



Nuclear-based science benefiting all Australians

Submission to the Senate Economics References Committee

Inquiry into the appropriateness and thoroughness of the site selection process for a national radioactive waste management facility at Kimba and Hawker in South Australia

3 April 2018

The Australian Nuclear Science and Technology Organisation (ANSTO) is Australia's national nuclear research and development organisation, and the centre of Australian nuclear expertise. ANSTO operates a large proportion of Australia's landmark research infrastructure, including the OPAL multipurpose reactor, the Australian Synchrotron, the Australian Centre for Neutron Scattering, and the Centre for Accelerator Science. This infrastructure places Australia at the forefront of research and innovation for the benefit of public health, industry and the environment, and is used by universities, researchers and industry from around Australia and internationally.

ANSTO applies its unique expertise to the production of lifesaving nuclear medicine as well as research into areas of national importance. Research areas include the environment, climate change, water resource management, materials engineering and human health.

ANSTO welcomes the opportunity to contribute to the Senate Economics References Committee's inquiry into the appropriateness and thoroughness of the site selection process for a National Radioactive Waste Management Facility (NRWMF) at sites near Kimba and Hawker in South Australia. Through this submission, ANSTO seeks to describe its involvement in the process to date, as well as how the process aligns with international best practice. Given the focus of the inquiry's terms of reference is on community consultation and consent aspects of the process, ANSTO has not commented on the technical aspects of site selection in this submission.

ANSTO's involvement in the site selection process

ANSTO has been closely involved in the process to establish the NRWMF through the provision of technical support and expert advice to the Department of Industry, Innovation and Science (DIIS). ANSTO's capabilities stem from decades of experience in safely managing its own radioactive waste and producing lifesaving nuclear medicines.

ANSTO has applied its dedicated expertise in community consultation and collaboration, having developed strong supportive relationships with the communities surrounding its facilities and other stakeholders across Australia and the world. ANSTO has drawn on this expertise, and its links with leading international nuclear bodies, including the International Atomic Energy Agency (IAEA), to support the process, helping ensure it continues to be managed in accordance with international best practice.

Since late 2015, ANSTO staff have made more than 20 visits to the communities of Hawker and Kimba and the surrounding areas to share information on radiation and radioactive materials, and how the latter can be safely stored. ANSTO has made its expertise available to all community members. ANSTO's activities in the Hawker and Kimba communities have included:

- Conducting outreach to local businesses;
- Delivering science workshops in all major local schools;
- Participating in information booths at the Kimba, Quorn and Hawker community shows;

- Participating in multiple meetings of the Kimba and Hawker Community Consultative Committees, which act as the conduit between the government and the communities (each Committee is comprised of around 12 people with a variety of views, and who represent a cross section of the area – including agriculture, business and young adults);
- Supporting the Department's consultation with the Traditional Owners by participating in meetings with the ATLA Traditional Landowners Association, the Villiwarina Yura Aboriginal Corporation, and other groups of traditional owners from the Hawker area¹;
- Meeting with landowners and the local councils; and
- Attending 'town hall' meetings to help answer questions from the community.

Over this same period, ANSTO has welcomed members of the Kimba and Hawker communities to its campus in Lucas Heights, New South Wales, to tour the OPAL multipurpose reactor and nuclear medicine and radioactive waste management facilities, and to speak to people who live and work with radioactive materials. To date, more than 100 community members have visited Lucas Heights, including landowners, community members, Traditional Owners, neighbours and other key stakeholders.

At the request of the Hawker Economic Development Committee, ANSTO will run a week-long Education Experience Program for 17 young people, aged 13-18, from Quorn in April 2018. The program will enable students to experience a range of aspects of ANSTO's work, including waste management and environmental monitoring.

