STATE OF NEW HAMPSHIRE

DEPARTMENT OF ENVIRONMENTAL SERVICES

March 12, 2019 - 5:30 p.m.
Pease Field Office
Pease International Tradeport
222 International Drive, Suite 175
Portsmouth, New Hampshire 03801

RE: **Hearing to receive public comment on three sets of Proposed Rules related to Env-Dw 700 & 800; Env-Or 603.03; and Env-Wq 402.**

PRESENT: Peter Demas, Esq., Legal Unit-NHDES
(Presiding Officer)

ALSO NOTED AS PRESENT:

Harrison "Chip" D. Mackey, Drinking Water & Groundwater (DWG) Bureau
Stephen J. Roy, DWG Bureau
Lea Anne Atwell, Hazardous Waste Remediation Bureau
Asst. Cmsr. Clark B. Freise, N.H. DES
Sarah Pillsbury, DWG Bureau

Court Reporter: Steven E. Patnaude, LCR No. 52

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P R O C E E D I N G

PRESIDING OFFICER DEMAS: Okay, folks. We're going to go ahead and get started. I'm trying to avoid having to use this microphone here, because sitting here and talking to you, and having to hold the microphone up to my face the whole entire time doesn't really appeal to me very much. But, at the same, you all need to hear me. So, I'm going to try to project enough. If anybody has trouble hearing me, let me know, and then I will go to Plan B and turn on the microphone. But, as long as everybody can hear me like this, I'd prefer to go on this way.

So, all right. My name is Peter Demas. I'm Legal Coordinator with the Legal unit at the Department of Environmental Services. This hearing is being held to receive public comment on three sets of rules proposed by the Department related to the regulation of four perfluorochemicals, or PFCs.

Specifically, those rules are Env-Dw 700 and 800, establishing maximum contaminate levels, or MCLs, for the four PFCs in drinking

water and adding monitoring, compliance, reporting and public notice requirements for those four PFCs. Also, Env-Or 603.03, establishing ambient groundwater quality standards for AGQSs -- or, I'm sorry, or AGQSs for the four PFCs, that are required by statute to be equivalent to the MCLs established in Env-Dw 700. Also, there is Env-Wq 402, establishing water quality standards for discharges to groundwater for wastewater containing those four PFCs.

The Rulemaking Notices for these rules were published in the New Hampshire Rulemaking Register on January 24, 2019 as Notice Numbers 2019-14, 2019-15, and 2019-16. This is the third of three public hearings being held as indicated in those Notices.

Anyone wishing to make oral comments or to submit written comments on the rules for the Department's consideration may do so at this hearing. If you have written comments, you can turn them in right to Commissioner Freise or Sarah Pillsbury, right there behind the lecturn. Written comments on the rules

submitted to the Department by the close of business on -- which is 4:00 p.m., on April 12th will also be considered.

A brief couple of comments on the nature of this hearing, specifically what it is and what it isn't. This is being held specifically to allow interested parties an opportunity to testify and comment regarding the rules. The Department is here to listen to your comments and receive any written materials you may wish to submit.

This hearing is not a presentation of the rules nor is it an adjudicative proceeding or a debate on the merits of the rules. This is your opportunity to give us your opinion on the rules.

DES staff knowledgeable on the content of the rules are here tonight, and may be able to answer your questions, if any are necessary for clarification. However, as noted, the primary reason they are here is to hear from you.

Now, the staff that we have here, to my left, immediate left, is Chip Mackey, he

heads the Public Water System Monitoring Group in the Drinking Water & Groundwater Bureau; on the end, Steve Roy, he leads the Hydrology & Technical Group and oversees groundwater discharge permitting in the Drinking Water & Groundwater Bureau; and in the middle, Lea Anne Atwell, she leads the Emerging Contaminants Group in the Hazardous Waste Remediation Bureau.

Okay. Moving on, this hearing is not about the investigations with which you are probably familiar regarding current PFC contamination. It's also not about the ongoing process to remediate any existing contamination. This is only about the proposed rules.

After the close of the comment period, the Department will consider all comments received, and will decide whether to revise the rules in response to those comments. The Department will file its final proposal -- final proposed rules for consideration by the Joint Legislative Committee on Administrative Rules, known as "JLCAR", and will post the

final proposed rules on its On-line Rulemaking page. We anticipate that the rules will be on the JLCAR agenda for review at either its May or June meeting, although that date is subject to change.

All right. So, now a little more detailed explanation of the rules. Last year, the Legislature enacted legislation directing the Department to initiate rulemaking by January 1st, 2019 to, first, set MCLs for PFOA, PFOS, PFNA, and PFHxS. MCLs are the drinking water standards that public water systems must comply with. And, in addition, DES was directed to re-evaluate the current AGQSs for PFOA and PFOS, which is currently 70 parts per trillion combined, and to establish AGQSs for PFHxS and PFNA. AGQSs are clean-up standards for contaminated sites. It should be noted that existing statutes have always required an AGQS to be the same as any established MCL for a contaminant. The AGQSs are also used to determine appropriate discharge limits for groundwater discharge permits.

