SPENT FUEL SOLUTIONS

INFORMATIONAL WEBINAR: CANADIAN REPOSITORY SITING PROGRAM

Via Zoom

TRANSCRIPT OF MEETING

February 24, 2025

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INFORMATIONAL WEBINAR: CANADIAN REPOSITORY SITING PROGRAM

Transcript of video-recording meeting via Zoom commencing at 12 p.m., Monday, February 24, 2025.

WEBINAR SPEAKERS:

CHRIS WAHL - (EXECUTIVE DIRECTOR OF SPENT FUEL SOLUTIONS)

LISA FRIZZELL - (VICE PRESIDENT OF COMMUNICATIONS FOR CANADA'S NUCLEAR WASTE MANAGEMENT ORGANIZATION)

Via Zoom, Monday, February 24, 2025

CHRIS WAHL: Welcome everybody, it is Monday, February 24th at 12, noon, here on the West Coast of the United States.

And thank you for joining us for our first Spent Fuel Solutions webinar of 2025.

For those of you that are joining for the first time, our coalition, Spent Fuel Solutions, was formed in 2021, which is hard to believe.

It's already been almost five years to advocate for the federally licensed offsite spent fuel storage and disposal solutions in the United States.

We've seen some significant progress towards these goals over the last four years, both on the legislative and administrative side, and we're hopeful that this process will continue.

Those of you that have been familiar with what we've been doing know that Congressman Mike Levin introduced a piece of legislation last year that would help move us in the right direction, and we're hopeful that that will come forward in this year again as well.

But today our our point is to to have a conversation and welcome Lisa Frizzell, who serves as the Vice President of Communications for Canada's Nuclear

Waste Management Organization, or the NWMO.

As some of you may recall, Lisa was gracious enough with her time to participate in our webinar back in 2023 when we were talking about international best practices and they're doing great things up in Canada and making a lot of progress.

In fact, we're happy to report that the NWMO's repository siting efforts have come a long way and we're looking forward to learning more that Lisa's going to share with us today.

Lisa's going to talk, has a presentation which she'll share and then we're going to move into the Q&A portion of the discussion.

Just as a reminder for all those that are attending, if you do have questions, please send them in the chat and time allowing, we will get to all the questions that we possibly can.

And without any kind of further ado, I'm going to go ahead and welcome Lisa and have her start on her presentation.

So thank you again, Lisa, on behalf of the coalition for joining us.

LISA FRIZZELL: Excellent, thanks so much.

I'm so happy to be here.

I'm just going to share my slides and make sure I

hit the right combination of buttons to make this work.

Now you should be seeing my title slides.

Does that sound right?

Hopefully you're...

CHRIS WAHL: Yes, I can see it.

Nuclear Waste Management Organization, you bet.

LISA FRIZZELL: Excellent.

Perfect.

Just as it should be.

Well, thank you very much for inviting me here today.

I’m so excited to be talking with you all and I’m excited to be in the place that we're at as the Nuclear Waste Management Organization.

Now before I get going, I just want to briefly acknowledge that of course, we're all in different places online today.

I'm coming to you from the beautiful community of Ignace in Northwestern Ontario.

And this is the traditional territory of Wabigoon Lake, Ojibway Nation, who have been here and cared for this land for time immemorial.

And land acknowledgements like this are one way that we show respect to our First Nations as we walk together on a path of reconciliation. And I'll talk a

little bit more about our work in that area as I get a bit bit further into the presentation.

So I am going to walk you through a little bit about who we are as an organization, our recent milestone of selecting a site for Canada's used nuclear fuel repository, how we got here and also what comes next, because there's still a lot of work to do.

I can share with you as well, we have two major projects underway at the moment.

One, of course, is the repository for used nuclear fuel.

That's where I'm going to focus today's discussion.

We're also in the very early stages of developing a siting process for a second repository project and that one will be focused on containing and isolating intermediate and non-fuel high level waste.

We we're just designing the siting process for that now.

So that's something to stay tuned for in the months and years to come.

Now, I'm actually going to start by sharing a short video about our most recent milestone.

It's just about two minutes long and then I'll come back and unpack a little bit about how we got to this

point and let me know if you can't hear it, but it did work ok in the sound check, so I think we should be just fine.

[VIDEO PLAYBACK BEGINS: EDITED VIDEO FEATURING LAUREN SWAMI, PRESIDENT AND CEO OF NWMO, AND NWMO STAFF]

[VIDEO AUDIO – LAUREN SWAMI: The NWMO's mandate is the safe long-term management of Canada's used nuclear fuel.]

CHRIS WAHL: I haven't seen anything yet, Lisa.

Hopefully it'll pop on there soon.

[VIDEO AUDIO CONTINUES IN BACKGROUND]

LISA FRIZZELL: Oh, it's not playing?

CHRIS WAHL: I don't think so.

No.

Jess do you see it?

JESSICA LUTERNAUER: Yes, it's playing, hear the sound.

LISA FRIZZELL: Ok, it, I'm sorry, it's not playing or it is?

JESSICA LUTERNAUER: It is.

LISA FRIZZELL: Ok, I'm going to start.

