

OPERATOR: **Extraction Oil & Gas**

WELL NAME: **CS Bittersweet 3-1-13**

FIELD NAME: DJ Basin - Wattenberg

DRILLING RIG: Patterson 341

API #: 05-123-42937

LAT/LONG: 40.43838, -104.72326

SURFACE HOLE: SWSE S36-T6N-R66W, 341' FSL, 2056' FEL

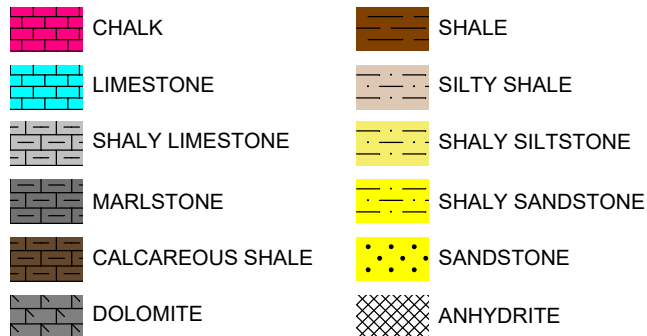
BOTTOM HOLE: S13-T5N-R66W, 2192' FNL, 271' FEL



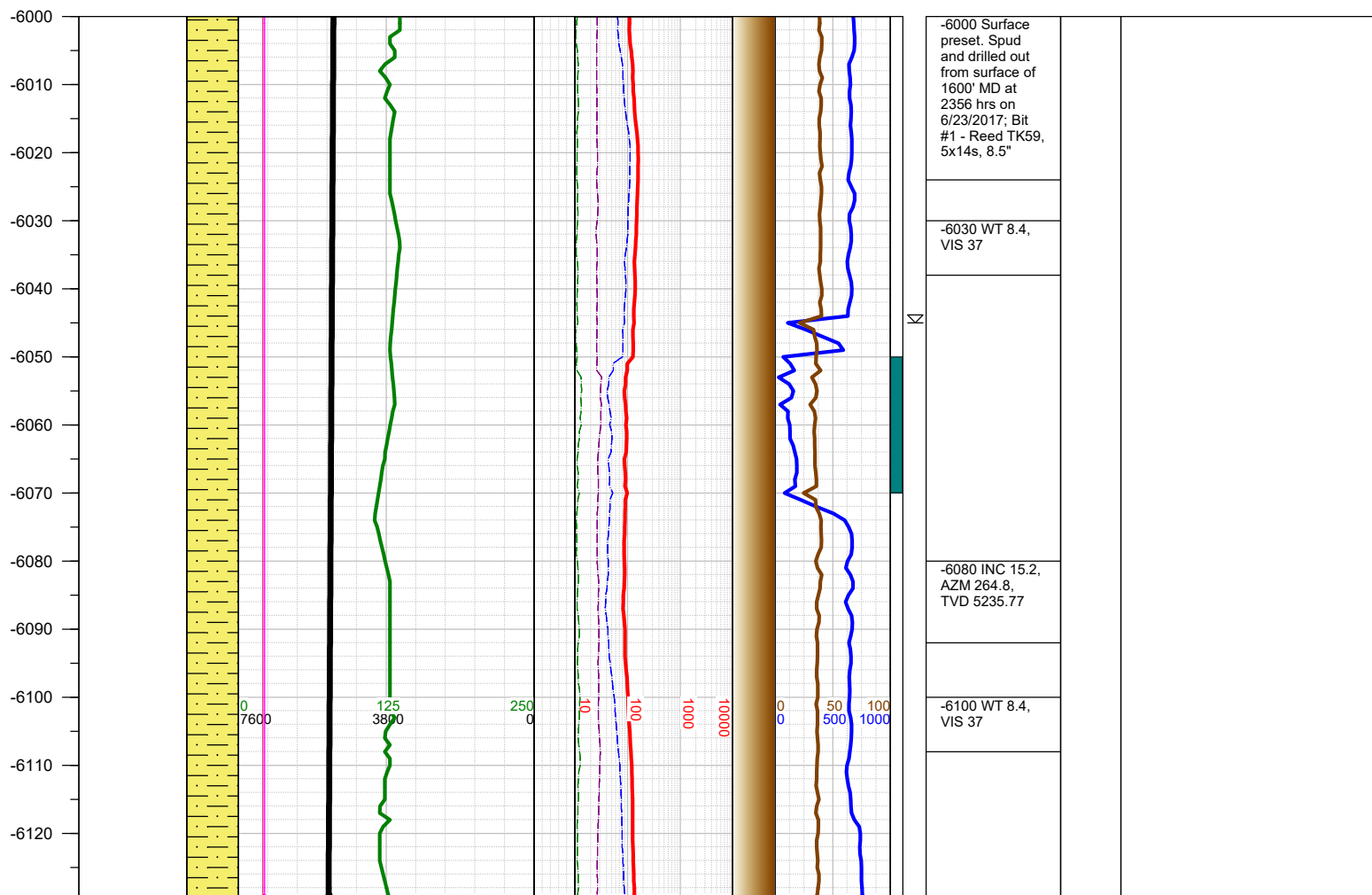
Earth Science Agency, LLC

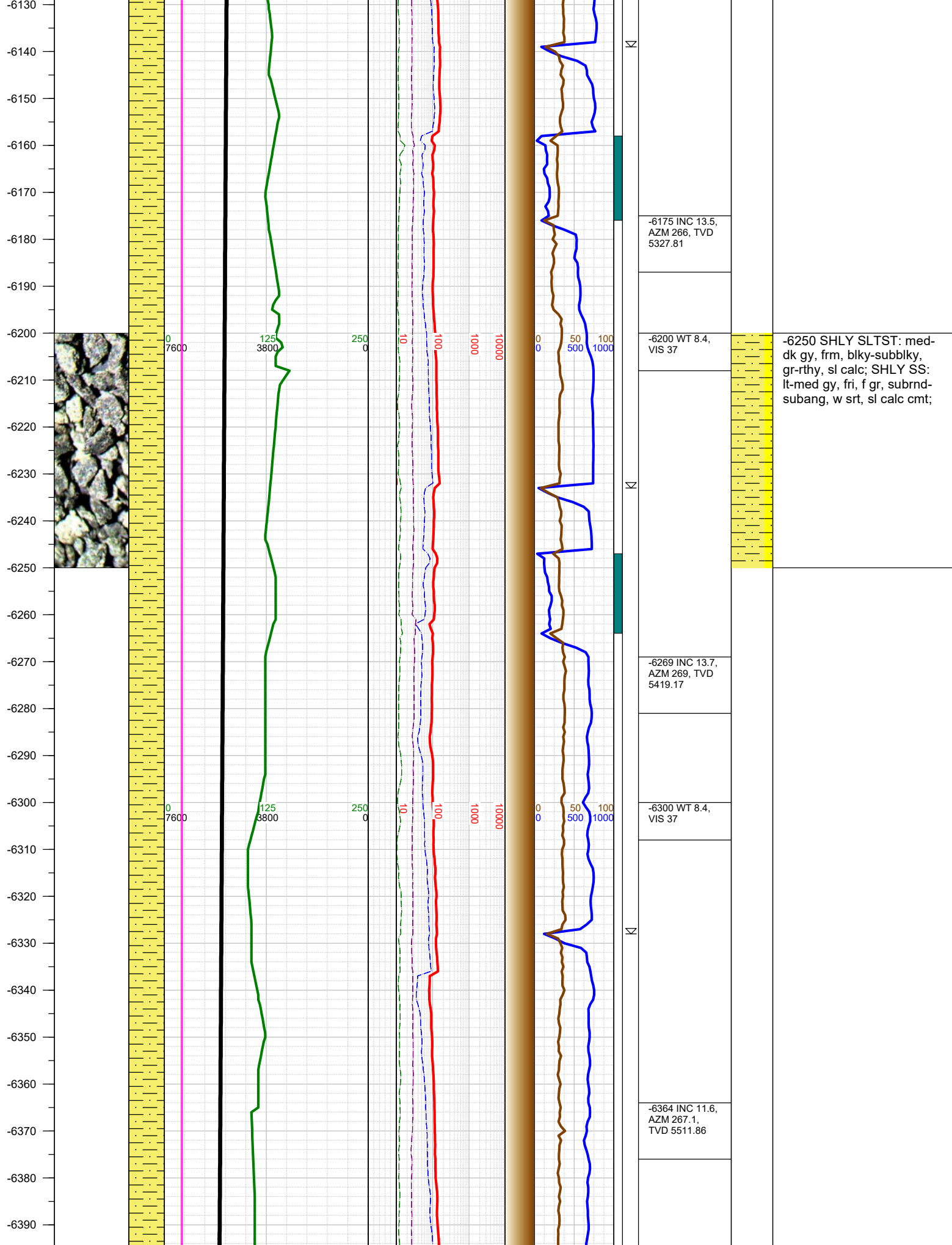
COUNTY: Weld  
STATE: Colorado  
GROUND ELEVATION: 4665'  
KELLY BUSHING: 4690'  
DRILLING FLUID: OBM  
TVD VS. MD: 6953' / 21030'  
SPUD DATE: June 24, 2017  
TD DATE: June 29, 2017  
  
DEPTHS LOGGED: 6000' - 21030'  
DATES LOGGED: June 24, 2017 - June 29, 2017  
GEOLOGISTS: Blake Eatherton, Dominic Pitre  
SCALE: 5" = 100'

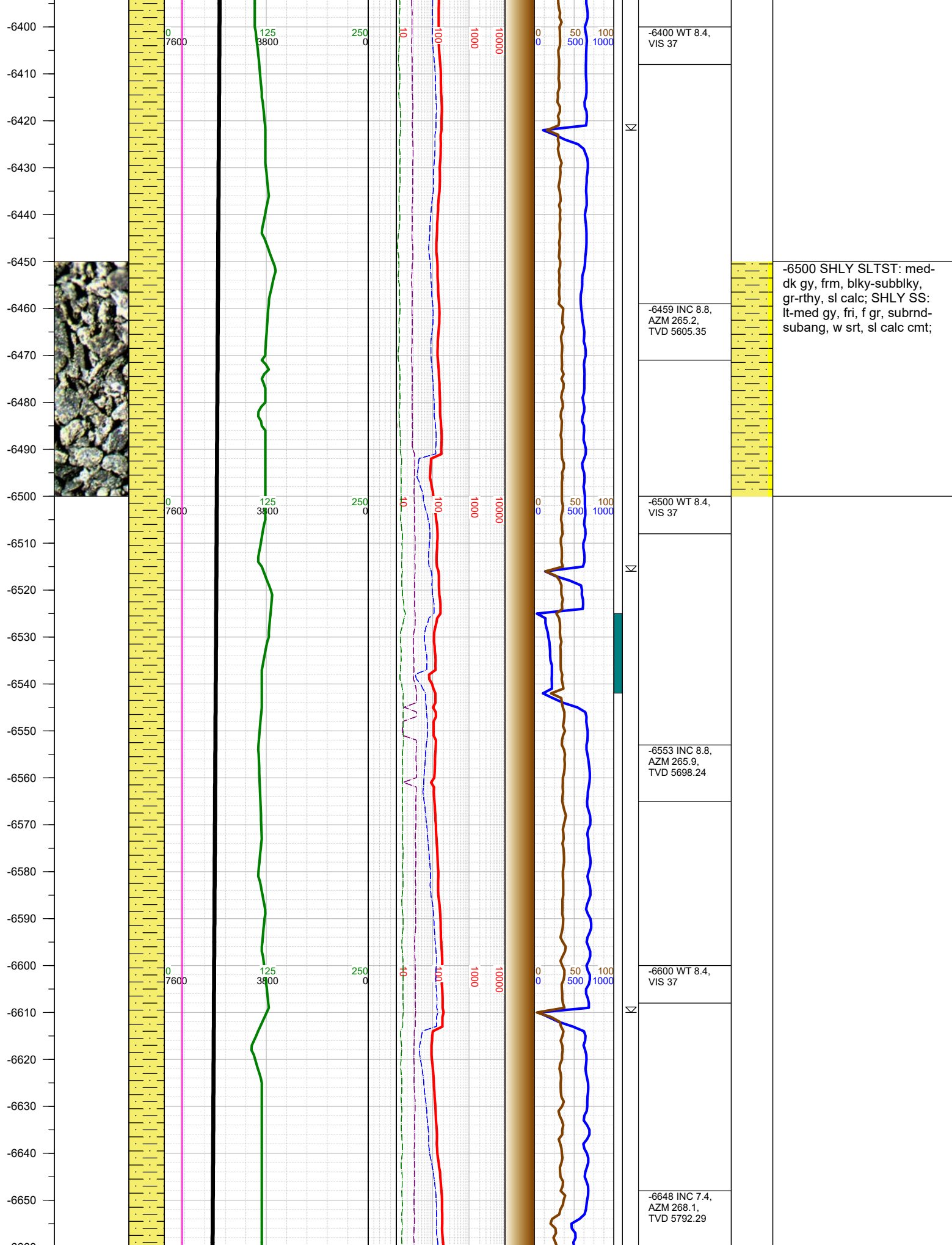
#### LEGEND

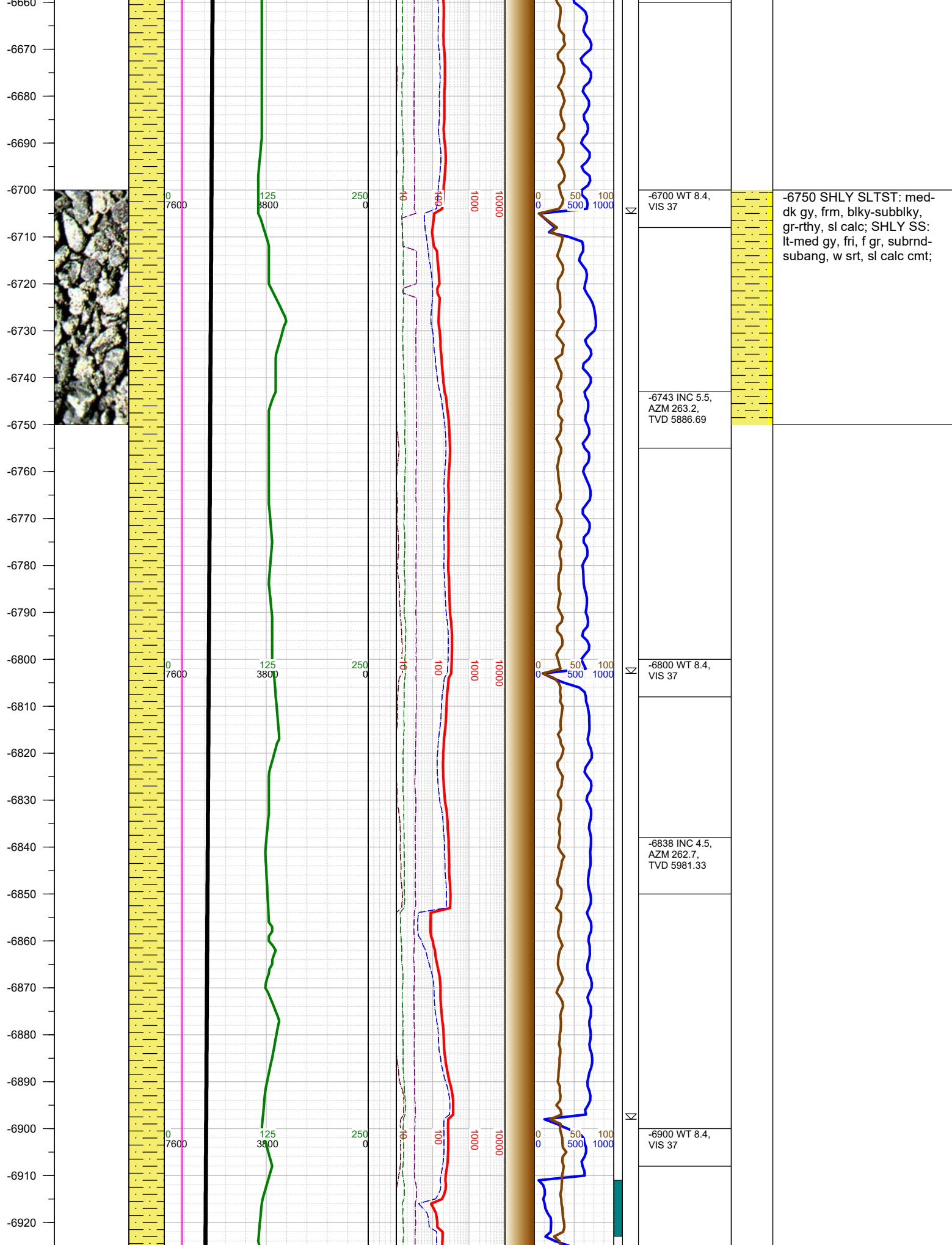


FORMATION  $\approx$  CONNECTION  $\Delta$  MIDNIGHT NEW BIT GAS SHOW FAULT

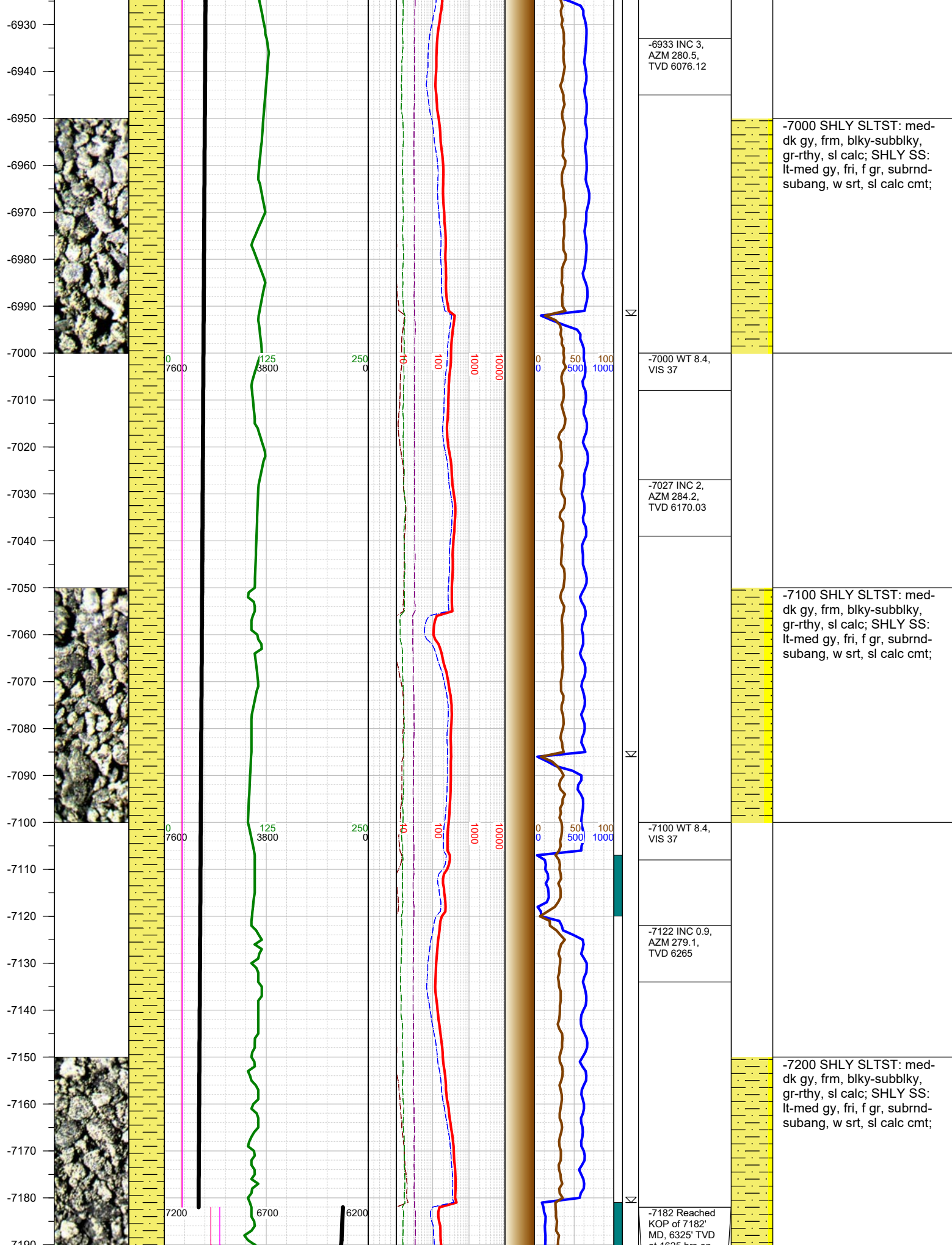












-6933 INC 3,  
AZM 280.5,  
TVD 6076.12

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

-7000 WT 8.4,  
VIS 37

-7027 INC 2,  
AZM 284.2,  
TVD 6170.03

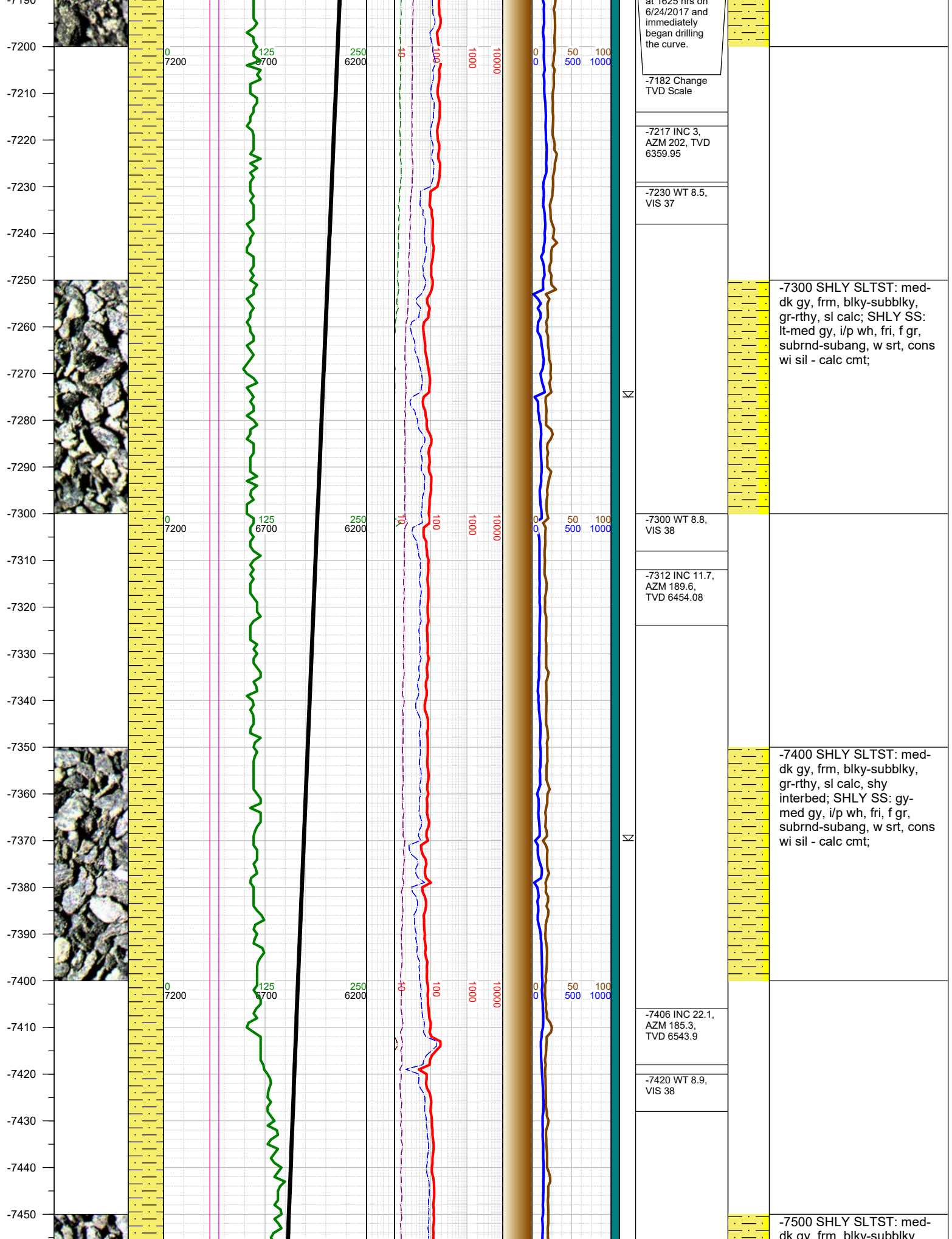
-7100 SHLY SLTST: med-  
dk gy, frm, blk-subblky,  
gr-rthy, sl calc; SHLY SS:  
lt-med gy, fri, f gr, subrnd-  
subang, w srt, sl calc cmt;

