



June 26, 2017

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Re: Comments of SOS Great Lakes to the Minister of Environment and Climate Change and the Canadian Environmental Assessment Agency on the Response to Information Request package submitted May 26, 2017 by Lise Morton Vice President Nuclear Waste Management, OPG to To Ms. Robyn-Lynne Virtue, Panel Manager Canadian Environmental Assessment Agency. (CEAA Doc 3784- 144 pages)

To whom this may concern:

SOS Great Lakes is pleased to provide the following comments on the matter of the Additional Information Package submitted to the CEAA by OPG for the proposed Low and Intermediate Level Nuclear Waste Deep Geologic Repository in Kincardine, Ontario.

Sincerely,

Jill Taylor  
President on behalf to SOS Great Lakes, and the Board of Directors.



**Comments to the CEAA on information request package submitted  
May 26, 2017 by Lise Morton Vice President Nuclear Waste  
Management, OPG. To Ms. Robyn-Lynne Virtue, Panel Manager  
Canadian Environmental Assessment Agency. (CEAA Doc 3784- 144  
pages)**

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Prepared by Members of SOS Great Lakes

## **1.0 Introduction SOS Great Lakes**

SOS Great Lakes is a not-for-profit corporation comprised of volunteer Canadians and Americans dedicated to the prevention of the burial and abandonment of radioactive nuclear waste anywhere in the Great Lakes Basin.

Many of our members and supporters in allied groups were registered participants in the Joint Review Panel Hearings of 2013 and 2014. Our written and oral presentations can be found on the CEAA website. Those and our subsequent submissions to CEAA show how siting a DGR for L&ILW on the shore of Lake Huron on the Bruce Nuclear site is a dangerous and deeply flawed project. The burial plan for the waste raises on-going safety, health, environmental and socio-economic concerns. In addition, it is our opinion that the political process surrounding the Hosting Agreement with Kincardine, and the ongoing support by neighbouring municipalities due to intervention by OPG has been fraught with conflicts of interest, the precise antithesis of democratic due process in the DGR planning.

The disposal of ILW in the DGR 1, some of which has the potential radioactive hazards of nuclear fuel waste and for comparable periods of time, requires the same standards of technical, safety, ethical awareness and social responsiveness as in planning for high-level radioactive waste.

We continue to provide comments to this review because the DGR construction will cause a threat to the safety and security of the environment, and the Great Lakes, in perpetuity. We are all stewards of the Great Lakes, their shores and their role in the lives of not just the 40 million Canadians and Americans whose drinking water comes from the Lakes, but a world that cherishes fresh water anywhere. We expect no less of industry and our leaders.

## **2.0 The May 26 2017 Information Response Report (144 pages)**

The 144 page report that was issued by OPG on May 26, falls far short of answering the questions that were posed by the Agency on behalf of the Minister. For example:

### **IR -1.1 Alternative Sites and Regional Variability**

On the issue of providing information on alternative sites to the proposed DGR in Kincardine, this will be the seventh time that OPG has refused to provide information on sites that might be more suitable for part or all of the up to 400,000 cubic metres of waste that will be in the combined inventory of Low and Intermediate Level Waste.

OPG continues to perpetuate information that is not correct, or is vague, and dismissive of the real and present risks to this community, to the region and to the Great Lakes as a whole, that would result from this DGR being licensed, constructed and operated on the Bruce Nuclear site.

In its December Report OPG examined geologic regions of vast size instead of actual locations as required by the Act; OPG's approach was purely speculative and of little value. By referring to a region rather than an actual location OPG made it impossible for the Minister to respond with regards to technical and economic feasibility of alternatives, as feasibility varies depending on the chosen location. In the super-regions suggested by OPG there were: locations within major urban centres, locations in highly remote and largely inaccessible areas, under bridges, in Lakes and in the United States. Although the geographic coordinates of regional boundaries have now been somewhat refined, the overall flaws in the regional approach remain.

In the Agency's April 2017 request for information and clarity, OPG was asked to describe the methodology used to define variability of environment, how they have accounted for variability in conditions in each region, and how they have managed uncertainty in environmental effects assessment based on the regional approach.

In their answers, OPG used vague rather than specific descriptions of the regions and did not increase the focus of their analysis down to a reasonable size of geographic area that could be characterized; they provided no new information on qualitative or quantitative factors of environment at a scale that could be evaluated in relation to the Bruce site, discounted the effects of the DGR construction, operation and closure periods on air quality, noise, human health, hydrology and water quality.

