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TITLE: Use of city water quality data for calculating the uptake of lead from contaminated ground water under the Voluntary Action Program

DATE

EFFECTIVE: 1996

KEYWORDS: lead, city water quality data, ingestion intake value, health risks, Lead Risk Assessment Spreadsheet.

QUESTION: Can you use city water quality data as an appropriate water ingestion intake value?

RULE: OAC Rule 3745-300-09

ANSWER: Health risks from lead in the soil were evaluated using the Lead Risk Assessment Spreadsheet (Leadsread) from the California EPA, Department of Toxic Substances Control, Office of Scientific Affairs, Human and Ecological Risk Section. The Lead Risk Assessment Spreadsheet calculates a human blood lead concentration (μg - lead/deciliters [dl]-blood) for the following pathways: food ingestion, water ingestion, soil ingestion, inhalation, and dermal contact. The above pathways are added to get an estimate of median blood lead concentration resulting from the multipathway exposure.

In lieu of using of a default value (15 $\mu\text{g}/\text{l}$) for the water ingestion intake, Ward Engineering, B&N, and Ohio EPA agreed on a value of 7.01 $\mu\text{g}/\text{l}$ based on City of Columbus lead water quality data from 1992 (attached). The 1992 study assessed lead content “at the tap” at 104 residences from January to June 1992 and 100 residences from July to December 1992. Samples were collected on a “first-draw” basis as being a conservative (worst-case) representative of lead content in drinking water. A statistical evaluation (attached) was performed on the two sets of data to calculate a 95th percentile UCL of the mean. The 95th percentile UCL for the January to June 1992 data set was 7.13 $\mu\text{g}/\text{l}$ lead while the July to December 1992 data set was 6.90 $\mu\text{g}/\text{l}$ lead. The mean of 7.01 $\mu\text{g}/\text{l}$ of lead of both data sets will be used as a very conservative lead intake concentration.

SUMMARY: City water quality data can be used as a method to evaluate the ingestion of lead from contaminated soils. For Columbus, a mean value of 7.01 $\mu\text{g}/\text{L}$ is to be used.

OHIO EPA

CONTACT: For any questions concerning this issue, please contact the VAP central office at (614) 644-2924.