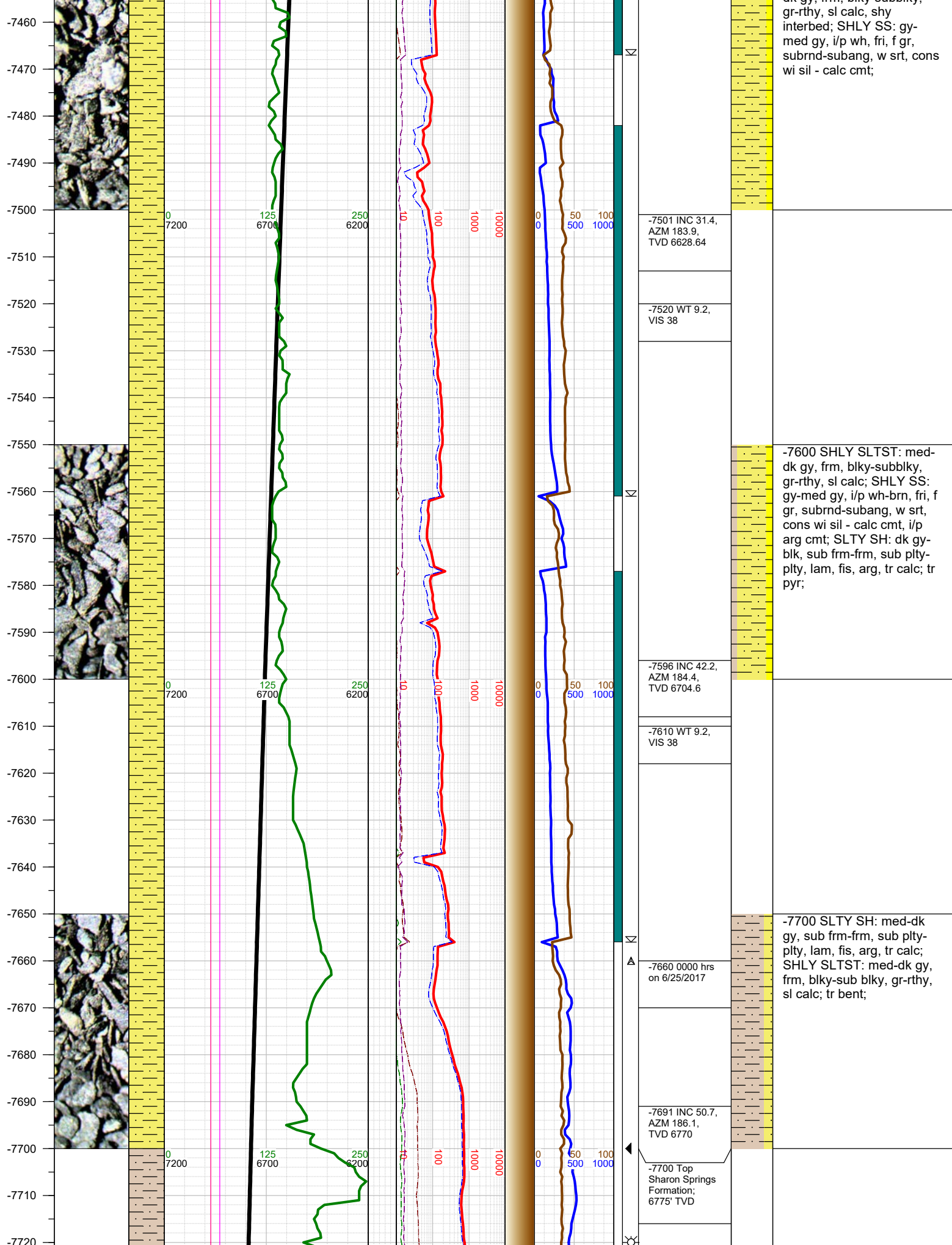
-7100 WT 8.4,  
VIS 37

-7122 INC 0.9,  
AZM 279.1,  
TVD 6265

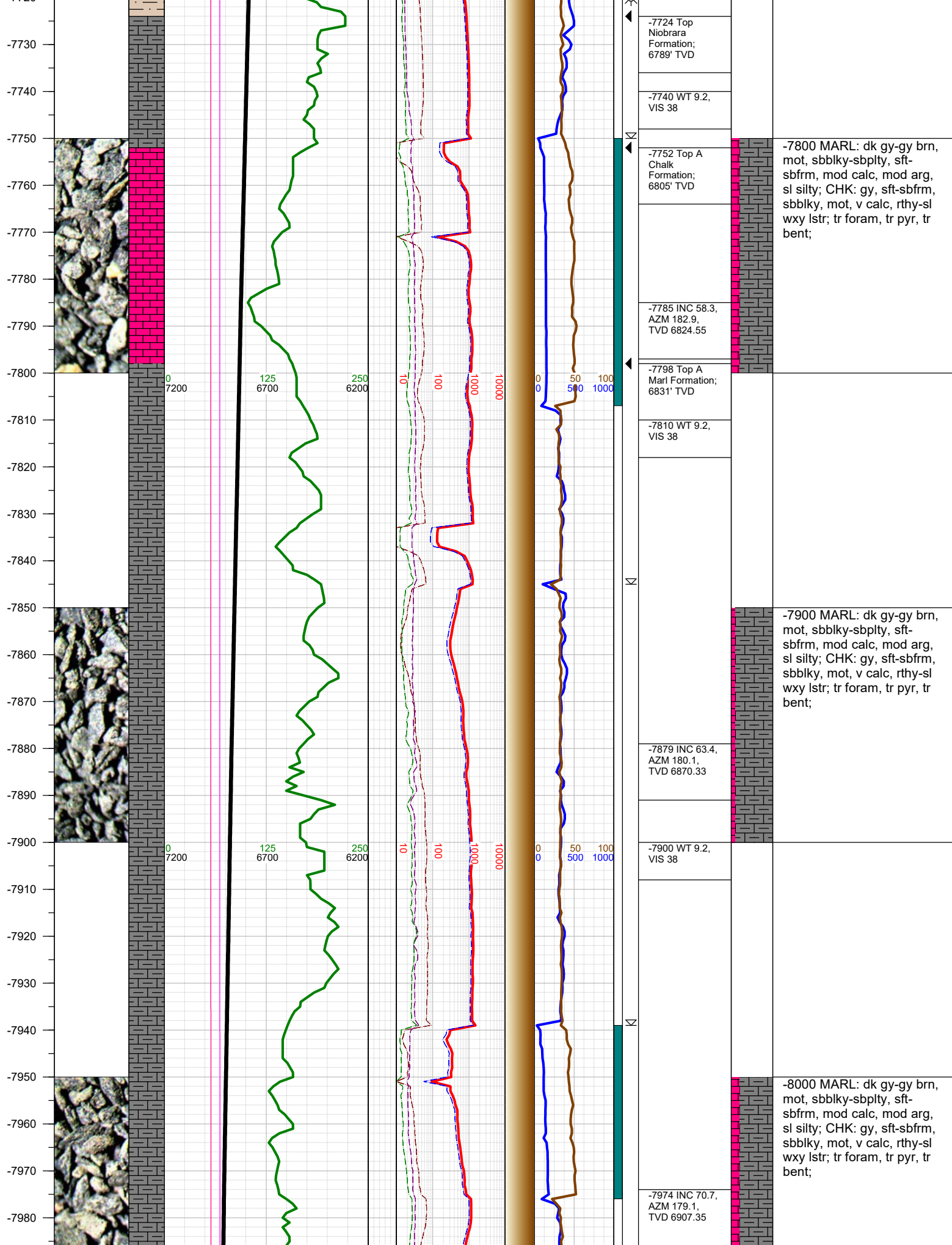
-7200 SHLY SLTST: med-  
dk gy, frm, blk-subblky,  
gr-rthy, sl calc; SHLY SS:  
lt-med gy, fri, f gr, subrnd-  
subang, w srt, sl calc cmt;

-7182 Reached  
KOP of 7182'  
MD, 6325' TVD

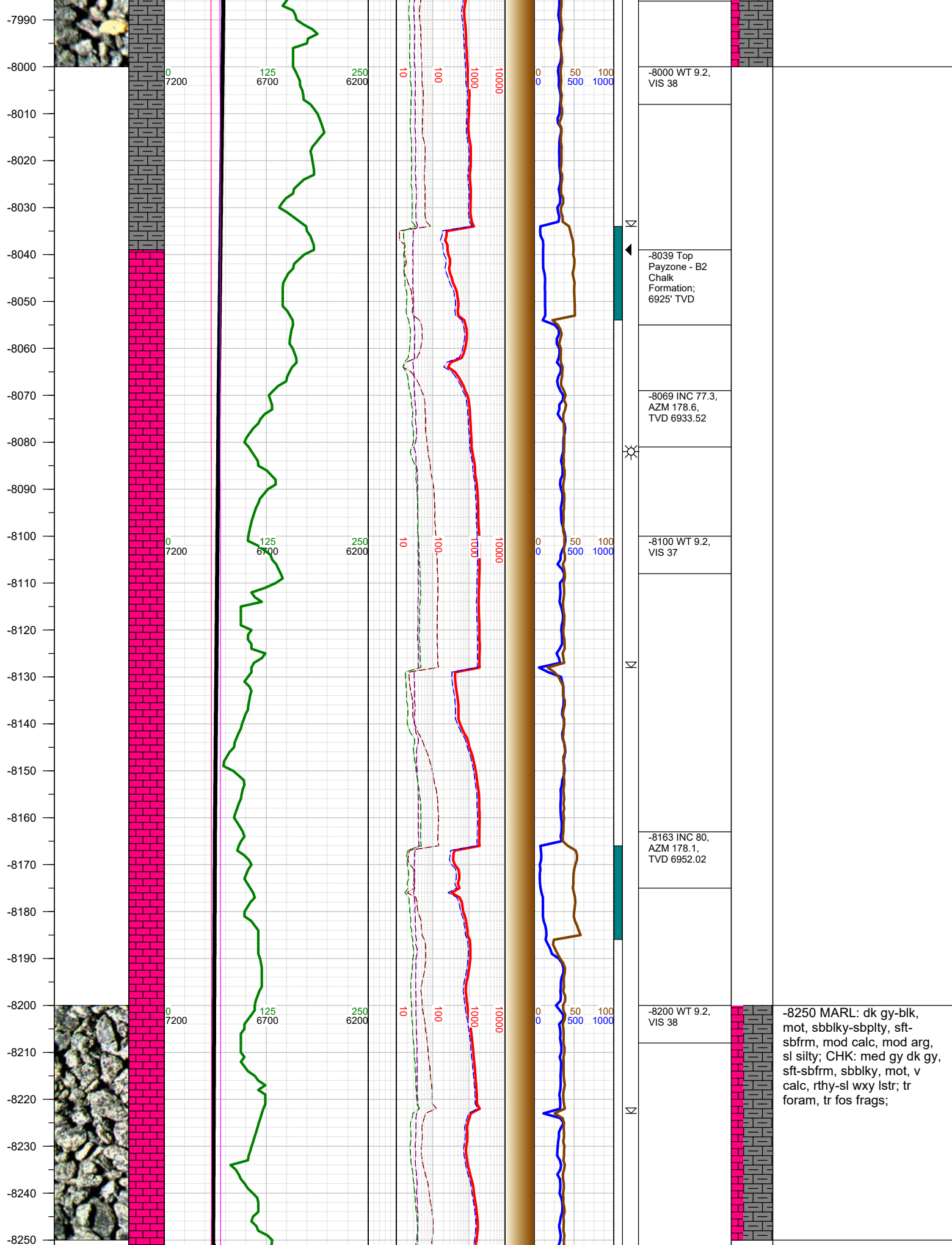


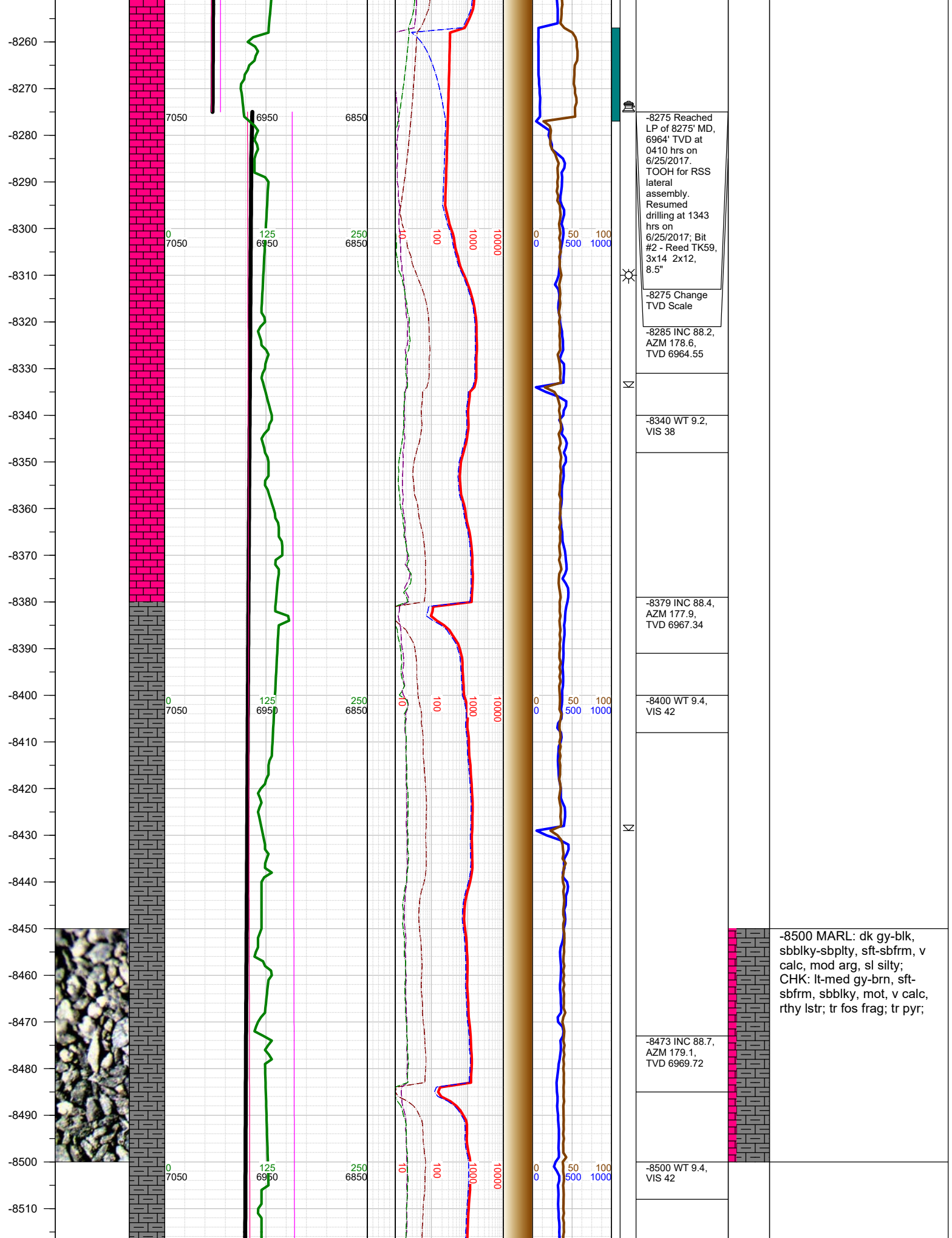




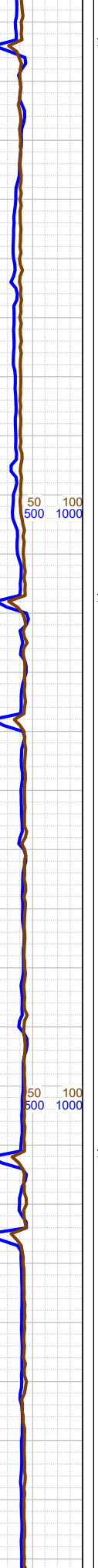
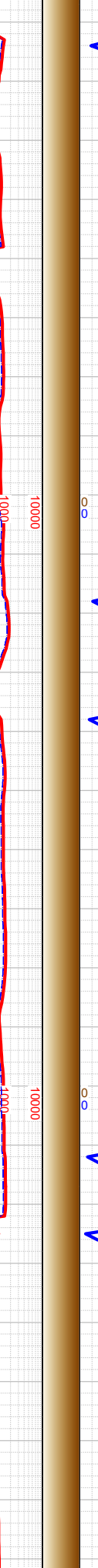
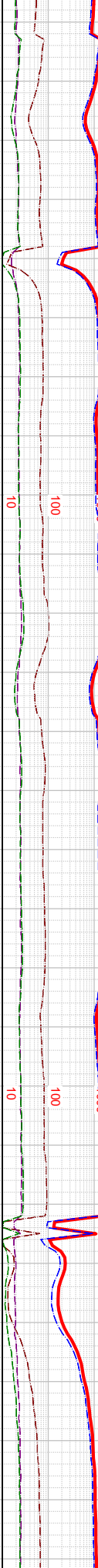
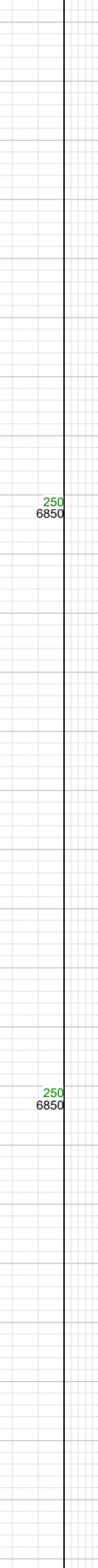
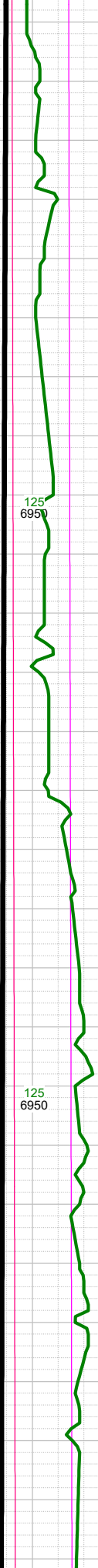
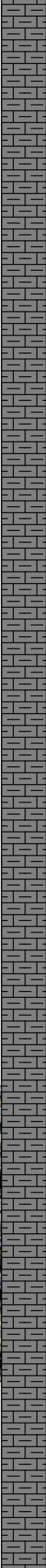
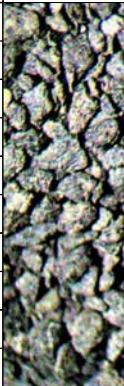




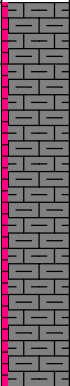




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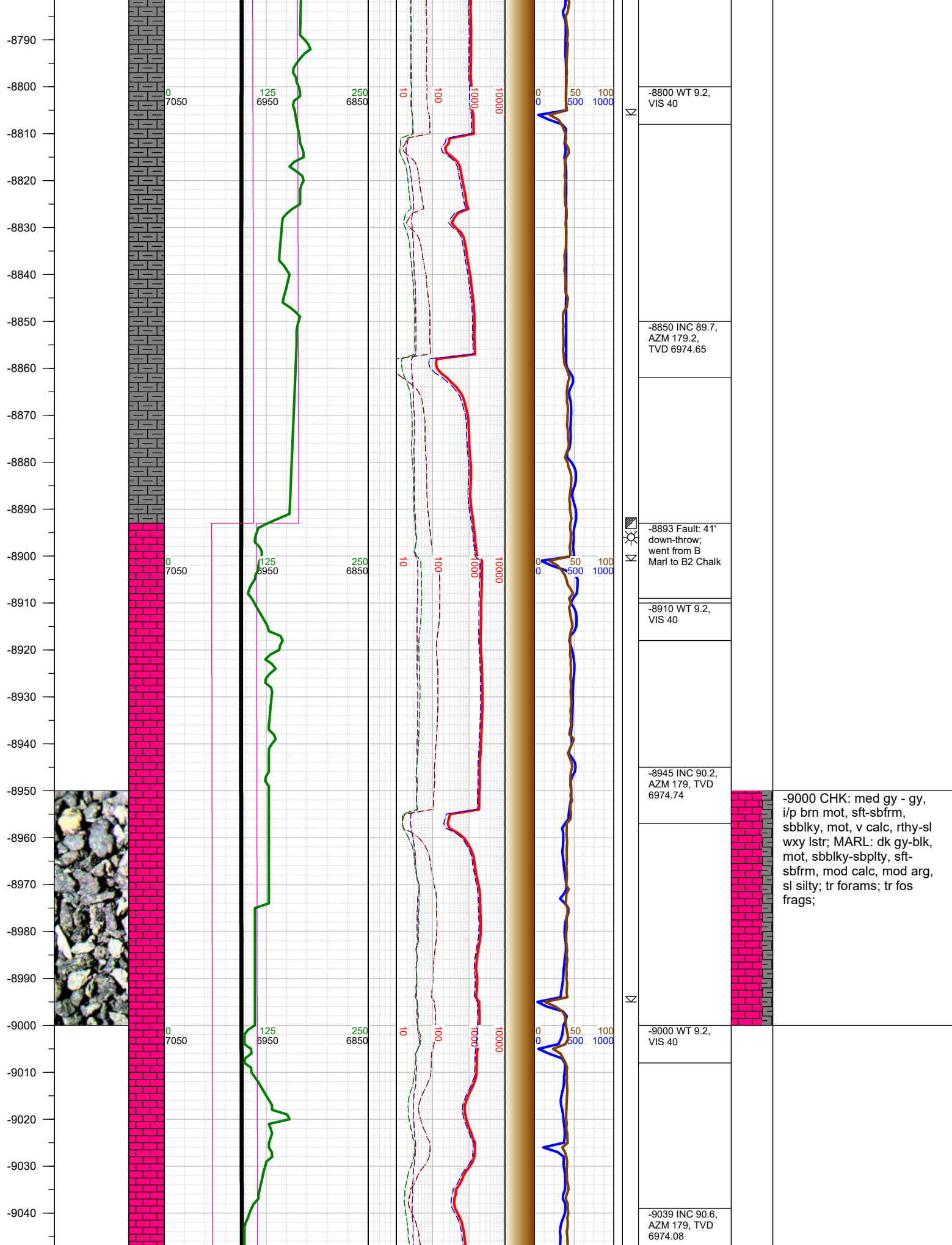


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|  | -8567 INC 89.1,<br>AZM 178.8,<br>TVD 6971.52 |
|  | -8600 WT 9.4,<br>VIS 42                      |
|  | -8662 INC 89.2,<br>AZM 178.1,<br>TVD 6972.93 |
|  | -8700 WT 9.2,<br>VIS 40                      |
|  | -8756 INC 89.5,<br>AZM 178.6,<br>TVD 6974    |

