

OPERATOR: **Extraction Oil & Gas**

WELL NAME: **Livingston S19-25-12N**

FIELD NAME: DJ Basin - Wattenberg

DRILLING RIG: Patterson 901

API #: 05-014-20750

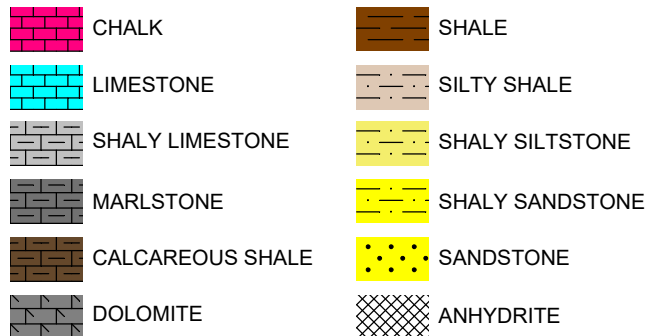
LAT/LONG: 39.978561, -105.039416  
SURFACE HOLE: NWSE S7-T1S-R68W, 2331' FSL, 1330' FEL  
BOTTOM HOLE: S19-T1S-R68W, 460' FSL, 1243' FEL



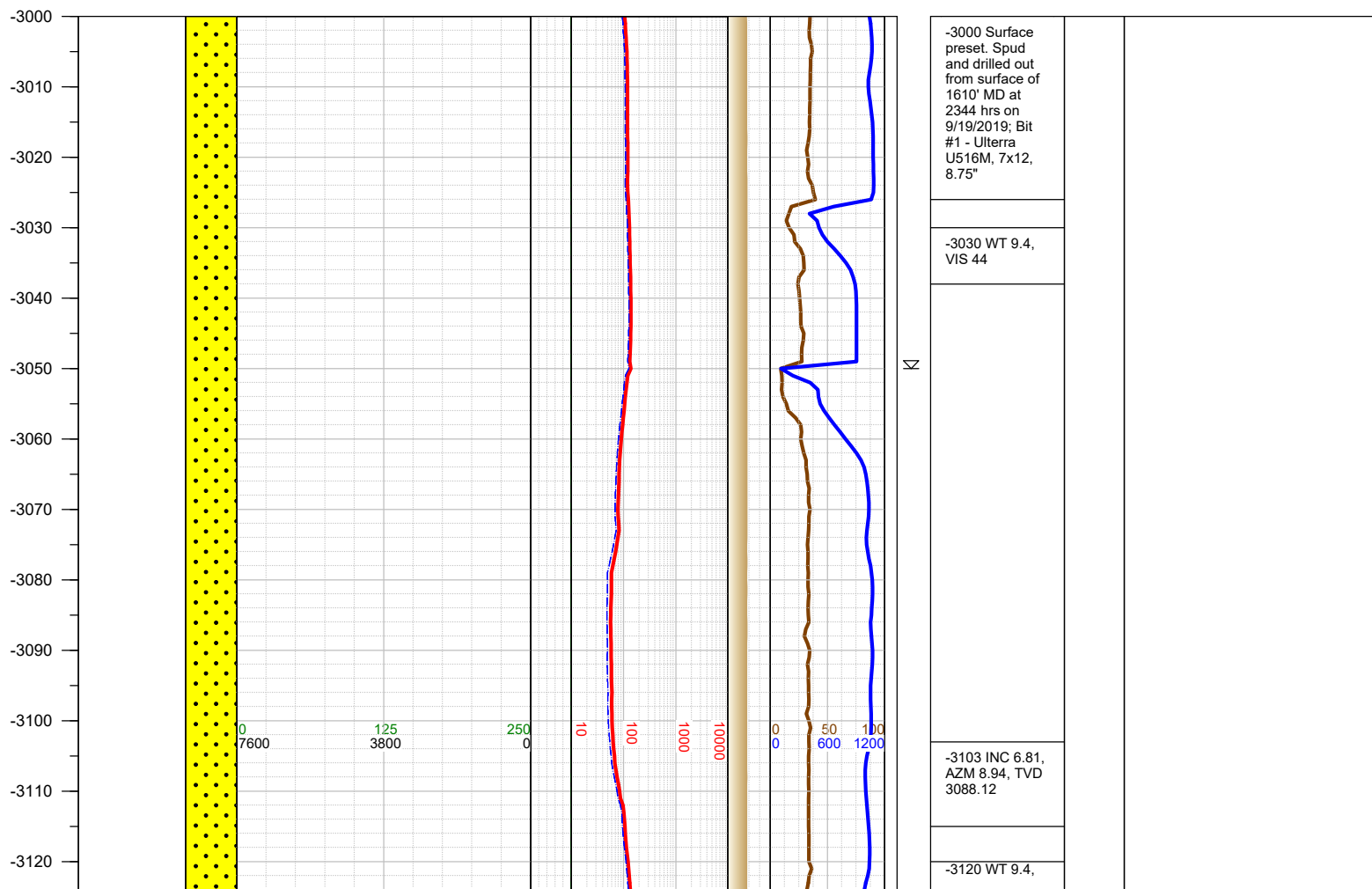
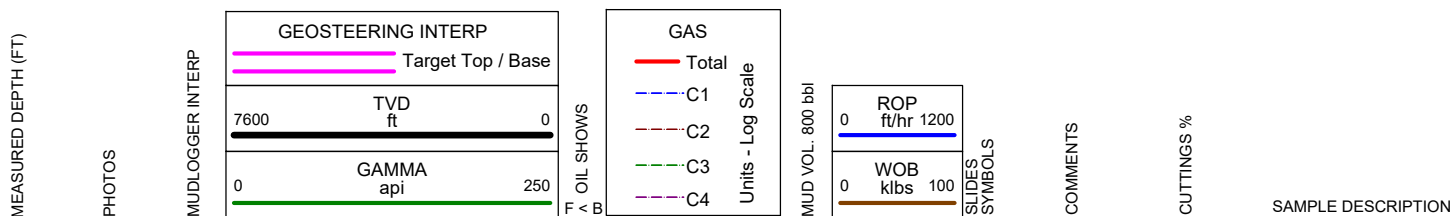
Earth Science Agency, LLC

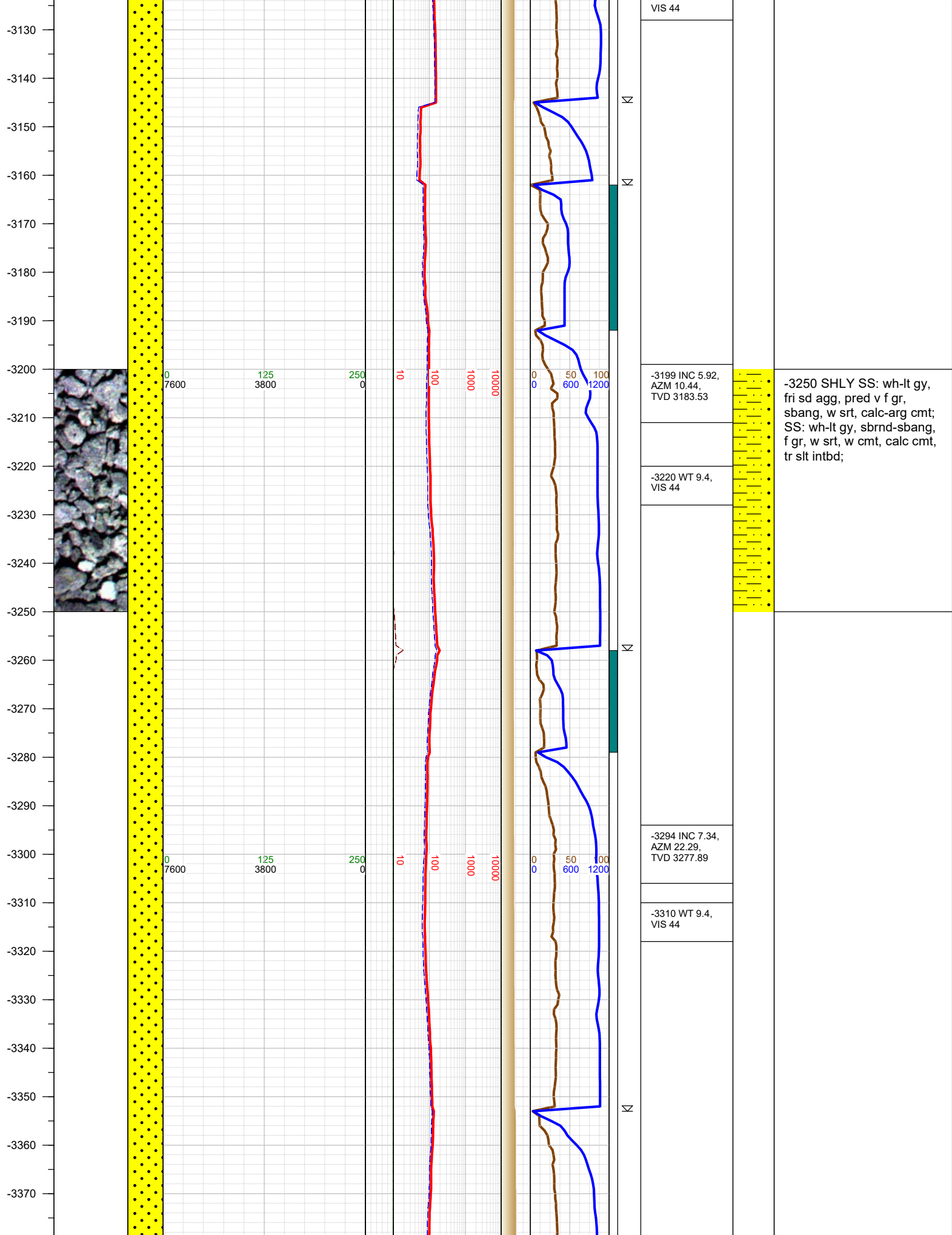
COUNTY: Broomfield  
STATE: Colorado  
GROUND ELEVATION: 5324'  
KELLY BUSHING: 5353'  
DRILLING FLUID: OBM  
TVD VS. MD: 8071' / 20849'  
SPUD DATE: September 18, 2019  
TD DATE: September 22, 2019  
DEPTHS LOGGED: 3000' - 20849'  
DATES LOGGED: September 19, 2019 - September 22, 2019  
GEOLOGISTS: Ross Apodaca, Dan Jacobs  
SCALE: 5" = 100'

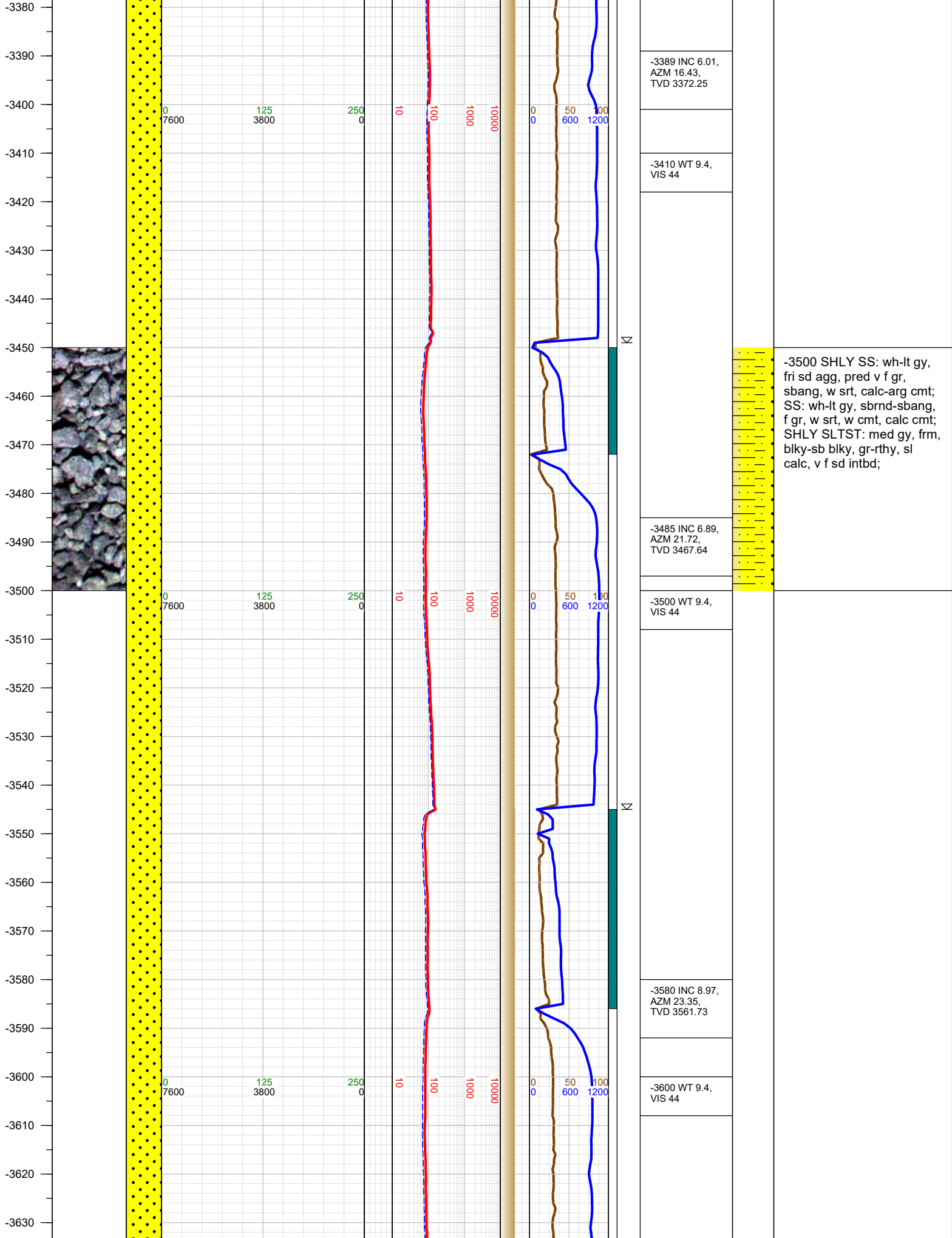
#### LEGEND

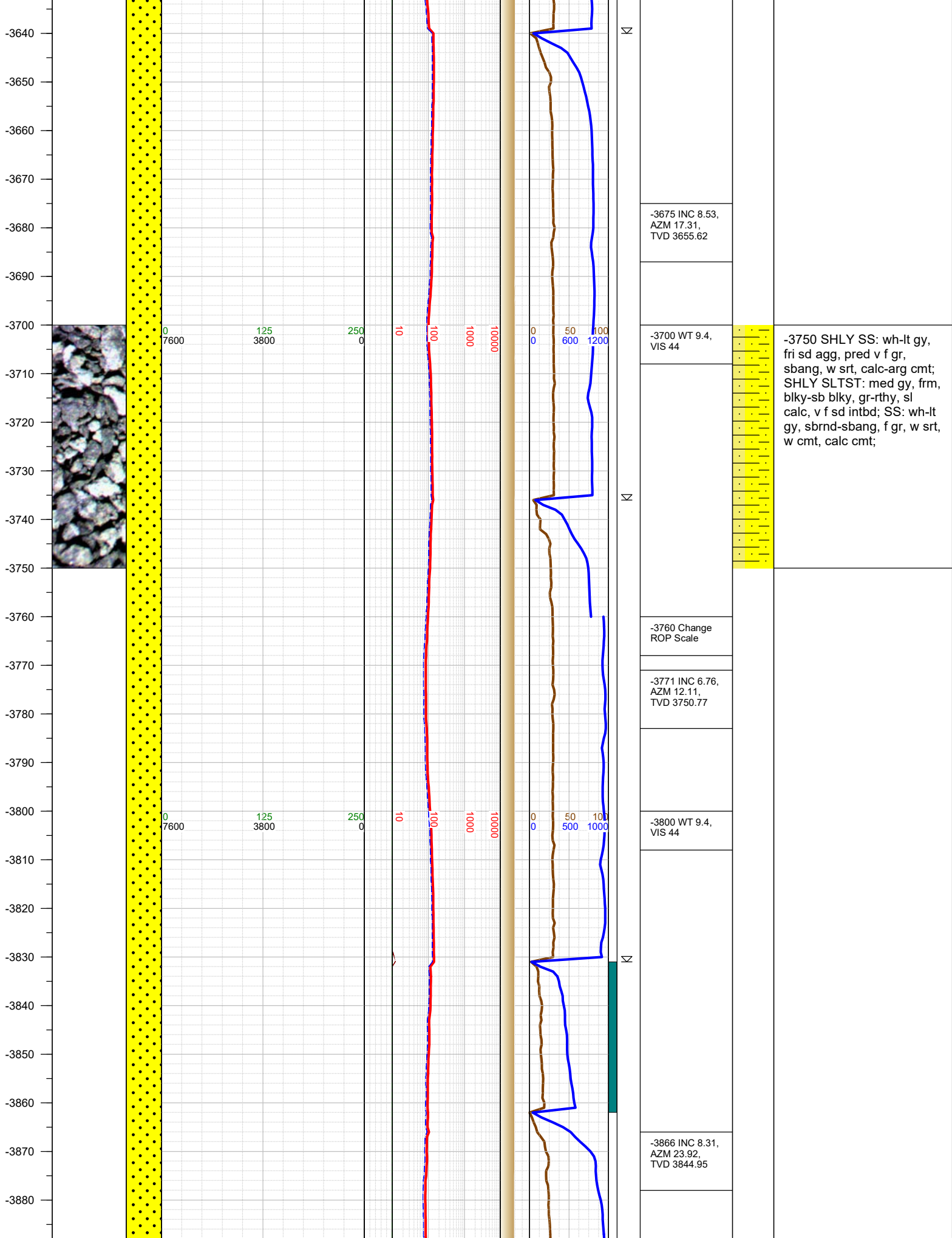


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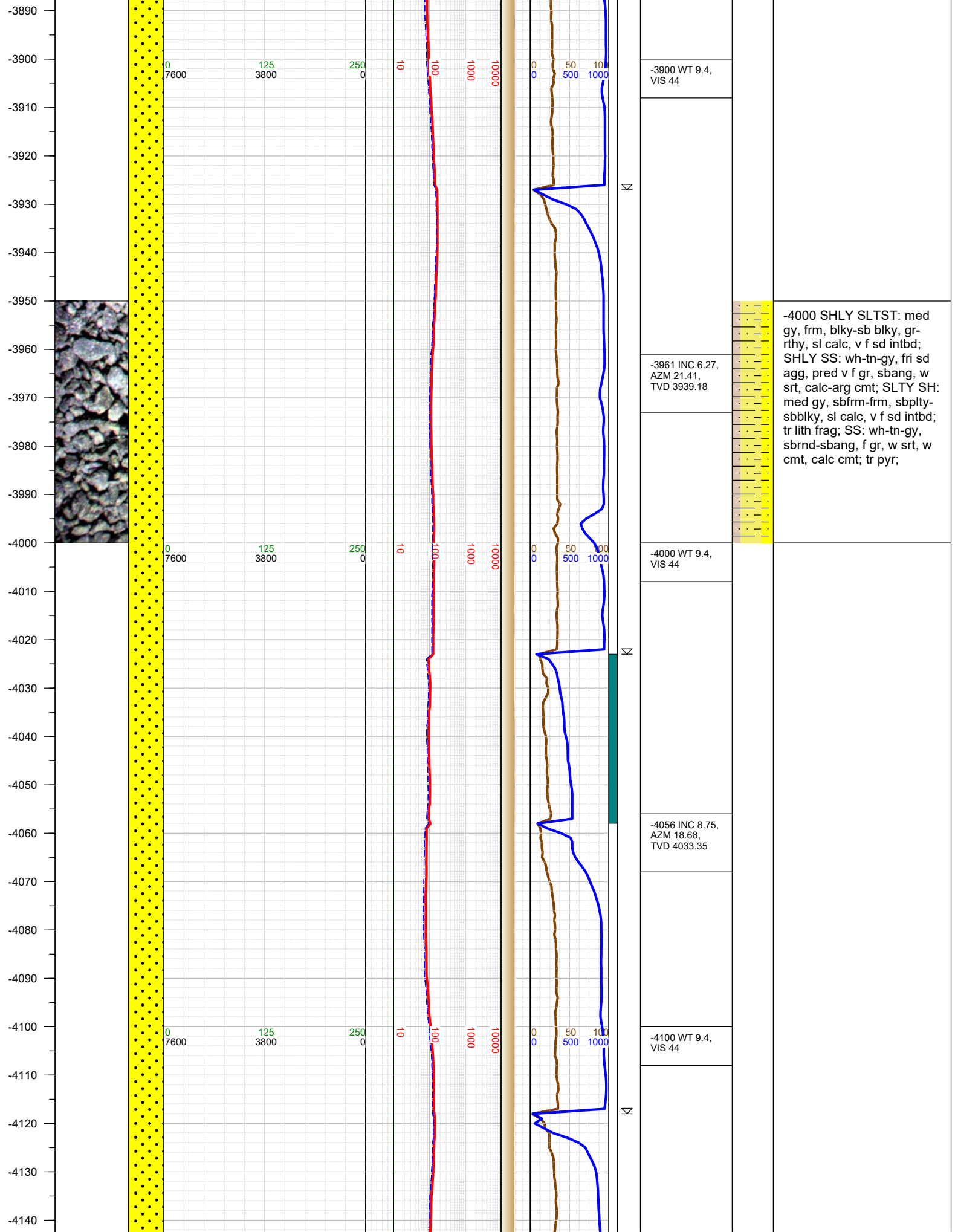


