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**Supplementary Information
Oral intervention**

**Presentation from
Joanne Martin**

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
Intervention orale**

**Présentation par
Joanne Martin**

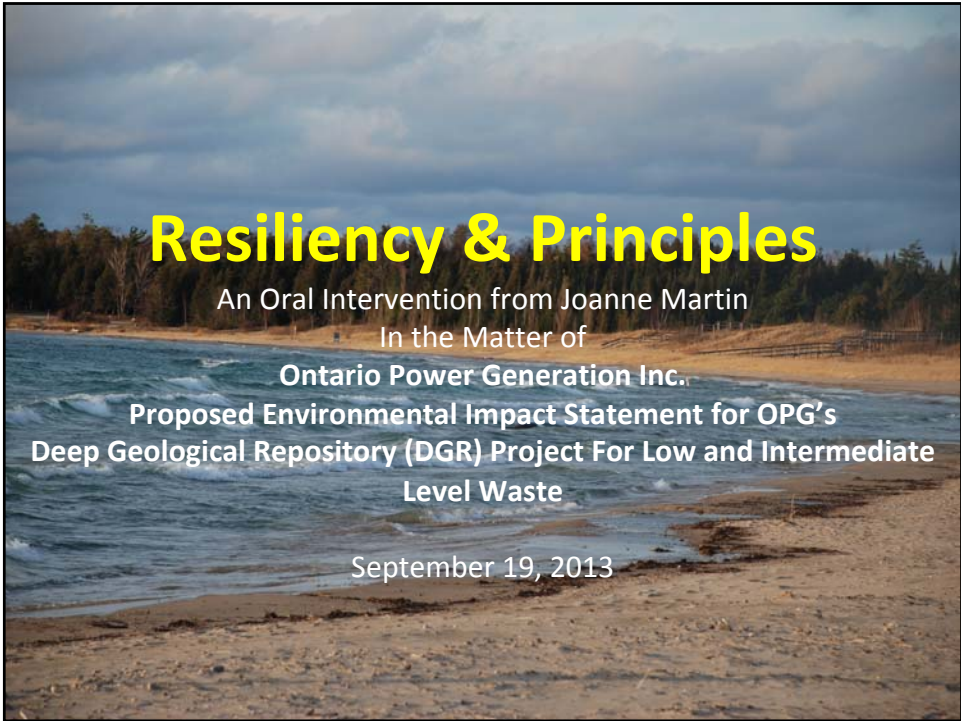
À l'égard de

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

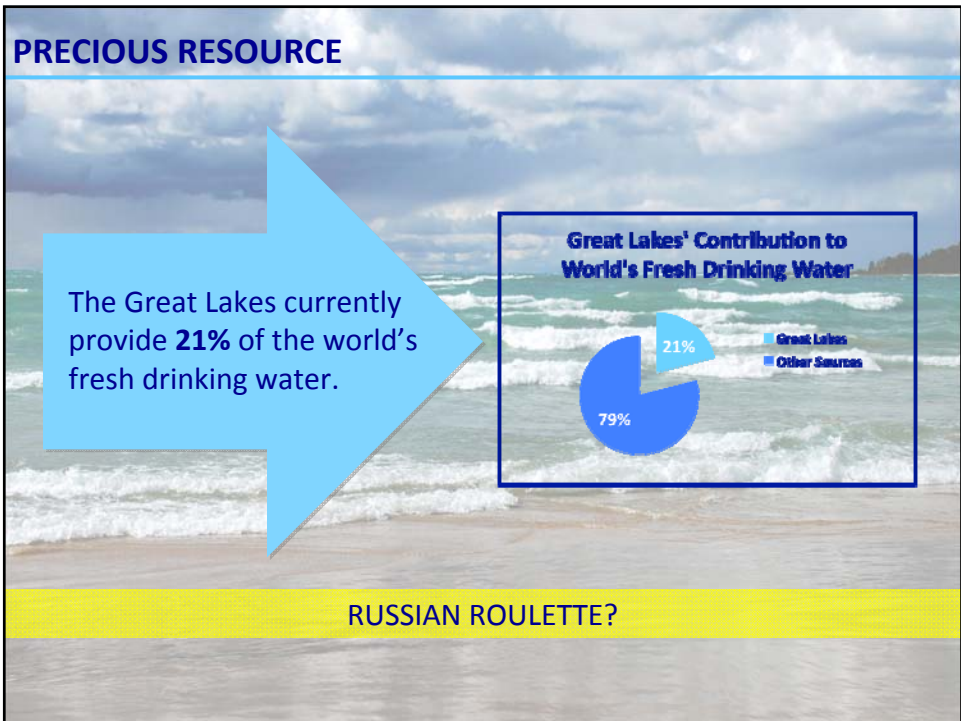


Resiliency & Principles

An Oral Intervention from Joanne Martin
In the Matter of
Ontario Power Generation Inc.
Proposed Environmental Impact Statement for OPG's
Deep Geological Repository (DGR) Project For Low and Intermediate
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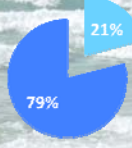
September 19, 2013

PRECIOUS RESOURCE



The Great Lakes currently provide **21%** of the world's fresh drinking water.

