DEEP GEOLOGIC REPOSITORY

# JOINT REVIEW PANEL

**HEARING HELD AT**

Public Hearing Room
14th floor
280 Slater Street
Ottawa, Ontario

**Tuesday, February 21, 2012**

**JOINT REVIEW PANEL**

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**PANEL CO-MANAGER**
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Ottawa, Ontario

--- Upon commencing at 9:05 a.m.

**MS. McGEE:** Bonjours mesdames et messieurs, bienvenue à la réunion publique de la Commission d'examen conjoint pour le projet de stockage de déchets radioactifs à faible et moyenne activité dans des formations géologiques profondes.

Welcome to the first public meeting of the Joint Review Panel for the Deep Geologic Repository Project for Low and Intermediate Level Radioactive Waste.

My name is Kelly McGee. I am the co-manager for the Joint Review Panel.

J'aimerais aborder certains aspects touchant le déroulement de cette réunion.

The Joint Review Panel was appointed on January 24, 2012. The public review and comment period began on February 2nd, 2012.

Today's meeting is an initial public orientation providing the Applicant and representatives from the federal review team with an opportunity to provide overviews focused on the

organization of the documents filed to date in support of the application, together with an explanation of the mandate and responsibilities of the Canadian Nuclear Safety Commission and other expert federal authorities.

During today’s business we have simultaneous translation. Des appareils de traduction sont disponibles à la réception. La version française est au poste 2, the English version is on channel 1. Please keep the pace of your speech relatively slow so that the translators can keep up.

La réunion est enregistrée et transcrite textuellement. Les transcriptions se font dans l'une ou l'autre des langues officielles compte tenu de la langue utilisée par le participant. Les transcriptions seront disponibles sur le site web de la commission dès la semaine prochaine.

Please identify yourself before speaking so that the transcripts are as clear and complete as possible.

I’d also like to note that this session is being video webcasted live and that the webcast will be archived on the CNSC website.

Please silence your cell phones and other electronic devices.

Dr. Swanson, the Chair of the Joint Review Panel, will provide at today's meetings.

Dr. Swanson.

**THE CHAIRPERSON:** Good morning everyone and welcome to the public orientation session of the Deep Geologic Repository Joint Review Panel.

My name is Stella Swanson. Welcome to all of you here today and to those of you who are joining us via webcast.

I would like to begin by introducing the Members of the Joint Review Panel. On my right is Dr. Gunter Muecke and on my left is Dr. Jamie Archibald. You have heard from the Panel's co-manager Kelly McGee; seated to my right is counsel Lucille Collard.

I would like to address a few matters before we begin today's presentations.

This Panel was appointed by the Minister of the Environment, the Honourable Peter Kent, in agreement with the President of the Canadian Nuclear Safety Commission, Mr. Michael

Binder.

The actual and perceived impartiality and neutrality of the Panel Members is of utmost importance to both the Government of Canada and to each of us as the Panel Members.

We intend to conduct a transparent, inclusive, and comprehensive review of all documents submitted for the environmental assessment and licensing application for this project. Only in exceptional circumstances, where information is protected by Canada's access to information or privacy laws, will such information be excluded from public review.

The Panel is bound by the obligations and requirements set out in such documents as the Joint Panel Agreement, Environmental Impact Statement Guidelines, *Nuclear Safety and Control Act*, and the *Environmental Assessment Act.*

We welcome and encourage the participation of federal, provincial, and municipal government organizations, Aboriginal groups, and members of the public.

If at any time during a review you have questions for the Panel or wish to

communicate with us, please direct your correspondence to the Panel's co-managers.

Alternatives for contacting the Panel Secretariat are available on the Canadian Environmental Assessment Agency website for this project.

The Panel co-managers, together with other members of the Panel Secretariat will ensure that information for the Panel's consideration is brought to our attention and all submissions are posted on the public registry.

For media enquiries I would ask you to contact Ms. Lucille Jamault. Ms. Jamault's coordinates are also available on the project website. Ms. Jamault, for those people in the room today, could you please identify yourself? She's at the back. Thank you.

I would like to emphasize that while the agenda for today's orientation provides time for questions from the Panel, our questions will be limited to those associated with the purpose of today's meeting.

The purpose of this orientation session is to inform the Panel, us, about the organization of the environmental impact statement

and licence application documents, as well as the mandate and responsibilities of the Canadian Nuclear Safety Commission and the expert federal authorities.

The public was invited to observe this orientation session, either in person or by watching the webcast. We unfortunately cannot accommodate questions from the public during today's session but there will be further opportunities in the future.

This being said, the Panel encourages anyone to forward written questions to the Panel Secretariat regarding any matters discussed today. The Panel will review these questions related to information presented at today's orientation and endeavour to post responses on the project website.

In addition to submitting questions arising from today's orientation, the public review and comment period that began on February 2nd, 2012 is an opportunity for everyone to provide their views to the Panel on whether the environmental impact statement and documents submitted in support of the licence application adequately address the guidelines issued to the

Proponent, Ontario Power Generation.

If you have not already done so, please take a minute to visit the project website and register as an interested party. This will ensure that all major announcements by the Panel are automatically forwarded to you by email. Thank you.

I would now like to call upon Ontario Power Generation and the Nuclear Waste Management Organization to begin their joint presentation.

Mr. Sullivan, the floor is yours.

**Presentation by**
**Ontario Power Generation**
**and Nuclear Waste Management**
**Organization**

**MR. SULLIVAN:** Thank you, Dr. Swanson, and good morning.

For the record, my name is Gord Sullivan, Project Manager of the Deep Geologic Repository Project at Ontario Power Generation.

I am accompanied here today by,

on my left, John Lotoski, Director, Nuclear Decommissioning, Ontario Power Generation, and on my right, Frank King, Vice-President and Chief Engineer, Nuclear Waste Management Organization.

We are pleased to be here today to provide the Joint Review Panel with an overview of the Deep Geologic Repository Project and to describe the environmental assessment and licensing material that OPG (Ontario Power Generation) submitted in April 2011 in support of our application for a site preparation and construction licence for the project.

We will first provide you with a brief overview of the project and then we'll describe at a high-level the contents of the various documents that are part of the April 2011 submission.

The purpose of the DGR facility is to provide permanent, long-term management of the low and intermediate level radioactive waste produced by OPG-owned or operated nuclear reactors.

Currently, this means all the reactors on the Pickering, Bruce, and Darlington reactor sites.

Low and intermediate level

radioactive wastes are radioactive materials that result from the operation, maintenance, and refurbishment of nuclear power reactors with the exception of used nuclear fuel.

Used nuclear fuel will not be put into OPGs proposed Deep Geologic Repository for low- and intermediate-level waste.

Slide 4 describes the type of waste that will be placed into the DGR. Low-level waste is primarily short-lived and typically consists of contaminated rags, plastic, mops, tools and paper.

Approximately 2,000 to 3,000 cubic metres is stored every year at OPGs Western Waste Management Facility. Intermediate-level waste contains primarily long-lived radio nuclides and typically consists of contaminated resins, spent filters, and reactor core components.

Approximately 200 cubic metres of this type of waste is stored every year at OPGs Western Waste Management Facility. Radioactive liquids will not be placed into the DGR.

At present, a total of approximately 90,000 cubic metres of low- and intermediate-level waste is stored at the Western

Waste Management Facility.

The DGR will accommodate approximately 200,000 cubic metres of packaged low- and intermediate-level waste. Subject to appropriate licences for each phase, the project includes the following.

First, site preparation and construction of the DGR followed by operation of the facility, which entails waste emplacement and a period of monitoring prior to decommissioning.

Then after a decision to close the facility has been made, the DGR will be decommissioned. This will involve dismantling of the surface facilities and permanently sealing the shafts.

After closure, the facility will enter the post-closure phase. The facility location is adjacent to the Western Waste Management Facility at the Bruce Nuclear site in the Municipality of Kincardine.

Slide 6 shows the DGR site location within Ontario. It is shown in the centre-left of the figure, near the town of Tiverton. The DGR is located approximately 10 kilometres from the village of Tiverton and

approximately 2 kilometres from the nearest hamlet of Inverhuron. The boundaries shown on this figure relate to the study areas associated with the environmental assessment.

Slide 7 shows the location of the DGR Project site in the context of the overall Bruce Nuclear site. Ontario Power Generation is the owner of the Bruce Nuclear site and of the reactors at the Bruce A and Bruce B Generating Stations. The reactors, and a large part of the site, are currently leased to Bruce Power, a private company.

The Bruce Nuclear site is also the location of OPGs Western Waste Management Facility which has provided centralized, interim storage for all of the low- and intermediate-level level waste generated at the Pickering, Bruce and Darlington reactors since 1974.

The Western Waste Management Facility will continue to receive volume reduce and store low- and intermediate-level wast, for subsequent transfer of the waste to the DGR.

The Western Waste Management Facility is located just south of the DGR Project site in the middle of this figure. Both the DGR

Project site and the Western Waste Management Facility site are located on OPG-retained lands; that is those not leased to Bruce Power.

The various facilities included in the GDR are described and illustrated in Slides 8 and 9, respectively. The surface facilities include a waste package receiving building where the waste will be received from the Western Waste Management Facility for emplacement in the DGR. An amenities building will accommodate staff offices. The surface facilities also include head frames, a waste rock management area and a storm water management area.

The underground portion of the DGR will be located at a depth of about 680 metres in low permeability limestone formation which is located below 200 metres of low permeability shale. The underground facilities include access tunnels, emplacement rooms and a service area. Access to the underground facilities will be through two shafts; the main shaft and the ventilation shaft.

Slide 9 presents illustrations of the surface and underground layouts of the DGR. The image on the left shows the main and ventilation shaft head frames and the other DGR

surface buildings.

The roadway at the bottom right of this figure is where waste will arrive from the Western Waste Management Facility.

The image on the right shows the underground layout of the repository. The DGR design has 31 rooms for the emplacement of waste. Each room is about 8 metres wide by 7 metres high by 250 metres long. At the forefront of this illustration are a number of additional rooms for underground services.

The DGR is expected to go into operation about 6 years after the granting of the site preparation and construction licence and is currently assumed to receive waste for about 35 years.

The DGR will be an OPG-owned facility and OPG will hold the site preparation construction licence, if granted. Work started on the DGR Project in 2002 and subsequent project development activities are fully described in the Environmental Impact Statement.

In 2007, most OPG staff working on the project were seconded to the Nuclear Waste Management Organization, referred to as the NWMO in

the rest of this presentation, and they later became employees of the NWMO.

In 2009, OPG formally contracted with the NWMO to manage the regulatory approvals phase of the project on its behalf. In early 2011, OPG further contracted with the NWMO to manage the design and construction phase of the project. All of NWMO's work on the DGR Project is overseen by OPG.

The NWMO is a non-profit company established in 2002 by OPG, Hydro Quebec and New Brunswick Power in accordance with the *Federal Nuclear Fuel Waste Act.* The main mandate of the NWMO is to implement adaptive-phased management, the Government of Canada's selected approach for the long-term management of all of Canada's nuclear fuel waste.

In meeting this mandate, the NWMO is currently conducting a siting program to find an informed and willing community to host a deep geologic repository for Canada's nuclear fuel waste. The NWMO is also developing the associated technology.

OPGs low- and intermediate-level waste DGR Project and the NWMOs used fuel DGR

Project are two completely separate projects.

I would now like to turn over the presentation to Frank King who manages the regulatory approvals phase work being conducted at the NWMO in support of this project.

**MR. KING:** Thank you.

For the record, my name is Frank King. I am Vice-President and Chief Engineer at the Nuclear Waste Management Organization.

To begin, I would like to introduce a number of other staff from the Nuclear Waste Management Organization who are here today and are available to assist in answering any questions you may have.

Derek Wilson, Vice-President Design and Construction; Diane Barker, Manager Environmental Assessment; Mark Jensen, Director Geoscience; Paul Gierszewski, Director Repository Safety; and Atika Khan, Director Regulatory Affairs.

So Slide 11 shows that the regulatory submission -- sorry -- the Regulatory Submission is comprised of two primary documents, Environmental Impact Statement and the Preliminary Safety Report. In addition, a number of licensing

support materials are included in the submission.

In my presentation, Slides 11 to 26 deal with the Environmental Impact Statement and its supporting documents, and Slides 27 to 42 deal with the Preliminary Safety Report and its supporting documents and other licensing support material.

The Preliminary Safety Report and a number of its supporting documents also support the Environmental Impact Statement.

Before I begin, I would like to mention that these documents are the culmination of 10 years of work on the project, including five years of field investigations.

Slide 11 illustrates the roadmap for the Environmental Impact Statement and its technical support documents.

The information in the Environmental Impact Statement has been submitted to meet the requirements of the *Canadian Environmental Act* and assesses whether there will be any significant adverse environmental effects from the project. It considers the entire life cycle of the project; that is, site preparation and construction, operations, decommissioning and post

closure.

The Environmental Impact Statement is comprised of three binders, with one binder containing the main report and the other two binders containing appendices. For the remainder of the presentation, I will be referring to the Environmental Impact Statement as the EIS.

There's also a plain language EIS summary report as required by the EIS Guidelines. The EIS summary report includes a DVD which provides a video description of the DGR project, and a CD which contains .pdf files for the EIS and its technical support documents.

Slides 13 and 14 list the section titles of the EIS. These section titles follow the structure recommended in the EIS Guidelines issued by the Minister of the Environment in January 2009.

Section 1 provides an overview of the project, the proponent and the approach to the assessment, including the consideration of Aboriginal traditional knowledge, sustainable development and the precautionary principle. It also outlines how international agreements have been considered.

Section 2 describes the public participation program that began in 2002 and included interested stakeholders locally, regionally and in the United States, as well as Aboriginal communities and the planned engagement program for future phases of the project.

Section 3 describes the purpose and need for the project and outlines the assessment of alternatives to, and the alternative means, of carrying out the project, and concludes with the identification of the DGR project as the preferred alternative.

Section 4 provides a description of the project, identifies representative malfunctions, accidents and malevolent acts for the project, and describes modifications that could be made to the project throughout its life.

Section 5 defines the spatial boundaries used in the conduct of the environmental assessment. These are the regional study area, the local study area, the site study area and the project area which were previously shown on Slide 6.

The contents of Section 6 of

the EIS are well described by its title.

The Table of Contents for the EIS main report continues on Slide 14.

Section 7 describes the method used for the assessment of the DGR project, both direct and indirect effects of the DGR project as a result of normal operations during the site preparation and construction. Operations and decommissioning are considered in this section, as are potential effects during post closure.

It includes the assessment of several ecological, multi-featured valued ecosystem components including Lake Huron, Stream C, railway ditches and the wetland area within the project area.

These valued ecosystems components are only assessed in Section 7 of the EIS and not in the supporting technical support documents, as they involve consideration of several environmental components.

Section 10 describes cumulative environmental effects, that is, the incremental environmental effects caused by the DGR project combined with the effects of other projects past, present or reasonably foreseeable.

Section 13, a detailed table can be found which summarizes likely environmental effects, mitigation measures, residual adverse effects and the proposed follow-up monitoring related to each of the valued ecosystem components assessed in the environmental assessment.

The contents of Sections 8, 9, 11 and 12 are also well described by their titles.

Slide 15 lists the appendices of the EIS. In Appendix A, there is a concordance table which identifies where in the submission package you can find the information requested in each section of the EIS Guidelines.

Appendix C presents the human health assessment, which includes a human health risk assessment. The human health assessment incorporates results from the assessment of project-related effects on biophysical and social environmental components. It includes an assessment of the effect on representatives of the Aboriginal community separate from that of the general population.

In support of the Environmental Impact Statement, there are nine technical support documents as listed in Slide 16. These documents

contain the detailed assessment of expected and possible environmental effect impacts during all phases of the DGR project, the results of which are then summarized in the Environmental Impact Statement itself.

Aboriginal traditional knowledge, to the extent it is available, is also described and included in the assessments in selected technical support documents.

I will speak to each of the technical support documents, indicating what type of valued ecosystem components are used in each report to focus the assessments of the effects of the DGR project.

The valued ecosystem components used are those listed in EIS Guidelines with rationale provided for the few exceptions.

The atmospheric environment technical support document assesses the potential non-radiological impacts of the DGR project on air quality and noise levels. This technical support document also includes the assessment of light and vibration which is carried forward to be used in the assessment of effects on terrestrial and aquatic valued ecosystem components. This TSD also

discusses any effects of the project on climate.

The aquatic environment technical support document assesses the potential non-radiological impacts of the DGR project on six types of fish, one type of plant, burrowing crayfish and benthetic invertebrates.

The terrestrial environment technical support document assesses the potential non-radiological impacts of the DGR project on one type of tree, two types of plant, three types of mammals, five types of birds and two types of amphibians.

The hydrology and surface water quality technical support document assesses the potential impacts of the DGR project on surface water quantity and flow and surface water quality.

The geology technical support document assesses the potential impacts of the DGR project on soil quality, overburdened groundwater quality and transport, shallow bedrock groundwater quality and solute transport, and intermediate and deep bedrock water quality and solute transport.

The radiation and radioactivity technical support document assesses the potential impacts of radioactive dose resulting from the DGR

project on all components of the environment regardless of the physical media through which radionuclides are transported, for example, air or water.

The radiation and radioactivity technical support document considers the impact of radiation dose to humans and to non-human biota.

The socio-economic environment technical support document assesses the potential impacts of the DGR project on population and demographics, employment, business activity, tourism, residential property values, municipal finance and administration, housing, municipal infrastructure and services, and on the nearby Inverhuron Provincial Park.

The Aboriginal interests technical support document assesses the potential impacts of the DGR project on Aboriginal communities, Aboriginal heritage and resources, and traditional use of land and resources.

The malfunctions, accidents, and malevolent acts technical support document is somewhat different than the previously discussed technical support documents in that it assesses the potential impacts; both radiological and non-

radiological from postulated malfunctions, accidents, and malevolent acts on humans and non-human biota. The other technical support documents only assess the potential impacts as a result of planned activities.

The DGR EA follow-up monitoring report brings together the proposed follow-up monitoring activities recommended in the technical support documents provides additional information related to monitoring locations, acceptance criteria, and frequency and duration of proposed monitoring activities.

Detailed plans for environmental monitoring activities during site preparation and construction will be based on this document. This document also proposes monitoring for the operations phase.

This concludes my presentation on the environmental impact statement and its supporting documents. I will now move on to the presentation of the preliminary safety report, its supporting documents, and additional licensing support materials included in the submission package.

Slide 27 illustrates the

licensing documents roadmap that includes preliminary safety report and its supporting documents as well as other licensing support documents.

The information in the preliminary safety report has been submitted to meet the requirements to obtain a site preparation and construction licence. It assesses the safety of the project against the regulatory requirements applicable to the project.

The preliminary safety report and a number of its supporting reports are called “preliminary”; this is because they will be updated and finalized in support of an operating licence application as is normal practice.

I will now outline the structure and content of the preliminary safety report, its supporting documents, and other licensing support documents to assist you in determining where specific information can be found.

The preliminary safety report is comprised of one binder, shown on the left. There are also 10 technical reports in the submission package that directly support the

preliminary safety report.

