



Scale: 5" / 100'
Measured Depth Log

Well Name Raindance FC 23-272HC

Location SECTION 30, T6N, R67W

State COLORADO

County WELD

Country UNITED STATES

Rig Number PD 462

API Number 05123515830000

APE # 20DC0381

Geographic Region DJ BASIN

Field WATTENBERG

Ground Elevation 4788'

K.B. Elevation 4808'

Logged Interval 6000' MD To 21219' MD

Total Depth 21219' MD

Formation CODELL

Type of Drilling Fluid OIL BASED MUD

Operator

Company Great Western Operating Company, LLC

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



Geologist

Name TODD NAKATA, GERARDO CARPINTERO

Company TERRA GUIDANCE, LLC

Address 67 W FLOYD AVE
STE 105
ENGLEWOOD, CO 80110



Other

MUDLOG START DATE 09/13/2021
MUDLOG END DATE 09/19/2021

Rock Types



LIMESTONE



Chalk



Marl



Silty Shale



Shaly Siltstone



Silty Sandstone



SANDSTONE



CARBONACEOUS SHALE

Accessories

Minerals

B BENTONITE

Other Symbols

Engineering



CONNECTION (RIGHT)



CONNECTION GAS



FAULT



MIN DEPTH



MIN DEPTH

Onsite Geological Services provided by
Terra **Guidance**

Loggers on Location: 09/12/2021

Logging Depth Reached:

02:38 MT, 09/13/2021

Bloodhound Unit: #5951

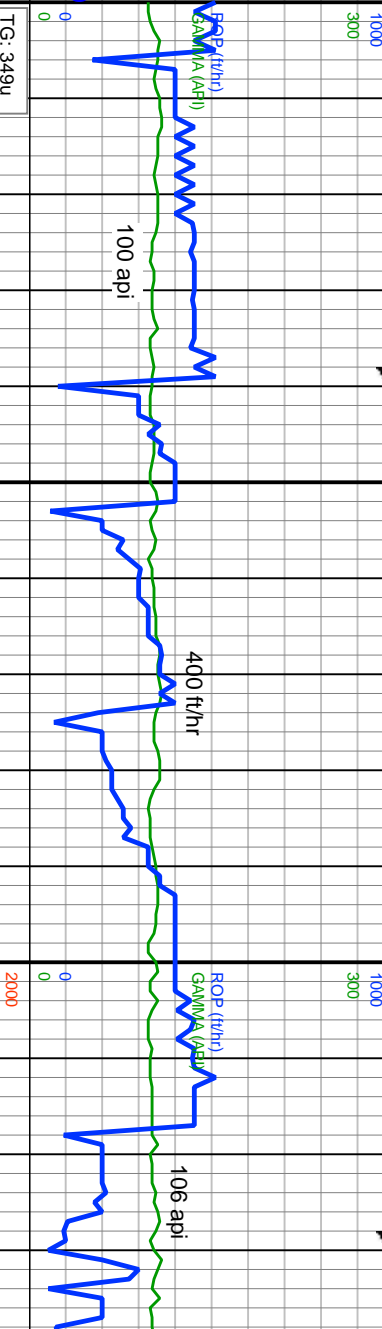
Sample Collection/Description Interval:

Curve 50'

Tangent/Lateral 100'

ROP SCALE (FT/HR): 0-1000

GAMMA SCALE (API): 0-300



GAS SCALE 0-2000u

TG: 349u

C1: 93.5%

C2: 4.3%

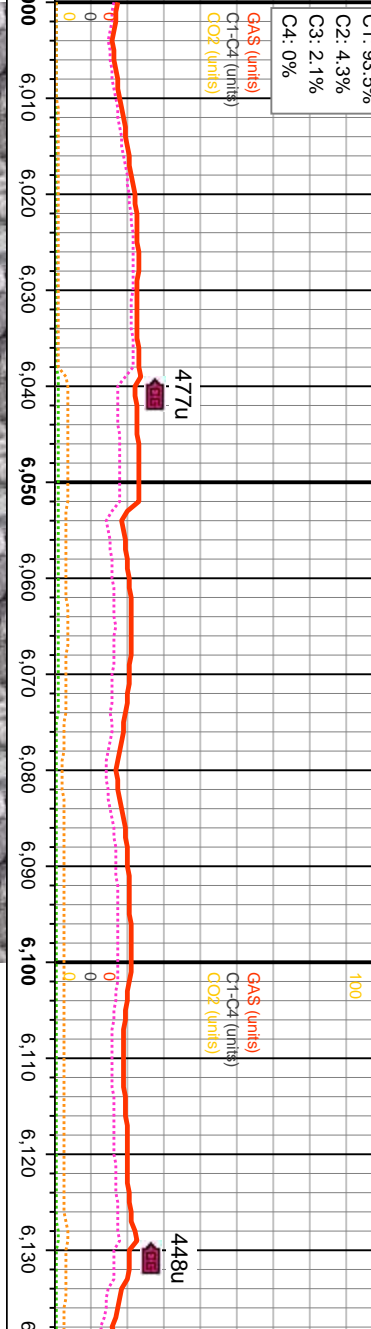
C3: 2.1%

C4: 0%

GAS (units)

C1-C4 (units)

CO2 (units)



Depth



Images

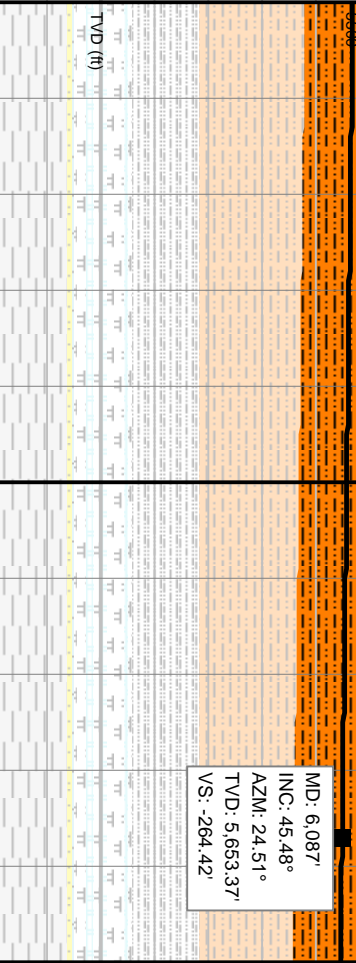


% Lithology

TVD SCALE
5500' - 8500'

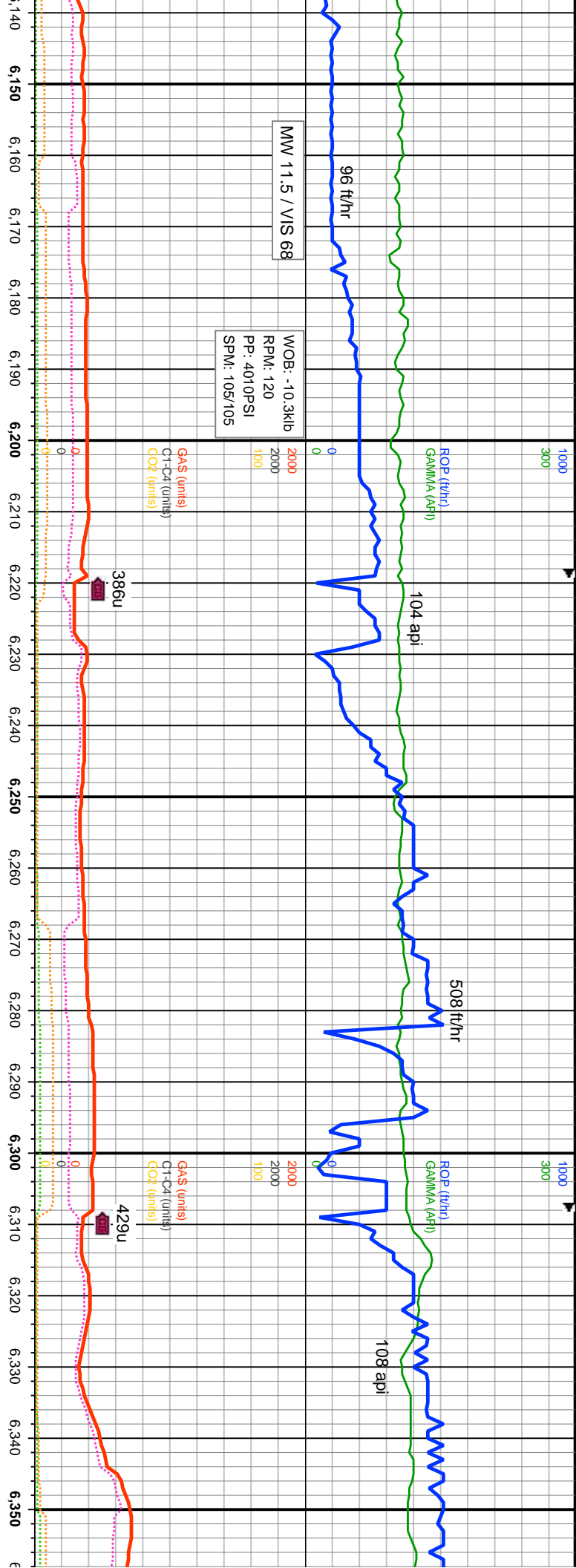
Bit #: 1
Size: 8.5"
Make: Smith
Model: N516
Jets: 4x11, 3x10
S/N: JV4804
Depth In: 2.063'

Well Bore
TVD

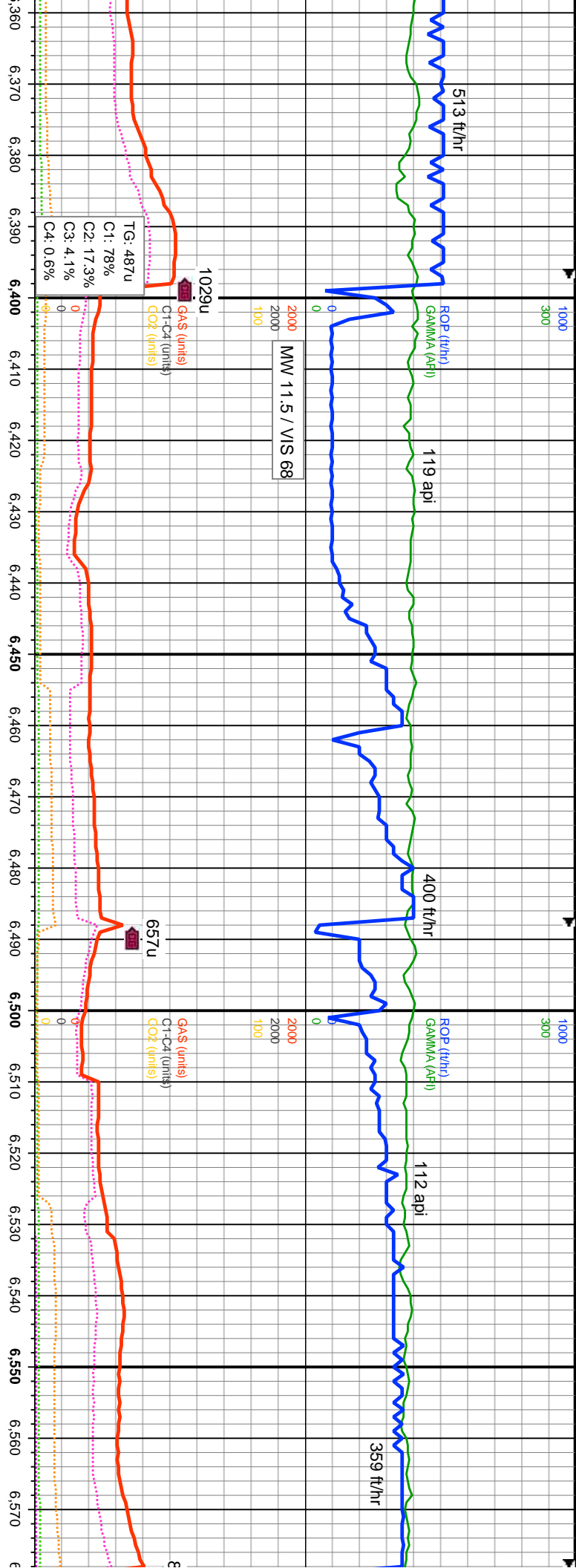


100% SHY SLTST: lt-med gy, blk-y-sb ply, mod sft-fr, arg, slty, rthy, grid to vř silst
ip, sl calc cmt, mod calc

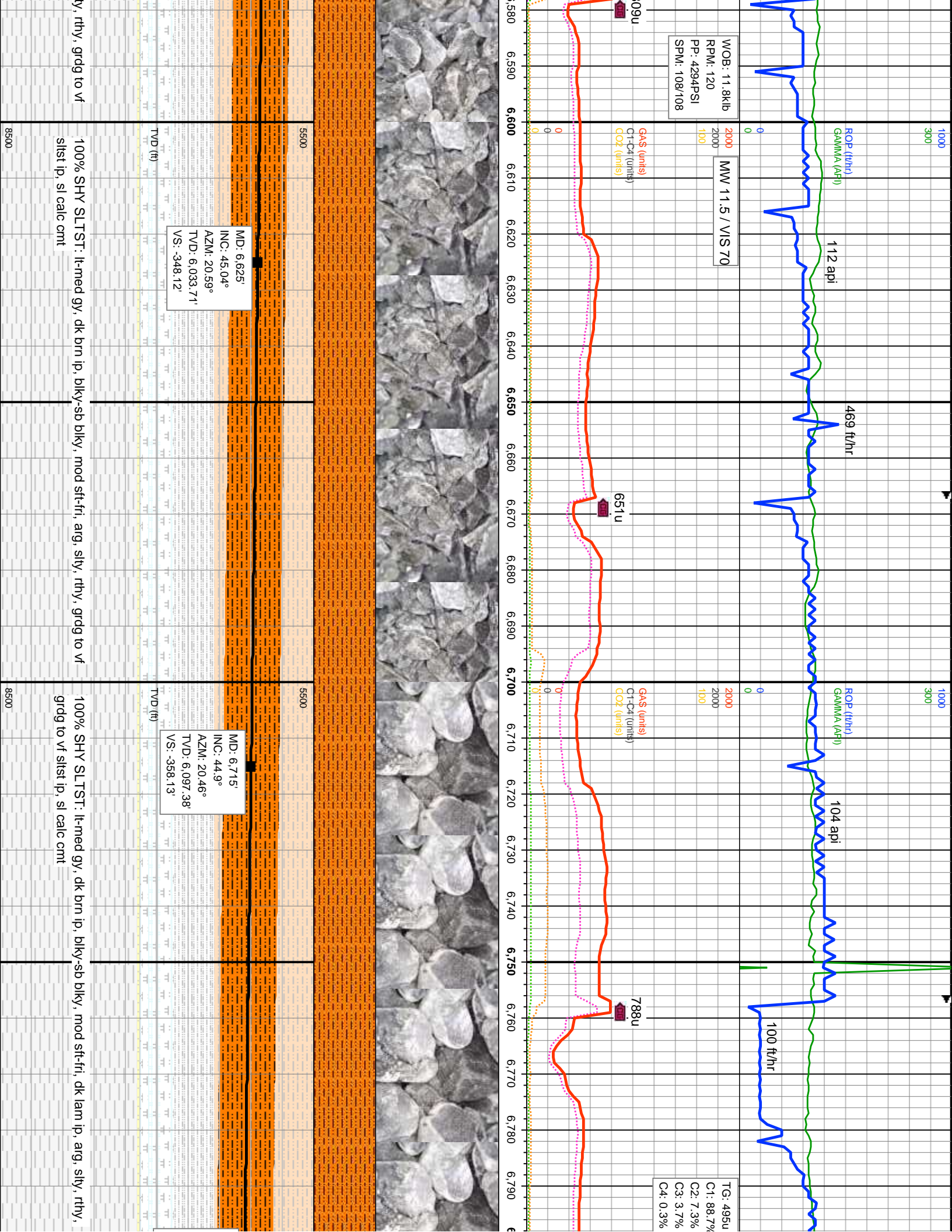
100% SHY SLTST: lt-med gy,
ip, sl calc cmt, mod calc

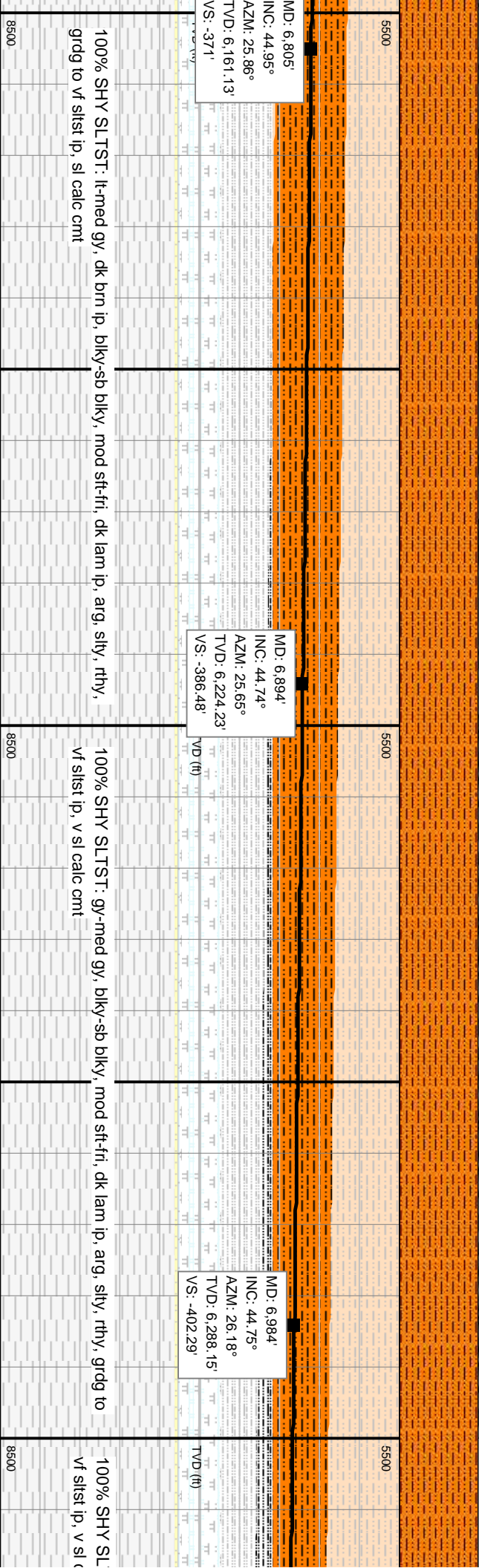
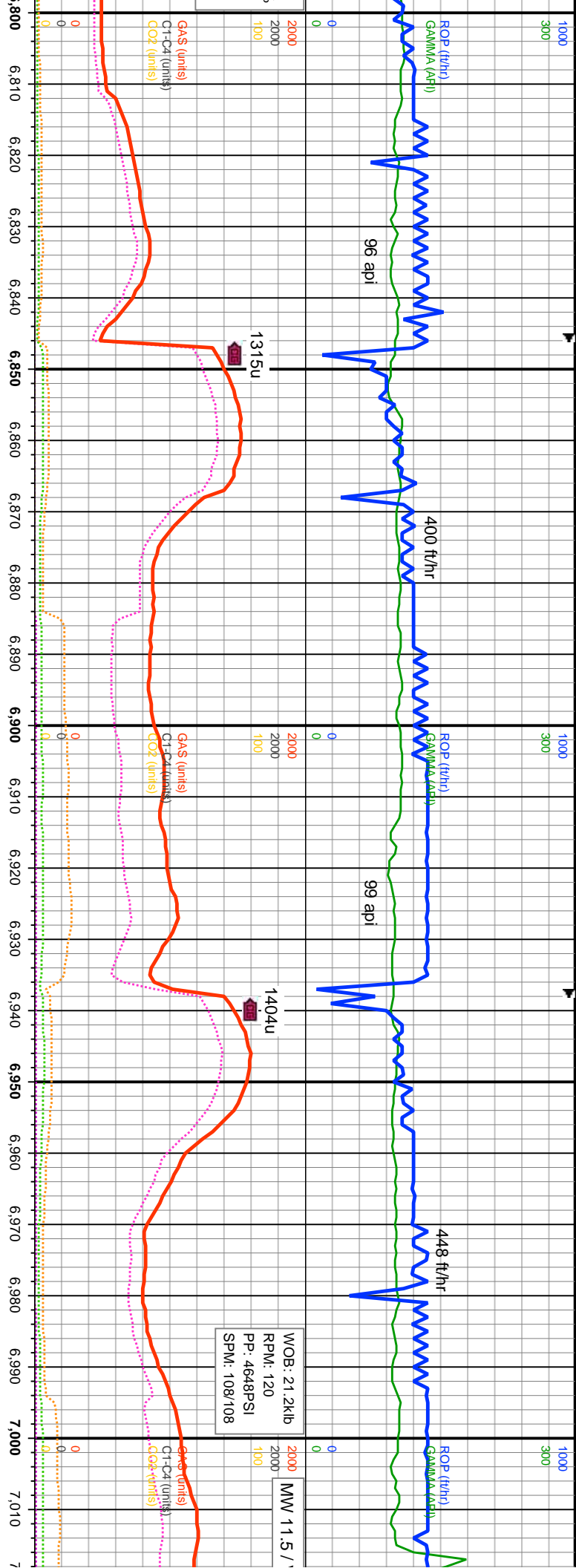


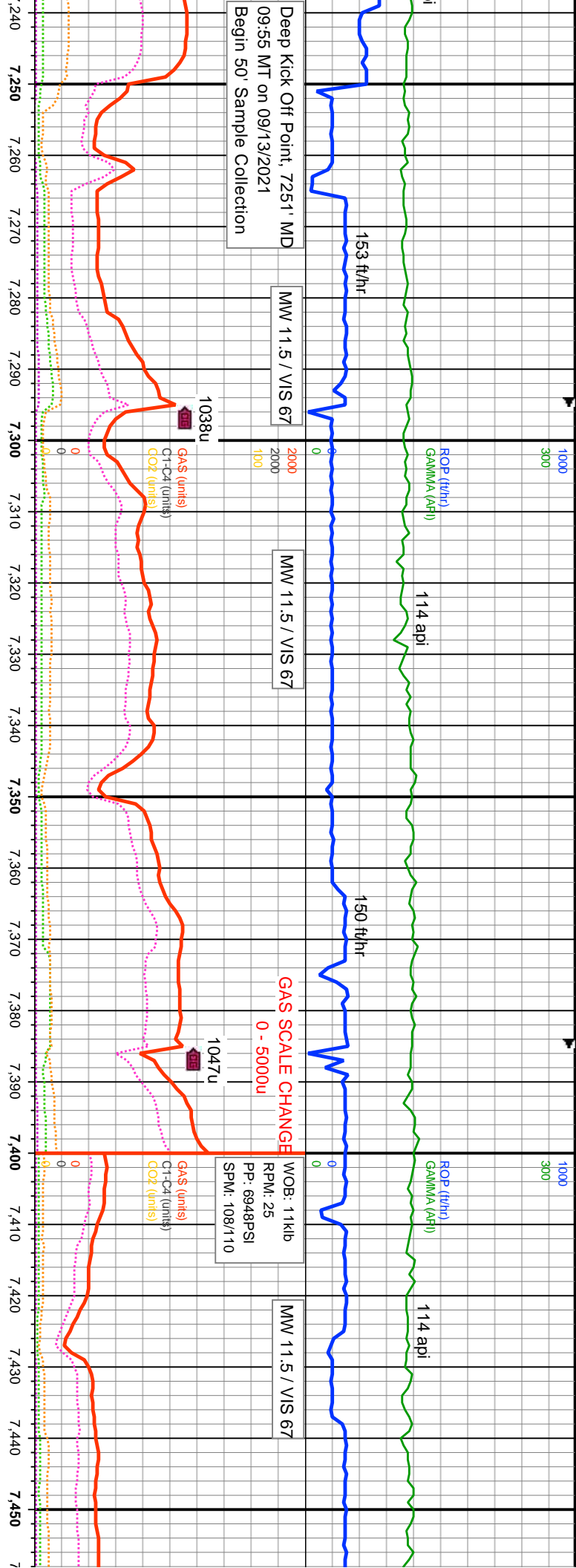
biky-sb pty, mod sft-fr, arg, silty, rthy, grdg to vf silst	MD: 6.177' INC: 45.06° AZM: 24.64° TVD: 5,716.71' VS: -278.92'		MD: 6.267' INC: 44.98° AZM: 27.33° TVD: 5,780.33' VS: -294.87'		MD: 6.35' INC: 44.5° AZM: 26° TVD: 5.8° VS: -311'	
	TVD (ft)		TVD (ft)		TVD (ft)	
100% SHY SLTST: lt-med gy, biky-sb pty, mod sft-fr, arg, silty, rthy, grdg to vf silst ip, sl calc cm, non calc	8500		8500		8500	



6' 9" 81° 43.33' 78'		5500		5500		5500	
i, arg, silty, rthy, grdg to vf slst, sl calc		100% SHY SLTST: lt-med gy, blk-y-sb blk-y, mod sft-frt, arg, silty, rthy, grdg to vf slst, sl calc		100% SHY SLTST: lt-med gy, dk brn ip, blk-y-sb blk-y, mod sft-frt, arg, slst ip, sl calc		100% SHY SLTST: lt-med gy, dk brn ip, blk-y-sb blk-y, mod sft-frt, arg, slst ip, sl calc	
MD: 6.446' INC: 45° AZM: 23.52° TVD: 5.907.03' VS: -326.83'		MD: 6.535' INC: 44.89° AZM: 20.28° TVD: 5.970.03' VS: -338.21'		MD: 6.535' INC: 44.89° AZM: 20.28° TVD: 5.970.03' VS: -338.21'		MD: 6.535' INC: 44.89° AZM: 20.28° TVD: 5.970.03' VS: -338.21'	
TVD (ft)		TVD (ft)		TVD (ft)		TVD (ft)	
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Deep Kick Off Point, 7251' MD
09:55 MT on 09/13/2021
Begin 50' Sample Collection

MW 11.5 / VIS 67

MW 11.5 / VIS 67

WOB: 11klb
RPM: 25
PP: 6948PSI
SPM: 108/110

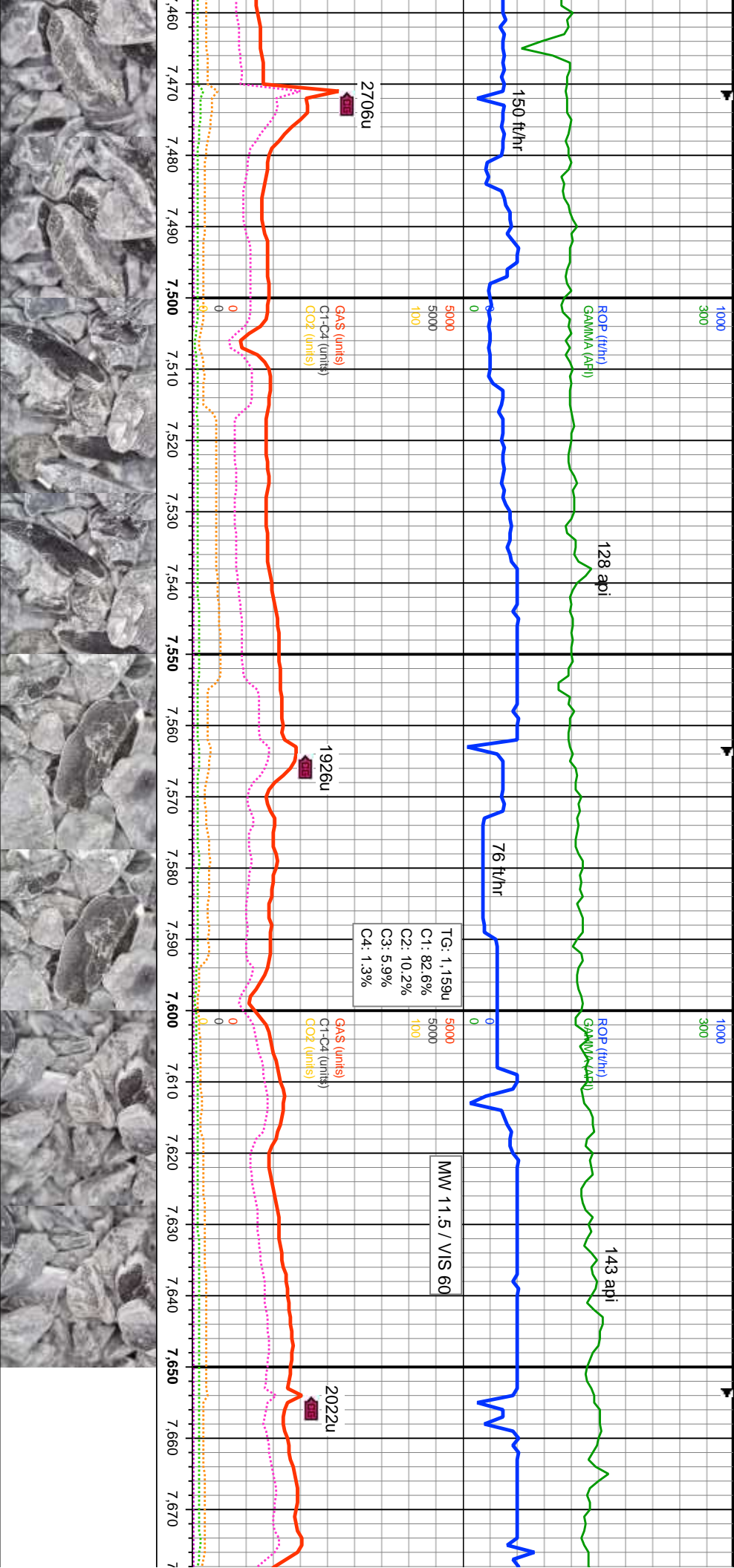
MW 11.5 / VIS 67

MD: 7,253'
INC: 45.06°
AZM: 26.76°
TVD: 6,478.54'
VS: -450.62'

