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Supplementary Information

Presentation from
Ontario Power Generation Inc.

On
Project Justification

In the Matter of

Ontario Power Generation Inc.

Proposed Environmental Impact Statement for OPG's Deep Geological Repository (DGR) Project for Low and Intermediate Level Waste

Joint Review Panel

September 16 to October 12, 2013

Renseignements supplémentaires

Présentation d'
Ontario Power Generation Inc.

Sur
La raison d'être du projet

À l'égard de

Ontario Power Generation Inc.

Étude proposée pour l'énoncé des incidences environnementales pour l'Installation de stockage de déchets radioactifs à faible et moyenne activité dans des couches géologiques profondes

Commission d'examen conjoint

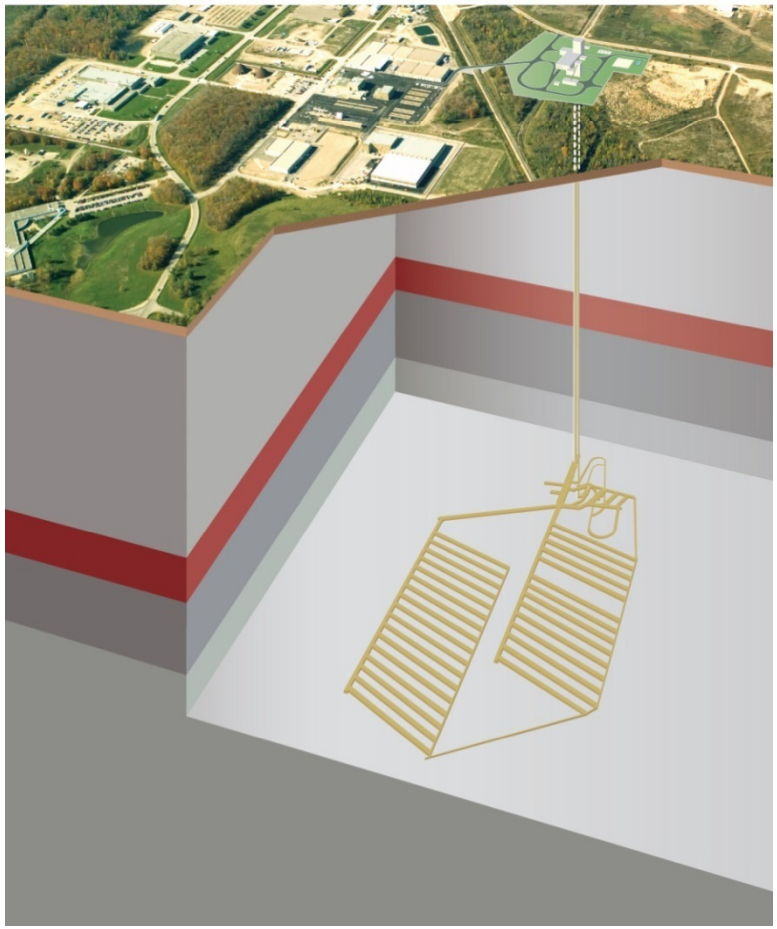
Du 16 septembre au 12 octobre 2013

Canada

OPG's L&ILW DGR Joint Review Panel Hearing

Project Justification

September 17, 2013

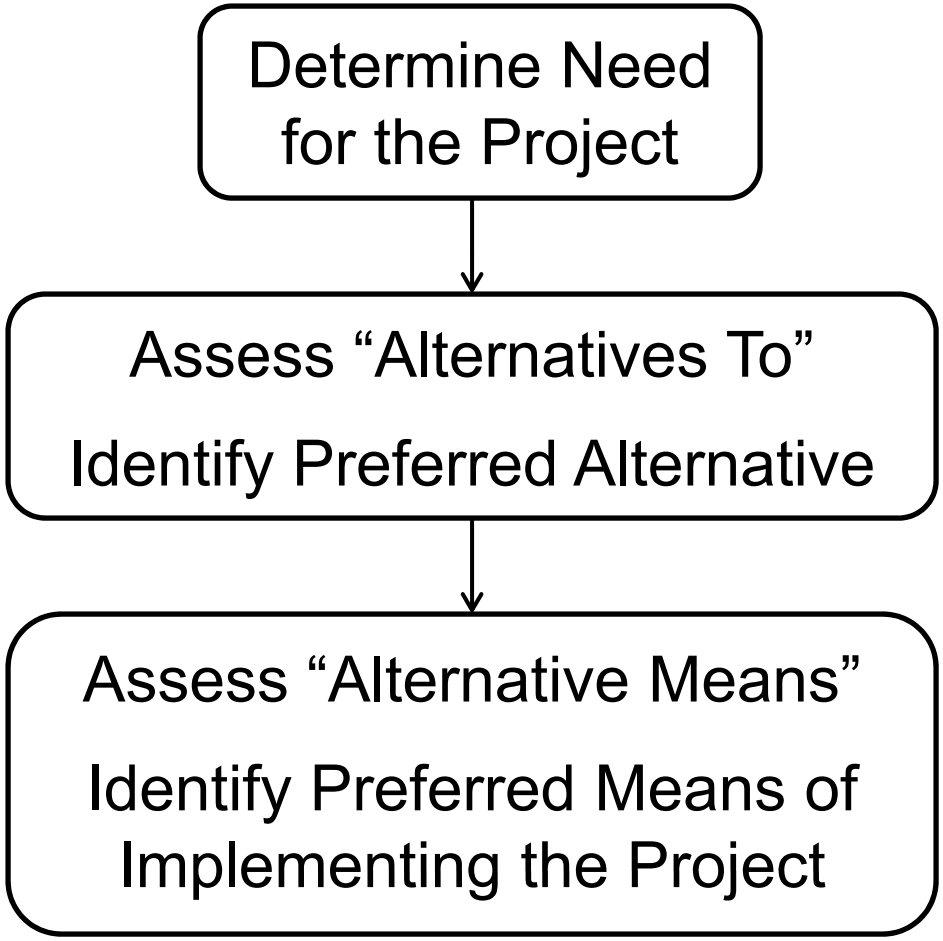


ONTARIO POWER GENERATION

Presentation Outline

- ❑ Need for the Project
- ❑ Assessment of "Alternatives to"
- ❑ Assessment of "Alternative means"
- ❑ The DGR Project: result of the assessment of "alternatives to" and "alternative means"

Process to Identify the Project



Determine Need

- OPG responsible for short-term and long-term management of L&ILW
- Some constituents of L&ILW contain long-lived radionuclides which require a long-term solution
- Avoid leaving waste for future generations to manage

4

Assessment of "Alternatives To": Approach

- Municipality of Kincardine and OPG jointly studied options for long-term management of L&ILW at the WWMF
  - Enhanced processing and storage
  - Surface concrete vaults
  - Deep rock vaults
- Options were assessed based on safety, geotechnical and environmental feasibility, social factors, licensibility, and economics

"Alternatives To": Engagement

- OPG has engaged the community, starting in 2002
- OPG distributed newsletters and information pamphlets to households
- OPG hosted open houses
- OPG made presentations to municipal councils and Saugeen Ojibway Nation Joint Council
- Kincardine staff and elected representatives visited long-term waste management facilities to inform themselves

you are invited

to participate in our

OPEN HOUSES ON LONG-TERM MANAGEMENT OPTIONS FOR LOW AND INTERMEDIATE LEVEL WASTE

Golder Associates invites you to drop by one of our upcoming Open Houses and comment on options being studied for long-term management of low and intermediate level waste at Ontario Power Generation's (OPG's) Western Waste Management Facility within the Bruce site.

