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ROAD SALT - AN ACUTE AND CHRONIC CONTAMINANT OF CONCERN TO PUBLIC-SUPPLY WELLS

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ABSTRACT: Road salt is the most widely used deicing agent for highways, secondary roads and parking lots in the United States. Consisting principally of sodium chloride, road salt is a non-point source contaminant distributed by stormwater and meltwater runoff. Highest halite concentrations in runoff occur after episodic applications for deicing or wet weather drainage from unsecured storage facilities. Subsequent groundwater recharge from infiltration of salinized runoff has resulted in the degradation of potable water quality at public-supply wells, some to the extent becoming unusable. This is typically due to increased chloride concentrations imparting an unpalatable salty taste to the water. The nature and extent of environmental insults to drinking water supplies created by the large-scale use of road salt is discussed. The hydrogeologic conditions commonly encountered and associated with road salt contamination of shallow aquifers are appraised. The movement and fate of sodium chloride in the subsurface is reviewed. Examples of slow, incremental degradation of groundwater from salinized runoff are provided. Finally, results of an evolving investigation and ongoing remedial actions of road salt contaminated public-supply wells in a small Ohio village are presented.

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