OPERATOR: **Extraction Oil & Gas**
WELL NAME: **VT LDS 1-16-18**

FIELD NAME: DJ Basin - Wattenberg
DRILLING RIG: Patterson 901
API #: 05-123-44421

LAT/LONG: 40.40132, -104.65655
SURFACE HOLE: SWNW S15-T5N-R65W, 1882' FNL, 650' FWL
BOTTOM HOLE: S18-T5N-R65W, 660' FNL, 460' FWL

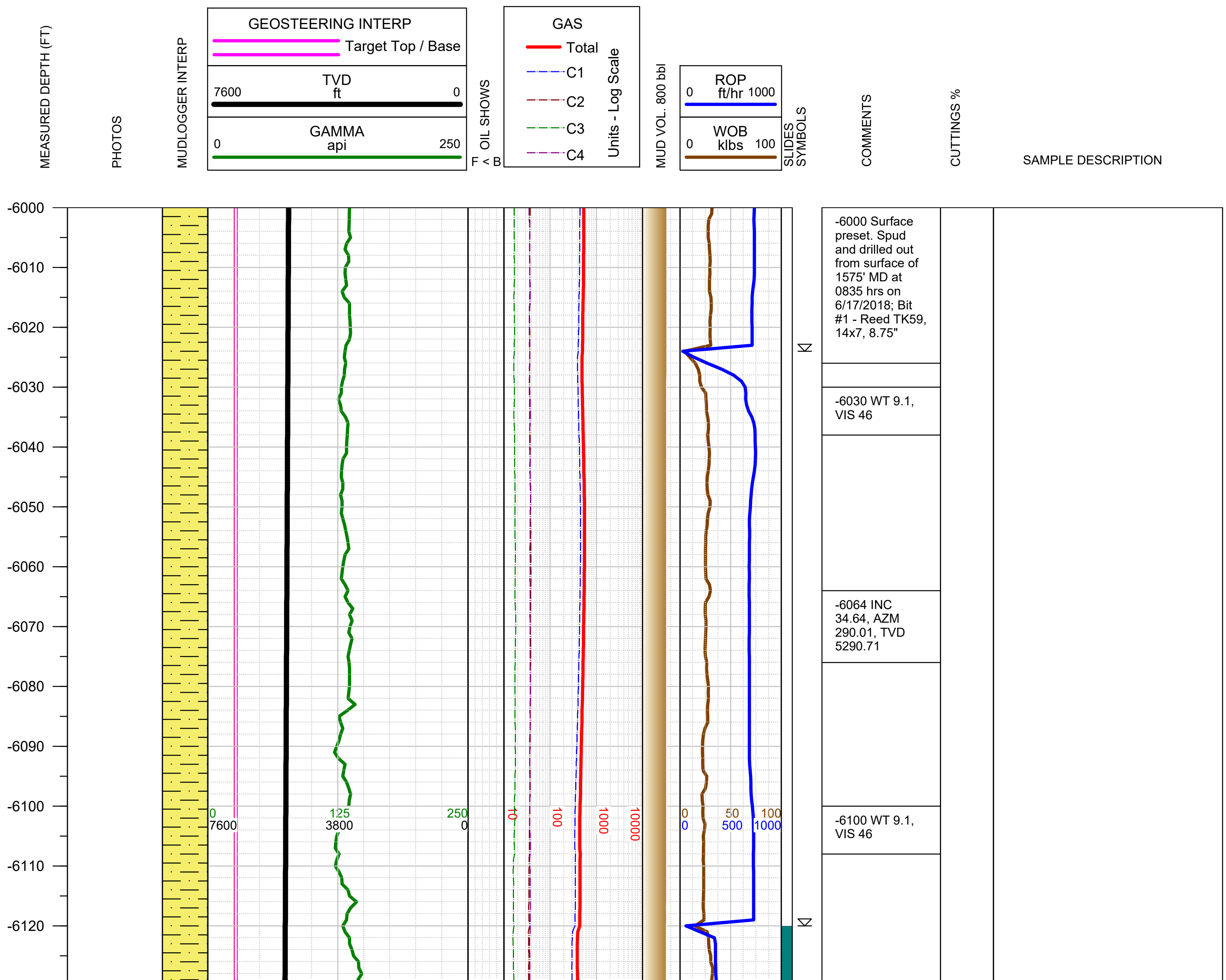
Earth Science Agency, LLC

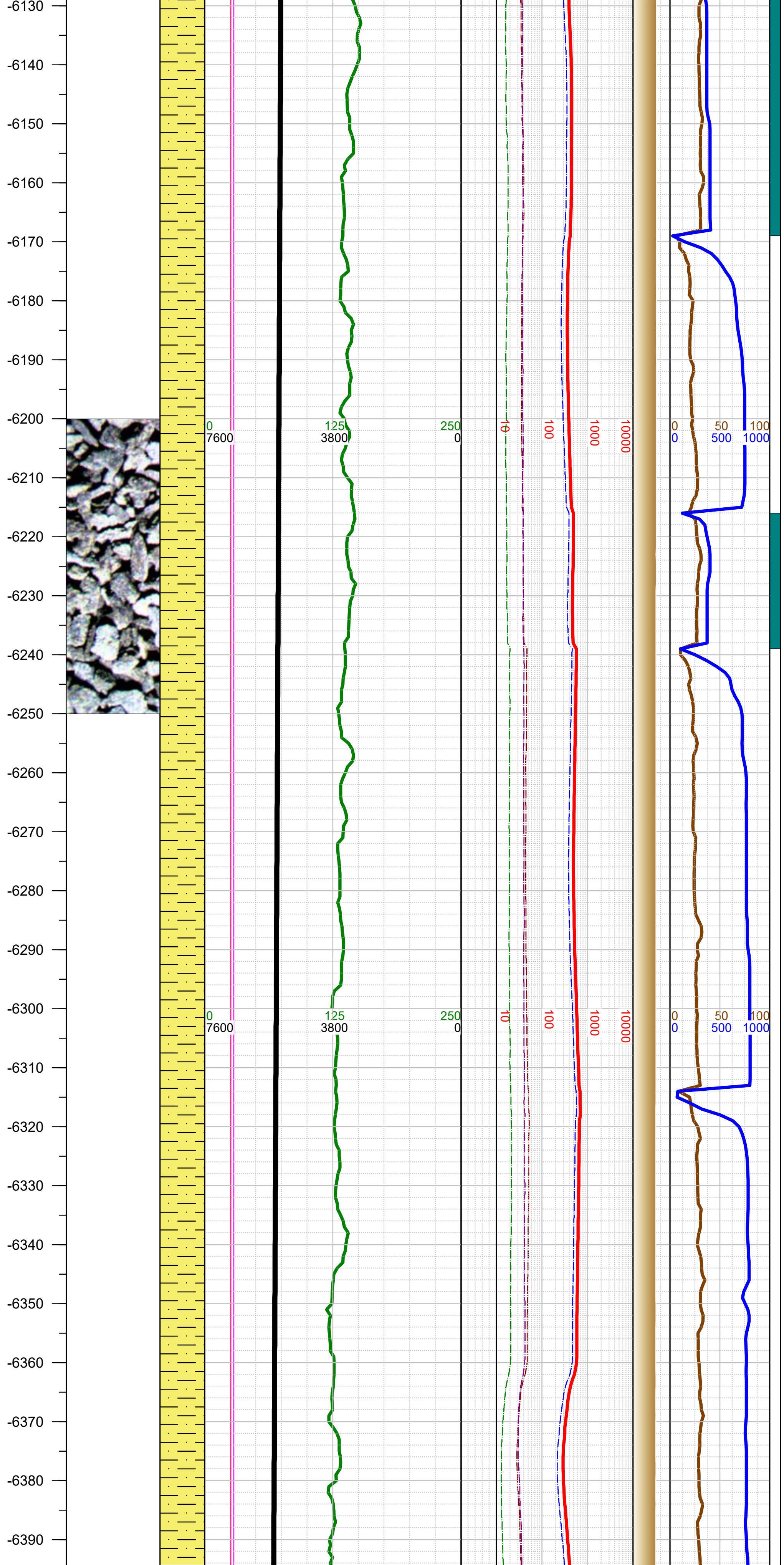
COUNTY:	Weld
STATE:	Colorado
GROUND ELEVATION:	4648'
KELLY BUSHING:	4677'
DRILLING FLUID:	OBM
TVD VS. MD:	6787' / 20445'
SPUD DATE:	June 17, 2018
TD DATE:	June 20, 2018
DEPTHS LOGGED:	6000' - 20445'
DATES LOGGED:	June 17, 2018 - June 20, 2018
GEOLOGISTS:	Blake Eatherton, Dan Jacobs
SCALE:	5" = 100'

LEGEND

CHALK
SHALE
LIMESTONE
SILTY SHALE
SHALY LIMESTONE
SHALY SILTSTONE
MARLSTONE
SHALY SANDSTONE
CALCAREOUS SHALE
SANDSTONE
DOLOMITE
ANHYDRITE

FORMATION CONNECTION MIDNIGHT NEW BIT GAS SHOW FAULT





-6160 INC 37.25, AZM 287.89, TVD 5368.42

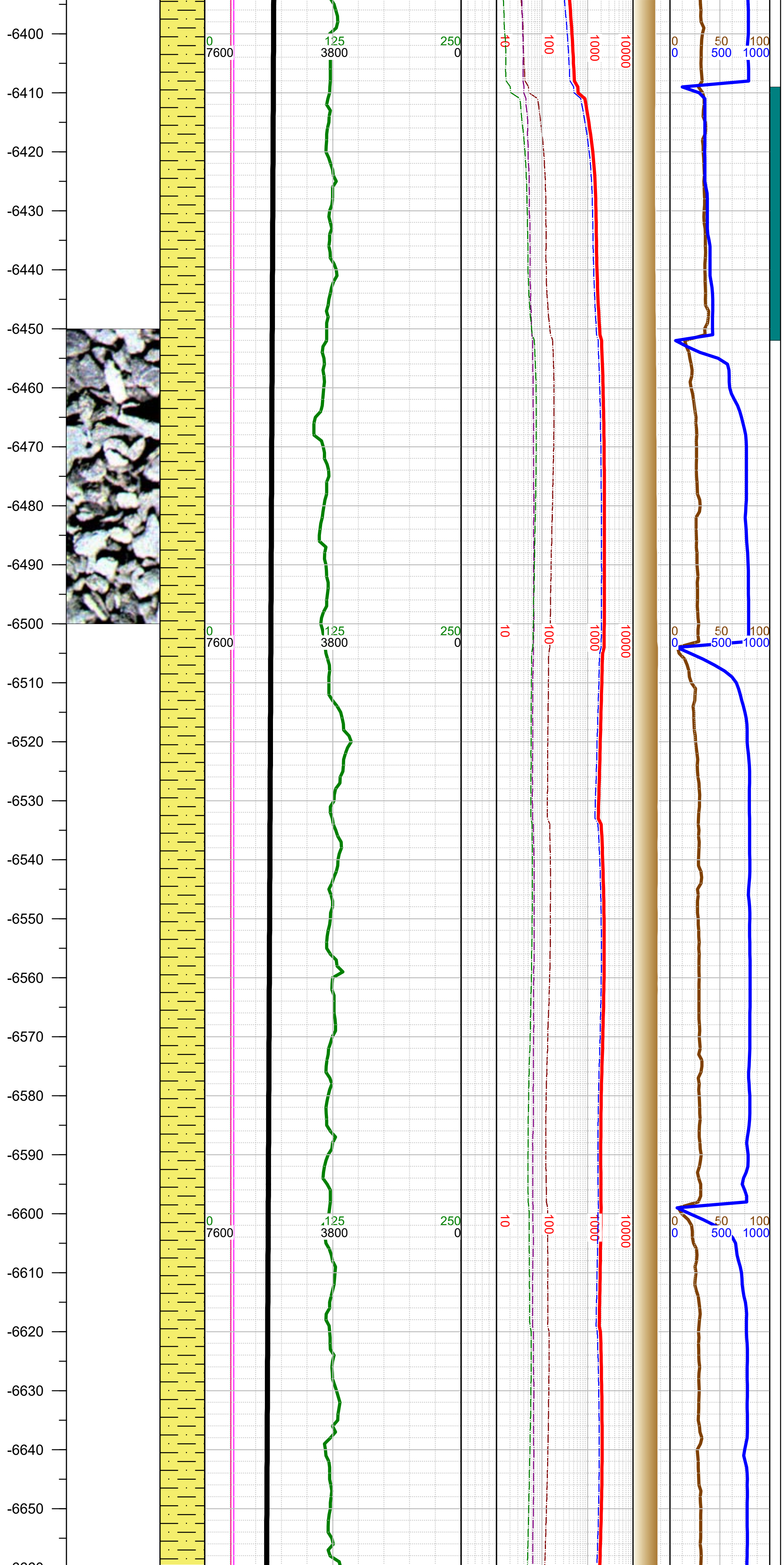
-6200 WT 9.1, VIS 46

-6250 SHLY SLTST: med-dk gy, frm, blky-subblky, gr-rthy, sl calc; SHLY SS: lt-med gy, fri, f gr, subrnd-subang, w srt, sl calc cmt;

-6255 INC 38.62, AZM 287.54, TVD 5443.35

-6300 WT 9.1, VIS 46

-6351 INC 36.54, AZM 286.26, TVD 5519.42



-6400 WT 9, VIS 46

-6446 INC 39.33, AZM 288.02, TVD 5594.35

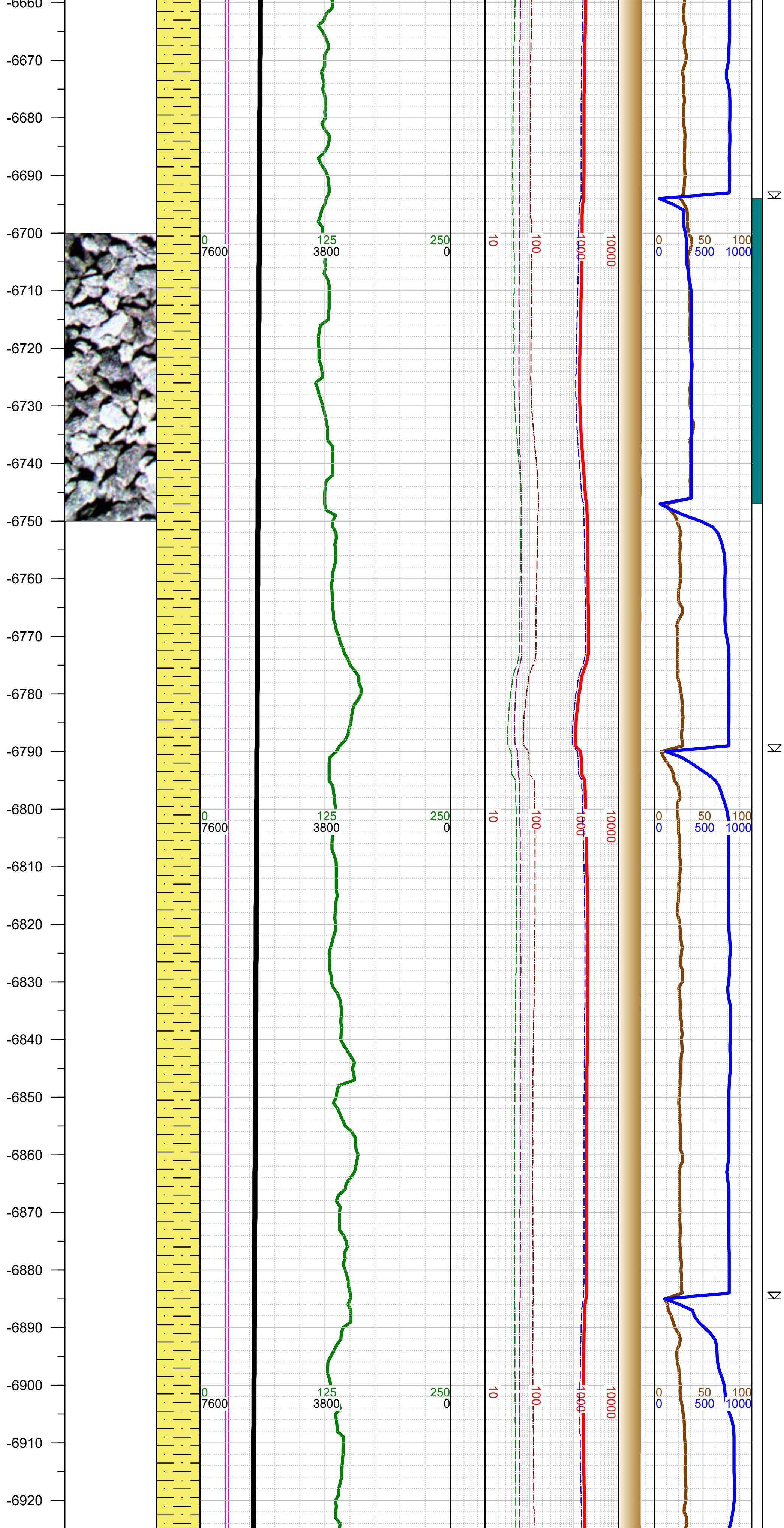
-6500 SHLY SLTST: med-dk gy, frm, blky-subblky, gr-rthy, sl calc; SHLY SS: lt-med gy, fri, f gr, subrnd-subang, w srt, sl calc cmt;

-6500 WT 9, VIS 46

-6542 INC 37.52, AZM 287.67, TVD 5669.55

-6600 WT 9, VIS 46

-6637 INC 34.73, AZM 287.14, TVD 5746.28



-6700 WT 9, VIS 46

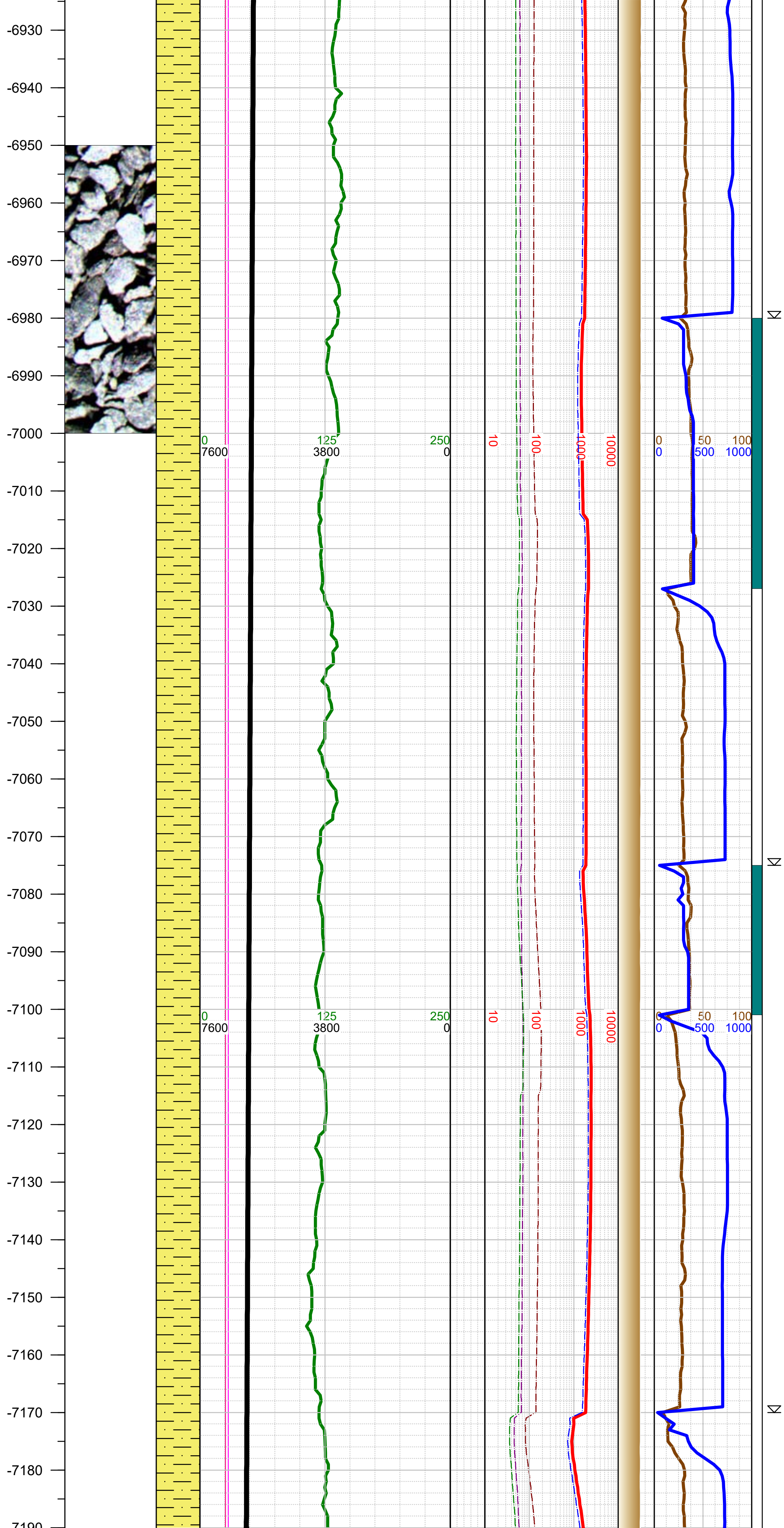
-6733 INC 38.89, AZM 287.27, TVD 5823.12

-6800 WT 9, VIS 46

-6828 INC 38.05, AZM 286.04, TVD 5897.5

-6900 WT 9, VIS 46

-6750 SHLY SLTST: med-dk gy, frm, blky-subblky, gr-rthy, sl calc; SHLY SS: lt-med gy, fri, f gr, subrnd-subang, w srt, sl calc cmt;



-6923 INC 34.87, AZM 285.07, TVD 5973.9

-7000 SHLY SLTST: med-dk gy, frm, blky-subblky, gr-rthy, sl calc; SHLY SS: lt-med gy, fri, f gr, subrnd-subang, w srt, sl calc cmt;

-7000 WT 9, VIS 46

-7019 INC 36.9, AZM 286.97, TVD 6051.68

-7100 WT 9.1, VIS 46

-7114 INC 37.74, AZM 286.26, TVD 6127.22

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0 7600 | 125 3800 | 250 0 | 10 | 100 | 1000 | 10000 | 0 0 | 50 500 | 100 1000

-7200 WT 9.1, VIS 46

-7210 INC 33.72, AZM 284.98, TVD 6205.14

-7305 INC 34.87, AZM 287.36, TVD 6283.63

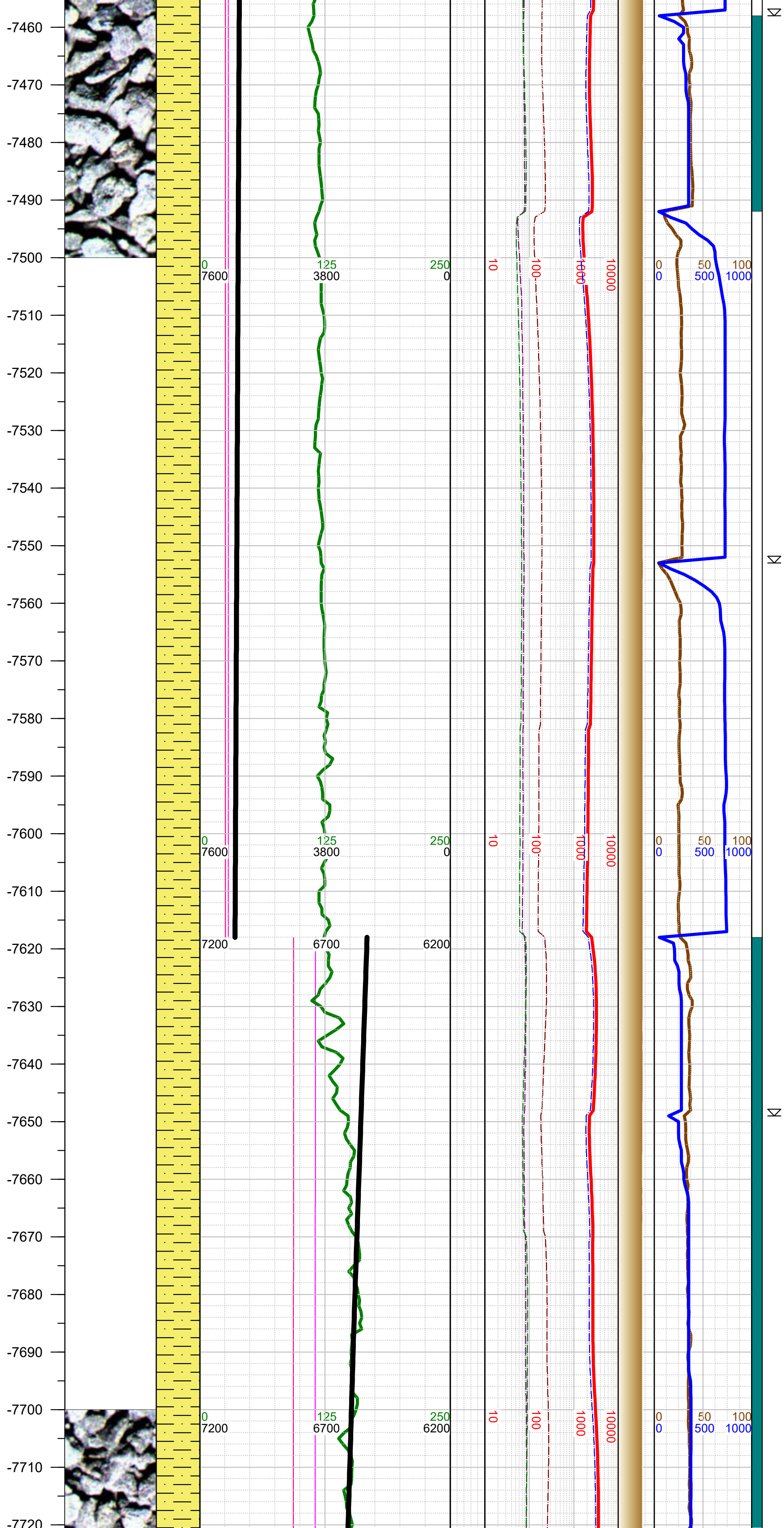
-7320 WT 9.1, VIS 46

-7401 INC 38.09, AZM 290.4, TVD 6360.81

-7420 WT 9.1, VIS 46

-7250 SHLY SLTST: med-dk gy, frm, blky-subblky, gr-rthy, sl calc; SHLY SS: lt-med gy, fri, f gr, subrnd-subang, w srt, sl calc cmt;

-7500 SHLY SLTST: med-



dk gy, frm, blky-subblky, gr-rthy, sl calc; SHLY SS: lt-med gy, fri, f gr, subrnd-subang, w srt, sl calc cmt;

-7496 INC 38.98, AZM 288.29, TVD 6435.13

-7510 WT 9.1, VIS 46

-7592 INC 34.34, AZM 287.1, TVD 6512.12

-7610 WT 9.1, VIS 46

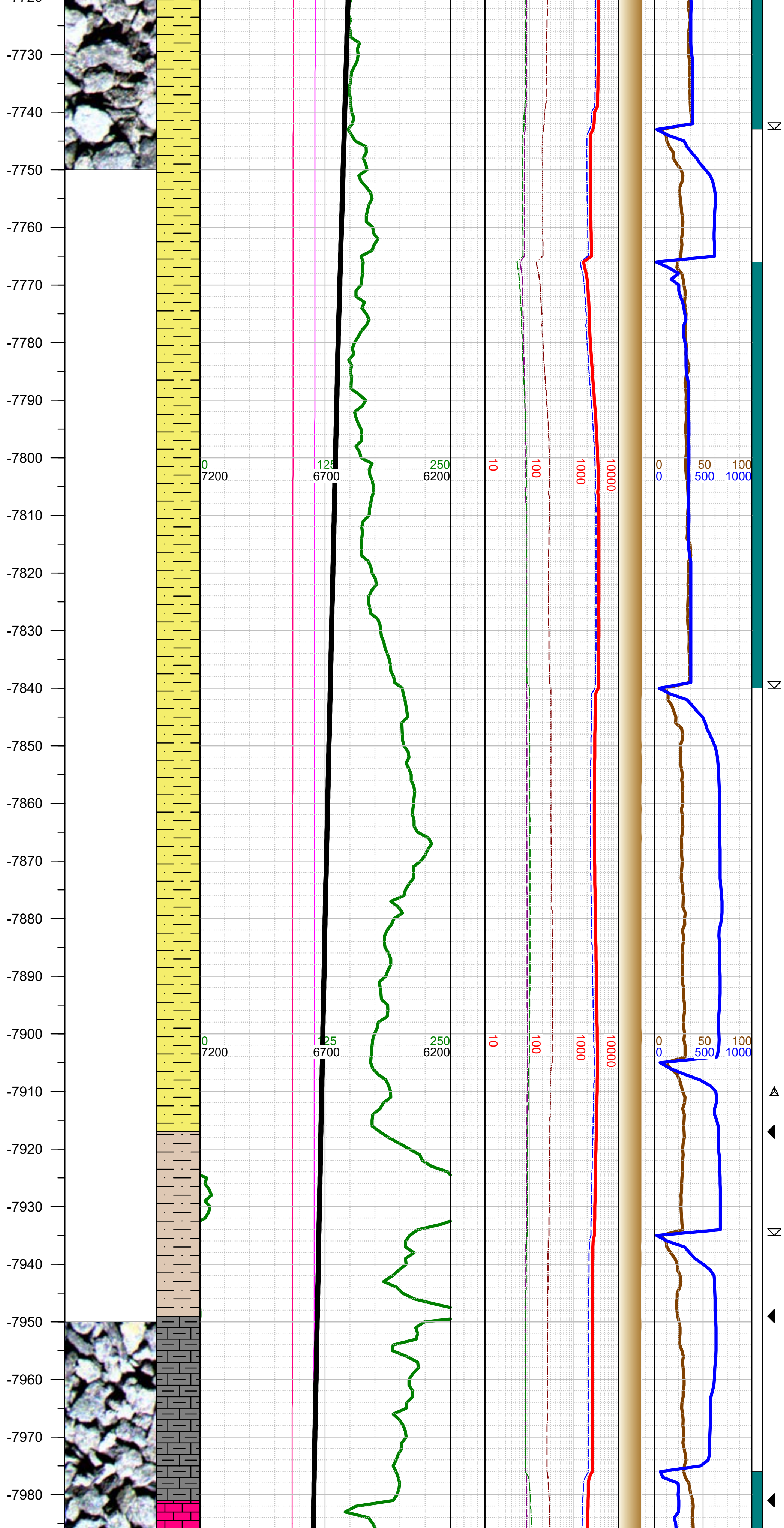
-7618 Reached KOP of 7618' MD, 6532' TVD at 2254 hrs on 6/18/2018 and immediately began drilling the curve.

