



HOUSE OF COMMONS
CHAMBRE DES COMMUNES
CANADA

Standing Committee on Transport, Infrastructure and Communities

TRAN • NUMBER 083 • 1st SESSION • 42nd PARLIAMENT

EVIDENCE

Thursday, November 23, 2017

—
Chair

The Honourable Judy A. Sgro

Standing Committee on Transport, Infrastructure and Communities

Thursday, November 23, 2017

• (1535)

[English]

The Chair (Hon. Judy A. Sgro (Humber River—Black Creek, Lib.)): I call the meeting of the Standing Committee on Transport, Infrastructure and Communities to order.

Pursuant to the order of reference of Tuesday, February 7, 2017, we have the study of water quality.

Mr. Aubin, welcome back. We've missed having you at our committee.

Mr. Robert Aubin (Trois-Rivières, NDP): It's always a pleasure to be back here.

The Chair: Welcome to our witnesses.

From the Canadian Water Network, we have Bernadette Conant, chief executive officer.

From the Ontario Water Works Association, we have Michèle Grenier, executive director.

As individuals, from the Centre for Water Resources Studies in the faculty of engineering at Dalhousie University, we have Graham Gagnon, professor, and Benjamin Trueman, Ph.D. student.

Thank you all.

Please try to keep your comments to no more than five minutes, or I'll have to cut you off so that the members can have an opportunity to ask their questions.

Ms. Conant, would you like to lead off?

Ms. Bernadette Conant (Chief Executive Officer, Canadian Water Network): I'd be pleased to. Thank you.

Good afternoon, first of all, and thank you for the opportunity to appear before you today on this important topic.

My name is Bernadette Conant, and I'm the CEO of Canadian Water Network.

CWN is a national non-profit that serves as a trusted broker of research insights for use in the water sector. Our focus is on bringing about evidence-informed decisions about water. Of relevance today, part of the groundbreaking research supported by Canadian Water Network was on lead in drinking water. That work was led primarily by Dr. Michèle Prévost at l'École Polytechnique in Montreal and Professor Graham Gagnon of Dalhousie University, who is with us today. Both those researchers are internationally renowned profes-

sionals, and they've won prestigious awards for their work in that specific area.

The current focal point of CWN's programming is its Canadian Municipal Water Consortium. That's a nationwide collaboration of progressive water leaders who are advancing water management in Canada's cities and communities. It brings together practitioners, government, industry, academics, and other non-governmental groups to anticipate, respond, and adapt to water challenges facing our cities and communities. The topics are broad, but the focus is on community water management issues.

The leadership group of that consortium currently includes senior executives from the water utilities of 19 different municipalities from right across Canada—from Victoria to Halifax—and they collectively serve over 50% of the Canadian population.

To ensure that the consortium then is guided by an understanding of the key challenges these water practitioners face, we continually engage the consortium leadership group in discussions about existing and emerging priorities, assessing how the current knowledge base that's available can help address those needs or, conversely, determine what's needed to better support their decisions or actions.

It's from that position of being deeply engaged with that municipal water management and the research communities that I want to bring to you three key observations that I hope will basically set the framing for today's discussions and allow the other witnesses to give you the details that are helpful. Some of this repeats some of the pieces that your committee has talked about.

First, the public health issue of lead in drinking water and its relationship to lead in buried pipes and home fixtures is widespread. That's an important thing to communicate to the committee, from our experience. It's a recognized national issue of expressed importance by water utilities and cities right across Canada, and indeed internationally.

Second, the issue of lead in drinking water is different from other conventional concerns about water safety, such as pathogens. That is specific because it's not so much about the quality of the water produced by the drinking water plants or the supplies, but rather what happens to the chemistry of that water, how it changes as it makes its way through the distribution system, particularly, as you've talked about, within homes and buildings.

Third, research has shown quite convincingly that ingestion of lead is a problem even at very low levels, particularly for children. The current expectation based on experience in research is that we ultimately need to remove the lead pipes to address it over the long term. In fact, the partial replacement of lead pipes that you've discussed—so that replacement of part of the delivery on the public side, but not the private side—can actually make the problem worse, at least in the near term.

It's an important and not an isolated problem. Addressing the problem is complicated because it involves both public and private ownership, each having different sets of regulations, responsibilities, and liabilities. Addressing it effectively, therefore, requires action to be taken by both utilities and the public. If we're going to tackle it, both of those are required.

For the Canadian Water Network, lead is an issue that undeniably underscores the importance of going beyond the jurisdictional boundaries of water utilities or federal-provincial boundaries, which is always a challenge, I find, when we have these discussions at committee. However, we have to go beyond that if we're really concerned about public health as the ultimate goal.

Why is it relevant, and indeed important, to this particular committee? From my point of view, it's because the solution to this national public health problem involves many players, but it's ultimately about infrastructure. It's about addressing the lead in pipes in water systems. A solution to the problem therefore requires effectively addressing drinking water infrastructure all the way to the tap. Being successful at that is going to require coordinated action.

A couple of the main needs that you've discussed previously are determining the size and nature of the problem. To some degree, we know there is a problem, and different jurisdictions have lots of detailed information. Some have none. Therefore, we can conjecture about the size, but we really don't know the extent and the numbers in Canada of the—

The Chair: Could we have your closing remarks, please?

Ms. Bernadette Conant: Funding incentives through government programs to accelerate action are needed. The committee can make recommendations about how that federal infrastructure funding is allocated and structured to help both those public and private issues. That's the role that we think is the important one here.

Thank you, Chair.

• (1540)

The Chair: Thank you very much.

Ms. Grenier is next.

Ms. Michèle Grenier (Executive Director, Ontario Water Works Association): Thank you.

My name is Michèle Grenier. I'm the executive director of the Ontario Water Works Association. We're a section of the American Water Works Association, which is the largest organization of water supply professionals in the world. The Canadian section was founded in 1916 and currently represents over 200 utilities across Canada that supply drinking water to more than 50% of all Canadians.

Our response to the proposed Health Canada guidelines was submitted as part of the AWWA Canadian affairs committee. We recognize that lead exposure from other sources has decreased significantly since the 1970s, and as a result the impacts from drinking water are now much more significant. In general, the committee's comments support the health-based approach for establishing the new objective, but we also want to emphasize the importance of corrosion control as part of the strategy, in addition to lead service line replacements.

The four key recommendations that were outlined in the Canadian affairs committee's remarks are around the interpretation of the proposed maximum acceptable concentration of lead, and that it must be representative of the water that people are consuming. Clarification is needed in terms of the application of the MAC as it relates to standing versus flush samples and the duration of the required stagnation period. The increased cost of the sampling analysis and the processing time must also be recognized.

Second, the achievability of the new MAC is an issue. The regulatory standard in Ontario is consistent with the existing Health Canada guidelines, and there are over 30 utilities that are already under orders to implement corrosion control. With the decrease in the proposed concentration, the number will increase by an additional 20. These represent significant costs that will be transmitted directly to ratepayers.

In addition, we have limited data so far that would determine whether or not the implementation of these corrosion control programs will allow municipalities to reliably achieve a reduction in lead levels from 10 parts per billion to five parts per billion.

On the issue of lead service line replacement, we feel this is really the key area in which the federal government can have a role. As Bernadette mentioned, funding is a big issue, given that the private-side replacement is as important as the public-side replacement when it comes to the lead service line. There's been limited uptake so far on private-side lead service line replacement, mainly because it's difficult to explain to a homeowner why the replacement is required. In addition, the municipality has limited funding tools available to it in order to ensure that this portion of the work is completed.

We'd also like to highlight the timing of the implementation of the new standard. In many jurisdictions, the new guideline will come into effect immediately by reference in operating permits or existing regulations, whereas corrosion control studies can take months of planning and piloting before it's possible to roll them out at full scale. We request that additional time and guidance be provided to transition to the new framework.

Similarly, there's a requirement in the Safe Drinking Water Act in Ontario that makes elected officials personally liable for the operation of the drinking water system. The new standard in the proposed Health Canada guidelines for achieving lead levels that are as low as reasonably achievable becomes essentially indefensible for a municipal councillor unless additional guidance is provided to document and determine what is considered reasonably achievable.

In general, OWWA's position has been described as a three-pronged approach, whereby we would advocate for public-side lead service line replacement and private-side lead service line replacement, in addition to monitoring and sampling water quality and implementing effective corrosion control. The corrosion control element is often overlooked and is really essential, especially in larger buildings such as schools, where there is extensive plumbing and also contributions from lead components in the system, such as brass or lead solder, in facilities constructed pre-1980. It's an important focus that shouldn't be overlooked.

● (1545)

Last but not least, we highlight other similar federal programs, such as the Energy Star rebate programs, which provide incentives for homeowners to upgrade their existing appliances and whatnot to improve their energy efficiency. A similar program would allow homeowners to fund their lead service line replacement other than through municipal tax rolls or municipally offered financing.

Thank you very much.

[Translation]

Madam Chair, I will be pleased to answer questions in French as well.

[English]

The Chair: Thank you very much, Ms. Grenier.

Next we have the two gentlemen from Dalhousie University.

Could we get your comments, please?

Professor Graham Gagnon (Professor, Centre for Water Resources Studies, Faculty of Engineering, Dalhousie University, As an Individual): Thank you.

My name is Graham Gagnon. I am a professor at Dalhousie University. I'm the director of the Centre for Water Resources Studies and I'm also the NSERC/Halifax Water industrial research chair in water quality and treatment at Dalhousie.

With me today is Mr. Ben Trueman, a Ph.D. student from our lab. Ben has worked with me for the past five years on many lead projects, working directly with Halifax Water and other utilities in our region and across Canada.

Our research team has been looking at corrosion since 1998, when I started at Dalhousie. In particular, we have been addressing lead in drinking water since about 2008, when we first started looking at lead solder in copper pipes. Over these years it has been clear to us how complex the problem is with lead in drinking water.

In particular, in 2011 our research group at Dalhousie started an important study that investigated lead service line replacement, in collaboration with Halifax Water. In the first phase of the work,

Halifax Water asked whether we can provide safe water through partial lead service line replacement.