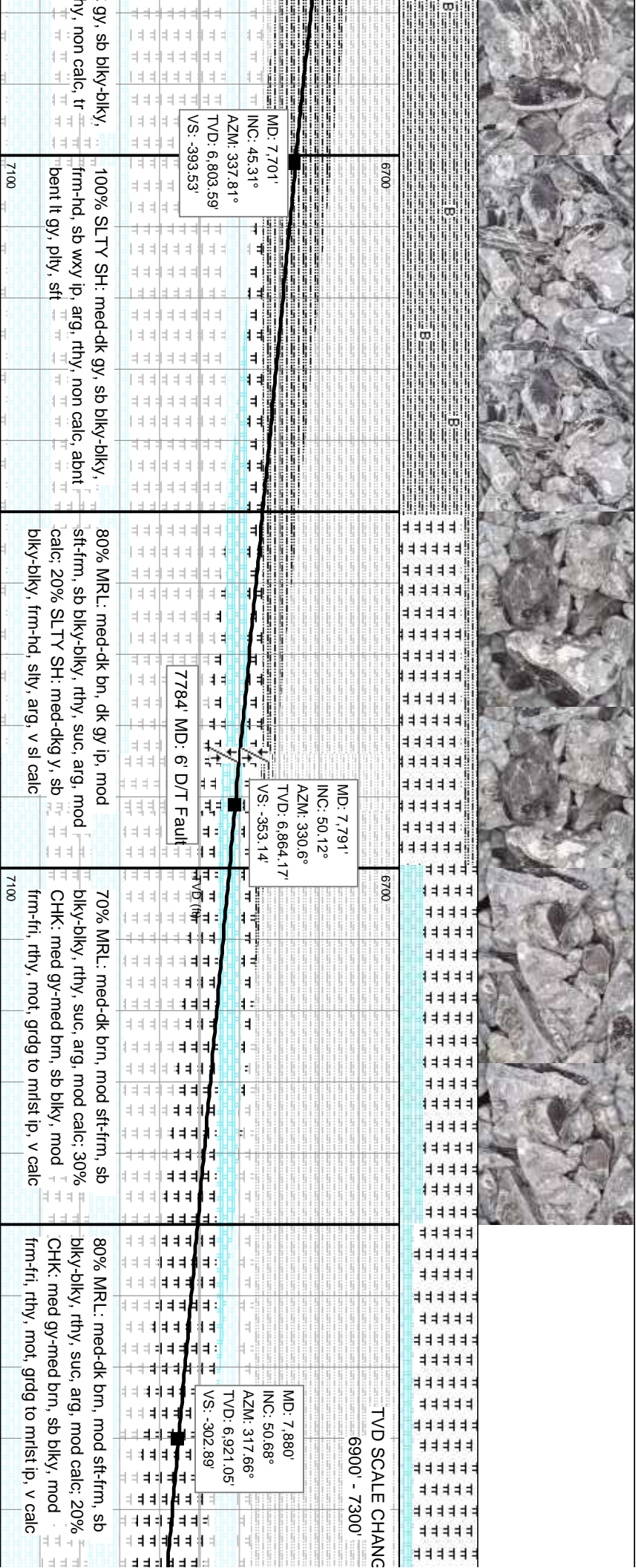
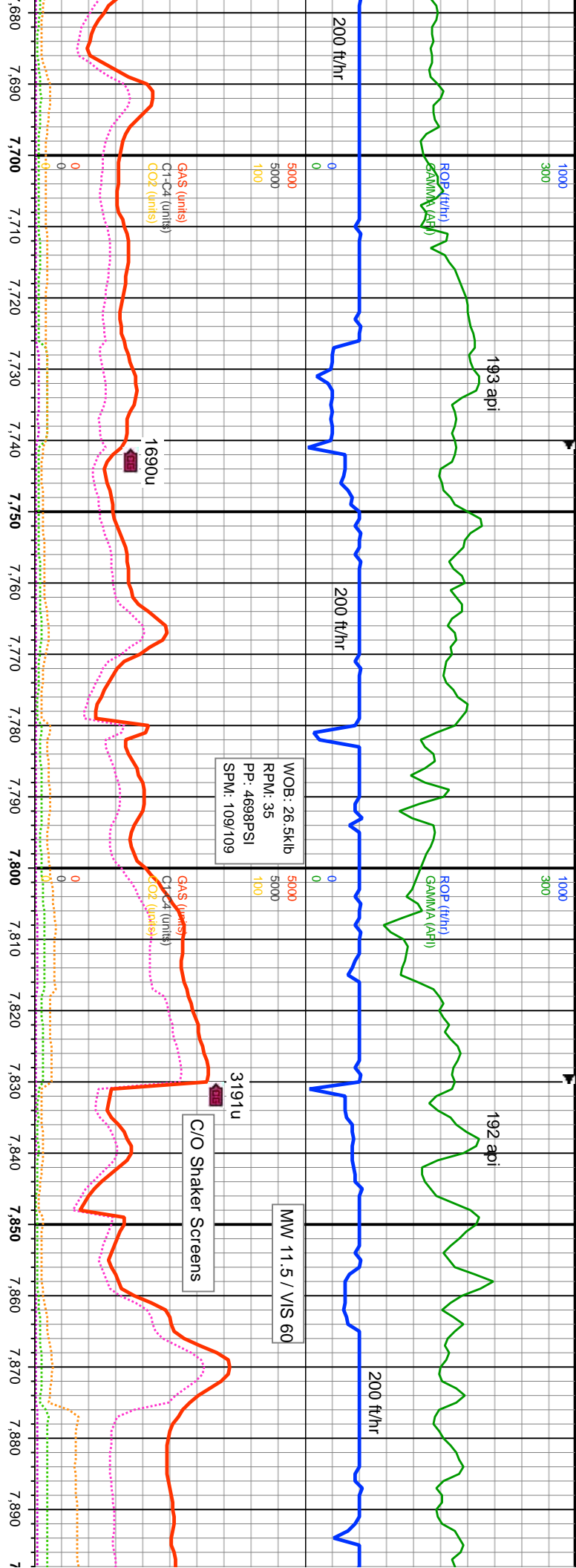
MD: 7,343'
INC: 44.75°
AZM: 18.55°
TVD: 6,542.34'
VS: -462.93'

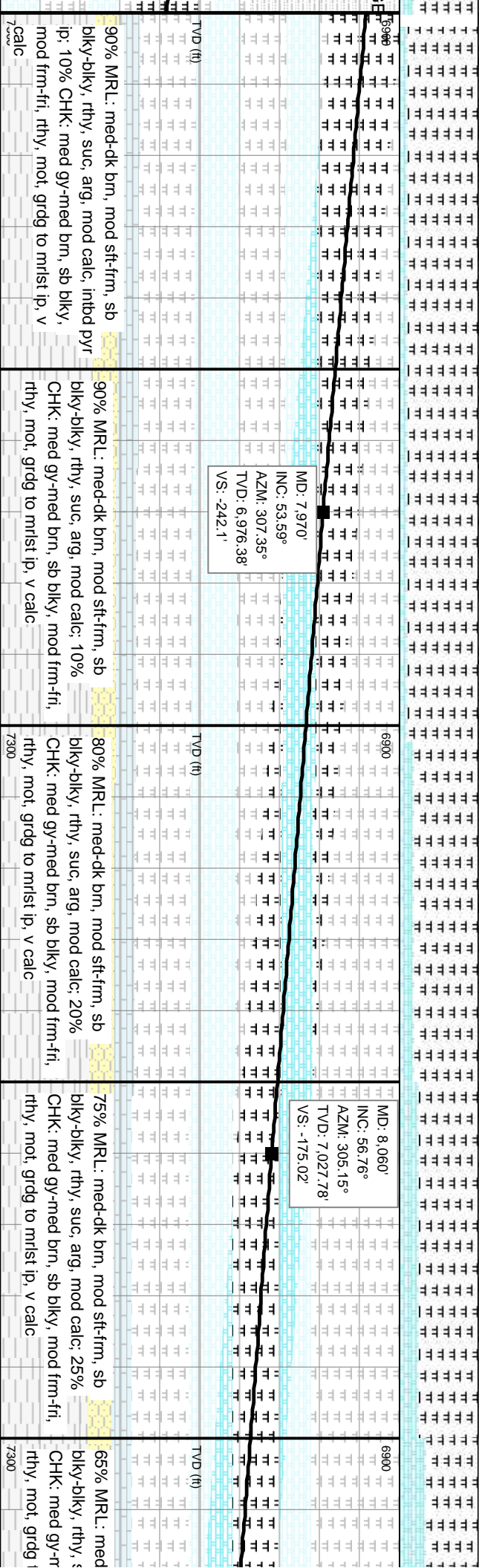
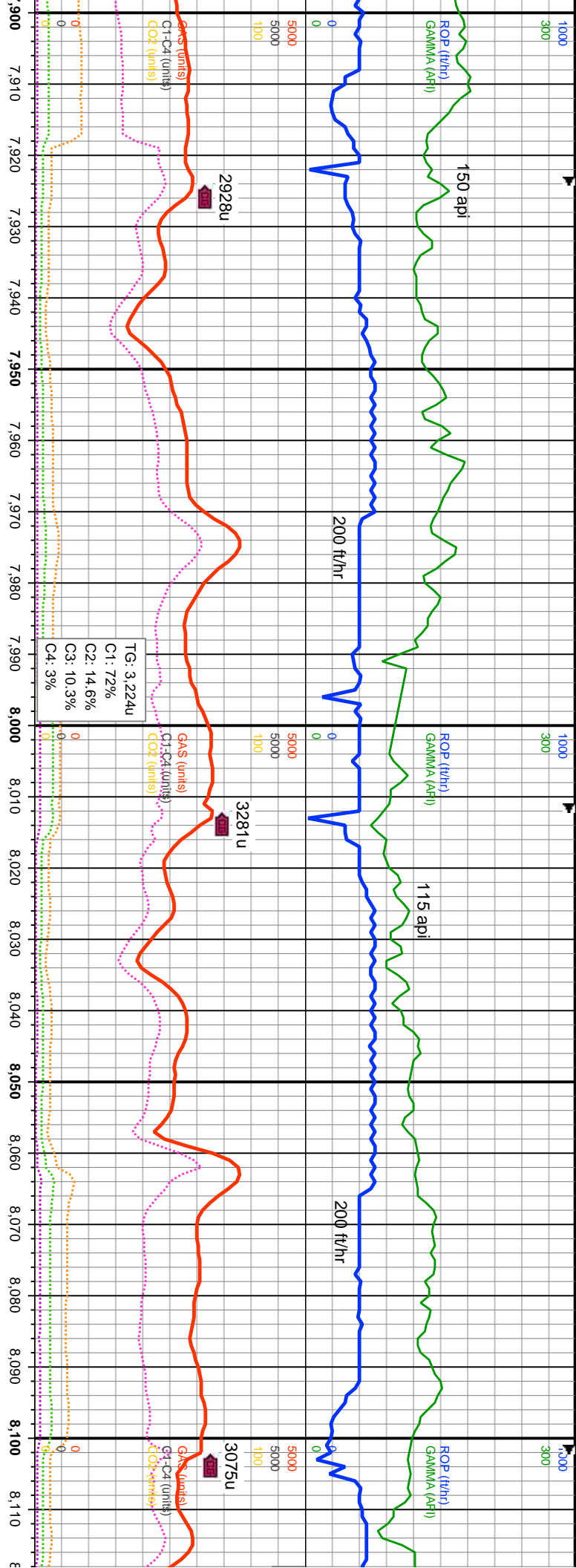
MD: 7,433'
INC: 42.44°
AZM: 4.3°
TVD: 6,607.67'
VS: -463.05'

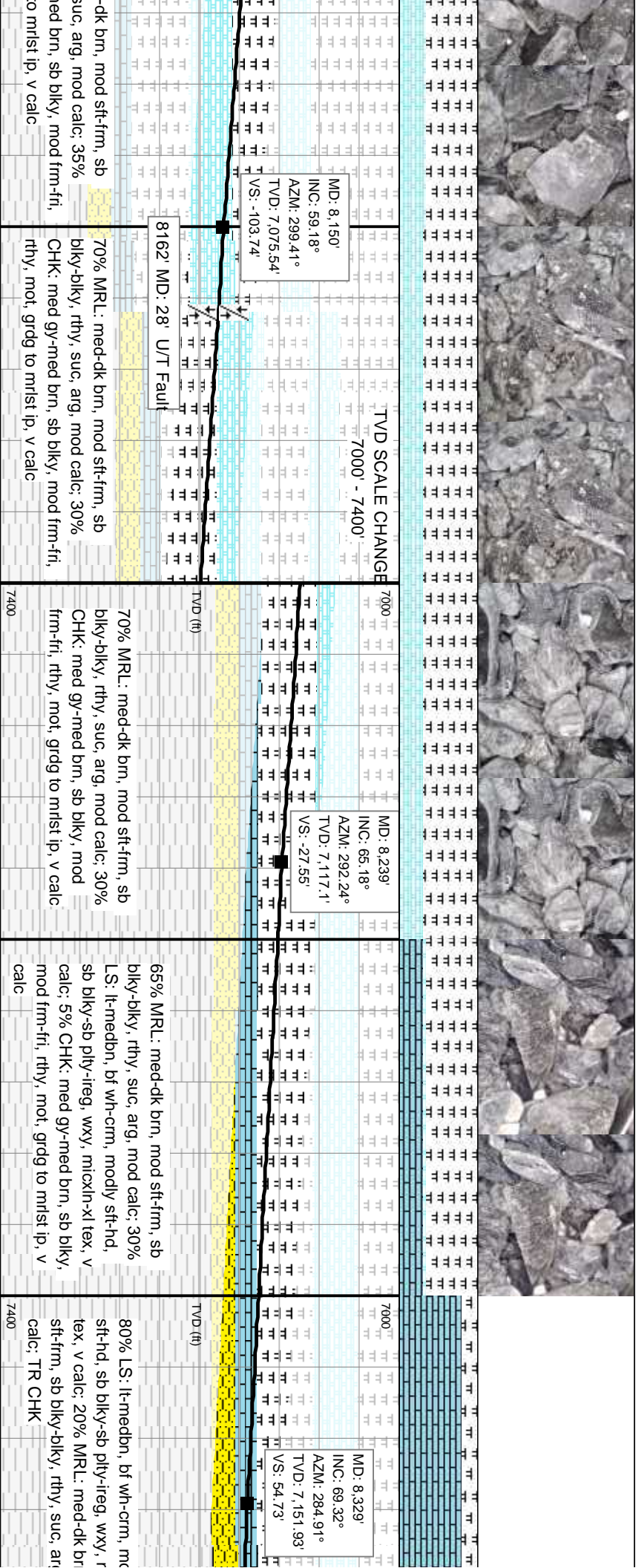
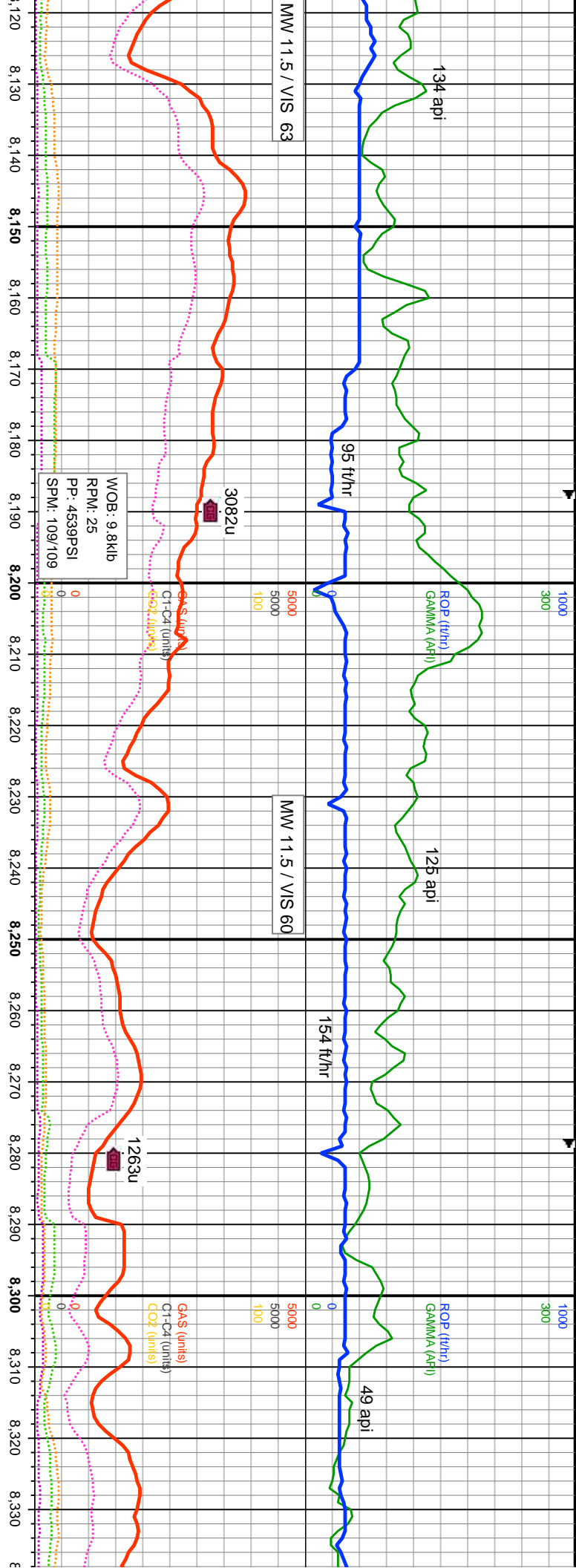
biky-blky, mod sft-fr, arg, slty, rthy, grdg to vř slst ip, sl		70% SLTY SH: med-dk gy, biky-sb plty, mod sft-sl frm, arg, v sl calc; 30% SHY SLTST: gy-med gy, sb biky-blky, mod sft-fr, arg, slty, rthy, grdg to slty sh, sl calc cnt;		80% SLTY SH: med-dk gy, sb biky, mod sft-sl frm, arg, non calc; 20% SHY SLTST: gy-med gy, sb biky-blky, mod sft-fr, arg, slty, rthy, grdg to slty sh, sl calc cnt		80% SLTY SH: med-dk gy, sb biky, mod sft-sl frm, arg, non calc; 20% SHY SLTST: gy-med gy, sb biky-blky, mod sft-fr, arg, slty, rthy, grdg to slty sh, sl calc cnt		100% sb plt calc,	
8500	VS: -450.62'	5500	VS: -462.93'	5500	VS: -463.05'	8500	VS: -463.05'	8500	VS: -463.05'

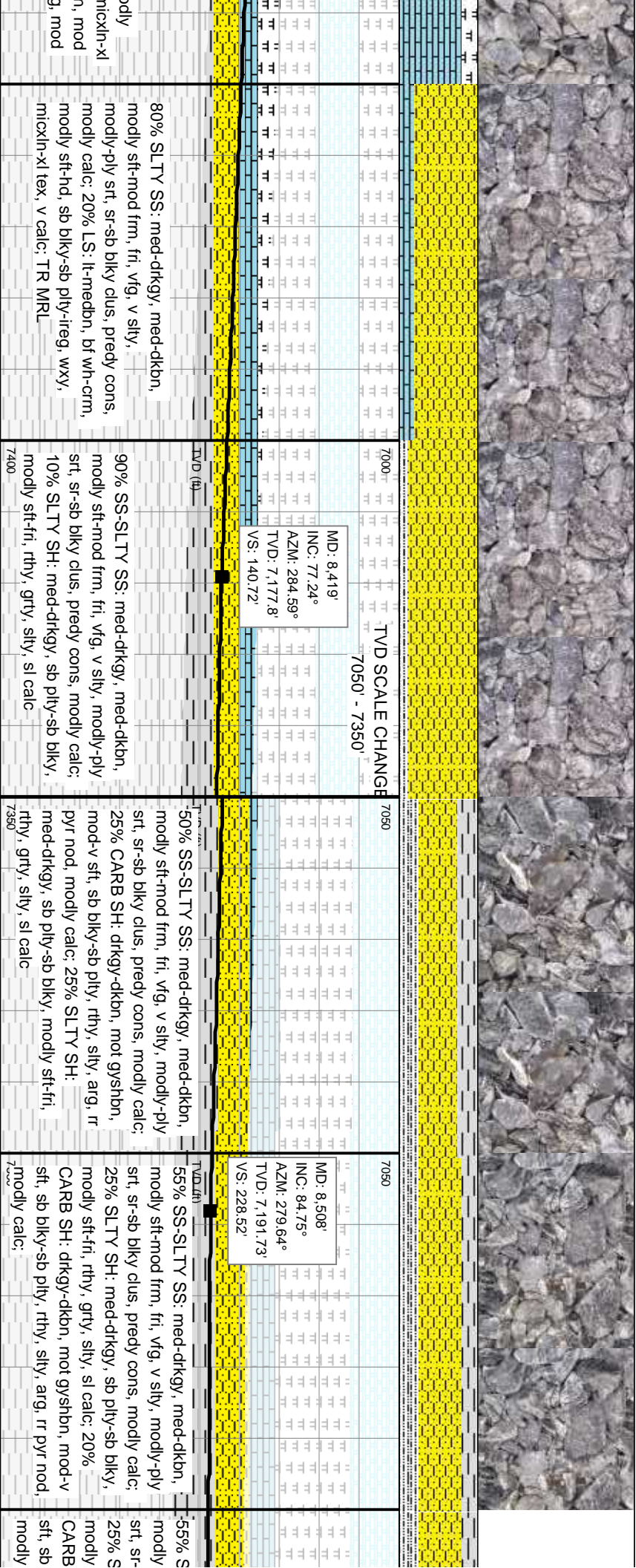
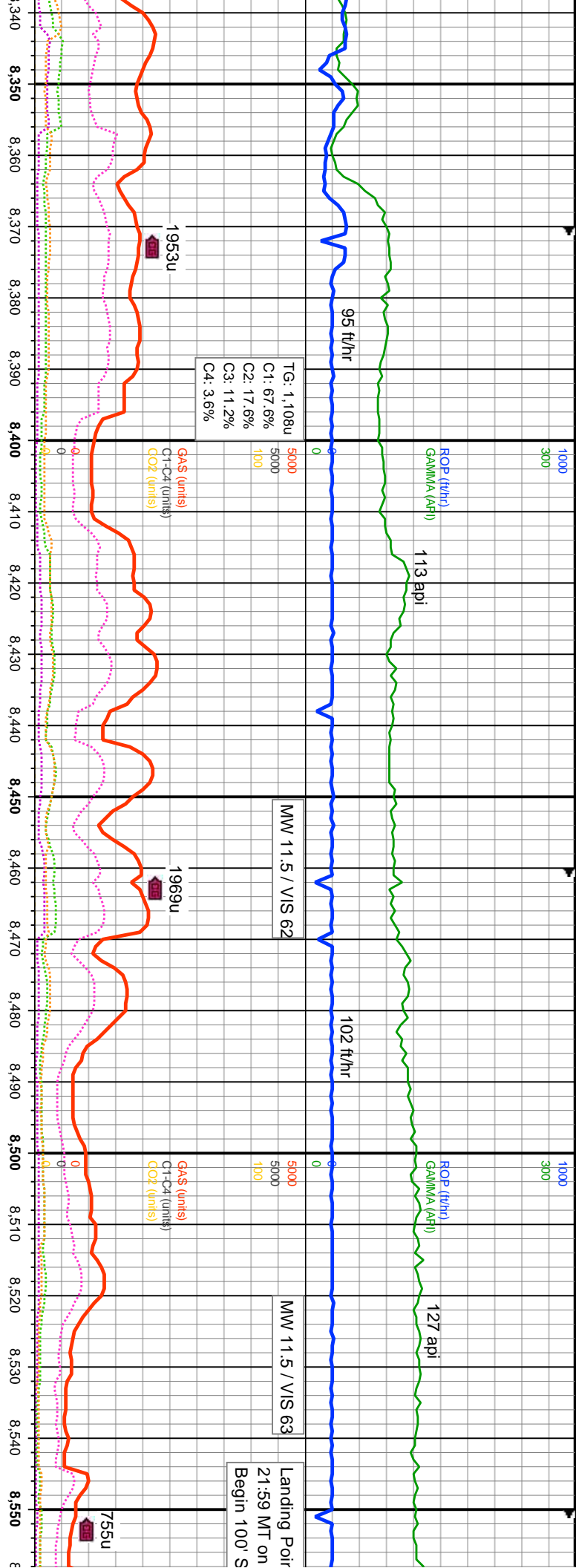


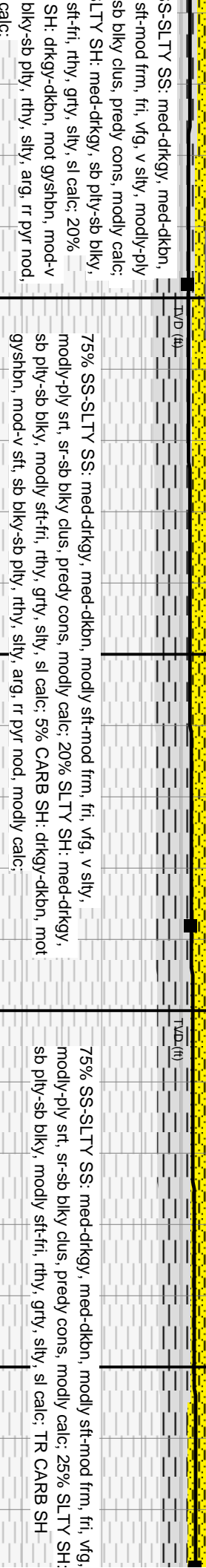
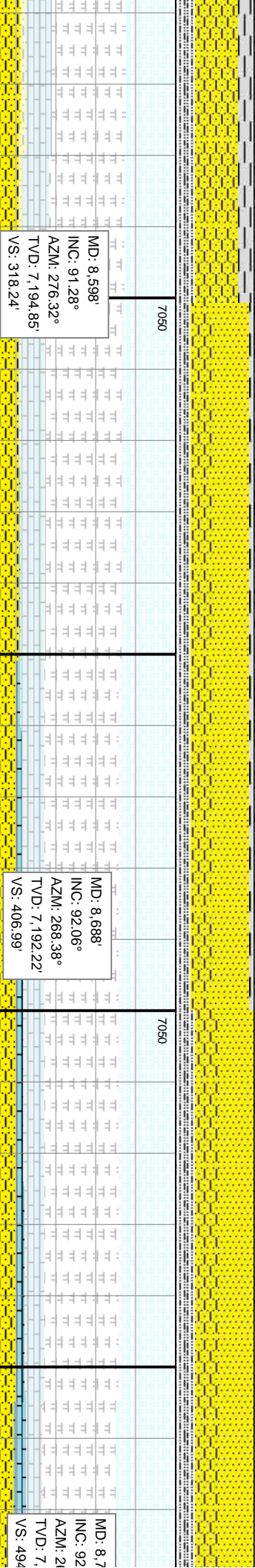
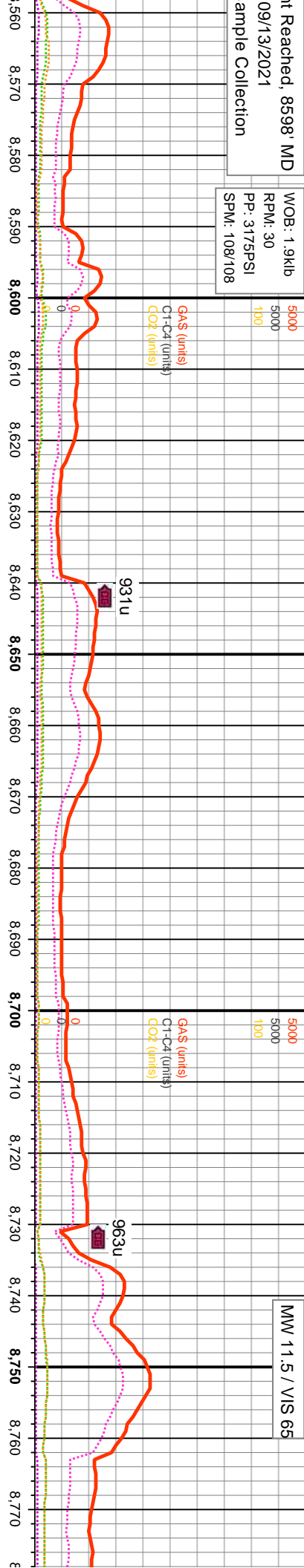
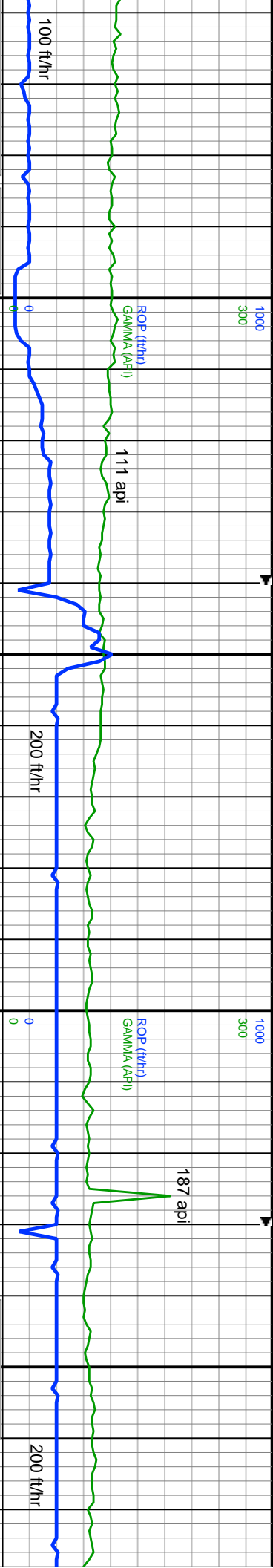
5500		TVD SCALE CHANGE 6700' - 7100'		7100	
MD: 7.522' INC: 41.96° AZM: 351.18° TVD: 6.673.73' VS: -448.95'		MD: 7.611' INC: 43.39° AZM: 345.07° TVD: 6.739.19' VS: -425.03'			
SLTY SH: med-dk gy, sb blk-y-biky, y ip, mod sft-sl frm, arg, rthy, non gtdg to shy slst ip		100% SLTY SH: med-dk gy, sb blk-y-biky, sb plty ip, mod sft-sl frm, arg, rthy, non calc		100% SLTY SH: med-dk gy, sb blk-y-biky, frm-hd, sb wxy ip, arg, rthy, non calc	
TVD (ft)		TVD (ft)		TVD (ft)	
TT TT					



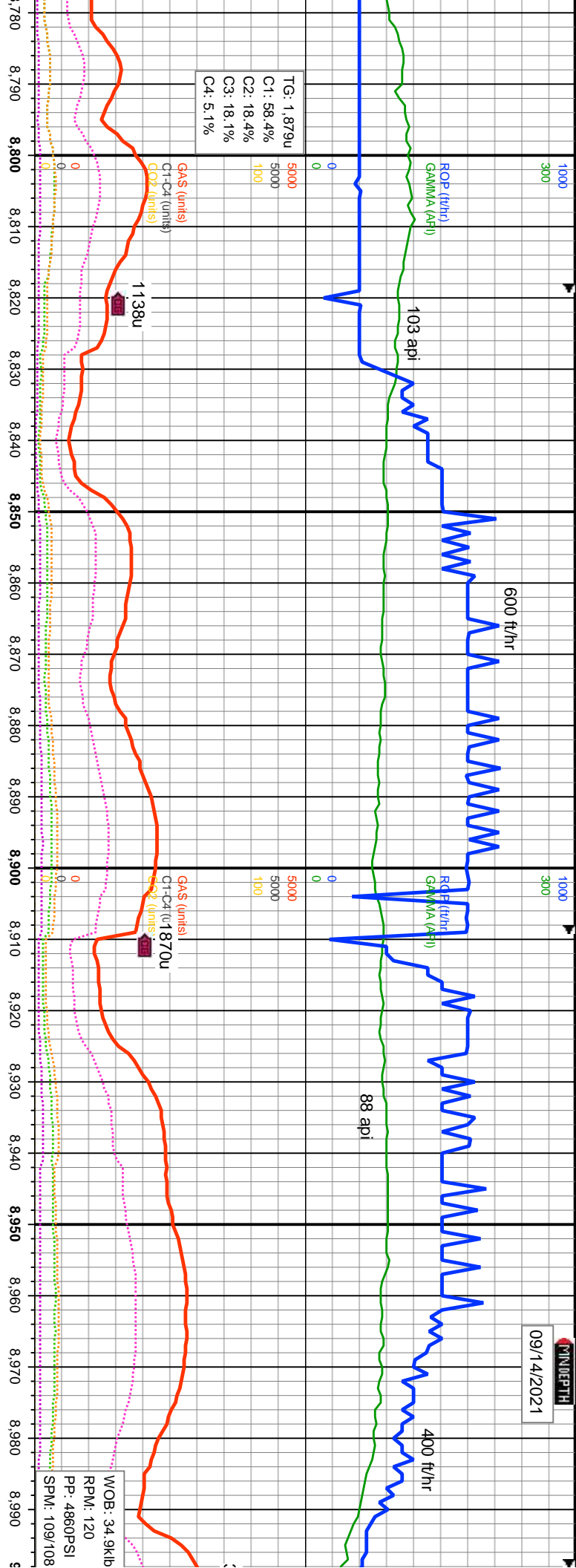








SS-SLTY SS: med-drkg, med-dkbn, sft-mod frm, fri, vfg, v silty, modly-ply sb blkly clus, predy cons, modly calc; 75% SS-SLTY SS: med-drkg, med-dkbn, modly sft-mod frm, fri, vfg, v silty, modly-ply srt, sr-sb blkly clus, predy cons, modly calc; 20% SLTY SH: med-drkg, sb ply-sb blkly, modly sft-fri, rthy, grty, slty, sl calc; 5% CARB SH: drkg-dkbn, mot gysbhn, mod-v sft, sb blkly-sb ply, rthy, slty, arg, rr pyr nod, modly calc; 75% SS-SLTY SS: med-drkg, med-dkbn, modly sft-mod frm, fri, vfg, v silty, modly-ply srt, sr-sb blkly clus, predy cons, modly calc; 25% SLTY SH: sb ply-sb blkly, modly sft-fri, rthy, grty, slty, sl calc; TR CARB SH gysbhn, mod-v sft, sb blkly-sb ply, rthy, slty, arg, rr pyr nod, modly calc;



78° 15° 88.5° 188.92° 62°	7050	VS: 581.3'	MD: 8.867' INC: 91.95° AZM: 268.56° TVD: 7.185.73'	7050	VS: 668.87'	MD: 8.957' INC: 91.61° AZM: 267.95° TVD: 7.182.94'
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TVD (ft)	TVD (ft)
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8990' MD: 11' D/T