-7618 Change TVD Scale

-7687 INC 42.95, AZM 284.1, TVD 6586.25

-7700 WT 9.1, VIS 45

-7750 SHLY SLTST: med-dk gy, frm, blky-subblky, gr-rthy, sl calc; SHLY SS: lt-med gy, fri, f gr, subrnd-subang, w srt, sl calc cmt;



-7782 INC 53.82, AZM 281.15, TVD 6649.26

-7800 WT 9.1, VIS 46

-7877 INC 63.54, AZM 279.83, TVD 6698.58

-7900 WT 9.1, VIS 46

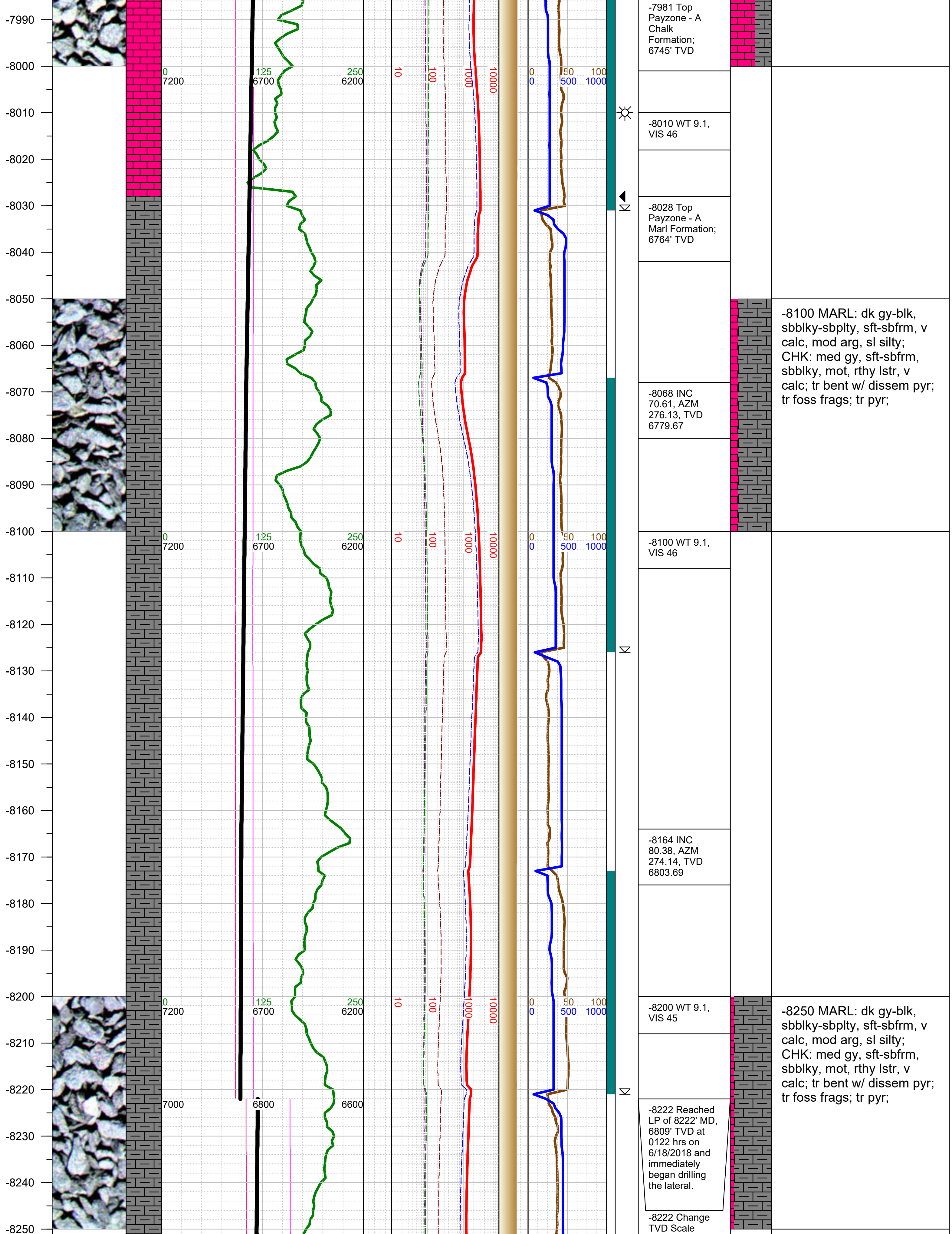
-7910 0000 hrs on 6/18/2018

-7917 Top Sharon Springs Formation; 6717' TVD

-7949 Top Niobrara Formation; 6731' TVD

-7973 INC 62.66, AZM 279.96, TVD 6742.02

-8000 CHK: lt gy, sft-subfrm, subblky, mot, v calc, rthy-sl wxy lstr; MARL: dk gy-blk, subblky-subplty, sft-subfrm, v calc, mod arg, sl silty intbds; tr bent w/ dissem pyr; tr forams; tr fos frags;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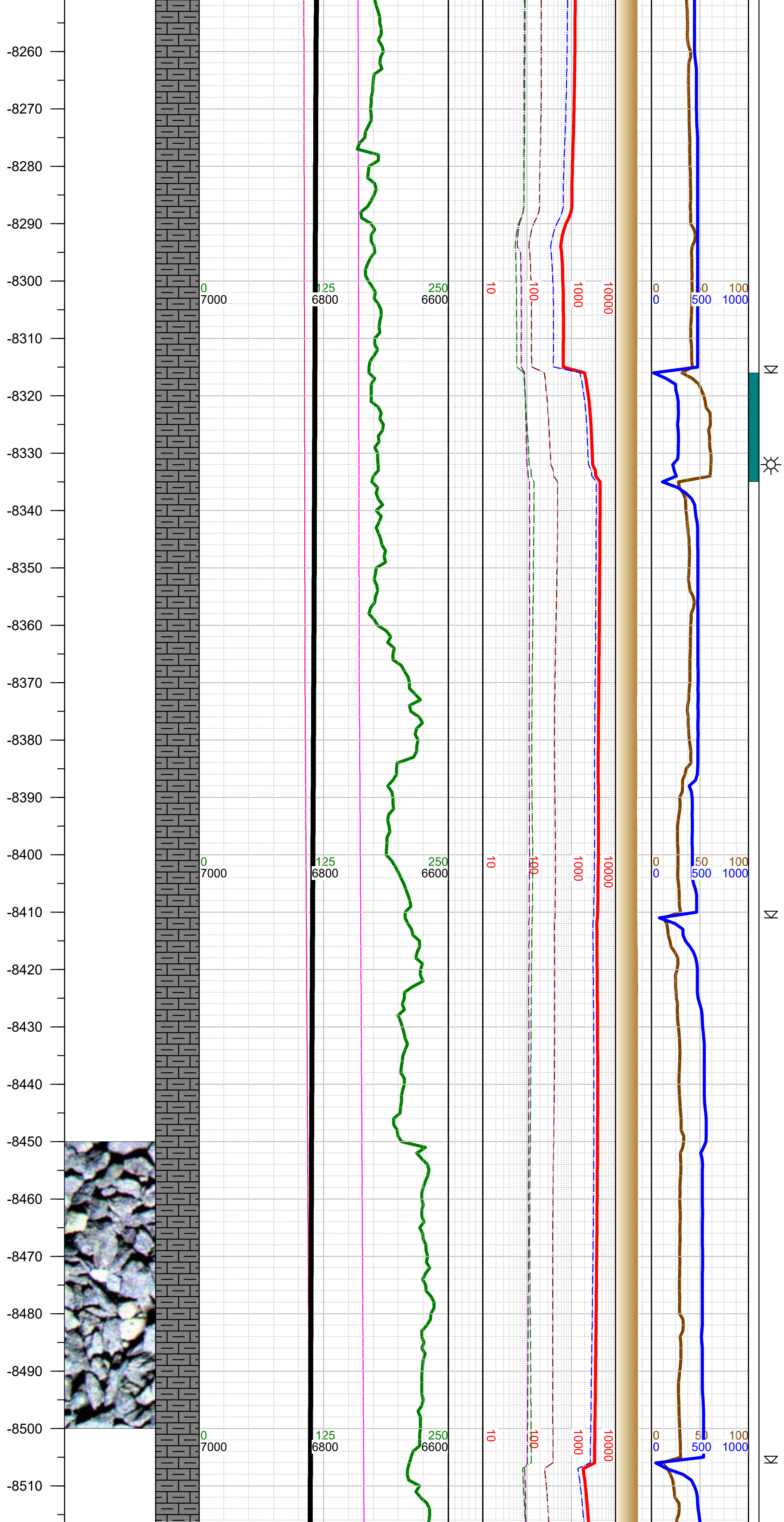
0 500 1000
7000 6800 6600
-7981 Top Payzone - A Chalk Formation; 6745' TVD
-8010 WT 9.1, VIS 46
-8028 Top Payzone - A Marl Formation; 6764' TVD
-8068 INC 70.61, AZM 276.13, TVD 6779.67
-8100 WT 9.1, VIS 46
-8164 INC 80.38, AZM 274.14, TVD 6803.69
-8200 WT 9.1, VIS 45
-8222 Reached LP of 8222' MD, 6809' TVD at 0122 hrs on 6/18/2018 and immediately began drilling the lateral.
-8222 Change TVD Scale
-8100 MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; tr bent w/ dissem pyr; tr foss frags; tr pyr;
-8250 MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; tr bent w/ dissem pyr; tr foss frags; tr pyr;



-8259 INC 89.17, AZM 270.66, TVD 6812.34

-8300 WT 9.1, VIS 45

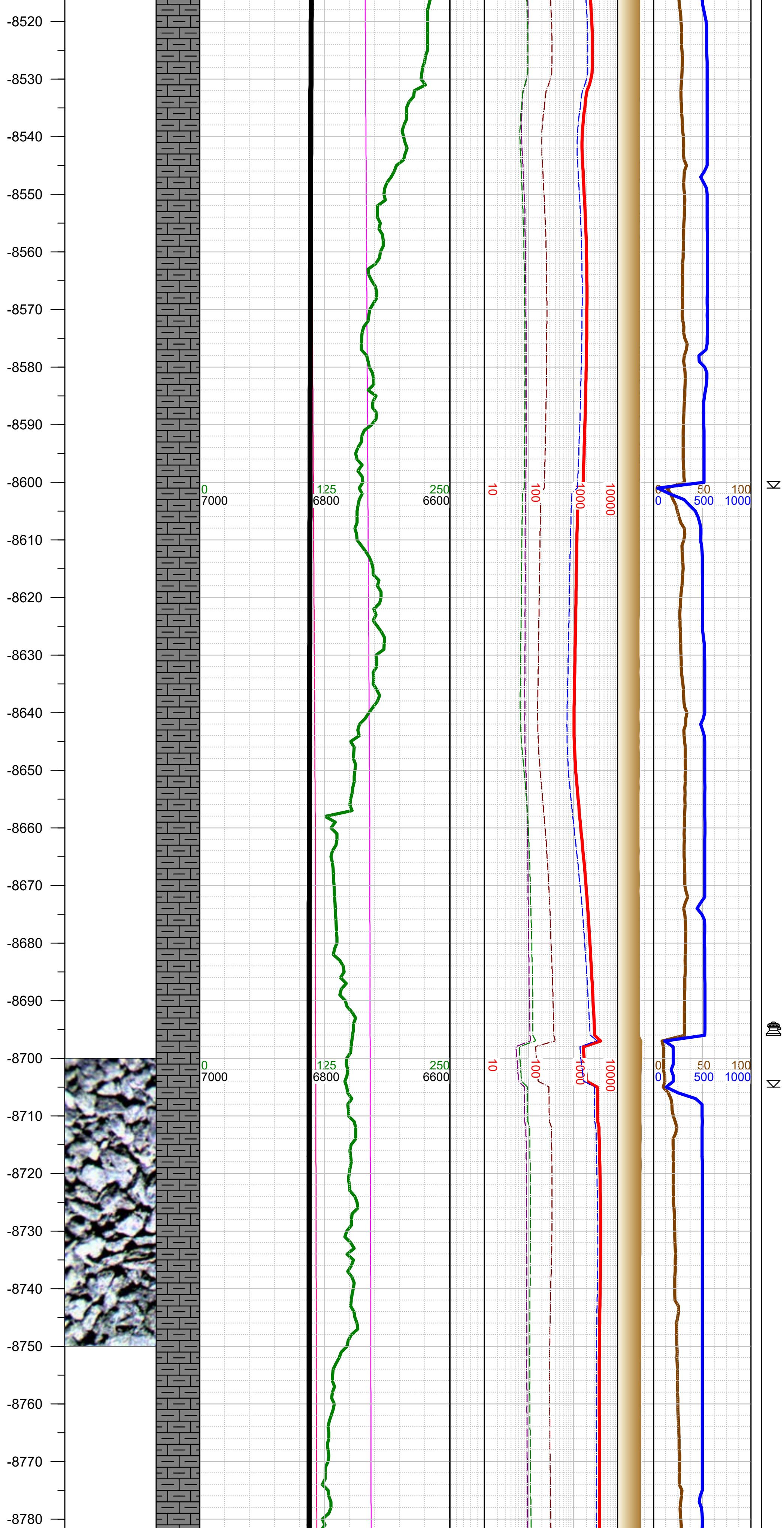
-8355 INC 87.19, AZM 270.35, TVD 6815.38

-8400 WT 9.1, VIS 45

-8451 INC 87.85, AZM 269.96, TVD 6819.54

-8500 WT 9, VIS 44

-8500 MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; tr bent w/ dissem pyr; tr foss frags; tr pyr;



-8546 INC 88.38, AZM 269.65, TVD 6822.66

-8600 WT 9, VIS 44

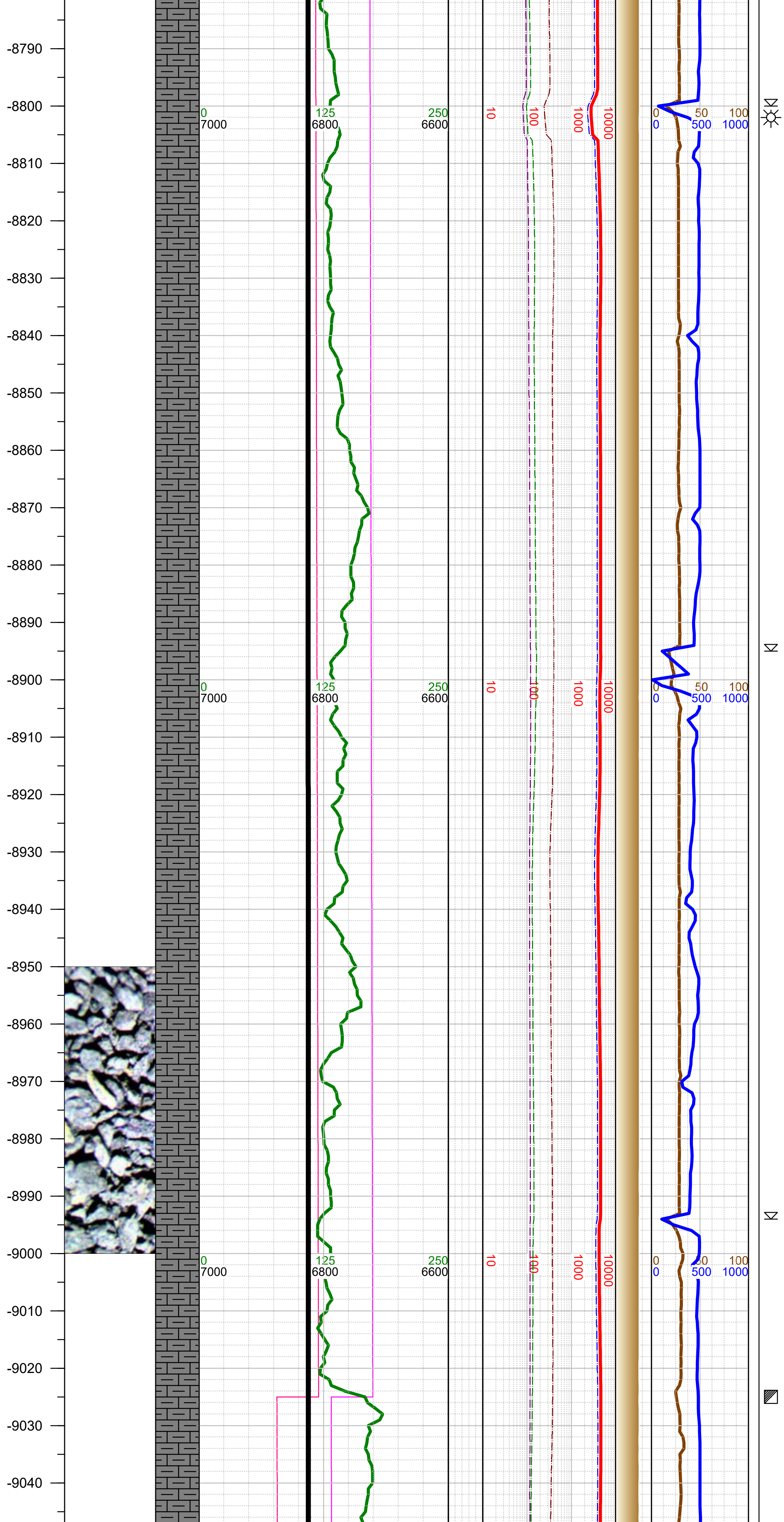
-8679 INC 89.62, AZM 268.15, TVD 6824.99

-8696 TOOH for RSS at 0344 hrs on 6/18/2018. Resumed drilling at 1150 hrs on 6/18/2018; Bit #2 - Reed TK56, 5x16, 8.5"

-8730 WT 9, VIS 44

-8774 INC 90.19, AZM 269.91, TVD

-8750 MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; tr bent w/ dissem pyr; tr foss frags; tr pyr;



6825.14

-8800 WT 9.3, VIS 48

-8870 INC 90.06, AZM 269.21, TVD 6824.93

-8900 WT 9.3, VIS 48

-8965 INC 90.1, AZM 269.82, TVD 6824.8

-9000 WT 9.3, VIS 48

-9025 Fault: 68' down-throw; went from B1 Chalk/Marl to A Marl

-9000 MARL: dk gy-blk, subblky-subplty, sft-subfrm, v calc, mod arg, sl silty intbds; CHK: lt gy, sft-subfrm, subblky, mot, v calc, rthy-sl wxy lstr; tr bent; tr pyr;

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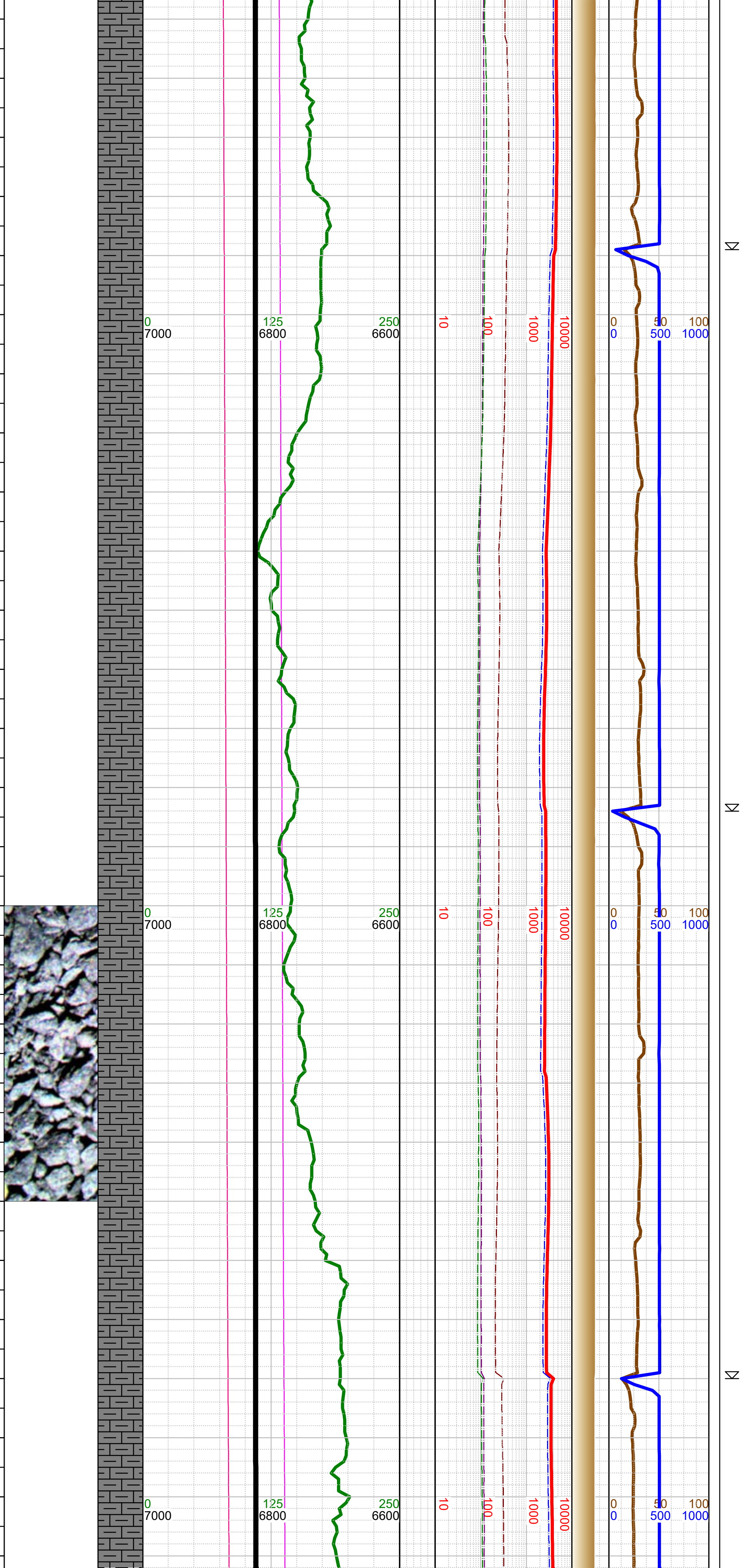