Golder has been hired by the Municipality of Kincardine and OPG to conduct a fact-based assessment of the long-term management options being considered, including an examination of their technical feasibility, safety as well as social and economic impacts and benefits. We would like to meet with you to discuss our progress to date and to hear your opinions on our study.

We Want to Hear From You!

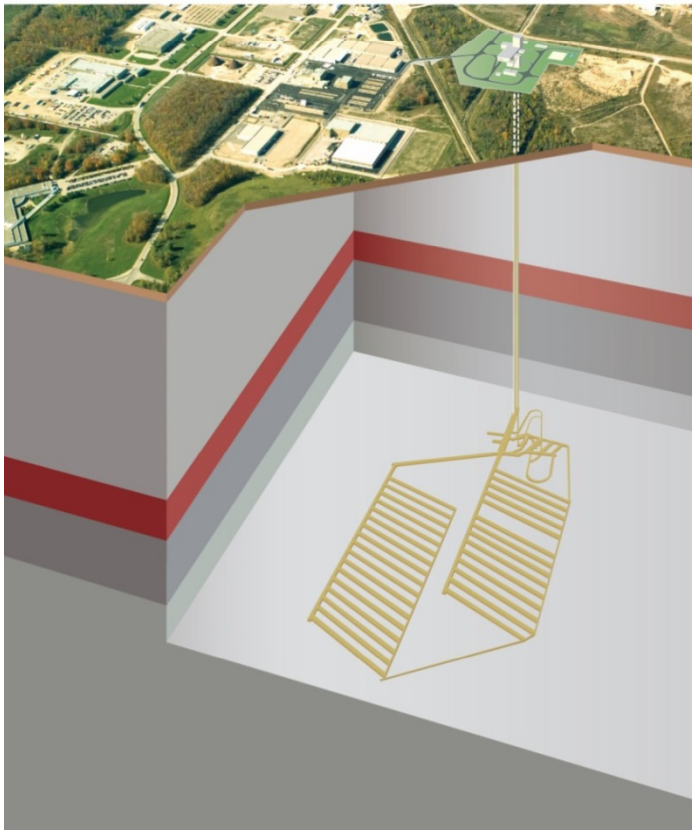
Your input will be included in the Independent Assessment Report Golder is preparing for Kincardine and OPG and will be a valuable contribution to the decision-making process.

Assessment of "Alternatives To": Results

Criteria	Enhanced Processing & Storage	Surface Concrete Vaults	Deep Rock Vault
Geotechnically feasible?	Yes	Yes	Yes
Safe to construct and operate?	Yes	Yes	Yes
Licensable?	Yes	Yes	Yes
Significant environmental effects?	Yes	Yes	Yes
Economic benefits?	Yes	Yes	Yes
Change most residents' attitudes to community?	No	No	No
Affect farm operators?	No	No	No
Affect most tourist's behaviour?	No	No	No
Manage long-lived ILW?	No	No	Yes

Preferred "Alternative To"

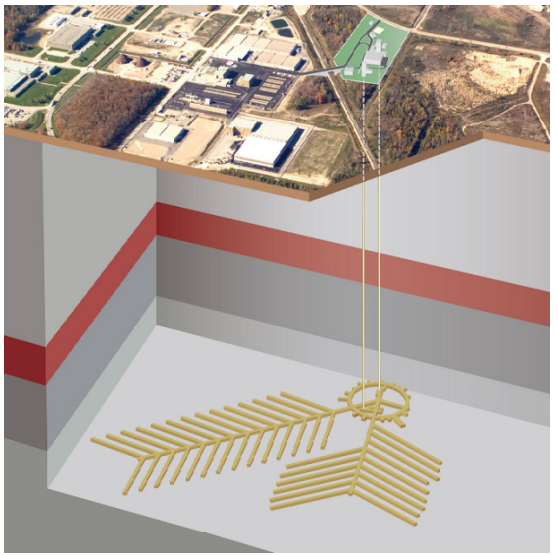
- Deep rock vault (Deep Geologic Repository) is preferred alternative:
  - Consistent with international best practice
  - Provides greater margin of safety than other options considered including existing interim facility
  - Permanent solution for all operational low and intermediate level waste, much already at the Bruce nuclear site
  - Reduces potential for inadvertent intrusion in the future
- Kincardine and adjacent municipalities support DGR

