

Bill as Introduced

HB 261 - AS AMENDED BY THE HOUSE

19Mar2019... 0028h

2019 SESSION

19-0398
08/06

HOUSE BILL *261*

AN ACT requiring the commissioner of the department of environmental services to revise rules relative to arsenic contamination in drinking water.

SPONSORS: Rep. Grassie, Straf. 11; Rep. Adjutant, Graf. 17; Rep. Cushing, Rock. 21; Rep. Murphy, Hills. 21

COMMITTEE: Resources, Recreation and Development

ANALYSIS

This bill requires the commissioner of the department of environmental services to revise rules relative to arsenic contamination in drinking water.

Explanation: Matter added to current law appears in *bold italics*.
Matter removed from current law appears [~~in brackets and struckthrough.~~]
Matter which is either (a) all new or (b) repealed and reenacted appears in regular type.

STATE OF NEW HAMPSHIRE

In the Year of Our Lord Two Thousand Nineteen

AN ACT requiring the commissioner of the department of environmental services to revise rules relative to arsenic contamination in drinking water.

Be it Enacted by the Senate and House of Representatives in General Court convened:

1 1 Ambient Groundwater Quality Standards; Contaminants in Drinking Water.

2 I. The commissioner shall initiate rulemaking pursuant to RSA 485-C:4, III within 120 days
3 of the effective date of this paragraph to revise the ambient groundwater quality standard for
4 arsenic to a value not to exceed 5 micrograms per liter.

5 II. The commissioner shall initiate rulemaking pursuant to RSA 485:3, I within 120 days of
6 the effective date of this paragraph to adopt a maximum contaminant limit for arsenic to a value
7 not to exceed 5 micrograms per liter for public water systems regulated by RSA 485-C.

8 2 Ambient Groundwater Quality Standards. Amend 2018, 190:1 to read as follows:

9 190:1 Department of Environmental Services; Ambient Groundwater Quality Standards. By
10 January 1, 2019, the commissioner of the department of environmental services shall review the
11 ambient groundwater standard for arsenic to determine whether it should be lowered, taking into
12 consideration the extent to which the contaminant is found in New Hampshire, the ability to detect
13 the contaminant in public water systems, the ability to remove the contaminant from drinking
14 water, the impact on public health, and the costs and benefits to affected entities that will result
15 from establishing the standard. ~~[Any proposed change to the ambient groundwater standard for~~
16 ~~arsenic shall require the approval of the general court.]~~ On or before January 1, 2019, the
17 commissioner shall submit a report of the findings to the chairpersons of the house and senate
18 committees with jurisdiction over natural resources.

19 3 Effective Date. This act shall take effect 90 days after its passage.

**HB 261 FISCAL NOTE
 AS AMENDED BY THE HOUSE (AMENDMENT #2019-0028h)**

AN ACT requiring the commissioner of the department of environmental services to revise rules relative to arsenic contamination in drinking water.

FISCAL IMPACT: State County Local None

COUNTY:	Estimated Increase / (Decrease)			
Revenue	\$0	\$0	\$0	\$0
Expenditures	\$0\$	\$135,000	\$25,000	\$25,000

LOCAL:				
Revenue	\$0	\$0	\$0	\$0
Expenditures	\$0	\$2,619,000	\$1,457,500	\$1,457,500

METHODOLOGY:

This bill requires the Commissioner of the Department of Environmental services to revise rules relative to arsenic contamination in drinking water. The Department indicates the bill would require it to lower the ambient groundwater quality standard (AGQS) and drinking water maximum contaminant level (MCL) from 10 ppb to a level no greater than 5 ppb. The Department states lowering the MCL would affect public water systems and lowering the AGQS would affect landfills and facilities that discharge to groundwater. In 2018 the Department developed cost estimates for compliance with these standards for all public and private facilities. These estimated costs are in the Table A below.

Facility Type	Number of Sites	Capital Costs	Additional Annual Costs
Public water systems	318	\$950,000	\$3,880,000
Sewage lagoons, landfills and other facilities with groundwater discharge permits	40	\$2,200,000	\$500,000
Landfills	46	\$610,000	\$250,000
Total Costs Estimated:		\$3,760,000	\$4,630,000

The Department identified 15 municipal water systems and public schools that would experience additional costs as a result of the MCL being lowered from 10 ppb to 5 ppb. These costs were based on a variety of factors including existing water treatment, design flow and increased use of expendable arsenic absorptive media. The Department also estimated the cost to for all public and private facilities affected by lowering the AGQS from 10 ppb to 5 ppb including landfills and facilities that discharge to groundwater. Based on the ownership of these facilities estimated impact on county expenditures would be \$135,000 in FY 2021 (\$110,000 for capital improvements) and \$25,000 in each year thereafter. The cost to municipalities and school districts would be \$2,619,000 in FY 2021 and \$1,457,000 in each year thereafter, with \$1,162,000 of capital improvement costs in FY 2021, the first year.

AGENCIES CONTACTED:

Department of Environmental Services

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AGENCIES CONTACTED:

Department of Environmental Services

HB 261 - AS AMENDED BY THE SENATE

19Mar2019... 0028h

05/23/2019 1983s

05/23/2019 2243s

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3 of the effective date of this paragraph to revise the ambient groundwater quality standard for
4 arsenic to a value not to exceed 5 micrograms per liter. Such standard shall take effect no later than
5 July 1, 2021.

6 II. The commissioner shall initiate rulemaking pursuant to RSA 485:3, I within 120 days of
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15 the contaminant in public water systems, the ability to remove the contaminant from drinking
16 water, the impact on public health, and the costs and benefits to affected entities that will result
17 from establishing the standard. ~~[Any proposed change to the ambient groundwater standard for
18 arsenic shall require the approval of the general court.]~~ On or before January 1, 2019, the
19 commissioner shall submit a report of the findings to the chairpersons of the house and senate
20 committees with jurisdiction over natural resources.

21 3 Drinking Water and Groundwater Advisory Commission. Amend RSA 485-F:4, VII(a)(1) to
22 read as follows:

23 (1) Emergency remediation is necessary, where contamination to drinking water or
24 groundwater is prevalent, *or to assist with the capital costs of compliance with new or revised*
25 *maximum contaminant levels or ambient groundwater quality standards.*

26 4 Effective Date. This act shall take effect 90 days after its passage.

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Department of Environmental Services

CHAPTER 208
HB 261 - FINAL VERSION

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3 of the effective date of this paragraph to revise the ambient groundwater quality standard for
4 arsenic to a value not to exceed 5 micrograms per liter. Such standard shall take effect no later than
5 July 1, 2021.

6 II. The commissioner shall initiate rulemaking pursuant to RSA 485:3, I within 120 days of
7 the effective date of this paragraph to adopt a maximum contaminant limit for arsenic to a value not
8 to exceed 5 micrograms per liter for public water systems regulated by RSA 485-C. Such standards
9 shall take effect no later than July 1, 2021.

10 208:2 Ambient Groundwater Quality Standards. Amend 2018, 190:1 to read as follows:

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12 January 1, 2019, the commissioner of the department of environmental services shall review the
13 ambient groundwater standard for arsenic to determine whether it should be lowered, taking into
14 consideration the extent to which the contaminant is found in New Hampshire, the ability to detect
15 the contaminant in public water systems, the ability to remove the contaminant from drinking
16 water, the impact on public health, and the costs and benefits to affected entities that will result
17 from establishing the standard. ~~[Any proposed change to the ambient groundwater standard for~~
18 ~~arsenic shall require the approval of the general court.]~~ On or before January 1, 2019, the
19 commissioner shall submit a report of the findings to the chairpersons of the house and senate
20 committees with jurisdiction over natural resources.

21 208:3 Drinking Water and Groundwater Advisory Commission. Amend RSA 485-F:4, VII(a)(1)
22 to read as follows:

23 (1) Emergency remediation is necessary, where contamination to drinking water or
24 groundwater is prevalent, *or to assist with the capital costs of compliance with new or revised*
25 *maximum contaminant levels or ambient groundwater quality standards.*

26 208:4 Effective Date. This act shall take effect 90 days after its passage.