In response to the legislative

directive, DES has proposed the following rules, which are the subject of tonight's hearing: Env-Dw 700 and 800, establishes MCLs, monitoring, compliance, reporting, and public notice requirements for the four PFCs that will apply to all community and non-transient public water systems, as required by RSA 485:16-e. The proposed MCLs are: For PFOA, 38 parts per trillion; for PFOS, 70 parts per trillion; for combined PFOA and PFOS, also 70 parts per trillion; for PFNA, 23 parts per trillion; for PFHxS, 85 parts per trillion.

The rules would also eliminate the requirement for the owner or operator of a laboratory that is seeking approval for an alternate analysis method to identify the specific PW -- public water system for which the alternate method would be used, meaning that once an alternate method is approved, it could be used for any public water system.

Env-Or 603.03 would be amended to revise the existing AGQSs for PFOA and PFOS, and to add AGQSs for PFNA and PFHxS. As required by RSA 485-C:6, those AGQSs are

identical to the MCLs that would be established under Env-Dw 700 and 800.

Env-Wq 402 would establish requirements for discharge to groundwater of wastewater containing any of the four PFCs. Those requirements reflect the proposed changes to the AGQSs that would be established under Env-Or 603.03 and are intended to accommodate the lack of available technology to treat wastewater that is contaminated with PFCs.

Specifically, the rules would: Include residual PFOA, PFOS, PFNA, and PFHxS in the existing conditional exemption for meeting AGQSs under certain circumstances; they would also establish a discharge limit for PFOA, PFOS, PFNA, and PFHxS in wastewater discharged to groundwater; they would account for exceedances of the applicable limits of the four PFCs; and they would include those four PFCs in the treatment/alternative response requirements established for 1,4 Dioxane, which includes identifying and eliminating contributing discharges to the wastewater stream.

All right. So, that covers the summary of the rules. Before we get started, just to cover some procedural matters.

If you wish to speak, we ask that you please sign and fill out a card available at the door back in the corner of the room over there, with your name and affiliation, if any. The cards will be collected by DES staff and brought up to me. I will then call your name and ask you to step to the microphone, right here in the middle, to make comments.

While there is no set time limit for your comments, we ask that you be respectful of those who wish to speak after you, and try to limit your comments to about three to five minutes.

If you plan to speak and submit written comments, there is no need for you to read your written comments into the record. Please just summarize your comments for those listening here tonight, and the entirety of your written comments will be considered by the Department.

If others who have testified before

you have made the same comments, please just indicate your support for those, for the previous testimony, instead of repeating it in its entirety. This will give more people an opportunity to speak.

We are recording this hearing and have a stenographer, over here to my right, here to help capture comments. Please speak clearly and towards the microphone.

Now, let's get the hearing underway. First person signed up to speak is Annie Robbins.

MS. ROBBINS: Hello. Thank you.

PRESIDING OFFICER DEMAS: Hello, Ms. Robbins.

MS. ROBBINS: Hello. So, I'm just a regular person from New Hampshire. I live in Wakefield. And I came down here to speak to you all today.

I don't trust the EPA's levels of the PFAS in drinking water. I think it is too high. And I would like you to report to the Legislature that the EPA standards are too high, and that you would recommend a lower

level that is safer for us to drink.

On December 31st, 2008 **[**2018**?]**, you reported to the Legislature a more protective limit for the amount of arsenic in drinking water than the EPA's established levels. So, in 2006, the EPA had been enforcing 50 parts per billion of a level of arsenic in drinking water as safe. They then brought that down to 10 parts per billion, and you, in turn, in your 2018 report, recommended arsenic levels be brought down to 5 parts per billion. So, you have a history of not always following the EPA standards. And I thank you for that.

In contrast to naturally occurring arsenic found in drinking water, PFAS are man-made toxins. And in your guiding principles and strategic plan, you state that your goal is to manage municipal and industrial wastes. There is no goal stated to use the cost of clean-up of municipal or industrial waste as a reason not to protect the people or the environment.

And I thank you for your time.

PRESIDING OFFICER DEMAS: Thank you,

Ms. Robbins.

MS. ROBBINS: Okay.

PRESIDING OFFICER DEMAS: Lindsey Carmichael, from the New Hampshire Safe Water Alliance.

MS. CARMICHAEL: Hi there.

PRESIDING OFFICER DEMAS: Hi, Ms. Carmichael.

MS. CARMICHAEL: Thanks for being here tonight and including the public in this process. I'm one of the founders of the community action group New Hampshire Safe Water Alliance, but I'm speaking as a private citizen and impacted community member this evening.

My primary concern focuses around the reference dose parameters used in DES's MCL calculations. It's my feeling that using a reference dose based on the water intake of a lactating mother fails to adequately protect the youngest among us. This approach entirely omits a subset of the population. It is well established by science that infants are the most at-risk population for all chemical

exposures, including PFAS. And not only are infants the most at-risk subset of the population, but they're also thought to have some of the highest exposure levels. Based on the published science, it seems as if the approach being used is not rigorous enough.

