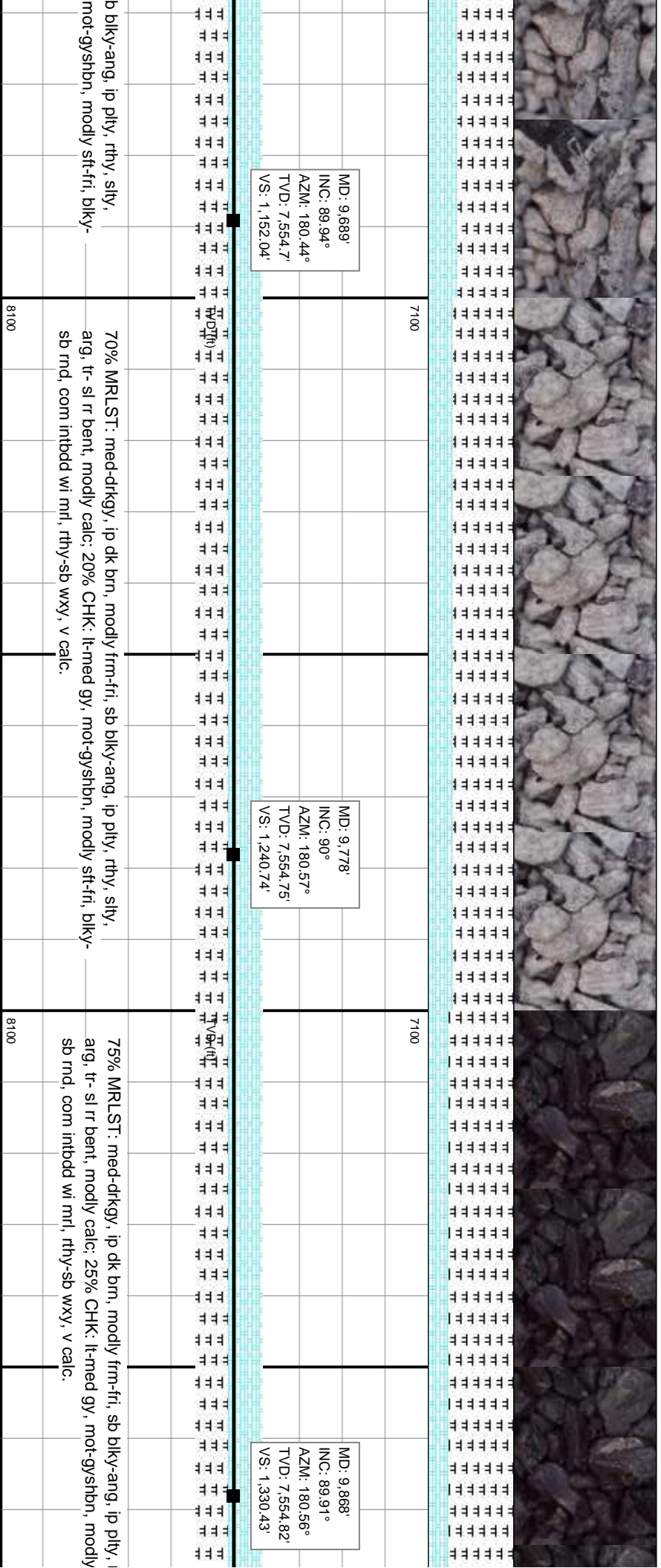
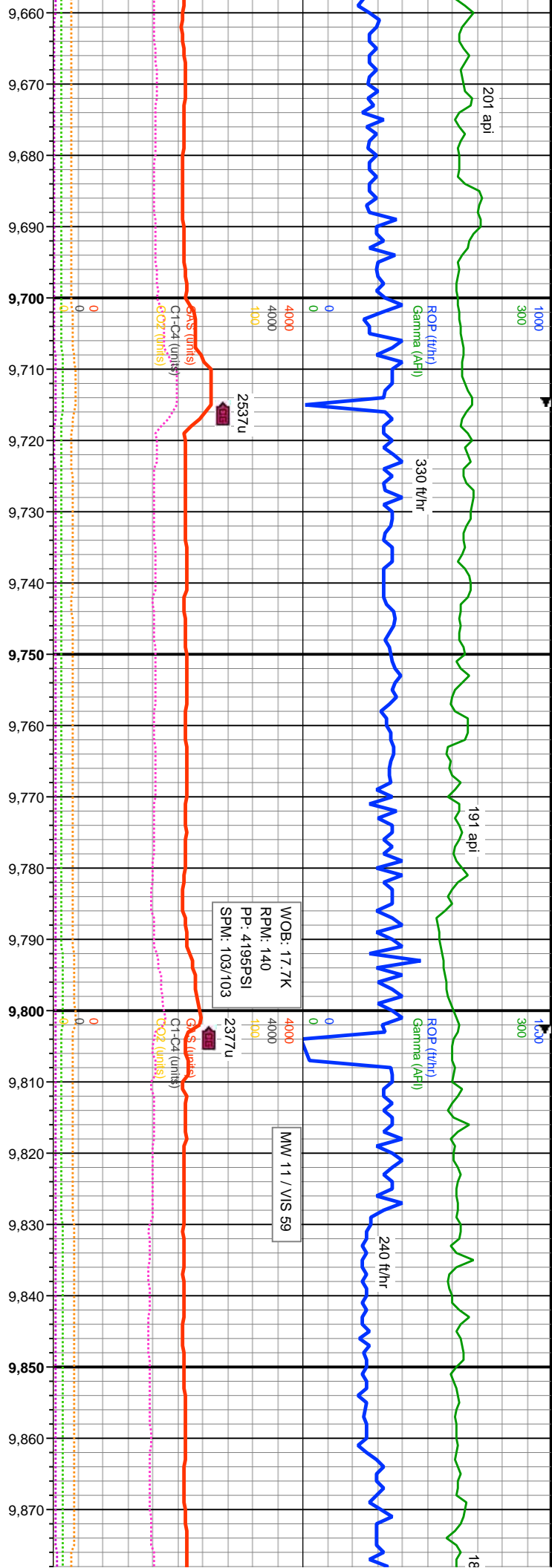


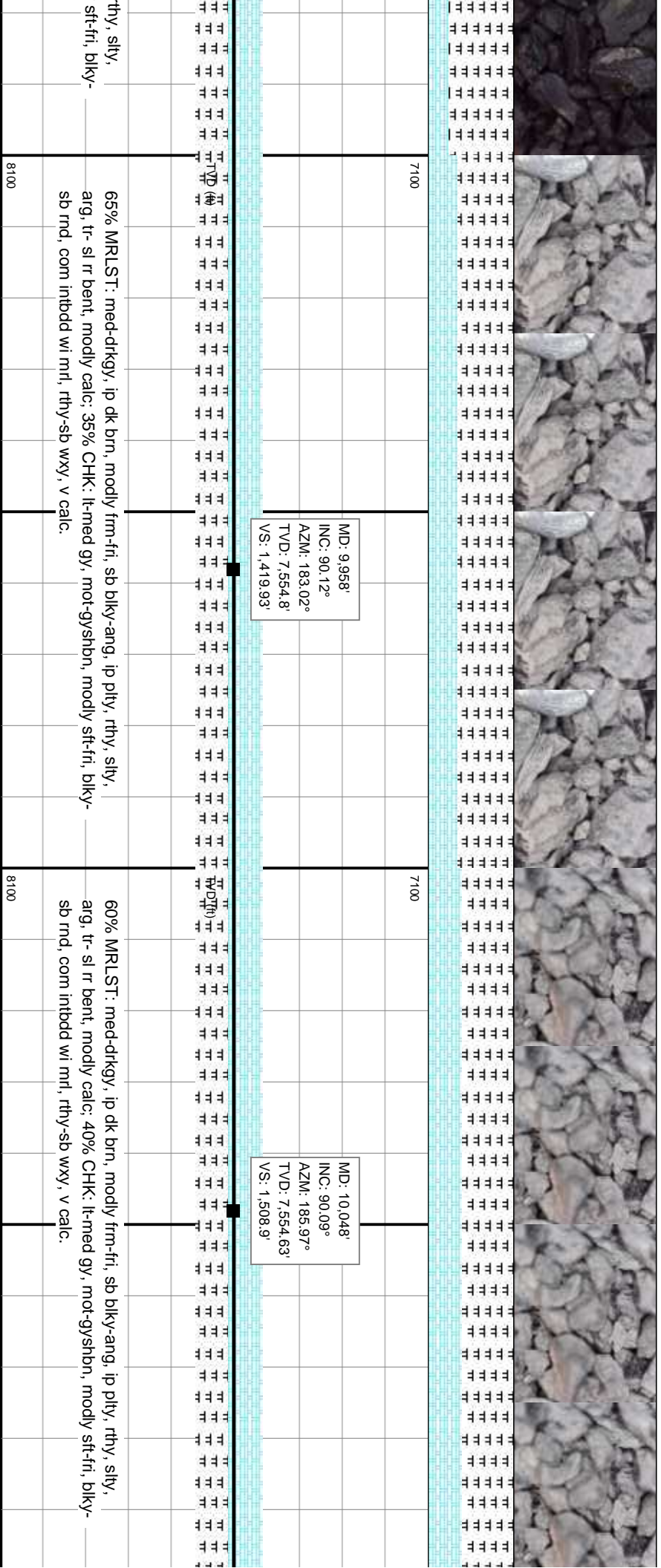
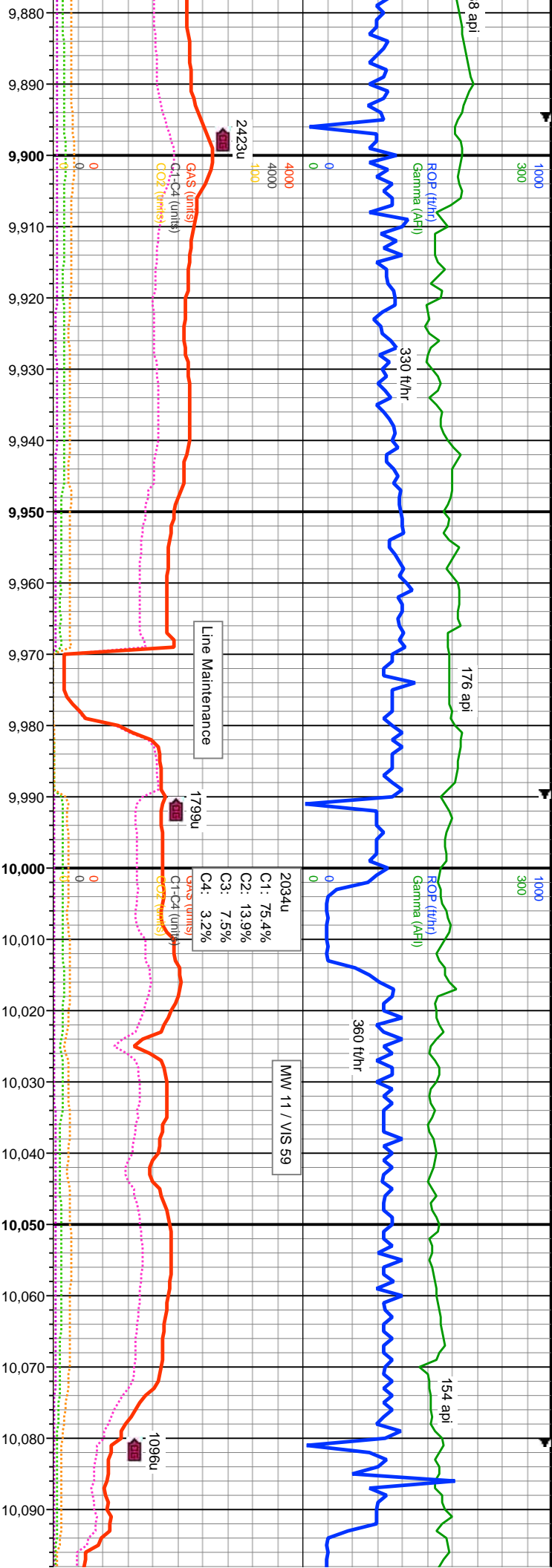


