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**Written Closing Remarks from  
Glenn R. Sutton**

**Observations écrites finales de  
Glenn R. Sutton**

In the Matter of

À l'égard de

**Ontario Power Generation Inc.**

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OPG's Deep Geological Repository (DGR)  
Project for Low and Intermediate Level  
Radioactive Waste

Installation de stockage de déchets radioactifs à  
faible et moyenne activité dans des couches  
géologiques profondes

Joint Review Panel

Commission d'examen conjoint

**October 2014**

**Octobre 2014**

Kincardine, Ontario

October 06, 2014

Attention:

Debra Myles, Panel Co-Manager  
c/o Canadian Environmental Assessment Agency  
160 Elgin Street, 22nd Floor  
Ottawa ON K1A 0H3

Kelly McGee, Panel Co-Manager  
c/o Canadian Nuclear Safety Commission  
PO Box 1046, Station B – 280 Slater Street  
Ottawa ON K1P 5S9

Dear Ms. Debra Myles & Ms. Kelly Mc Gee

**DGR Joint Review Panel Hearing: Closing Remarks – Glenn R. Sutton**

Please find below my Closing Remarks for the proposed long term underground storage of Low Level (LLW) & Intermediate Level (ILW) nuclear waste in an underground DGR at OPG's Western Waste Management Facility (WWMF) at the Bruce nuclear site in the Municipality of Kincardine (MOK).

This submission is based on Section 7 of the JRP's Public Hearing Procedures (CEAR # 1176).

My closing submission is for the JRP to approve and accept OPG's Environmental Assessment to prepare a site and construct a DGR for LLW and ILW at the Bruce site.

A summary of important facts for the JRP to consider is listed below:

**1) Safety First**

When the Municipality of Kincardine (MOK) Council first considered being a host community for the permanent storage of LLW & ILW at the Bruce site, it was to ensure that the highest standards of safety would be included in the final design. This would apply to employee safety, nuclear safety, and public safety.

## **2) Responsibility to Future Generations**

It was the MOK Council's desire to have our current generation take responsibility for this long term storage of LLW & ILW and not pass off the decision to future generations.

## **3) Memorandum of Understanding (MOU) with OPG April 16, 2002**

The April 16, 2002 MOU that the MOK Council entered into with OPG contained these highlights to develop a long term plan to deal with LLW and ILW at the WWMF as per my letter of July 31, 2012:

- a) a commitment to openness and transparency in the review of the options.
- b) an Independent Assessment Study (IAS) was commissioned to examine the technical feasibility, safety and licensability, environmental protection feasibility, and socio-economic costs and benefits of each of the long-term management options.
- c) a commitment to public consultation and community communications.
- d) use of newsletters, open houses, a web page and advertisements.
- e) interviews with the media (newspapers, radio and television).
- f) joint trips to Europe and the USA to visit other countries and tour their low level waste storage sites to assist in the selection of the best alternatives.
- g) community host fees shared by the Municipality of Kincardine and the surrounding four municipalities.

The entire project was managed for Council via our NWSC (Nuclear Waste Steering Committee).

## **4) Tour of Nuclear Waste Long Term Facilities**

Continuing on from my letter of July 31, 2012:

Our council had two trips in 2002 and 2003 respectively (two separate groups of different members of council took part with our CAO and several OPG personnel). The objective was to tour nuclear waste long term storage facilities in other countries to obtain information on their design, operation, community consultation & determine the best technology available.

In 2002, the first group (that I was a part of) visited:

- a) the Zwilag facility in Wurenlingen, Switzerland.
- b) the NAGRA (National Cooperative for the Disposal of Radioactive Waste) in Wettingen, Switzerland.

- c) the ANDRA National Radioactive Waste Management Agency – the Centre de L’Aube Disposal Facility in Soulaines, France.
- d) the SKB: Swedish Nuclear Fuel and Waste Management Company in Forsmark, Sweden.

In 2003, the second group visited:

- a) the Chem-Nuclear Systems LLC LLRW (Low-Level Radioactive Waste Management Facility) in Barnswell, South Carolina.
- b) the DOE (Dept. of Energy) WIPP (Waste Isolation Pilot Plant) in Carlsbad, New Mexico.

### 5) Independent Assessment Study (IAS)

Again continuing on from my letter of July 31, 2012:

In February of 2004, an Independent Assessment Study (IAS) was completed by Golder Associates. The IAS considered three options that were technically feasible and safe . These three options were then analyzed for their the potential environmental, social and economic impacts and benefits:

- Enhanced Processing, Treatment and Long-Term Storage
- Covered Above-Ground Concrete Vault
- Deep Geologic Repository

The MOK council then requested OPG to proceed with the DGR as Kincardine’s preferred option.

**This was based on the DGR being safer by several orders of magnitude than the other two options.**

### 6) Community Consultation

A successful Community Consultation was then held by the MOK Council.