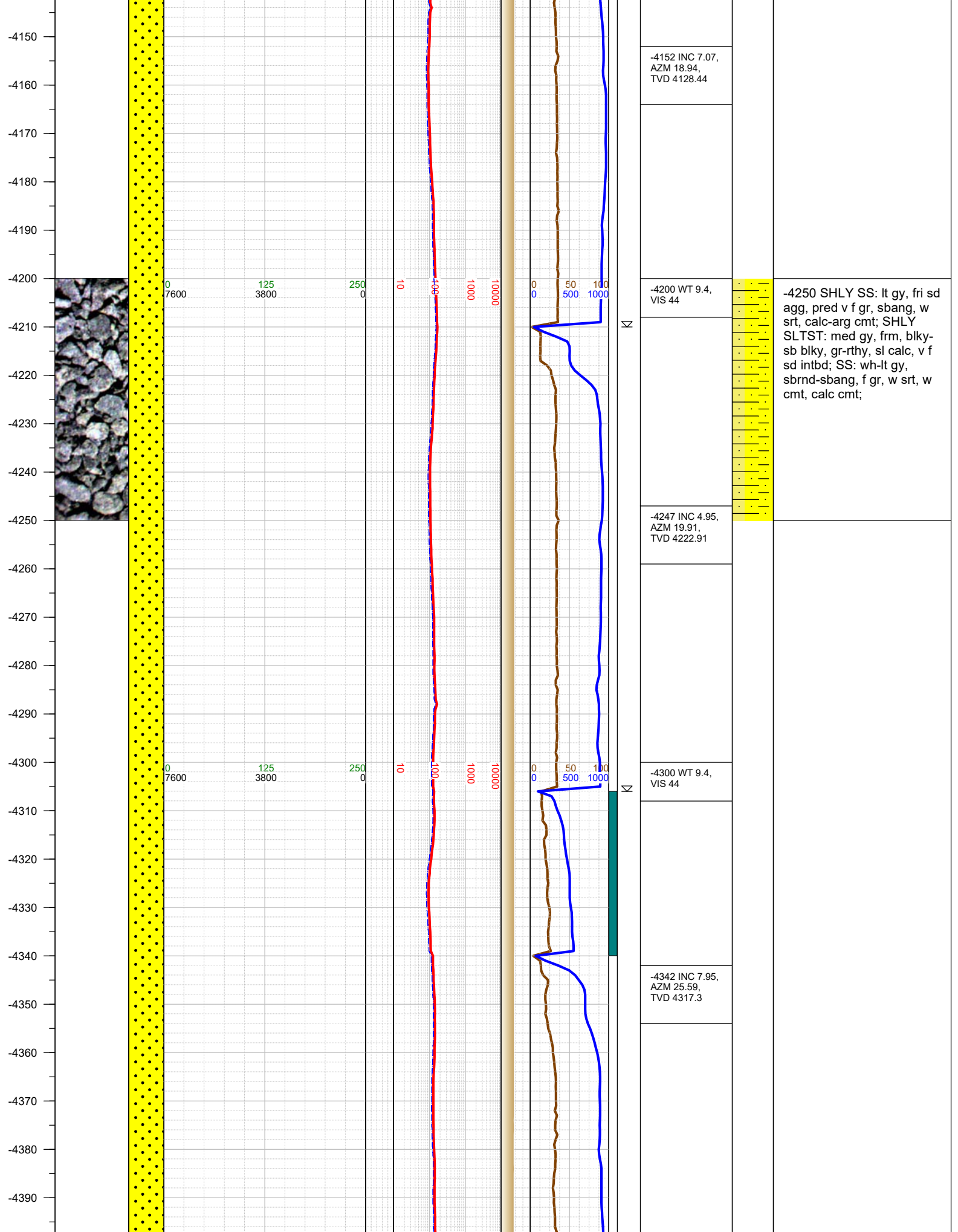


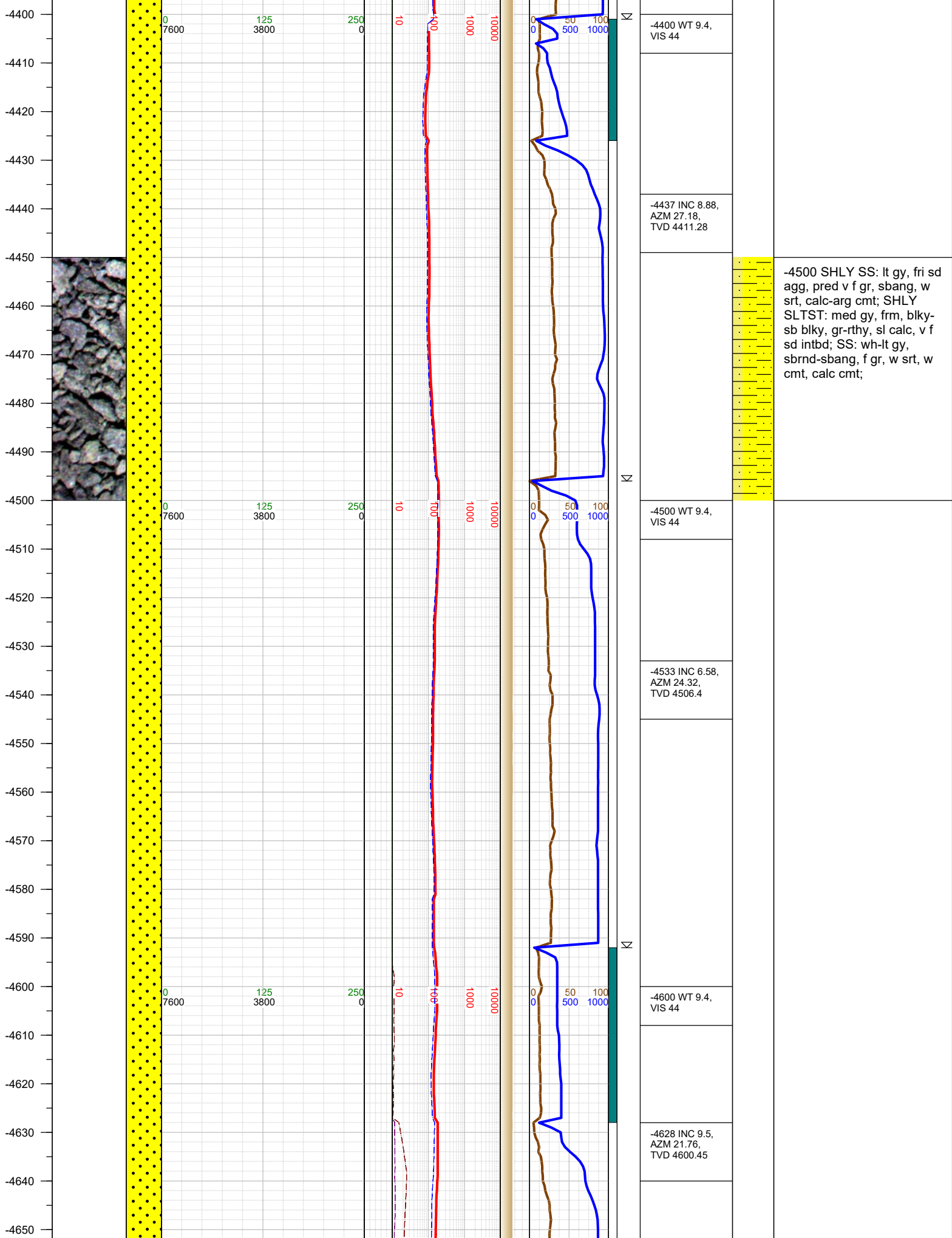


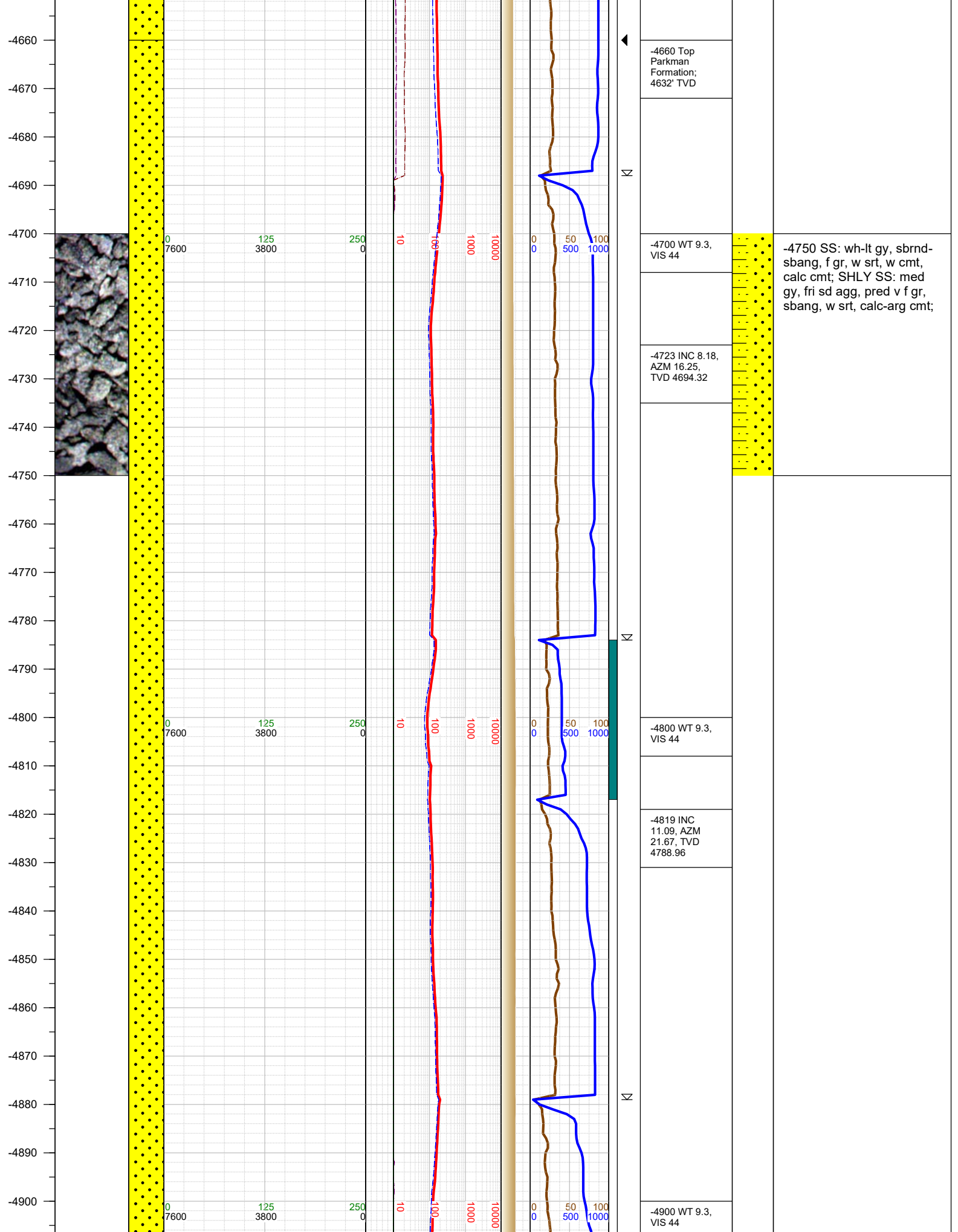




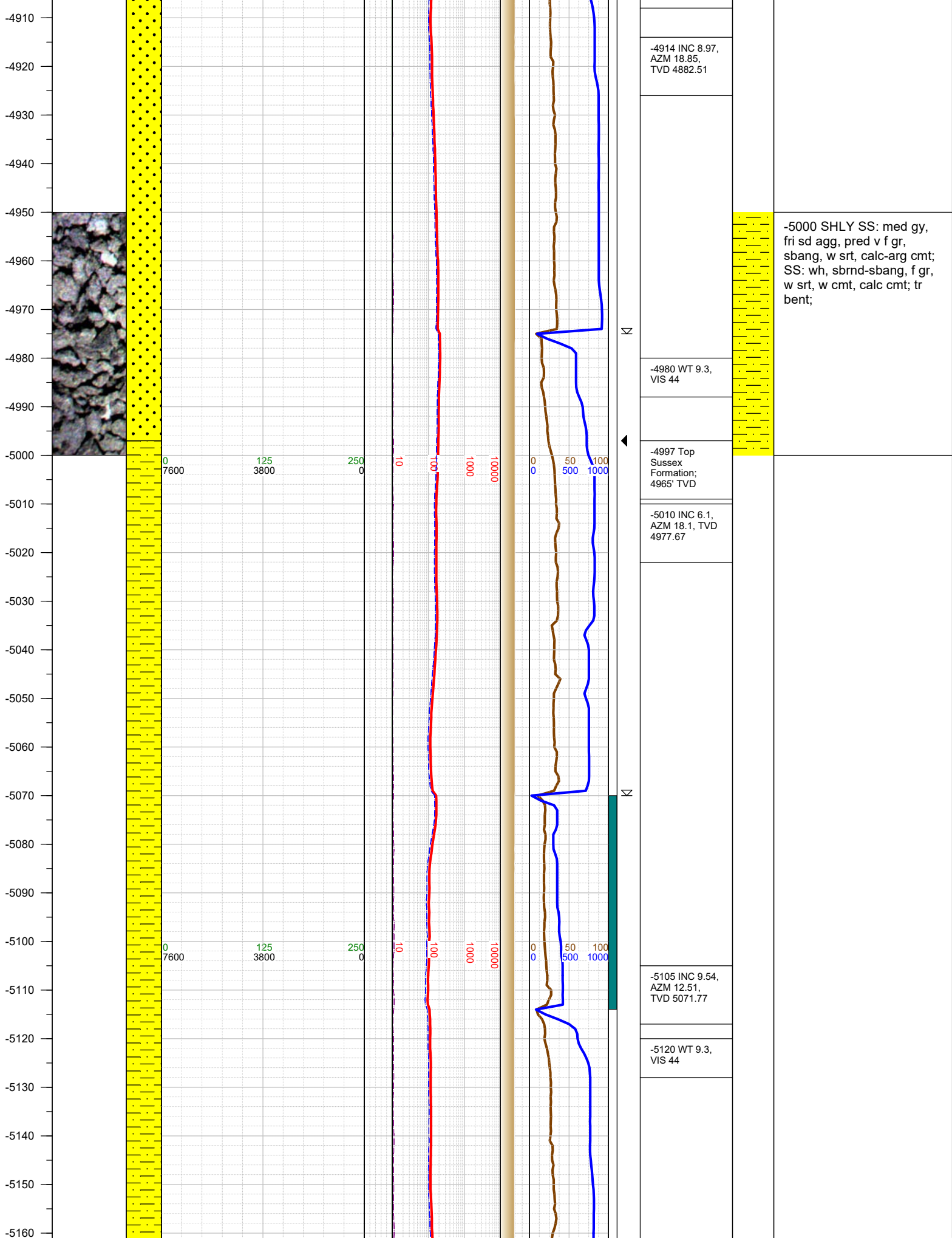


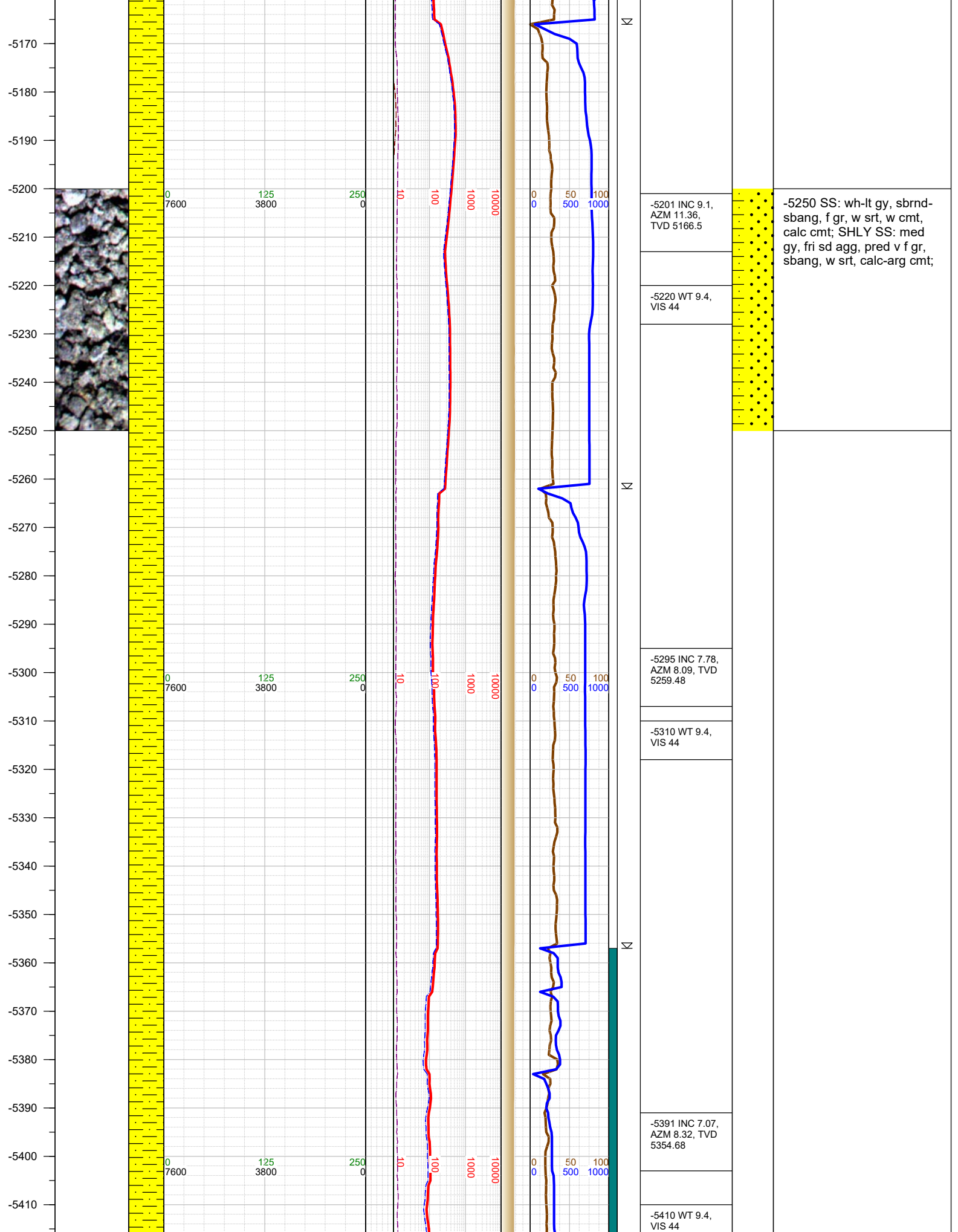




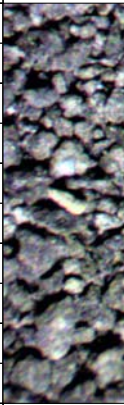








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-5486 INC 7.47,  
AZM 13.7, TVD  
5448.92

-5500 WT 9.4,  
VIS 43

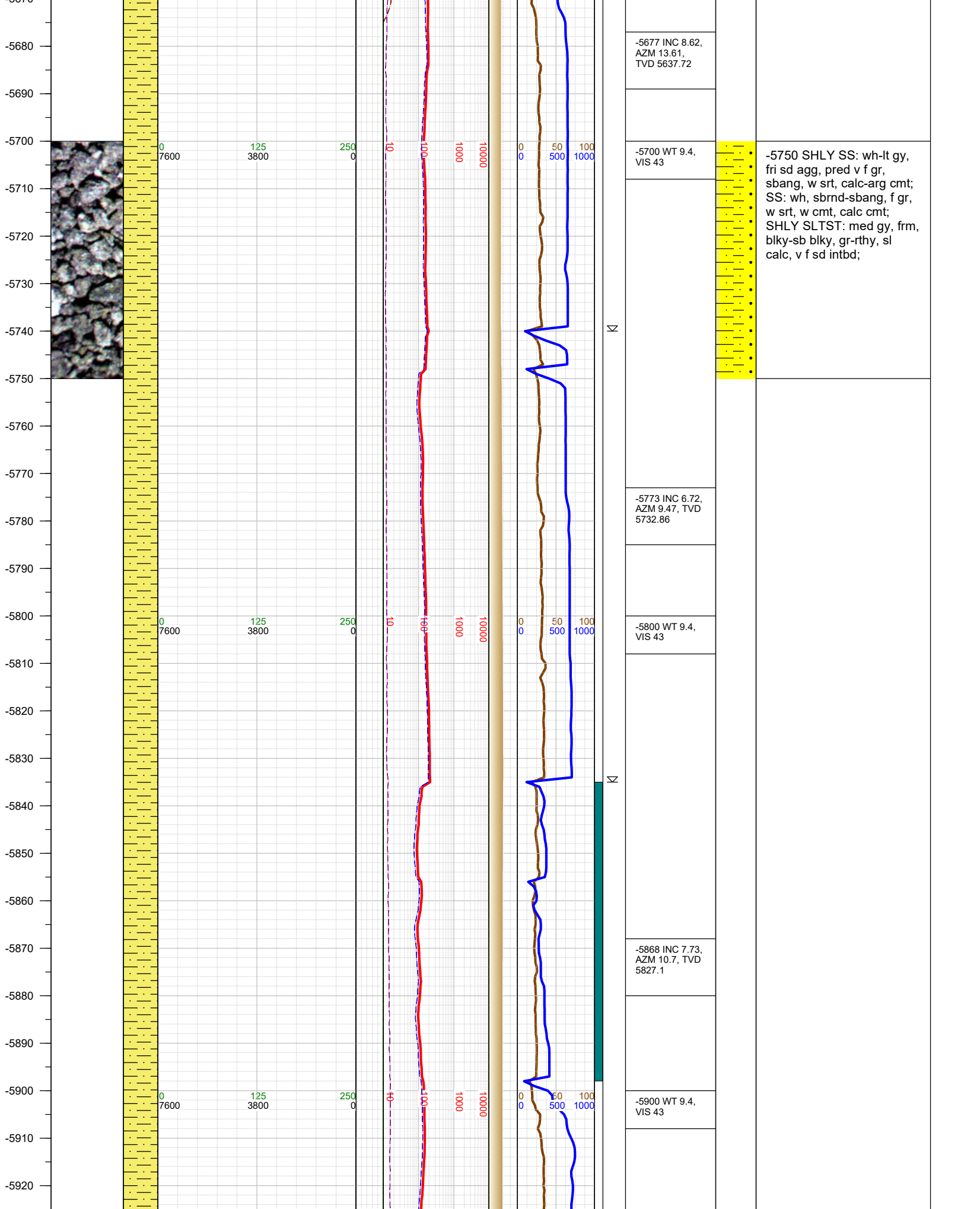
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AZM 14.36,  
TVD 5543.88

-5586 Top  
Shannon  
Formation;  
5548' TVD

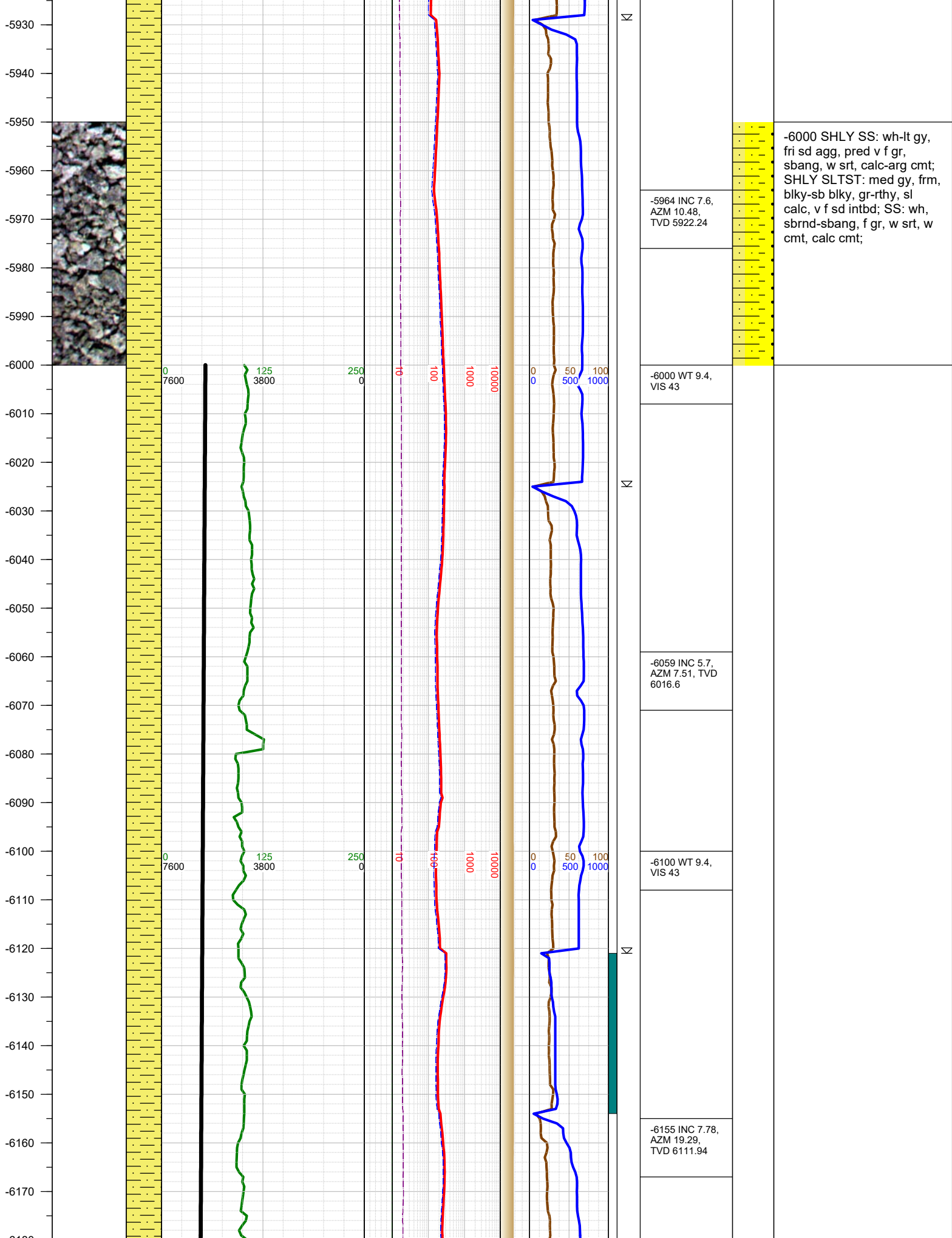
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VIS 43

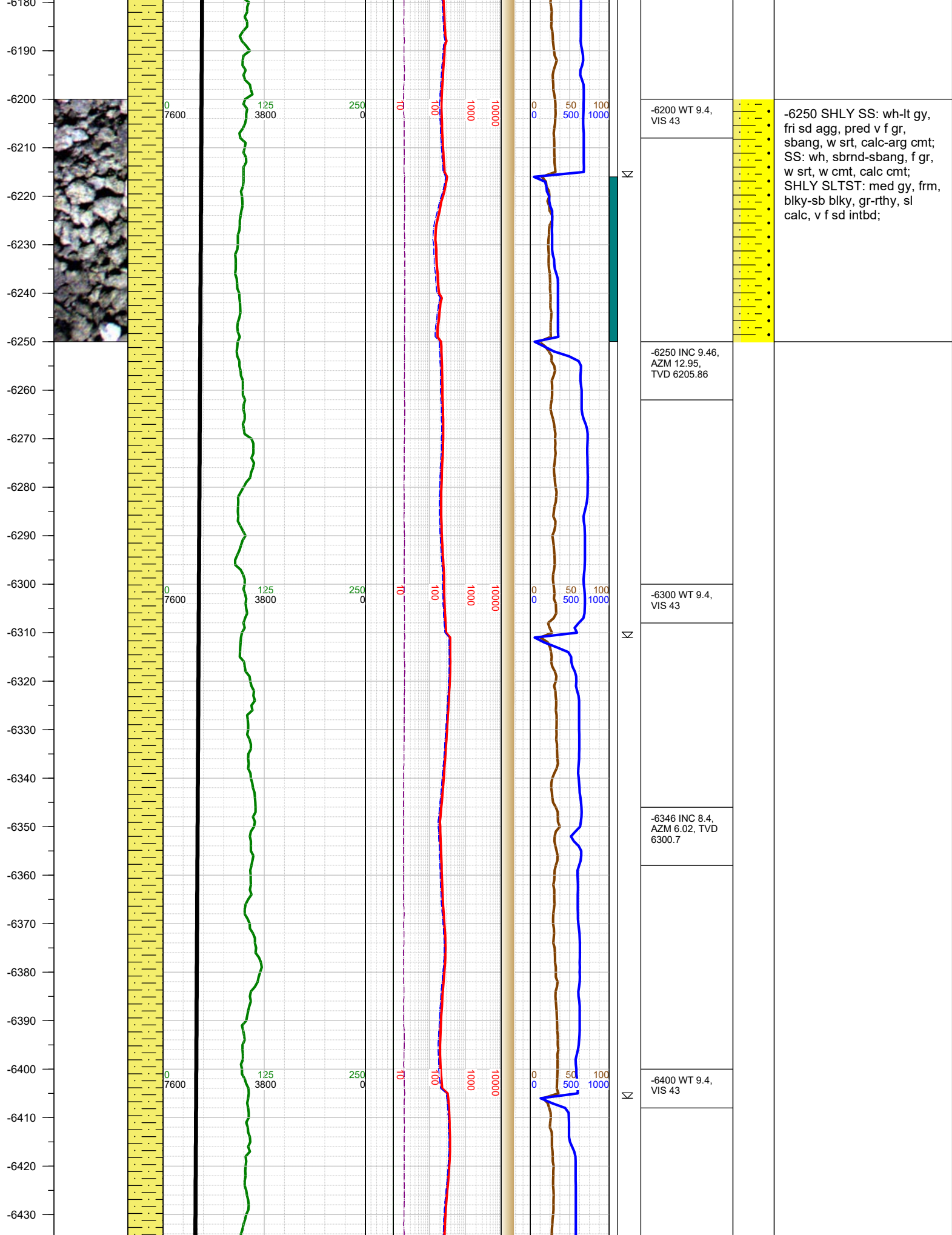


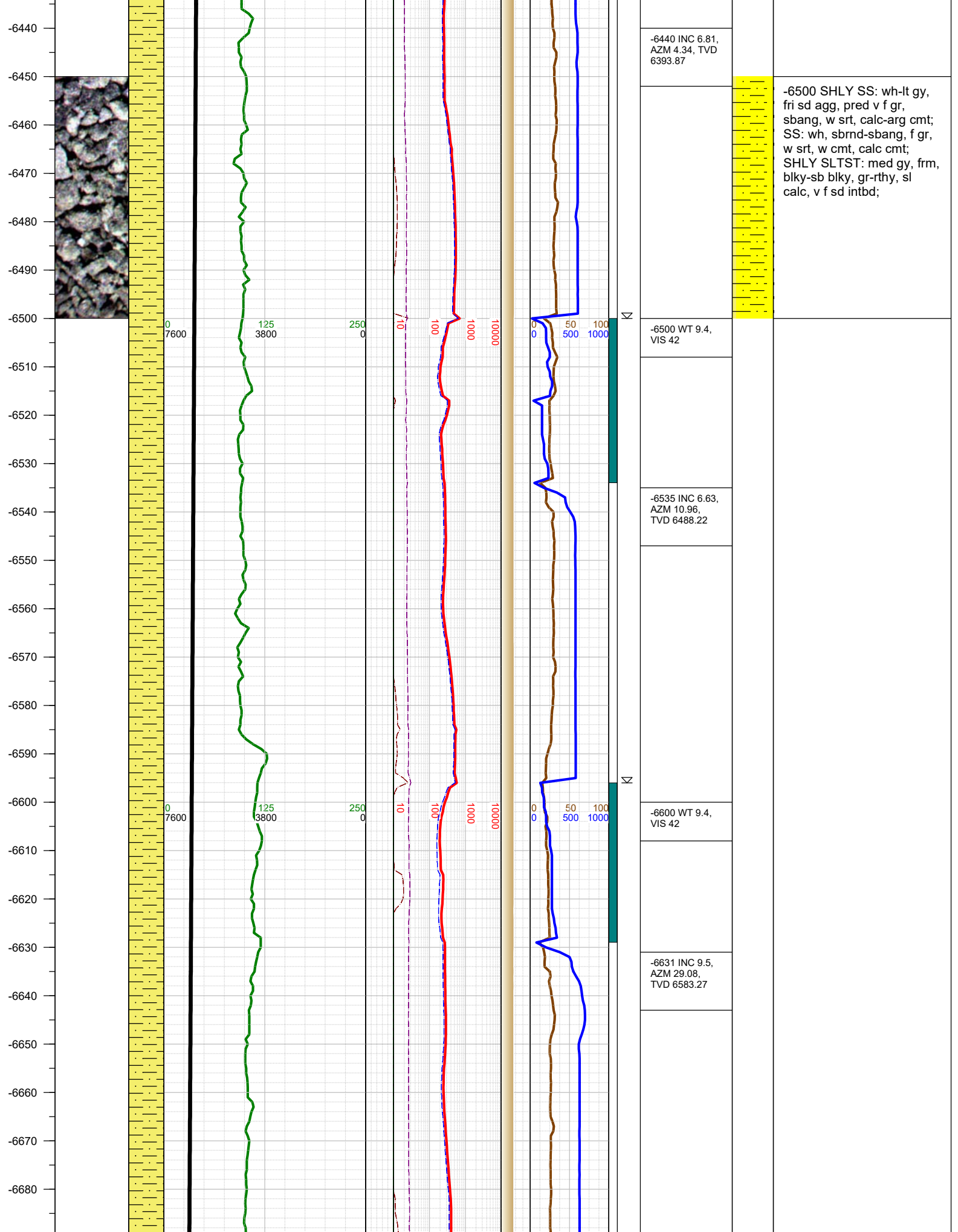
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fri sd agg, pred v f gr,  
sbang, w srt, calc-arg cmt;  
SHLY SLTST: med gy, frm,  
blky-sb blky, gr-rthy, sl  
calc, v f sd intbd; SS: wh,  
sbrnd-sbang, f gr, w srt, w  
cmt, calc cmt; tr glauc;

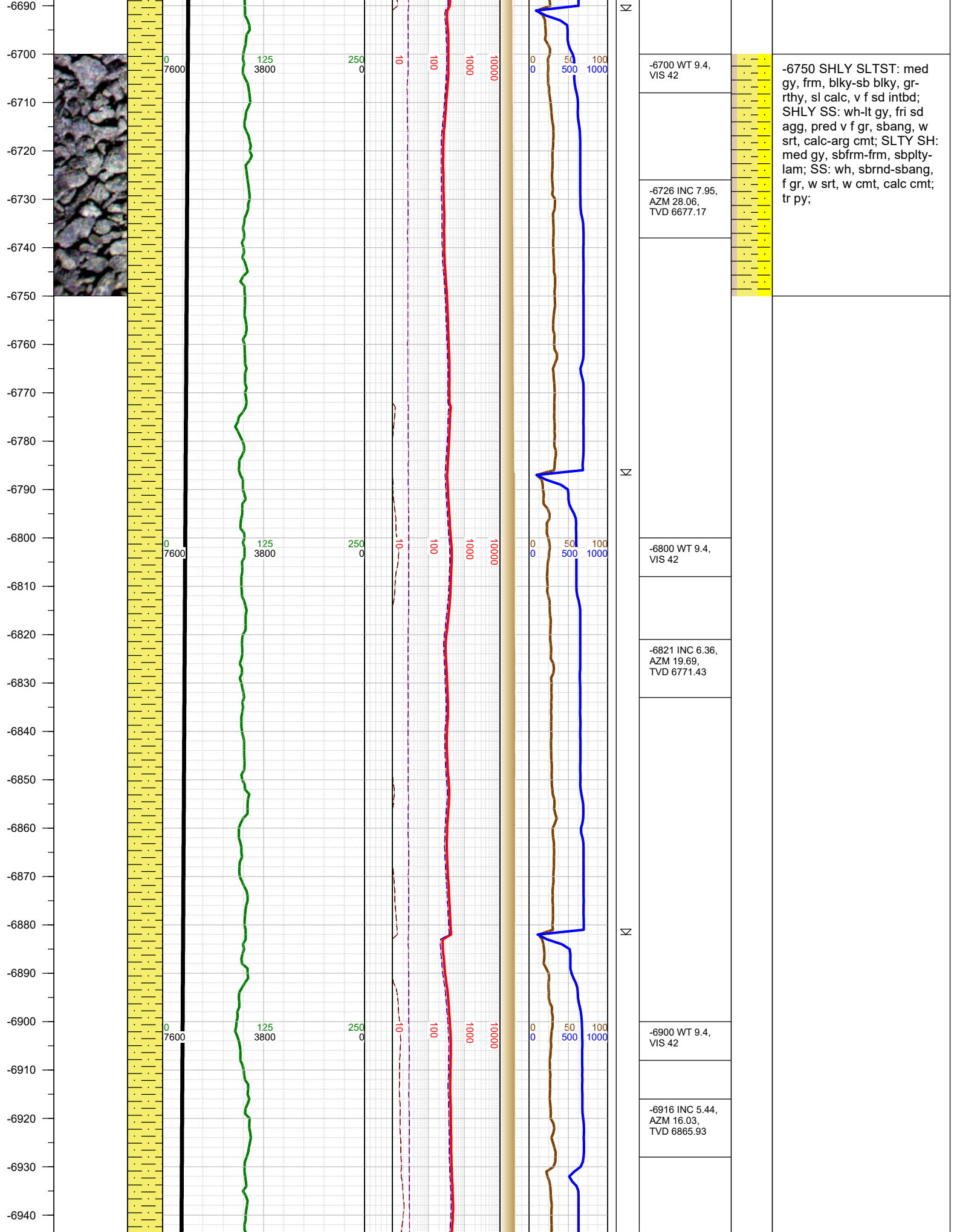




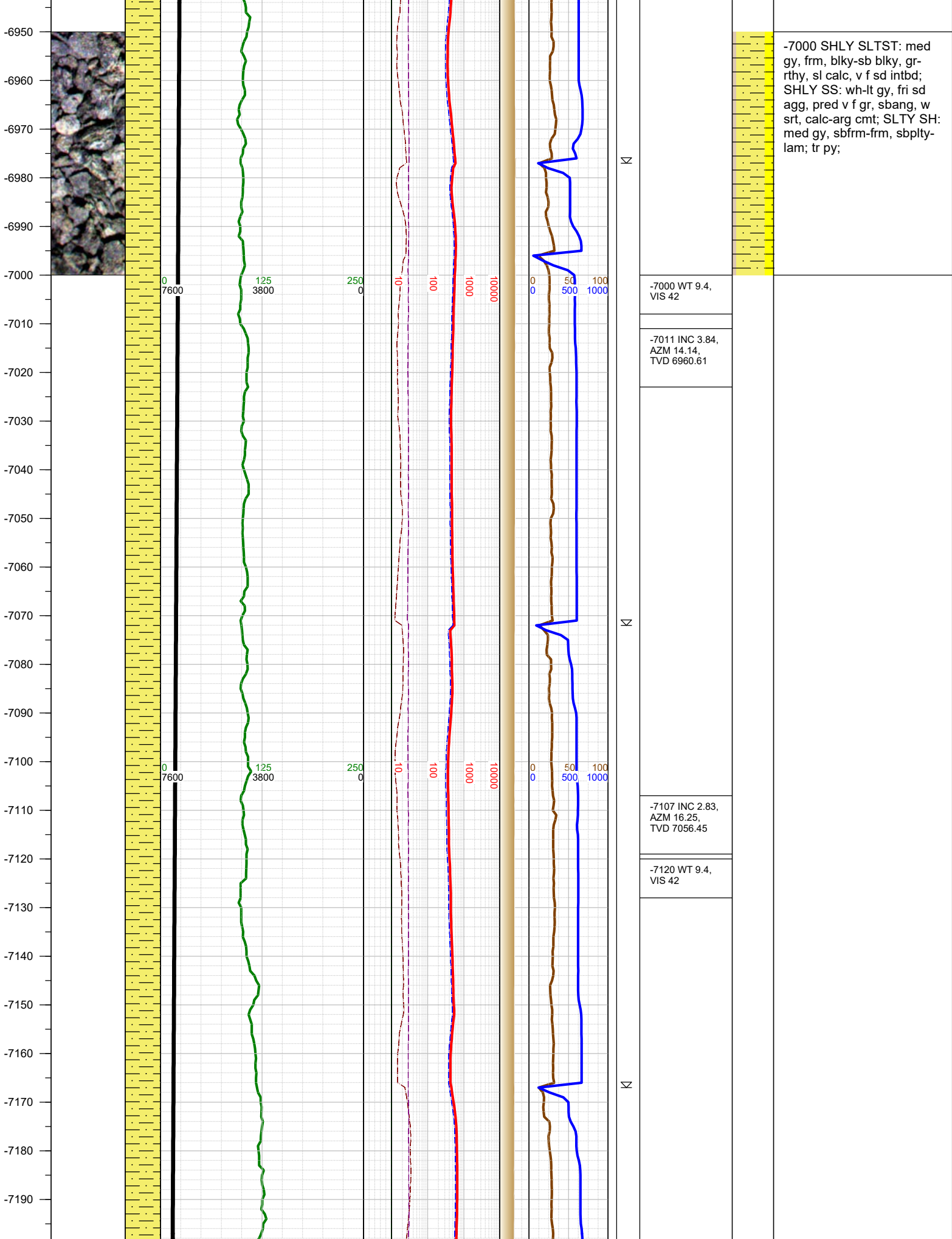


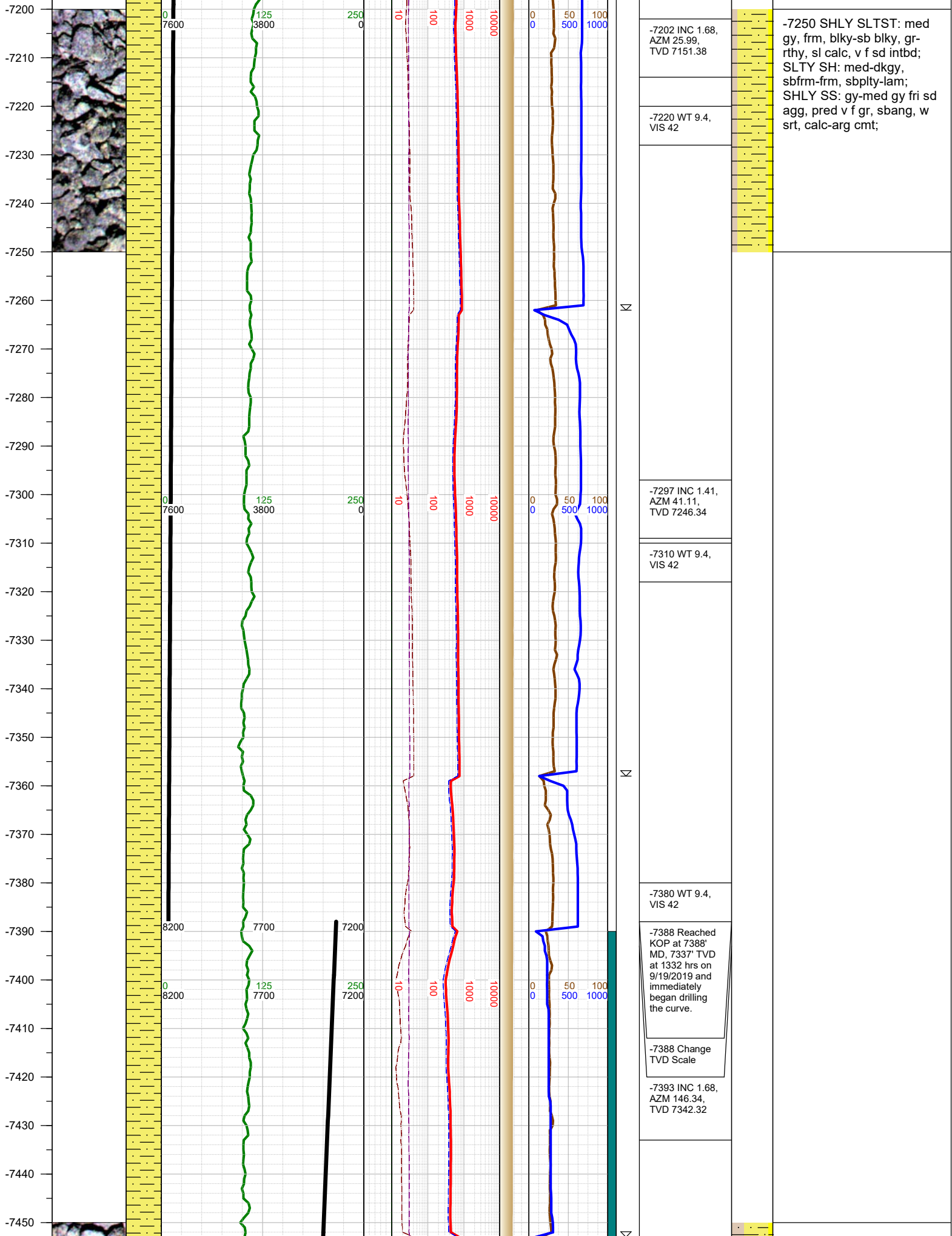


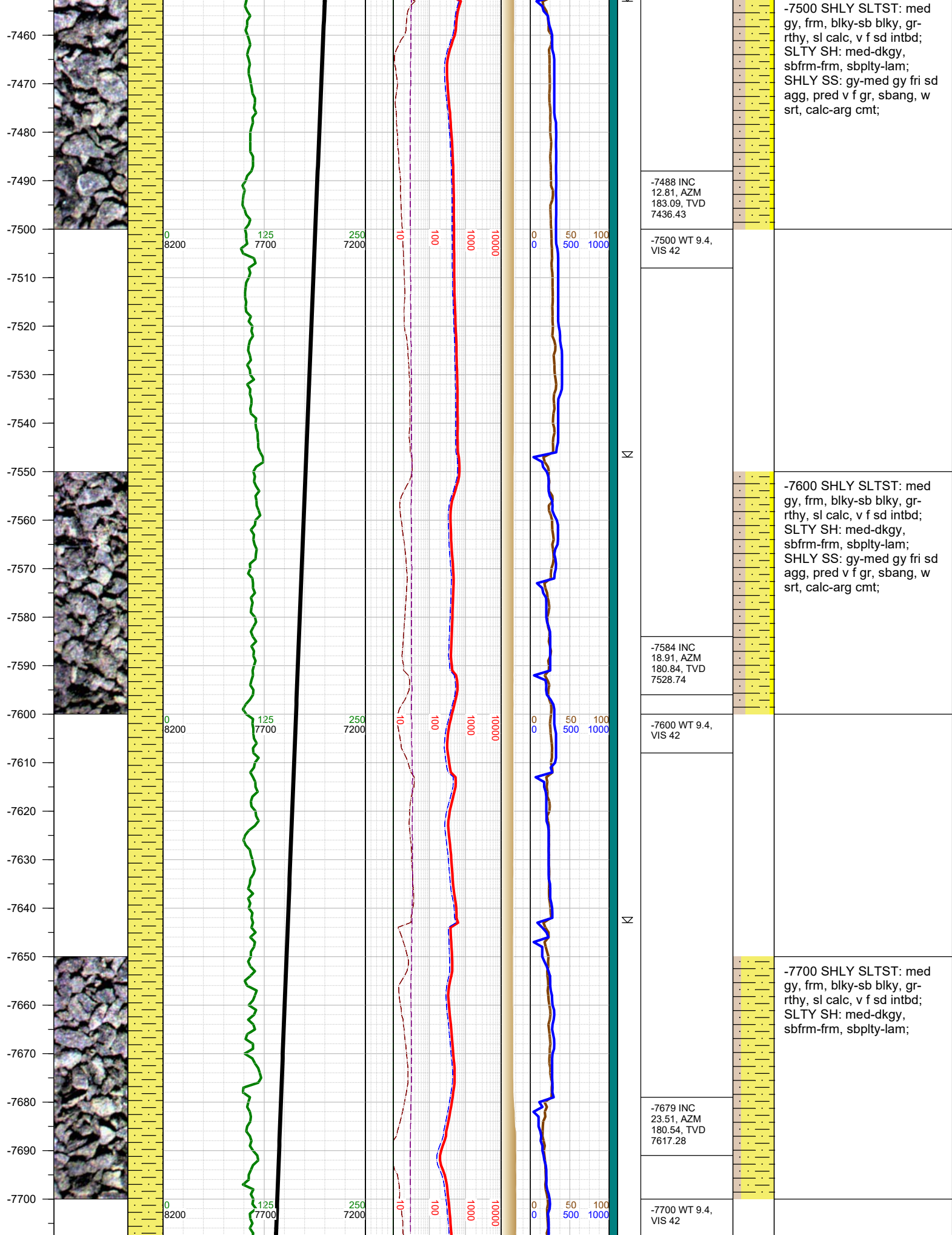












-7500 SHLY SLTST: med gy, frm, blkly-sb blkly, gr-rthy, sl calc, v f sd intbd; SLTY SH: med-dkgy, sbfrm-frm, sbplty-lam; SHLY SS: gy-med gy fri sd agg, pred v f gr, sbang, w srt, calc-arg cmt;

