

Lead Contamination in the Drinking Water of Providence Public Buildings

Abstract

Lead exposure is a serious environmental health hazard, especially for children¹. Due to its prevalence in plumbing, it is commonly ingested by drinking water from old pipes. Depending on the volume of water consumed, drinking water from public buildings may be a significant source of lead exposure for people². This study surveys and evaluates the lead levels in the water supply of five highly trafficked Providence Public Buildings: the Providence Supreme Court, Kennedy Plaza Bus Station, Providence Place Mall, the Providence Train Station, and the Court House. Five samples were taken at intervals of 0 seconds, 5 seconds, 10 seconds 15 seconds, and a final flushed sample of 3 minutes. These intervals help to determine the variability of lead-contamination in relationship to the amount of water flush. These samples were put in an acidic solution, and analyzed in the Graphite Furnace-Atomic Absorption Spectrometer (AAS-GF) at Brown University to determine if the lead levels in these public buildings are acceptable according to the EPA action level of 15 parts per billion. Of the fifty samples taken from ten different water sources, 82% of the samples

¹ S. D. Bryant Journal of Toxicology
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² S. D. Bryant,
Lead-Contaminated Drinking waters in the Public Schools of Philadelphia.
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showed a mean water lead level of zero or one; virtually no trace of lead-contamination. 18% of the samples came from one water source in the city hall and were discovered to contain elevated lead levels. In addition to discussing these findings, a short review of the implications of lead exposure will be conducted, as well as a brief history of Providence's water supply and treatment.