It's my belief that DES should use exposure assumptions based on infants for the derivation of MCLs; and to that end I urge you to use a water ingestion rate of 0.175 liters per kilogram per day, as the State of Vermont did, rather than the water ingestion rate currently being used of 0.055 liters per kilograms per day for lactating mothers.

The next point I want to talk about is the MCL for PFOA. The methodology for arriving at this MCL does not seem to acknowledge the science pointing towards mammary gland development delays. These types of early life developmental duration disruptions can have long-lasting and life-altering impacts. Further underscoring the importance of adequately protecting this population is research in the field of

epigenetics showing that these types of exposures can change the way a person's genes are expressed, and these changes can be passed along for up to three generations. It's impossible to account for the costs related to these types of early childhood exposures, but that doesn't mean that they shouldn't be considered. I encourage DES to use a more sensitive endpoint for PFOA or a more protective uncertainty factor.

Next thing I want to talk about briefly is the MCL for PFOS. There's compelling science by leaders in the PFAS field, such as Phillippe Grandjean, that makes a solid case for using suppressed immune function in humans as an endpoint for PFOS. I encourage DES to revisit their assumptions either about the endpoint chosen for this compound or the uncertainty factor used.

Our state is experiencing rising rates of preventable and treatable chronic disease. It's a fact that a portion of these diseases are attributable to environmental causes. The World Health Organization

estimates that roughly 24 percent of all illnesses -- illness is attributable to environmental exposures, with the percentage climbing to 36 percent for illnesses in children aged zero to 14. Costs associated with chronic disease in New Hampshire are estimated to exceed $8.7 billion per year between lost productivity and treatment costs.

So, when determining the costs associated with PFAS regulation and remediation in New Hampshire water supplies, it's also really important to consider the costs associated with illness that will and in some cases already have burdened Granite Staters.

The last thing I want to talk about briefly is just the way in which we regulate chemicals here. The regulation of chemicals in this country places the burden of proving the safety of many compounds on the consuming public. The New Hampshire law requiring DES to adopt standards for PFAS compounds does not give the agency the latitude to adopt MCLs for the entire chemical class. However, it's important to point out that people in the

Granite State are regularly exposed to more than four compounds for which MCLs are being set.

Of the 23 PFAS compounds screened for in Portsmouth's municipal wells, eight have been and continue to be detected during regular monthly screenings conducted by the City.

As it stands now, New Hampshire is expending significant time and energy to regulate less than 0.0008 percent of all PFAS compounds that exist. This is an inefficient and costly approach. I hope that one day in the future we will adopt a different approach to chemical regulation that strikes a better balance between a free market economy and protecting the health of the public.

Thank you for your consideration.

PRESIDING OFFICER DEMAS: Thank you, Ms. Carmichael. Ned Beecher, NEBRA.

MR. BEECHER: Hi. Thank you to DES for the opportunity to provide input on this important topic. This short verbal testimony serves as a placeholder; we'll be submitting additional detailed written comments in April.

I work with a wide variety of public officials who work in the water quality field every day, managing and operating wastewater treatment facilities and related systems. These employees of public utilities and municipalities are worried about the PFAS issue and how it will impact their systems, programs, and budgets. Some have already seen significant technical and cost impacts because of the uncertainty around this issue and the developing regulations.

We/they are all focused on public health and protecting the environment. That's what our work is about. But we/they also have some concerns that need to be part of the consideration. We want to work with DES and other stakeholders in bringing forth these considerations as DES sets these MCLs.

PFAS are the only common chemicals being regulated in parts per trillion. So, it's new to the water quality profession, and it's challenging, from analysis to evaluation, and where they appear in the environment.

It requires a thoughtful, careful

balancing act, as I think you all are aware. Protecting drinking water and public health, of course, is critical, but also is figuring out how to make this happen in practicality in the real world, especially given the diffuse lower levels that are being released to the environment from a variety of many, many different sources in our daily lives.

Parts per trillion of PFAS are in wastewater, and will be for the foreseeable future, because they are in our daily lives, when we clean carpets and other things, the PFAS, you know, end up in wastewater, in measurable levels from the data we've seen so far.

So, how will DES avoid disrupting wastewater treatment and other critical systems that protect public health, at the same time as you're setting MCLs for drinking water?

We're scratching our heads about it, and I'm sure you all have been wrestling with this, and we appreciate the hard work you've done.

Wastewater effluent contains PFAS,

often in single to low tens of parts per trillion. And DES has not included in the cost estimates so far the potential that, not just groundwater discharged effluent would need treatment or an exemption, but that all wastewater effluent might, especially with the upcoming surface water standards being considered. And at this point, it's not considered easily feasible to treat all wastewater effluent for PFAS. So, we need to figure out -- you know, ultimately, engineering may solve that question, but we need to figure out and provide time for that to be worked through.