-7488 INC  
12.81, AZM  
183.09, TVD  
7436.43

-7500 WT 9.4,  
VIS 42

-7600 SHLY SLTST: med gy, frm, blkly-sb blkly, gr-rthy, sl calc, v f sd intbd; SLTY SH: med-dkgy, sbfrm-frm, sbplty-lam; SHLY SS: gy-med gy fri sd agg, pred v f gr, sbang, w srt, calc-arg cmt;

-7584 INC  
18.91, AZM  
180.84, TVD  
7528.74

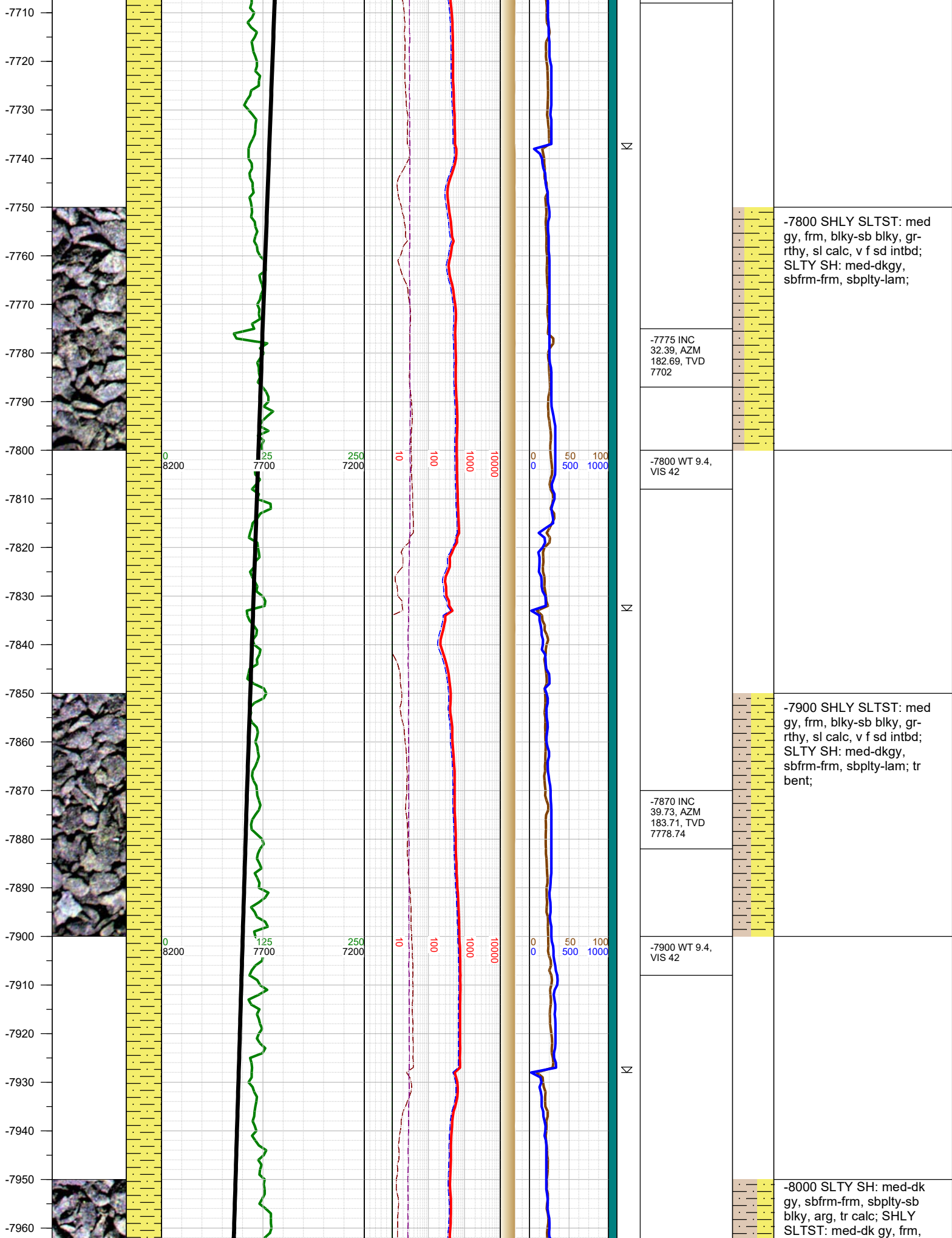
-7600 WT 9.4,  
VIS 42

-7700 SHLY SLTST: med gy, frm, blkly-sb blkly, gr-rthy, sl calc, v f sd intbd; SLTY SH: med-dkgy, sbfrm-frm, sbplty-lam;

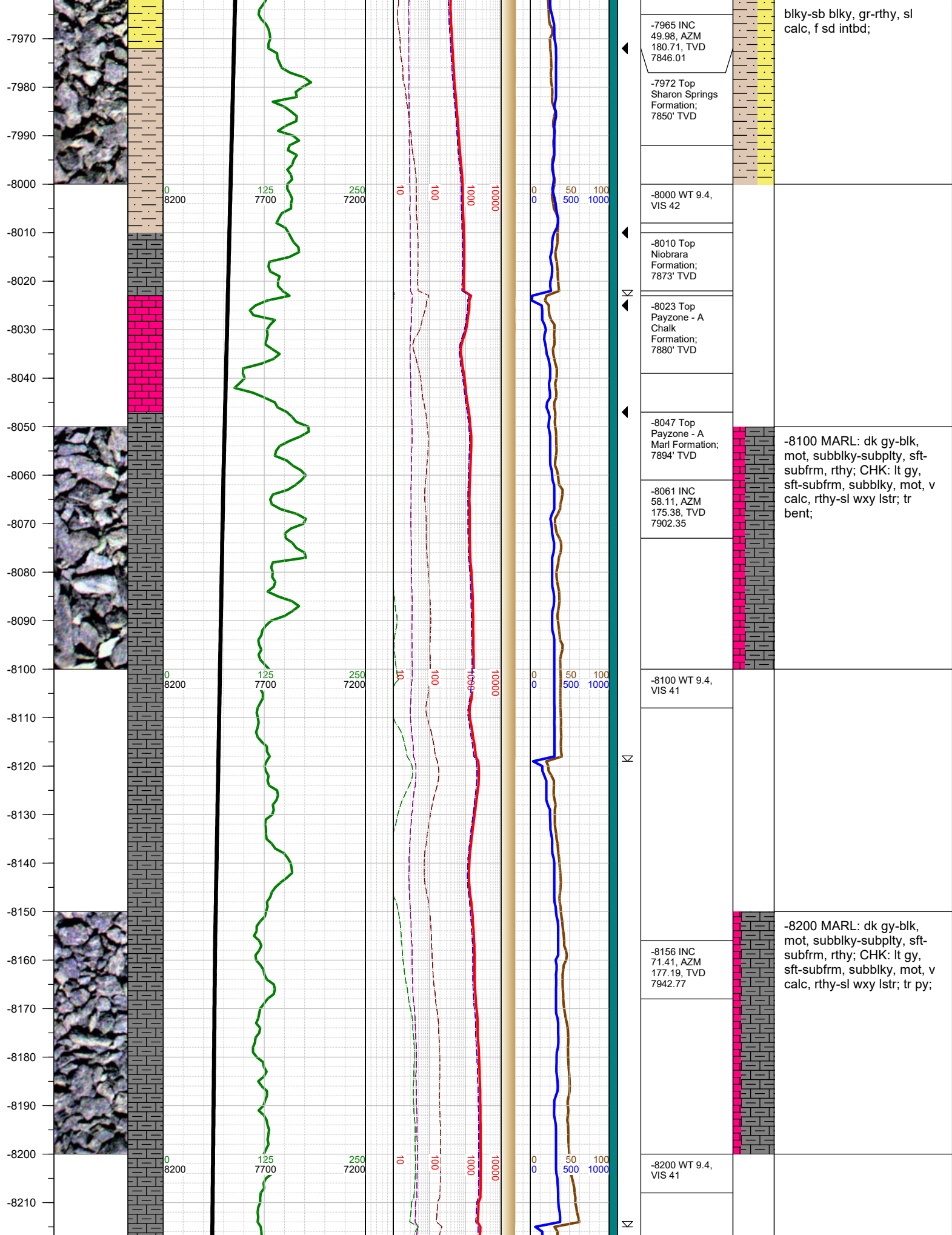
-7679 INC  
23.51, AZM  
180.54, TVD  
7617.28

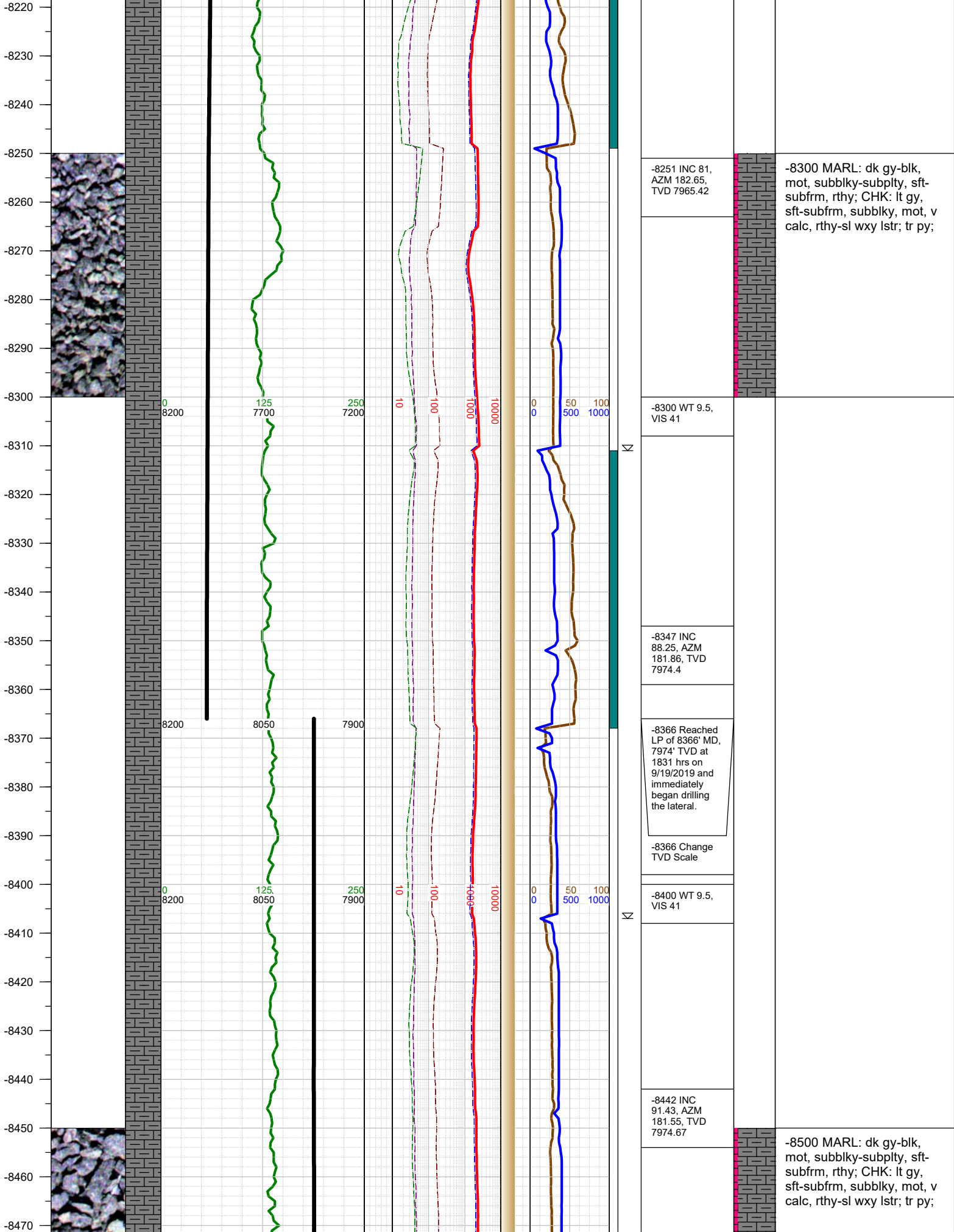
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VIS 42

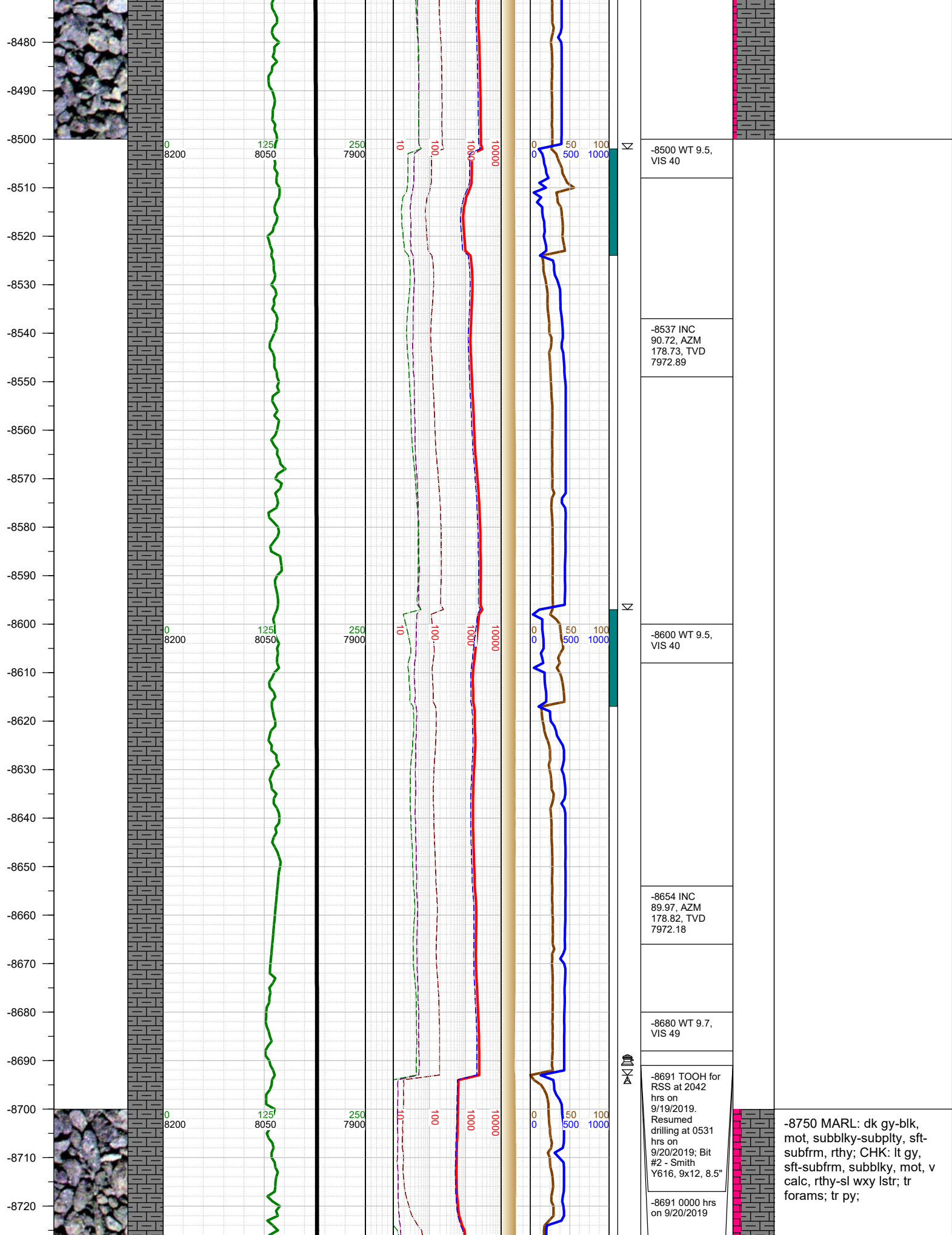




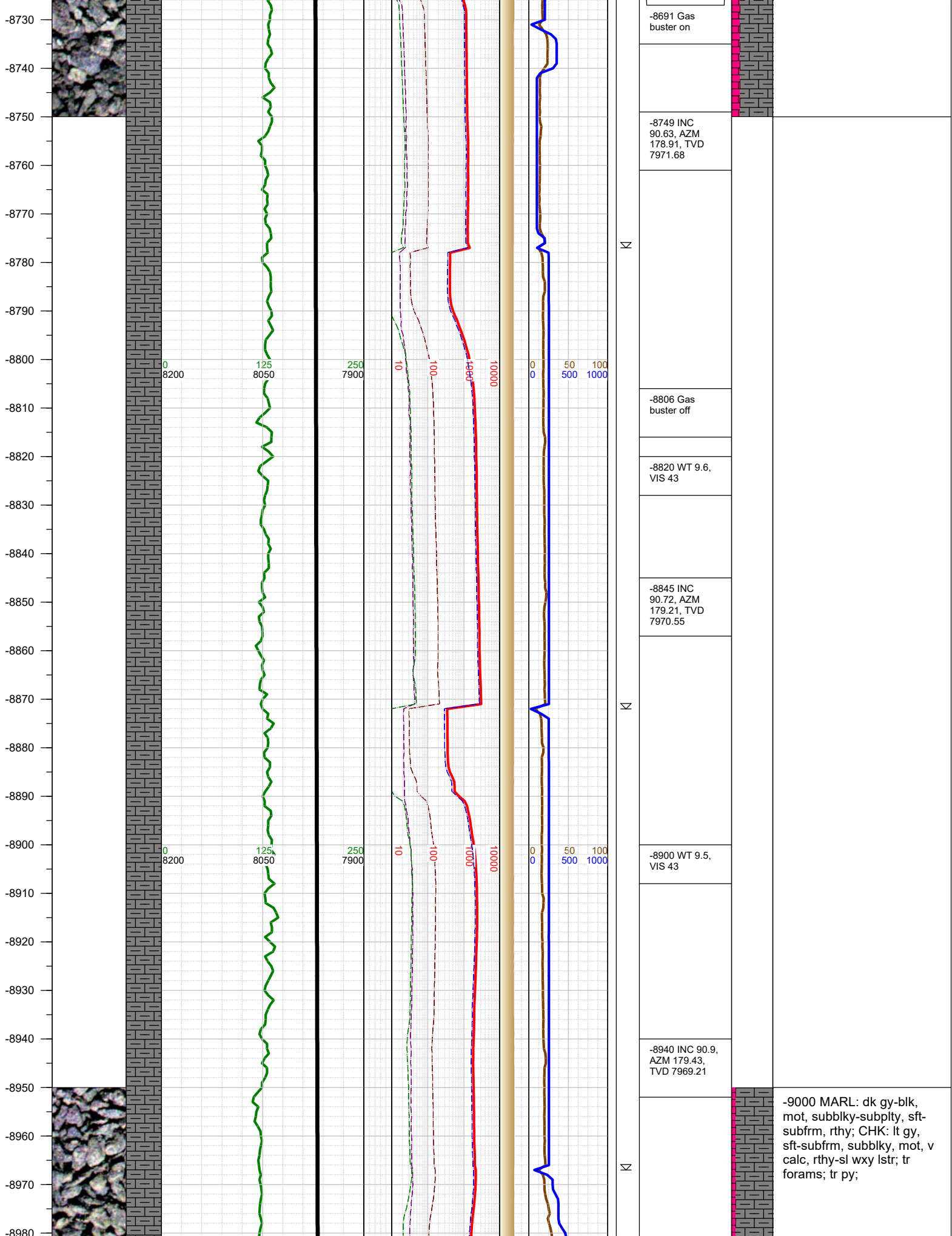




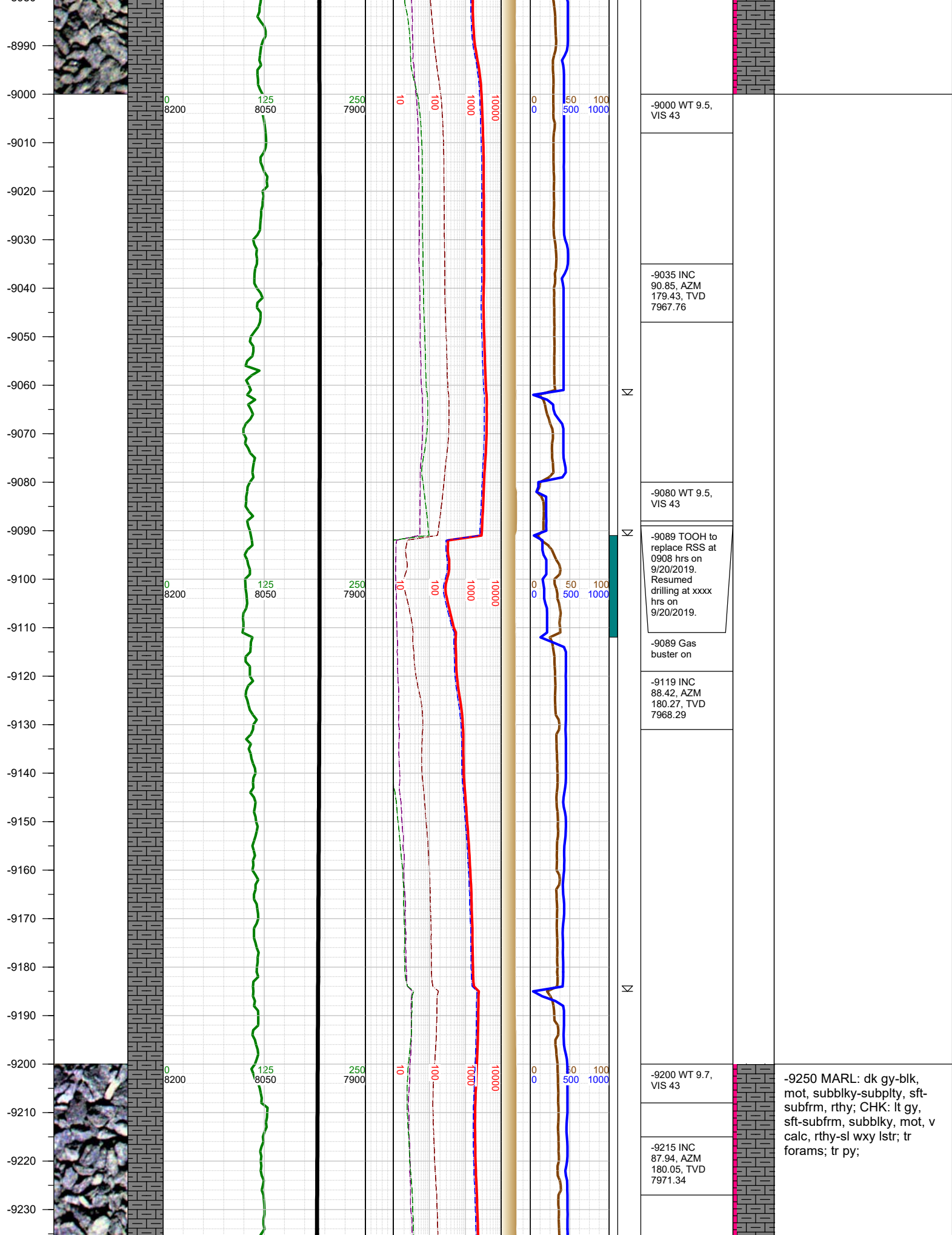




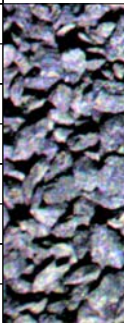
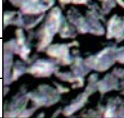








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0 500 1000

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-9300 WT 9.7,  
VIS 43

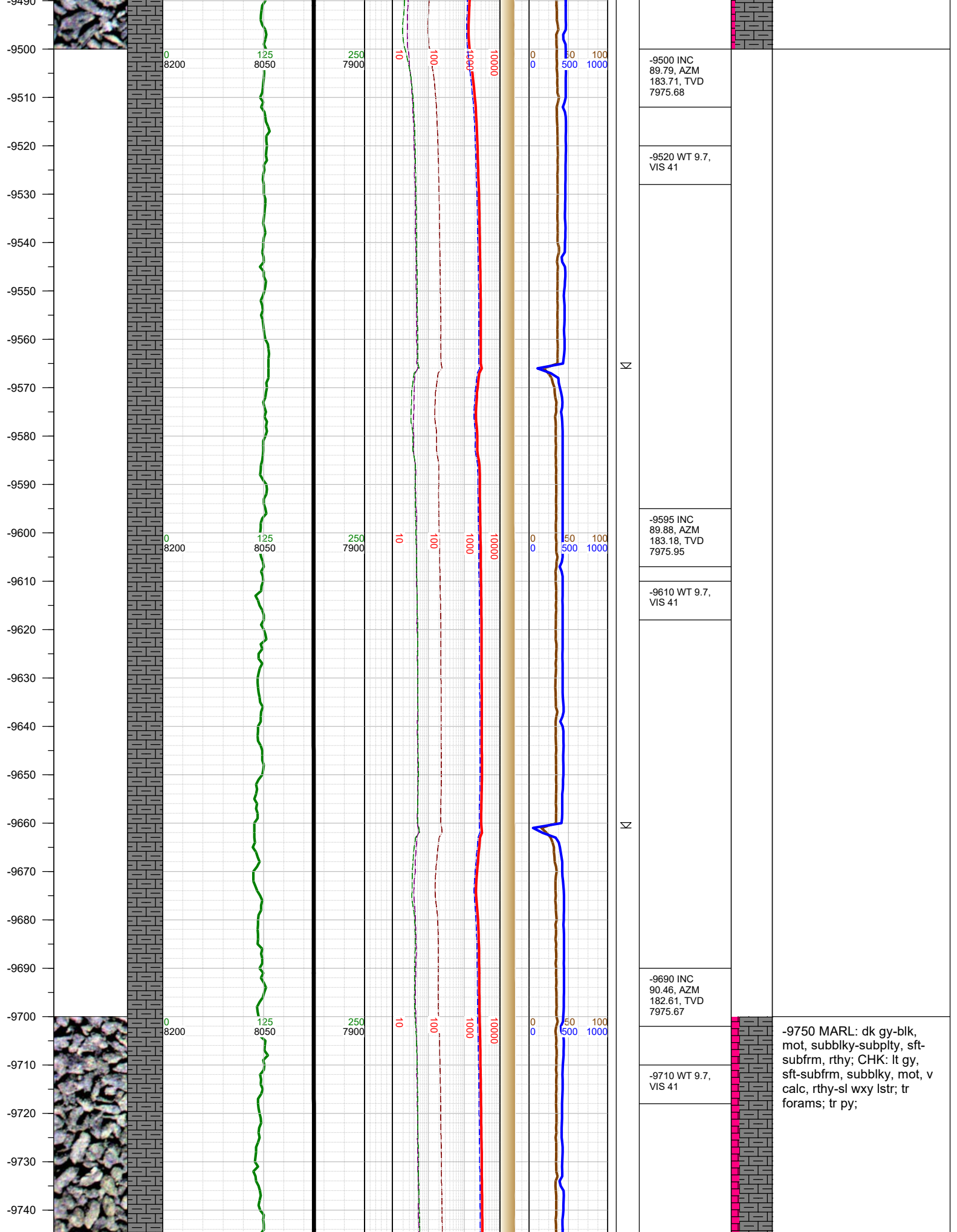
-9310 INC  
87.89, AZM  
182.52, TVD  
7974.8

