Annual Report (2021) of the Adaptive Phased Management (APM) Environment Review Group (ERG)



The ERG: Bill Ross (left), Tammy Tremblay (middle), Helen Temple (right)

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1 Message from the Chair

I am pleased to report that, in early October, the ERG was able to meet with NWMO in Toronto and in the Southwest Ontario possible site in the Municipality of South Bruce. At that meeting we were pleased to learn about the extension of the APM project time frame, allowing more opportunity for both engagement with communities and conducting very important preliminary studies. We were also able to go to the South Bruce site, where we visited the (possible) site for the Deep Geologic Repository and the Greenock Swamp Complex (just downstream). Given that we determined water is likely to be a very important valued component (VC) in the conduct of the impact assessment, this led the ERG to identify several preliminary water studies that should be conducted soon.

In addition to the October site visit, we have learned a good deal about the importance of water (both Science and Indigenous knowledge aspects), about biodiversity studies being undertaken for bats by the Toronto Zoo with NWMO funding, about plans for the conduct of the impact assessment and about several other issues. It has been a productive year, but much work remains both for ERG and for NWMO.

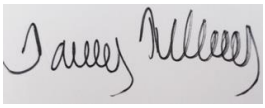
As I stated last year, we will, of course, continue to argue strongly for the adoption of good international practice in carrying out the work in which the NWMO is engaged. The ERG is proud of the advice we have offered to date. We continue to point out the critical need for the many consultants working to carry out the environmental studies to cooperate and collaborate; without input from one another, they cannot do their best work. Continuing this collaboration is now known to be more important because of more groups involved in carrying out the impact assessment work. Other advice we have offered is more fully fleshed out later in this report.

I must again observe that my two colleagues on the ERG, Helen and Tammy, are both wise and pleasant to work with. This makes the ERG tasks so much easier to do than might have been the case. It has been a pleasure working with them. Similarly, it is my pleasure to thank Suzanne Livingstone for her service on the ERG. In early 2021, she stepped back from the ERG and has been replaced by Helen. The NWMO staff with whom we meet regularly are also wise and a pleasure to work with.

Bill Ross (Chair of ERG), Emeritus Professor of Environmental Design, University of Calgary, Calgary, Canada



Tammy Tremblay, MG KWE Consulting, Ontario, Canada



Helen Temple, Chief Executive, The Biodiversity Consultancy, Cambridge, UK



2 About the ERG

The Environmental Review Group (ERG) provides independent expert advice and guidance on environmental programs and impact assessment to the Nuclear Waste Management Organization (NWMO). The group contributes to the establishment of a transparent process to ensure environmental aspects of the Adaptive Phased Management Plan (the safe, long-term management of used nuclear fuel) are in line with both national and international best practice.

We understand impact assessment is not solely a scientific and technical process, and believe it is essential for NWMO to engage with both Indigenous and non-Indigenous communities who are affected by the proposed project (their livelihoods, their lifestyles, their rights and their desires for sustainability). For this reason, we not only provide technical input, but strategic advice on the importance of early, pro-active and transparent engagement with communities, and on the development of effective and long-lasting relationships.

The combination of western science and Indigenous knowledge can be used to provide reliable information that enables the NWMO to continually improve the sustainability of the APM Project – with the clear recognition that strong community relationships can be used effectively to create mutually beneficial outcomes for both the NWMO and stakeholders and rights-holders.

The ERG is composed of three members, each with a different, but complementary expertise: impact assessment professional practice, biodiversity assessment and management, and the integration and balancing of Indigenous knowledge and western science. As appointed individuals, we are expected to use our professional judgement and serve in an independent capacity. We conduct our input based on four core principles:

- **Independence:** We will retain our independence from NWMO to provide unbiased guidance. We act as individuals within our specialist fields but respond to NMWO as one voice to offer multidisciplinary oversight.
- **Transparency:** We ensure opinions and advice given to NWMO are transparent and justified, based on expert opinion, and backed by science/Indigenous knowledge.
- **Inclusivity:** We will ensure inclusion of Indigenous knowledge and the social aspects of the project when providing guidance on environmental issues.
- **Integrity:** We will approach all requests from the NWMO with an open mind and will carry out our work with diligence and integrity.