Approved: July 12, 2019

CHAPTER 208
HB 261 - FINAL VERSION
- Page 2 -

Effective Date: October 10, 2019

Amendments

Amendment to HB 261

1 Amend the title of the bill by replacing it with the following:

2

3 AN ACT requiring the commissioner of the department of environmental services to revise
4 rules relative to arsenic contamination in drinking water and groundwater and
5 relative to state grants for wastewater treatment facilities.
6

7 Amend the bill by replacing all after the enacting clause with the following:

8

9 1 Public Water Supply Protection Program; Drinking Water Rules. Amend RSA 485:3, I(b)(1)
10 to read as follows:

11 (1) A maximum contaminant level that is acceptable in water for human
12 consumption, ***provided that the maximum contaminant level for arsenic shall not exceed 5***
13 ***micrograms per liter for public water systems regulated under this chapter; or***

14 2 Ambient Groundwater Quality Standards. Amend 2018, 190:1 to read as follows:

15 190:1 Department of Environmental Services; Ambient Groundwater Quality Standards. By
16 January 1, 2019, the commissioner of the department of environmental services shall review the
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21 from establishing the standard. ~~[Any proposed change to the ambient groundwater standard for~~
22 ~~arsenic shall require the approval of the general court.]~~ On or before January 1, 2019, the
23 commissioner shall submit a report of the findings to the chairpersons of the house and senate
24 committees with jurisdiction over natural resources.

25 3 New Paragraph; Aid to Municipalities for Water Pollution Control; State Contribution.
26 Amend RSA 486:1 by inserting after paragraph V the following new paragraph:

27 VI. The construction or renovation of a wastewater treatment facility owned by the state or
28 a municipality which is necessary to comply with the maximum contaminant level for arsenic
29 pursuant to RSA 485:3, I(b)(1) shall be eligible to receive state contributions under this section.

30 4 Ambient Groundwater Quality Standards; Contaminants in Drinking Water. The
31 commissioner of the department of environmental services shall initiate rulemaking pursuant to
32 RSA 485:3, I, within 120 days of the effective date of this section, to adopt a maximum contaminant
33 level for arsenic not to exceed 5 micrograms per liter for public water systems regulated by RSA

- 1 485, and an ambient groundwater quality standard under RSA 485-C:6 for arsenic not to exceed 5
- 2 micrograms per liter.
- 3 5 Effective Date. This act shall take effect upon its passage.

UNAPPROVED

2019-1823s

AMENDED ANALYSIS

This bill requires the commissioner of the department of environmental services to initiate rulemaking to establish a maximum contaminant level for arsenic in drinking water and groundwater. The bill also makes state or municipally-owned wastewater treatment facilities eligible for state grant funds for renovations necessary to comply with revised arsenic contaminant limits.

UNAPPROVED

Sen. Fuller Clark, Dist 21
May 10, 2019
2019-1913s
08/06

Amendment to HB 261

1 Amend the bill by replacing all after the enacting clause with the following:

2

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27 *revised maximum contaminant levels or ambient groundwater quality standards.*

28 4 Effective Date. This act shall take effect 90 days after its passage.

Sen. Sherman, Dist 24
May 23, 2019
2019-2243s
06/08

Floor Amendment to HB 261

1 Amend the bill by replacing section 1 with the following:

2

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Committee Minutes

SENATE CALENDAR NOTICE

Energy and Natural Resources

Sen Martha Fuller Clark, Chair
 Sen Dan Feltes, Vice Chair
 Sen David Watters, Member
 Sen Jeb Bradley, Member
 Sen Bob Giuda, Member

Date: April 9, 2019

HEARINGS

Tuesday

04/16/2019

	(Day)	(Date)
Energy and Natural Resources		SH 103
(Name of Committee)		(Time)
8:30 a.m.	HB 495	establishing a commission on drinking water.
8:50 a.m.	HB 737	establishing a commission to investigate and analyze the environmental and public health impacts relating to releases of perfluorinated chemicals in the air, soil, and groundwater in Merrimack, Bedford and Litchfield.
9:10 a.m.	HB 614-FN	increasing penalties and fines for air pollution and water pollution.
9:30 a.m.	HB 707	relative to settlement money from actions pertaining to the contamination of groundwater or drinking water.
9:45 a.m.	HB 261	requiring the commissioner of the department of environmental services to revise rules relative to arsenic contamination in drinking water.
10:30 a.m.	HB 494	relative to removal or containment of contaminants from the Coakley Landfill.

EXECUTIVE SESSION MAY FOLLOW

Sponsors:

HB 495

Rep. Cushing	Rep. Edgar	Rep. Bushway	Rep. Janvrin
Rep. Loughman	Rep. Meuse	Rep. Berrien	Rep. Altschiller
Rep. Le	Rep. Khan	Sen. Sherman	Sen. Fuller Clark

HB 737

Rep. Murphy	Rep. Meuse	Rep. W. Thomas	Rep. Stack
Rep. Cushing	Rep. Knirk	Rep. Salloway	Rep. McMahon
Rep. L'Heureux	Rep. Mullen	Sen. Bradley	Sen. Sherman
Sen. Chandley,	Sen. Watters		

HB 614-FN

Rep. Rung	Rep. Backus	Rep. Danielson	Sen. Fuller Clark
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HB 707

Rep. Notter

HB 261

Rep. Grassie	Rep. Adjutant	Rep. Cushing	Rep. Murphy
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HB 494

Rep. Cushing	Rep. Edgar	Rep. Loughman	Rep. Bushway
Rep. Janvrin	Rep. Le	Rep. Malloy	Rep. Grote
Rep. Altschiller	Rep. Meuse	Sen. Sherman	

Griffin Roberge 271-7875

Martha Fuller Clark
Chairman

Senate Energy and Natural Resources Committee

Griffin Roberge 271-7875

HB 261, requiring the commissioner of the department of environmental services to revise rules relative to arsenic contamination in drinking water.

Hearing Date: April 16, 2019.

Time Opened: 10:25 a.m.

Time Closed: 10:36 a.m.

Members of the Committee Present: Senators Feltes, Bradley and Giuda.

Members of the Committee Absent: Senators Fuller Clark and Watters.

Bill Analysis: This bill requires the commissioner of the department of environmental services to revise rules relative to arsenic contamination in drinking water.

Sponsors:

Rep. Grassie

Rep. Adjutant

Rep. Cushing

Rep. Murphy

Who supports the bill: Mindi Messmer (NH Safe Water Alliance), Representative Patricia Bushway (Rockingham - District 21), Representative Suzanne Smith (Grafton - District 8), Representative Nancy Murphy (Hillsborough - District 21), Representative Robert Renny Cushing (Rockingham - District 21), Representative Wendy Thomas (Hillsborough - District 21), Susan Covert (Contocook, NH), J.J. Smith (NH Public Health Association), Paul Susca (NHDES), Deborah Jakabowski, Dennis Jakabowski, Maura Willing (Concord, NH), Representative David Meuse (Rockingham - District 23), Louise Spencer, Melissa Hinebauch, John Tuthill (Acworth, NH).

Who opposes the bill: None.

Who is neutral on the bill: Laurie Rardin (Dartmouth College), Barbara Reid (NH Municipal Association).

Summary of testimony presented in support:

Representative Robert Renny Cushing
Rockingham - District 21

- Introduced HB 261 on behalf of the prime sponsor, Representative Chuck Grassie.
- HB 261 requires the Commissioner of the NH Department of Environmental Services (NHDES) to initiate rulemaking within 120 days after HB 261's effective date to revise the ambient groundwater quality standard (AGQS) and the maximum contaminant limit (MCL) for arsenic to a value not to exceed 5 parts per billion (ppb).
- HB 261 is the result of HB 1592-FN (2018), which required NHDES to review the water standards for arsenic to determine whether they should be lowered. HB 1592-FN also required any proposed change in the standard to have the approval of the NH General Court. The requirement for NH General Court approval would be removed under HB 261.

Mindi Messmer - provided written testimony
NH Safe Water Alliance

- Arsenic is commonly found in private wells and is associated with bladder cancer. NH has some of the highest bladder cancer rates in the country with a rate that is 37% higher than the national rate.
- Adopting a standard of 5 ppb or less will be more protective of the public health and bring NH in line with similar standards in other states like New Jersey. While HB 261 will address public water systems, efforts need to be made to address private wells as well.