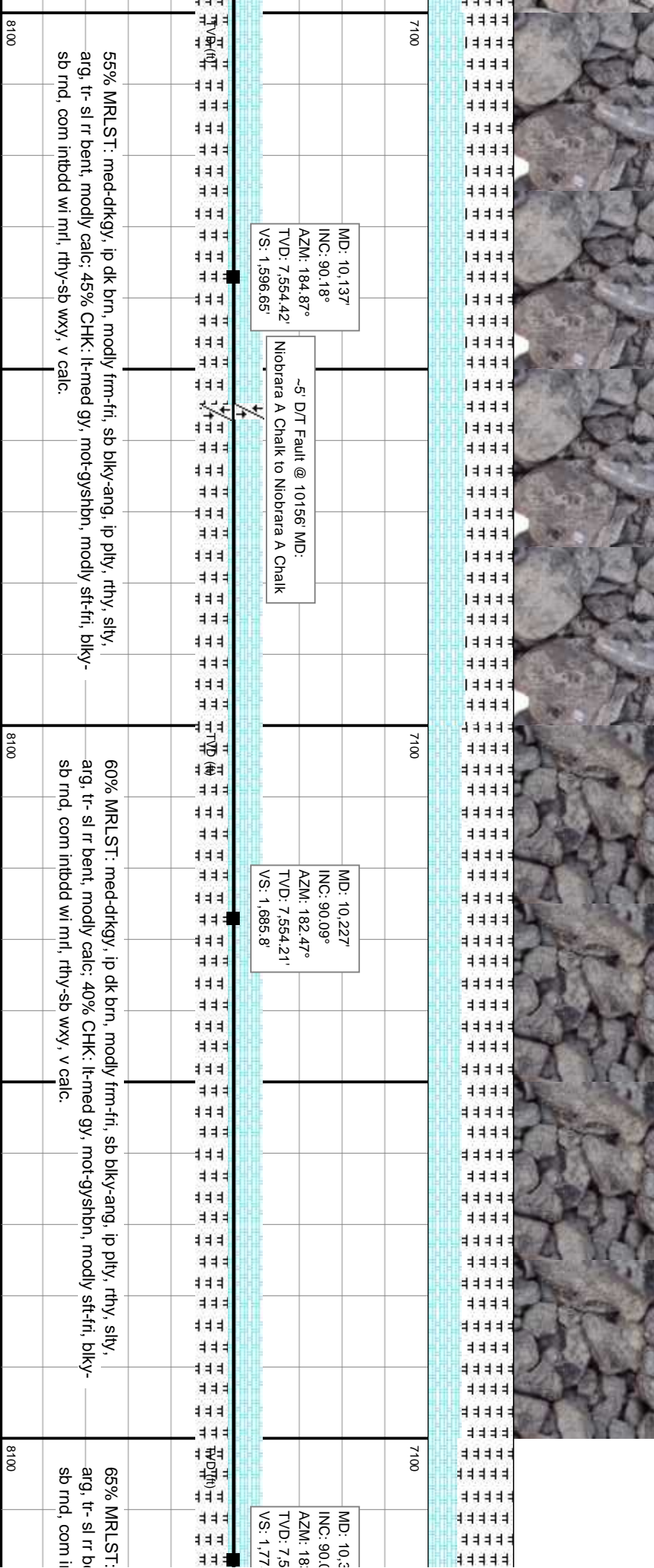
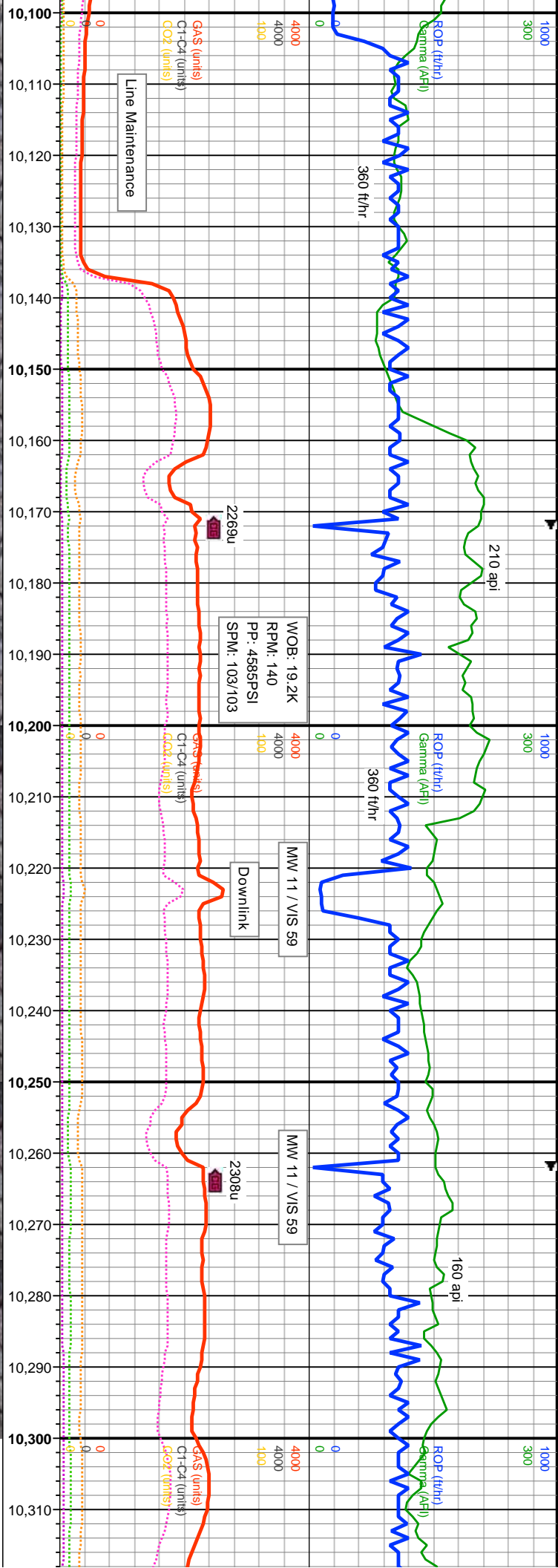


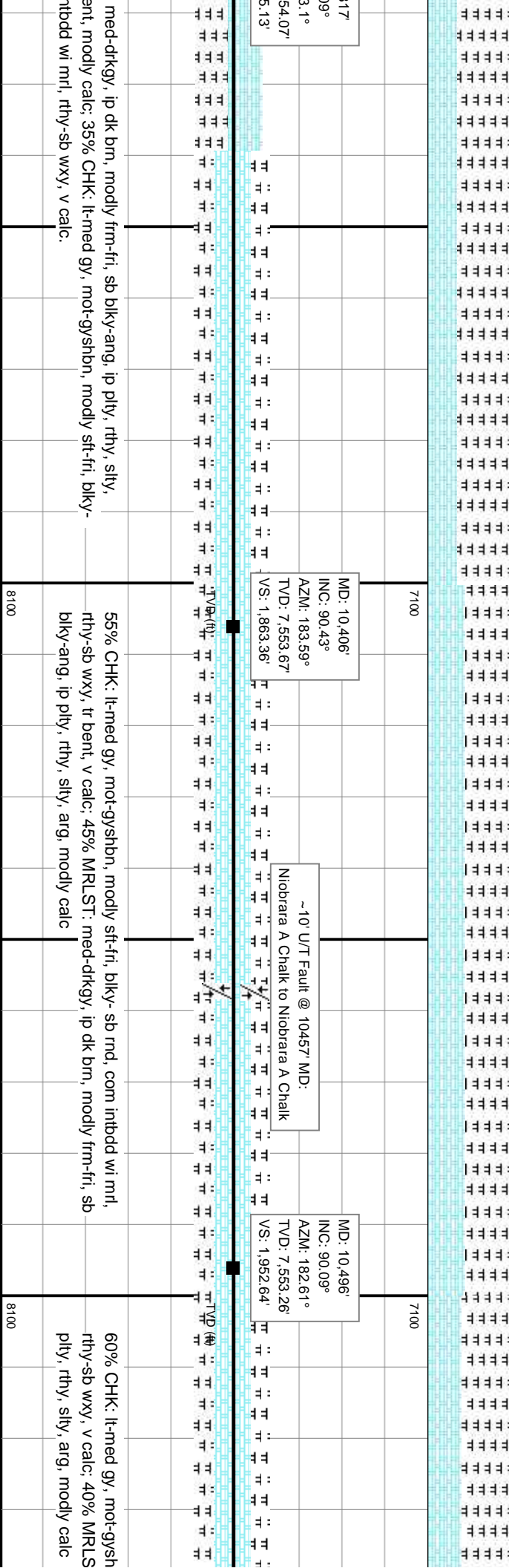
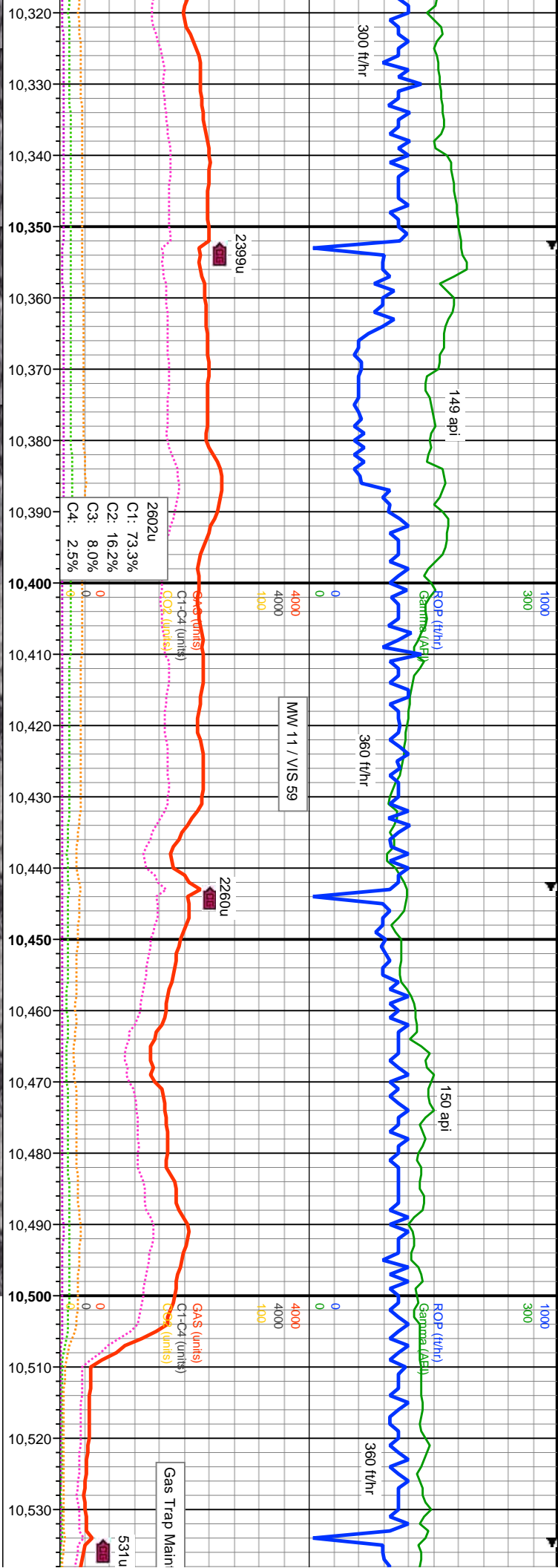








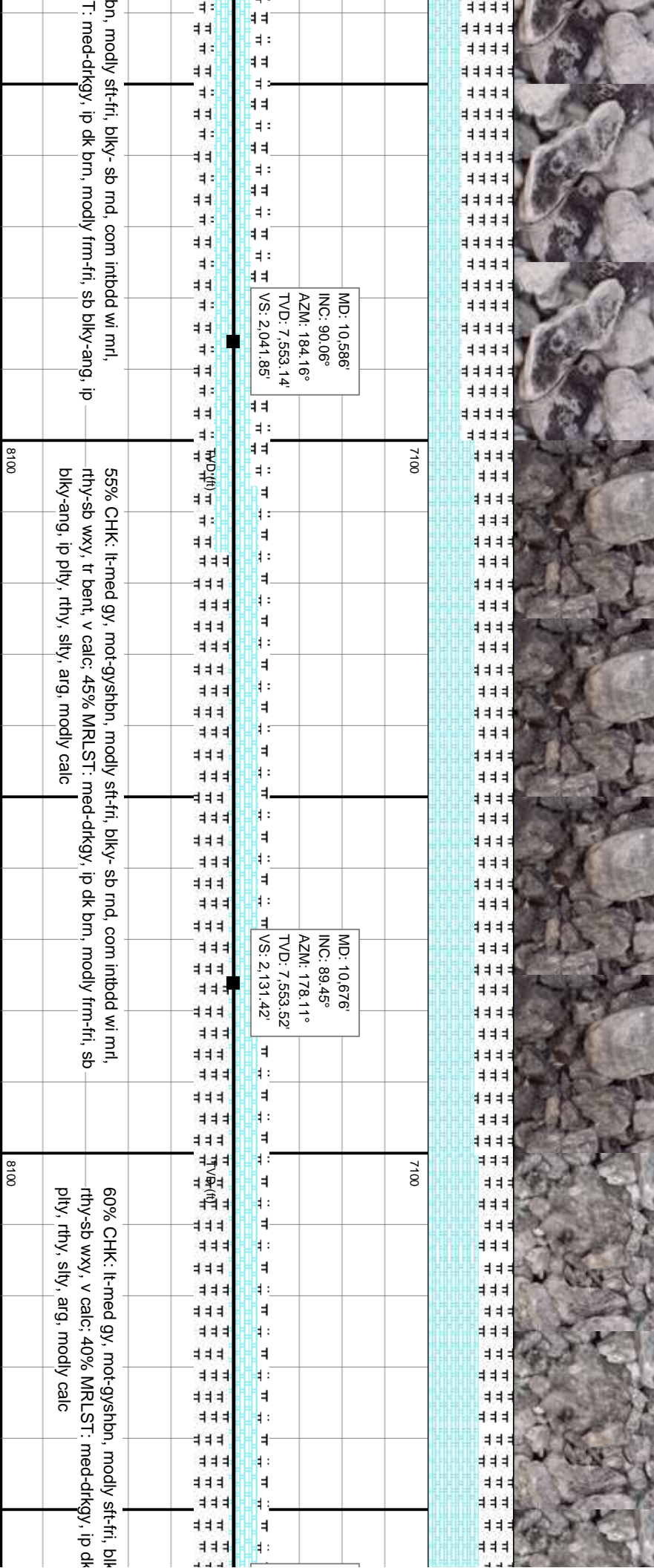
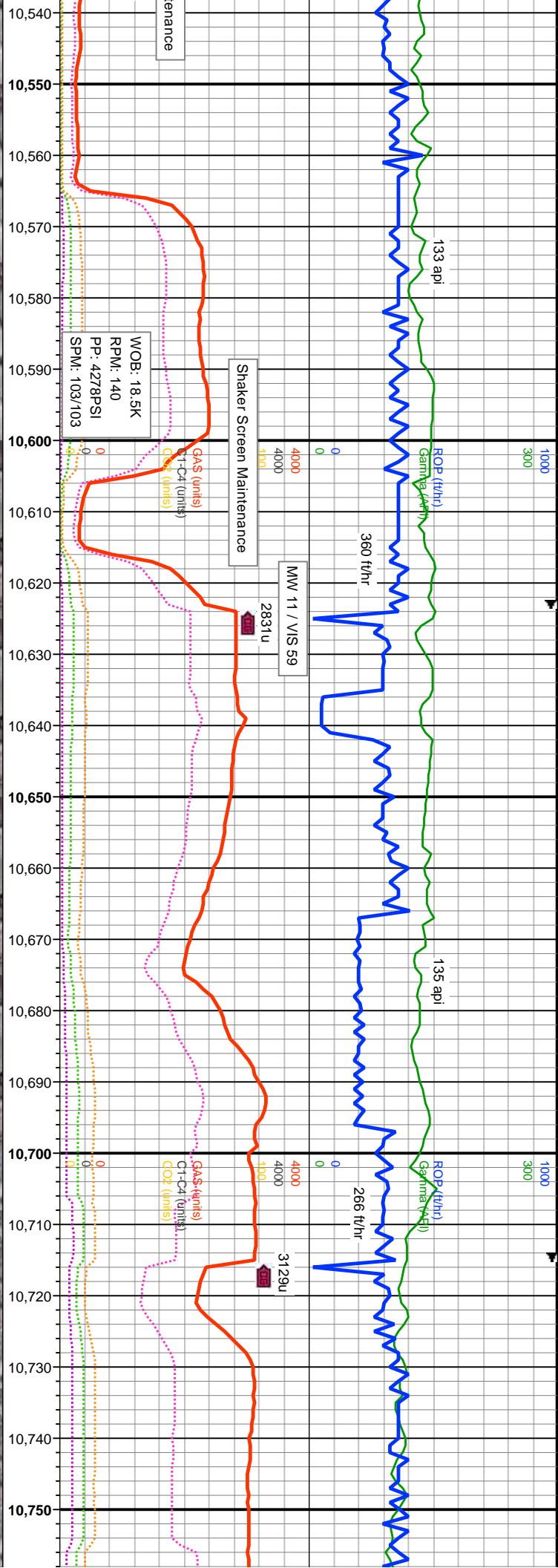