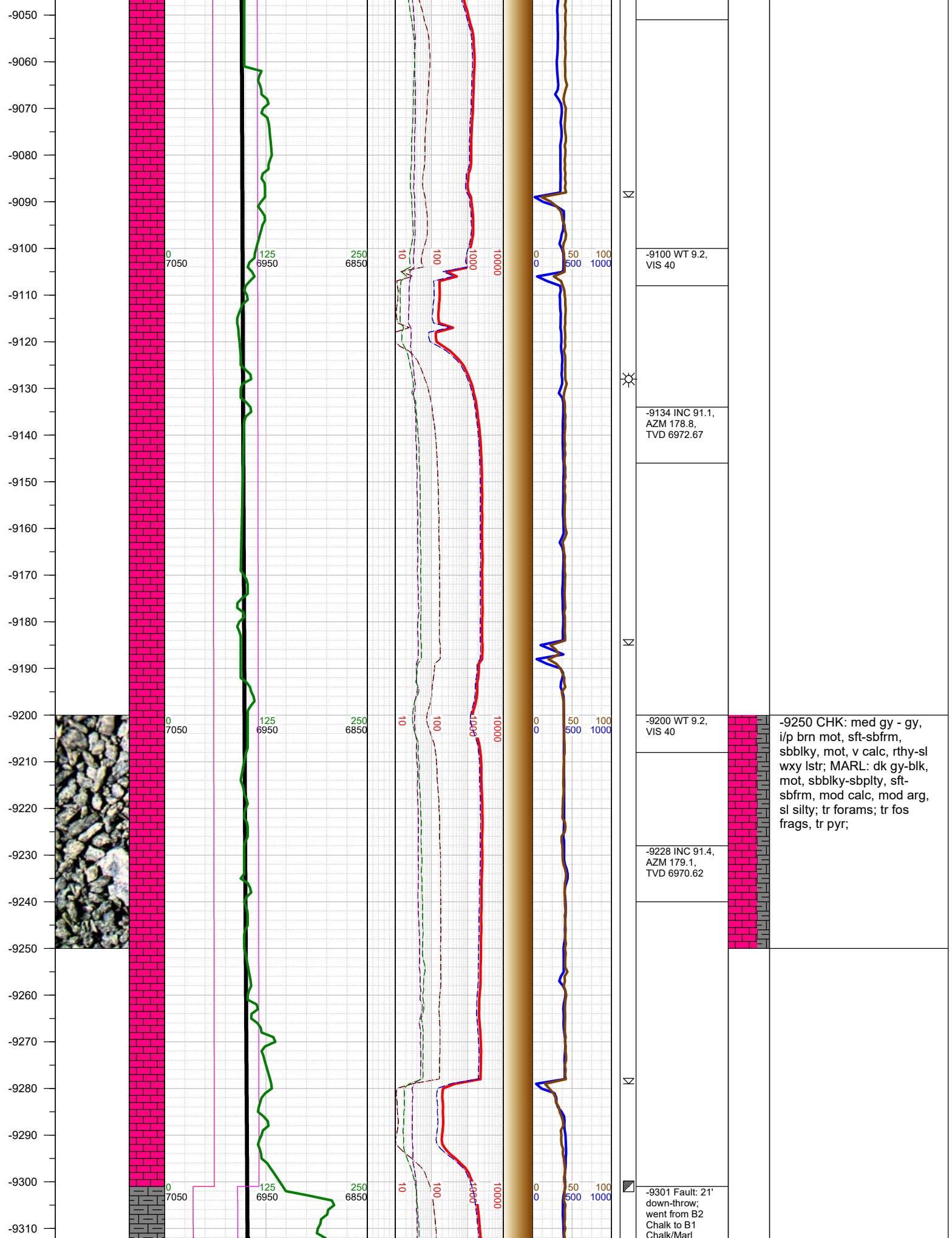


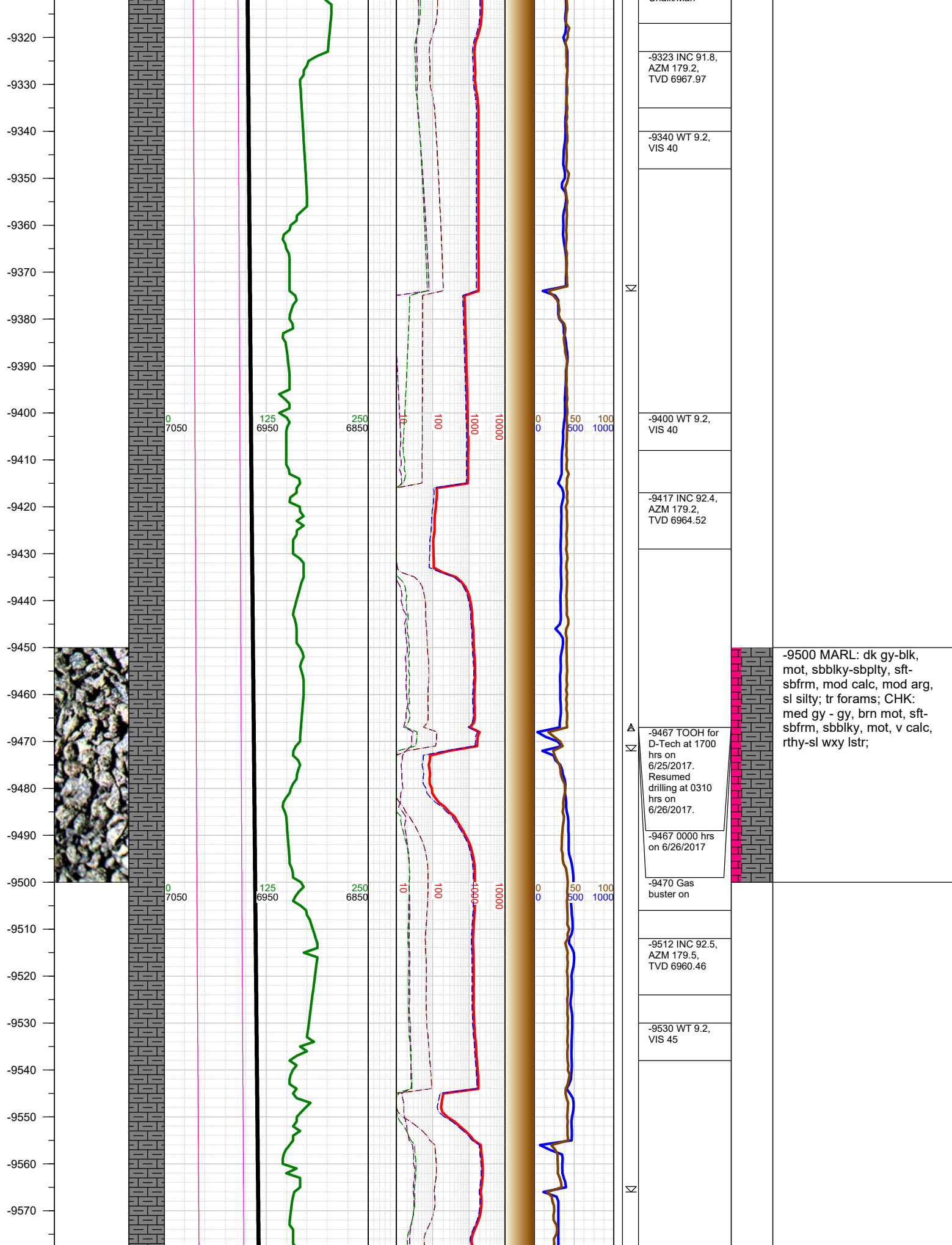
-8750 MARL: dk gy-blk,  
sbbly-sbply, sft-sbfrm, v  
calc, mod arg, sl silty;  
CHK: lt-med gy-brn, sft-  
sbfrm, sbbly, mot, v calc,  
rthy lstr; tr fos frag; tr pyr;





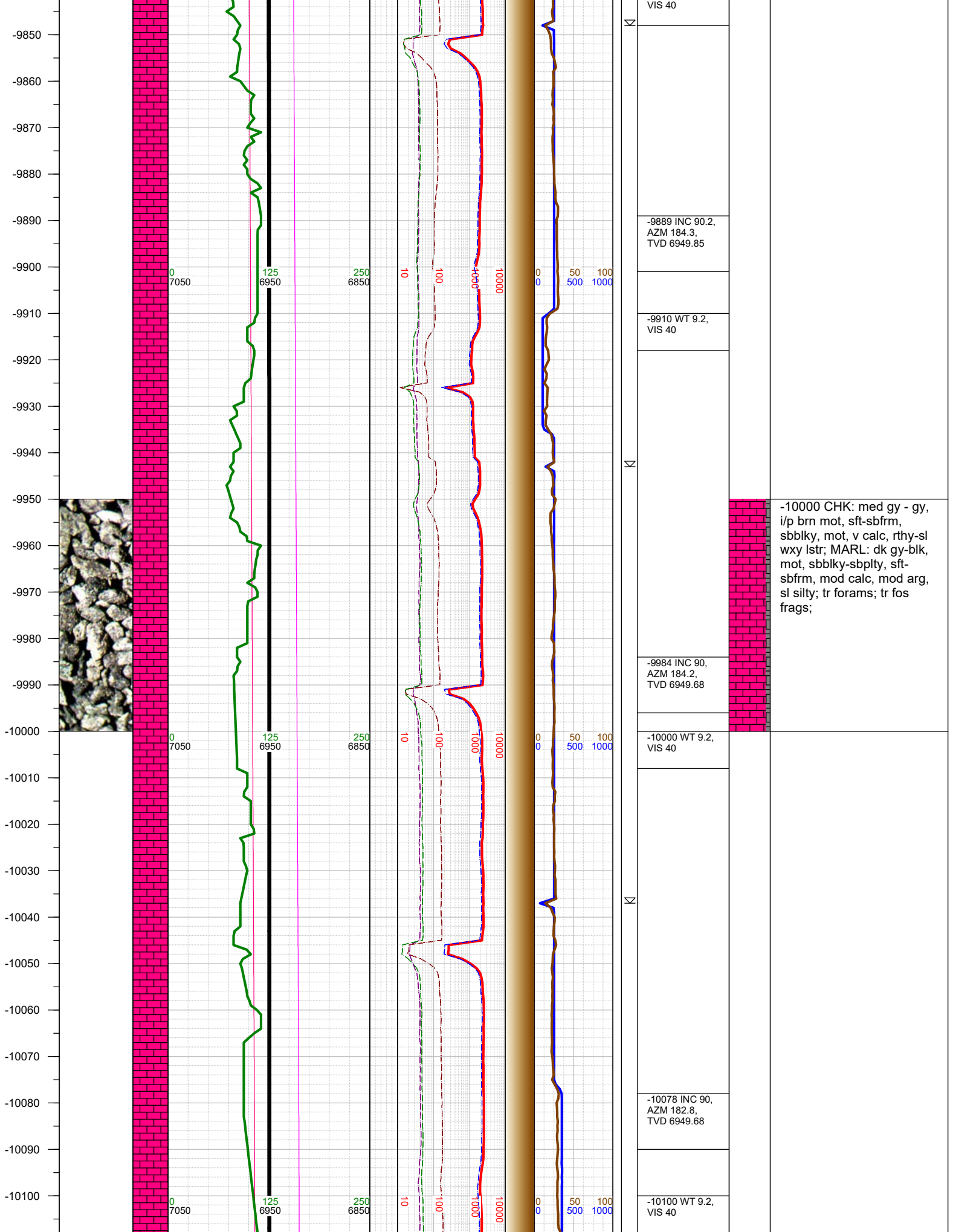




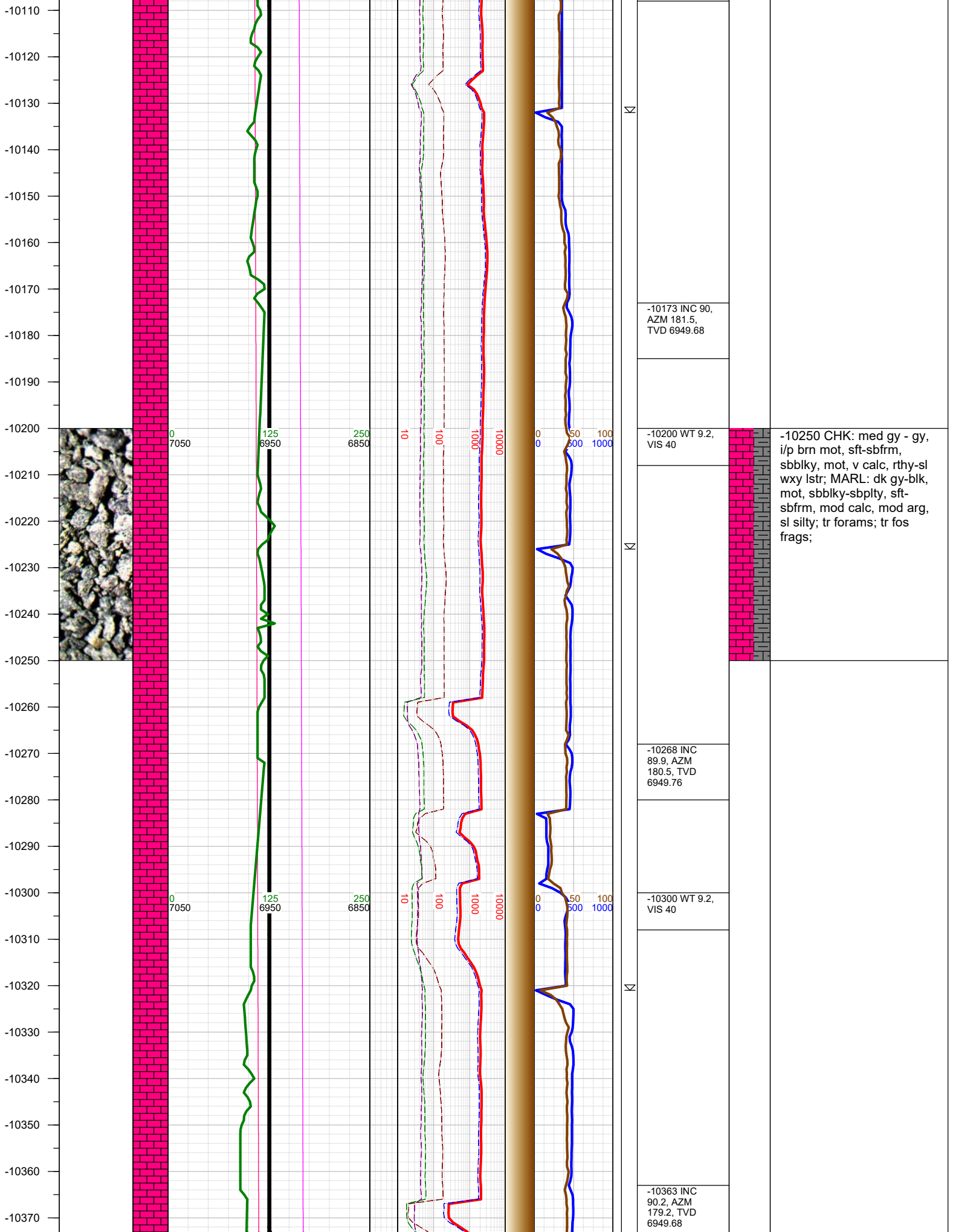












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-10400 WT 9.2,  
VIS 40

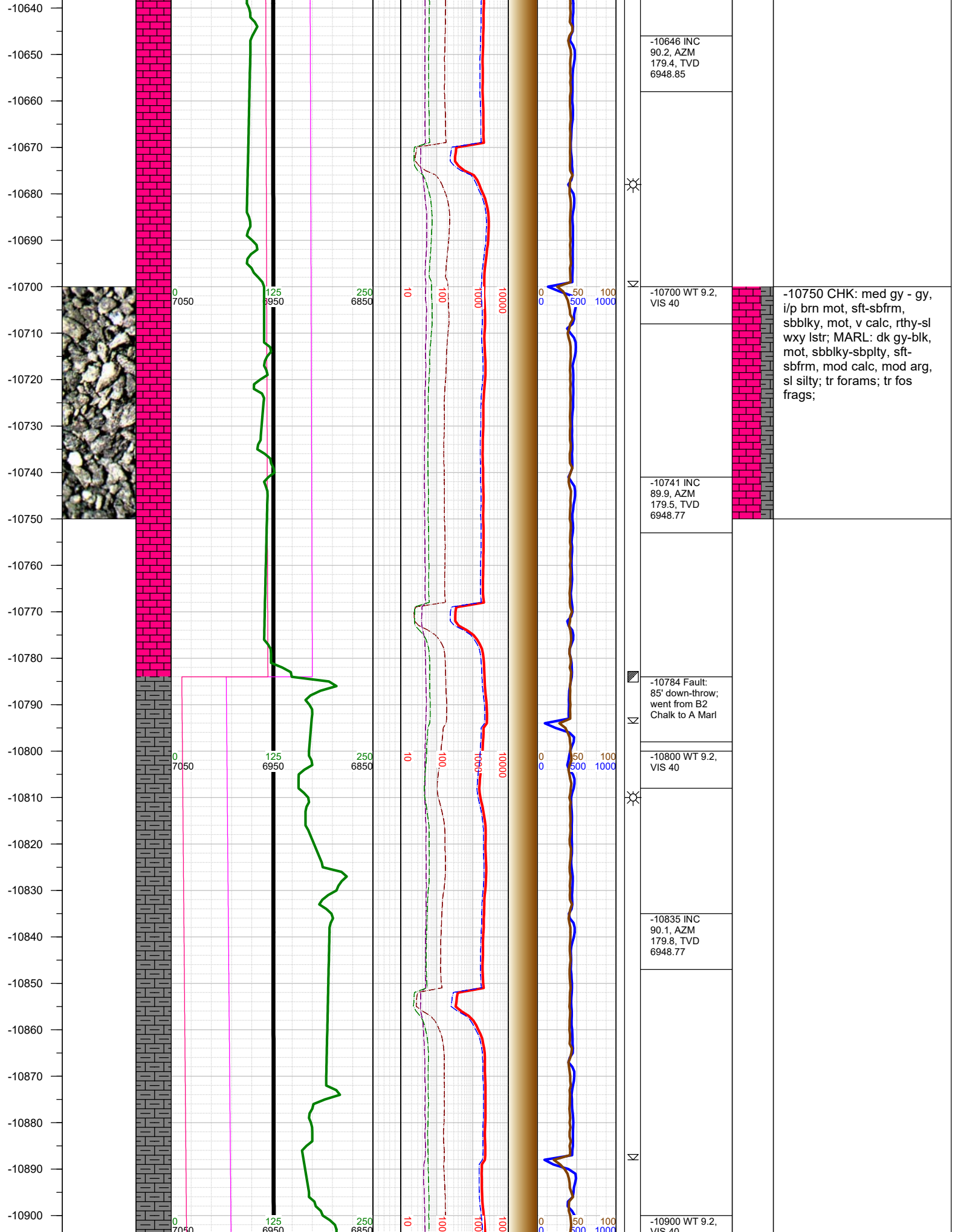
-10457 INC 90,  
AZM 179.9,  
TVD 6949.52

-10500 WT 9.2,  
VIS 40

-10551 INC  
90.3, AZM  
178.8, TVD  
6949.27

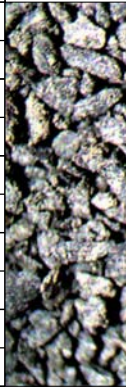
-10600 WT 9.2,  
VIS 40

-10500 CHK: med gy - gy,  
i/p brn mot, sft-sbfrm,  
sbbkly, mot, v calc, rthy-sl  
wxy lstr; MARL: dk gy-blk,  
mot, sbbkly-sbplty, sft-  
sbfrm, mod calc, mod arg,  
sl silty; tr forams; tr fos  
frags;





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-11140  
-11150  
-11160



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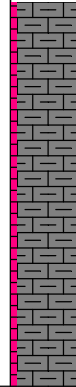
-10930 INC  
90.5, AZM  
178.8, TVD  
6948.27

-11000 WT 9.2,  
VIS 40

-11025 INC  
90.7, AZM  
178.6, TVD  
6947.28

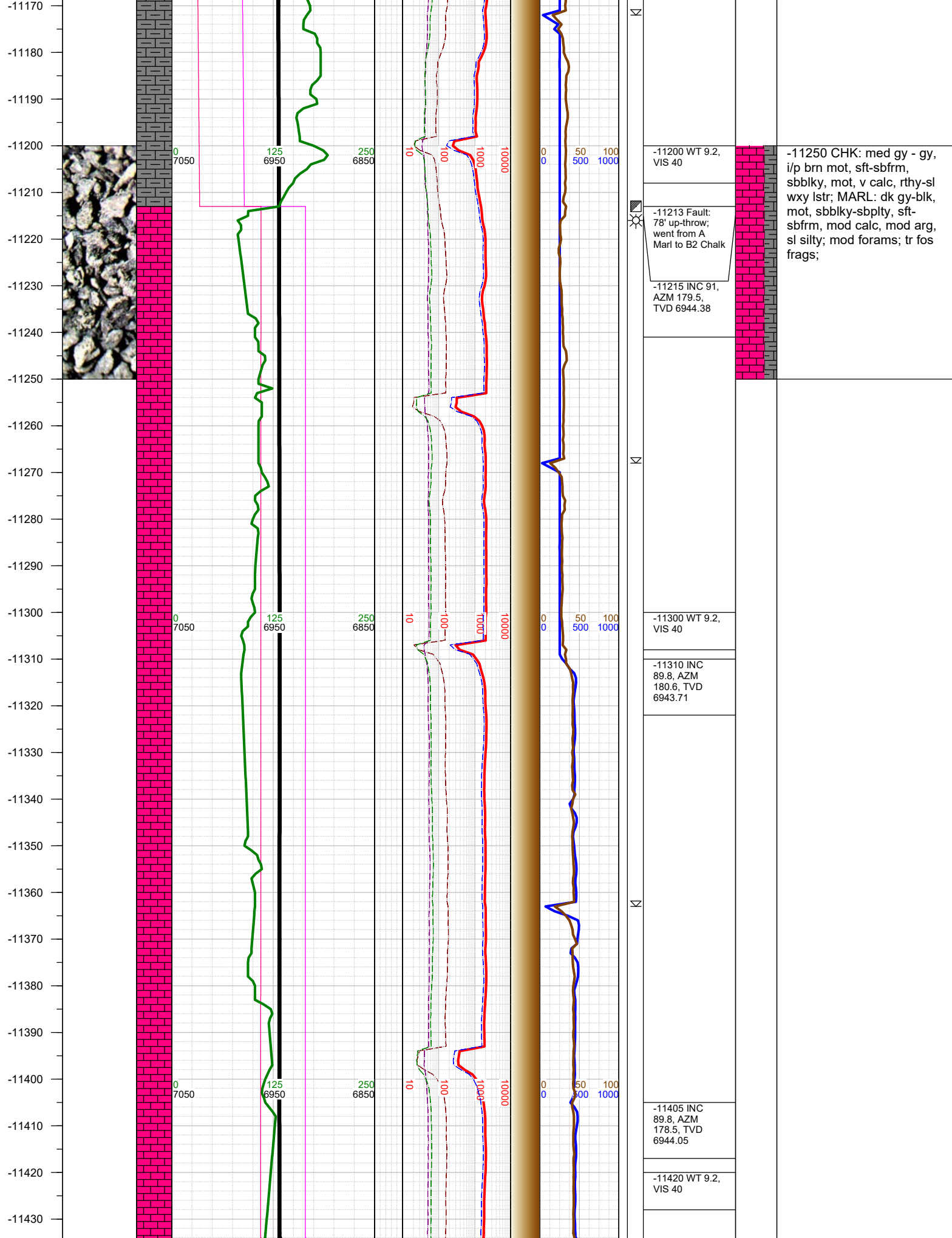
-11100 WT 9.2,  
VIS 40

-11120 INC  
90.9, AZM  
178.8, TVD  
6945.95



-11000 MARL: dk gy-blk,  
mot, sbblky-sbplty, sft-  
sbfrm, mod calc, mod arg,  
sl silty; tr forams; CHK:  
med gy - gy, brn mot, sft-  
sbfrm, sbblky, mot, v calc,  
rthy-sl wxy lstr;





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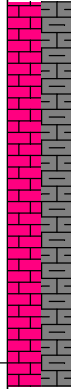
-11497 INC  
90.5, AZM  
180.2, TVD  
6943.81

-11510 WT 9.2,  
VIS 40

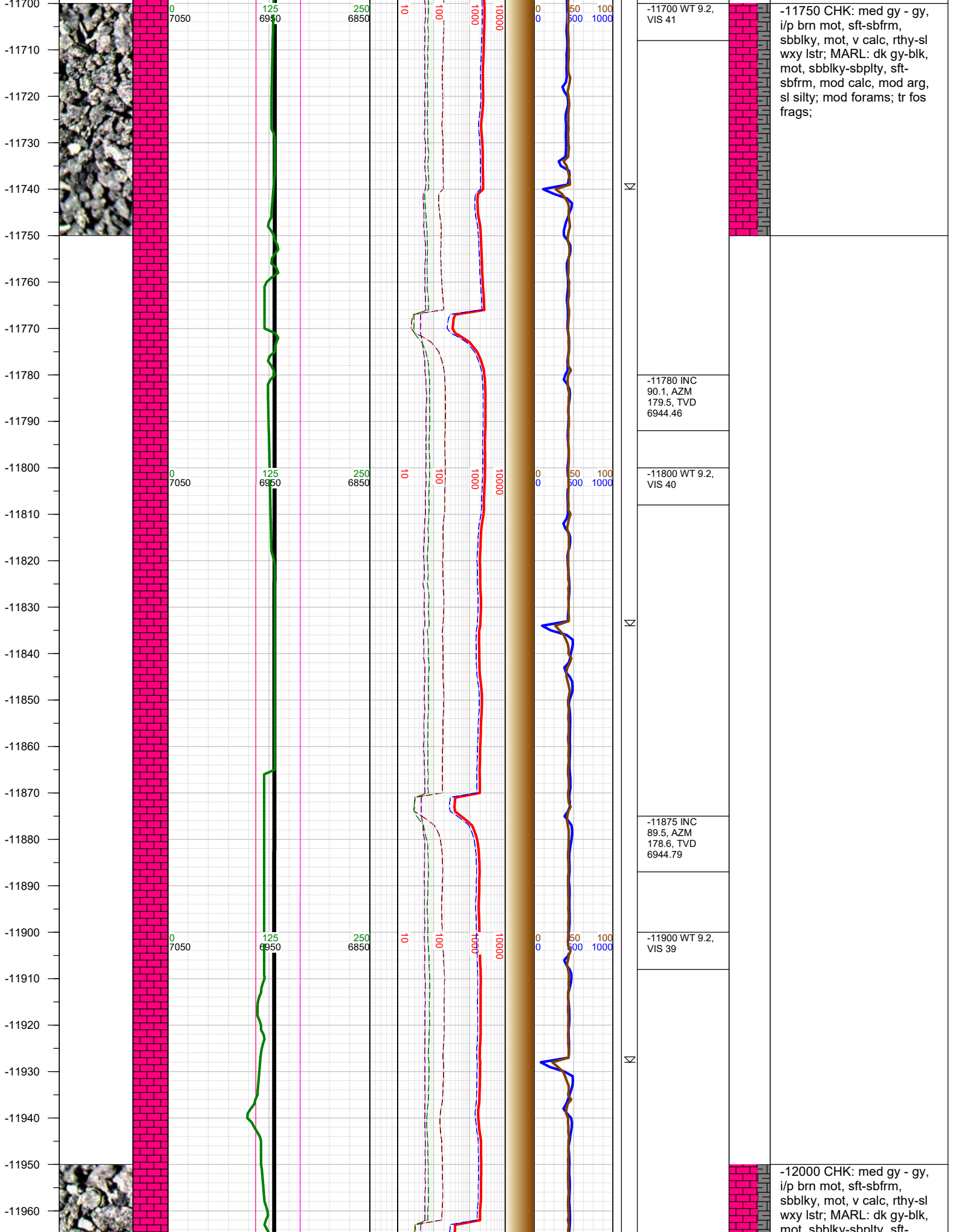
-11592 INC  
89.6, AZM  
179.8, TVD  
6943.72