What about the benefits of setting any particular PFAS MCL levels? The current debate that we're in here with this MCL process is really a matter of looking at 70 parts per trillion, which is sort of the current action level that DES has been using well over the last couple of years, which came from the EPA Public Health Advisory, and it applies to just PFOA and PFOS combined.

And we're talking sort of at that

level, versus going down to say 20, if we go with what Vermont recommended. That's a factor of three and a half. And the uncertainty factors that are in the risk calculations already are in the hundreds, 300 or more, depending on where you end up with the numbers and which calculations you're looking at. So that three and a half factor that we're arguing about, between 70 and 20, is really a small part of the overall uncertainty around this issue, and this is what is making this more particularly concerning. And it makes it hard to define the actual benefit of going from 70 to 20, but we're concerned that the cost implications of going from 70 to 20 may be considerable.

The MCL process, as you know, was defined in the New Hampshire law in 2018 requires consideration of health protection and costs and benefits. We are concerned that DES has done only a partial job in evaluating all of the costs associated or potentially associated with setting PFAS MCLs at the proposed levels, or the lower levels that DES

has said they may be introducing sometime soon.

And DES, by its own admission, has not completed, really, the formal process of evaluating benefits or even addressing some of the technical feasibility concerns we have around wastewater, treating wastewater, managing wastewater.

So, we'll address these concerns and provide our best thinking on this, our recommendations. But we don't have the answers. We all need to work together to figure this out. But we'll provide what ideas we have in our written comments.

So, thank you for the opportunity to comment. And we appreciate all the work you've done on this important topic.

PRESIDING OFFICER DEMAS: Thank you, Mr. Beecher. Mary Marek Holman.

MS. HOLMAN: Hi. I just want to thank everyone for being here and everyone who has done work on this topic.

I'm just here as an ex-resident of the base. I grew up here in the '70s and '80s. And I just want to explain why I feel this is

important. I just want to preface this by saying I'm a retired biology instructor. We also own an engineering company. So, you know, I'm speaking to all aspects; the industrial and the personal.

I'm a cancer patient right now. I just came from Dana Farber today, actually. I go about every week. I have incurable cancer. I'm also going blind. I remember swimming in the ponds here, my dad fishing here, growing up basically using this water every day in the '70s and '80s.

And at 15, when I started menstruating, excuse me, I developed severe endometriosis, which is quite unusual for someone that age. I lost two children during pregnancy. I was able to have one. I had a hysterectomy in my 30s; again, a young age, because of medical issues. And I've progressed where I'm incurable.

I apologize for not coming to a previous meeting. I've tried to come when I'm well, and today is the first day I was able to.

So, I just wanted to say thank you to

everyone who's working on this, and I appreciate everyone who is working on this topic. And I just want the levels to be as low as possible. And I think we should emulate states that set low levels, like Vermont, *etcetera*.

And that's all I wanted to say. So, thanks.

PRESIDING OFFICER DEMAS: Thank you, Ms. Holman. Marco Philippon, from the New Hampshire Water Works.

MR. PHILIPPON: Great. Thank you all for allowing me to speak today. Three minutes maximum I will guarantee. Mr. Mackey, you can time me, if you would like.

My name is Marco Philippon. I'm here representing New Hampshire Water Works Association today. The Association, if you're not familiar with it, we're made up of membership from the large water systems, Manchester, Nashua, Concord, all the way to the small systems, ten customers, sometimes even less. So, all the way from Colebrook, Pittsburg, all the way down to the border. So,

we're made up of quite a diverse membership.

Throughout the entire process, New Hampshire Water Works has been very supportive of the scientific process. So, again, we thank you for going through the scientific process, and are very supportive of this process that we're going through, today being certainly a key part of that, public input.

So, really, all I want to say today, and I've broke into my second minute, Chip, right, is the concern that the membership has is simply the cost of the monitoring and testing. That is a concern for the smaller systems, if you will, because, as we all understand, once a maximum contaminant level is set, all systems must comply. Larger systems can certainly absorb that cost more so with large sampling schedules. These small systems, some as little as ten, will have certainly issues, you know, when you're looking at testing costs in the vicinity of around $365 now for a full -- full bank of testing. So, that is a concern.

We are aware, and I've read the

document, good job on the document so far, on the reduced scheduling. So, really for us is that really needs to remain a part of this rulemaking process, is to make sure that the smaller systems that really don't have that exposure, and again we're talking about some of these smaller systems, again, and I probably will say, you know, Colebrook, Pittsburg, and these remote areas, that may not be near any of these facilities, have that reduced schedule. Because again, the initial requirement, quarterly testing, will be relatively expensive, we certainly all need to go through that to establish a baseline.

But going forward, you know, if the watersheds are under a decent management program, I think we really need to understand the costs and the exposure for those small systems.

So, that is what I'm here to relay from the Water Works Association. And that's all I have. And I want to thank you all for your time.

PRESIDING OFFICER DEMAS: Thank you,

Mr. Philippon. Meredith Hatfield, from the Conservation Law Foundation.