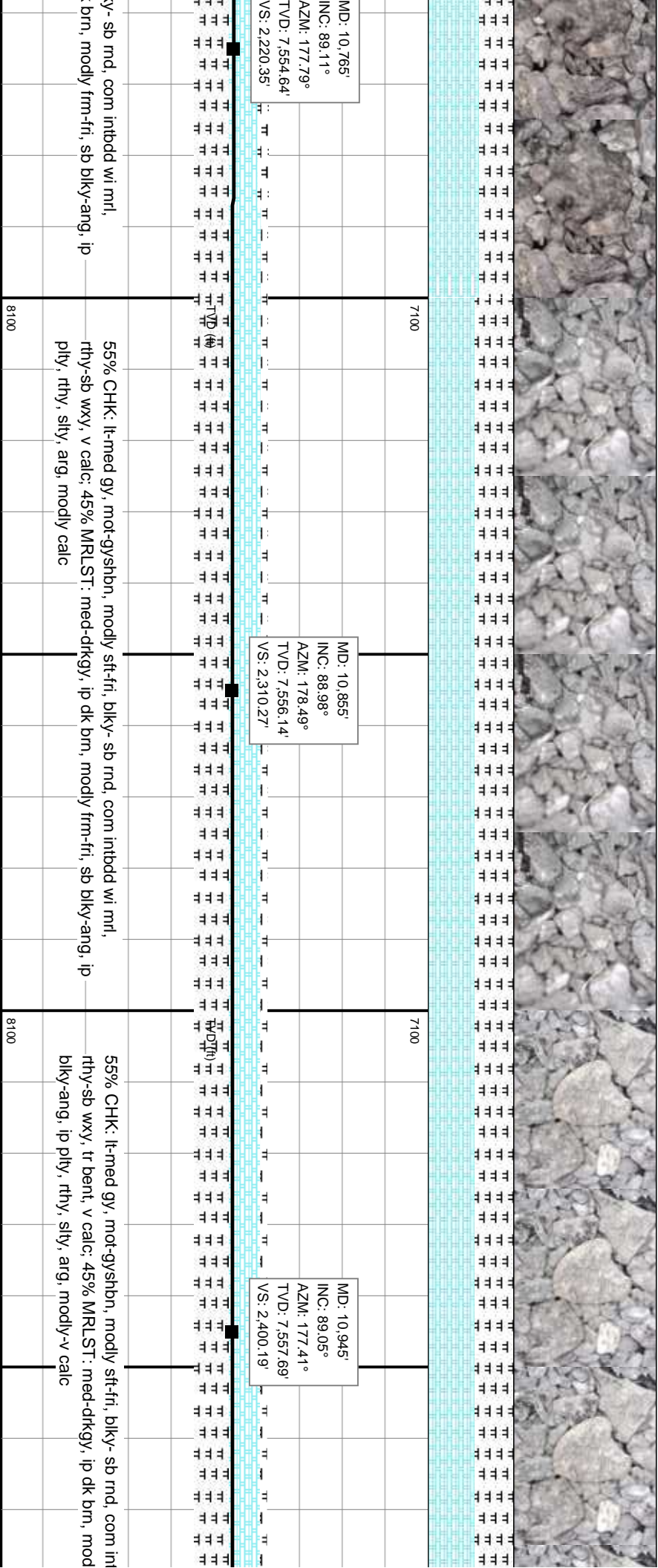
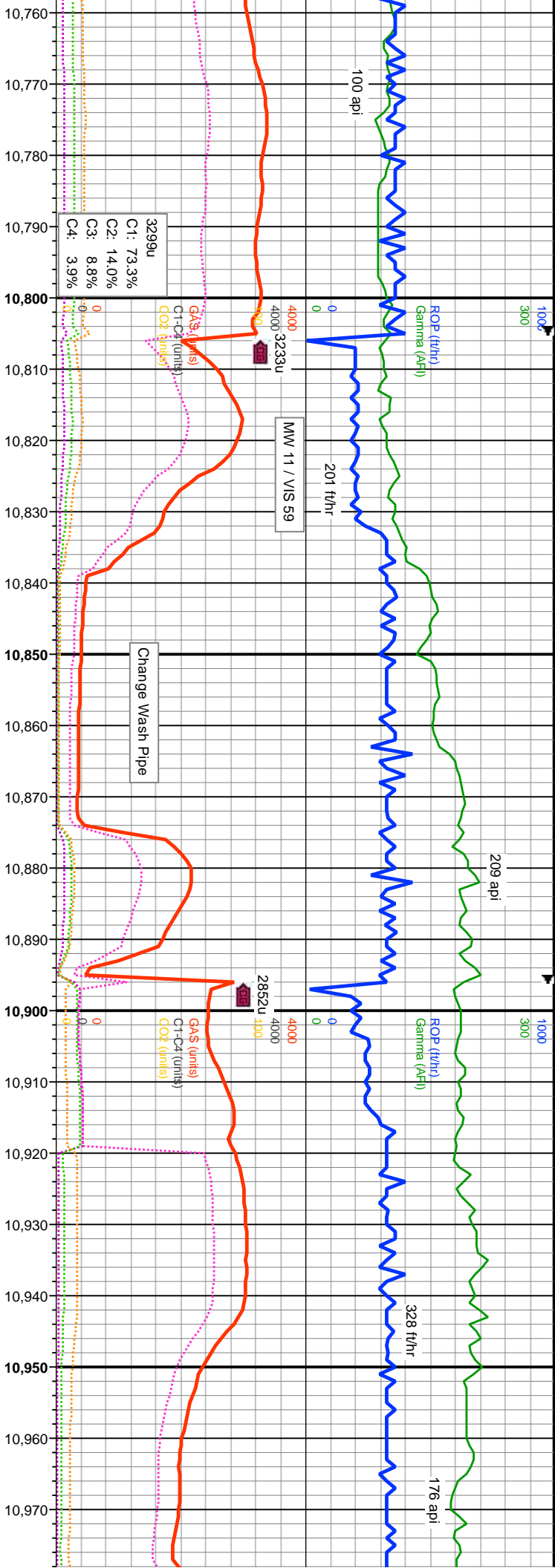


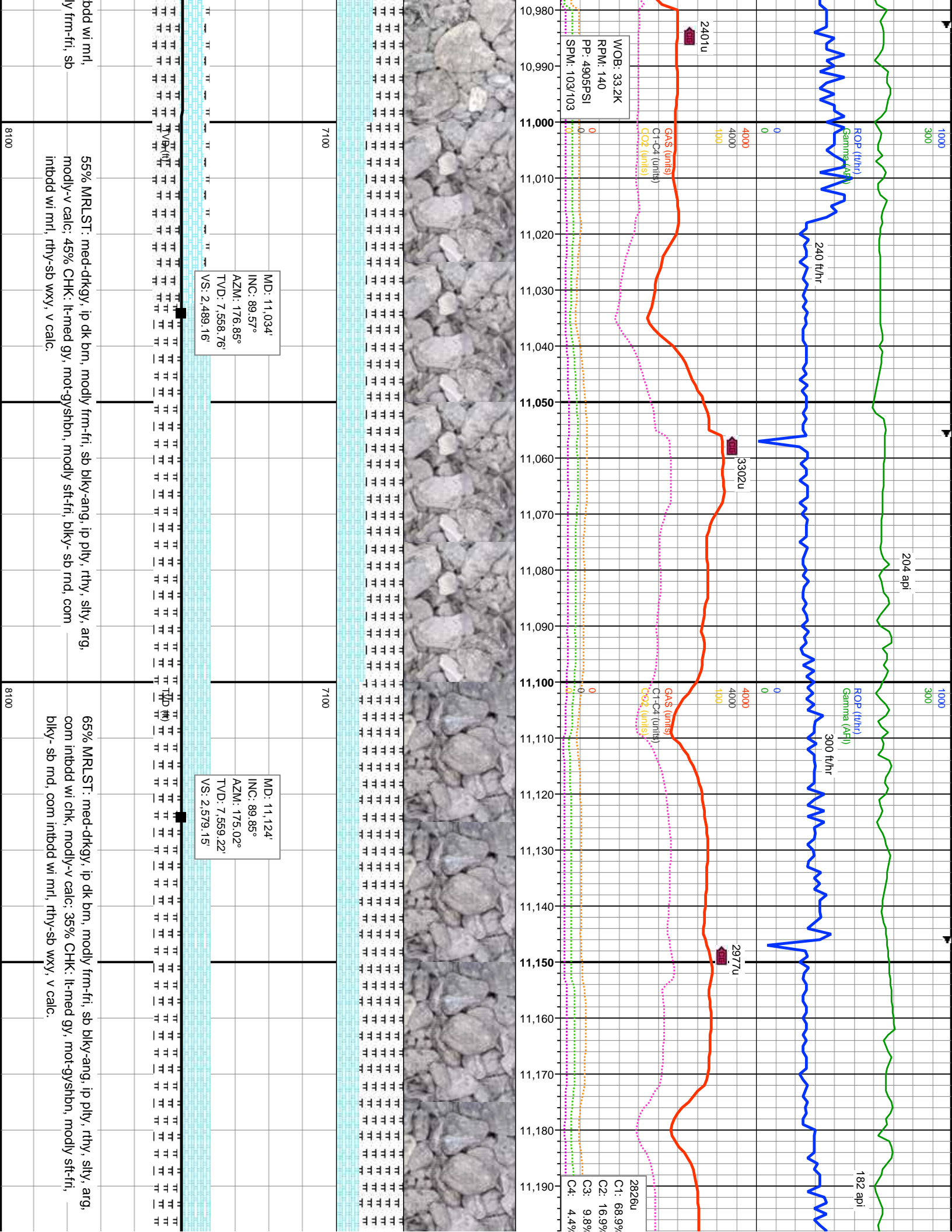
med-dkgy, ip dk brn, modly frm-fri, sb blk-ang, ip plty, rthy, stly, ent, modly calc; 35% CHK: lt-med gy, mot-gyshbn, modly sft-fri, blk-ntbnd wi mri, rthy-sb wxy, v calc.