-9373 Gas  
buster off

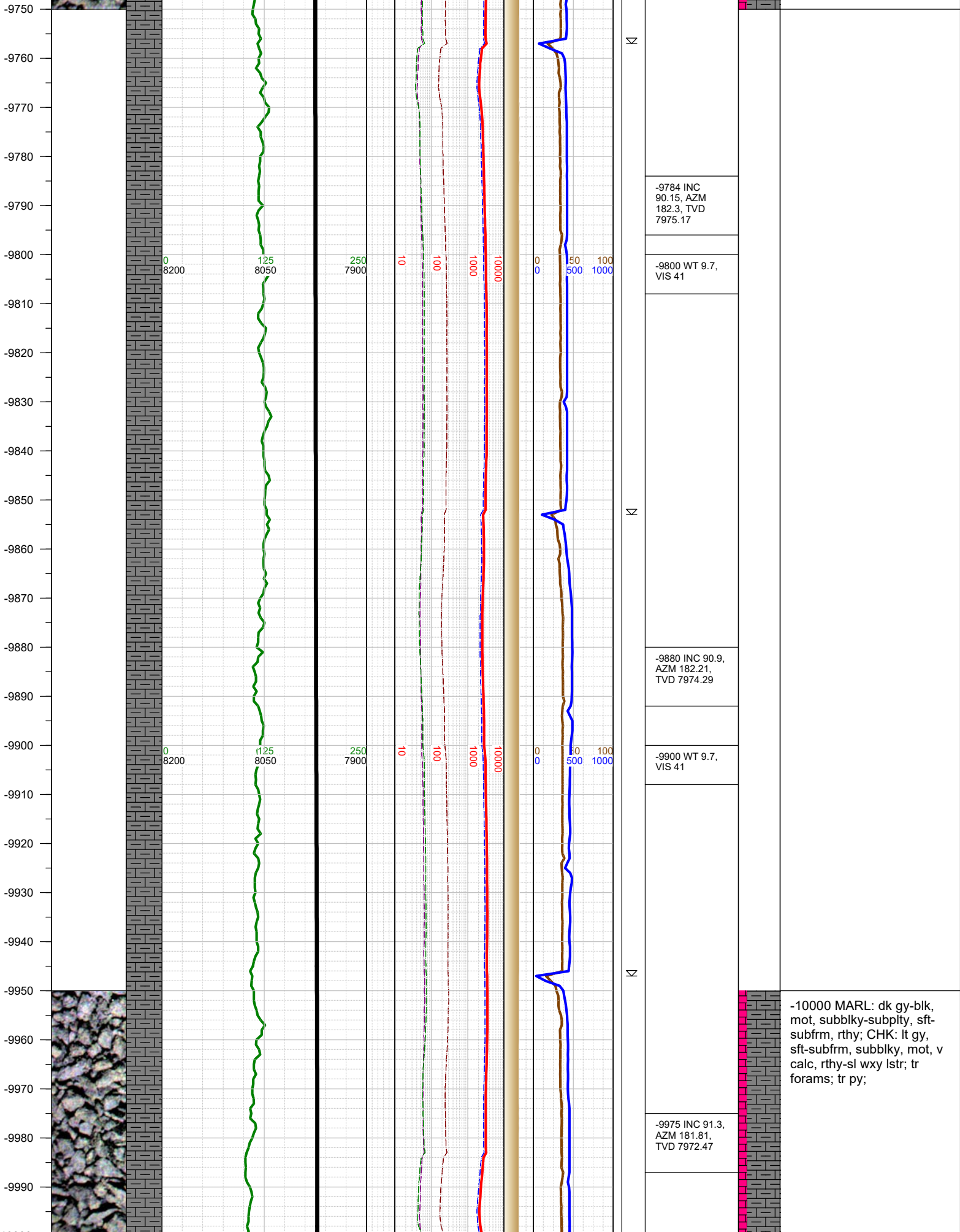
-9405 INC  
90.63, AZM  
183.8, TVD  
7976.03

-9420 WT 9.7,  
VIS 43

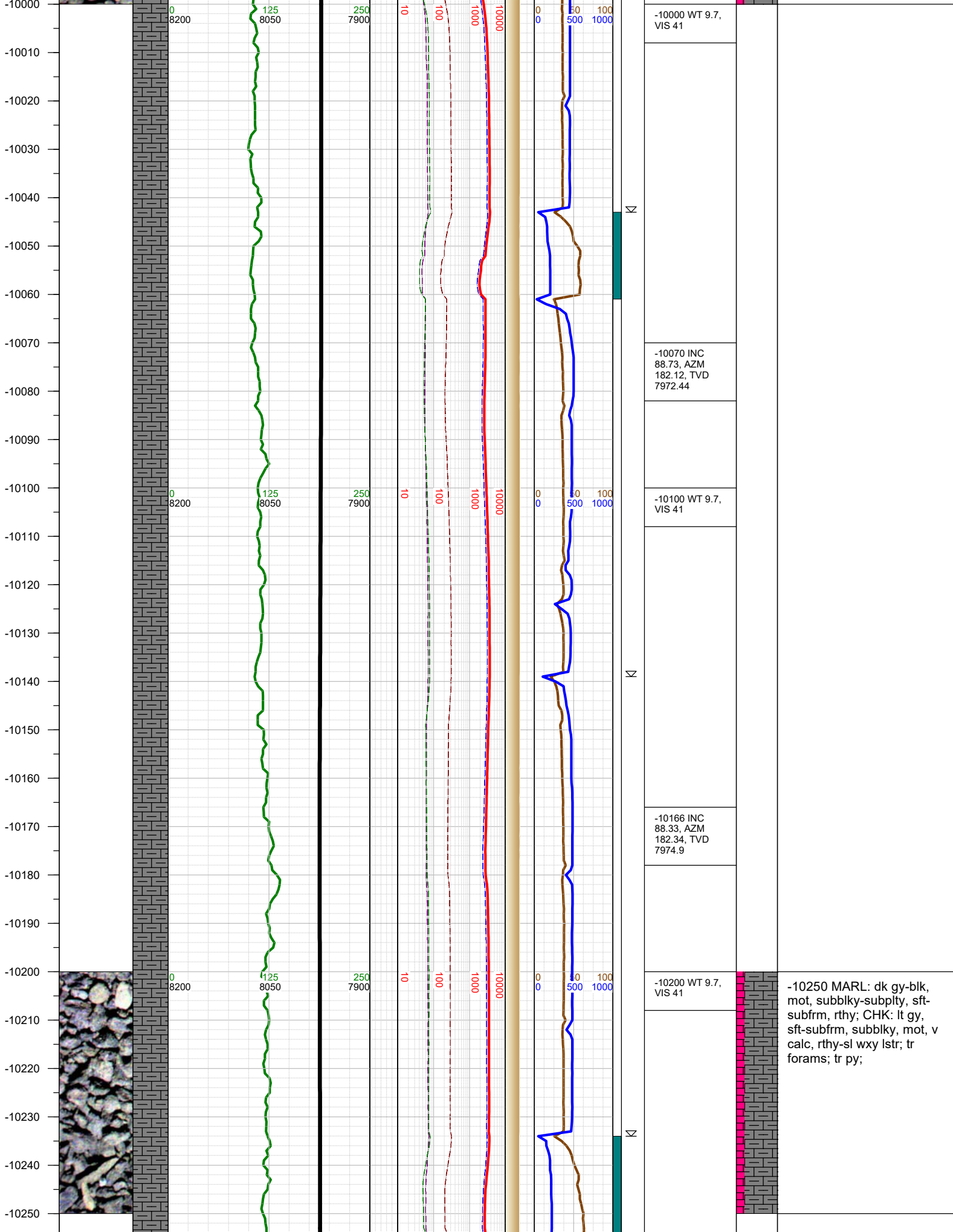
-9500 MARL: dk gy-blk,  
mot, subblky-subply, sft-  
subfrm, rthy; CHK: lt gy,  
sft-subfrm, subblky, mot, v  
calc, rthy-sl wxy lstr; tr  
forams; tr py;

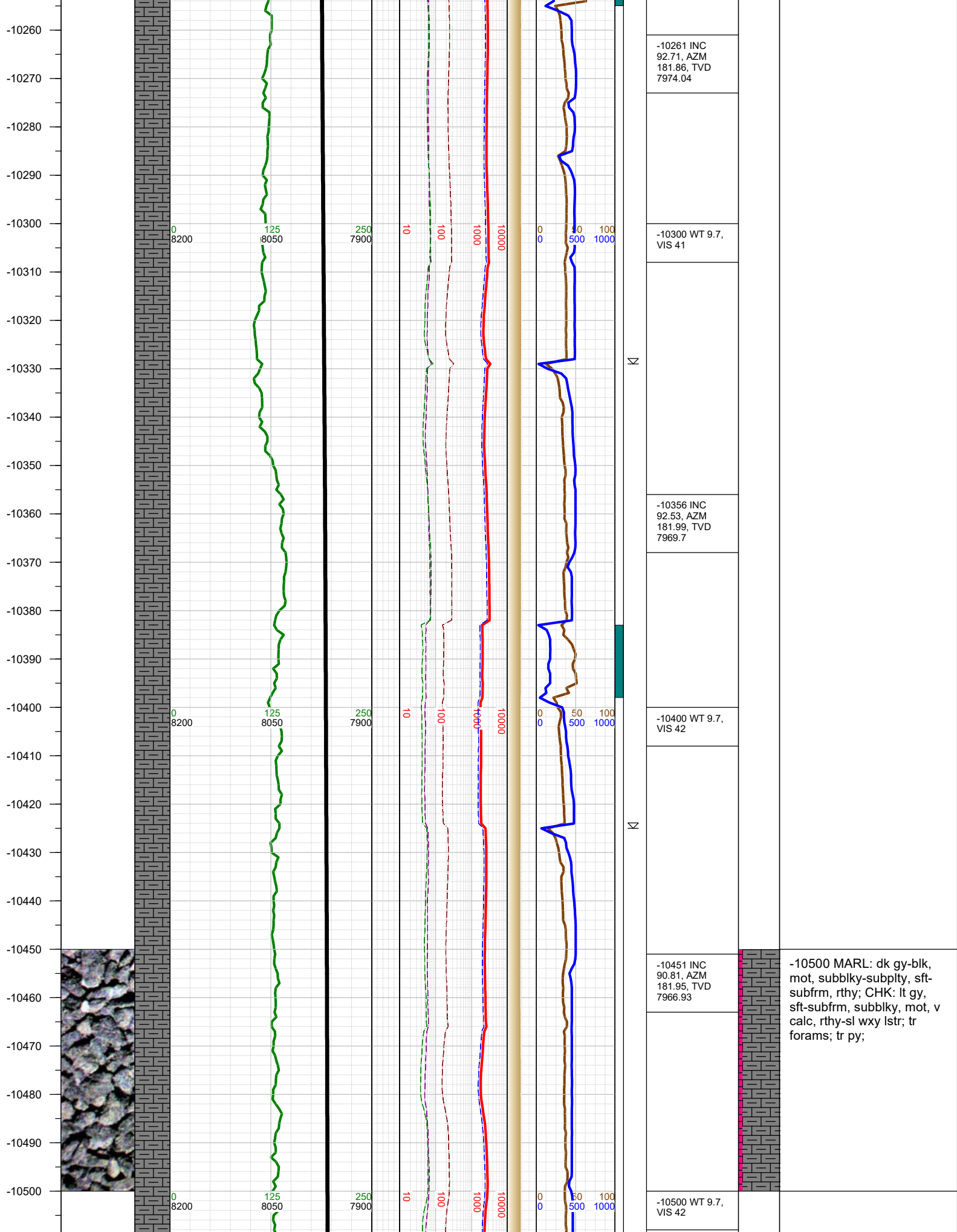


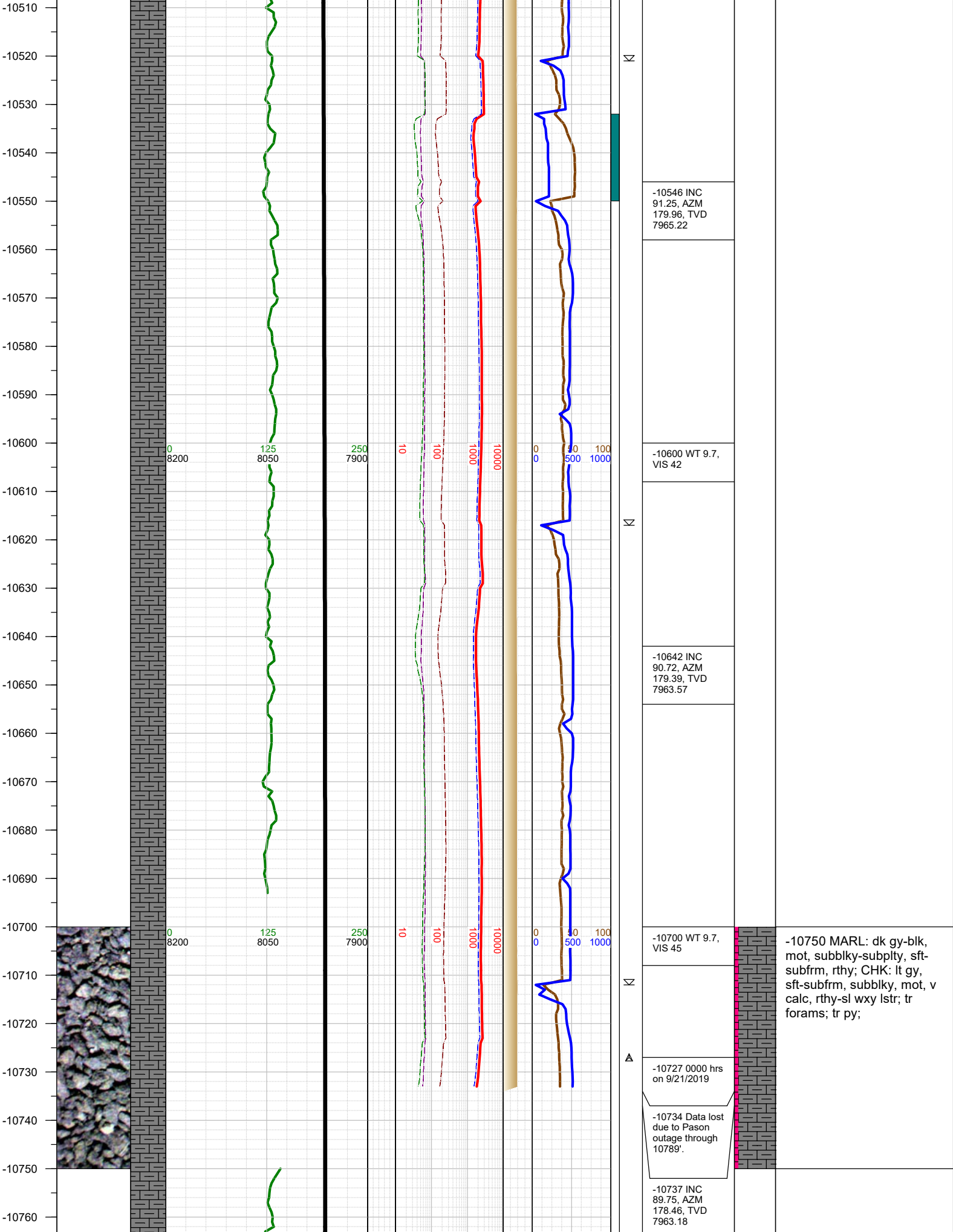




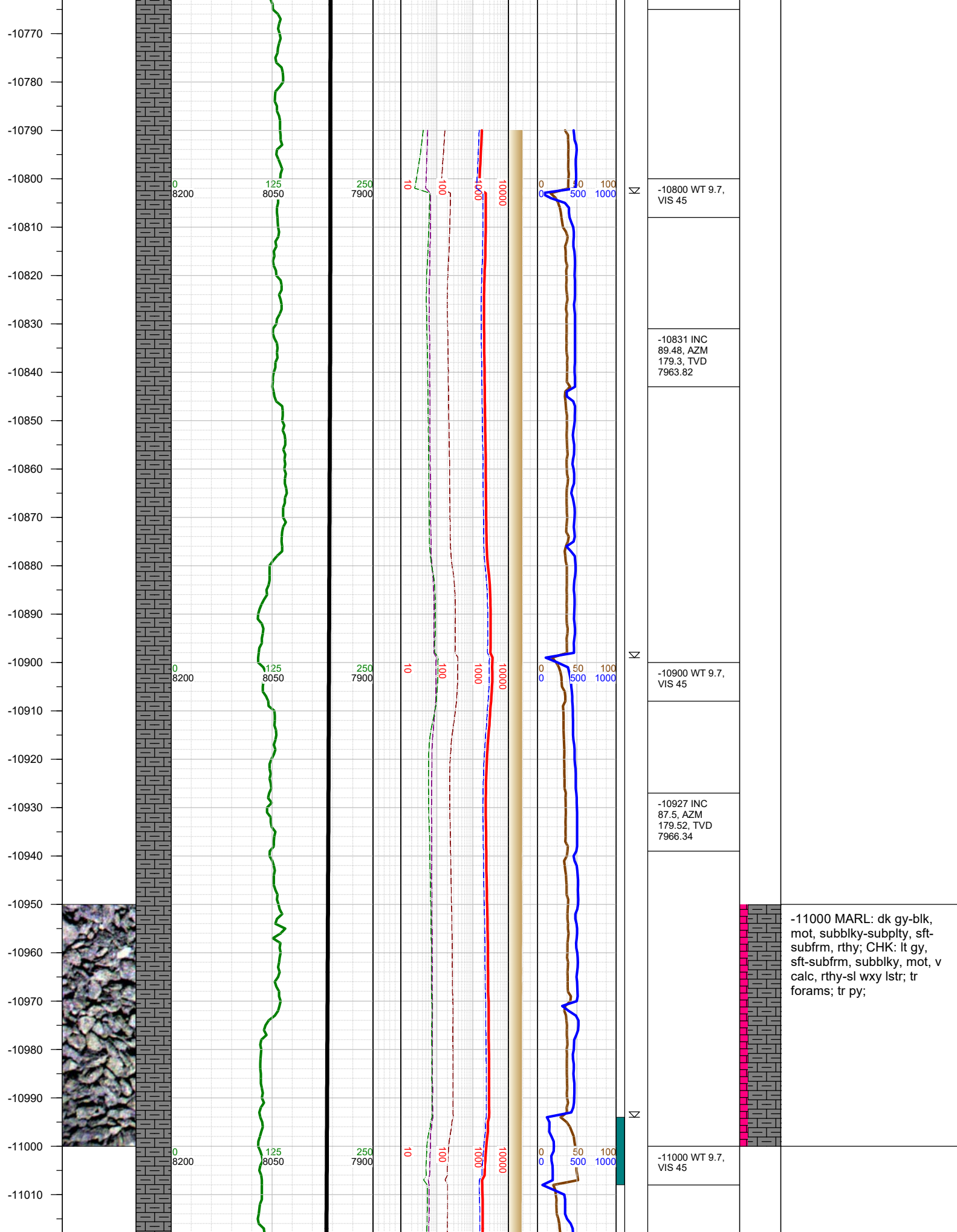




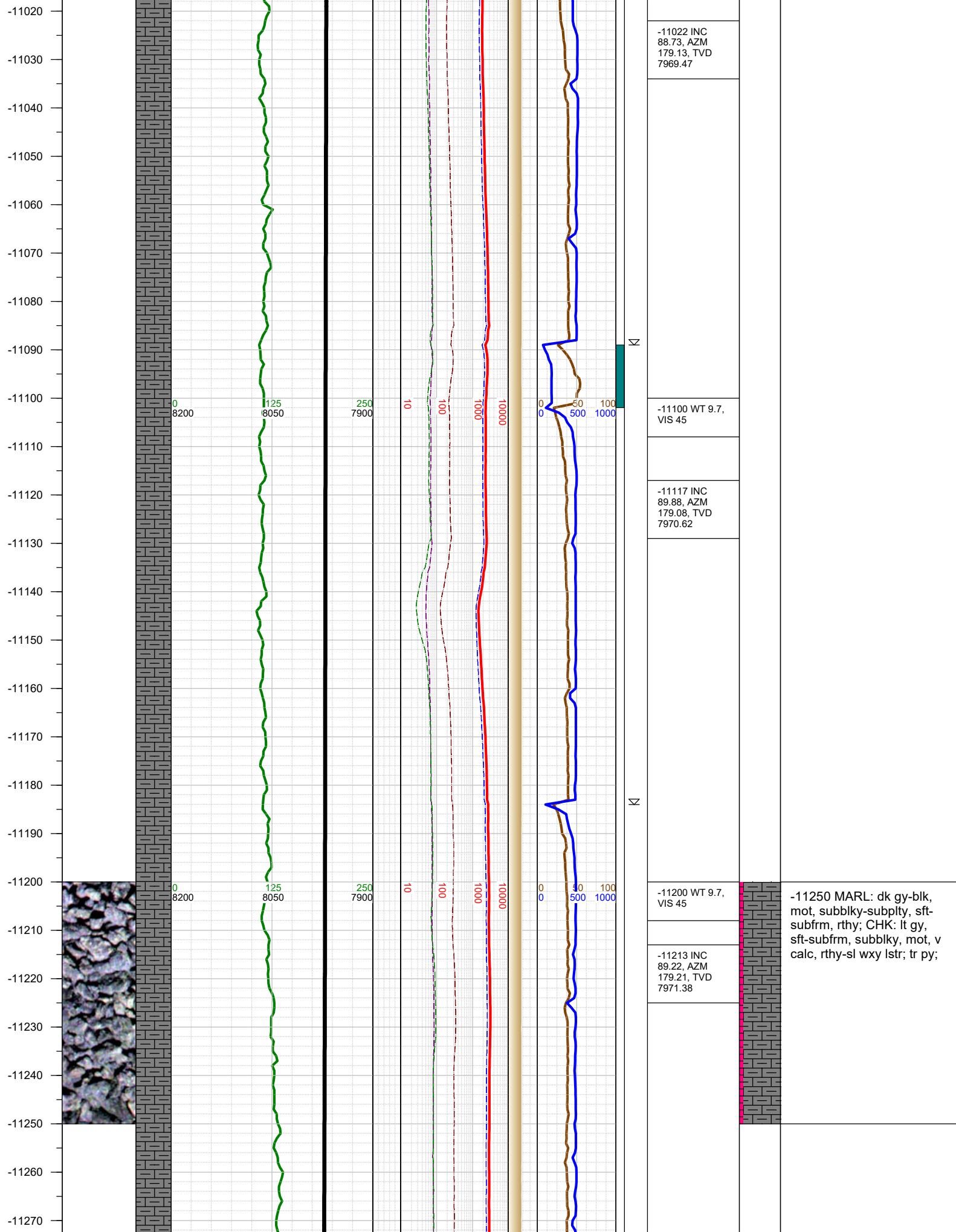


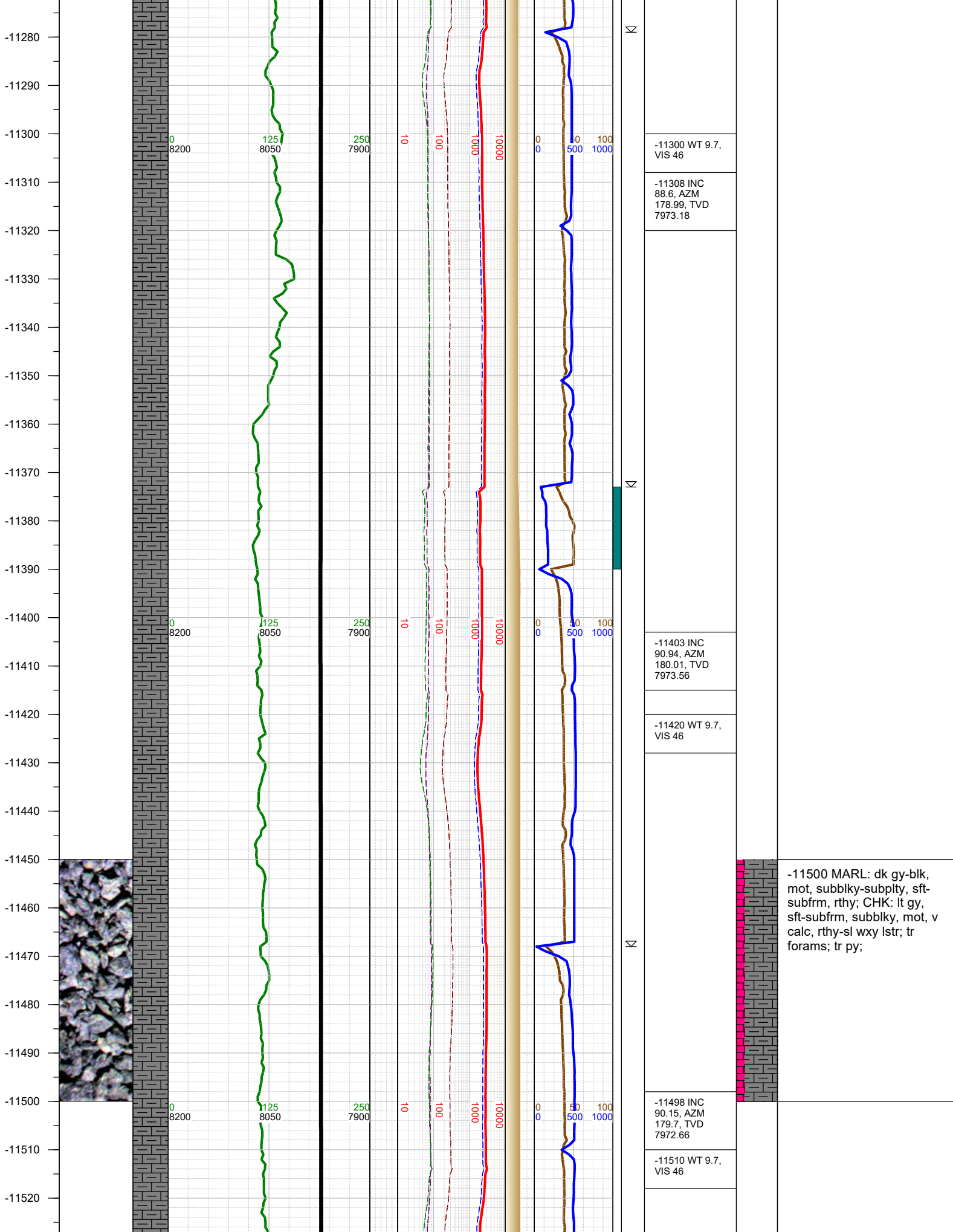


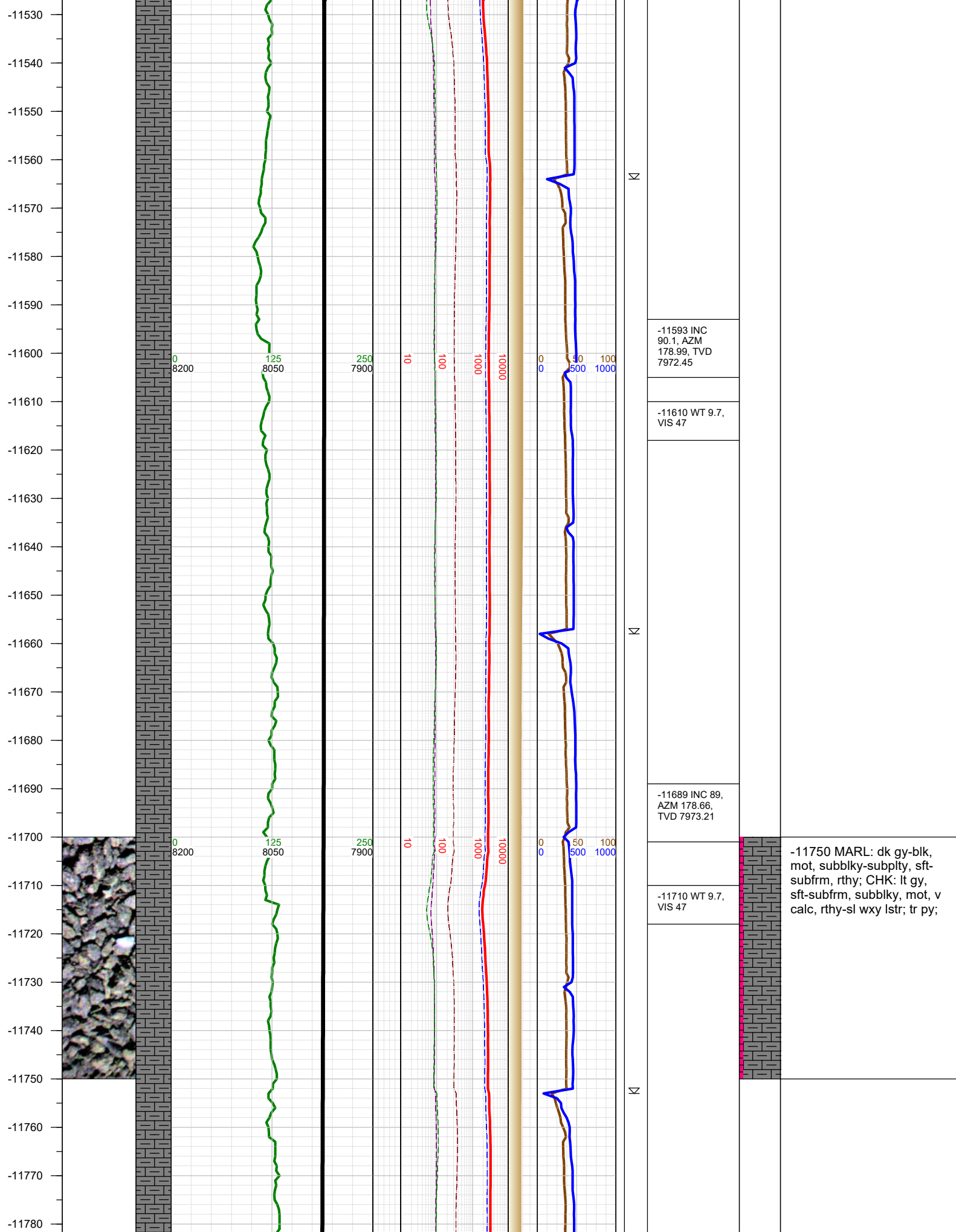




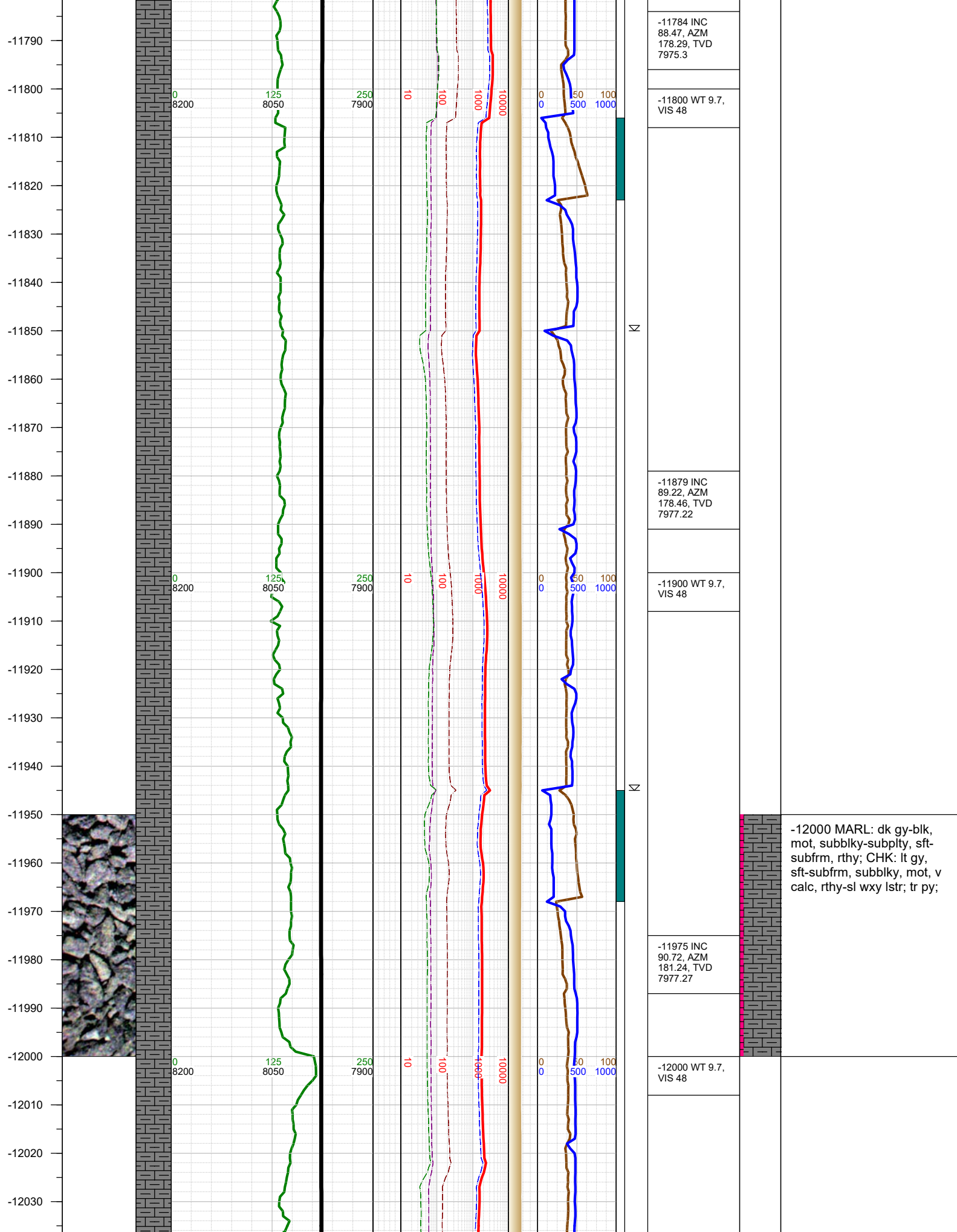




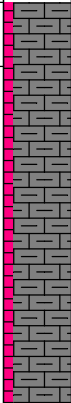
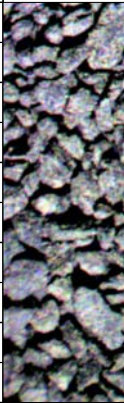
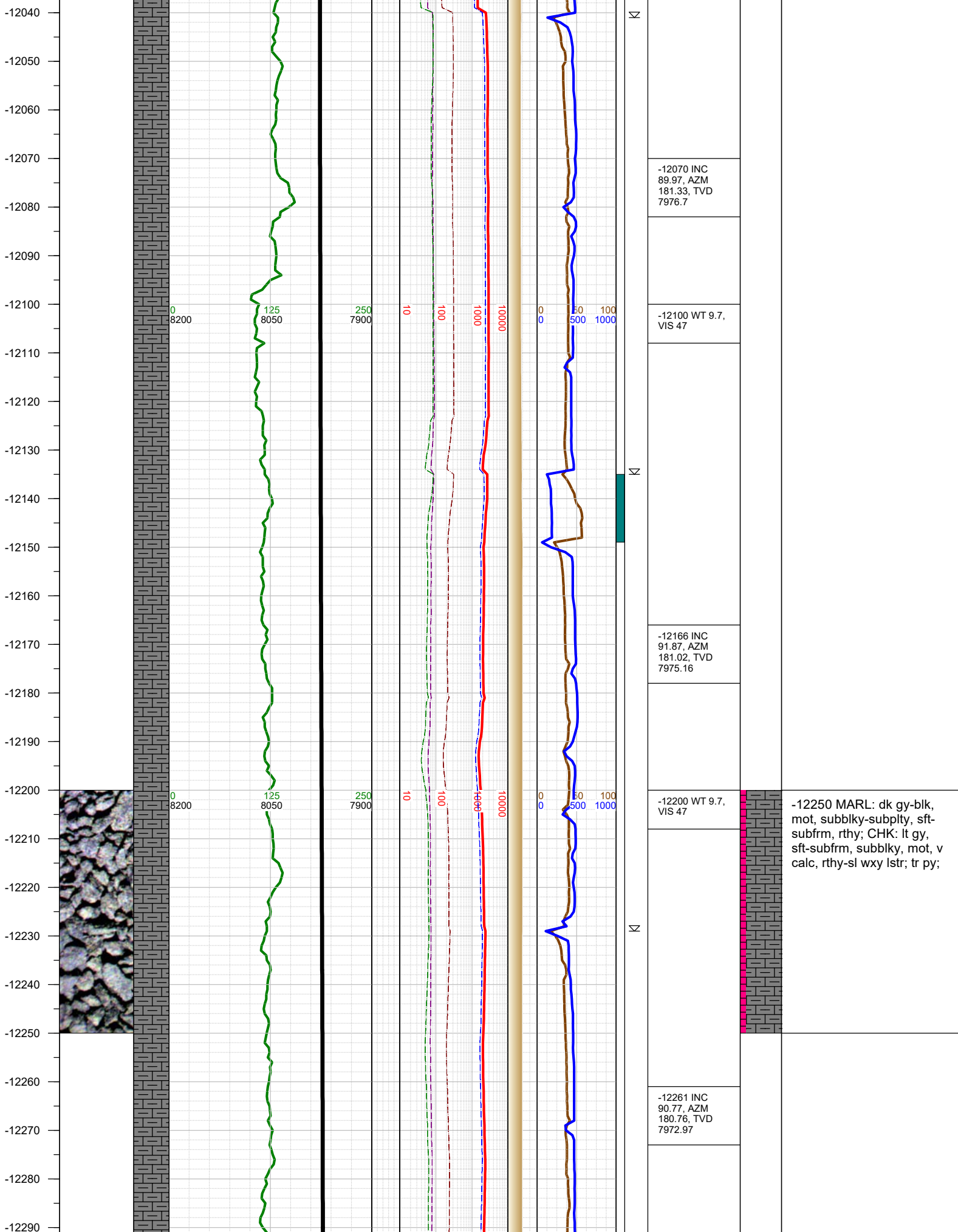