Paul Susca - provided written testimony

Supervisor, Drinking Water Source Protection Program, NH Department of Environmental Services (NHDES)

- As a result of HB 1592-FN (2018), NHDES conducted a review of its AGQS and MCL for arsenic. That review, entitled "Review of the Drinking Water Maximum Contaminant Level (MCL) and Ambient Groundwater Quality Standard (AGQS) for Arsenic," was completed during the summer and fall of 2018 and was submitted on December 31st, 2018.
 - The review considered the extent to which the contaminant is found in NH, the ability to detect the contaminant in public water systems, the ability to remove the contaminant from drinking water, the impact on public health, and the costs and benefits to affected entities that will result from establishing the standard.
- NH's current AGQS and MCL for arsenic is 10 ppb. NHDES reported a recommendation and proposal that rulemaking be initiated to lower the AGQS and MCL for arsenic to no greater than 5 ppb as a running annual average.
- Lowering the standard to 5 ppb would result in significant and lasting public health benefits that outweigh the costs of compliance. Even at low levels of 5-10 ppb, arsenic has been found to cause serious health impacts like bladder and skin cancer. Data from NH and Maine has shown arsenic exposure can lead to death from cardiovascular disease, IQ deficiencies, and adverse birth outcomes.

Summary of testimony presented in opposition: None.

Neutral Information Presented:

Barbara Reid - provided written testimony

Government Finance Advisor, NH Municipal Association (NHMA)

- NHMA expressed concerns about the cost of compliance with the proposed arsenic standards under HB 261.
- There are state aid programs for wastewater and drinking water projects. When those programs were created in 1959, they recognized the need to improve water quality in NH for health, recreation, and industry. Those same standards and programs should apply in lowering the standards for arsenic.
- While municipalities would have large upfront capital costs to improve their systems to the tune of \$3,760,000, there were significant ongoing maintenance costs in order to comply with the new standard proposed under HB 261 to the tune of \$4,630,000.
- NHMA proposed an amendment that would require the state of NH to reimburse 50% of the incremental capital and annual maintenance costs for compliance in order to assist public water and wastewater systems with the proposed arsenic standards under HB 261. The reimbursement would apply to any standards relating to perfluorochemical standards and standards for other emerging contaminants.
 - NHDES was currently working on a rulemaking process for perfluorochemical standards with a submission to the Joint Legislative Committee on Administrative Rules (JLCAR) in June 2019.
- Senator Bradley said current state aid grant programs for water and wastewater projects offered a 20% reimbursement. Senator Bradley asked if existing state aid grant programs would cover municipal costs if the new standards for arsenic and perfluorochemicals were adopted.
 - Ms. Reid said the 20% reimbursement was generally for eligible construction costs. Currently, no reimbursement was offered for ongoing maintenance or annual costs. In reading the 2018 NHDES arsenic report, there were significant ongoing costs to consider. Changing the arsenic standard was a legislative priority, but should also be a legislative budget priority.

GJR, edited by Marie Marston.

Date Hearing Report completed: April 16, 2019.

Speakers

Testimony

Messmer
HB 261

DHHS Home > Office of the Commissioner > Public Information Office > Press Releases > Press Releases

Press Release

NH DHHS, NHDES Urge Residents To Test Private Wells For Arsenic
Arsenic Exposure May Contribute to NH's Bladder Cancer Rate, the Highest in the Nation

Public Health Services

Publish Date:

May 9, 2018

Contact:

Public Information Office

(603) 271-9290



Concord, NH – New Hampshire has the highest rate of bladder cancer cases in the nation and a rate that is 37% higher than the national rate, according to the U.S. Centers for Disease Control and Prevention (CDC). One of the leading causes of bladder cancer in the State is exposure to arsenic in private drinking water wells. In recognition of Bladder Cancer Awareness Month in May and Drinking Water Week (May 6-12), the NH Department of Health and Human Services (DHHS) and Department of Environmental Services (NHDES) encourage people with a private well to reduce their risk of bladder cancer and other health risks associated with arsenic exposure by testing their well water for arsenic every three years and treating the water if needed.

"Arsenic is commonly found in private wells in our state and exposure contributes to a host of health issues including bladder cancer," said State Cancer Director Whitney Hammond. "Fortunately, there are steps we can take to help prevent health problems. The first and most important course of action is to test well water for arsenic, and to treat the water if needed. Anyone who is concerned about bladder cancer is encouraged to share those concerns with their doctor."

Arsenic is a colorless, odorless, tasteless, semi-metal that can leach into groundwater and wells from natural deposits in soil and rock and from agricultural and industrial sources. Exposure is associated with a wide range of health effects in addition to bladder cancer, such as lung and skin cancer, heart disease and diabetes. Children who are growing and developing may be especially vulnerable to health risks including impaired brain development, growth problems and unhealthy immune systems. Research at Dartmouth has observed drinking water concentrations of arsenic in New Hampshire associated with blood pressure changes, gestational diabetes in pregnant women, and effects on fetal growth and infant infections, as well as a decrease in the ability of the body to fight bacterial infection in experimental studies.

"Our studies raise the possibility that health effects due to arsenic exposure occur at various ages in the U.S. populations. These findings underscore how important it is for people to test their private wells to ensure their drinking water does not contain elevated concentrations, and to continue efforts to understand the health impacts of low level exposures," says Margaret Karagas, Ph.D., Director of the Dartmouth Children's Environmental Health and Disease Prevention Research Center at Dartmouth and Project Leader for the Dartmouth Toxic Metals Superfund Research Program.

The U.S. Geological Survey has estimated that one in five water wells in New Hampshire has arsenic at levels higher than what is allowed in public water systems. A 2014 study by researchers at Dartmouth College estimated that arsenic in water wells in New Hampshire is responsible for 830 cancer cases in the current population.

NHDES provides an online "Be Well Informed" tool to help well users understand their water test results and make informed decisions about water treatment. Dartmouth has created several resources for information on arsenic and exposure through food or other sources, which can be found through the Arsenic and You (<http://www.arsenicandyou.org/>) website. For a list of accredited labs providing well water quality testing services, visit <https://www.des.nh.gov/organization/divisions/water/dwgb/nhelap/documents/labs-private-wells.pdf>.



The State of New Hampshire
Department of Environmental Services



Robert R. Scott, Commissioner

April 16, 2019

The Honorable Martha Fuller Clark
Chair, Senate Energy and Natural Resources Committee
State House, Room 103
Concord, NH 03301

RE: HB 261 - requiring the commissioner of the department of environmental services to revise rules relative to arsenic contamination in drinking water

Dear Chair Fuller Clark and Members of the Committee:

Thank you for the opportunity to testify on HB 261. New Hampshire Department of Environmental Services (NHDES) supports this bill. As amended and passed by the House, this bill would require the commissioner of NHDES to revise the ambient groundwater quality standard (AGQS) and the drinking water maximum contaminant level (MCL) for arsenic to a value not to exceed 5 micrograms per liter (parts per billion, or ppb). The amended bill would also amend Chapter 190:1 of Laws of 2018 (HB 1592) to delete the provision that any proposed change to the AGQS for arsenic would require the approval of the General Court.

Last year, HB 1592 directed NHDES to "review the ambient groundwater standard for arsenic to determine whether it should be lowered, taking into consideration the extent to which the contaminant is found in New Hampshire, the ability to detect the contaminant in public water systems, the ability to remove the contaminant from drinking water, the impact on public health, and the costs and benefits to affected entities that will result from establishing the standard." NHDES completed the required review during the summer and fall of 2018, and submitted its report to the chairs of this committee and the House Resources, Recreation and Development Committee on December 31, 2018.

NHDES' report includes a recommendation and proposal that rulemaking be initiated to lower the AGQS for arsenic to 5.0 micrograms per liter (5.0 ppb) and to lower the MCL for arsenic to 5.0 micrograms per liter (5.0 ppb) as a running annual average." As outlined in the report, NHDES believes that lowering the standard to 5.0 ppb will result in significant and lasting public health benefits that outweigh the costs of compliance with the new standards. A copy of the summary section of the report is attached for reference.