-11610 WT 9.2,  
VIS 40

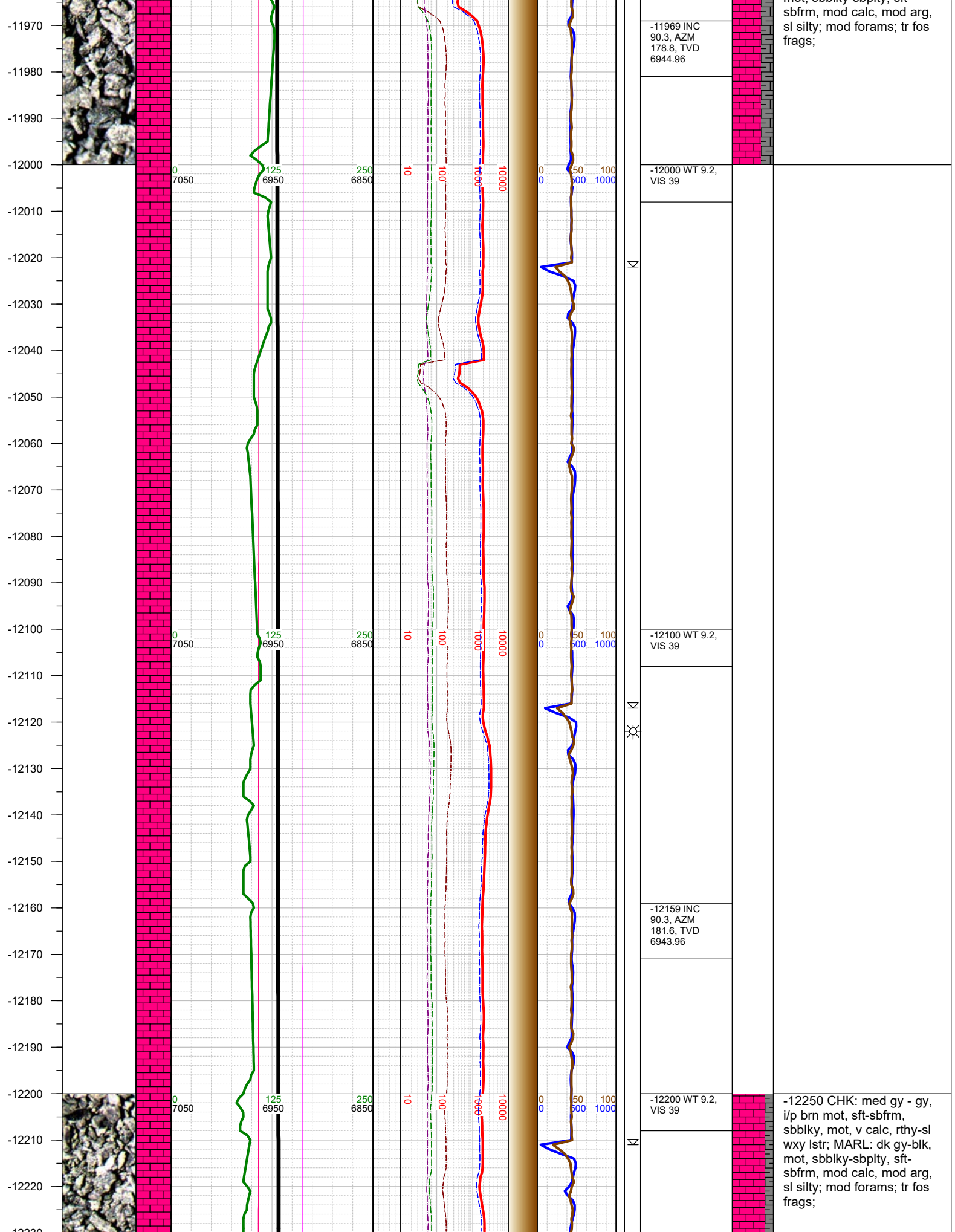
-11686 INC  
89.7, AZM  
179.5, TVD  
6944.3

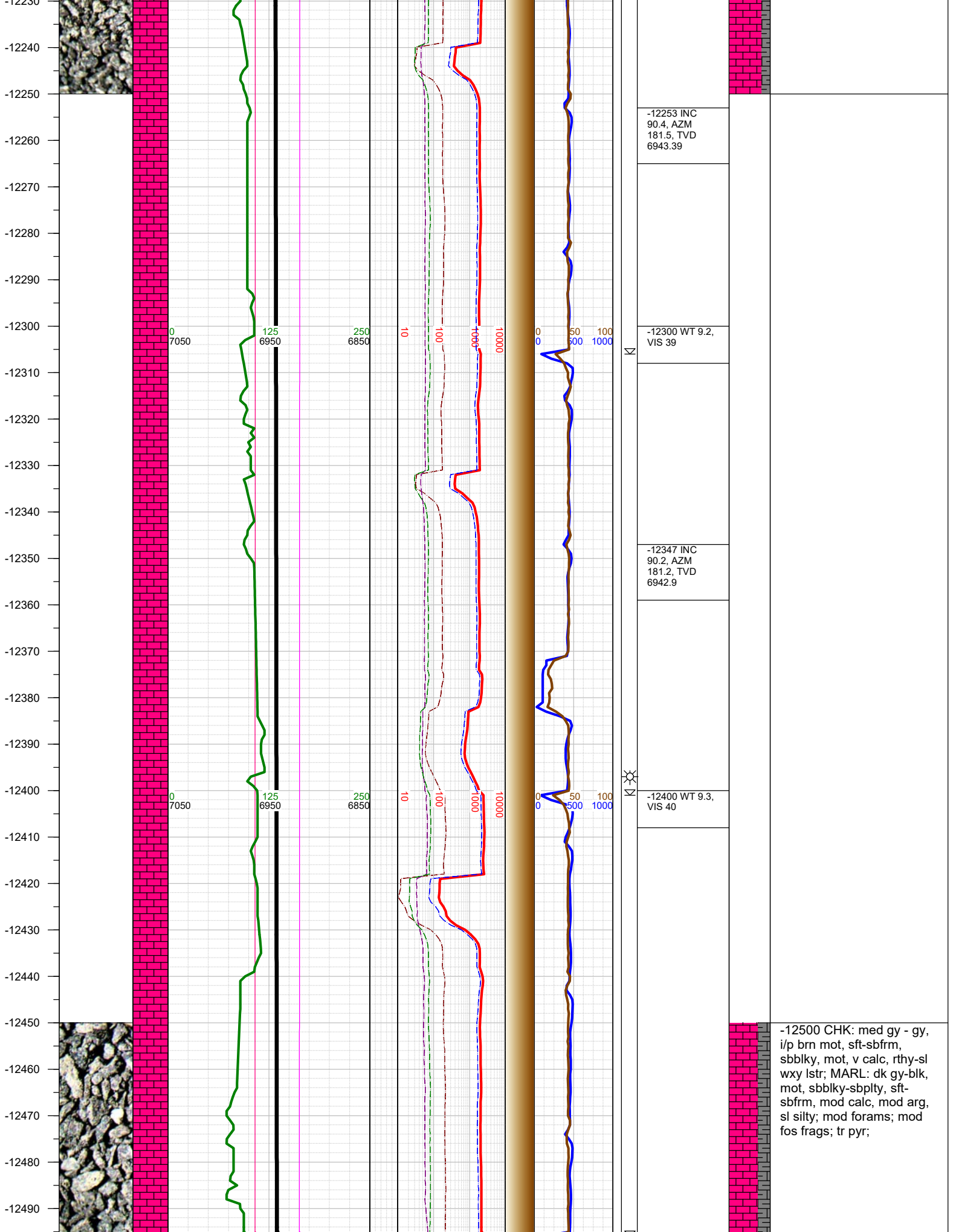


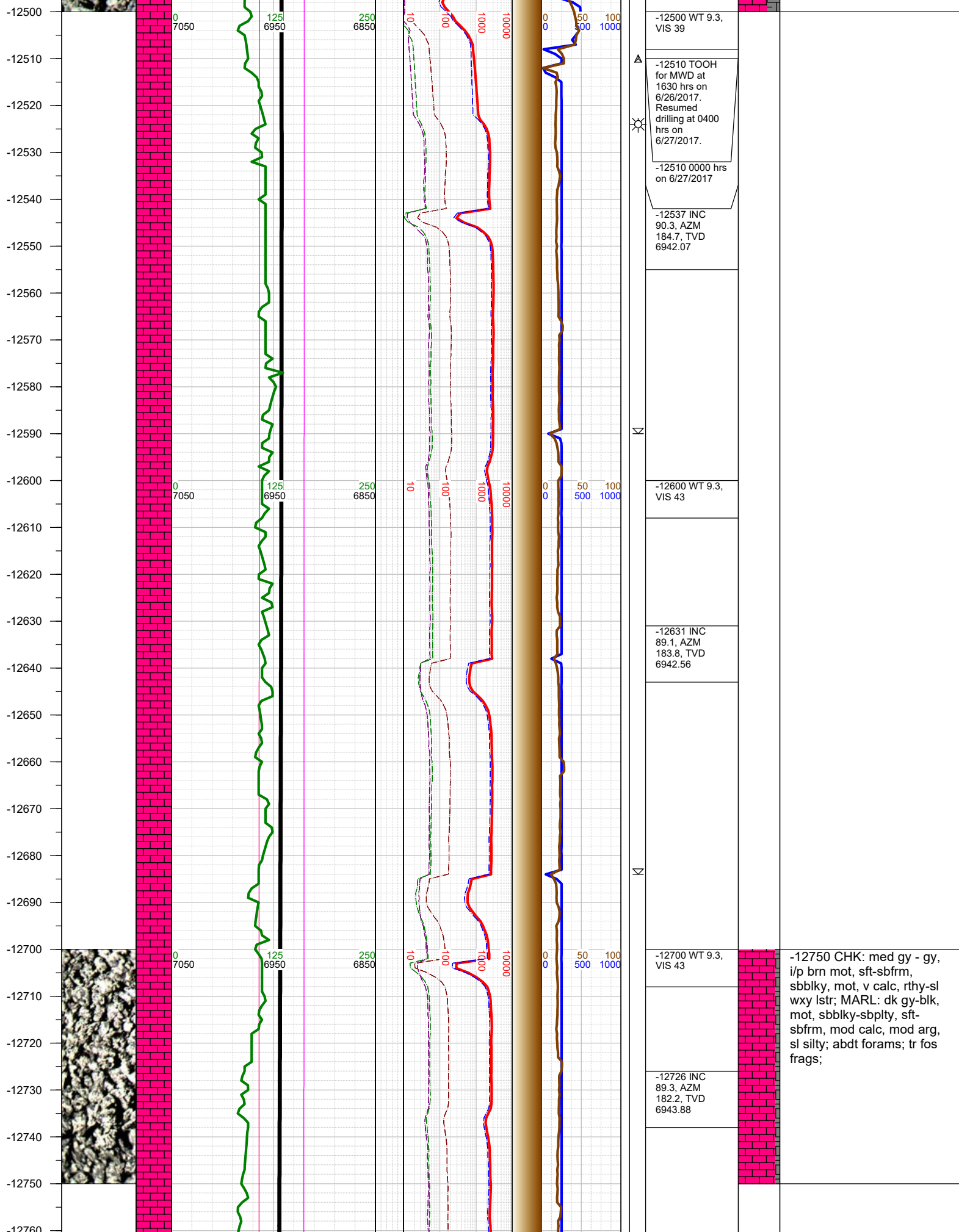
-11500 CHK: med gy - gy,  
i/p brn mot, sft-sbfrm,  
sbbkly, mot, v calc, rthy-sl  
wxy lstr; MARL: dk gy-blk,  
mot, sbbkly-sbply, sft-  
sbfrm, mod calc, mod arg,  
sl silty; tr forams; tr fos  
frags;











-12500 WT 9.3,  
VIS 39

-12510 TOO H  
for MWD at  
1630 hrs on  
6/26/2017.  
Resumed  
drilling at 0400  
hrs on  
6/27/2017.

-12510 0000 hrs  
on 6/27/2017

-12537 INC  
90.3, AZM  
184.7, TVD  
6942.07

-12600 WT 9.3,  
VIS 43

-12631 INC  
89.1, AZM  
183.8, TVD  
6942.56

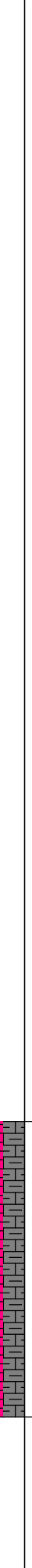
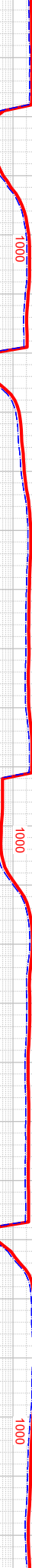
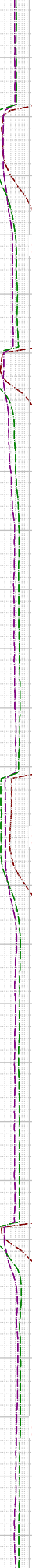
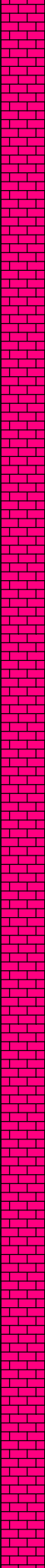
-12700 WT 9.3,  
VIS 43

-12726 INC  
89.3, AZM  
182.2, TVD  
6943.88

-12750 CHK: med gy - gy,  
i/p brn mot, sft-sbfrm,  
sbblky, mot, v calc, rthy-sl  
wxy lstr; MARL: dk gy-blk,  
mot, sbblky-sbplty, sft-  
sbfrm, mod calc, mod arg,  
sl silty; abdt forams; tr fos  
frags;



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-13010  
-13020



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-12800 WT 9.3,  
VIS 42

-12821 INC 89,  
AZM 180.9,  
TVD 6945.29

-12900 WT 9.3,  
VIS 42

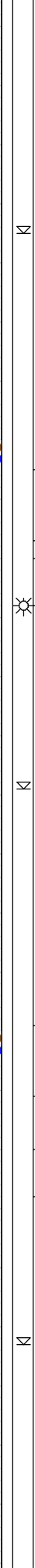
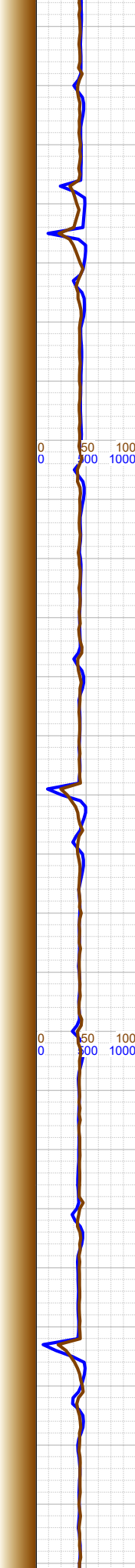
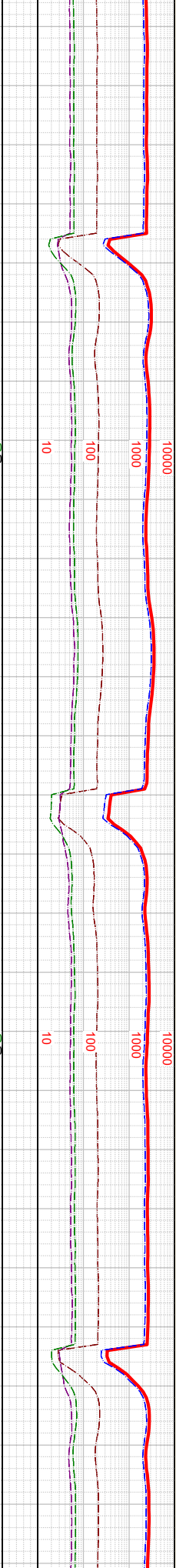
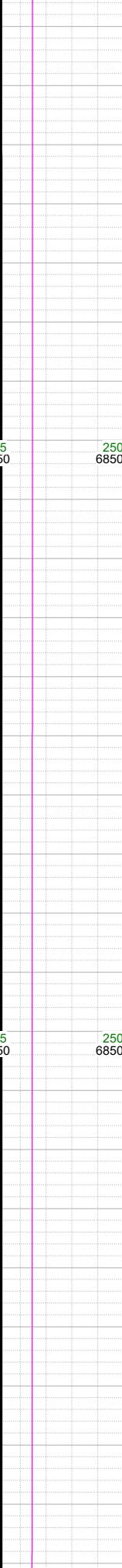
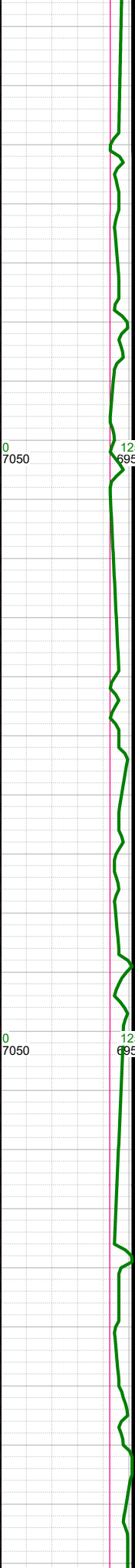
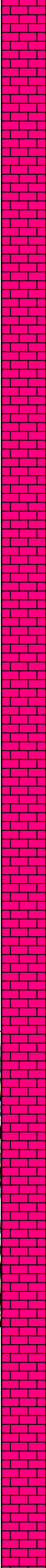
-12916 INC  
89.8, AZM  
179.8, TVD  
6946.29

-13000 CHK: med gy - gy,  
i/p brn mot, sft-sbfrm,  
sbbly, mot, v calc, rthy-sl  
wxy lstr; MARL: dk gy-blk,  
mot, sbbly-sbply, sft-  
sbfrm, mod calc, mod arg,  
sl silty; tr forams; tr fos  
frags;

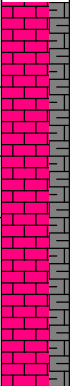
-13000 WT 9.3,  
VIS 42

-13010 INC  
90.2, AZM  
180.5, TVD  
6946.29

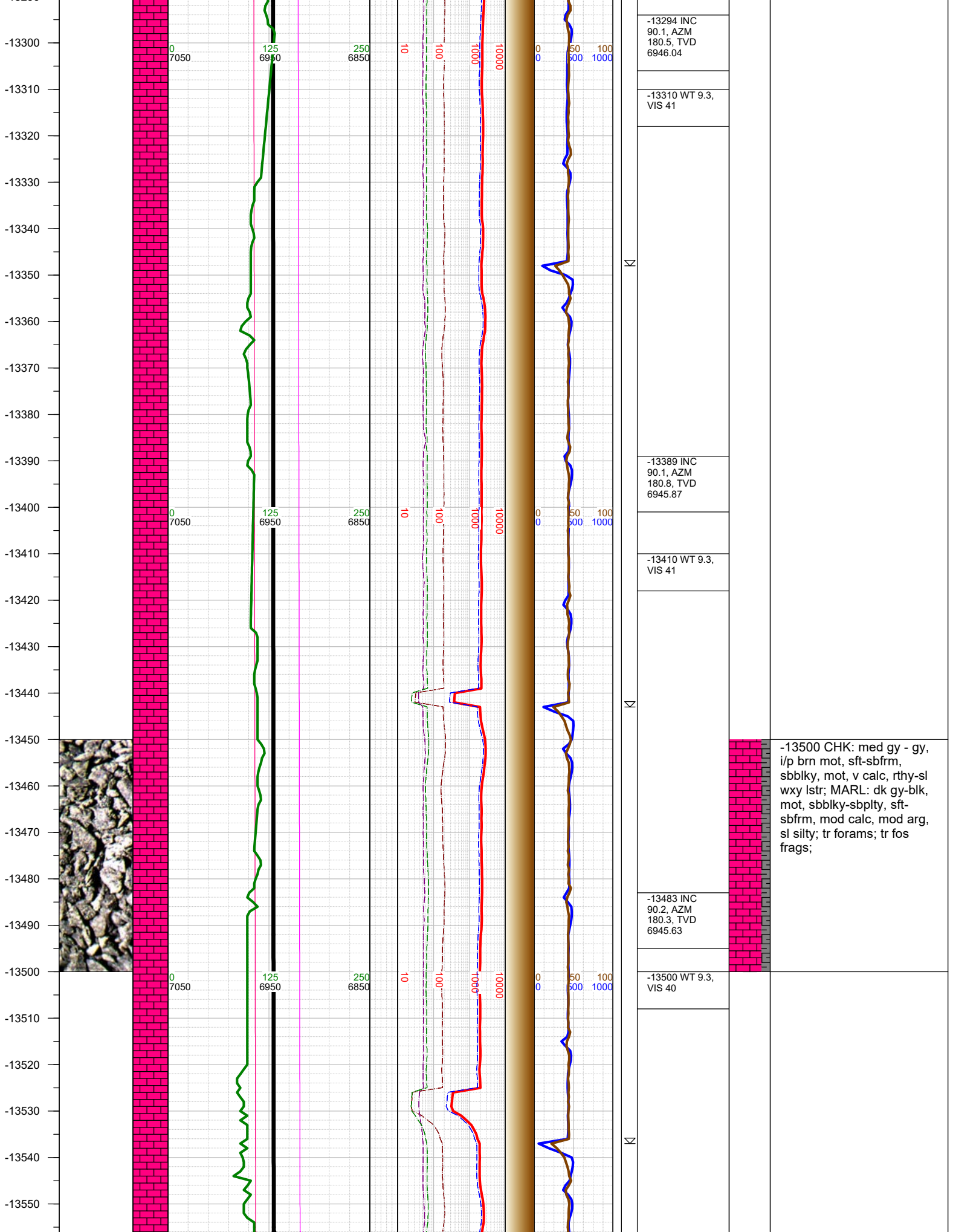
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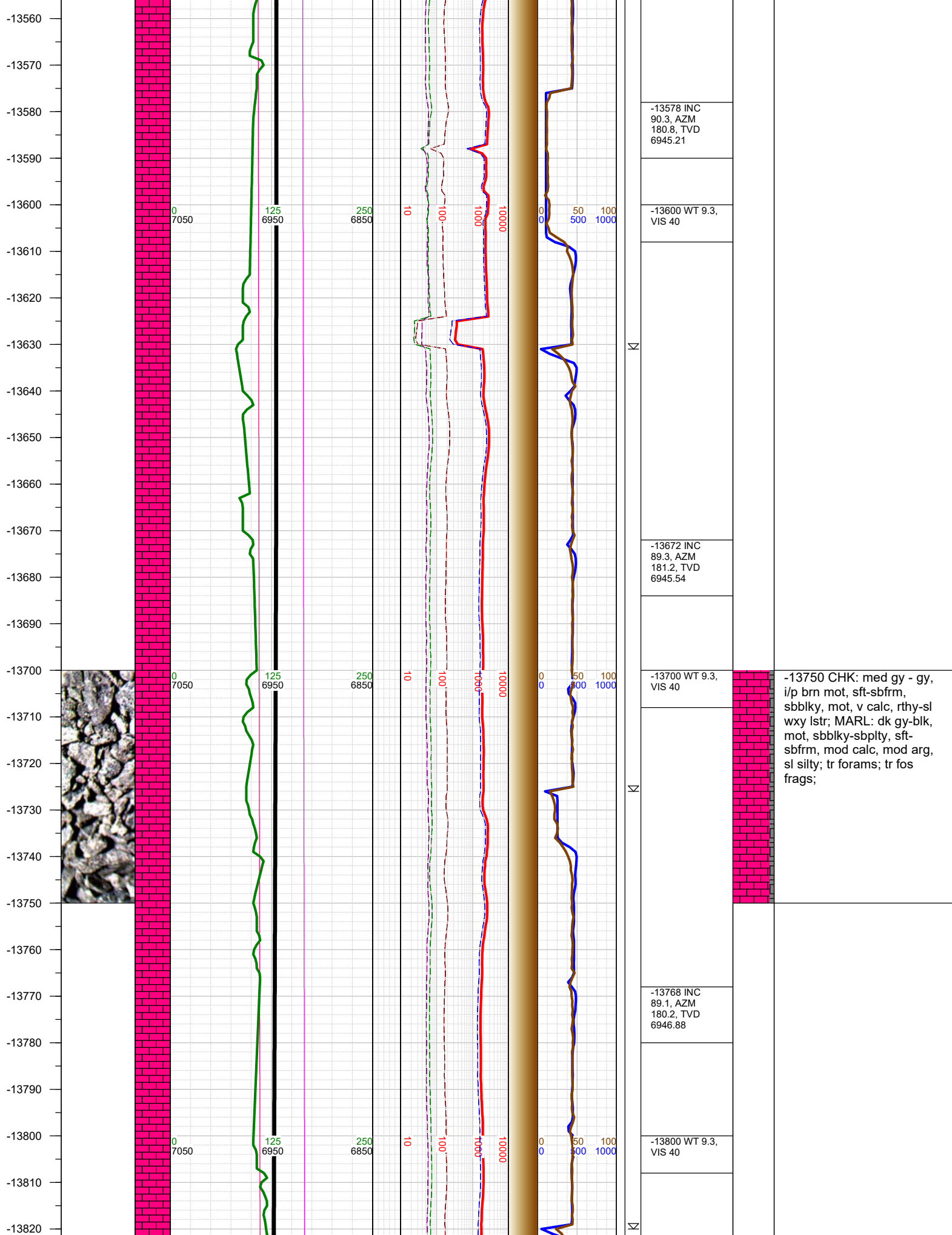
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| -13105 INC<br>90.2, AZM 181,<br>TVD 6945.96      |  |
| -13120 WT 9.3,<br>VIS 41                         |  |
| -13199 INC<br>89.8, AZM<br>180.9, TVD<br>6945.96 |  |
| -13220 WT 9.3,<br>VIS 41                         |  |