Great Lakes' Contribution to World's Fresh Drinking Water



Source	Percentage
Great Lakes	21%
Other Sources	79%

RUSSIAN ROULETTE?

PUBLIC SAFETY CANADA

“The National Strategy and Action Plan for Critical Infrastructure”

The proposed OPG DGR could **adversely impact at least 6* of the 10 identified critical sectors.**

CRITICAL SECTORS

1. Health*
2. Food*
3. Water*
4. Safety*
5. Energy & Utilities*
6. Transportation*
7. Finance
8. Information & Communication Technology
9. Manufacturing
10. Government

RESILIENCY

Resiliency includes consideration of unforeseen events such as terrorism, equipment failure and catastrophic human error as well as natural disasters such as fires, floods, hurricanes, tornados, earthquakes, sinkholes etc., which are all becoming more the norm lately.

*Robert Burak, P.Eng.,
President of Canadian Precast/
Prestressed Concrete Institute*

“THE DUBLIN PRINCIPLES OF WATER”

1. Fresh water is a finite and valuable resource.
2. Water development and management should be based on a participatory approach.
3. Water has an economic value in all its competing uses.

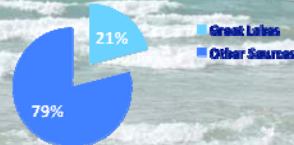
WORLD POPULATION

By the year 2025,
there will be an unprecedented
increase in
world population to between
7.9 and 9.1 billion people

PRECIOUS RESOURCE

The Great Lakes currently provide **21%** of the world's fresh drinking water.

Great Lakes' Contribution to World's Fresh Drinking Water



IMAGINE IF THE PROPOSED DGR CONTAMINATED THIS LIFE-GIVING FORCE.

LONG-TERM SAFETY OF THE DGR

In March 2012, Japanese Prime Minister Noda said of the Fukushima nuclear disaster:

“Government officials had been blinded by a false belief in the country’s technology infallibility and were too steeped in a safety myth!”



- This Joint Review Panel and the various Government Departments involved must not succumb to the same disastrous malady!
- The future of our following generations, our health and welfare depend on this!
- When a mission suddenly goes wrong, the decision-makers must give the “abort” command.

RELEVANT TODAY

It is an old adage that you
“cannot make a silk purse
out of a sow’s ear.”

POOR BUSINESS & ENVIRONMENTAL DECISION



The last 10 or so years has been an expensive and
perverse exercise in trying to build a case to
buttress a poor business and environmental
decision that should never been made in the first
place.

DUE DILIGENCE

The guiding principle at the onset for choosing a site for a DGR should have been to research the most appropriate and safest site, far from significant water and the large Toronto population, as well as the best containment method.

- This site selection was not done with proper due diligence.
- Increasing natural disasters.
- The DGR site is virtually undefended.

WHY TAKE A CHANCE,
THAT WE DO NOT, IN ALL GOOD CONSCIENCE & INTELLIGENT JUDGMENT
HAVE TO TAKE?

PROJECT JUSTIFICATION



- OPG chose the proposed site because it was convenient.
- OPG agreed to **pay millions of dollars** to Kincardine Municipality to assure the approval the DGR and ongoing support. The financial benefits would ensure a “welcoming community.”
- Ethical business practice would deem this a “conflict of interest.”

WEIGHTED POLL

The Municipality of Kincardine unduly influenced a “so called peer survey”:

- a. They **did not disqualify OPG and Bruce Power employees** or their families who have a vested interest from the survey sample.
- b. They **failed to include approximately 2,000** seasonal tax paying residents.
- c. They included a **prejudicial preamble** which stated that the proposed site categorically “provides the highest level of safety of ANY OPTION” and promises “significant economic benefit.”
- d. They asked a deliberately **ambiguous question**: “Do you support the establishment of a facility for the long-term management of low-level and intermediate-level waste in the Western Waste Management Facility?”
- e. They **eliminated** all “no or don’t know” answers received from the final calculation.

DEMOCRATIC VOTE?

MAYOR KRAEMER DEFENDS THE “PEER REVIEW” NOW!
WHAT HE SAID IN 2005 ABOUT THIS SAME POLL:

- “What is needed is a full democratic process that isn’t open to a whiff of questioning.”
- That he did not believe that the telephone poll process was an acceptable method of gauging public support for such an important issue.
- “We need a proper democratic vote that we can hold up to the world and be proud of. It did not happen.”