In summary, we support this bill as amended and passed by the House. 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 Michael Wimsatt, Director, Waste Management Division (michael.wimsatt@des.nh.gov, 271-1997).

www.des.nh.gov

29 Hazen Drive • PO Box 95 • Concord, NH 03302-0095
(603) 271-3503 • Fax: 271-2867 TDD Access: Relay NH 1-800-735-2964

The Honorable Martha Fuller Clark
Chair, Senate Energy and Natural Resources Committee
April 16, 2019
Page 2 of 2

Sincerely,



Robert R. Scott
Commissioner

cc: Sponsors of HB 261: Representatives Grassie, Adjutant, Cushing, and Murphy

Attachment: Summary section (3 pp) of NHDES report R-WD-18-20, "Review of the Drinking Water Maximum Contaminant Level (MCL) and Ambient Groundwater Quality Standard (AGQS) for Arsenic"

Excerpt from NHDES report R-WD-18-20, "Review of the Drinking Water Maximum Contaminant Level (MCL) and Ambient Groundwater Quality Standard (AGQS) for Arsenic"

<https://www.des.nh.gov/organization/commissioner/pip/publications/documents/r-wd-18-20.pdf>

1. SUMMARY

1.1 Background

Chapter 190, New Hampshire Laws of 2018 (House Bill 1592), effective June 8, 2018, directs the New Hampshire Department of Environmental Services (NHDES) to "review the ambient groundwater standard for arsenic to determine whether it should be lowered, taking into consideration the extent to which the contaminant is found in New Hampshire, the ability to detect the contaminant in public water systems, the ability to remove the contaminant from drinking water, the impact on public health, and the costs and benefits to affected entities that will result from establishing the standard." Any new ambient groundwater quality standard (AGQS) for arsenic would, in effect, also establish a new drinking water standard (maximum contaminant level – MCL) for arsenic, since public water systems must comply with AGQSs for contaminants that they are monitoring, under New Hampshire Administrative Rule Env-Dw 707.02(b). The AGQS of 10 parts per billion (ppb) applies to facilities that discharge to groundwater. The MCL of 10 ppb applies to public water systems (PWSs) that serve residential populations (community PWSs) and to non-community PWSs that serve the same 25 or more people each day for at least six months of the year, such as schools and places of work with their own wells. Compliance with both the AGQS and MCL are determined on the basis of a running annual average where monitoring is done quarterly, or with annual monitoring at sites with results less than half the standard.

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 including bladder and other cancers and developmental effects on children. More than one-third of community PWSs in New Hampshire have a measurable amount of arsenic in their water. The U.S. Environmental Protection Agency (EPA) typically sets MCLs for drinking water contaminants at a level at which a lifetime of exposure would result in one excess cancer in one million people exposed. However, EPA makes exceptions for contaminants for which 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, or when the cost of compliance with a lower standard would be very high. For some contaminants, EPA 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) – based on the health effects information available in 2001 when the standard was set. Water systems have been required to meet the new standard since January 23, 2006.

In 2003, EPA began the process of updating the 1988 Toxicological Review upon which the 10 ppb MCL was based. Since then, evidence has continued to mount about the health effects of arsenic at low levels (less than 10 ppb) of exposure. EPA currently expects to complete the review of a revised assessment

scope (by the National Academy of Sciences) in 2019, with completion of the risk assessment itself expected in 2021.

The only state that has adopted a standard other than EPA'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, but unlike EPA, did not explicitly balance the cost of treatment with the benefit of the reduced health risk. Citing reservations about some of the water treatment methods available to attain the recommended 3 ppb standard, the New Jersey Department of Environmental Protection (NJDEP) adopted a drinking water standard of 5 ppb, which it has been enforcing since 2006. According to NJDEP's most recent report on Public Water Systems, there were no violations of the 5 ppb MCL during 2017 among the state's 582 community and 717 non-transient, non-community water systems.

1.2 Recommendation

After considering a number of factors as outlined in the Rationale section below, NHDES recommends and proposes that rulemaking be initiated to lower the AGQS for arsenic to 5.0 micrograms per liter (5.0 ppb) and to lower the MCL for arsenic to 5.0 micrograms per liter (5.0 ppb) as a running annual average.

1.3 Rationale

While the costs of compliance with drinking water and groundwater standards of 5 ppb for arsenic would be substantial, the tangible and intangible benefits to public health warrant the recommended reduction. Information gathered and analyses performed for this review enable NHDES to estimate some of those costs and benefits. At the outset, NHDES focused this review on a range of potential MCL/AGQS standards from 3 to 6 ppb, but by the conclusion of the review, determined that both the costs and benefits of a 5 ppb standard could be addressed with greatest confidence. The rationale for NHDES' recommendations is summarized below:

- Exposure to inorganic arsenic in drinking water and food at levels below the current MCL of 10 ppb has been shown to increase the risk of a wide range of adverse health effects, including lung, bladder and skin cancer; cardiovascular disease; adverse birth outcomes; illnesses in infants; and reduced IQ. (Section 5.1 of this report)
- For some of these adverse health effects, it is possible to estimate the magnitude of the reduction in risk associated with reducing the MCL from 10 to 5 ppb. In this category are lung, bladder and skin cancer. These are the health effects that were taken into account when EPA set the current MCL at 10 ppb. (Tables 4-6)
- For some additional health effects, convincing information is now available regarding the increased risk in the 5-10 ppb range, but the available information does not make it possible to confidently estimate the number of cases or deaths that could be avoided by lowering the MCL. In this category are adverse birth outcomes, illnesses during the first year of life, and deaths from cardiovascular disease (CVD).

- CVD is of particular interest due to the number of people affected and the evidence that arsenic in the 5-10 ppb range is likely to substantially increase the risk of death from this cause. (Section 5.1)
- The potential for arsenic above 5 ppb to lower the IQ of school children is of great concern, but the available evidence does not enable estimates of the number of children affected with any degree of confidence. However, the potential life-long impact on children must be considered.
- NHDES considered both the tangible (economic) and intangible costs to those affected by the health risks mentioned above.
- Water treatment technologies that are currently used to treat drinking water are capable of reliably maintaining an average arsenic level of 5 ppb, and in many cases lower than that. For a few water systems (those using greensand treatment) relatively minor adjustments in treatment processes can achieve 5 ppb or less. For the vast majority of water systems (those currently using or likely to use adsorption) achieving lower arsenic levels is a matter of replacing their treatment media more frequently. For a substantial number of water systems, maintaining an average arsenic concentration below 5 ppb would not be feasible. This review includes estimates of the costs associated with these changes. (Tables 1 and 2)
- Lowering the groundwater standard (AGQS) from 10 ppb to 5 ppb would affect an estimated 46 municipal landfills, increasing the cost of groundwater monitoring and treatment. Also affected would be an estimated 40 sites with groundwater discharge permits (sewage and septage lagoons, wastewater discharges), which would need to install and operate additional monitoring wells, and treatment systems for private wells. (Table 3)
- Nearly all laboratories that are currently accredited to test for arsenic in public water systems are already able to reliably measure arsenic at levels low enough to ensure that public water systems and other regulated facilities maintain compliance with an MCL and AGQS of 5 ppb.

Roberge, Griffin

From: Bob Quinn <Bob@NHAR.com>
Sent: Tuesday, April 23, 2019 2:21 PM
To: FullerClark, Martha; Feltes, Dan; Watters, David; Bradley, Jeb; Giuda, Bob
Cc: Roberge, Griffin
Subject: REALTORS support NHMA proposed amendment to HB 261 - relative to arsenic
Attachments: HB 261 Impacted public water systems.docx

Members of Senate Energy and Natural Resource –

Realtors ask the Senate Energy and Natural Resources committee to support the amendment offered by the NH Municipal Association at last week's hearing on House Bill 261, requiring DES to alter its public water standards on arsenic. The NHMA amendment requires the state to pay 50% of capital and annual costs for arsenic compliance on public water systems.

Under RSA 485 the definition of "public water system" includes many condo and homeowners associations. I have attached a list, provided by DES, of some of the impacted public water systems which would need to come into compliance.

