The State of New Hampshire
Department of Environmental Services

Robert R. Scott, Commissioner

January 10, 2018

The Honorable Chris Christensen
Chair – House Resources, Recreation and Development Committee
Legislative Office Building, Room 305
Concord, NH 03301

RE: HB 1592 - requiring the commissioner of the department of environmental services to revise rules relative to arsenic contamination in drinking water

Dear Chair Christensen and Members of the Committee:

Thank you for the opportunity to testify on HB 1592. This bill would require the New Hampshire Department of Environmental Services (NHDES) to lower the regulatory standard, or maximum contaminant level (MCL), for arsenic in drinking water at public water systems from the current level of 10 parts per billion (ppb) to 4 parts per trillion (ppt). The arsenic standard (MCL) 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 does not support this bill as written.

While lowering the standard for arsenic by any amount would reduce the risk of various types of cancer and other negative health effects associated with arsenic in drinking water, 4 parts per trillion is not achievable with the currently available water treatment technology. There would also be significant costs to municipal systems if the standard were to be lowered and therefore a fiscal note may be warranted.

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 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)

While NHDES does not support this bill as written, this may be an appropriate time to carefully 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 treatment costs and the capacity of laboratories to reliably detect arsenic at lower levels on the one hand, and the avoidable health risk and associated costs on the other.

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 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.

The only state that has adopted a standard stricter than USEPA's 10 ppb, to NHDES's knowledge, 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's 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.

Based on NHDES's experience, many of the accredited laboratories upon which water systems rely for arsenic analyses could meet the requirements associated with an arsenic standard as low as 5 ppb using current methods, but would have difficulty with a 1 ppb standard.

While NHDES does not support HB 1592 as written, NHDES does believe this may be an appropriate time to re-assess the drinking water standard for arsenic, and would not object to the Legislature directing us to do so. Please note that a changed standard might require additional resources to implement.

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, 271-1168) or Paul Susca, Supervisor – Planning, Drinking Water and Groundwater Bureau (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

Attachment: NHDES Fact Sheet ARD-EHP-1, Arsenic: Health Information Summary