

the median acidity is 11 mg/l. The spoil discharge quality in Table 9.6 is a product of leaching the Lower Kittanning shale and other rocks disturbed by mining. However, the overall field water quality displays characteristics similar to the column leach results, with the exception of iron. The field concentrations of Fe are greater than in the leach column.

Table 9.6 Postmining Spoil Water Quality From the Lower Kittanning Shale Sample Site<sup>(1)</sup>

Sample	Flow (gpm)	pH	Acidity	Alkalinity	Iron	Manganese	Aluminum
Post mining Minimum	0.3	5.7	0	62	6.99	22.6	<0.5
Post mining Maximum	0.8	6.8	89	258	24.3	52.9	0.66
Post mining Median			11	108			

(1) pH in S.U, Acidity and Alkalinity in mg/L CaCO<sub>3</sub> Eq, all others in mg/L.

### **Middle Kittanning Sandstone**

The Middle Kittanning sandstone was known to have negligible sulfur content and relatively low NP, and hence was selected to serve as a “blank” in this interlaboratory study. The summary ABA data are contained in Table 9.7 and the raw data are found in Table 9.12. The first four splits in Table 9.12 were from the homogenization of the sample tested on January 16, 2003, and are relatively consistent in sulfur percent and NP. The highest sulfur content in Tables 9.7 and 9.12 is 0.15 and many of the unweathered and weathered samples are less than 0.10 percent. The only odd observation of the sulfur contents is in Lab 2 where the weathered sample had 0.15 percent, which is greater than the unweathered sample at 0.05 percent, and not plausible. In most cases there was little difference between the sulfur contents of the unweathered and weathered samples, or the different particle size classes. However, in Lab 7 the unweathered sample had 0.11 percent and the weathered sample had only 0.06 percent sulfur, indicating that about half of the sulfur was removed by weathering in the leaching column. The modified NP test was not done on these sample splits.

Table 9.7 Middle Kittanning Sandstone Summary ABA Data

Sample Treatment		N	%S			NP		
			Min	Mean	Max	Min	Mean	Max
MKSS-PA	Initial Standard NP	4	0.03	0.07	0.11	14.30	19.37	24.58
MKSS-PA	Splits Before Leaching	6	0.05	0.09	0.11	8.10	22.55	44.52
MKSS-PA	Splits After Leaching	16	0.02	0.09	0.15	0.00	31.30	72.25