They ignored the potential of the DGR to affect areas with vast watersheds leading to the Great Lakes, misrepresented the characteristics of the alternate sedimentary and crystalline regions' geology, geography, economies, and populations, as well as bi-national concerns. They continued to downplay to the point of dismissing the effect of the discharges from the DGR into receiving water bodies, assuming that contamination from the waste and effluent, water/ground or airborne, could be 'more or less assimilated' no matter where the DGR was.

The text ignores the importance of the quality of the water. They also ignore the increasing concerns about availability of water internationally, and chemical contamination in both the crystalline and sedimentary regions, that threatens human health on a crisis scale by stating that existing water quality in both regions is, "...generally good", therefore avoiding potential criticism of cumulative effects.

Environment and Climate Change Canada and the U.S Environmental Protection Agency disagree with OPG's assessment of the state of the Great Lakes ecosystem and water quality indicators. For an up to

date report of the state of the Lakes, please review the State of the Great Lakes 2017 Highlights Report <sup>1</sup> that recently gave the Great Lakes an overall grade of FAIR and UNCHANGING. This means the ecosystem is currently exhibiting minimally acceptable conditions but is not meeting established ecosystem objectives, criteria, or other characteristics of fully acceptable conditions.

OPG exhibits no depth of understanding of provincial legislative requirements for license in the crystalline region; they assert that their approach to release limits of toxic waste would be well managed by mitigation measures that would be developed by them in the future, after the effect has been registered, with the CNSC. They assert that there is no significant adverse effect of a DGR on VCs in any region, but there would be the least effect at the Bruce DGR site.

This response set provides less site characterization information by far than any of the analysis provided of the Bruce site in the JRP hearings in 2013 and 2014, and subsequently. There is no basis for a regional study to be able to be judged in relation to a site -specific study such as one at the Bruce; there is no information provided that would focus down on one local area each in the two regions that could be used as a comparator; the regional variation is too broad to be characterized for the provision of comparison, and so defies comparative analysis. OPG has failed to answer this question and in the process has provided evidence that they have no grasp of the task at hand, or its importance.

#### IR 1.2 Determining Significance of Effects

OPG failed to be able to identify the environmental effects for each of the VCs in the regions, and then of course was unable to provide clear comparative evaluation of effects in relation to the Bruce site. CEAA had warned the OPG that they had not in the past used consistent terminology when characterizing

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<sup>1</sup> State of the Great Lakes 2017 Highlights Report. [https://binational.net/wp-content/uploads/2017/06/SOGL\\_17-EN\\_Typo\\_fix-med\\_res.pdf](https://binational.net/wp-content/uploads/2017/06/SOGL_17-EN_Typo_fix-med_res.pdf)

potential adverse environmental effects or a consistent approach to determining if a potential residual adverse effect was significant; they also chided OPG for in the past, not describing effects at alternate sites or mitigation that could reduce the effects as they had been asked. The CEAA and the JRP had noted that the expert witness for assessment of effects (Duinker) had said that OPG had provided biased and inadequate approaches. In the end, OPG relied on their previous method of flawed analysis as a rationale for their approach, but given the widespread differences in geographical locations identified as alternates, the answers provided were mute.

### IR 1.3 Assessment Methodology

OPG failed to provide a systematic comparison of the 2 regions with the Bruce site using weighting, scoring and or qualitative lines of reasoning to demonstrate the feasibility, risks, costs, and environmental effects. The Agency had made specific points that OPG would have to demonstrate that several criteria be considered, that analysis of criteria was defensible and that all comparisons consider technical and economic factors, identifying constructability, physical features, minimum distances to waterbodies, financial factors, etc. The Agency asks for specifics, and says that in the prior report, OPG had lacked explicit descriptions of criteria for evaluation, 'it is unclear how the comparative assessment of the alternate locations demonstrate why one location is preferred over the other'.