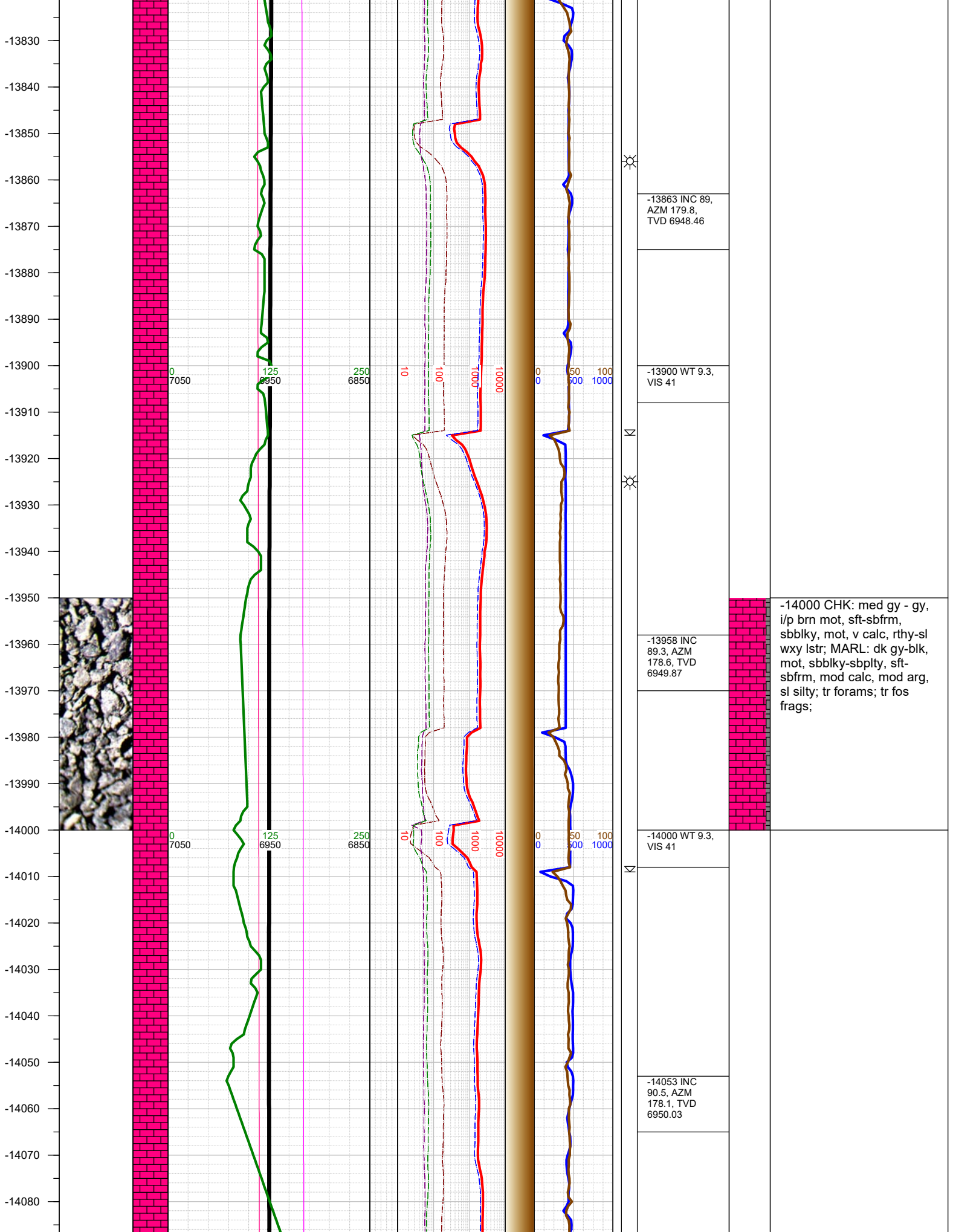


-13250 CHK: med gy - gy,  
i/p brn mot, sft-sbfrm,  
sbbly, mot, v calc, rthy-sl  
wxy lstr; MARL: dk gy-blk,  
mot, sbbly-sbply, sft-  
sbfrm, mod calc, mod arg,  
sl silty; tr forams; tr fos  
frags;

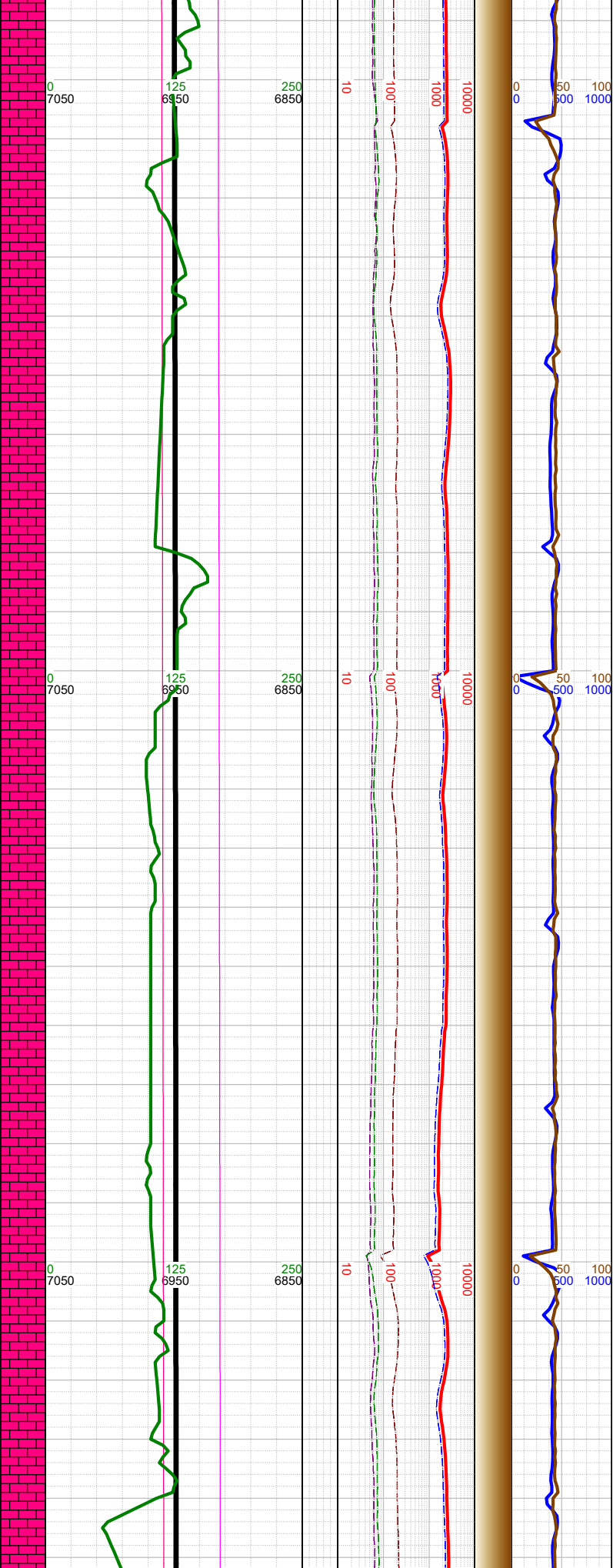
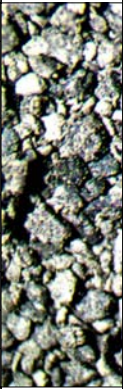




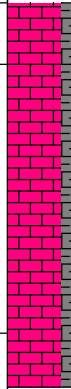




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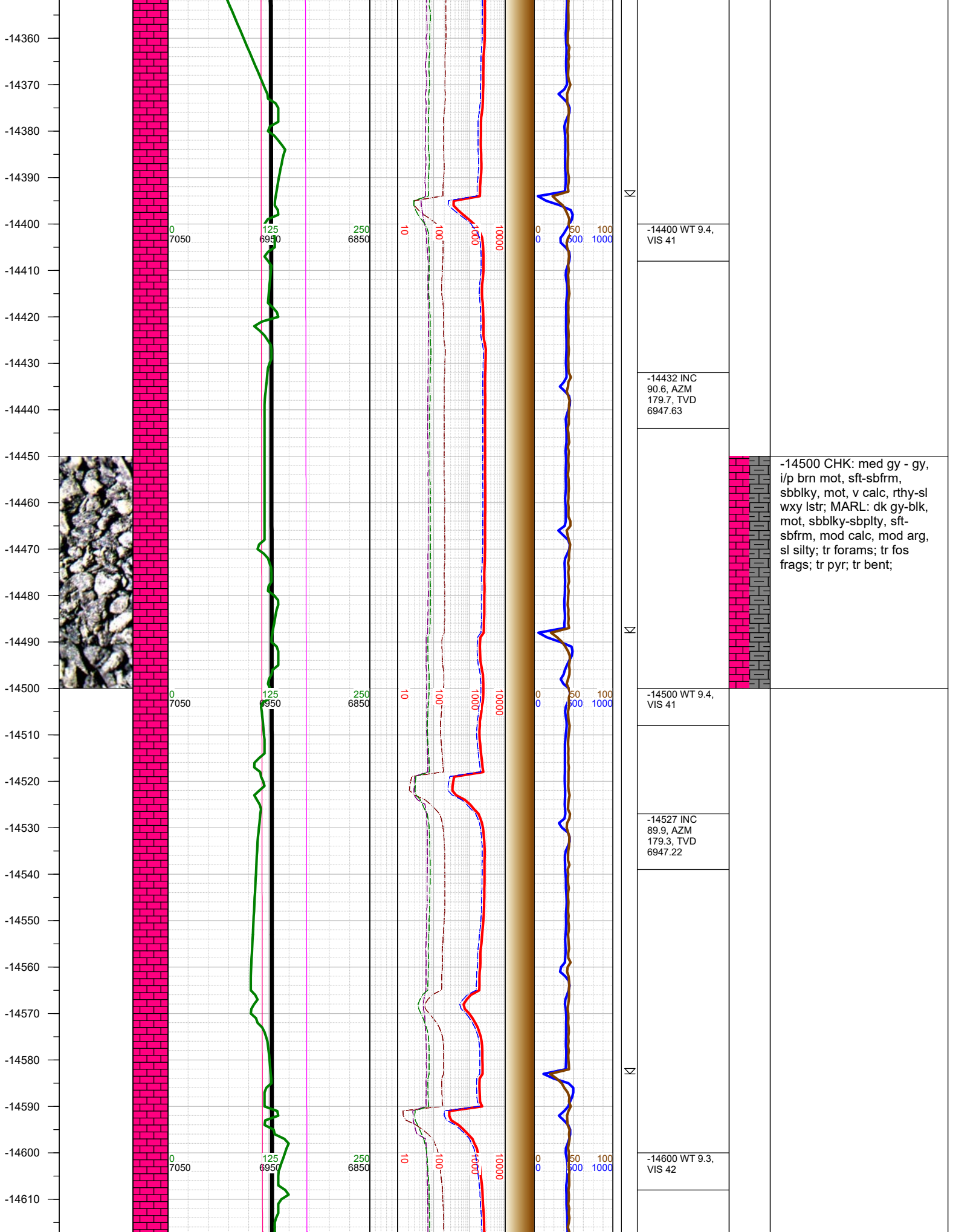


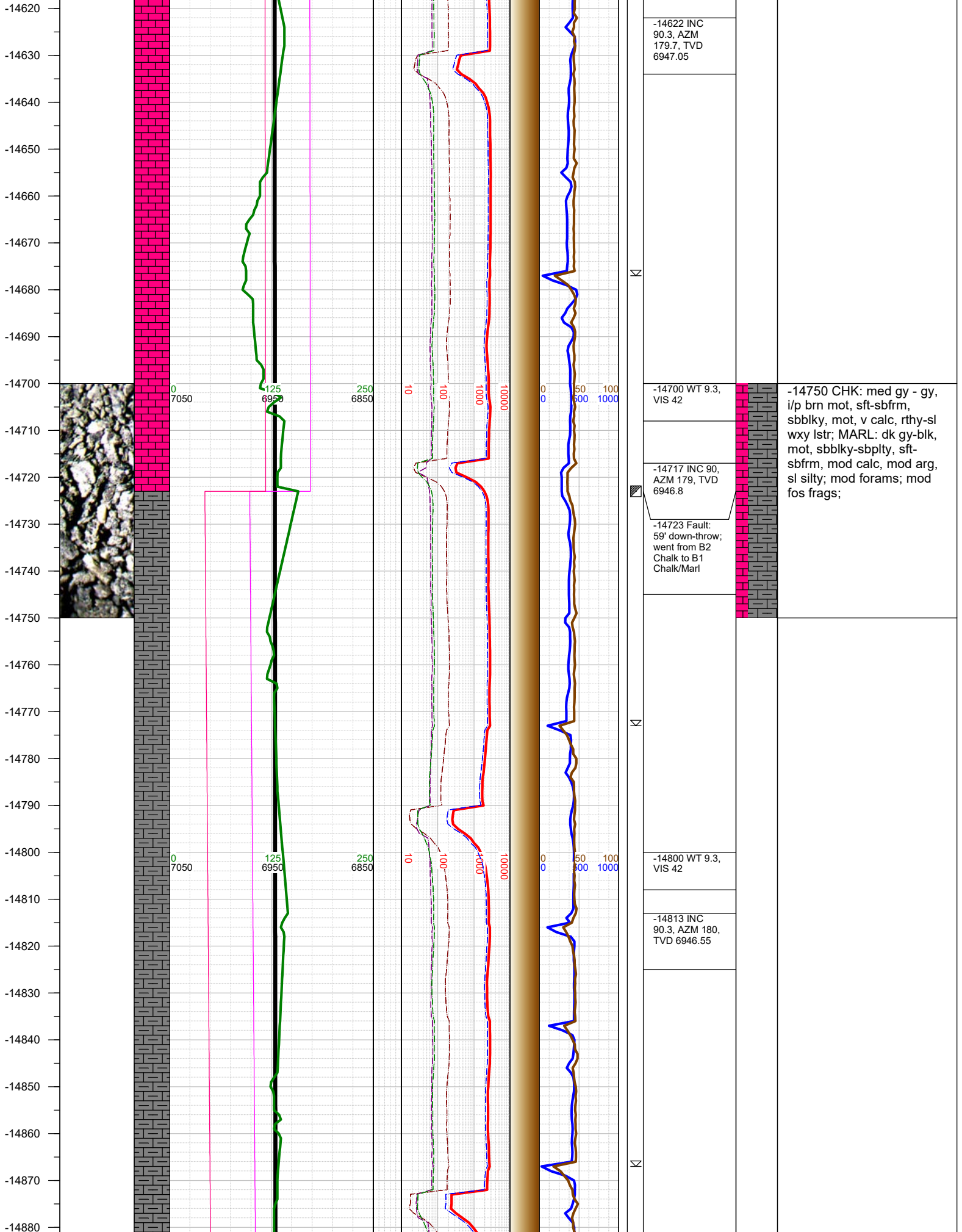
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|---|--|
| Σ | -14100 WT 9.3,<br>VIS 41                         |
|   |  |
| Σ | -14148 INC<br>90.5, AZM<br>179.4, TVD<br>6949.2  |
|   |  |
| Σ | -14200 WT 9.3,<br>VIS 41                         |
|   |  |
| Σ | -14243 INC<br>90.1, AZM<br>179.5, TVD<br>6948.71 |
|   |  |
| Σ | -14300 WT 9.4,<br>VIS 41                         |
|   |  |
| Σ | -14337 INC<br>90.3, AZM<br>178.8, TVD<br>6948.38 |
|   |  |

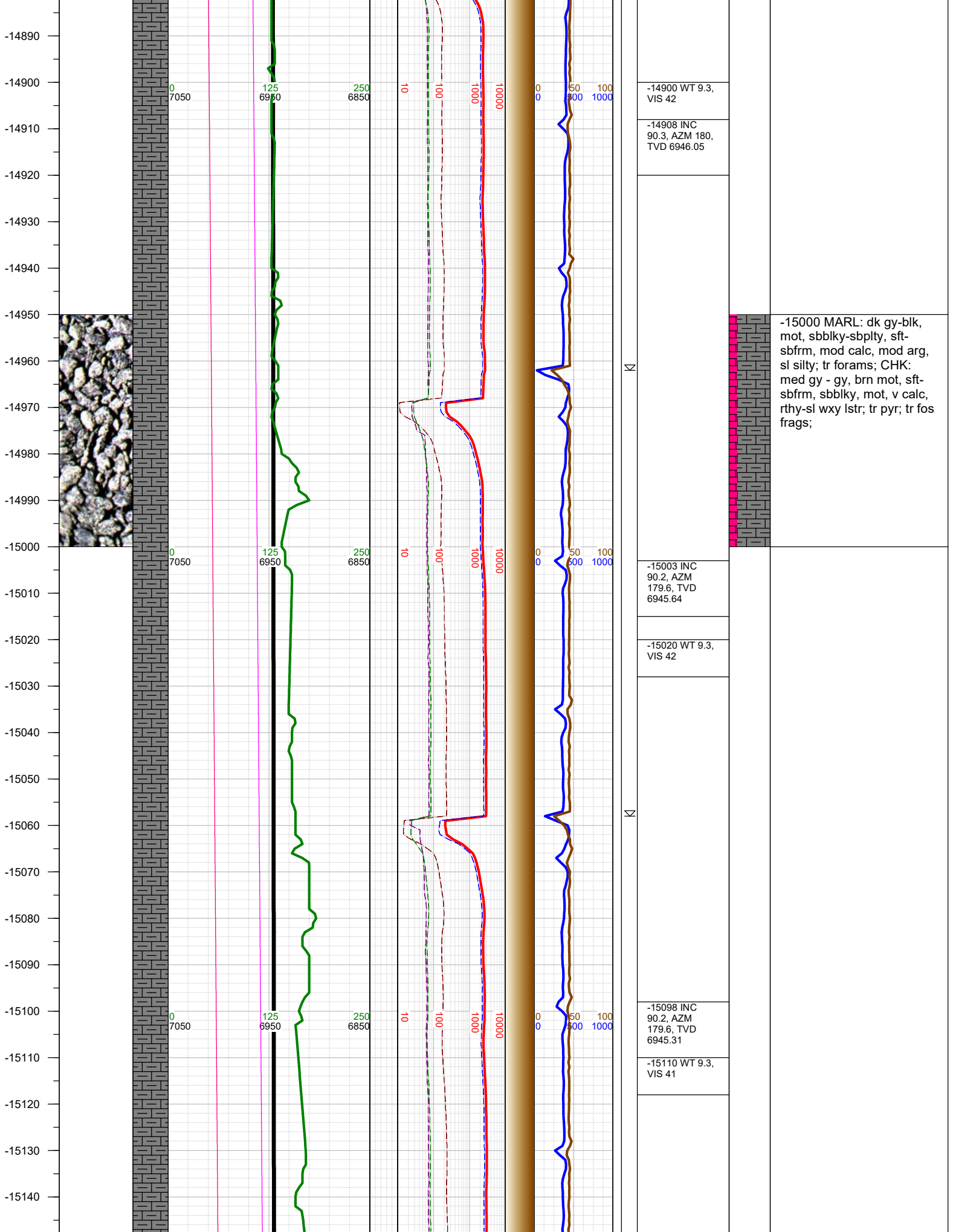


-14250 CHK: med gy - gy,  
i/p brn mot, sft-sbfrm,  
sbblky, mot, v calc, rthy-sl  
wxy lstr; MARL: dk gy-blk,  
mot, sbblky-sbplty, sft-  
sbfrm, mod calc, mod arg,  
sl silty; tr forams; tr fos  
frags; tr pyr;

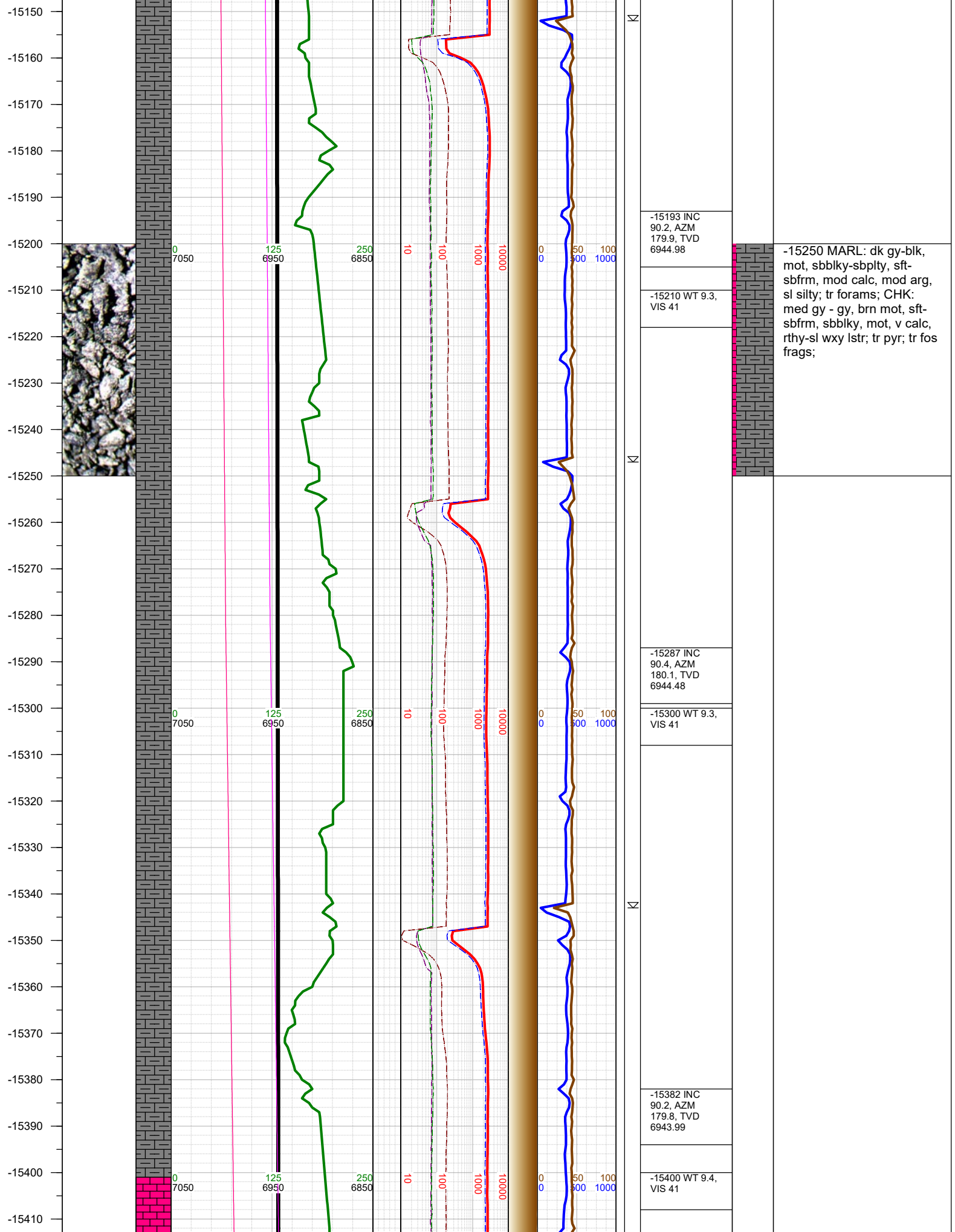




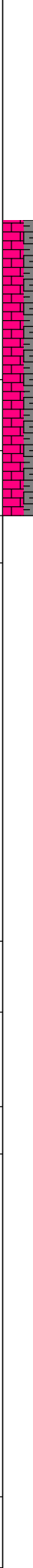
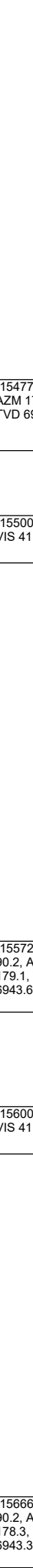
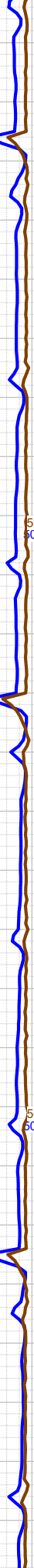
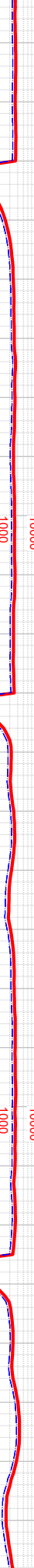
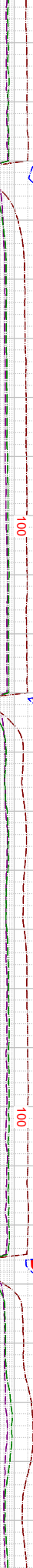
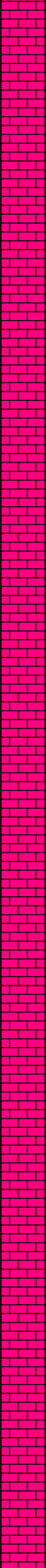
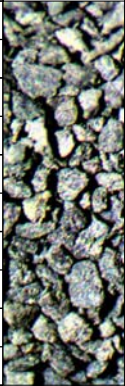








-15420  
-15430  
-15440  
-15450  
-15460  
-15470  
-15480  
-15490  
-15500  
-15510  
-15520  
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-15550  
-15560  
-15570  
-15580  
-15590  
-15600  
-15610  
-15620  
-15630  
-15640  
-15650  
-15660  
-15670