As was touched on, a partial lead service line replacement refers to the fact that in most areas, the water utility is responsible for water infrastructure from the water main to some area on the property line. The homeowner is therefore responsible for the remaining part of the service line.

After four years of data collection, we published two papers. One paper was awarded the best paper by the *Journal – American Water Works Association*. Another was published last year in *Environmental Science & Technology*. This four-year study revealed that a partial lead service line replacement was an inadequate solution. Indeed, for many homes, the situation actually worsened following a partial lead service line replacement.

In contrast, our data showed that a full lead service line replacement was the best way to ensure the household would see lower lead levels at the tap and that partial lead service replacements were not recommended. Because of this important research, Halifax Water does not conduct partial lead service line replacements anymore.

A colleague of mine, Dr. Michèle Prévost, published similar work in 2017. In studying lead service line replacements in Montreal, Dr. Prévost's team found that the lowest levels of lead were found when a full service line replacement was conducted. These findings are consistent with our work and with recommendations from the United States National Drinking Water Advisory Council, or NDWAC, to reduce lead in the home.

In addition to studying lead service line replacements, our team has studied corrosion control. Corrosion control is a process whereby water utilities can chemically alter their water to minimize lead release. Even after lead service lines have been replaced, there is still a need to have corrosion control, as lead exists in solder, brass, drinking water fountains, and many household and commercial fixtures. Thus, full lead service line replacement removes the largest lead source, but corrosion control is still necessary for managing risks from these other sources.

Our research with Halifax Water has shown that orthophosphates are highly effective at managing lead. After two years of data collection, we determined that an increase of phosphate from 0.5 milligrams per litre to 1 milligram per litre reduced the burden of lead at the tap by more than 30%. Of course, there are other possible strategies that utilities can address for corrosion control, but what is important to recognize is that a utility might have to wait 12 to 18 months for these changes to reveal their effectiveness.

I'm presently working with the City of Regina to further minimize lead at the tap, even though Regina has very few lead service line occurrences. This work is just getting started, and it's becoming clear to us and to the City of Regina how complex the situation will be for them.

Our team has also investigated lead occurrence in first nation communities in Atlantic Canada. Although compliance on flushed samples is greater than 90%, we have found that non-compliant lead samples exist across 85% of Atlantic Canadian first nation communities. We have also published similar work on lead occurrences we found in communities in Nunavut. In other words, lead is ubiquitous in first nation communities as well.

It is recognized by utilities and first nation communities that minimizing lead is important for public health. Health Canada has now proposed a lower maximum acceptable concentration for lead, as described by my colleagues. This guideline is combined with a sampling strategy that effectively will change the paradigm for monitoring lead across Canada.

While I support the intent of lowering lead levels at the tap, after years of studying this issue, I can say that a very sufficient and long time will be required for utilities to get to an answer.

• (1550)

The Chair: May we have your closing remarks, sir?

Prof. Graham Gagnon: Yes.

I would recommend that the federal government find an active path to assist homeowners and utilities in minimizing lead at the tap. Such pathways could include technical and financial assistance for lead service line replacements for homeowners, a framework and financial assistance for first nation communities, and technical and financial assistance for municipal units as they find solutions to address their specific corrosion control challenges.

Thank you again. I welcome questions.

The Chair: Thank you very much.

Mr. Lobb, you have six minutes.

Mr. Ben Lobb (Huron—Bruce, CPC): Thank you very much.

I want to ask the first two people who presented if they support reducing lead from 10 parts per billion to five.

Do you have a position on that?

Ms. Bernadette Conant: I think yes. Most people I deal with would say that there's not a big difference between 10 and five. One of the challenges in the focus on the numbers is the idea that 10 wasn't safe but five is now safe. Graham and others can speak more to that. It's really a matter of a number that's as low as it's reasonable to go with the analytical technology.

Whether the number is 10 or five might be the trigger when people have to do things, I think, but to me that's a bit of a red herring. I don't think that's the big issue here. The issue is how the sampling paradigm is changing.

Mr. Ben Lobb: Okay. On that, there was an October 2017 article in the *Toronto Star* about 640 schools and day cares that failed the 10 parts per billion test. I'm guessing those are all to do with internal

lead pipes. I know they're changing their testing formula—or I think they are—so that it's not one tap per year but all the taps, twice at standing after six hours and then after the water has been run through the pipes for a while.

Is it the federal government's responsibility to replace the pipes in provincial schools, or should the provinces, the school boards, and the ministries of education really take a lead on this? These are children, by and large, and teachers, and one of the numbers you provided in your presentation was 200,000 households. Shouldn't it really be the priority to get that cleaned up first?

Ms. Michèle Grenier: In terms of the schools, the most recent report from the chief drinking water inspector in Ontario has data on lead exceedances in schools. About 4% of schools have exceedances on either standing or flushed samples, or 4% of samples exceed the MAC on standing or flushed. By and large, that number will increase should the standard be reduced.

Mr. Ben Lobb: That's correct.

Ms. Michèle Grenier: In general, most schools do not have lead service lines. The source of lead in schools tends to be from brass, because until 2014 even lead-free brass had 8% lead. It's often a tin-lead solder combination from pre-1990 construction, but we've also seen an increase in lead concentrations in newly constructed schools. In general, any metal that's exposed to water for the first time will have a higher tendency to leach if the water is aggressive. Again, the importance of corrosion control is fundamental, particularly when it comes to schools and larger institutions.

Mr. Ben Lobb: I have a question on that. Virtually all new homes—I'll just speak to Ontario—if they're made by a developer, I think would have no metal at all in their water system inside the home. Are there still schools being built today that have some combination of metal that allows the lead to leach in?

Ms. Michèle Grenier: By and large, it's still copper piping. There is a requirement for lead-free brass and lead-free solder. Again, it's what the definition of "lead-free" traditionally has been that has been problematic.

Mr. Ben Lobb: Okay.

Does anybody know if you're granted a...? I'm from Ontario, so I'll speak to that.

A number of years ago, they would have gone through all their asset management to know how old all the pipes were and which ones needed to be replaced, etc. I'm guessing that if you do a water replacement or a road repair, most of the lines are replaced. Because they're identified, should the government put a priority on those so that they're replaced first? Is that a suggestion we could put forward?

• (1555)

Ms. Bernadette Conant: In terms of if it's a priority—

Mr. Ben Lobb: Well, if there's an infrastructure grant to a town or a city, the priority would be given to that street where there are still lead pipes in place.

Prof. Graham Gagnon: If I may, I'll address the issue of fountains. Then I'll answer the question on roads.

You asked about the role of the federal government in the issue of fountains. We conducted a project that looked at fountains at Dalhousie University, and we found fountains that were actually lead-lined. They had chillers in them, and the chillers inside were lead-lined. We sampled the first 250 millilitres, as per Health Canada's guideline, and we found exceedances of lead as high as 80 micrograms or 100 micrograms per litre.

Why is that a federal issue? Canada has a trade agreement with the United States. In the early nineties, when the lead and copper rule was being passed in the United States, fountains with lead liners were recalled in the United States. Canada, through the standards committee, did not have a recall mechanism or any standard on fountains. Through the trade agreement, these fountains were then sold across the border into Canada and installed. We have evidence that a number of fountains that were completely not to be used in the United States were sold in Canada. You'd be hard pressed to ask a school in Ontario to be aware of the trade agreements and to be aware of what was being recalled in the United States from a procurement standpoint. The Government of Canada, through their standards committee, would have that information.

The issue of prioritization on lead pipes in streets is of course an important issue. You have to remember that a water main is different from a lead service line. A water main is buried infrastructure in the road, which is managed by the utility through normal asset management practices of the utility. The lead service line component is the tricky part. The service line is managed jointly by the municipality and the homeowner.

Mr. Ben Lobb: Yes, and that's one other thing that I'd made my—

The Chair: I'm sorry, Mr. Lobb. Your time is up.

Mr. Ben Lobb: Fair enough.

The Chair: Maybe you can get some of those comments in with one of the other questioners.

Mr. Fraser is next.

Mr. Sean Fraser (Central Nova, Lib.): Thanks very much.

Just as you were wrapping up, I couldn't help but be moderately troubled, as I'm an alumnus of Dalhousie University. I drank out of those fountains a number of times.

I'd like to pick up where Mr. Lobb left off. Given that program delivery at the federal level through Infrastructure Canada traditionally has a focus on public infrastructure, I'm wondering if there's a way we can design a program that will prioritize existing public lead service lines if they're going to a public building, for example, or am I off base here? I find that municipalities are usually best positioned to determine what their priorities are, but is there a way for us to make this happen so that we're prioritizing the infrastructure that will impact the largest number of people on a given day?

Prof. Graham Gagnon: Most public buildings would not necessarily have a service line that would be lead. A public building like this one is large, so it would not have a lead service line, which is small. Lead service lines tend to be very focused on the home and smaller public buildings that would almost resemble homes.

With the infrastructure program, one of the opportunities, I think, much like Michèle talked about in terms of an energy savings program, is that it creates very localized construction opportunities for homeowners or streets or neighbourhoods that would have lead service lines. Certainly in many municipalities these areas or neighbourhoods are fairly well known, or well defined, at least. Health Canada's document explicitly calls these neighbourhoods out and asks utilities to measure in exactly these neighbourhoods. These neighbourhoods would be fairly well known to the municipality.

As to how the federal government could roll that out to homeowners, it could be through a number of financial mechanisms—through the banking system, through their tax rebates, or through whatever program could be conceived.

Mr. Sean Fraser: On that, I will switch to you, Ms. Grenier. The Energy Star program is something that I'm familiar with just as a general member of the public, so I found that interesting. Are municipalities or provinces doing something similar today that's working? Is there a model we can look to whereby if we were to help with the cost, it would work and everybody would replace them, or are we just going to make a program out there that won't be taken up?

Ms. Michèle Grenier: We used the Energy Star program as an example in the sense that we were made aware that it was very successful in getting people to turn over their older appliances.