OPG does not answer the main or subset questions, or provide a more refined response than their December response. It must be considered 'unheard of' that the Agency should be in a position of having to suggest to OPG the criteria that they must consider when internationally accepted criteria for site selection and evaluation exist and are available on the internet, as well as in the journals and from the conferences that OPG is on record as having attended in the last 1.5 decades. There is no way of reviewing comparability between sites, if the criteria are limited, stem from bias or are not properly defined; in the case of Table 1, only 5 criteria for comparison are floated and they are plainly, poor

criteria, nonsensical, and un-scientific. For example, Criteria 3 is 'Uncertainty: Project Requirements or Social License'. And the description of this criteria is, 'expected ability to bring the project in on time with a high degree of certainty and willing hosts'. Is 'uncertainty' which is a very serious aspect of risk analysis applying to the whole project, including its science, socio-cultural and economic character only limited to whether the project is approved by the community? And, will a project be uncertain and unacceptable if the community acceptance cannot be attained? And if the community is defined as the region or the province, the country or the international context as it should be, is the DGR in Kincardine not 'dead'.

This surely is one aspect of uncertainty, but what about the others: is everything else in the DGR project, on any site likely to be 'certain' in its design and execution?

Similarly, the other criteria are drawn from a hat and mashed together; they are not based on any degree of acuity of understanding of the project or what is being asked; the answers are far worse than those given during the JRP hearings on the subjects, and even those were judged unacceptable.

The marking of the alternatives including the Bruce site is totally baseless, because it is not based on analysis that can be demonstrated to be sound, sensible, repeatable or transparent. The determination of the Bruce site as being *Preferred* on page 11 of 144 is an entirely bogus conclusion. It renders the rest of the OPG answers also false and flawed, because it confirms without a doubt, the bias inherent in the OPG approach to the Agency questions, and their continued disdain for sound judgement and consideration. It asserts without a doubt that they are wedded to the Bruce site and not interested in any alternates, and that they have based their entire case since 2002, on 'the willingness of the host in Kincardine' with little to no serious consideration of safety or environment or health or the uncertainty of their site, although to begin with, OPG has indicated that, 'the technical objective is safety'.

#### IR-1.4 Technical Feasibility Criteria



The Agency needed to know how to focus in to a regional analysis that excluded areas that were in high seismic zones and where underground gas pressures would influence the proposed DGR, and asked OPG to consider adapting the report based on these particular criteria of suitability and risk. The Agency brought to OPG's attention that the use of criteria for the Bruce and alternate locations such as, 'the rock is a million years old, therefore expected to resist geologic and climate change processes', or 'the rock as been stable for times compared to the hazard...and resilient to past glacial and seismic events', or 'a depth of 200 metres' can anticipate maximum gas pressures was insufficient to assess any of the alternates or in the same vein, the Bruce site.

OPG answered by saying that they had already considered these factors, and that any other more detailed analysis would be conducted as part of the siting process; they limited their area of consideration in the wide regions by excluding the seismically unacceptable areas. They did not answer the question about gas pressures.

#### IR-1.8 Radiation and Radioactivity

The Agency asked OPG to clarify whether the baseline radiation doses at the Bruce site, including sources of radiation from the Bruce power stations and other nuclear activities in the vicinity of the site, were considered in the comparative assessment of potential effects of radiation and radioactivity at the alternate locations, and if so, how they were considered.

OPG states emphatically that the effects of radiation are not significant at the Bruce site because dose rates are well below regulatory limits and benchmarks. This conclusion, however, is unsupported by evidence, such as lack of health data, and flies in the face of the CNSC's direct statements to the contrary when it states that regulatory limits are not health limits and are often misconstrued to be such, as OPG

does in its report. If OPG wishes to make this claim with authority, it must provide the evidence-based science that will demonstrate its observation to be true.

There is no indication of whether there is an existing human population at the remote alternate locations identified whereas it is certain that there is an existing human population at the Inverhuron site where OPG prefers to build a DGR, and it is also certain that 40 million people rely on water from the Great Lakes. Given the lack of information regarding the population of the remote alternative site, it is impossible to assess the potential effects of radiation and radioactivity on the population.

#### IR-1.12 Cost Estimate Variance

The Agency asked OPG to clarify the variation in the cost estimate, to take account of adjustment factors and management reserves due to lack of specificity in the prior technical documents. OPG provides a simplistic answer about cost variables at the conceptual level of a project, and states that further clarity is not available at this time, nor a detailed work breakdown structure available. They purposefully mix up references to the capital cost and operating cost of the DGR with transportation costs of the waste (which they say that they know of at Bruce with a good deal of certainty, because they have all the data and timelines and a draft WBS); thus the transportation cost variation is not clarified, nor the variations that may exist between the sedimentary alternate, the crystalline alternate and the Bruce site.

