

Table 4.8b: Overall pooled RSDs based on analyte
(Note: Highlighted cells contain RSDs >50.)

Analyte	Initial Flush	14-week
Fe	109.4	114
Mn	65.4	78.0
Al	78.8	86.0
Ca	41.6	34.1
Mg	52.7	33.5
Se	47.4	48.8
Zn	97.6	85.0
Na	49.3	40.5
K	46.6	36.5
SO ₄	43.4	37.2
Conductivity	26.0	39.6
Standard Deviation		
pH	0.6	0.7

Resulting pooled RSDs across laboratories are consistent with results of the pooled RPDs between duplicate samples. RSDs are largest for iron, zinc, aluminum, and manganese and show only a slight increase during weathering from the variability across initial flush results. Pooled RSD results show a slight decrease in variability during weathering for production of calcium, magnesium, sodium, potassium, and sulfate.

Conclusions Regarding Method Performance

Results of this interlaboratory study are consistent with both ASTM and U.S. EPA guidelines, using at least six datasets generated by laboratories representing the community of potential users of the method. Results of the study represent the variability and accuracy that would be expected across laboratories and support the method's use as a standard method for predicting mine drainage, particularly in samples representing gray zone areas that would be expected to need additional evaluation by the method.

The interlaboratory study presented in this report is one of several studies that have been completed to support development of a standardized and effective test procedure for predicting the quality of mine drainage in mining areas that are otherwise difficult to characterize, and combines the efforts of the U.S. Department of the Interior's Office of Surface Mining, the U.S. Environmental Protection Agency, the Pennsylvania Department of Environmental Protection, several private laboratories, universities, and consultants. Results of this study will be used to revise the existing draft leaching column method (ADTI-WP2) and to provide performance criteria regarding the RPDs and RSDs that should be expected by laboratories using the method (see Tables 4.9 and 4.10).

RPD results included in Table 4.9 reflect the pooled results of the interlaboratory study, using datasets from seven laboratories evaluating the effects of weathering on samples of Brush Creek shale, Kanawha Black Flint shale, Lower Kittanning shale, Houchin Creek shale, and Middle Kittanning sandstone. These results will be included in the draft test method as precision criteria that can be expected from duplicate samples run in a single laboratory.