

Clean-up of lead-contaminated sites: The Ontario urban clean-up experience

The sources of lead to humans and to ecosystems are numerous: the toxicology of the metal exemplifies the need for a multimedia approach to the study and management of lead exposure. Emissions from two secondary lead smelters, which processed and essentially recycled lead from batteries, pipes, and other waste materials, had contaminated the soil of residential land (Roberts et al., 1974). Whatever its origin, be it airborne lead from automobile exhaust, deposition from smelter emissions, dust from commercial or industrial processes, or flaking paint, lead in soil in urban areas has been seen as a threat to the health of humans, particularly for young children. Studies revealed concentrations of total lead in surface soil as high as 11,500 mg kg⁻¹ (Temple, 1978) in residential areas and up to 51,000 mg kg⁻¹ on industrial land (Rinne et al., 1986). Nevertheless, elevated blood lead, which is the primary exposure indicator for vertebrates, especially for humans, has implicated lead in soil as a major immediate contributor. In 1974, the Ontario Environmental Hearing Board was directed by a provincial Order-in-Council to hold public hearings on lead contamination in the metropolitan Toronto area. The present case study addresses the clean-up of lead-contaminated soil in a particular area of metropolitan Toronto, Ontario, Canada. Soil replacement was recommended by this Hearing Board, for levels at or above 3,000 mg kg⁻¹ of total lead on residential properties.