I think I just went back to the beginning.

I apologize.

I'll try it once more.

If it doesn't, if it doesn't work, stop me and I'll

just skip it and keep moving forward.

[VIDEO PLAYBACK RESTARTS]

[VIDEO AUDIO - LAUREN SWAMI: The NWMO's mandate is the safe, long-term management of Canada's used nuclear fuel.

Today we are proud to announce that the NWMO has selected Wabigoon Lake Ojibway Nation and the Township of Ignace as the host communities for Canada's deep geological repository.

JOHN BEAUCHAMP: Informed and willing hosts are the backbone of this entire project.

When we say community-driven, it means the community decides on this project on their own terms.

They decided how to move forward.

They decided how they would work with us, how they and we would engage with the local community.

And then they also decided how the vote ends up happening in the end.

The NWMO also has a huge commitment to all things reconciliation related.

LAUREN SWAMI: The NWMO is committed to reconciliation because it’s the right thing to do.

We recognize that Indigenous people in Canada have been treated very poorly, and that continues today, and we need to do everything we can to make sure that

reconciliation happens on our project, in this province and in this country.

DOCTOR PETER KEECH: The international consensus is that a deep geological repository is the safest approach.

ANDREW PARMENTER: We are confident in the safety of the site.

We've done a lot of analysis to date.

The crystalline rock is very strong.

DOCTOR PETER KEECH: The deep geological repository uses a series of layers to prevent any water from getting in and anything harmful from getting out.

DOCTOR MACKENZIE DENYES: The regulatory decision-making process is the next step after site selection.

The rigorous regulatory standards are in place to ensure, above all else, the protection of people and the environment and that the project is constructed and operated safely.

LAUREN SWAMI: I am so happy that we finally selected a site.

It's really an exciting moment.

We can move forward, actually implement a plan that solves a problem for Canada.

This is what making history looks like.]

[VIDEO PLAYBACK ENDS]

LISA FRIZZELL: All right, so hopefully that worked out ok.

That was a pretty exciting day.

It was a a big decision and a big announcement, but I'm going to give you a little bit of information about what what it took to get there because the long-term management of used fuel in Canada has a very long history.

All the way back in 1978 it started when the Ontario government appointed a fellow named, excuse me, Arthur Porter to chair a royal commission on electric power planning in Ontario.

And one of his recommendations called for a major program of research into the disposal of used nuclear fuel.

And that led to the establishment of what was called the Canada Ontario Nuclear Fuel Waste Management Program, which assigned responsibility to a company called Atomic Energy of Canada Limited, or AECL, for researching and developing the concept of immobilizing and disposing of radioactive waste.

And by 1989 AECL had developed the concept and it was referred to an environmental assessment panel and that panel was chaired by a man named Blair Seaborn.

So we often call it the Seaborn Panel.

Now over a 10-year period, there was a series of workshops, open houses, three phases of public hearings and a scientific review group examined the scientific and engineering aspects of the disposal concept.

So they really considered it from all angles.

And in 1998, Seaborn concluded that from a technical perspective, the safety of deep geological disposal had been, on balance, adequately demonstrated, but from a social perspective it had not.

The concept had not been demonstrated to have broad public support.

And with that decision, Canada's nuclear waste program, which had been leading the world, was set back decades.

Now that panel recommended that a separate nuclear fuel waste management agency be established to manage and coordinate the full range of activities related to the long-term management of nuclear fuel waste.

And that's what led to the NWMO.

So in 2002, the government of Canada passed a law called the Nuclear Fuel Waste Act and it required the establishment of the organization where I now work, and we're set up as an independent, arm's length, not-for-profit organization.

So even though we're implementing a federal

law, we're not actually a government agency and our funding doesn't come through taxpayers.

Rather, we're funded by the companies that generate Canada's used nuclear fuel, so the current waste owners.

That's consistent with the polluter pays principle.

And basically every time I flip my light switch, a tiny little portion of my bill goes to the waste owners who allocate it to care for the waste over the long term.

So every year they make deposits to trust funds to make sure that the money that's needed over the life of the project is available when construction begins, and they are also required to fund our operations in the meantime.

Ultimately, what it comes down to is our job is to complete the life cycle of nuclear waste.

And for us, we really take that to heart.

And it means building a future where the safe disposal of nuclear waste is no longer seen as a problem in need of a solution, but instead is seen as a proven model of responsible stewardship.

Now, as a first step, in 2002 when we were established, we opened up a huge dialogue with the public.

We spoke with people from coast to coast to coast to identify the values and priorities that were important to them.

At the time, it was actually one of the largest exercises in soliciting public input in Canadian history.

And that type of public engagement was really important because remember, our history told us the issue was not a technical one, but one of social acceptance.

That dialogue took about three years and the plan that emerged from that dialogue was based on the priorities that Canadians and Indigenous peoples themselves identified.

Now, of course not everyone agreed on everything, but there was a lot of common ground that emerged.

So first and foremost, safety had to be preeminent.

We'd need to meet a bunch of objectives, of course, but we couldn't sacrifice safety for anything.