Our aim is to ensure that the information gathered through environmental programs and in preparation for the impact assessment will be of the highest quality. Only then, we believe, will the NWMO be able to use that information to improve the project and to prepare a truly effective and inclusive impact assessment. In short, our advice to the NWMO is intended to enable it to create a sound, sustainable and just APM project.

3 ERG activities

3.1 ERG activities in detail

The main activities of the ERG in the reporting period are the following:

Meetings and workshops

1. Review of environmental and biodiversity baseline designs for the Northwest Ontario (Ignace/WLON) siting region and the Southwest Ontario (Municipality of South Bruce) siting region engagement update, March, 2021

Method: Video Conference with the NWMO (2021-04-24)
Content: For the two ERG members who had not visited the NW Ontario site, a 3-minute video of drone imagery was shown featuring the Revell Batholith and one of the borehole sites established for sub-surface investigations. The NWMO described the process being used by the Impact Assessment Agency of Canada and the Canadian Nuclear Safety Commission to review NWMO's IA-related materials (specifically the baseline program designs). Such engagement with the two regulators is encouraging. The ERG (later) agreed to assist the NWMO with responding to questions posed. An update on engagement efforts for the SW Ontario site was provided. The ERG commended these efforts.

ERG advice: The ERG recommended the NWMO pay very close attention to the nature of the comments provided by the IAAC and the CNSC and work hard to link the Agency feedback to the content the NWMO will provide in the Initial Project Description. This approach would allow the Impact Assessment to focus on what is most important.

2. Discussion of Decision-making following Panel Reviews, environmental baseline program update and a discussion of engaging project opponents (and others) in preliminary IA discussions, July 2021

Method: Video Conference with the NWMO (2021-07-15)
Content: This meeting included a presentation by the ERG regarding decision-making following Canadian Panel Reviews followed by further discussions about the process. An update by NWMO of environmental media programs in the two possible sites provided helpful information to ERG. This included information on the very high importance of water as a valued component in both possible siting regions, especially by Indigenous peoples. Enlightening and inspiring studies being done by the Indigenous peoples were presented and discussed. The NWMO described difficulties it had engaging some people (especially) in the Southwest Ontario site because of the stigma of nuclear projects. Members of the ERG described their experiences based on such stigma – generally not very substantial issues.

ERG advice: Regarding working with local people, ERG advised the following: (1) It is important to act honourably and transparently; "do the right thing" and people will notice; (2) Make every effort to continue making opportunities available for participation, even if it's difficult; (3) Be respectful of people who disagree and remember the onus is on the proponent to find ways that people can meaningfully participate; and (4) Building relationships is at the heart of the engagement process.

3. Workshop in Toronto and at the South Bruce site, October 2021

Method: In person Workshop with the NWMO (2021-10-06, 07)
Content: The NWMO updated the timeline for the IA studies, explaining that the schedule has been extended. The ERG was pleased as this allows more opportunity for both engagement with communities and conducting very important preliminary studies. Workshop participants discussed an approach for a focussed assessment that uses the Initial Project Description to help the Impact Assessment Agency (and the CNSC) to tailor the project-specific impact statement guidelines to be issued following the submission of the initial project description.
Much discussion was had regarding the importance of early engagement with communities, regulatory authorities, and federal authorities. The NWMO presented the work it has been doing on transportation planning: technical and social. The transportation of spent fuel to the Deep Geologic Repository has been raised as a concern and the ERG requested such a presentation. A visit to researchers at the Toronto Zoo was undertaken for a presentation about research being done to study bats, a likely valued component in the two possible sites (funded by NWMO). Following that presentation, we travelled to the Municipality of South Bruce, where a presentation was made concerning geoscience work done by NWMO. Then a site visit was conducted and a subsequent visit to the Greenock Swamp Complex (a valued component) downstream from the possible site.