ANSTO is encouraged by the progress made towards establishing a NRWMF. In ANSTO's experience, the process has been managed in accordance with international best practice, and in a way that emphasises open and inclusive access for all community members to as much information and expertise as possible. Given the comprehensive nature of the community consultation process, ANSTO is confident that the full breadth of views held within the communities is being captured and incorporated into the decision making process.

International best practice in the siting of radioactive waste management facilities

Identifying international best practice in the siting of radioactive waste management facilities is not as simple as identifying international best practice in other aspects of nuclear or radiation safety. The differing forms of government globally, and in particular the extent of community involvement in government decision-making processes, means that there is not a simple technical guideline document issued by the International Atomic Energy Agency. Rather, best practice is found by looking at the practices of similar countries² and the advice

¹ ANSTO understands the Department is currently seeking to engage with representatives of the Barngarla People, who hold native title in an area near the Kimba sites. ANSTO will be pleased to support this interaction in due course.

² Through mechanisms such as the triennial review meetings under the IAEA Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management.

from groups of such countries, such as the OECD Nuclear Energy Agency's Forum on Stakeholder Confidence³.

Near-surface disposal facilities similar to that proposed for the NRWMF are currently in operation in many countries, including the United Kingdom, Spain, France, Sweden, Finland, the Republic of Korea, Japan and the United States. The NRWMF site selection process is consistent with processes employed by a number of those countries. In particular, the requirement for a volunteered site and the ongoing focus on community consultation and consent are at the forefront of international best practice. It reflects a major shift over the past two decades in the approach taken by most western democracies towards the siting of nuclear facilities, away from the decide, announce, defend approach. Below, we outline the processes for siting high level waste disposal facilities in two countries comparable to Australia, Finland and Canada.

Finland

Finland is widely recognised as having the world's most advanced program for the comprehensive full life-cycle management of radioactive waste from nuclear power. Finland's high level waste repository, which is located on Olkiluoto Island, Eurajoki, is expected to commence operations in the early 2020s. Development of the facility followed a site selection process that involved technical and environmental assessment and community consultation.

Unlike the NRWMF, the Olkiluoto repository will accept high level waste (HLW) for disposal, in the form of spent fuel⁴ from Finnish nuclear power plants. The Olkiluoto repository will accommodate up to 1,300,000m³ of HLW, which is around 100 times greater than the volume of low and intermediate level waste that will be disposed of or stored at the NRWMF. Despite the immense differences in scale and radioactivity, the siting process for the NRWMF has focused on community involvement and social licence to an extent similar to the process undertaken in Finland.

Similar to the NRWMF, the process for siting and licensing the Finnish HLW repository is stipulated by legislation, in the form of the Finnish *Nuclear Energy Act 1987*, which also applies to the siting of Finnish nuclear power plants. The first step in the process outlined in that Act requires an operator to conduct an environmental impact assessment that incorporates community consultation. Following this, the operator is required to apply for in-principle approval of a site. The Act requires that before the government takes the decision-in-principle, it shall ascertain that the municipality in which the nuclear facility is located is in favour of such construction. It then requires that the operator apply to the independent regulator for a construction licence and, subsequently, an operating licence.

In the case of the high-level waste disposal facility, four sites were subject to detailed site investigations and environmental impact assessments. The site selection process then focused on Olkiluoto after the Eurajoki local council voted 20-7 in favour of construction and

³ <http://www.oecd-neo.org/rwm/fsc/>

⁴ Article 10 of the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management provides "If, pursuant to its own legislative and regulatory framework, a Contracting Party has designated spent fuel for disposal, the disposal of such spent fuel shall be in accordance with the obligations of Chapter 3 relating to the disposal of radioactive waste."

the environmental impact assessment found no factors that would indicate that the disposal facility could not be built safely. The Government then provided in-principle approval for the project in 2000. The Parliament subsequently ratified that decision in May 2001 by a 159–3 vote, finding that siting the repository in Eurajoki was in the overall interest of society.

