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Annual Report (2019) of the Adaptive Phased Management Environment Review Group

NWMO Authorization

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**William Ross, Emeritus Professor of Environmental Design, University of Calgary,
Calgary, Canada**

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Helen Temple, Chief Executive of The Biodiversity Consultancy, Cambridge, England

A handwritten signature in black ink, appearing to read "Helen Temple".

**Ross Assinewe, Director of Lands, Resources and Environment, Sagamok Anishnawbek,
Ontario**

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About the Environment Review Group

In late 2018, the Nuclear Waste Management Organisation (NWMO) created the Adaptive Phased Management Environment Review Group (the ERG). The NWMO is charged with implementing Canada's plan for the long-term management of used nuclear fuel, the Adaptive Phased Management (APM) project. This entails a deep geologic repository in suitable geology located in an informed and willing host community in partnership with that community's Indigenous and municipal neighbours. The NWMO invited communities interested in learning more about potentially hosting the APM project and received 22 expressions of interest. Through a process of technical, socio-economic and cultural studies, this list of possible siting areas has been reduced to three by the end of 2019, shown in Figure 1. It will be further reduced to one preferred site and an impact assessment under the Impact Assessment Act of Canada will be required to construct and operate the facility. For these reasons, the ERG was established to provide independent expert advice and guidance on environmental programs and impact assessment planning. Brief biographies of the ERG members are provided at the end of this report.

Figure 1 Communities Continuing in the Site Selection Process for the APM Project as of December 2019



Introduction

This report would normally cover the activities of the ERG for the year 2019. However, because the ERG was created in late 2018, it covers the time from the inception through to the end of 2019, a period of about 14 months.

In late 2018, there were five communities remaining in the site selection process being used by the NWMO. These were Ignace, Manitouwadge, Hornepayne, Huron-Kinloss and South Bruce. In November 2019, the NWMO announced it had reduced the communities to Ignace, Huron-Kinloss and South Bruce (locations shown in Figure 1).

ERG Activities

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

1. Workshop with the NWMO: Toronto and environs, 2018-12-04 to 06.
2. Conference call regarding environmental baseline studies 2018-12-18.
3. Workshop with the NWMO and others around Ignace area 2019-04-02 to 04.
4. Video conference call Biodiversity presentation 2019-06-24.
5. Video conference call - responses to the environmental media draft design 2019-10-18.
6. In addition to the above meetings, the ERG reviewed documents: part of an RFP (request for proposal) prepared by the NWMO regarding the Environmental Baseline Sampling Program Design; a draft environmental media baseline program; and an RFP for biodiversity work.

Highlights of the Toronto workshop follow. At that time, the ERG consisted of Helen Temple and Bill Ross as Ross Assinewe had not yet been appointed to the ERG. The purpose of the meeting was familiarisation with the research and design work being done for the APM project and to visit a site where spent nuclear fuel was being stored, pending a long-term management solution: Ontario Power Generation's Pickering Waste Management Facility. Presentations were made by NWMO staff regarding the various activities in which staff were engaged and matters related to the APM project with a specific focus on the NWMO Indigenous Relations program and how the site selection process was proceeding to narrow down the sites to be studied. A visit was made to the NWMO Proof Test Facility in Oakville, Ontario and discussions with staff conducting research there were held. The point is that impact assessment requires a good understanding of the proposed project and NWMO staff were conducting investigations designed to develop several aspects of the APM project. The visit is illustrated in Figure 2. The studies being conducted included the engineered barrier system (Oakville), transportation of spent fuel to the site, and technical aspects of the deep geologic repository being designed to make it both safe and protective of the environment. The site selection process was a major point for discussion in the NWMO Toronto office.

Figure 2 Bill Ross and Helen Temple at NWMO Proof Test Facility in Oakville



The ERG offered suggestions regarding the importance of documenting concerns expressed by Indigenous peoples and other interested people as well as how this information was being used by the NWMO to improve the APM project. Time was spent discussing the expected transition from the Canadian Environmental Assessment Act (2012) to the Impact Assessment Act, which was, at that time, before Parliament. It has since been passed and proclaimed as the Impact Assessment Act of Canada. Existing impact assessments (environmental assessments) were examined and discussed with a view to identifying lessons that might be extracted for the impact assessment to be completed for the APM project.

The follow up conference call was for the purpose of discussing the development of an environmental baseline program with a specific focus on studies that have been carried out by the NWMO in potential siting regions from 2016 to 2018. The ERG encouraged the NWMO to include community and Indigenous input when scoping studies, and not to rely solely upon regulatory guidance, but also to include conversations with the Canadian Environmental Assessment Agency (now the Impact assessment Agency of Canada), and other government agencies in order better to understand regulatory expectations, especially in view of changes to the Environmental Assessment Act. The ERG also suggested that cumulative¹ effects information and an understanding of how systems work in the area of study should be included in baseline studies, as the NWMO would need that information in subsequently doing the impact assessment.

The Ignace area workshop involved a site visit to the portion of the Revell Batholith² under investigation. By that time, Ross Assinewe had been appointed to the ERG. The workshop involved looking over the Revell study area, including where a borehole had been drilled and the locations where future boreholes were to be drilled. Figure 3 shows members of the ERG on the site visit.

