

**Title:** Lead Contamination Study of Door County (Study No. 41)

**Investigator:** Principal Investigator

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**Objectives:** To determine the extent of lead contamination in Door County groundwater, if arsenic is a co-contaminant with lead and to summarize all lead and arsenic groundwater data gathered since the problem was discovered. The second phase of the study intended to determine variability of lead concentrations in private wells which previously showed no detection and if lead contamination in private wells coincided with precipitation events, along with continuing with the original objectives.

**Background/Need:** Lead arsenate was the staple pesticide in Door County's fruit growing industry prior to 1960. Powdered lead arsenate was dissolved in water at mixing stations and applied on orchards.

**Methods:** 333 water supply wells were sampled for lead and arsenic and analyzed between the winter of 1984 and fall of 1987. Precipitation events were the primary focal point due to the potential of contaminant flushing and likelihood this will cause groundwater quality changes. Data was compiled into five organizational structures including maps, time concentration plots, precipitation tracking, box plots and statistics.

**Results:** 119 wells showed lead detection though none did for arsenic. More than two-thirds of the lead pesticide mixing sites lie in the western half of upper Door County. There was an increase in precipitation over the study period. The peak months for percolation of precipitation were found to be, in decreasing order, March, April, November and May.

**Conclusions:** The western half of northern Door County has the most lead contaminated water supply wells. Soil cover in the area is predominantly thin and does not effectively attenuate pollutants. Lead contamination is not uniformly predictable, though precipitation and runoff can help predict water quality testing practices.

**Recommendations/Implications:** The investigator recommends further monitoring to define contamination trends. Homeowners within suspected contamination zones should be encouraged to have their water analyzed for lead. An adoption of land use zoning ordinances should be encouraged for some parts of Door County.

**Availability of Report:** This report is available for viewing and loan at:

The Water Resources Center  
1975 Willow Drive  
Madison, WI 53706  
(608) 262-3069  
Publication 050873

**Key Words:** Arsenic, lead, pesticides

**Funding:**

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