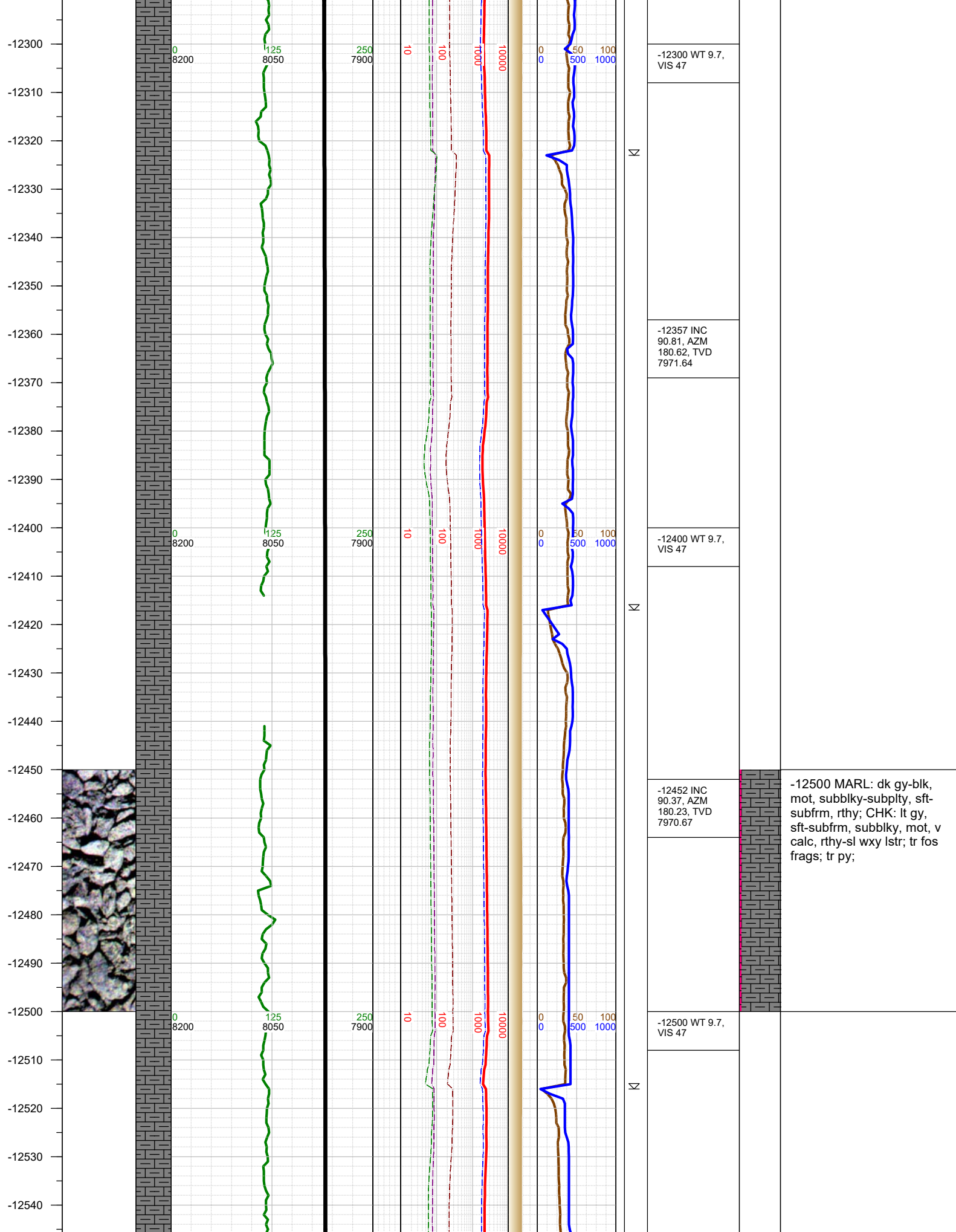




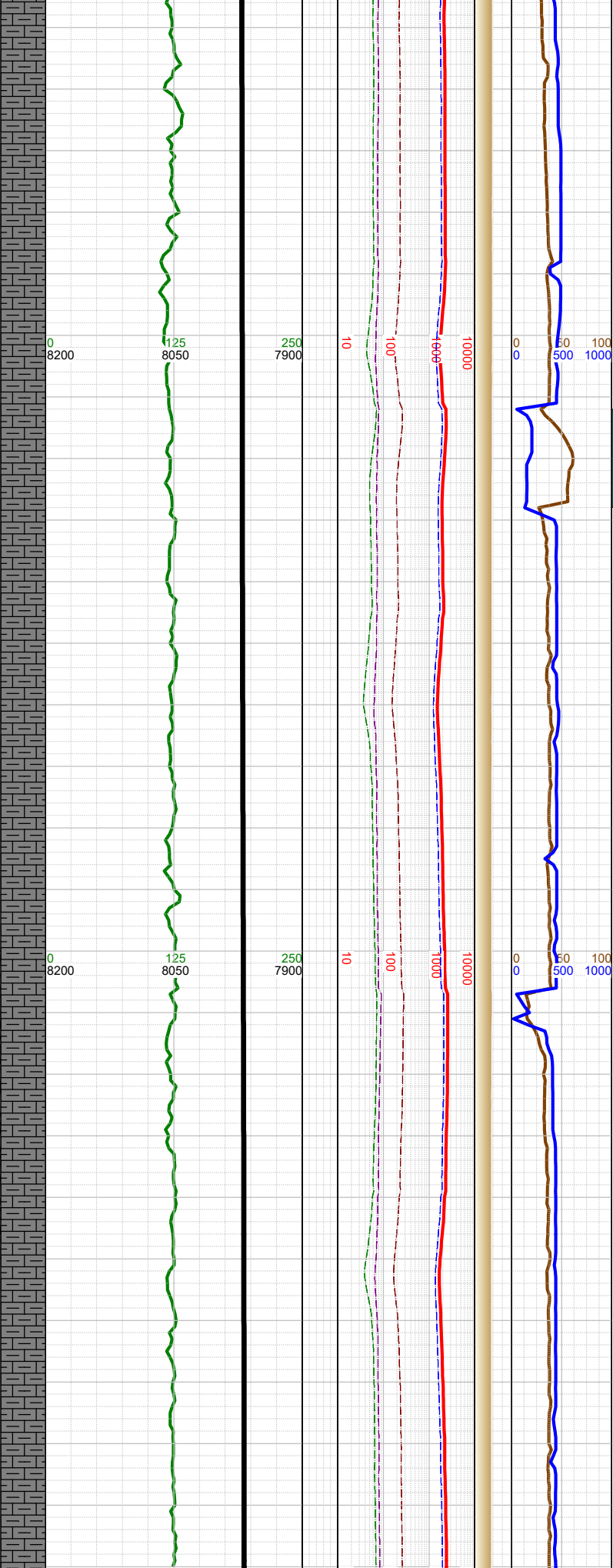
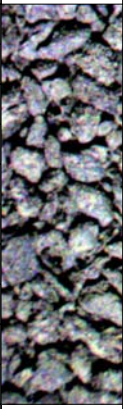




-12250 MARL: dk gy-blk, mot, subblky-subply, sft-subfrm, rthy; CHK: lt gy, sft-subfrm, subblky, mot, v calc, rthy-sl wxy lstr; tr py;



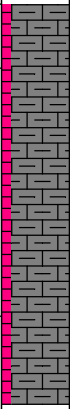
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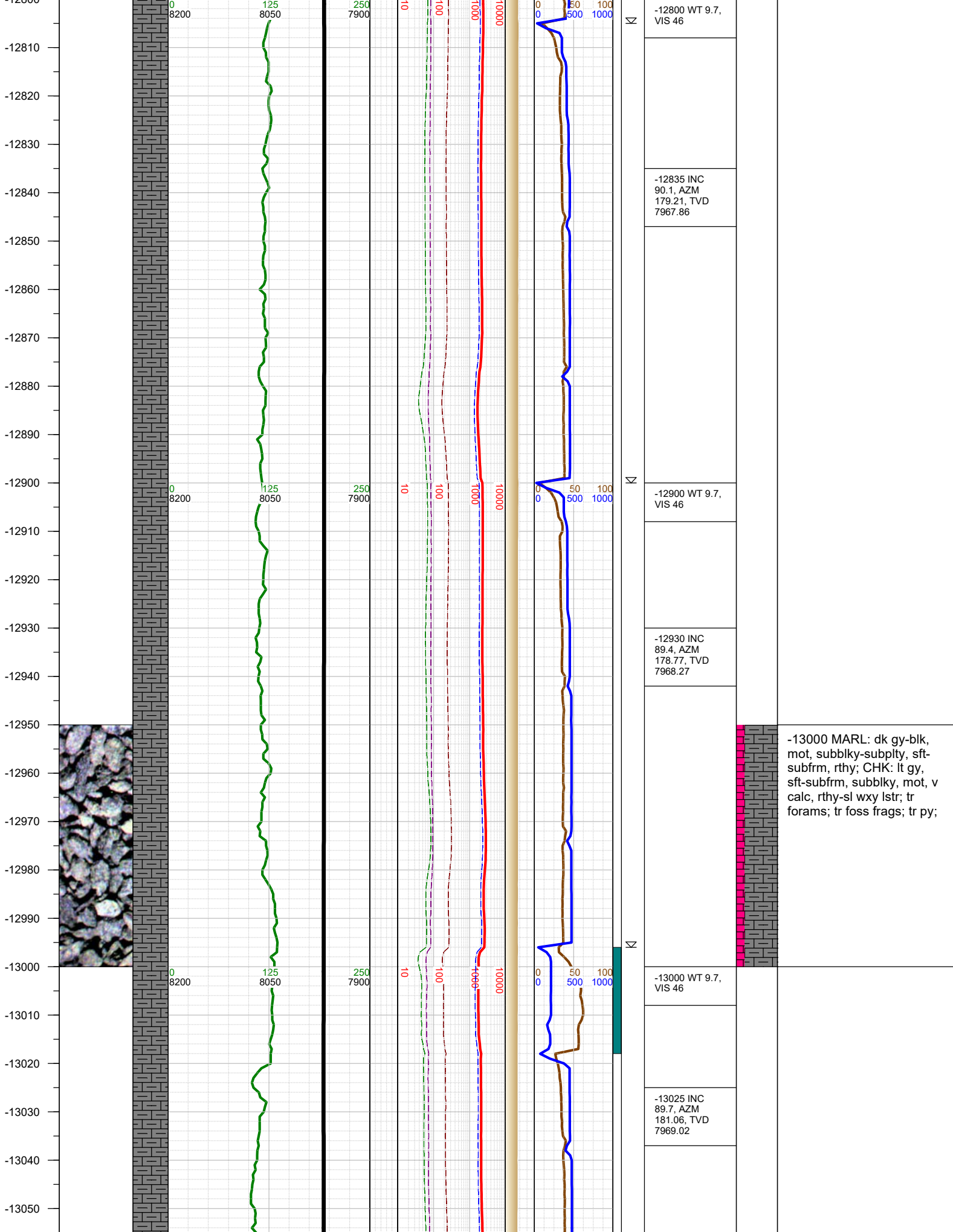
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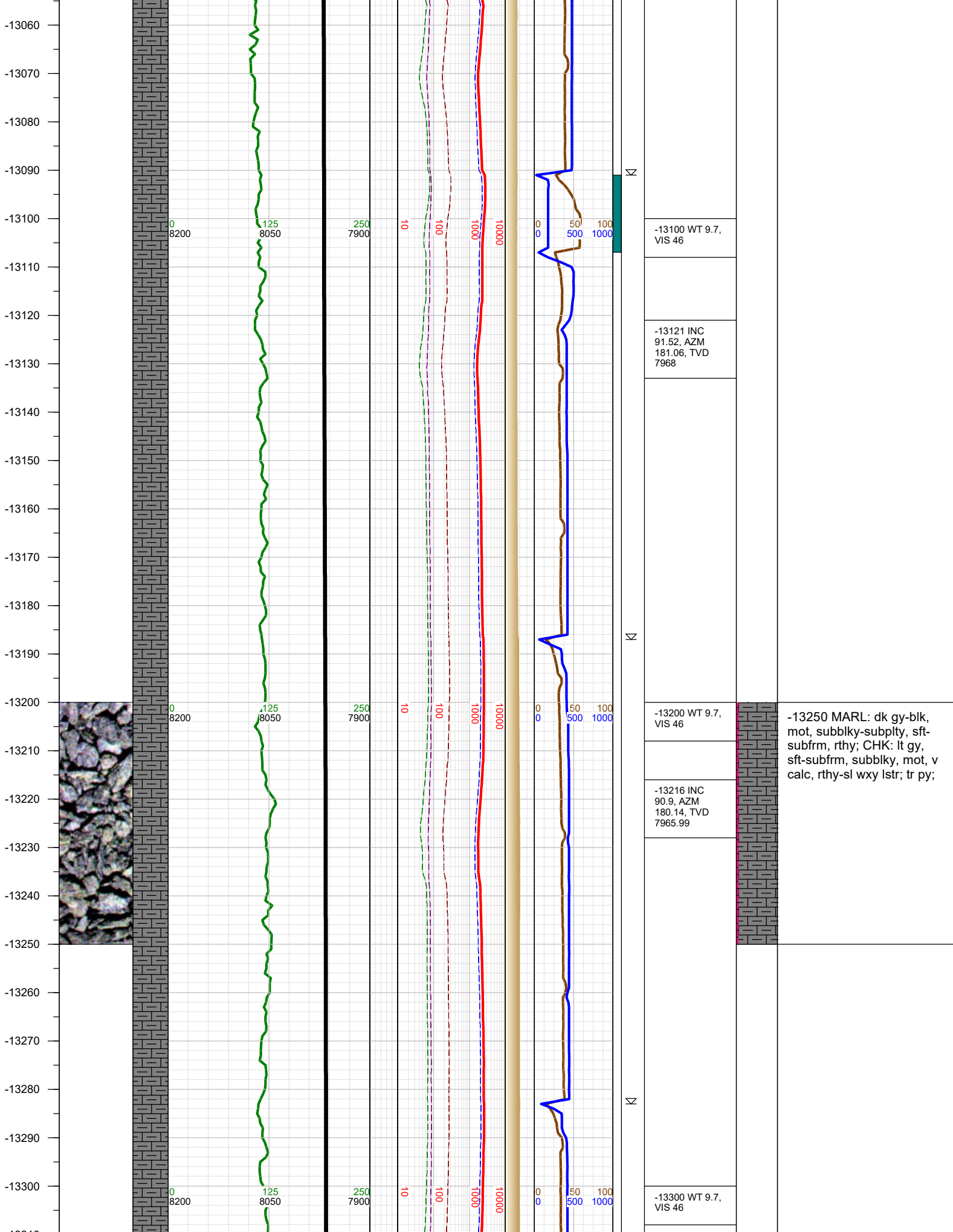
-12548 INC 89.57, AZM 179.57, TVD 7970.72	
-12600 WT 9.7, VIS 46	
-12644 INC 91.25, AZM 179.7, TVD 7970.03	
-12700 WT 9.7, VIS 46	
-12739 INC 90.63, AZM 179.65, TVD 7968.47	



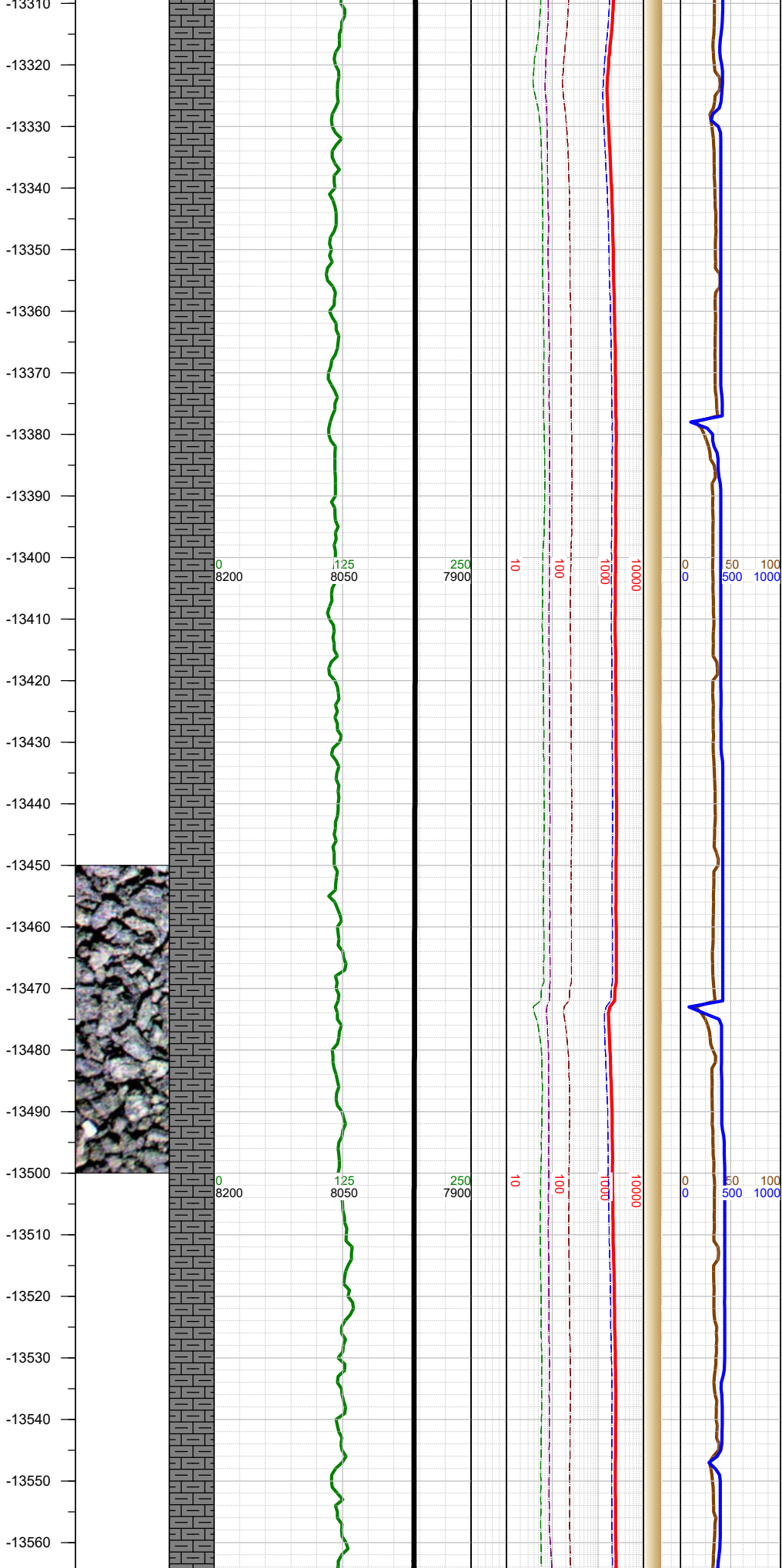
-12750 MARL: dk gy-blk,  
mot, subblky-subplty, sft-  
subfrm, rthy; CHK: lt gy,  
sft-subfrm, subblky, mot, v  
calc, rthy-sl wxy lstr; tr py;





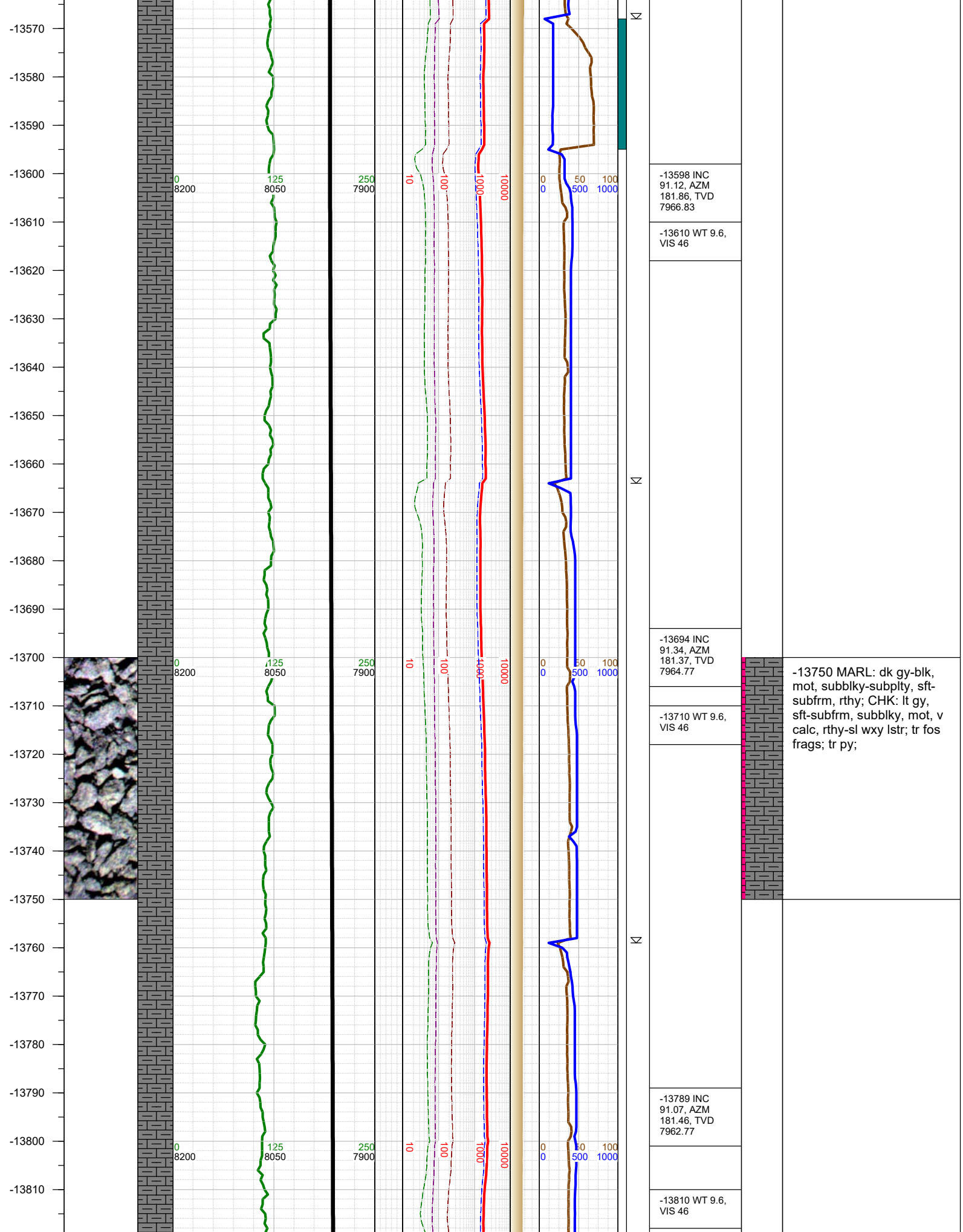


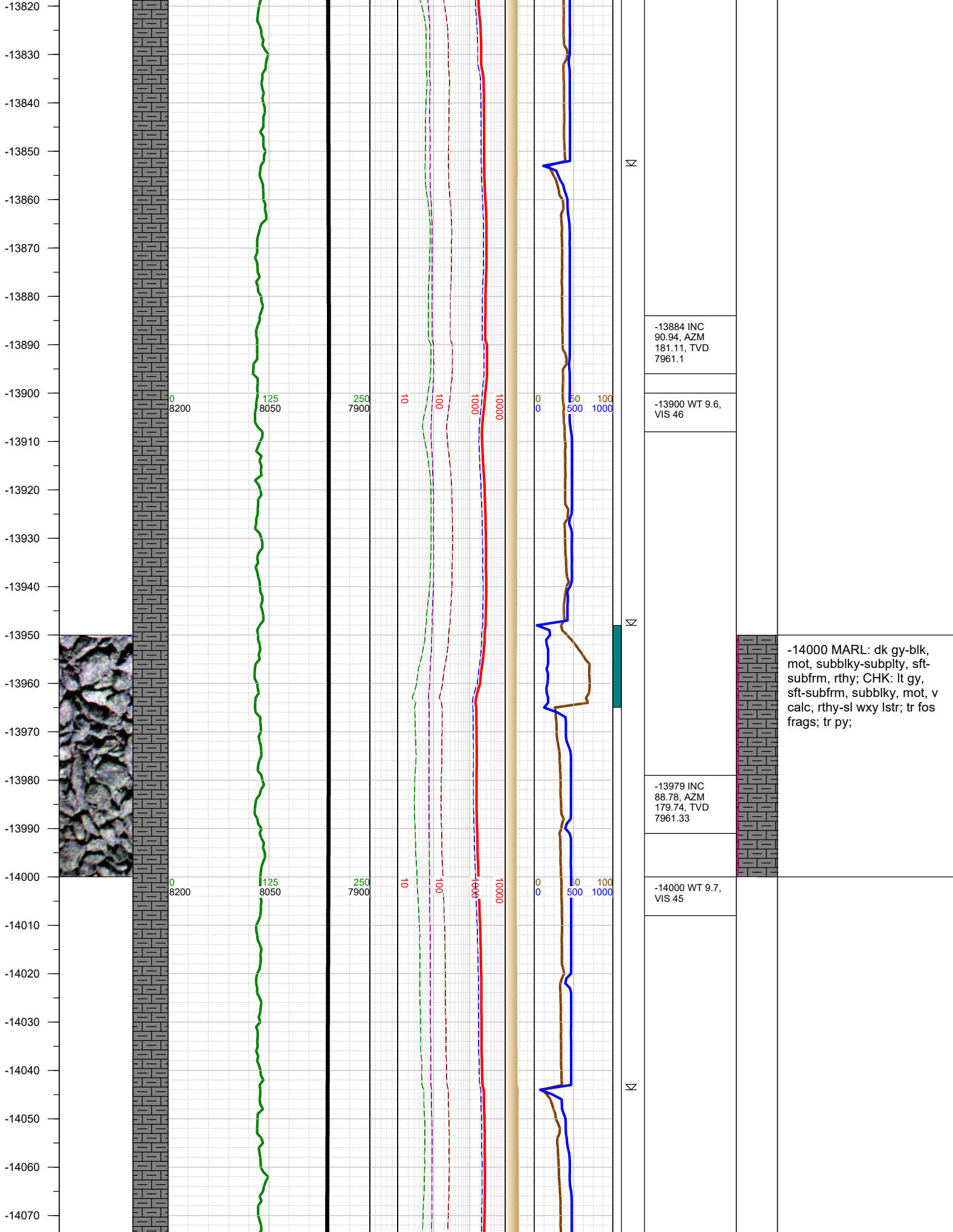
-13250 MARL: dk gy-blk, mot, subblky-subply, sft-subfrm, rthy; CHK: lt gy, sft-subfrm, subblky, mot, v calc, rthy-sl wxy lstr; tr py;

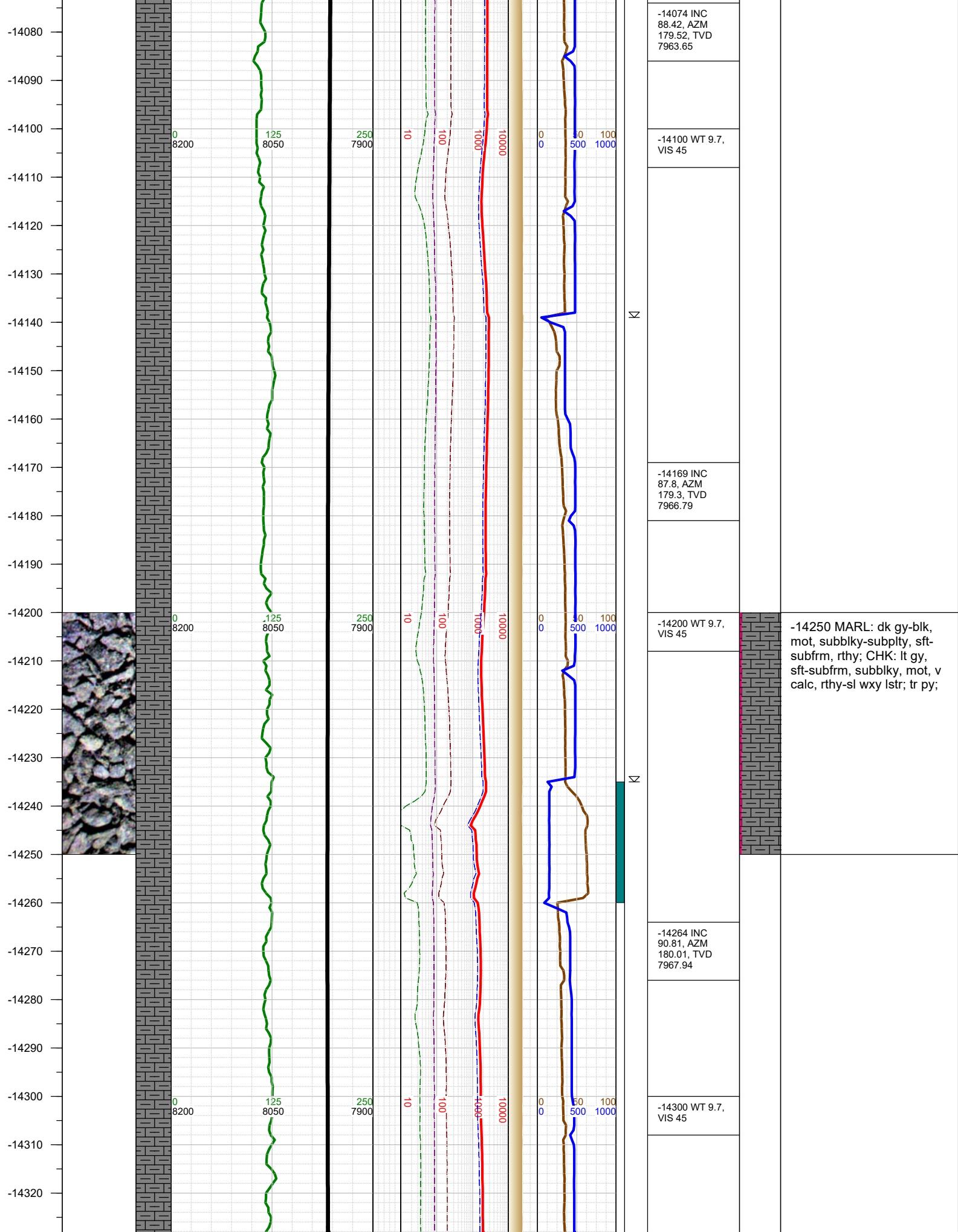


<div>-13312 INC 90.1, AZM 180.14, TVD 7965.15</div>	
<div>-13407 INC 89.75, AZM 179.35, TVD 7965.28</div>	
<div>-13420 WT 9.7, VIS 46</div>	
	<div>-13500 MARL: dk gy-blk, mot, subblky-subplty, sft- subfrm, rthy; CHK: lt gy, sft-subfrm, subblky, mot, v calc, rthy-sl wxy lstr; tr fos frags; tr py;</div>
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<div>-13520 WT 9.6, VIS 46</div>	