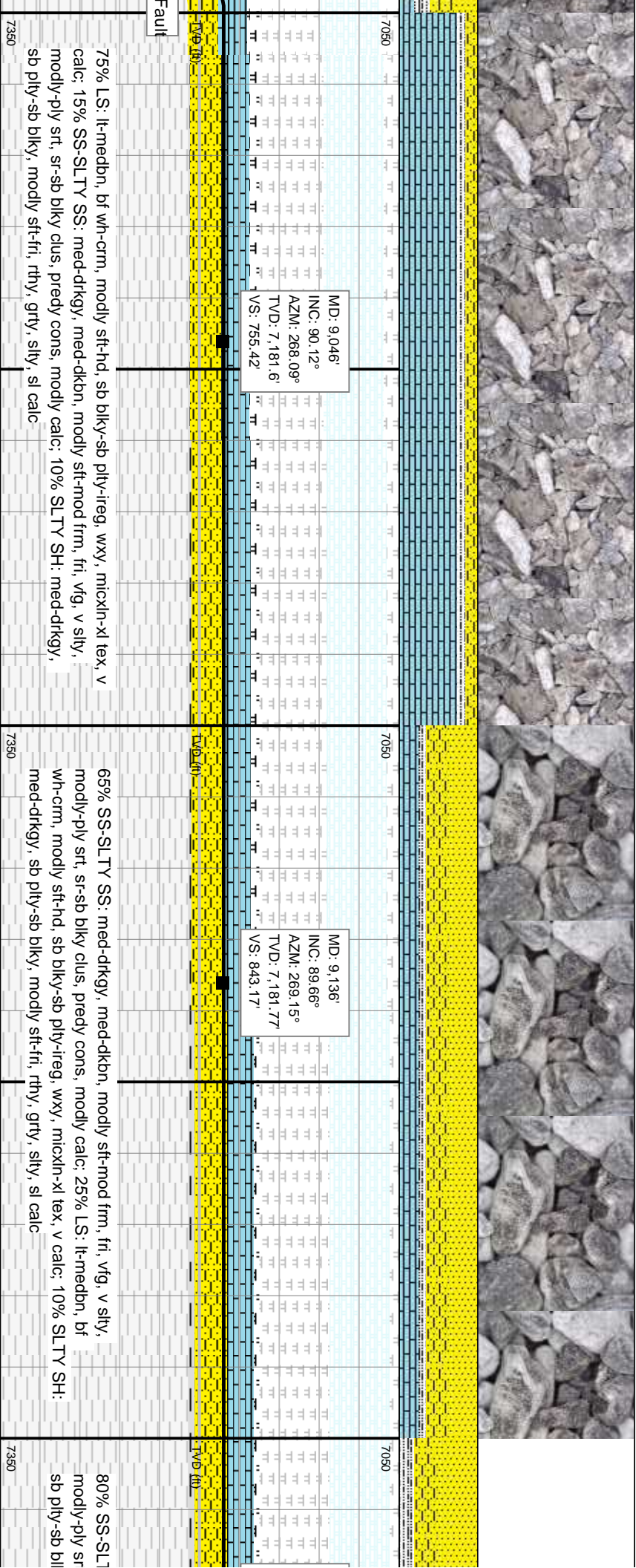
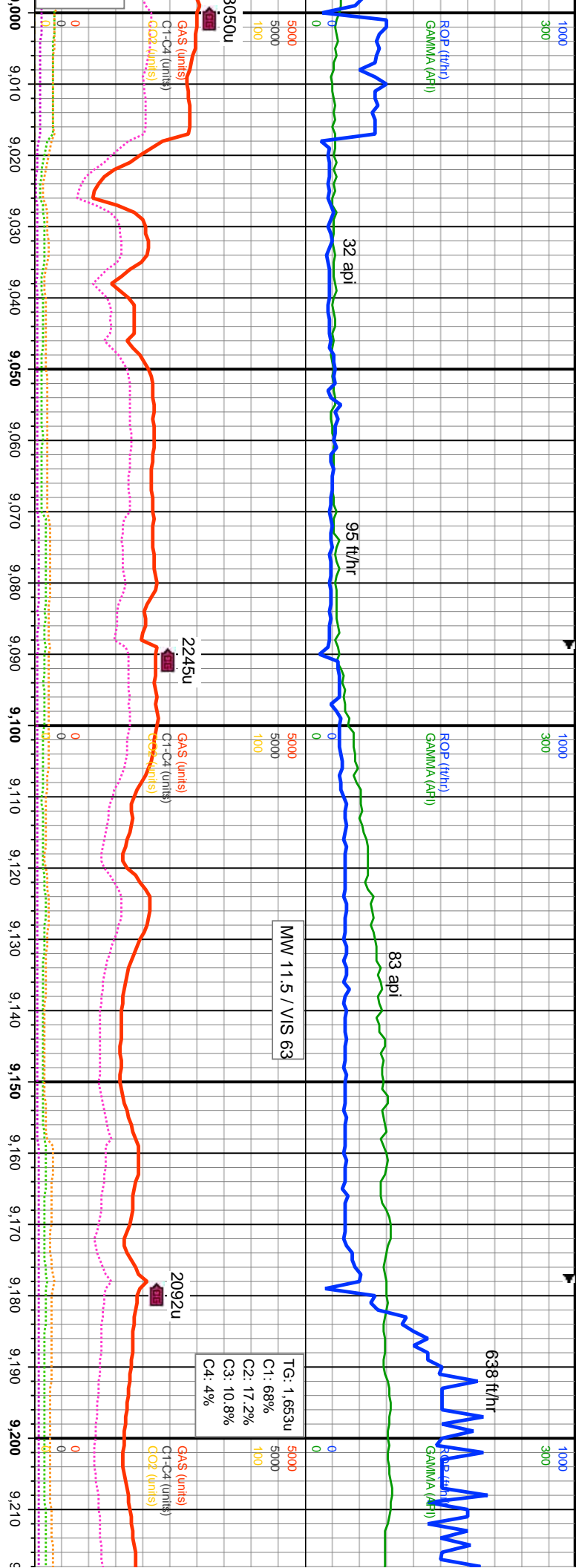
med-drkg.

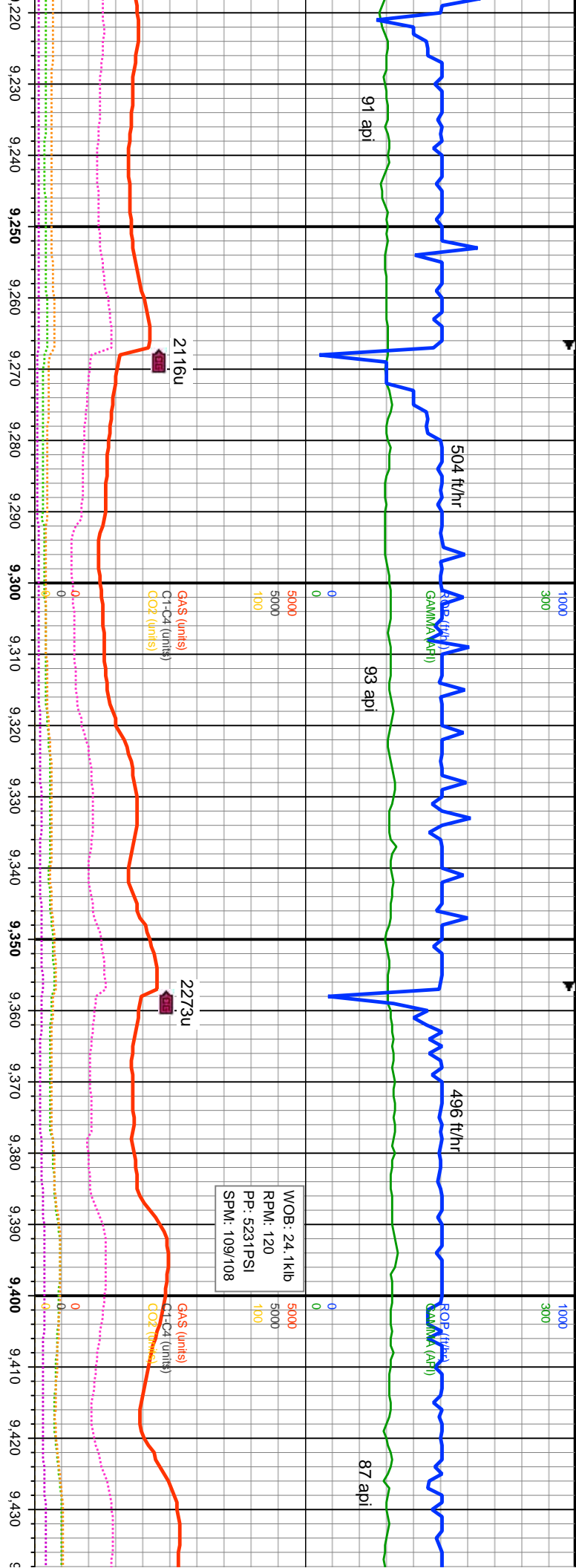
85% SS-SLTY SS: med-drkg, med-dkbn, modly sft-mod frm, fri, vfg, v slty,
modly-ply srt, sr-sb blkly clus, predy cons, modly calc: 15% SLTY SH: med-drkg,
sb ply-sb blkly, modly sft-fri, rthy, grty, slty, sl calc: TR CARB SH

60% SS-SLTY SS: med-drkg, med-dkbn, modly sft-mod frm, fri, vfg, v slty,
modly-ply srt, sr-sb blkly clus, predy cons, modly calc: 20% SLTY SH: med-drkg,
sb ply-sb blkly, modly sft-fri, rthy, grty, slty, sl calc: 20% LS: lt-medbn, bf wh-crm,
modly sft-hd, sb blkly-sb ply-ireg, wxy, micxn-xt lex, v calc

7350

7350



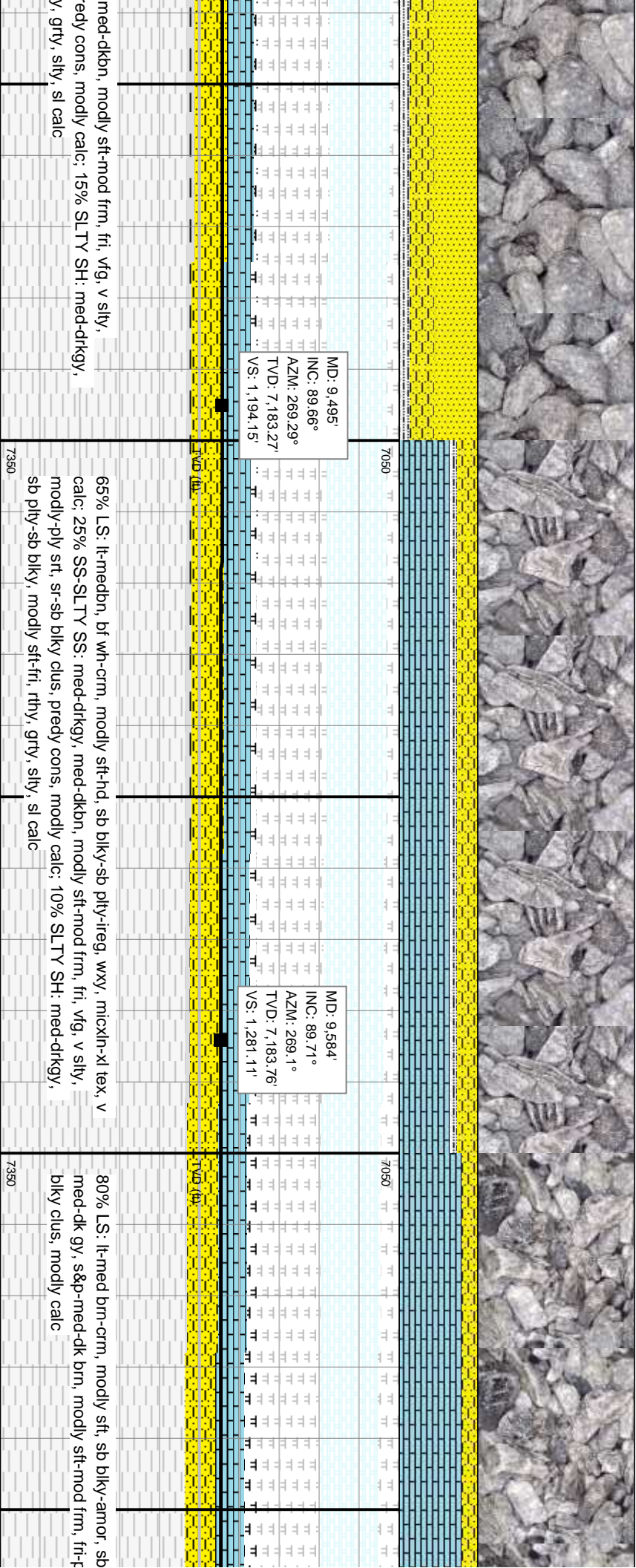
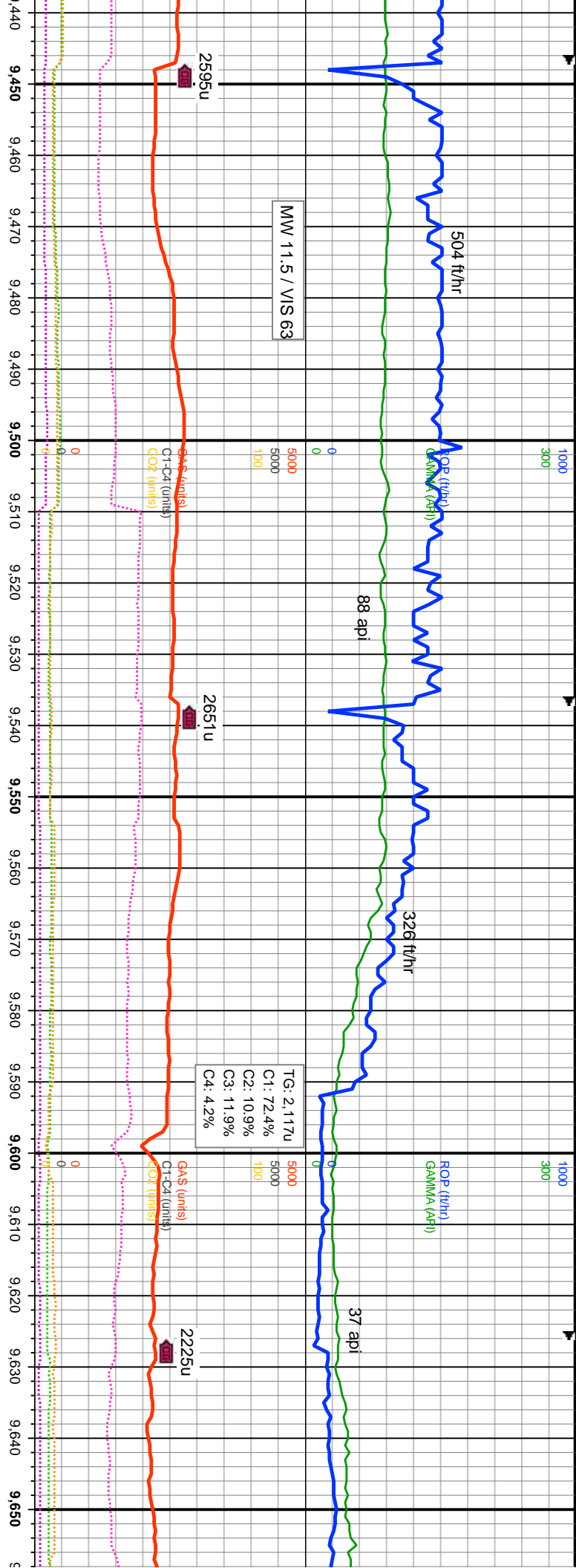


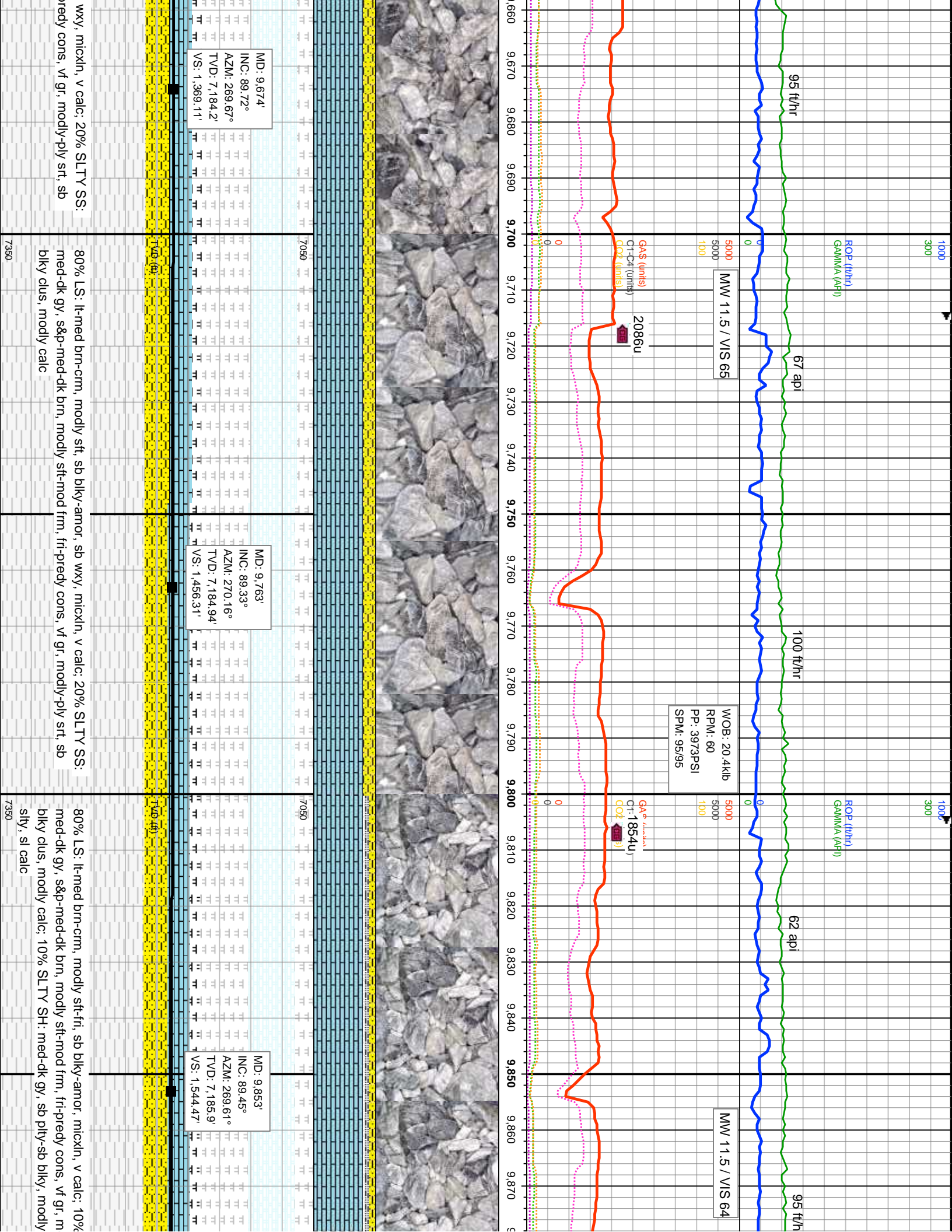
MD: 9.225'	MD: 9.315'	MD: 9.405'
INC: 89.69°	INC: 90.04°	INC: 89.65°
AZM: 269.18°	AZM: 269.68°	AZM: 269.29°
TVD: 7.182.27'	TVD: 7.182.48'	TVD: 7.182.73'
VS: 930.12'	VS: 1,018.14'	VS: 1,106.17'

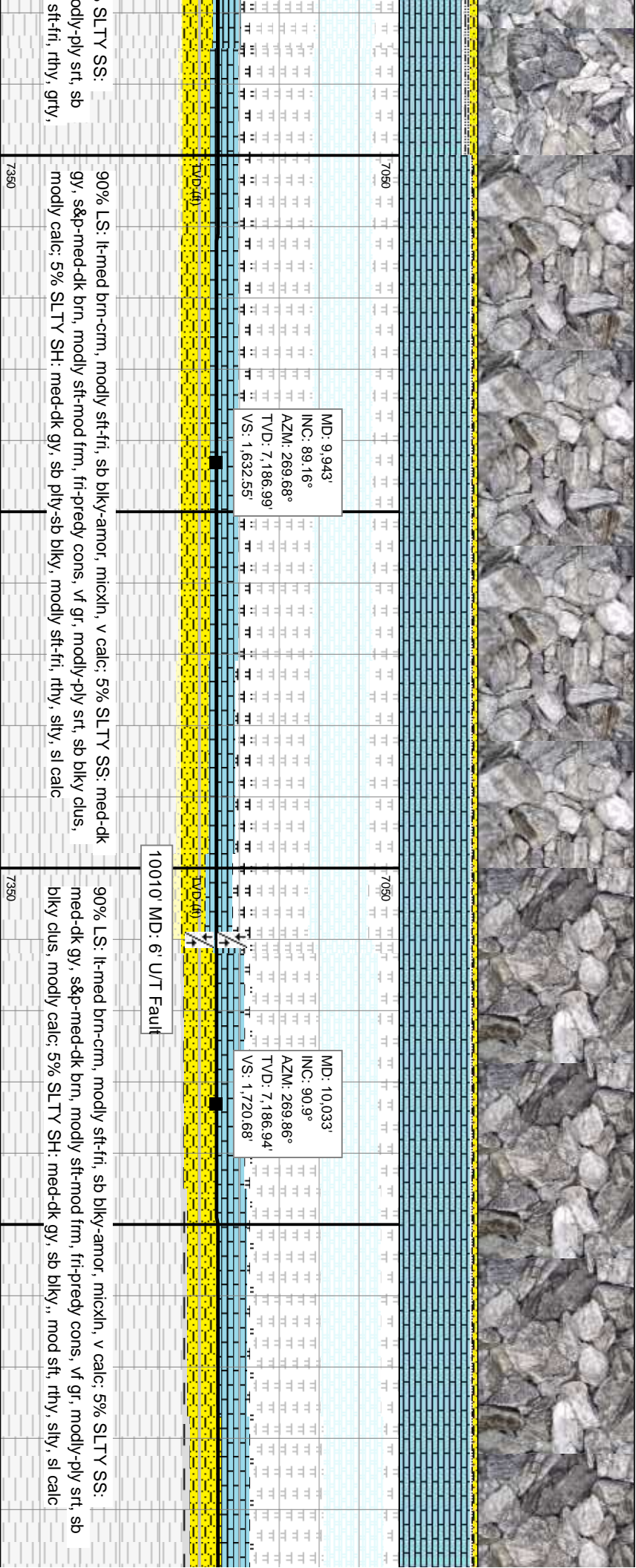
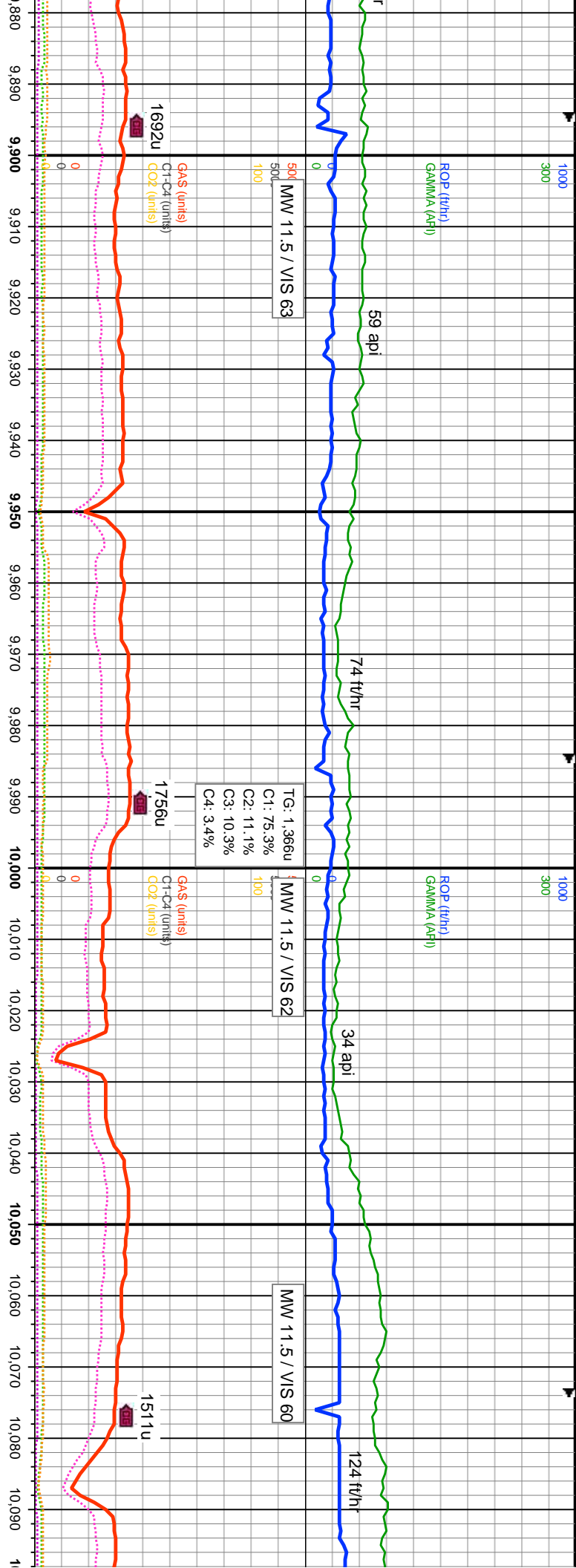
Y SS: med-drkgy, med-dlbn, modly sft-mod frm, fri, vfg, v slty,
i, sr-sb blkly clus, priedy cons, modly calc: 20% SLTY SH: med-drkgy,
y, modly sft-fri, rthy, grty, slty, sl calc: TR LS

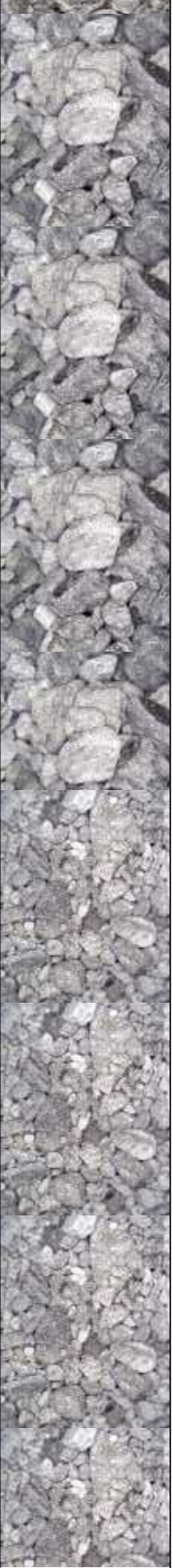
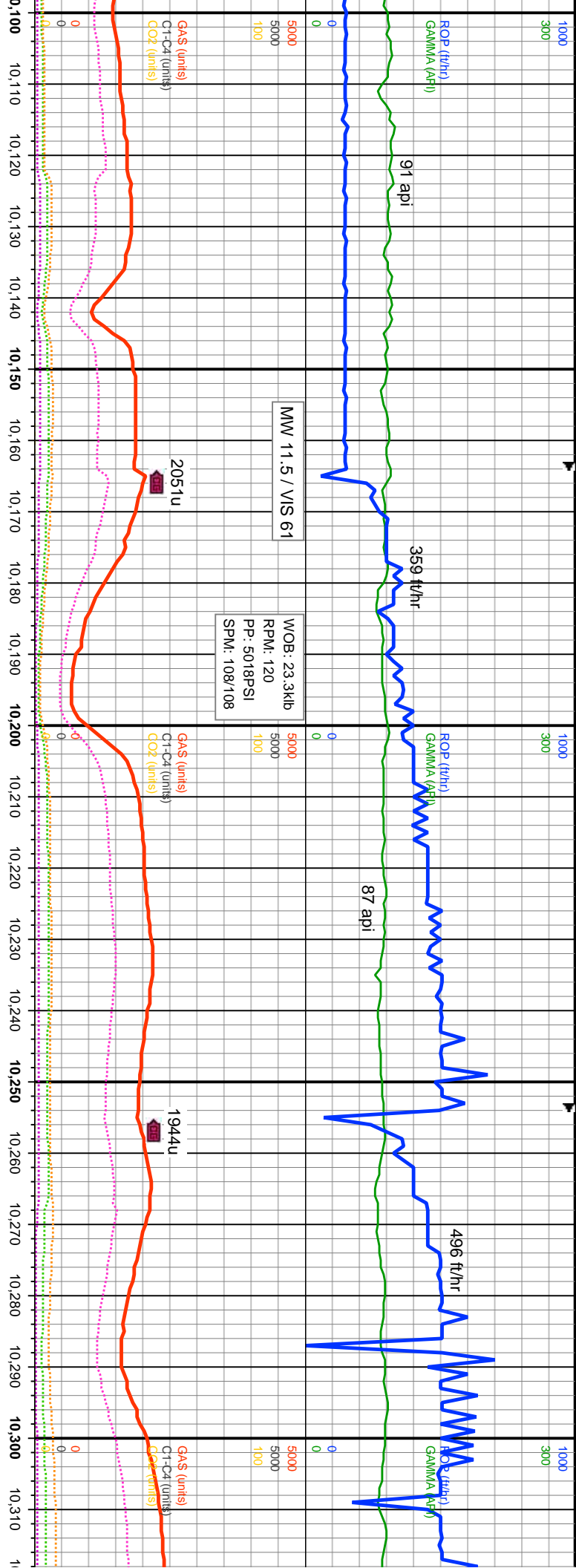
85% SS-SLTY SS: med-drkgy, med-dlbn, modly sft-mod frm, fri, vfg, v slty,
modly-ply srt, sr-sb blkly clus, priedy cons, modly calc: 15% SLTY SH: med-drkgy,
sb ply-sb blkly, modly sft-fri, rthy, grty, slty, sl calc

85% SS-SLTY SS: med-drkgy, med-dlbn, modly sft-mod frm, fri, vfg, v slty,
modly-ply srt, sr-sb blkly clus, priedy cons, modly calc: 15% SLTY SH: med-drkgy,
sb ply-sb blkly, modly sft-fri, rthy, grty, slty, sl calc





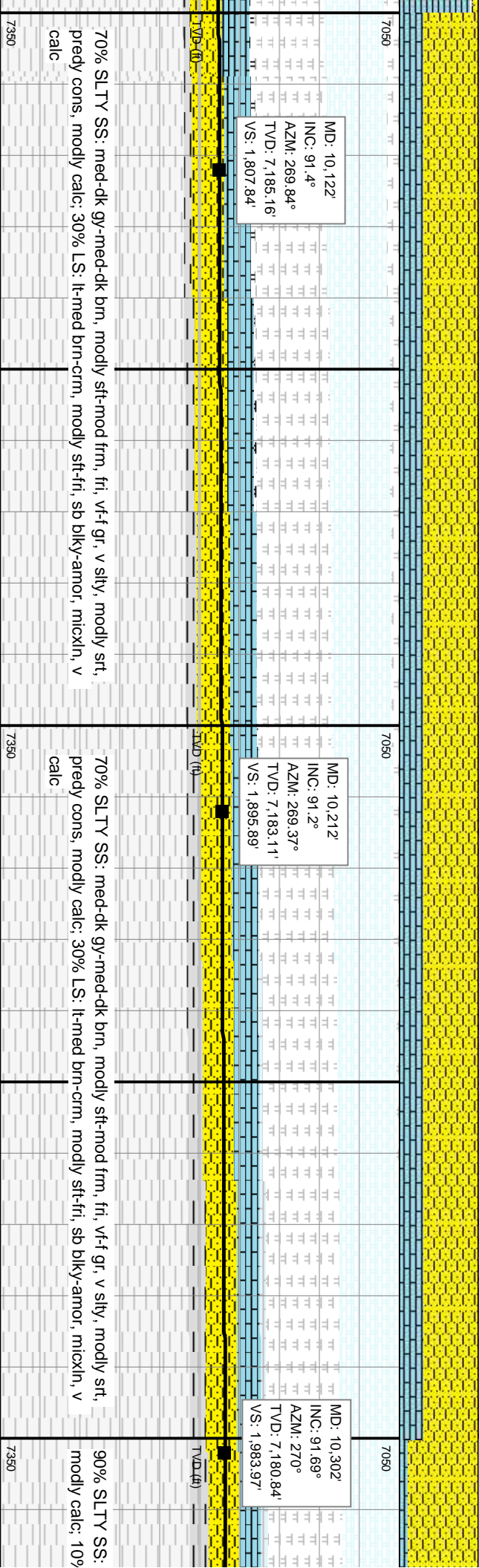


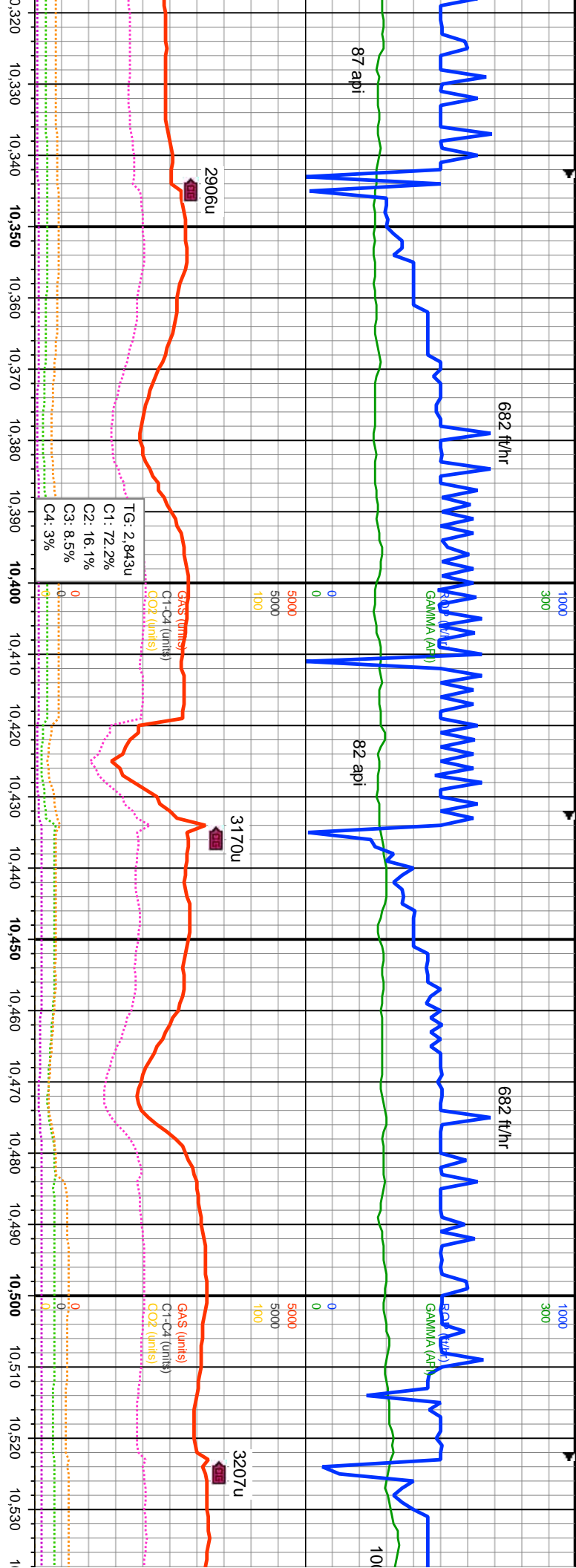


MD: 10,122'
INC: 91.4°
AZM: 269.84°
TVD: 7,185.16'
VS: 1,807.84'