In this situation we would propose, or we would like to see, essentially a matching grant program for homeowners, in the sense that the municipality could approach you as a homeowner and advise you that they'd be replacing all of the lead service lines on your street, and if you participated in the renewal, you'd be eligible for a federal rebate or federal grant for your portion of that bill.

It's much more cost-effective for the homeowner to replace their portion of the lead service line at the same time as the municipality is doing the public side. You have one contractor who comes on site one time, digs up your front lawn and your sidewalk one time, and does all the restoration at the same time. The key is getting the homeowner on board at the time the public side is being replaced.

• (1600)

Mr. Sean Fraser: Do we have any idea of the scope of the national infrastructure deficit when we talk about lead service lines? In dollar figures, how big is this problem?

Ms. Michèle Grenier: I think the figure that's been thrown around in the U.S. is close to \$1 trillion on lead service lines, so if we divide by a factor of nine or 10—

Ms. Bernadette Conant: It's the 10 factor.

Ms. Michèle Grenier: Yes.

Mr. Sean Fraser: Are there regional differences?

I know that out east our buildings are older. They were put up at a different time. I've lived in both Alberta and Nova Scotia, and there are a lot more new builds out west. Is there a regional discrepancy in the prevalence of lead pipe service lines?

Ms. Michèle Grenier: Lead service lines were installed with great frequency mainly during the Second World War, so any homes built prior to 1950 are likely to have lead service lines.

Mr. Sean Fraser: Mr. Gagnon, you suggested that a partial line service replacement can actually make the problem worse. Why is that the case?

Prof. Graham Gagnon: There are a number of different theories or ideas as to why that's the case. One of the theories is, first—

Mr. Sean Fraser: Is that the lead service lines or is that—

Prof. Graham Gagnon: It's the lead service lines. You can imagine a piece of pipe. The utility is responsible for one side and the other side is the homeowner's responsibility. If the utility cuts their side—and because it's a continuous pipe, they will physically cut it—you can imagine that there are going to be particles and debris as a result of that cut.

There's also the potential for a dissimilar metal. If the utility chooses to use copper, there's a potential to have copper and lead, which would be almost like a battery cell, and you'd actually get more lead coming off your pipe.

Finally, there are just disturbances. The lead pipe itself is a very pliable pipe. That's why it was used by the Romans and why it was used early on. By just cutting it, you're essentially disturbing the other side. You'll create vibrations, and all kinds of other debris will come off the pipe. We looked at homes at as long as 12 months after the construction, and they still had higher lead than they did when the utility started the project.

Mr. Sean Fraser: Do I have time remaining?

The Chair: You have 30 seconds.

Mr. Sean Fraser: That's fine. Thank you very much.

[*Translation*]

The Chair: Mr. Aubin, you have the floor.

Mr. Robert Aubin: Thank you, Madam Chair.

I would like to thank the witnesses for being here today. I also want to thank them for their testimony although, after hearing them, I don't know how to look at a pitcher of water anymore. I don't know if I should see it as something healthy or something to fear.

My first question is as follows. Is there a broad consensus in the scientific community, or are further studies needed in one area or another, studies that could be supported by the Government of Canada and that could give us a more complete picture of the situation?

Mr. Gagnon or Ms. Grenier may answer my question.

[*English*]

Prof. Graham Gagnon: I'm an NSERC chairholder. NSERC funds our research program, along with Halifax Water.

Very detailed lead studies are still required on a utility-by-utility basis, but there is broad consensus among the scientific community

that, first of all, lead is a public health concern. It affects mental health in children, and it's a legacy contaminant that stays with the child until they're in their thirties and forties. That is well accepted in the scientific community. The detailed research activities are really fine-tuning the case study for a specific utility or for a specific situation.

[*Translation*]

Mr. Robert Aubin: Ms. Conant, would you like to add anything?

•(1605)

[*English*]

Ms. Bernadette Conant: To your first question, it's very similar to what I'm working on, which is a national expert panel on waste water and the concerns with that. It's not that there's any significant scientific dissent on the toxicity, but just the fact that we are facing such a large number of things that are problematic. How problematic is it? Should this be the first thing we act on, and should this be where we spend our money? That's the question facing people in the water space.

I don't think it's like deciding whether or not there's climate change; I think people realize it's a problem. There's been a great increase in the recognition. The science was there, but now there's the general recognition of the significance in the water space, so the community is at the point now of deciding whether or not this is the thing that it needs to move on. I think because there's a recognition and because children are involved in it, people recognize we have to do something about it. For me, the question is more about what we can do; we can either be thrown off or move forward.

[*Translation*]

Mr. Robert Aubin: Okay.

Ms. Grenier, you have the floor for a moment.

Ms. Michele Grenier: In my opinion, a study is needed in order to determine whether municipalities can achieve the new maximum concentration strictly by controlling corrosion or replacing service lines. To achieve that level, should it be recommended that members of the public purchase a filter?

Mr. Robert Aubin: That leads to my next question.

As I understand it, even if all the pipes were changed, the problem will not be eliminated unless we went all the way to the owner's tap.

Ms. Michele Grenier: That's right.

Mr. Robert Aubin: We might have eliminated part of the problem, but the problem will persist. It is really a question of coordinating services. How can members of the public be convinced of their moral duty to do their fair share, even if that means providing financial support, of course?

Can we make a correlation between lead and mercury, for instance? As everyone knows, every particle of mercury that we ingest by eating fish, for example, accumulates and our system cannot eliminate it.

Can the same thing be said for lead as well?

Ms. Michele Grenier: Yes, that is right.

According to the Health Canada proposal published in the spring, if we reduce the maximum concentration from 10 to 5 micrograms per litre, 7% of the population would be under the limit in terms of blood levels.

So it is the same, especially once the other sources of lead in our environment have been eliminated. One of the main sources right now is in fact drinking water.

Mr. Robert Aubin: Okay.

If I understand Ms. Conant correctly, whether it is 10 or 5 parts per million, it does not make a huge difference. So I assume that the standard to be achieved is as close to zero as possible.

According to a study mentioned in a Radio-Canada article, the first sample collected at a school was well above the standard. If the water was left to run for five, 10 or 15 minutes, however, it was okay. Letting the water run is like wasting the hundreds of millions of dollars we invested to purify it.

In my opinion, we have to look at the big picture. There is much to be gained by ensuring that the plan implemented will almost require action from members of the public, or offer an incentive so obvious that it would be unavoidable. Otherwise we are missing the mark.

Did I understand correctly?

Ms. Bernadette Conant: Yes, that is absolutely right.

Mr. Robert Aubin: Thank you.

Thank you, Madam Chair.

[English]

The Chair: Thank you very much, Mr. Aubin.

Go ahead, Mr. Sikand.

Mr. Gagan Sikand (Mississauga—Streetsville, Lib.): Thank you, Madam Chair.

I'm going to start with Bernadette.

You said that this is quite widespread in Canada but that you didn't have a number associated with it. Can you compare the amount of lead we have in Canadian pipes with how prolific it is in other countries similar to ours?

Ms. Bernadette Conant: I think the closest we can get is to use, as I said jokingly, the tenfold number, because the nature and the timing are similar to what is happening in the U.S. It depends whether you're asking how we benchmark against other countries or whether we can use what other countries are doing as the best estimate. I think we feel that using the situation in the U.S. as an indication is probably a good benchmark to think about. If you take the timing into consideration, it's similar. We don't have a number, but we do know from cities that they have this problem. We know it's

a significant problem. We know in percentages that it's not a small problem in that sense.

• (1610)

Mr. Gagan Sikand: From the point of view of the government, how do we get these pipes out of people's houses?

Ms. Bernadette Conant: I think other witnesses will have some discussion about it. On any of these things, there's a slew of pieces. My personal opinion—it's not really research—is that it's not all about moral obligation. There are a lot of things that we don't allow in homes that are required on property transfer—

Mr. Gagan Sikand: I'm sorry to cut you off and move on, but I'm going to share my time.

I have a quick question, though: do you deem this to be a public health risk?

Ms. Bernadette Conant: I'm sorry?

Mr. Gagan Sikand: Yes or no—do you deem this to be a public health risk?

Ms. Bernadette Conant: Yes.

Mr. Gagan Sikand: Thank you.

Michèle, I'm going to ask you a few quick questions before I finish up with my time. You said that you provide 50% of the water in Canada?

Ms. Michèle Grenier: No, our member utilities do.

Mr. Gagan Sikand: Your members do. How often do they test their water?

Ms. Michèle Grenier: It varies from jurisdiction to jurisdiction, based on provincial regulations, but essentially in Ontario there is monitoring continuously, 24 hours a day around the clock, at the treatment plants, and in the distribution system it's essentially daily.

Mr. Gagan Sikand: The reason I asked Bernadette whether it's deemed a public health risk is that the guidelines, under annex C, talk about what's eligible, so there's the public, and then what constitutes private but is for the public good. Would you also consider this for the public good?

Ms. Michèle Grenier: Yes.

Mr. Gagan Sikand: Thank you.

I'm asking you as well, Ms. Grenier. You put in a dollar figure of \$1 trillion.

Ms. Michèle Grenier: Yes, in the U.S.

Mr. Gagan Sikand: In the U.S., do they have programs or models? What have they done to start getting the lead out of the residences there?

Ms. Michèle Grenier: I'm not entirely familiar with the programs in the U.S. The model is often different when you have a privately owned utility in the U.S. The restrictions with those funds are different from what they are in municipal jurisdictions in Canada.

Mr. Gagan Sikand: Thank you.

How much time do I have left?

The Chair: You still have three minutes.

Mr. Gagan Sikand: Graham, I have a quick question for you. You were saying that once the actual physical lead pipe is removed, the corrosive parts still lead to lead in the water.

Prof. Graham Gagnon: Yes.

Mr. Gagan Sikand: Okay. It doesn't get eliminated fully when the lead pipe is gone. Basically, is it the parts that leach the lead in there? If we got rid of those parts, would it be 100% removed?

