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**ABSTRACT**

**The Geochemical Legacy of Landfills in Maine**

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Within the last decade several issues relating to Maine landfills have become increasingly apparent including: elevated arsenic in groundwater; migration of landfill gas; and the encroachment of property development on closed municipal landfills. Reducing groundwater conditions associated with the decay of organic material in landfills can result in the release of naturally occurring arsenic from aquifer surfaces. Elevated arsenic in groundwater also occurs as a result of high groundwater pH associated with certain industrial landfills. Landfill gas migration beyond the solid waste boundary has been observed at several landfill in the state. The distribution of dissolved methane in groundwater provides information on the presence of subsurface landfill gas migration. Property development near closed municipal waste landfills is an on-going problem and can result in impacts to residential water supplies.