The ERG also visited Wabigoon Lake Ojibway Nation (WLON). This visit included a meeting in the community (Figure 4) as well as the opportunity to visit to the Revell site, which is part of WLON traditional territory. This combination of visits was very helpful to us because we were able to see the potential site firsthand and to understand better the environmental conditions. Equally, because of the participation in ceremonies with the WLON, we were better able to understand the ways in which the WLON wanted the environmental work to be done (especially their protocols) and how they were contributing to it. Members of the ERG made presentations at the community hall on Indigenous cumulative effects and on the International Finance Corporation (IFC) Performance Standard 6, a guide to conducting biodiversity studies in impact assessments.

¹ Cumulative effects on a valued component are the effects caused not merely by the APM project but also by other (past, present and future) human activities. Thus, one must understand what other human activities would also affect each valued component and how.

² A batholith is a large mass of intrusive igneous rock. The Revell Batholith is located near Revell Lake in the Ignace area.

Figure 3 Bill Ross, Helen Temple and Ross Assinewe at an Ignace area borehole location



Figure 4 ERG in Wabigoon Lake First Nation Community Hall



WLON community members shared the environmental monitoring work they have undertaken to support their studies of the APM project. These WLON studies have included ceremony, water quality, medicines, habitat use and suitability, community land uses, and cultural verification. Emerging technologies including the use of drones, eDNA³, and Artificial Intelligence offer opportunities to enhance data collection and interpretation beyond current approaches. These approaches were suggested in Dr. Temple's presentation, and the WLON community members expressed interest in adopting these strategies into baseline and assessment studies.

The subsequent video conference call (participants were the ERG and NWMO staff) focussed exclusively on the IFC Performance Standard 6 for biodiversity studies, a more technical presentation than that given in the community. Because there is little guidance on how to carry out biodiversity studies, it is likely the ERG will recommend its use in doing the impact assessment for the APM project.

The final video conference call of the year was to discuss responses to the environmental media draft design.

³ Environmental DNA or eDNA is DNA that is collected, not from individual organisms, but from the surrounding environment (such as soil or water).

Major Advice from ERG to NWMO

The ERG provided many ideas and advice to the NWMO during the past year. Some that were made several times (in different contexts) follow. These constitute the major advice provided.

1. Work closely with communities that would be affected by the APM project, that have specific interests in the project or are rights holders with respect to the project. Indigenous communities are particularly important in this respect. Determining what studies they want done, how they want the studies done (especially use of ceremony) and their willingness to work with the NWMO and its consultants to help carry out the studies can be very important in the success of the APM project (knowledge of the local area, for example, can be very useful). Nearby communities and not only the closest communities should be included. The NWMO should document the results of engagement with communities and indicate the benefits for the APM project that result from community input. The early engagement the NWMO is demonstrating is constructive and should be continued.
2. Try to identify which project (or cumulative) effects might ultimately be important. Focus the early work on determining how systems work and collect baseline information concerning such effects. Commence monitoring early as the results may later prove to be very useful, either for the assessment or for managing the project should it be approved.
3. Biodiversity studies are better when larger study areas are used – larger than normal impact assessment study areas. It is better and more effective if the larger study areas are used from the beginning than trying to expand study areas later. The use of an internationally respected guide for doing biodiversity assessments, such as the IFC Performance Standard 6, is very likely a sound approach to take.
4. When conducting baseline studies, one should pay attention to features such as how systems (ecological, economic and social systems) perform. This information will be needed later anyway in order to carry out the impact assessment or for managing the project should it be approved. Similarly, baseline studies may well reveal indicators of cumulative effects (e.g., anomalous values for some valued components). These should be noted and documented carefully as cumulative effects must be assessed under current legislation – hence the importance of obtaining the information early.

Brief Biographies of ERG Members

Bill Ross

Bill 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 graduate level courses in impact assessment since 1973 and has served on eight Canadian environmental assessment panels from 1978 to 2015. He has taught impact assessment training courses around the world, has published many papers and professional publications and has received awards for contributions to impact assessment especially in the areas of follow up, and

cumulative effects assessment. From 1997 to 2015, he served on the Independent Environmental Monitoring Agency, a body that was a watchdog for good environmental management at the Ekati Diamond Mine in Northern Canada. He has been awarded the Lifetime Achievement Award by the International Association for Impact Assessment. In 2019, he was appointed to the Technical Advisory Committee of the Impact Assessment Agency of Canada.

Helen Temple

Helen is Chief Executive of The Biodiversity Consultancy. She has 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, primarily in non-OECD countries (Africa, Asia, Latin America, Pacific) but also in North America, Australia and the EU. 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 TBC, 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.

Ross Assinewe

Mr. Assinewe is a member of the Environmental Review Group (ERG) with the Nuclear Waste Management Organization (NWMO) providing an Indigenous perspective. Mr. Assinewe's role on the ERG team will be to participate on the communications and providing support to the NWMO on First Nation developments. Included in my responsibilities are the following: Aboriginal issues analysis, social impact analysis, community/stakeholder consultation and community consultation programming.

Mr. Assinewe is a member of the Sagamok Anishnawbek. He has a family of four (4) with three boys and girl. Mr. Assinewe has fourteen (15) years of experience working at the Senior Levels of First Nations governments having been employed with Sagamok Anishnawbek as the Director of Lands, Resources and Environment, Director, Planning and Technical Services & Executive Director. He also served as the Project Manager, Serpent River First Nation and Program Manager, Union of Ontario Indians. Mr. Assinewe has over 20 years of consultant engineering experience, providing Municipal and Environmental services to clients throughout Ontario.