Prof. Graham Gagnon: Yes, and I want to be clear. If you fully remove the lead service line, not partially remove it—

Mr. Gagan Sikand: No, you fully remove it—

Prof. Graham Gagnon: If you fully remove it, you're in a much better spot. We've seen homes that have returned to much lower concentrations, with 80% removal of lead within three months. You can significantly lower your lead burden by fully removing the lead line.

Mr. Gagan Sikand: To fully eliminate it, then, you'd have to get rid of the smaller pieces that are left.

Prof. Graham Gagnon: Well, what we talked about previously are the other components inside the home. There might be lead solder or there might be some kind of interesting fixture there, but to have a significant impact on the amount of lead, you have to fully remove the lead pipe.

Mr. Gagan Sikand: Thank you.

I'll give whatever remaining time I have to Mr. Hardie.

The Chair: You have a minute and a half.

Mr. Ken Hardie (Fleetwood—Port Kells, Lib.): Thank you for that.

Are the personal impacts different according to the age of the person? You're nodding, Michèle. Perhaps you can answer.

Ms. Michèle Grenier: Thank you.

Children are most at risk because they have the highest metabolic rate per unit mass of body weight, and the neurological effects are more pronounced on younger individuals than they are on older individuals.

Mr. Ken Hardie: Is this a cumulative thing, so that the more exposure there is over time, the worse the situation is?

Ms. Michèle Grenier: Yes.

Prof. Graham Gagnon: Yes.

Mr. Ken Hardie: Speaking of time, you mentioned that lead solder was... We understood from earlier discussions that they stopped using lead in houses back in the late 1920s. No?

Ms. Michèle Grenier: No.

Prof. Graham Gagnon: No.

Mr. Ken Hardie: Okay. Go ahead.

Prof. Graham Gagnon: Think about the post-World War II boom that Ms. Grenier was talking about. We needed houses built quickly and had to find materials that were cheap and quick and pliable. Lead would fit that category quite reasonably. For post-World War II homes, it's very common to sometimes have lead components inside them, and lead service lines in particular.

Mr. Ken Hardie: Turning that on its head, after what spot on the calendar would you say that new houses built after a certain date would have....

Prof. Graham Gagnon: It's a great guess. Somewhere around the sixties would be a reasonable guess, depending on the city. Somewhere around the late sixties or mid-sixties would be a reasonable guess for some cities. It's not entirely clear, because some cities did things earlier than other cities.

• (1615)

Mr. Ken Hardie: Thank you.

The Chair: Go ahead, Mr. Ellis.

Mr. Neil Ellis (Bay of Quinte, Lib.): Mr. Gagnon, you spoke about treatment with phosphorus. I wanted to dive down into that. That's about treatment at municipal water plants at the source. In terms of treating with phosphorus, I guess what I'm getting at is that what comes out of the tap usually goes back into the waste-water system, so we have phosphorus and blue-green algae, which is a whole other discussion for a different day.

Our waste-water plants in Ontario are monitored. I think the Ontario government in the next year or two is going to lower phosphates that are emitted from plants and will know what the rate is of each Ontario waste-water plant, so they might have to create a different system.

Does this type of treatment you're talking about dissolve in the system, or does it go back to the waste-water plant? That would endanger our waste-water plant and, again, cause blue-green algae in the system.

Prof. Graham Gagnon: You've hit the nail on the head with regard to the problem utilities face. I mentioned Regina, and they are very reluctant to add phosphate for this very reason. They discharge their waste water into a river system. Blue-green algae would be a top priority for them.

Other chemicals could be carbonates or silicates, or there could be pH adjustment, which Ottawa does. They adjust their pH to a much higher level. Each utility would have almost a unique, tailored program. The phosphate issue is an important one for many utilities in Ontario and certainly in western Canada.

Mr. Neil Ellis: My next question is on Energy Star. I believe that was probably mandated by the utilities and picked up and paid for by the end-user. I guess what I'm getting at is that water rates in most municipalities are monitored and metered, and it's a user-pay system, as is the case for electricity.

I believe a lot of the electrical distributors have been mandated to do Energy Star programs, but then that is based back and put into the rate they can charge the utility customer. When you suggest an Energy Star system, what about a system that would also be able to be put back into the water rates and adjusted?

You're sitting here and saying the federal government should pay for it. I think in the notes it was \$5,000 or \$6,000 a house, which isn't a lot of money spread over time. To go back to the energy side, if the electrical box in a house is not running right, you shut the electrical grid off and make them repair it, but if houses have lead pipes that are poisoning our children, we don't seem to have the moral authority to go in and look at this.

From the Ontario side, or from the Canada side, or from your agencies, have there been any suggestions to say to municipalities, especially those that still have lead pipes in their systems, that maybe building permits and so on will not be issued...the same way they do for waste-water plants?

Ms. Michèle Grenier: The information I found on the Energy Star program is hosted on the Natural Resources Canada website. I'm not aware of whether it was eventually funnelled back as a user-pay system.

On the user-pay issue, yes, I think that tax rolls are one way to finance the replacement. Some municipalities are looking at 10-year interest-free amortization of that cost on the homeowner's tax bill. As Bernadette mentioned, one of the other options is to engage with the provincial real estate associations and make the disclosure of a lead service line mandatory as part of the transaction when you're selling your home.

Fundamentally, the issue is not with mothers or parents with young children. Where we see the most resistance to changing out the lead service line is with more mature customers, who feel that they are outside of the risk zone for the negative impacts on their health from lead, and they don't feel a personal incentive, whether based on their health or their finances, to complete that replacement.

Mr. Neil Ellis: In the case of asbestos, I believe municipalities across Canada have to locate all the asbestos in their buildings, and every year or two years hire somebody to come in and look at it. Are we not holding municipalities accountable for their lead pipes and where they are in testing for those? From your testimony, it seems as though maybe municipalities themselves don't even have an inventory of what lead they have in the ground.

• (1620)

Ms. Michèle Grenier: I would say some municipalities have very well-defined lead service line identification programs, while others don't. Again, some of the records from the 1940s—or the records from the 1920s, for that matter—may no longer exist.

The issue we face particularly in Ontario is that we—and when I say “we”, I mean the lawyers for the province—among the different ministries have not agreed to a definition of property. Where does the municipality's property end and where does the homeowner's property begin? What rights does the municipality have on the homeowner's property?

Mr. Neil Ellis: Thank you.

The Chair: Thank you very much, Mr. Ellis. We go now to Mr. Lobb.

Mr. Ben Lobb: Thanks very much.

The Library of Parliament provided us with a document that quotes a book, I think, indicating that they believe 200,000 Canadian homes are still connected to municipal water systems through lead service lines from the property line. That seems like a big number. I'm sure it's completely legitimate—it's at least 200,000—but I believe the city of Flint has identified 15,000 lead service lines to a city of under 100,000.

It seems to me that the estimate could be extremely low. Is that possible? How solid is this number? It could be two million; I don't know. If Flint has 15,000 in a city of under 100,000, it seems

completely possible that there could be half a million homes with lead service lines. How solid are we with this 200,000 number? Where is it at, exactly?

Ms. Bernadette Conant: As I said before, my gut feeling is that it probably is low. We're not solid on that number.

Part of it is the issue that you mentioned: do municipalities know where their pipes are? Even though they're solid pipes, there weren't records kept at the time, in most places, of what materials were used. Sometimes when houses are renovated, they change. Some places have a better handle on it than others; Halifax can speak to that.

Just using the expectations for the places that are focused on, it goes into the 200,000s—that's the number I have seen—but I expect it's larger. I don't know how much data there is. Graham may be more familiar with it.

Prof. Graham Gagnon: To place it in context, the estimate for the city of Chicago is about 300,000, so for Canada 200,000 would be a bit low. If you doubled it to 400,000 or 500,000, maybe you would hit it right.

There is a complexity to it. Some cities, to get lead out, at one point in time removed their side and left the homeowners' side. They had inventory of what they removed, but they didn't have inventory of what the homeowners had, so there is this added burden of some partials that exist across Canada where the city may not have records, as well as the full service line itself. The number is probably greater than 200,000. It may be around half a million; who knows? It's probably in that kind of ballpark, though.

Mr. Ben Lobb: Okay.

I know that some rural communities in Ontario have implemented mandatory septic checks. They empty out your septic system and have an inspector come in to look for cracks, etc. Is that something municipalities should consider—having somebody come in and do mandatory lead service line checks to identify if there are lead service lines leading into your house? You could live there for 20 years and maybe have no idea.

Prof. Graham Gagnon: One challenge with lead service lines is that it's sometimes very difficult to look inside the home to find evidence of the lead pipe itself.

Mr. Ben Lobb: I was thinking of digging—

Prof. Graham Gagnon: If you start to dig, with the amount of equipment and cost to have a construction firm on site, you might as well replace it.

You have to remember, when you think about your own home or your neighbours' homes, that some people have very complex front yards. If you start to dig holes in those complex front yards, which might have gardens or decks, it will be a costly venture for some homeowners just to find it.

• (1625)

Mr. Ben Lobb: All right.

In terms of parts per billion, in the U.S. with the EPA, is it 15 parts per billion?

Prof. Graham Gagnon: In the United States they use an action level. The action level is 15 micrograms per litre. The action level basically means that if a city saw 90% of their homes at greater than that action level, they would have to require corrective action. That's very different from a maximum acceptable concentration, which is what Health Canada uses.

Mr. Ben Lobb: All right.

The other part is that I think I would probably lean against asking the Canadian Real Estate Association—I mean, you could consult with CREA—about including that in their offers or sales. I think you're putting the burden on the realtor at that point if you have them put that in the contract, and I'm not sure they're looking to do that.

I think by law, with urea formaldehyde—

Prof. Graham Gagnon: Right.

Mr. Ben Lobb: —and if you're by an industrial wind turbine plant, you have to do that, but there's probably a limit to what you can expect a realtor, or even a homeowner, to adequately understand.

Prof. Graham Gagnon: Agreed.

The Chair: Okay.

It's 4:26 p.m., and we're going to shift to our next witnesses.

Thank you all very much for your information. I think you've given the committee a lot to think about.