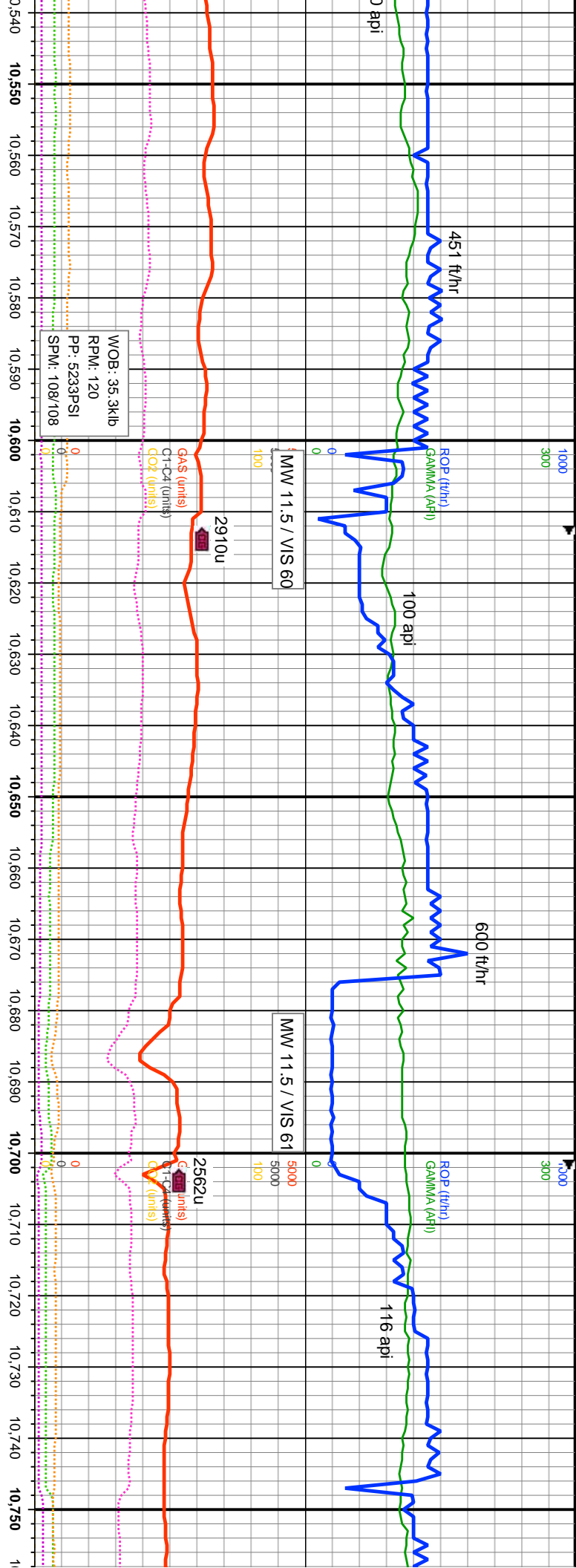
MD: 10,212'
INC: 91.2°
AZM: 269.37°
TVD: 7,183.11'
VS: 1,895.89'

MD: 10,302'
INC: 91.69°
AZM: 270°
TVD: 7,180.84'
VS: 1,983.97'

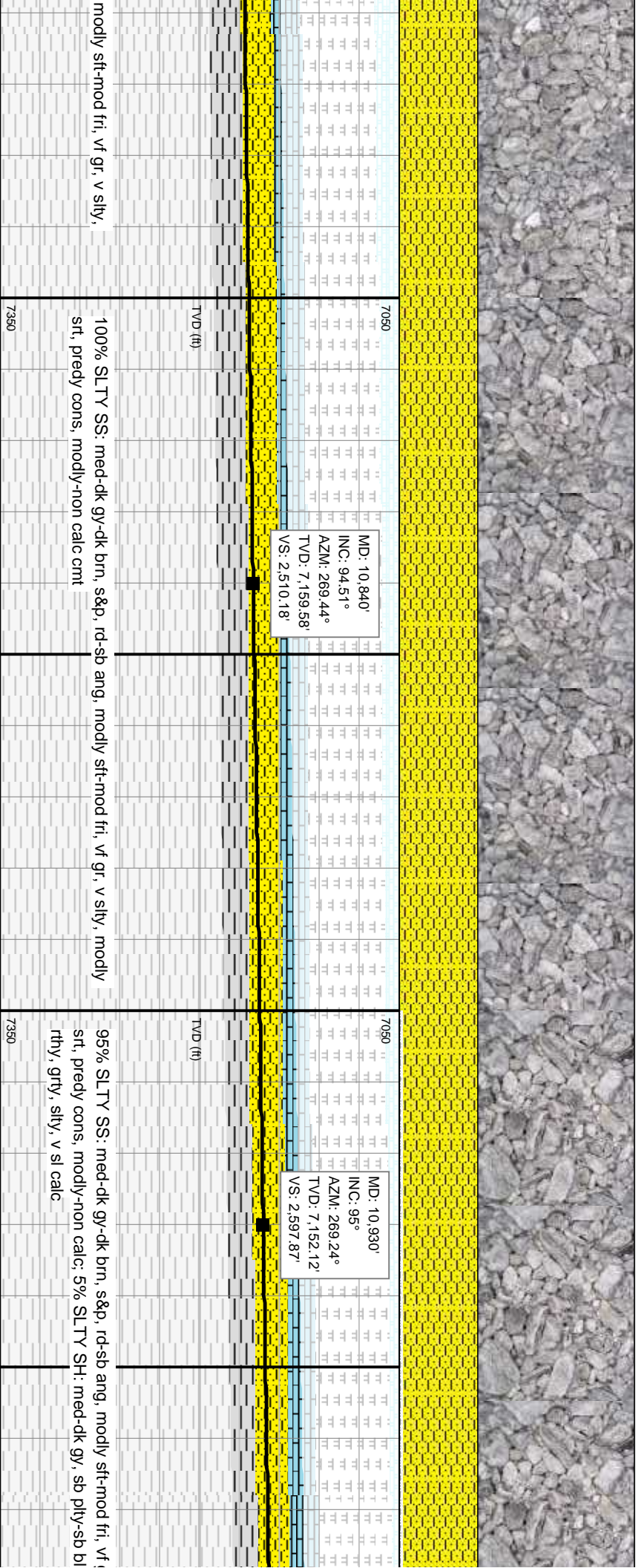
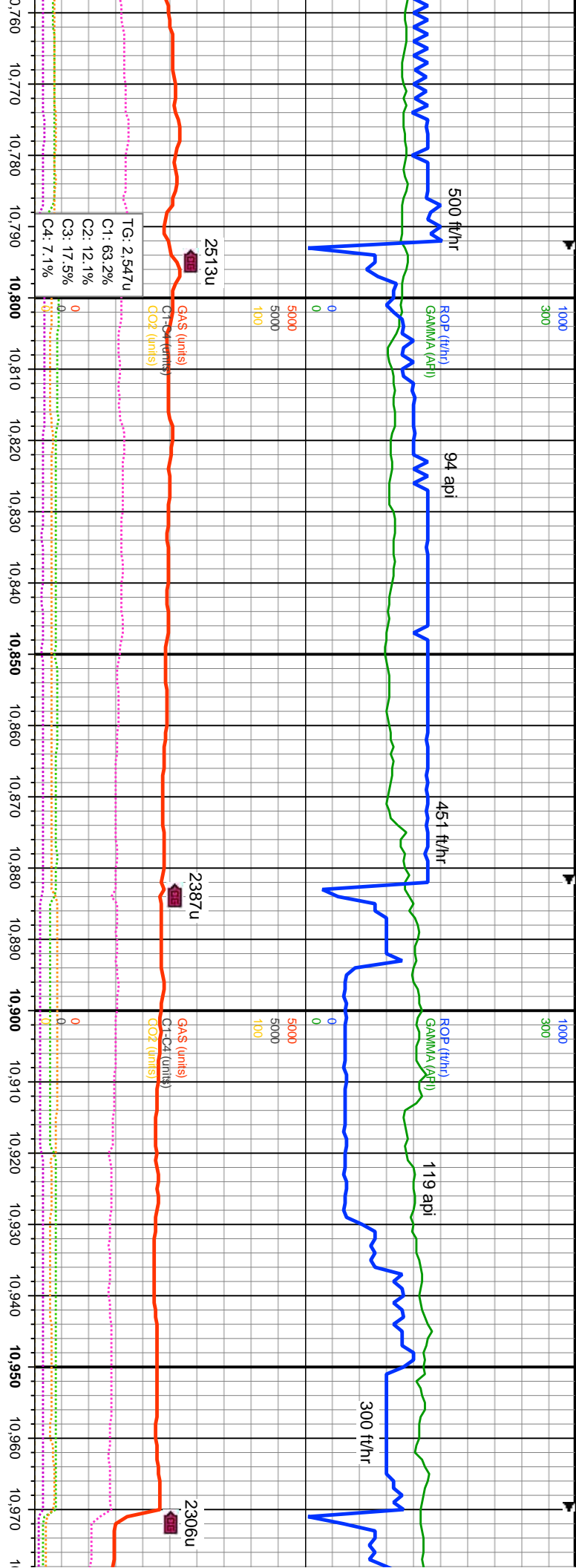




med-dk gy-dk brn, modly sft-mod fri, v-f gr, v silty, modly srt, predy cons, 6 LS, lt-med brn-crm, modly srt-fri, sb blk-y-armor, micxn, v calc	MD: 10.392' INC: 91.33° AZM: 269.84° TVD: 7.178.47' VS: 2.072.11'	7050
100% SLTY SS: med-dk gy-dk brn, s&p, lt gy ip, rd-sb ang, modly sft-mod fri, v-f gr, v silty, modly srt, predy cons, modly v calc cnt	MD: 10.481' INC: 91.59° AZM: 269.96° TVD: 7.176.2' VS: 2.159.27'	7050
100% SLTY SS: med-dk gy-dk brn, modly srt, predy cons, modly calc	MD: 10.481' INC: 91.59° AZM: 269.96° TVD: 7.176.2' VS: 2.159.27'	7050



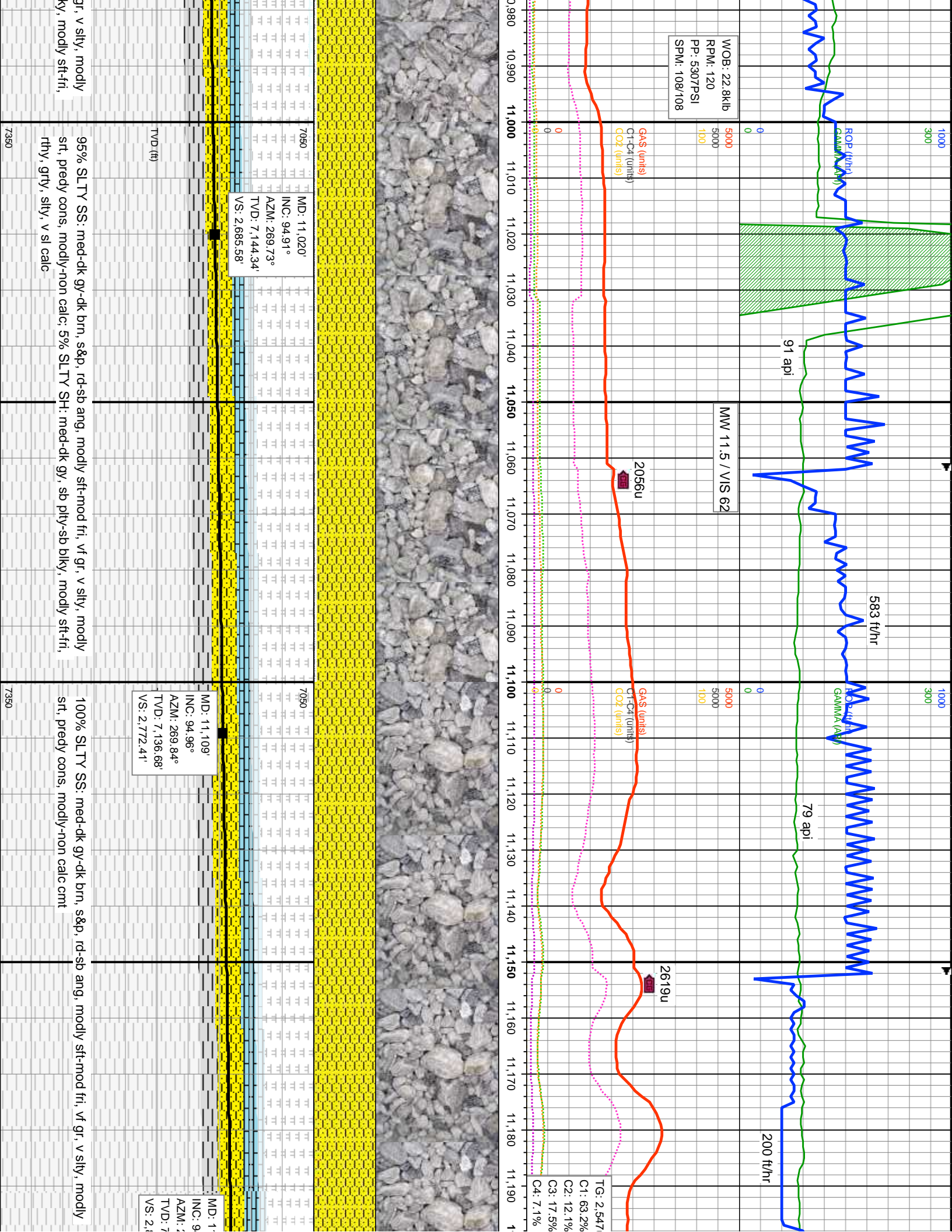
<p>MD: 10.571' INC: 91.49° AZM: 269.76° TVD: 7.173.78' VS: 2.247.4'</p>	<p>7050</p>	<p>MD: 10.661' INC: 91.36° AZM: 269.61° TVD: 7.171.55' VS: 2.335.47'</p>	<p>7050</p>
<p>100% SLTY SS: med-dk gy-dk brn, s&p, lt gy ip, rd-sb ang, modly sft-mod fri, vf-f gr, v silty, modly srt, predy cons, modly calc cnt, grdg to vf SS ip</p>	<p>7350</p>	<p>100% SLTY SS: med-dk gy-dk brn, s&p, lt gy ip, rd-sb ang, modly sft-mod fri, vf-f gr, v silty, modly srt, predy cons, modly-non calc cnt</p>	<p>7350</p>

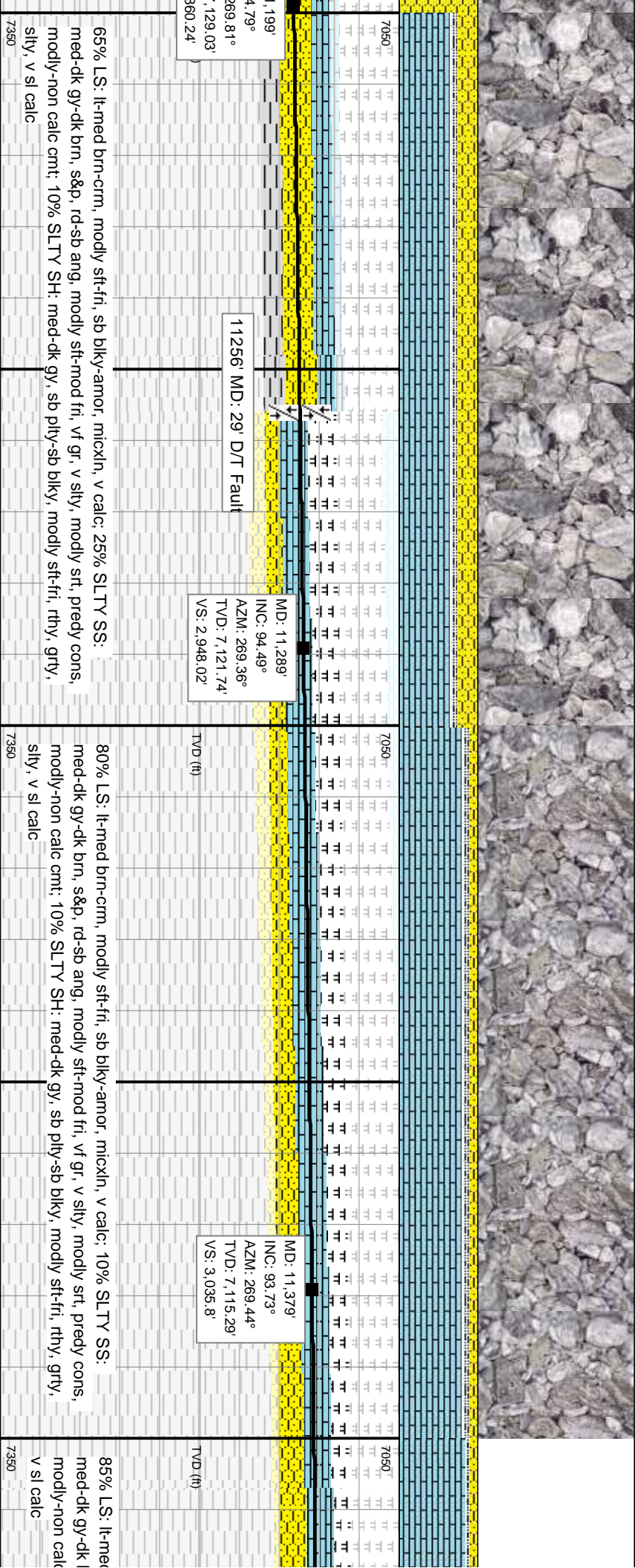
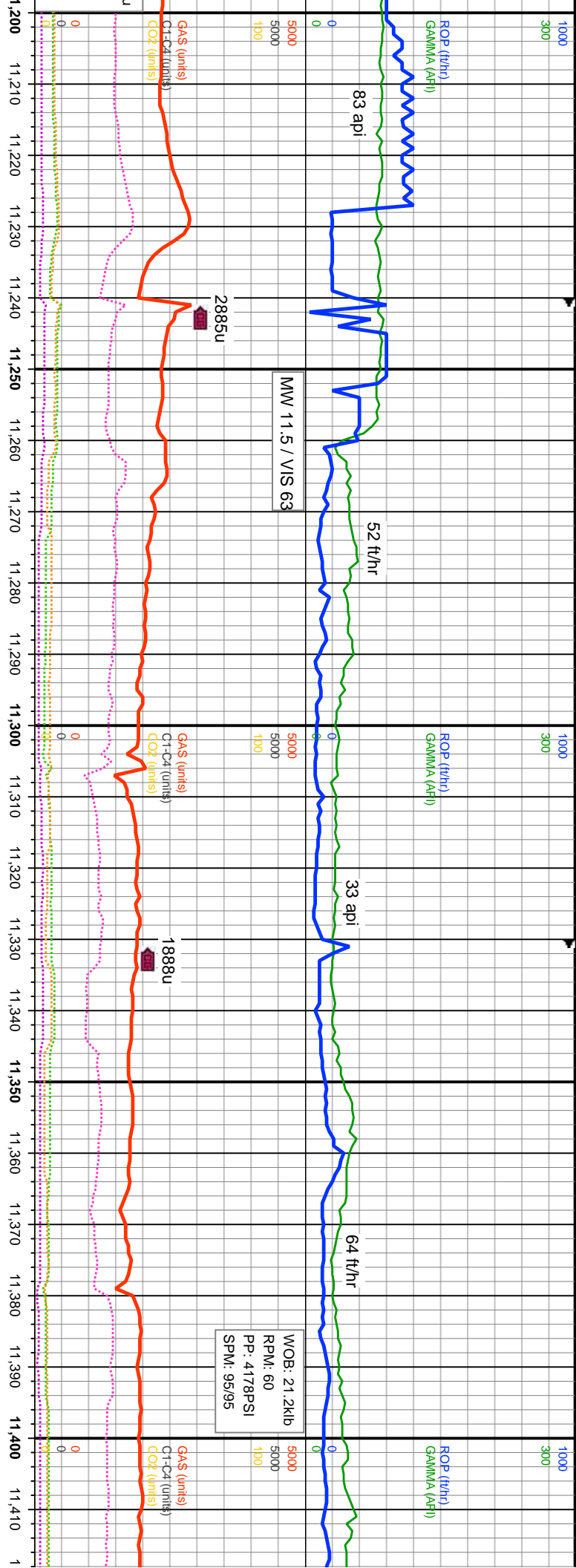


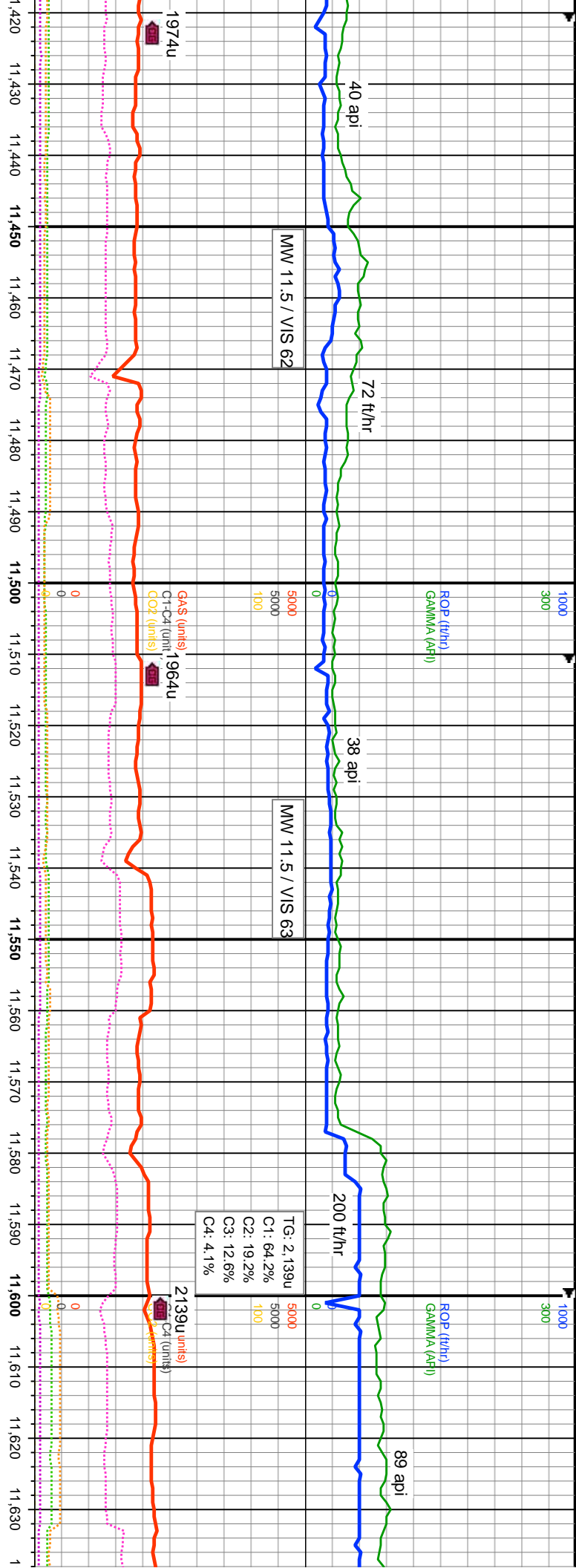
modly sft-mod fri, vř gr, v slty,

100% SLTY SS: med-dk gy-dk brn, s&p, rd-sb ang, modly sft-mod fri, vř gr, v slty, modly srt, predy cons, modly-non calc cmt

95% SLTY SS: med-dk gy-dk brn, s&p, rd-sb ang, modly sft-mod fri, vř srt, predy cons, modly-non calc; 5% SLTY SH: med-dk gy, sb plty-sb bl rthy, grty, slty, v sl calc







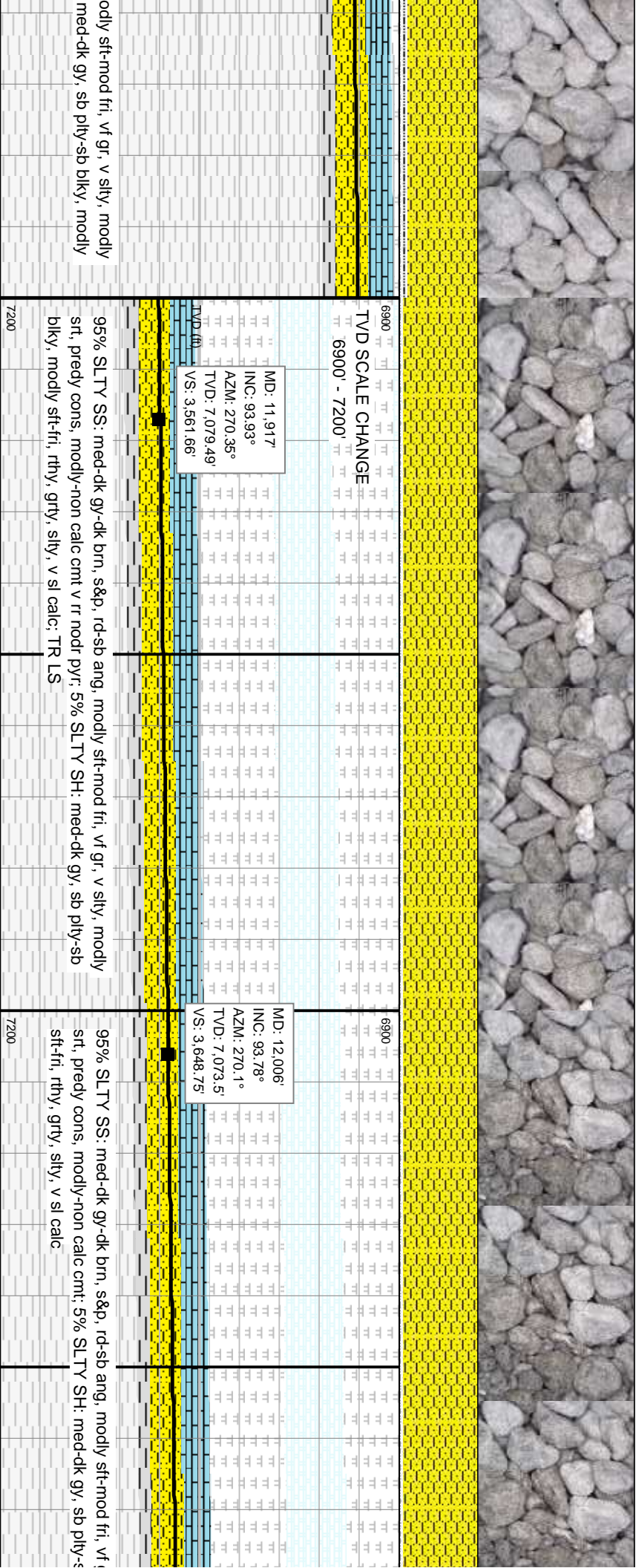
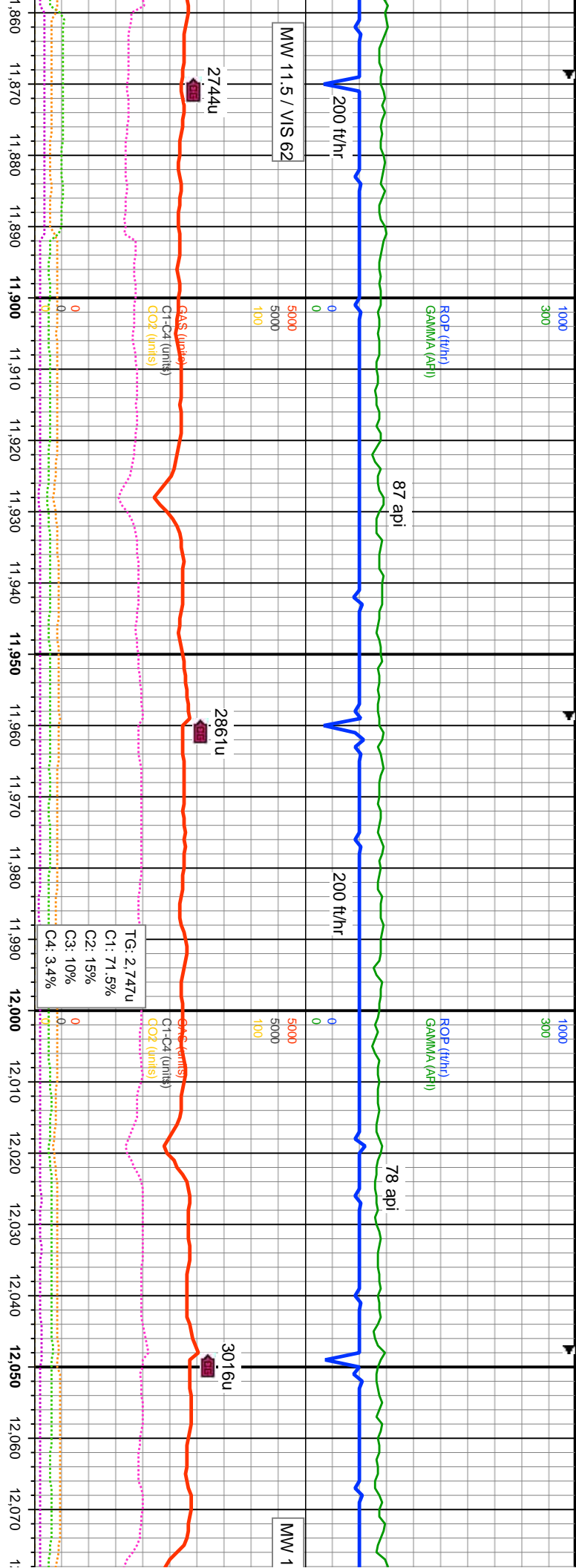
MD: 11,468'
INC: 93.92°
AZM: 269.58°
TVD: 7,109.35'
VS: 3,122.68'