Realtors would ask the Senate Energy and Natural Resources Committee to review the Fiscal Note attached to House Bill 261 before taking final action. The estimated average annual maintenance costs could mean significant ongoing expenses to condo and homeowners associations. DES estimates these annual maintenance costs would be in the vicinity of \$30,000. That is significant fee which condo and homeowner associations would have to absorb.

Since HB 261 is veering away from NH DES past practice of utilizing EPA standards on public water systems, Realtors believe it is entirely appropriate for the state to assist with capital and maintenance costs.

More than happy to discuss this with you further.

Best regards,

Bob

Bob Quinn | Vice President for Public Policy and Governmental Affairs
New Hampshire REALTORS®
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Concord, NH 03302-0550
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bob@nhar.com | www.nhar.org

Public Water Systems included in NHDES estimate of cost of compliance with reduced arsenic MCL

System Name	Location
Systems currently treating for arsenic	
EPSOM MEDICAL CENTER	EPSOM
BLAKES ALL NATURAL FOODS	CONCORD
MEETING HOUSE WATER	PEMBROKE
LEE MARKETPLACE	LEE
JOYFUL NOISE LEARNING CENTER	BOW
GREENFIELD COMMONS	GREENFIELD
MUIRFIELD CLUSTER	STRATHAM
ACKERMAN RETIREMENT PARK	SALEM
PACKER MEADOWS	NEWTON
CAMELOT III	WINDHAM
FARM DESIGN	HOLLIS
PINE ACRES CONDOS	SANDOWN
TOWER VIEW	NORTHWOOD
MEETING HOUSE MONTESSORI	BOW
MONADNOCK COMM EARLY LNG CTR	PETERBOROUGH
DARBY FIELD COMMONS	LEE
NORTH CHARLESTOWN WATER DEPT	CHARLESTOWN
FRANCESTOWN VILLAGE WATER	FRANCESTOWN
LAMINGTON HILL	STRATHAM
BLACK MOUNTAIN MEADOW CONDOS	JACKSON
PHEASANT RUN CONDOS	STRATHAM
JOHNSON CREEK	DURHAM
LAKE SHORE PARK	GILFORD
E KINGSTON ELEMENTARY SCH	EAST KINGSTON
EXETER UNITED METHODIST CHURCH	EXETER
BELA BROOK WATER	BOW
501 SOUTH STREET	BOW
FREEDOM HILL/PINE RIDGE EST	LOUDON
CRN REALTY	HAMPTON FALLS
EVERGREEN DRIVE WATER	BOW
INDEX PACKAGING	MILTON
WILLOW GROVE TRAILER PARK	NEWTON
TIMBERLANE REGIONAL HS	PLAISTOW
EPPING WATER AND SEWER DEPT	EPPING
PELHAM PLAZA	PELHAM
ROUTE 114 VILLAGE PLAZA	WEARE

BOW TECHNOLOGIES CENTER	BOW
SCANDIA PLASTICS	PLAISTOW
LINDT AND SPRUNGLI USA/BLDG E	STRATHAM
PEU/STONE SLED FARM	BOW
GREAT ELM PLAZA	PLAISTOW
GOVERNORS GREEN	EPPING
COTTON FARMS MHP	DANVILLE
ABERDEEN/WEST	STRATHAM
OLD COACH VILLAGE	DERRY
NH DOT BUREAU TURNPIKE OFFICES	HOOKSETT
KOS MANUFACTURED HOUSING CMNTY	LOUDON
SOUTH WEARE WATER	WEARE
ROLLINSFORD WATER AND SEWER	ROLLINSFORD
FOREST GLEN CONDOS	PLAISTOW
PENINSULA AT WINDING BROOK	STRATHAM
PLUMER COURT	EPPING
AP DAILEY	WINDHAM
EVERGREEN TERRACE	LEE
TABERNACLE CHRISTIAN SCH	LITCHFIELD
NHDOS MARINE PATROL BLDG	GILFORD
HUDSON MOBILE HOME ESTS	HUDSON
NEWMARKET WATER WORKS	NEWMARKET
PEU/LOCKE LAKE	BARNSTEAD
MT LAUREL ESTATES	GOFFSTOWN
WELL SCHOOL	PETERBOROUGH
CAMPING WORLD OF NEW HAMPSHIRE	CHICHESTER
BOW YOUTH CENTER	BOW
COLLINS LANDING	WEARE
PEU/FLETCHER CORNER ESTATES	WINDHAM
A CHILDS PLACE	MOULTONBOROUGH
PURITAN PRESS	HOLLIS
PRESIDENTIAL PINES/UPPER	LOUDON
Systems not currently treating for arsenic.	
BIRCH HILL ESTATES	WOLFEBORO
WIGGIN FARM WINTERBERRY	STRATHAM
SUGAR HILL MANOR MHP	WEARE
CHISHOLM FARM	STRATHAM
FROST RESIDENTS	DERRY
PEU/CASTLE REACH	WINDHAM
FIELDSTONE INDUSTRIAL PARK	PLAISTOW

FLINTLOCK APTS	LOUDON
18 CLINTON DR BLDG	HOLLIS
SOUTHVIEW CONDOS	LONDONDERRY
MOODY POINT	NEWMARKET
ATKINSON ACADEMY SCH	ATKINSON
CRUCON CRUISE OUTLET	MOULTONBOROUGH
SHORTRIDGE ACADEMY	MILTON
BALMORAL CONDOS	STRATHAM
GRANITE STATE TELEPHONE	WEARE
SANDOWN NORTH ELEMENTARY SCH	SANDOWN
PITTSBURG WATER DEPT	PITTSBURG
SODA BROOK	NORTHFIELD
STAGECOACH FARMS	DURHAM
COOS COUNTY FARM	STEWARTSTOWN
KEARSARGE REG ELEM SCH/BRADFRD	BRADFORD
POINT BREEZE CONDOS	WOLFEBORO
CHILDRENS CTR FOR CREATVE LRNG	BRADFORD
TEREX ENVIRONMENTAL EQUIPMENT	NEWTON
PLAINFIELD VILLAGE WATER DIST	PLAINFIELD
LINDT AND SPRUNGLI USA BLD B/C	STRATHAM
BRAKE HILL ACRES	GILFORD
RUNNELLS LANDING	HOLLIS
EXETER HIGHLANDS	EXETER
WINDHAM COOPTVE KINDERGARTEN	WINDHAM
RUGGLES III OFFICE BLDG	BOW
STRATHAM CROSSING 7621	STRATHAM
COLONIAL WAY PLAZA	PELHAM
SWEET HILL ESTATES	PLAISTOW
LOUISBURG CIRCLE	EXETER
LABSPHERE	SUTTON
PRESIDENTIAL PINES/LOWER	LOUDON
RUTLEDGE PLACE	PLAISTOW
ELLIS SCHOOL	FREMONT
TURNBERRY	STRATHAM
MILLVILLE CIRCLE/NORTH	SALEM
BARRINGTON MIDDLE SCH	BARRINGTON
ROLLING MEADOWS CONDOS I	LONDONDERRY
HARBOR SQUARE SHOPPING CENTER	MOULTONBOROUGH
ICEY HILL COOPERATIVE	EXETER
WINDHAM CENTER SCH	WINDHAM

GREENFIELD HILL ESTATES	PLAISTOW
JOYFUL NOISE PRESCH	BOW
WAKEFIELD ACRES	WAKEFIELD
MIDRIDGE CONDOS	LONDONDERRY
PINELAND PARK	MILTON
SAMOSET AT WINNIPESAUKEE	GILFORD
LYNDEBOROUGH CENTRAL SCH	LYNDEBOROUGH
WEST PINE CONDOS	PLAISTOW

Roberge, Griffin

From: Barbara Reid <breid@nhmunicipal.org>
Sent: Monday, April 29, 2019 12:21 PM
To: FullerClark, Martha; Feltes, Dan; Watters, David; Giuda, Bob; Bradley, Jeb; Roberge, Griffin
Cc: Bob@NHAR.com; Adam@jgstrategies.com; Cordell Johnston; Margaret Byrnes; Timothy Fortier
Subject: HB 261 - Arsenic Standard
Attachments: Proposed Amendment to HB 261.docx; HB 261 Impacted public water systems (Quinn).docx

Good Afternoon Senator Fuller Clark and Members of the Senate Energy and Natural Resources Committee,

Last week Bob Quinn from the NH Association of Realtors sent an email to you expressing concerns about HB 261 which lowers the standard for arsenic in drinking water from 10 parts per billion (ppb) to 5 ppb. In that correspondence he supported the amendment put forth by the NH Municipal Association (attached) asking the State of NH to pay 50% of the incremental costs for public water systems to comply with the arsenic standard of 5 parts per billion proposed in HB 261.