-15500 CHK: med gy - gy,  
i/p brn mot, sft-sbfrm,  
sbbiky, mot, v calc, rthy-sl  
wxy lstr; MARL: dk gy-blk,  
mot, sbbiky-sbply, sft-  
sbfrm, mod calc, mod arg,  
sl silty; tr forams; tr pyr; tr  
bent;

-15477 INC 90,  
AZM 179.3,  
TVD 6943.82

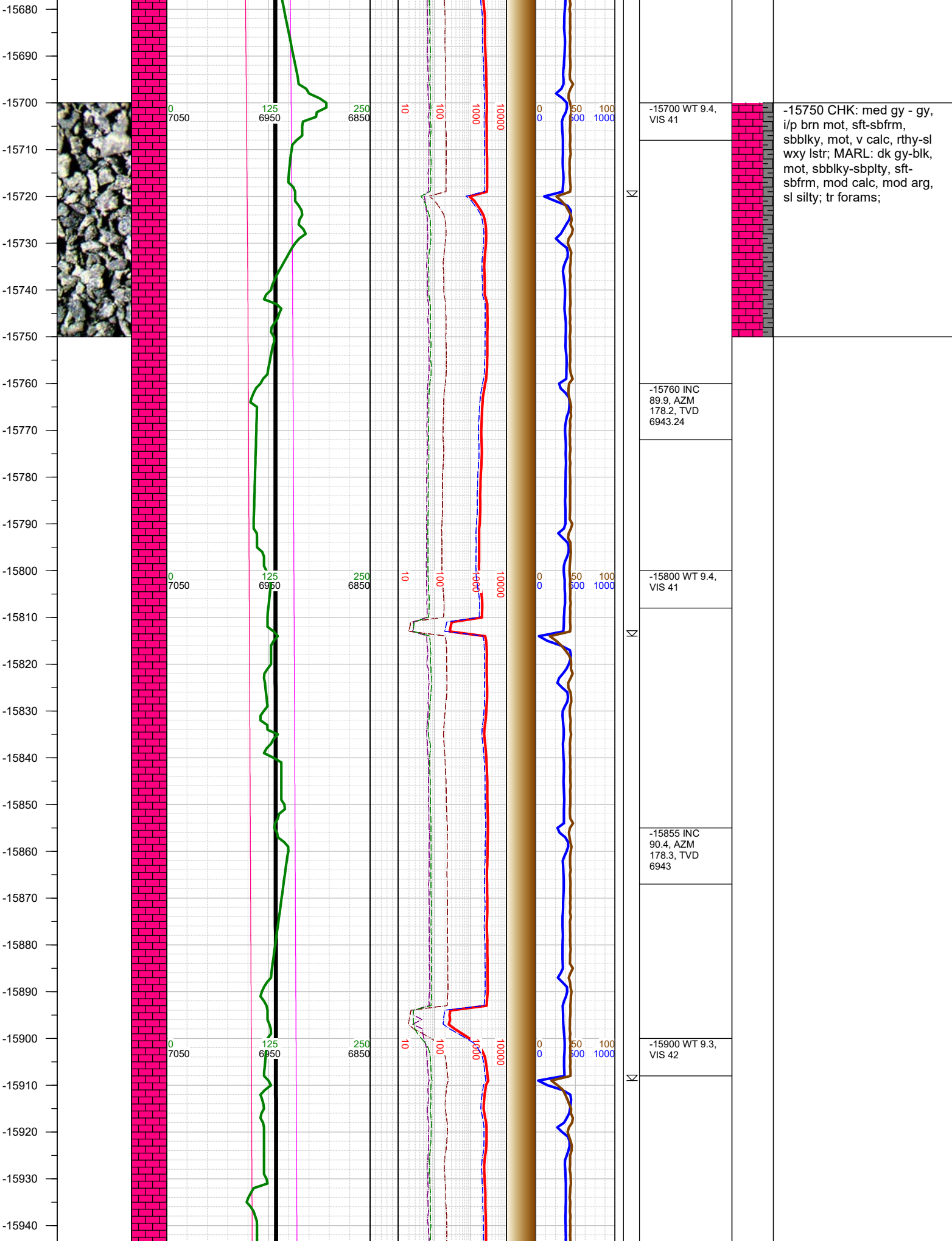
-15500 WT 9.4,  
VIS 41

-15572 INC  
90.2, AZM  
179.1, TVD  
6943.65

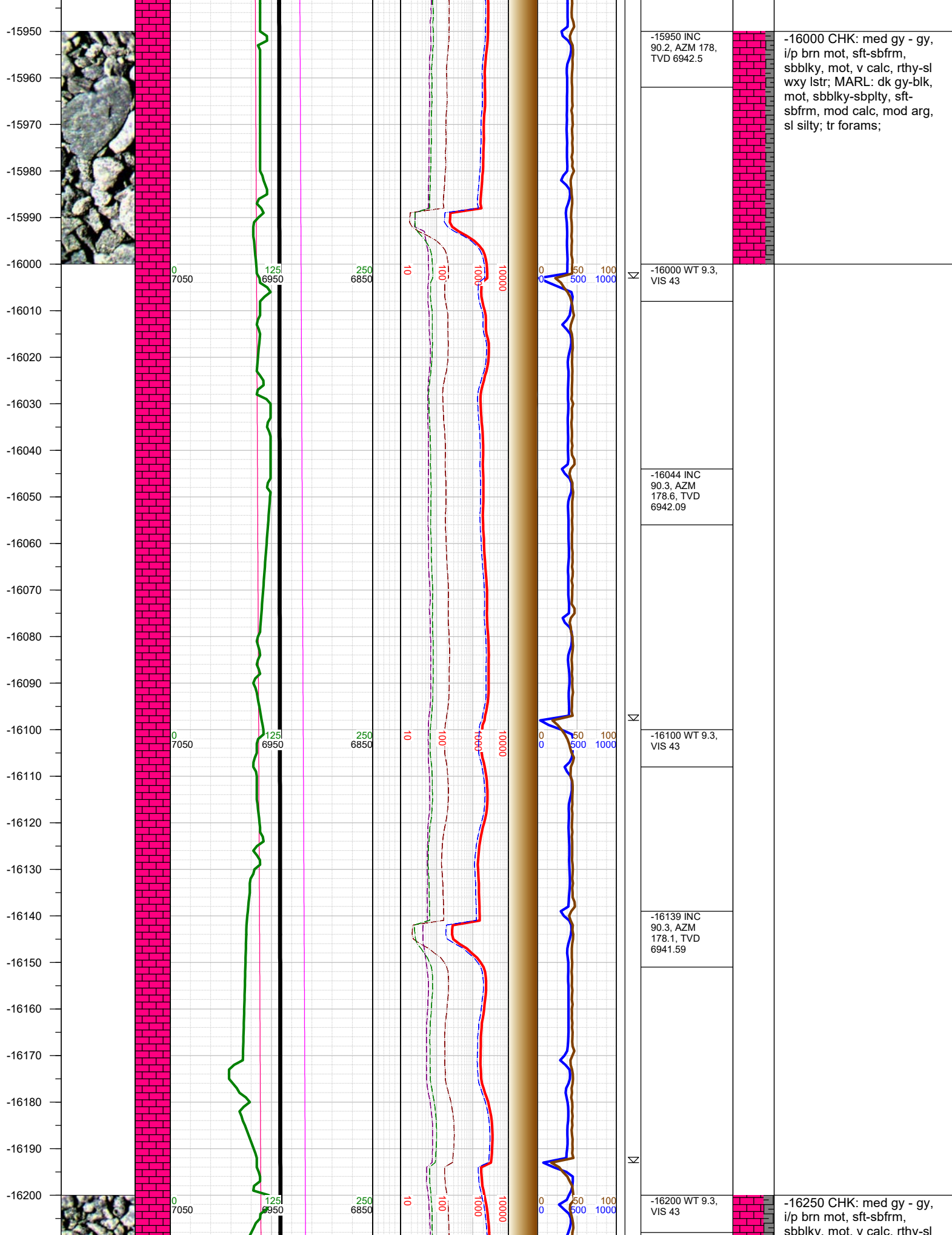
-15600 WT 9.4,  
VIS 41

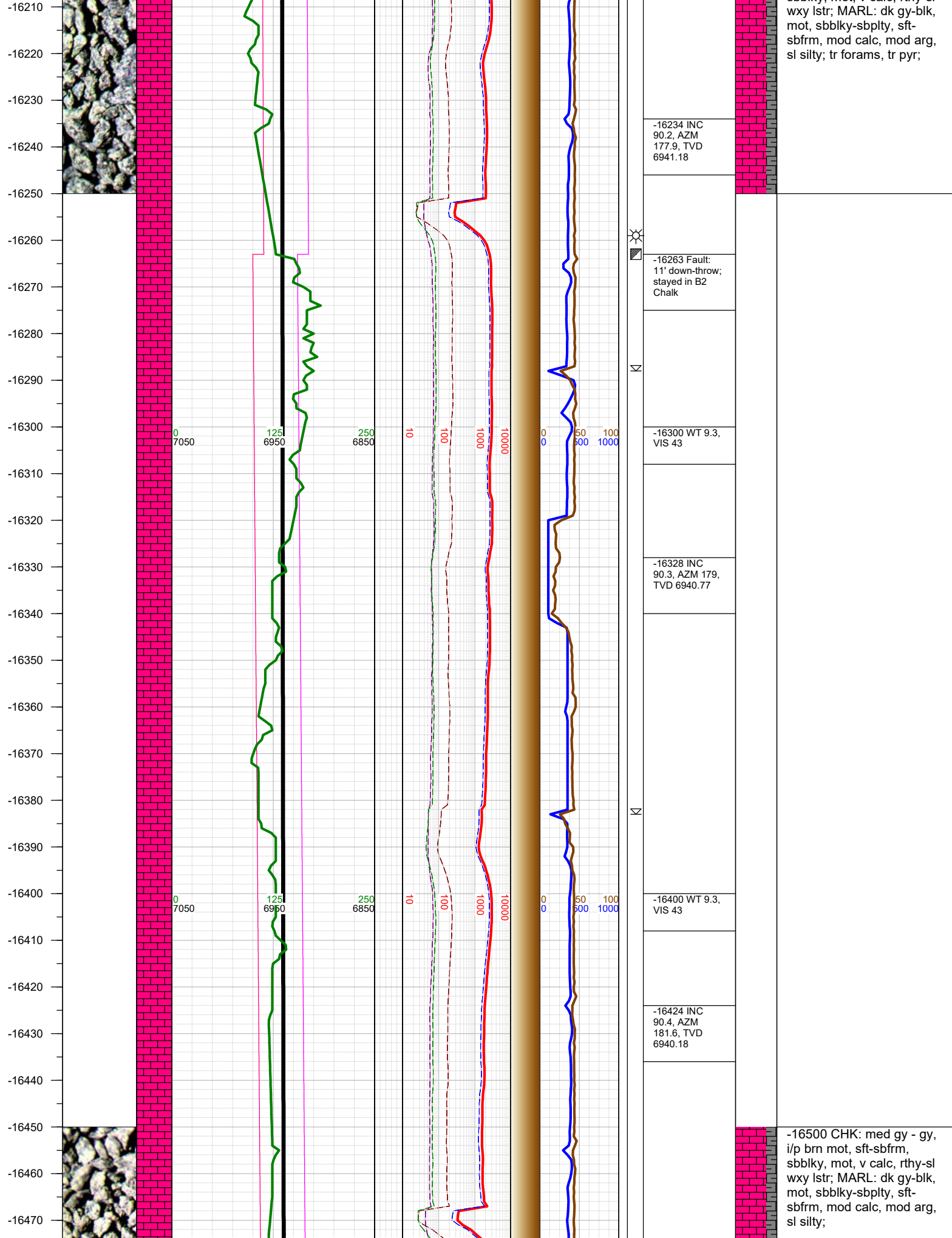
-15666 INC  
90.2, AZM  
178.3, TVD  
6943.33

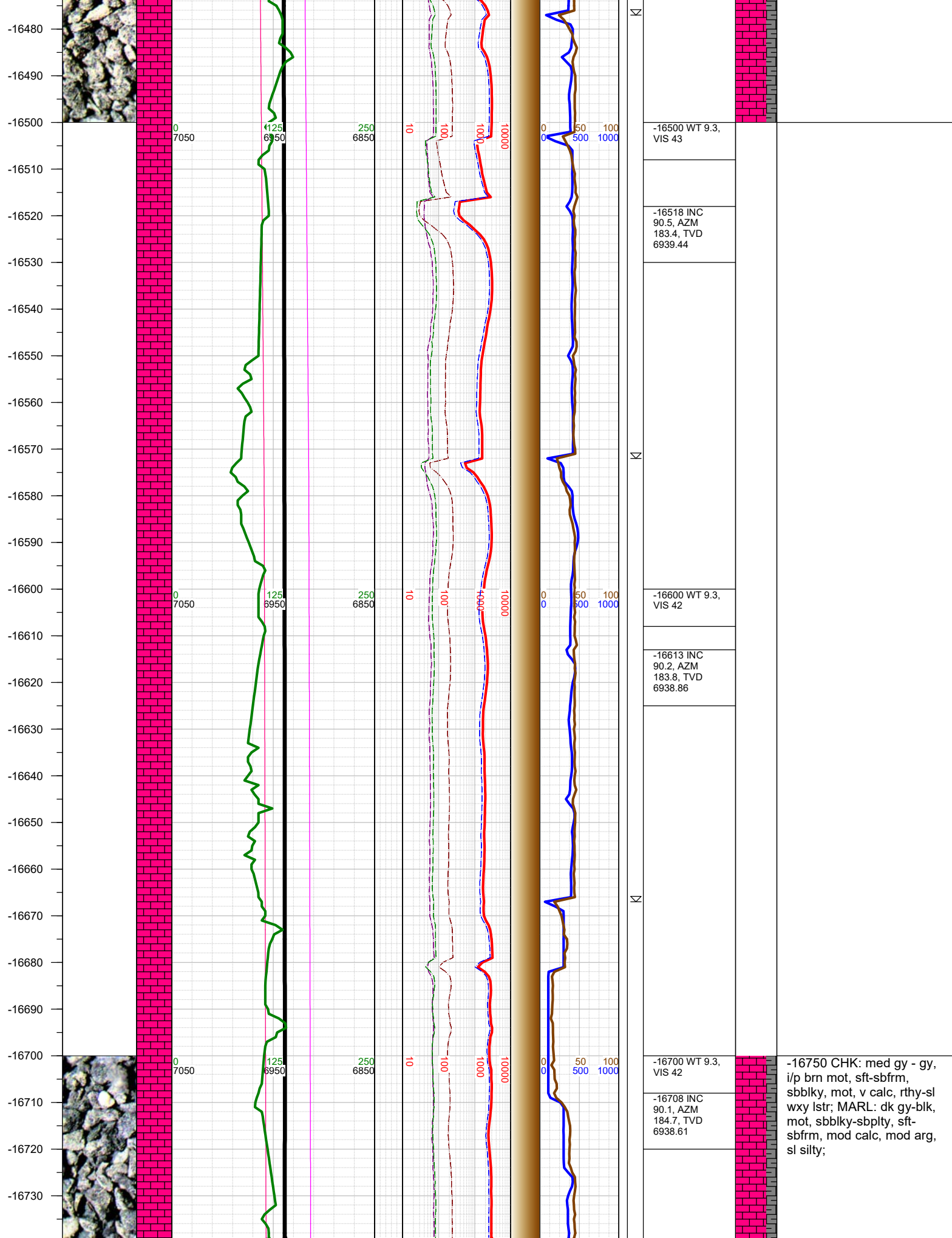




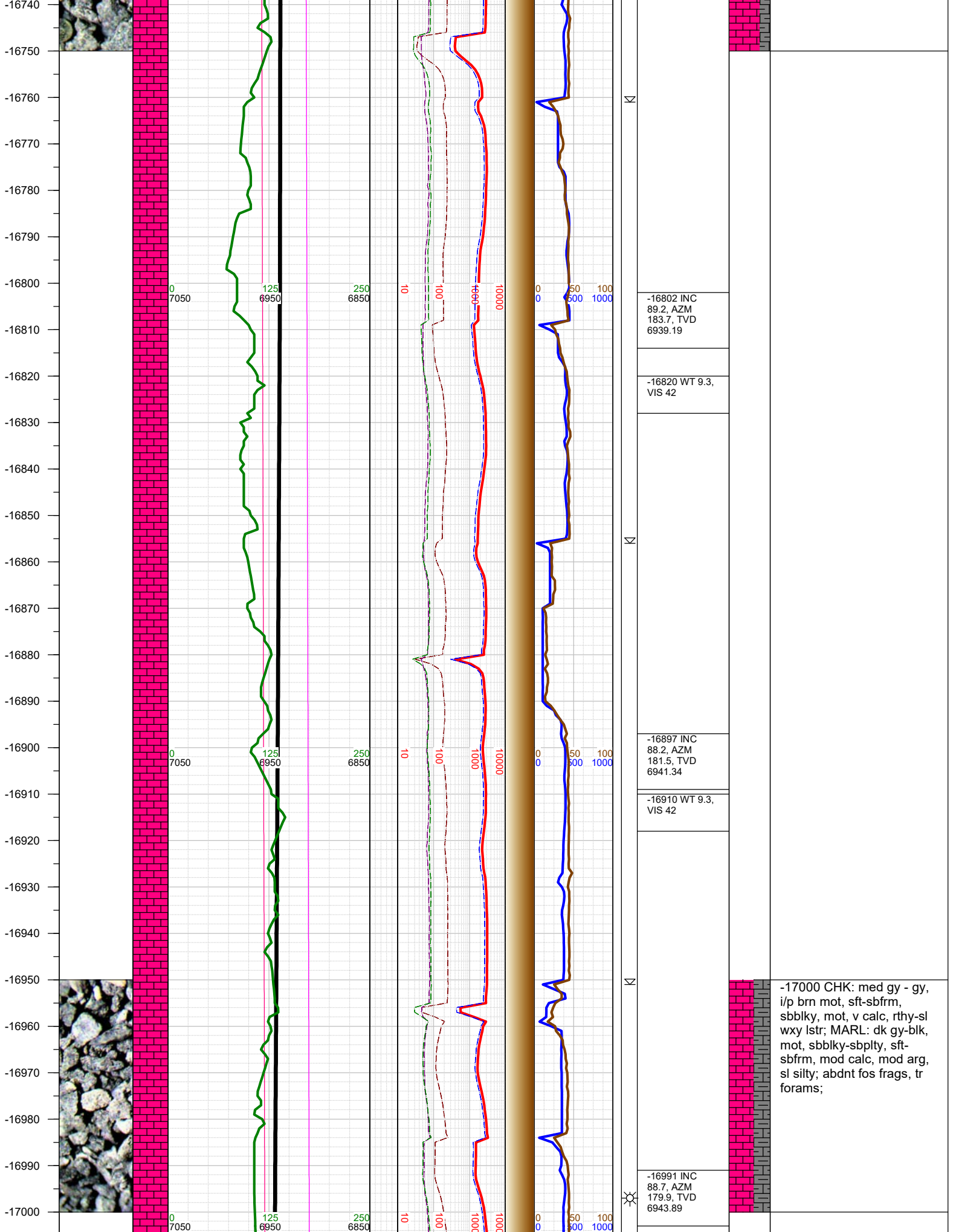




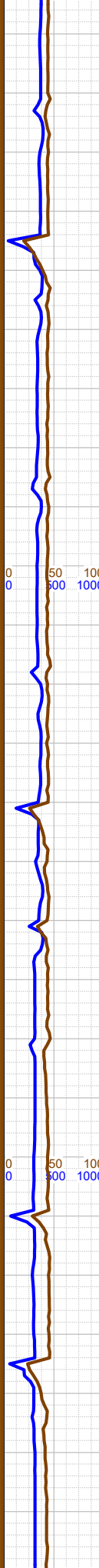
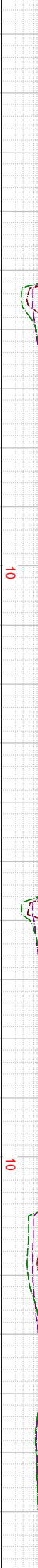
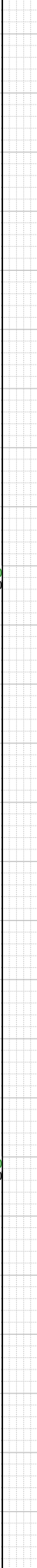
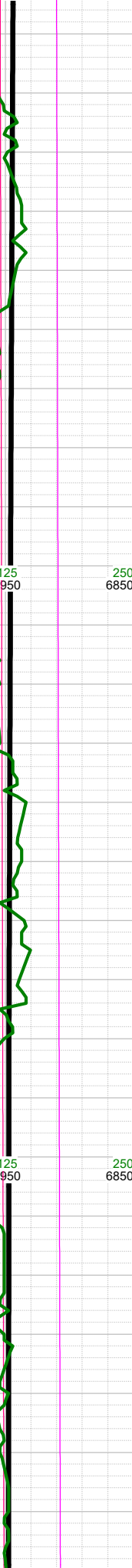
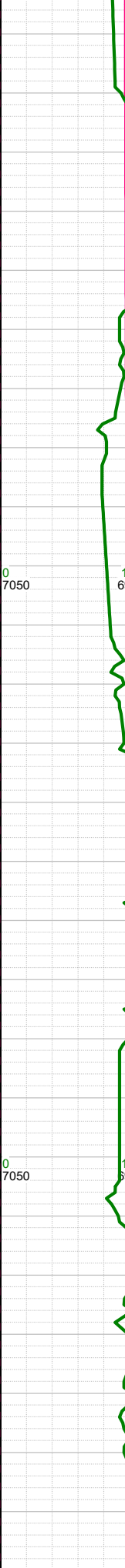
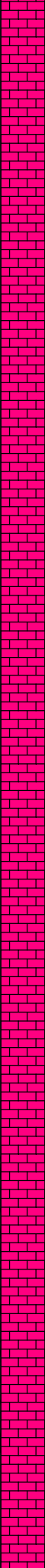




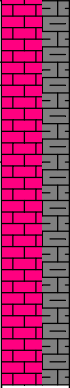




-17010  
-17020  
-17030  
-17040  
-17050  
-17060  
-17070  
-17080  
-17090  
-17100  
-17110  
-17120  
-17130  
-17140  
-17150  
-17160  
-17170  
-17180  
-17190  
-17200  
-17210  
-17220  
-17230  
-17240  
-17250  
-17260  
-17270

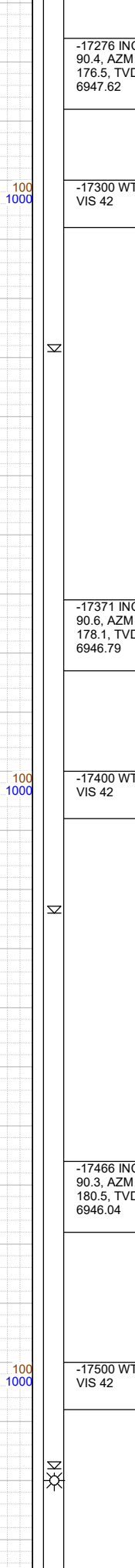
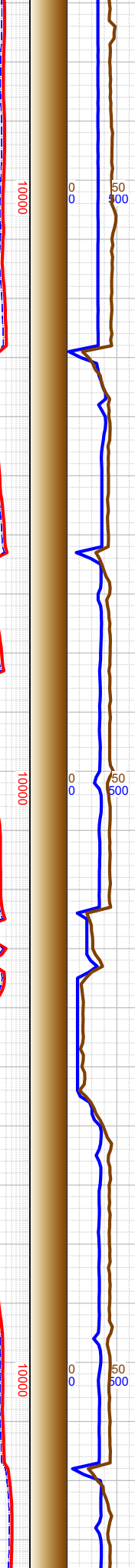
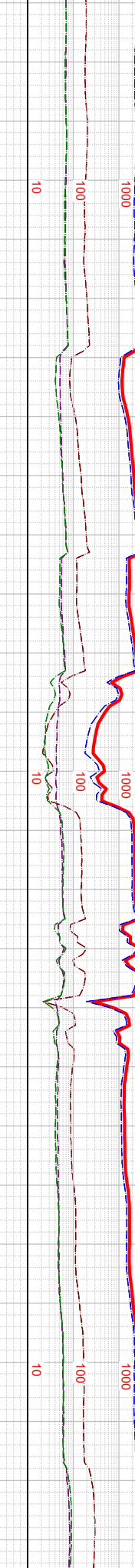
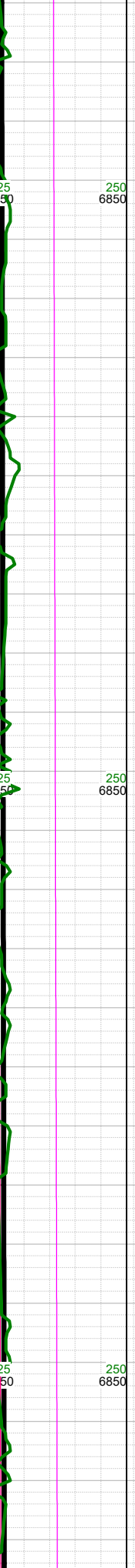
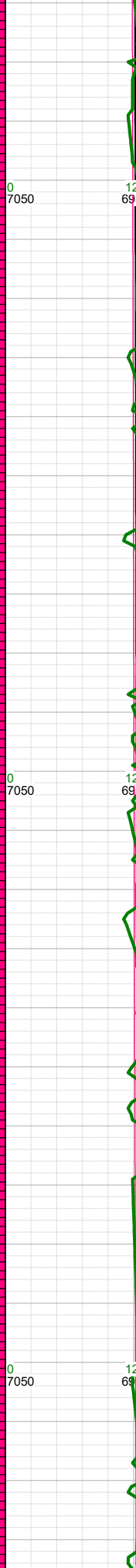
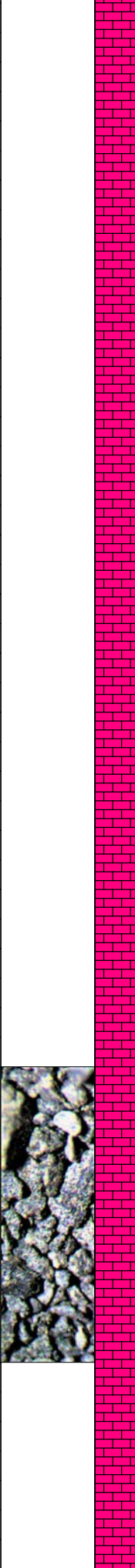


|  |
|--|
| -17010 WT 9.3,<br>VIS 42                         |
| -17086 INC<br>88.9, AZM<br>178.3, TVD<br>6945.87 |
| -17100 WT 9.3,<br>VIS 42                         |
| -17181 INC<br>89.3, AZM<br>176.6, TVD<br>6947.37 |
| -17200 WT 9.3,<br>VIS 42                         |
| -17211 0000 hrs<br>on 6/28/2017                  |