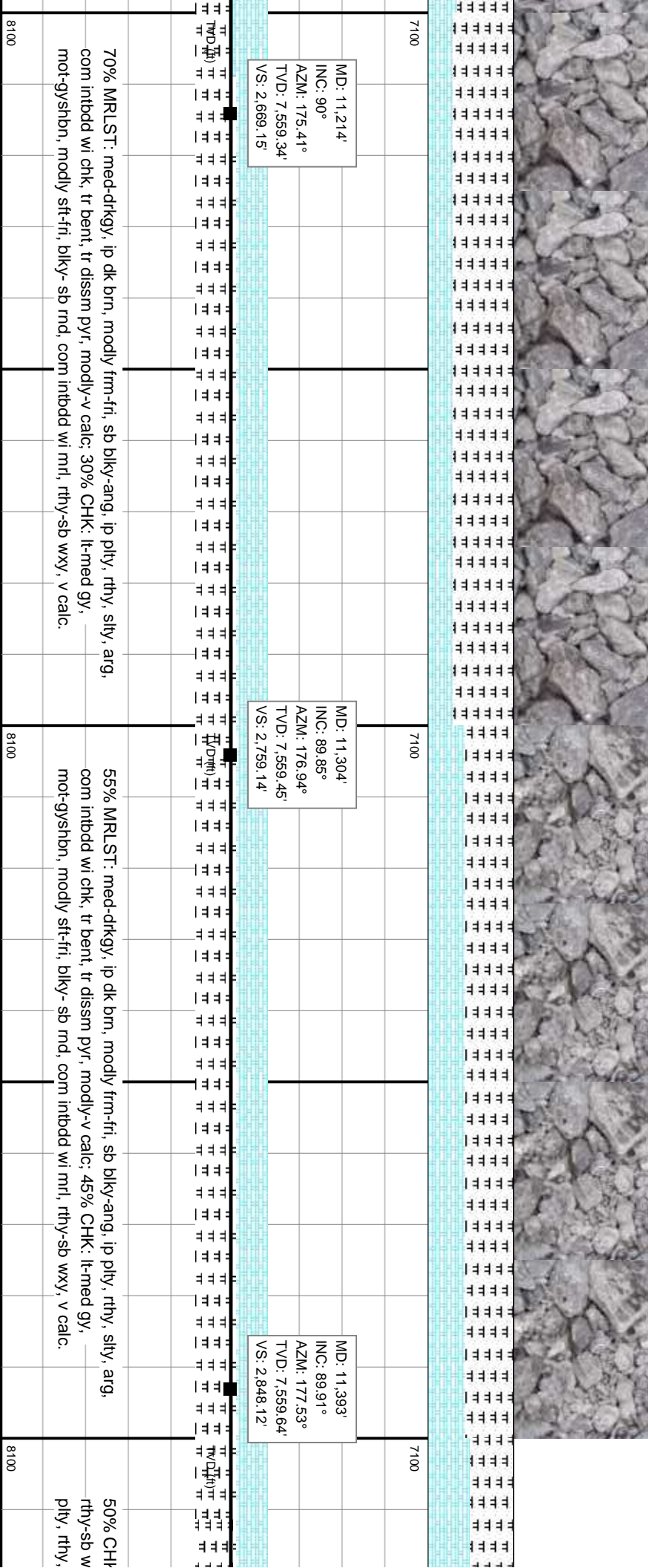
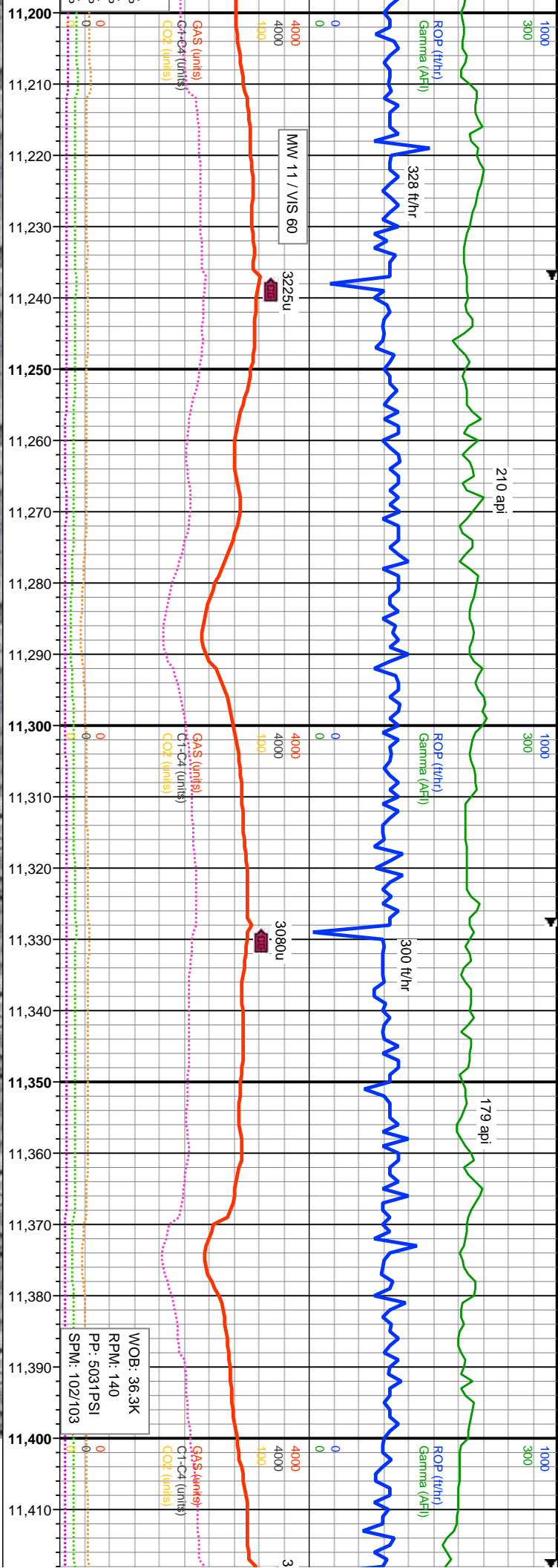
55% CHK: lt-med gy, mot-gyshbn, modly sft-fri, blk- sb rnd, com intbnd wi mri, rthy-sb wxy, tr bent, v calc; 45% MRLST: med-dkgy, ip dk brn, modly frm-fri, sb blk-ang, ip plty, rthy, stly, arg, modly calc

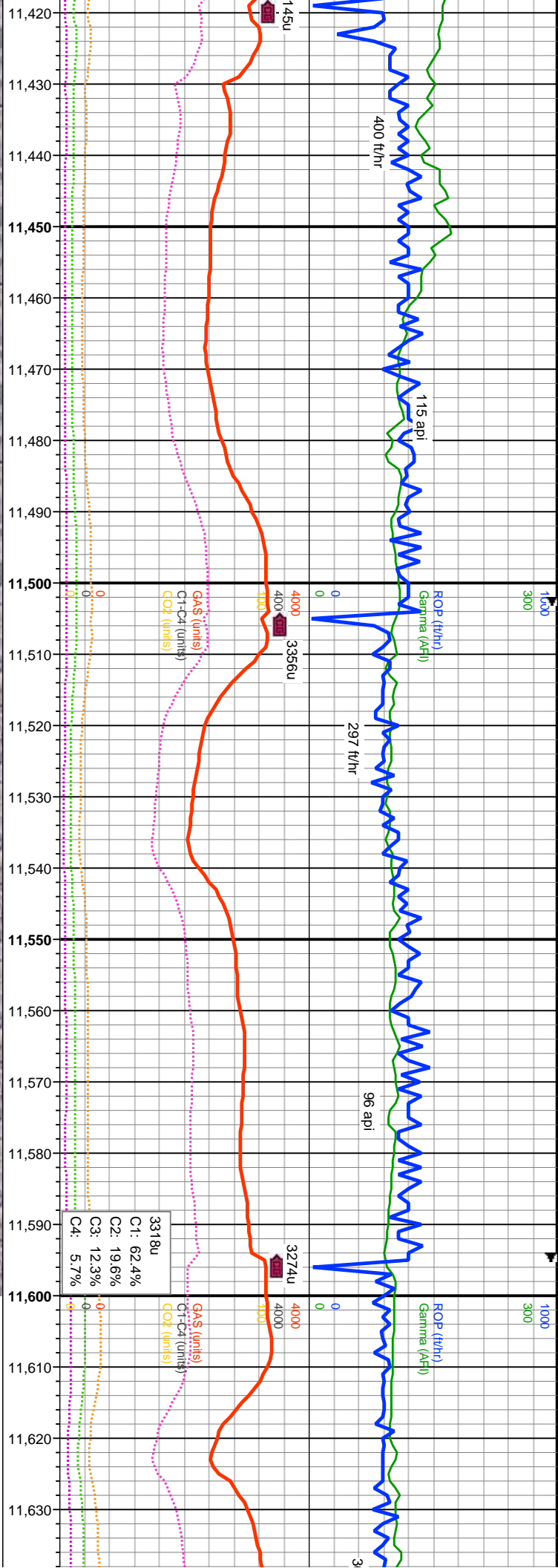
60% CHK: lt-med gy, mot-gyshbn, modly sft-fri, blk- sb rnd, com intbnd wi mri, rthy-sb wxy, v calc; 40% MRLST: med-dkgy, ip dk brn, modly frm-fri, blk-ntbnd wi mri, rthy-sb wxy, v calc.









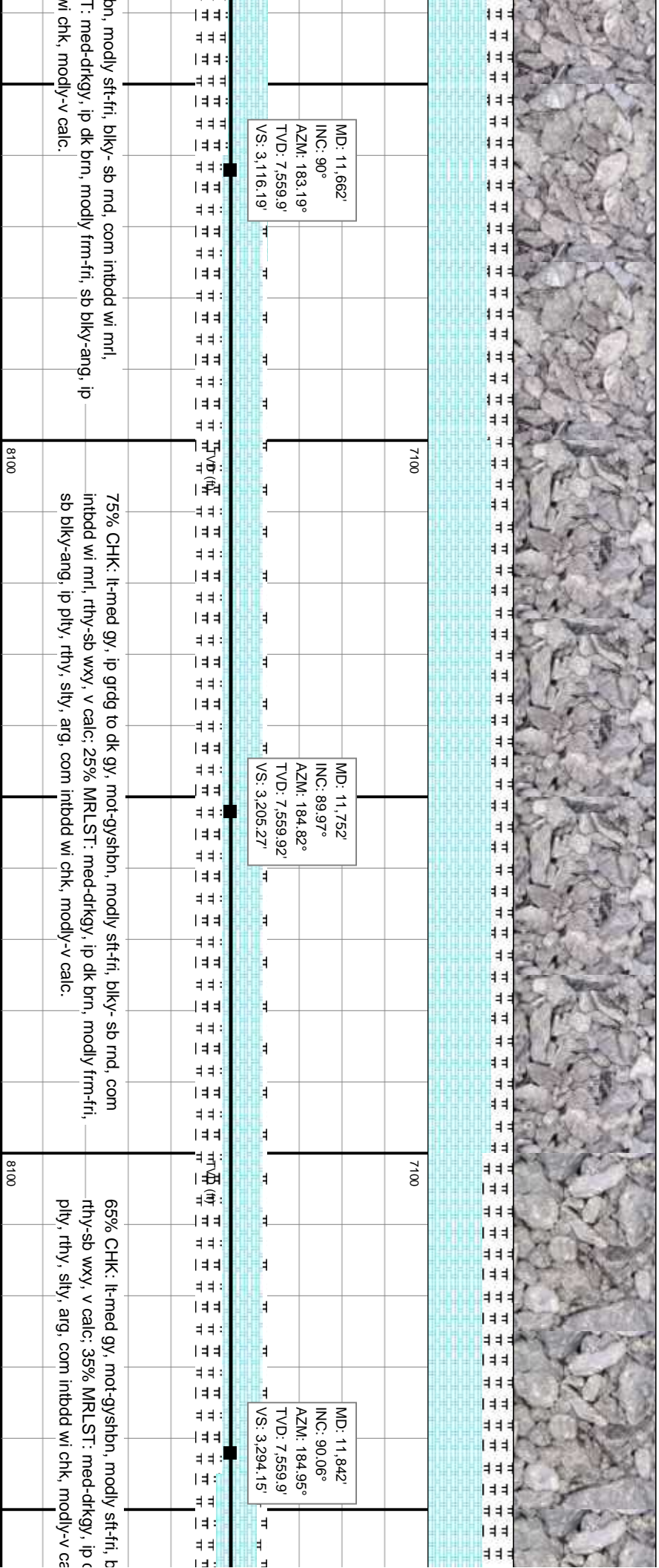
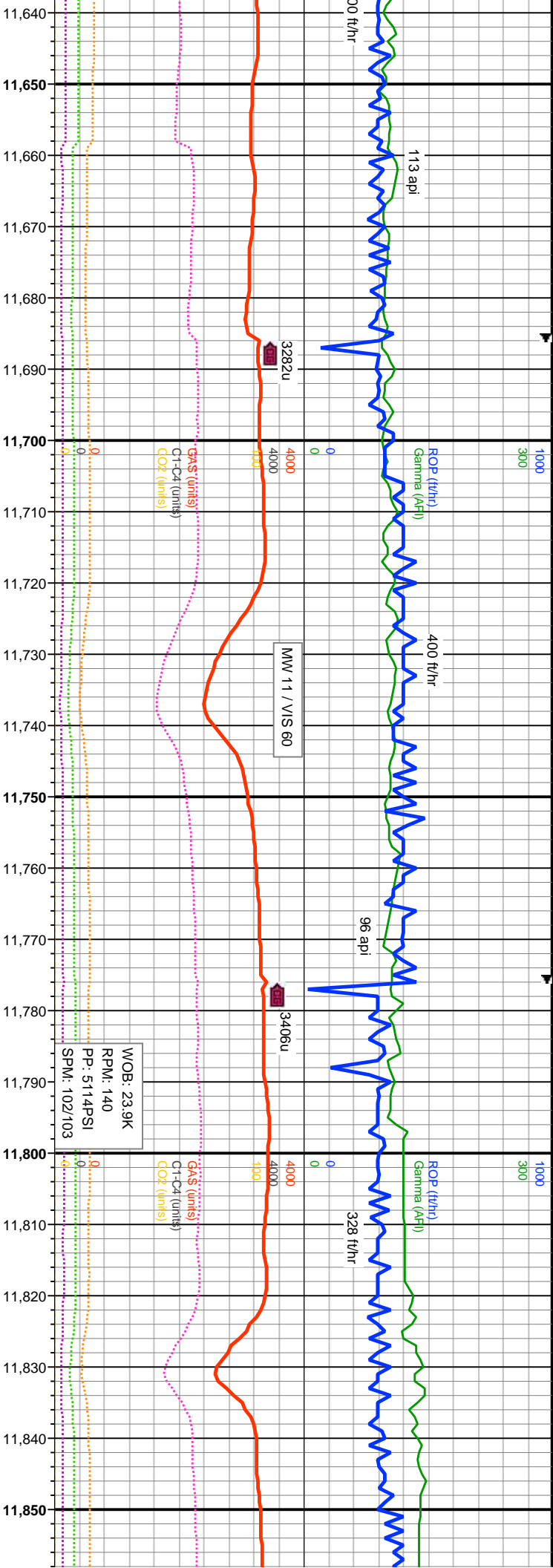