Other licensing support materials have been put into a second, smaller binder for convenience, as shown on the right. The material is outlined on the next slide.

The first four items on Slide 29 are submitted to meet submission requirements and regulations pursuant to the *Canadian Nuclear Safety and Control Act* to obtain a site preparation and construction licence.

The two management system documents describe the organizational structures and governance within OPG and the NWMO respectively for the management of the design and construction phase of the project.

The compliance matrix is a table which shows where in the submission package evidence is provided that the specific requirements and regulations pursuant to the *Nuclear Safety and Control Act* are met.

Slides 30 and 31 provide the chapter titles in the preliminary safety report.

You will note that there’s some duplication of information between the environmental impact statement and the preliminary

safety report. This is necessary because both reports have specific needs in supporting the environmental assessment and licensing processes.

Chapter 1 outlines the safety objectives for the project and the applicable safety criteria. It also lists applicable regulatory guidance documents.

Chapter 5 describes the waste proposed to be in place in the DGR.

Chapter 6 contains the description of the facility for which a site preparation and construction licence is being sought.

Also for clarity pre-closure safety assessment in Chapter 7 refers to the operational period of the DGR up to the point where the shafts are sealed as part of decommissioning.

Post-closure safety assessment in Chapter 8 refers to the long-term; the period after the shafts have been sealed.

Chapter 9 describes the activities for which the licence is being sought.

The PSR table of contents continues on Slide 31.

Chapter 10 describes practices

to be followed during the operational phase of the DGR facility.

Chapter 11 describes the quality management systems followed on the project to date and the quality management program to be followed during site preparation and construction.

Chapter 10 (sic) describes how OPG's public information and involvement program is planned to be conducted in future and how it will meet applicable regulatory expectations.

Chapter 13 summarizes the preliminary decommissioning plan for the DGR which I will be speaking to later and it also describes the design of the shaft seals which will be constructed as part of decommissioning.

In Chapter 14 you will find a table which summarizes the analyses and evidence that support the safety case for the DGR, indicates where in the PSR and associated detailed assessments the evidence can be found.

Slide 32 lists the 10 technical reports that directly support the preliminary safety report. These reports also provide support to the EIS in some areas.

I will go through each of the

reports one by one and provide a brief description of their contents.

The reference low and intermediate level waste inventory report defines the wastes to be managed in the DGR. Based on the wastes already in interim storage at OPG's Western Waste Management Facility and assuming a scenario for the future operation of OPG reactors, it provides an estimate of waste volumes and characteristics resulting from future reactor operation and refurbishment. It provides information related to volumes of different waste types, waste container types and dimensions, types of materials in the waste; for example, paper, wood, metal, plastic, the radionuclides in the waste and non-radioactive, potentially hazardous materials in the waste.

The descriptive geosphere site model report presents a description and explanation of the undisturbed subsurface environment based on findings from detailed geoscientific site characterization activities that were conducted at the site during the period 2006 to 2010.

Information presented in this report was obtained from 60 bore holes drilled at

the site to a depth of about 850 metres, as well as from three shallow bore holes in the upper 100 to 200 metres.

The descriptive geosphere site model also presents and discusses the results of a 2D seismic reflection survey that was conducted on the site in 2006.

Based on results of the site characterization program and other available information, descriptive geological, hydro geological and geomechanical site models were developed and are presented in this report.

The geosynthesis report is a geoscientific explanation of the overall understanding of the site characteristics, attributes and evolution, both past and future, as they relate to demonstrating long-term performance and safety of the proposed repository.

It presents seven key hypotheses that relate to geoscientific site attributes and characteristics that are used to evaluate site suitability. It then provides multiple lines of evidence based on site characterization results, available regional and other information to assess the seven geoscientific

hypotheses.

The geoscientific verification plan report describes the plan to obtain additional geoscientific information to confirm subsurface geologic and geotechnical conditions as now understood from surface-based studies during future shaft sinking and lateral development activities during site construction.

It describes the program to map and image the shaft walls as the shafts are being sunk, amongst other objectives. It also describes a range of activities that will be carried out to characterize the excavation damage zone at the periphery of the shaft walls to confirm safety assessment assumptions.

The report also describes tests that will be conducted to characterize the *in situ* stress regime at the repository horizon as input to the final design of underground openings.

The preliminary conventional safety assessment report documents an assessment of conventional hazards to workers during site preparation, construction and operational phases of the project. This is done as an input to final design and the preparation of the health and safety

management plan for construction.

The report does not assess radiological hazards. These are assessed in the pre-closure safety assessment and are reported in Chapter 7 of the preliminary safety report.

The assessment is conducted using a screening process hazard analysis methodology combined with a job safety analysis approach. The results of these analyses, as well as identified control and mitigation measures are documented in this report.

The radon assessment report analyzes any possible radiological hazard to workers and to the public from naturally occurring radon that might be present during underground construction or operation, or that might be emanating from the waste rock management pile at the DGR site.

The preliminary ALARA assessment report analyzes radiation dose to workers during the operation of the DGR and identifies opportunities for dose reduction. This radiation dose may be incurred in the transfer of waste packages from surface to underground and in the maintenance of the DGR facility.

The results of this assessment are used for the optimization of certain aspects of design and operational practices.

ALARA means "as low as reasonably achievable".

The maximum flood hazard assessment report estimates the extent of flooding that could occur at the DGR project site as input to design and safety assessment. The report considers site flooding that could occur from extreme water levels in Lake Huron and from storm surge and cess and wind waves. It assesses the potential for tsunamis in Lake Huron.

It also considers flooding that could occur from local streams and from the maximum probable precipitation event at the site.

The preliminary decommissioning plan describes the plan for the decommissioning of the DGR facility at the end of its life. It describes how the underground will be prepared prior to sealing the two shafts and the details of how the shafts will be sealed.

It also describes how the surface facilities will be removed, and the final end state of the site.

The report also describes how the site would be decommissioned under the scenario that the facility is built, but not operated.

The post-closure safety assessment report evaluates the long-term safety of the DGR. It analyzes the period starting from the completion of decommissioning of the DGR following its operational life.

It analyzes how the repository is expected to evolve over many thousands of years and what radiological and non-radiological hazards might be presented to humans and the environment. Normal evolution scenarios consider the impacts of earthquakes and the onset of future glaciations in the long-term.

The report also analyzes the hazards associated with a number of hypothetical disruptive or "what if" scenarios in order to test the robustness of the DGR design.

In summary, I would like to say a few words on the availability of the submission documents.

While the submission documents have been posted by the Canadian Environmental Assessment Agency on their registry website, they

are also accessible from OPG's project website.

In addition to the submission documents, there are a number of other project-specific technical reports which are referenced in the descriptive geosphere site model report, the geosynthesis report and the post-closure safety assessment report. These more detailed reports are available on the NWMO's DGR project website.

Hard copies of submission documents have also been provided to various municipal offices and libraries in Bruce County to facilitate public review for those without web access.

This completes my part of the presentation, and I would like to turn back the floor to Mr. Sullivan.

**THE CHAIRPERSON:** Thank you very much.

I will now open the floor for questions from the Panel Members, starting with Dr. Muecke, please.

**MEMBER MUECKE:** In the guidelines for the EIS, it is specified that alternative means for the project should be discussed and explored.

In the EIS itself, these alternatives are only briefly covered, so my question is, which supporting documents discuss alternative means more fully?

**MR. KING:** Frank King, for the record.

The discussion of the alternative means, I think, are as in the -- as you found in the EIS. That is the most detailed description of those studies of the alternatives.

I'll just confirm with my colleague for the moment, Diane Barker, but I believe I'm correct on that.

Yes.

**MEMBER MUECKE:** So there is no additional material that would be available to us see how you reached the conclusions, I believe, in the guidelines, it -- if you read the guidelines, paragraph 7.2, it asks for -- that the Panel be provided with the reasoning behind the choice of alternatives.

**MR. KING:** Alternative means, yeah.

**MEMBER MUECKE:** Alternative means, yeah.

**MR. KING:** I believe the -- what you've -- as I've said, what's in the EIS is the extent of the analysis that was performed, and I think we -- we believe it to be sufficient to meet the intent of the guidelines. That was our belief.

**MEMBER MUECKE:** Since the intermediate level waste contains long-lived isotopes, natural analogues can provide valuable guidance as to behaviour in the geosphere.

Where in the documentation that you have provided have natural analogues been discussed or considered?

**MR. KING:** Frank King, for the record.

I'll ask my colleagues, Mark Jensen, from a geoscience point of view, and Paul Gierszweski, from a safety assessment point of view, to provide comment on that.

**MR. JENSEN:** Mark Jensen, for the record.

In terms of natural analogues, site-specific natural analogues from the site-specific work, the geotechnical investigations at the site are presented in the -- the geosynthesis;

in particular, Chapters 4 and 5 where we look at the results of environmental tracers and how they are vertically distributed within the sedimentary sequence at the site that's 840 metres thick and also on the evolution of extremely deep pressurizer anomalous head conditions that we've encountered at the Bruce site within the ortho-vicious(ph) sediments proposed to host the repository.

**MEMBER MUECKE:** Thank you.

**DR. GIERSZEWSKI:** Paul Gierszewski, for the record.

So the primary natural analogues were as described by Mark Jensen. In addition, in the gas generation model there was a comparison against some field experiments, and they're described in one of the detailed supporting documents on the -- on the T2-GGm software model.

**MEMBER MUECKE:** Thank you.

In slide 4, you showed us definitions of low level versus intermediate level waste and in terms of dose rates -- by the way, this information is rather difficult to find in the EIS.

Where can we find more specific descriptions of what -- and I mean by that in terms

of dose rates and other parameters that define low level versus intermediate level waste? For instance, what are the upper dosage rates for intermediate level waste? At what point do you go to high level waste?

On the same theme, where can we find information in the documents on the sources of the parameters that you use to define these -- these levels? On a national and international scale, are these agreed upon? Who has defined them and which -- which of these have you adopted? Where do you find this information?

**MR. KING:** Frank King, for the record.

I think there was a few questions in there. I'll try to go through them one by one.

The -- there is no kind of dose boundary between intermediate and high. High level waste deals with fuel, and so that's just a different category completely. With -- the boundary between low level and intermediate level waste is provided in -- in this slide 4, as you -- it's on the slide, and the difference is primarily associated with the ability to -- it's handleable.

A low level waste, somebody can basically handle it more easily and it can be stored in a low level storage building at the Western Waste Management Facility. Typically, the ILWAs have a higher dose rate, which prevents more of a occupational radiation hazard and has to be provided with additional amount of shielding either in in-ground containers or in more dense, metal containers which can be stored above ground, but it's a -- it's associated with the occupational dose rate.

Now, these dose rates that OPG would use would come from the ICRP, International Commission of Radiation Protection, recommendations and which have been converted into radiation protections that will be -- regulations which OPG has in order to provide limits for these type of wastes.

So there is a consistency between OPG practice and international practice, but you may not find 100 percent because it's -- there's some interpretation in different companies around the world.

I think that was one or two of your questions ---

**THE CHAIRPERSON:** Mr. King, sorry to interrupt. Thank you for that explanation, but really this session is just for you to tell us where to find what you just said ---

**MR. KING:** Okay.

**THE CHAIRPERSON:** --- in the documents.

So if you could help us understand where the explanations for the criteria that you use to separate low and intermediate level are located, that would be great.

**MR. KING:** Okay. Just perhaps I could consult with my colleagues here for a moment.

Okay, I'll just -- Frank King, for the record.

We're -- to identify the specific document in the submission package we're having a little bit of difficulty with. Perhaps we'll have somebody have a look and maybe later on in our session this morning we will provide that with you.

We know it's available in OPG documents, but where exactly in the submission package; we'll just have to do a check.

**THE CHAIRPERSON:** That would be fine.

Dr. Archibald.

**MEMBER ARCHIBALD:** Thank you.

Mr. King, you submitted supporting documentation on 10 different environmental assessment areas with only one relating specifically to the geology TSD and three submitting reports on -- supporting reports on geosphere site models, geosynthesis and geoscientific verification plans.

Where in your documentation is any information given that reports upon the geomechanical or geostructural impacts of the actual repository itself?

**MR. KING:** Frank King, for the record.

I think I'll ask Mike -- Mark Jensen to respond to that, please.

**MR. JENSEN:** Mark Jensen, for the record.

Information on geomechanical components of this study are found in the geosynthesis, Chapters 3, and long-term analysis in Chapter 6.

**MEMBER ARCHIBALD:** And at this point in time, most of that -- of the design consideration is based upon your preliminary drill hole analyses and your -- your geostructural analyses?

**MR. JENSEN:** That is correct.

**MEMBER ARCHIBALD:** An additional question, and I believe this is answered on your slide 37, where are any factors or issues dealing with occupational health and safety impacts such as conventional operational accident scenarios and risk factors presented?

**MR. KING:** Frank King, for the record.

Yes, that is in conventional -- preliminary conventional safety report that I spoke to earlier.

**MEMBER ARCHIBALD:** Is there anywhere in your documentation where the use of sealing materials other than concrete shaft seals -- and by this I specifically mean sealing materials for the repository rooms themselves -- considered?

**MR. KING:** Frank King, for the record.

Just for clarification, the --

the Shotcrete on the room walls, is that what you're looking for?

**MEMBER ARCHIBALD:** No, I -- by that I mean other barrier agent materials within the rooms other than the containment vessels themselves for the low and intermediate level wastes. That would be, for example, backfill or possibly bentonite materials.

**MR. KING:** Frank King, for the record.

There -- we are not proposing to use any materials to what I think you're referring in the rooms themselves. In the sealing of the shafts, there are -- we are, so I don't -- there is no location in the documentation package where we have proposed that.

**MEMBER ARCHIBALD:** Were any considerations ever given to multiple barrier effects, then, for -- multiple, localized barriers because you had mentioned also that depending upon the -- the localized *in situ* stress, you may have a fracture zone around each of the placement rooms or the shaft that would act as transport channels to surface?

If you don't have the sealant

in depth, I suppose, you could circumvent those seals.

**MR. KING:** Frank King, for the record.

I'll answer it to some degree and I'll ask Mark Jensen to comment as well.

The whole proposal -- I'm having difficulty answering the question and telling you where to find things; stop me if I'm going too far on one direction. But throughout the submission package, the importance of the geosphere is described and the shale -- 200 metres of shale cap rock and the low permeability is found throughout the submission package in many places and that is where you will find the primary description of the barriers; in fact, multiple barriers preventing migration of radionuclides upwards.

Perhaps, Mark, do you have any further comments you'd like to make?

**MR. JENSEN:** Mark Jensen, for the record.

An assessment certainly of the barriers or the shaft seals, you will find in Chapter 6 of the geosynthesis. And in terms of the

far field that surrounds the repository -- surrounds an enclosed repository -- analyses looking at long-term effects, both natural and repository-induced, indicate that the far field or the sedimentary rock that encloses the repository, should remain an integral barrier. That's also in chapter 6 of the geosynthesis.

**MEMBER ARCHIBALD:** Could I just ask for one additional comment?

In terms of radon emanation, you have supporting documentation of that, what sources of radon would you find in a sedimentary deposit such as the limestone and shale materials that you have present?

**THE CHAIRPERSON:** Dr. Archibald, if you could rephrase that question, please?

**MEMBER ARCHIBALD:** I'm sorry. Where in your documentation could I find additional information about sourcing the radon materials?

**MR. KING:** Frank King, for the record.

The -- I think it'll -- it's just in the Radon Assessment Report but I'll ask Paul Gierszewski to add anything if he wishes to.

**DR. GIERSZEWSKI:** For the record, Paul Gierszewski.

So in answer to the immediate question, yes, in the Radon Assessment Report there's a description on the basis of the radon sources; it's uranium and the information references are given in -- for what the uranium levels -- where they were from. So that's -- it's early in that Radon Assessment Report.

I wonder -- while I have the floor here, in answer to the previous question, there was a comment about whether any assessment had been done of backfilling of the rooms and there are actually, just for clarity, that had been assessed. It is described in the more detailed post-closure safety assessment documents; in particular, if you look at the Post-Closure Safety Assessment Report in section 735, there's some assessment of some alternative to the design, one of which was to backfill the repository, in that case, with a gravel-type of fill.

So section 735 of the Post-Closure Safety Assessment Report. And there is more detail in the more detailed lower tier reports analysis to support that, but that's -- you'll find

the description there.

**MEMBER ARCHIBALD:** Thank you very much.

**THE CHAIRPERSON:** Thank you, Dr. Archibald.

I have a few questions as well. If we could turn to slide number 5, please?

My first question is just to confirm my own understanding of your road map.

In your first bullet, you mention the packaged waste and I'd like to confirm that the explanation of those packages -- the description of the various types of packaged materials would then be found in one of your supporting documents; the inventory report; is that correct?

**MR. KING:** Frank King, for the record.

That is correct.

**THE CHAIRPERSON:** Thank you very much.

On that same slide, the bottom bullet references the existing waste management facility; where in the documentation can we find information on the operation and performance,

including monitoring data, from that facility?

**MR. KING:** Frank King, for the record.

As you well know, this is a separate facility with its own license so any detailed reporting of the performance of that facility will be in documents submitted in accordance with the licence of that facility, not so much this proposal.

**THE CHAIRPERSON:** Thank you very much.

My next question pertains to slide 14 and this is where we were going through the list of the different main sections of the EIS and it triggered a question in my mind with respect to chapter 7, where we get into the actual effects prediction and you made reference that the context chapter, chapter 1, provided an explanation of how OPG considered traditional knowledge sustainable development and the precautionary principle, as required in the guidelines. I am wondering if you could confirm whether chapter 7 expands upon that and gives -- provides a detailed explanation of how you used sustainable development, traditional knowledge, and the precautionary principle in your

classification of effects.

**MR. KING:** Frank King, for the record.

I'd like to ask Diane Barker to respond to that.

**MS. BARKER:** Diane Barker, for the record.

The treatment of Aboriginal traditional knowledge is provided in more detail in the relevant technical support documents; for example, the aquatic terrestrial documents. There is also a separate technical support document on Aboriginal interests. I believe you will find that the information on how traditional knowledge and what traditional knowledge was incorporated is provided in more detail there and is summarized in the environment impact statement in section 7.

**THE CHAIRPERSON:** Thank you.

In chapter 12, can you just confirm for me that this chapter does indeed include the plans for consultation with Aboriginal groups?

**MR. KING:** Frank King, for the record.

This -- you're on slide 14?

**THE CHAIRPERSON:** Yes, chapter 12 follow-up program.

**MR. KING:** It will be chapter 12, actually, of the Preliminary Safety Report on the public engagement, which describes the plans for future communications with all aspects of the public.

**THE CHAIRPERSON:** Okay, thank you for that clarification.

Sorry, skipping ahead to slide 35, the last bullet on that slide refers to the use of multiple lines of evidence to evaluate the seven key hypotheses; can you please confirm that that section does, indeed, include a description of the method you used for assembling all of the multiple lines of evidence into an overall assessment of each of the seven key hypotheses?

**MR. KING:** Frank King, for the record.

I'd like to ask Mark Jensen to respond to that.