MS. HATFIELD: Good evening. My name is Meredith Hatfield. I'm a Senior Attorney at Conservation Law Foundation's Concord office, where I focus on environmental health, environmental equity, waste, and clean water issues. And I thank you for the opportunity to comment tonight.

CLF is a nonprofit, member-supported environmental advocacy organization dedicated to the protection and responsible use of New England's natural resources. CLF's members, including many who live in New Hampshire, have a deep interest in ensuring that all New Hampshire residents have access to clean and safe drinking water.

In addition to participating in a broad range of environmental issues in this state, CLF also houses the Great Bay-Piscataqua Waterkeeper Program, which supports the engagement of local citizens in protecting and restoring the Great Bay-Piscataqua estuary.

CLF considers the problem of PFAS

pollution of drinking water, groundwater, and surface waters to be a significant challenge warranting serious regulatory attention. PFAS are highly toxic, bioaccumulative, and highly persistent. They cause a range of health problems, including fertility and pregnancy issues, thyroid disease, increased cholesterol, immune system problems, and interference with liver, thyroid and pancreatic function. They have also been linked to some cancers, including increases in kidney and testicular cancer in adults. Infants and developing fetuses are also particularly vulnerable to PFAS. And they have been found as unsafe levels in drinking water in New Hampshire, as well as in ground and surface waters around the state, even with limited testing.

In addition to industrial processes that cause PFAS contamination of land and water, PFAS chemicals are also present in landfill leachate, that is discharged to water bodies in this state, and which also raises the possibility that they may also be applied on the land in the form of biosolids from

landfills.

We know from the DES PFAS mapping tool that's available online, that elevated levels of PFAS have been found in groundwater monitoring wells near active landfills here in New Hampshire. We also know that New Hampshire wastewater treatment plants are accepting leachate from landfills, and that they do not presently treat water for PFAS before discharging that water to rivers here in New Hampshire.

We believe that PFAS chemicals should be regulated as a class or, at a minimum, in subclasses. As a first step, we are pleased that DES is establishing maximum contaminant levels, or MCLs, and ambient groundwater quality standards for four of the most common PFAS. However, we believe that the initial standards proposed for these four PFAS aren't protective enough.

We urge DES to first establish standards that are protective of our most vulnerable populations, including infants and developing fetuses.

Second, to take into account the cumulative and synergistic impacts of these four PFAS substances in combination with one another, with the thousands of other PFAS chemicals, as well as the many ways in which people are exposed to PFAS substances through everyday consumer products.

Third, to take a precautionary approach to protect the public's health in light of the evolving nature of the science and the many PFAS that exist and that are being created today.

Fourth, to strengthen testing and monitoring requirements, so that we can identify where PFAS contamination exists and also to ensure that treatment is effective.

By applying these four approaches, we believe that it may be appropriate for DES to adopt a standard as low as one part per trillion for the four PFAS combined. Some research even suggests that levels of just 0.3 parts per trillion for some of the PFAS chemicals may, by themselves, have serious health impacts. And we'll be providing details

about that research in our written comments.

We also urge DES to adopt a maximum contaminant level goal, or MCLG, of zero parts per trillion for all PFAS. As with lead, it may be that no amount of PFAS is safe for humans. Therefore, like with lead, it may be appropriate for the state to set a goal of having no PFAS present in our drinking water over the long term.

In addition, DES should periodically, no less than every two years, review the state of the science to determine whether its PFAS standards need to be revised downward toward that goal of zero.

On February 12th, DES noted -- notified stakeholders that it is reviewing a new assessment tool developed by the Minnesota Department of Health that includes a quantitative estimate of infant and child exposure to PFAS through breast milk and formula. DES stated that it is continuing to review the suitability of this tool for PFHxS and PFNA, along with other studies, and that such information may impact the rules in the

agency's final proposal. We thank DES for notifying stakeholders of this and for taking this new information into account. We urge DES to lower the proposed standards based on this new methodology.

However, if DES does change the proposed rules after the close of this comment period, CLF respectfully requests that the agency provide an additional brief period for written public comments on any revised aspects of the proposed rules.

Thank you again for the opportunity to provide these comments.

PRESIDING OFFICER DEMAS: Thank you, Ms. Hatfield. Andrea Amico, Testing for Pease.

MS. AMICO: Sorry. My name is Andrea Amico. I am a Portsmouth resident and a co-founder of a community action group called "Testing for Pease". My husband and two older children have been directly impacted by the PFAS water contamination at the Pease Tradeport while working and attending daycare here. Pease is coming up on the five year anniversary of our contamination being discovered.

[Court reporter interruption.]

MS. AMICO: Pease is coming up on the five year anniversary of our contamination being discovered, and I am thankful for the opportunity tonight to share my comments with New Hampshire DES on their process to set MCLs for four PFAS.

PFAS water contamination is a public health crisis in our nation, and we have several sites impacted with these legacy contaminants in New Hampshire. In 2014, when Pease first discovered our contamination, there were not many other communities aware of their issues, but that has changed substantially over the last five years.