Secondly, the public was really clear that they expected us to assume responsibility now, in this generation, for the waste produced to meet our energy needs.

It's not appropriate to kick the can down the road and leave the waste we generated as a burden for future generations to manage.

Thirdly, the project should align with international best practice and standards.

And finally, as it turns out, Canadians are very practical and they said that this approach has to be very adaptable to allow for improvements or changes based on new knowledge or evolving societal priorities.

And that’s really important because we’re implementing this project over many decades and things change over time.

So what's acceptable today might not be acceptable 50 years from now.

So in other words, really what the public told us was that we needed to balance our technical method with a flexible management approach that's designed to evolve with the science and public expectations.

And the plan that emerged, we believe, captures that balance.

It's called adaptive phased management, and we proposed this plan to Canada's federal government in 2005, and in 2007, they selected this approach as Canada's plan and directed us to begin implementing it.

And so ever since, we've been working to implement the plan, collaborating very closely with municipal and Indigenous communities, industry, regulators, all levels of government, and really our ultimate goal is protecting

people and the environment for generations to come.

Now, technically speaking, the end point of adaptive phase management involves a used nuclear fuel repository built deep underground.

The used fuel will be continuously monitored and retrievable for an extended period of time.

It'll be between 650 to 800 meters underground, which is about twice as deep as the Empire State Building is tall, and its design relies on a series of engineered and natural barriers that work together to basically safely contain and isolate that used nuclear fuel.

So each barrier serves as a backstop to the last.

So in the unlikely event that one fails, there's another one there to make sure that no dangerous materials escape from that environment.

And that design really ensures that the used fuel will be safe and people in the environment protected essentially forever.

Now, as a point of interest, I can just point out that in Canada, most of our fuel is CANDU fuel, which I know is a little different than yours in the U.S.

And you can see a fuel bundle labeled in the diagram each.

Each of those bundles is about the size and shape of a fireplace log.

And the fuel pellets inside are very stable, solid ceramic.

Now, just as important as that technical method, the repository is the management approach.

So this is all about how we work with people to implement the project.

So decision making is phased and adaptive so that it's responsive to advances in technology, new research, Indigenous knowledge or changing societal values.

The facility has to be located on a site with informed and willing hosts, selected through an open, inclusive and fair siting process.

And that's the process we've just completed.

And interested and potentially affected citizens and communities really need to be engaged in decision making throughout implementation of the plan.

And because this is a multi-generational project, it’s being implemented in phases over a period of more than 175 years, we continually review, strengthen and adjust the plan in response to community feedback, new knowledge or changes in context.

So that's the plan.

And now I want to talk a little bit about how we selected the location where we'd like to put it.

So we launched our site selection process in 2010 and of course there were a lot of detailed criteria about how to select a site, but they all fell into three main buckets.

So the first one is safety.

We have to have a site where the used fuel can be safely contained and isolated.

So that means there needs to be a suitable rock formation.

We also need to be able to safely move the used fuel from where it's stored today at interim storage facilities to the site.

So that means there has to be a means of transportation that exists or can be built.

And just as important as those technical requirements, the site has to have informed and willing hosts.

I'm going to expand on that last one because even if we had a great site from a technical perspective, we were not willing to move forward unless the host municipality and First Nation themselves confirmed at a grassroots level that they understand what it means to host a project like this and support having it located in their area.

And it was up to the communities themselves to

determine how to decide and express that willingness.

Now, our site selection process was voluntary.

We've only ever worked in areas where at least one community proactively expressed interest in learning more about the project and exploring their potential to host it.

22 communities did exactly that, and we gradually narrowed our focus.

And we did that through increasingly intensive technical studies and social engagement with those communities, their neighbors and the First Nations in whose traditional territories the potential sites were located.

And then of course in November, we were able to announce that we had identified the Township of Ignace and Wabigoon Lake Ojibway Nation as the host for the site that will take forward into the regulatory decision-making process.

Now I thought it might be helpful to share a few of the key ingredients with you that got us from working with all of those communities I showed on the last slide to the site selection announcement in November.

And of course there was a lot of technical study to confirm the site we ultimately selected would be safe.

There was also a lot of social engagement to

confirm the project could be implemented in a place where people supported moving forward and where it could be implemented in a way that advanced well-being in the area.

So for today's discussion, I'm going to focus primarily on the learning and engagement processes that took place over that period of more than a decade.

And I can tell you many aspects of this work were actually led by the 22 communities on that last slide.

There really is no template for how to achieve this, and what we found is the way that works best for us is by doing it together with people.

So I'll tell you a little bit about how that evolved.

If I cast back to the very early days of our site selection process, in the beginning, we could generally use similar communications across all of the communities.

So a brochure or an exhibit or a presentation that worked well with one community also worked in others to explain the basics of the project.

But as times progressed, communities became more sophisticated in their knowledge about the topic and more vocal about their needs, and we found we needed to tailor

our communications and engagement activities specifically to their interests.

So just to give you a sense, consider this.

Several of the communities were located near nuclear generating stations, so they already knew the basics about nuclear energy.

Several others were mining communities, they knew about geology and working underground, and some were railway communities who knew all about transporting hazardous materials.