Now this is unnecessary in the extreme, because on the internet, you can view the detailed cost projections that have been prepared for the NWMO APM DGR at various locations, including the cost of capital works over time, operation, and even the fees that will be paid to the project managers, the engineers and the CNSC. And the APM DGR is years behind the DGR at the Bruce in terms of development, AND it has no willing host. One could only imagine that the OPG would reference these findings, prepared by their colleague NWMO, who is helping them prepare these answers to CEAA, in the

questions about cost variation, and the more focussed attention on cost. So in fact, the answer is not transparent or helpful to the Agency, and could be said to be contrived so that the bias in favour of the DGR at Bruce remains intact, but not updated. They also have ample access to the cost projections that have been prepared by international waste management organizations who are going through the same process of evaluation, and have projected the costs of construction and operation of DGRs in both sedimentary and crystalline rock, at multiple depths. So there is cause to be unsure, or careless in a complete answer to the question.

The OPG continues to assert that the entire volume of waste, up to 200,000 (or 400,000) cubic metres, would have to be taken off site in expensive and dangerous/not dangerous transport regimes, at the additional cost of environmental degradation due to carbon emissions from transportation. They continue to fail to acknowledge the very obvious factors that:

- if an alternate site was deemed appropriate for ILW, and another in the future for HLW, that the LLW which is the greatest volume would not be buried at an alternate site, because ways would be found to store it and then dispose of it in the shorter duration life of the waste, as is done in other countries.
- there is no need to transport the 90% volume of waste from the Bruce site, if enhanced storage is pursued, and
- there is no question that in the future that any trucking and transportation of waste to an alternate site would be done in fuel efficient, non GHG generating vehicles.

So the costs of transportation are a sham, and the supposition that the total volume of waste would ever be transported is a sham. Therefore, the comparison of the various alternates on the basis of cost, and on the basis of environmental measurement, are false. This is compounded because the 2.4 billion dollar estimate for construction operation is also unfounded.

On the issue of Management Reserve, surely what the Agency is referring to is the amount of money that has been set aside in the Segregated Decommissioning Funds to pay for the OPG DGR pre-construction, construction and operation and post closure periods, and if it accounts for the variables and updates that would be required to accurately portray the cost of a DGR on any one of the sites? Or if there is enough money to account for the uncertainties in the cost of the known proposal, so close to licensing, at the Bruce site, and if, and in what quantity this uncertainty would fall outside the Segregated Fund, and be the burden of the province? It is certainly of interest that these questions be carefully answered, and transparently so at this particular time in the process of deciding whether to 'hold' or 'fold' by the touted Monte Carlo risk analysis methodology.

#### IR-1.13 Valued Components

The Agency asked OPG to identify the potential effects of any change caused to the environment for each alternative location and provide a comparative qualitative analysis on: health and socio-economic conditions, physical and cultural heritage, the current use of lands and resources for traditional purposes, or any structure, site or thing that is of historical, archaeological, paleontological or architectural significance and to provide a discussion of whether constructing the Project at an alternate location would reduce the risk or harm on potentially affected Indigenous groups in the preferred Project area.

OPG ignores that the Bruce DGR is to be located on and in a provincially significant wetland that is currently contaminated by radionuclides as well as other toxic chemicals due to operations at both WWMF and Bruce Power. It further fails to note that Inverhuron, where the DGR is proposed to be built, is itself a provincially significant historical site and that future generations will be deprived, or are likely to be deprived, of the ability to conduct archeological and other appropriate research. Archeological digs

had been proposed for the Inverhuron Provincial Park site, for both research and educational purposes, but these had to be suspended due to the construction and operations of the Bruce Heavy Water Plant. No such features have been definitively identified or posited for any other alternative location.

Furthermore, OPG disregards the historical, archaeological, and paleontological significance of the Great Lakes themselves. Given the uniqueness of the Great Lakes, it is unlikely that the alternative site would share the same features.

#### IR-2.2 Methodology for Temporal Boundaries

The Agency asked OPG to describe the variability in timelines between alternate locations, including looking at the overlap activities that could occur with an APM DGR project, the WWMF project, or the Bruce expansion, with potential cumulative effects. OPG had predicted no cumulative effects in their previous response, and the Agency found this unsupported. OPG responded by making a few timetable adjustments for some additional overlaps but concluded that there were no cumulative effects/impacts, because “VCs were conservatively assumed to persist and overlap in time whether the activities causing the effects occurred at the same time or not; cumulative effects assessment conclusions also would not change.” Once again OPGs display of total overconfidence and no possibility of there being a problem. Any good analysis would admit a possibility of problems to give a serious risk assessment.