As he explained, the cost of compliance with a stricter arsenic standard raises concerns with not only for municipal water systems but for other entities that fall under the definition of "public water system" which RSA 485:1-a, XV, defines as a system that "serves an average of at least 25 individuals daily at least 60 days out of the year". Hence the many condominiums, manufactured housing parks, schools and child care centers on the NHDES list (attached) that Mr. Quinn provided to you.

I have been asked whether funding from the State Aid Grant (SAG) program would be available to pay for a portion of the incremental costs of compliance with the stricter arsenic standard. My understanding is that the SAG program provides grants towards the capital costs associated with public water and wastewater systems, by paying part of the principal and interest on the annual bond payments or other financing options. While the stricter arsenic standard will result in some capital costs, according to the Review of the MCL and AGQS for Arsenic report dated December 31, 2018 issued by the NH Department of Environmental Services, much of the additional costs will be for maintenance of treatment systems since adsorptive media will need to be replaced more frequently. I don't believe these costs meet the current statutory requirements for SAG eligibility. The Drinking Water and Groundwater Trust Fund may be an option for state funding – however, similar to the SAG program, I do not believe that annual maintenance costs have been a priority for projects funded thus far from that trust fund.

Again, along with Mr. Quinn, I request that you consider the on-going cost implications of HB 261 and recommend some form of state support towards compliance with this stricter state-imposed standard.

Thank you.

Barbara T. Reid
NHMA Government Finance Advisor
25 Triangle Park Drive
Concord, NH 03301
603.230.3308
breid@nhmunicipal.org

Proposed Amendment to HB 261

Amend RSA 486-A:3 by adding a new paragraph IV as follows:

IV. The state of New Hampshire shall pay 50 percent of the incremental capital and annual maintenance costs for compliance with stricter standards for public water and wastewater systems enacted either by legislation or by administrative rules pursuant to RSA 541-A on or after April 1, 2019. This includes incremental costs to achieve compliance with arsenic standards, perfluoro-chemical standards, and standards for other emerging contaminants. Public water and wastewater systems shall apply annually by July 1 for the state contribution on a form provided by the department. The department shall determine eligible capital and annual maintenance costs for compliance with stricter standards and shall pay the state share of 50 percent of those costs to public water and wastewater systems annually on or before October 1.

Roberge, Griffin

From: Karen Soucy <execdir.nhmmha@gmail.com>
Sent: Monday, April 29, 2019 3:54 PM
To: FullerClark, Martha; Feltes, Dan; Watters, David; Giuda, Bob; Bradley, Jeb; Roberge, Griffin
Subject: HB 261 - NH Manufactured & Modular Housing Association
Attachments: HB261.DES PWS List.pdf

Good Afternoon Senate Energy and Natural Resources committee members –

I am writing to you on behalf of the NH Manufactured & Modular Housing Association (NHMMHA) regarding HB 261, requiring the commissioner of the department of environmental services to revise rules relative to arsenic contamination in drinking water. The NHMMHA represents the manufactured housing park owners/operators in NH.

The NHMMHA has recently become aware of a number of manufactured housing parks that will be impacted by the passage of HB 261. The NHMMHA is requesting that the Senate Energy and Natural Resources committee support the amendment offered by the NH Municipal Association at last week's hearing on the bill. It is our understanding that the bill requires that DES lower its standards for arsenic from 10 parts per billion (ppb) to 5 ppb. The NHMA amendment requires the State to pay 50% of capital and annual costs for arsenic compliance on public water systems.

Under RSA 485, the definition of "public water systems" includes systems operated by manufactured housing parks. Based on the list provided by DES (please see attached), it appears that there are at least 10 manufactured housing parks that have public water systems which would need to come into compliance.

The NHMMHA respectfully requests that the Senate Energy and Natural Resources Committee review HB 261's Fiscal Note before taking final action. It is our understanding that DES has estimated these maintenance costs would be approximately \$30,000/year. This could result in significant ongoing expenses to manufactured housing park residents using this new standard rather than the EPA standards on public water systems.

Based on the information provided above, the NHMMHA supports the proposed amendment requesting that the State assist with capital and maintenance costs.

Please feel free to let me know if you have any questions.

Thank you.

Karen

--
***Karen Soucy, Executive Director
NH Manufactured & Modular Housing Association
PO Box 451, Concord, NH 03302-0451
P: 603-629-9369
Email: execdir.nhmmha@gmail.com
Website: www.nhmmha.com***

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Public Water Systems included in NHDES estimate of cost of compliance with reduced arsenic MCL

System Name	Location
Systems currently treating for arsenic	
EPSOM MEDICAL CENTER	EPSOM
BLAKES ALL NATURAL FOODS	CONCORD
MEETING HOUSE WATER	PEMBROKE
LEE MARKETPLACE	LEE
JOYFUL NOISE LEARNING CENTER	BOW
GREENFIELD COMMONS	GREENFIELD
MUIRFIELD CLUSTER	STRATHAM
ACKERMAN RETIREMENT PARK	SALEM
PACKER MEADOWS	NEWTON
CAMELOT III	WINDHAM
FARM DESIGN	HOLLIS
PINE ACRES CONDOS	SANDOWN
TOWER VIEW	NORTHWOOD
MEETING HOUSE MONTESSORI	BOW
MONADNOCK COMM EARLY LNG CTR	PETERBOROUGH
DARBY FIELD COMMONS	LEE
NORTH CHARLESTOWN WATER DEPT	CHARLESTOWN
FRANCESTOWN VILLAGE WATER	FRANCESTOWN
LAMINGTON HILL	STRATHAM
BLACK MOUNTAIN MEADOW CONDOS	JACKSON
PHEASANT RUN CONDOS	STRATHAM
JOHNSON CREEK	DURHAM
LAKE SHORE PARK	GILFORD
E KINGSTON ELEMENTARY SCH	EAST KINGSTON
EXETER UNITED METHODIST CHURCH	EXETER
BELA BROOK WATER	BOW
501 SOUTH STREET	BOW
FREEDOM HILL/PINE RIDGE EST	LOUDON
CRN REALTY	HAMPTON FALLS
EVERGREEN DRIVE WATER	BOW
INDEX PACKAGING	MILTON
WILLOW GROVE TRAILER PARK	NEWTON
TIMBERLANE REGIONAL HS	PLAISTOW
EPPING WATER AND SEWER DEPT	EPPING
PELHAM PLAZA	PELHAM
ROUTE 114 VILLAGE PLAZA	WEARE

BOW TECHNOLOGIES CENTER	BOW
SCANDIA PLASTICS	PLAISTOW
LINDT AND SPRUNGLI USA/BLDG E	STRATHAM
PEU/STONE SLED FARM	BOW
GREAT ELM PLAZA	PLAISTOW
GOVERNORS GREEN	EPPING
COTTON FARMS MHP	DANVILLE
ABERDEEN/WEST	STRATHAM
OLD COACH VILLAGE	DERRY
NH DOT BUREAU TURNPIKE OFFICES	HOOKSETT
KOS MANUFACTURED HOUSING CMNTY	LOUDON
SOUTH WEARE WATER	WEARE
ROLLINSFORD WATER AND SEWER	ROLLINSFORD
FOREST GLEN CONDOS	PLAISTOW
PENINSULA AT WINDING BROOK	STRATHAM
PLUMER COURT	EPPING
AP DAILEY	WINDHAM
EVERGREEN TERRACE	LEE
TABERNACLE CHRISTIAN SCH	LITCHFIELD
NHDOS MARINE PATROL BLDG	GILFORD
HUDSON MOBILE HOME ESTS.	HUDSON
NEWMARKET WATER WORKS	NEWMARKET
PEU/LOCKE LAKE	BARNSTEAD
MT LAUREL ESTATES	GOFFSTOWN
WELL SCHOOL	PETERBOROUGH
CAMPING WORLD OF NEW HAMPSHIRE	CHICHESTER
BOW YOUTH CENTER	BOW
COLLINS LANDING	WEARE
PEU/FLETCHER CORNER ESTATES	WINDHAM
A CHILDS PLACE	MOULTONBOROUGH
PURITAN PRESS	HOLLIS
PRESIDENTIAL PINES/UPPER	LOUDON
Systems not currently treating for arsenic	
BIRCH HILL ESTATES	WOLFEBORO
WIGGIN FARM WINTERBERRY	STRATHAM
SUGAR HILL MANOR MHP	WEARE
CHISHOLM FARM	STRATHAM
FROST RESIDENTS	DERRY
PEU/CASTLE REACH	WINDHAM
FIELDSTONE INDUSTRIAL PARK	PLAISTOW