We will suspend for a few minutes so that we can get our video conference set up and excuse our witnesses.

•(1625) _____ (Pause) _____

•(1625)

The Chair: I'm calling our meeting back to order.

For our second panel we have Carl Yates, the general manager for Halifax Water, and Reid Campbell, director of water services.

By video conference we have Marc Edwards, professor, Virginia Polytechnic Institute and State University, Blacksburg, Virginia. It's your Thanksgiving over there, and we thank you very much for taking time to join us for this important issue today.

We also have Bruce Lanphear, professor, Health Sciences, Simon Fraser University.

Thank you to all of you who are here.

Mr. Edwards, since it's Thanksgiving and I'm sure you want to get back to your family, how about if we start with you?

Let's open the floor for five minutes. If I have to, so the committee can get their questions in, I'll interrupt you.

Mr. Edwards, please go ahead.

•(1630)

Dr. Marc Edwards (Professor, Virginia Polytechnic Institute and State University, As an Individual): Thank you for having me.

In the U.S. we're currently in the midst of a paradigm shift in how we're thinking about our water infrastructure. There are three main reasons for that.

First, we're trying to deal with the legacy of these lead pipes. If you ever read a book called *The Great Lead Water Pipe Disaster*, you'll realize that these pipes were installed as a result of government laws to connect your house to the service line, and once they became almost the only government-owned source of lead affecting a product intended for human consumption, it created a conflict of interest and put our water utilities at odds with their customers' interests.

We saw many manifestations of this problem in the United States, including some horrible water-borne disease outbreaks from elevated blood lead in Washington, D.C., and in Flint and other parts of the country. It has undermined trust in drinking water in the United States to an almost unprecedented level. Last year, for example, bottled water sales exceeded soda sales. As I toured the country, I could see that many people had decided they would not be drinking tap water, again because of some of the fallout and distrust from Flint.

The second problem we're dealing with is our aging infrastructure. Of course, these pipes are out of sight, out of mind, and this is a trillion-dollar problem. We used to think that these old leaking pipes were just that. They would leak; we'd fix them on failure, and maybe they would rust and cause discolouration or aesthetic concerns for our water.

However, the more we looked at it, the more we learned. We're realizing links to water-borne disease. This new class of disease-causing bacteria that live in our plumbing we've discovered only in the last several decades. We realized that these old pipes encourage the growth of these dangerous bacteria. They're called "opportunistic premise plumbing pathogens", and the best-known example is Legionella.

Third, we're having a paradigm shift in the States because we're asking more of our water infrastructure. As we try to improve our water and energy conservation, we're using less and less water. Unfortunately, what that means for lead, Legionella, and these other problems is that all those problems get worse. Unlike roads, which degrade more slowly if you use them less, the main mechanism of water system failure is anaerobic corrosion. In other words, the less you use the pipes, the more rapidly they'll degrade. As we install these water conservation measures around the country, the water that used to clean our pipes, extend their longevity, and reduce the amount of bacteria and lead in the water is being lost. As a result, in many cities in the United States—and based on some anecdotal evidence, in Canada—we're also seeing higher levels of lead and also higher levels of these dangerous bacteria in homes that use less water.

All of these things are forcing us to reconsider this issue, and I'm glad Canada is taking a look at this situation.

Thank you for having me here today.

The Chair: Thank you very much.

Mr. Lanphear, would you like to go ahead for five minutes, please?

Dr. Bruce Lanphear (Professor, Faculty of Health Sciences, Simon Fraser University, As an Individual): Yes, thank you.

First I would like to applaud your efforts, and Health Canada's efforts, to update the guidance on lead and to modernize the water service lines in Canada to protect Canadians. Protecting the health of Canadians is to a large extent about ensuring that the water we drink, the air we breathe, and the food we eat are clean and healthy.

My research over the past 25 years has been primarily focused on protecting children from lead poisoning, and I'll focus my comments today on lead toxicity for the most part.

My early studies quantified the various sources of lead that contribute to children developing lead poisoning, including paint, house dust, soil, and water. We found that water is one of the most important sources of lead for children, pregnant women, and the rest of us.

We found that at high levels of exposure, lead damages the prefrontal cortex—that's the part of the brain that makes us most distinctly human—and elevates the risk that children will develop anti-social behaviours such as delinquency, and even criminal behaviours. We also found that children who were exposed to high levels of lead were at increased risk for developing other types of behavioural problems, such as ADHD. In fact, we found that about one in five cases of ADHD, or 600,000 cases in the United States, were due to lead exposure.

Low-level lead exposure in pregnant women has also been linked to children being born too small and too soon.

Finally, we found that lead is toxic at the lowest levels of exposure. The World Health Organization has concluded that there is no safe level of lead in children's blood.

Although we focus primarily on the impact on children's health, lead is an established risk factor for hypertension, chronic kidney

disease, and essential tremors in adults. It is also suspected, but not proven, to increase the risk of death from ischemic heart disease—that's when your heart suffocates over many years from lack of oxygen—and dementia.

While we've made progress in reducing lead in our environment, water pipes and fountains remain an important source of lead for many Canadians, especially for smaller communities and first nation communities.

Currently Health Canada relies on a guidance of 10 parts per billion of lead in water. That's the equivalent of about 10 tablespoons in an Olympic-sized swimming pool. I concur with Health Canada's conclusion that 10 parts per billion is no longer protective. Children who live in homes with water lead levels above five parts per billion have, on average, a one-microgram-per-decilitre increase of blood lead, which is estimated to reduce their intellectual ability by about one to one and a half IQ points. Women who live in homes with water lead levels above five parts per billion have about a 30% increase in blood lead levels.

As Health Canada has said, the maximum acceptable concentration of lead in water should be reduced to five parts per billion, and over the next 10 or 20 years steps should be taken to reduce it even further.

I'd like to stop there and be available for questions later.

Thank you.

•(1635)

The Chair: Thank you very much.

We'll move on to Halifax Water.

Mr. Carl Yates (General Manager, Halifax Water): Thank you, Madam Chair and members of the committee. My name is Carl Yates. I'm general manager of Halifax Water.

Halifax Water is the water, waste-water, and stormwater utility serving 360,000 people in the greater Halifax area. I am accompanied by Reid Campbell, our director of water services, who has been leading much of our work on lead in drinking water for the past several years.

We want to thank the committee for the invitation to appear here today and for taking the time to look into this issue, which we believe needs more attention by water utilities and their provincial regulators across Canada. The issue of lead in drinking water is manageable, but a regulatory framework is needed to enable utilities to develop approaches to address the unique circumstances in their community.

We believe that lead in drinking water is a more serious issue than many utilities in Canada and their provincial regulators understand. Current regulations do not provide adequate public health protection and do not require utilities to truly investigate and understand the occurrence of lead in their systems.

Halifax Water has had programs to remove lead service lines since the 1970s. At one point, we may have had as many as 15,000 lead service lines, and today we have as few as 2,000 lead service lines remaining in the public system. We have provided corrosion control treatment since 2002 and have always provided free in-home sampling for customers concerned about lead. For any customer who requested it, we would replace the public lead service line once they replaced the private property portion.

Around 2010, as you've already heard, through our research partnership and the industrial research chair at Dalhousie University, we encouraged Dr. Graham Gagnon to look into the occurrence of lead in our system. Dr. Gagnon's work gave us new insights into the occurrence of lead in our system and directed us to enhance our approach to managing lead. We discovered that to properly address lead, we needed to completely remove lead service lines and stop doing partial replacements. We also needed to increase our level of corrosion control and to treat each customer with a lead service line as a customer who needs assistance.

This created quite a challenge, considering that the customer owns a portion of the line, the constraints on utilities getting involved in private property issues, and the barriers to customers renewing lead service lines, including costs.

In January 2017, the American Water Works Association, AWWA, adopted a new policy on lead service line management. While AWWA is based in the United States, most Canadian utilities are members, and AWWA is considered the authoritative technical resource relied on by utilities across North America. The new policy calls on utilities to undertake complete removal of lead services lines in a reasonable period of time and to provide corrosion control treatment. Most importantly, it calls on utilities to work in partnership with their customers to achieve removal of lead from the distribution system by developing locally appropriate solutions. It is our belief that the best way for utilities to protect their customers from lead is to follow the guidance of the AWWA policy. This also includes initiatives like creating an inventory of lead service lines, communicating with customers, and providing the sampling that they require.

We believe the role of government in this issue is to provide a framework to support utilities in this approach. The occurrence of lead in any given system is much more complex and locally variable than are traditional drinking water parameters, such as bacteria and arsenic. Simply creating a compliance level and requiring utilities to meet it will not improve public health outcomes. Our experience is that a high lead level in a home requires both the utility and the customer to take action together to address the lead service line that they jointly own.

Government has a role to assist homeowners and utilities with the many barriers to private lead service line replacement, such as cost, insurance, and liability issues related to work on private property. The federal government has an opportunity to provide leadership by dedicating national funding programs for water and waste-water infrastructure to this issue. This would have national impact and direct work to many small business contractors that typically do service work.

Assistance to homeowners could also be provided to help them deal with the private portion of the service through tax credits or homeowner assistance programs.

Government also has a role to ensure that the presence of lead service lines is identified for properties at the point of sale, when it can be dealt with as part of the real estate transaction.

In January of this year, Health Canada proposed a new guideline for lead in drinking water. We believe this is timely and appropriate and will cause utilities to look more closely at lead in their system.

We have urged Health Canada to consider the points that follow.

If a provincial regulator finds a utility non-compliant on lead, the predominant way to achieve compliance in most systems is to remove the entire lead service, part of which is on private property. Today, many utilities do not have mechanisms to work on private property.

- (1640)

Changing the guideline in one big step, as is proposed, will result in many instances of utilities not being able to achieve the guideline levels. This will create the impression in the eyes of the public of a health crisis where none existed before.

The Chair: Can we have your closing remarks, Mr. Yates?

Mr. Carl Yates: I'm right there with you.

The Chair: Thank you.

Mr. Carl Yates: We would prefer to see one of two approaches.