On the issue of effects, it must be noted that OPG has missed the mark even in the reporting of effects of the WWMF that they are fully aware of: in 2017 WWMF re-licensing and expansion hearing, the WWMF operations and activities were revealed to have failed to contain the radioactivity from the waste packages it receives and processes. Storage buildings are inadequately shielded with the result that gaseous ‘fugitive’ emissions are released to atmosphere and groundwater, polluting both the air and the Baie du Doré watershed. Gaseous emissions as a result of incineration of nuclear wastes are unmonitored and

can be widely distributed throughout the Local Study Area of Inverhuron. EIS 2011 failed to report any of these short-comings, nor their effects of human and non-human biota or the factor of the WWMF or the Bruce nuclear site being proximate to the proposed DGR.

#### R-2.2 Methodology for Types of Cumulative Environmental Effects

The Agency asked OPG to discuss the cumulative effects of the APM DGR on the Bruce DGR, including for smaller incremental effects to build together to provide a significant adverse effect. The Agency felt that OPG had not considered the effect of cumulative impacts on VCs over time. OPG does not present the facts of already degraded contexts to provide a baseline, or anticipate adverse effects from any of their facilities that could combine to create greater effect.

In the second part of this information request, CEAA is echoing a main point we made in our submission (that two small or insignificant impacts can become significant when looked at incrementally. OPG makes no adjustment here. They continue to state that any impact is so insignificant without bringing any new info to prove that there is no possibility of cumulative effect. They state: “no adverse effect identified as a result of the DGR Project.” One flaw in OPGs analysis throughout is that the NWMO’s APM DGR will be so well designed that there won’t be any significant impacts from it on VCs. This is an assumption that there is no basis for. Compromises are made all the time in projects – especially to manage uncertainties, and to save money.

As an example of their over confidence and the lack of confidence we have in the presentation of fact, OPG continues to assert that there is no potential for cumulative effects to surface water quality or quantity to occur in Stream C or Underwood Creek in the Little Sauble watershed, and as a result, no synergistic, compensatory or masking cumulative effects to populations of aquatic VCs, such as burrowing crayfish, benthic invertebrates, Redbelly Dace, or Creek Chub. In fact, during the recent

WWMF re-licensing EA it was demonstrated that the benthic invertebrate population has been adversely affected in the Stream 'C' ditches. Since WWMF operations are the only ones present at this location, it can only be presumed that these deficiencies are as a result of WWMF operations and activities since OPG assiduously avoids any detailed, definitive analysis of the nature of the damages it has caused. The Simpson species bio-diversity scores in these ditches at one of the sites identified was as low as 0.04% when compared with expectations for southern Ontario ditches. Short of sterilising the entire Stream 'C' ditch, species diversity could not be worse. Nonetheless, OPG has not incorporated this information into their reporting, or further investigated such adverse effects with any more rigour than a Level 1 (or professional judgement) assessment rather than a more detailed Level 3 assessment that is rigorous and evidence-based to identify the impacts on the VCs identified.

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### **3.0 Comments on OPG'S Cumulative Effects Responses**

OPG has been sent back several times to try to better explain its proposed DGR at Kincardine and to try to fill the holes in its proposal. On February 18, 2016, Canada's Minister of Environment and Climate Change issued information requests to OPG. One of these questions was on cumulative effects. The Minister called for:

*An updated analysis of the cumulative effects of the Project in light of the results from the Phase 1 Preliminary Assessments under taken by the Nuclear Waste Management*

*Organization [NWMO], which identified three potential host communities that fall with the traditional territory of the Saugeen Ojibway Nation.<sup>2</sup>*

OPG responded to this question in December 2016.<sup>3</sup> As part of the resultant consultation period in early 2017, SOS Great Lakes submitted substantial and thorough comments pointing out the failure of OPG to adequately answer the Minister's questions.<sup>4</sup> Part of our submission was a critique of OPG's submission on the cumulative effects if both OPG's proposed DGR and the NWMO's proposed DGR for spent nuclear fuel waste were built in the same general area. We found the analysis of cumulative impacts of the two possible facilities to be woefully inadequate. After pointing out the serious fundamental limitations in that analysis, we concluded: "OPG has thus avoided seriously confronting the question that the Minister posed to them and tried to cut off community discussion of this topic on which the Minister asked for essential information."<sup>5</sup>

After public and government review of OPG's responses, on April 5, 2017 the Canadian Environmental Assessment Agency (CEAA) sent OPG requests for further information to help in addressing the questions the Minister had raised. OPG responded to these requests for further information on May 26, 2017.<sup>6</sup>

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<sup>2</sup> Letter to Laurie Swami, Ontario Power Generation, from Catherine McKenna, Minister of the Environment, Canada, Feb. 18, 2016.