**MR. JENSEN:** Mark Jensen, for the record.

Yes, the geosynthesis provides an explanation of the collection of the various

data from geologic, hydrogeologic, hydrogeochemistry and geomechanical analyses that have contributed to the understanding and testing of the hypotheses. It's described in the summary section of the geosynthesis and in the individual chapters of the geosynthesis, more detail.

**THE CHAIRPERSON:** Thank you, Mr. Jensen.

If I could ask a follow up question? I think what I was getting at was; does this chapter then take each of your explanations of the individual lines of evidence and create an overall explanation of how you added all of those multiple lines up to come to a specific conclusion?

**MR. JENSEN:** I believe a brief summary of that is provided in the summary of the geosynthesis, where each of the lines of evidence contributing to the testing of the hypotheses is provided.

**THE CHAIRPERSON:** Thank you very much.

**MR. KING:** Dr. Swanson, I'm Frank King, again.

Just further to that, chapter 14, the conclusions chapter of the Safety Report;

if you look at that, there is a table in there which shows, in a -- we hope an easy to understand manner, how all the safety criteria supporting -- that are required in the safety objectives are met. So it's this table in there which is essentially all the seven hypotheses and other safety objectives and showing in detail where you can find, in the submission package, evidence that supports the individual components of the safety (inaudible).

**THE CHAIRPERSON:** Thank you.

I have one final question; this is with respect to Slide 42. Mr. King, during your explanation of this particular document you referred to scenarios that were selected for analysis.

Does this particular document, the post-closure safety assessment report, include a description of the method you used to select the scenarios that were short-listed for subsequent, more detailed analysis?

**MR. KING:** Frank King, for the record.

I'll provide some information and then ask Paul Gierszewski to add anything that

he wishes.

The -- prior to actually preparing the environmental impact statement, there was a requirement in -- for us to go to the CNSC in the absence of the Panel to establish safety criteria applicable to the project. And in that submission, we also identified what disruptive scenarios that -- or in other submissions we made earlier before the Panel was appointed and we've justified which disruptive scenarios would be appropriate for this overall assessment.

Perhaps Paul Gierszewski might want to add something there.

**MR. GIERSZEWSKI:** In terms of the methodology and the description of the basis by which the scenarios were selected, they are described in -- a good description in the post-closure safety assessment report, and that would be in Section 5.

And then more details of some of the supporting reports, but that's a good summary in that chapter.

**THE CHAIRPERSON:** Thank you.

**MR. GIERSZEWSKI:** The method and the conclusions.

**THE CHAIRPERSON:** Thank you. Thank you very much.

That concludes all the questions, I believe, from the Panel. Dr. Muecke, Dr. Archibald, any follow-ups?

Okay, thank you very much to the OPG representatives and the NWMO representatives. Thank you very much.

We will now continue with the presentation by staff from the Canadian Nuclear Safety Commission.

So do we need to allow some time for shuffling of chairs?

While we're getting set up for the Canadian Nuclear Safety Commission, I suggest we take the break now; it's a natural break. So if we could reconvene in 15 minutes, which will take us to 10:30.

Thank you very much.

--- Upon recessing at 10:18 a.m. /L'audience est suspendue à 10h18

--- Upon resuming at 10:36 a.m./L'audience est reprise à 10h36

**MS. McGEE:** Thank you.

Before the presentation by CNSC begins, the Panel would like to ask NWMO or OPG to clarify what additional documents are available on the NWMO website that were referred to this morning as reference documents.

**MR. KING:** Frank King, for the record.

Before I do that, I took an undertaking to provide some -- answer another question once we had a chance to look, and if I could do that right now.

So we were asked where in the submission package there was the definition of the distinction of the dose rates between ILW and low-level waste. We've checked, and we cannot find that.

That definition -- what we use in the DGR project is the same definition that OPG uses as defined in -- for the Western Waste Management Facility, and that's defined in the OPG Western Waste Management Facility Safety Report, which is not a submission document.

With respect to this project, that definition is not important in that the

inventory report that we have submitted defines exactly what the composition of the waste is and from an analysis point of view, we really don't need to know whether it's ILW or low-level waste. So that's why it's not defined in our submission package. That was one undertaking I took.

I would also -- if I could clarify, there was a question from Dr. Muecke about alternatives. I answered the question believing he was looking for alternative means, but I think there was some reference to Section 7.2, not only 7.3 -- 7.2 is alternatives to. And in the environmental -- the EIS we refer to a document called The Independent Assessment Study.

The Municipality of Kincardine and OPG -- and this is the 2003 timeframe -- commissioned a consultant to do a study of alternatives to and while that document, the independent assessment study, is not part of the submission package, it is referred to in the EIS and that document is on the NWMO's project website as the full document.

So that provides a more detailed explanation of the alternatives to status quo shallow facilities versus deep facilities is

where you would find that.

Now, you asked me to clarify what these other documents are. And in my presentation, I referred to supporting documents to three other documents, the geo-sphere site model report.

On the NWMO website there is 69 more detailed reports. These are the -- ranging from the photographs of the core as the core was moved from the boreholes, the lab results from various tests on the core. There's -- this is a large amount of additional information, but there's 69 reports supporting the descriptive site model.

There are 14 reports supporting the geo-synthesis report and those are, again, more detailed technical reports and various aspects of the geo-scientific investigations.

All of these reports are summarized themselves in the geo-synthesis report, so this is why that was not submitted because we felt that they were adequately covered there. But they are available and they've been available from the time of the submission on the NWMO project website.

The third set of reports are

the ones submitting the -- supporting the post-closure safety assessment. There are eight additional, again, more detailed reports which are summarized in the post-closure safety assessment, but for anybody who wants to go that further level of detail, they are available on the NWMO website.

**THE CHAIRPERSON:** Thank you very much.

**MS. McGEE:** The Panel wishes to put on the record for clarification that these tertiary documents, the 91 reports just referred to, are not currently part of the project registry public record; however, as needed or required by the Panel to fulfill requirements for additional information, these records will form part of the public record.

Thank you.

**THE CHAIRPERSON:** Thank you very much.

We'll now continue with the presentation by staff from the Canadian Nuclear Safety Commission.

Mr. Elder, the floor is yours.

**Presentation from**

**The Canadian Nuclear**
**Safety Commission**

**MR. ELDER:** Thank you and good morning.

My name is Peter Elder; I'm the Director General, Directorate of Nuclear Cycle and Facilities Regulation.

Beside me is Dr. Patsy Thompson, the Director General, Directorate of Environmental and Radiation Protection and Assessment; and further left is Kay Klassen, who is our Senior Project Officer for -- in our licensing group.

Behind us we have a number of our licensing and environmental assessment specialists, Don Howard, Director of our Wastes and Decommissioning Division; Brian Torrie, our Director of Environmental Assessment Division; Ms. Kiza Francis, who's our Environmental Assessment Specialist, and we also have a with us our Aboriginal Affairs people, Clare Cattrysse, our Director of our Policy Aboriginal and International Relations Division, and Ms. Kim Mann, Senior Advisor, Aboriginal Policy and International Relations.

The objective of this presentation is to provide the Panel on information on the roles and responsibilities of the CNSC and then relate it to CNSC staff in the licensing conducted by -- under the Canadian Nuclear Safety Commission and how -- the role CNSC staff plays in assisting the Joint Review Panel during the process for review of the Ontario Power Generation's Deep Geological Repository.

So to this end, Dr. Thompson and I will provide an overview of the mandate of the CNSC and the role of CNSC staff, information on how staff support the Joint Review Panel and the work that has been done to date in this regard and also discussing the role that staff could play after the public review period and the role of future licensing.

Just to start with, a brief overview of the Canadian Nuclear Safety Commission.

This is Canada's nuclear regulator. It was established over 65 years ago as the Atomic Energy Control Board. With the coming into force of the *Nuclear Safety and Control Act* in 2000, we became the Canadian Nuclear Safety Commission.

It is this Act that provides the CNSC with authority to regulate the nuclear industry in Canada.

While the general control is provided at -- through the Act, underneath there are Regulations, licences and orders. But in terms of the day-to-day control, it is largely through Regulations and licences issued by the Commission.

The mandate and mission of the Commission is clear; this is to protect the health, safety and security of persons and the environment and to implement Canada's international commitments on the peaceful uses of nuclear energy. The latter is actually mainly related to obligations under nuclear weapon non-proliferation treaties.

We work from a range of facilities that cover anything from uranium mines and mills through nuclear power plants, waste management facilities, nuclear substances, nuclear research and there's also import and export control of nuclear materials and associated technology.

We take a life cycle approach, so we start from initial site preparation through construction, operation, normally then to decommissioning and finally a release from

licensing or abandonment, so there's a cradle to grave approach. And this is reflected in the regulations that take a phased approach to licensing.

Normally there are different licences issued for each part of the life cycle, and they have separate requirements in the regulations.

Regulations cover broad categories of facilities. The major nuclear facilities are covered by the -- what's called the Class I Regulations. These cover nuclear reactors, waste management -- large waste management facilities such as the DGR, so they're very broad regulations, that one.

There are other regulations for other types of facilities; for example, uranium mines and mills and nuclear substances.

So the CNSC staff is headquartered in this building in Ottawa. We also have five regional offices and six locations where site -- where we have site offices. And we do licensing largely in Ottawa, but also in our office in Saskatoon, and then we do mainly -- focus on compliance activities in the other offices.

We have a total of about 850 staff, including internal technical expertise in areas such as waste management, the safety cases, our safety approaches to repositories, mine engineering, environmental risk assessment and management and quality assurance systems.

We also have a number of full-time inspectors based at each of the major sites. We also have a large number of inspectors that are based in our regional offices and in Ottawa.

So before going into -- we'll cover each of these parts in detail, but I think it's important that we understand the CNSC's responsibilities around licensing and then there are some associated responsibilities that come from other federal pieces of legislation.

So under the *Nuclear Safety and Control Act* the licence is a key control mechanism. Basically, it is illegal to possess a nuclear substance or construct or operate a nuclear facility, except in accordance with a licence from the CNSC.

So these then trigger -- if we -- there's application for a licence. This can trigger additional responsibilities under Nuclear

Safety Commission. For example, in this case, there is also a responsibility to respect the requirements of the *Canadian Environmental Assessment Act*. The CNSC is a responsible authority under that Act.

And finally, it triggers responsibilities on the duty to consult with Aboriginals that stem from the Constitution.

To start, I'll go briefly over those three sections, so their key three roles as a licensing, environmental assessment and Crown coordination or Aboriginal consultation.

So licensing starts upon the receipt of an application, and our regulations include explicit requirements on the content, what must be included in the application.

One of the things is the application must be clear on what activities the Proponent is asking to be included in the licence.

So after review, which in most cases includes public hearing, the Commission issues a licence to authorize specific activities. As mentioned before, the licences are usually phased and activity based so that there is usually a separate licence to construct, operate and

decommissioning.

Sometimes this can also mean a separate licence to prepare the site. Where there is little site preparation that is not associated with the construction, like uranium mines or a DGR, the CNSC has always used a combined site preparation and construction approach, so there's a single licence.

Licences contain terms and conditions that are necessary to ensure protection of safety -- the health and safety, security and confirmation with international obligations. They can also include any additional requirement for reporting or things like follow-up programs for environmental assessments are usually considered, are included as a licence condition.

Associated with the licence, CNSC staff produce a supporting document which is called a Licence Condition Handbook. This is really a guidance to staff and the Proponent on how compliance with the licence will be verified and it will provide also guidance on intent of licence conditions.

So when we -- you get -- you'll see later when we talk about a proposed licence,

there would also be an associated Licence Condition Handbook.

As I mentioned before, licences can be issued. No activity is allowed without a licence. In the Act, in the *Nuclear Safety and Control Act*, there are two key tests that the Commission must be satisfied before issuing a licence, so this is not staff, this is actually the Commission.

First is that the Applicant is qualified to carry out that activity the licence will authorize.

Second, that in carrying out that activity the Applicant will make adequate provision for protection of the environment, the health and safety of persons and maintenance of national security and international obligations.

So I'd like to discuss a bit more detail later on about how we assess those two categories and make your recommendations around them.

So we've noted before, there are additional responsibilities under the -- on the CNSC beyond the *Nuclear Safety and Control Act*. First is we must ensure compliance with *Canadian*

*Environmental Assessment Act*, so this is ensuring that environmental assessment is completed when required and that we take the necessary courses of actions around the *Canadian Environmental Assessment Act*.

The -- a couple of things I'd like to point out in this regard is one is there's a precedence here.

Under the *Canadian Environmental Assessment Act*, you must make a -- there must be a decision under the *Canadian Environmental Assessment Act* before a decision can be made under the *Nuclear Safety and Control Act*.

The other important thing in terms of environmental assessment, unlike the licensing that uses a phased approach, the results of environmental assessment look to identify any significant potential impacts of a project over the whole project life cycle, so it looks as much as possible at the whole life cycle of the project.

So another thing that would be noted is, depending on the type of process, there are different levels of approval as a Panel under the Canadian Environmental Assessment. The Panel makes a recommendation to the federal government,

that then makes a decision on the environmental assessment report. This has to be done before there can be any licensing decision.

Turning to Crown consultation, again, let’s talk a bit now about what -- where this stems from and then we’ll talk later on what has been done to date.

So licensing also triggers the CNSC responsibilities as an agent of the Crown, and this requires consideration to be given to any potential environment -- any potential adverse effects to Aboriginal or treaty rights. This means that consultation with potentially impacted Aboriginal groups must be completed prior to a decision on licensing.

In this regard, for this project, the CNSC act as a Crown consultation coordinator. We are the -- CNSC acts as a single point of contact between Aboriginal groups and the federal government.

And these roles are to identify Aboriginal groups that may have an interest in the project and encourage participation, ensuring the project information is shared with such groups, and we also have a role in leading and coordinating

activities between the various government departments.

So when we're fulfilling these duties, the CNSC follows normal government policy which is called "the whole of government approach", and Aboriginal consultation has been integrated into the licensing and environmental assessment process to ensure that a coordinated, transparent, effective and efficient process occurs. The Crown -- and the intent is that the Crown, the federal government as a whole, can rely on this process to fill any duty to consult obligations to the extent possible; so you do it once, you do it broadly.

So turning as to the role of CNSC staff as opposed to the CNSC, we usually have a -- we make -- on licensing, we make recommendations to the Commission or the Panel on the possible issuance of a licence and we also are heavily involved in the technical reviews of -- around the safety case and other supporting documents around the EA, and making sure we also do a lot of the implementation of the Crown cooperation process.

We also then -- there is a role afterwards that some of it can be going on during

the licence, but certainly CNSC staff have a major role after a licence is issued in measuring compliance with that licence. And we have a number of compliance activities we would plan and undertake, and we also have a full range of enforcement tools that we can use to make sure that the licensee remains in compliance with the licence.

I'm going to focus a bit and a bit more on what has been done to date in each of these three areas. I will cover the licensing and then I will turn over to Dr. Thompson to cover the EA process and the consultation coordination.

Turning to the -- where we became first officially involved in this project. Ontario Power Generation sent a letter to the CNSC in November of 2005 requesting a licence to prepare site and construct a repository for their low and intermediate level radioactive waste. Although this did not contain a complete application, it did provide sufficient information to initiate the licensing process and, consequentially, the EA process and the Crown consultation processes.

Going to what has been done on their licensing since 2005, we have provided

guidance to OPG on the application of the *Nuclear Safety and Control Act* and the Class I Regulations in regard to this project.

A lot of this is focusing on the importance of the regulatory documents that was issued in 2006 that is entitled G320, which is "Assessing the Long-Term Safety of Radioactive Waste Management", that provides the key requirements or expectations in terms of a safety case for such a facility.

And in terms of -- we've also reviewed a number of draft documents submitted by OPG. The review of draft plans and documents enable CNSC staff to indicate to that where preliminary materials do not adequately demonstrate compliance with applicable Regulations. So this is a normal practice and any comments, obviously, were -- are included on the public registry.

This led to OPG submitting what they view as a complete application, including supporting documents for the licence to prepare site and construct and the Environmental Impact Statement in April of 2011.

To date, CNSC have completed their initial technical reviews and also a

conformity check to make sure the documents contain all the required information. You have already noted that we have noted some areas where we need additional information and have proposed information requests be made.

In terms of how we've approached the application -- and this is focusing on the licence application to prepare site and construct as opposed to the Environmental Impact Statement.

We've provided -- what we're looking for is, obviously, evidence that the licence application includes all the material required for a Class I facility under Regulations, so this would normally include site evaluation, the management structure for the project, including the quality assurance, the description of the facility and the general design of the facility, of the preliminary safety analysis reporting, noting that before operation there is a requirement to finalize that safety analysis, and also determination of effects on the environment in terms of -- through the life cycle but also in this type of case and for the long term. And we are -- also some idea of the construction activities that were required and

the -- a preliminary schedule for that.

In terms of when we look at this one, again, there are two key aspects that we are looking for, is overall is assess OPG's ability to meet the regulatory requirements for a licence to prepare site and construct. But we also look at specifically whether OPG has sufficiently demonstrated that they are qualified to conduct the activities and will make adequate provisions as required by the Act.

I want to explain a bit more on how we look at these two aspects, and I think the easiest way is to look at, one, is the qualification is -- of the company, OPG, as opposed to -- the adequate provisions also look very heavily at the design of the facility.

And in that case, when you're looking at adequate provisions, you are looking at beyond construction, which is what they've asked for, but in -- can you actually -- will it operate safely as well.

So in terms of reviewing the design of the DGR facility, there are a number of key aspects that we looked at in reviewing this preliminary safety report.

First of all is that can the facility be constructed and can it be constructed safely. In this regard, we note that the DGR is much like a normal -- a mine in this, but these would look at very closely at occupational health and safety considerations as well as any environmental impacts associated with construction.

Then we also look at, from the safety case, can it be operated safely and maintained and, essentially, is it -- can it be built and designed sufficient enough to do what it's intended to do, which is, again, in this case, isolate the wastes from the environment for the very long term.

And we also want to make sure that all operational controls have been identified and are -- and so the ones important for construction are being put in place.

We also look at that has decommissioning or, in this case, it's really post-closure operation, been appropriately considered, again, a -- for a repository to keep part of the safety cases that the Applicant must show that there will be acceptable long-term, post-closure of operation -- performance, sorry.

We also look at making sure that due consideration has been given to uncertainties in long-term performance and that the design is acceptably conservative, i.e. that the uncertainties are explicitly accounted for in the design.

Now, this is recognizing that this is a preliminary safety case that will be refined into a final safety case before the issuance of an operating licence.

Turning to assessing the qualifications of OPG, this review is much more focused on the activities that would be allowed under a Licence to Prepare the Site and Construct.

So in this one, the key review elements that we're looking at is how OPG will undertake these activities, site prep and construction for the surface facilities and the underground development. Does OPG have the appropriate quality assurance plan for the design and construction, and the key one in this one is appropriate oversight of contractors.

We also looked that OPG has appropriate design and construction management system. That is really to ensure that what gets

built is what they intended to get built and is it -- all of the connections are made to make sure that they know how it has to be operated as well.

We also look at decommissioning in terms of -- for the particular licence and this is related to is there a plan, appropriate preliminary plan, for decommissioning if for any reason the construction does not -- does not proceed to operation, and do they have funds available to put the site into a safe state if this -- again, if it does not proceed to operation. That's what we're looking for at this time.