I consider Pease a community that has been leading the way in how to address PFAS, from the blood testing program that was offered to our community, to the cutting-edge technology to remediate our environment and filter our water, and to our engagement with ATSDR, as we are about to be the first community in the nation to take part in a multi-site health study on PFAS.

What is being done at Pease has been precedent-setting and has national implications, so it is critical to get it right the first time as a lot of eyes are on us. The setting of four MCLs in New Hampshire is another opportunity for New Hampshire to be seen as a leader. But, sadly, I do not feel New Hampshire is leading the way with the current proposed levels for the four PFAS.

The following are my concerns with the proposed MCLs: The uncertainty factors that were used to establish some of New Hampshire's MCLs are much less conservative than other states and federal agencies that have proposed or adopted lower standards, such as New Jersey. And we have also seen states, such as New York and Vermont, recommend and implement much lower standards. It was stated at previous meetings that the higher uncertainty factors seen in New Hampshire's calculations were based on "professional judgment". I argue that, based on the professional judgment of many other states with more tenured staff and access to more resources

that have much lower numbers than New Hampshire, that New Hampshire's professional judgment is wrong and should be reconsidered by DES in their calculations.

Next, the reference dose used in New Hampshire's calculations took into consideration a lactating mother, but did not take into consideration an infant, one of our most sensitive populations. The New Jersey Drinking Water Quality Institute raised this same reference dose concern in a 475-page document that the EPA also did not use infants in their reference dose calculations and instead used a 70 kilogram person. I don't feel the reference does used by New Hampshire takes into consideration our most sensitive population, when infants are not used for the basis of the reference dose, and DES should reconsider this decision.

Next, mammary gland studies were not weighted as heavily as seen in other states when deciding the uncertainty factors, and are a contributing reason as to why New Hampshire's MCLs are significantly higher than other

states. I have three main issues with this.

Breast milk is the perfect nutrition for a human infant. There is no argument that breast is best, and the preferred nutrition source for infants, given its benefits to growth and development and reducing health issues in babies. But there are also many additional health benefits to a nursing mother, including reducing the risk of breast cancer in women. The CDC recommends exclusive breastfeeding up to six months of age, with continued breastfeeding, along with appropriate complementary foods, up to two years of age or longer. However, PFAS studies have shown that women with higher levels of PFAS in their body breastfeed for shorter periods of time, indicating that recommendations for prolonged breastfeeding due to the many health benefits to mom and baby can be cut short.

Second, it is also a fact that PFAS pass through breast milk into a nursing infant. A study from Harvard showed that PFAS appear to build up in infants by 20 to 30 percent for each month they're breastfed. And we know that

PFAS also pass the placenta. It is concerning that babies are already born contaminated with PFAS, but then they continue their exposure at a significant rate if breastfed, which again is a recommendation for two or more years by the CDC. Can you imagine the dilemma a mother must face when deciding how to feed her infant in the setting of known PFAS exposure?

And third, according to the CDC, New Hampshire has the highest rates of breast cancer in the entire nation. Remember how I just said breastfeeding reduces a mother's risk of developing breast cancer.

So, to put a fine point on all three of these concerns around the mammary studies, PFAS is contaminating the preferred nutrition source that is scientifically proven to be the best source of nutrition for an infant with recommendations for breastfeeding as long as two years and older. PFAS are being passed on to infants through breast milk. And that is only if a mom can breastfeed for a prolonged period of time, because we also know PFAS can decrease the duration of how long she may be

able to breastfeed her baby. And if that was not enough to give these studies the weight they deserve, the fact that New Hampshire has the highest rates for breast cancer in the country, and we know that breastfeeding can reduce that risk in women, should be the tipping point that DES should be giving these studies the weight they deserve by proposing standards that are as protective as possible when we see that infants, mothers, women's health are impacted by these toxic chemicals.

My next concern, only addressing four PFAS in a class of 4,000, over 4,000, is not protective enough for our public health. Here at Pease, our source of contamination is AFFF. We have a mixture of several PFAS detected in our drinking water. Therefore, we need MCLs that will protect us from all PFAS and not just a few. In other parts of the state, like Merrimack, impacted by PFAS from manufacturing plants, we know that industry does not have to disclose their confidential business information and release details on replacement compounds they may be releasing into the

environment. Therefore, the community suffers from ongoing exposure as we wait for our regulators to catch up on the science of all the PFAS we are exposed to. It's a broken system, and communities pay the ultimate price.

Other states have proposed or adopted much lower numbers. Some of these states have more resources and more experienced staff to address water contaminants. I am appreciative of the work New Hampshire DES has put into this process, but I am also concerned New Hampshire does not have adequate resources or experience to take on such a significant task, such as setting four MCLs in such a short period of time. New Hampshire DES has said they had to "scrape together funds" to hire a consulting toxicologist last summer to interpret the ATSDR tox profile due to not having a toxicologist on staff.