FLINTLOCK APTS	LOUDON
18 CLINTON DR BLDG	HOLLIS
SOUTHVIEW CONDOS	LONDONDERRY
MOODY POINT	NEWMARKET
ATKINSON ACADEMY SCH	ATKINSON
CRUCON CRUISE OUTLET	MOULTONBOROUGH
SHORTRIDGE ACADEMY	MILTON
BALMORAL CONDOS	STRATHAM
GRANITE STATE TELEPHONE	WEARE
SANDOWN NORTH ELEMENTARY SCH	SANDOWN
PITTSBURG WATER DEPT	PITTSBURG
SODA BROOK	NORTHFIELD
STAGECOACH FARMS	DURHAM
COOS COUNTY FARM	STEWARTSTOWN
KEARSARGE REG ELEM SCH/BRADFRD	BRADFORD
POINT BREEZE CONDOS	WOLFEBORO
CHILDRENS CTR FOR CREATVE LRNG	BRADFORD
TEREX ENVIRONMENTAL EQUIPMENT	NEWTON
PLAINFIELD VILLAGE WATER DIST	PLAINFIELD
LINDT AND SPRUNGLI USA BLD B/C	STRATHAM
BRAKE HILL ACRES	GILFORD
RUNNELLS LANDING	HOLLIS
EXETER HIGHLANDS	EXETER
WINDHAM COOPTVE KINDERGARTEN	WINDHAM
RUGGLES III OFFICE BLDG	BOW
STRATHAM CROSSING 7621	STRATHAM
COLONIAL WAY PLAZA	PELHAM
SWEET HILL ESTATES	PLAISTOW
LOUISBURG CIRCLE	EXETER
LABSPHERE	SUTTON
PRESIDENTIAL PINES/LOWER	LOUDON
RUTLEDGE PLACE	PLAISTOW
ELLIS SCHOOL	FREMONT
TURNBERRY	STRATHAM
MILLVILLE CIRCLE/NORTH	SALEM
BARRINGTON MIDDLE SCH	BARRINGTON
ROLLING MEADOWS CONDOS I	LONDONDERRY
HARBOR SQUARE SHOPPING CENTER	MOULTONBOROUGH
ICEY HILL COOPERATIVE	EXETER
WINDHAM CENTER SCH	WINDHAM

GREENFIELD HILL ESTATES	PLAISTOW
JOYFUL NOISE PRESCH	BOW
WAKEFIELD ACRES	WAKEFIELD
MIDRIDGE CONDOS	LONDONDERRY
PINELAND PARK	MILTON
SAMOSET AT WINNIPESAUKEE	GILFORD
LYNDEBOROUGH CENTRAL SCH	LYNDEBOROUGH
WEST PINE CONDOS	PLAISTOW



DARTMOUTH TOXIC METALS

SUPERFUND RESEARCH PROGRAM

Celia Y. Chen, Ph.D.
Director, Dartmouth Toxic Metals Superfund Research Program
Research Professor
Department of Biological Sciences
HB 6044
Dartmouth College
Hanover, NH 03755

April 12, 2019

The Honorable Martha Fuller Clark
Chair, Senate Energy and Natural Resources Committee
State House, Room 103
Concord, NH 03301

RE: HB 261 as passed by the House - Requiring the Commissioner of the Department of Environmental Services to revise rules relative to arsenic contamination in drinking water.

Dear Chair Clark and Members of the Committee:

Our Center has been studying the effects of arsenic on human health for 24 years, due to the high levels of naturally occurring arsenic in New Hampshire and its impact on the health of our residents. New Hampshire has among the highest incidence of bladder cancer in the nation, which is a documented health impact from chronic arsenic exposure. The research and community engagement work we do benefits everyone in our state who is exposed to arsenic through drinking water and in particular, the 46% of our population who receive their drinking water from private wells where no regulatory standards apply. Our research showing arsenic as an endocrine disruptor was instrumental in lowering the U.S. Environmental Protection Agency (U.S. EPA) Maximum Contaminant Level (MCL) for arsenic from 50 parts per billion (ppb) to 10 ppb in 2001.

The continued research we have completed on low-dose chronic arsenic exposure provides a much greater understanding of the broad range of arsenic health effects and the potential health effects at exposures below 10 ppb. For example, our studies, as well as those by other institutions, have associated ingestion of well water containing relatively low levels of arsenic (5 to 10 ppb) by pregnant mothers in the United States with adverse effects on babies and infants including low birth weight, lower mean gestational age, reduced newborn length, increased respiratory tract infections; and levels at 5 ppb and above may cause increased risk of blood vessel dysfunction in mothers and infants (1-5). Furthermore, a study conducted in Maine found that arsenic in drinking water greater than 5 ppb has been associated with a 5-6 point reduction in IQ in school-age children (6), and low to moderate arsenic levels in drinking water (less than 50 ppb) have been associated with gestational diabetes in pregnant women, decreases in the ability of the lung to fight bacterial infection in adults, increased heart disease incidence, and overall mortality in the U.S. (7-10), as well as several cancers (11-14).

The Honorable Martha Fuller Clark
Chair, Senate Energy and Natural Resources Committee
April 12, 2019
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Bladder cancer is the fourth most diagnosed cancer in New Hampshire and ranks seventh for deaths from cancer in our state.* A 2016 population-based study examined historically-elevated bladder cancer rates in Northern New England and found that low-to-moderate levels of arsenic in drinking water were associated with an increased risk of bladder cancer (15). Squamous Cell Carcinoma (SCC), a type of skin cancer, has long been associated with high-dose arsenic exposure. A 2013 population-based study in New Hampshire found that exposure to low-doses of arsenic is also linked to SCC (12).

A review of National Health and Nutrition Examination Survey data by researchers at Columbia University examined trends of urinary arsenic concentrations in public water users versus private well users after the U.S. EPA's lowering of the MCL in 2001. They found a reduction in urinary arsenic among public water users, estimating a reduction of 200-900 lung and bladder cancer cases annually depending on the method used. They saw no reduction in urinary arsenic among private well users (16). It is also important to note that, at the current standard of 10 ppb, arsenic is estimated to present a 1 in 300 risk of bladder and lung cancer, while regulatory standards for most carcinogens are set to protect against a 1 in 1 million excess risk of cancer.

I hope that the Committee finds our research results useful in considering a decision that affects the long-term health of New Hampshire communities. Establishing a 5 ppb maximum contaminant level for arsenic in public water systems would benefit all of the citizens of New Hampshire, including private well users. Our Center's ultimate goal is to provide data for informed decision-making to improve the health and well-being of children and adults in our state and throughout the U.S.

Thank you for the opportunity to submit this letter on behalf of our Center.

Best regards,



Celia Y. Chen, Ph.D.
Director

Scientific articles

1. Laine JE, Bailey KA, Rubio-Andrade M, Olshan AF, Smeester L, Drobna Z et al. Maternal Arsenic Exposure, Arsenic Methylation Efficiency, and Birth Outcomes in the Biomarkers of Exposure to ARsenic (BEAR) Pregnancy Cohort in Mexico. *Environmental health perspectives*. 2015;123(2):186-92. doi:10.1289/ehp.1307476.
2. Shi X, Ayotte JD, Onda A, Miller S, Rees J, Gilbert-Diamond D et al. Geospatial association between adverse birth outcomes and arsenic in groundwater in New Hampshire, USA. *Environmental geochemistry and health*. 2015;37(2):333-51. doi:10.1007/s10653-014-9651-2.