There is another aspect of decommissioning in the long-term that is a part of the safety case.

These two previous points come together in terms of making sure that these key provisions are in place. These are usually -- become programs that the CNSC expects the licensee to actually have in place and become licence requirements.

So this is really looking at making sure that we look at what does -- the design and construction management system; is it properly designed, will it have the proper controls, do they

have the appropriate environmental policies and programs in place, do they have the appropriate conventional health and safety program in place, is there appropriate monitoring program -- again, for both internally to look at the geoscience monitoring but also look at environmental monitoring.

Are there appropriate emergency preparedness plans in place, and a key one on this one, again, is that confirmation of the long-term safety case, which is the -- referred to as a geoscience verification plan.

We want these to be well enough defined that CNSC staff are in a position to do compliance verification activities to confirm the licence is in compliance if a licence is issued.

So going forward, we -- in terms of licensing, CNSC staff will support the Panel by completing the technical reviews that are currently underway. We did preliminary ones; we are doing some more in-depth ones on the safety case and related licensing documentation. The question -- this is a key task but then there are a number of ways that this work will be presented to the Panel.

Firstly, obviously CNSC staff are available to provide any technical briefings to the Panel that the Panel may request.

Secondly, CNSC staff will propose information requests to the Panel that -- where we believe that OPG must provide more information and noting that we've already done this in one case already.

Finally, when all the material is available, CNSC staff will summarize the reviews and make -- provide recommendations, including a draft for proposed licence in what's called a Commission Member Document, and this is essentially a summary of all the areas that we looked at that culminates in a proposed licence that we will make to the Panel, and this is usually prepared prior to the start of public hearings.

And then we obviously will participate in the public hearings in support of the Panel.

I'll now pass the presentation over to Dr. Patsy Thompson.

**DR. THOMPSON:** Good morning, Madam Chair and Members of the Panel.

My name is Patsy Thompson; I'm

the Director General of the Directorate of Radiation and Environmental Protection and Assessment.

I will be finishing the presentation and discussing the roles and responsibilities of CNSC staff with regards to the review of the environmental impact assessments or statement and also with respect to the Crown consultation activities of the CNSC.

After the project description was received in late 2005, CNSC staff initiated the environmental assessment process and a notice of commencement of environmental assessment was posted in 2006 on the Canadian Environmental Assessment Agency Registry for environmental assessments.

Following a public hearing of the Commission in the fall of 2006 and June 2007, at the request of the Commission the project was referred to a review panel by the Minister of the Environment.

During that period, CNSC staff confirmed that no environmental assessment was required under the Province of Ontario Environmental Assessment legislation and also that the CNSC was the only responsible authority for

this project under the Canadian Environmental Assessment Agency.

After the referral to the Panel, a draft Environmental Impact Statement Guidelines and a draft Joint Review Panel Agreement were prepared.

These documents went through a public review and were finalized in late 2008 and early 2009 by the Minister of the Environment.

The Joint Review Panel Agreement was also finalized and signed and approved -- endorsed by the Minister of the Environment and by the President of the CNSC.

The Major Projects Management Office then coordinated the review and approval of the project agreement, which is an agreement between federal departments involved in the review for this project.

Between 2009 and 2011, CNSC staff were engaged in preliminary reviews of technical documents that were provided by the Proponent. CNSC staff also engaged in independent international research projects in the area of geosciences in anticipation of the Environmental Impact Statement submitted by the OPG.

When the Environmental Impact Statement was submitted in April 2011, CNSC staff began their review starting with a completeness review and a technical scan which resulted in some proposed information requests which were submitted to the Panel when it was recently reviewed.

CNSC staff have now begun their detailed technical review of the Environmental Impact Statement as well as the supporting documents.

Ontario Power Generation's Environmental Impact Statement submission is intended to address the effects of the project on the environment, as well as the environment on the project, both under normal operating situations as well as in the case of accidents and malfunctions.

The Environmental Impact Statement assesses potential environmental adverse effects over the project lifecycle, covering construction, operation, decommissioning or closure, as well as the long-term safety repository.

The Environmental Impact Statement Guidelines indicate all of the information that is required in the Environmental

Impact Statement.

CNSC staff have conducted a completeness scan of the documents to ensure that each section required in the Environmental Impact Statement Guidelines have been included in the documentation submitted by the OPG.

This completeness scan is not intended to indicate whether or not the technical information is adequate or sufficient as submitted by OPG.

During the detailed technical review of the Environmental Impact Statement and supporting documents, CNSC staff review objectives are to ensure the conformity with the EIS guidelines, validity of the scientific and technical basis for the assessment, appropriate consideration of uncertainties. This work will support staff's recommendations and conclusions to the Joint Review Panel.

Some examples of aspects that are reviewed include the baseline descriptions, the mitigation measures, the models and calculations used by the Proponent, the consequences and effects as well as the significance of the effects that have been identified.

An important aspect of this project will be the consideration of a robust follow-up program -- follow-up and monitoring program given the requirement of assuring the long-term safety of the repository hole's closure.

As identified in section 8.1 of the Joint Review Panel Agreement, CNSC staff's role is to provide the technical, scientific, and regulatory support to the Panel. Also, as outlined in the Major Projects Management Office Project Agreement, CNSC staff will communicate and collaborate with other federal departments to ensure that the review is thorough and that efforts are not duplicated. This is an important coordination function provided by CNSC staff.

During the review, CNSC staff will also propose information requests to the Panel when deficiencies are noted in the documentation provided by OPG. CNSC staff will provide clarification to the proponent on any proposed information requests if we are requested to do so and, of course, CNSC staff will be completing a full technical review and assessment of the environmental impact statement.

At the end of the review

period, CNSC staff will submit what's called a Panel Member Document to the Joint Review Panel that describes in detail the results of our technical review and assessment. This Panel Member document will include CNSC staff recommendations to the Panel regarding the Environmental Impact Statement Report including recommendations for elements of a follow-up and monitoring program for the Panel's consideration.

CNSC staff will also prepare and participate as the CNSC subject-matter experts in the Joint Review Panel public hearings and will be available throughout the hearings to respond to questions and requests for information.

In the next few slides, I will focus on the CNSC staff role with regards to crown consultation for the -- for this project.

CNSC staff have been engaging with Aboriginal groups who have an interest in the project since early 2006.

As for the Major Projects Management Office Project Agreement and as the only responsible authority for this project, CNSC staff is the Crown Consultation Coordinator for this project; more specifically, the environmental

assessment specialist for this file which is Kiza Francis is the Crown consultation coordinator for this project.

As the Crown Consultation Coordinator, CNSC staff have been focused on conducting consultations on behalf of the Crown, prior to the hearings, and encouraging Aboriginal groups to participate in the hearings to express any concerns and to identify any potential adverse impacts from the project on potential or established Aboriginal or treaty rights. If the project is approved, CNSC staff will continue engagement activities through the subsequent lessons and phases.

CNSC staff are also available for other activities related to Crown consultation that the Panel may direct us to carry out.

As indicated earlier, CNSC staff have been involved in this project for many years. To date CNSC staff have identified and engaged with 17 Aboriginal groups. Aboriginal groups were identified based on information gathered from Treaties and Claims, Aboriginal Affairs and Northern Development Canada, previous Crown consultations in the project area, and from

the proponent's Aboriginal and public engagement activities.

The identified Aboriginal groups have been notified of the project, the review process, and have been invited to participate in the review of the draft Review Panel Agreement and a draft Environmental Impact Statement Guidelines.

In 2007 and 2008 CNSC, as well as staff from the Canadian Environmental Assessment Agency, consulted extensively with the Saugeen Ojibway Nation and this resulted in the SON being specifically recognized in the Joint Review Panel Agreement and the Environmental Impact Statement Guidelines.

The Joint Review Panel Agreement specifically states that the SON assert that the project is proposed within their traditional territory. The Agreement also states that the Joint Review Panel should conduct a review in a manner that permits it to obtain information and evidence about adverse effects that the project may have on potential or established Aboriginal rights, title or treaty rights as identified by the Joint Review Panel -- to the Joint Review Panel by

the SON and it enables it to bring any such information and evidence to the attention of the Minister of the Environment and to the responsible authority of this project and supportive consultation between the Crown and the SON.

The Environmental Impact Statement Guidelines state that the proponent must summarize the objectives of and the methods used for Aboriginal consultation. The issues or concerns that were raised from such engagement activities and how the Proponent has addressed the issues or concerns raised by Aboriginal members.

Continuing on the activities that have already been completed by CNSC staff. CNSC staff continued to provide project updates and information on the process through letters and meetings since the time OPG submitted their project description. This is ongoing.

In addition to the Canadian Environmental Assessment Agency’s Regular Participant Funding Program, the Agency also provided two rounds of participant funding specifically for -- to Aboriginal groups under the Aboriginal funding envelope for this project. The first round of funding was awarded for review of

the draft Environmental Impact Statement Guidelines and the second round of funding was awarded for the review of the Environmental Impact Statement, as well as for participation in the public hearings.

As the Crown Consultation Coordinator, CNSC staff will continue to meet and follow up with Aboriginal groups as appropriate throughout the review period. CNSC staff will also review comments submitted by Aboriginal groups during the review period and will continue to encourage Aboriginal groups to participate in the review process and in the public hearings.

In its Panel Member documents, staff will provide a summary of the Aboriginal consultation process activities undertaken to date, and identify issues where adverse impacts to Aboriginal or treaty rights raised by Aboriginal groups, as well as CNSC staff’s recommendations to (inaudible).

Enduring Aboriginal groups who choose to participate in the process will have the opportunity to provide you, the Joint Review Panel, with their opinions about the project.

Following public hearings, CNSC staff will consult on the Joint Review Panel

Environmental Assessment Report with Aboriginal groups that participated in this review. Any comments brought forward would be sent to the governing council for consideration.

Following the environmental assessment, should the project move to licensing, CNSC staff will also continue engaging with Aboriginal groups through any licensing process or phases.

I would now like to summarize CNSC staff role throughout the Joint Review Panel -- the Joint Review Panel review and hearing process. CNSC staff provide technical and scientific support through a variety of different methods. CNSC staff are available to provide technical, scientific or regulatory information. Staff will conduct a detailed, technical, scientific, and regulatory review of the Environmental Impact Statement, as well as the Licence Application, and proposed information request to the Panel is appropriate.

Staff will also analyze proposed information requests from other parties and provide that analysis to the Panel. CNSC staff will assess the adequacy of the responses provided

from -- by OPG on the information lists and, of course, CNSC staff will respond in a timely fashion to matters directed to them by the (inaudible).

CNSC staff also provides support in the form of coordination for Crown consultation activities, as well as for the federal review.

After the hearing process and if the governor and council indicates approval of the environmental assessment, CNSC staff will provide support to the Joint Review Panel as it proceeds to a decision on licensing. This could include, as an example, revisions as directed by the Panel of the proposed draft licence and Licence Condition handbook.

To conclude, the mission of the CNSC is to protect the health and safety and security of persons and to protect the environment, as well as to implement Canada's international commitments on the peaceful use of nuclear energy.

CNSC ensures responsibilities under the *Nuclear Safety and Control Act*, the *Canadian Environmental Assessment Act*, as well as the Crown's duty to consult are fulfilled in respect to licence applications.

CNSC staff's role is to support the Commission and, in this case, the Panel, by providing technical, scientific and regulatory information and advice to the Joint Review Panel throughout the process and will, of course, take any direction from the Panel.

This concludes our presentation and we're available to answer questions from Panel Members.

**THE CHAIRPERSON:** Thank you very much, Dr. Thompson and Mr. Elder.

I'll now open the floor to questions from the Panel. Dr. Archibald, would you like to start?

**MEMBER ARCHIBALD:** Yes, thank you very much.

On Slides 31, 34 and, I believe, 35, you have stated that the CNSC staff role -- primary role is to conduct consultation prior to Panel hearings and to encourage Aboriginal groups to participate.

Specifically, the Saugeen and Ojibway Nation is mentioned in this particular panel, in Slide 31 and 34. In 35, the CNSC will continue engagement through any future licensing

phases.

Is this plan or is the process of engagement described, and over what time scale? In this particular case, you say that "engagement will continue into the future through all licensing phases".

**DR. THOMPSON:** Patsy Thompson, for the record.

The process that we have followed was one that in 2005 and 2006 wasn’t really documented. There was no, for example, guidance from the federal government on the process. And so at that time we had, through research on treaties and claims in the area, identified a number of Aboriginal groups and each of them were contacted in the spring of 2006 to determine -- to ask them if they had an interest in the project.

At that time, the only group to come forward with an expression of interest in the project was the Saugeen Ojibway Nation and that resulted in more focused meetings and engagement activities with the Saugeen from about May/June 2006 up to the Commission hearings on the environmental assessment track report in October

2006.

Following that period, there was more guidance and the CNSC developed a more formal protocol on engaging and consulting with Aboriginal groups.

And through the additional research that was done, as we identified in the document 17, Aboriginal groups have been identified with an interest in the project.

And so moving forward in the past months and moving forward, information will be provided to each of these Aboriginal groups. There are meetings with them when they express an interest. There are follow-up phone calls after letters to make sure that they have received the information and they understand, and we respond to questions.

And this process is documented, it’s in place, it’s posted on the CNSC website and we continue through licensing if the project goes ahead.

**MEMBER ARCHIBALD:** It would most likely be appreciated if we could get a summary of this in your presentation when you make the CNSC presentation in future before we go to the

public hearings.

**MR. ELDER:** Yes. Peter Elder.

Yes, we can give the Commission -- the Panel -- like arrange a specific briefing on this aspect of how we approach the duty to consult.

I would like to know the concerns of -- one of the things that we -- I forgot to mention on a licensing one is that when you get into the operation phase, licences are normally issued for a defined period of time, five years or 10 years, and there's a public hearing at renewal of each licence. And now, as standard as part of any renewal, we will go back to the Aboriginal groups that have shown an interest in the project or even if they haven't shown an interest in the project, to go back to them on that routine basis and get their input on the -- going forward on the project as well.

So there is a codified -- the fact that we've renewed those licences periodically allows us the mechanism to re-engage with the Aboriginal groups as well.

**MEMBER ARCHIBALD:** It's simply helpful to have the names of all of the Aboriginal organizations and the time scale over which the

future licensing meetings will be held with them. Thank you.

Another question; the DGR site is to be classed as a Class I facility, and that's the licence that will be issued for it.

Under the Regulations designed to assess compliance and to ensure that the public and environment are protected, as you state, in areas across Canada, in other mining districts where there are uranium mines, mills and processing facilities, there are mine inspectors and site inspectors who operate under CNSC jurisdiction who exist for the responsibilities of licensing and monitoring of these facilities.

Do you currently have staff on the Bruce Generating site that conduct such regulatory procedures for the power generation station, and will these same people be licensed regulators for the DGR?

**MR. ELDER:** Peter Elder.

There are currently site inspectors at the Bruce site. Their primary focus is on the nuclear power plants, the generation stations there. We supplement them by inspectors that come from Ottawa who have more specialized in

the waste facilities.

We would look on a case by case basis whether we would supplement that office on the Bruce site with an additional inspector focused on DGR, depending on the activities and the frequency we saw that we needed on inspections.

So it's not -- I mean, again, we will have an inspection plan, a construction plan, but we do have office space on the Bruce site that we can put additional inspectors if we need to.

**MEMBER ARCHIBALD:** This may be off topic. I was just wondering whether you considered this facility through the construction phase to be an operational nuclear site or until the placement of the waste underground, do you consider it at that point where you'd have to have regulatory control?

**MR. ELDER:** Peter Elder.

You need regulatory control under a construction licence to construct it.

It does not become, in our terms, operational until you actually start to place the waste into the facility. And that would be a separate licence, so they would have to come

back and ask and come -- make an application for an operating licence before they can start to put waste into the facility.

But it is a full regulated facility as soon as there's any licence for it.

**MEMBER ARCHIBALD:** Thank you.

**THE CHAIRPERSON:** Thank you very much, Dr. Archibald.

Dr. Muecke?

**MEMBER MUECKE:** Mr. Elder, you referred to Document G320, and in that document it emphasises that approval of the project will depend on a set of acceptance criteria.

So my question is, has the Agency developed acceptance criteria for this particular project, have these been documented and are these available?

**MR. ELDER:** I'll get Kay Klassen to explain what we have because I think there was some discussion this morning as what we expect on this one is for the Proponent to propose some acceptance criteria that we can review because the acceptance criteria -- any acceptance criteria are going to be very site specific.

**MS. KLASSEN:** Kay Klassen from

Waste and Decommissioning Division.

Yes, OPG submitted several letters talking about the kinds of criteria that they would be applying to the development of the documentation that would make the submission for the licence submission and that material has been -- was looked at by technical staff and letters were issued in the context of accepting the approach, whether -- and assessed as to whether it was following the guidance in G320.

Those letters are on the registry. Those were issued a number of years ago, as OPG needed to have an understanding of what it was technical staff would consider appropriate as criteria in the development of their final submissions.

**DR. THOMPSON:** Perhaps Dr. Muecke, if I could complement that response.

When the CNSC staff is undertaking the technical review of the environmental impact statement and the long-term safety case and the other supporting information, we have what’s called a review procedure where we’ve identified all the sources of technical and scientific information that we will use as a basis

for evaluating whether what OPG has submitted is adequate, and that is documented and will be used as the basis for our evaluating.

**MEMBER MUECKE:** Would that be available to us?

**DR. THOMPSON:** Patsy Thompson, for the record.

We can confirm there's various documents that are currently available. I'm not sure if they're all available, but we will confirm with the secretary.

**MEMBER MUECKE:** Thank you.

**THE CHAIRPERSON:** Thank you, Dr. Muecke.

Okay, I'll proceed with some of my questions.

The first one is just an overall comment referencing your earlier remark, Mr. Elder, that the Panel will be very much looking forward to a more detailed briefing on the duty to consult and the plans going forward in that regard.

Along those lines, I have a question. Did the CNSC contact Aboriginal Affairs and Northern Development regarding that department's interest as a potential expert federal

authority and, if so, what was that department's response?

**DR. THOMPSON:** Patsy Thompson, for the record.

The CNSC has in its process the consultation with that department, and so we do it de facto for all projects.

In this case, the consultation led to information on which aboriginal groups should be contacted. There's information on claims and treaties, and so they're the source of the information, part of the information, on which we developed our consultation plan.

That department is not like Environment Canada, for example, their Health and -- or DFO, a federal department under the CEAA for expert advice. That's not the function they play in terms of reviewing technical documents from OPG, but they would provide CNSC staff advice as required, as they've done so far.

**THE CHAIRPERSON:** Thank you for that clarification.

So is there a document trail regarding that advice that you've been receiving from that department?

**MS. MANN:** Kimberly Mann, for the record.

I'd have to go back into my email to find that chain, but we would have sent a request asking if they can identify the groups in the area that may have interest in the project, and they would have sent that back to us.

**THE CHAIRPERSON:** Thank you very much.

You mentioned the list of 17, I believe it was, aboriginal groups with whom you plan to consult, or at least continue to check with, with respect to whether they want to participate. Is that correct?