So they all came to the table with different strengths and knowledge sets and also different gaps in their knowledge and different questions and different concerns and it was on us to work with them to address those needs in ways that worked for them.

Now we placed a really strong emphasis on face-to-face engagement and of course we use other channels like media, social media and virtual presentations like this one.

Those are all really important to us, but our most important and impactful communications channel has always been face-to-face, and we often put our scientists and engineers front and center.

This image actually shows one of our engineers talking about the project with some young people from one

of the siting communities.

So what that meant is community members were able to ask questions, share concerns and ideas, and build relationships with the people actually designing various aspects of the repository system.

And that really built confidence.

And it also helped us understand the concerns we needed to respond to as we progressed our work.

And over time, as plans advanced and we were able to circle back, we were able to show people how we considered their input because it was all very helpful in shaping how this project moves forward.

I have a colleague who likes to say trust is built over 1000 cups of tea and relationships matter.

That's really what he's getting at with that.

People don't trust companies, they trust people.

And by being present and building relationships and actively listening and responding to even the toughest questions, together with communities, we built a foundation of trust.

And over time we built out engagement teams in the siting areas who work, they worked out of local offices.

We call those offices Learn More Centers.

I’m sitting in one today and in these Learn More

Centers, local residents were welcome to pop by and ask questions of local employees whenever a question came to mind.

So our team really became a presence in the community.

I actually attended the grand opening of this Learn More Center that I'm sitting in in Ignace many years ago.

And one of my happiest moments of that day was when one of the local residents asked if she could book the center for her kid's birthday party.

And to me, that was just such a nice symbol of the importance of becoming part of the community and establishing a place that added value to the people who live there and built comfort in talking about the topic of used nuclear fuel and considering possibilities for the future.

Now, one of the smartest things the communities did was establish community liaison committees.

So the purpose of these committees was to facilitate learning in their community.

They were made up of volunteers and they were committees of municipal councils, not the NWMO.

We provided funding to support their activities and we attended their meetings, and they were really in a

position to tell us what information the community needed, how they wanted to receive it, and rightly to take us to task if we didn't provide it in a way that met their needs.

Their meetings were public and open to anyone to attend, and they often brought in expert guest speakers, both from within the NWMO's ranks but also outside the NWMO.

And they even brought in people who opposed our work so they could really make sure they considered the project from all angles.

These committees also played a very important role in retaining institutional knowledge through the election cycles that we experienced.

We've been at this siting process for 14 years, so we had lots of new mayors, counselors and chiefs over that time.

And so having relatively consistent community-focused committees facilitating learning was very helpful in those transitions.

Now to support learning from the outset, we established what we called Learn More Agreements, which provided resources in the way of both funding and expertise to support community learning.

Because one of our principles was that no community

should be out of pocket for playing a role in advancing Canada's plan.

Without the communities, this plan wouldn't be moving forward.

So we covered those costs and initially that included things like cost to employee support staff to help manage their involvement in the project and to attend conferences and meetings with experts and even to get independent peer reviews of our work over time so they didn't have to take our word for everything.

And as the communities advanced in the process and became more sophisticated in their knowledge, we escalated the investment in learning so they could really consider this project from every aspect and consider if it was a fit for their area.

In the late stages of the process, we even sent community delegations like this one on the screen all the way to Finland.

So in Finland there's a similar repository that's already built and is going through the final steps to prepare for operations.

And when communities went there, they were allowed to see firsthand what a repository looks like and speak with local community members who were at the other end of this process and really picture what this could be like

in their community if their area was selected for the process.

Now I want to say just a few words about our work on reconciliation and Indigenous knowledge because I know that's of interest in the U.S. as well, given the huge importance of working with tribal nations.

So we consist, continuously seek to align with the Indigenous knowledge that's shared with us by knowledge holders working with the NWMO and from host communities.

We actually have an Indigenous knowledge policy that was the first of its kind, we believe, established by a corporation in North America.

And in 2018, we actually took a big step forward when we released a reconciliation statement that acknowledged historical wrongs in Canada's past and recognized our ongoing involvement, collaboration and discussions with Indigenous peoples.

And then in 2019, we built on that step and formalized a full reconciliation policy that further recognizes those historical wrongs and the need to cocreate a better future.

I'll give you one specific example of how this showed up in our siting decision.

So in addition to the federal regulatory process that we're required to complete as a next step, the NWMO

also agreed to an Indigenous-led regulatory assessment and improved approval process.

Now this is a sovereign regulatory process that will be developed and implemented by Wabigoon Lake Ojibway Nation.

So they'll design the process to make sure that the potential impacts of the project are assessed against their values and then they'll work with us to design any conditions to mitigate impacts.

And, and it's on us to comply with those mitigations.

This approach really, really aligns well with our reconciliation commitment.

So we're really looking forward to working with Wabigoon Lake Ojibway Nation as they implement this really important and, and we think groundbreaking process.

So after all that, 14 years of communications engagement, community liaison committees, implementing the Learn More program, aligning with Indigenous knowledge and advancing our reconciliation program, we arrived at that moment last November when we were able to select a site.