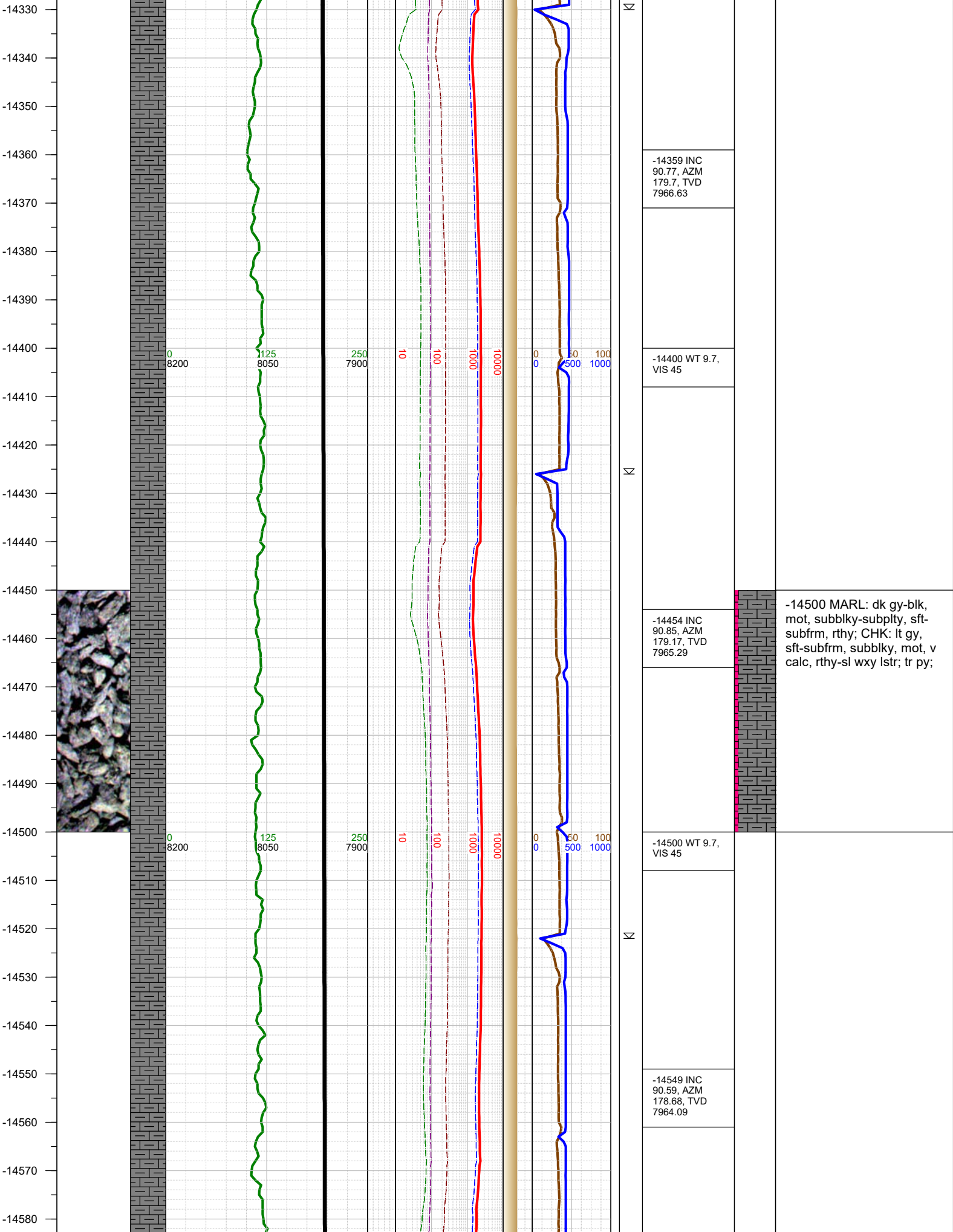


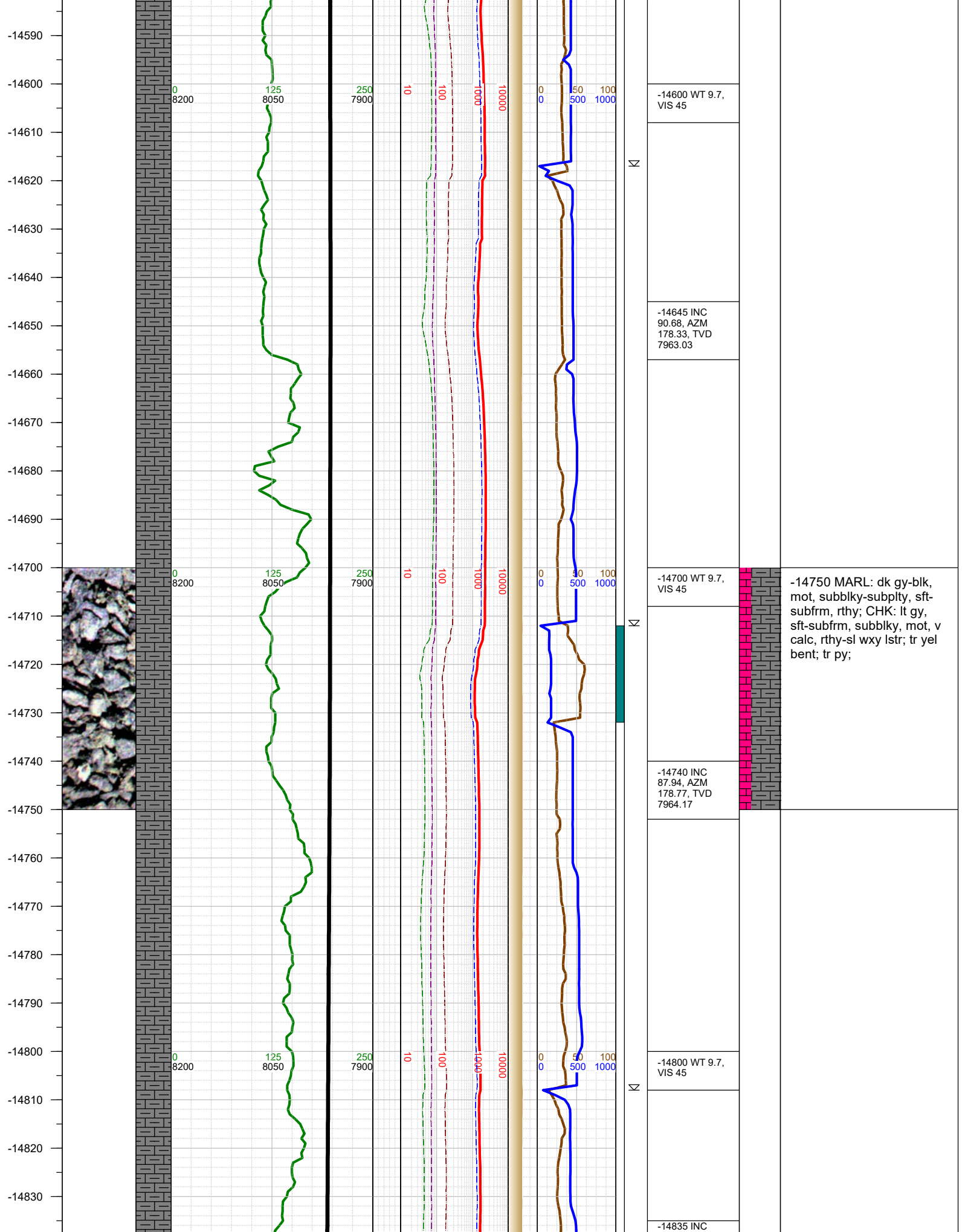


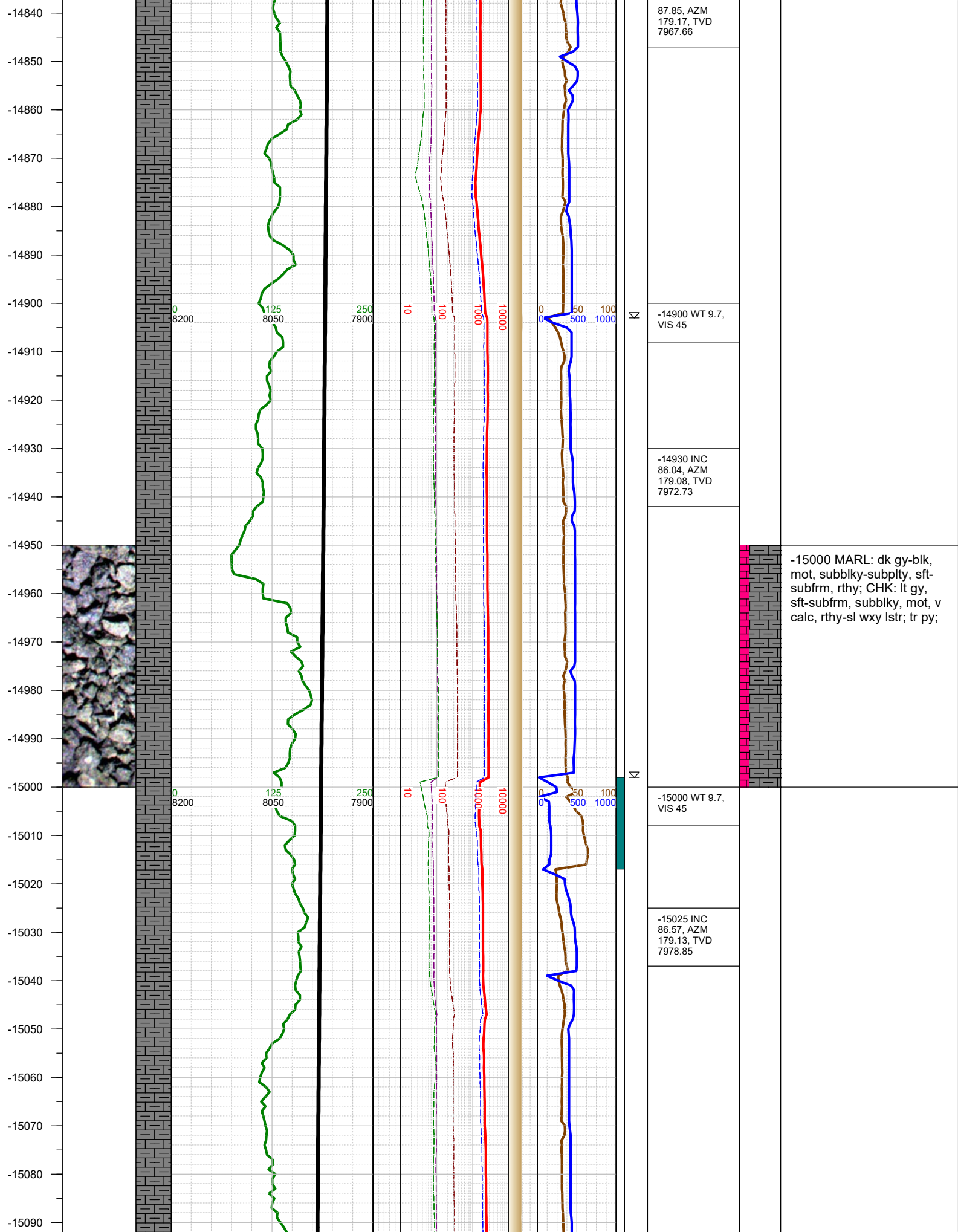




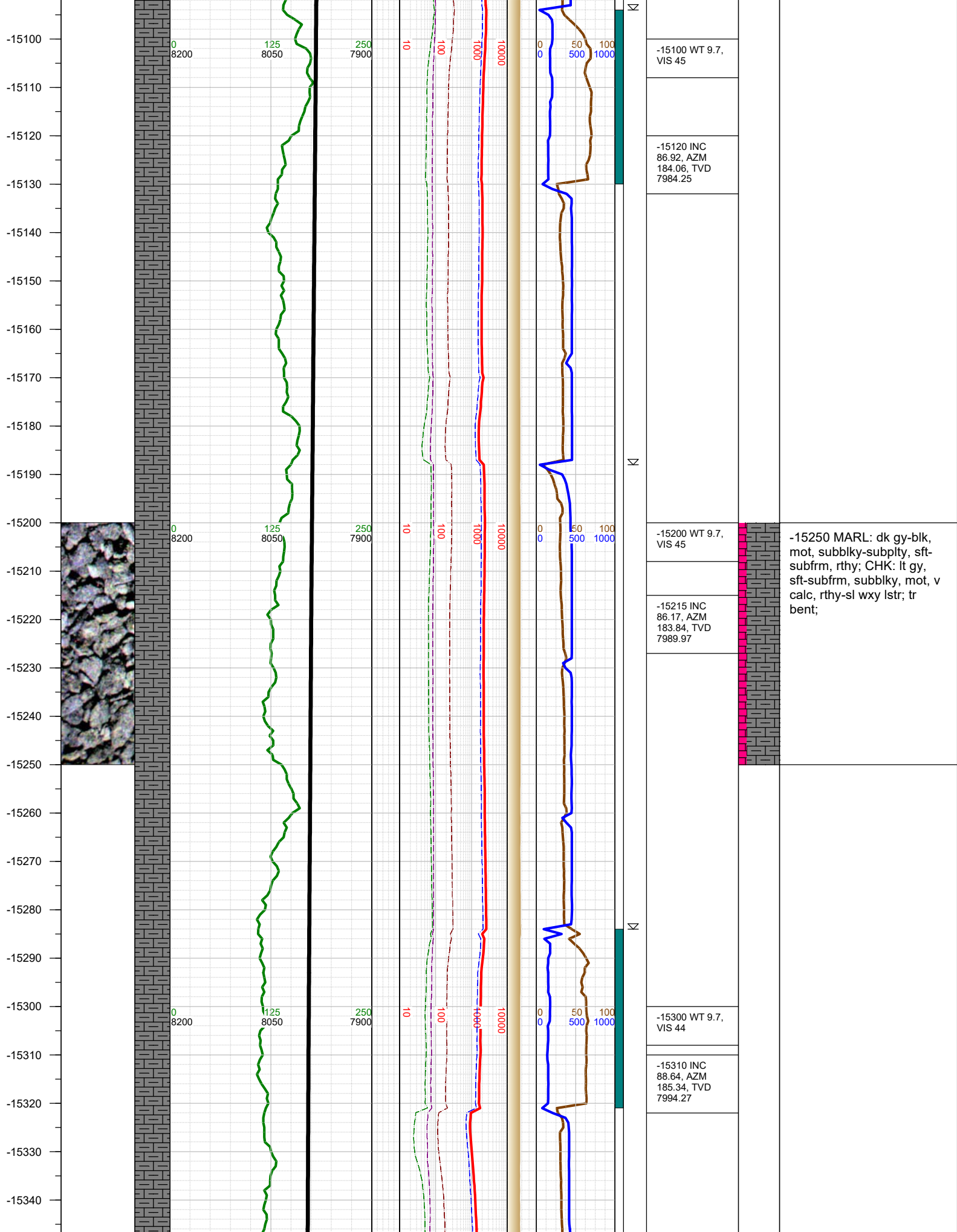


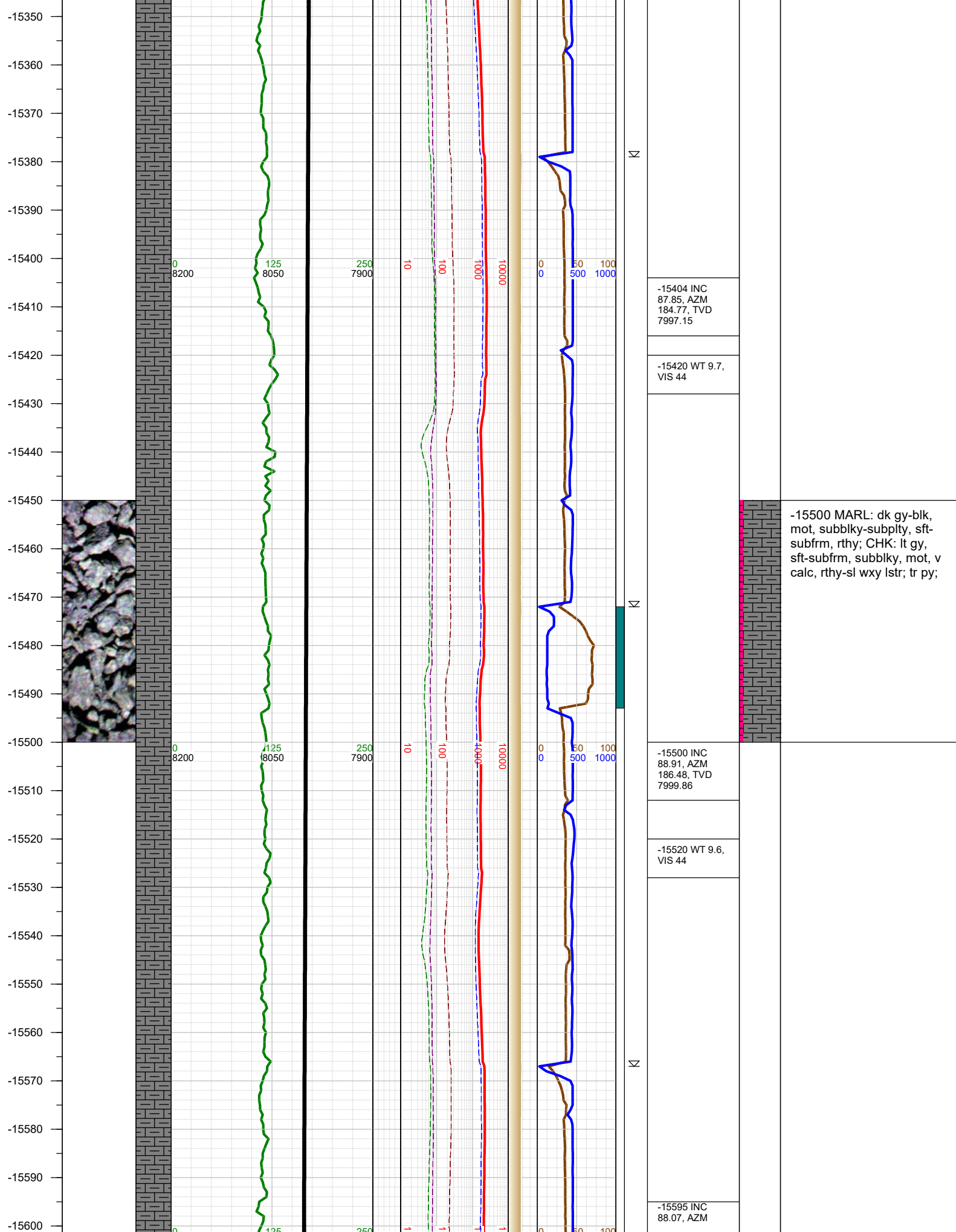


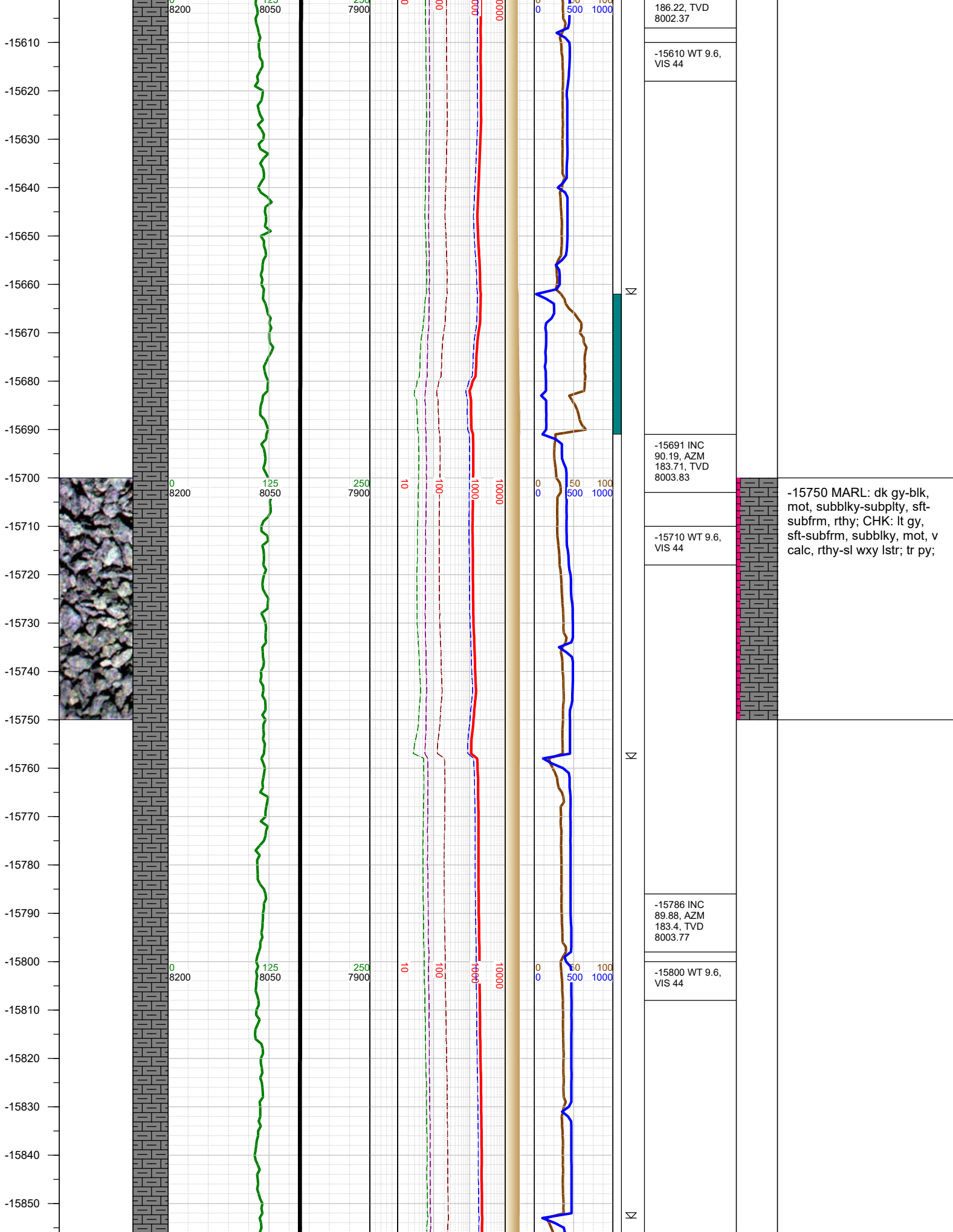








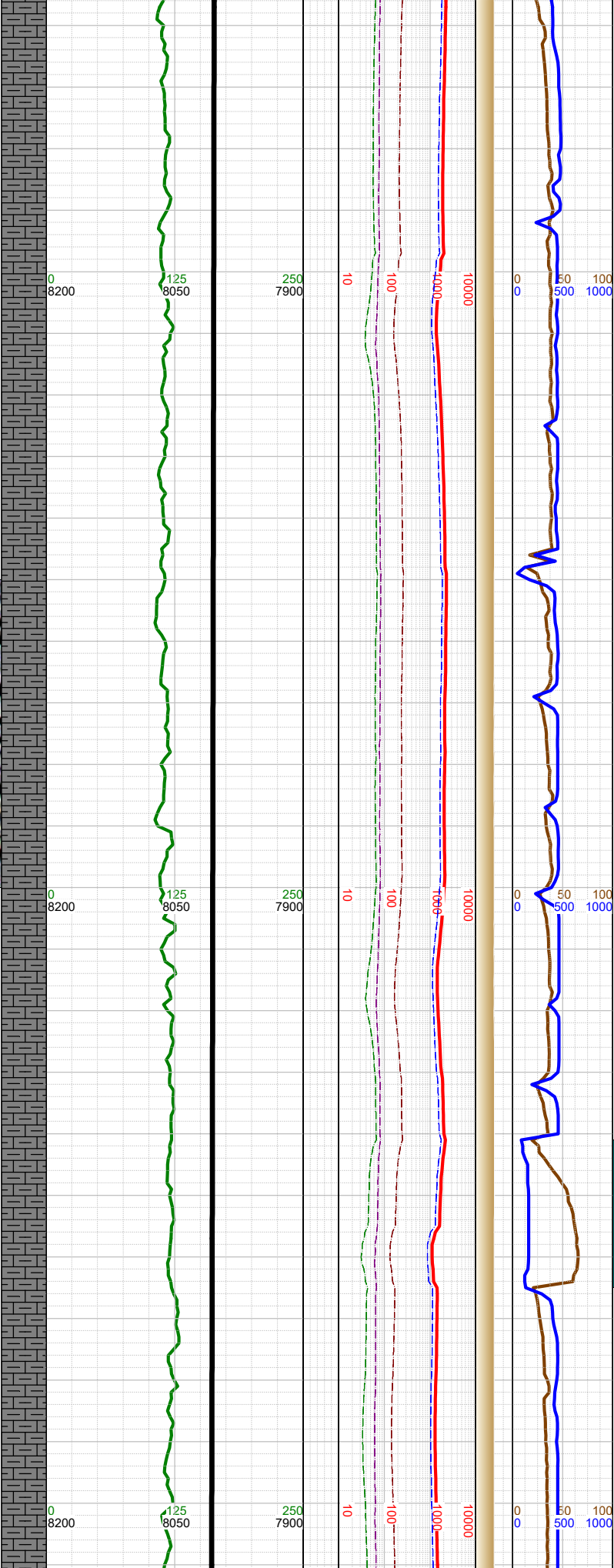
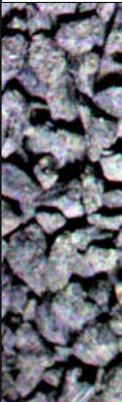




-15750 MARL: dk gy-blk, mot, subblky-subplty, sft-subfrm, rthy; CHK: lt gy, sft-subfrm, subblky, mot, v calc, rthy-sl wxy lstr; tr py;



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-15881 INC  
89.44, AZM  
183.71, TVD  
8004.33

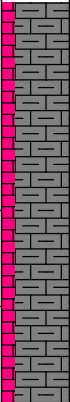
-15900 WT 9.6,  
VIS 44

-15976 INC  
89.17, AZM  
183.4, TVD  
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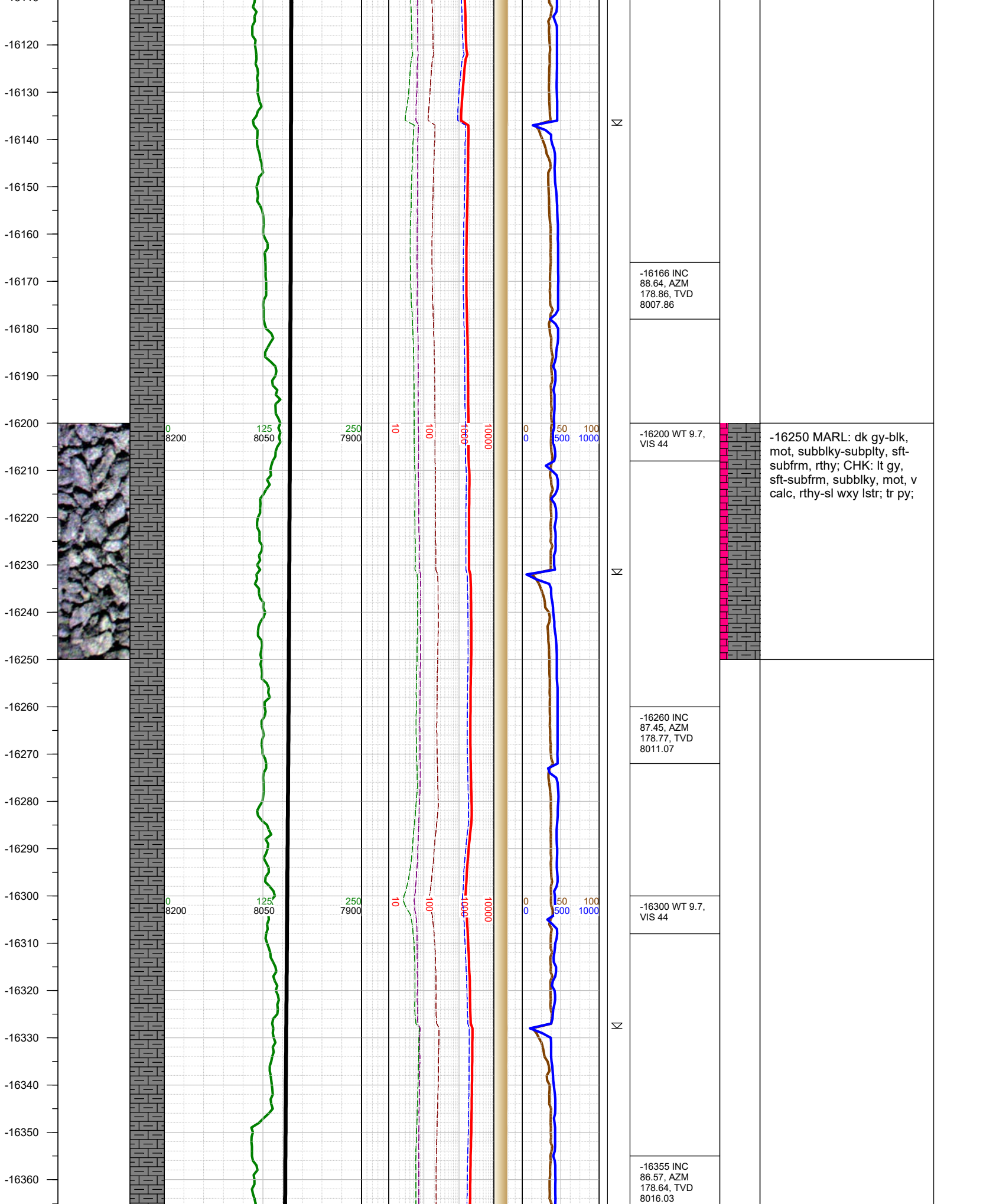
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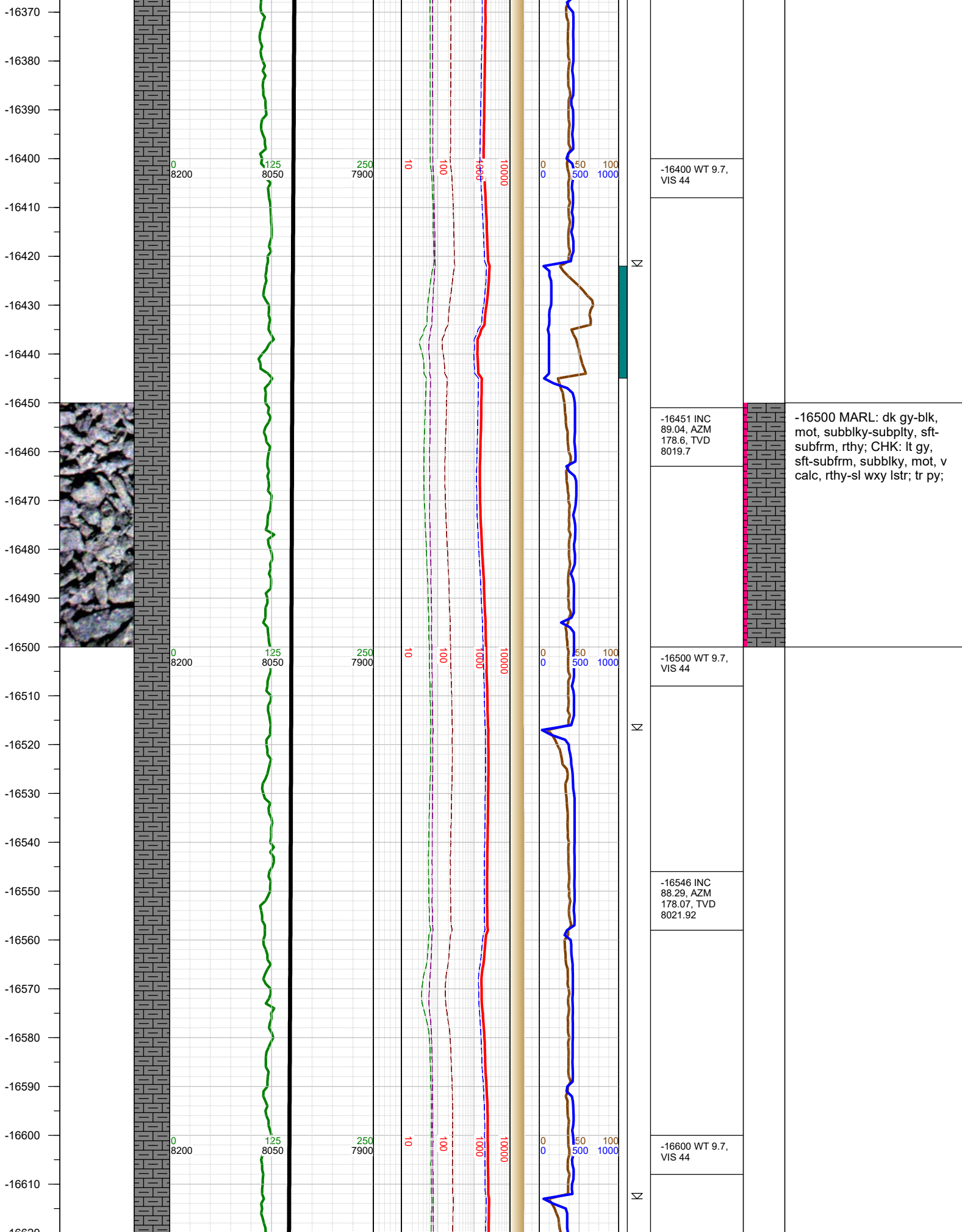
-16071 INC  
89.66, AZM  
178.99, TVD  
8006.45