-9061 INC 90.06, AZM 269.16, TVD 6824.67

-9100 WT 9.3, VIS 48

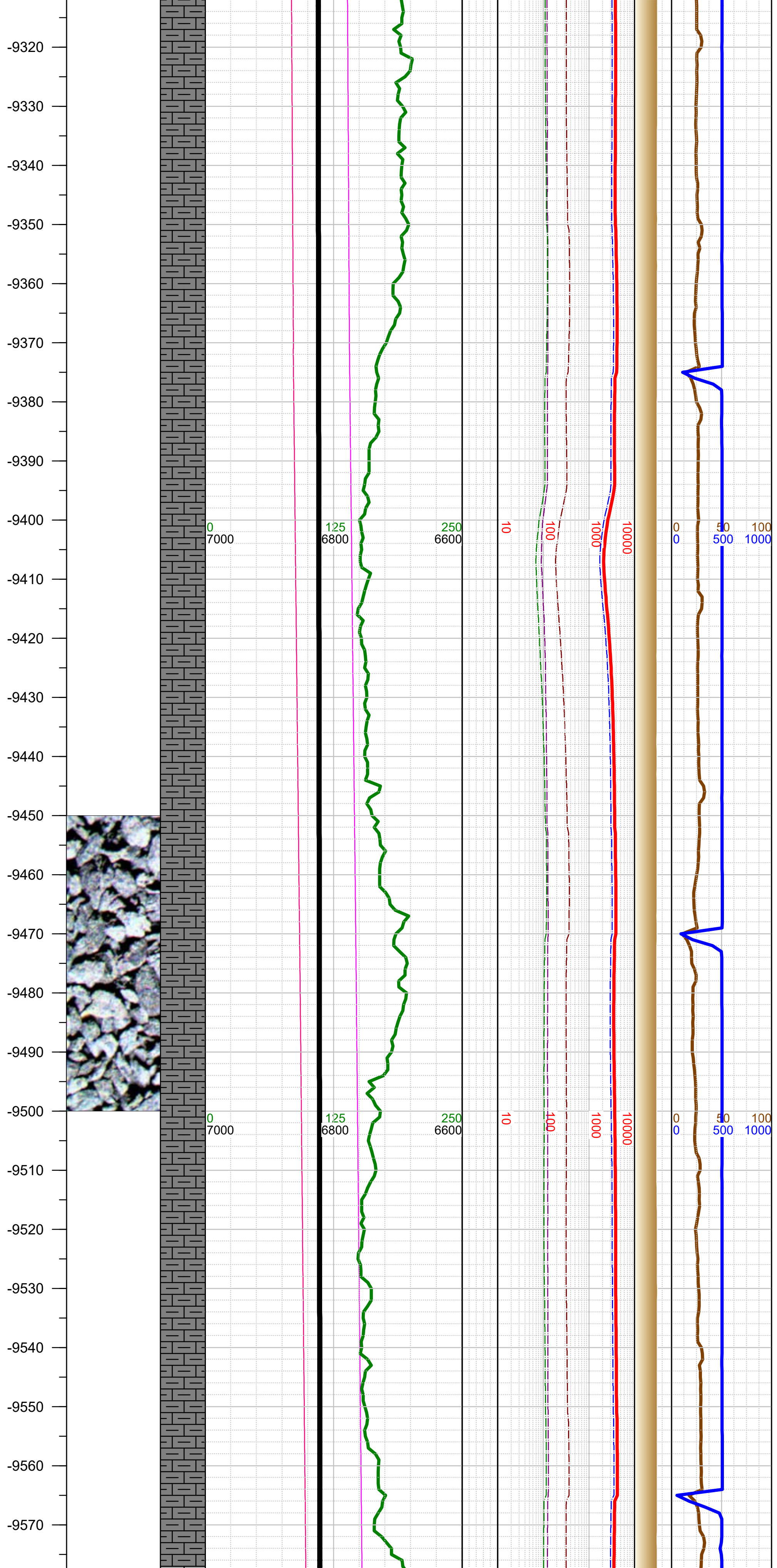
-9156 INC 90.1, AZM 269.78, TVD 6824.53

-9200 WT 9.2, VIS 45

-9250 MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; tr bent w/ dissem pyr; tr pyr;

-9252 INC 90.1, AZM 269.87, TVD 6824.37

-9300 WT 9.2, VIS 45



-9348 INC 90.63, AZM 269.96, TVD 6823.75

-9400 WT 9.2, VIS 45

-9443 INC 90.68, AZM 270.31, TVD 6822.67

-9500 MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; tr bent w/ dissem pyr; tr pyr;

-9500 WT 9.2, VIS 44

-9538 INC 90.41, AZM 268.77, TVD 6821.77

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-9600 WT 9.2, VIS 44

-9634 INC 90.5, AZM 269.25, TVD 6821

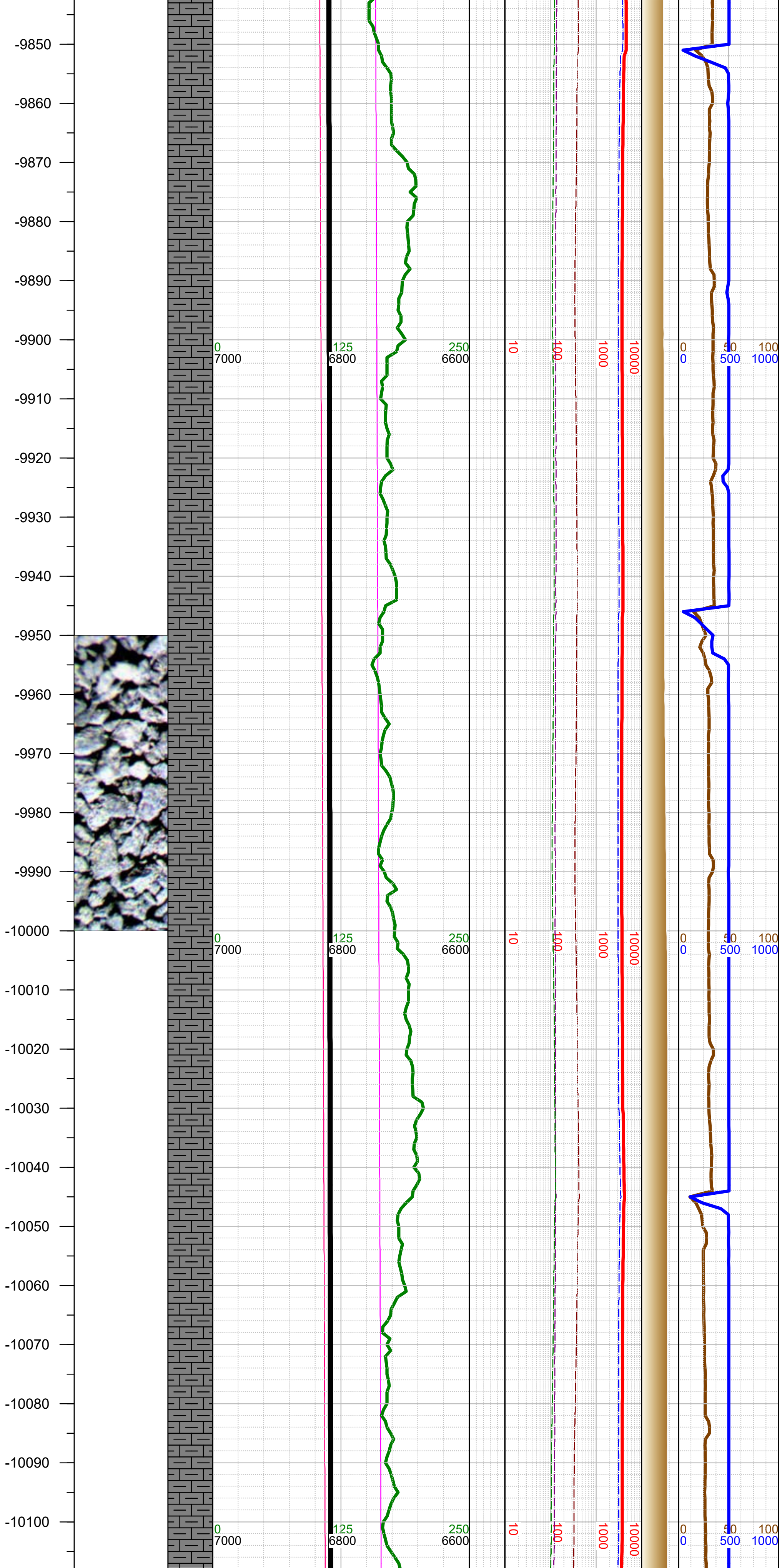
-9700 WT 9.2, VIS 44

-9750 MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; tr pyr;

-9729 INC 90.54, AZM 269.65, TVD 6820.14

-9800 WT 9.2, VIS 44

-9825 INC 90.68, AZM 270.35, TVD 6819.12



-9900 WT 9.2, VIS 44

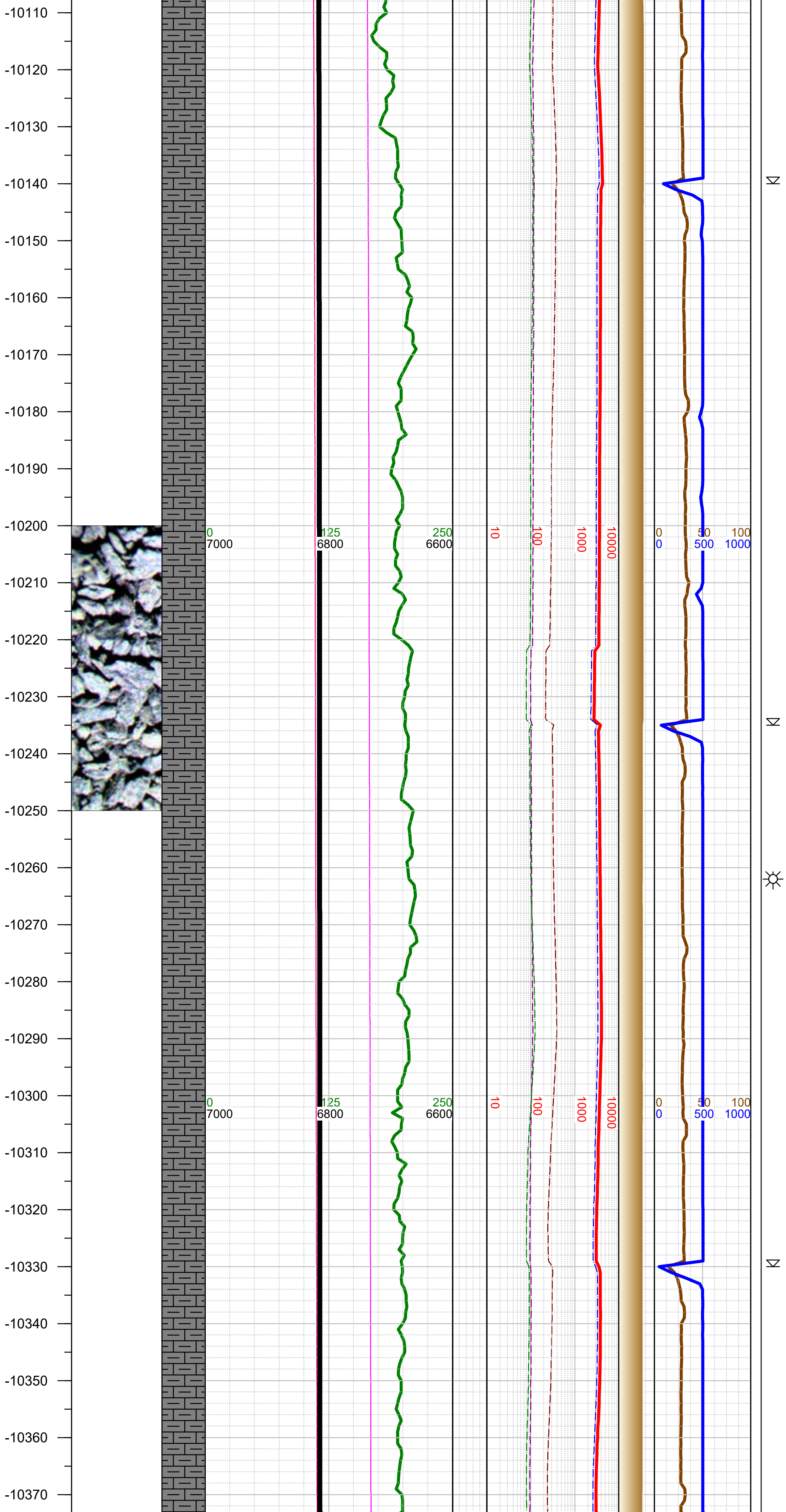
-9921 INC 90.46, AZM 268.72, TVD 6818.16

-10000 MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; tr pyr;

-10000 WT 9.1, VIS 44

-10017 INC 90.68, AZM 270.22, TVD 6817.21

-10100 WT 9.1, VIS 44



-10112 INC 90.63, AZM 269.43, TVD 6816.12

-10207 INC 90.46, AZM 269.07, TVD 6815.22

-10220 WT 9.1, VIS 44

-10303 INC 90.15, AZM 269.43, TVD 6814.71

-10320 WT 9.1, VIS 44

-10250 MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; tr pyr;

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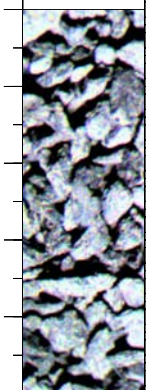

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-10398 INC 90.01, AZM 270.57, TVD 6814.57

-10410 WT 9.1, VIS 44

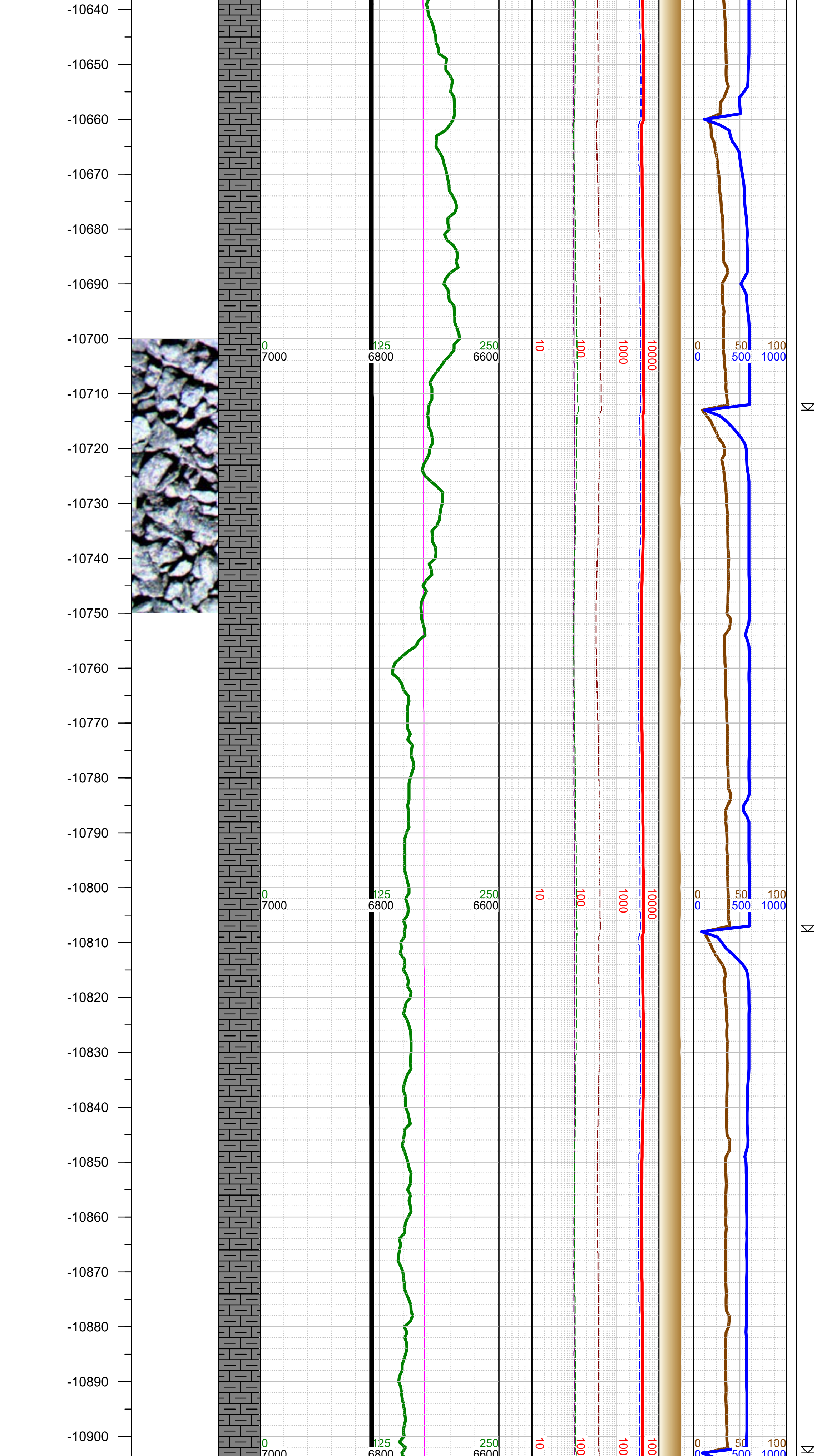
-10493 INC 90.19, AZM 272.07, TVD 6814.41

-10500 MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; tr pyr;

-10510 WT 9.1, VIS 44

-10588 INC 90.15, AZM 271.85, TVD 6814.13

-10600 WT 9.1, VIS 46



-10684 INC 90.19, AZM 272.12, TVD 6813.84

-10700 WT 9.1, VIS 46

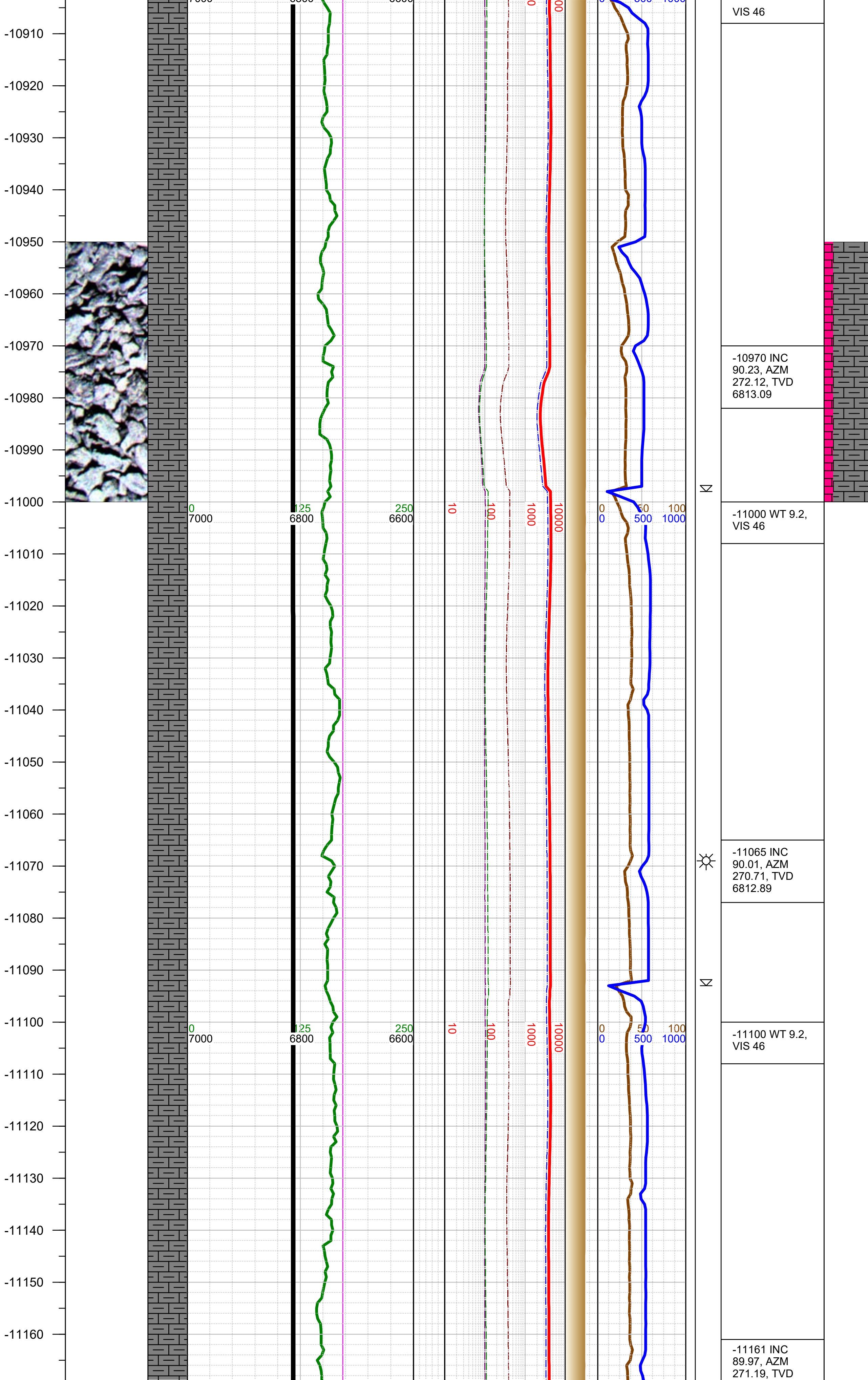
-10750 MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; tr pyr;

-10780 INC 90.23, AZM 272.03, TVD 6813.49

-10800 WT 9.1, VIS 46

-10874 INC 90.01, AZM 270.57, TVD 6813.29

-10900 WT 9.2,



VIS 46

-10970 INC 90.23, AZM 272.12, TVD 6813.09

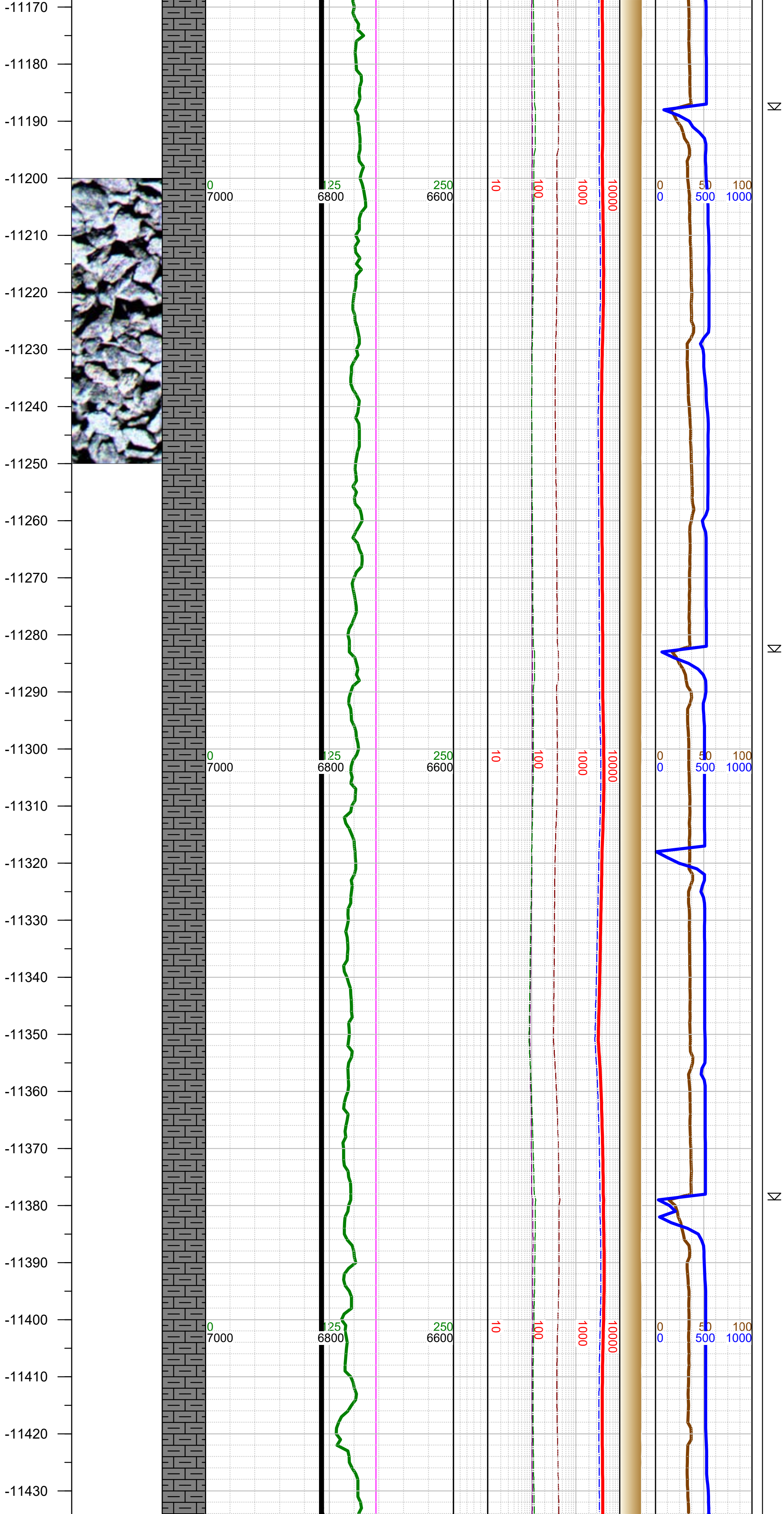
-11000 WT 9.2, VIS 46

-11065 INC 90.01, AZM 270.71, TVD 6812.89

-11100 WT 9.2, VIS 46

-11161 INC 89.97, AZM 271.19, TVD

-11000 MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; tr bent w/ dissem pyr; tr pyr;



6812.91

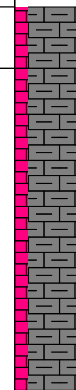
-11200 WT 9.2, VIS 46

-11256 INC 90.19, AZM 271.81, TVD 6812.78

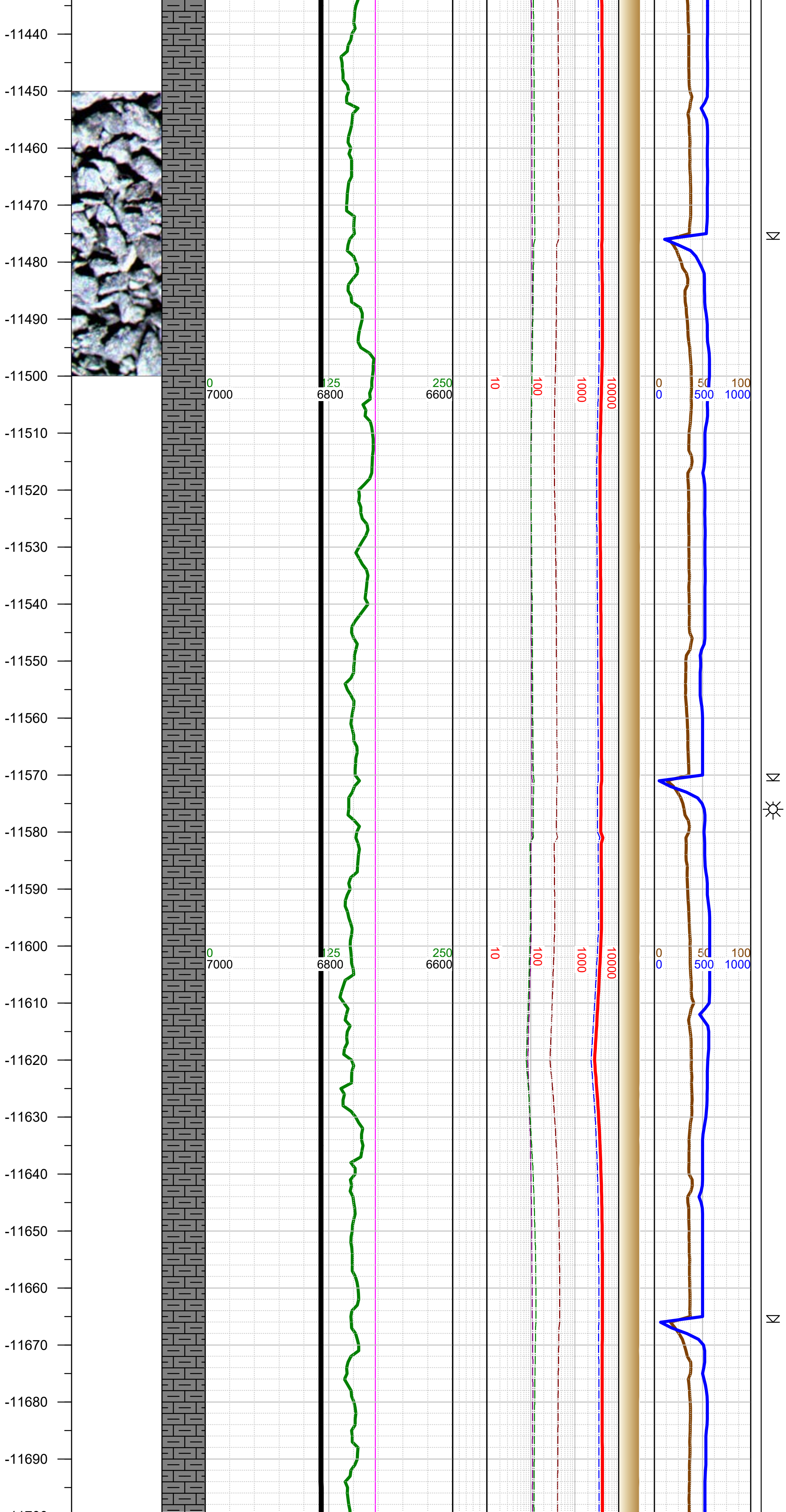
-11300 WT 9.2, VIS 46

-11352 INC 90.01, AZM 270.53, TVD 6812.61

-11400 WT 9.1, VIS 46



-11250 MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; tr bent w/ dissem pyr; tr pyr;



