



The State of New Hampshire  
**Department of Environmental Services**



**Robert R. Scott, Commissioner**

February 21, 2018

The Honorable Carol McGuire  
Chair, House Executive Departments and Administration Committee  
Legislative Office Building, Room 306  
Concord, NH 03301

**RE: HB 1592 as amended - requiring the commissioner of the department of environmental services to review standards relative to arsenic contamination in drinking water**

Dear Chair McGuire and Members of the Committee:

Thank you for the opportunity to testify on HB 1592 as amended. This bill would require the New Hampshire Department of Environmental Services (NHDES) to review the ambient groundwater quality standard (AGQS) and the drinking water maximum contaminant level (MCL) for arsenic and to revise the standards if NHDES determines that the standards should be lowered. The AGQS of 10 parts per billion (ppb) applies to facilities that discharge to groundwater. The arsenic MCL of 10 ppb applies to water systems that serve residential populations and those that serve the same 25 or more people each day, such as schools and places of work with their own wells. NHDES believes that this would be an appropriate time to review these standards and supports this bill as amended.

The current federal and state standard of 10 ppb, although not as protective of public health as current drinking water standards for other contaminants, was chosen by the US Environmental Protection Agency (USEPA) to balance the cost of treatment with the monetized costs (based on such things as willingness to accept risk and willingness to pay to avoid cancer) associated with increased bladder and lung cancer risk. (USEPA, Arsenic in Drinking Water Rule Economic Analysis, 2000)

NHDES believes that this would be an appropriate time to re-assess the standard for three reasons. First, the current standard does not offer the level of health protection that is typically provided by drinking water standards. Second, the current standard is 17 years old and is based on consideration of the costs of water treatment and an incomplete estimate of health benefits, both of which may have changed considerably since then. Third, a good deal of work has been done during the past 17 years to better understand the developmental health risks associated with low-level exposure to arsenic. Such an assessment must be done with due consideration to water supply treatment costs, the compliance costs for facilities that discharge to groundwater, and the avoidable health risk and associated costs.

***Health Risk from Arsenic in NH***

Arsenic is naturally occurring and quite common in New Hampshire's groundwater, and health studies of New Hampshire residents have demonstrated the connection between arsenic and the increased prevalence of conditions such as bladder and other cancers and developmental effects on children. More than one-third of the community water systems in New Hampshire have a measurable amount of arsenic in their water. USEPA typically sets MCLs for drinking water contaminants at a level at which a lifetime of exposure

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would result in one excess cancer in 1,000,000 (one million) people exposed. However, USEPA makes exceptions in cases where the technology is not readily available to detect the contaminant at extremely low levels or to remove the contaminant (treat the water) to such low levels. For some contaminants, USEPA has established drinking water MCLs with cancer risks in the 10-in-a-million to 100-in-a-million range. The 10 ppb MCL for arsenic is associated with a far greater risk, 3,000 in a million (roughly 1 in 300).

Since USEPA established the MCL for arsenic in drinking water at 10 ppb, evidence has continued to mount about its health effects at low levels of exposure. For instance, the 2016 Northern New England Bladder Cancer Study found, "Bladder cancer mortality rates have been elevated in northern New England for at least five decades. . . about 20% higher than that for the United States overall," and "Our findings support an association between low-to-moderate levels of arsenic in drinking water and bladder cancer risk in New England." (Baris, et.al., Journal of the National Cancer Institute) Recent research also found that arsenic exposure of pregnant women in New Hampshire was associated with adverse effects on fetal growth and infections in infants. (Gilbert-Diamond, et. al., Environmental Health Perspectives, August 2016; Farzan, et.al., Environmental Health Perspectives, June 2016 )

A 2014 report by researchers at Dartmouth College estimated that exposure to arsenic in drinking water from private wells can be blamed for 830 cancer cases in the current population and that nearly half of private well users have never tested their water for arsenic. (Borsuk, et.al.; Arsenic in Private Wells in NH) There is clearly a need to raise awareness of this health risk among private well users and to address the barriers to increased testing and water treatment, but to date NHDES has lacked the resources to bring about substantial improvement in this area.

#### ***History and Status of the 10 ppb Arsenic Standard***

USEPA adopted the current 10 ppb standard in 2001, replacing the previous standard of 50 ppb, which did not take into account arsenic's effect on cancer risk. Water systems have been required to meet the new standard since January 23, 2006. The 10 ppb standard has been controversial, and almost since the day it was adopted, USEPA has been in the process of reassessing it. USEPA currently expects to complete a revised scope for its risk assessment in 2018, with completion of the risk assessment itself expected in 2020 or 2021.

To our knowledge, the only state that has adopted a stricter standard than USEPA's 10 ppb is New Jersey. In 2003 the State of New Jersey's Drinking Water Quality Institute recommended an arsenic standard of 3 ppb based on the feasibility of laboratory analytical methods and water treatment technology. Citing reservations about some of the water treatment methods available to attain the recommended 3 ppb standard, the State's Department of Environmental Protection adopted a drinking water standard of 5 ppb, which it has been enforcing since 2006.

#### ***Treatment Costs and Laboratory Capability***

As noted above, the cost of treatment was a major factor in setting the federal arsenic standard at 10 ppb rather than a lower level, and the feasibility of treatment was the key factor in New Jersey's decision to set its standard at 5 ppb rather than 3 ppb. In NHDES' experience working with the public water systems that

currently treat for arsenic, levels below 5 ppb can be consistently achieved with the currently available technology, but levels as low as 1 ppb would not be technically feasible to consistently achieve for most water systems. NHDES estimates that annual costs for each water system that would need to treat to meet an arsenic standard of 5 ppb would increase by approximately \$10,000 to \$12,000 per year. Approximately 43 systems that do not currently treat for arsenic would need to do so if the standard were lowered to 5 ppb, and treatment costs would increase for approximately 200 systems that are currently treating for arsenic. A preliminary assessment suggests that lowering the standard to 5 ppb would prevent approximately 24 bladder and lung cancers in the current population, including 17 fatal cases, in addition to other cancers and negative health effects.

To implement the bill, NHDES would need to independently review available research regarding the health effects of arsenic exposure, review data regarding the occurrence of arsenic in treated and untreated water at public water systems (PWSs), estimate the reduction in health effects under various scenarios for lowered MCLs, and estimate the costs to PWSs of compliance. NHDES would also need to estimate the costs of compliance under corresponding scenarios for lowered AGQs. Since NHDES does not normally set drinking water standards (MCLs), it does not currently have staff with the expertise necessary to perform these functions. In order to complete this review and propose a revised limit in the time provided, NHDES would need to hire a contractor. NHDES estimates that the cost to hire a contractor could exceed \$100,000 if no new qualified staff are available to perform this work at the Department.

Thank you again for the opportunity to comment on this bill. Should you have further questions or need additional information, please feel free to contact either Sarah Pillsbury, Administrator, Drinking Water and Groundwater Bureau, ([sarah.pillsbury@des.nh.gov](mailto:sarah.pillsbury@des.nh.gov), 271-1168) or Paul Susca, Supervisor, Planning, Drinking Water and Groundwater Bureau ([paul.susca@des.nh.gov](mailto:paul.susca@des.nh.gov), 271-7061).

Sincerely,



Robert R. Scott  
Commissioner

cc: Sponsors of HB 1592: Representatives Messmer, McConnell, Cushing, Grassie, Altschiller, and Fraser