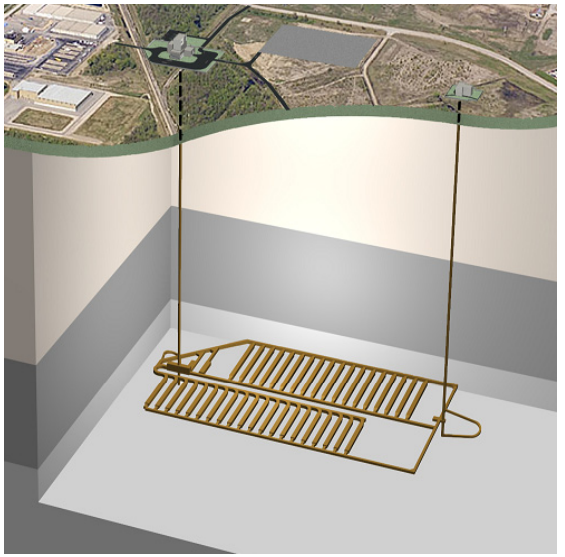


8

"Alternative Means" for the DGR

- Alternative means identified in a variety of areas:
  - Site location
  - Design aspects
  - Construction methods
  - Operational considerations
- Provides flexibility to change the design should additional information become available





9

Assessment of "Alternative Means": Approach

- Alternatives assessed relative to criteria including public and worker health and safety, technical feasibility, effects on the physical, biophysical and socio-economic environment, and economics
- Sustainability and precautionary principle integral to these criteria
- Acceptability and achievability of each alternative also evaluated
- Alternatives scored for each criterion relative to others in the category and the scores added
- Preferred "alternative means" identified; other alternatives may also be acceptable

Alternative of Siting On- and Off-site

Criteria	On Bruce Nuclear Site	Off Bruce Nuclear Site
Economics	No land costs	Incremental transport costs Possible land costs
Worker Health & Safety	Safe to construct and operate	Safe to construct and operate
Public Health & Safety	Security measures in place	Security, emergency management needed Transport on public roads
Technical	Geology likely suitable	No specific site identified (geology unknown)
Natural Environment	Site currently in industrial use	May use agricultural/natural lands
Socio-economic Environment	Municipal host willing	Willingness of host unknown
	Preferred	

Underground Construction Methods

Criteria	Drill and Blast	Roadheader with Drill and Blast
Economics	No difference	No difference
Worker Health & Safety	Safe	Safe
Public Health & Safety	Safe	Safe
Technical	Technically feasible	Road header not feasible for shaft sinking; not widely used in hard rocks
Natural Environment	Effects can be managed	Effects can be managed
Socio-economic environment	No effects	No effects
	Preferred	Acceptable

12

Assessment of "Alternative Means": Results

- Located on the Bruce nuclear site adjacent to the WWMF
- Developed in Ordovician limestone using drill and blast techniques and controlling inflow by surface-based grouting
- Underground access by islanded shafts
- Heated by electricity
- Open-ended emplacement rooms
- Waste rock is co-located with the DGR and covered at the end of the operations phase
- Stormwater is discharged to MacPherson Bay
- Accessed at surface from the WWMF by a road and culvert crossing

Conclusion

- The outcome of the assessment of "alternatives to" and "alternatives means" is the preferred approach for OPG to move forward with the long-term management of L&ILW
- The assessment of "alternatives to" and "alternative means" fully meets the requirements of the EIS guidelines
- The result defines the Project for conducting the environmental assessment

14