One approach would be to not publish a health-related guideline immediately but to work with the provinces to ensure that utilities take steps over the next few years to characterize their lead situation.

The second approach is to recognize that a utility cannot act alone to solve a lead exceedance. Therefore, the provinces could be encouraged to adopt a household action level approach that, rather than finding utilities out of compliance, directs them to take steps to notify, educate, and partner with customers to get their lead issue addressed.

We once again thank you for inviting us here. We would be pleased to address any questions you may have.

The Chair: Thanks very much to all of you.

We'll go to you, Mr. Sweet. Welcome to our committee. It's nice to have you with us today.

Mr. David Sweet: Thank you very much, Chair. I appreciate being part of it.

I'm fortunate to come from a municipality that has a program in place and that over several years has begun to replace some of the lead service pipes. It's interesting to listen to your testimony juxtaposed side by side. One person was saying that we virtually have somewhat of a crisis in the way that lead affects young people in particular, in the development of the brain. Of course, as you mentioned, lowering the amount that is permissible would just amplify that as far as a public concern goes, all of which is troubling in and of itself.

Let me ask you this. Is there any technology at present that can actually filter lead out of drinking water? Second, if there is not, is there any pending technology research so that we could have a filtration system that would be a temporary fix as we're eliminating all this lead?

• (1645)

Mr. Carl Yates: There are a lot of treatment technologies available, certainly, but the best one that we can utilize at the treatment plant is corrosion control. We actually can do a good reduction of lead by corrosion control at the treatment plant, but it's not the total solution. The bigger impact is definitely to remove the lead service line.

Mr. David Sweet: Yes, but is there nothing consumer-friendly that a homeowner could put in while they're waiting to save up the \$10,000 that would be their portion to remove the lead from the road to their home?

Mr. Carl Yates: No, not easily. You can try to do some point-of-use devices, but that will cost you as much or more money, and then that has to be maintained by the homeowner. By taking the lead out with a service line replacement, you are getting rid of the majority of the problem, if you do it in combination with corrosion control.

Mr. David Sweet: There is filtration, but it's cost-prohibitive in and of itself for homeowners.

Mr. Carl Yates: It would be very cost-prohibitive, we believe, at point of use.

Mr. David Sweet: Thank you.

Now I'll turn it over to my colleague Ms. Block.

The Chair: Go ahead, Ms. Block.

Mrs. Kelly Block (Carlton Trail—Eagle Creek, CPC): Thank you very much, Madam Chair, and I thank all of our witnesses for joining us today.

I heard earlier that a federal-provincial-territorial committee is currently considering whether to lower the drinking water standard for lead to five parts per billion, which is half of what the existing standard is.

When I look at the role of that committee itself, I see that it is a well-established national committee that has been active for over 20 years. Quite frankly, it reports to the federal-provincial-territorial committee on health and the environment, and usually the members who sit on that committee are from the departments of health or environment. I simply flag that for us here in terms of some of the recommendations that we may want to make coming out of this study, because it's clear that the management of drinking water treatment and distribution, as well as waste-water treatment, falls within the provincial jurisdiction.

Also, the FCM has identified that many municipalities are aware of the issues associated with legacy water infrastructure and have been working proactively. I too am very fortunate to live in one of those communities—Saskatoon, Saskatchewan—which has been identified by the FCM.

They've also indicated that they are not aware of a reliable national estimate of the number of lead service lines that are still in use in Canada today, so I think there's a lot of work that needs to be done. We're conducting this study to figure out what we can do in terms of encouraging provinces to put programs in place or even to provide funding.

In closing, on all of those observations I've made, I would say that I've really appreciated the very good testimony we've heard today. I think we have a good understanding of the issue. I would suggest, Madam Chair, that perhaps once we're done with this study, we would want to write a letter to either the health committee or the environment committee, to suggest that they perhaps would want to conduct a study in parallel to what we've done in order to see what can happen at those levels that appear to have the responsibility for studying this issue and coming up with recommendations on a good health policy for Canadians.

Thank you.

The Chair: Thank you very much. That's a great idea.

We'll move on to Mr. Fraser.

Mr. Sean Fraser: To each of our witnesses, thank you so much for being here.

I'll start with Mr. Yates.

Of course, given our conversation before we started, you'll know rural HRM very well. I'm curious as to whether there is a discrepancy between, or any data really.... This may be a bit of an unfair question, because there is so much of the rural municipality that doesn't have water and waste-water services, but do you have any information about the prevalence of lead pipes in rural parts of the municipality, as opposed to in the urban centre?

Mr. Carl Yates: We don't have any hard statistics to point to in rural areas, other than we know anecdotally that there are fewer lead service lines. Certainly some of the rural areas would be on drilled wells and they're probably a little more modern. A lot of older areas would have started with dug wells, but eventually, when they moved to drilled wells, they'd probably have had better lines that would bring it into the home, although we have seen some galvanized iron lines, which also are problematic. Galvanized iron is also a problematic material.

Mr. Sean Fraser: One of the areas I started to explore that we heard about in the first panel was the issue of leaching in certain public facilities that may even be so-called "lead-free". Do you know if this is a problem in some of the public institutions or buildings inside HRM?

●(1650)

Mr. Carl Yates: We think there would probably be less impact. A lot of those larger buildings would have cast iron services going into them, so probably the predominant amount of lead would very well come from the older internal plumbing, meaning the lead from the solder, lead from brass fixtures, and lead from fountains. We've seen that some of the old fountains have been very problematic, not just in Dalhousie—and you heard Dr. Gagnon talk about that—but also in City Hall.

The good news is that City Hall replaced all their fountains and have new ones that are clear and clean. They have banned bottled water as a result, so we're very pleased to be able to tell you that. They drink from the tap, but they have taken steps to check their own premises.

Others should do similarly and check their plumbing and their fountains. As Dr. Gagnon also said, there was quite a wave of fountains that came across the border that really were not suitable for installation.

Mr. Sean Fraser: You mentioned during your testimony that you've had pretty remarkable success over the years with some of the efforts you've made to replace water lines, based on the research we've heard so much about.

First of all, congratulations on the effort. However, have you identified factors that make it more likely for a private homeowner to take up the offer when you guys say, "We're going to test it for free, and if you replace yours, we'll replace ours"? What factors are motivating them to take that offer up?

Mr. Carl Yates: There are certainly several. I'll touch on those and then ask our director of water services for Halifax Water to add to that.

Our goal is to break down as many barriers as possible. Cost is one, right up front. People don't necessarily want to make that big investment. Also, there is just inconvenience and knowledge. There is the inconvenience of having to dig up your front lawn, and the knowledge required to arrange for a contractor to come to your doorstep and go through that contractual relationship, not knowing whether you're getting a good deal or not.

What we've done as a utility is pre-clear some of our contractors to be available to customers. We have now named contractors for our customers to contact, and as you said, we will encourage folks to do it once.

We have provided an incentive as well. That's another barrier. We've just been successful through our regulator, Nova Scotia Utility and Review Board, at providing 25% of the costs on the private side. We're realizing that the financial piece is still a big piece and we're trying to break those barriers down.

Mr. Sean Fraser: When you contribute to the private cost, do you recoup that over time by increasing the water bill for the homeowner who has used the program?

Mr. Carl Yates: It is not directed to that homeowner. It is spread across the entire rate base.

Mr. Sean Fraser: Okay, I'm curious now. It may be different from municipality to municipality, but is it a more effective way to have

some sort of a direct subsidy or cost coverage to the homeowner, or is it better to make eligible the replacement of the part of the pipe that the municipality owns? What's the best way to use tax dollars to make this happen?

Mr. Carl Yates: I'd say both, because it is a joint effort. I want to clearly state that it is a joint effort that needs to happen. We need to do both at the same time. The utility certainly has some funds available—most utilities do, for general service line replacements—but if there is a program that helps serve as a catalyst to get more lines done....

I heard the idea earlier, when we were doing work with our municipalities, of doing the entire street. That is absolutely a very cost-effective way to replace lead service lines. You do them in one fell swoop. You go in and get them all and have something for private homeowners as well, to encourage them at the time, either as a tax credit or through direct funding. Any way we can get at them, we like to do it.

Mr. Sean Fraser: Madam Chair, do I have any time left?

The Chair: You have 45 seconds.

Mr. Sean Fraser: I don't think I have enough time to get through the next one. Thank you very much. I appreciate your answers.

The Chair: Monsieur Aubin is next.

[*Translation*]

Mr. Robert Aubin: Thank you, Madam Chair.

I would also like to thank our witnesses for being here.

My first remarks are for you, Mr. Yates.

You said that the federal government should implement a regulatory framework. During our discussions today and at the last meeting, however, I noticed that the witnesses all believe that they do not have reliable statistics. The federal government could always tell the municipalities to use infrastructure funding to offer a program, but if this specific issue is to be addressed and a program created for that purpose, no responsible government would take on such an important task without understanding its scope.

If an inventory had to be completed in Canada, what would that involve? Would it mean collecting data from the municipalities, the provinces and territories, even if they did not have solid data and it meant starting from scratch to complete the inventory?

My question is also for Mr. Edwards because, in the United States, before they tackle a problem, they complete such an inventory to assess the scope of the problem at hand.

Perhaps Mr. Yates could answer, and then Mr. Edwards.

•(1655)

[English]

Mr. Carl Yates: Inventory is a key issue. It's one of the issues identified by the American Water Works Association and one that we identified ourselves. It will vary, no question, from one municipality or one utility to the next. Some municipalities have great records and some have poor. That is part of the issue.

I think that's one of the key tasks to address initially. We ourselves have a decent indication of what we have on the public side, with very good records. On the private side, it's not as good. However, I should point out that we will take advantage of a program that we're about to do in our municipality. We're upgrading our meters to advanced metering infrastructure, so we'll have the opportunity to be in the basement of every customer's home. We will take that opportunity to try to identify pipe in the basement as at least another identifier that helps us decide if that service needs replacement.

