

**Hinkle, S.R., and D.J. Polette. USGS Water Resources Report 98-4205: *Arsenic in Ground Water of the Willamette Basin, Oregon. Portland, OR: 1999.*** (Reviewed by Pamela Johnston)

The major goal of this report was to determine the regional distribution for arsenic in groundwater of the Willamette Basin. Historical data, along with tests of 17 contemporary locations, were analyzed for use in this study. Maximum Contaminant Levels (MCL) have been set at 50 micrograms/L by the USEPA, and it was found that 8% of currently-tested sites exceeded this limit.

Samples were taken from public, industrial, irrigation, and livestock wells, 116 of 125 of which are actively used. Inactive wells may give biased results based on geochemical reactions from residing in well bores or casings.

Arsenic concentrations were found to be highest in Lane and Linn counties due to the Fisher and Eugene Formations, consisting largely of silicic volcanic bedrock. The Tualatin Basin, a sub-basin of the Willamette, also had high concentrations associated with alluvial deposits, but in less extreme proportions.

Anthropogenic sources play a factor, such as in industrial production or use of pesticides containing lead arsenate. However, these factors were not consistent enough with regional data of arsenic distribution to be extensively considered in this study.

## **Critique**

The figures displayed in this report may be perfectly understandable to the educated scientist. But readers from a non-technical perspective may find it less than user-friendly. Well location names are given using, in many cases, original well site identification numbers that take some analyzing to determine where these sites actually lie. It would be nice for the authors to provide a map of the Basin complete with simple, assigned identification appropriate for these specific sites in order to visualize regions of greatest concern.

Other than the above, this kind of study is informative in reminding us that not all pollution is due to human activity. Nature has ways of providing its own contaminants—in this case, natural geologic processes and the mechanisms by which they are stored within the Earth, affecting the environment throughout the course of time.

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