-11447 INC 89.97, AZM 270.93, TVD 6812.63

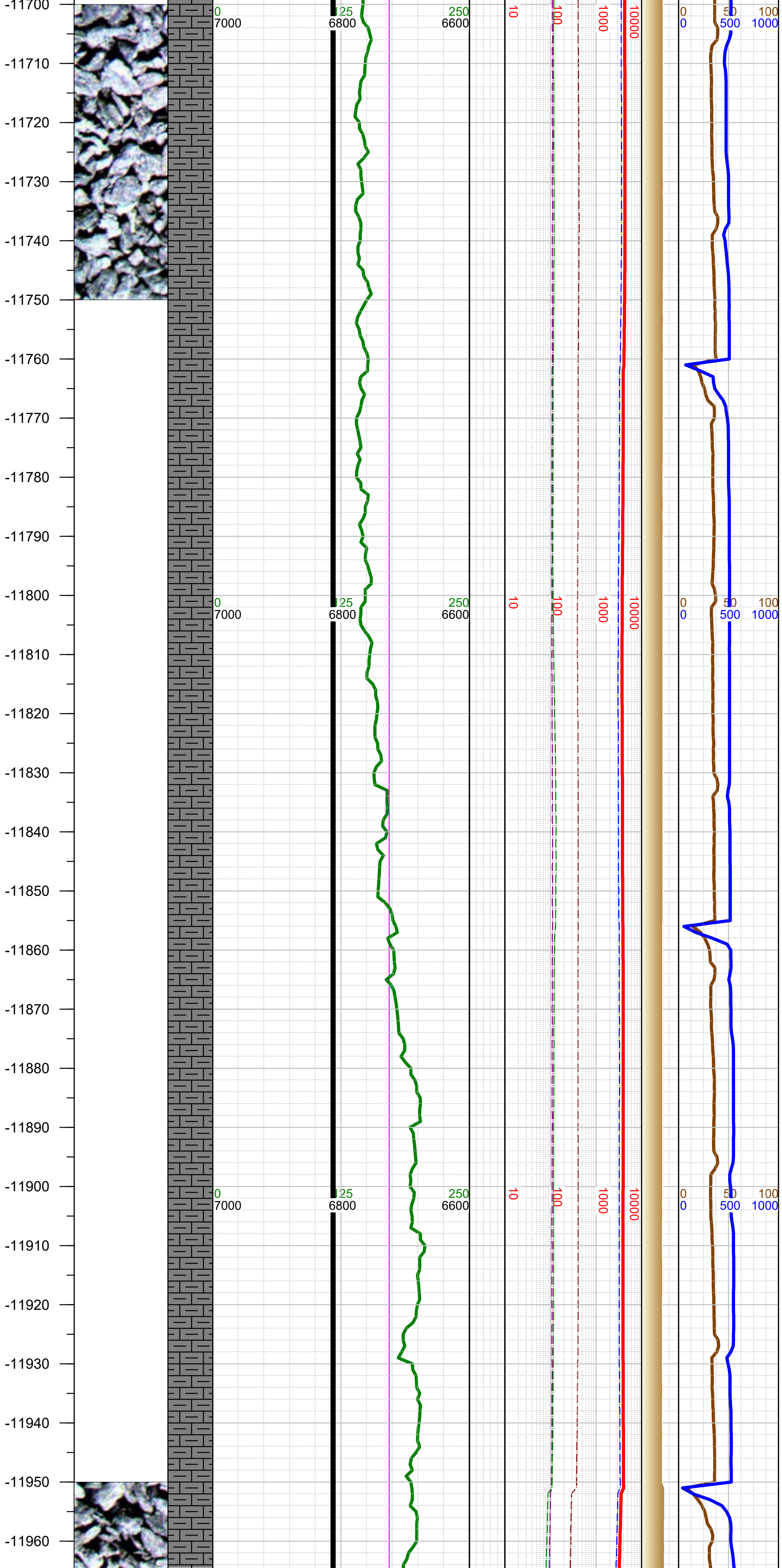
-11500 WT 9.1, VIS 46

-11542 INC 89.97, AZM 270.53, TVD 6812.68

-11600 WT 9.1, VIS 46

-11638 INC 90.01, AZM 270.93, TVD 6812.69

-11500 MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; tr bent w/ dissem pyr; tr pyr;



-11700 WT 9.1, VIS 46

-11733 INC 90.19, AZM 271.98, TVD 6812.53

-11800 WT 9.1, VIS 46

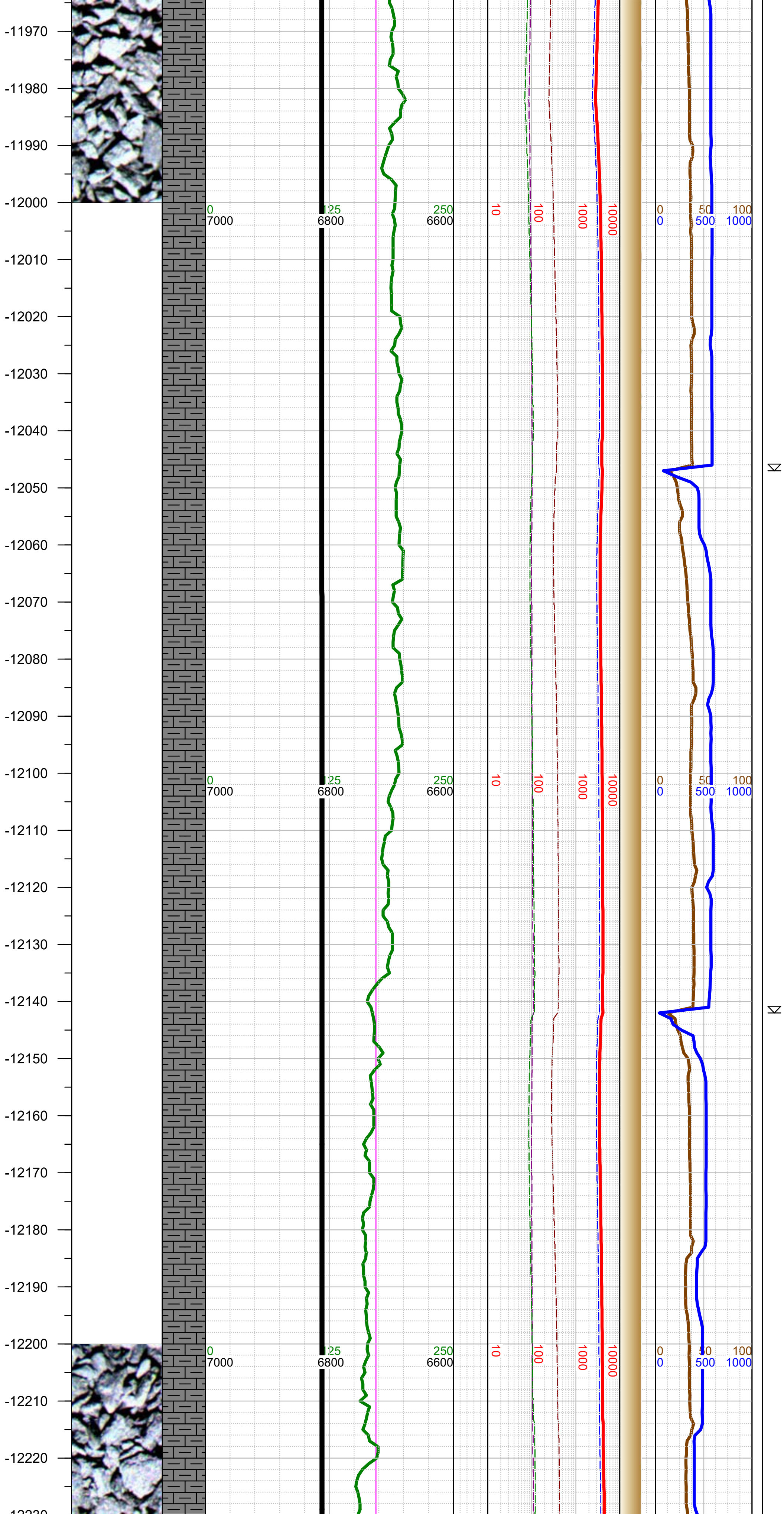
-11829 INC 89.97, AZM 270.84, TVD 6812.39

-11900 WT 9.2, VIS 46

-11924 INC 89.97, AZM 270.44, TVD 6812.44

-11750 MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; tr bent w/ dissem pyr; tr pyr;

-12000 MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; CHK: med gy, sft-sbfrm,



sbblky, mot, rthy lstr, v calc; tr bent w/ dissem pyr; tr pyr;

-12000 WT 9.2, VIS 46

-12019 INC 90.15, AZM 271.81, TVD 6812.34

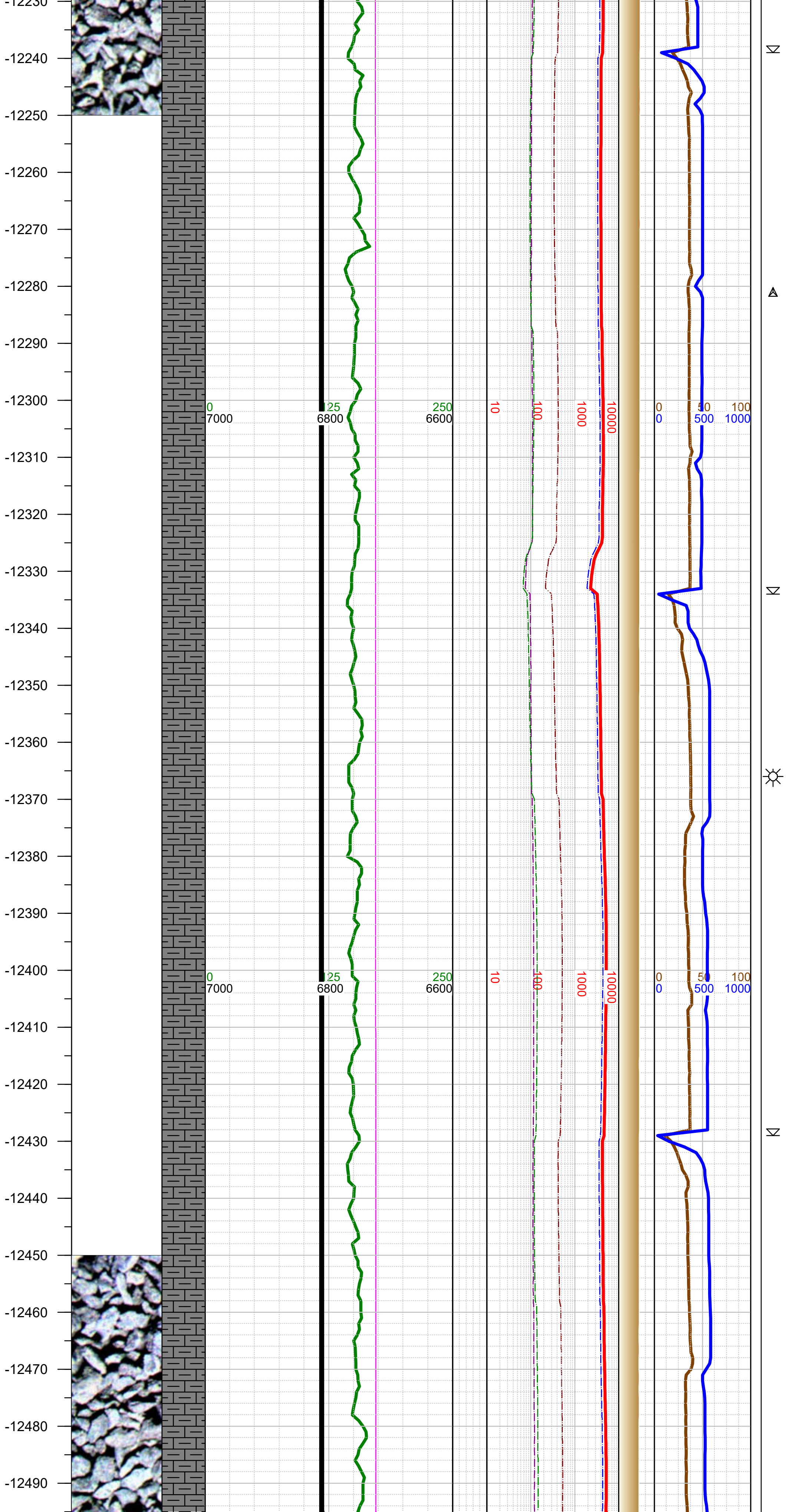
-12100 WT 9.2, VIS 46

-12115 INC 90.15, AZM 272.25, TVD 6812.09

-12200 WT 9.2, VIS 46

-12210 INC 89.97, AZM 270.75, TVD 6811.99

-12250 MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; tr bent; tr pyr;



-12281 0000 hrs on 6/19/2018

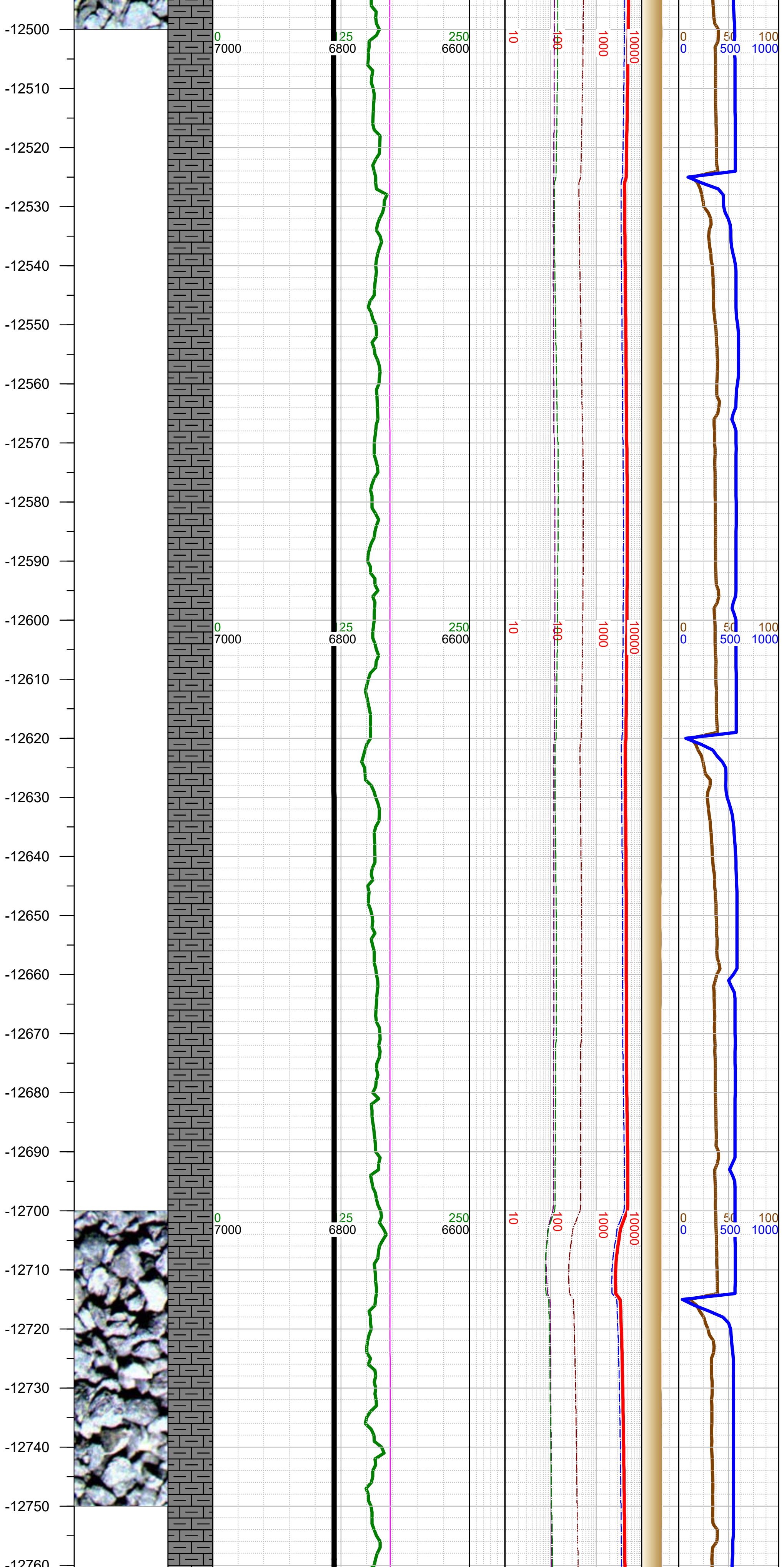
-12306 INC 90.01, AZM 270.48, TVD 6812.01

-12320 WT 9.2, VIS 45

-12401 INC 90.19, AZM 271.67, TVD 6811.84

-12420 WT 9.2, VIS 45

-12500 MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; tr bent; tr pyr;



-12496 INC 90.23, AZM 272.12, TVD 6811.5

-12510 WT 9.2, VIS 45

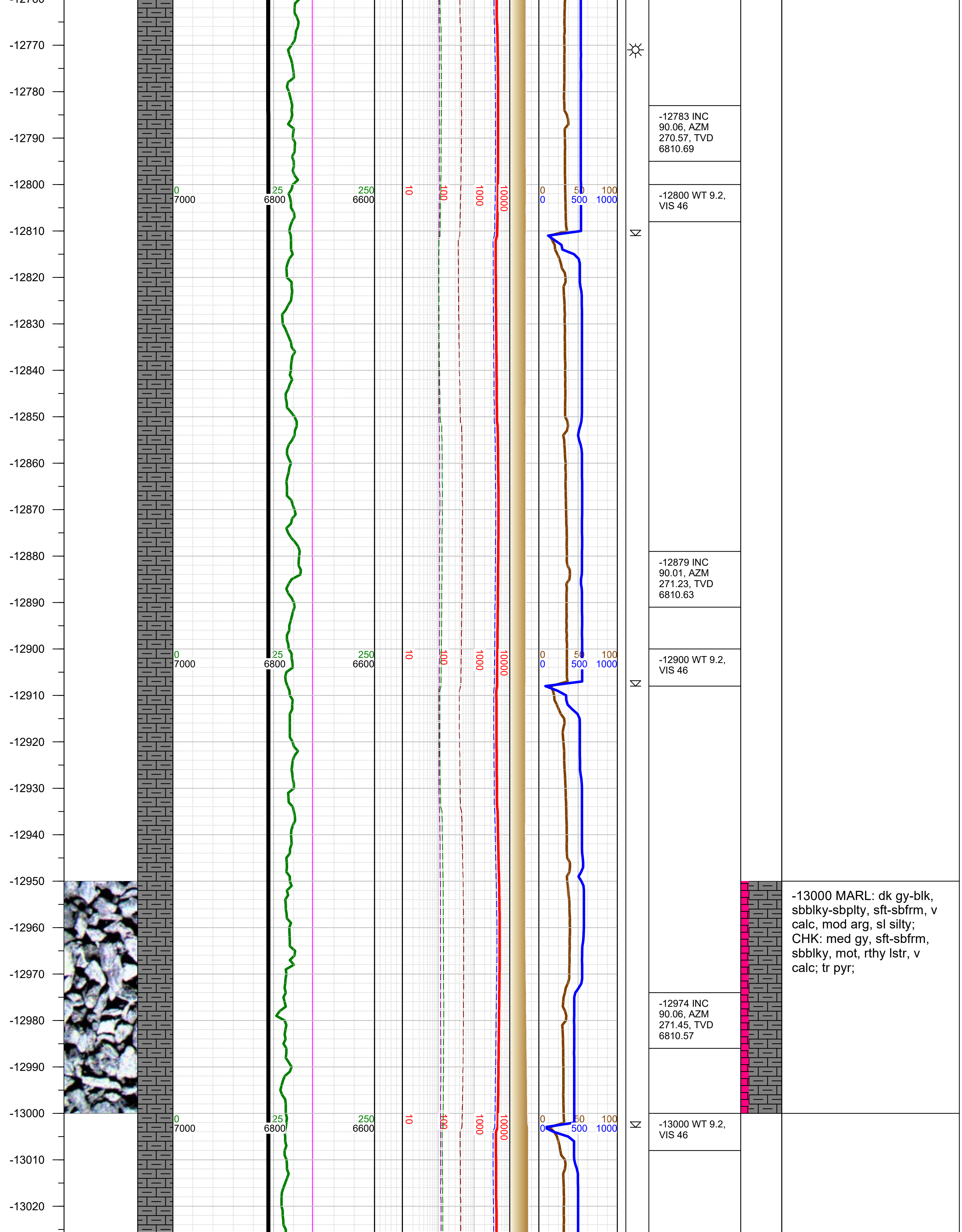
-12592 INC 90.15, AZM 271.98, TVD 6811.18

-12610 WT 9.2, VIS 46

-12687 INC 90.19, AZM 272.42, TVD 6810.9

-12700 WT 9.2, VIS 46

-12750 MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; tr bent; tr pyr;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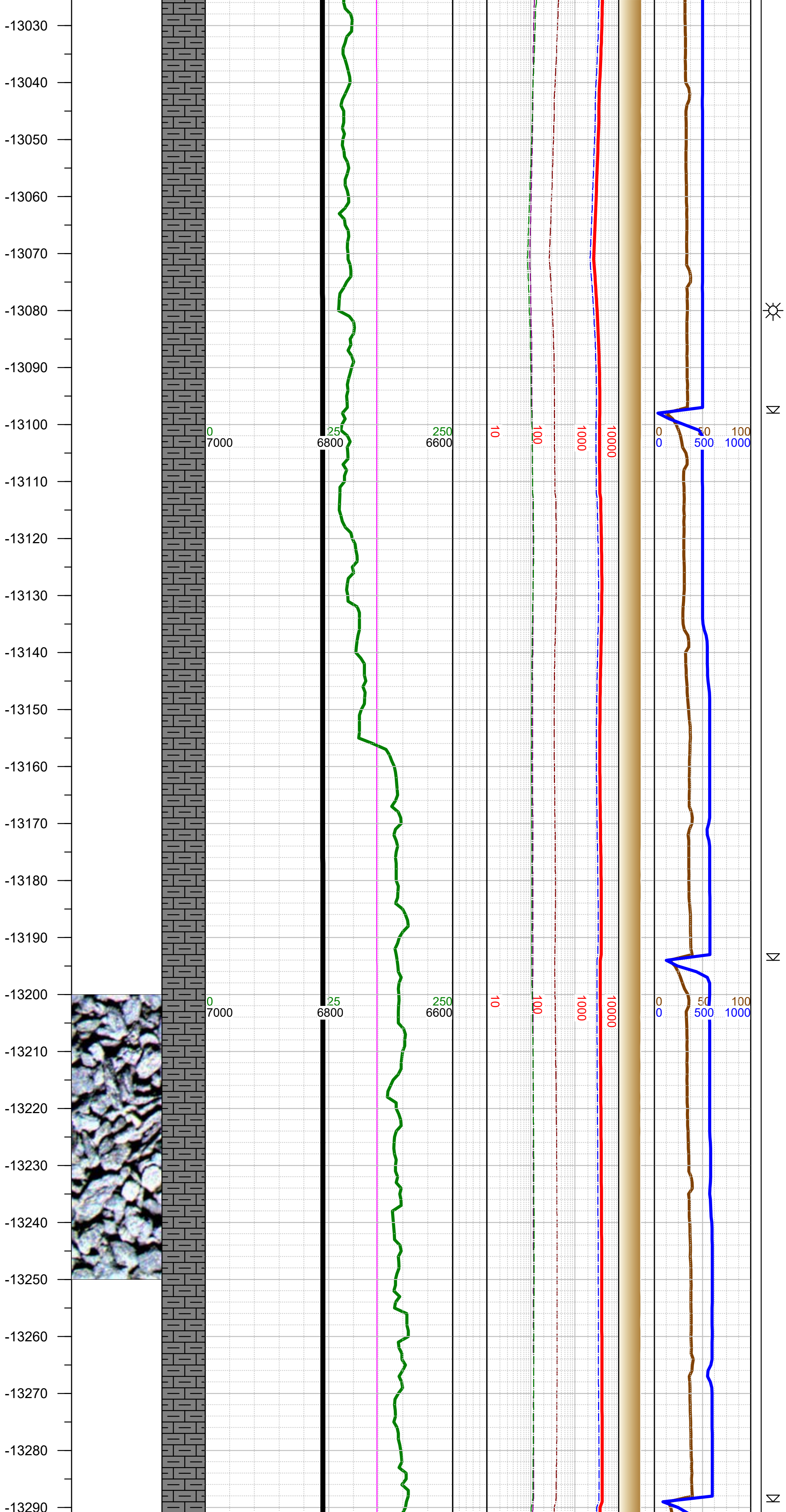
-12783 INC 90.06, AZM 270.57, TVD 6810.69
-12800 WT 9.2, VIS 46
-12879 INC 90.01, AZM 271.23, TVD 6810.63
-12900 WT 9.2, VIS 46
-12974 INC 90.06, AZM 271.45, TVD 6810.57
-13000 WT 9.2, VIS 46
-13000 MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; tr pyr;