<sup>3</sup> *Updated Analysis of Cumulative Environmental Effects*.

<sup>4</sup> SOS Great Lakes Submission of March 6, 2017; <http://www.ceaa-acee.gc.ca/050/documents/p17520/118362E.pdf>

<sup>5</sup> SOS Great Lakes Submission of March 6, 2017; <http://www.ceaa-acee.gc.ca/050/documents/p17520/118362E.pdf>. Pg 86.

<sup>6</sup> Letter from Lise Morton, Ontario Power Generation, to Robyn-Lynne Virtue, Canadian Environmental Assessment Agency, dated May 26, 2017.



Upon review of the May 26<sup>th</sup> responses from OPG, we find that OPG has in no way strengthened their case. The fundamental flaws are still there in the additional information.

**1) OPG still assumes “no significant adverse effects” from its proposed DGR:**

The analysis is still full of statements with phrases such as “unlikely” and “insignificant” to modify any possible adverse effect. As a result, OPG rarely admits that there could be something to accumulate with the NWMO APM DGR to create a cumulative effect. In our March 3 submission, we stressed that OPG’s cumulative effects analysis was fatally flawed because of this approach. We pointed out that the Canadian government’s guidance on cumulative impact assessment stresses this flaw. The Canadian government’s Guide states in its introduction: “These incremental effects may be significant even though the effects of each action, when independently assessed, are considered insignificant.”<sup>7</sup>

We were pleased to see that CEAA made the same point as we did in their questions of April 5: “Discuss the potential for smaller, incremental effects from both projects, when combined, to have the potential to have adverse effects over time [IR-2.2].” OPG’s response to this request from CEAA brings forward no new information on this matter and comes to the same conclusion it did before. All possible impacts are insignificant and, therefore, there can’t be significant cumulative effects.

**2) OPG assumes that the NWMO’s proposed APM DGR will have no negative effects:**

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<sup>7</sup> 1.0 Introduction in *Cumulative Effects Assessment Practitioners’ Guide*, prepared for the Canadian Environmental Assessment Agency by the Cumulative Effects Assessment Working Group, February 1999.

OPG makes this assumption on the basis of a perfect APM DGR being built. Therefore, it won't matter if there is overlap in time and/or location between effects of the OPG and NWMO DGR.

As OPG's assessment states, the information currently available on NWMO's proposed APM DGR is very limited at this stage. We recognize that. This means that the proponent needs to be extraordinarily cautious on coming to conclusions on effects and risks possibly associated with the NWMO facility.

OPG repeatedly says that its assessments are "conservative", i.e., that the risk in actuality would be much lower than the one they have derived. In a situation of so many unknowns being attached to the NWMO's APM DGR, it is foolhardy to call it a "conservative" conclusion when they conclude "no adverse cumulative impacts" [Updates Analysis of Cumulative Environmental Effects, December 2016, p. v]. The greater the unknowns the greater the uncertainties and the less valid any "no effect" or "no significant risk" conclusions are.

OPG makes the conclusion of "no effects" and "no significant effects" from NWMO's APM DGR on the basis of four assumptions:

- 1) That the facility will be designed to avoid all problems. For example, in response to CEAA IR-2.3 on accidents, etc., OPG says that for the NWMO, "the facility would be designed to handle the credible events that could occur." **How can we have such assurance that a facility can be designed to avoid all problems? The perfect facility has never been built and the perfect operation has never been put into place.**

2) That the facility will meet all government standards and environmental protection requirements. For example, they state that “the consequences would be well below the public dose criteria” for exposure to radionuclides.<sup>8</sup> The problem with this assurance is that as science progresses we gain a better understanding of the doses, etc., at which negative effects occur. Almost always the criteria and standards get tighter over time as a result of these improved understandings. **What was once considered “acceptable” is often no longer acceptable 20 years or 50 years down the road. This is always a problem, but it is an even greater problem here when dealing with substances some of which will last for incredibly long times.**