Quoting from my July 31, 2012 letter to the JRP:

“the success of our positive public consultation was due to the ongoing commitment of both the Municipality of Kincardine and Ontario Power Generation to communications and keeping our public informed. This was evidenced by the use of a Community Consultation Centre at 759 Queen Street in Kincardine. This office was staffed by a

member of Kincardine Council and an OPG person from October 15, 2004 until the end of January, 2005 where the public was welcomed into the office to have their questions and concerns answered.”

**Please refer to the MOK web page for:**

- a) 2004-0189 Community Consultation Process Bylaw.
- b) Bylaw 2005-027 Community Consultation Results Bylaw.

**7) DGR Hosting Agreement**

A DGR Hosting Agreement was signed by the MOK and OPG in October, 2004.

**Please refer to the MOK web page for the actual text of Bylaw 2004-157 Hosting Agreement.**

**8) State of Michigan Concerns**

In my letter to the JRP of August 12, 2013, I presented information re Michigan Senate Resolution No. 58 and I quote below:

‘On May 22, 2013 the State of Michigan passed Senate Resolution No. 58. (Reference 3). Here is text from that substituted resolution:

“Whereas, As part of an effort to protect water quality, Michigan’s siting criteria for the disposal of low-level radioactive waste prohibits any site located within ten miles of Lake Michigan, Lake Superior, Lake Huron, Lake Erie, the Saint Mary’s River, the Detroit River, the St. Clair River or Lake St. Clair.”

Please refer to Appendix A for the actual wording of the State of Michigan Law upon which this substituted resolution was based.

The bolded text below is taken from this Act 202 clause i) :

This subdivision shall not apply to a site that is located at or adjacent to a nuclear power generating facility.

NOTE: this is important as this text was left out of Senate Resolution No. 58.

Why is it that the Senate Resolution No. 58 left out that text ?

In other words, it is permitted in the State of Michigan to have a candidate site for Low Level Radioactive Waste located within 10 miles of Lake Michigan, Lake Superior, Lake Huron, Lake Erie, Saint Mary's river, Detroit river, St. Clair river, or Lake St. Clair if that site is "located at or adjacent to a nuclear power generating facility".

In summary, it appears that Senate Resolution No. 58 is flawed in its interpretation of the Low-Level Radioactive Waste Authority Act 204 of 1987.

Accordingly; as such, that part of this resolution that refers to the "proposed nuclear waste repository", should be ignored. This is because if the same standard were applied in Ontario, as in Michigan, then it would not apply to the underground DGR that would be located between Bruce NGS-A and Bruce NGS-B as both Bruce NGS-A and Bruce NGS-B are located within 10 miles of Lake Huron.'

**Please note that this discrepancy has not been clarified by the State of Michigan.**

I also presented information in my letter to the JRP of August 12, 2013 from the Kincardine News article of May 29, 2013 entitled "Michigan Senate calls for review of proposed OPG DGR" (Reference 2).

In this news article, the following two statements were made by USA government organizations when they reviewed the studies and raw data for the proposed OPG DGR:

US Environmental Protection Agency (EPA):

"In comparison to other international programs, the proposed DGR site at 2,230 feet beneath the Bruce Nuclear site, is the deepest planned facility in the world, is bounded by the thickest assemblage of low permeable cap rocks, and is isolated from surface and drinking water".

Michigan Department of Environmental Quality:

"The Department of Environmental Quality reported that it studied the Environmental Impact Statement for the proposed project and related studies and 'has no technical objections to the conclusions reached in the many various studies".

These two findings are very significant. The EPA stated that the planned facility was isolated from surface and drinking water. Also, the Michigan Department of Environmental Quality had no technical objections to the conclusions reached in many of

the various studies. **The JRP should give major weighting to these two findings by USA government agencies.**

#### **9) Storage of Decommissioning Waste**

As I mentioned in section 2.4 of my letter of July 18, 2014 to the JRP, the expansion of the DGR from 2000,000 cubic metres to 400,000 cubic metres (either new operational and refurbishment activities or decommissioning activities waste) was always anticipated in the original hosting agreement.

The Hosting Agreement contains this provision in section 4.2.

#### **10) Rolling Stewardship**

This concept is really a “do nothing” concept. I believe that the present generation should take responsibility for the long term storage of LLW & ILW.

#### **11) WIPP (Waste Isolation Pilot Project) Events**

The Summer 2014 Issue of the WWMF Neighbours Newsletter (Reference 3) contains these updates on both events:

##### **11.1) Fire Incident**

Many of the key issues found in the safety report prepared by the U.S. Department of Energy Office of Environmental Management were already considered by OPG in their DGR design and safety assessment.

OPG has committed to adding any relevant “Lessons Learned” from this event into the design of the DGR.

##### **11.2) Radiation Release Event**

OPG stated in the Summer 2014 Issue of the WWMF Neighbours Newsletter:

“OPG is monitoring the WIPP event/investigation and once details become available, we will review our design and safety assessment conclusions for the DGR Project and, if necessary, we’ll make any applicable changes”.