-13070 INC 90.23, AZM 272.38, TVD 6810.33

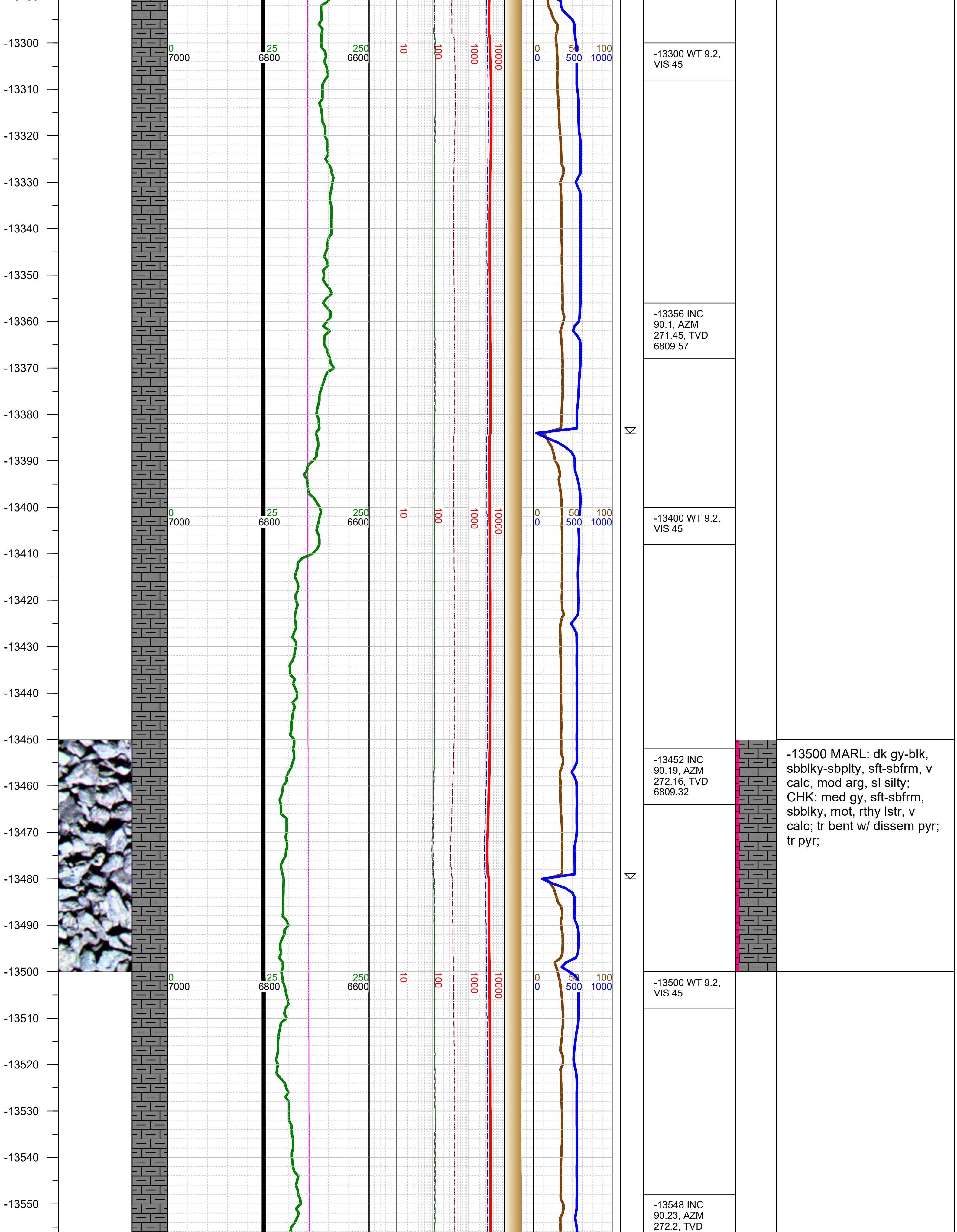
-13100 WT 9.2, VIS 46

-13166 INC 90.23, AZM 272.25, TVD 6809.94

-13200 WT 9.2, VIS 45

-13250 MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; tr bent w/ dissem pyr; tr pyr;

-13261 INC 90.06, AZM 271.01, TVD 6809.7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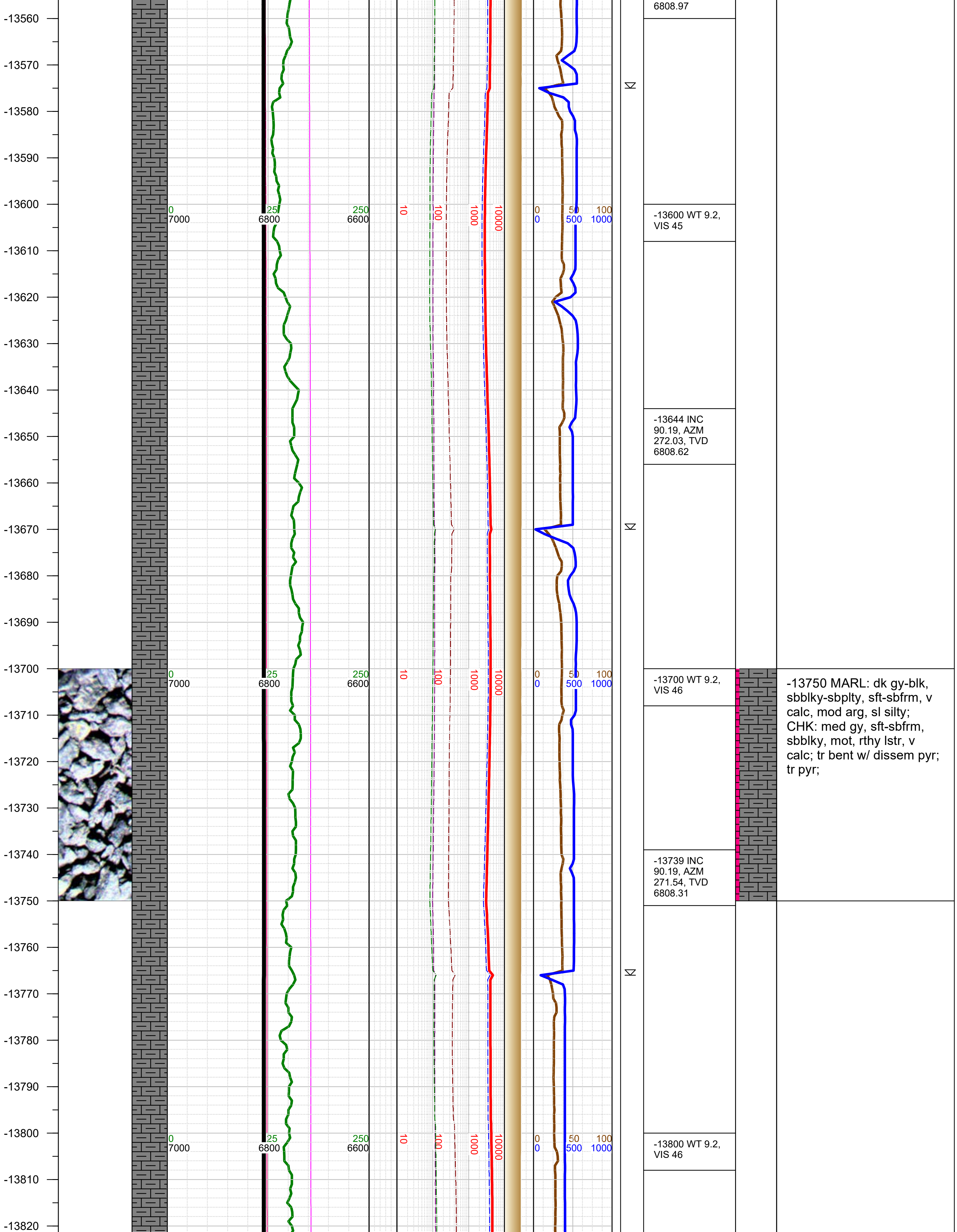
-13356 INC 90.1, AZM 271.45, TVD 6809.57
-13400 WT 9.2, VIS 45
-13452 INC 90.19, AZM 272.16, TVD 6809.32
-13500 WT 9.2, VIS 45
-13548 INC 90.23, AZM 272.2, TVD
-13500 MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; tr bent w/ dissem pyr; tr pyr;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-13600 WT 9.2, VIS 45
-13644 INC 90.19, AZM 272.03, TVD 6808.62
-13700 WT 9.2, VIS 46
-13739 INC 90.19, AZM 271.54, TVD 6808.31
-13800 WT 9.2, VIS 46
-13750 MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; tr bent w/ dissem pyr; tr pyr;

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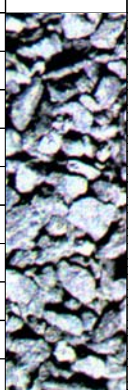

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-13835 INC 89.48, AZM 268.72, TVD 6808.58

-13900 WT 9.2, VIS 46

-13930 INC 89.48, AZM 268.9, TVD 6809.44

-14000 CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; tr pyr;

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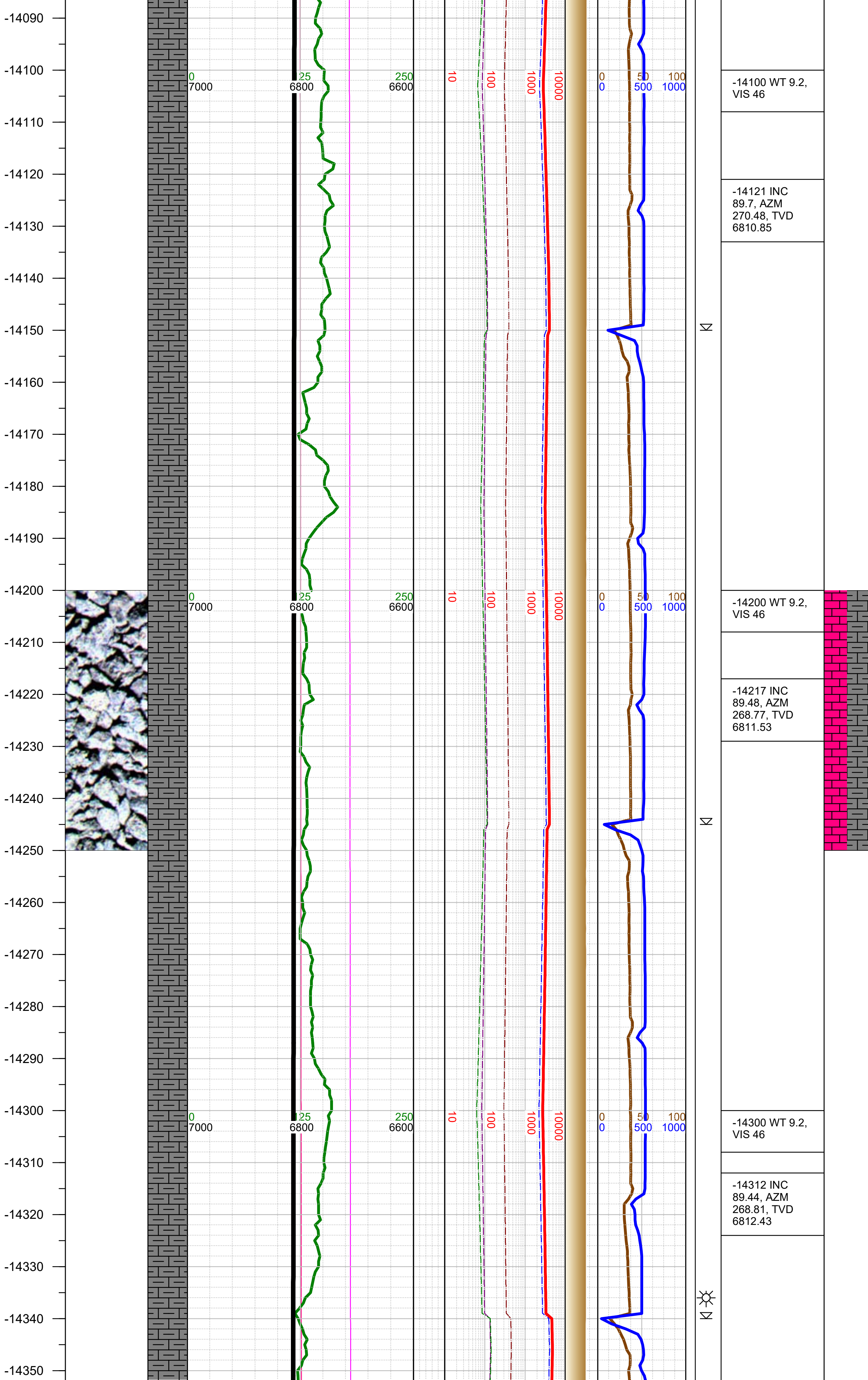
-14000 WT 9.2, VIS 46

-14026 INC 89.57, AZM 269.56, TVD 6810.24



-14100 WT 9.2, VIS 46

-14121 INC 89.7, AZM 270.48, TVD 6810.85

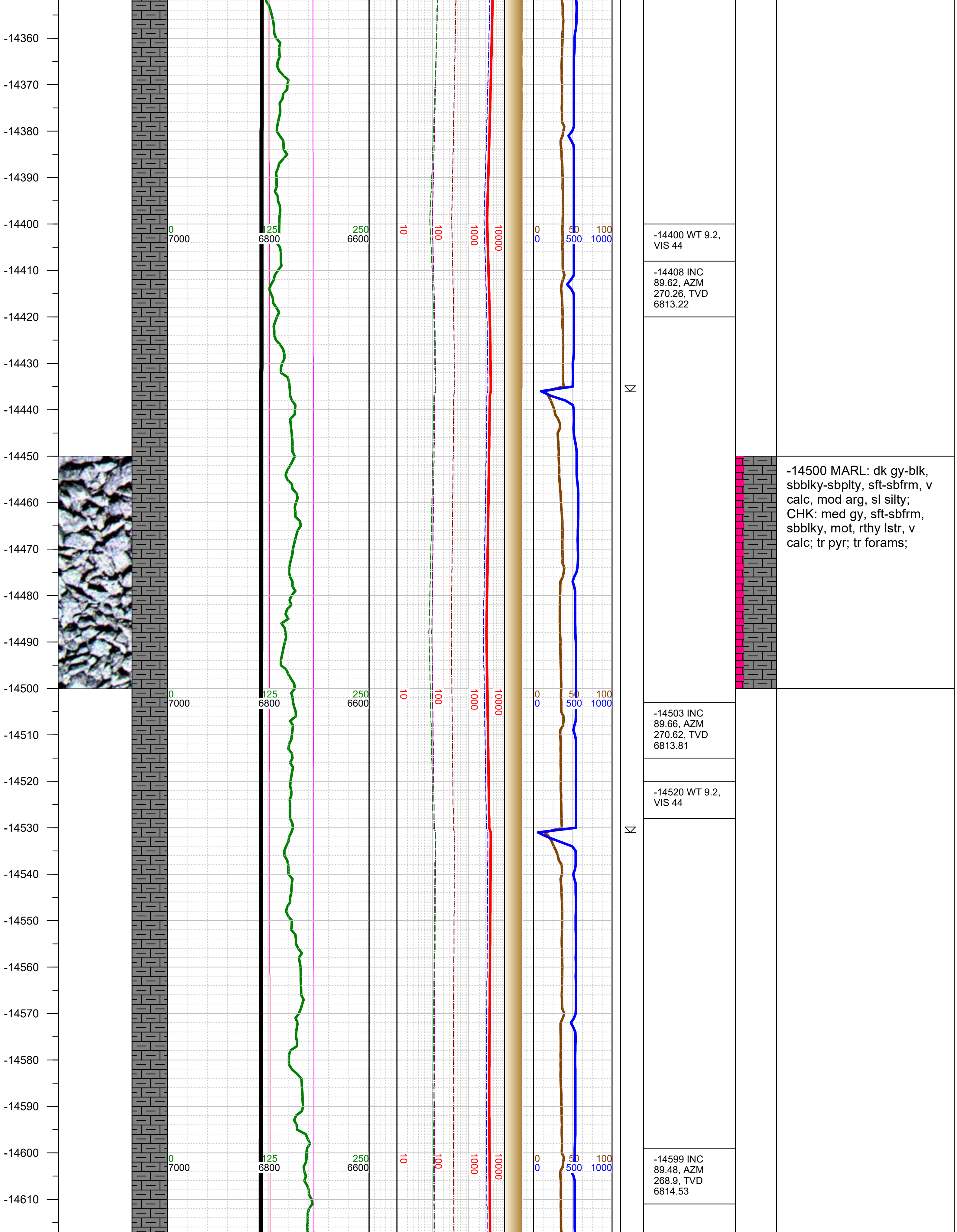
-14200 WT 9.2, VIS 46

-14217 INC 89.48, AZM 268.77, TVD 6811.53

-14250 CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; tr pyr; tr forams;

-14300 WT 9.2, VIS 46

-14312 INC 89.44, AZM 268.81, TVD 6812.43



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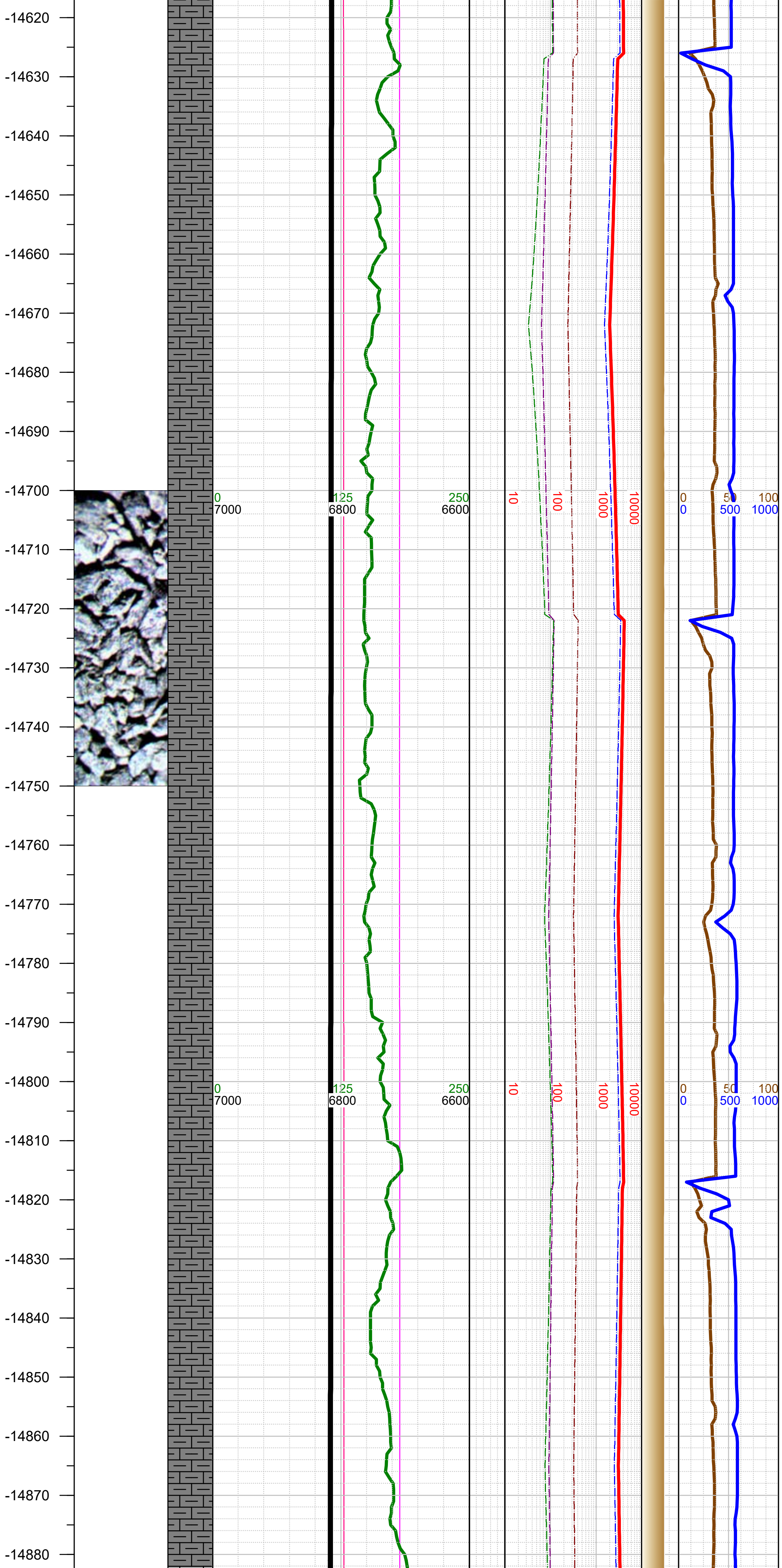
-14400 WT 9.2, VIS 44
-14408 INC 89.62, AZM 270.26, TVD 6813.22
-14500 MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; tr pyr; tr forams;
-14503 INC 89.66, AZM 270.62, TVD 6813.81
-14520 WT 9.2, VIS 44
-14599 INC 89.48, AZM 268.9, TVD 6814.53



-14620 WT 9.2, VIS 44

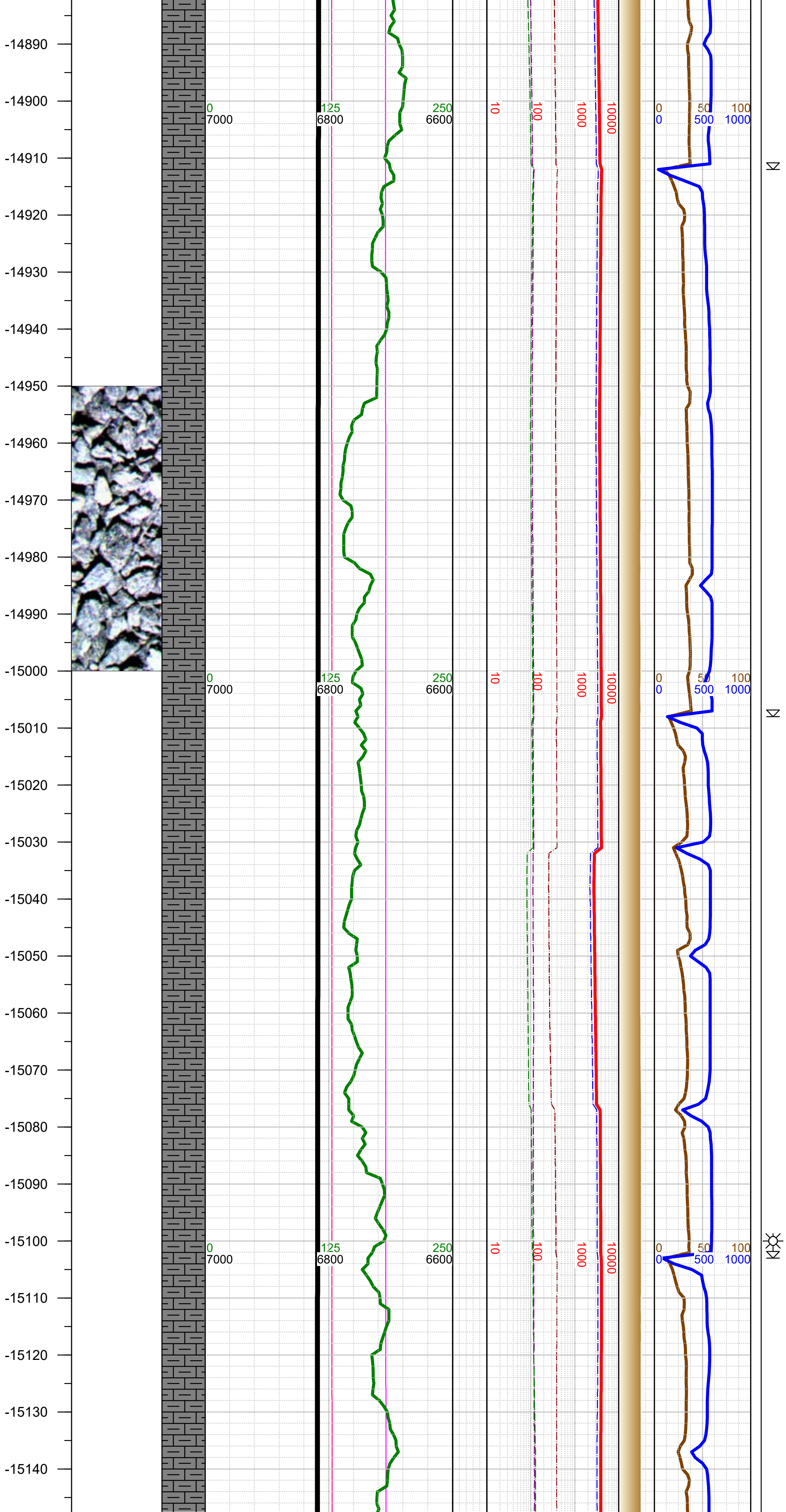
-14694 INC 89.48, AZM 268.85, TVD 6815.4

-14710 WT 9.2, VIS 44

-14750 MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; tr pyr; tr forams; tr fos frags;

