



Figure I-6—Release of copper, zinc, and arsenic into rainwater collected from ACZA-treated decking. Rate of release expressed as (a)  $\mu\text{g}/\text{cm}^2$  and (b)  $\mu\text{g}/\text{cm}^3/\text{unit rain}$ . 1 unit = 2.54 cm (1 in.).

## Accumulation and Mobility of ACZA in Soil

Assay zones used for soil samples were 0 to 15 cm (0 to 6 in.) (upper zone) and 15 to 30 cm (6 to 12 in.) (lower zone). Concentrations of ACZA components in individual samples are shown in Appendix IC.

### Copper

Copper concentrations in the soil adjacent to the ACZA-treated boardwalk were elevated in the upper assay zone of some samples removed 10 days after construction (Table I-14, App. IC). Although the maximum copper level detected (111 ppm) was under the edge of the boardwalk, as much as 53 ppm copper was detected in one sample located 60 cm (24 in.) from the boardwalk. The median and geometric mean copper concentrations were slightly elevated in samples removed from under the edge of and 15 cm (6 in.) from the boardwalk, but not at other sampling distances (Table I-14). In the lower assay zone, the only sample with elevated copper was located 60 cm (24 in.) from the boardwalk (Table I-14, App. IC). It is unclear why this particular sample had elevated levels of copper in both the upper and lower assay zones when samples closer to the boardwalk did not, but these results do suggest that the sample was contaminated by a mechanism other than leaching. As noted in the following text, copper concentrations of samples

removed from the upper assay zone of this area were consistently elevated at each inspection.

At the 2.5-month sampling, elevated copper levels were found in samples removed from under the edge of the boardwalk and at 15, 30, and 60 cm (6, 12, and 24 in.) away from the treated wood, although the maximum level detected (82 ppm) was lower than that of the previous sampling. The geometric mean copper concentration was elevated under the edge of the boardwalk and at 15 and 30 cm (6 and 12 in.) from the boardwalk, while the median was elevated at 0 and 30 cm (0 and 12 in.) from the boardwalk. Elevated copper levels were also detected in the lower assay zone of two samples. One sample removed from under the boardwalk had slightly elevated (39 ppm) copper levels, and a second sample removed 30 cm (12 in.) from the boardwalk had substantially elevated (120 ppm) copper levels. Again, it is unclear why copper levels in the lower portion of this sample were so highly elevated in comparison to levels in the upper 15 cm (6 in.) of the same sample. Zinc and arsenic levels were also elevated in the lower portion of this sample, indicating that ACZA is the source of contamination. It is doubtful, however, that leachate could elevate levels in this sample without further increasing levels in samples closer to the boardwalk. Because levels in this area were not elevated at prior or subsequent inspections, it appears that this sample may have been contaminated during collection or subsequent processing at the laboratory.

At the 6-month inspection, maximum and geometric mean levels of copper detected in the upper 15 cm (6 in.) of soil increased for samples removed from directly under the edge of the boardwalk. Copper levels in samples removed 15 and 30 cm (6 and 12 in.) from the boardwalk apparently had decreased since the previous inspection, but increased copper concentrations were again detected at 60 cm (24 in.) from the boardwalk in the same area that had contained elevated copper concentrations at the previous two inspections. No elevation of copper was detected in the lower assay zone of the soil samples at any location.

Substantial increases in copper levels under the edge of the boardwalk and at 15 cm (6 in.) from the boardwalk were noted at the 11.5-month inspection. A maximum of 459 ppm copper was detected in the upper 15 cm (6 in.) of a sample removed from directly under the boardwalk, and the median copper level in samples in this area had increased to 126 ppm. Slightly elevated levels were again detected in the upper 15 cm (6 in.) of samples removed at 30 and 60 cm from the boardwalk, but increases at these distances were small compared to those in samples closer to the boardwalk. In the lower assay zone, copper levels were elevated in one sample removed from directly under the boardwalk and in two samples removed 15 cm (6 in.) from the boardwalk. In one of these samples, copper was substantially elevated to 204 ppm. The increase in copper levels immediately adjacent