-17250 CHK: med gy, i/p  
brn mot, sft-sbfrm, sbblky,  
mot, v calc, rthy-sl wxy lstr;  
MARL: dk gy-blk, mot,  
sbblky-sbpity, sft-sbfrm,  
mod calc, mod arg, sl silty;  
mod fos frags, tr forams;

-17270  
-17280  
-17290  
-17300  
-17310  
-17320  
-17330  
-17340  
-17350  
-17360  
-17370  
-17380  
-17390  
-17400  
-17410  
-17420  
-17430  
-17440  
-17450  
-17460  
-17470  
-17480  
-17490  
-17500  
-17510  
-17520  
-17530



-17276 INC  
90.4, AZM  
176.5, TVD  
6947.62

-17300 WT 9.3,  
VIS 42

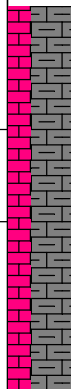
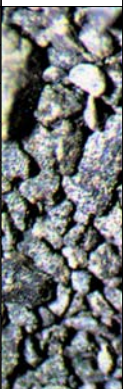
-17371 INC  
90.6, AZM  
178.1, TVD  
6946.79

-17400 WT 9.3,  
VIS 42

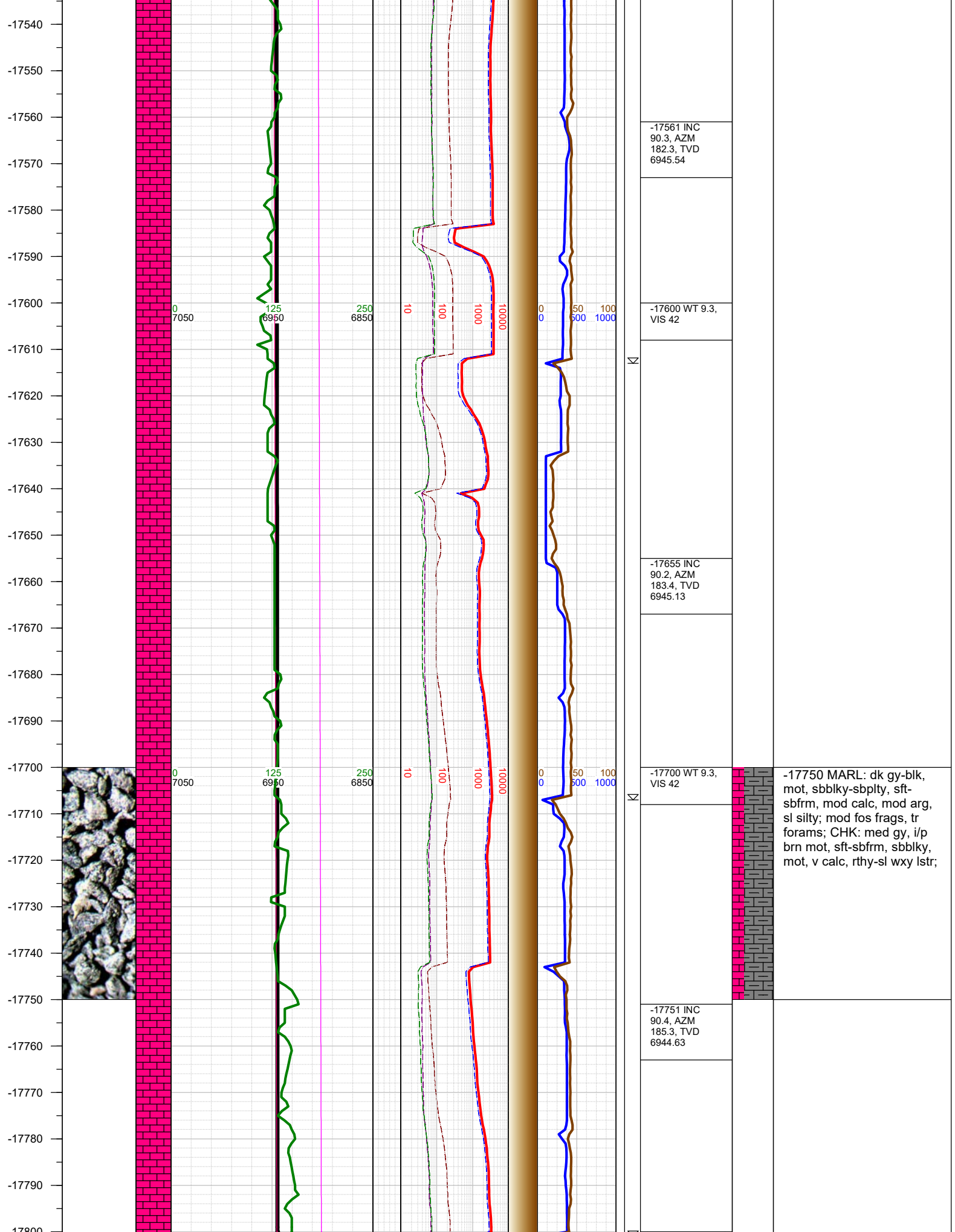
-17466 INC  
90.3, AZM  
180.5, TVD  
6946.04

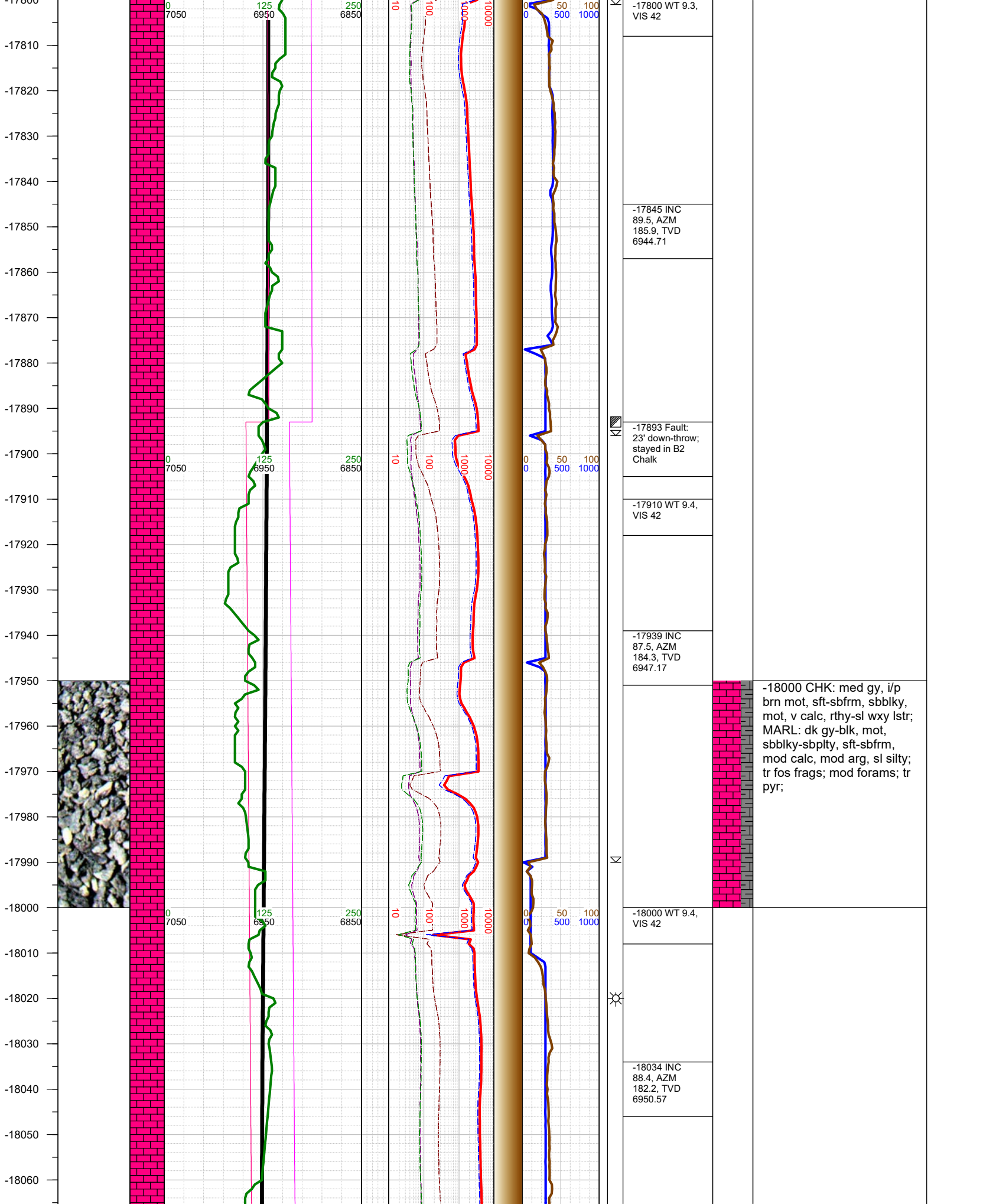
-17500 WT 9.3,  
VIS 42

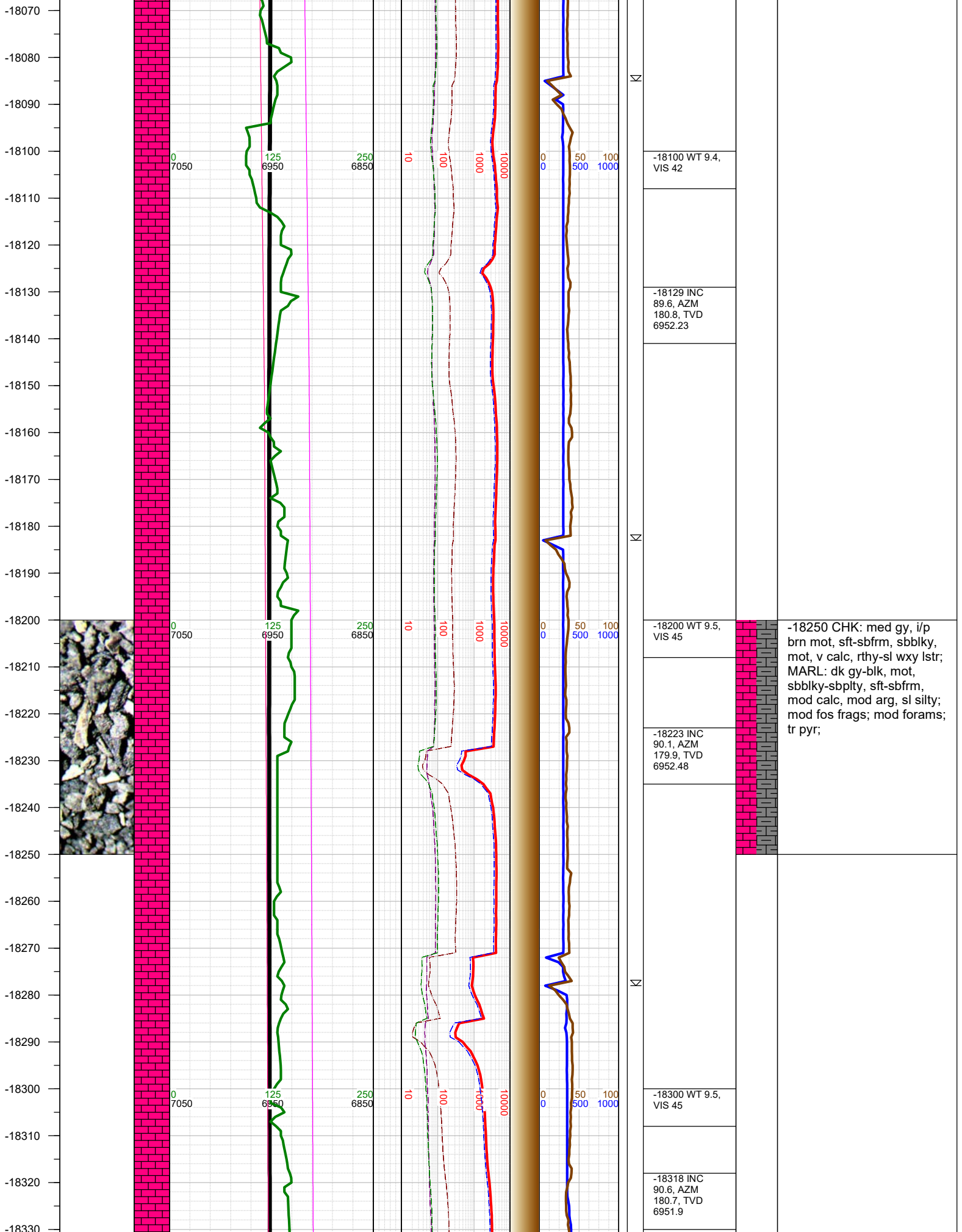
-17500 MARL: dk gy-blk,  
mot, sbblky-sbplty, sft-  
sbfrm, mod calc, mod arg,  
sl silty; mod fos frags, tr  
forams; CHK: med gy, i/p  
brn mot, sft-sbfrm, sbblky,  
mot, v calc, rthy-sl wxy lstr;