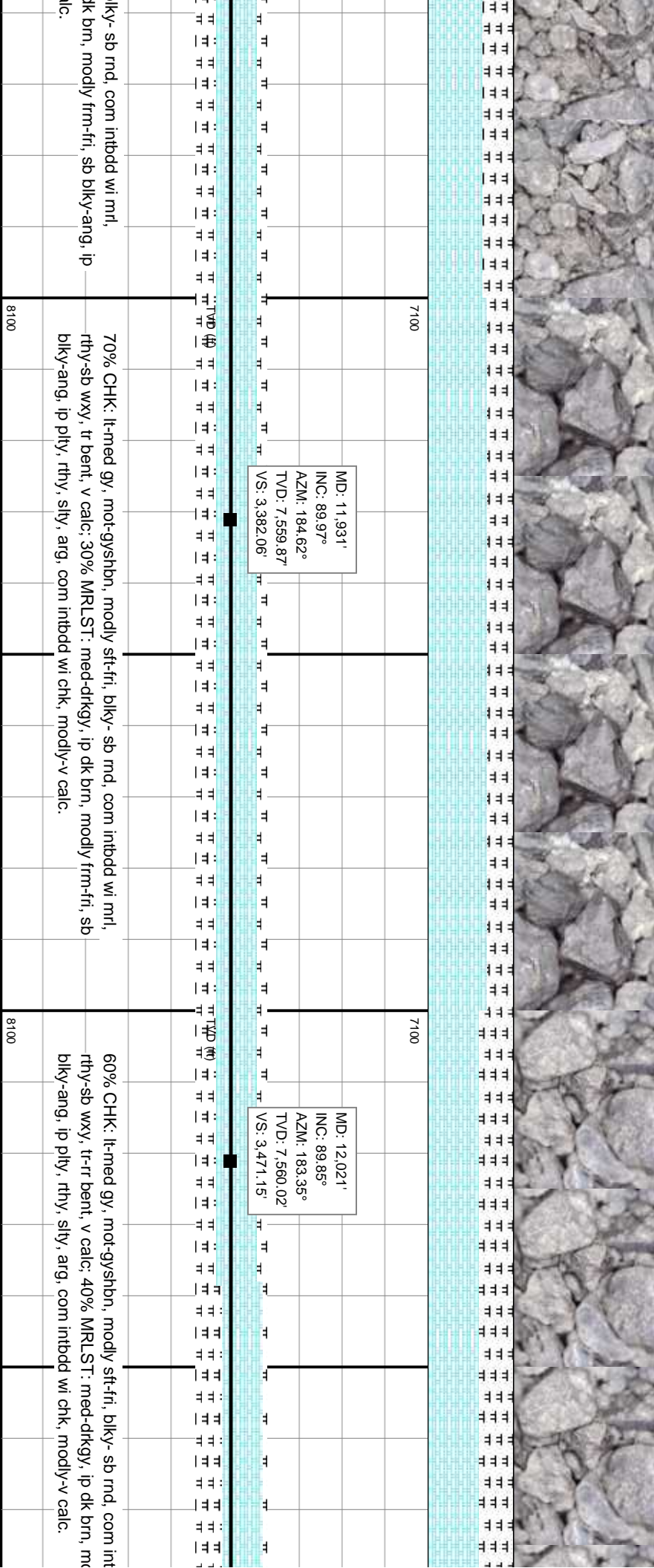
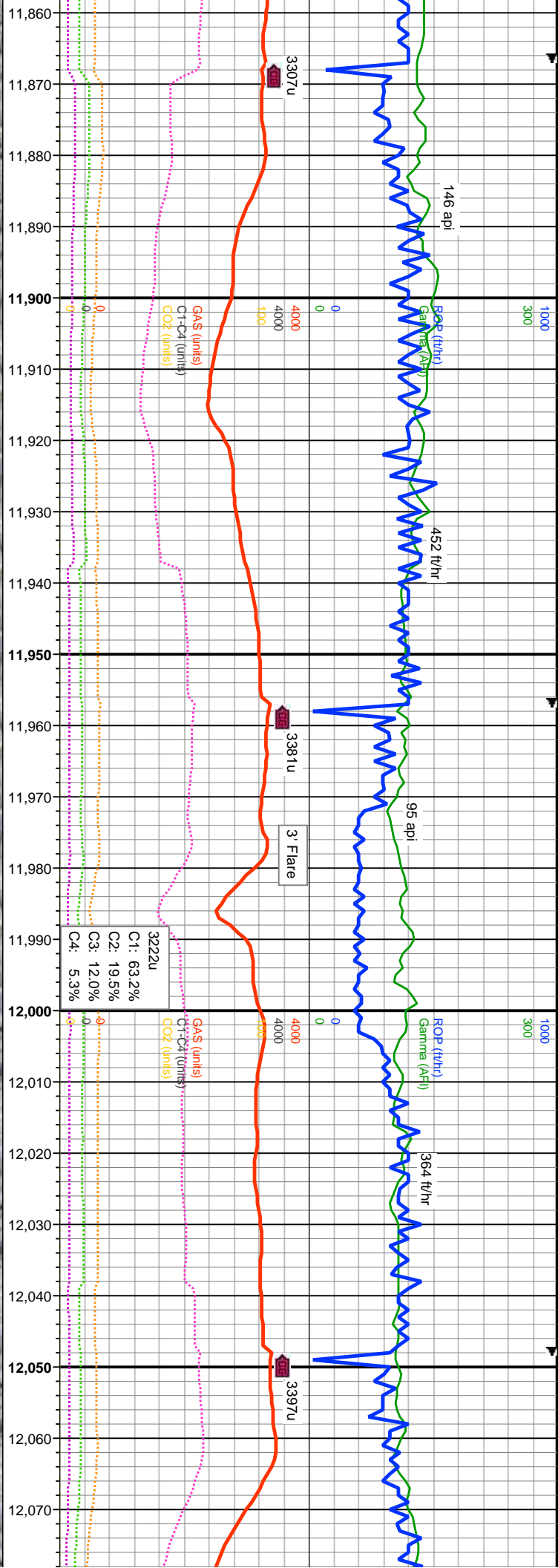
MD: 11,483'
INC: 90°
AZM: 179.3°
TVD: 7,559.71'
VS: 2,938.02'

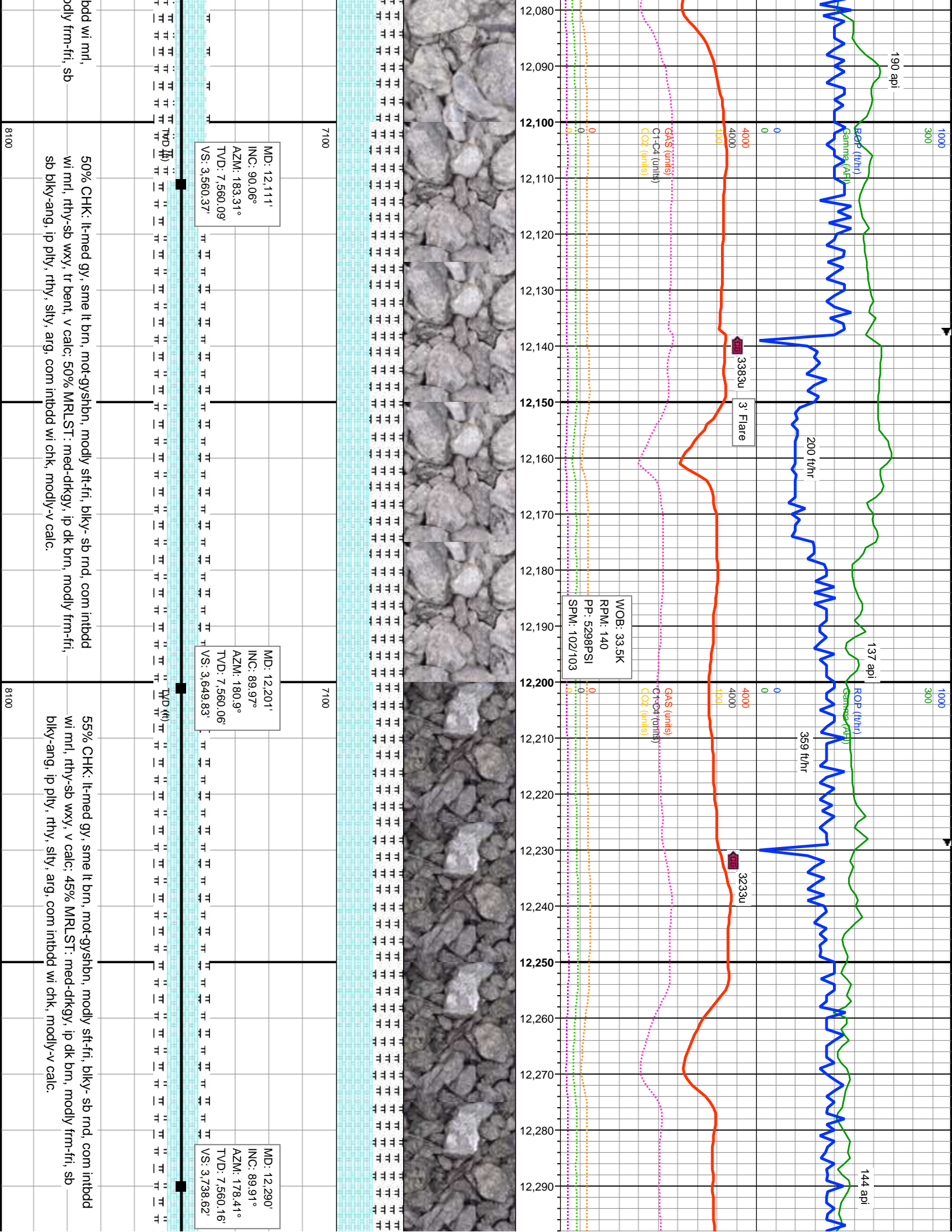
MD: 11,573'
INC: 89.88°
AZM: 181.2°
TVD: 7,559.8'
VS: 3,027.75'

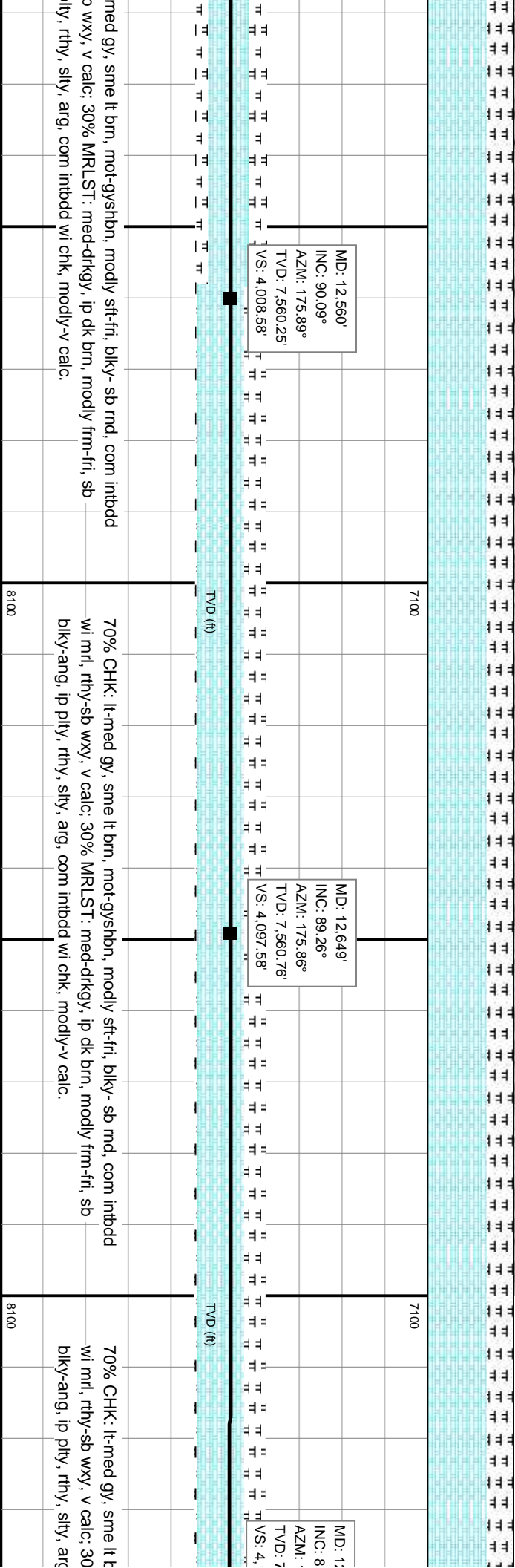
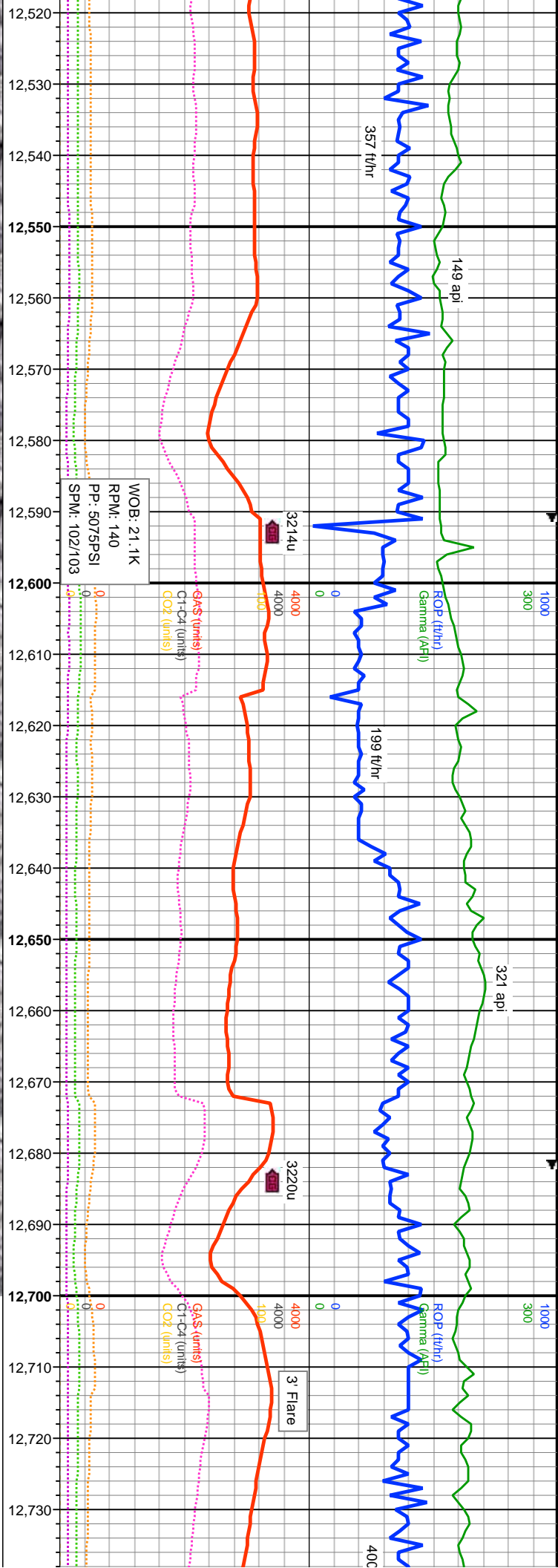
60% CHK: lt-med gy, mot-gyshbn, modly sft-fri, blk- sb rnd, com intbdd wi mrl, rthy-sb wxy, v calc: 40% MRLST: med-dkgy, ip dk brn, modly frm-fri, sb blk-ang, ip plty, rthy, slty, arg, com intbdd wi chk, modly-v calc.