At that stage, we had confirmed we met all three criteria in this site.

We have done extensive technical study and the site has great rock.

We are really confident it's a safe place to put the repository.

We are also confident we can move the used fuel there safely.

And having kicked the tires from every possible angle and considered every aspect of this project, the people of both Ignace and Wabigoon overwhelmingly confirmed they are willing to continue to move forward in this process.

Just to give you a sense of what I mean by that, in the community of Ignace, more than 77% confirmed support for the project.

Now, Wabigoon has not released the specific result of their vote, but their chief did confirm publicly that the yes vote in Wabigoon was even stronger than Ignace.

So really very solidly behind moving forward in those communities.

Here's what the chief had to say when we announced the decision.

"Wabigoon Lake Ojibway Nation views our role as the potential host for Canada's used nuclear fuel as one of the most important responsibilities of our time.

We cannot ignore this challenge and allow it to

become a burden for future generations."

And from the mayor of Ignace, "Today's announcement marks the beginning of the future of this community, for its residents, our youth, and for generations to come."

Now in this quote, she's referencing some of the benefits she sees the project bringing to the area because it will drive benefits for both host communities, the region and Canada as a whole over a 175-year timeline.

So these include things like new jobs, investments in community well-being, and those investments are really driven by the priorities communities themselves defined.

So we have hosting agreements in place with both Ignace and Wabigoon that outline the roles, expectations, and investments to be made as the project moves ahead in their area.

Each agreement's different because it's designed to address their local priorities, and it's important to know these agreements were finalized before the communities made their willingness decisions.

So if you think about it, after years and years of collaborative technical study and socioeconomic study, these agreements gave them the last piece of information they needed to know exactly what they were signing up for as they determined if they were willing to support the

project moving ahead in their area.

I had to laugh when we announced the site for the project, my sister texted me to ask if I still have a job since we're basically done now.

While that idea of being done is a very lovely thought, we're actually just in the starting blocks.

There's still a lot of work to do.

We did complete, of course, one very important and significant achievement.

This year we'll begin a rigorous regulatory decision-making process as well as preparing for that Indigenous-led regulatory process I told you about.

And the regulatory processes are really designed to ensure that our understanding of the safety of the repository is independently confirmed by both the Canadian Nuclear Safety Commission and through the government of Canada's impact assessment process.

And our very extensive public engagement program will continue because, of course, the site selection process ensured that the host communities could express their willingness, but the impact assessment process also allows for Canadians and Indigenous peoples to continue to have their voice heard on this project.

It's a really important part of the process.

And within that engagement program, I can tell you

we have a particular emphasis on transportation.

That topic has long been a significant area of interest.

And now that we have a site, it's become more real for certain audiences.

And so we're hearing that there's there's lots of interest in in continuing to learn about that.

Now while all that’s happening, we plan to build a center of expertise in the area and its design will reflect the local character and wishes and vision of the people who live there.

And if everything goes as planned, we anticipate breaking ground on the repository in the 2030s and beginning operations in the 2040s.

And then actually moving the fuel and placing it in the repository is expected to take up to about 50 years to complete depending on the inventory that we have to manage at the time.

And then after that, there will be a few decades of monitoring just to make sure everything's working before it's decommissioned and closed.

So I hope to be retired by then.

But all that to say, the timelines of course are very long.

And in our view, that's exactly why we have to keep

pushing on in our implementation of this plan because we can't stand back and ask the next generation to start all over again.

And with that, I will pause and stop sharing my screen and I would love to have a discussion.

CHRIS WAHL: Thank you, Lisa, and congratulations on all the accomplishments that you've made.

It is really amazing.

And you just starting to think about the 30s and the 40s, it's, I think just underscores how challenging this issue is and all of the accomplishments that you've made.

So again, congratulations.

I know that our our viewers and, our our, have, and participants have numerous questions.

Let me ask a couple just to kind of start with.

A lot goes into when we start talking about and participation in the process, that whole consent and you, you talked a lot about that and how you reach that.

But I don't think you mentioned too much about what are some of the benefits that communities will receive as a result of their decision to participate and I know that that's something that comes up in a lot of our conversations.

So would you, could you share some information

about what the communities did receive?

LISA FRIZZELL: Yeah, for sure.

So those hosting agreements I told you about really lay out some of the tangible commitments that have been made.

They include things like investments to build capacity to take on this project.

So for example, investments in infrastructure and housing.

There's also a big priority in training for young people in the community and training in the community to make sure those benefits are realized.

And then there's annual investments and investments at key milestones that the communities will be able to determine how best to invest to advance their well-being.

The Ignace agreement actually is public on, it's available on their website.

So if anyone really wants to dig into the details, the municipality of, of Ignace has posted theirs.

Wabigoon has chosen not to share theirs and and we respect that as well.

CHRIS WAHL: Yeah, great.

Ok, well, thank you.

It's a good answer.

How about the educational process?

I mean, to get folks to the point where they're willing to be participating is probably a, an overwhelming, not overwhelming, but a very significant part of this process.

How did the potential host committees, communities, educate themselves about what it means to be a host spent fuel repository?