New Hampshire has since hired a new toxicologist and risk assessor in the Fall of 2018, giving these new hires only three months on the job to propose MCLs for four PFAS. I don't know how long other states took to

establish their levels, but I suspect that they had more than one toxicologist and one risk assessor that were both on the job for only three months before proposing MCL compounds that will have significant impacts to the state.

And the community has heard at two separate public meetings with New Hampshire DES that the staff lacks direct access to a research database to obtain peer reviewed journal articles which should be an absolute basic tool in their toolbox to do their job. I am not saying this as a criticism to Jonathan and Mary's professional skill set, but rather an observation that they have had very limited time and lack access to critical and necessary resources to carry out their job function. And this seriously concerns me that this could impact the thoroughness of this process and may be a contributing factor to why New Hampshire is proposing higher levels than several other states.

Next, we are lacking data in our state on other sources of exposure to PFAS through non

drinking water pathways and to our wildlife. Michigan has a "do not eat" advisory on deer and fish. A dairy farm in New Mexico is having to euthanize 4,000 cows and dump thousands of gallons of milk each day from PFAS exposure outside an Air Force base. And last week we learned from the Air Force at our Pease RAB meeting that shellfish in the waters surrounding Pease have detectable levels of PFAS in them, one sample with over 7,000 parts per trillion.

I know we are here tonight to talk about drinking water standards and MCLs, but PFAS are not only found in drinking water, and New Hampshire DES should consider the other sources of exposure to human health outside some of our most contaminated sites, as that is a very real reality for New Hampshire residents when setting their MCLs.

Given the bioaccumulative properties of these legacy contaminants and the maternal fetus transfer, our babies are already born contaminated, and when -- they continue to be contaminated if a mother chooses to breastfeed.

Sorry. The half lives of PFAS are very long and will take decades in some cases to rid from the body, and that's assuming no additional exposure.

The thought of harming future generations that aren't even born yet seems fundamentally and morally wrong to me. How can we justify allowing ongoing exposure of these contaminants when we don't fully know their harm, but learn more every day about their toxicity to human health and the environment. And with New Hampshire having several areas of significant PFAS contamination throughout our state, with blood tests of our residents showing high levels of PFAS, like my husband and children, at what threshold do you need to set strong limits that are absolutely critical to protecting the residents already significantly exposed and future generations?

So, to finish up, I just want to give a couple recommendations. My recommendation is to set an MCL for all PFAS in drinking water to one part per trillion. I know this is a big ask, but it is necessary to protect public

health and future generations. We don't fully understand what one PFAS may do to our body system, we certainly don't understand the effects of multiple PFAS in our body over time. There's strong evidence to support these chemicals are toxic and at low levels. I lose sleep at night knowing my kids are guinea pigs in this PFAS experiment I did not sign up for. We must stop the exposure to our communities while we sort out the science.

We cannot continue to give the chemicals the benefit of the doubt over human health while we wait to learn more. Based on your current proposed levels, I feel you are gambling with the health of the public by allowing exposure to continue.

Next, reconsider the professional judgment used and implement uncertainty factors that would result in much lower proposed standards as seen in other states.

Next, in the absence of EPA leadership and action, consider setting up a task force with other states to review their interpretation of the science, speak formally with their experts

in a fully transparent way to the public, and work together to put your resources and expertise together. I think we could learn a lot from these other states if we work together.

Next, expand testing beyond drinking water to look at other pathways in humans and how they're exposed to PFAS, given the efforts by other states to look at fish, deer, and other wildlife. Please prioritize this issue and conduct testing concurrently with your efforts to address drinking water to identify sources of PFAS to folks around the state.

We can't undo what has been done in Pease, in Merrimack, at Coakley. My family will forever be changed by this horrible and devastating experience. But we can write the next chapter of our future. I see this process as a critical crossroad, where we can take very strong steps to prevent this from happening again. One of the biggest ways we'll do that is by addressing PFAS as a class, and at much lower levels than what you're currently proposing. We have to do better for our

children and our future generations.

Thank you for the opportunity to comment tonight.

PRESIDING OFFICER DEMAS: Thank you, Ms. Amico.

[Court reporter interruption.]

PRESIDING OFFICER DEMAS: Mindi Messmer.

MS. MESSMER: Thank you. My name is Mindi Messmer. I'm a resident of Rye, former state rep., environmental scientist, and a degree in Public Health.

I want to first draw your attention to the bill which started this rulemaking process, SB-309. A section of the bill says "The commissioner shall consider the standards of other states, including the science considered by other states with standards lower than those contained in the lifetime health advisory promulgated by the U.S. EPA. The commissioner shall adopt standards that reasonably protect public health", and then I want to emphasize "particularly prenatal and early childhood health, that are reasonably

supported by peer reviewed science and independent or government agency studies."

The clear intent of this law was to be particularly protective of "prenatal and early childhood".

Since 2017, the last epidemiological study that looked at childhood effects in -- for prenatal and early childhood life exposure to PFAS, there have been 400 peer-reviewed studies using the same exact search engine used in 2017.