-14789 INC 89.75, AZM 270.66, TVD 6816.03

-14810 WT 9.2, VIS 44



-14885 INC 89.53, AZM 269.25, TVD 6816.64

-14900 WT 9.2, VIS 44

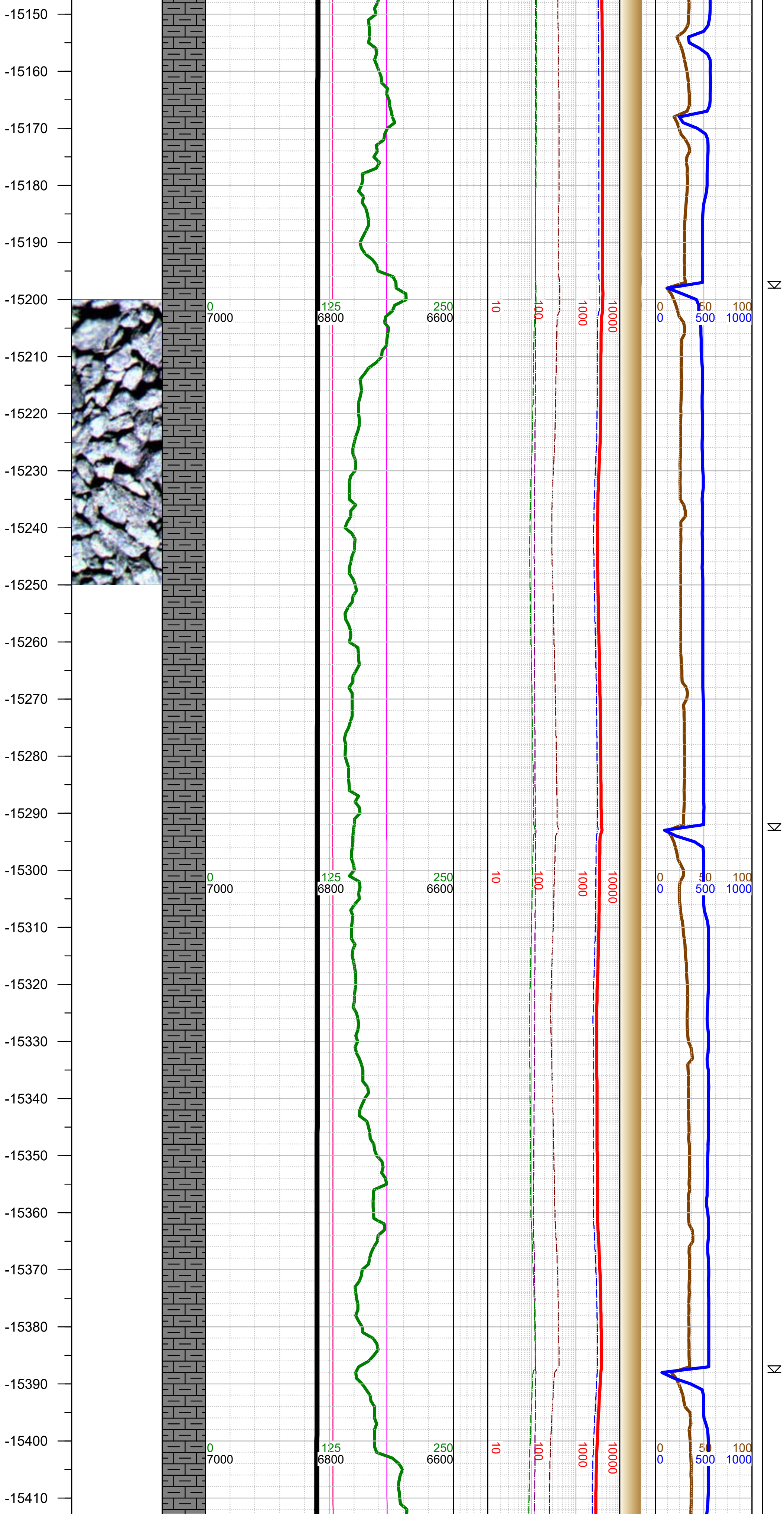
-15000 MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; tr pyr; tr bent;

-14980 INC 89.53, AZM 268.99, TVD 6817.42

-15000 WT 9.2, VIS 46

-15076 INC 89.66, AZM 270.62, TVD 6818.09

-15100 WT 9.2, VIS 46



-15172 INC 89.48, AZM 268.68, TVD 6818.82

-15200 WT 9.2, VIS 46

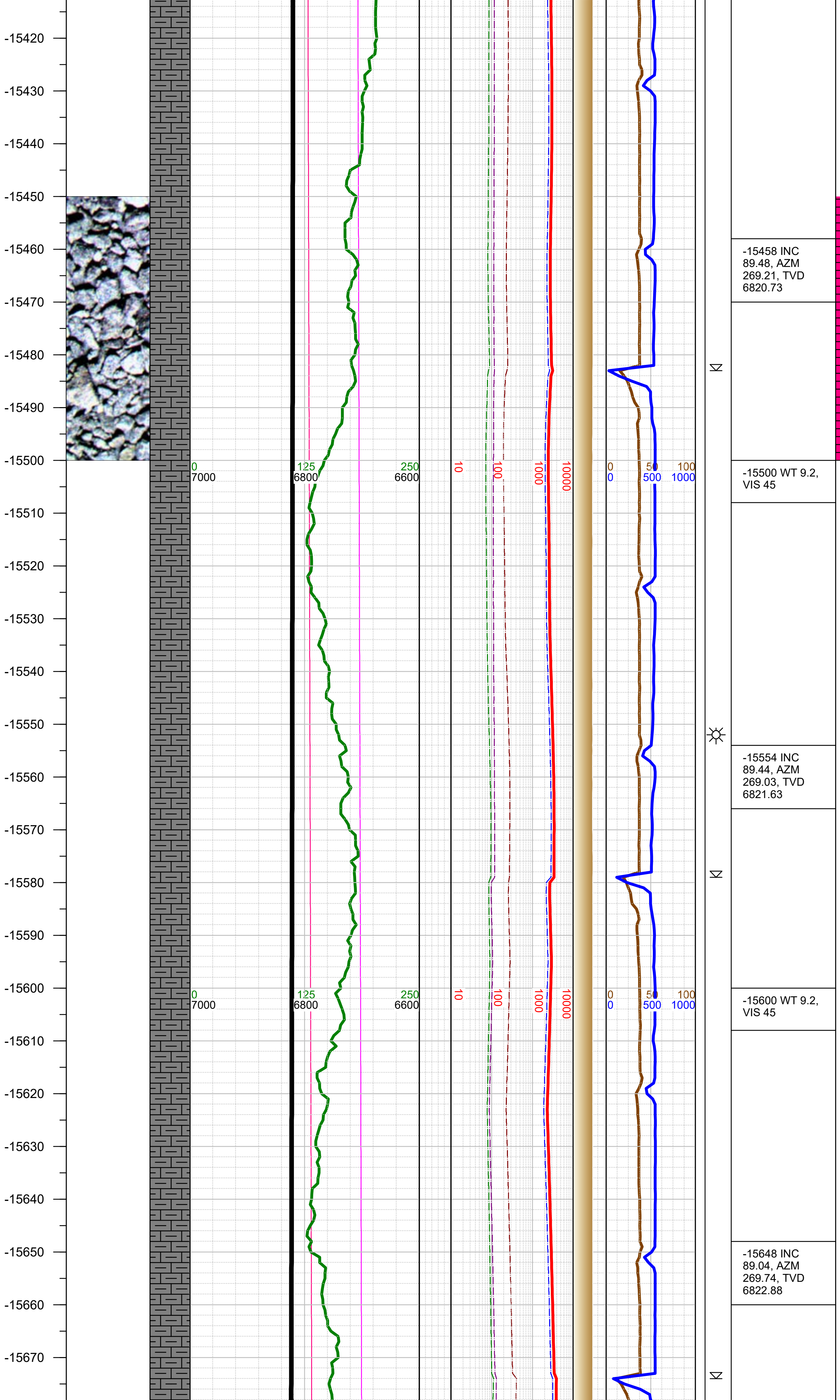
-15267 INC 89.75, AZM 270.66, TVD 6819.45

-15300 WT 9.2, VIS 46

-15363 INC 89.62, AZM 270.26, TVD 6819.98

-15400 WT 9.2, VIS 46

-15250 MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; tr pyr; tr bent;



-15458 INC 89.48, AZM 269.21, TVD 6820.73

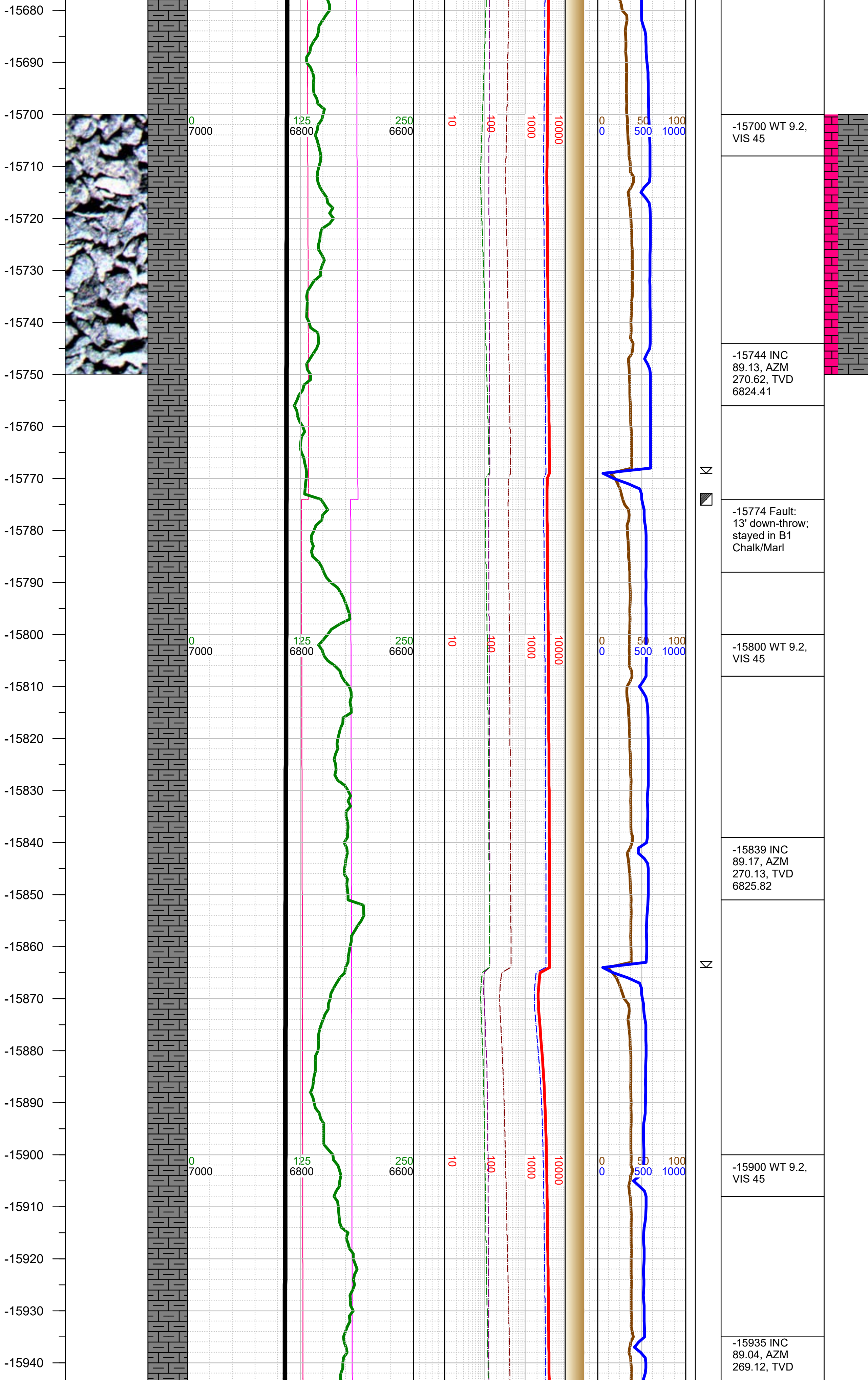
-15500 WT 9.2, VIS 45

-15554 INC 89.44, AZM 269.03, TVD 6821.63

-15600 WT 9.2, VIS 45

-15648 INC 89.04, AZM 269.74, TVD 6822.88

-15500 MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; mod pyr;



-15700 WT 9.2, VIS 45

-15744 INC 89.13, AZM 270.62, TVD 6824.41

-15774 Fault: 13' down-throw; stayed in B1 Chalk/Marl

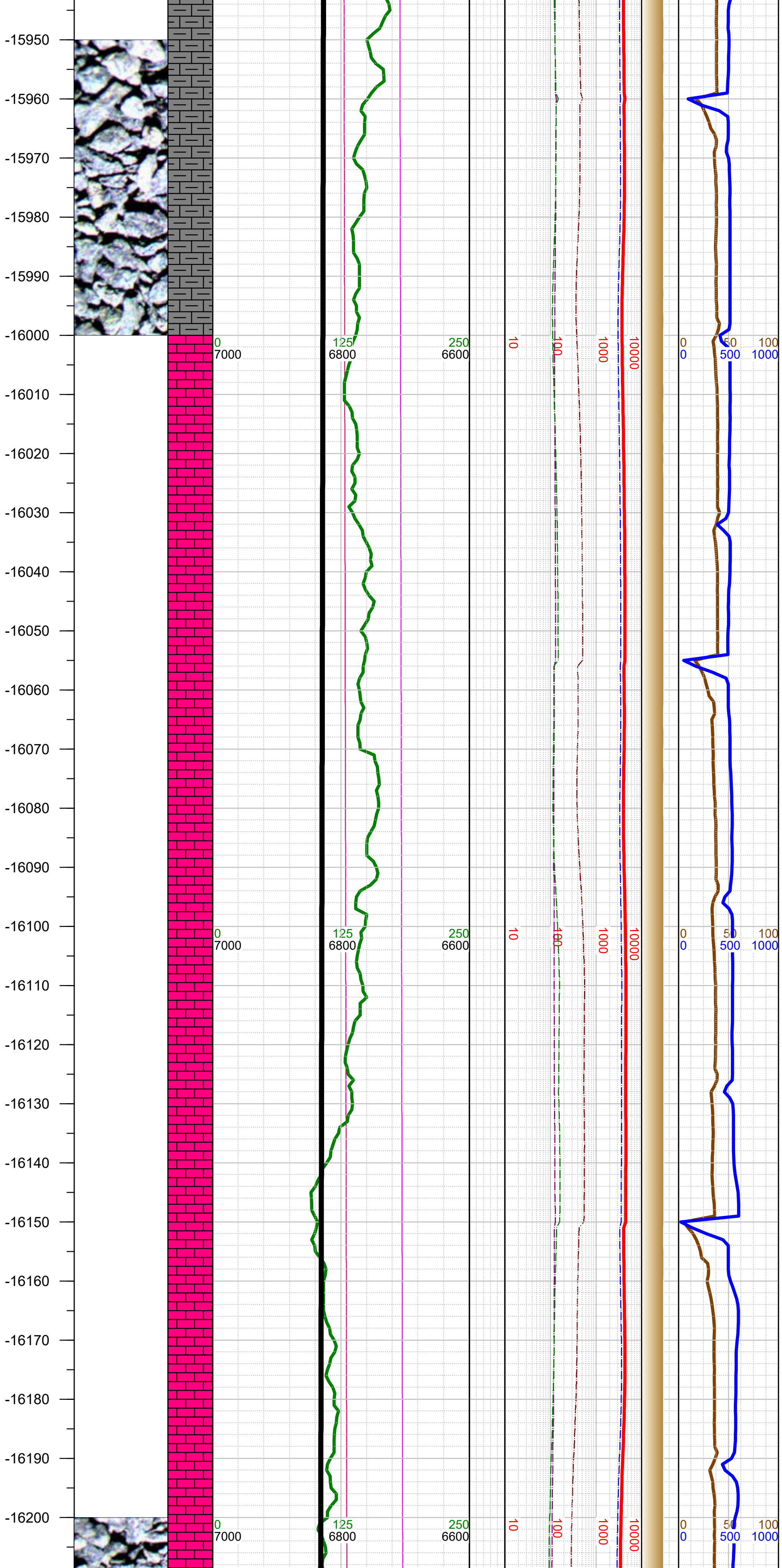
-15800 WT 9.2, VIS 45

-15839 INC 89.17, AZM 270.13, TVD 6825.82

-15900 WT 9.2, VIS 45

-15935 INC 89.04, AZM 269.12, TVD

-15750 MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; tr pyr;



6827.32

-16000 WT 9.1, VIS 46

-16030 INC 89.22, AZM 270.66, TVD 6828.76

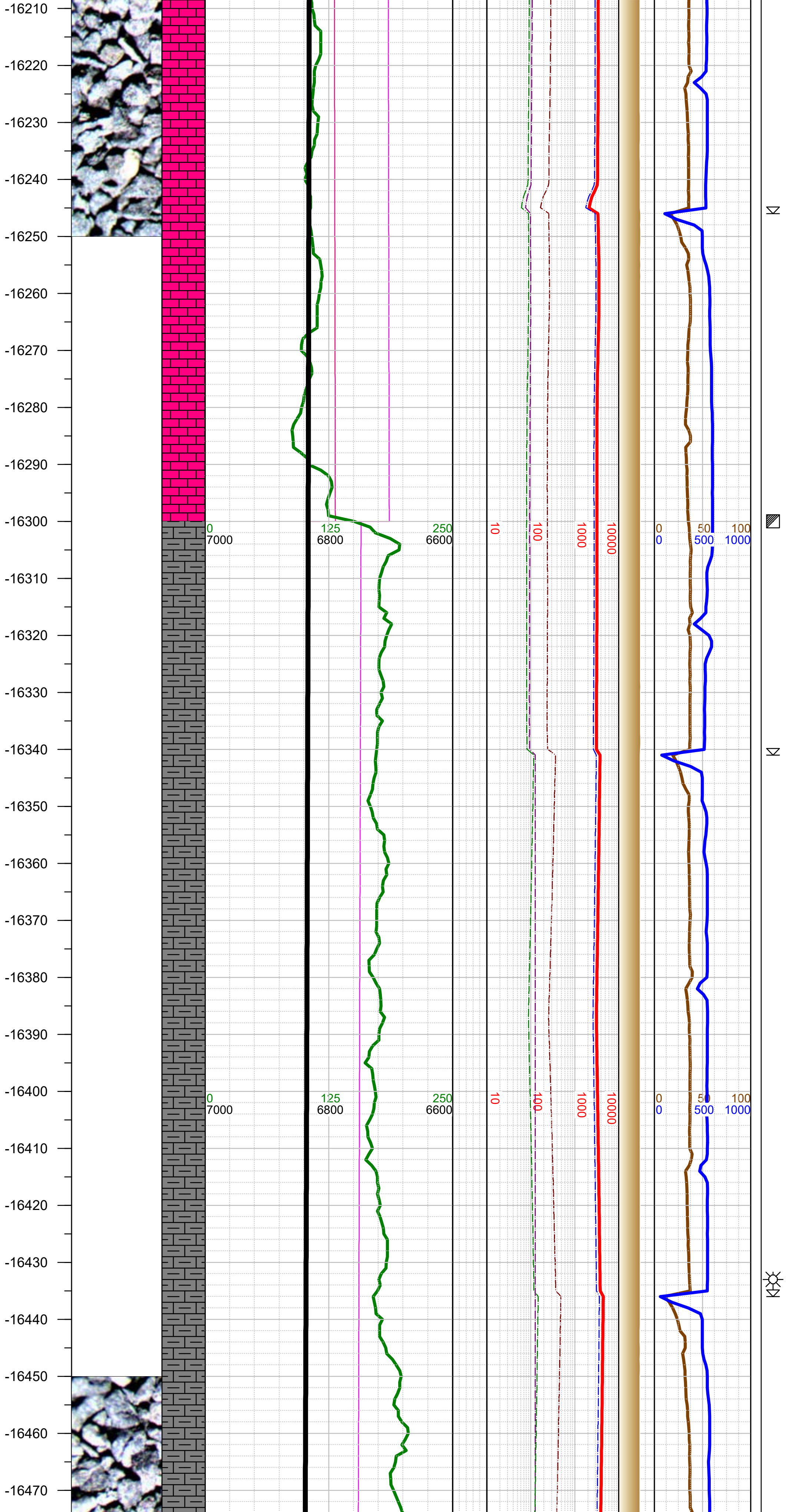
-16100 WT 9.1, VIS 46

-16125 INC 88.91, AZM 269.87, TVD 6830.31

-16200 WT 9.1, VIS 46

-16000 MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; mod pyr; tr fos frags;

-16250 CHK: lt gy, sft-subfrm, subblky, mot, v



calc, rthy-sl wxy lstr;
MARL: dk gy-blk, subblky-subplty, sft-subfrm, v calc, mod arg, sl silty intbds; tr pyr; tr forams; tr fos frags;

-16221 INC 89.09, AZM 268.94, TVD 6831.99

-16300 Fault: 46' down-throw; went from B2 Chalk to A Marl

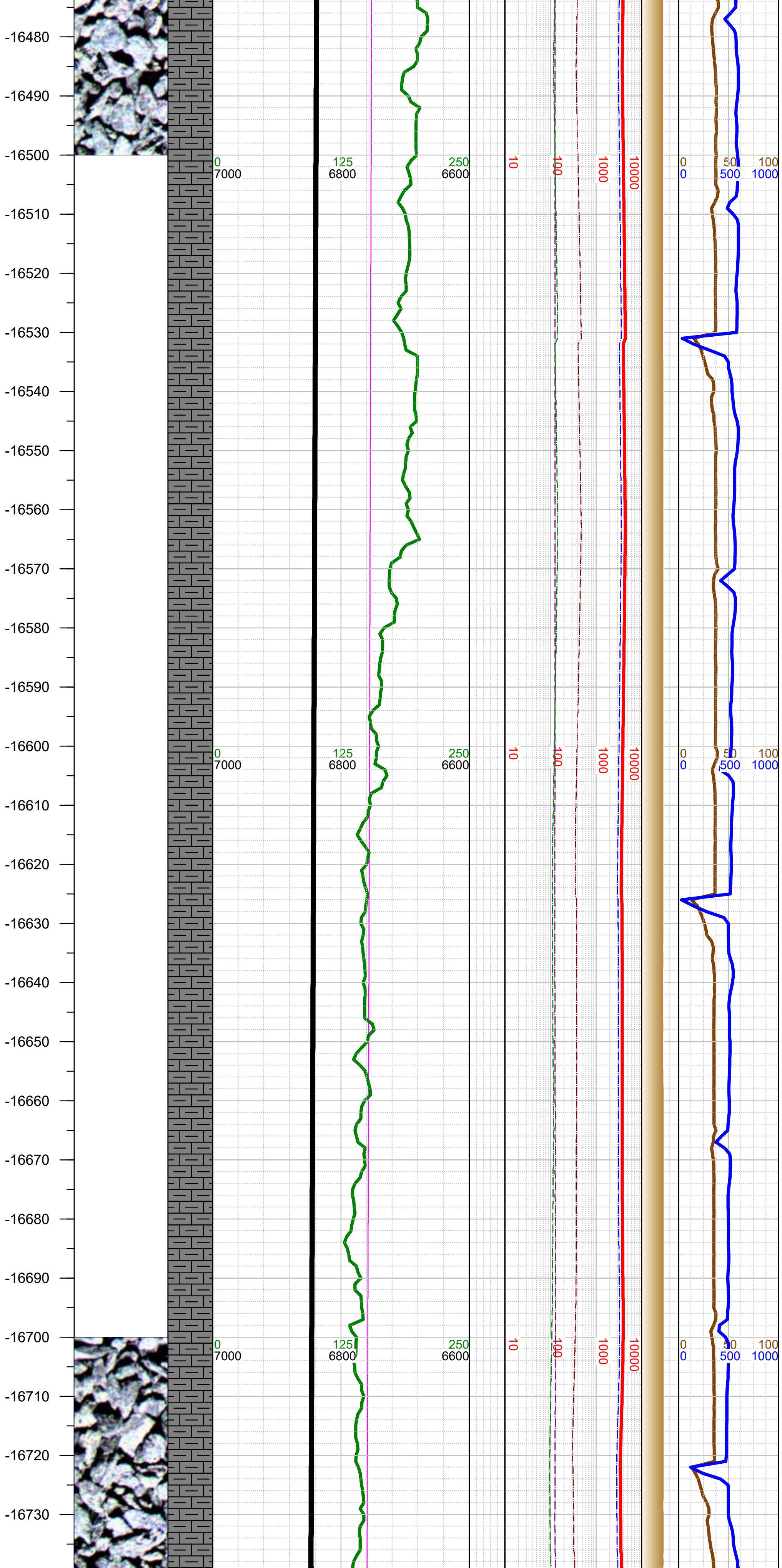
-16316 INC 88.86, AZM 269.52, TVD 6833.69

-16330 WT 9.1, VIS 46

-16400 WT 9.1, VIS 46

-16412 INC 88.16, AZM 269.21, TVD 6836.19

-16500 MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty;
CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; tr bent;



-16507 INC 88.16, AZM 270.44, TVD 6839.24

-16520 WT 9.1, VIS 46

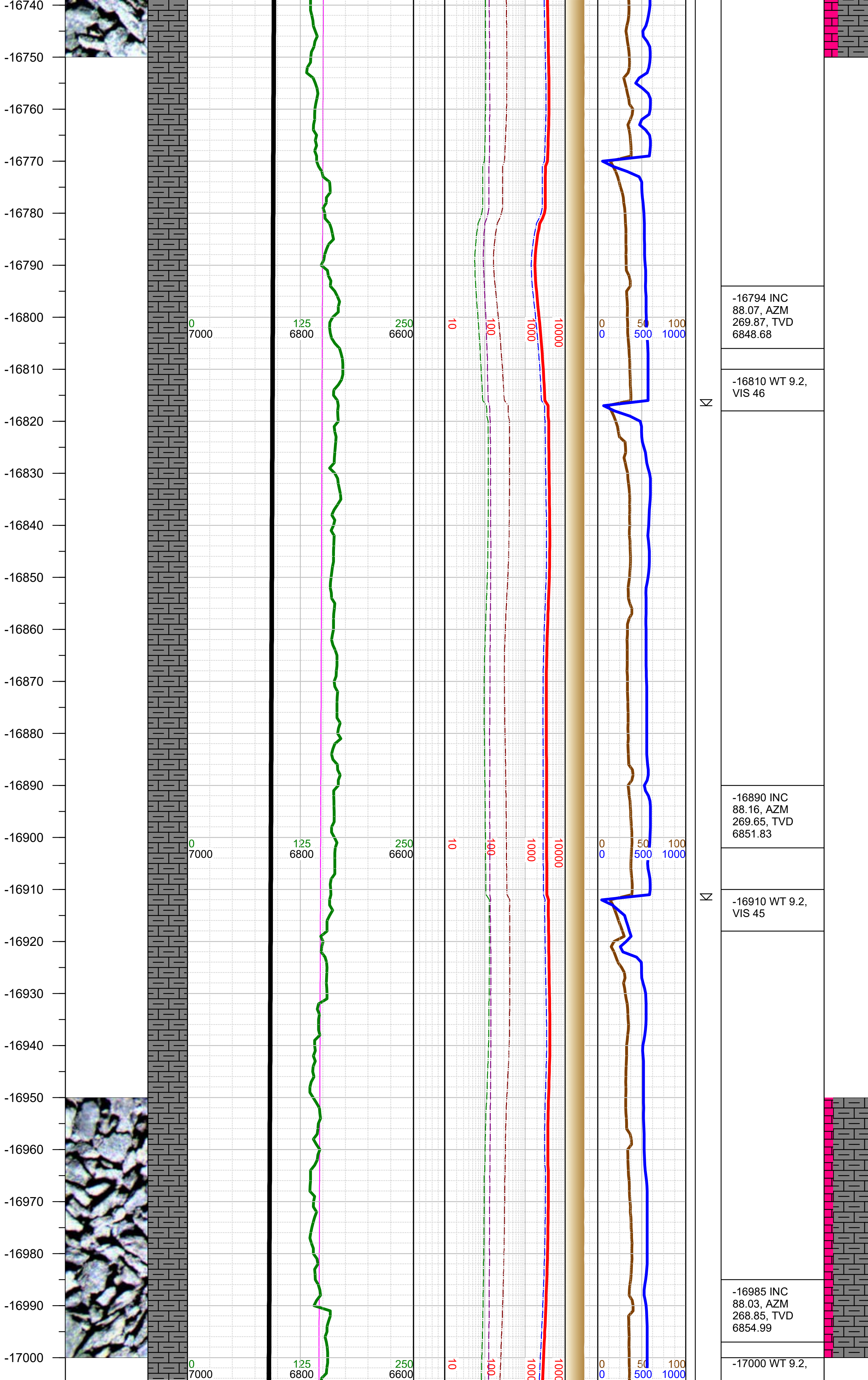
-16603 INC 88.03, AZM 269.38, TVD 6842.43