**MS. MANN:** Kimberley Mann, for the record.

We have a distribution list and, as Dr. Thompson identified, we started with the Saugeen and we took a very broad approach. So if anybody we thought may have interest in the area, we've included them in that distribution list.

So to date they would have received the project description, the EIS guidelines -- these were also made for public

engagement. We've sent them the announcement that the Panel was struck, the orientation session today. We have a framework about how they can participate throughout your hearing process and throughout this system.

We had always contacted them about the participant funding program and encouraged them to request for funding to participate in the hearings, so we will continue providing that information through Ms. Francis, and any major milestones that you have through your hearing process, we will continue sending them information.

**THE CHAIRPERSON:** Thank you.

Yet another follow-up on the duty to consult. With respect to the methods by which you engage with aboriginal groups, have you consulted with and come up with a plan with those very aboriginal groups regarding some methods that may be more effective than the traditional simply sending emails and posting on web sites?

**DR. THOMPSON:** Patsy Thompson, for the record.

While they're conferring back there, I'll provide a bit of information.

The first contact is either through phone or mail, and then there is follow-up in terms of the best approach.

In the case of the Saugeen-Ojibway Nation, for example, we first had sort of a get-to-know-each-other meeting where we had a meeting with the representatives from the communities, the chiefs and the counselors. And we had the CNSC staff, staff from Environment Canada and Health Canada and DFO as a first meeting. And then we agreed on future meetings in terms of -- and with agendas on topics that would be discussed, and we've continued with that process.

With other groups, there's been a number of contacts, and I will let Ms. Mann describe the process we would use to meet the needs of the communities.

**MS. MANN:** Kimberly Mann, for the record.

Continuing on, as I discussed we have a framework, so we identified -- part of "the whole-of-government" approach is to integrate after consultation into the EA process so that we can contact and consult with aboriginal groups as early as possible to get their opinions on the

project.

As Dr. Thompson mentioned, we've been meeting various times with the Saugeen. As for the other groups, in all our letters we consistently advised who the Crown consultation coordinator is. They can contact Kiza now for any questions. We'll take meetings upon request.

We haven't received those requests. So should they request a meeting to discuss specific issues regarding the project or any adverse impacts on their rights, we'll be happy to meet with them.

**THE CHAIRPERSON:** Thank you, Ms. Mann.

**DR. THOMPSON:** Perhaps, Dr. Swanson, if you're interested, Ms. Francis could speak to the discussions she's had with specific groups?

**THE CHAIRPERSON:** Thank you.

**MS. FRANCIS:** Kiza Francis, for the record.

I just wanted to add that we've also met with two other -- well, I'll say a couple of other Métis groups in the area as well. So we have had meetings with them and we have a pretty

good relationship with them via phone calls and these meetings that we've already had, so -- and we've had some interest in meetings with other groups as well. So we keep them up to date all the time and we have a good relationship there.

**THE CHAIRPERSON:** Thank you very much; glad to about that good relationship.

Okay, so I'm going to follow-up even more on the duty to consult.

Where can the Panel find documentation of how the CNSC -- as coordinator across all the departments for that matter -- integrates the kind of input you receive from the Saugeen and the Métis and whoever else may be participating, into your overall review?

I'm seeing a technical review, and then I'm seeing almost a separate path, that is the consultation, but I'm wondering if there is a way of integrating, for example, the kind of traditional knowledge you may be getting during those consultations and folding them into how you would assess the completeness and appropriateness of the impact assessment that has been conducted.

**DR. THOMPSON:** Patsy Thompson, for the record.

I can start and then I'll ask my colleagues to complete, if necessary.

I guess the protocol, the procedure, is that CNSC staff uses are aligned with the Federal Government policy, and documentation is on our web site.

In terms of specific projects, the outcomes of all the meetings we have and all the information we receive are documented. We also review all the documents provided by OPG in terms of aboriginal consultation and the issues that they have heard.

We have, for example, with the Saugeen requested on a number of occasions that they identify the specific rights that they believe would be impacted by the project, and that information would be brought to the Panel, to the attention of the Panel, to be dealt with appropriately. The Saugeen have indicated that they would provide that information to the Panel, and the CNSC would review all of that information.

And we mentioned on one of the slides that the Panel Member Document that we would provide to the Panel at the end of the review process would consolidate all of the aboriginal

consultation activities that the CNSC has conducted.

We would present all the information we've heard and provide an assessment to the Panel of what, if any, aboriginal treaty rights have a potential to be impacted by the project, and make recommendations to the Panel.

So ultimately, all of that information would be in the Panel Member Documents submitted to the Panel.

**THE CHAIRPERSON:** Thank you, Dr. Thompson.

Was there any other need for clarification on your staff? Okay. Thank you.

If I could refer to your slide on your page 35, and the title on this slide is "Crown Consultation Going Forward".

There is an indented bullet in there that the Panel would appreciate some additional explanation. The bullet states: "Comments brought forward will be sent to the Governor-in-Council for their consideration."

In terms of the overall process, where does this fit?

**DR. THOMPSON:** Patsy Thompson,

for the record.

Essentially, I can provide the -- sort of a theoretical description and then an example of what was done recently for the Darlington new build.

So the process is the -- there's a review period, then Panel Member Documents are submitted to the Panel. The public hearing takes place, and then at some point the Panel closes the public hearing phase and will draft its report.

Once the Joint Review Panel report is provided to the Minister of the Environment, CNSC staff would take that Review Panel report and send it to the Aboriginal groups who have participated during the process for their comments, and essentially it's to see if there are any comments on how the Panel has captured the information on Aboriginal consultation, potential Aboriginal Treaty rights and any consideration of these matters.

And so we seek Aboriginal groups' comments on the report, and we would provide that information to the Governor-in-Council when the government is considering making a

decision on whether the project should be going ahead or not.

**THE CHAIRPERSON:** Thank you for that clarification. That was helpful.

I noted with interest that quite early on in the process the CNSC determined that there was no requirement for a provincial environmental assessment.

I'm -- we were just wondering as a Panel, though, whether the CNSC as the responsible authority has continued to consult with or involve provincial authorities in any way.

**DR. THOMPSON:** Patsy Thompson, for the record.

It's actually not CNSC staff who determined that the province had no interest. We sent letters and met with provincial officials to understand their EA and licensing process, authorization process. And through those meetings and understand discussions of the project, they concluded that their environmental assessment legislation did not cover these types of projects, so it's on that basis that no provincial environmental assessment is required.

The Province of Ontario have

indicated that for certain things they have an interest in receiving information, and so we -- they're aware of the project and have exchanged with them, and if they have -- if they're interested in conducting technical reviews and either submitting information to the Panel or to CNSC staff, we would consider it.

And so they are in the loop in terms of being aware of the project and they've been invited to participate as technical reviewers.

**THE CHAIRPERSON:** So supplementary to that, then, may I ask, please, that the Panel be informed of which specific provincial agencies have been invited to participate in the technical review? That would be helpful.

And as a follow-up to that, going down the layers of government, similar question regarding municipal bodies who may have been invited to comment or have expressed an interest or a desire to comment.

This is an overall question, again, from the Panel. We are -- as part of our attempt to ensure that we are aware of all the expertise, may I ask, please, that the CNSC provide

us with the full list of your experts, their area of expertise and their assignments in terms of which particular parts of the -- in this case I'm referring to the EIS for starters -- that they're reviewing, please?

**MR. ELDER:** Peter Elder.

We can provide you with a list of our reviews, I think both for the EIS and for the licence application information.

**THE CHAIRPERSON:** Thank you very much. We'd appreciate that.

My next question is shifting gears a little bit. This is -- if we could refer to page 29. And in the verbal discussion and leading up to this slide as well, words were used around -- that it referred to, quote: "Appropriate handling of uncertainty".

I pricked up my ears at that one because that, of course, is central.

Where could the Panel find some documentation from the CNSC's point of view on what constitutes appropriate handling of uncertainty?

**DR. THOMPSON:** Patsy Thompson, for the record.

We, a few minutes ago,

discussed the staff review procedures and as well as G320, and so we could, if the Panel is interested, come back either with documentation or an information session on the geoscience aspects of the review, as well as the expectations in terms of how the Proponent will deal with uncertainties.

**THE CHAIRPERSON:** Thank you very much.

Yes, I think you can anticipate we'll be asking for something like that.

A question regarding the Panel Member Document; again, will this document integrate the results of your technical review with the results of your consultation with Aboriginal groups?

**DR. THOMPSON:** Patsy Thompson, for the record.

That's correct. The Panel Member Document is the document we will be providing the Panel on the EIS review, and Mr. Elder talked about the CMD which would handle the licence prepare site.

And in that case, it would integrate the staff's review of all aspects of the EIS and technical support information, as well as

the outcome of the Aboriginal consultation engagement.

**THE CHAIRPERSON:** Thank you very much.

I think that ends the questions from the Panel.

If I may though, I would like to return back to OPG. We did have one follow-up question that we neglected to ask the OPG, and this is a procedure question.

How will -- how do you intend to handle corrections or amendments or addenda to the EIS or the supporting documents? How will this be handled?

Will people be getting replacement pages or will there be other ways of handling the tracking of amendments, corrections, revisions?

**MR. KING:** Frank King, for the record.

You will have noted in the last week or so, OPG has provided two letters. One of them was related to corrections, errata with respect to a number of documents in the submission, and the other one was related to an update of the

design description in Chapter 6 of the PSR.

It's not our intent right now to actually issue updated pages, that we consider the letters submitted as the record of that updated information.

**THE CHAIRPERSON:** Perhaps, Dr. Muecke, did you have a comment on that?

I think you originated this question.

**MEMBER MUECKE:** Well, I think we have a problem here in that if -- from the information requests and the corrections and the amendments, okay, we are going to be faced with numerous documents which we have to cross-reference because the information is dispersed now between the main document and all these amendments.

And I guess what I would be looking for is a way of having a master document which has -- incorporates, okay, which I can look at instead of having to consult numerous documents. And so anything along those lines which helps the Panel would be -- I'm sure would be appreciated.

**MR. KING:** Frank King, for the record.

I will undertake that we will

look at that suggestion and see what alternatives might be available to meet your need.

There are some complexities in doing that for a wide-range of people who have received the documents, but we will look into the practicalities of that and see if we can meet that need.

**THE CHAIRPERSON:** Thank you very much. We very much appreciate it on behalf not only of the Panel, but other people who will be coping with the waves of amendments and corrections.

So even if there is some way of a master cross-reference table so we know where these various corrections specifically apply, that would be great.

**MR. KING:** Frank King, again.

If I could just say one more comment.

In the letters that were submitted, we did indicate in what sections of the documents those changes would be applicable. The only place where we did not specifically is that some of the illustrative drawings where we've made a fairly minor change, those drawings are in many,

many places and we didn't go through every single place, but I think we made reference to that in the letter.

But the two tables that we submitted to you say in which section, which document the changes or the errata are applied to.

**THE CHAIRPERSON:** Yes, we were aware of that. Thank you.

We seem to have come to the end of questions and it's a natural break for lunch, so we're a little bit ahead of schedule, which is fine by me.

So it's now about five to 12, so if we could reconvene right around 1 o'clock, that would be appreciated.

Thank you very much.

--- Upon recessing at 11:54 a.m. /L’audience est suspendue à 11h54

--- Upon resuming at 1:06 p.m./L’audience est reprise à 13h06

**THE CHAIRPERSON:** Good afternoon, everyone.

The afternoon session will now

begin.

First of all, I would like to apologize to those who are participating by webcast. Apparently my watch is a little fast and -- or I gave the wrong time, so I will endeavour to follow the correct clock, which is now in front of me, so that people on the webcast don't miss some of our proceedings.

So it is now 1:02 by the clock, and we will now proceed with the presentation by Fisheries and Oceans.

Ms. Larochelle, the floor is yours.

**Presentation From**
**Fisheries and Oceans Canada**

**MS. LAROCHELLE:** Thank you.

Good afternoon. I'm Chantal Larochelle, the Acting Director for Ecosystems Management Branch within the Ontario/Great Lakes area at the Fisheries and Oceans Canada.

I will provide a brief overview of Fisheries and Oceans Canada's role and responsibility related to the *Fisheries Act* as well

as our estimated role related to the DGR.

Ecosystems Management Branch, we administer the fish habitat protection provisions of the *Fisheries Act*. We also administer *Species at Risk Act*, we conduct environmental assessments under the *Canadian Environmental Assessment Act*, and in Ontario we also participate in provincial environmental assessment and regulatory reviews for providing specialist and expert advice.

The *Fisheries Act*, it's used to manage and protect Canada's fisheries resources. It applies to all fishing zones. It focuses on the habitat protection provisions as well.

We define "fish" as including fish, shellfish, crustaceans, marine animals and any of their parts, eggs, sperm, spawn, larvae, spat, juveniles -- and any juvenile stages.

*Fisheries Act* is also defined by spawning grounds and nursery rearing -- sorry, fish habitat is defined as spawning grounds and nursery rearing, food supplies, migration and any other areas of which fish depend on, directly or indirectly, in order to carry out their life processes.

At the Ecosystems Management Branch we manage the habitat protection provisions of the *Fisheries Act*, starting with section 20, which requires safe passage of fish past obstructions.

And if you look at the photo up on the top right corner, that's not the right definition. That would not be a safe passage for fish going upstream or downstream.

Section 22 requires minimum flows over obstructions.

Habitat protection provisions, section 30, the installation of fish guards and screens. So if you look at the bottom of the photo there, there's a screen at the bottom. That would protect fish from being sucked in.

Habitat protection provisions of section 32 is the destruction of fish. An example of that would be road pipes or bedrock being blown up. We have guides that limit the impacts.

Section 35 is the prohibition; harmful alteration, disruption or destruction of fish habitat is prohibited. Section 35(2) is the authorization to do so under very strict

guidelines.

Pollution prevention provisions under section 36, deposit of deleterious substances into waters frequented by fish. An example of that would be pulp and paper mills. That's regulated or administered by the environment -- by Environment Canada. It's an industry-based regulation.

The policy for management of fish habitat was created in 1986, it provides guidance -- sorry. I'm a little behind there.

It provides guidance in the administration of the habitat protection provision of the *Fisheries Act* from sections 20 to 35. Overall objectives is a net gain of productivity capacity -- productive capacity through conservation, restoration and development of new habitat.

The no net loss of productive capacity is the guiding principle of habitat conservation.

In the standard operating procedure, basically the idea is to relocate, to mitigate and to compensate. That's basically what this slide says.

The risk management decision

framework, it's a consistent approach to decision making and it provides a means to communicate how that decision was made. It's a process where we analyze the development proposals and the mitigation to eliminate or minimize residual effects to fish and fish habitat.

It assesses residual effects and characterizes the risks they pose to fish and fish habitat, uses risk analysis to determine the appropriate regulatory decisions or actions, provides a framework to communicate to the Proponent or stakeholders the rationale for DFO's decisions.

*Species at Risk Act* fundamentally provides the recovery of wildlife species that are extirpated, endangered or threatened as a result of human activity, and it manages species of special concern to prevent them from becoming endangered or threatened.

DFO is responsible for administering the Act for aquatic species of wildlife.

Under SARA, the Minister of Fisheries and Oceans is the competent Minister for listed aquatic species, including fish and marine

plants. The role of the ecosystems management program includes consideration of aquatic species at risk and their habitat.

Decision making in the *Canadian Environmental Assessment Act*; An environmental assessment under the *Canadian Assessment Act* (sic) must be completed prior to issuing an approval under any of the following sections of the *Fisheries Act*, and these are our triggers, section 22, both sub-sections (1) and (2), sections 32 and 35.2.

Joint Review Panel for the environmental assessment is based on a preliminary assessment of the environmental impact study. Fisheries and Oceans Canada has determined that the impacts to fish and fish habitat appear minor in nature and likely mitigable, that it's unlikely that a *Fisheries Act* approval will be required.

That will not be a -- we will not be a responsible authority within the meaning of the *Canadian Environmental Assessment Act*. Fisheries and Oceans Canada will undertake a more thorough review of the environmental impact study and any other supplementary information provided by the proponent during the Panel's public comment

period.

Fisheries and Oceans Canada will participate as a federal authority for the purposes of the environmental assessment and provide advice to the Panel as requested.

The information needs for the *Fisheries Act* are the Gazette and name, where available, and location of all potentially affected watercourses in the vicinity of the project; photographic record for on site and upstream, downstream water courses where proposed works occur or near water -- in or near water; certified plans, drawings of proposed works; list of equipments, materials to be used which might impact watercourses; proposed construction methods and timing for in or near-water work; mitigation measures for all works and undertakings in and near watercourses; the baseline information of the fish habitat and the potentially affected watercourses, and baseline information on the manner by which the fish community uses the habitat in terms of spawning, nursery rearing, feeding and migration corridors; baseline information use of the indigenous fish populations as a commercial, recreational or substance fishery, if applicable.

And here are the available online resources if you wanted to look at a variety of those resource tools that we use to do our assessments.

Lisa Fowler is our environmental assessment analyst. She was the one and will be the one who participates in the review, and Dave Gibson is the guide from the fish habitat perspective. And I open the floor to questions.

**THE CHAIRPERSON:** Thank you very much. I'll now open the floor to questions.

First, Dr. Archibald, do you have some questions?

**MEMBER ARCHIBALD:** I would ask you to look at your slide, the Joint Review Panel Environmental Assessment. I believe it's probably five back from the end of the presentation, in which the statement begins:

"Based on a preliminary assessment, Fisheries and Oceans Canada has determined..."

And again, you make three conclusions. Your first one is that the impact appears minor in nature and likely mitigable.

In this particular case, I would ask if the assessment conclusions are

preliminary in nature, and where is the information that this conclusion was based upon?

**MS. LAROCHELLE:** The information is preliminary and an assessment was provided to the Panel when it was concluded. Maybe not to the Panel, but to CNSC, I'm gathering.

**DR. ARCHIBALD:** Okay. In your second phrase, then, you also say that in this -- it is said that it is unlikely that a *Fisheries Act* approval will be required.

Is it more likely rather than unlikely? Because there are impacts on fisheries -- on fish habitat and fish properties and so on. So you will have to render a decision. If it's unlikely, why?

**MS. LAROCHELLE:** If it is unlikely, based on the information -- this was a preliminary review and so the unlikeliness stated in this is based on the information that we currently have. If it is to be likely -- sorry, it is unlikely based on the information that we have, and it is unlikely because it can be mitigated.

**DR. ARCHIBALD:** And yet you also state that further studies are going to be necessary based upon information that you will

obtain through the process of the environmental assessment progress.

Is this not a little bit too preliminary to make that justification?

**MS. LAROCHELLE:** Correct.

**DR. ARCHIBALD:** Okay. And the last part of that, that we will not -- this being Fisheries and Oceans -- will not be a responsible authority within the meaning of the *Canadian Environmental Assessment Act*.

If not, then who will be the regulatory authority, at least for fish habitat and other such studies?

**MR. LAROCHELLE:** The idea is that there wouldn’t be a role for Fisheries Canada.

**DR. ARCHIBALD:** Then will that role, or any part of that role, be abrogated to some other regulatory authority? Would you know of that?