We're also doing research with a lot of research foundations to look at techniques that are not intrusive and can go over the ground to identify the materials of the pipe itself. That has probably the most promise. This is technology that was declassified after.... It's one of the unfortunate aspects of war that techniques used to find materials buried below the ground are associated with improvised explosive devices. Of course, this is an opportunity to turn swords into ploughshares. We can use these technologies to find materials that need to be replaced.

[Translation]

Mr. Robert Aubin: Mr. Edwards, would you like to add something?

[English]

Dr. Marc Edwards: In terms of the inventory in the United States, some utilities have very good records, in which case they are in good shape. The vast majority of the utilities, however, have extremely poor records, so we're left with going into the basements of consumers' homes to see what pipe material is entering the homes. We're also left with digging holes, either with excavators or something called hydro-excavation, whereby we dig down a narrow hole and check out what the pipe material is. That's unfortunately how we'll have to do it—house by house.

Let me very quickly respond that in the States, we find that point-of-use filters are a very good cost-effective interim measure to deal with the lead problem. These filters are only \$30 each. They're the same filters you'd buy at Lowe's or Home Depot. As long as they're NSF-certified to remove lead, they will effectively get lead down to low levels only for the water used for cooking or drinking, which is of course where the health threat comes from. Our experience is that point-of-use filters are a very cost-effective measure in some cases.

[Translation]

Mr. Robert Aubin: Thank you.

From the outset, we have certainly understood the need to look at all water lines, all the way to the owner's tap. Yet an owner might refuse to convert their portion and prefer to run the risks themselves, because they are not part of groups at risk in terms of health, they are too old, they cannot afford it or for some other reason. Yet we all

know that, in Canada, there is just one water main. There is not one for drinking water and another for waste water.

Will the water coming out of that residence that is contaminated by lead from the owner's pipes be treated again before flowing back into the river that it came from?

If so, we will endlessly be treating the same problem because certain owners refuse to do their part.

[English]

Mr. Carl Yates: We think there will be some customers who will not want to do their side of the line. There's no question about that, but we think that it's our obligation to work as hard as we can to convince them to do so. A lot of education is necessary as well as a lot of contact with the customers, and over time hopefully the vast majority will go along. As more awareness is raised, I think our opportunities rise, and over time we will get all those lead service lines.

The other thing we mentioned earlier was that there is something to be said for getting something done during real estate transactions. As a matter of fact, I would like to say that it's happening now in Halifax. What I would call the higher-end inspectors, who care about their clients, are identifying lead service lines even though those are not on the checklist. We're starting to see that actually becoming an issue, and it's good to see that happening, because it's easier to take care of that issue when there's money changing hands. If you have to get a mortgage for \$275,000, you get one for \$280,000 if you have to and get that lead service line replaced, or you put the onus on the seller to make sure they take care of it before the house changes hands. I think that is one of the tactics we should consider.

•(1700)

The Chair: Thank you very much, Mr. Yates.

We go now to Mr. Hardie.

Mr. Ken Hardie: Thank you, Madam Chair.

Thank you, everybody, for being here.

Mr. Edwards, we've heard from time to time a lot of discussion about Flint, Michigan, and the problems they had there. I caught some information on the fly, and maybe you can confirm it. It was that the primary problem in Flint has been not so much the waterlines but that they went to a different source for their water, water that turned out to be contaminated at source. Is that the case?

Dr. Marc Edwards: It's really a combination. They changed their water source, which changed their chemistry, which changed the propensity to leach lead into the water. If they had done that and not had the lead pipes, obviously there would not have been a problem, but because they had that change and they did have the lead pipes, that sleeping menace that people had forgotten about suddenly contaminated the water in some homes to astronomical levels.

It's really a combination of effects. Obviously, if they didn't have the lead pipes, they would not have had the problem.

Mr. Ken Hardie: As a sidebar question, as aquifers get drawn down or perhaps contaminated from other activities, are we starting to get to a point where communal water systems are not that good an idea?

Dr. Marc Edwards: I think that communal waters systems are a very good idea, but we have to deal with the reality that our water sources are changing. For example, as aquifers are drawn down, in the United States we've had to switch to surface water. As in the case of Flint, Michigan, that change in source water has triggered corrosion problems, red water complaints, discoloured water, and in a few cases lead issues.

The other major change we're facing is the use of road salt, which is increasing the chloride level of our surface water supplies. In some cases it's making the waters much more corrosive, and that can happen all of a sudden. On average, in the northeastern United States, the chloride levels of rivers have doubled due to the use of road salt. This is an example of another change; suddenly a water supply that was not corrosive is becoming more corrosive.

I still think it's best to deal with this communally. We need to have better corrosion control, and then match the materials that are in our system to the water.

Mr. Ken Hardie: I'm starting to think that we need some advice as to whether Scotch is a good alternative.

Mr. David Sweet: Always.

Mr. Ken Hardie: Yes, always. Thank you, Mr. Sweet. I agree with you.

Mr. Lanphear, this is another of those factoids that go by, and you don't know if they're true or not. I have heard that if there are lead service lines in Metro Vancouver, the risk there isn't necessarily as high because of the properties of our water supply there. Our water doesn't necessarily create the corrosion, etc. Is that your understanding?

Dr. Bruce Lanphear: If you look at our water supply in Vancouver, you see a phenomenal water supply, and corrosion control is used effectively. Even though, for example, my home in Fairview had old lead pipe—we replaced it, but there is lead pipe there—as long as the corrosion control is done well, we shouldn't have a problem unless there's maintenance or other things that disrupt it.

I would also say that other communities in B.C., such as Pemberton, don't have adequate corrosion control. Not only do they have problems with their pipes and their plumbing because of that, but they also have problems with lead. They don't have the facilities to bring about their corrosion control, so I think one big part of this discussion needs to take into account the smaller municipalities, the

townships, and the first nation communities that don't have the facilities for corrosion control.

• (1705)

Mr. Ken Hardie: Well, certainly as we look at replacing water systems for first nations, some of which have been under boil water advisories for a couple of decades, I'm wondering if somebody is looking at that aspect of it as well. That's a question I'll ask of somebody else.

Mr. Yates, maybe you can build on comments we had from the previous panel. How is it that a partial replacement actually worsens the situation? What goes on there? For instance, if the municipality replaces its piece but the homeowner doesn't, why does that make it worse?

Mr. Carl Yates: There are a couple of things that go on, but the most important one is that a lot of the lead gets into solid particles that adhere to the pipes—

Mr. Ken Hardie: I'm sorry, but could you push the button on your microphone?

Mr. Carl Yates: Okay.

Mr. Ken Hardie: There we go.

Mr. Carl Yates: There are a couple of things that go on, as Dr. Gagnon has said, but we believe that one of the most important things is that a lot of the lead is in the form of solid particles that have adhered to the inside of the lead service line. When that's cut, disturbed, moved, or rolled up as part of the construction process, those lead particles get released. They sit in the pipe and, as water moves through the lead service line over the next period of months or years, those particles get moved into the plumbing and through the tap.

Mr. Ken Hardie: If you buy a house built prior to 1960, would you say that the chance there's lead there, either through the solder or through the service line, is pretty high? For somebody who is listening to this and who might start to get alarmed, what remedial steps can they take right now?

Mr. Edwards talked about the filter you can buy. Contrary to some earlier comments, it seems that it's not a terribly expensive thing. Would something even as simple as running the water for a minute before you draw your drinking water be a good idea?

Mr. Reid Campbell (Director, Water Services, Halifax Water): We have a package of information that we provide to customers. A lot of times we have customers who have a lead service line and for various reasons are not able to act, so it's exactly that.

As Dr. Edwards said, we have point-of-use filters that we give out as temporary measures, and we also give out instructions to homeowners on how to flush their taps so that they're not using water that has been sitting in pipes for a long time. At best, they're temporary measures. We're relying on customers to maintain filters and replace cartridges. With time, their vigilance goes away. Also, with regard to flushing the taps, people get enthusiastic about doing that for a few weeks or months, but with time they lose diligence for that.

The Chair: Thank you very much. We'll go on to Mr. Iacono.

[*Translation*]

Mr. Angelo Iacono (Alfred-Pellan, Lib.): Thank you, Madam Chair.

I would like to thank the witnesses for being here today. Their remarks are very interesting.

What are the sources of lead in drinking water, apart from the pipes?

[*English*]

Mr. Carl Yates: There's lead in older solder, which was put in prior to 1960 with different service lines. There's also quite a bit of lead in brass fixtures. In older buildings, lead will come into solution from those types of fixtures.

[*Translation*]

Mr. Angelo Iacono: Can the treatment of drinking water significantly reduce lead levels, increase water quality, and reduce risks?

[*English*]

Mr. Carl Yates: I think it's one part of the solution. I believe that corrosion control is a very important part of controlling lead, but we do not rely on it in and of itself. We believe that because of the disturbances in the system in terms of the galvanic cell created between lead and copper, you will continue to have lead issues from that lead service line itself. We say that both need to be done together and that it requires the utility to understand and characterize the drinking water they supply.

Mr. Angelo Iacono: Thank you.

Mr. Edwards, I have a question for you. With respect to the management of drinking water treatment and distribution, as well as waste-water treatment, what level of coordination exists between the different levels of government?

Dr. Marc Edwards: I think that it has been largely left to the water utility, and by and large they've done a good job. In response to direct regulation, obviously if there is a law, they are mandated to meet it. Some of our standards here in the United States are more about common sense or are voluntary, and the extent to which those are followed really varies dramatically from water company to water company.

• (1710)

Mr. Angelo Iacono: Thank you.

I now would turn to the Canadian part with the same question: what level of coordination would you anticipate to be the proper one?

Mr. Reid Campbell: As you know, in Canada Health Canada establishes the maximum acceptable concentrations through the guidelines for Canadian drinking water quality. Then they are adopted or not adopted by each province as the province sees fit.

One difficulty in Canada is that the level of adherence to the guidelines for Canadian drinking water quality varies from province to province. Some provinces, like Nova Scotia, fully adopt the guidelines for Canadian drinking water quality. Other provinces create their own but similar guidelines. Some provinces just adopt the ones they think are important to their province, and lead would be...I wouldn't say discretionary, but something for which the guidelines would be followed by some provinces but not by others.

