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**Written Submission from**

**Liz Addison**

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**

**Mémoire de**

**Liz Addison**

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

**16 septembre au 12 octobre 2013**

Canada

**DGR submission to Joint Review Panel members**

I am writing to you today in support of the proposed DGR.

Before retiring, I was an employee of Ontario Hydro, OPG, and Bruce Power for nearly 22 years. I was involved in Nuclear Operations and in Radiation Protection Training. As well, I have been a resident of Kincardine for the past 40 years.

In this presentation, I will limit my points to 3:

1. What are the alternatives?
2. Why this community?
3. Who has the expertise to process, store, and monitor low and intermediate level radioactive waste?

**What are the alternatives?**

OPG considered 3 options.[1] They could refine the processing. Called "Enhanced Processing, Treatment and Long-Term Storage", this option would make use of many techniques, but as an overall game-plan, it did not cover all the bases. Many leading edge techniques are already in practice.

OPG could keep the waste on site and store it above ground. This option was called "Covered Above-Ground Concrete Vault storage". As the name suggests, this option would see the low and intermediate level radioactive waste stored in concrete buildings at surface level.

Construction of a “Deep Geological Repository” was the third option. The proposal was for construction of the DGR on the Bruce site. It would be located 680 meters below ground in solid bedrock.

Are there other options not considered by OPG? Undoubtedly. However, these 3 were considered to have the most potential. Some options really make no sense to explore.

After initial studies, OPG was asked by the Municipality of Kincardine to concentrate on the DGR option as the preferred option.

Decades ago, Bruce site was chosen as an excellent location for the 8 nuclear reactors it now hosts. Why? Because the bedrock in this little corner of the globe is so stable. No ring of fire here. These rocks have been stable for approximately 450 million years, with no apparent faults or fractures. They have remained stable through many climate changes and glacial event and are expected to remain stable for millions of years into the future. When the scientists started looking for clues to see how stable the area was, they discovered the tiny droplets of water trapped in the sediment had a very high salt content. These droplets had been isolated for at least a million years; making it apparent that

they had not mixed with any ground water or surface water during that entire time.

The DGR would be located at a depth of 680m and would be separated from the surface by low permeability sedimentary rock, which would act as a natural barrier – a great location for such a facility. Rocks which are stable enough to support the world's largest nuclear power facility[2] are also quite stable enough for storing low and intermediate levels of radioactive waste.

**Why this community?**

Because of the stable land forms, Bruce site is considered to be a viable location to build a DGR. Still, OPG could re-locate the waste to another area, and that option was also taken very seriously. Although there are those who are worried about the transport of nuclear waste, **the Nuclear industry**, as a whole, has a very good track record. Shipments of radioactive materials are not solely generated from the nuclear power industry. Radioactive materials are used extensively in medicine, agriculture, research, manufacturing, non-destructive testing and minerals' exploration. All these materials travel our planet on a regular basis.[3]

Hence, transportation is not a reason for keeping the waste on the Bruce site, (although the safety track record seems to hold little weight with those opposed.) Still there must be other sites in the province that have equally stable bedrock. A second argument for building the DGR at the Bruce is the expertise already located on the Bruce site.

**Who has the expertise to process, store, and monitor the low and intermediate level waste?**

OPG via the Western Waste Management Facility has been processing and storing low and intermediate level radioactive waste at the Bruce site for more than 40 years. This waste facility processes waste not only from Bruce, but from Pickering and Darlington as well. Since this is where the waste is processed and stored, this is also where the expertise is concentrated.

There are thousands of highly educated nuclear professionals working on the Bruce site. In my experience, both OPG and Bruce Power have encouraged their employees to raise concerns, and to question anything they believe to be unsafe. Initiatives to make improvements are encouraged. This is an excellent group of people to have in the immediate vicinity of the DGR.

In addition, the CNSC holds the Western Waste Management Facility to agreed upon Federal standards and regulations. The facility is monitored routinely by the regulator. The DGR would be held to the same high standards and regulations.

The regulator is already involved in the process. It has responsibility to ensure the assessment models used for the safety case are correct.

From start to finish, the regulator would:

a) Confirm assumptions made in the analyses of the environmental assessment studies are correct.
b) Verify that the predictions made about the environmental effects of the DGR project are accurate.
c) Confirm the effectiveness of mitigation measures and hold OPG accountable if new mitigation measures were needed.

Following from the monitoring program (above), I would like to suggest a basic "**Frame work agreement"** under which the DGR would be acceptable in the Community of Kincardine. This agreement would require OPG to ensure that what was expected is what is happening, and if not, it too, would hold OPG accountable to do something about it. The following points would be in the agreement with the Municipality.

1. OPG to present results to the community of monitoring for air quality, conventional contaminants, and water emissions; plus the radiological environmental monitoring program.
2. Confirm measurements are as predicted.
   If there are deviations, inform the local community as to what impact this has and what the proposed mitigation would be.

**In summary:**

<u>The DGR is the best of all current options:</u>

After OPG presented the 3 most viable alternatives for long-term storage of low and intermediate levels of radioactive waste, the DGR was chosen as the best alternative primarily because it is considered by the municipality of Kincardine (as well as OPG) to be the safest and most viable alternative - far safer than doing nothing!

<u>The Bruce site is the best location for the DGR:</u>

The local communities have played host to the Bruce Nuclear site for many years. It has been more than 50 years from approval of the first nuclear reactor until the current time. Presumably, if any residents were not able to co-exist with their nuclear neighbours, they have already raised their concerns or else moved on.

Also there is the 450 million year old rock strata to consider. This is an extremely stable formation for the location of something we want to stay where we put it.

<u>Bruce site has the expertise to build and monitor the DGR:</u>

With the thousands of very knowledgeable nuclear professions working on the Bruce site and living in the local communities, there is a population willing and

ready to concern itself with all aspects of nuclear safety, including the long-term storage of low and intermediate level radioactive waste.

In addition the CNSC Federal Regulator already has a presence on the Bruce site and would be in an optimum position to oversee a DGR built at this location.

Add a Framework Agreement with the community:
The addition of the proposed "Framework Agreement" would ensure that what was originally predicted by OPG is the actual case; and that OPG is held accountable to the local community. This way the local community will be assured that all is well, and that the Bruce Site continues to be the right place for the facility.

Footnotes:

1. Western Waste Management Facility brochure published by Ontario Power Generation
   http://www.opg.com/power/nuclear/waste/pdf/WasteBrochure09a.pdf

2. Bruce Nuclear Generating Station – Wikipedia
   http://en.wikipedia.org/wiki/Bruce_Nuclear_Generating_Station

3. Transport of Radioactive Materials published by World Nuclear Association
   http://world-nuclear.org/info/Nuclear-Fuel-Cycle/Transport/Transport-of-Radioactive-Materials/#.UfAuf2t5mK0

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