



The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES



Thomas S. Burack, Commissioner

October 19, 2011

Subject: Change in Reporting Limit for 1,4-Dioxane

Dear Colleague:

In January 2008, the Waste Management Division established sampling and analytical requirements for the contaminant 1,4-dioxane. At that time, the reporting limit for dioxane was set at 3.0 µg/L, which is the current Ambient Groundwater Quality Standard (AGQS) for this compound. Although the reporting limit was 3.0 µg/L, there were several laboratories, both in the state and out of state, that were able to achieve a reporting limit of 1.0 µg/L.

In August 2010, the US Environmental Protection Agency, under the Integrated Risk Information System (IRIS), published a drinking water cancer risk value for 1,4-dioxane for a 1 in one million risk of 0.35 µg/L. This new health guideline was established after a comprehensive review of toxicity data by EPA health scientists from several program offices, regional offices and the Office of Research and Development.

There is neither a federal nor New Hampshire drinking water maximum contaminant level (MCL) for 1,4-dioxane. However, under New Hampshire Statutes, RSA 485-C:6, the commissioner of DES is directed to establish and adopt an AGQS for contaminants which adversely affect human health or the environment. Under the statute, where health advisories have been established for a contaminant and where such standards are based on a cancer risk, the AGQS for a contaminant shall be equivalent to a lifetime exposure risk of one cancer in 1,000,000 exposed population.

A revised AGQS value for 1,4-dioxane at 0.35 µg/L could have a significant impact on several programs within the Department, specifically Site Remediation, Drinking Water, and Groundwater Discharge permits. Research at the University of New Hampshire, sponsored in part by the Department, looked at treating drinking water at the residential scale for the removal of 1,4-dioxane. That research found that although it is difficult to treat drinking water to the 3.0 µg/L AGQS value, it would be nearly impossible to treat to 0.35 µg/L using currently available technology.

1,4-Dioxane has been reported to be in personal care products and is expected to be in most wastewater discharges. Treated wastewater from the Concord and Franklin wastewater treatment facilities was found to have 1,4-dioxane concentrations of 1.42 µg/L and 0.97 µg/L, respectively.

1,4-Dioxane is known to be present at 68 waste sites in the state and in six public water supplies at concentrations above 1 µg/L. At this time, the number of waste sites and public water supplies having concentrations of 1,4-dioxane greater than 0.35 µg/L is not known.

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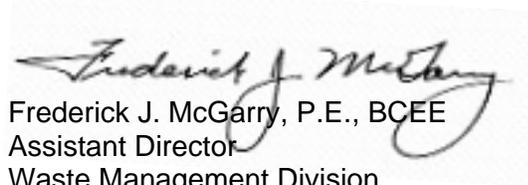
In order to obtain a better understanding of the possible extent of 1,4-dioxane contamination in groundwater, the Drinking Water and Groundwater Bureau of the Water Division has requested that all public water supplies sample for 1,4-dioxane using a reporting limit of 0.25 µg/L. The Groundwater Discharge permit program in the Water Division will be directing all permit holders to analyze for 1,4-dioxane using the same lower reporting limit.

Beginning with the 2011 November round of sampling, the Waste Management Division will require all analyses for 1,4-dioxane to utilize an analytical method which will have a reporting limit of 0.25 µg/L. Based on research conducted by the Department, the following methods have been found to be capable of achieving this reporting limit: EPA Method 522; EPA Method 8260B SIM; and EPA Method 8270C SIM. The Division will consider waiving this requirement if two consecutive rounds of sampling fail to detect this chemical above the reporting limit.

The overall intent of these actions is to determine the extent of 1,4-dioxane contamination in groundwater in the state and then determine if additional factors, such as technical and financial feasibility of treatment methods, should be considered in setting or revising an AGQS for this contaminant.

We thank you in advance for your assistance in this matter. If you have any questions or comments regarding this issue, please do not hesitate to contact me.

Sincerely yours,



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