Then all municipalities are regulated differently within their province. Some utilities are larger and have more resources to deal with the problem; others are smaller and don't have the resources.

Mr. Angelo Iacono: Thank you.

Mr. Lanphear, do you want to add something to that?

Dr. Bruce Lanphear: I would agree that there are a lot of inconsistencies. Some do very well. I've been very pleased to hear today from Mr. Yates. It sounds as though they have a very aggressive program and they are very protective. I wish all of us across Canada could have that kind of protection.

Mr. Angelo Iacono: Thank you.

Madam Chair, I'll be giving up the rest of my time.

The Chair: Mr. Ellis, you have two minutes.

Mr. Neil Ellis: Mr. Yates, I want to touch on what Bruce said.

What I'm hearing is that the program you are implementing seems to be setting something like a gold standard. Why is this happening all of a sudden? Was there a change of leadership at your utility in your city so that you're championing this? I commend you for it, because I see that in a lot of the practices you're implementing, you're ahead of the curve. Why is that? Is that because of poisoning in your municipality or just leadership, or what happened?

Mr. Carl Yates: We like to start, certainly, with leadership.

There are really two aspects, I think, for our organization. Our governance structure is very different from that of many utilities across Canada. I guess in simple terms we are like a crown corporation of the municipality, and we are regulated by the Nova Scotia Utility and Review Board.

Mr. Neil Ellis: Do you mean you don't have any politicians involved?

Mr. Carl Yates: There is less political involvement; that is correct. I will name that for you.

We do well by that model. We have two regulators. We have water quality and effluent monitoring, and we have business monitoring by the Nova Scotia Utility and Review Board. Between those two regulators, they have good governance oversight for us, but in the end, we also care a lot about our customers.

I guess that's our own leadership. We really do care about customer service. We have a history of turning around systems that are in rough shape. When we see a problem, we don't wait a long time to act.

That is also why early in the game, we got Dr. Gagnon involved. As a matter of fact, he said he had been doing research since 1998; we got him right out of grad school and put him to work right away, and we've been doing it ever since. We're very fortunate that this year, 2017, marks the 10th anniversary of our industrial research chair with Dr. Gagnon. That was basically what we call a catalyst to get to the bottom of the lead issue and understand it.

I want to come back to that. It's very important that each utility and each municipality get to understand their lead problem. They're not going to have all the answers overnight, and that's why we were fortunate to get in on the ground floor, as they say, to start early, to recognize a problem early and to then take steps to really understand the problem before we jumped in with solutions.

The Chair: Thank you very much, Mr. Ellis.

Mr. Aubin, do you have some further questions?

[Translation]

Mr. Robert Aubin: The witnesses often said that corrosion has to be treated or controlled. As a homeowner, I replace the pipes when I notice there is a leak. Checking the condition of the pipes in my home is not a constant concern for me.

How can corrosion in pipes be controlled at the public, municipal, and residential levels at the same time?

•(1715)

[English]

Mr. Carl Yates: Well, you've touched on a topic that's dear to our hearts and almost as interesting as lead, and that is leakage control. We're also leaders in leakage control in North America.

We have adopted international best practice to chase down leaks early, when they're small. We have continuous monitoring of our system to identify leaks so that if we do have a leak on a customer's service line, we will repair it as quickly as we possibly can. We have very advanced techniques and strategies for that.

[Translation]

Mr. Robert Aubin: Do those technologies exist for the residential sector? At my home, the pipes are between the walls or between the ceiling and the floor. Once there was some water damage at my house caused by a pipe that had been leaking for years, but I only noticed it when the floor collapsed.

[English]

Mr. Carl Yates: Shame on the utility for not acting sooner. We would certainly be able to detect that with our own system. If we have high usage by our customers, we analyze the bills and

automatically send a call-out to the customers to alert them to high use. We're able to give good advice.

The good news, I'll tell you as well, is that we're about to implement advanced metering infrastructure, which will take it even a step further. We'll be able to have water consumption control in the hands of the customer in a very short period of time. They can monitor their own use in very close to real time. If they want alerts for anything that's out of the norm, we can even set that up for them as well. The technology exists today. The good news is that a lot of utilities across North America are going to advanced metering infrastructure for all the right reasons. It's a great way to engage your customer, help them manage consumption, and curtail these leaks that you mentioned.

It's in nobody's interest to see water wasted. Neither the utility nor the customer wins in that situation. We look forward to enhancing ours even more than it is today by these types of technologies.

[Translation]

Mr. Robert Aubin: I conclude therefore that leaks cannot be detected if you live in a municipality where water meters are not mandatory.

[English]

Mr. Carl Yates: If you do not have a meter, you will have one heck of a hard time determining whether or not you have a leakage, for sure. I would strongly recommend that all municipalities in Canada put meters in the system. If you cannot measure it, you cannot manage it.

[Translation]

Mr. Robert Aubin: Thank you.

[English]

The Chair: Thank you very much.

Does anyone else have a short question?

Go ahead, Mr. Fraser.

Mr. Sean Fraser: I don't have a sense of the scope of the cost breakdown between the private and public portions. How much would it cost for a partial replacement compared with a full line replacement? If you do a full line, who bears how much of the cost?

Mr. Reid Campbell: In our municipality now, the average cost of a homeowner's portion is \$4,000 to \$5,000. The variation depends on the size of the property or how far back it is from the street. It costs the municipality about \$10,000. The higher number is because of street restoration, traffic control, and that type of thing.

Currently, in Halifax we pay for our portion and the customer pays for their portion, but as Carl mentioned, since August we've had a program to rebate the customer 25% of their portion.

Mr. Sean Fraser: Just out of curiosity, if there's a municipality that still does partial line replacements, would that be almost the same as the total cost of replacing it by the time, as Mr. Gagnon pointed out, you get a crew on site digging up the yard and that sort of thing?

Mr. Reid Campbell: There are certainly economies to doing it all at once. The best thing for the homeowner is that it can get done in one day if you try to do it together.

Mr. Sean Fraser: Thank you.

The Chair: Thank you very much to all of our witnesses. I think that was very valuable information. We appreciate your taking the time to come and visit us today.

Before I adjourn the meeting, just for the information of colleagues, Tuesday we will do clause-by-clause consideration on Bill C-48. We will start immediately following the speeches. Hopefully, the clerk will have us in a meeting room on the Hill so that we won't have to lose too much time. We will continue until we have it finished. Hopefully, we'll have it finished on Tuesday.

Thank you again to the witnesses.

The meeting is adjourned.

Published under the authority of the Speaker of
the House of Commons

SPEAKER'S PERMISSION

The proceedings of the House of Commons and its Committees are hereby made available to provide greater public access. The parliamentary privilege of the House of Commons to control the publication and broadcast of the proceedings of the House of Commons and its Committees is nonetheless reserved. All copyrights therein are also reserved.

Reproduction of the proceedings of the House of Commons and its Committees, in whole or in part and in any medium, is hereby permitted provided that the reproduction is accurate and is not presented as official. This permission does not extend to reproduction, distribution or use for commercial purpose of financial gain. Reproduction or use outside this permission or without authorization may be treated as copyright infringement in accordance with the *Copyright Act*. Authorization may be obtained on written application to the Office of the Speaker of the House of Commons.

Reproduction in accordance with this permission does not constitute publication under the authority of the House of Commons. The absolute privilege that applies to the proceedings of the House of Commons does not extend to these permitted reproductions. Where a reproduction includes briefs to a Committee of the House of Commons, authorization for reproduction may be required from the authors in accordance with the *Copyright Act*.

Nothing in this permission abrogates or derogates from the privileges, powers, immunities and rights of the House of Commons and its Committees. For greater certainty, this permission does not affect the prohibition against impeaching or questioning the proceedings of the House of Commons in courts or otherwise. The House of Commons retains the right and privilege to find users in contempt of Parliament if a reproduction or use is not in accordance with this permission.

Also available on the House of Commons website at the following address: <http://www.ourcommons.ca>

Publié en conformité de l'autorité
du Président de la Chambre des communes

PERMISSION DU PRÉSIDENT

Les délibérations de la Chambre des communes et de ses comités sont mises à la disposition du public pour mieux le renseigner. La Chambre conserve néanmoins son privilège parlementaire de contrôler la publication et la diffusion des délibérations et elle possède tous les droits d'auteur sur celles-ci.

Il est permis de reproduire les délibérations de la Chambre et de ses comités, en tout ou en partie, sur n'importe quel support, pourvu que la reproduction soit exacte et qu'elle ne soit pas présentée comme version officielle. Il n'est toutefois pas permis de reproduire, de distribuer ou d'utiliser les délibérations à des fins commerciales visant la réalisation d'un profit financier. Toute reproduction ou utilisation non permise ou non formellement autorisée peut être considérée comme une violation du droit d'auteur aux termes de la *Loi sur le droit d'auteur*. Une autorisation formelle peut être obtenue sur présentation d'une demande écrite au Bureau du Président de la Chambre.

La reproduction conforme à la présente permission ne constitue pas une publication sous l'autorité de la Chambre. Le privilège absolu qui s'applique aux délibérations de la Chambre ne s'étend pas aux reproductions permises. Lorsqu'une reproduction comprend des mémoires présentés à un comité de la Chambre, il peut être nécessaire d'obtenir de leurs auteurs l'autorisation de les reproduire, conformément à la *Loi sur le droit d'auteur*.

La présente permission ne porte pas atteinte aux privilèges, pouvoirs, immunités et droits de la Chambre et de ses comités. Il est entendu que cette permission ne touche pas l'interdiction de contester ou de mettre en cause les délibérations de la Chambre devant les tribunaux ou autrement. La Chambre conserve le droit et le privilège de déclarer l'utilisateur coupable d'outrage au Parlement lorsque la reproduction ou l'utilisation n'est pas conforme à la présente permission.

Aussi disponible sur le site Web de la Chambre des communes à l'adresse suivante : <http://www.noscommunes.ca>