- a) In my letter to the JRP of July 18, 2014, the following excerpts were included from the Response to Information Request EIS-13-515 re these two events that covered the review by CNSC Staff:

WIPP Fire Event: the Conclusion for this fire event review by CNSC Staff was:

“CNSC staff remains satisfied that OPG has adequately assessed the impacts of fire and other accidents and malfunctions, and that radiological releases would not result in significant impacts to workers, the public and the environment.”

WIPP Contaminant Release Event: the Conclusion by CNSC Staff was

Highlights of the CNSC Staff review (page 14) are:

“Should OPG be issued a licence, CNSC staff will verify the application of OPEX, in particular OPG’s assessment and application of the various lessons learned from the WIPP contaminant release event to the DGR project.”

## 12) **Aboriginal Interests**

It is my understanding that OPG will not proceed with construction of the DGR until the Saugeen Ojibway Nation supports the project. This is based on a quote by OPG CEO Tom Mitchell in a letter dated August 07, 2013 and quoted in the Toronto Star (Reference 4) dated September 09, 2014 “OPG will not move forward with the construction of a deep geological repository for low – and intermediate-level nuclear waste until the SON community is supportive of the project”.

## 13) **The Independent Expert Group (IEG)**

In my letter of July 18, 2014 to the JRP, the following excerpts were included from the Response to Information Request EIS-12-513 re the IEG conclusions:

In Section 4 on page 251 we find:

“there are two fundamental issues among the options that were ascertained to be of the greatest consequence in the assessment: (a) the implications of indefinite surface storage versus permanent disposal in a deep geologic repository for the long term; and (b) the implications of choosing a granite repository site for geologic disposal at some distance away from the current waste management storage location, rather than in the sedimentary-rock Cobourg formation located adjacent to the current storage site, for the wastes.”

On page 252, based on reviewing climate change & glaciation, inadvertent intrusion, and malevolent acts , repository options are preferred over both surface storage options.

On page 253:

“The additional step of moving the wastes off of the Bruce site, where the wastes are presently processed and stored, requires substantially more handling and more miles of



waste transportation. Longer distances will increase the risk of more conventional transportation accidents.”

**Those conclusions make a very convincing case for long term storage underground via a DGR of LLW & ILW in general and at the Bruce site in particular.**

### **Summary & Recommendations**

I, as before, again concur with the conclusion that the DGR is not likely to result in any significant adverse residual effects to human health or the environment.

In summary, as before, for additional reasons, I would again urge the Joint Review Panel (JRP) to accept and approve OPG's Environmental Impact Statement (EIS) and the Preliminary Safety Report (PSR) for the LLW/ILW DGR.

Further, that the JRP allow the DGR project as proposed, to proceed onto the next step (s) in the process.

Respectfully Submitted

original signed by

Glenn R. Sutton

P. Eng., PMP

## **References & Appendices:**

- 1) SR-58, As Adopted by Senate, May 22, 2013. Substitute For Senate Resolution No. 58.
- 2) Kincardine News article of May 29, 2013 entitled "Michigan Senate calls for review of proposed OPG DGR".
- 3) Summer 2014 Issue of the WWMF Neighbours Newsletter
- 4) Toronto Star article September 09, 2014, "OPG is Qualified, watchdog says", page B5.

## APPENDIX A

### State of Michigan

#### **LOW-LEVEL RADIOACTIVE WASTE AUTHORITY ACT (EXCERPT) Act 204 of 1987**

##### **333.26210 Final siting criteria; establishment; minimum requirement.**

###### Sec. 10.

The authority shall establish final siting criteria that at a minimum excludes a candidate site that is any of the following:

- (a) Located in a 500-year floodplain.
- (b) Located over a sole source aquifer.
- (c) Located 1 mile or less from a fault where tectonic movement has occurred within the 10,000 years preceding the effective date of this act.
- (d) Not sufficiently large to assure that an isolation distance of 3,000 feet or more from the disposal unit and adjacent property lines is available.
- (e) Has wetlands within the boundaries of the candidate site as defined in part 303 (wetland protection) of the natural resources and environmental protection act, Act No. 451 of the Public Acts of 1994, being sections 324.30301 to 324.30323 of the Michigan Compiled Laws.
- (f) An environmental area or a high risk area as defined in part 323 (shorelands protection and management) of Act No. 451 of the Public Acts of 1994, being sections 324.32301 to 324.32315 of the Michigan Compiled Laws.
- (g) A floodway designated under part 31 (water resources protection) of Act No. 451 of the Public Acts of 1994, being sections 324.3101 to 324.3119 of the Michigan Compiled Laws.
- (h) Located where the hydrogeology beneath the site discharges groundwater to the land surface within 3,000 feet of the boundaries of the candidate site.
- (i) Located within 10 miles of Lake Michigan, Lake Superior, Lake Huron, Lake Erie, Saint Marys river, Detroit river, St. Clair river, or lake St. Clair. **This subdivision shall not apply to a site that is located at or adjacent to a nuclear power generating facility.**

History: 1987, Act 204, Imd. Eff. Dec. 22, 1987 ;-- Am. 1996, Act 68, Imd. Eff. Feb. 26, 1996