-16620 WT 9.2, VIS 46

-16698 INC 88.2, AZM 270.44, TVD 6845.55

-16710 WT 9.2, VIS 46

-16750 MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; tr pyr;



-16794 INC 88.07, AZM 269.87, TVD 6848.68

-16810 WT 9.2, VIS 46

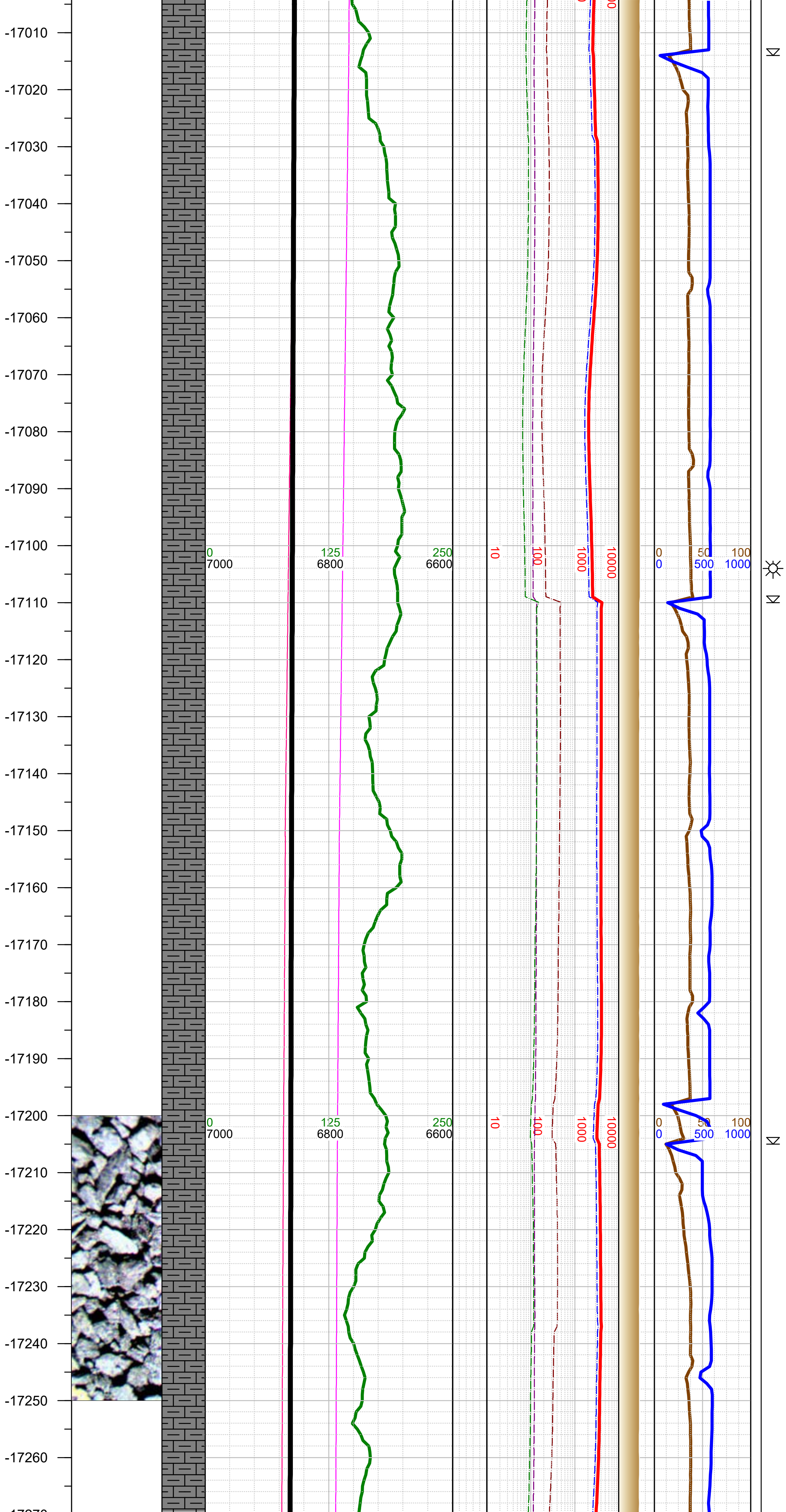
-16890 INC 88.16, AZM 269.65, TVD 6851.83

-16910 WT 9.2, VIS 45

-16985 INC 88.03, AZM 268.85, TVD 6854.99

-17000 WT 9.2,

-17000 MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; tr pyr;



VIS 45

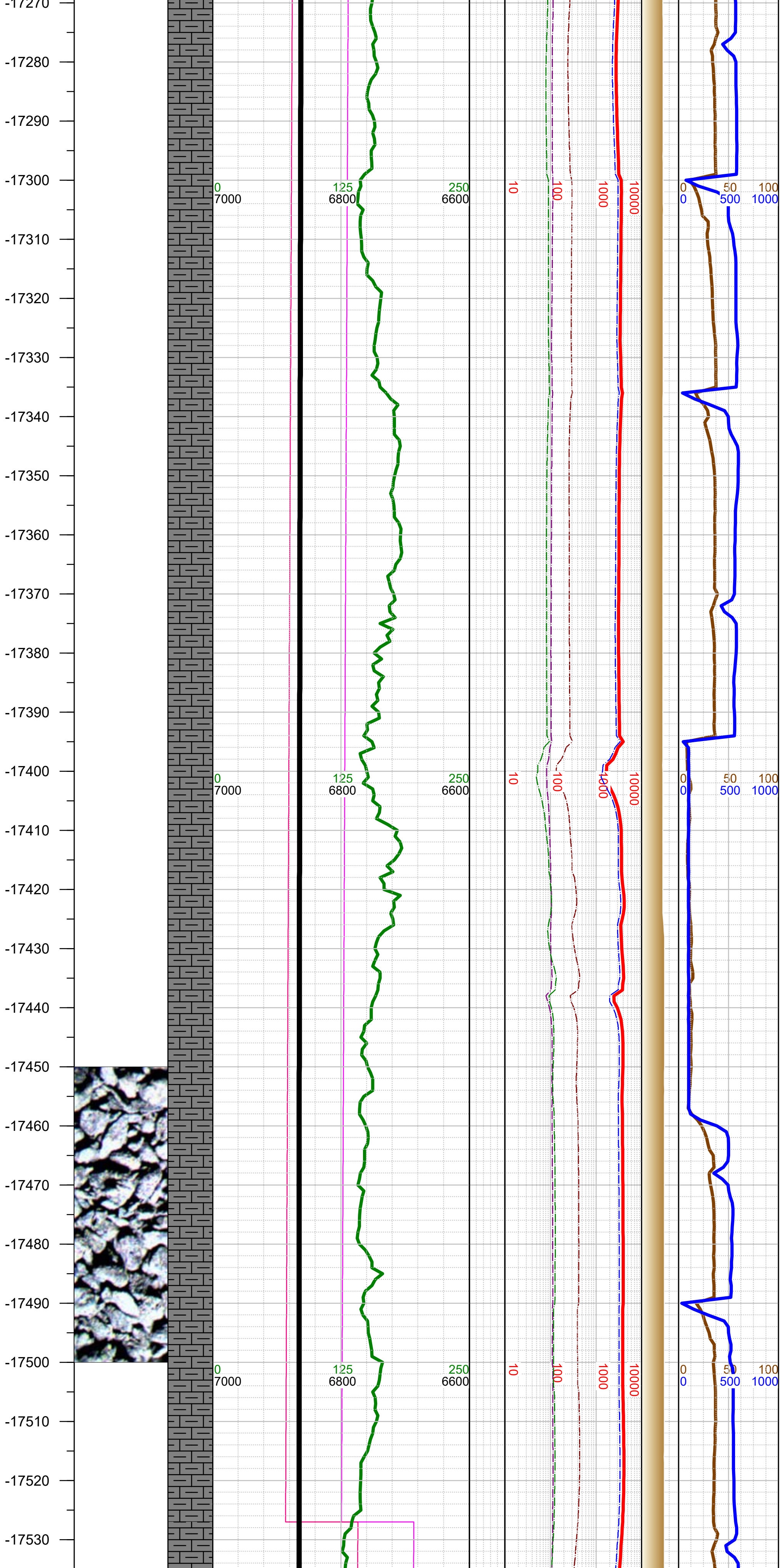
-17081 INC 87.89, AZM 268.59, TVD 6858.41

-17100 WT 9.2, VIS 45

-17176 INC 89, AZM 269.16, TVD 6860.99

-17200 WT 9.2, VIS 45

-17250 MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; tr pyr;



-17272 INC 89.13, AZM 269.87, TVD 6862.55

-17300 WT 9.2, VIS 45

-17367 INC 89, AZM 269.16, TVD 6864.1

-17400 WT 9.2, VIS 45

-17463 INC 89.62, AZM 271.85, TVD 6865.26

-17500 WT 9.1, VIS 45

-17527 Fault: 113' up-throw; went from A

-17500 MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; tr pyr;

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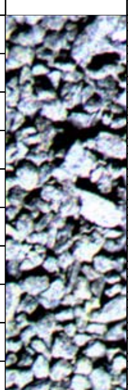

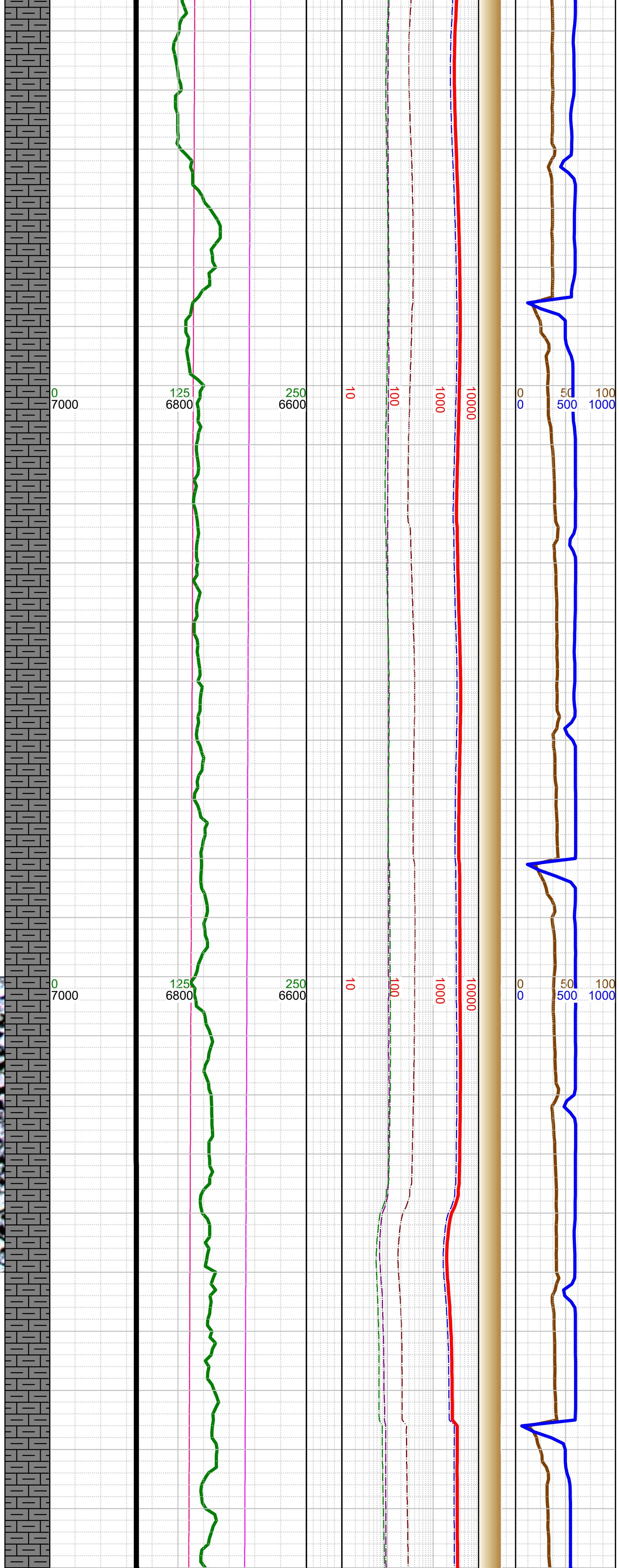

Marl to B Marl

-17558 INC 90.15, AZM 272.07, TVD 6865.45

-17600 WT 9.1, VIS 45

-17654 INC 90.06, AZM 271.28, TVD 6865.28

-17700 WT 9.1, VIS 45

-17749 INC 90.19, AZM 272.34, TVD 6865.07

-17750 MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; tr pyr;

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-17800 WT 9.1, VIS 45

-17845 INC 90.15, AZM 271.59, TVD 6864.78

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-17900 WT 9.2, VIS 45

-17941 INC 90.63, AZM 271.72, TVD 6864.13

-18000 MARL: dk gy-blk, subblky-subplty, sft-subfrm, v calc, mod arg, sl silty intbds; CHK: lt-med gy, sft-subfrm, subblky, mot, v calc, rthy-sl wxy lstr; tr bent; tr fos frags; tr forams; tr pyr;

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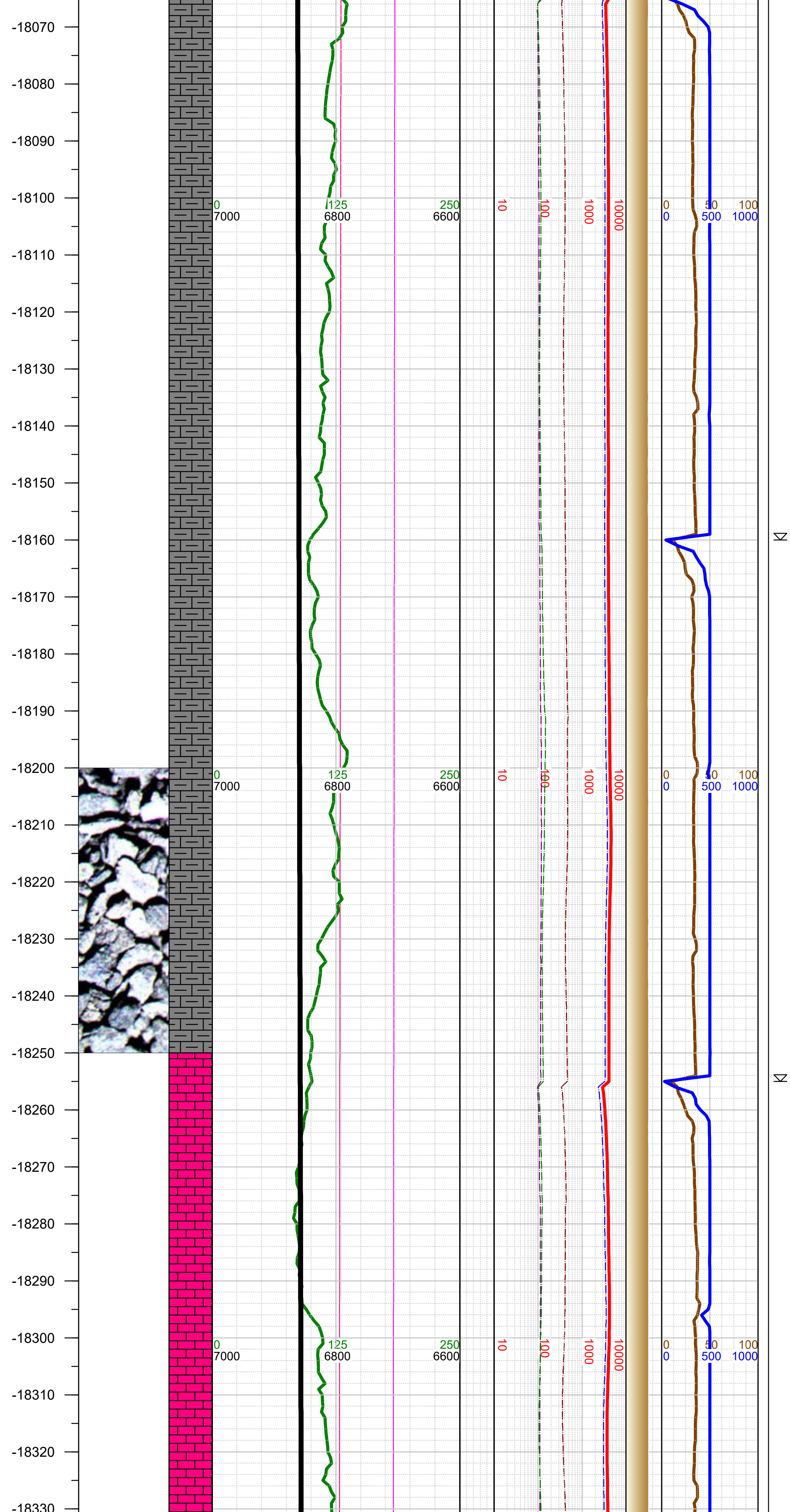
-18000 WT 9.2, VIS 45

-18036 INC 91.34, AZM 272.51, TVD 6862.5



-18100 WT 9.2, VIS 45

-18132 INC 91.16, AZM 271.76, TVD 6860.4

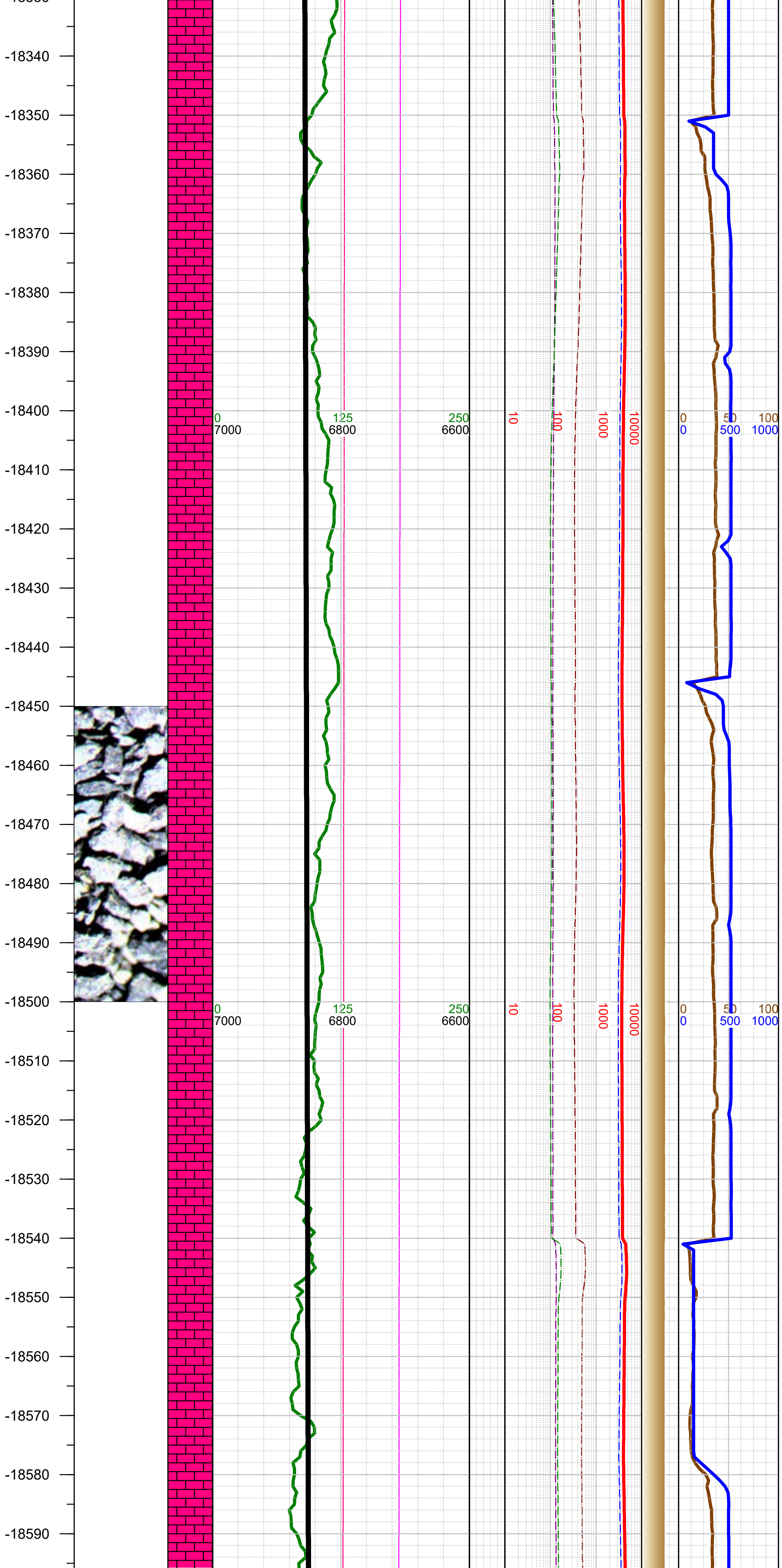
-18200 WT 9.2, VIS 45

-18227 INC 91.25, AZM 272.51, TVD 6858.4

-18300 WT 9.2, VIS 45

-18323 INC 91.07, AZM 270.57, TVD

-18250 CHK: lt-med gy, sft-subfrm, subblky, mot, v calc, rthy-sl wxy lstr; MARL: dk gy-blk, subblky-subplty, sft-subfrm, v calc, mod arg, sl silty intbds; tr bent; tr fos frags; tr forams; tr pyr;



6856.46

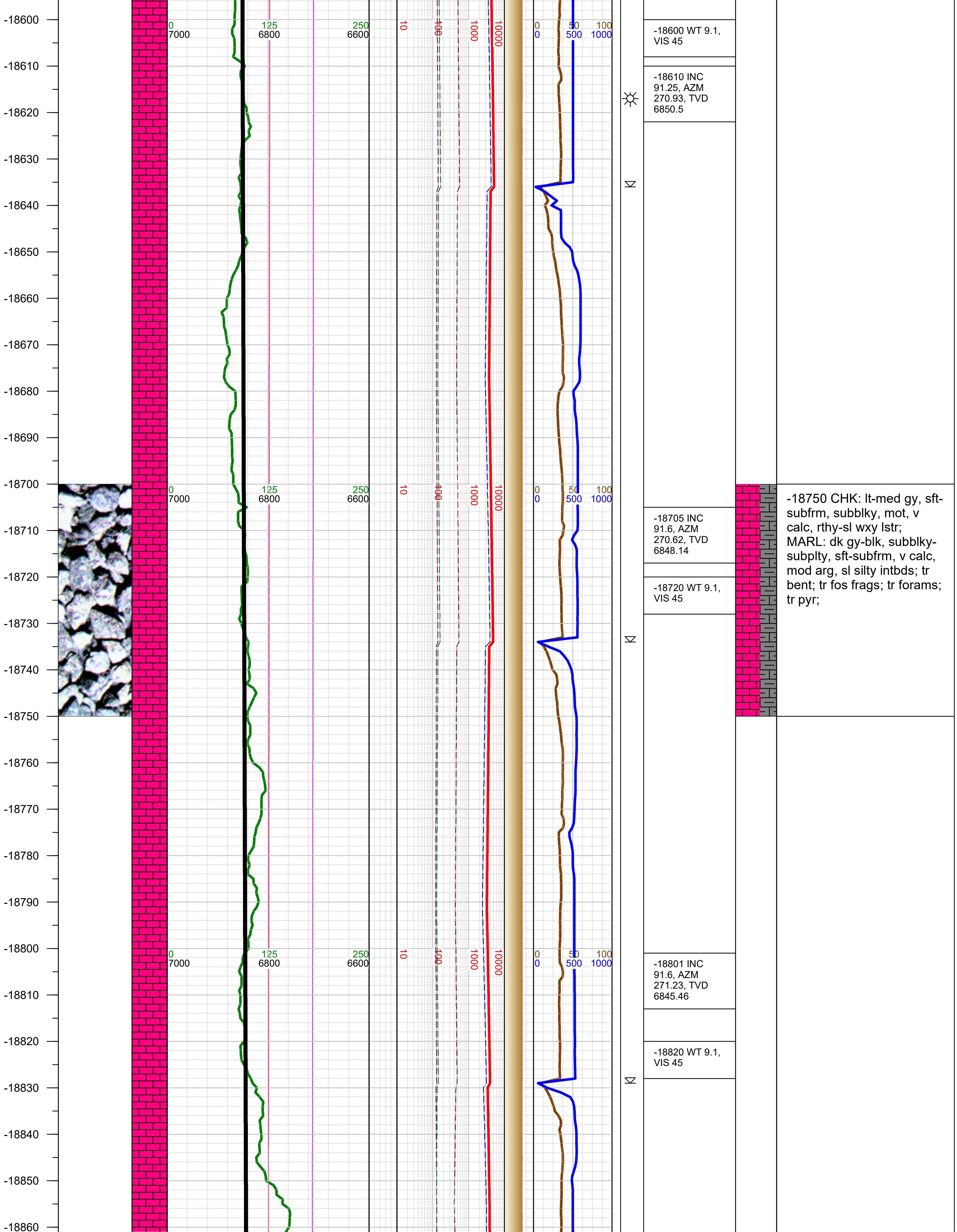
-18400 WT 9.1, VIS 45

-18419 INC 91.16, AZM 272.03, TVD 6854.59

-18500 CHK: lt-med gy, sft-subfrm, subblky, mot, v calc, rthy-sl wxy lstr; MARL: dk gy-blk, subblky-subplty, sft-subfrm, v calc, mod arg, sl silty intbds; tr bent; tr fos frags; tr forams; tr pyr;