LISA FRIZZELL: Yeah, you know, I have to give the communities a lot of credit because they put a lot of time and effort and commitment into this.

It's a very long time that they've been involved and to keep something of this magnitude afloat in their community for that period of time was a, a huge commitment and they really worked hard to determine what, what information they needed and how to best achieve it.

So I, I can give you a few examples, some in some ways they asked us for information and that's where we brought experts into the communities, we brought exhibits into the communities, we supported them and hosting information sessions and so on.

But they also sought out their own expertise from third parties, from people, people in other countries working on similar projects, from nuclear energy experts, even from anti-nuclear advocates to make sure they really

considered all angles of this project and all of the perspectives.

They sent representatives to many, many conferences.

And I can say they, you know, in in the communities now, they know so much about this topic.

I think they can go toe to toe with anyone in the industry at this point because they really understood, in my view, the magnitude of the decision they were making and the responsibility that they had to make an informed choice.

CHRIS WAHL: Yeah, well, well, good for them for, for doing that.

And that's, there is a lot of information out there, but you need to go find it.

So, you know, in the United States, we're not nearly as far along as you guys are.

And I, I do wonder and I, I'm sure folks would, would, would wonder is what advice could you give to us in the United States and other countries that are seeking solutions for our own challenges here on this, on this issue?

LISA FRIZZELL: Well, first, maybe a bit of encouragement because when I told you about the history, ours was a little rocky to start with.

As you might recall from the first couple slides in my presentation, we didn't start in the happiest of places.

We started with a big setback.

So, you know, I think the, the moral of the story for us has been to learn from that setback.

For us, the focus really needed to be on social engagement, community willingness and working together with people as a as a core companion to all of the technical work that needed to be done.

And I can say we have really gone to great lengths to put communities in the driver's seat as much as possible.

I've worked with other organizations in my career that I thought were really good at engagement with communities, and they were.

But it wasn’t close to the type of responsibility that we’ve basically handed to communities in determining their future.

And that put them in a position to really push us from information they needed, because they can say no if it doesn't meet their needs, as it should be.

And so they were in a a position where they were really able to make sure they got the information they needed to influence how the plan is implemented and to

influence how we engaged and what we shared so that it was all done in a way that was very relevant and meaningful to them.

So community-first, yeah.

CHRIS WAHL: So, yeah, thank you for that, and after you got over that initial hurdle, what was, what were some of or the, the single biggest challenge that you encountered?

LISA FRIZZELL: It’s a good question and it’s probably hard to distill down to one, but I think one of the things that I've certainly come to learn is although this might look like a technical project, it's an emotional issue.

And it's really important to acknowledge and listen and explore the emotional aspects of the project as much, if not more so than the the technical ones.

There's a lot of information, misinformation, misperceptions out there that over many years have shaped people's views about nuclear energy and nuclear waste.

And if someone comes to you from a place of fear or concern, that fear or concern is real, even if the facts they thought it was based on or not, that emotion is still there.

And so that requires a lot of collaboration and working together and understanding where the root of the

concern people have is so that we can work together to address it.

CHRIS WAHL: Yeah, that's great.

And you talked a little bit about next steps for NWMO and the Wabigoon Nation and the Township.

Can you just highlight those again, about what what happens next.

LISA FRIZZELL: Yeah, so we are getting ready to start regulatory processes and in some ways we're figuring out as well how to work together in this new step of the process because our relationship has quite dramatically changed.

We're no longer striving towards the end of a siting process.

We're now working together to implement a project in in these places.

So we're working with both Wabigoon and Ignace to set up implementation committees and figure out how we're going to work together to be coordinated and supportive of each other as we move forward.

We expect to kick off the regulatory process later this year.

The initial submission materials that we'll be creating, the communities will have an opportunity to review and input into those and and we'll go from there

through the processes.

CHRIS WAHL: Yeah, yeah, I would imagine, I would imagine that the planning environmental and nuclear regulation process alone is gonna be pretty comprehensive.

LISA FRIZZELL: Yeah, as it should be.

CHRIS WAHL: As it should be.

Yeah, so, so who's a part of, of those committees that you're talking about?

LISA FRIZZELL: Well, so we have implementation committees that we're setting up that have representatives of both the NWMO and the communities on them.

So we can work together to figure out, ok, what, what steps do we need to take?

What do we need to address together?

How do we work together in an organized way to move forward?

So it's representatives from each.

CHRIS WAHL: Ok, that's great.

We have a couple of questions from the audience.

So I'm going to talk about this.

There's a first one here about the meetings that you've done recently.

Were they virtual in addition to face to face?

I mean, you had like the challenge of COVID, like how we all did, but how did that happen and were, did you have both types of meetings?

LISA FRIZZELL: We've had both virtual and in person meetings over the years.

During COVID, we did have to pivot to do more virtual as I think most organizations did for a period of time.

And so now I would say we have a a mix of in person and hybrid depending on the nature of the of the meeting.

As much as possible, we like to be in person, especially when it's kind of doing something together or building a relationship because it's just not quite the same virtually.