The Finnish environmental impact assessment process provided three primary avenues to inform the community and to capture community views: public hearings; acceptance of written opinions to the Ministry of Employment and the Economy; and direct contact with the Environmental Impact Assessment contact person of each candidate municipality.

A workshop conducted by the OECD Nuclear Energy Agency, following the decision to grant in-principle approval for the Olkiluoto site, found that the step-wise site selection process, transparent consultation with the community and the right of communities to withdraw from the process at any time were important elements in its success⁵.

Canada

In 2002, the Canadian Parliament mandated the formation of the Nuclear Waste Management Organization (NWMO) to recommend an approach to managing Canada's radioactive waste based on ethical, social, economic, and technical perspectives. The Canadian Parliament adopted the NWMO's proposed Adaptive Phased Management plan in 2007, requiring a consent-based process for siting a geologic repository for spent fuel designated as waste.

The subsequent community-driven nine-step siting process was initiated with the implementation of the first two steps – outreach and detailed briefing – in May 2010. By September 2010, the NWMO had received expressions of interest from 21 communities and commenced initial technical screening in preparation for step three – preliminary technical assessment. Given the nature of the Canadian facility, which will be a deep geological facility required to dispose of large volumes of HLW, preliminary technical assessments are far more complex and time-consuming than those required for Australia's NRWMF. By the end of 2017, preliminary technical assessments had narrowed the number of eligible volunteered sites from 21 to five. The NWMO aims to identify a single preferred site by 2023.

The Canadian process is based on a series of guiding principles, including:⁶

- **Focus on Safety:** Safety, security, and protection of people and the environment are central to the siting process. Any site selected must address scientific and technical site evaluation factors that will acknowledge precaution and ensure protection of present and future generations and the environment for a very long period of time.
- **Meet or Exceed Regulatory Requirements:** The outcome of the site selection process, as for all aspects of Adaptive Phased Management, must meet, and if possible exceed, all applicable regulatory standards and requirements for protecting the health, safety and security of humans and the environment, and respect Canada's international commitments on the

⁵ <http://www.oecd-neo.org/rwm/docs/2002/rwm-fsc2002-1.pdf>.

⁶ Canadian Nuclear Waste Management Organisation, 2018: <https://www.nwmo.ca/en/Site-selection/About-the-Process/Guiding-Principles>

peaceful use of nuclear energy. These regulatory standards and requirements must be used as a starting point for the siting process and a critical component of the standard to be met throughout.

- **Informed and Willing Host Community:** The host community, the local geographic community in which the facility is to be located, must be informed and willing to accept the project. The local community must have an understanding of the project and how it is likely to be impacted by the project. As well, the local community must demonstrate that it is willing to accept the project.
- **Right to Withdraw:** Communities that decide to engage in the process for selecting a site as potential hosts must have the right to end their involvement in the siting process at any point up to and until the final agreement is signed, subject to all regulatory requirements being met and regulatory approval received.
- **Siting Process Led by Interested Communities:** The steps in the siting process must be driven or triggered by communities expressing interest in exploring their potential suitability as host. A community will proceed to the next step only if it chooses to do so. Potentially interested communities may explore their interest in the project in the way they see fit, with the support of the NWMO, and with funding available to seek independent advice and peer review, and to involve residents in the community, at each stage.
- **Aboriginal Rights, Treaties and Land Claims:** The siting process will respect Aboriginal rights and treaties, and will take into account that there may be unresolved claims between Aboriginal peoples and the Crown. The NWMO recognizes the Crown's duty to consult and accommodate if necessary when potential Aboriginal and treaty rights may be adversely affected by proposed Crown conduct when the NWMO selects a site. Prior to that, the NWMO must continue to engage with Aboriginal peoples and encourage potentially interested communities, including Aboriginal communities, to engage with First Nations, Métis and Inuit in the area.
- **Shared Decision-Making:** The site selection decision will be made in stages and will entail a series of decisions about whether and how to proceed. Each potential host community, and later the selected host community, must be involved in decision-making throughout the process. For example, criteria and procedures to assess the effects of the project on the community must be collaboratively developed and assessed with the NWMO.
- **Inclusiveness:** In addition, the NWMO must respond to, and address where appropriate, the views of others who are most likely to be affected by implementation, including the transportation that would be required of used nuclear fuel. Full opportunity must be provided to surrounding communities, provincial governments, Aboriginal communities and transportation communities as a large group with a shared interest to have their questions and concerns heard and taken into account in decision-making on a preferred site.
- **Support Capacity Building:** The site selection process must assist the potential host community in thinking carefully and thoroughly about the potential benefits and