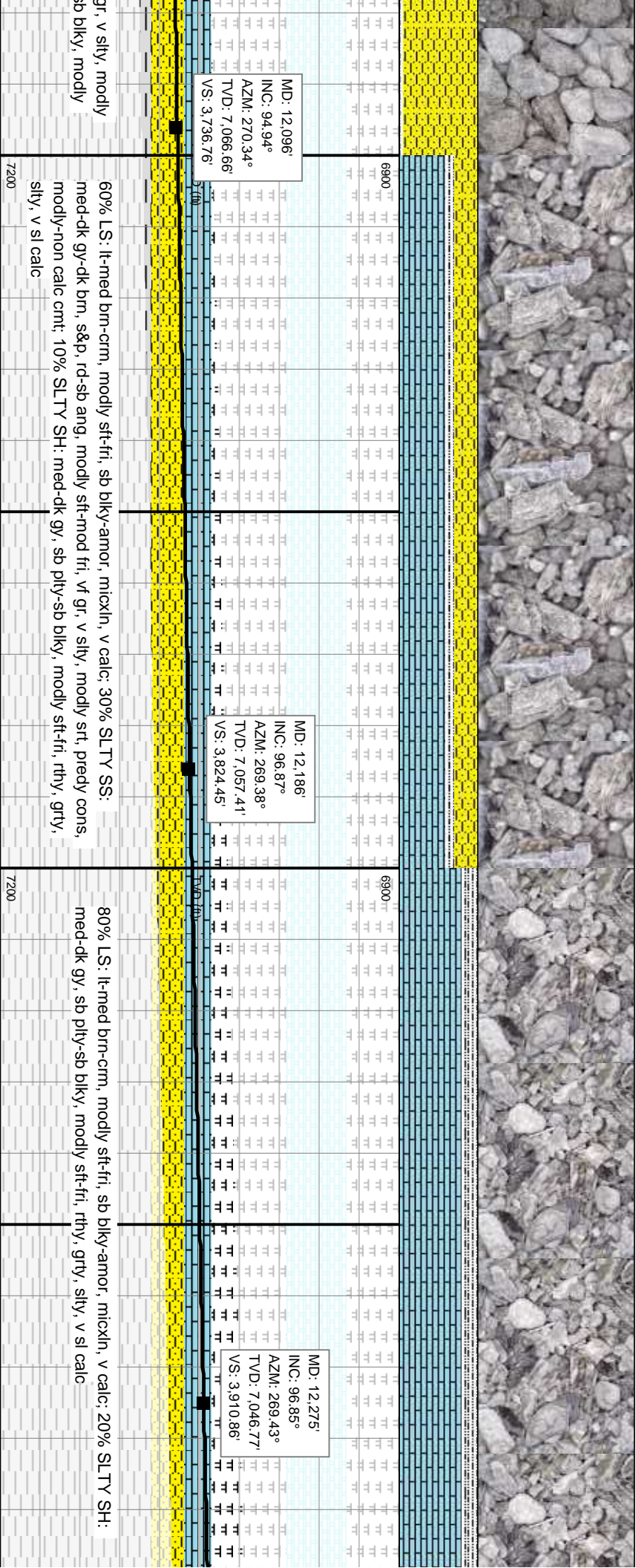
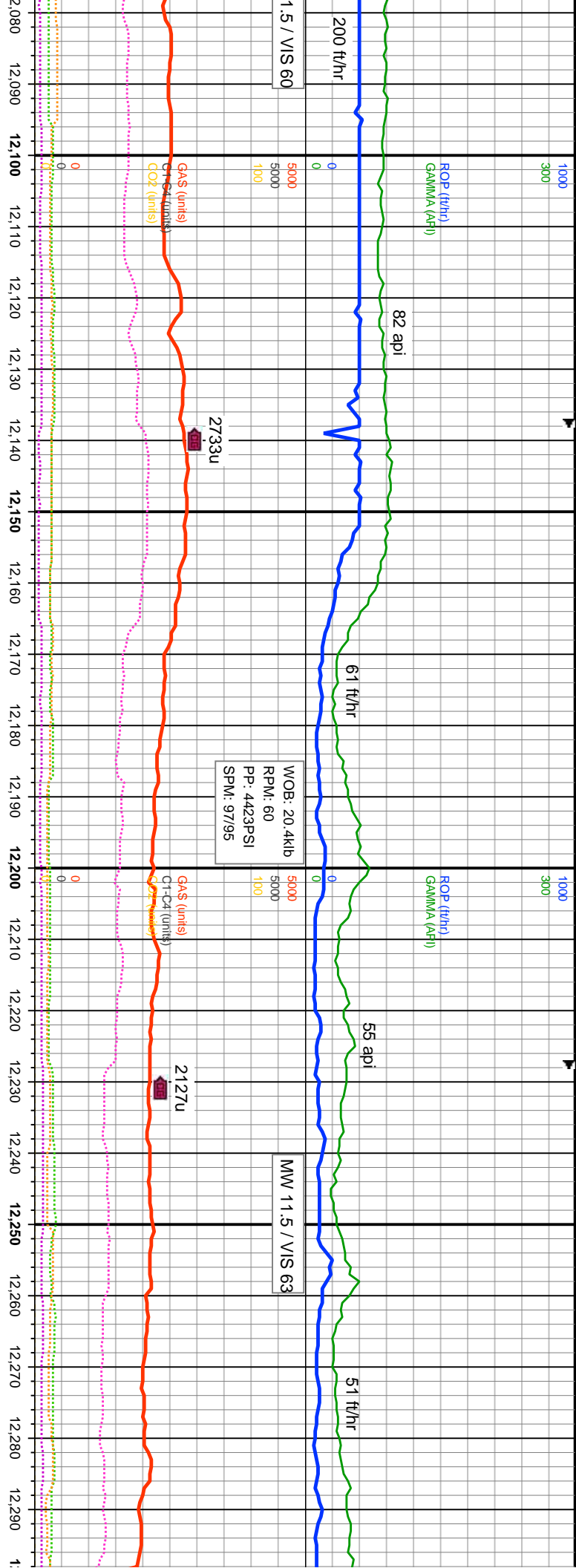
MD: 11,558'
INC: 93.58°
AZM: 269.43°
TVD: 7,103.46'
VS: 3,210.53'

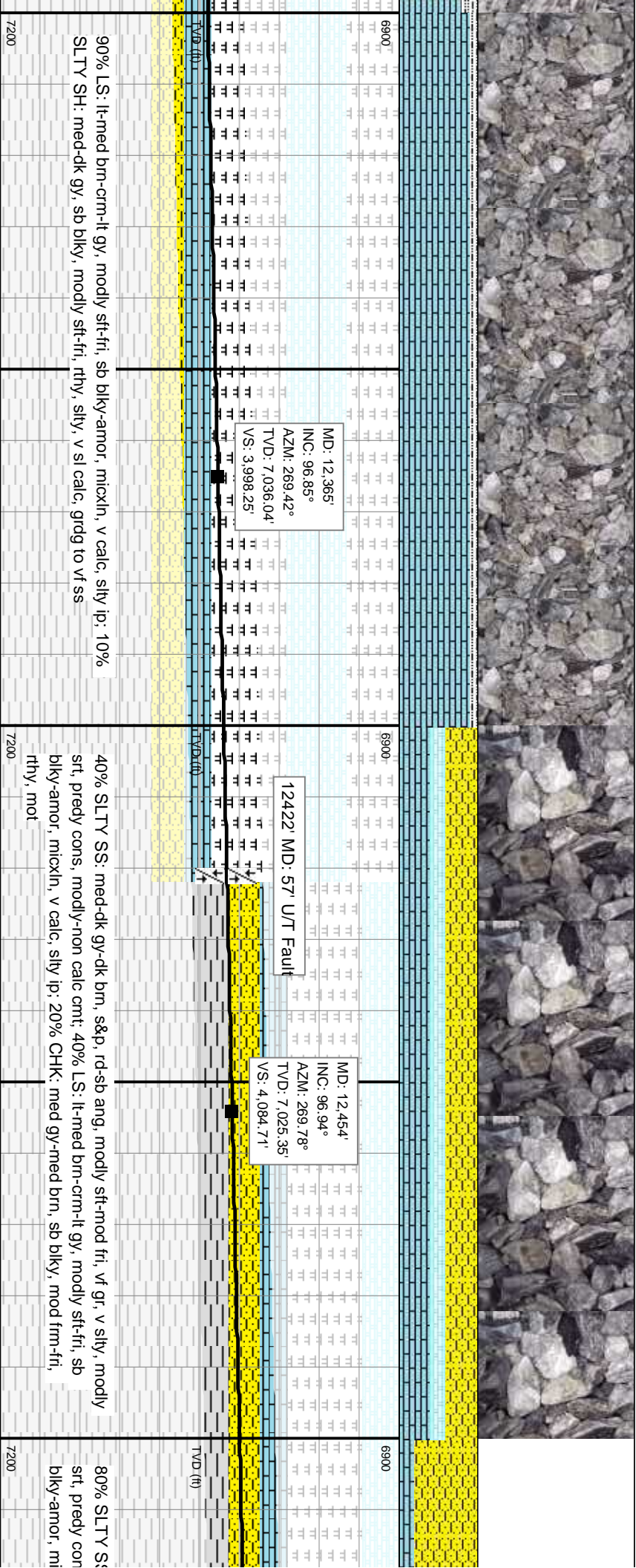
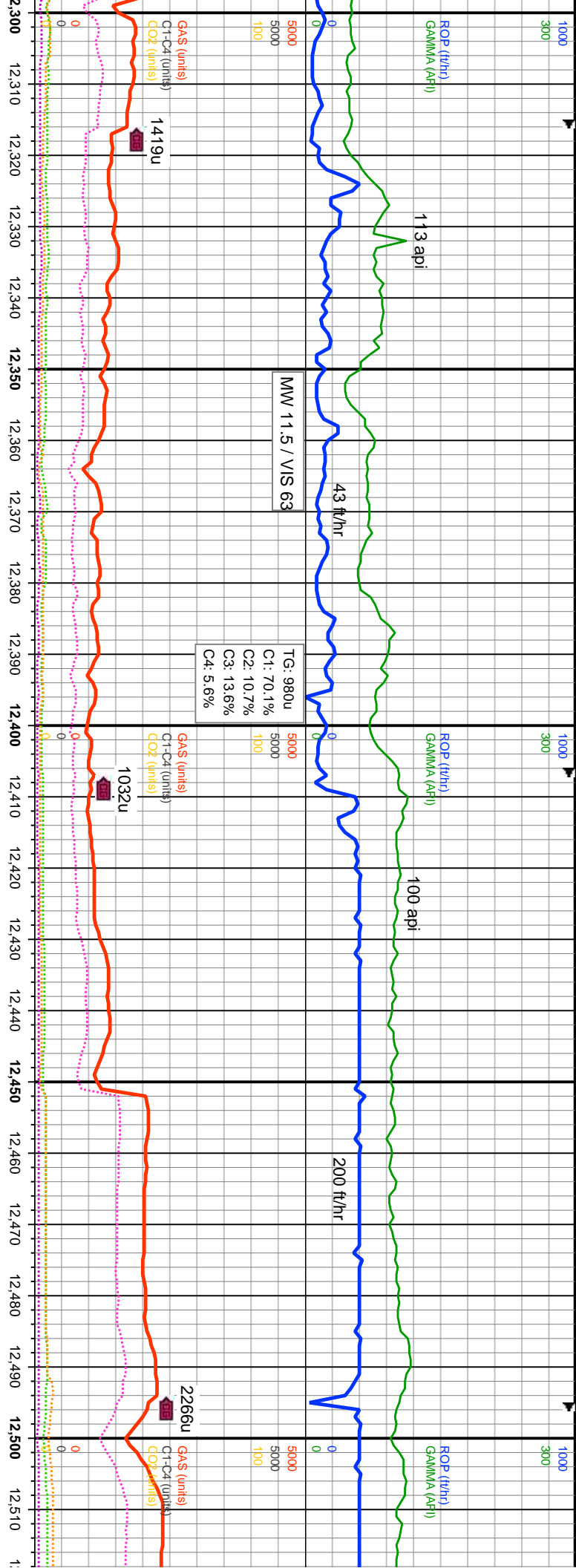
brn-crm, modly sft-fri, sb blk-armor, micxln, v calc: 10% SLTY SS:
brn, s&p, rd-sb ang, modly sft-mod fri, v f gr, v silty, modly srt, predy cons,
c cnt; 5% SLTY SH: med-dk gy, sb ply-sb blk-armor, modly sft-fri, rthy, grty, silty,
v sl calc

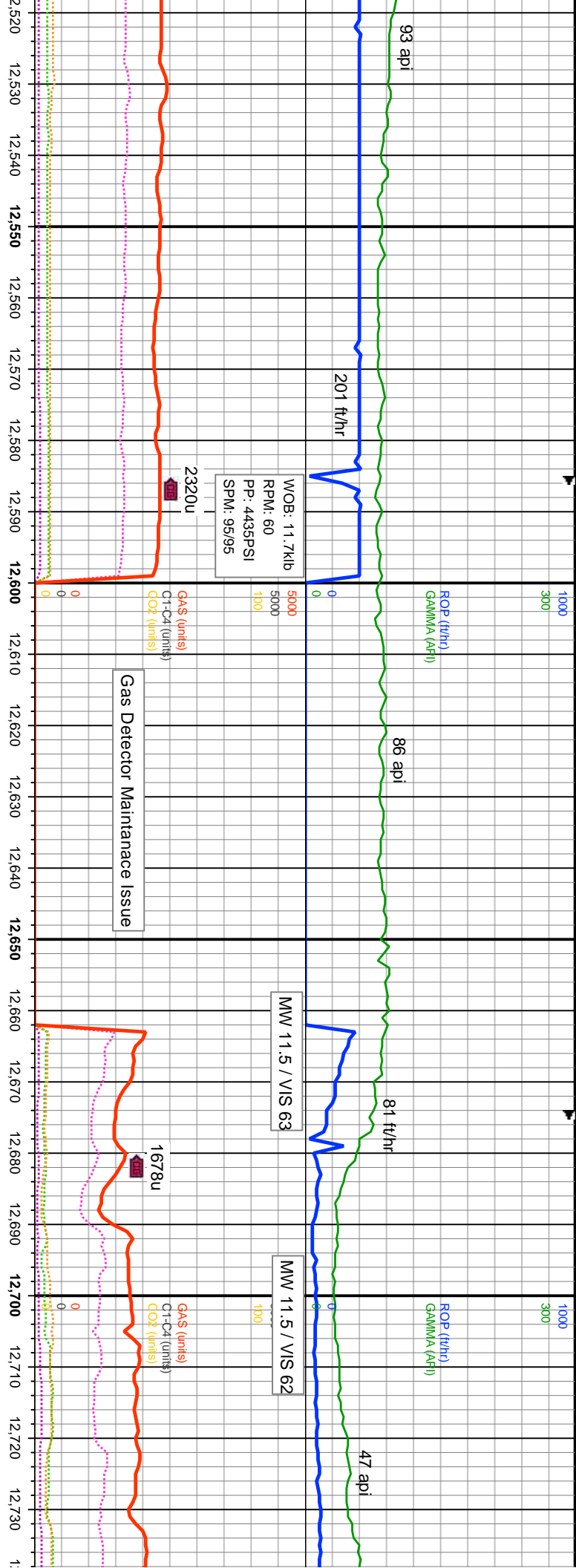
70% LS: lt-med brn-crm, modly sft-fri, sb blk-armor, micxln, v calc: 25% SLTY SS:
med-dk gy-dk brn, s&p, rd-sb ang, modly sft-mod fri, v f gr, v silty, modly srt, predy cons,
modly-non calc cnt; 5% SLTY SH: med-dk gy, sb ply-sb blk-armor, modly sft-fri, rthy, grty, silty,
v sl calc

50% SLTY SS: med-dk gy-dk brn
srt, predy cons, modly-non calc cnt
blk-armor, micxln, v calc: 10% SLTY
grty, silty, v sl calc







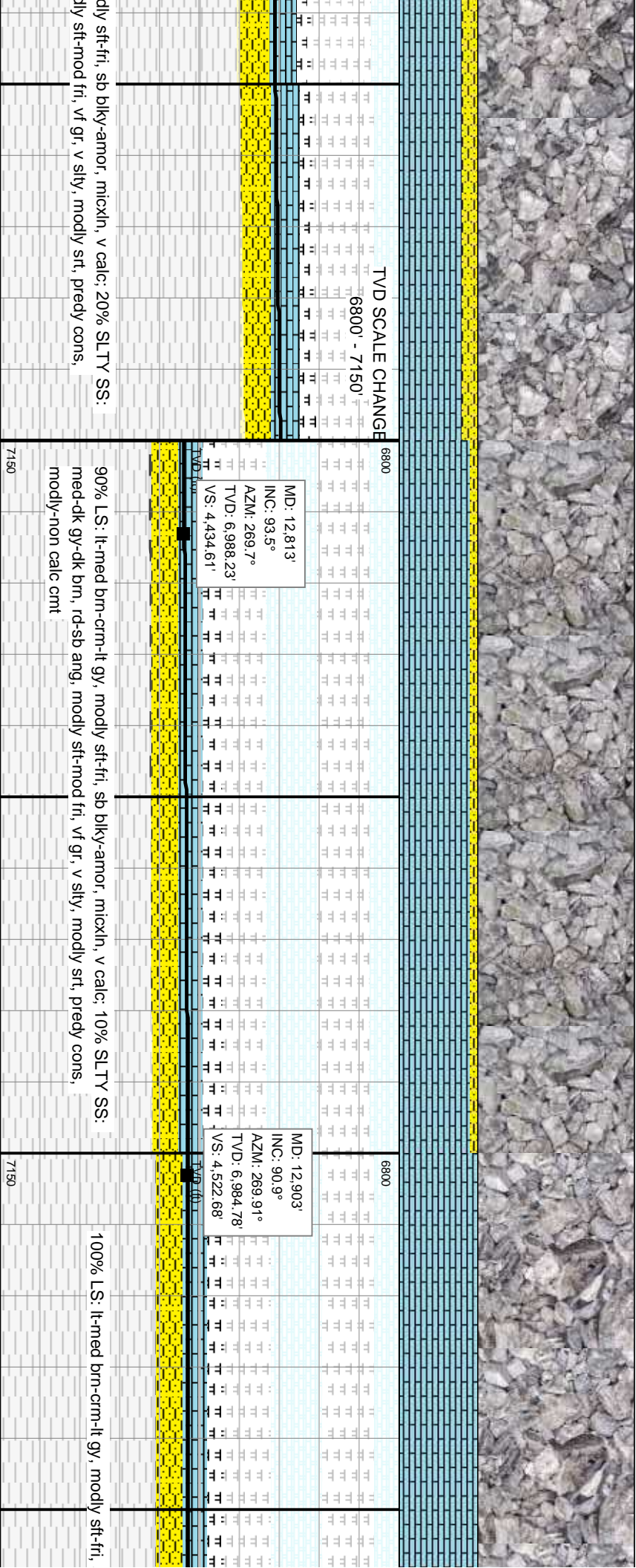
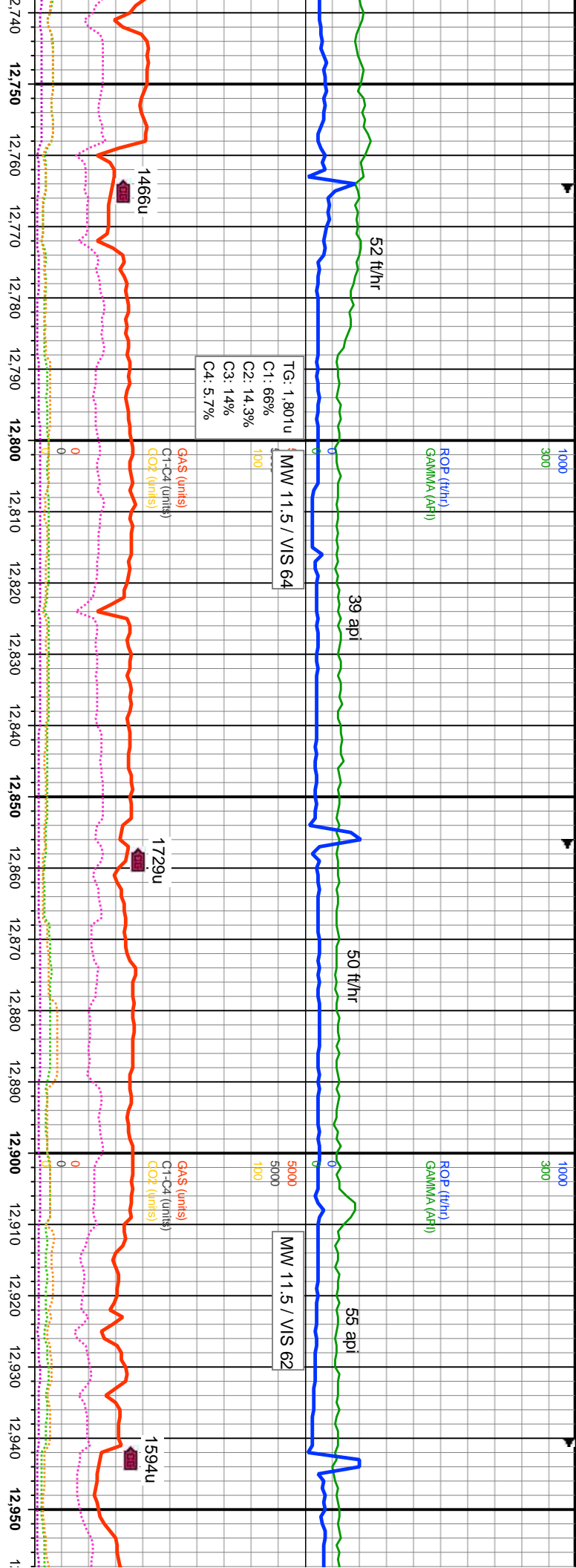


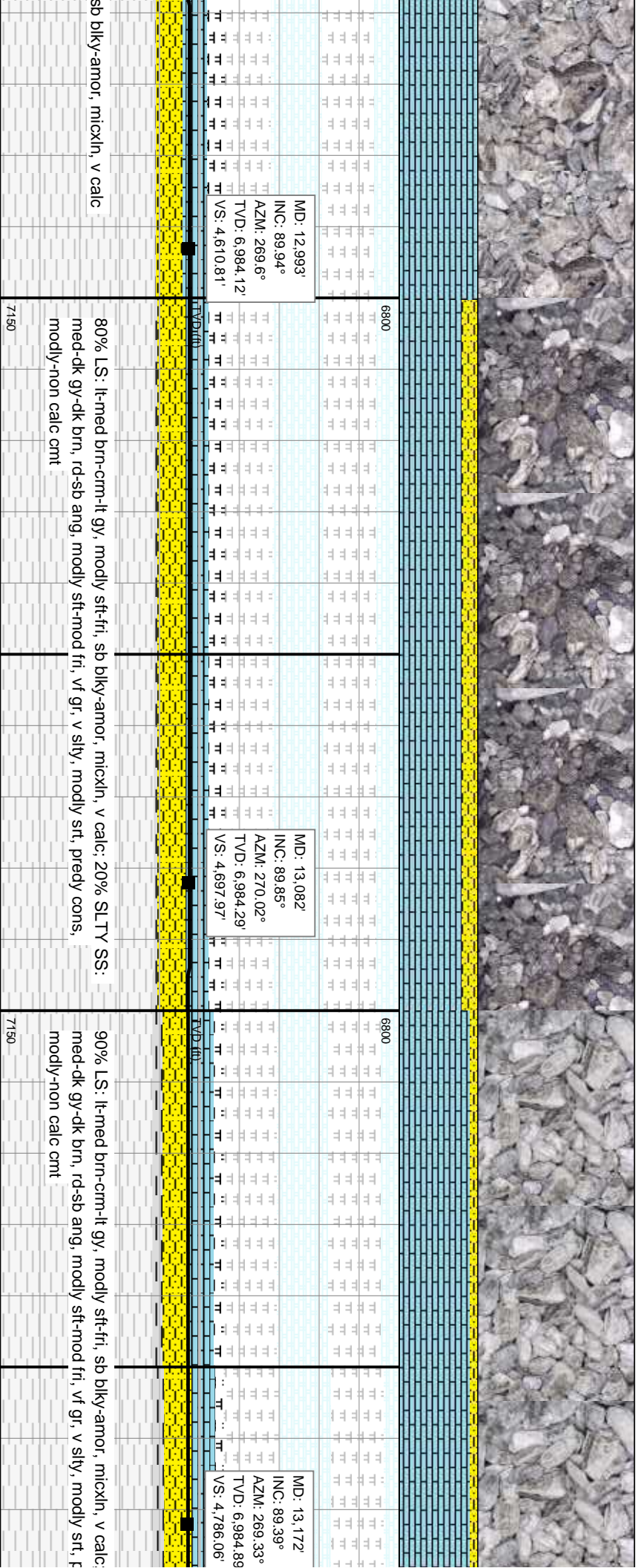
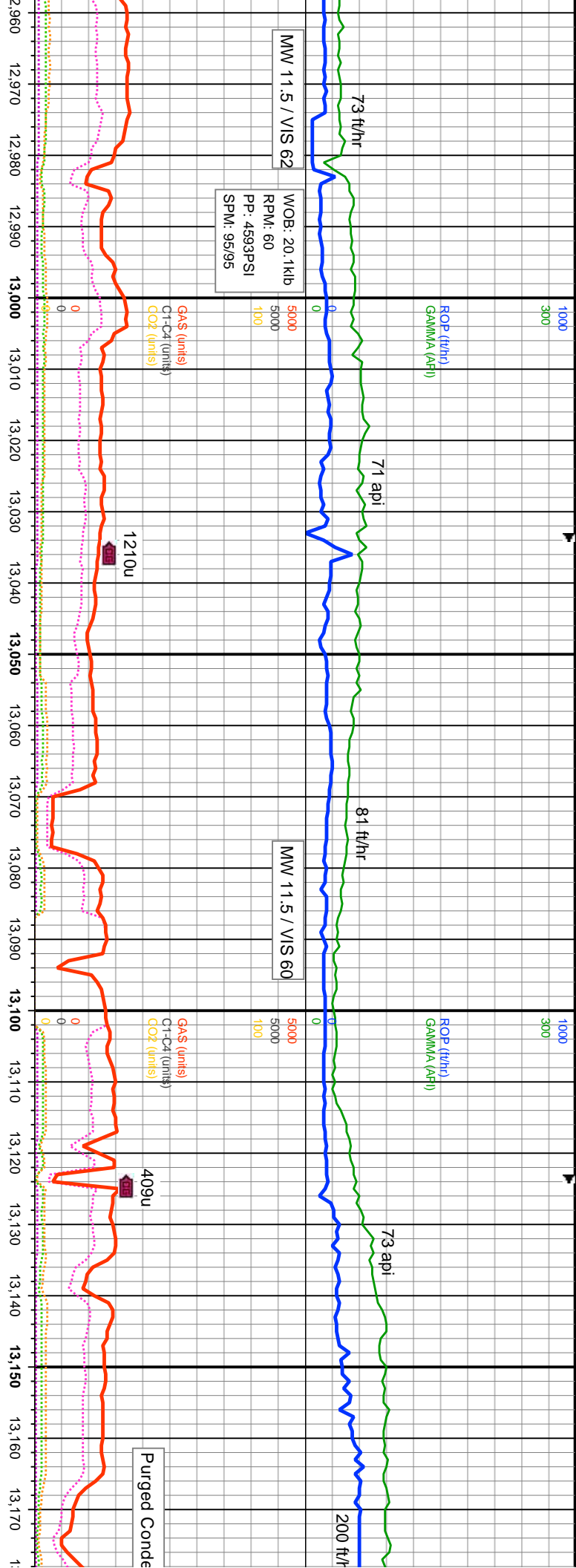
MD: 12,544'
INC: 96.91°
AZM: 270.2°
TVD: 7,014.5'
VS: 4.172,27'

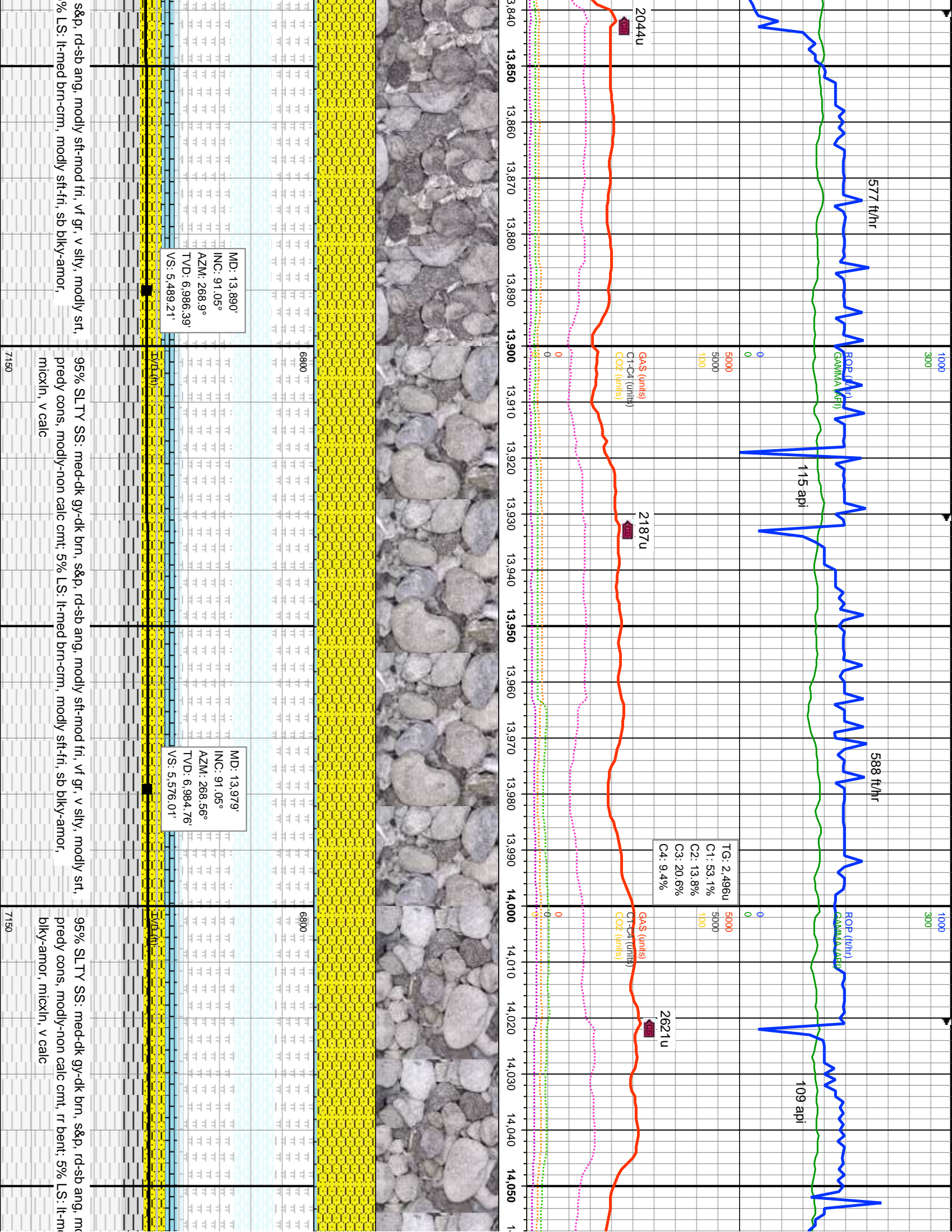
MD: 12,634'
INC: 96.73°
AZM: 269.94°
TVD: 7,003.81'
VS: 4.259,87'