3) That mitigation actions will address all problems. Also that “the site would be remediated” if a problem arose.<sup>9</sup> Our efforts at remediation rarely achieve restoration. For example, we have spent hundreds of millions of dollars trying to restore groundwater under leaking landfills but have never been able to truly restore one. **How would we ever be able to restore something of the nature of a disposal site for high level radioactive wastes at the proposed NWMO APM DGR?**

4) That certain “potential impacts would be further evaluated as part of any future proposed APM DGR, in the licensing process.” We should not come to a conclusion that there would be no cumulative impacts between the two possible sites on the basis that the approvals and licensing process for the NWMO’s APM DGR will create a risk free facility. **There is no way to be assured of this.**

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<sup>8</sup> See answer to IR-2.3, p. 84

<sup>9</sup> See answer to IR-2.3, p. 86.

**Conclusion:**

OPG still holds to its original response to the Minister's question regarding cumulative effects as a result of building OPG's DGR and the NWMO's APM DGR in the same vicinity. OPG concludes:

*Since no adverse cumulative effects were identified, an assessment of significance of cumulative effects is not required. The original conclusions presented in the Environmental Impact Statement regarding cumulative effects of the DGR Project at the Bruce Nuclear site and other projects and activities remain valid when the APM DGR is considered.<sup>10</sup>*

An environmental assessment that comes to such a definitive no possible significant cumulative effects from two facilities each of which deals with such extremely long-lived and hazardous materials has no credibility. This is even more incredible when the unknowns around one of the facilities (NWMO's APM DGR) are so substantial.

The only credible answer that the OPG could give to the Minister's question would be: "We don't know the answer."

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<sup>10</sup> Updated Analysis of Cumulative Environmental Effects, December 2016, p. v.

## **4.0 Summary**

In summary, OPG has still not,

- identified alternate locations, or provided an acceptable rationale for their abstract regional analysis,
- used a critical framework of analysis for any of their comparative work,
- abandoned their underlying bias toward building a DGR at Kincardine for pure convenience,
- identified obvious flaws in their predictions of 'no significant adverse effects' from its proposed DGR,
- recognized the significance of potential risks of accident and malfunction upon the locality, region or larger area,
- identified cumulative effects, or followed the governments guidance in assessment of cumulative effects,
- identified the potential cumulative effects of the NWMO APM DGR if built within the same area,
- accurately identified the cost of the DGR or its comparators,
- identified international commitments as important to the process of approval,
- corrected themselves about the 2016 Gandalf poll results that were first skewed in favour of the DGR among Ontarians, and then improperly recorded in their report to conclude that there is little public interest in the issue of nuclear waste or a DGR in Kincardine,
- accounted for the failure rate of DGRs internationally or drawn lessons in their commentary on mitigation and preparedness,
- identified that there are no DGRs in the world that are operating, and that the only one that is operating, the WIPP, has failed continuously since 2014 during accidents, collapses and malfunctions,

- corrected themselves about the 2016 Gandalf poll results that were first skewed in favour of the DGR among Ontarians, and then improperly recorded in their report to conclude that there is little public interest in the issue of nuclear waste or a DGR in Kincardine,
- identified international commitments as important to the process of approval,
- recognized that the stakeholders in this project are the 40 million people in Canada and the United States who currently rely on the Great Lakes for fresh water,
- clarified that they do not in fact have social license or community approval, as evidenced by the following:

- 1.) Many dozens of participants in the JRP hearings, citizens, scientists, clergy, indigenous groups, and other experts expressed their opposition in reasoned depositions in 2013 and 2014.
- 2.) Citizen organizations like our own having the support of 1000s of others, opposed the Kincardine DGR continuously for years, and have done so in presentations to municipal and County Council, to councils outside of Bruce County, to ratepayers groups who are also in opposition, to the International Joint Commission, the Great Lakes and St. Lawrence Cities Mayors, to the CEAA Expert Panel, to the JRP, to their elected provincial and federal representatives, in the print and social media and on the streets.
- 3.) The results of OPG opinion polling for consent from 2002 to 2011 was proven to be falsely represented.
- 4.) The support by Bruce county mayors and councils has been criticized for being unrepresentative of their constituents, and motivated by monetary gain for their municipalities, promised based on continuing support.
- 5.) That there are legitimate petitions against the DGR from people in the Great Lakes. Combined there are over 150,000 signatories.