-16100 WT 9.7,  
VIS 44



-16000 MARL: dk gy-blk,  
mot, subblky-subply, sft-  
subfrm, rthy; CHK: lt gy,  
sft-subfrm, subblky, mot, v  
calc, rthy-sl wxy lstr; tr py;





-16400 WT 9.7,  
VIS 44

-16451 INC  
89.04, AZM  
178.6, TVD  
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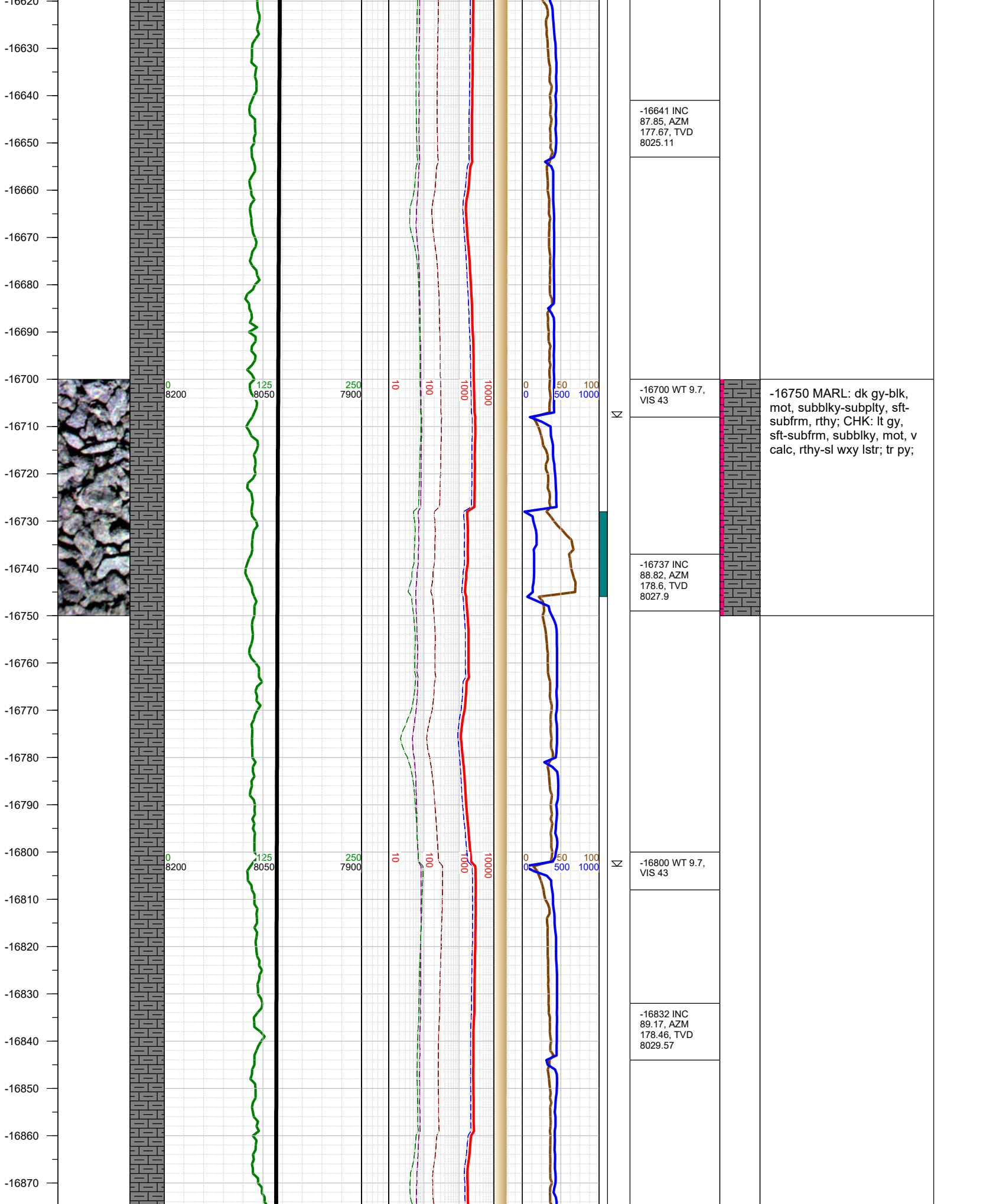
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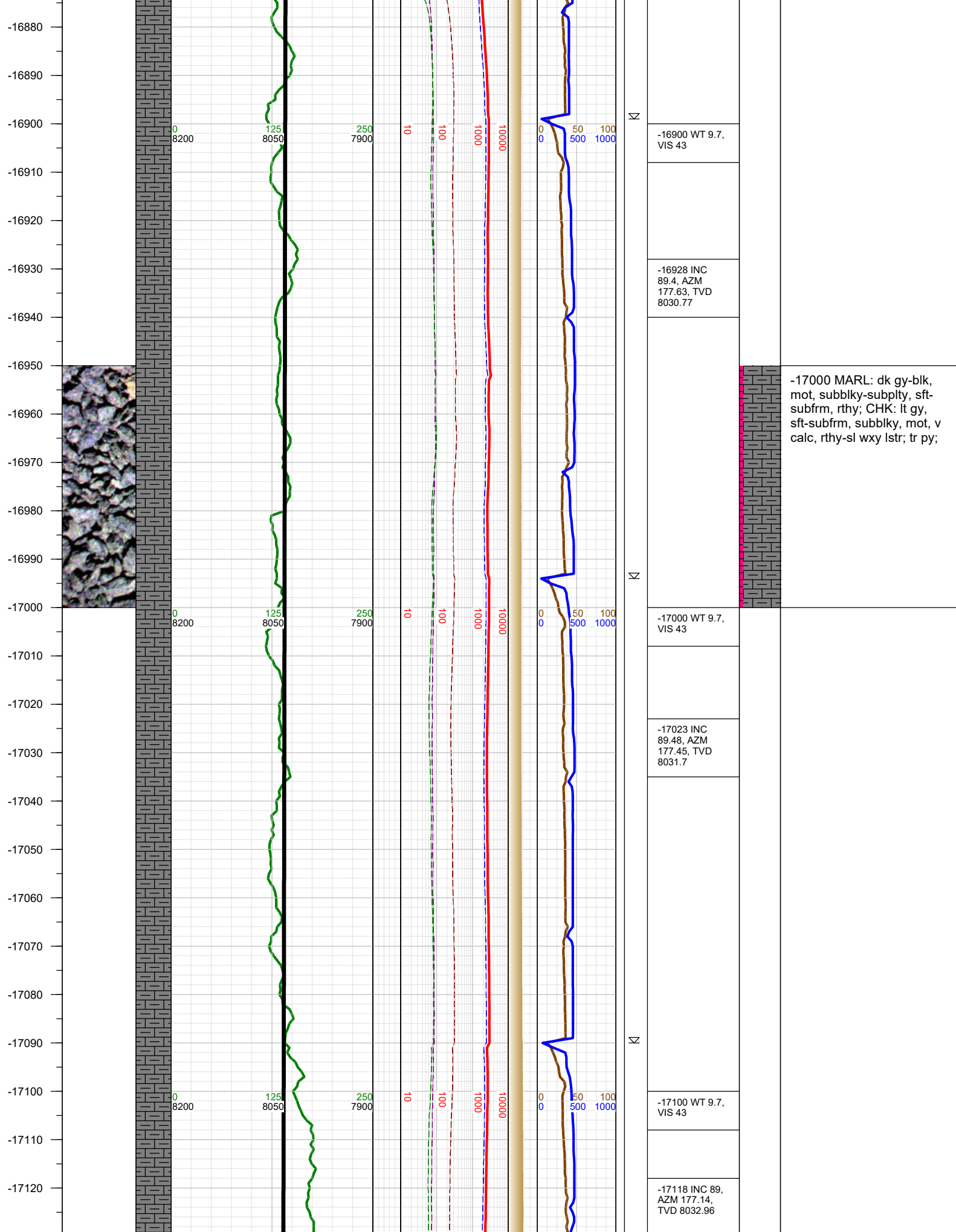
-16546 INC  
88.29, AZM  
178.07, TVD  
8021.92

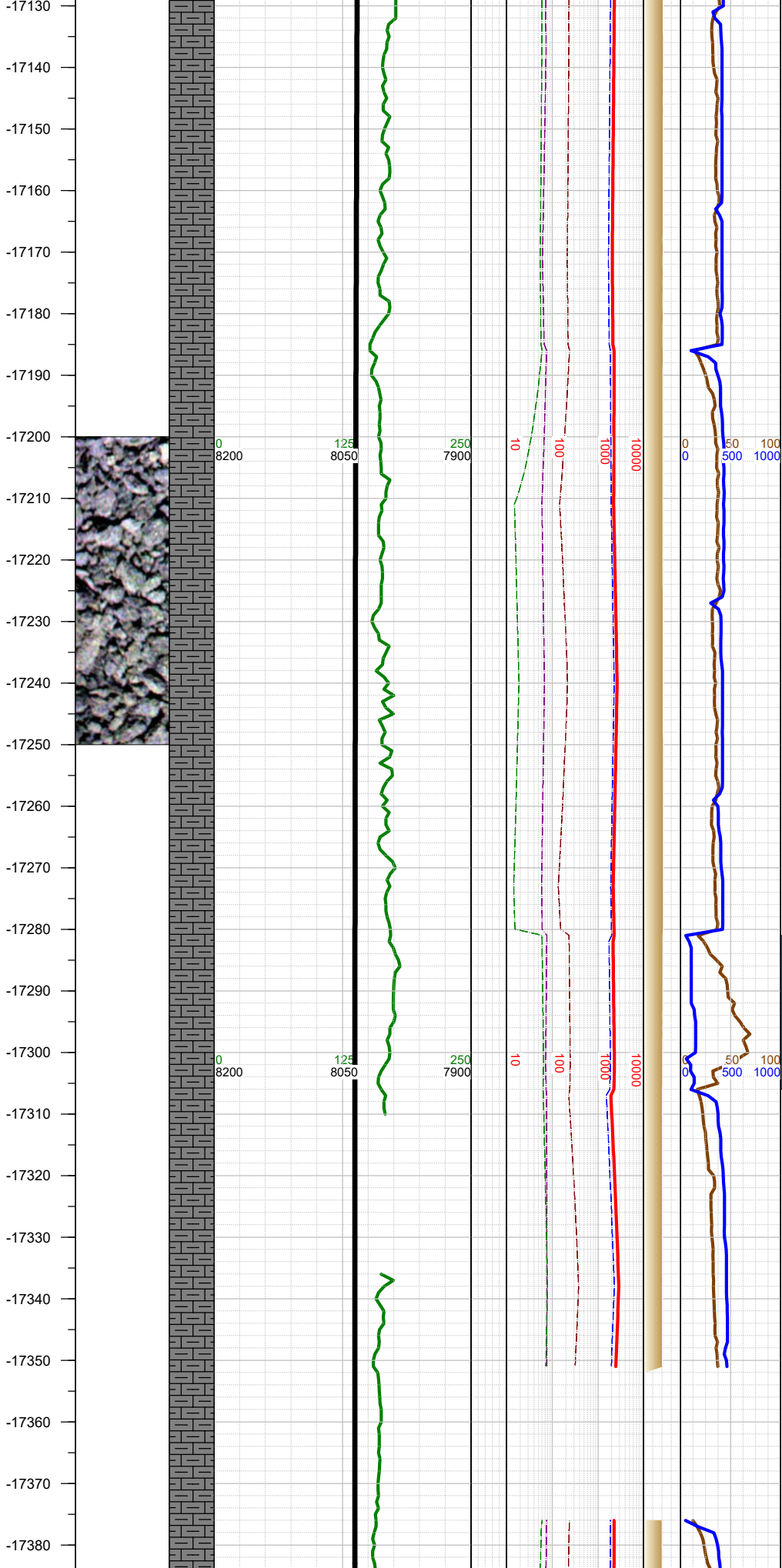
-16600 WT 9.7,  
VIS 44

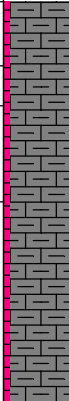
-16500 MARL: dk gy-blk,  
mot, subblky-subplty, sft-  
subfrm, rthy; CHK: lt gy,  
sft-subfrm, subblky, mot, v  
calc, rthy-sl wxy lstr; tr py;



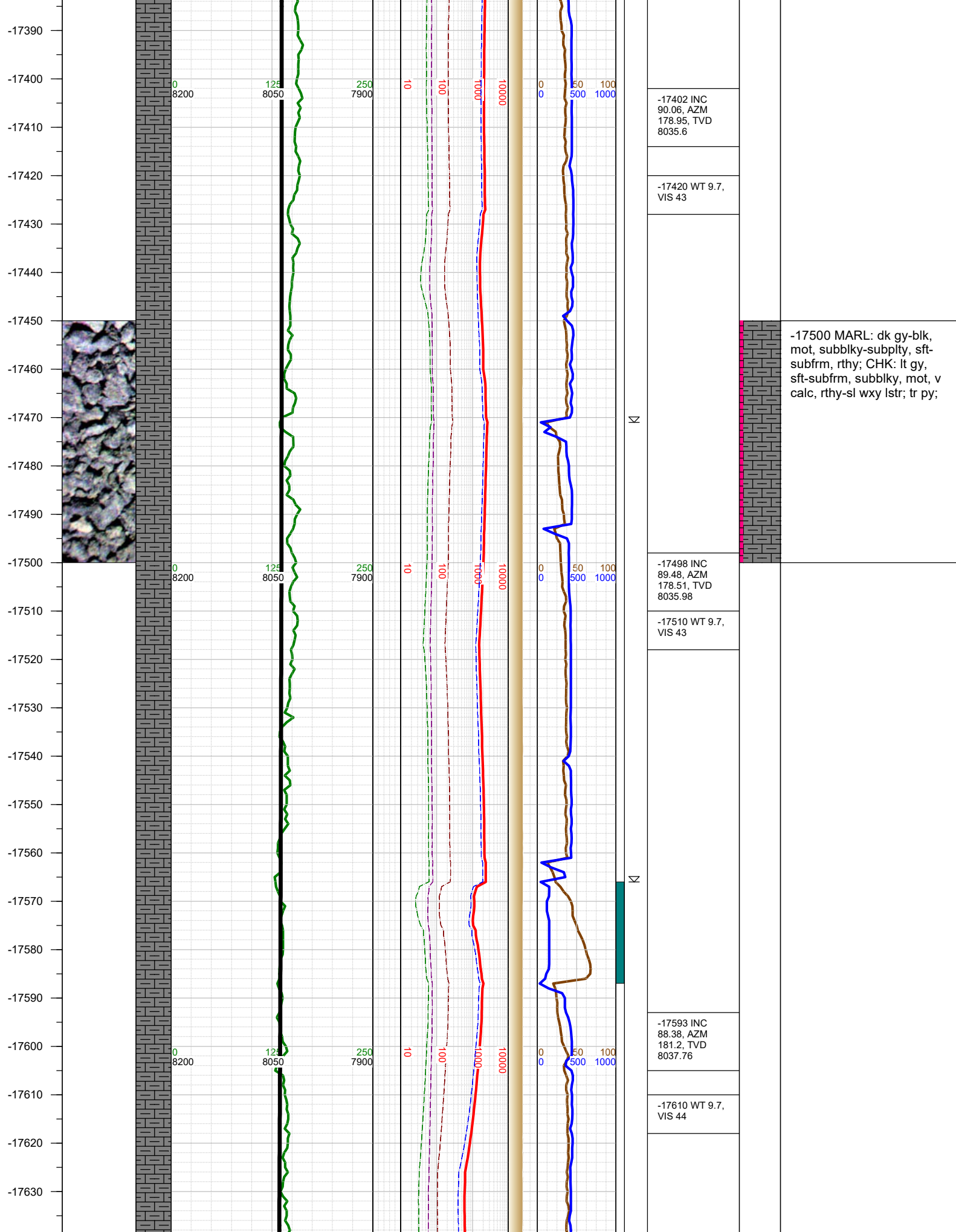


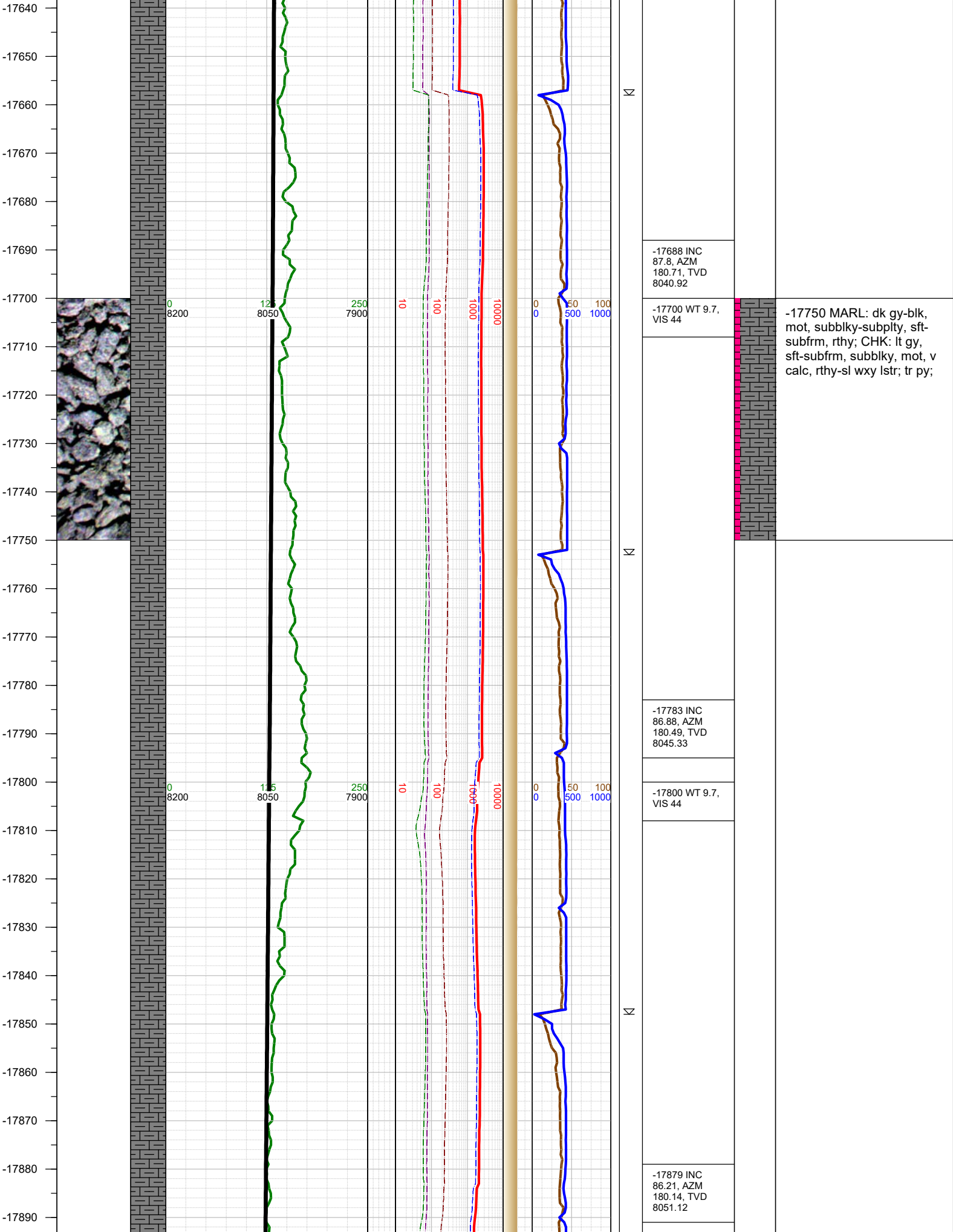


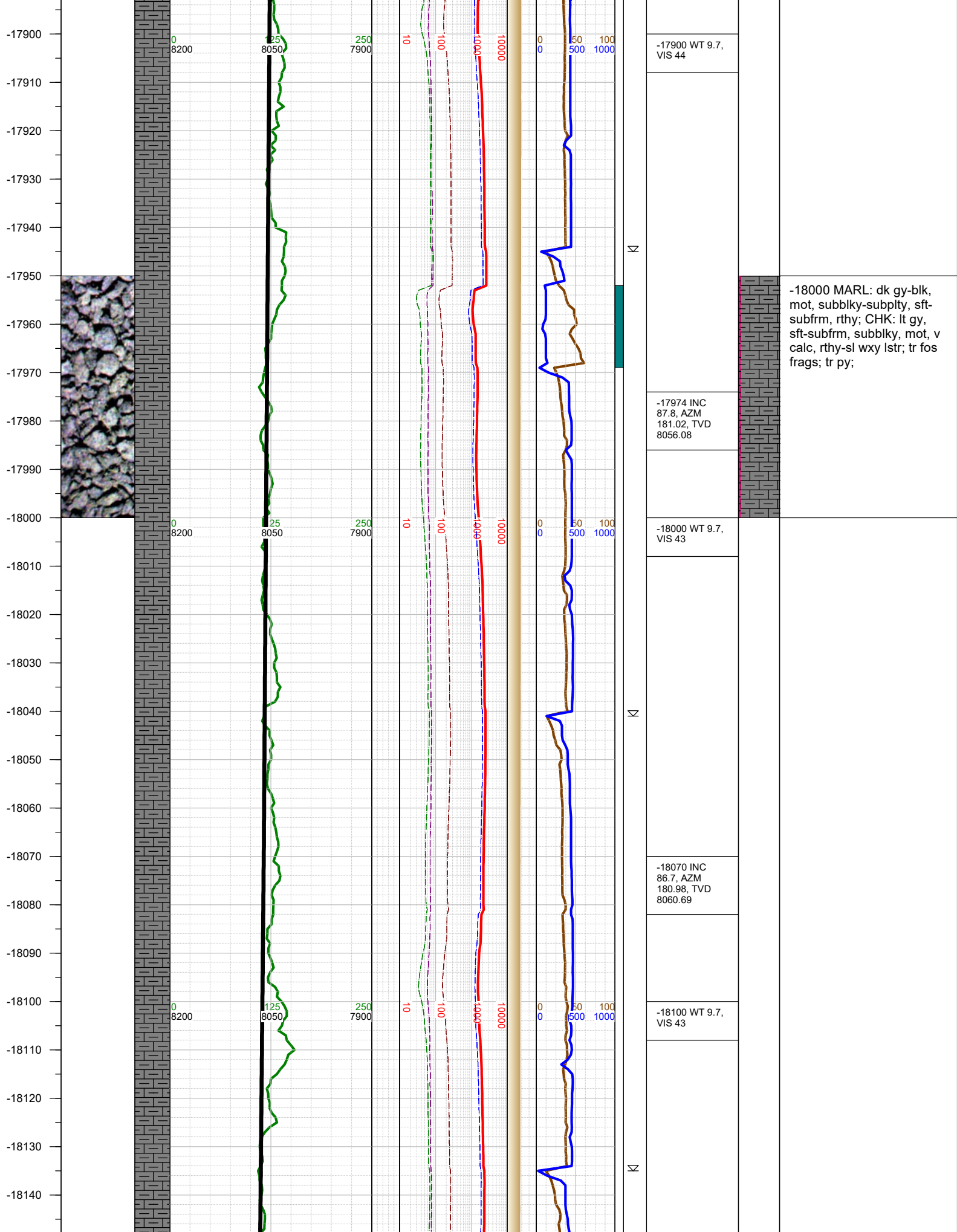


Σ			
	-17200 WT 9.7, VIS 43		-17250 MARL: dk gy-blk, mot, subblky-subplty, sft-subfrm, rthy; CHK: lt gy, sft-subfrm, subblky, mot, v calc, rthy-sl wxy lstr; tr bent; tr py;
-17213 INC 88.6, AZM 176.7, TVD 8034.95			
Σ			
	-17300 WT 9.7, VIS 43		
	-17308 INC 90.28, AZM 179.35, TVD 8035.88		
Δ			
	-17345 0000 hrs on 9/22/2019		
	-17352 Data lost due to Pason outage through 17375'.		
Σ			

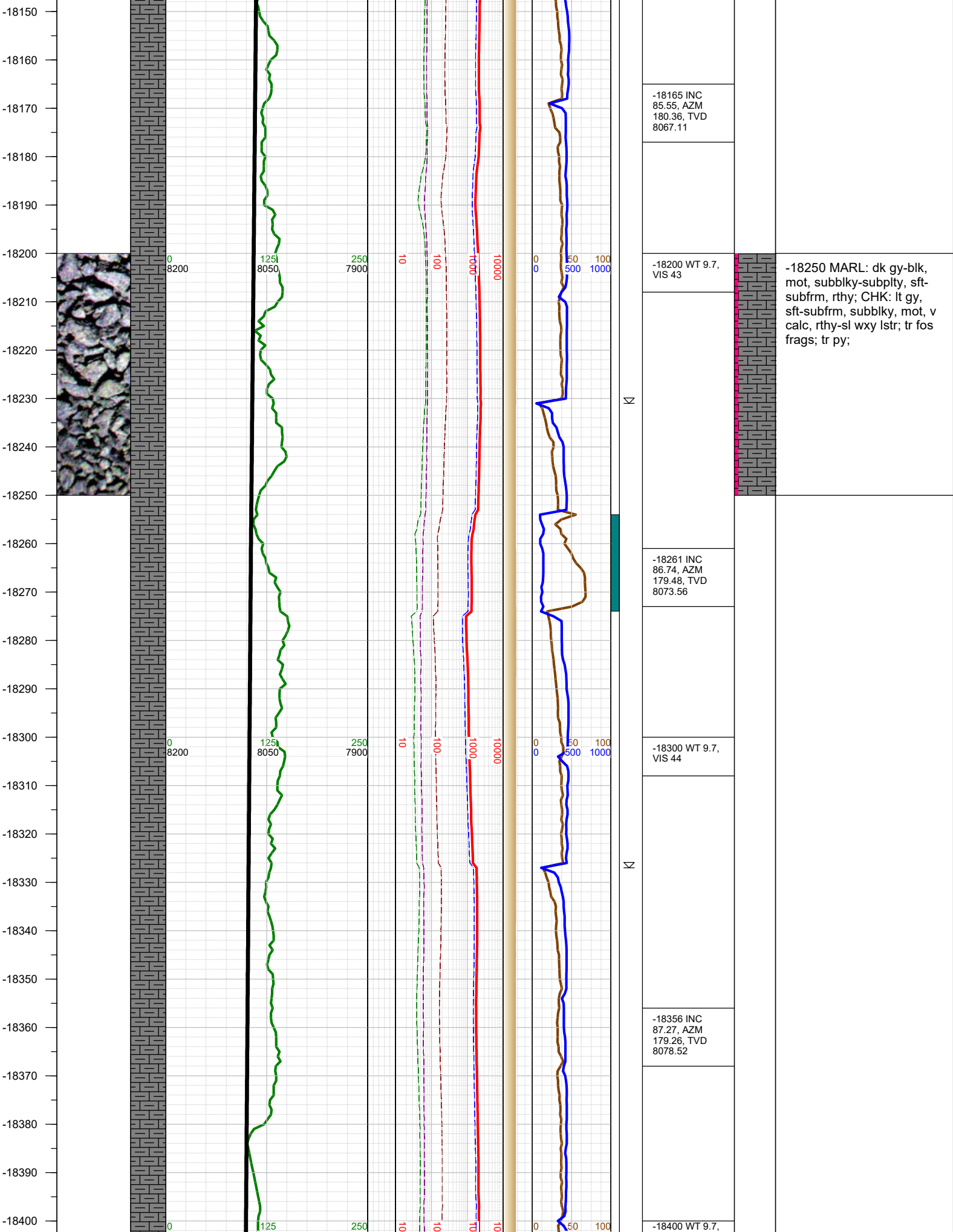


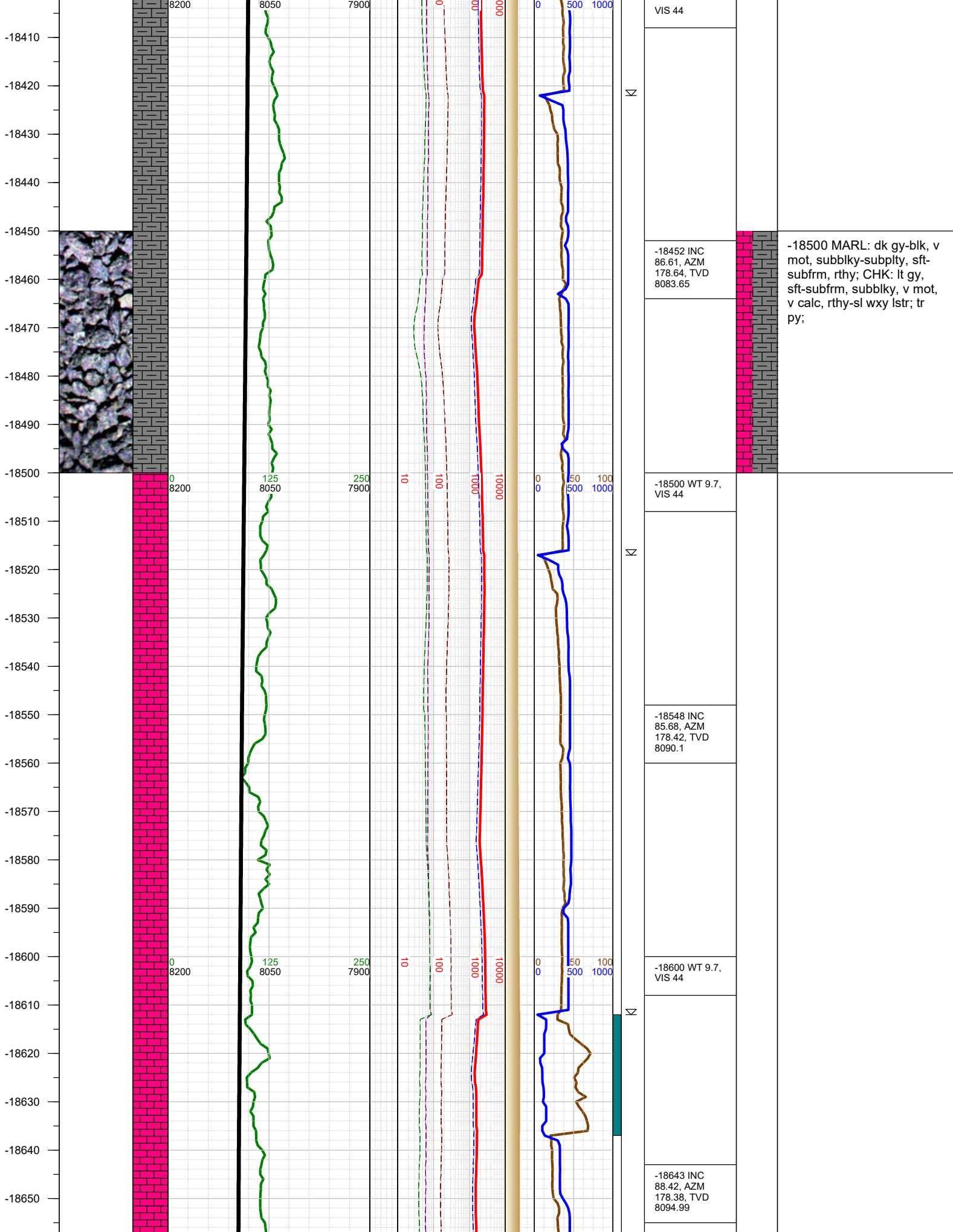




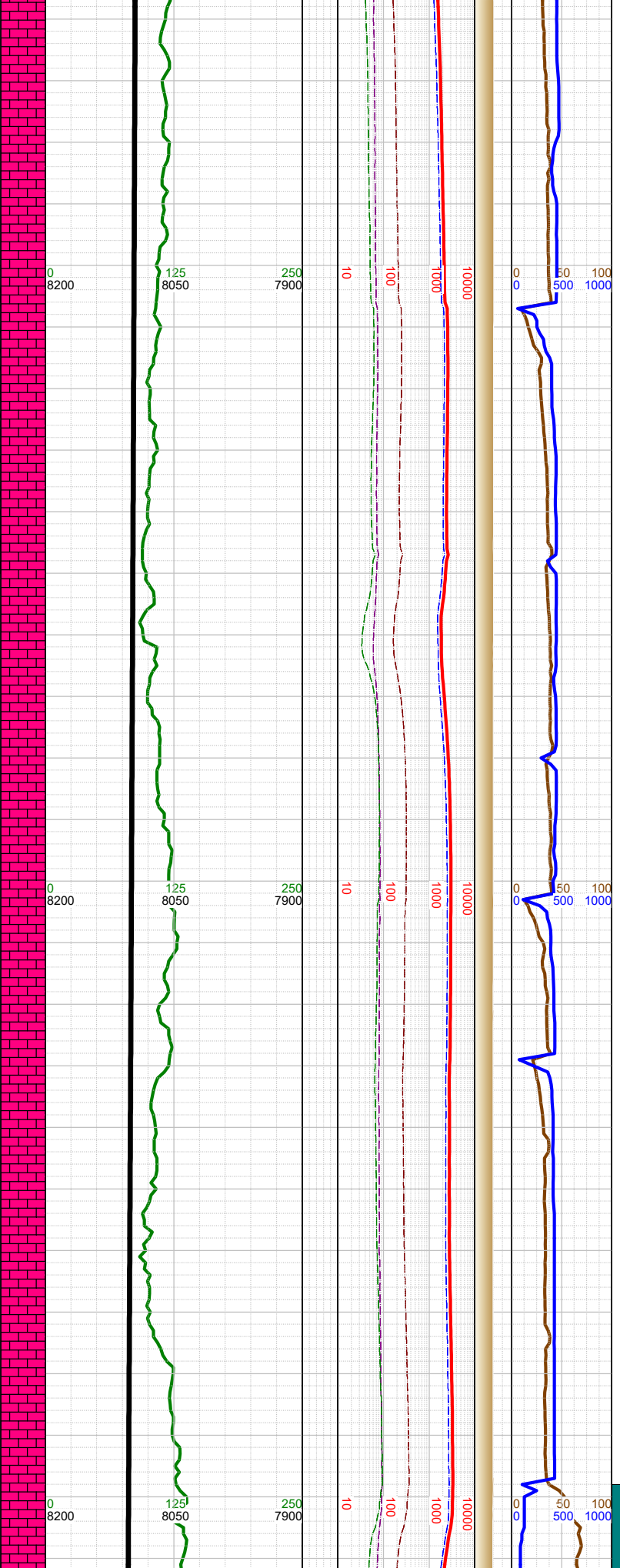
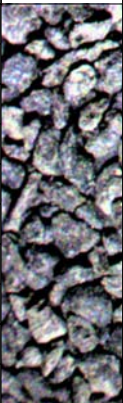