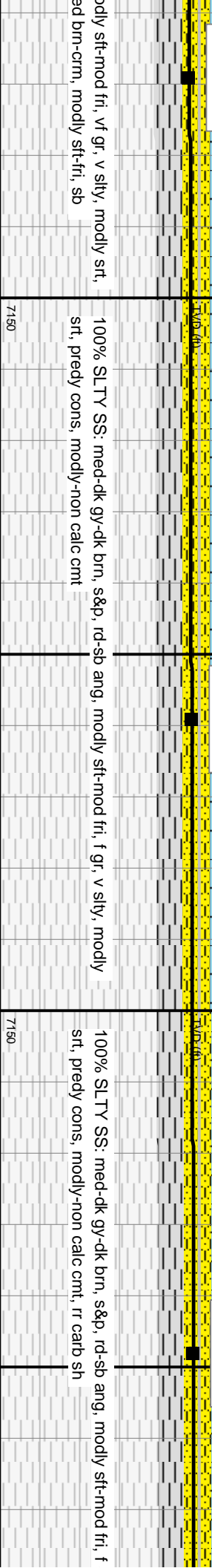
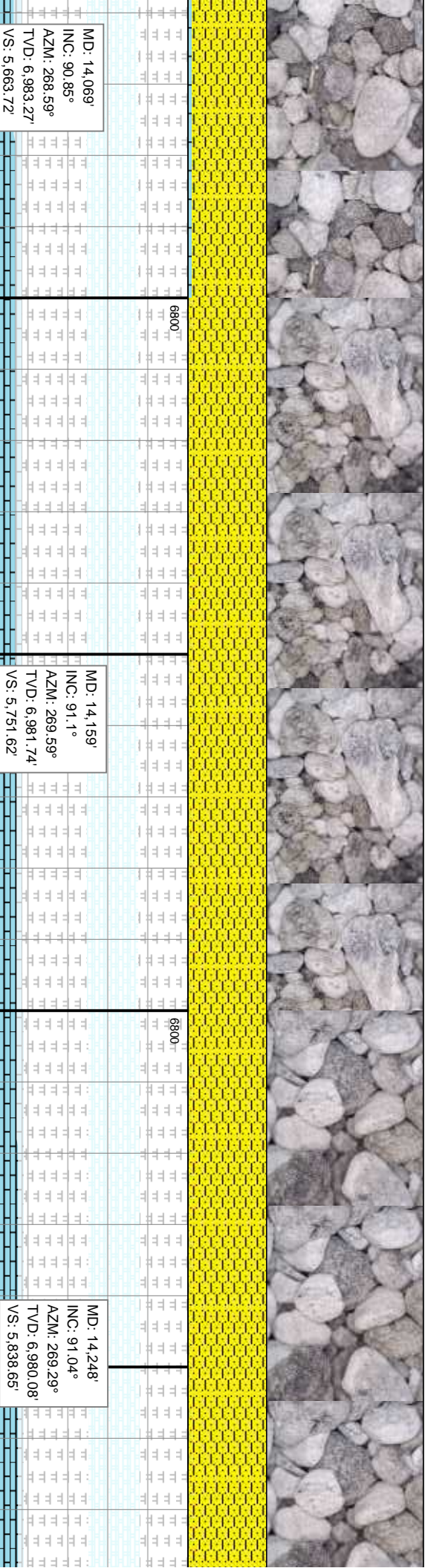
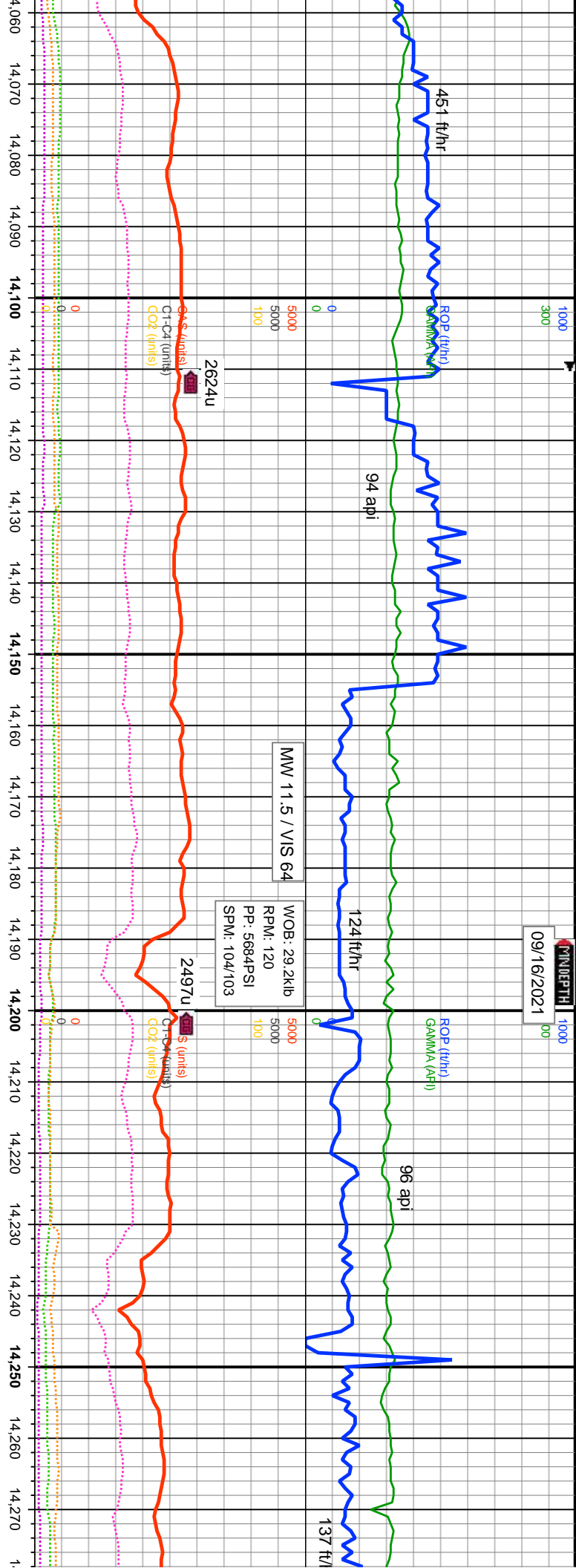
MD: 12,724'
INC: 94.86°
AZM: 270.22°
TVD: 6,994.71'
VS: 4.347,64'

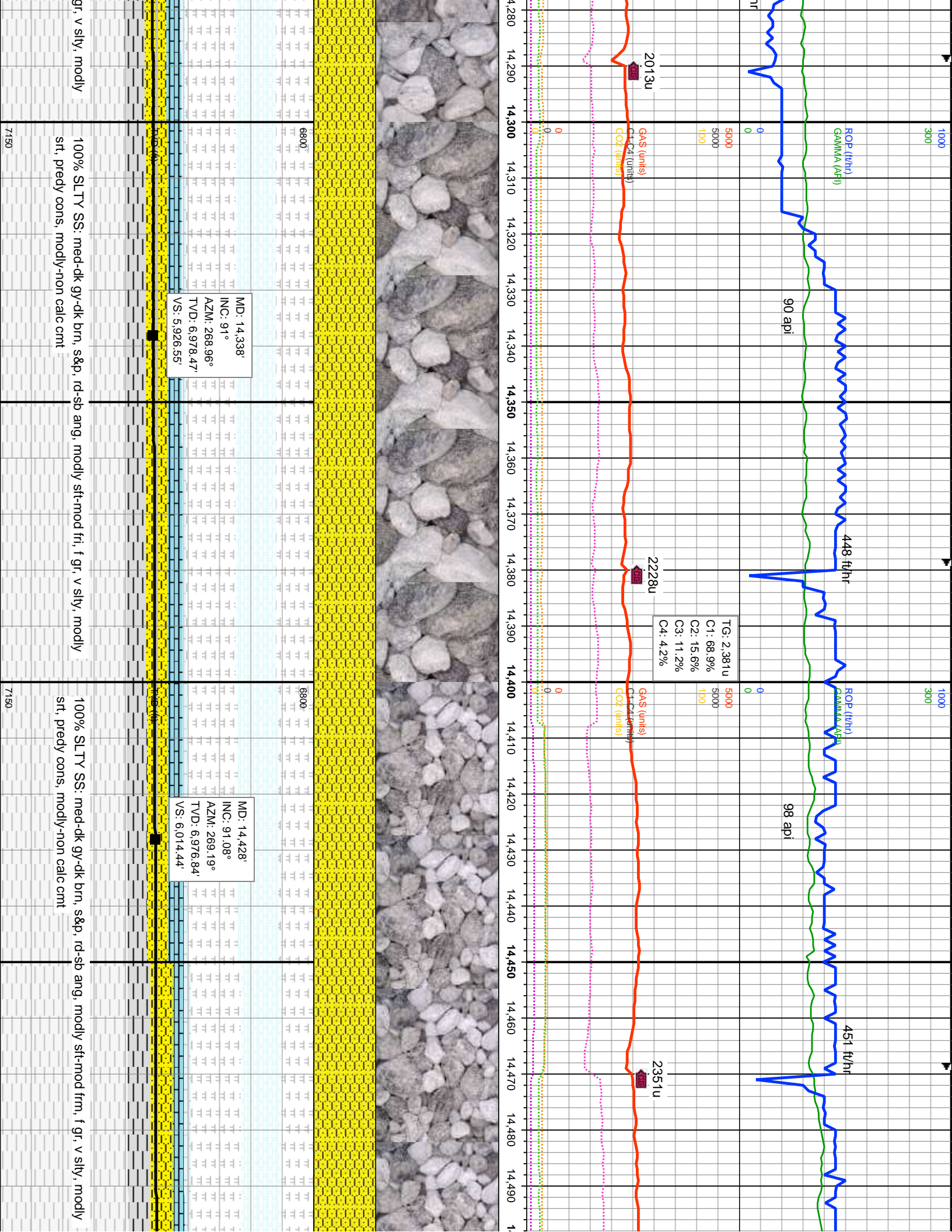
s, med-dk gy-dk brn, s&p, rd-sb ang, modly sft-mod fri, v/ gr, v silty, modly s, modly-non calc cnt; 20% LS: lt-med brn-crm, modly sft-fri, sb cxi/n, v calc	6900	TVD (ft)	90% SLTY SS: med-dk gy-dk brn, rd-sb ang, modly sft-mod fri, v/f gr, v silty, modly srt, pedy cons, modly-non calc cnt; 10% LS: lt-med brn-crm, modly sft-fri, sb blk-y-amor, micx/n, v calc	7200
80% LS: lt-med brn-crm-lt gy, mo med-dk gy-dk brn, rd-sb ang, modly-non calc cnt	6900	TVD (ft)		7200

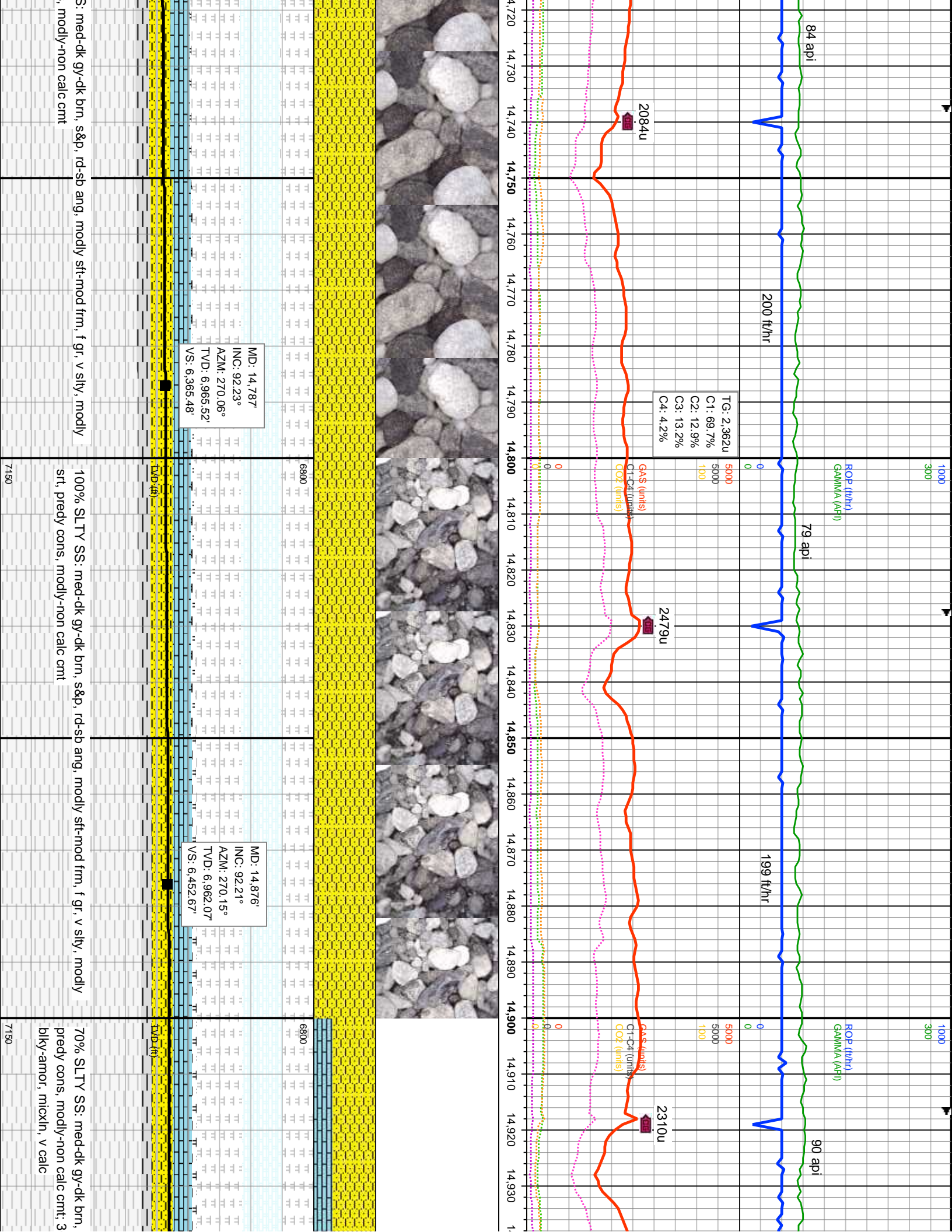


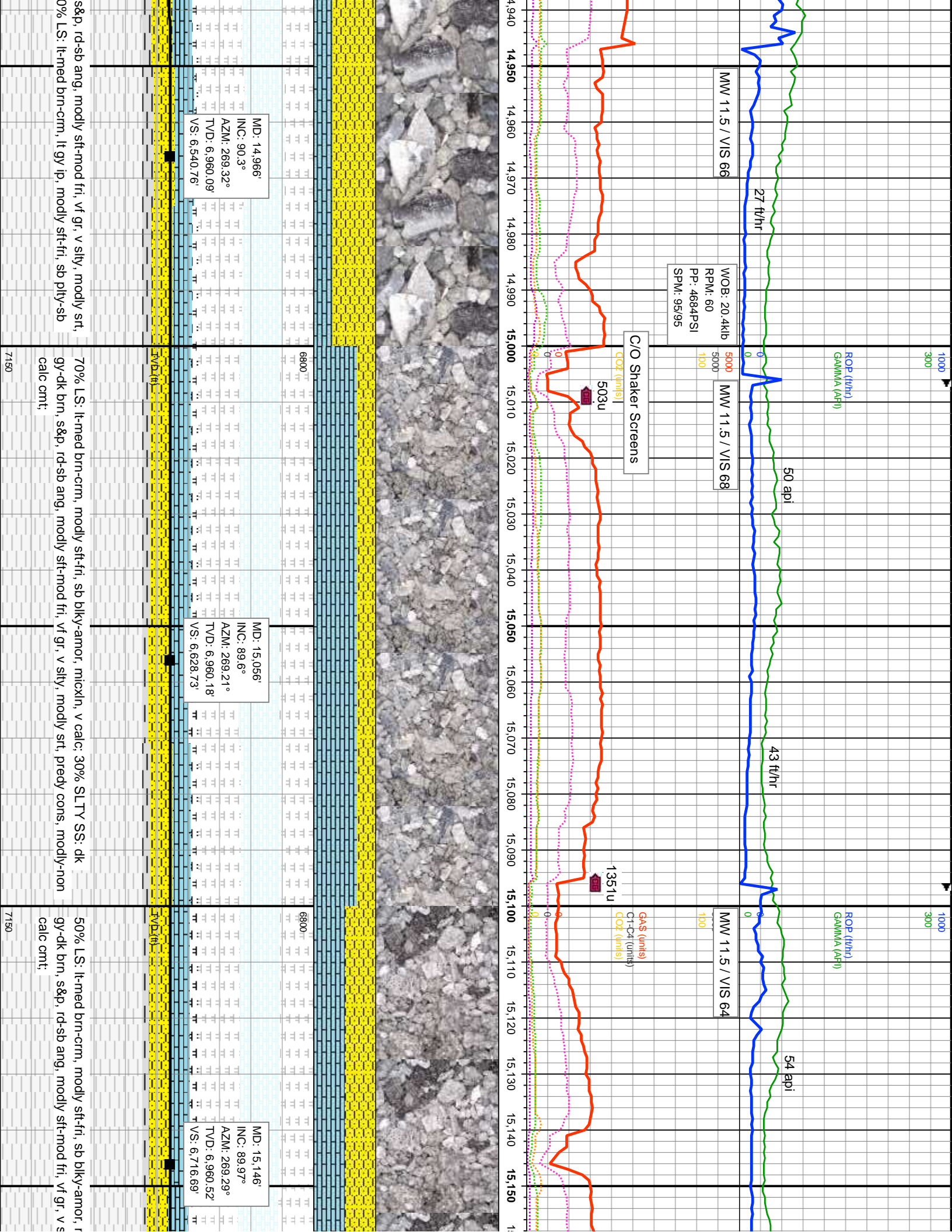


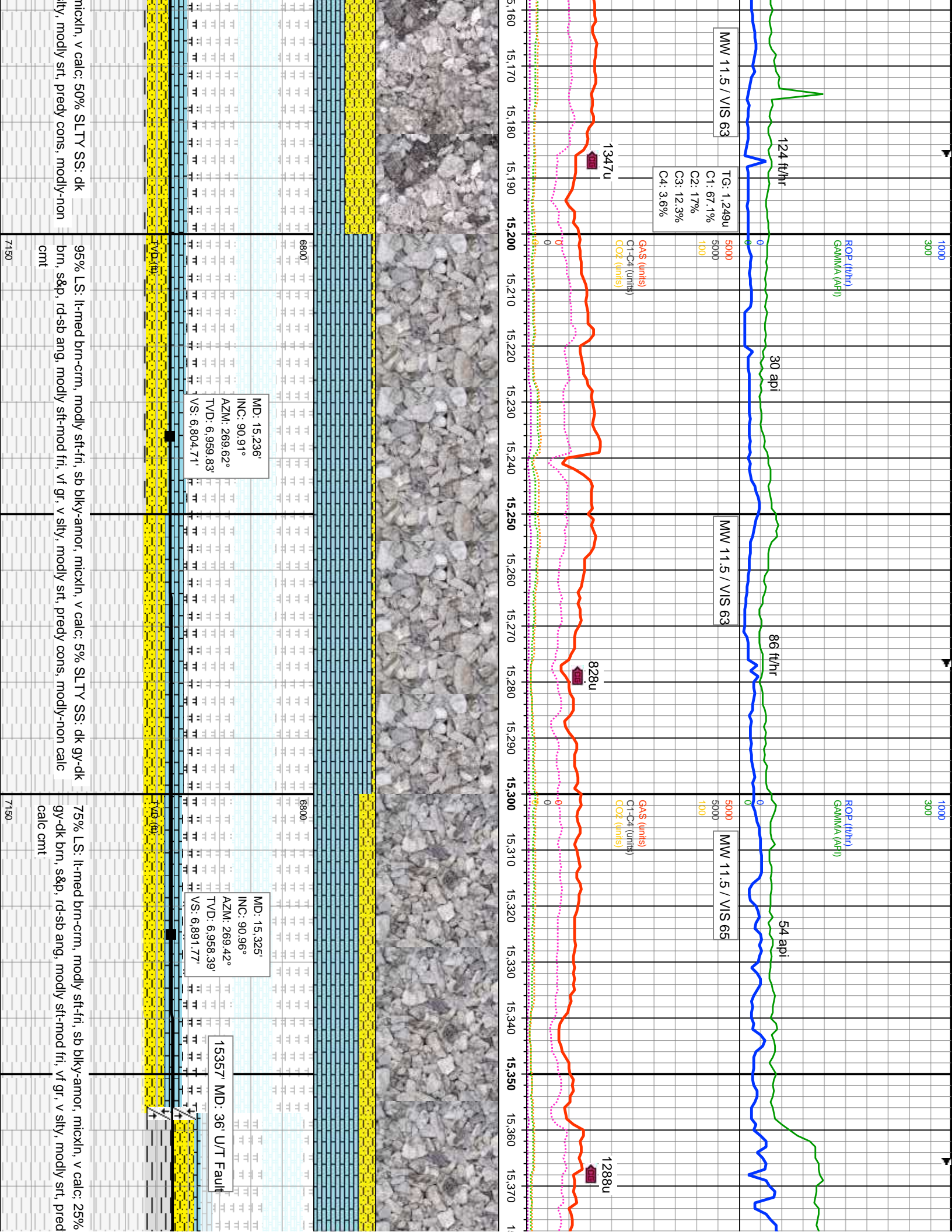


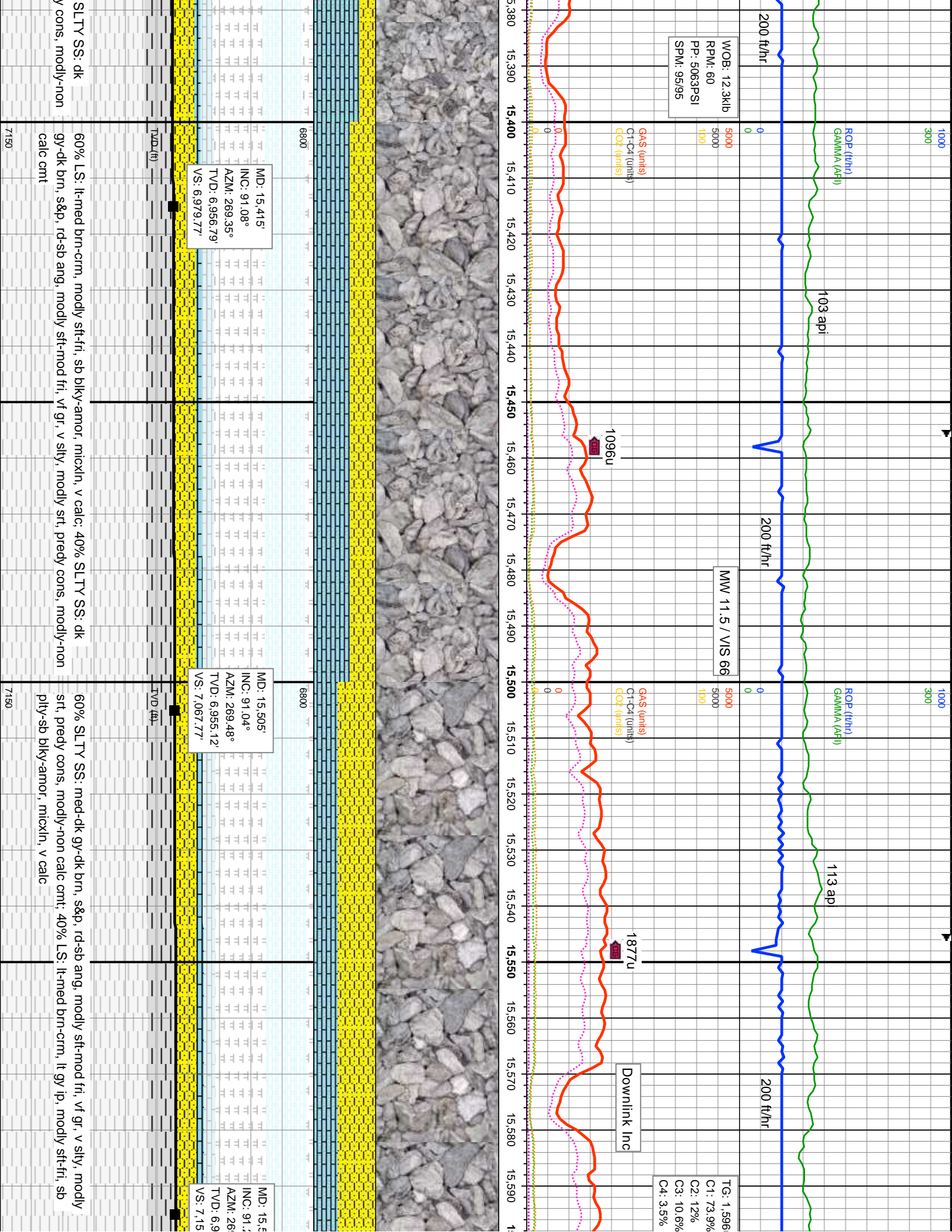


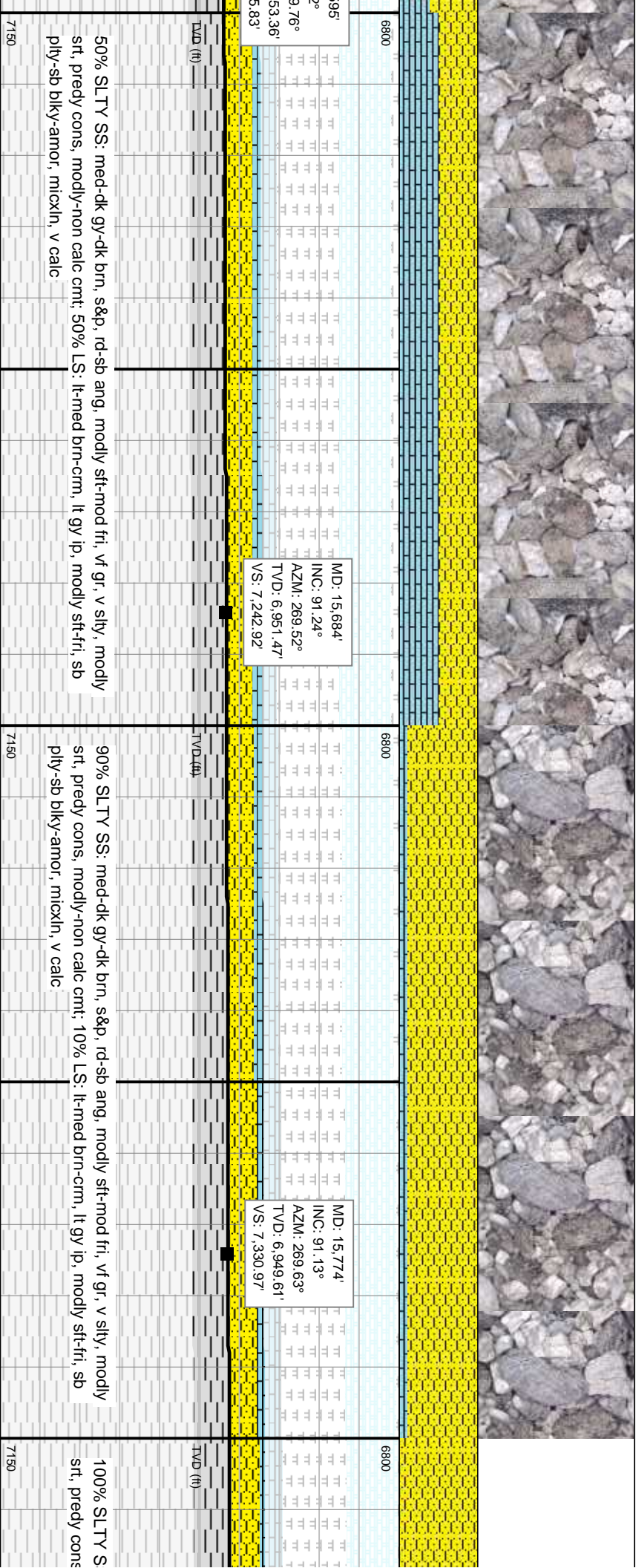
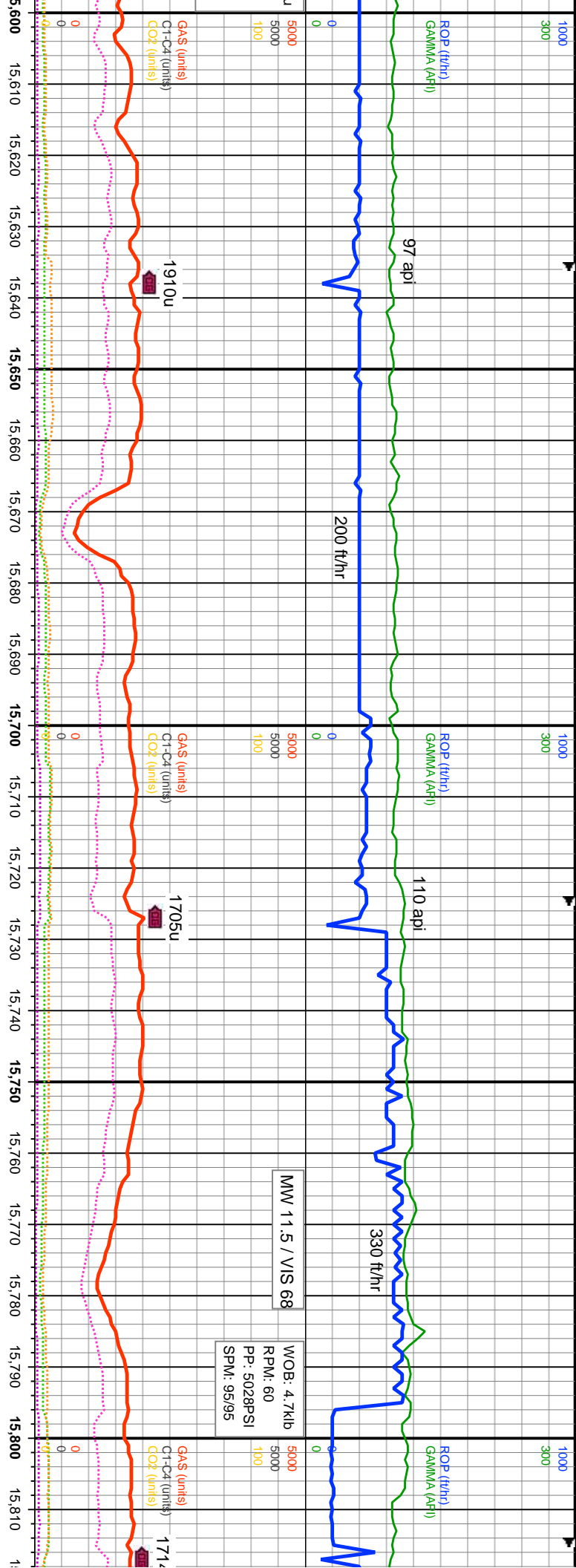