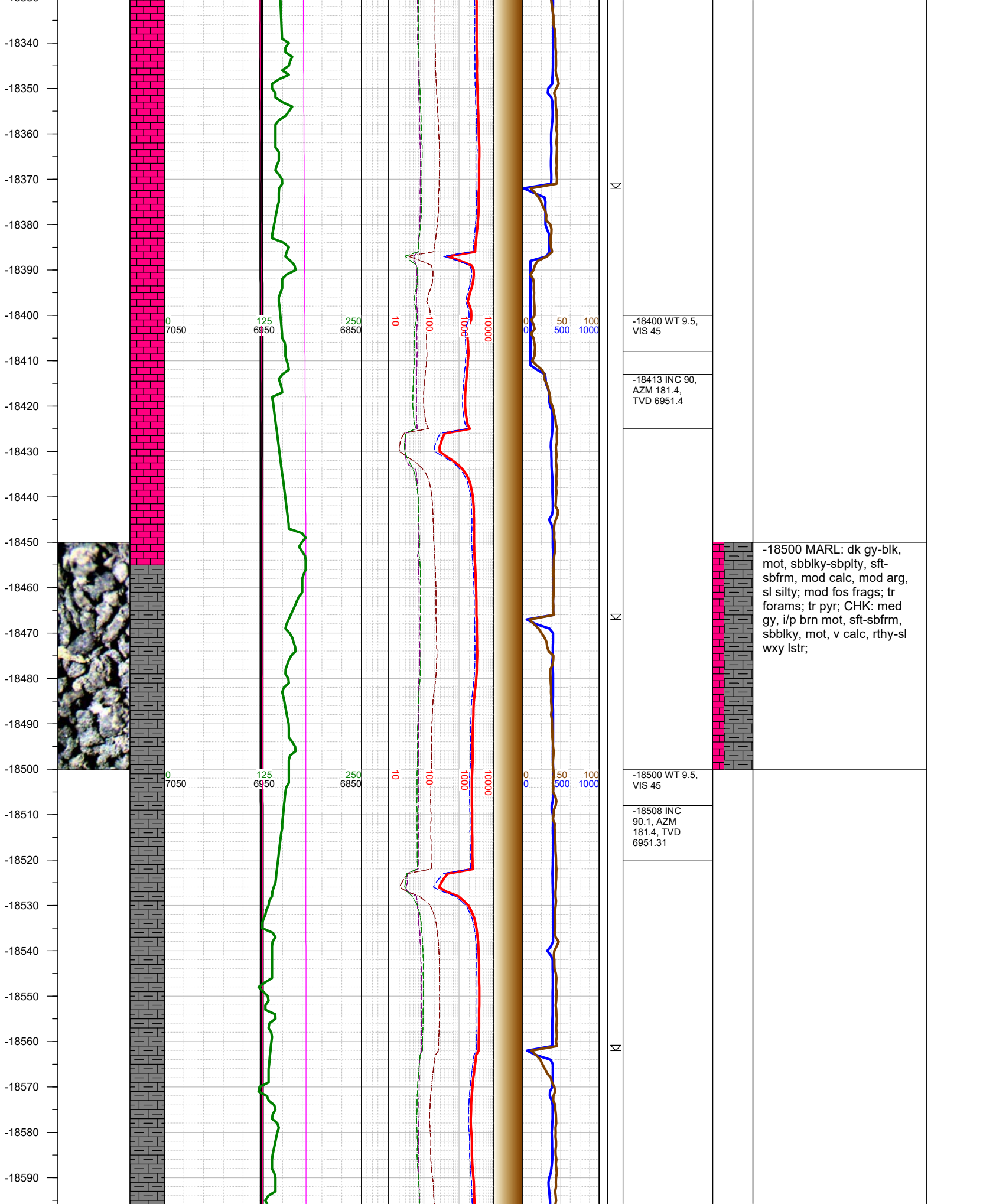


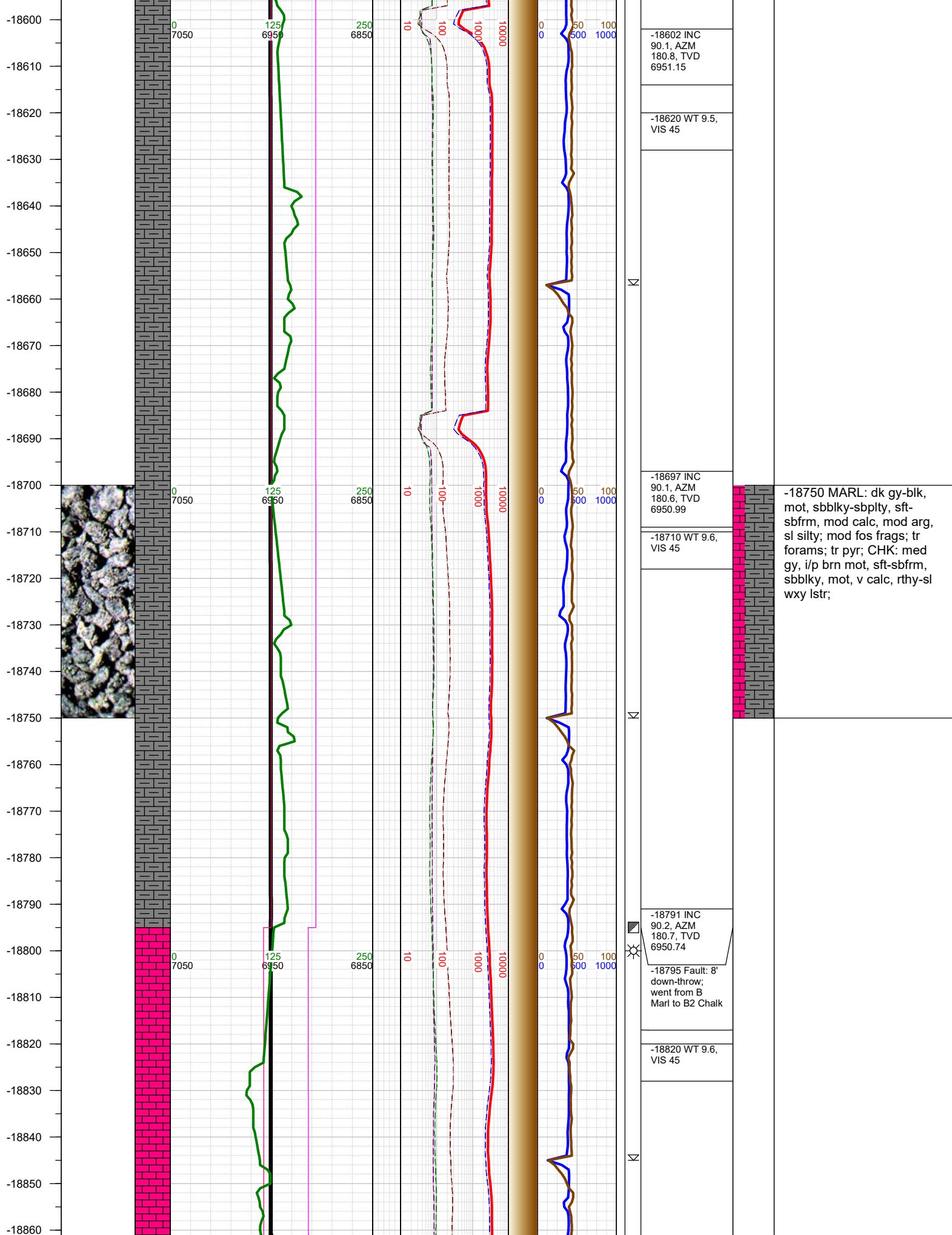


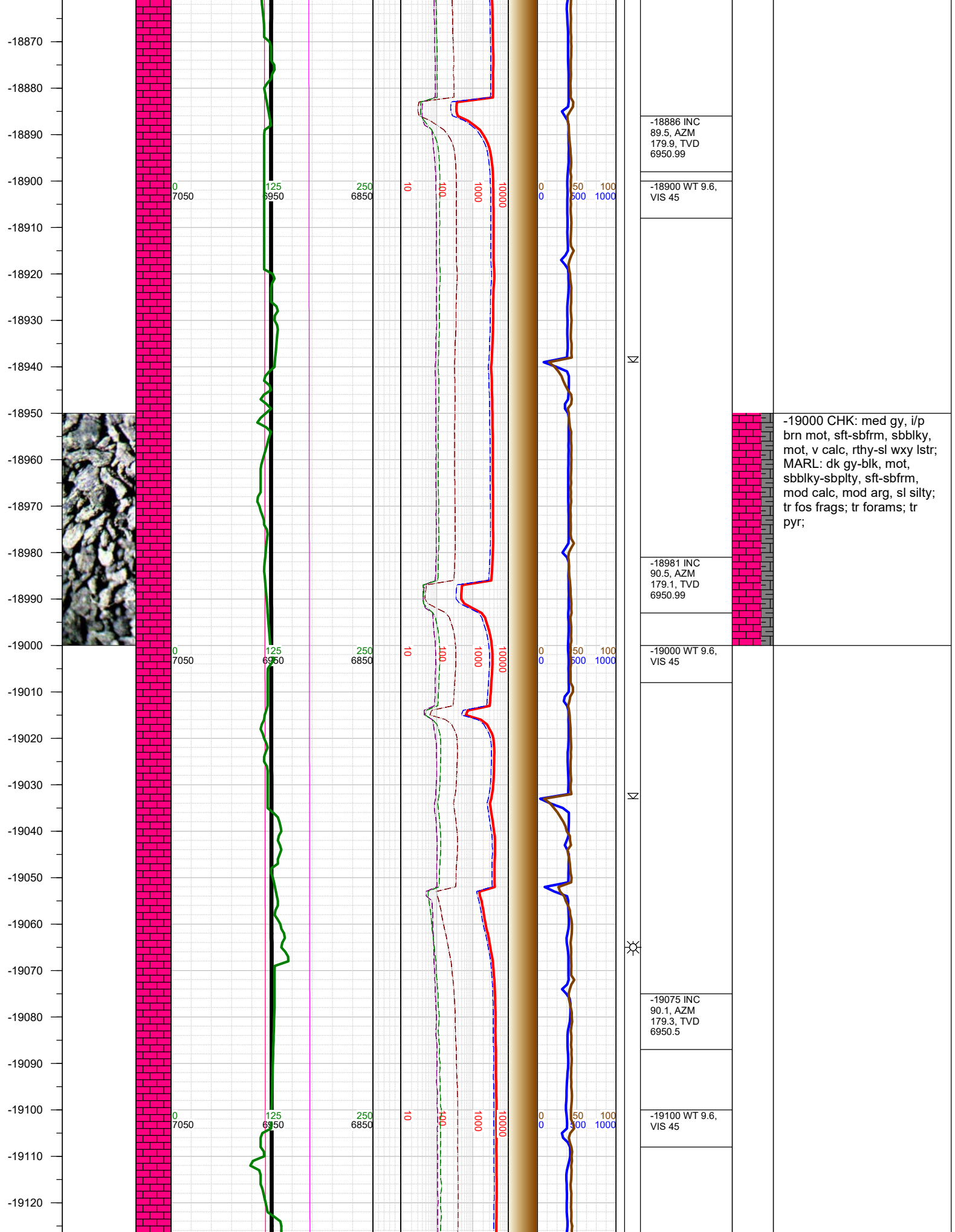




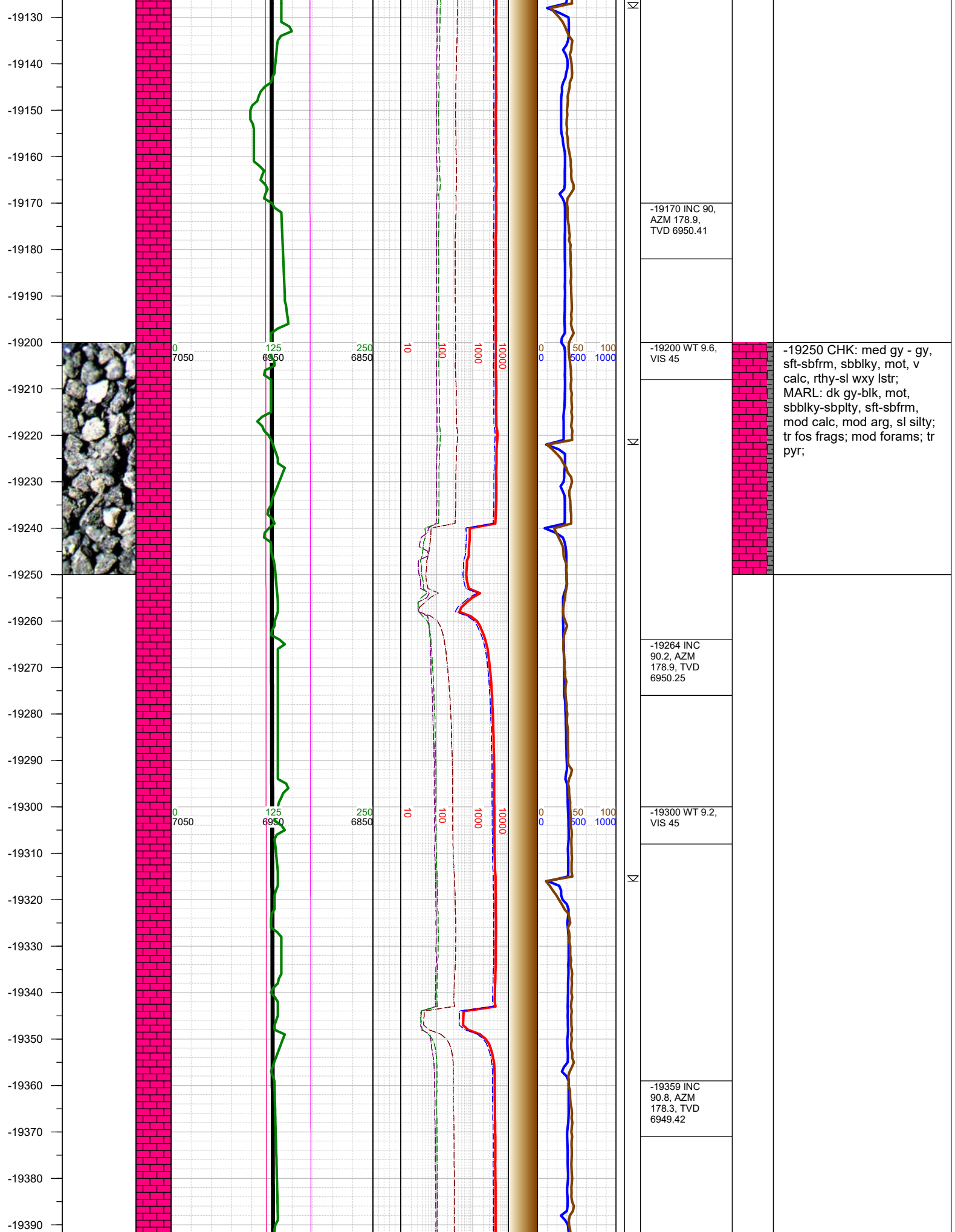


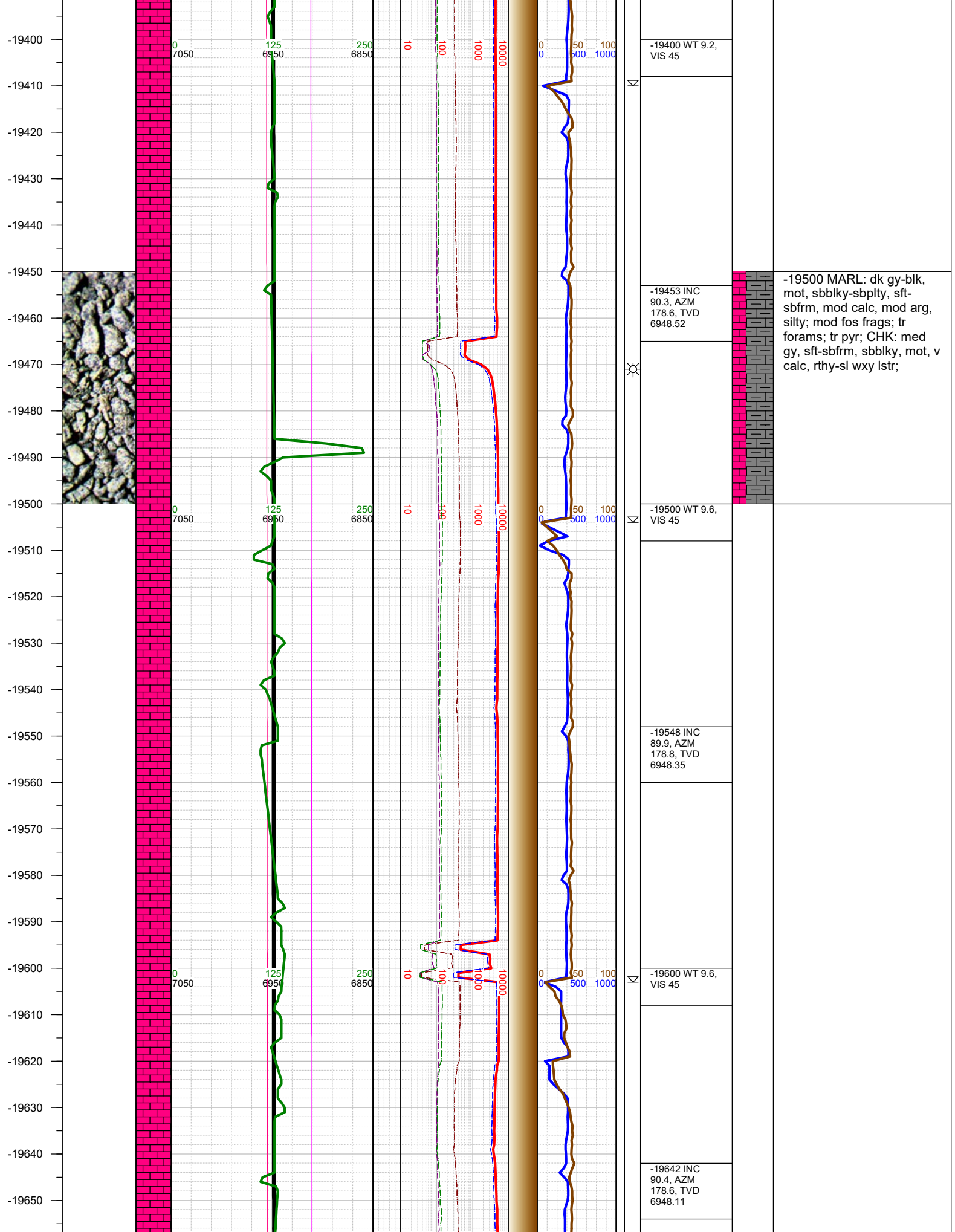




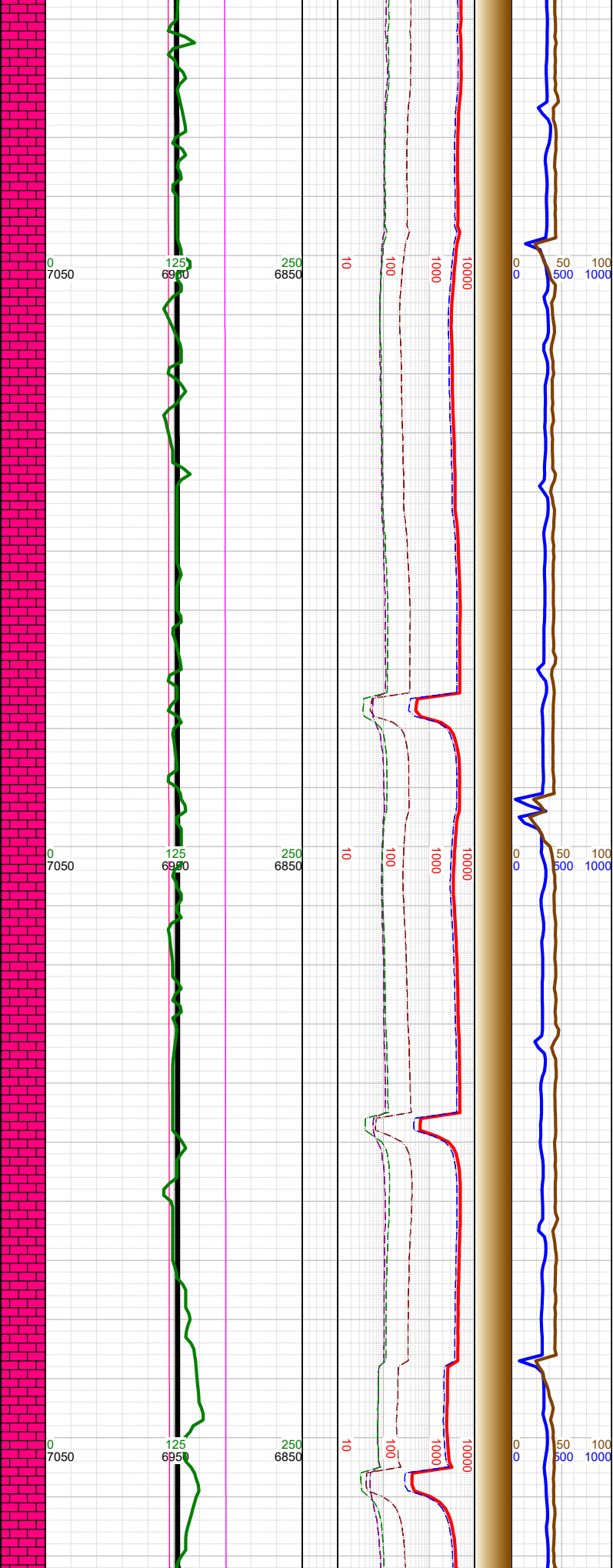


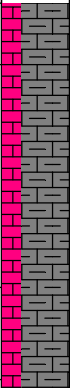








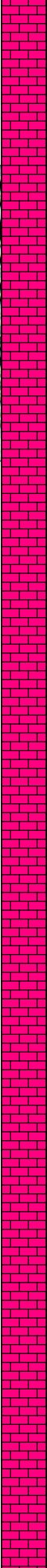
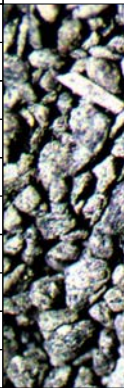
-19660  
-19670  
-19680  
-19690  
-19700  
-19710  
-19720  
-19730  
-19740  
-19750  
-19760  
-19770  
-19780  
-19790  
-19800  
-19810  
-19820  
-19830  
-19840  
-19850  
-19860  
-19870  
-19880  
-19890  
-19900  
-19910  
-19920



|  |   |   |
|--|---|---|
| -19700 WT 9.7,<br>VIS 44                         |    | -19750 MARL: dk gy-blk, mot, sbblky-sbply, sft-sbfrm, mod calc, mod arg, sl silty; tr fos frags; tr forams; tr pyr; CHK: med gy, i/p brn mot, sft-sbfrm, sbblky, mot, v calc, rthy-sl wxy lstr; |
|  |   |   |
|  |   |   |
| -19737 INC<br>90.4, AZM<br>178.4, TVD<br>6947.44 |   |   |
| -19800 WT 9.7,<br>VIS 44                         |  |   |
|  |   |   |
|  |   |   |
| -19831 INC<br>89.9, AZM<br>178.4, TVD<br>6947.2  |   |   |
| -19900 WT 9.7,<br>VIS 44                         |  |   |
|  |   |   |
|  |   |   |



-19930  
-19940  
-19950  
-19960  
-19970  
-19980  
-19990  
-20000  
-20010  
-20020  
-20030  
-20040  
-20050  
-20060  
-20070  
-20080  
-20090  
-20100  
-20110  
-20120  
-20130  
-20140  
-20150  
-20160  
-20170  
-20180



0  
7050

125  
6950

250  
6850

10

100

1000

10000

0

50

100

Σ

-19926 INC  
90.2, AZM  
178.5, TVD  
6947.11

-20000 MARL: dk gy-blk,  
mot, sbblky-sbply, sft-  
sbfrm, mod calc, mod arg,  
mod silty; abnt fos frags;  
mod forams; CHK: med gy,  
i/p brn mot, sft-sbfrm,  
sbblky, mot, v calc, rthy-sl  
wxy lstr;

-20000 WT 9.7,  
VIS 44

-20021 INC  
89.4, AZM  
178.7, TVD  
6947.44

-20100 WT 9.7,  
VIS 44

-20116 INC  
90.1, AZM  
178.9, TVD  
6947.86

Σ

-20190  
-20200  
-20210  
-20220  
-20230  
-20240  
-20250  
-20260  
-20270  
-20280  
-20290  
-20300  
-20310  
-20320  
-20330  
-20340  
-20350  
-20360  
-20370  
-20380  
-20390  
-20400  
-20410  
-20420  
-20430  
-20440  
-20450



0 7050  
0 7050  
0 7050  
0 7050

125 6950  
125 6950  
125 6950  
125 6950

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250 6850

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0 0

50 500 1000  
50 500 1000  
50 500 1000  
50 500 1000

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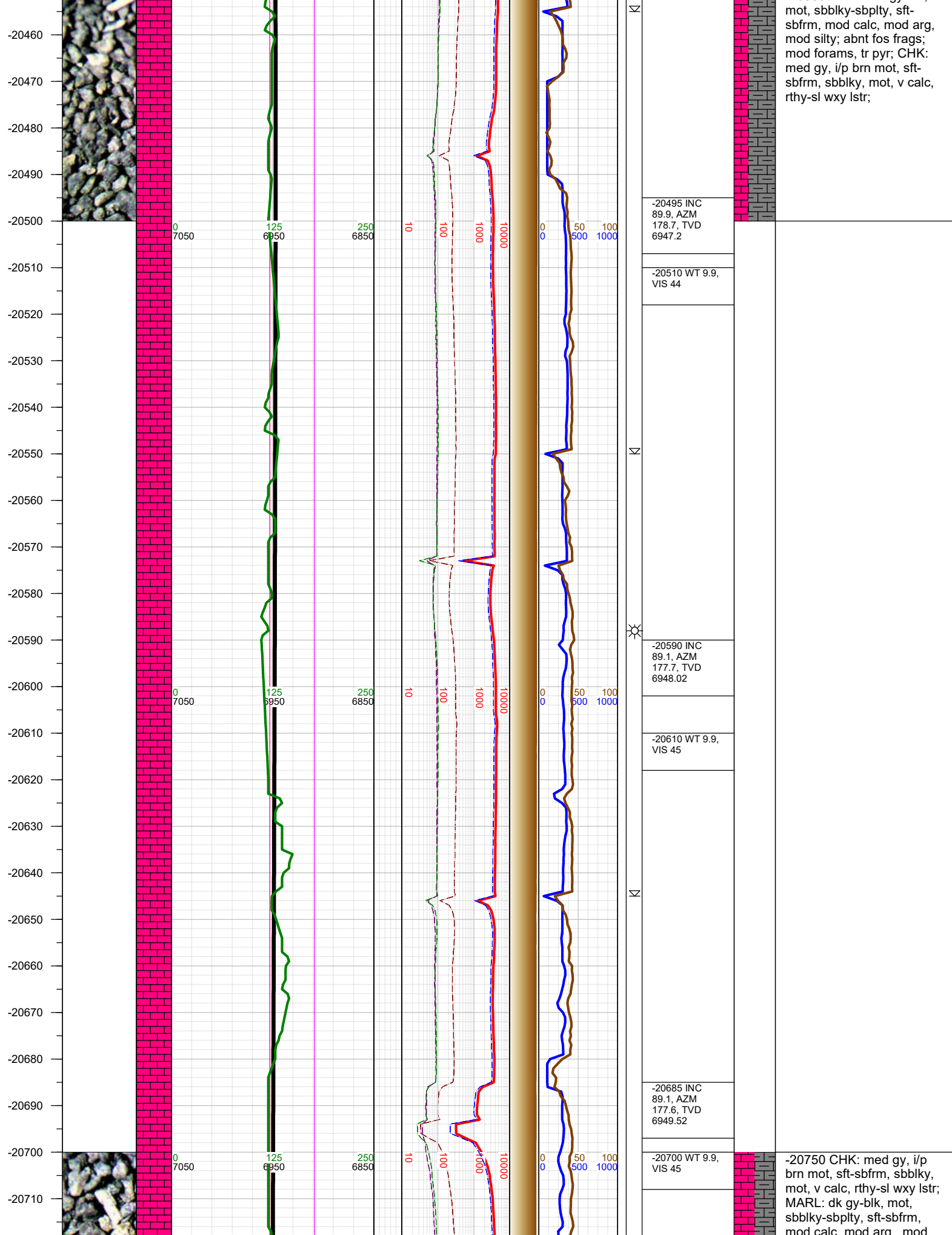
Σ

|  |  |
|--|--|
| -20200 WT 9.7,<br>VIS 44                         |  |
| -20211 INC<br>90.4, AZM<br>178.9, TVD<br>6947.44 |  |
| -20305 INC<br>89.6, AZM<br>178.7, TVD<br>6947.44 |  |
| -20320 WT 9.7,<br>VIS 44                         |  |
| -20400 INC<br>90.4, AZM<br>179.8, TVD<br>6947.44 |  |
| -20420 WT 9.9,<br>VIS 44                         |  |

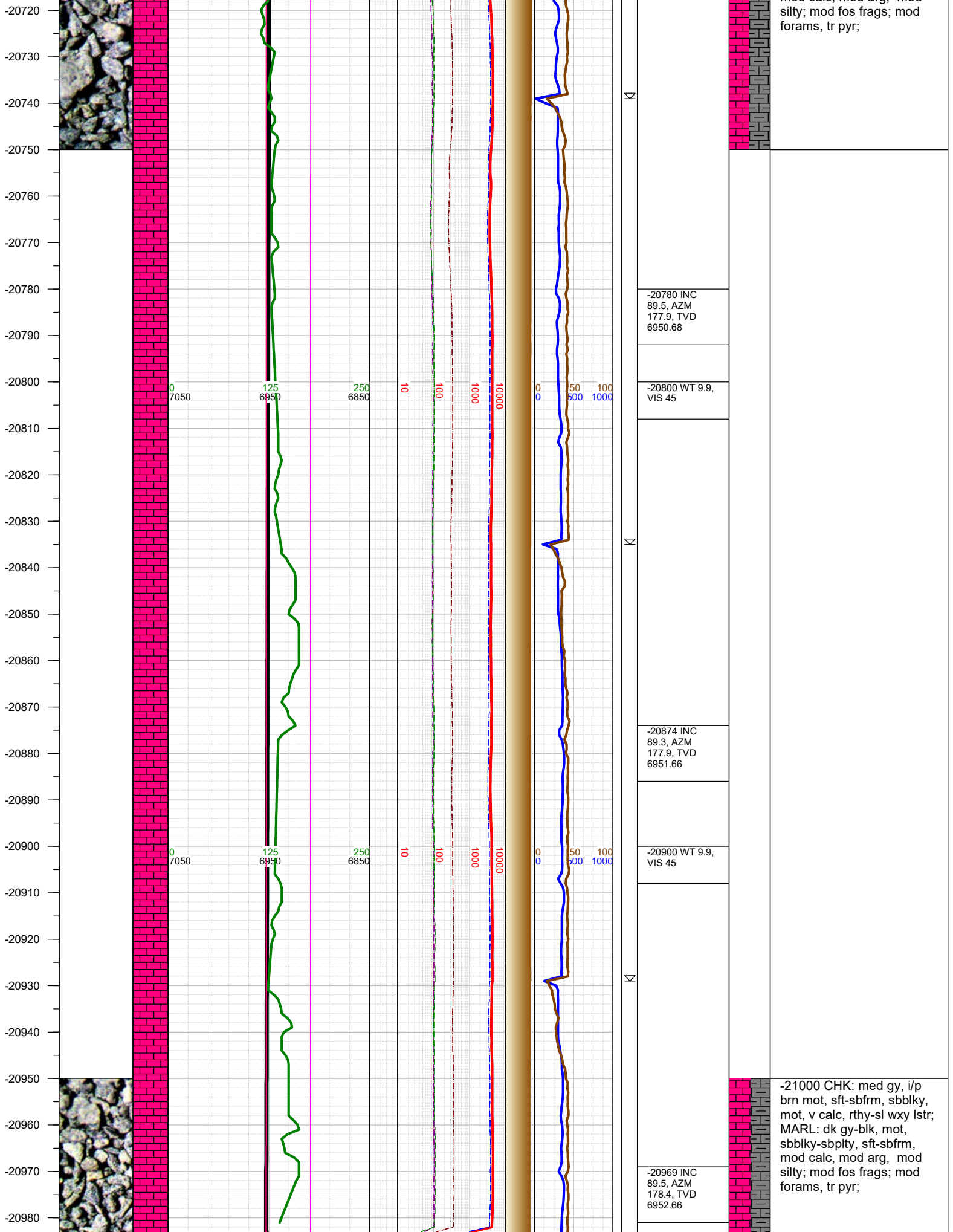


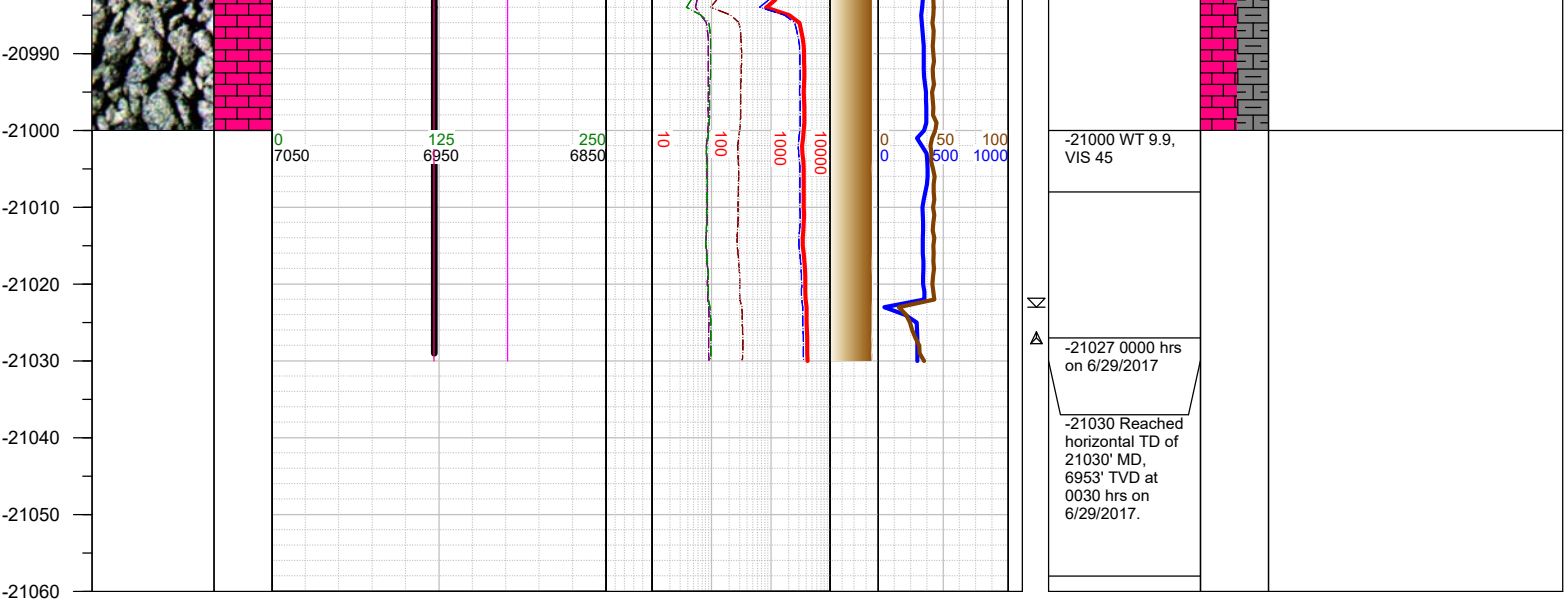
-20250 MARL: dk gy-blk,  
mot, sbblky-sbplty, sft-  
sbfrm, mod calc, mod arg,  
mod silty; mod fos frags;  
mod forams, tr pyr; CHK:  
med gy, i/p brn mot, sft-  
sbfrm, sbblky, mot, v calc,  
rthy-sl wxy lstr;

-20500 MARL: dk av-blk.









TOTAL DEPTH = 21030'

Thank you for using Earth Science Agency