- 6.) That 98% of those Canadians and Americans who responded to a request to provide public input on the project by CEAA and Minister McKenna indicated that they were opposed to the DGR.
- 7.) That opposition has been expressed in 224 resolutions from municipal and other government bodies in Canada and the United States, including from the Great Lakes Legislative Caucus, the National Association of Counties, the Great Lakes and St Lawrence Cities Initiative as well as from the State of Michigan.<sup>11</sup>
- 8.) U. S. Senators and Congressmen have introduced bills into the Senate and Congress to stop the DGR and have also petitioned the Canadian federal government to stop the process. Please see Appendix A.

## **5.0 Conclusion**

OPG has failed, again, to answer the Minister's and CEAA's questions. Furthermore, OPG does not provide any new information to fill the gaps previously identified. How many tries do they get? It is time to stop the DGR project in Kincardine. We must all move on to better solutions to the issue of protection of people and the environment from the dangers of nuclear waste.

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<sup>11</sup> <http://stopthegreatlakesnucleardump.com>

## Appendix A

### RECENT AMERICAN EFFORTS TO STOP OPG'S DGR

REPS. KILDEE, DUFFY LEAD BIPARTISAN LETTER TO MINISTER FREELAND HIGHLIGHTING OPPOSITION TO PROPOSED CANADIAN NUCLEAR WASTE FACILITY 2/1/2017

[HTTPS://DANKILDEE.HOUSE.GOV/MEDIA/PRESS-RELEASES/REPS-KILDEE-DUFFY-LEAD-BIPARTISAN-LETTER-HIGHLIGHTING-OPPOSITION-PROPOSED](https://dankildee.house.gov/media/press-releases/reps-kildee-duffy-lead-bipartisan-letter-highlighting-opposition-proposed)

LETTER TO SECRETARY OF STATE REX TILLERSON 6/7/2017

<https://trott.house.gov/sites/trott.house.gov/files/Congressional%20Letter%20from%2032%20Members%20of%20Congress%20to%20Secretary%20Tillerson.pdf>

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Representative Paul Mitchell (MI-10) sent a bipartisan letter with twelve of his House colleagues asking the Trump administration to urge Canada to halt the Ontario Power Generation (OPG) proposal to store nuclear waste near Lake Huron. 2/1/2017

[HTTP://STOPTHEGREATLAKESNUCLEARDUMP.COM/PDFS/COMBINED%20PRESS%20RELEASE%20AND%20LETTER%20FROM%20PAUL%20MITCHELL%20TO%20POTUS.PDF](http://stopthegreatlakesnucleardump.com/PDFS/COMBINED%20PRESS%20RELEASE%20AND%20LETTER%20FROM%20PAUL%20MITCHELL%20TO%20POTUS.PDF)

CONGRESSIONAL LETTER TO THE HONOURABLE JUSTIN TRUDEAU 2/5/2015

[HTTP://STOPTHEGREATLAKESNUCLEARDUMP.COM/PDFS/110515%20CANADIAN%20NUCLEAR%20WASTE%20\(TRUDEAU\).PDF](http://stopthegreatlakesnucleardump.com/PDFS/110515%20CANADIAN%20NUCLEAR%20WASTE%20(TRUDEAU).PDF)

KILDEE, PETERS, STABENOW INTRODUCE RESOLUTION OPPOSING NUCLEAR WASTE STORAGE SITE IN GREAT LAKES BASIN



[HTTPS://DANKILDEE.HOUSE.GOV/MEDIA/PRESS-RELEASES/KILDEE-PETERS-STABENOW-INTRODUCE-RESOLUTION-OPPOSING-NUCLEAR-WASTE-STORAGE-SITE](https://dankildee.house.gov/media/press-releases/kildee-peters-stabenow-introduce-resolution-opposing-nuclear-waste-storage-site)

STATEMENT BY CONGRESSMAN DAN KILDEE ON CANADIAN NUCLEAR WASTE STORAGE NEAR GREAT LAKES

<https://dankildee.house.gov/media/press-releases/statement-congressman-dan-kildee-canadian-nuclear-waste-storage-near-great-0>

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S.2026- Stop Nuclear Waste by Our Lakes Act of 2015

<https://www.congress.gov/bill/114th-congress/senate-bill/2026>

H.R. 3483- Stop Nuclear Waste by Our Lakes Act of 2015

<https://www.congress.gov/bill/114th-congress/house-bill/3483>