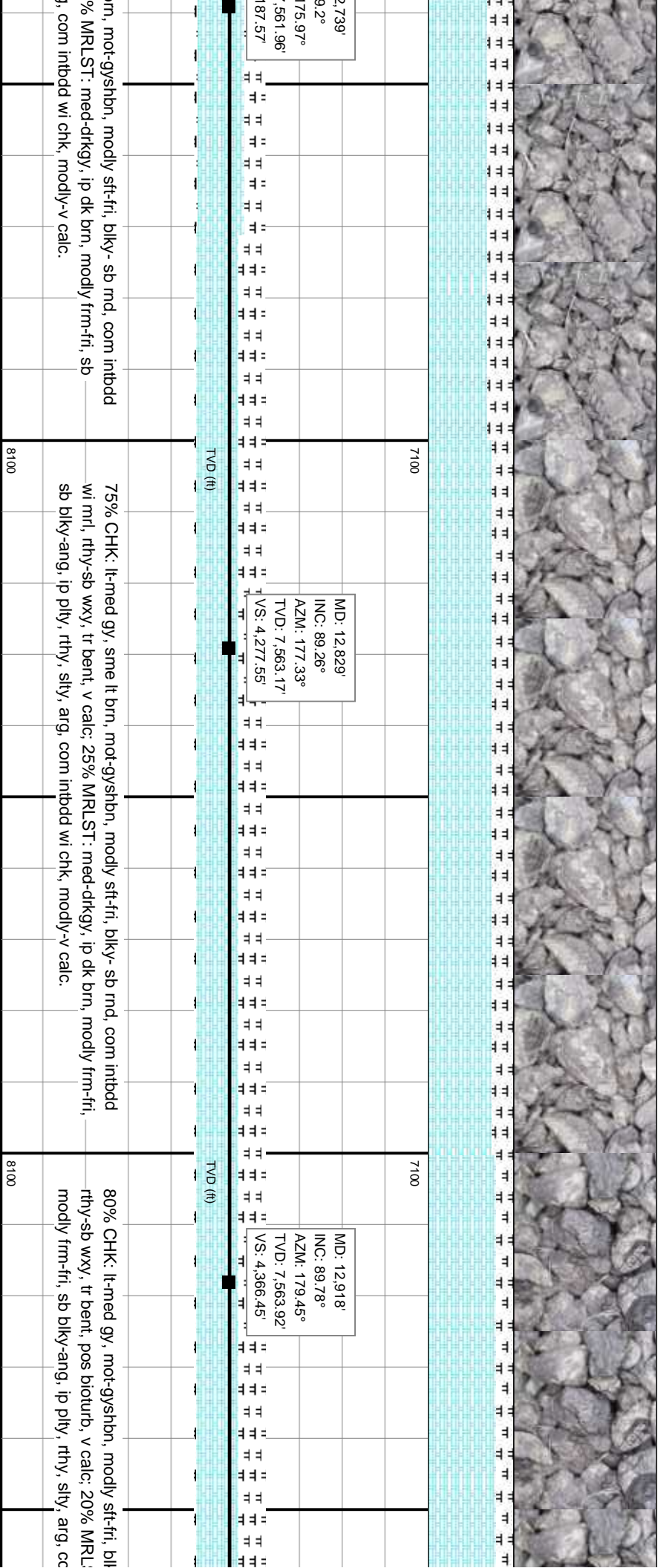
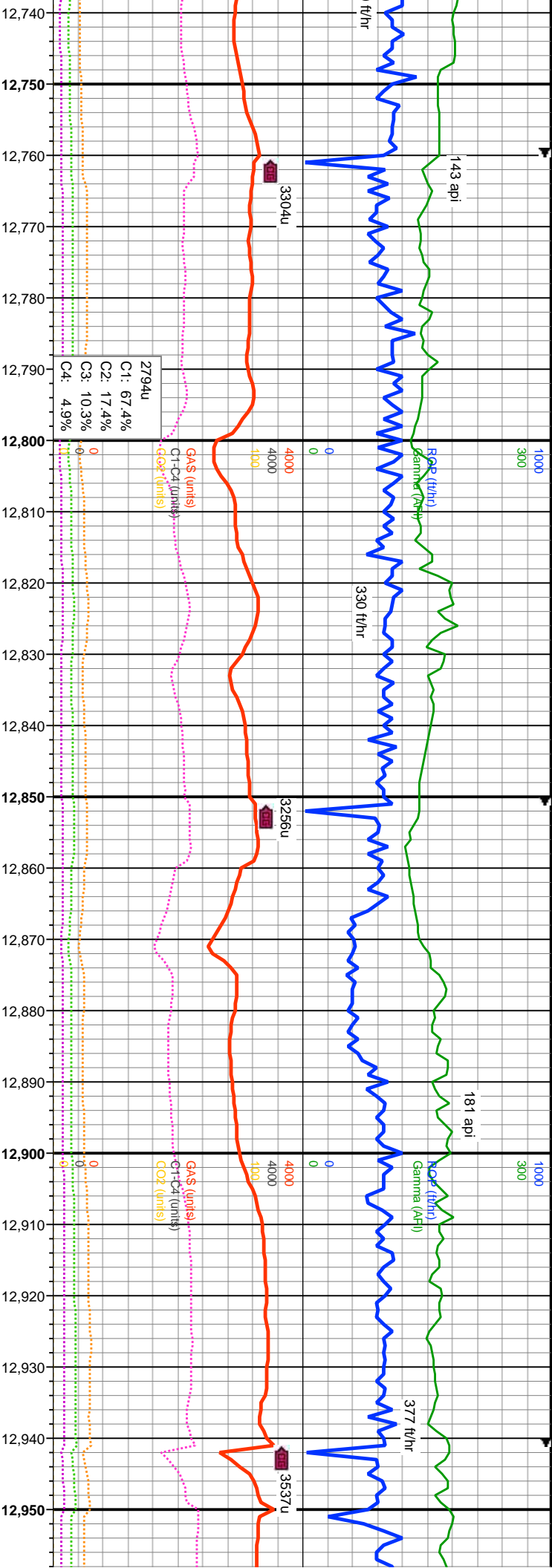
70% CHK: lt-med gy, mot-gyshbn, modly sft-fri, blk- sb rnd, com intbdd wi mrl, rthy-sb wxy, v calc: 30% MRLST: med-dkgy, ip dk brn, modly frm-fri, sb blk-ang, ip plty, rthy, slty, arg, com intbdd wi chk, modly-v calc.

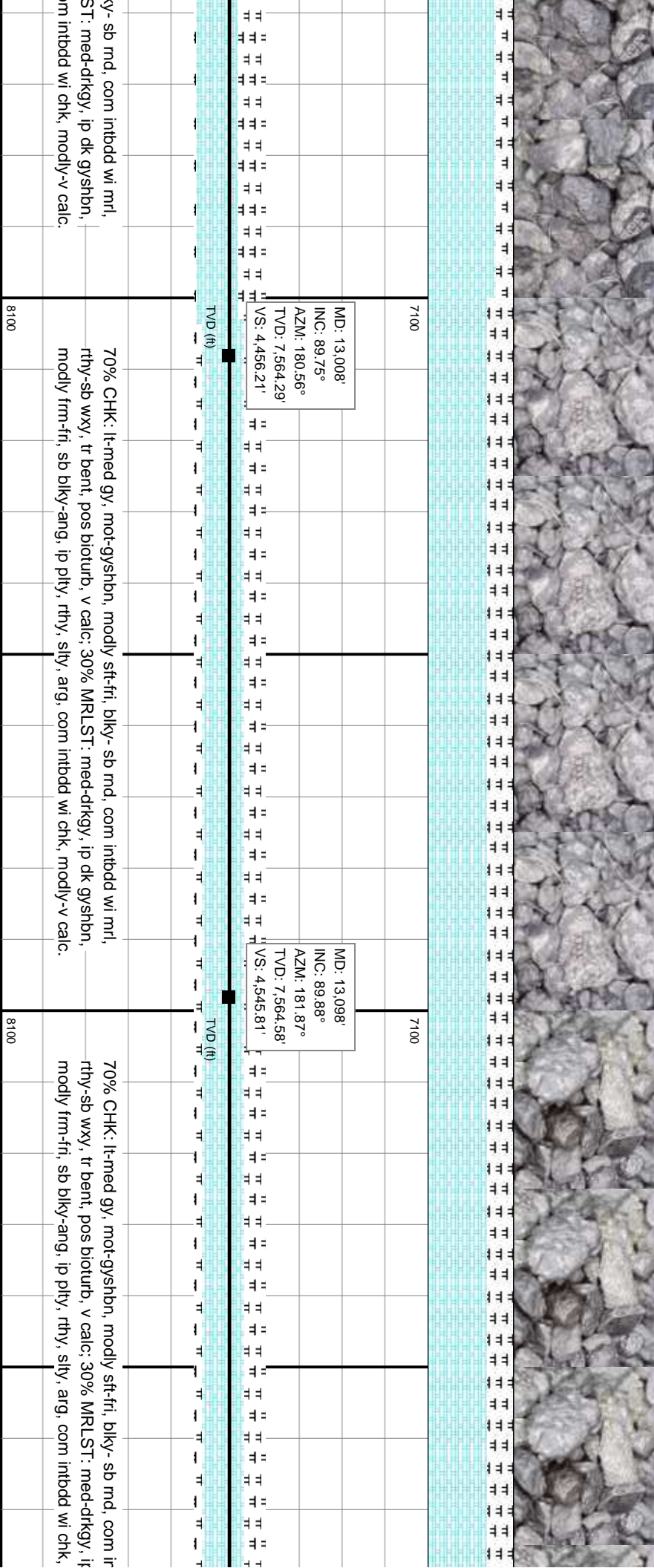
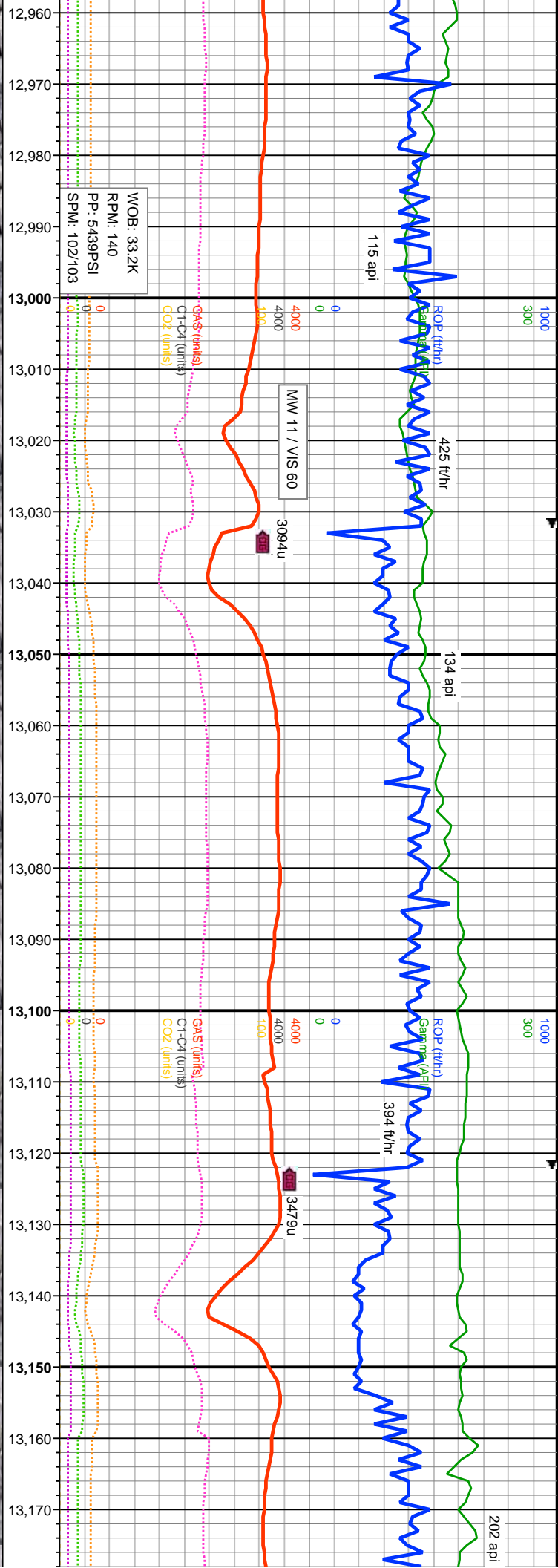