-18660  
-18670  
-18680  
-18690  
-18700  
-18710  
-18720  
-18730  
-18740  
-18750  
-18760  
-18770  
-18780  
-18790  
-18800  
-18810  
-18820  
-18830  
-18840  
-18850  
-18860  
-18870  
-18880  
-18890  
-18900  
-18910



Σ

Σ

Σ

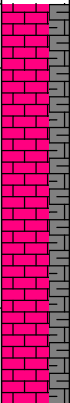
-18700 WT 9.7,  
VIS 44

-18738 INC  
88.38, AZM  
177.94, TVD  
8097.64

-18800 WT 9.7,  
VIS 44

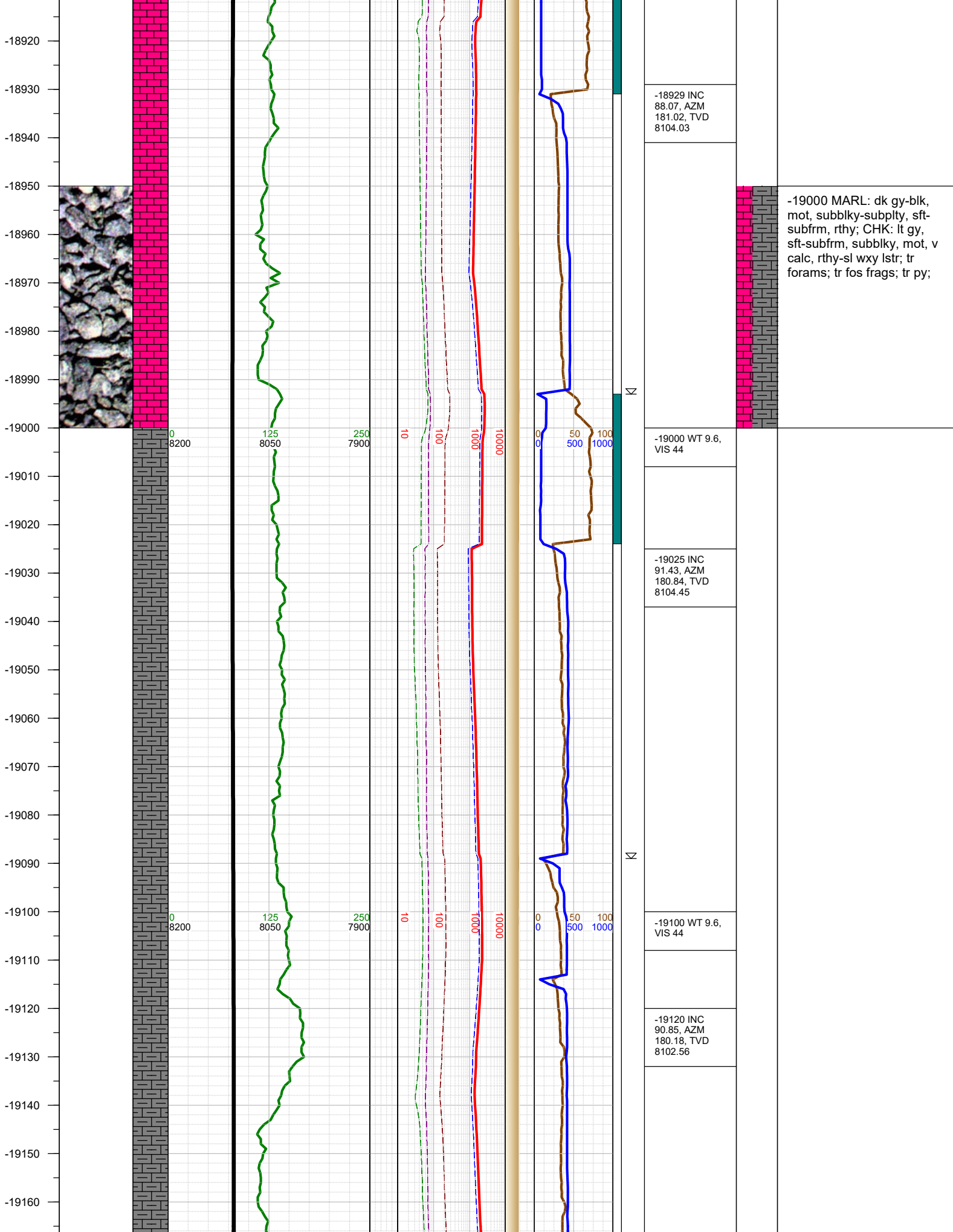
-18834 INC  
87.94, AZM  
177.5, TVD  
8100.73

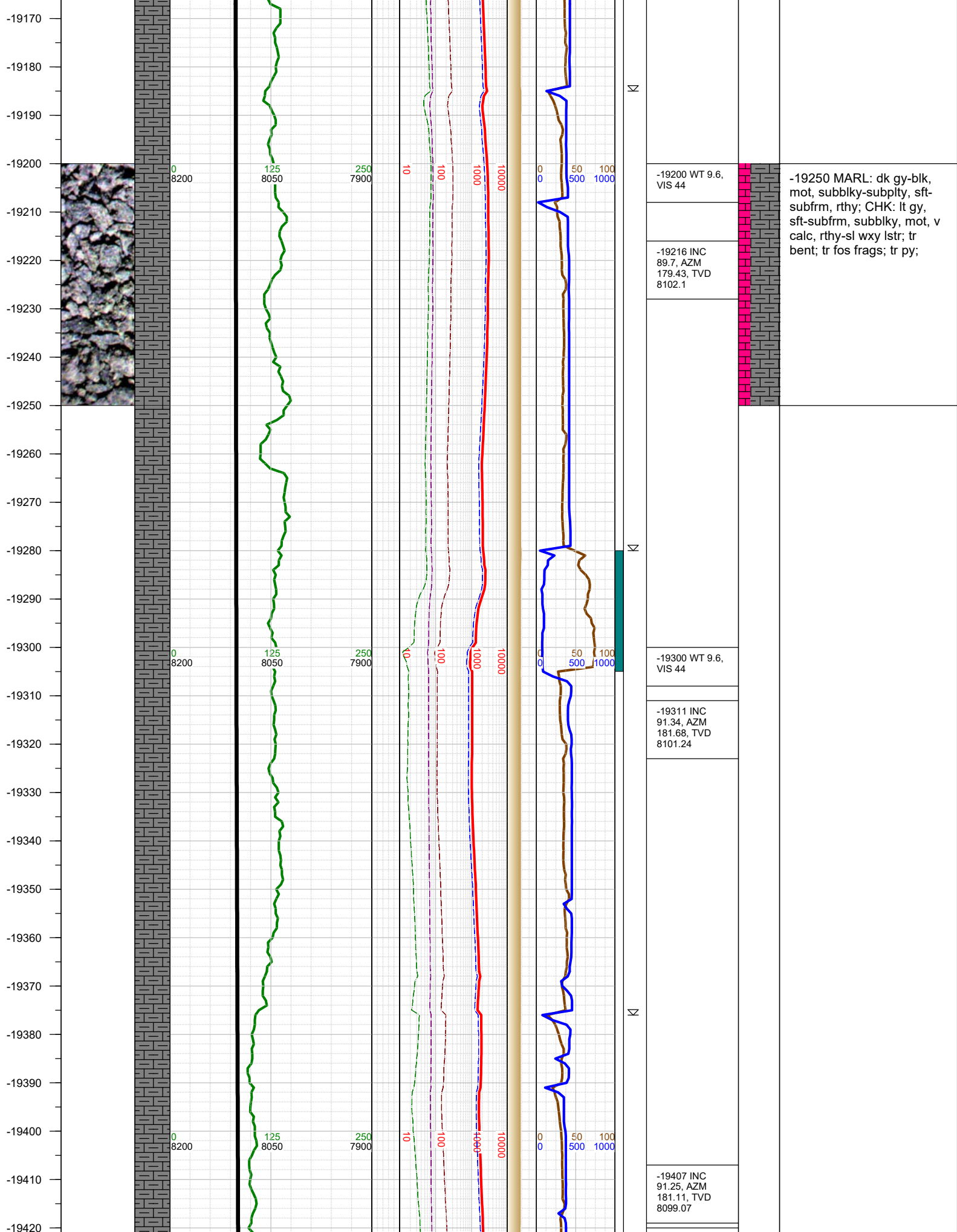
-18900 WT 9.7,  
VIS 44

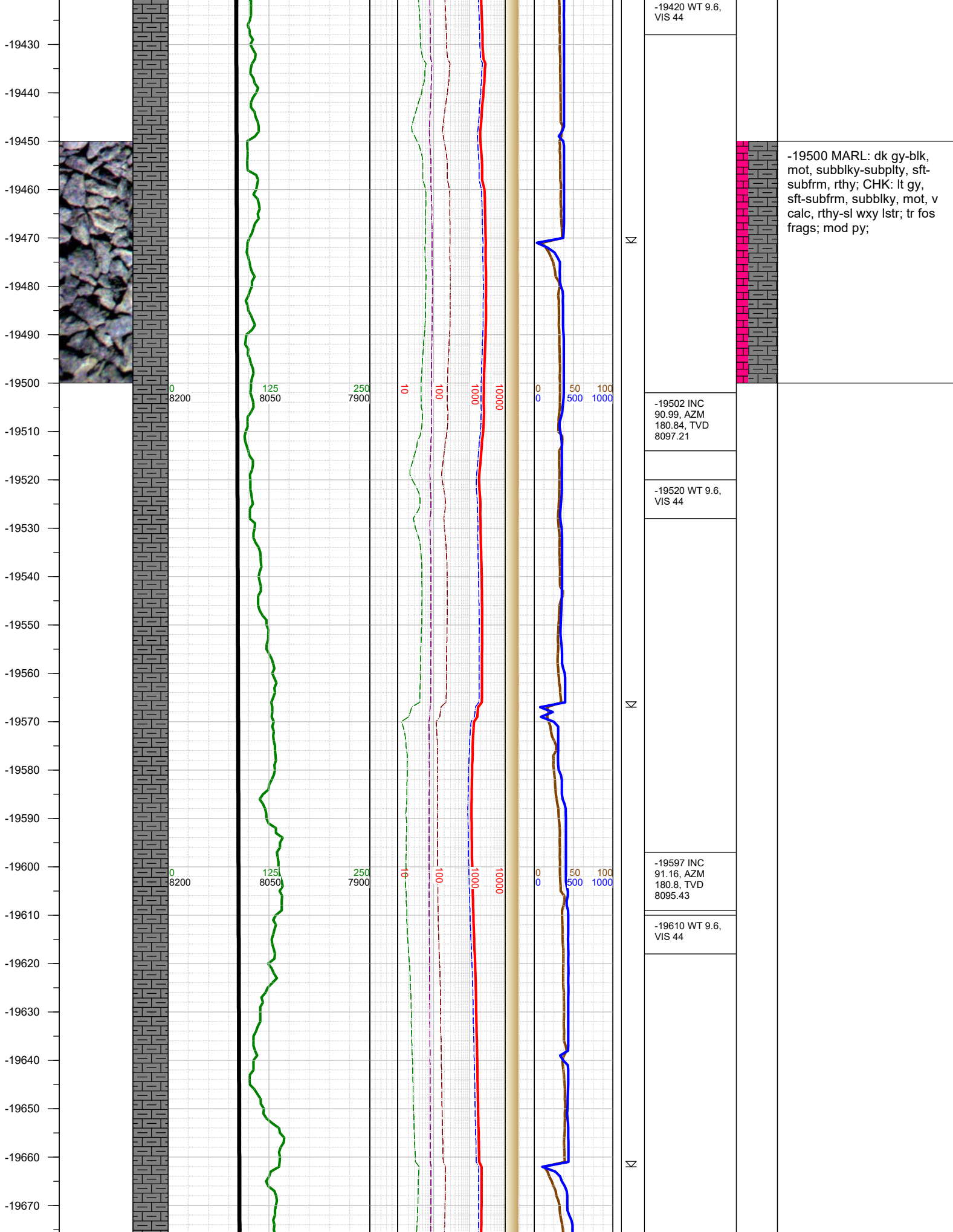


-18750 CHK: lt gy, sft-subfrm, subblky, v mot, v calc, rthy-sl wxy lstr; MARL: dk gy-blk, mot, subblky-subplty, sft-subfrm, rthy; tr forams; tr fos frags; tr py;

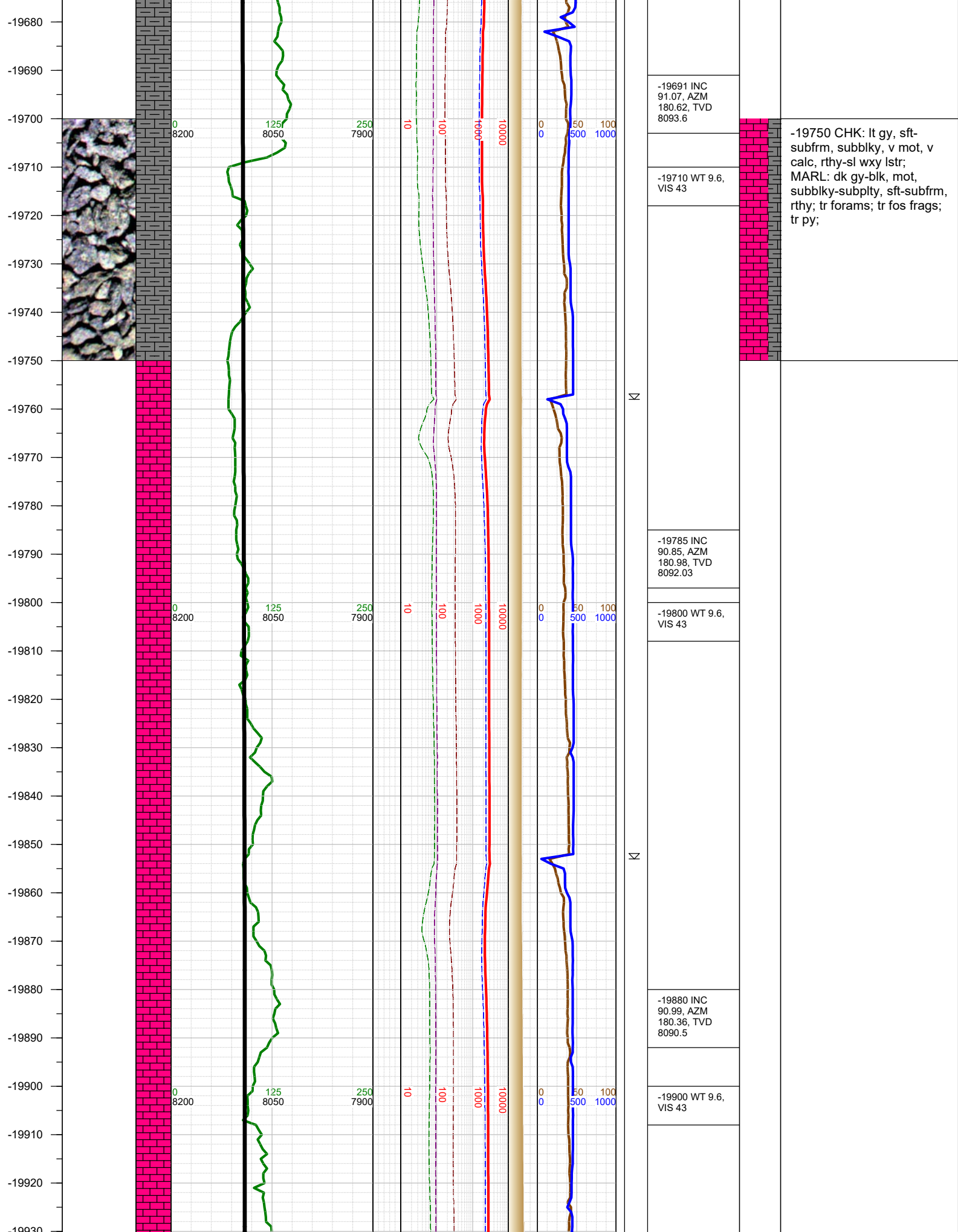


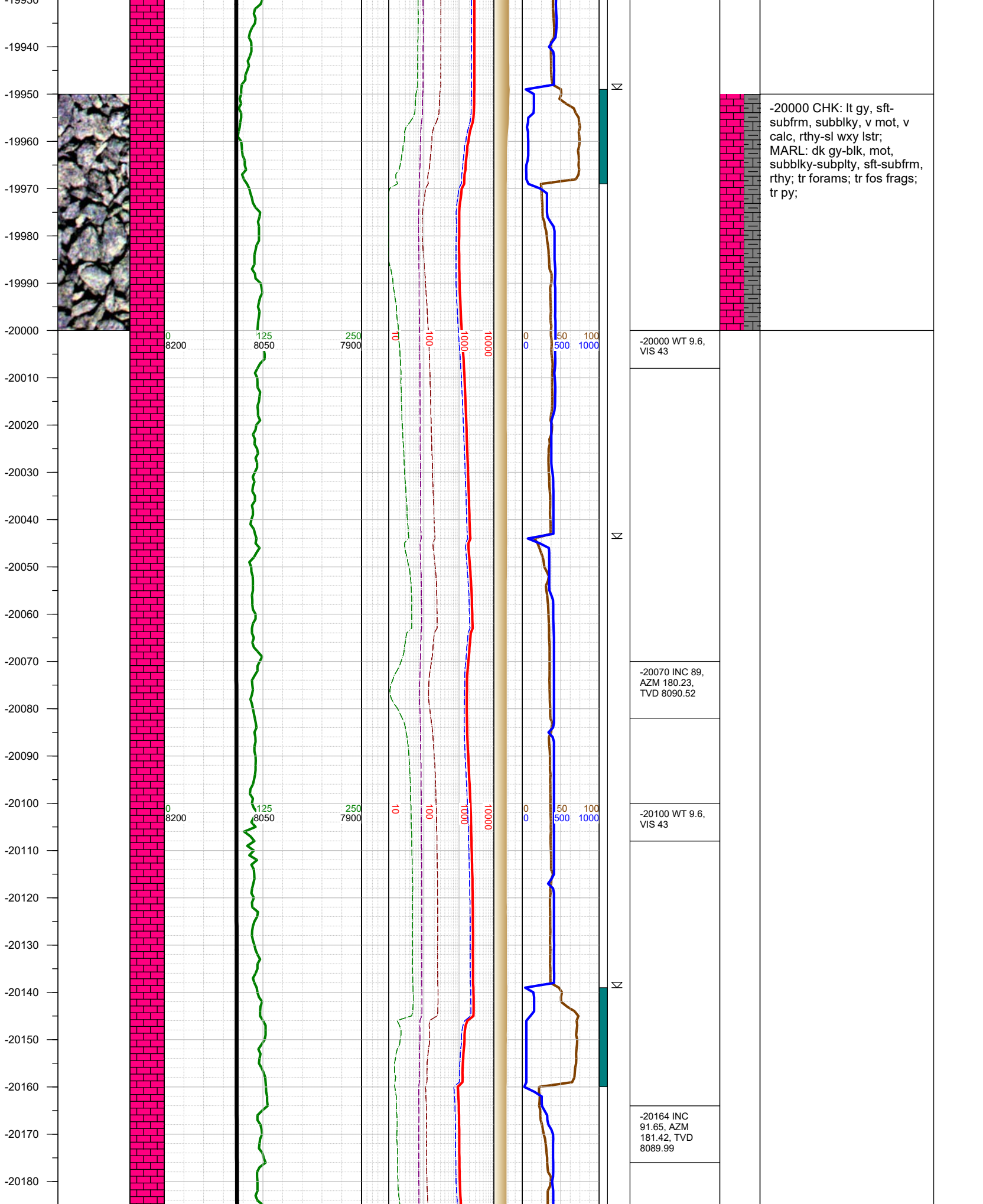


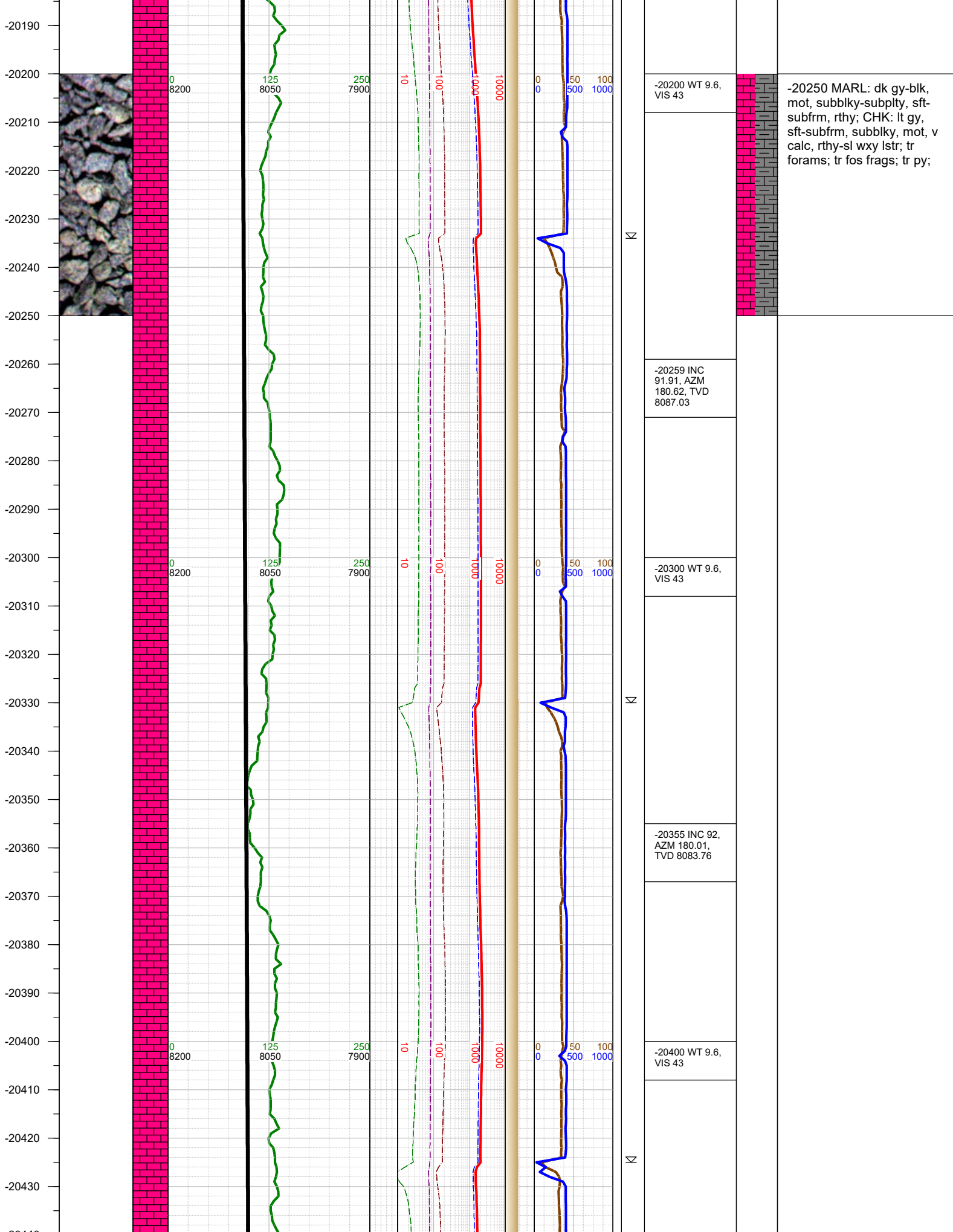




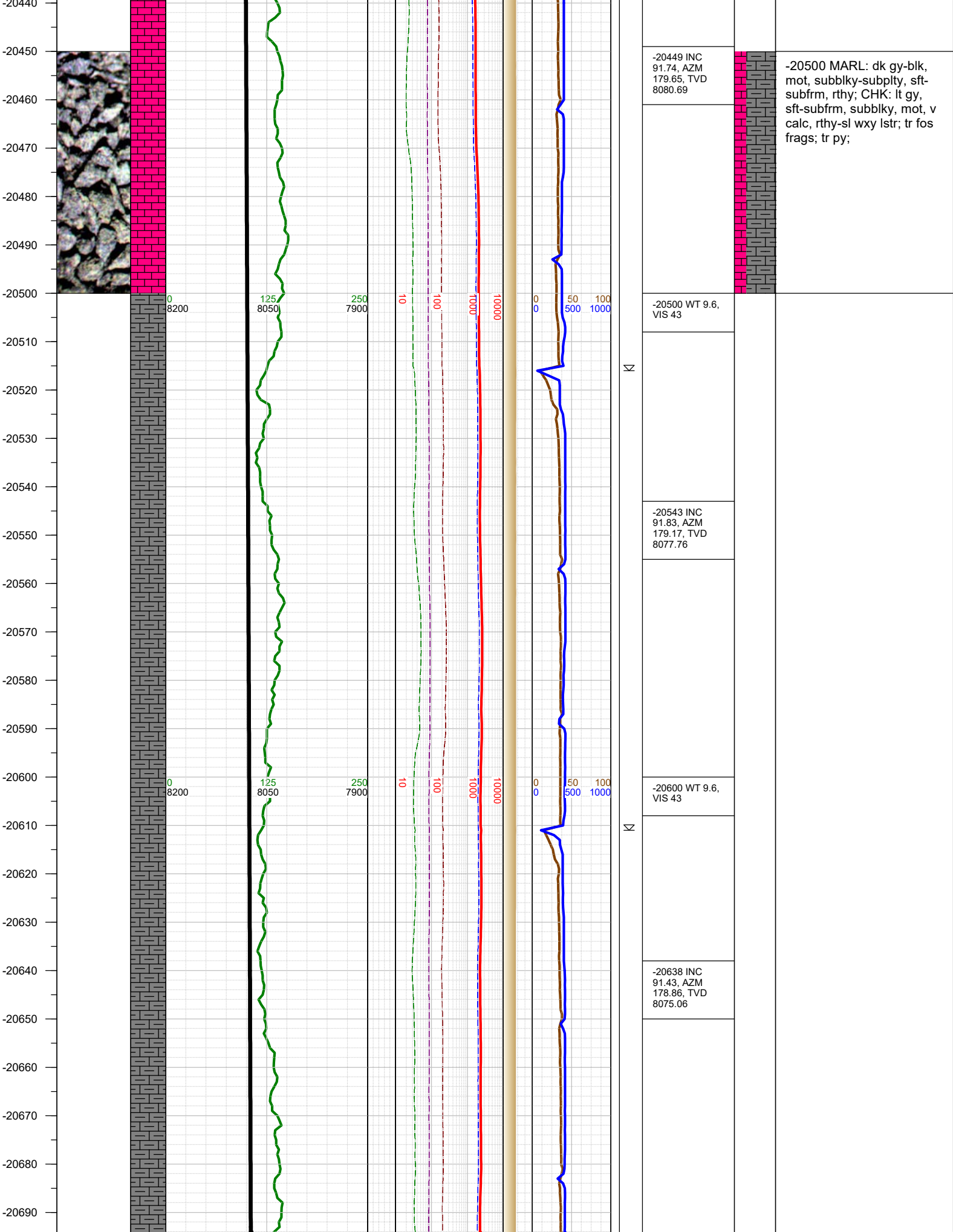


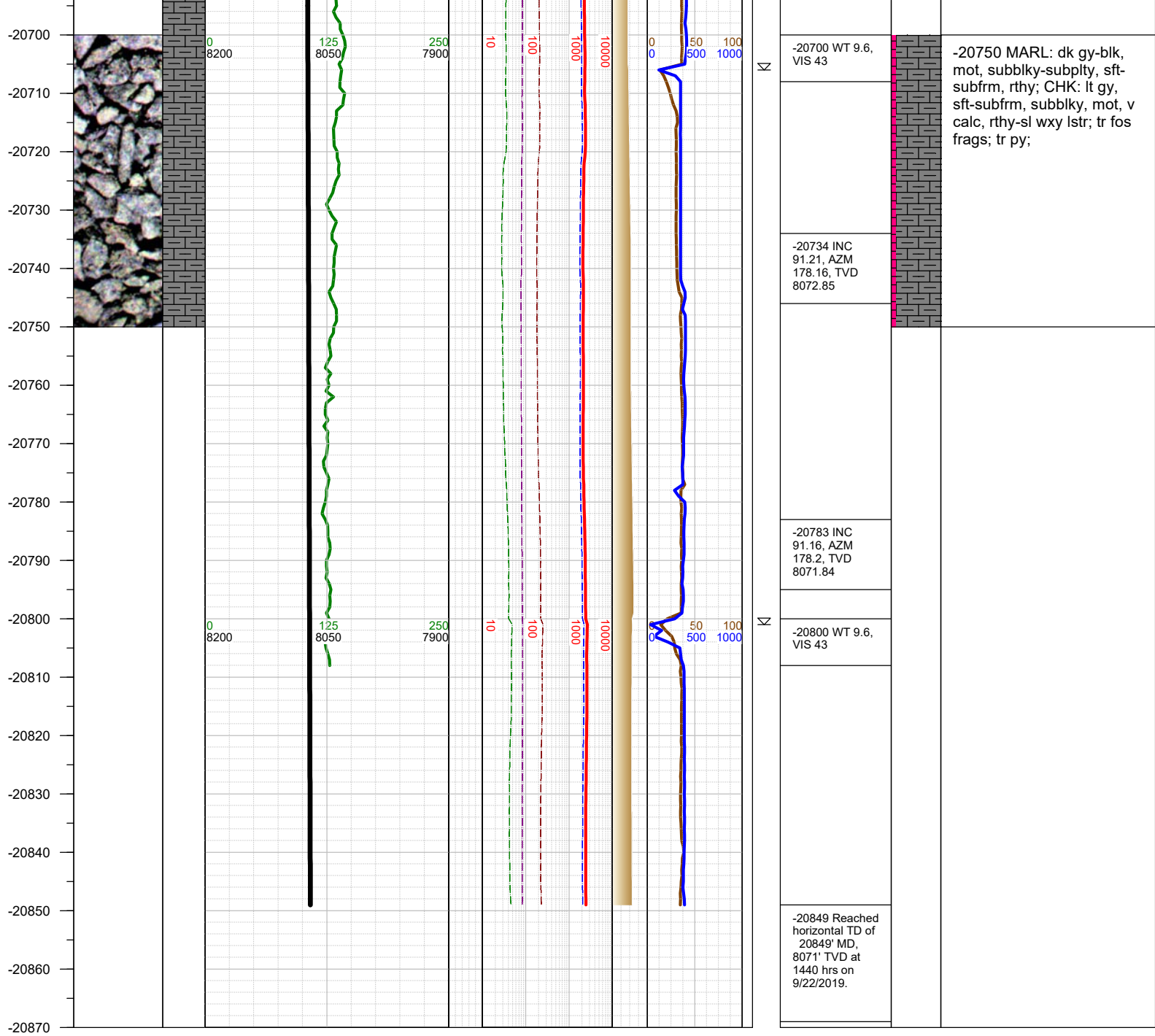












TOTAL DEPTH = 20849'

Thank you for using Earth Science Agency