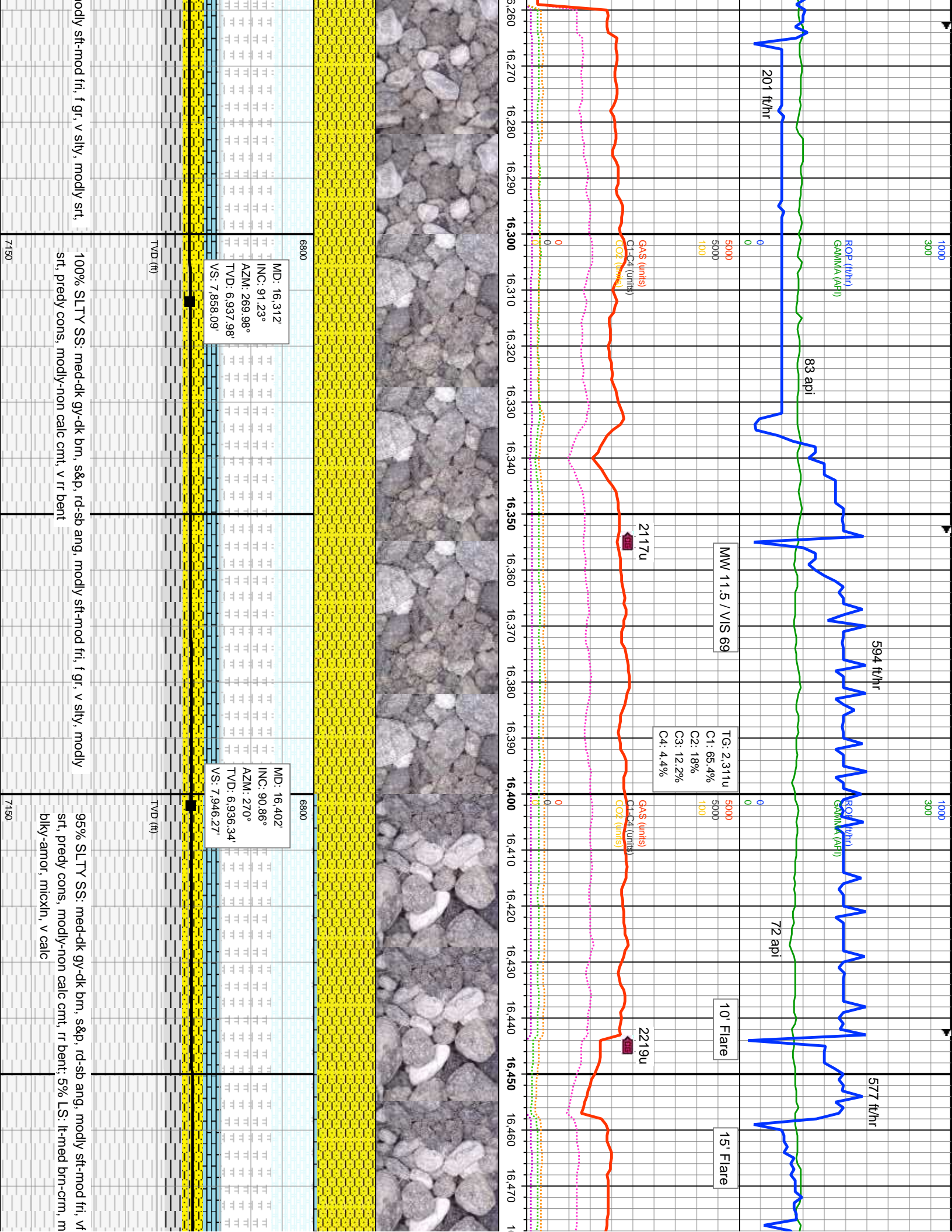


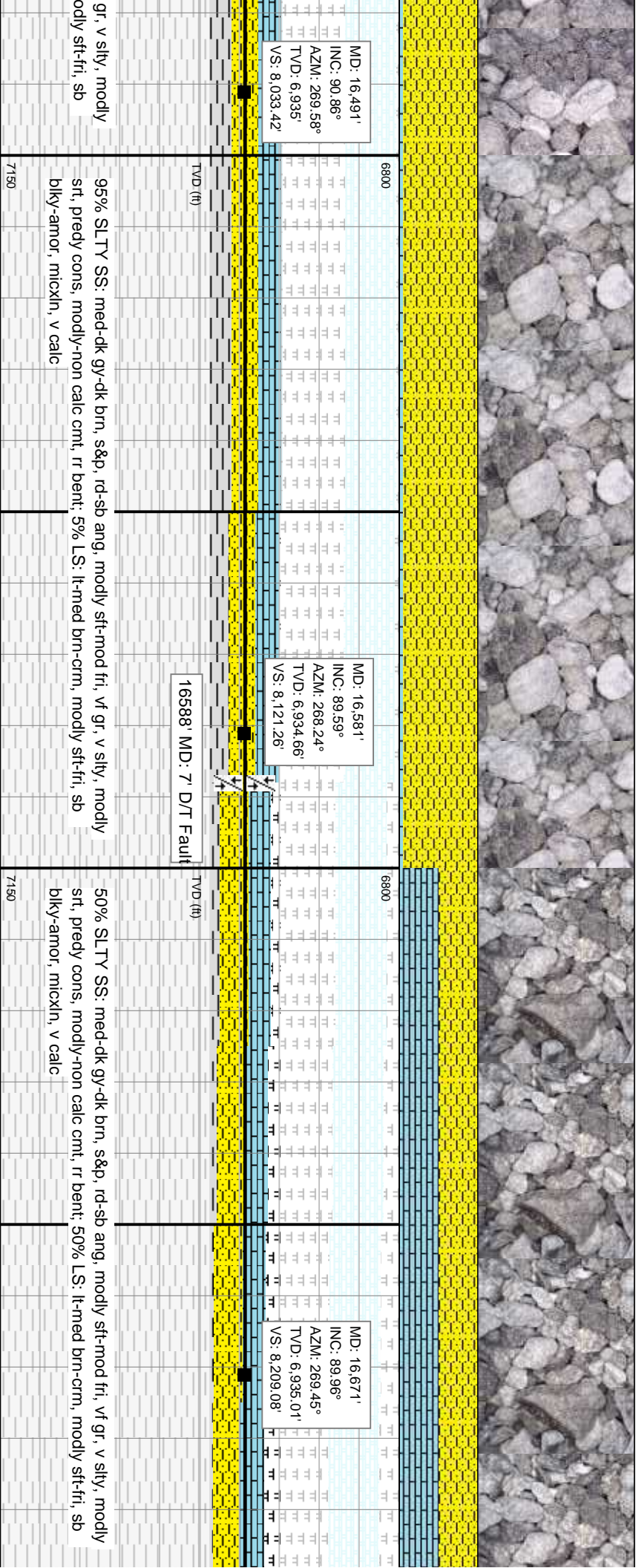
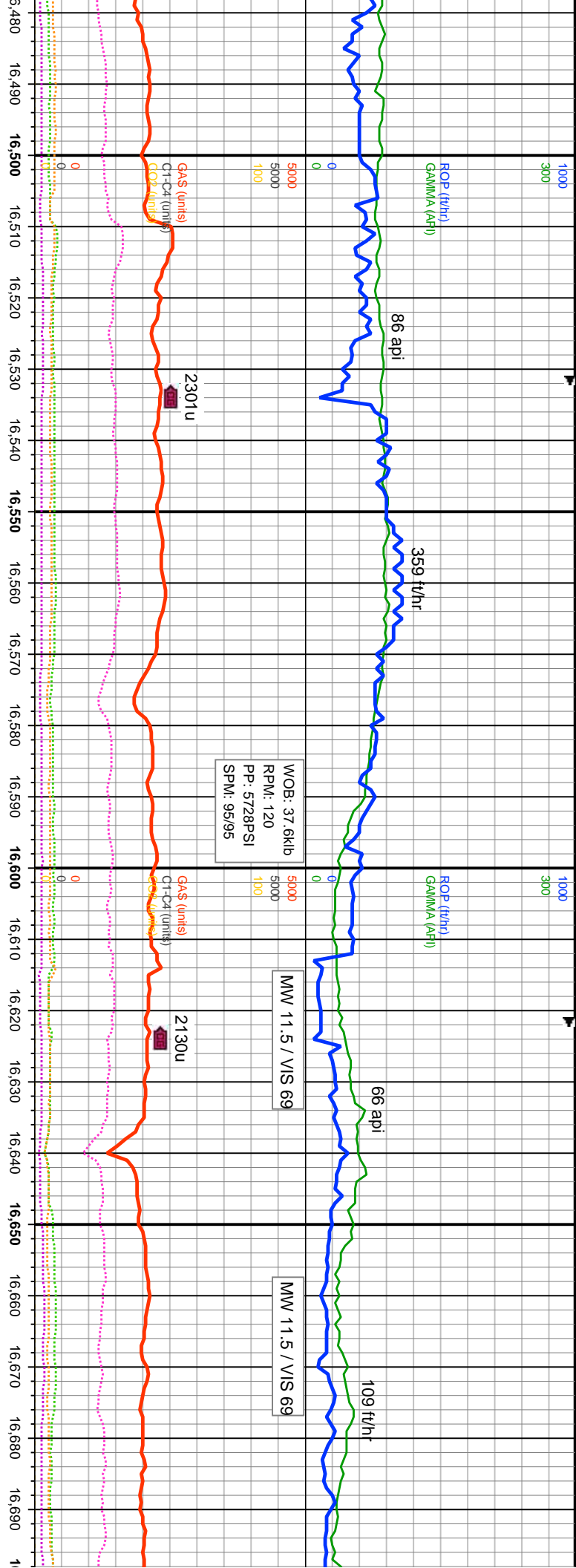


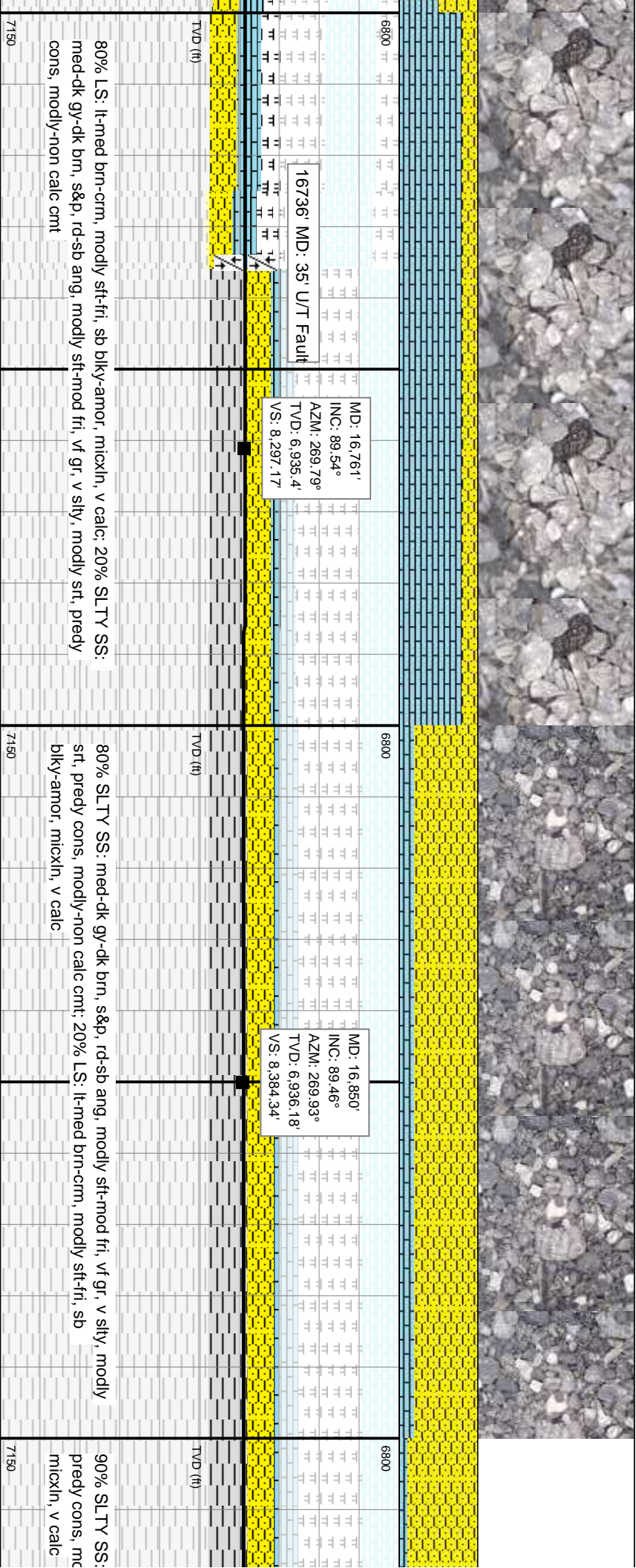
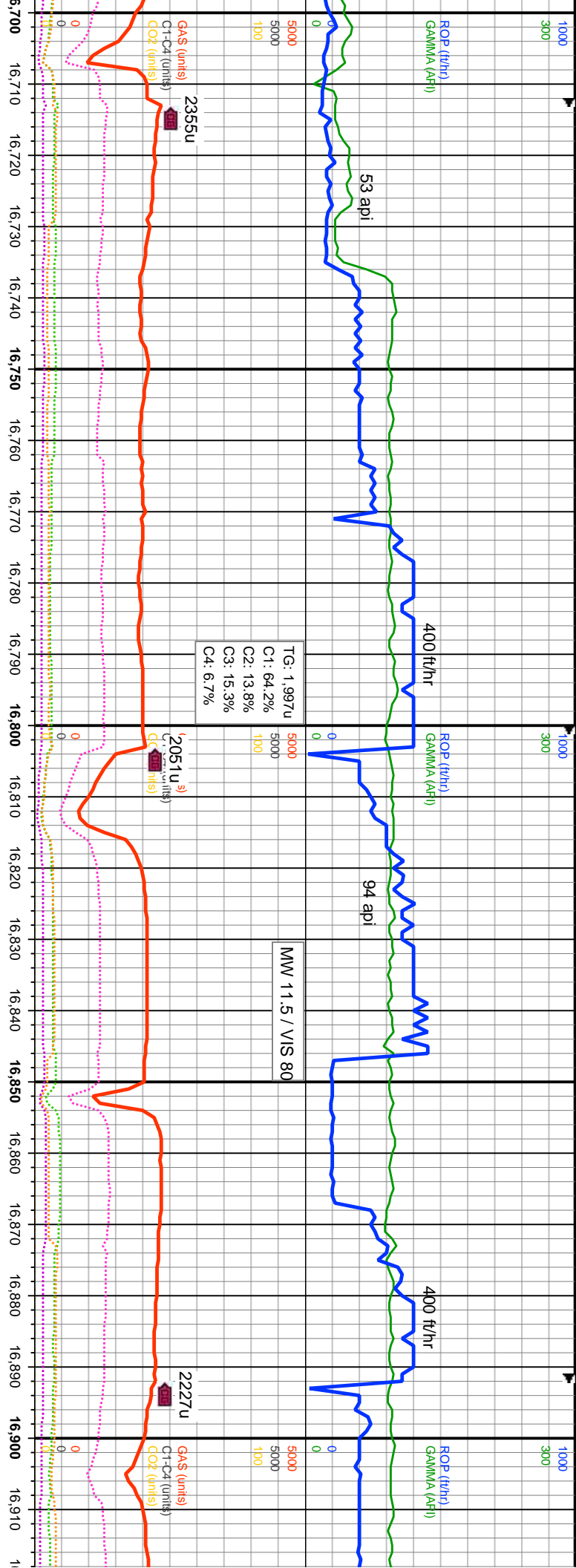


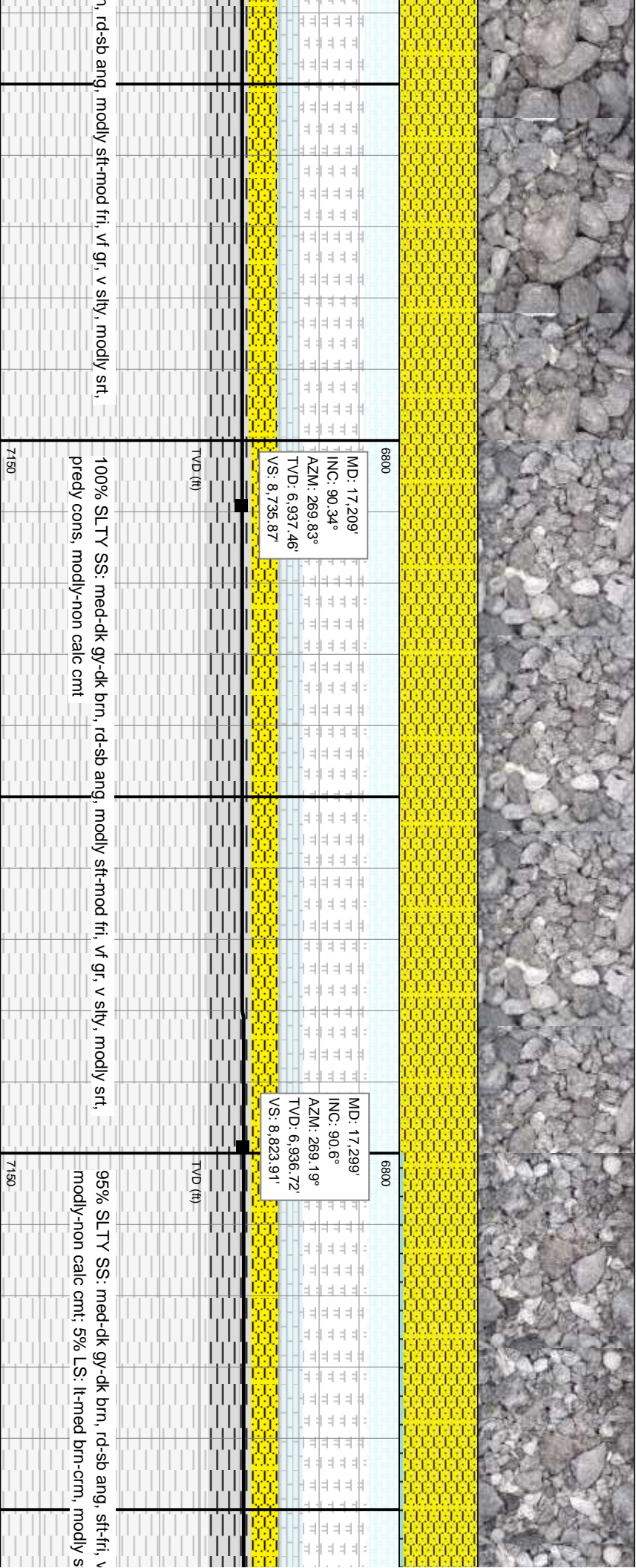
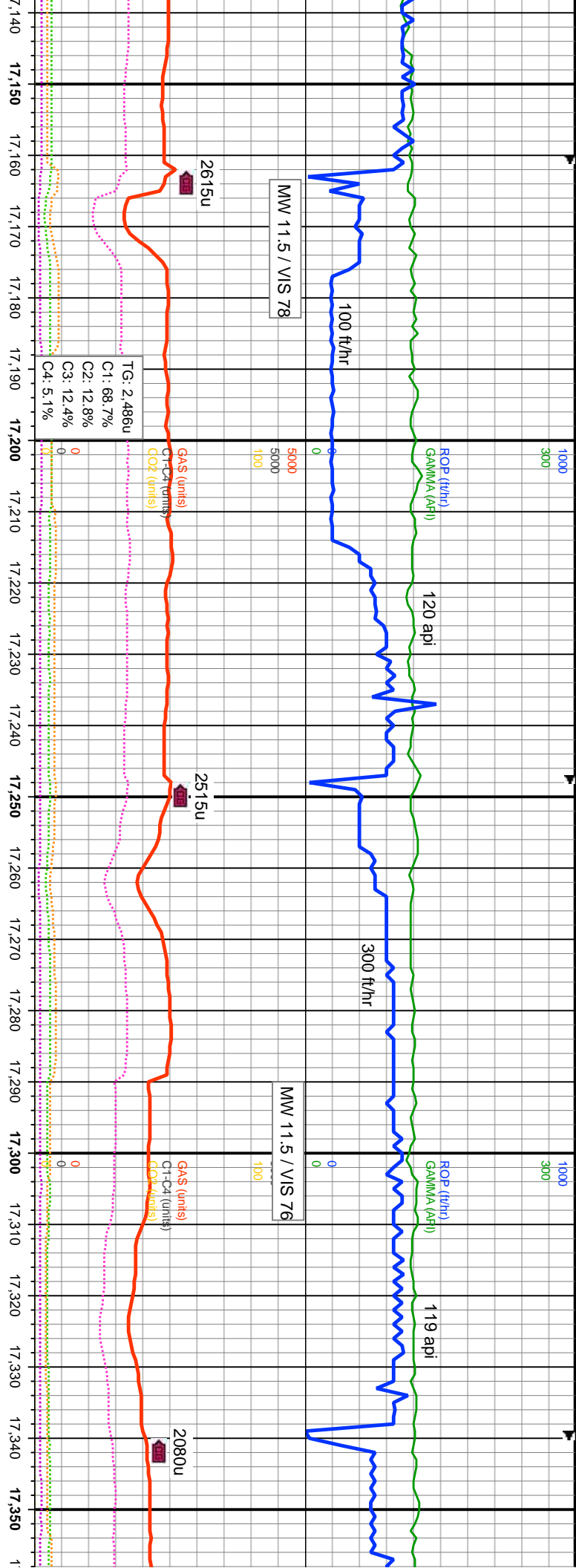


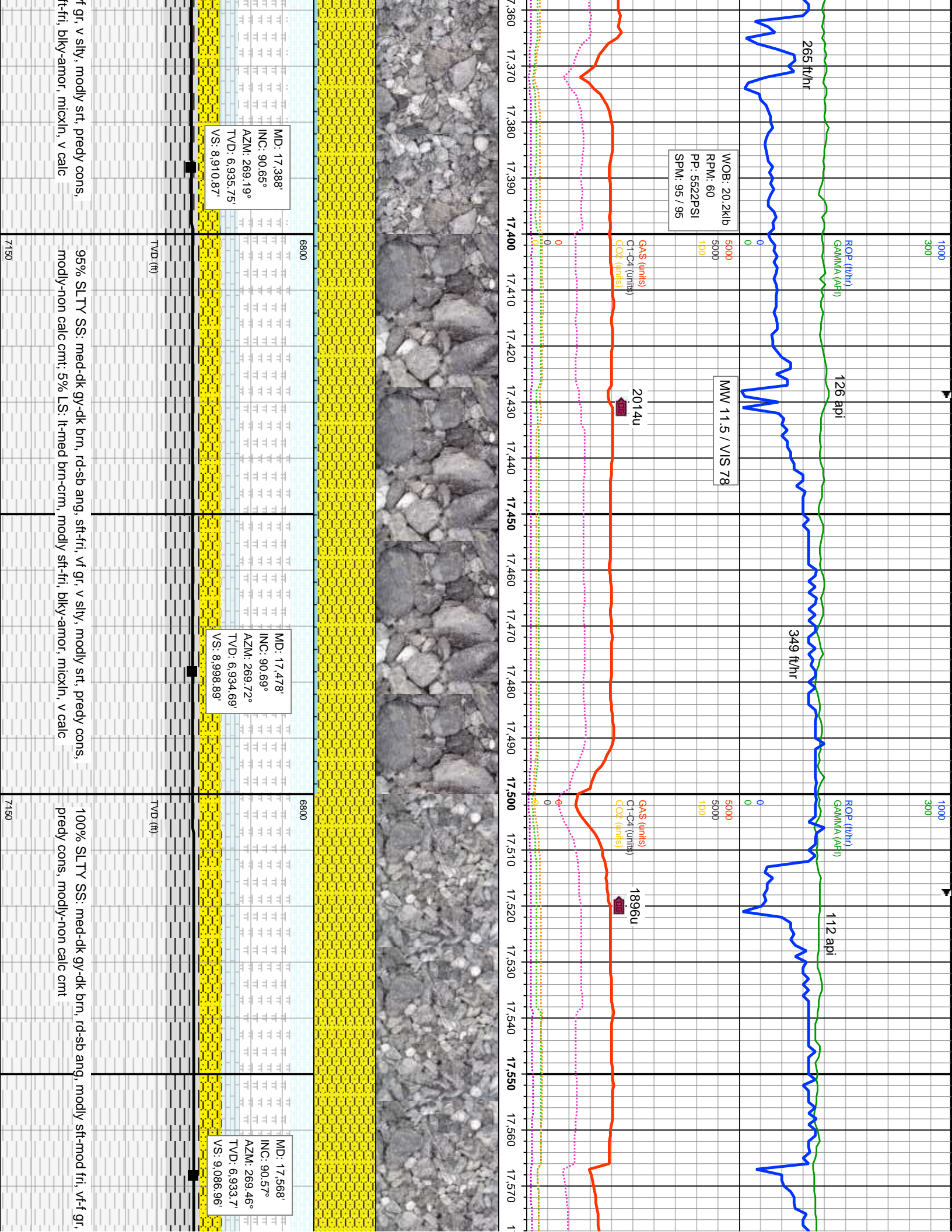
<p>S. med-dk gy-dk brn, s&p, rd-sb ang, modly sft-mod fri, f gr, v silty, modly s, modly-non calc cmt, v rr bent</p>	<p>MD: 15.864' INC: 90.83° AZM: 269.76° TVD: 6.948.08' VS: 7.419.06'</p>	<p>6800</p>	<p>MD: 15.953' INC: 91.48° AZM: 271.74° TVD: 6.946.29' VS: 7.506.49'</p>	<p>6800</p>
<p>100% SL TY SS: med-dk gy-dk brn, s&p, rd-sb ang, modly sft-mod fri, f gr, v silty, modly sft, predy cons, modly-non calc cmt, v rr bent</p>	<p>TVD (ft)</p>	<p>7150</p>	<p>95% SL TY SS: med-dk gy-dk brn, predy cons, modly-non calc cmt, r bkly-amor, micxn, v calc</p>	<p>TVD (ft)</p>
<p>7150</p>		<p>7150</p>		<p>VS</p>

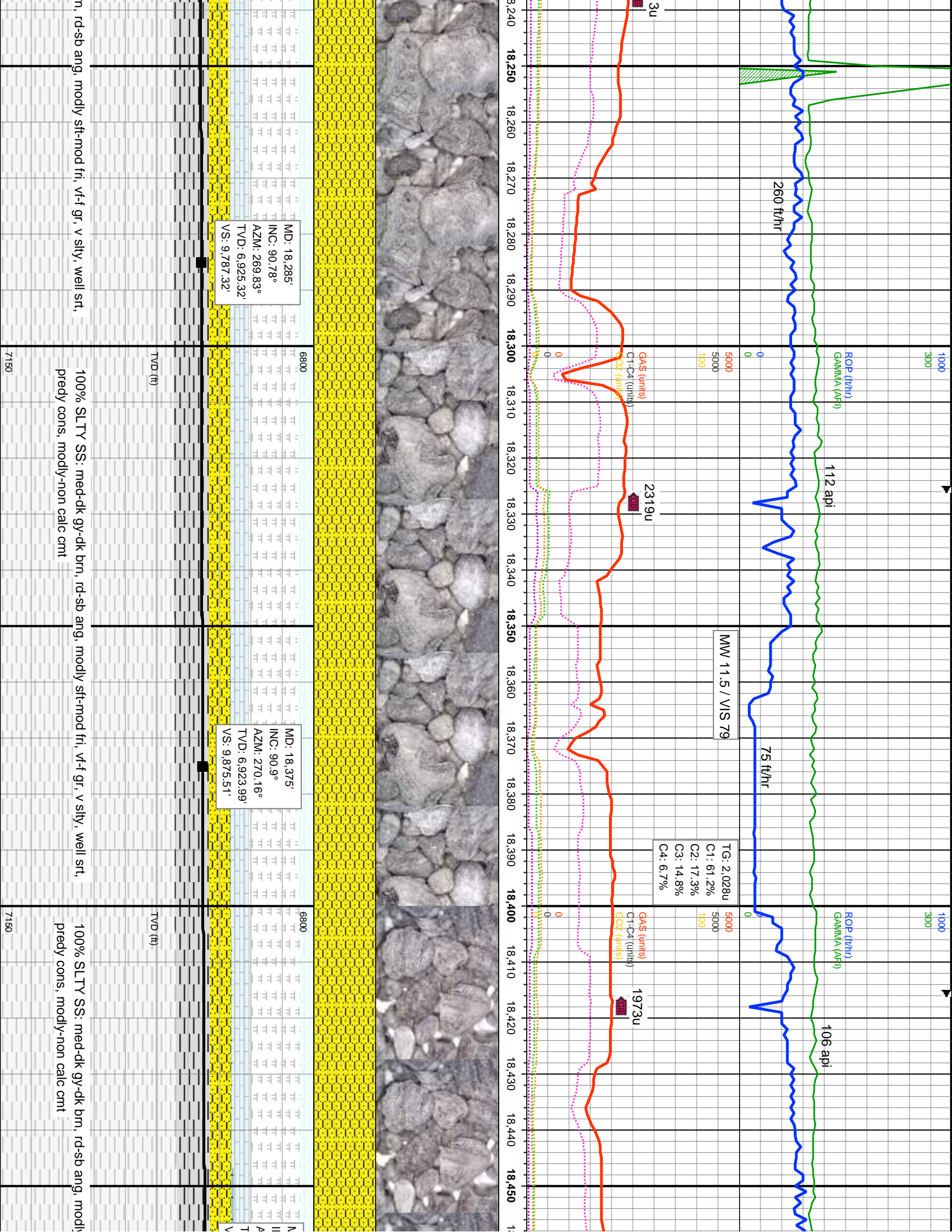


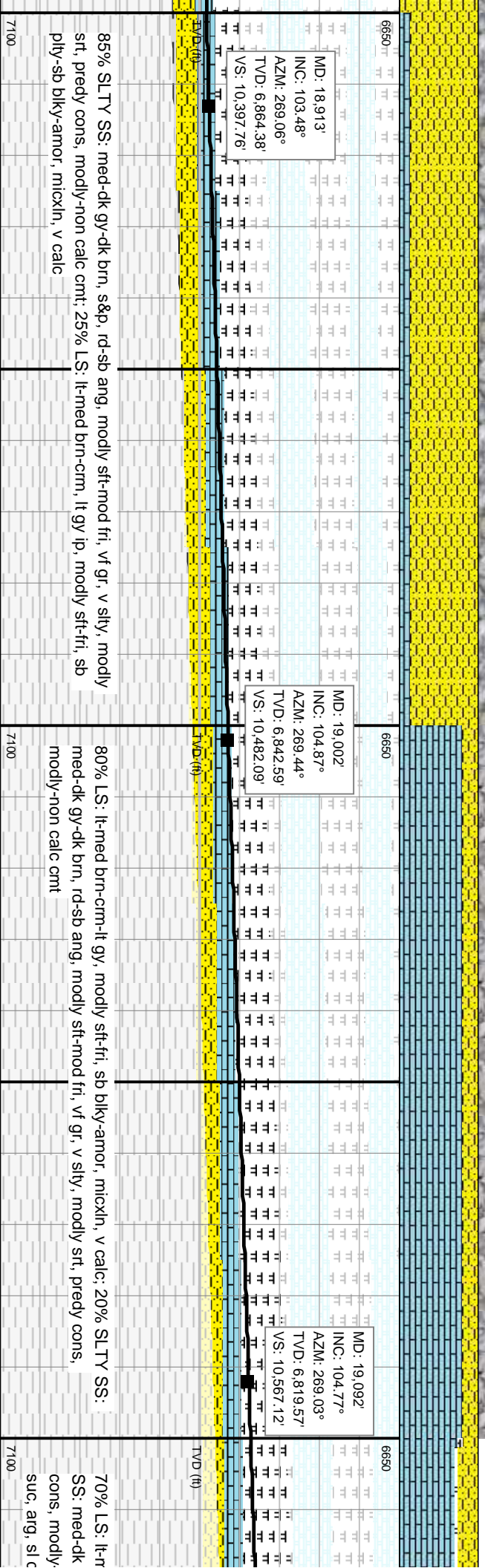
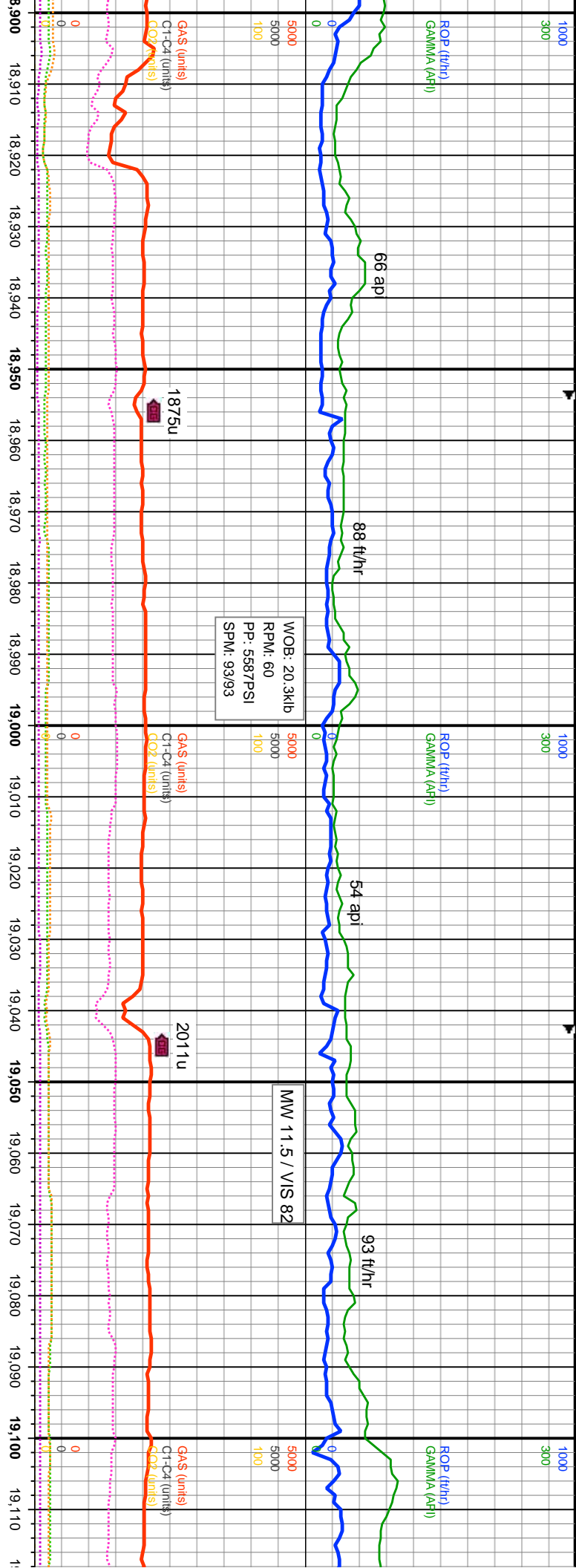