But virtual has its benefits too, because sometimes we can reach people that would be otherwise very difficult to meet with in person.

And sometimes we can expand our audience, which is helpful too.

CHRIS WAHL: Yeah, and, and one of our, one of our participants has sort of mentioned that Indigenous communities are still very critical across the board.

And obviously you have one that that’s participating, but others have have had different opinions.

Are there any lawsuits that have come about or that you're, you're anticipating that could potentially slow the process down?

And if so, how are you handling?

LISA FRIZZELL: Yes, so there has been one request for a judicial review, which is a type of legal process.

Obviously, I can’t say too much about something that’s going through a legal process.

But I think the thing I would emphasize is that, you know, we've been engaging with multiple First Nations and Métis communities for many years and we are committed to continuing to do that.

And anyone who has an interest in this project has an important voice, and the regulatory process also makes space for that voice.

So it will be a long and collaborative and engaging process that continues.

Just because we’ve selected a site doesn’t mean we’re done.

There's still a lot of work to do on on that type of engagement.

CHRIS WAHL: Yeah, very good point, evidenced by the fact that we're talking about 20s, 30s, 40s, 50s, right, exactly.

So one thing we haven't talked too much about today

yet is the issue of health, right?

And no question, it becomes a subject matter that people talk about a lot about consent, which certainly probably covers that.

But how did you handle the issues of of of health and concerns?

And did you bring health experts or epidemiologists as a part of the NWMO team to have these conversations and because I'm sure they would have come up and how did you guys address those issues?

LISA FRIZZELL: Yeah, so we try to address all issues as they come up.

We bring in specialists and experts.

One thing that is actually just to give you an example of how we aligned with community input and Indigenous knowledge is in our safety modeling.

Of course, we have to model what how this repository would work many years in the future and what would be the impacts to people on the surface.

And so we like to assume that there's a family living on the surface right above the repository.

And if everything works normal, how would they be affected?

And then we tweak the model to say, ok, what if everything doesn't work as normal?

What if something goes wrong?

What does that look like?

And we model different scenarios.

And the goal, of course, is that no matter what happens, that family living on top of the repository many years in the future is safe no matter what happens.

And communities actually have been able to shape some of those scenarios and Indigenous peoples to help us model different types of lifestyles, hunter gatherer lifestyles, people living with a deep well right on top of the repository, all of those types of things so that we can make sure that in all instances that family would be safe.

CHRIS WAHL: Yeah, that's a great way to look at it too.

I I value and appreciate that.

So, you know, let's just talk about a worst-case scenario, right?

Where, so if Ignace proves impossible to progress because of the objections from neighboring nations whose lands the transport routes need to traverse, what happens then?

Can you revert back to South Bruce or does the process have to start again?

LISA FRIZZELL: Well, we're planning for success

and so. and we're confident that with both a very strong technically speaking site and with hosts that are very supportive that we're in a good place.

If there's something we need to adapt to in the future, it really would depend on the specifics of that scenario.

CHRIS WAHL: Sure.

LISA FRIZZELL: In terms of what that looks like, our organization is very adaptive by nature because we're implementing something over a very long period of time.

So really it it just would depend on on what the specific scenario was.

But we wouldn't move ahead without a strong technically safe site and informed and willing host communities.

CHRIS WAHL: Yeah, no, I think that's been, you've been very clear.

Those are the hallmarks of this process.

So thank you.

I just kind of talking a little bit more about transportation for a minute, you know, getting the spent fuel to and from, right or to I should say, the the site is probably something that came up quite a bit.

How did you talk about the transportation through the consent process?

LISA FRIZZELL: Yeah, so we actually talk about transportation a lot.

It's interesting because I think I showed on my slide, if everything goes as planned, we're moving used fuel in the 2040s.

So there's there's time to work this out, but even so, we heard very early in the siting process this was something people really wanted to talk to or they really wanted to understand how this would work, how we could be sure it it would be safe.

And that continues to this day.

So we have a very, I would say robust engagement process on transportation with a lot of public input.

We've actually already developed a draft transportation planning framework and we've committed to updating it every three years to reflect new input that we've received, new technical developments, new knowledge.

And so we're out there actively engaging all the time.

There was a period of time a few years ago where we actually took a licensed container for transporting used nuclear fuel, put it on a trailer and took it into communities with some interpretive information around it.

So they could see firsthand just how sturdy this container was, how thick the steel walls are, how heavy the bolts are, so they could understand exactly how carefully this is being planned for.

So we really do try to show people as much as we tell them.

We've also brought drivers into the community who currently move radioactive waste so they can talk about their job and how they know they're safe and how it's regulated and what kind of oversight happens.

And that's been very helpful too, for people to be able to hear firsthand what, you know, what exactly that project process looks like day-to-day.

CHRIS WAHL: Yeah, well, well, congratulations again.

And, and, and thank you for spending so much time with us today.

I think it's been extremely valuable and, and knowledgeable for us to get this information.

It's not an easy subject matter, as we all know, but you guys have accomplished a great deal.

And it's really comforting for us in this world to know that a thoughtful process can lead to the type of result that you've accomplished.

So I think we're winding down with our webinar

today.