-18500 WT 9.1, VIS 45

-18514 INC 91.25, AZM 272.73, TVD 6852.59



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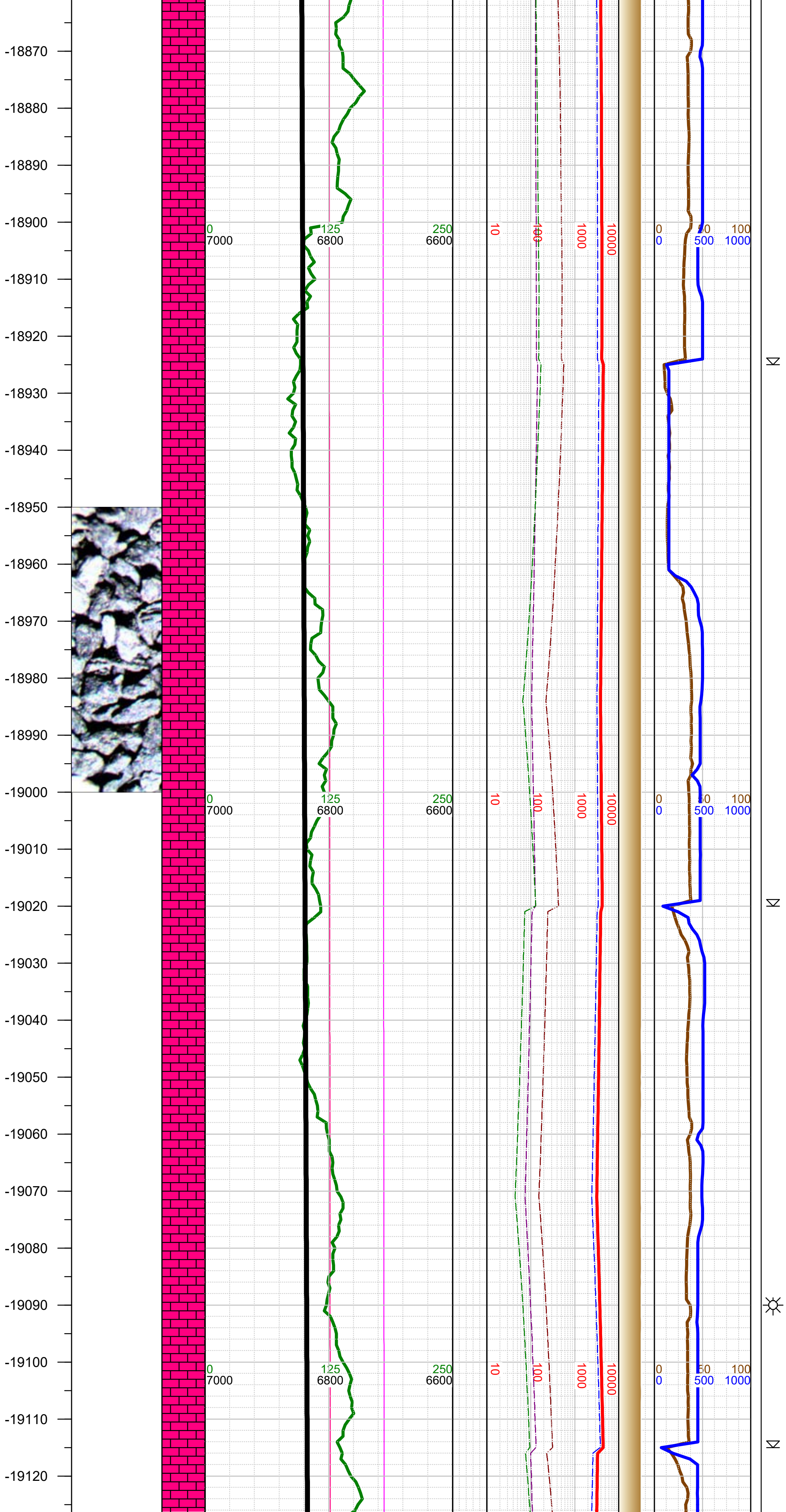
-18610 INC 91.25, AZM 270.93, TVD 6850.5
-18705 INC 91.6, AZM 270.62, TVD 6848.14
-18720 WT 9.1, VIS 45
-18801 INC 91.6, AZM 271.23, TVD 6845.46
-18820 WT 9.1, VIS 45
-18750 CHK: lt-med gy, sft-subfrm, subblky, mot, v calc, rthy-sl wxy lstr; MARL: dk gy-blk, subblky-subplty, sft-subfrm, v calc, mod arg, sl silty intbds; tr bent; tr fos frags; tr forams; tr pyr;



-18896 INC 91.74, AZM 272.42, TVD 6842.69

-18910 WT 9.1, VIS 45

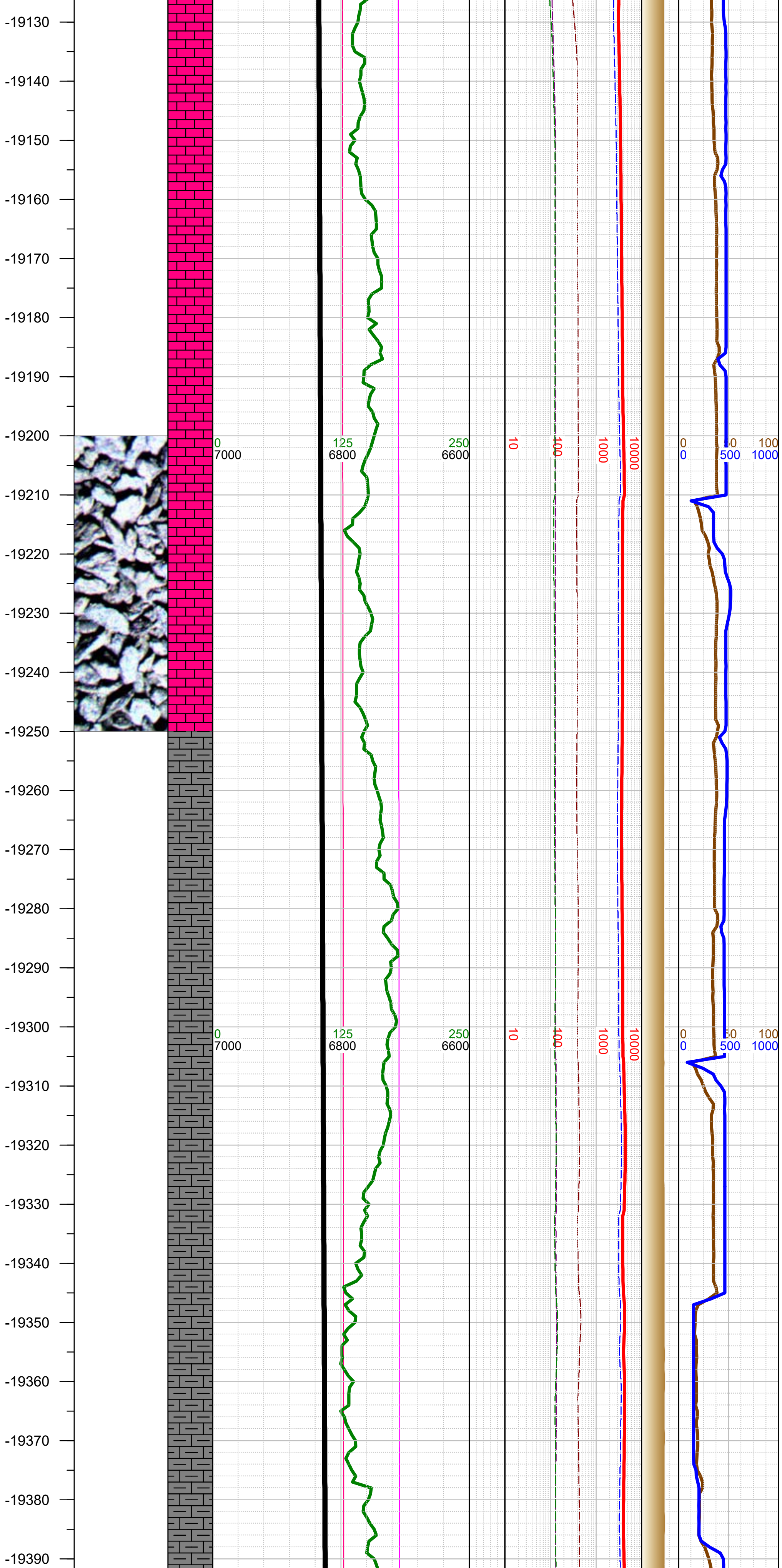
-18992 INC 92.05, AZM 272.38, TVD 6839.51

-19010 WT 9.1, VIS 45

-19087 INC 92.14, AZM 271.9, TVD 6836.04

-19100 WT 9.1, VIS 44

-19000 CHK: lt-med gy, sft-subfrm, subblky, mot, v calc, rthy-sl wxy lstr; MARL: dk gy-blk, subblky-subplty, sft-subfrm, v calc, mod arg, sl silty intbds; tr bent; tr fos frags; tr forams; tr pyr;



-19182 INC 92.05, AZM 271.41, TVD 6832.57

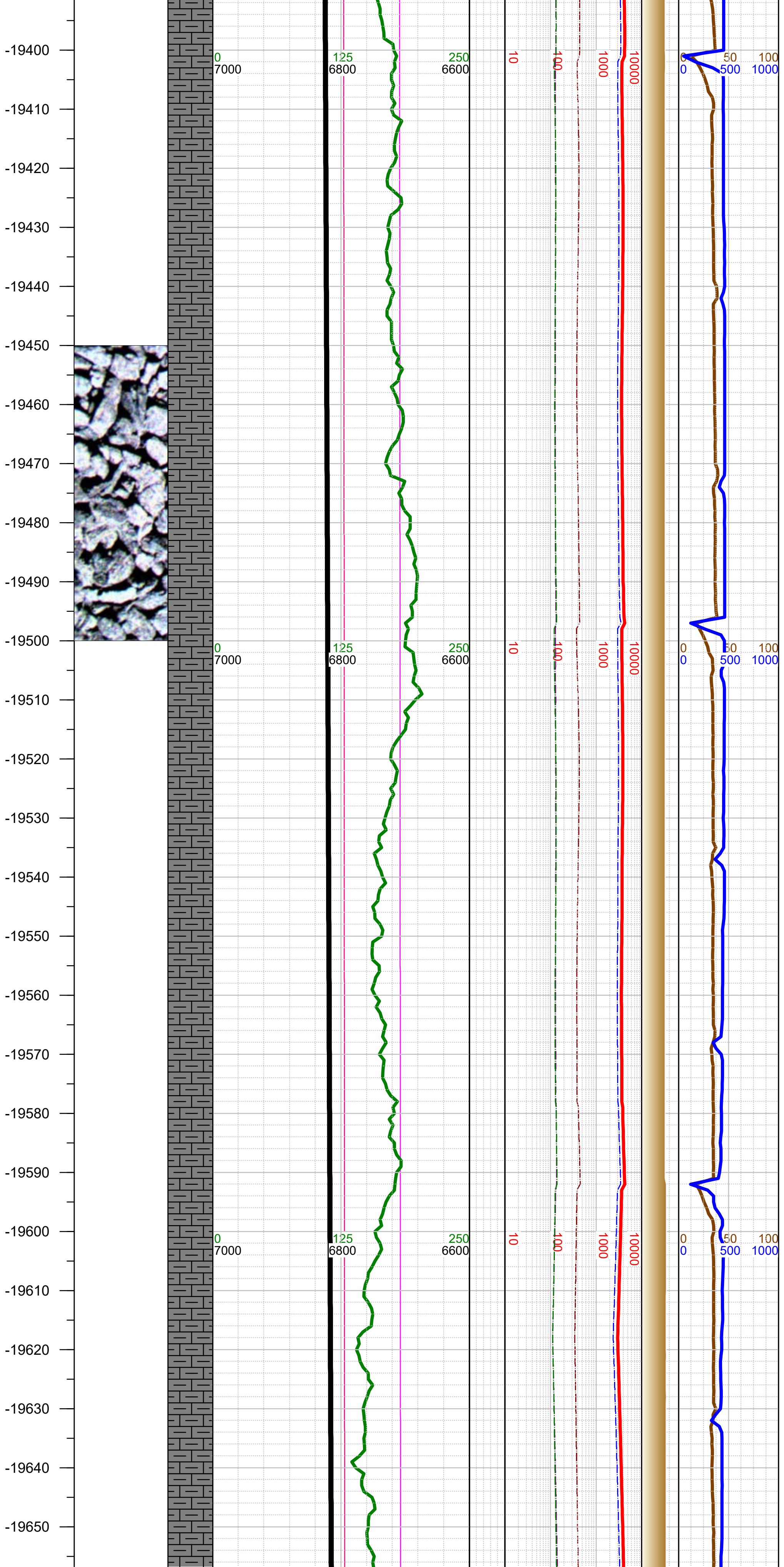
-19200 WT 9.1, VIS 44

-19278 INC 92.22, AZM 272.69, TVD 6828.99

-19300 WT 9.1, VIS 44

-19373 INC 92.09, AZM 271.76, TVD 6825.42

-19250 MARL: dk gy-blk, subblky-subplty, sft-subfrm, mod calc, sl arg; CHK: lt gy, sft-subfrm, subblky, mot, v calc, rthy-sl wxy lstr; tr forams; tr fos frags;



-19400 WT 9.1, VIS 46

-19469 INC 92.14, AZM 270.62, TVD 6821.88

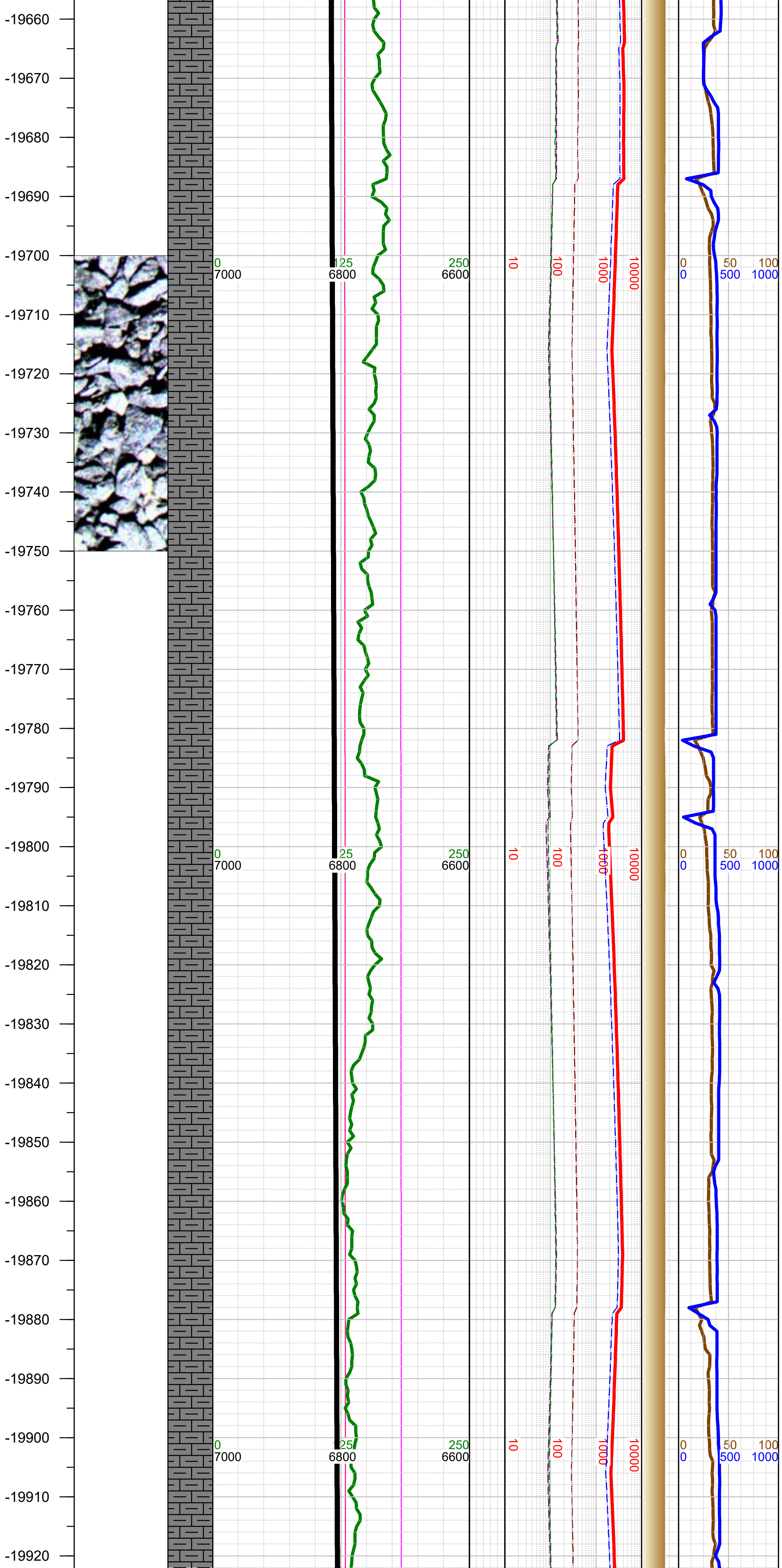
-19498 0000 hrs on 6/20/2018

-19500 MARL: dk gy-blk, subblky-subplty, sft-subfrm, mod calc, sl arg; CHK: lt gy, sft-subfrm, subblky, mot, v calc, rthy-sl wxy lstr; tr forams; tr fos frags;

-19510 WT 9.1, VIS 46

-19564 INC 91.91, AZM 268.9, TVD 6818.52

-19600 WT 9.1, VIS 46



-19660 INC 92.09, AZM 270.09, TVD 6815.17

-19700 WT 9.1, VIS 46

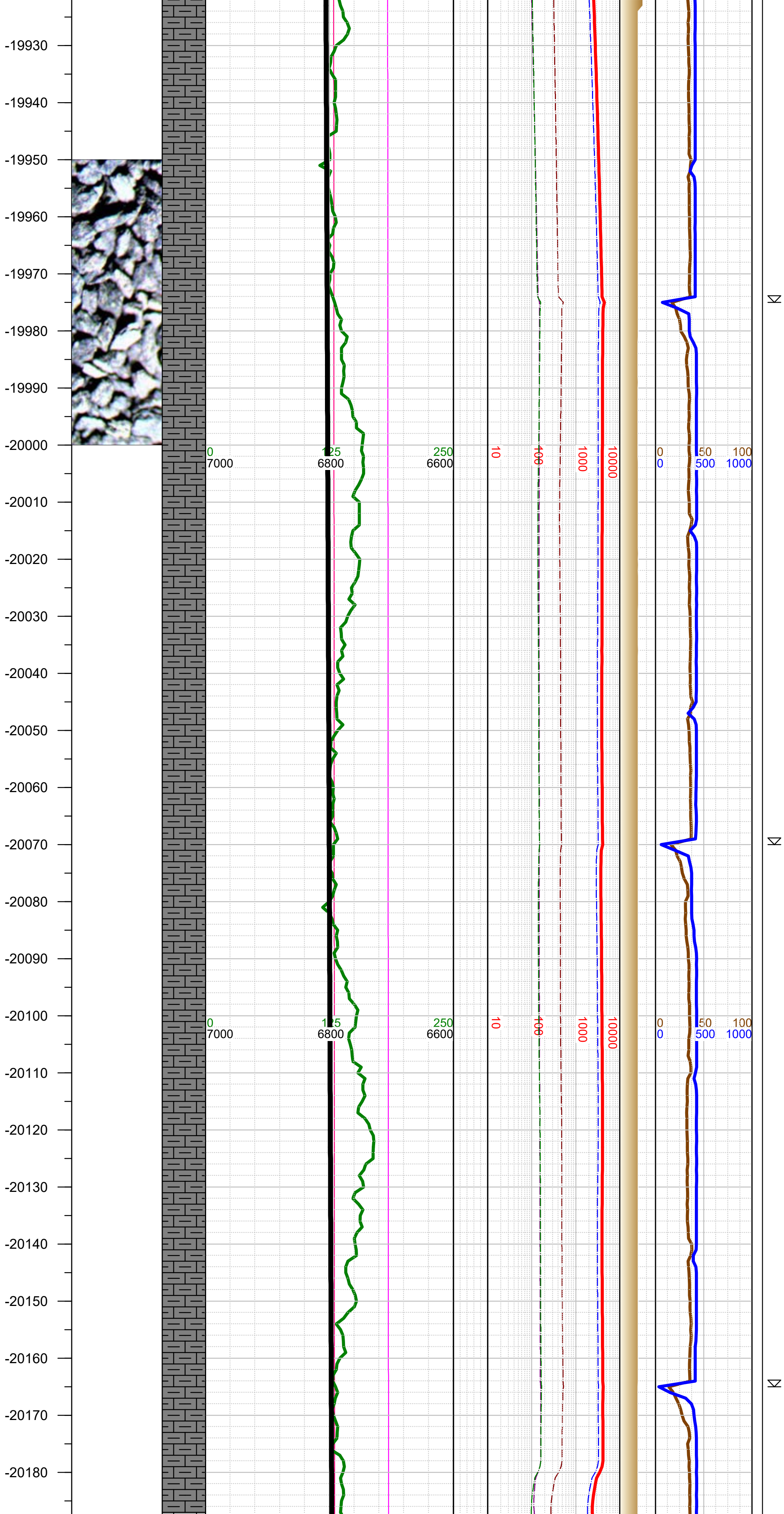
-19750 MARL: dk gy-blk, subblky-subplty, sft-subfrm, mod calc, sl arg; CHK: lt gy, sft-subfrm, subblky, mot, v calc, rthy-sl wxy lstr; tr forams; tr fos frags;

-19755 INC 92.14, AZM 269.74, TVD 6811.66

-19800 WT 9.1, VIS 46

-19850 INC 92.09, AZM 270.22, TVD 6808.16

-19900 WT 9.1, VIS 46



-19946 INC 92, AZM 269.25, TVD 6804.73

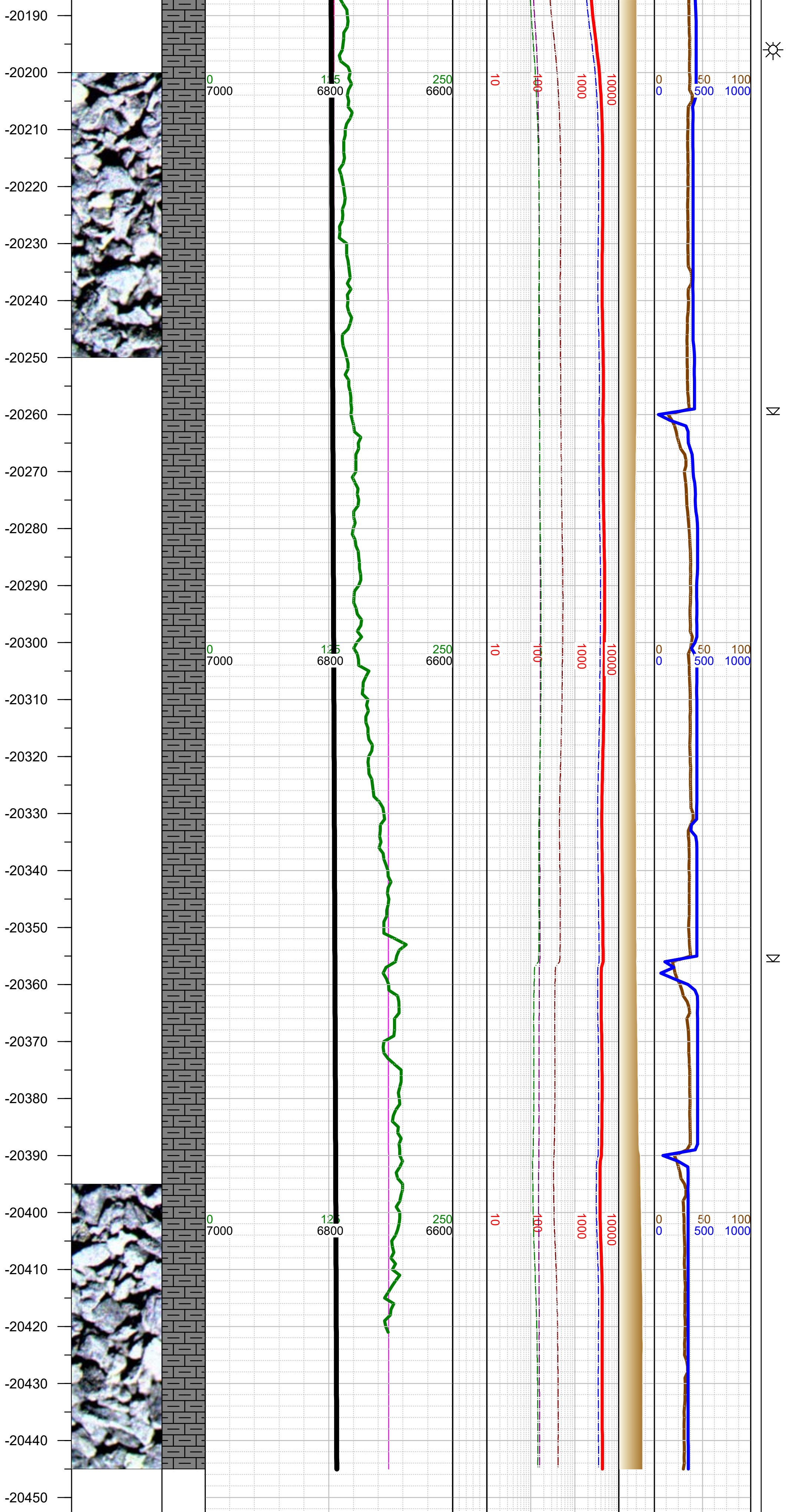
-20000 MARL: dk gy-blk, subblky-subplty, sft-subfrm, mod calc, sl arg; CHK: lt gy, sft-subfrm, subblky, mot, v calc, rthy-sl wxy lstr; tr forams; tr fos frags;

-20000 WT 9.1, VIS 46

-20041 INC 92.05, AZM 269.38, TVD 6801.37

-20100 WT 9.1, VIS 45

-20136 INC 92, AZM 269.25, TVD 6798.02



-20200 WT 9.1, VIS 45

-20232 INC 92, AZM 268.9, TVD 6794.67

-20300 WT 9.1, VIS 45

-20327 INC 92.05, AZM 269.74, TVD 6791.31

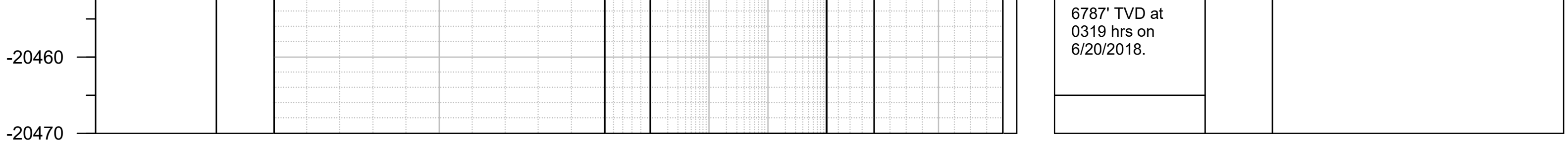
-20400 WT 9.1, VIS 45

-20415 INC 91.91, AZM 268.77, TVD 6788.27

-20445 Reached horizontal TD of 20445' MD,

-20250 MARL: dk gy-blk, subblky-subplty, sft-subfrm, mod calc, sl arg; CHK: lt gy, sft-subfrm, subblky, mot, v calc, rthy-sl wxy lstr; tr forams; tr fos frags;

-20445 MARL: dk gy-blk, sbblky-sbplty, sft-sbfrm, v calc, mod arg, sl silty; CHK: med gy, sft-sbfrm, sbblky, mot, rthy lstr, v calc; tr pyr;



TOTAL DEPTH = 20445'

Thank you for using Earth Science Agency