ERG advice: The ERG encouraged the researchers to ensure the knowledge gained through the research program is applied to achieving good conservation outcomes and designing and implementing effective mitigation measures in the APM project. Moreover, specific measurable outcomes should be identified so that sound monitoring programs can be implemented to determine the effectiveness of the measures. It is very important to move beyond basic bat ecology questions to better understanding of how to deploy effective interventions.
The ERG advised the NWMO to ensure the IA submission includes strong evidence that proposed mitigation measures will be effective and provides a detailed description of the specific measures proposed as part of the APM project.

Photos taken during the October workshop: *Top left: ERG visit at the Southwest Ontario Site; Top right: Melissa Mayhew, Joanne Jayck, Helen Temple and Tammy Tremblay get friendly with two rhinos at the Toronto Zoo; Middle left: Bill Ross, Helen Temple and Tammy Tremblay enjoying a breakfast meeting at the Chepstow Inn; Middle right: ERG and NWMO colleagues visit beautiful Lake Huron; Bottom left: Helen Temple enjoying the view; Bottom middle: Tammy Tremblay and a core sample; Bottom right: Helen Temple and Jessica Perritt learning about core samples*



4. Transportation in Impact Assessment and IA and Licensing submissions documentation, November 2021

Method: Video Conference with the NWMO (2021-11-30)
Content: The transportation discussion started during the October Workshop continued. New issues discussed included how to include transportation aspects in the IA. In addition, the preparation of the IA and the (Canadian Nuclear Safety Commission) licencing by and on behalf of NWMO was made clear – some material is required for the IA; other material is required for the CNSC licence, and some can serve both purposes.

ERG advice: Transportation is an integral part of the APM Project and must be addressed in the IA; project-splitting is not acceptable, either intellectually or legally. The transportation of used fuel from western Canadian provinces should be included in the Cumulative Effects Assessment for The APM Project. It is generally not advisable for any proponent to conduct parts of the IA in-house; independent consultants are preferred.

Review of NWMO documents
In addition to the above meetings, the ERG reviewed two documents and developed advice to the NWMO and its consultants, with a view to improving the document content and vision. We provided formal evaluation of the following documents: (1) Biodiversity Impact Studies – Southwestern Ontario Region: Best Practices and Preferred Approach; and (2) The NWMO Biodiversity Impact Assessment Content and Approach: Northwestern Ontario – DRAFT Report.

ERG advice: These reviews led to much serious discussion of adaptive environmental management, especially its limitations in dealing with adverse effects that are discovered post impact assessment. The results were a much-improved treatment of adaptive management and a more realistic set of claims. The importance of protecting water quality in the Greenock Swamp Complex was also made clear, as it is a provincially significant wetland that could well be affected by construction and operation of a deep geologic repository in the Municipality of South Bruce. Greater clarity for biodiversity best practices, for treatment of positive effects and for cumulative effects were also addressed through these reviews. So also was the interweaving of western science and Indigenous knowledge, the use of local community folks in work being carried out and the collection of lessons from Indigenous communities.

3.2 Challenges encountered

The ongoing COVID-19 pandemic and associated restrictions on travel and face-to-face meetings continued to place constraints on the manner in which ERG and NWMO could work together. We are delighted that we did manage to find a window of opportunity for an in-person workshop and a site visit to Southwest Ontario in October.

4 Consolidated advice from the ERG

This section of the report states the consolidated advice from the ERG to the NWMO, in light of the work carried out over 2021:

1. The ERG recommends the NWMO focus on quickly establishing close collaboration amongst the many actors contributing to the IA and licensing. It was noted that further work is needed as gaps have been identified (e.g., ensuring the potential impacts associated with waste rock management can be adequately assessed in a timely manner). Information exchange between technical groups must occur during the current pre-planning phase to build baseline information in a comprehensive way that facilitates thorough assessment.
2. It is clear that water (quality) will be a very important valued component (VC) in conducting the impact assessment. At the Southwestern Ontario (possible) site, the valued Greenock Swamp Complex is just downstream of the site. There could be contributions to water quality arising from construction and operation of the APM project due to metal leaching or possibly acid generation from the waste rock pile as well as noteworthy changes to the groundwater regime due to drainage of aquifers during the construction phase. For these reasons, early and high-quality studies of the water regime (surficial and groundwater flows as well as water quality measurements) should be undertaken.
3. Transportation is an integral part of the APM Project and must be addressed in the IA; it cannot be put off; project-splitting is not acceptable, either intellectually or legally. Transportation of used fuel from western Canadian provinces is not a part of the APM project but it is reasonably foreseeable and would contribute effects to (some of) the same VCs as the APM project would. Hence it should be included in the Cumulative Effects Assessment for The APM Project.