**MR. LAROCHELLE:** I would not.

**DR. ARCHIBALD:** Okay. Because there seems to be a fairly glaring omission in terms of the regulatory concept.

If Fisheries and Oceans is not going to have any part of this does that mean that

you’re going to cede this to provincial authorities? Is this going to go to some other federal authority or regulator? Is there any information that you can provide in this case?

**THE CHAIRPERSON:** Dr. Archibald, I understand that CNSC may be able to help us with this.

**DR. THOMPSON:** Patsy Thompson, for the record.

Perhaps I could -- for CNSC staff -- perhaps I could explain the process we went through to identify which departments are a responsible authority for this project.

Essentially, we received a project description from Ontario Power Generation and through the federal coordination regulations under the *Canadian Environmental Assessment Act* we distributed the project description.

And on the basis of the project description and the fact that the DGR is a land-based project and the project description and the -- our preliminary review of the potential environmental effects of the project would be that there would not be a disruption of fish habitat in -- with the need for a permit or an authorization

from DFO.

So on that basis, at the current time, the only responsible authority for the project is the Canadian Nuclear Safety Commission because only that licence would be required. The process is open that if further information becomes available through the process then DFO is within the federal review team and would reassess on the basis of that information. But with the existing information, there's only one responsible authority.

**DR. ARCHIBALD:** Thank you very much. There was confusion over the existing works' future. Thank you.

**THE CHAIRPERSON:** Dr. Muecke?

**MEMBER MUECKE:** Well, my question sort of meshes into this, and perhaps has been answered.

What concerns me and concerns us is that there is -- in terms of responsibilities, there seems to be an overlap between Department of Fisheries and Environment. And I guess we're wondering how such overlaps are handled and concerned about any possible gaps that ever -- you know, where information may fall

through, sort of, the mesh because neither agency will address it.

Can you tell me how -- could you tell us how any sort of overlaps like that are resolved?

**MS. LAROCHELLE:** If there was an overlap, the communication between the two departments would work out. If there was a need for communication between the two departments, that would take place through the CNSC and the committee that has been struck to review the documentation that's going -- that's being presented.

**MEMBER MUECKE:** So who's responsible, then, mainly DFO or mainly Environment, in terms of habitats?

**MS. LAROCHELLE:** Fisheries and Oceans Canada has the responsibility for habitat.

**THE CHAIRPERSON:** Thank you.

I think, further to Dr. Muecke's question, the other Act, of course, is the *Species at Risk Act*. Now, as I recall, you said that DFO deals with aquatic listed species so I'm assuming that perhaps Environment Canada does the rest or it reviews SARA-related issues for terrestrial?

**MS. LAROCHELLE:** I'd have to get back to you to define that line.

**THE CHAIRPERSON:** I think that illustrates Dr. Muecke's point. We just need some clarity on -- to make sure that nothing falls through the cracks, and in turn, too, the type of advice that you would then pass on to -- via CNSC and also directly to us as the Panel any advice you may have on SARA from Fisheries and comparing and contrasting the advice we may get from Environment Canada under SARA.

I understand that Dr. Thompson has more wisdom to offer us on this one.

**DR. THOMPSON:** Patsy Thompson, for the record.

I just wanted to point out that what we explained this morning in our presentation is that the CNSC Environmental Assessment Specialist, Ms. Kiza Francis, is the federal review team coordinator and one of the functions she has is to make sure that there is coordination among the various federal departments involved in the review, and these issues would be dealt with through Ms. Francis with the federal review team. So we would make sure that nothing falls through

the cracks.

**THE CHAIRPERSON:** Thank you, that was helpful.

I had another question, this is with respect to your slide; referred to the DFO's use of a risk management decision framework.

Given that your initial evaluation is now going to be followed up and I'm assuming in your more detailed technical review as experts, you would be using this risk management decision framework. Is that correct?

**MS. LAROCHELLE:** Yes, it is.

**THE CHAIRPERSON:** Therefore, where would the Panel find a description of this framework?

**MS. LAROCHELLE:** It's listed at the back, on the very last slide, or the second-last slide, as one of the resources, available online resources.

**THE CHAIRPERSON:** Thank you very much. So that would be the third reference listed in your list of references there?

**MS. LAROCHELLE:** Correct.

**THE CHAIRPERSON:** Thank you.

My final question, and again I

may have to call upon Dr. Thompson as well, this is again in terms of documenting the decisions that have been made up to now.

So we understand from Ms. Larochelle's presentation that there's been a preliminary determination that the habitat provisions, at least under the *Fisheries Act*, are not triggered.

Is that determination documented and, if so, where?

**DR. THOMPSON:** Patsy Thompson, for the record.

All the -- when we receive a project description and the federal coordination regulations were triggered, letters were sent to each department with a project description and the responses came back documented, and this information is on the public registry so it can be provided to the Panel.

**THE CHAIRPERSON:** Thank you very much.

Do my fellow Panel Members have any follow-up questions?

Okay, thank you very much.

We're now going to move on to a

presentation by Environment Canada.

I understand the presenter is Mr. Leonardelli? Yes.

Okay, so we'll allow you to take your place up at the front here.

**(SHORT PAUSE)**

**THE CHAIRPERSON:** While we're getting set up and as a point of information, we're clearly, again, going to be ahead of schedule this afternoon.

So in particular for those who are joining us by webcast as well as for those of you here, I think it's fair to say that we will probably be adjourning earlier than originally planned. Just for those who are on the webcast, to be aware of that.

Therefore, the timing of the breaks and the timing of the presentation will not be as distributed in the original agenda; just to be aware of that as well.

**Presentation from**
**Environment Canada**

**MR. LEONARDELLI:** Good

afternoon. My name is Sandro Leonardelli; I'm a Senior Environmental Assessment Officer with Environment Canada. And beside me is Hal Leadlay, and he's a Manager within the Environmental Assessment and Marine Programs here in Ottawa.

So the first slide outlines what we're going to talk about today. We're going to talk about EC's mandate and the legislation that provides that mandate. We'll speak to our role in the EA process, key areas of expertise that we have, and the key issues that we see that we would be involved in within the review.

So when I describe our various mandates, I'm going to indicate how those mandates are specifically relevant to the DGR project, and I think this should help you to understand what EC will be reviewing in relation to those specific mandates.

And in the last few slides, we'll be indicating some of the specific review topics that we'll be focusing on.

So the first slide deals with the general mandate of our department which is determined by various statutes and regulations that are assigned by Parliament through the Minister of

the Environment.

Our mandate is delivered through various policies, guidelines, codes of practice, inter-jurisdictional and international agreements, and a variety of programs.

In terms of the specific legislation and policies that Environment Canada has, the ones that are listed here are the ones that are applicable, as we see it, to the DGR project.

So the first one is the *Department of the Environment Act*. The next one is the *Fisheries Act* which hopefully in our discussion will provide some additional clarity in light of your earlier question to the DFO, and then we'll go through the *Migratory Birds Convention Act, Species at Risk Act*, federal policy on wetlands conservation, the Great Lakes Water Quality Agreement which is an international agreement with the U.S., and the *Canadian Environmental Assessment Act*.

Okay, so the *Department of the Environment Act* is what established Environment Canada as a department. And the Act defines Environment Canada's mandate very broadly as being

related to the natural environment, migratory birds, water, meteorology, boundary water issues -- that would be waters that are shared with the United States -- and federal coordination and advice.

The relevance to the DGR is the DOE Act; basically establishes our broad mandate.

So some of the more specific Acts would include the *Fisheries Act* and the *Fisheries Act* is largely the responsibility of DFO. However, EC has been given the administrative responsibility for the pollution prevention provisions of the *Fisheries Act* and the main -- the main responsibilities with regards to subsection 36.3, and this has to do with the release of deleterious substances into waters frequented by fish. So:

"Unless authorized by federal regulation, no person shall deposit or permit the deposit of deleterious substances of any type in water frequented by fish and no deposit of a deleterious substance in any other place where it may enter such waters." (As read)

So for the second sub-point an example of that would be, for example you could

have a spill on land, it could enter a waterway that's frequented by fish.

The definition of deleterious substance includes any substance with a potentially harmful chemical, physical or biological effect on fish or fish habitat.

So in the case of this project, we see potential issues with suspended solids, metals, and other contaminants.

Under the *Fisheries Act*, compliance with the Act is demonstrated through effluent toxicity tests. The toxicity of that effluent is assessed on the basis of undiluted effluent.

So there is no dilution that's allowed or any mixing zone subsequent to the release into the waterway. So, you know, under some jurisdictions' legislation, they allow mixing of the effluent and then they measure the effect. That's not the case under the *Fisheries Act*.

And there is no exemption from the *Fisheries Act*. What that means is that even if there's a provincial or territorial or municipal permit that gets issued for a release into a waterway, that does not absolve them of the

*Fisheries Act*. The Proponent must still demonstrate compliance with the *Fisheries Act*.

So in terms of the direct relevance to the DGR, the Proponent must ensure that the effluent discharges are not in contravention of the Act and in particular, as we see it for this project, that would involve releases from storm water, the run-off from the waste rock pile, discharges of -- from the dewatering of the repository, any accidental spills, and the possible migration of contaminants from shallow groundwater into surface waters.

Okay, the next Act is the *Migratory Birds Convention Act*. It implements the Canada/U.S. Convention for the Protection of Migratory Birds. It protects and conserves migratory birds, and there's a list of those -- what birds constitute migratory birds.

Subsection 5.11: "Prohibits depositing or permitting the deposit of a substance that is harmful to migratory birds in waters or an area frequented by migratory birds, or in a place from which the substance may enter such waters in such an area." (As read)

And subsection 6(a) is under

the Migratory Bird Regulations and it:

“Prohibits the disturbance, destruction or taking of a nest, egg or a nest shelter of a migratory bird without a permit.” (As read)

Under the Act, there is no permitting for incidental take, that as to, you know, accidental killing of wildlife -- or of migratory birds.

In terms of the direct relevance to the project, subsection 6(a) is relevant to the timing of the site preparation activities.

So what we mean by that is there may be birds nesting in the habitat that’s on the actual project site that is going to be disturbed, so trees might be cut down for example, construction activities will be undertaken.

EC defines a time period during which those types of activities cannot interfere with the nesting of the birds.

So we’ll point out the guidance on that as part of the review.

There may be other site alterations impacting migratory bird habitat. We take a look at that.

Now, one thing to note though is that the DGR has a fairly limited surface footprint. It's a fairly small project site and there's no significant terrestrial habitat on that site. So it's fairly limited in terms of the potential impact on migratory birds.

The next Act is the *Species at Risk Act*, and under this Act -- the purpose of the Act is to prevent species from extirpation or extinction. It also allows for recovery strategies to be developed for these species in order to help the population recover.

It also manages species of special concern that aren't specifically listed as species at risk, and the intent of the Act is also to protect the critical habitat that these species rely upon.

Now, section 32 and 33 of the Act make it an offence to kill, harm, harass, capture or take an individual of a listed wildlife species:

"To damage or destroy the residence of one of more individuals of a listed species." (As read)

And it allows for recovery strategies for the re-introduction into the wild in

Canada of these species.

Now, the application of the Act is important. It will apply to listed species wherever they are found if they are also listed under the *Fisheries Act* or *Migratory Birds Convention Act*. However, any other species that's not under those two Acts would -- the Act would only apply on federal lands for any of those other species.

So in the case of the DGR site it's provincial land, so you could have a situation where a listed species is not a migratory bird and it's on provincial land, so our Act, that would not apply in that scenario.

So in terms of the relevance to the project, we would be conducting an assessment to identify what potential adverse effects could occur from the project on listed wildlife species, and in doing so we would identify any measures to avoid or lessen the effects and monitor those effects.

We also have a federal policy on wetland conservation, and the idea is to promote the conservation of Canada's wetlands. It requires us to consider wetland concerns in the

environmental assessments as we do our review.

And when we say “wetlands”, we have a very broad definition of them that includes bogs, fens, marshes, swamps and shallow waters.

In terms of the direct relevance to the project, we would be looking to ensure that the protection of wetlands that are onsite or proximal to the DGR site. An example of a wetland that’s proximal to the site would be the Baie Du Doré Wetland. In terms of something that’s actually on the project site, there are some smaller wetland areas in and around the actual -- the project footprint.

The policy though has less weight due to the fact that it’s not on federal lands. But even so we would still be looking for any other factors that could cause effects, such as from affluence discharge into a wetland, for example, or even from a change in the groundwater level that could affect the level of waters within a wetland.

Those are a couple of examples of what we’d be looking at.

Okay, in terms of the Great Lakes Water Quality Agreement, this is a much broader type of mandate that we have to work within

or conduct our review within.

A little bit of background on it; the Great Lakes Water Quality Agreement is -- it reflects the commitment between Canada and the United States to restore or maintain the chemical, physical and biological integrity of the Great Lakes Basin ecosystem, and it includes a number of objectives and guidelines to achieve those goals.

The mechanism for a bi-national discussion on Great Lakes issues is through the -- a group called The Great Lakes Bi-National Executive Committee, and it's co-chaired by Environment Canada and by the United States Environmental Protection Agency.

In terms of Lake Huron itself, there's a bi-national partnership which is a forum for lake-wide management, and they deal with issues that are specific to Lake Huron.

We have noted that in the -- since the announcement of the DGR project, there's been concern that's been raised by U.S.-based parties in regards to what the potential impacts might be from the project on Lake Huron.

So Environment Canada has to evaluate the project in light of the Great Lakes

Water Quality Agreement in order to understand what effects, if any, could occur to Lake Huron and then to evaluate those effects in light of any Great Lakes Water Quality Agreement commitments that we may have.

In terms of the *Canadian Environmental Assessment Act*, this just basically outlines -- this slide just basically outlines the fact that we're a federal authority under the project and that we are to provide specialist or expert information or knowledge with respect to the project on request, and that request has been made, and to make available that information or knowledge to the responsible authority or mediators or a review panel.

So we're here to provide scientific expertise. And the scope of our expert information or knowledge is that which lies within Environment Canada's mandate as I had outlined.

So now we get into some specifics, and this slide will -- the following slides will outline the specific review topics; I'll speak to them generically with a little bit of detail to give you a sense, but if you have any further questions by all means you can ask me at

the end.

In terms of water issues, we'd be looking at storm water management issues, and related to that is waste rock pile, so we'd be looking at the quality of the -- the storm water releases -- sorry, the storm water quality and the quantity of that.

So in terms of quality, we would be looking at issues, for example, of acid -- potential acid generation from the rock pile.

We'd want to ensure that that's well understood, whether there is any acid-generating potential. If there is, how that would be managed.

Our understanding of the project is that during dewatering of the repository, they'll be pumping that water out into the storm water management system, so we'd want to take a look at the quality of that, you know, what treatment would be undertaken, if necessary.

During construction, you have a lot of soil disturbance, so total suspended solids becomes a very important issue to look at during the site preparation and construction phase.

And longer term, in terms of

the storm water management pond being there, we'd also take a look at the sizing of the pond to ensure that it's capable of handling the design storms, and also to factor in the evidence that -- the duration and intensity of precipitation events as changing in light of climate change, and that the ponds would be appropriately sized to handle that, to factor that.

In terms of hydrogeology, our role is limited to shallow groundwater as it relates to potential groundwater interactions with surface waters.

So those interactions are in terms of water quality, so if you have contaminated groundwater, and to what extent and how is it impacting on surface waters.

In terms of quantity, it would -- we would be looking at things like if there's a drop in groundwater levels, would it affect the flow of water, the water supply into, for example, wetlands, or into a nearby stream.

That would be the extent of it though. We're focused on the shallow groundwater system. We lack the expertise regarding the contaminant migration of groundwater modelling that

is a key aspect of the DGR review.

So what we're saying here is that the migration of contaminants from the repository to the surface through time, that's not something that we're capable of reviewing, and the CNSC and NRCan, Natural Resources Canada, it's our understanding, would be addressing this aspect.

In terms of the aquatic environment, you know, would there be any effects from, for example, any discharges from the site that could affect the aquatic biota. There are always potential accidents and malfunctions that can occur. That also can occur with simple things like during site preparation and construction activities, you could have a spill of diesel fuel, for example, so we want to make sure that spills are appropriately dealt with in the planning for the project.

We've also listed trans-boundary issues, so in terms of trans-boundary issues, the First Nations is a key element; would there be any impacts to water and aquatic biota that would affect any First Nation interests? So we would take a look at that, and also Great Lakes boundary water, so that ties in with the Great

Lakes Water Quality Agreement.

For air, we would take a look at air quality issues. During the construction and site preparation phase you'd have emissions from vehicles and dust being generated, we would take a look at those types of issues.

Of course, that would go away once they get into the operating phase, largely, and then you're looking at emissions, primarily from the venting of the shaft, and that would -- that could include conventional parameters or substances, but it would also -- we would also take a look at the radiological parameters coming out.

We wouldn't be able to verify the actual emissions of radiological parameters. Our role is to take the -- verify the emissions that the CNSC would tell us that, yes, this is a valid emission estimate and we would look to see how it disburses through the atmosphere.

Which leads us to the next point on trans-boundary issues. So first Nations would be interested in understanding what air emissions would be coming from the facility, and, you know, at what concentration.

And our role there is to ensure

that the atmospheric dispersion modelling has been conducted appropriately so that the modelled concentrations are valid, and then Health Canada would take a look at whether there are any health concerns based on those concentrations.

For greenhouse gases, we take a look at the project emissions. Much of that is going to come from the construction phase and site preparation.

Effects of the environment upon the project, I've only listed one but there's two here, actually. Primarily it would be verifying the characterization of climate for long-term, post-closure of modelling scenarios. And the other one I've already mentioned before, it had to do with the sizing of the storm water ponds.

In terms of biodiversity, we have -- for the terrestrial environment we'd be looking at the migratory bird species. We'd be looking at the species at risk list of species, and we'd be looking at wetlands, as I've already outlined to some extent already.

In terms of wetlands, I think I mentioned it before, but our mandate is weaker since this is non-federal land, but that doesn't

mean we won't review it. We will still be looking for potential effects and recommend possible mitigations if there's anything that we feel warrants any concern.

For radiological matters, I think I've already outlined that we don't have the expertise to validate the emission estimates but we would be looking at the ecological risk assessments that are based on those radiological releases.

We would ensure that the migratory bird species and the SARA list of species are appropriately assessed by the ERA and that would be the extent of that.

So on to the final slide here, to summarize, Environment Canada will be conducting a thorough science-based review within our mandate and available expertise. We have a range and scope of issues that is relatively broad.

Our mandates are focused on the surface environment, and so that includes the shallow groundwater effects on surface environment, but EC will need to rely upon CNSC and Natural Resources Canada for the review of the migration of contaminants from the repository to the surface.

As the review proceeds EC will

submit proposed information requests to the JRP and at the end of the EIS review period EC will submit a departmental submission that outlines any outstanding concerns we might have and any recommendations for consideration by the Joint Review Panel.

And that concludes my presentation.

**THE CHAIRPERSON:** Thank you very much, Mr. Leonardelli. I hope I'm pronouncing your name correctly.

**MR. LEONARDELLI:** Close enough.

**THE CHAIRPERSON:** Good.

Dr. Muecke, do you have some questions?