* NH Health WISDOM

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3. Farzan SF, Korrick S, Li Z, Enelow R, Gandolfi AJ, Madan J et al. In utero arsenic exposure and infant infection in a United States cohort: a prospective study. *Environmental research*. 2013;126:24-30. doi:10.1016/j.envres.2013.05.001.
4. Gilbert-Diamond D, Emond JA, Baker ER, Korrick SA, Karagas MR. 2016. Relation Between in Utero Arsenic Exposure and Birth Outcomes in a Cohort of Mothers and Their Newborns from New Hampshire. *Environmental Health Perspectives*. *Environ Health Perspect*. 2016 Aug;124(8):1299-307. doi: 10.1289/ehp.1510065.
5. Farzan SF, Brickley EB, Li Z, Gilbert-Diamond D, Gossai A, Chen Y, Howe CG, Palys T, Karagas MR. 2017. Maternal and Infant Inflammatory Markers in Relation to Prenatal Arsenic Exposure in a U.S. Pregnancy Cohort. *Environmental Research*. *Environ Res*. 2017 Jul;156:426-433. doi: 10.1016/j.envres.2017.03.056.
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8. Goodale BC, Rayack EJ, Stanton BA. 2017. Arsenic Alters Transcriptional Responses to *Pseudomonas Aeruginosa* Infection and Decreases Antimicrobial Defense of Human Airway Epithelial Cells. *Toxicology and Applied Pharmacology*. *Toxicol Appl Pharmacol*. 2017 Sep 15;331:154-163. doi: 10.1016/j.taap.2017.06.010.
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10. James KA, Byers T, Hokanson JE, Meliker JR, Zerbe GO, Marshall JA. Association between lifetime exposure to inorganic arsenic in drinking water and coronary heart disease in Colorado residents. *Environmental health perspectives*. 2015;123(2):128-34. doi:10.1289/ehp.1307839.
11. Garcia-Esquinas E, Pollan M, Umans JG, Francesconi KA, Goessler W, Guallar E et al. Arsenic exposure and cancer mortality in a US-based prospective cohort: the strong heart study. *Cancer epidemiology, biomarkers & prevention : a publication of the American Association for Cancer Research, cosponsored by the American Society of Preventive Oncology*. 2013;22(11):1944-53. doi:10.1158/1055-9965.EPI-13-0234-T.
12. Gilbert-Diamond D, Li Z, Perry AE, Spencer SK, Gandolfi AJ, Karagas MR. A population-based case-control study of urinary arsenic species and squamous cell carcinoma in New

The Honorable Martha Fuller Clark
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Voting Sheets

Senate Energy & Natural Resources Committee

EXECUTIVE SESSION RECORD

2019-2020 Session

Bill # <i>HB 261-FN</i>

Hearing date: 04/16/2019

Executive Session date: 05/14/2019

Motion of: *Amendment 2019-1913s* Vote: *5-0*

Committee Member	Present	Made by	Second	Yes	No
Sen. Fuller Clark, Chair	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sen. Feltes, Vice Chair	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sen. Watters	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sen. Bradley	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sen. Giuda	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Motion of: *OTPA* Vote: *5-0*

Committee Member	Present	Made by	Second	Yes	No
Sen. Fuller Clark, Chair	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sen. Feltes, Vice Chair	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sen. Watters	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sen. Bradley	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sen. Giuda	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Motion of: _____ Vote: _____

Committee Member	Present	Made by	Second	Yes	No
Sen. Fuller Clark, Chair	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sen. Feltes, Vice Chair	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sen. Watters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sen. Bradley	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sen. Giuda	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Reported out by: *Feltes*

Notes: _____

Committee Report

STATE OF NEW HAMPSHIRE
SENATE
REPORT OF THE COMMITTEE

Tuesday, May 14, 2019

THE COMMITTEE ON Energy and Natural Resources

to which was referred **HB 261**

AN ACT

requiring the commissioner of the department of environmental services to revise rules relative to arsenic contamination in drinking water.

Having considered the same, the committee recommends that the Bill

OUGHT TO PASS WITH AMENDMENT

BY A VOTE OF: 5-0

AMENDMENT # 1983s

Senator Dan Feltes
For the Committee

Griffin Roberge 271-7875

ENERGY AND NATURAL RESOURCES

HB 261, requiring the commissioner of the department of environmental services to revise rules relative to arsenic contamination in drinking water.

Ought to Pass with Amendment, Vote 5-0.

Senator Dan Feltes for the committee.

Docket of HB261

Docket Abbreviations

Bill Title: requiring the commissioner of the department of environmental services to revise rules relative to arsenic contamination in drinking water.

Official Docket of HB261.:

Date	Body	Description
12/28/2018	H	Introduced 01/02/2019 and referred to Resources, Recreation and Development HJ 2 P. 43
1/30/2019	H	Public Hearing: 02/12/2019 10:00 am LOB 305
2/15/2019	H	Executive Session: 03/06/2019 10:00 am LOB 305
3/11/2019	H	Committee Report: Ought to Pass with Amendment #2019-0028h for 03/19/2019 (Vote 17-1; CC) HC 16 P. 11
3/19/2019	H	Amendment #2019-0028h : AA VV 03/19/2019 HJ 10 P. 30
3/19/2019	H	Ought to Pass with Amendment 2019-0028h: MA VV 03/19/2019 HJ 10 P. 30
3/29/2019	S	Introduced 03/28/2019 and Referred to Energy and Natural Resources; SJ 12
4/10/2019	S	Hearing: 04/16/2019, Room 103, SH, 09:45 am; SC 18
5/15/2019	S	Committee Report: Ought to Pass with Amendment #2019-1983s , 05/23/2019; SC 23
5/24/2019	S	Special Order to to the present time, Without Objection, MA; 05/23/2019; SJ 17
5/23/2019	S	Committee Amendment #2019-1983s , AA, VV; 05/23/2019; SJ 17
5/23/2019	S	Sen. Sherman Floor Amendment #2019-2243s , AA, VV; 05/23/2019; SJ 17
5/23/2019	S	Ought to Pass with Amendments 2019-1983s and 2019-2243s, MA, VV; OT3rdg; 05/23/2019; SJ 17
6/13/2019	H	House Concurs with Senate Amendment 1983s and 2243s (Rep. Suzanne Smith): MA VV 06/13/2019 HJ 19 P. 11
6/27/2019	S	Enrolled (In recess 06/27/2019); SJ 21
6/27/2019	H	Enrolled 06/27/2019 HJ 20 P. 53
7/16/2019	H	Signed by Governor Sununu 07/12/2019; Chapter 208; Eff: 10/10/2019

NH House

NH Senate

Other Referrals

Senate Inventory Checklist for Archives

Bill Number: HB 261

Senate Committee: ENR

Please include all documents in the order listed below and indicate the documents which have been included with an "X" beside

Final docket found on Bill Status

Bill Hearing Documents: {Legislative Aides}

- Bill version as it came to the committee
- All Calendar Notices
- Hearing Sign-up sheet(s)
- Prepared testimony, presentations, & other submissions handed in at the public hearing
- Hearing Report
- Revised/Amended Fiscal Notes provided by the Senate Clerk's Office

Committee Action Documents: {Legislative Aides}

All amendments considered in committee (including those not adopted):

- amendment # 1823 - amendment # 1913

- amendment # 1983 _____ - amendment # _____

Executive Session Sheet

Committee Report

Floor Action Documents: {Clerk's Office}

All floor amendments considered by the body during session (only if they are offered to the senate):

- amendment # 2243 _____ - amendment # _____

_____ - amendment # _____ _____ - amendment # _____

Post Floor Action: (if applicable) {Clerk's Office}

_____ Committee of Conference Report (if signed off by all members. Include any new language proposed by the committee of conference):

_____ Enrolled Bill Amendment(s)

_____ Governor's Veto Message

All available versions of the bill: {Clerk's Office}

as amended by the senate _____ as amended by the house

final version

Completed Committee Report File Delivered to the Senate Clerk's Office By:

Committee Aide

Date

Senate Clerk's Office JM