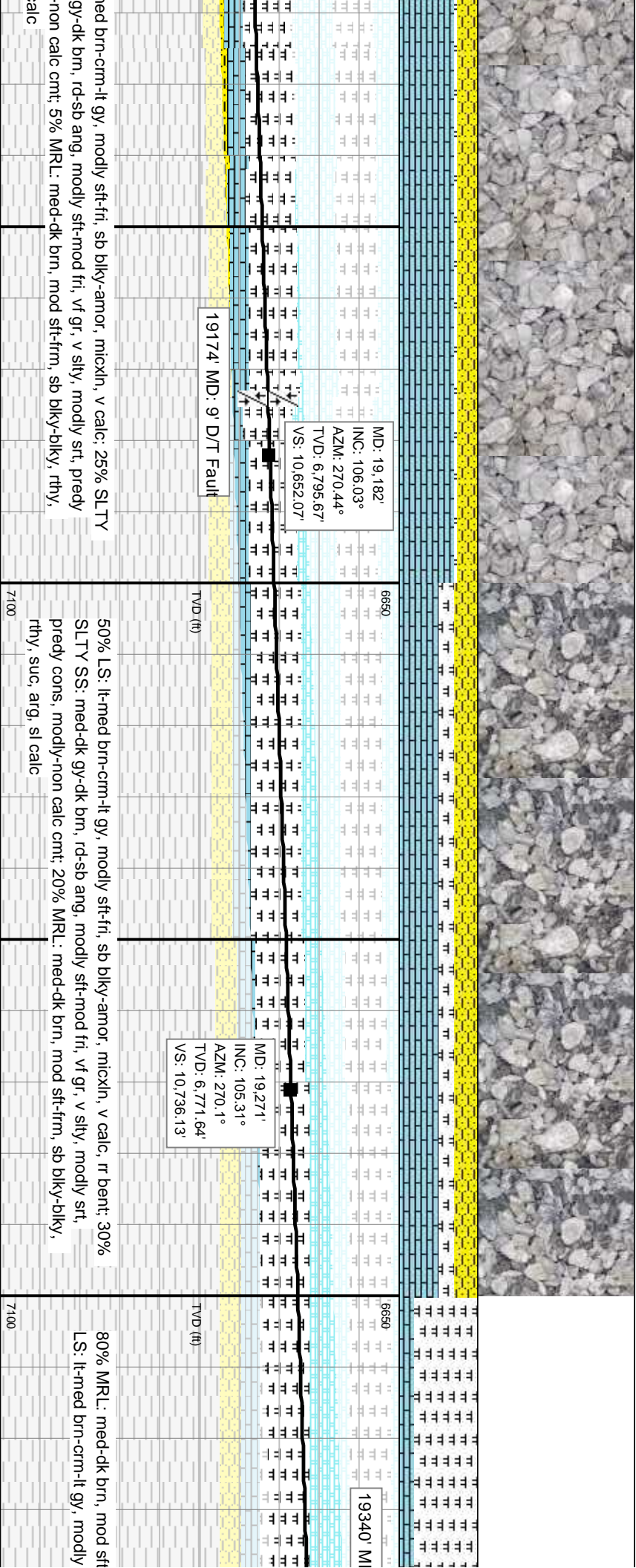
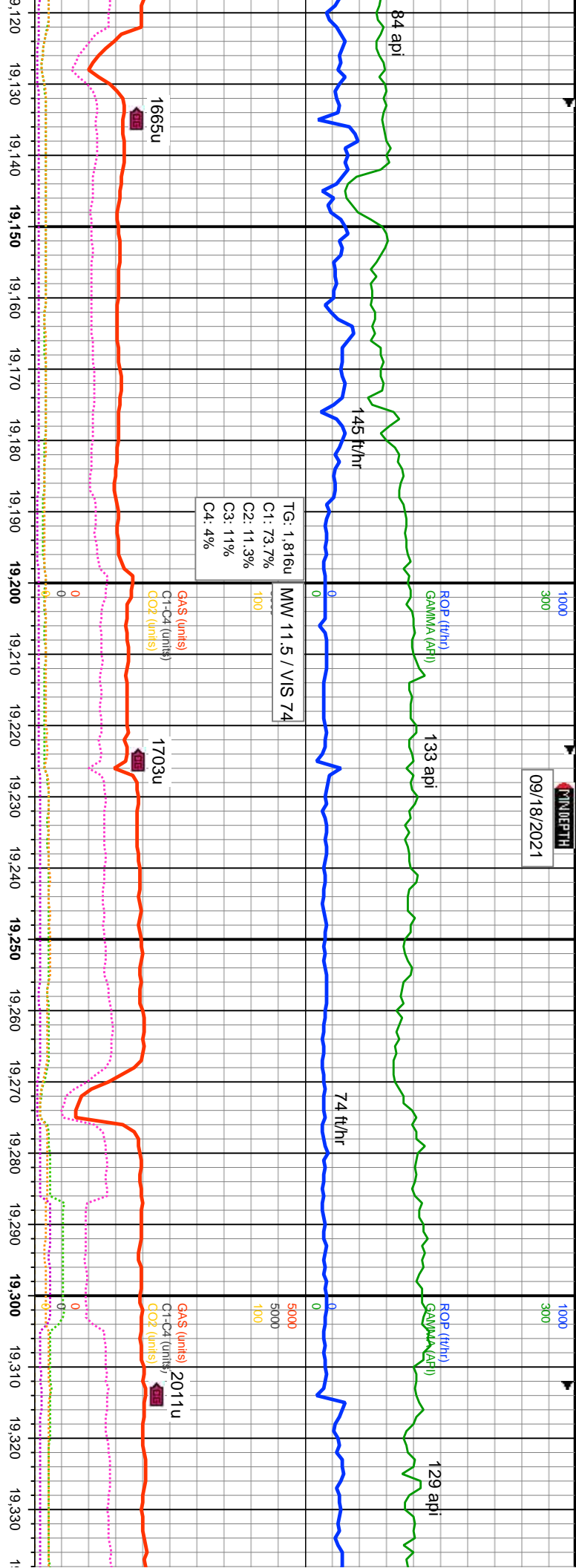


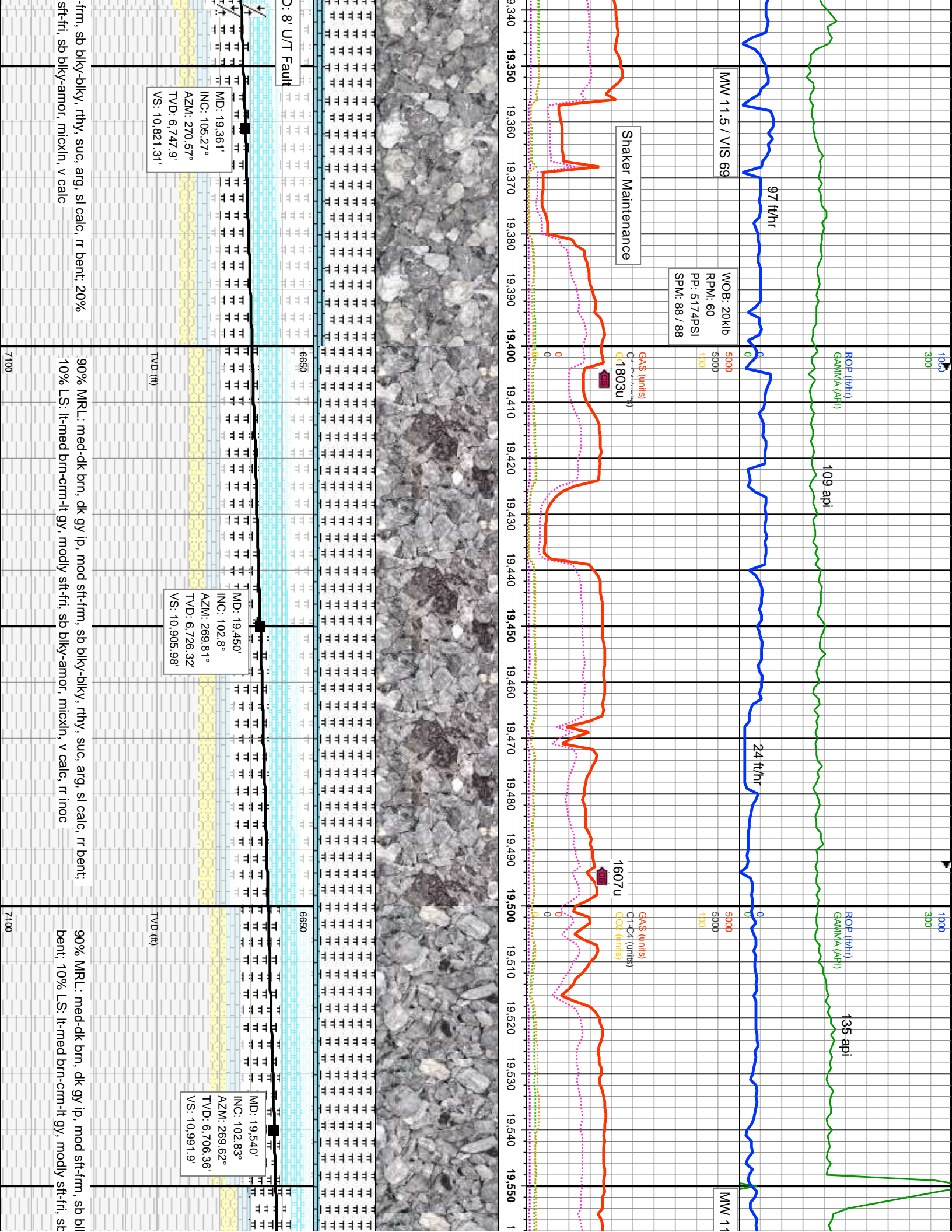


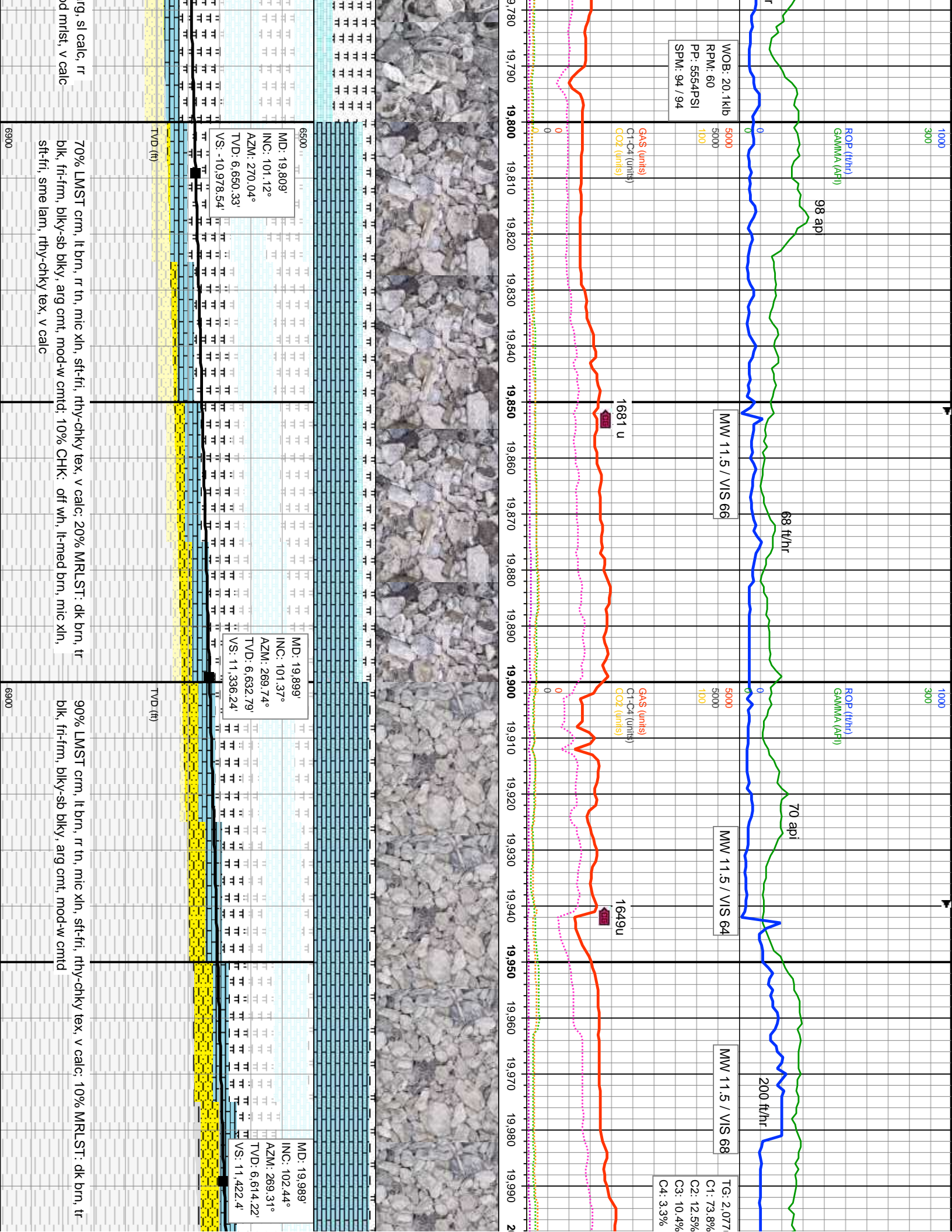


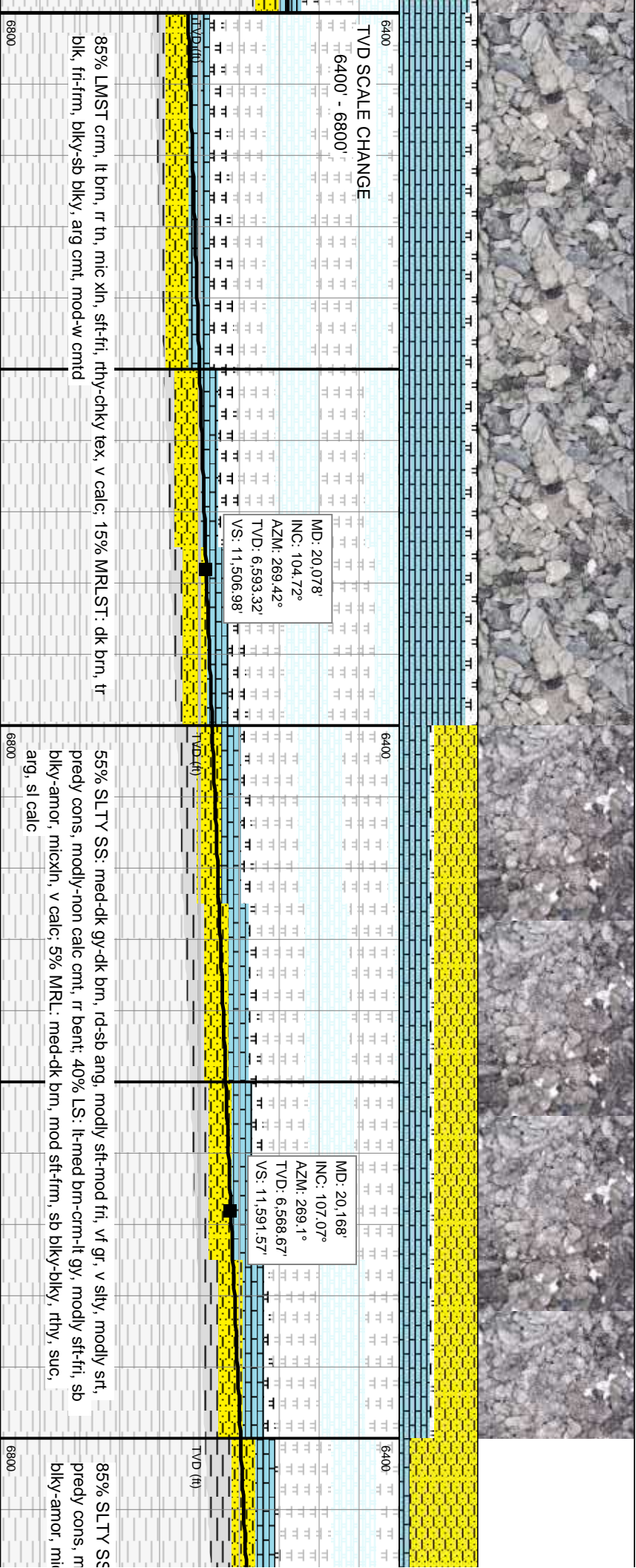
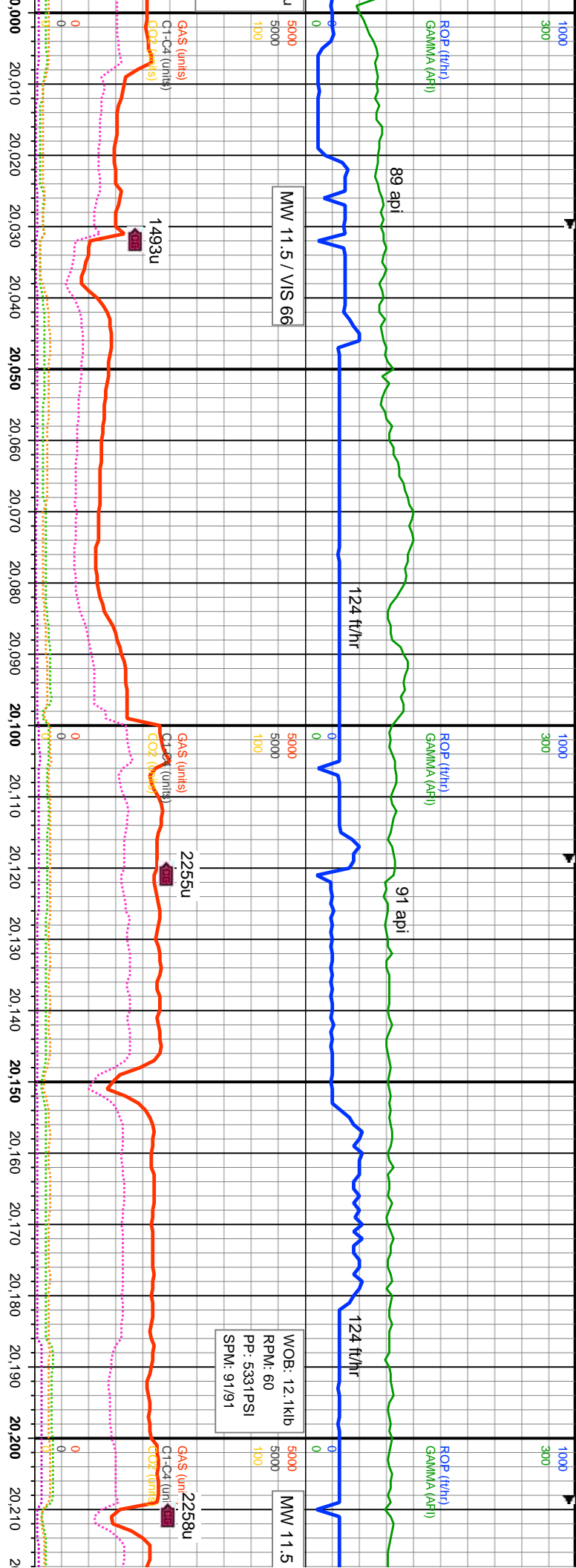


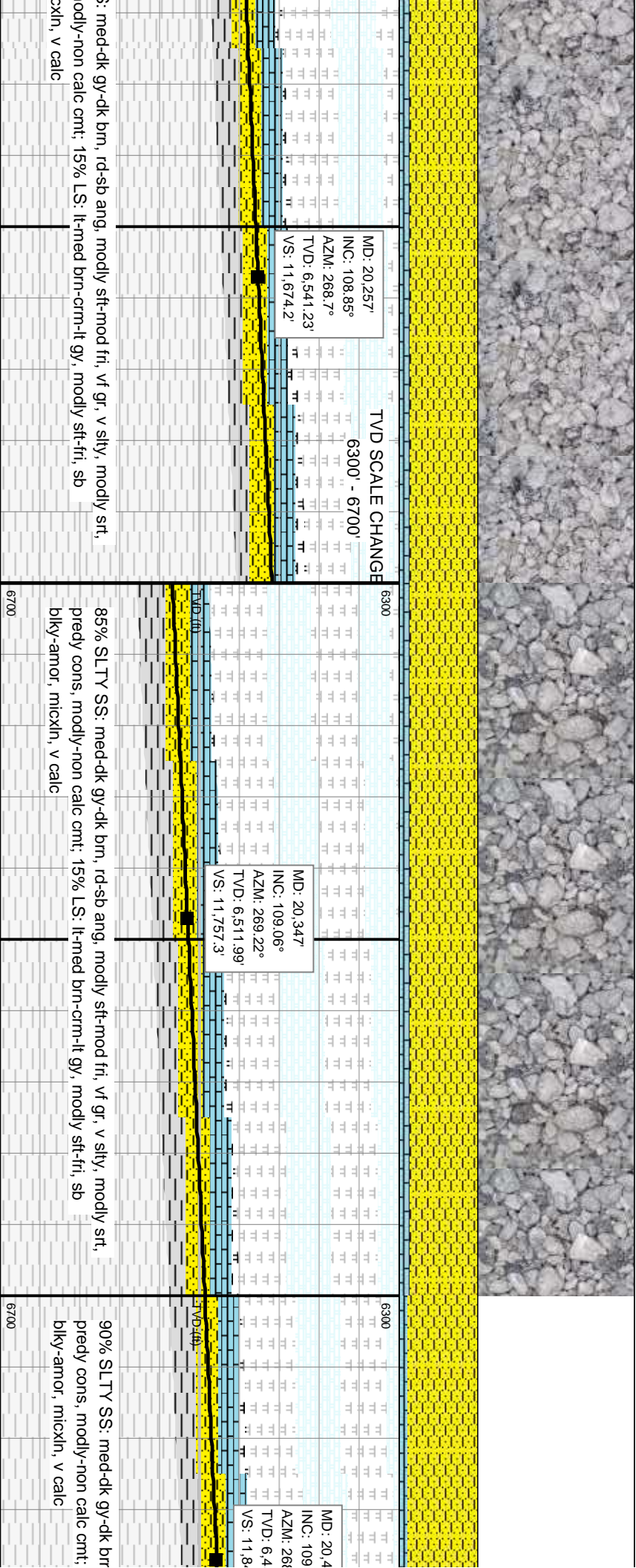
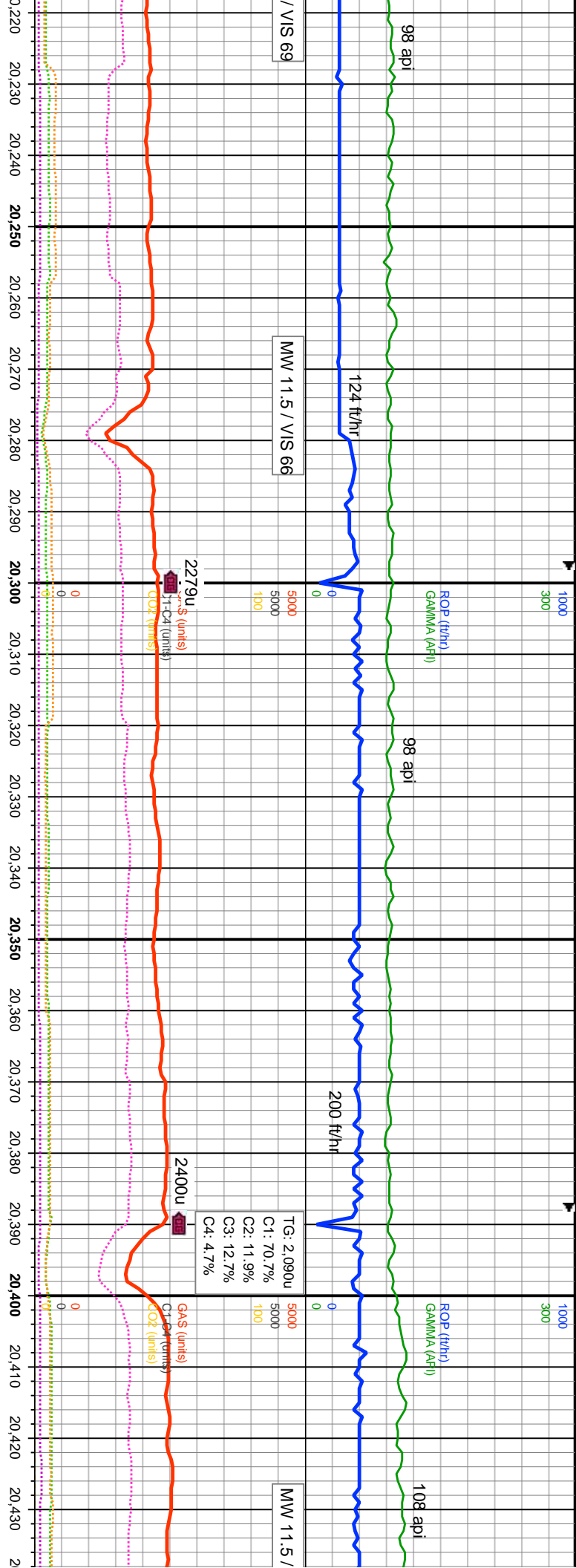


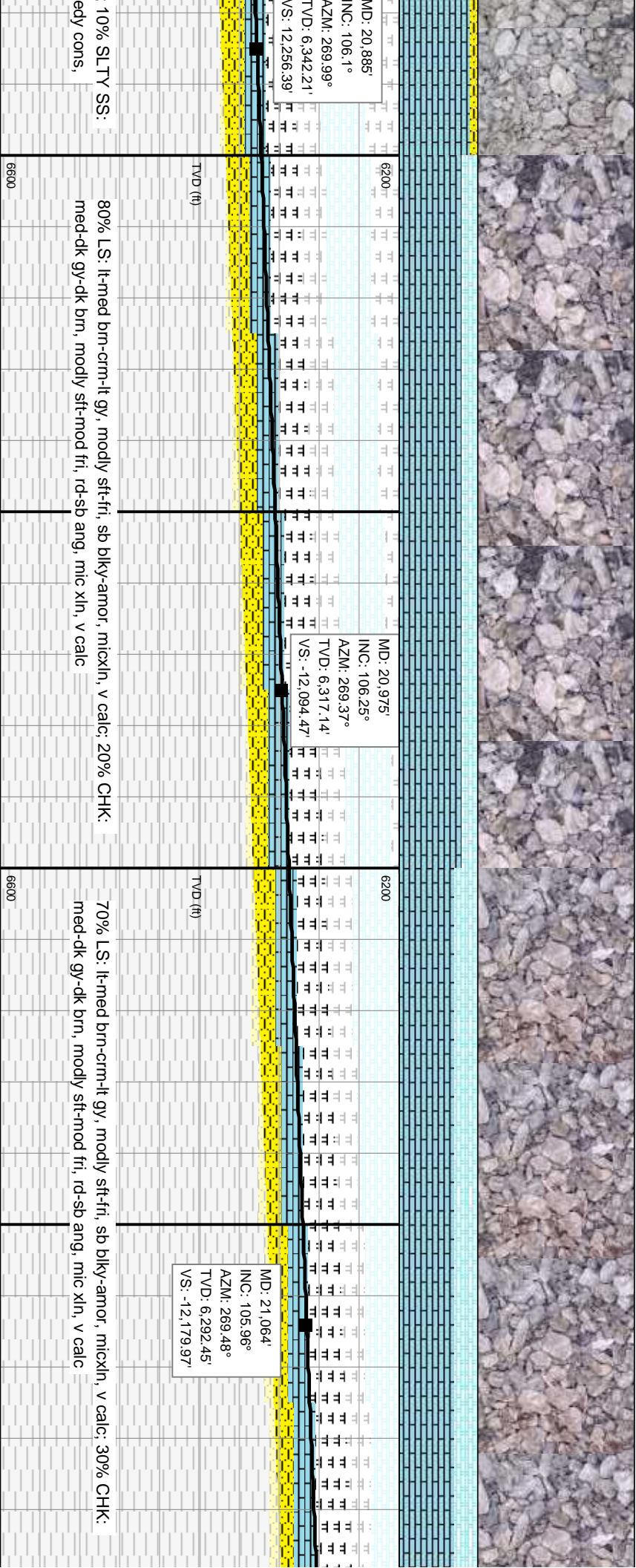
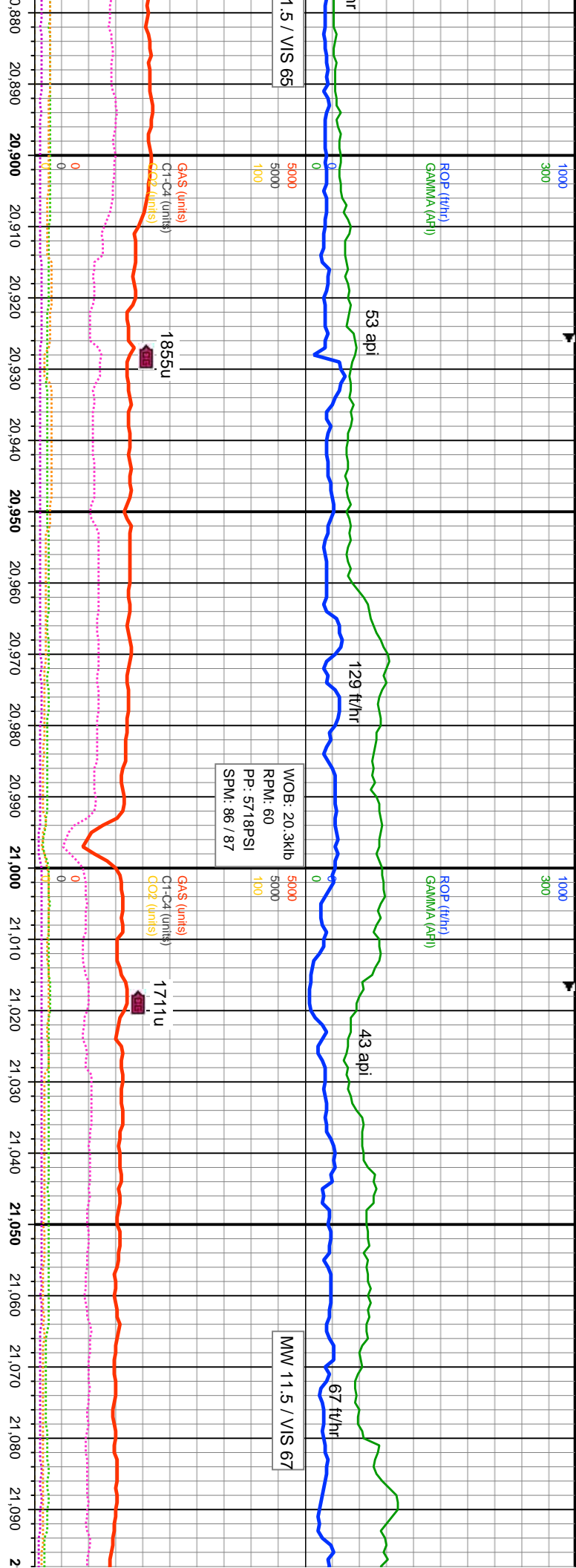


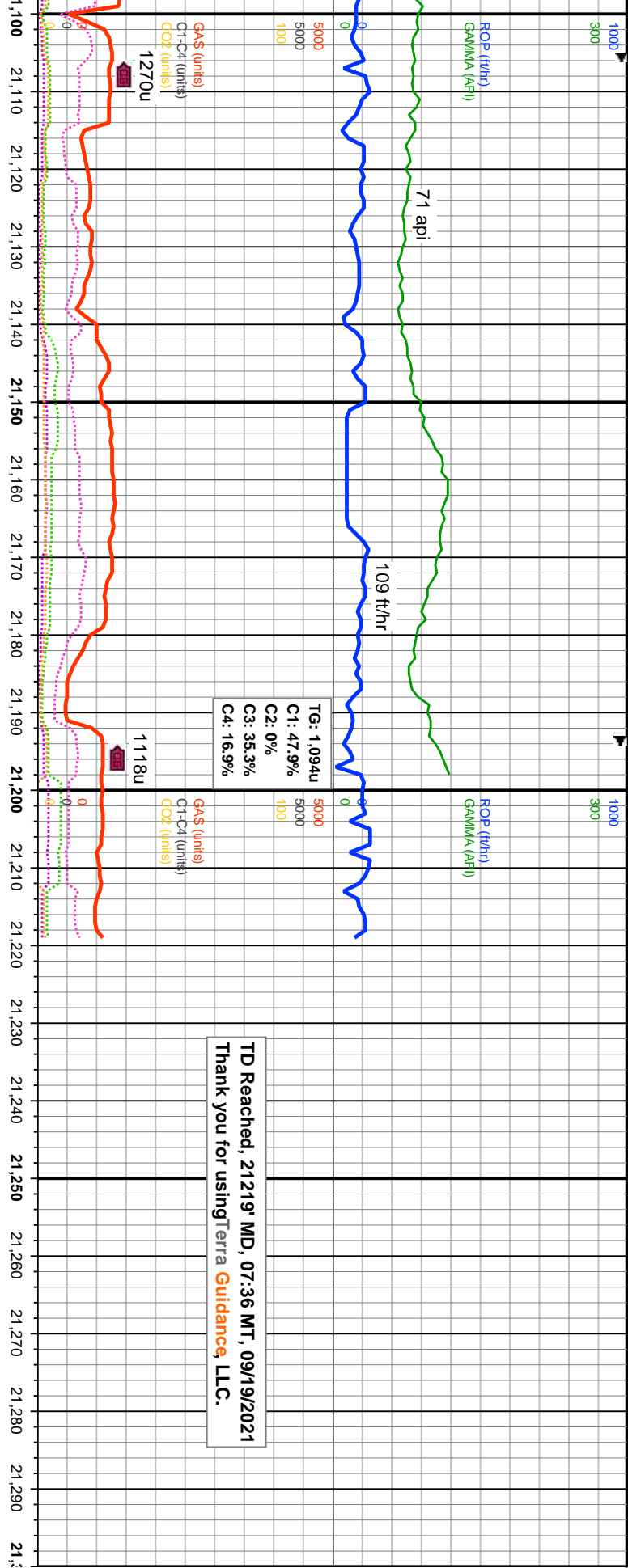












TD Reached, 21219' MD, 07:36 MT, 09/19/2021
Thank you for using Terra Guidance, LLC.