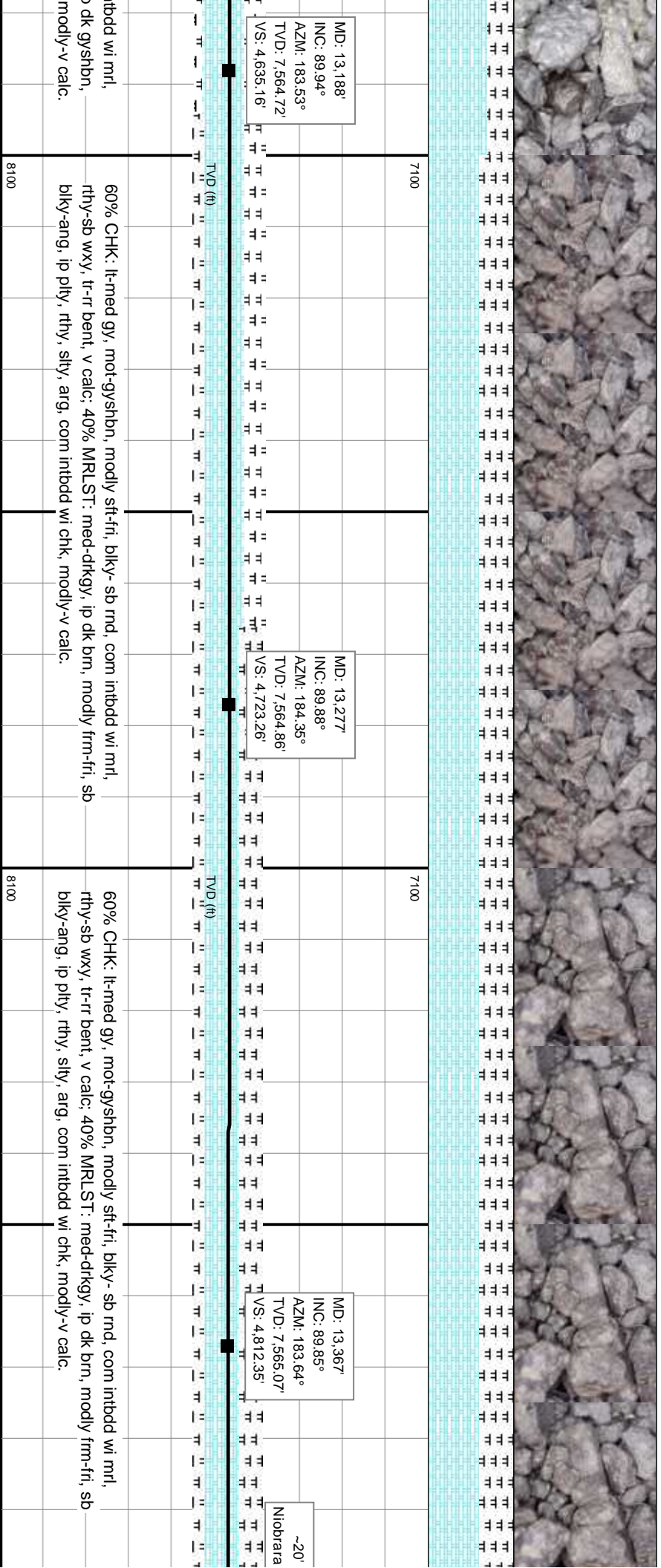
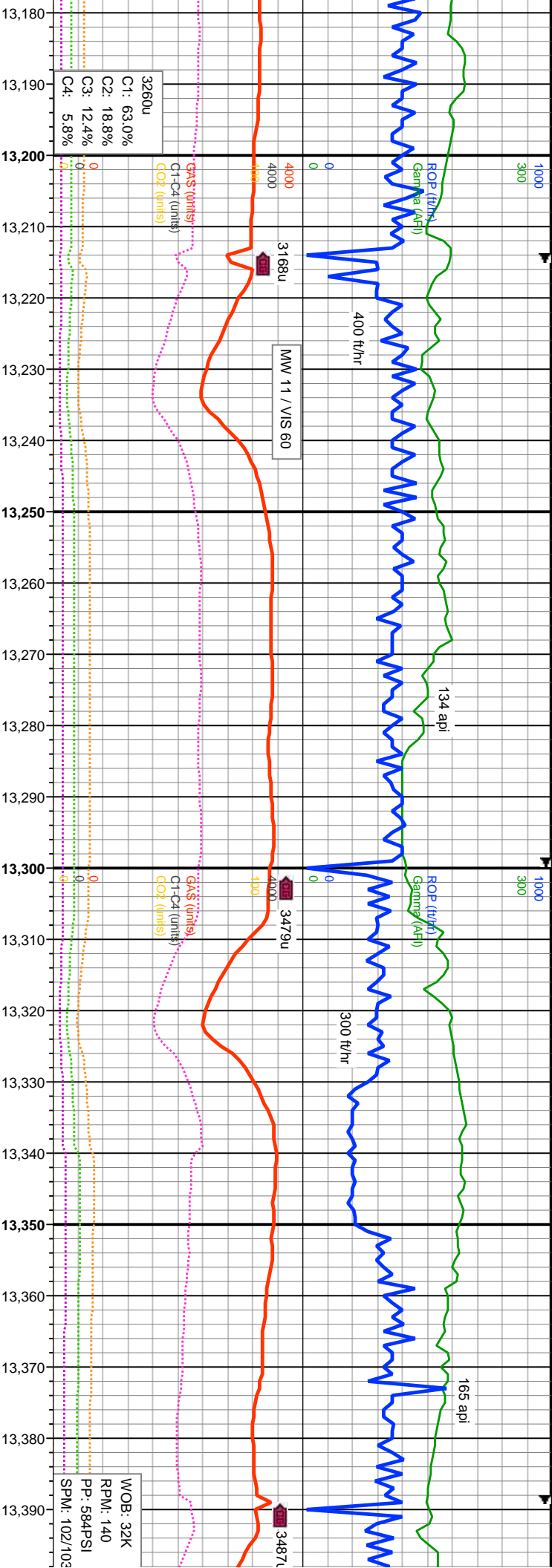


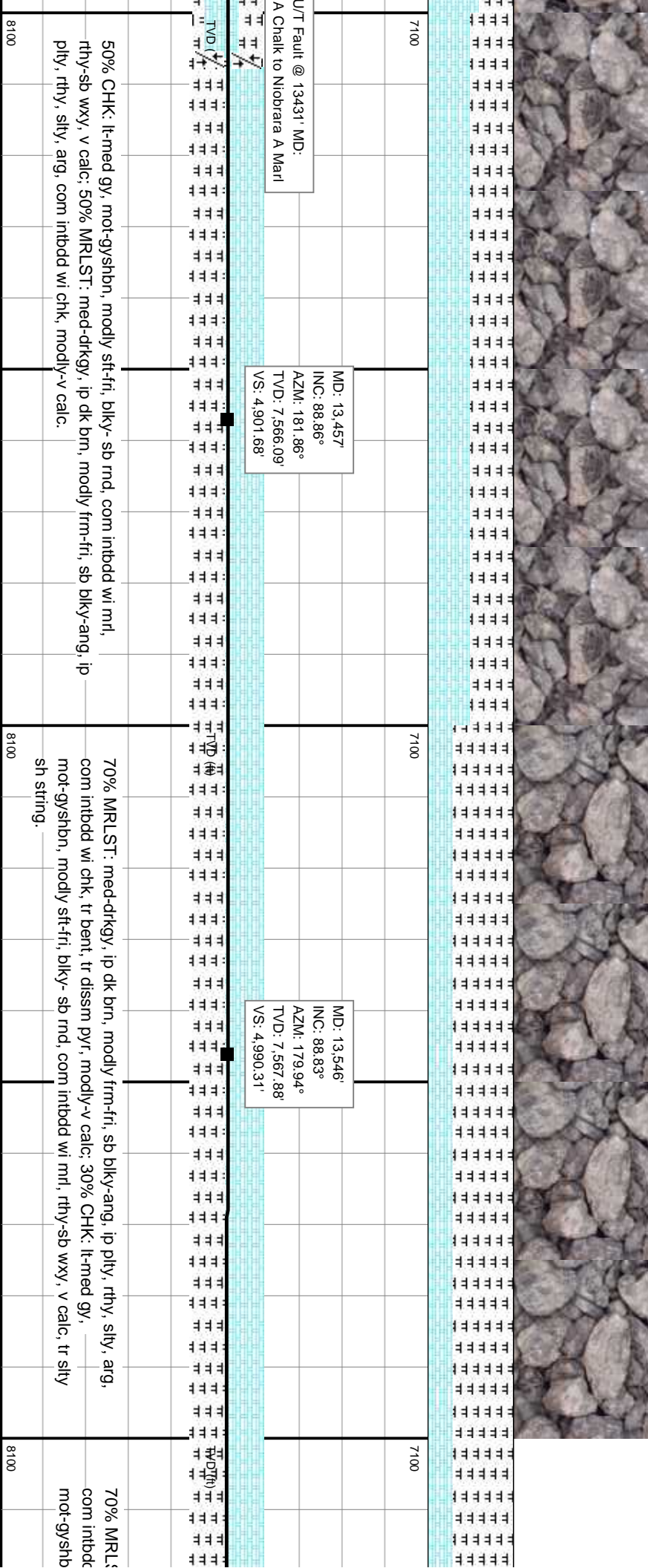
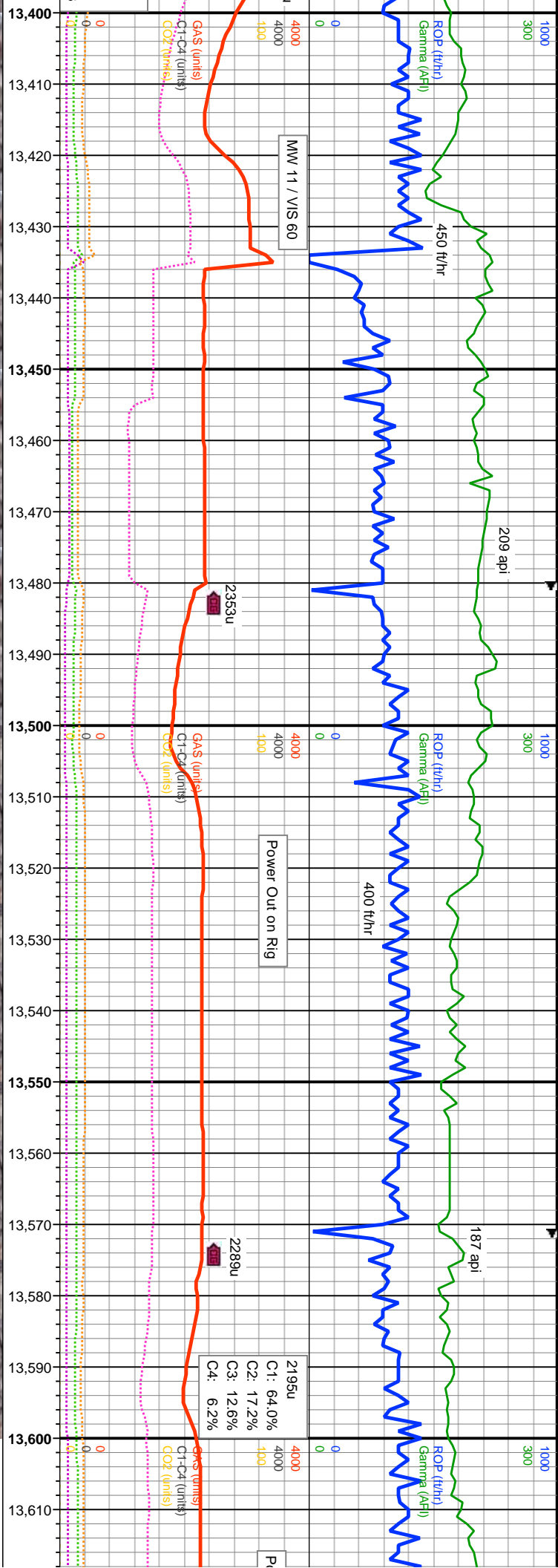