As quoted in The Kincardine News, 2005

PUBLIC ATTITUDE RESEARCH

As shown by the Public Attitude Research in 2009, the general population is not informed about the possible negative ramifications of the proposed DGR.

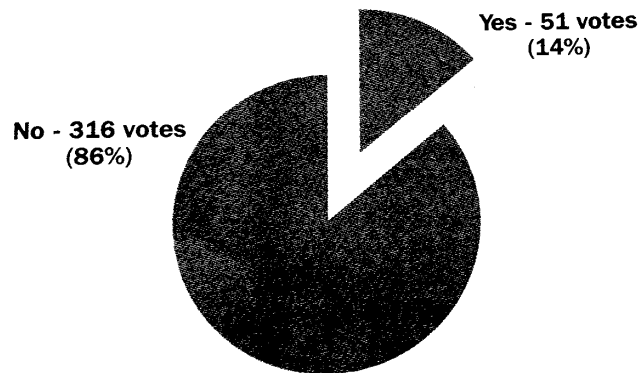
This is due to the following:

1. Rigorous, **one-sided public relations campaign** OPG and Bruce Power continue to wage.
2. No **independent media** in the area that does not **depend on** generous and powerful **OPG and Bruce Power** advertising dollars.
3. Steady diet of **OPG propaganda**, glossy brochures and numerous photos of cheque presentations to charities & sports teams.

THE KINCARDINE INDEPENDENT POLL – APRIL 2013

Weekly poll results

Are you in favour of OPG's DGR?



SHARED RESOURCES

DID YOU KNOW?

- Canada shares the Great Lakes with the U.S.
- Decisions relating to water as per **The Canadian Water Act**, are of great concern to some **40 million stakeholders**, not just the 4,054 people this decision has been based on.
- The nuclear industry has a major challenge globally of safely disposing of the huge amount of radioactive waste.

SAFETY ISSUES

DID YOU KNOW?

- Japan's crippled Fukushima nuclear plant is currently spewing illegal amounts of contaminated groundwater into the ocean.
- The operator is struggling unsuccessfully to contain this emergency.
- This is in spite of Fukushima's EIS mitigation plan that presumably everyone bought into.

EFFECTS PREDICTION, MITIGATION MEASURES & SIGNIFICANCE OF RESIDUAL EFFECTS

- Overall, CNSC staff have concluded that, with respect to long-term safety, the DGR Project is unlikely to cause “significant adverse environmental effects.”

EVEN THOUGH...

- “Some uncertainties exist in the long-term safety case to be addressed later by OPG in a Geo-scientific Verification Program.”
- OPG is advised to “review and revise the long-term geo-mechanical model and the safety assessment.”

PAST PERFORMANCE

DID YOU KNOW?

Bruce Power (previously Ontario Hydro)/OPG is the same company that:

1. Failed to mitigate catastrophic toxic emissions starting in 1985.
2. Did not take proper preventative measures to mitigate the toxic Hydrogen Sulphide emissions that affected local residents.
3. Has not required the local Ministry of Health to do baseline health studies nor tested nearby wells for radioactivity.
4. Workplace practices and incidents led to the tritium contamination which is observed in groundwater throughout the area of the WWMF. (Canadian Environmental Law Association)
5. “Quietly shelved it’s widely opposed and controversial plan to ship 16 huge radioactive steam generators out the Great Lakes and St. Lawrence Seaway to the Atlantic and across to Sweden.”

ENVIRONMENTAL ASSESSMENT BOUNDARIES

OPG, in its Environmental Impact Statement (EIS) makes thousands of commitments concerning the DGR. However, the site is an unproven experiment as a DGR has never been buried in this geological environment anywhere in the world.

There is no assurance that this waste could be safely and permanently contained in DGRs. No computer models can accurately take into account all the complexities that could be encountered from burying this deadly waste deep underground. Nothing is immutable, not even rocks. Containers will eventually erode. Groundwater will seep in. Water and gas contaminated with radio nuclides will penetrate the barriers in the repository.

*Anna Tilman,
Watershed Sentinel, 2013*

HEALTH CANADA

OPG's written submission #1246, states:

"Residual adverse effects are predicted on the overall health of local residents and members of First Nation and Metis communities during site preparation and construction and decommissioning as a result of changes to air quality."

Health Canada states:

It does not "verify air quality (acrolein) modeling results," that its conclusions are dependent on the validity of the environmental concentrations predicted by the proponent.

EXISTING ENVIRONMENT



When so called experts say there's no risk for 100,000 years, it's only an opinion, not a proven fact. The long-term results are only proven when that long term has passed.

1. The force and action of water is relentless.
2. Ground water moves from one region to another to eliminate energy differentials.
3. The flow of ground water is controlled by the law of physics and thermodynamics.
4. Outside forces such as gravity pulls ground water downward.
5. Ground water flows through comparatively soluble rock.