Was there anything, before we we cut it off, is there anything that you'd like to add?

LISA FRIZZELL: Well, I would say thank you for the kind remarks.

And I would extend those to the communities because, well, it's nice to receive congratulations, the communities themselves have done a tremendous amount of work to get to this point.

And when I say the communities, that includes both the the host communities that were selected, but all the others along the way as as well that participated in this process.

They all helped take this plan forward.

They all helped shape it.

They all helped us understand what needed to happen in order for us to get to this point.

So they really deserve as much credit, if not more than our organization.

CHRIS WAHL: You know, thank you, Lisa, so much.

And we've got one last comment here last minute under the wire.

We have a minute and they're they're sort of rapid-fire questions which you might have and they're kind of facts about the the the facility.

I think it might be interesting.

LISA FRIZZELL: I'll do my best.

CHRIS WAHL: Ok, great, so I'll just read them off and you can answer them quickly I think.

But would this be a repository for all spent fuel from Canada's reactors?

LISA FRIZZELL: Oh, that's a good question.

So right now we're focused on our existing fleet, which are those CANDU reactors I told you about.

We are responsible for all of Canada's used nuclear fuel and Canada is considering building new reactors or extending reactors or small modular reactors.

So eventually we will be responsible for that as well.

Right now for the scope of this project, we're really focused on the existing fleet just to keep options open.

You might remember when I opened, I mentioned we have a second project that's focused on intermediate and non-fuel high level waste.

CHRIS WAHL: Yes.

LISA FRIZZELL: Just in case we need options in the future, we're actually exploring what it would look like to put used fuel in that repository as well from new nuclear projects just in case we need that option in the

future.

So it's one of the examples of how we consider the future and prepare ourselves to adapt because at this point, the new new used nuclear fuel hasn't even gone into a reactor yet because the reactor is not built.

So it's a little early to plan, but we can get ourselves ready.

CHRIS WAHL: Got it.

Just a couple more questions.

They’re sort of again, factual based, that are interesting.

How many reactors are there in Canada if you know off top of your head?

And how many metric tons of spent fuel is there that you're, sort of the order of magnitude?

LISA FRIZZELL: Ok, that's a good question.

So I'm I'm gonna answer the latter in a slightly different way.

So sure, I don't know the metric tons.

There are about just over three million fuel bundles, which sounds like a lot, but they were created over 60 years.

And if you stacked them all like firewood, they would fill nine hockey rinks up to the boards.

CHRIS WAHL:

Oh wow.

LISA FRIZZELL: I think you in the U.S. measure your used fuel in football fields.

We measure ours in hockey rinks, so it’s actually...

CHRIS WAHL: We do play, we do play hockey here in the United States, though.

LISA FRIZZELL: Yeah.

CHRIS WAHL:

We do.

LISA FRIZZELL:

We’ve...

CHRIS WAHL: And you guys play football in Canada.

LISA FRIZZELL: [INAUDIBLE]

Not to rub it in.

CHRIS WAHL: That’s good.

LISA FRIZZELL: But yeah, so it's actually not that much when you think about it, you know, nine hockey rinks over 60 years isn't, isn't that much.

And we have reactors in, operating reactors, in Ontario and New Brunswick.

There's a decommissioned, a reactor that's being decommissioned, in Quebec as well.

CHRIS WAHL: Ok, and what about a price tag?

Do you, do you know that there's, there's a

media report saying the facility is about $26 billion.

Is that accurate?

LISA FRIZZELL: Yeah, so that's over the life of the project.

So it can be a little confusing because we're talking about a 175-year project and operations over that period of time make it sound like a a very large number.

Not that it's not a small investment, it is a sizable investment, but sometimes it it helps to understand the capital investment we're looking at during construction is somewhere in the neighborhood of four and a half billion.

So that kind of gives you a sense of scale.

CHRIS WAHL: Yeah.

And how many people ultimately would be, would work at the facility?

LISA FRIZZELL: Yeah, so it varies at different phases of the project, but at its peak probably about 700.

And of course there also will be spin-off supply chain benefits and, and things like that and, and likely additional businesses and opportunities that pop up as more people move to the area to work, work at this facility.

CHRIS WAHL: Yeah, and, and last question is, and I think I know the answer to this, but I'll let you answer it is, is there a difference between spent fuel and used fuel?

LISA FRIZZELL: So, just our manner of speaking.

CHRIS WAHL: Yeah.

LISA FRIZZELL: So it's it's the same, I think in the U.S. you usually refer to spent fuel.

My habit has been used nuclear fuel.

They are exactly the same thing.

CHRIS WAHL: Yeah, yeah, process, process, right.

LISA FRIZZELL: Exactly.

CHRIS WAHL: Excellent.

Well, again, thank you so much for your time.

It was a true pleasure to see you again and congratulations again on the accomplishments today.

And with that, unless there's anything else, Lisa, I'm going to wrap up the webinar on behalf of Spent Fuel Solutions and we will see everybody the next time, and thank you for joining, was very, very informative.

LISA FRIZZELL: Thank you for having me.

CHRIS WAHL: You bet.

Take care.