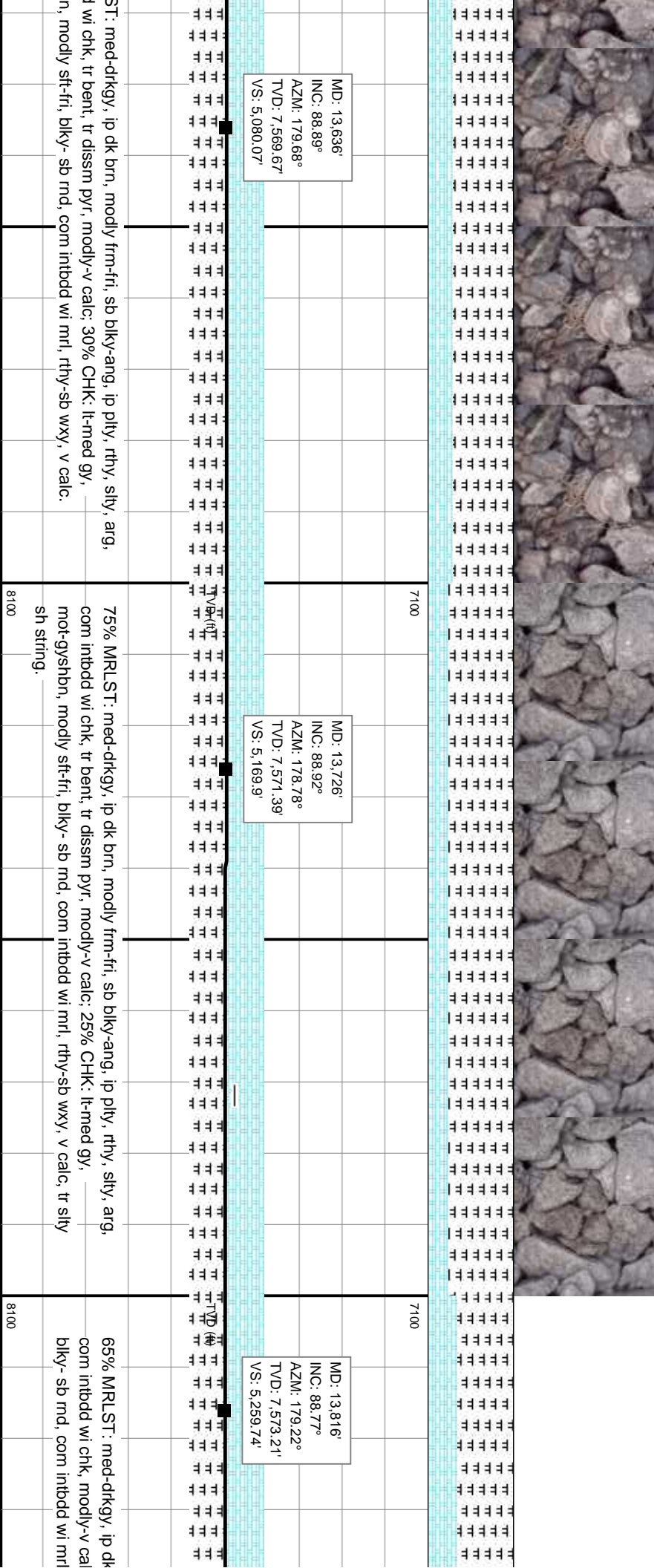
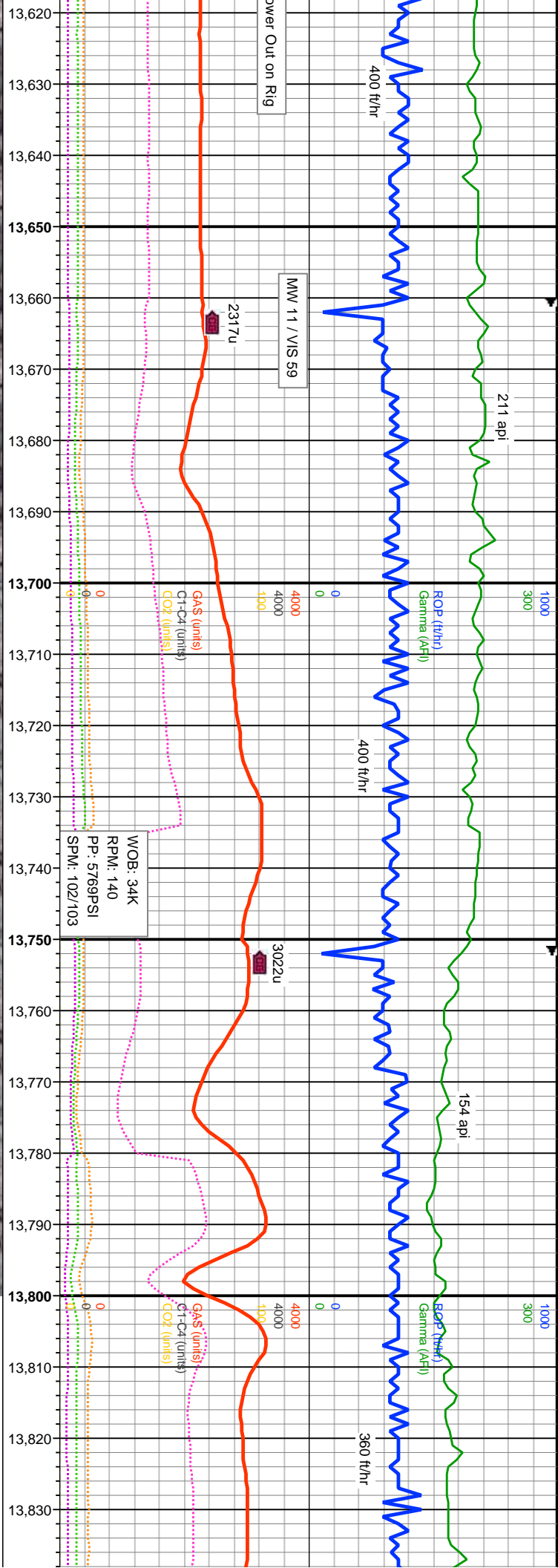


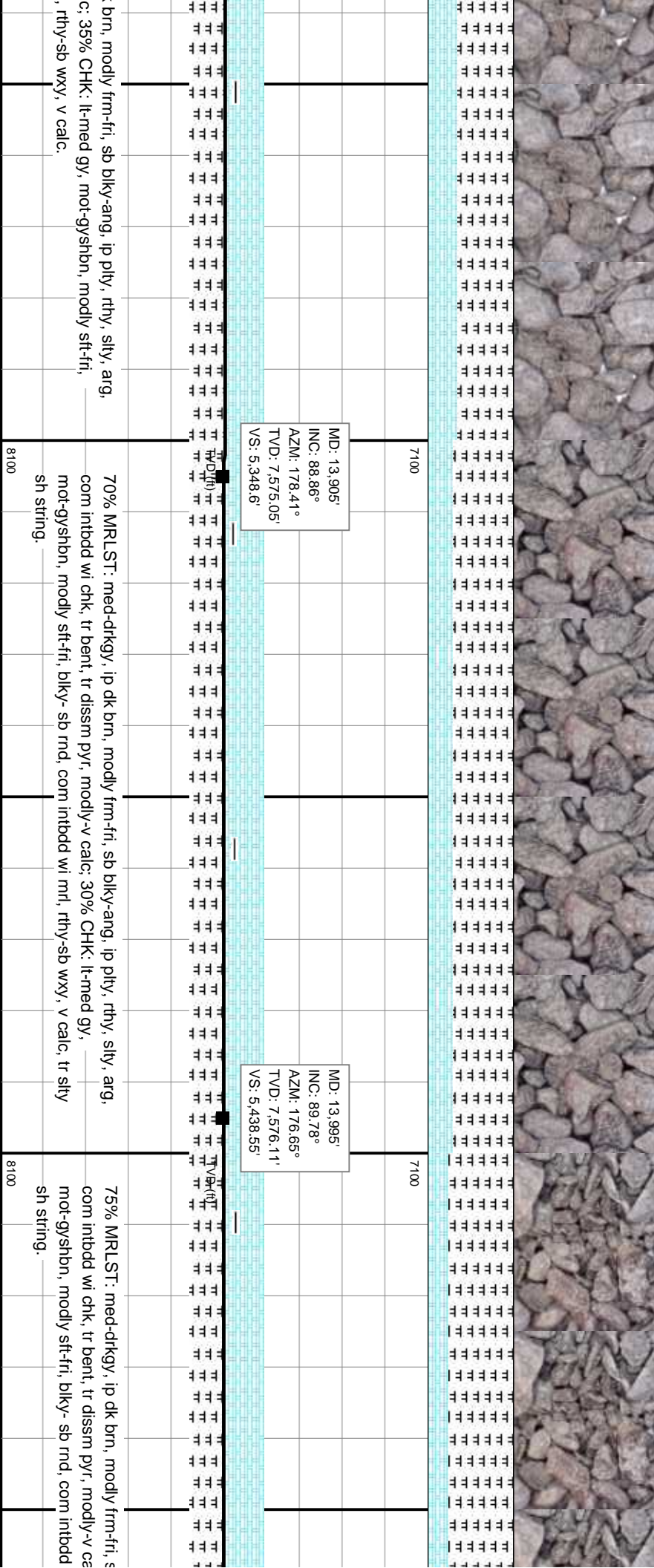
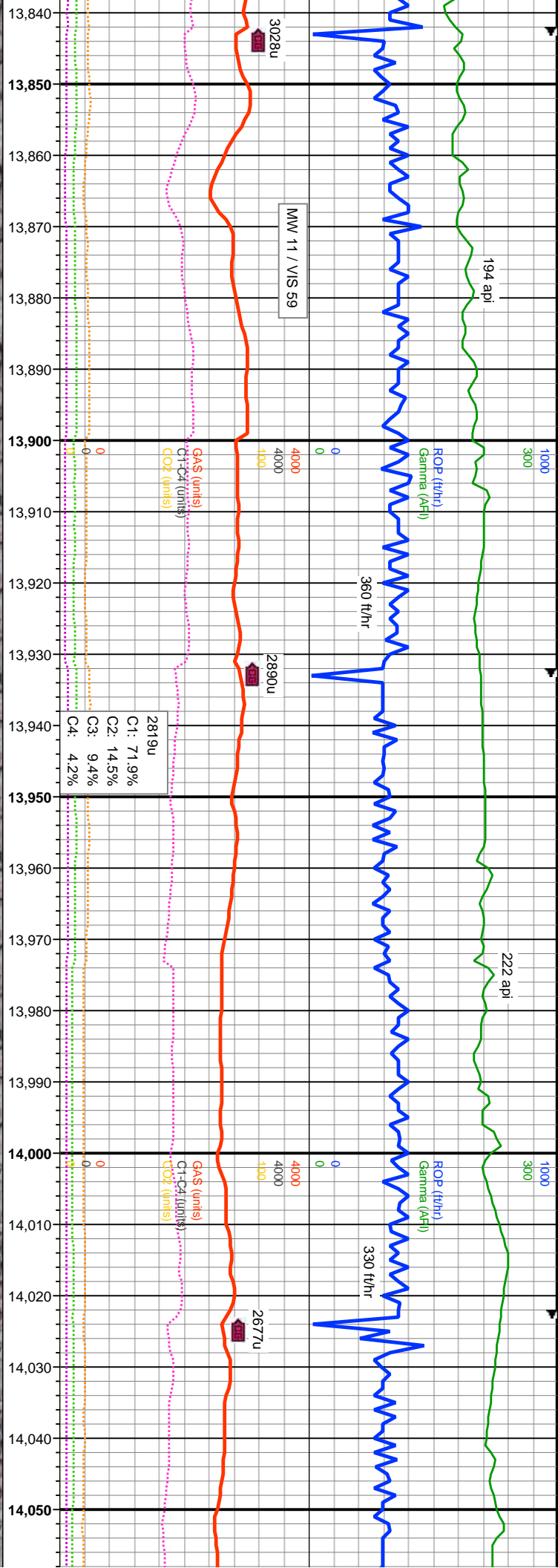


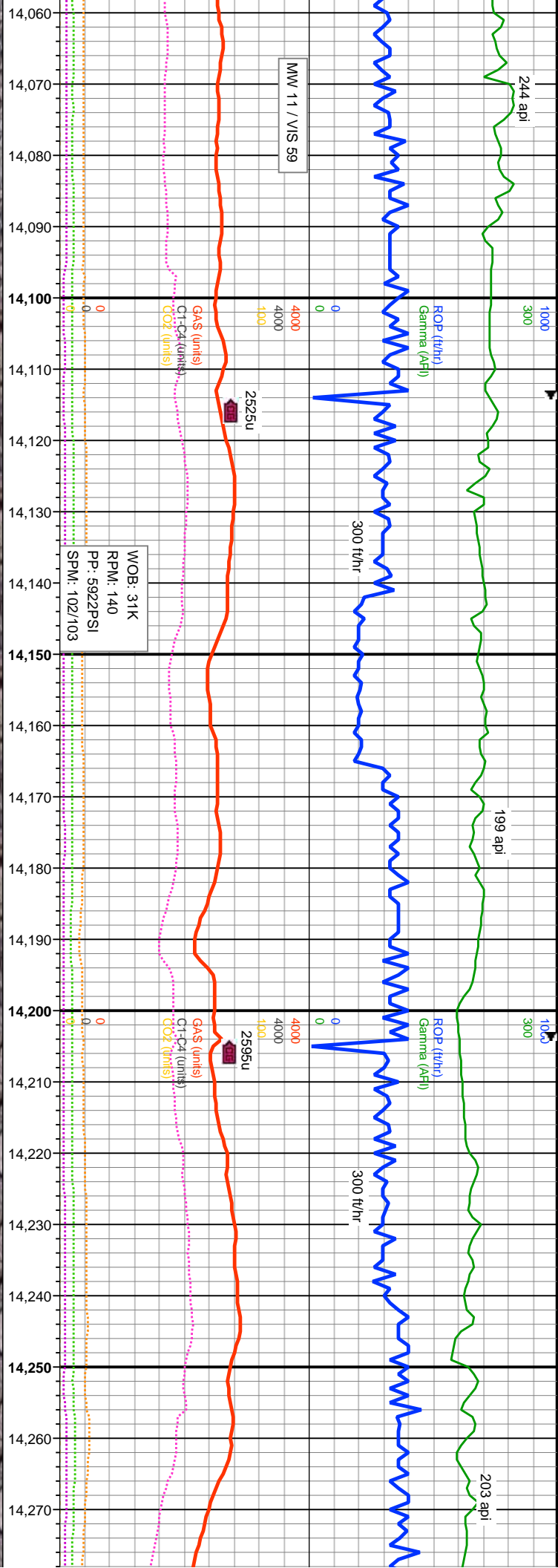












7100

7100

8100

MD: 14,085'
INC: 89.75°
AZM: 177.6°
TVD: 7,576.48'
VS: 5,528.52'

MD: 14,174'
INC: 89.86°
AZM: 177.04°
TVD: 7,576.79'
VS: 5,617.49'

MD: 14,264'
INC: 89.97°
AZM: 178.53°
TVD: 7,576.94'
VS: 5,707.44'

7100

7100

8100

70% MRLST: med-dkgy, ip dk brn, modly frm-fri, sb bky-ang, ip pty, rthy, silty, arg, com intbdd wi chk, tr bent, tr dissn pyr, modly-v calc, 30% CHK: lt-med gy, mot-gyshbn, modly sft-fri, bky- sb md, com intbdd wi mrl, rthy-sb wxy, v calc, tr silty sh string.

70% MRLST: med-dkgy, ip dk brn, modly frm-fri, sb bky-ang, ip pty, rthy, silty, arg, com intbdd wi chk, tr bent, tr dissn pyr, modly-v calc, 30% CHK: lt-med gy, mot-gyshbn, modly sft-fri, bky- sb md, com intbdd wi mrl, rthy-sb wxy, v calc, tr silty sh string.

70% MRLST: med-dkgy, ip dk brn, modly frm-fri, sb bky-ang, ip pty, arg, com intbdd wi chk, tr bent, tr dissn pyr, modly-v calc, 30% CHK: lt-med gy, mot-gyshbn, modly sft-fri, bky- sb md, com intbdd wi mrl, rthy-sb wxy, v calc, tr silty sh string.