impacts to its community associated with this project when assessing its interest, and ultimately, willingness. The NWMO must provide the forms of assistance communities potentially affected by the implementation of the project need to participate in the process.

- **Informing the Process:** The selection of a site must be informed by the best available knowledge - including science, social science, Indigenous Knowledge and ethics - relevant to making a decision or formulating a recommendation throughout the process. Consistent with the NWMO's commitment to transparency in its work, the information that is collected and used to assess the potential suitability of a site must be published on the NWMO website for public review and scrutiny and be the subject of third-party review at major milestones.
- **Community Well-Being:** Any community that agrees to host the facility has a right to benefit from doing so. The project must be implemented in a manner that fosters the long-term well-being or quality of life of the community and region in which it is implemented.

Comparing the NRWMF process to international best practice

Like the processes for the large deep geological HLW disposal facilities in Finland and Canada, the Australian Government has implemented a community-oriented step-wise site selection process for its low level waste (LLW) disposal and intermediate level waste (ILW) storage facility. From the outset, the community has been empowered to share its views and request information on all aspects of the facility. It has been granted extensive access to policy makers and technical experts, to ensure that it is sufficiently informed to consent to or reject the establishment of the NRWMF in its local area.

Canada's NWMO's characterisation of its siting process applies equally to the process being undertaken for Australia's NRWMF:

*"The process is community driven. It is designed to ensure, above all, that the site selected is safe, secure, and has an informed and willing host. The process must meet the highest scientific, professional and ethical standards. The safety and appropriateness of any potential site will be evaluated through a series of progressively more detailed scientific, technical and social assessments."*⁷

Throughout the NRWMF siting process to date, avenues for participation have included all of those provided in the Finnish and Canadian contexts, including public hearings; written submissions; direct contact between the local communities and technical and policy experts; empowerment of the local community to determine how it would convey community sentiment; and the establishment of consultation committees representing local interests. Furthermore, the NRWMF process aligns closely with the majority of the guiding principles established by Canada's NWMO.

DIIS, ANSTO and other participants have provided open and extensive access to information requested by the community. In addition, the ongoing presence of DIIS

⁷ Canadian Nuclear Waste Management Organization, 2018: <https://www.nwmo.ca/en/Site-selection/About-the-Process>

representatives in each community provides a continuous access point for stakeholder involvement, accessible to all members of the communities around the nominated sites. Resources have been provided for community stakeholders to gather information and participate in the discussion, including in the form of tours to ANSTO's Lucas Heights facilities. This has provided valuable opportunities for three-way communication between the government, technical experts at ANSTO, and community stakeholders who may otherwise have had limited access to information or expertise.

From ANSTO's perspective, DIIS has been diligent in responding to concerns raised by individuals – both in person and in writing. ANSTO has assisted DIIS in communicating technical information in a way that can be understood by non-specialists, for use in factsheets and other correspondence, including written responses to enquiries received from individual stakeholders.

In ANSTO's view, the NRWFMF site selection process is meeting or exceeding current international best practice across all aspects. ANSTO is confident that upon completion, the NRWFMF process will be looked upon by the international community as an example of best practice for community consultation, public education and the development of social licence for the siting of radioactive waste facilities and other major nuclear projects.