EXISTING ENVIRONMENT



DID YOU KNOW?

- There are 1.2 million km² of karst rock outcroppings in Canada. These are common in all geological regions except the Canadian Shield.
- Prevailing winds from the U.S. bring abundant acid rain north to Lake Huron.
- The solubility of limestone in water and weak acid solution leads to karst landscapes.
- Drilling at Bruce Power in the 1970's encountered many drill holes with large voids at depth in the limestone.

INFORMED COMMENT

I live downstream from Lake Huron, so this threatens my water supply directly. I did some work on seismic assessment of deep repositories for waste disposal, and I know that water moves within all rocks at the depths you're considering.

It's irremediably stupid to locate a toxic dump so near a large body of fresh water, regardless of the proximity to the source.

*Ken Cory,
Signee #10,510*

INFORMED COMMENT

The main problem with the Bruce DGR is that it is far below the water table. When the Bruce DGR is open there will be a large locally concentrated hydraulic pressure gradient radially around the DGR.

Hence, there are severe constraints on exploratory core drilling in the proximately of the DGR. Absent such drill cores (only 6 deep bore holes were done) there is no certainty as to the exact character of the subsurface rock adjacent to the Bruce DGR.

*Charles Rhodes,
Xylene Power Ltd.*

INFORMED COMMENT

The key issue is to keep the radioactive material dry so that there is no water borne ion diffusion.

The solution to these problems is simple:

Choose an existing lower cost more flexible DGR located in Canada which is far above the local water table in crack free granite and hence is inherently dry.

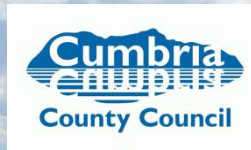
Charles Rhodes, Xylene Power Ltd.

“The OPG proposal is very unwise.”

*Rod McLeod
Former Deputy Minister
of the Environment
Petition signee #960*

THE RIGHT DECISION

- The Cumbria County Council, UK, **rejected a DGR** near the Lake District National Park.



- The reason for rejection was due to “ hearing evidence from independent geologists that the fractured strata of the county was impossible to trust with such dangerous material and a hazard lasting millennia.”
- The Lake District geology is primarily limestone and granite.

MALFUNCTIONS, ACCIDENTS & MALEVOLENT ACTS

Storing nuclear waste near the Great Lakes is a terrible, shortsighted, nonsensical idea. Residents and political officials in the region need look no further than the continuing saga of nuclear waste leaks in Washington State for a cautionary tale for why this would be bad policy.

If the nuclear industry has done such a terrible job on monitoring and securing nuclear waste in the past 50 years, I am skeptical of the industry's ability to safeguard the Great Lakes from similar contamination risks for 1,000 years to come.

*Crystal Miron
Acworth, Georgia*

OOPS

- BP thought it's oil rig wouldn't explode.



- Germany thought ASSE II wouldn't leak, a mere 30 years later, it is.



- The scientific computer modeling of the rate of travel for nuclear waste in ground water at Maxey Flatts, Kentucky was proven completely off target by 23,090 years.



EXPECT THE UNEXPECTED

- 4,054 people in a rural farming & beach community and local politicians anxious to feather their treasury nest should **NOT** be allowed to decide to build a DGR beside our precious fresh water source.
- Additionally, these 4,054 people do not have the right to speak for 40 million people.

You do not put nuclear waste near things like the Great Lakes or the great rivers in case there's a leakage you haven't expected.

*William Frye,
Retired UWO Professor
International Consultant on Nuclear Waste*

INFORMED COMMENT

This idea on its face is ridiculous. The nuclear waste dump in Nevada is the only place to store it. There is nothing to contaminate anywhere near the site in Nevada plus it's already built.

*Bob Baxter,
Gainesville, Florida*

The health and wellness of citizens in the United States and Canada depend on clean water, air and food. Placing a nuclear waste on the shore of Lake Huron puts all our health at risk.

*Dr. Amy Dean,
President of the American Academy of Environmental Medicine*

SUMMARY

We are not here to move a flawed process along just because there has been much time and money invested along the way.

I strongly recommend that the Joint Review Panel denies approval of the proposed Bruce DGR site and further directs OPG to do the following:



1. Explore other sites far away from the Great Lakes Basin;
2. Look for a stable granite or a desert home that does not impact the US directly; and
3. Explore alternate methods of storing or actually using the waste (i.e., see writings of Dr. Peter Ottensmeyer).

SUMMARY

At the end of the day, this Panel is faced with a momentous decision that is a potentially far-reaching and serious threat to millions of people and the economy in Canada and the U.S.

PLEASE RULE THAT GOING FORWARD WITH THIS DGR IS THE WRONG THING TO DO.

THANK YOU