**MEMBER MUECKE:** This EPA, the Great Lakes Bi-national Executive Committee -- my question is, has the current project been put on the agenda of that committee, or is it an intention to put it on the agenda of that committee, and what are the outcomes?

**MR. LEONARDELLI:** I'd have to take that and get back to the Panel, as a specific question. I'd have to put that question to various people in the department and find out what the

status of that is, so I can do that as an undertaking.

**MEMBER MUECKE:** Several times during your presentation I heard the phrase “not on federal land”.

MR. LEONARDELLI: Right.

**MEMBER MUECKE:** And that rings a bell in my head, if it’s not on federal land, it’s on provincial land?

**MR. LEONARDELLI:** Correct.

**MEMBER MUECKE:** Is there any coordination with the province to fill in the gaps here?

**MR. LEONARDELLI:** This has come up in other projects as well, and as CNSC staff have mentioned there’s a coordinating team, a federal review team, and so when something like this is identified we would note to them that that -- you know, what our mandate is, and that the Ministry of Natural Resources from Ontario, in this case, would need to be involved in conducting a review for a provincial -- from a provincial perspective.

I can’t speak to the communication that’s been made with the province,

but somebody did say that the province was invited.

We're -- we haven't gotten into the -- you know -- detailed discussions of terrestrial issues amongst the federal team as such -- as yet, but the official review has just come out, so -- but that -- the need to involve MNR in any provincial wildlife issues or habitat issues would be identified.

**THE CHAIRPERSON:** Dr. Archibald?

**MEMBER ARCHIBALD:** Thank you very much for clearing up the reduced responsibility portion. I was very intrigued by that also. And thank you, Dr. Muecke, for raising that.

But my question has to do with the trans-boundary issue section where First Nations peoples are shown to be primary consideration factors both in air and water contamination potential.

They are considered to be primary factors, I guess, but the issue of trans-boundary, now, does that mean trans-boundary with respect to the actual site, the deposition site, or does this mean cross-border to you?

I need some explanation as to this is First Nation people only locally within Canada or this is also people external to, meaning in Michigan?

Is there some explanation you could provide?

**MR. LEONARDELLI:** Sorry, my mic went off.

I can partially answer that question.

The -- if there's air emissions, significant air emissions that could affect the United States, for example, there's a Canada-U.S. air quality agreement that pertains to that. It sets certain limits and standards and requirements for notifications to the United States that a project is going to exceed certain described limits, and we are obligated to notify them about that project and take -- and consult with them.

The -- on water, it would be through the requirements of the Great Lakes Water Quality Agreement; is there anything in the agreement that pertains to this that we'd have an obligation to notify the U.S.

So we'd have to understand what

emissions are -- could potentially occur from the project into the lake first. We're not at a point to be able to comment on that.

But if there were significant issues of contamination entering into the lake, we would have to look at the Great Lakes Water Quality Agreement to understand -- to determine what consultation we need to engage in with the United States.

**MEMBER ARCHIBALD:** So in both areas these are elements of your planning networks then?

**MR. LEONARDELLI:** If we identify those types of concerns then we know that we have an obligation to go into these higher level agreements and consult.

**MEMBER ARCHIBALD:** Okay. Thank you very much.

**THE CHAIRPERSON:** So I have a few additional questions.

Again, back to the Great Lakes Water Quality Agreement, I note in one of your slides you said you will be eventually releasing an evaluation in light of that agreement.

Do you know at this time what

your schedule is for releasing your evaluation with respect to trans-boundary issues?

**MR. LEONARDELLI:** I couldn't say that, no. No, we don't have -- I can't tell you that by a certain date I'll have the water quality review conducted or the air quality review conducted.

And to some extent, I mean, we could -- for example, for water quality as an example, we could be reviewing the documents in terms of effects based on what's predicted by the modelling and all that, but ultimately, we'll have to get some sort of verification from CNSC and NRCan, Natural Resources Canada, that those scenarios are, indeed, valid and we don't need to assess a different scenario.

**THE CHAIRPERSON:** Thank you.

So if I could repeat back to you just to make sure I'm clear, so Environment Canada would depend upon the judgment of the validity of the predictions from CNSC and NRCan and their respective expertise and then you, in turn, would take that information and then make your evaluation in terms of the trans-boundary issues, or lack of same.

**MR. LEONARDELLI:** Correct. We would be able to conduct our review now based on --

**THE CHAIRPERSON:** Right.

**MR. LEONARDELLI:** --- what's in the documents, but bearing in mind that we would be waiting for confirmation at some later point that these scenarios were indeed valid and appropriate for -- to assess the model -- the project.

**THE CHAIRPERSON:** Thank you. That clarifies that.

One more follow-up question on trans-boundary; you mentioned that there are some U.S.-based parties that have expressed some concerns. Are you able to identify the specific parties?

**MR. LEONARDELLI:** I'm going -- my comment on that is based on things that we've picked up in the media, so news clippings, that kind of thing, our communication staff look for that. And so we noted that there was concern in Michigan.

The specific groups, what the specific issues are and that kind of thing, I don't have a detailed assessment or analysis of that.

**THE CHAIRPERSON:** Once again, I understand Dr. Thompson has something to offer.

**DR. THOMPSON:** Patsy Thompson, for the record.

I just wanted to point out that when CNSC staff, with the Canadian Environmental Assessment Agency staff consulted on the draft environmental impact statement guidelines, we held a public information session in the Kincardine area, and we had people from Michigan drive to the open house and participate in that event. And there were also groups who commented on the environmental statement guidelines.

And we've dispositioned the comments when we finalized the guidelines, and so the identity of the groups and the individuals who have shown an interest to date are known and they're on the public record. And we will continue to provide information and respond to requests as we move forward.

**THE CHAIRPERSON:** Thank you very much.

Thank you for your clarification on groundwater, by the way. That was helpful.

Just a follow-up, what do you define as "shallow" in terms of shallow groundwater?

**MR. LEONARDELLI:** That's a very specific question.

I mean, I know that within the documentation, based on a preliminary look through some of the documentation, that they have defined different zones of groundwater, so the shallow, then intermediate and deep, for example.

And I'm not sure what their definition is of "shallow", but basically we would be looking at -- to the extent that it would intersect with surface waters.

I can give you confidence that we would be looking to that extent. Whether we have the mandate to look at anything deeper than that that would not have an interaction with surface waters, I think that would be a doubtful mandate for us.

**THE CHAIRPERSON:** I understand, Dr. Muecke, you have another question?

**MEMBER MUECKE:** Coming back to the Great Lakes Bi-National Executive Committee, from what I understand you said is that basically

you would trigger it, a process of consultation if you identified concerns on your side about impacts which are trans-boundary.

Am I right in saying that?

**MR. LEONARDELLI:** You're correct in -- to the extent that there are requirements that are defined within the Great Lakes Water Quality Agreement that say, you know, if a certain -- certain activity may cause potential harm, et cetera, there may be some specific criteria, and then some are more general.

So we would take a look, first of all, what the effects could possibly be and then evaluate that against whether we have any obligations to the United States in terms of notifying them.

So I can't answer what specific requirements there are, I'm not an expert on the Great Lakes Water Quality Agreement.

But if you're looking for that type of clarification, is there something specific, I -- we could take that as an undertaking and inform you -- to inform the Panel in terms of what those obligations might be if there was a concern.

**MEMBER MUECKE:** Could I just

take -- turn the table around ---

**MR. LEONARDELLI:** Sure.

**MEMBER MUECKE:** --- because the other member on this committee is the EPA.

Can the EPA -- this is hypothetical, obviously -- voice concerns, and if they have concerns how would they be formally addressed?

**MR. LEONARDELLI:** I think it's best that I take that as an undertaking.

I know we have people who can answer those questions and I'd rather not give you a speculative answer.

**MEMBER MUECKE:** Thank you.

**MR. LEONARDELLI:** Thank you.

**THE CHAIRPERSON:** A couple more questions. This is getting into a few more details.

I was wondering does Environment Canada also include consideration of noise impacts on wildlife?

**MR. LEONARDELLI:** We have looked at it with respect to migratory birds. There are some studies that indicate that breeding success could be interfered with by certain sound

levels because birds can't hear mating calls and that kind of thing.

So to the extent that it's an issue for the site we would -- we would examine it for migratory birds.

**THE CHAIRPERSON:** And I may have not heard you correctly because I was busy writing and trying to listen at the same time, but this is with respect to air, and you mentioned Environment Canada would review the air impact predictions and also with respect to whether or not you would expect health affects.

Did you mean to non-human biota or were you including humans?

**MR. LEONARDELLI:** For the non-human biota -- I'll deal with that first.

That is the -- those types of issues are looked at in the ecological risk assessment. So what are the various pathways of contaminants to different species, and air is one of the pathways. So that needs to be factored into the ecological risk assessment.

In terms of humans, it's Health Canada's responsibility to assess the effect on humans. What we do is we provide them with,

basically, a validation of the model to say, yes, it's a valid model, it has appropriately modelled the concentrations at various receptors, okay, and they can then use those concentrations for their assessment of whether there's a health effect or not.

So we do the science on the modelling itself, that's our -- that's the science-based review we do.

**THE CHAIRPERSON:** So repeat just for -- I'll repeat back what I think I understand.

**MR. LEONARDELLI:** Okay.

**THE CHAIRPERSON:** So Environment Canada will evaluate the dispersion modelling in terms of validating the exposure of people. In other words, the predicted concentrations in the air as predicted by the modelling ---

**MR. LEONARDELLI:** Correct.

**THE CHAIRPERSON:** --- and that's where you end and then Health Canada takes up the mantel and looks at -- well, if that's how much would be in the air then this is the risk to human health?

**MR. LEONARDELLI:** Yes, that's correct.

**THE CHAIRPERSON:** Okay, good. Thank you. So just as a follow-up.

Dr. Muecke already asked some of this question but again back to provincial lands, and this is very specifically with respect to wetlands.

So I'll just confirm; I understood from you that MNR, Ontario Ministry of Natural Resources, would be a part of the coordination effort. Does that extend to wetlands?

**MR. LEONARDELLI:** I'm saying they should be a part of the ---

**THE CHAIRPERSON:** They should be?

**MR. LEONARDELLI:** Yeah.

**THE CHAIRPERSON:** Okay.

**MR. LEONARDELLI:** It's their role to -- it's their mandate to review that.

Sorry, the last few words?

**THE CHAIRMAN:** I just wanted -- it's specifically with respect to wetlands because I understand that regarding wetlands, in my experience, especially provincial authorities often

have very specific regulations around wetlands and how that was going to be dealt with in this particular case?

**MR. LEONARDELLI:** I can’t speak for the ones that are right on the site, other than the fact that I know that they’re not considered provincially significant wetlands.

When you get provincially significant wetland designation then I think that’s when you have all these other specific requirements.

I’m stretching my memory here but the Baie du Doré I think is a provincially significant wetland. I'd have to -- you’d have to confirm that from the documents.

**THE CHAIRPERSON:** During your explanation of the -- Environment Canada’s role in reviewing the ecological risk assessment for non-human biota, you used the phrase -- and this is in the context of listed species and the *Migratory Birds Act* -- that the risks to those species covered under those two Acts are appropriately handled by the methodology.

Can you explain that further, please?

**MR. LEONARDELLI:** Sure. I'll make an attempt.

Ecological risk assessment is very complex. The individual species -- let's just say there's a specific species, whether it's a migratory bird or a SARA listed species, the modelling that's done, the risk assessment that's done, is usually done surrogate species, meaning other species that represent the ecological niche that can be used as a proxy for other species of the same type that would inhabit the same type of ecological niche.

So we're getting very technical here, it's very involved. So they may not list specifically that bird species, but what we'd be looking for is some surrogate species being modelled that is similar to that species. So that's the type of analysis we would do.

We would also take a look at some of the environmental parameters that are being fed into the ecological risk assessment to look at -- you know, ensuring that all the contaminant sources have been accounted for, for example.

**THE CHAIRPERSON:** Thank you very much. That helps.

That was all my questions.

Any further questions?

Okay, thank you very much.

**MR. LEONARDELLI:** You're welcome.

**THE CHAIRPERSON:** The next presentation will be by Health Canada.

So we'll allow a couple of minutes for Ms. Ma to come to the front.

**(SHORT PAUSE)**

**THE CHAIRPERSON:** Ms. Ma, the floor is yours.

**Presentation from**
**Health Canada**

**MS. MA:** Thank you.

Good afternoon, Madam Chair and Members of the Joint Review Panel. For the record, my name is Kitty Ma and I'm the Regional Environmental Assessment Coordinator for Ontario Region of Health Canada.

We're pleased to be here today upon your request to present to you an overview of Health Canada's roles and responsibility as they

relate to the environmental assessment review of this project.

And here with me is also Rebecca Stranberg. She is my colleague in Ottawa, also an Environmental Assessment Coordinator as well.

**THE CHAIRPERSON:** Ms. Ma, just to remind you, if you could speak quite slowly and perhaps -- you have a very soft voice -- to lean into the mic a bit, I'm having a bit of difficulty hearing you.

**MS. MA:** Okay, I'll try.

Okay, during my presentation I'd like to briefly outline the following: Health Canada's mandate, Health Canada's role in environmental assessments, the nature of Health Canada's review, Health Canada's areas of expertise, and potential applications of Health Canada's expertise as well.

And we'll be happy to answer questions after the presentation.

So Health Canada's mandate: Health Canada is the federal department responsible for helping Canadians maintain and improve their health while respecting individual choices and

circumstances.

Our department strives to prevent and reduce risks to individual health and the overall environment; promote healthier lifestyle; ensure high-quality health services that are efficient and accessible. We also strive to integrate renewal of the health care system with longer-term plans in the areas of prevention, health promotion and protection, and to reduce inequality in Canadian society, and also to provide health -- health information to help Canadians make informed decisions.

Now, under section 2 of the *Canadian Environmental Assessment Act* defines an environmental effect with -- with respect to project as any change the project causes in the environment, including, among other things, any effect of the changes in the environment on human health.

Health Canada is participating in this project review under the *Canadian Environmental Assessment Act* as a federal authority with expert information or knowledge as requested by the responsible authorities.

Note that Health Canada’s role

under subsection 12(3) of the Act is advisory only. The Joint Review Panel determines how the advice provided by Health Canada will be included or used in the assessment of the project and also that the responsible authority makes a determination concerning the significance of the first environmental effects.

When reviewing an environmental assessment, Health Canada will provide advice regarding the possible impacts on human health that may result from the project, the scientific validity and adequacy of the assessment of impacts of the project on human health.

Advice will also be provided regarding the use of appropriate methods and rationale for the conclusion made concerning human health, the measures to mitigate human health impacts where possible, and the development and implementation of follow-up monitoring.

In the context of subsection 12(3) of the Act, Health Canada currently has expertise in the following biophysical area related to human health and that includes air quality effects, contamination of country food which may be fish, wild game, garden produce, berries and et

cetera, drinking and recreational water quality, radiological effects, electric and magnetic fields effects, noise effects, human health risk assessment and risk management, federal air, water, and soil quality guidelines are the standard use in human health risk assessments, toxicology including multimedia like air, water and soil, and also First Nation health and also on contaminated sites.

Now, the next few couple of slides we'll go over some -- briefly, some of the potential applications of Health Canada's expertise.

So we can start with radiological effects; Health Canada's review includes providing advice regarding human health effects of exposure to ionizing radiation, environmental modelling, and monitoring of the dispersion of radioactive isotopes in the air, water, and country food, health and safety of nuclear energy workers and the public, and radiological accidents and malfunctions.

For air quality effects, Health Canada's EA review includes providing advice regarding predicted air pollutant concentrations data at locations where human receptors may be

affected by changes from the baseline air quality and information concerning acute and chronic human health effects of exposure to air pollutants.

For contamination of country food, our review includes providing advice regarding the information on food harvested by hunting, trapping, fishing or small-scale farming. Produce grown in vegetable gardens and orchards are collected from naturally occurring sources, like wild berries and medicinal plants.

We'll also provide advice regarding data on increases in contaminant levels in the tissues of country food and also potential toxicological human health effects of consuming contaminated country food.

Moving on to water quality; Health Canada's EA review includes providing advice regarding the chemical and microbiological contaminants that may be present in drinking and recreational water, impacts on sources of drinking water located downstream from a project which include groundwater wells, all service water that will be processed through a drinking water facility -- treatment facility.

Under noise, Health Canada

review includes providing advice regarding human health end points used to characterize noise impacts like speech intelligibility and sleep disturbance.

Also, we'll provide advice regarding information on existing and predicted future daytime and night-time sound levels at location where humans are present and the characteristic of noise, including impulsive atonal noise.

And lastly, we have human health risk assessment and under this topic we'll provide advice regarding human health impacts from exposure to contaminants of concern through environmental media like air, water, soil, dust, and country food.

We'll also be providing advice regarding the scientific validity of human health risk assessment and a conclusion; the mode of action of contaminants of potential concern, and also the federal air, water, and soil quality guidelines and standard that may apply.

My department looks forward to working with the Joint Review Panel in the future for technical reviews and hearings. Thank you very

much and we can answer questions. Thanks.

**THE CHAIRPERSON:** Thank you very much, Ms. Ma.

Dr. Archibald?

**MEMBER ARCHIBALD:** I only have one fairly simple question. On the basis of your assessment focus basically on changes of the environment affecting human health; does this also apply to occupational health exposure or is this only residential exposure that you are considering?

And I'm thinking primarily the exposures to possibly dust, gas, fumes, noise exposure in a working environment of the repository.

**MS. MA:** Right. In only certain limited situations where Health Canada would have expertise commenting on occupational health and safety aspects and we have that for nuclear workers, as covered by the *Nuclear Safety and Control Act.* So most of our review will not be occupational related, it will be more residential related.

**MEMBER ARCHIBALD:** So this essentially means -- and probably not in your area of expertise -- that most of the provisions or the

regulatory control will be in the hands of provincial agencies; particularly, the Ministry of Labour or their -- their associated elements?

**MS. MA:** Yes, that is correct.

**MEMBER ARCHIBALD:** All right, thank you.

**THE CHAIRPERSON:** Dr. Muecke?

**MEMBER MUECKE:** Ms. Ma, when we look at radon and permissible limits and health risks over the recent future, limits have constantly been ratcheted downwards.

And so one of -- one of my concerns is that we are evaluating a project which has a lifetime of 300 years and I've seen the radon limits go down in the last 10 years.

Will you be able to advise us how -- I have to step back.

Basically what I'm saying is that how radiological risk is assessed and perceived has changed with time and since we have to look into the future, will you be able to provide us with guidance as how you see those limits change?

I'm not saying over the next 300 years, but, you know, the directions have

changed or have they levelled off? Is there some limiting level at which we no longer have to be concerned? Can we look for guidance along those lines from you?

**MS. MA:** Kitty Ma, for the record.

Thank you for that question. I'll definitely have to get back to you on this one. We will talk to our Radiological Department and we'll get you an answer for that.

Thank you.