5 Potential activities for 2022

This section makes suggestions of potential activities for 2022. These may be subject to change but are based on current knowledge and input from NWMO.

- Build a relationship and meet with the Council of Elders (Presentation to the Council of Elders and Youth on who the ERG is, and the ERG does as well as learn more about the Council's work)
- Provide sound recommendations on the impact assessment process
- ERG to continue gathering information to better understand the genesis of conditions imposed following the issuance of a Panel Report.
- Continued work on sustainability and what that means for the AMP Project in the long-term. (NWMO is working towards a reconciliation-informed sustainability assessment framework)
- Provide input into working draft project descriptions for both siting areas
- Review of impact assessment methods for the biophysical environment, including a process for Valued Component identification.
- Review of early baseline and assessment reports related to the biophysical environment
- Field season visit to the Northwest Ontario site
- Continued participation in the NWMO's Indigenous Knowledge and Western Science workshop series

6 Appendix 1: Bios of current members of the ERG

Dr. Bill Ross

Dr. Bill Ross is an emeritus professor of Environmental Design at the University of Calgary. His scholarly expertise is the professional practice of impact assessment. He has been teaching impact assessment since 1973 and has served on eight Canadian environmental assessment panels from 1978 to 2015. Dr. Ross taught impact assessment training courses around the world, has many papers and professional publications, and has received awards including the Lifetime Achievement Award from the International Association for Impact Assessment. From 1997 to 2015, he served on the Independent Environmental Monitoring Agency, an independent watchdog for good environmental management at the Ekati Diamond Mine in Northern Canada. In 2019, Bill was appointed to the Technical Advisory Committee of the Impact Assessment Agency of Canada.

Dr. Helen Temple

Dr. Helen Temple is Chief Executive and co-founder of The Biodiversity Consultancy, a mission-driven company focused on mainstreaming nature into business and financial decision-making. Helen has over twenty years' professional experience in ecology and conservation, spanning academic, NGO and consultancy sectors. Since 2009, Helen's work has focused on assessing impacts to biodiversity and natural resources, and on designing or evaluating the performance of mitigation strategies for large and small private sector development projects, all over the world. She has also worked as an adviser for large multinational companies, governments and financial institutions, contributing to the development of corporate policies and performance standards and facilitating cross-sector partnerships.

Before joining The Biodiversity Consultancy, Helen worked on various aspects of conservation science and practice, ranging from research and management of threatened species in the field to broad-scale analyses of status and trends in global biodiversity, for leading international NGOs and academic institutions including IUCN, BirdLife International, and the Universities of Cambridge and Oxford.

Tammy Tremblay BSc

Tammy Tremblay (Monedo Giizhigo Kwe) is a member of Sagamok Anishnawbek First Nation and part of the Marten (waabzesh) Clan (doodem). Ms. Tremblay is the Founder and operator of
MG Kwe Consulting, an independent consultant that provides expertise on building healthy relationships with Indigenous people and the land.
Tammy is currently the Environmental Initiatives Lead for Wahkohtowin Development GP Inc. and brings over 10 years of experience within First Nations Environmental and Natural Resource Management.
Tammy has limitless experience with boots on the ground work and strives towards balancing traditional knowledge and western science.
Tammy is a strong believer in collaboration through all forms of communication that is needed to build healthy relationships amongst First Nations, supporting organizations, government, and industry.
Tammy values the 3R Principle (Respect, Reciprocity, Responsibility) and believes this principle should be applied to all projects and initiatives.