Recent studies indicate that prenatal and early childhood accumulation of PFAS from maternal transfer happens. And studies have shown that PFOA and PFOS concentrate in the lungs and livers of fetal tissue.

The Minnesota study that recently came out says that even short exposures during infancy have dramatic impacts of infant serum levels for many, many years. Peak breastfed infant serum levels are 4.4 folds higher than formula-fed infants.

Half-lives, after exposure to PFAS-contaminated drinking water, are no

longer -- are much longer in males than in females, based on studies that I found. Higher serum levels were also identified in the Pease population, in the males particularly, for PFOS, PFOA, PFHxS, and PFNA, significantly higher geometric means of PFC serum concentrations.

Therefore, I do not agree with your method that comprise -- that your method complies with the intent of the law, and ask you to reassess the half-lives used that were based on human adult females, that needs to be protective of human male babies, since these studies support that males do not clear PFAS compounds like females do, and that MCLs should be protective of both female and male prenatal and early childhood exposure. The approach used by NHDES so far uses the average half-life of a female adult, who sheds PFAS through breastfeeding and menstruation.

Additionally, a recent study conducted in humans showed associations between PFAS exposure and impaired male reproductive health, including reduced sperm counts, micro

penis development. This study concluded that PFAS has a substantial impact on human health as they interfere with hormonal pathways, potentially leading to male infertility.

As a result, I ask that you please use an approach that's more protective of public health in developing a health-based MCL, and specifically more protective of prenatal and early childhood. We ask that you reassess your professional judgment used to exclude animal toxicology data showing mammary gland development delays. Omitting the mammary gland development delay included by the State of New Jersey in their assessment of the MCLs lead to the NHDES using an uncertainty factor that created an MCL three-folds higher than New Jersey's proposed MCL. These newer studies, in combination with the newer Minnesota study, show that prenatal and early childhood accumulation of PFAS compounds happens through prenatal transfer.

Assumptions made by New Hampshire DES in relation to the uncertainty factor and half-lives of PFAS in the human body markedly

impact the MCL more than three-folds if more conservative assumptions are made.

According to the CDC, the State of New Hampshire has the highest rates of children with pediatric cancer. We have a pediatric cancer cluster on the seacoast. We also have the highest-in-the-nation rates of breast, bladder, and esophageal cancers. We also have significant releases of PFAS across the state, which have contaminated our drinking water. And we know that at least 50 percent of cancers can be prevented by limiting exposure to toxins.

And I ask that you assess the cost to not just in terms of the cost to treat water system -- water from the systems, but also assess the true cost of cancer that is imposed on the people of the State of New Hampshire. In 2008, according to the State of New Hampshire, the state spent $1.1 billion on treating cancer for the New Hampshire citizens.

So, I request that you re-evaluate all the proposed PFAS MCLs and ensure compliance with the intent of the law to

protect the critical developmental window during prenatal and early childhood development.

Thank you.

[Court reporter interruption.]

PRESIDING OFFICER DEMAS: Thank you, Ms. Messmer. Do we have any more comment cards?

[No verbal response.]

PRESIDING OFFICER DEMAS: Is there anybody else who wishes to comment? Ma'am.

MS. COTE: Hi. I'll be brief.

PRESIDING OFFICER DEMAS: Could I have your name for the record?

MS. COTE: My name is Lisa Coté. I am a hydrogeologist. I've been working alongside, as a private consultant, alongside regulators of the DES for over 25 years. And I would like to thank all of the speakers tonight. They have done a lot of detailed work. And I know that you will consider their comments carefully.

My concern, as a consultant who works between regulators and the regulated community

here in New Hampshire, is the confidence that the regulated community here in New Hampshire will have and the citizens will have should New Hampshire DES decide on an MCL that is significantly higher than that in Vermont.

And it's quite simply, how does a family on the New Hampshire side of the Connecticut River justify drinking water that is 3.5 times higher in PFAS compounds than their friends who may be living on the other side of the Connecticut River in Vermont?

And more broadly, not just with PFAS, but if you're wondering why it's okay for New Hampshire residents to drink PFOA at 70 parts per trillion, when it's not safe for Vermont residents to drink that water, how does that expand in their confidence to all of DES's regulations? You know, are they being -- are we being safe, protective, on other types of contaminants that might be in drinking water?

So, my concern is more the long-term confidence and credibility of DES, as community members and residents are comparing what is deemed safe on this side of the Connecticut

River as opposed to on the west side of the Connecticut River.

Thank you very much.

PRESIDING OFFICER DEMAS: Thank you, Ms. Coté. Does anybody else wish to comment?

[No verbal response.]

PRESIDING OFFICER DEMAS: Okay. There being no other comments, the hearing is hereby closed. I remind you that written comments can be submitted up until 4:00 p.m. on April 12th.

Thank you very much for coming and for your comments.

(Whereupon the hearing was adjourned at 6:23 p.m.)