**MEMBER MUECKE:** Thank you.

**THE CHAIRPERSON:** I understand Dr. Thompson may be able to help us.

**DR. THOMPSON:** Patsy Thompson, for the record.

In terms of the regulatory oversight for radon or other occupational radiation exposures, the way the legislation is drafted is that Health Canada and the provinces have regulatory obligations in terms of residential radon, and the CNSC has responsibilities in terms of exposure of workers in relation to DGR or other nuclear facilities. And we would also assess the risk to members of the public from the radon, for

example, in relation to DGR.

Both the CNSC staff, as well as staff of Health Canada have been involved in the review of recent documents, for example, from the World Health Organization or the International Commission on Radiation Protection where they've reassessed the risks from radon exposures, taking into consideration epidemiological studies done of worker populations, as well as residential exposures.

And that information is in the process of being considered for regulatory significance, and so the way the regulatory framework would work is that we do the assessment using the best science available today and for projects like the DGR where we need to ensure long-term safety, we would require that there's enough barriers in place and enough consideration of ALARA requirements to ensure that the exposures would be extremely low under a lot of different scenarios and that would take into consideration the changes in science.

The CNSC also has, as we explained this morning, licensing in different phases and we do compliance assessments. And any

change in science that would change the licensing basis for this facility would be brought to the Commission at an appropriate licence renewal or we would take regulatory action under the compliance program.

So the regulatory framework of the CNSC takes into consideration potential changes in science, and that advice would be brought to the Commission at the appropriate time.

**THE CHAIRPERSON:** Thank you very much.

I have a few questions as well, Ms. Ma.

The first question is, does Health Canada -- the Health Canada review include particular attention to sensitive or vulnerable sub-populations or individuals, such as people who have chronic disease, immune suppression or for example, the very young or the elderly?

**MS. MA:** I'll try to partly answer that question.

I believe in the Human Health Risk Assessment, sensitive receptors are identified or should be identified, and we will take a look at those receptors. Further on, I can get back to you

on how we look at those receptors in the assessments.

**THE CHAIRPERSON:** Thank you.

Another question; there appears to be some overlap between what Health Canada's expertise is in reviewing modelling, for example, air dispersion modelling, and what we just heard from Environment Canada.

So could you help me with my confusion there, and perhaps explain where the cutoff is?

**MS. MA:** Health Canada actually relies on Environment Canada to validate if any modelling or dispersion modelling are valid, and then we would take the results of the modelling, the contaminants, the levels, and then we would use it to review the environmental assessment.

**THE CHAIRPERSON:** Thank you, that helps.

However, it did seem that Health Canada in particular are the federal authority that would comment on, for example, the selection of country food items, you know, the intake rate of those sorts of items. And the reason I'm asking that is, therefore, are you the

right people to ask in terms of how you validate your information on the country foods and coordinate with our people who are consulting with Aboriginal groups to validate the assumptions you're making in your review regarding the use of country foods, subsistence fishery, et cetera?

**MS. MA:** For country food, especially related to First Nation, we do encourage the Proponent to use -- or to incorporate traditional and local knowledge for exposure assumptions and also what kind of food they collect. So we highly recommend that.

**THE CHAIRPERSON:** So as a follow-up, in your review of what OPG has done in their documentation, you would review it so that it is to your satisfaction that they have adequately characterized the consumption and identification of country foods?

**MS. MA:** Yes, I believe we will do that. Yes.

**THE CHAIRPERSON:** That is correct? All right. Thank you.

You will have noticed that in Environment Canada's presentation they help the Panel by identifying first their responsibilities

or statutes, their regulations, and then they very specifically identified what was relevant.

Have Health Canada -- have you been able to complete an initial assessment of the relevance under your jurisdiction?

**MS. MA:** We just started our review, so we will definitely let you know if any -- all of our guidelines or guidance documents would apply to this project.

**THE CHAIRPERSON:** Thank you very much.

**MS. MA:** Thank you.

**THE CHAIRPERSON:** Do my fellow Panel Members have any follow-up questions?

Thank you.

We're running nicely ahead of time here, so I think my goal is we'll proceed right into the NRCan presentation and follow that with questions, and I'm assuming since it is now 2:25 that we should be able to adjourn by approximately 3:00 p.m.

So for those of you who are joining us by web -- the web, just pay attention to that. I don't think we're going to need an additional afternoon break.

So we'll just give NRCan a few minutes to come to the front and get their presentation out.

**(SHORT PAUSE/COURTE PAUSE)**

**Presentation from**
**Natural Resources Canada**

**MS. CAVALLARO:** Hi there. First, I'd like to take the opportunity to thank the Panel for allowing us to make this presentation at the orientation session.

My name is Kate Cavallaro; I'm the Acting Team Leader for the Environmental Assessment Division at Natural Resources Canada.

For today's presentation, I also have a representative from the Uranium Radioactive Waste Division, Kathleen Hollington, as well as Dr. Bernard Vigneault, Dr. Alexandre Desbarats and Dr. Aruna Dixit from our Geological Survey of Canada with me to answer any questions that you might have in relation to our presentation.

Today's presentation is to provide information on Natural Resources Canada's

mandate, interests and expertise in relation to the Joint Review Panel for the Deep Geologic Repository project.

Very broadly, Natural Resources Canada's mandate is to enhance the responsible development and use of Canada's natural resources and the competitiveness of Canada's natural resource products, develop policies and programs that enhance the contribution of the natural resources sector to the economy and improve the quality of life for all Canadians, and lead science and technology in the fields of earth sciences, energy, forests and minerals and metals.

Within NRCan, primarily two sectors are involved with the environmental assessment for the Deep Geologic Repository project; the energy sector and the earth sciences sector.

So I'm going to start by giving you some information on our energy sector and our earth sciences sector.

Within the energy sector, Natural Resources Canada is responsible for developing and implementing uranium, nuclear energy and radioactive waste management policies.

Canada's 1996 radioactive waste policy framework is the over-arching policy for radioactive waste management.

Under the framework waste owners are responsible for funding and managing their waste and for developing and implementing long-term solutions.

The federal government role is to ensure long-term waste management is carried out in a safe, environmentally sound, comprehensive, cost-effective manner, and to develop policy, regulate and oversee waste owners' compliance with legal, financial and operational requirements.

Additionally, the framework recognizes that arrangements may be different for various types of radioactive waste, such as nuclear fuel waste, low and intermediate level waste, and uranium mine and mill tailings.

In the case of nuclear fuel waste, the Minister of Natural Resources is responsible for ensuring waste owners and the Nuclear Waste Management Organization comply with the requirements of the 2002 *Nuclear Fuel Waste Act*.

Lastly, NRCan has the

responsibility for overseeing and funding radioactive waste management initiatives pertaining to historic and legacy wastes, which include the Port Hope Area Initiative and the Nuclear Legacy Liabilities Program, respectively.

Within NRCan’s Earth Sciences Sector, the Earth Sciences Sector is the Government of Canada’s principal earth sciences agency providing Canadians with reliable geosciences and geomatic knowledge. It plays a pivotal role in the collection and dissemination of earth sciences’ information of major importance to Canada’s energy, mining and forestry sectors, among others.

Also, the earth sciences sector’s research and environmental geosciences aims to understand and mitigate the risks of resource development on the environment, to build a social license and to inform regulatory decisions.

The following slides will present an overview of NRCan’s earth sciences’ expertise in relation to the DGR project and, if you have any questions, feel free to ask them during the presentation or at the end, whatever you’re most comfortable with.

So NRCan’s involvement with

DGR. The role of NRCan's Geological Survey of Canada is to undertake the scientific examination and survey of geological structure and mineralogy of Canada.

In this regard, NRCan, through the Geological Survey of Canada, has provided expertise to inform the development of the general deep geologic repository concept since its inception.

NRCan has been participating in the review of information and technical reports related to DGR since 2007. We have provided expertise in relation to the geological context, in areas such as bedrock geology, hydrogeology, and hydrogeochemistry, glacial cycles, and seismic hazards.

From a geological context, the scope of NRCan's review focuses on the regional stratigrify and sedimentology of sandstone and shale bedrock, including hydrocarbon potential, fluid migration, faults and fractures, and cap rock seal.

Understanding the site geology is an integral part of the project design, as the deep geological structure of the site is

fundamental for the proposed repository, as it will help minimize the adverse environmental effects of the projects.

Understanding the hydrocarbon potential will also inform cumulative environmental effects and long-term management of the site.

From a hydrogeological perspective, the scope of NRCan's review includes groundwater flow, groundwater chemistry and solute transport.

Understanding the fate of radionuclides migrating beyond the boundaries of the DGR site, in the intermediate and deep groundwater systems, is required to assess the adverse environmental effects of the project on water quality.

From a geochemical perspective, NRCan will focus on the interpretation of the age of fracture systems at the site, including geochemical evidence for the subglacial recharge, the origin of brines, the depth of penetration of fresh groundwater, likelihood of connection with the surface environment.

Understanding the fracture systems, including the age and timing of the

fractures at the study site, will inform whether the effects of the project on the environment have been adequately characterized.

NRCan is also providing expertise in relation to glacial cycles, as understanding glacial cycles and long-term climate change processes will help inform whether the effects of the geology on the project have been adequately characterized, especially for the evaluation of the post-closure safety assessment.

Lastly, NRCan is providing expertise in relation to seismic hazards, including earthquake shaking, earthquake-triggered events such as tsunamis, regional stress strain changes in faulting.

Understanding the environment from a seismic perspective will inform whether the effects of the environment, specifically seismic hazards on the project, are adequately characterized and considered in the site design.

Lastly, I just want to make it clear that NRCan is not a regulator for this project, and the department has no decision-making role in the environmental assessment. Under the *Canadian Environmental Assessment Act* we are

considered a federal authority and we're providing expert information and knowledge.

NRCan is available to provide a radioactive waste policy perspective on the proposal and will continue to provide expertise on the geological history and geological processes in relation to the project.

And as requested by the Joint Review Panel, we will participate in the public review and comment period for the EIS and licence documents, and provide comments on these documents to the Panel as early as practicable in the comment period.

Thank you again for this opportunity, and feel free to ask your questions.

**THE CHAIRPERSON:** Thank you very much.

Dr. Muecke, do you have some questions?

**MEMBER MUECKE:** If you go on Slide 2, there's a very puzzling statement, which, if I take it literally, I think would put half the people in this building out of a job.

It states that NRCan energy sector is responsible for policy and oversight of

programs concerning historic and legacy nuclear wastes.

Could you embellish upon that because it -- at least my understanding is that that responsibility falls to the Nuclear Safety Commission.

**MS. CAVALLARO:** I'm just going to direct this question to Kathleen Holington who is with our uranium waste -- Radioactive Waste Division.

**MS. HOLINGTON:** Kathleen Holington here, for the record.

Maybe I'll, first of all, go by describing what we mean by "historic."

Oh, sorry -- can you hear me now? Yes.

An historic waste, we define it as waste that is -- was created in the past but no longer is considered being managed appropriately, and for which the government has taken that responsibility.

So in the case of historic and legacy waste, it is the responsibility of the Government of Canada.

NRCan manages these two

programs, the Port Hope Area Initiative and the Nuclear Legacy Liabilities Program, which is waste -- legacy waste, that was created during the Cold War legacy, and this -- it's predominantly at Chalk River, and Port Hope, there's -- it's predominantly in Port Hope, but there's also a Port Granby Program.

So NRCan is the lead. NRCan has the funding from the Government of Canada to manage these two programs, and the implementing agency for historic and legacy waste is the Atomic Energy of Canada Limited.

**THE CHAIRPERSON:** Thank you.

Dr. Thompson has something to add, I believe?

**DR. THOMPSON:** Patsy Thompson, for the record.

I think the issues where the policy responsibility and the funding responsibility resides, and where the CNSC responsibilities, in terms of licensing, and so it was mentioned NRCan has responsibility in terms of policy and funding for certain sites, whereas when -- for example, the Port Hope Area Initiative example that was just provided, these sites have

undergone environmental assessment by the CNSC and NRCan, and now have a licence from the CNSC, moving forward.

And it would be the same for other sites in Canada where once sites have been identified and require a licence, then the responsibility is, for the project, with NRCan or their delegates and we do the licensing.

**MEMBER MUECKE:** Thanks very much. That makes it clear in my mind.

I have one more question. The USGIS has recently developed -- I mean, that's in 2012 -- a new seismic risk model for the eastern United States, and that risk model shows much greater risks in many locations than were previously indicated.

So my question is, is the GSC planning to -- a similar re-evaluation? And if that re-evaluation is taking place, when can one expect the results, and would they be available for this review?

**MS. CAVALLARO:** Sorry; I'm just going to pass that to Bernard Vigneault for a response. He's with RGSC.

**MR. VIGNEAULT:** So

unfortunately, our seismic hazard experts are not with us today, but I can certainly say that all our research activities are done in direct collaboration with the USGS.

So we can confirm that at a later stage, but I'm quite confident that any new findings from the USGS would also be applied when we'll provide comments on the seismic hazard later on in the process.

**MEMBER MUECKE:** Thank you.

**THE CHAIRPERSON:** Dr. Archibald?

**MEMBER ARCHIBALD:** Thank you; just two short questions.

On page 6, or your slide number 6, the last bullet -- I'm just being pedantic as a university professor. And you've stated that: "Understanding hydrocarbon potential will also inform assessment and management."

How can understanding inform? Do you possibly mean assist or educate? The word "inform" is used over several slides and probably out of context, and so would you have an explanation for the use of the word in this context?

**MS. CAVALLARO:** This is Kate Cavallaro, for the record.

When we use the word "inform", our expertise is provided to the Panel and to other decision makers with regard to the project so we're specifically speaking to providing information on -- in relation to those topics, not inform processes.

Does that provide you with the clarification?

**MEMBER ARCHIBALD:** The words providing information are exactly what I was looking for.

**MS. CAVALLARO:** Okay.

**MEMBER ARCHIBALD:** Thank you.

And I believe we've had some good explanation about the regulatory responsibilities of NRCan for this project. It is now in the purview of the CNSC and, essentially, you are an information-providing entity, as are most of the other departments that we have been receiving information from.

My specific question is, does NRCan provide any information relating to structural design or planning of the DGR in any

way, shape or form, or is this controlled in a provincial arena?

**MS. CAVALLARO:** That's a bit of a complicated question. Obviously, we're -- the expertise that we're providing at this point is to -- is for the purposes of the environmental assessment, and so not to my knowledge would we be providing specific expertise to the province on on-site design.

However, the expertise that we have and that we do provide through the EA is available for anyone who would like to see it, so --

**MEMBER ARCHIBALD:** Like where I'm coming from is that the environmental assessment is also the assessment of the structural stability of the eventual repository itself having to deal with the geosciences and information gained from sub-surface exploration and other planning features. And I was just wondering if there is any federally regulated -- sorry, any federal entity that would be tasked with doing a review of this other than CNSC.

Would, in fact, NRCan be capable of providing information to CNSC to make

their decision for their licensing process?

**MS. CAVALLARO:** So it's Kate Cavallaro, for the record.

We don't do engineering design specifically, and we'd like to make that clear. And while we do have expertise in geosciences, and I don't know that it -- if we were requested to provide expertise, we would certainly endeavour to see if that expertise is available. But at this time, it was not within the list of expertise that we were providing to this project.

**MEMBER ARCHIBALD:** All right. Thank you very much.

**THE CHAIRPERSON:** So I have also just a few questions.

Back on your slide 3 where you explain that NRCan was the lead organization for the development of the radioactive waste policy framework, can you help us out a little more and explain the relevance of the DGR or how the DGR fits within that policy framework?

Just paint me a bit more of a picture of how the two are related.

**MS. HOLLINGTON:** Kathleen Hollington, for the record. Thank you very much

for the question.

Maybe I'll explain to you that we see the proposal addresses the Government of Canada's radioactive waste policy framework.

First of all, it's the waste owner that is taking action on implementing a safe, secure and long-term solution for its own radioactive waste management. So it's the waste owner that's taking that responsibility, and that's in keeping with the framework.

And also, another requirement that's in the framework is that the approach must be a comprehensive solution and it must be socially acceptable, economically and environmentally sound, and that protects the health and citizens of the environment. And I'm sure as part of your work that that is what you will be, you know, looking at.

So these are two key elements that address the policy framework.

**THE CHAIRPERSON:** Thank you very much. That was very helpful.

If we could go back to the slide on page 6 that Dr. Archibald was just referring to, again, that final bullet. Just

indulge me for a bit more on, can you explain that bullet a bit more, please?

I'm not quite sure I understand what "understanding hydrocarbon potential" means and how that relates to the cumulative effects assessment.

**MR. DESBARATS:** Alexander Desbarats, research scientist with NRCan. I think I can try and answer that for you.

Hydrocarbon potential is important or is significant in this context because of the potential for human intrusion scenarios related to exploration down the road, so that's where it's coming from. So they want to, essentially, alienate or -- an area where hydrocarbon potential is not prospective, so you want to choose a repository site on that basis.

**THE CHAIRPERSON:** Would it be limited to hydrocarbon potential or other minerals as well?

**MR. DESBARATS:** That's a good question.

Other minerals, potentially salt, but again, at the site the Salina formation which is mined for salt down near Windsor is not

present. The salt beds are not present at the Bruce site.

Another potential for human intrusion would relate to, for example, CO2 sequestration which is being looked at in southern Ontario.

So there again, we would be interested, for example, in the potential of certain geological layers to be used as storage for CO2.

**THE CHAIRPERSON:** I have another question, and this was -- is with respect to the expertise within NRCan.

Is NRCan the agency that would provide expertise in bio-geochemical processes, for example, microbial processes that would have the potential to impact either release or transport of radionucleides?

**MR. VIGNEAULT:** So for the record, Bernard Vigneault.

There is some expertise on the bio-geochemistry within NRCan including the geological survey of Canada, also the minerals and metals sectors. To date, they haven't been involved in the discussion with CNSC but if there's

a request we could look at the availability of such expertise.

**THE CHAIRPERSON:** Thank you very much.

I think you can anticipate such a request.

I have an all-encompassing question which is addressed to the group here. There's one big area of expertise that I haven't heard very much specific comment on from any of the agencies, and that's expertise in commenting on the socioeconomic impact assessment, which perhaps, Patsy, you could help us with.

Which particular expertise within which departments would we rely on?

**DR. THOMPSON:** Patsy Thompson, for the record.

Currently the CNSC does not have the expertise onboard because it's not part of our bread and butter I would say. But for the purposes of this assessment we will do what we've done for other assessments, is to contract a firm with that expertise.

And so we have done that and the review is started.

**THE CHAIRPERSON:** Can we know the name of the firm that has been contracted for that review?

**DR. THOMPSON:** I'll stand corrected if I'm wrong; I believe it's IBI.

**THE CHAIRPERSON:** Thank you very much.

I understand there's a hand at the back.

That is correct? Yes. Thank you very much.

Do either of my fellow Panel Members have any further questions?

**MEMBER ARCHIBALD:** Not without being much more specific.

Thank you very much.

**THE CHAIRPERSON:** Well, this concludes therefore today's public orientation session.

Thank you very much to the presenters and to those who participated here in person or by webcast.

I would remind everyone that if you do have a question regarding the information today -- presented today, you are encouraged to

submit your written questions to the Panel’s Co-Managers.

And with that I will adjourn this orientation session.

Thank you very much.

--- Upon adjourning at 2:55 p.m./L’audience est ajournée à 14h55