



Advisory Note: Consultation and engagement on public health: considerations for siting, construction and operation of a radioactive waste disposal facility

Summary

- Disposal of solid radioactive waste in a purpose-built disposal facility is a planned exposure situation. It is subject to requirements for protection of people and the environment from the harmful effects of radiation as specified in the Planned Exposure Code and the Disposal Facilities Code.
- The level of health protection should be optimised under prevailing circumstances, having regard to economic and societal factors.
- Health is defined as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.
- The state of health and well-being of an involved community throughout all stages of a proposed Disposal Facility informs the process of optimisation and decision making.
- An ethical and inclusive approach to engagement with the community ensures that all concerned are given the opportunity to participate in discussions and deliberations and ensures that decision-making takes into account their knowledge as well as their perceptions of how the facility may affect them.
- An ethical approach supports and facilitates discussions among all parties seeking to understand, preserve and promote the well-being of individuals.
- Social and community support programs can provide assistance for negatively affected individuals.

Note to readers

This advisory note provides explanation of *health and well-being* as referred to in RPS C-3: Code for Disposal Facilities for Solid Radioactive Waste (ARPANSA 2018), herein referred to as the Disposal Facilities Code, and provides guidance on how health and well-being can be considered throughout consultation and engagement by both the operator and the regulator. The advisory note should be read in conjunction with RPS C-3.

This guidance is applicable to disposal facilities for radioactive waste as outlined in the scope of the Disposal Facilities Code. The Code sets out the radiation protection principles and regulatory requirements for the safety and security of disposal of solid radioactive waste that will ensure that the protection against radiation risks for people and the environment is optimised. Requirements for the storage of radioactive waste are not within the scope of the Disposal Facilities Code or this advisory note. The target audience are regulators, licence holders, licence applicants, involved communities and interest groups.

Terms used in this advisory note are explained in RPS C-1: Code for Radiation Protection in Planned Exposure Situations (Rev. 1) (ARPANSA 2020a) and in the Disposal Facilities Code. In particular, as stated in the Disposal Facilities Code, “the term ‘community’ is used to define the level of spatial and societal organisation at which the issue of demographics must be addressed by the proponent in terms of the impact of the facility on the community in which the facility is, or is to be situated. It is essential that landowners at the local level, including traditional owners living on, near or with the impacted land, play a part in the process of self-definition of their communities. In general usage ‘community’ refers to a geographical area defined for the purpose of consultation. If the facility impacts on a community without definite spatial boundaries/limitations (e.g. Aboriginal and Torres Strait Islander communities), the term itself is ambiguous and hence defining the appropriate community will always be open to interpretation and conjecture. The proponent will need to apply cultural interpretations of what constitutes the appropriate community.” (ARPANSA 2018)

A separate advisory note on radiation dose and risk criteria for health protection after closure of a disposal facility (ARPANSA 2020b) complements this advisory note.

What is health?

The Disposal Facilities Code adopts the World Health Organization (WHO) definition of health:

“Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.”

The WHO further elaborates on mental health as a state of well-being in which every individual realises their own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to their community, without distinction of race, religion, political belief, economic or social condition

The system of radiation protection aims to protect people from the harmful effects of radiation. This system is designed to prevent harmful tissue reactions and reduce risks of long-term health effects, such as cancer, from exposure to ionising radiation. An objective of the ongoing and interactive process of optimisation of protection and safety is that exposures of individuals, the number of individuals exposed, and the likelihood of exposure, should be kept as low as reasonably achievable, taking into account economic and societal factors. In essence the system aims to protect people from the established, physical health effects of radiation.

It is recognised that there are potential impacts on society that are not directly related to radiation exposure that need to be identified and considered in the optimisation process. Some of these may be considered positive by members of involved communities provided there is a perception that appropriate and adequate controls are in place. Other impacts include potential harm to mental, social and cultural well-being. Perceptions around invisible and involuntary radiation exposure, and possible health effects, can heighten anxiety for some members of the public. Association with “radiation,” at least in name, can also exacerbate concerns over, for example, damage to reputation and value of local produce.

The focus of this advisory note is on the potential negative impact on well-being, and how it may be addressed in relation to disposal of radioactive waste.

How is health protection and safety achieved and demonstrated for a radioactive waste disposal facility?

Disposal of solid radioactive waste in a disposal facility is a planned exposure situation. It is subject to the requirements, including dose limits, for protection of people from the harmful effects of radiation specified in the Planned Exposure Code (ARPANSA 2020). Additionally, protection and safety must be optimised to the highest level achievable under the prevailing circumstances. Optimisation is an ongoing, iterative process that includes evaluation of the exposure situation, evaluation of potential exposures, selection of a dose and/or risk constraint below which protection is optimised, and the identification, selection and implementation of the preferred optimisation option (ICRP 2007).

How does optimisation of protection and safety apply?

The optimisation principle offers a means to take a graded approach to management of radiation risks and focuses on achieving an ethically acceptable and equitable outcome. For example, the level of isolation and containment of any particular type of radioactive waste should be commensurate with the risks posed to people and the environment by that waste.

Implementation of optimisation options or actions solely on the basis of pressure or perceptions that do not have any scientific and technical merit should be avoided, as they may lead to activities that are disproportionate to the associated harm and may disproportionately consume resources for no or little benefit. In addition, taking actions based on unsubstantiated claims of health impact may give the impression that the risk associated with a disposal facility is much greater than the actual risk, causing unnecessary concerns and reduced mental well-being.

The optimisation process therefore has a number of ethical dimensions. Balancing the many factors necessary to optimise protection and safety will require prudent¹, informed and considered choices.

The optimisation will require some decisions to be made based on best estimates or inferences. Examples include the degree of risk to health or the certainty in predictions of disruptive events well into the future, like severe seismic events and severe weather conditions. It is important to acknowledge that severe disruptive events may or may not occur during the time the radioactivity of the waste remains a concern. Prudence is required to ensure that there is no undue burden on either current or future generations with decisions regarding disposal.

Why is it essential to engage with the community?

The role of stakeholders and their engagement with the proponent and regulatory authorities has the objective of achieving the most informed decisions and best practicable outcomes. This engagement should start early and be an ongoing activity. It includes mandatory consultation ahead of licence decisions such as *prepare a site for*; *construct*; and *operate* a disposal facility. Engagement should provide information about the planned activity, present the relevant organisations and their respective roles to the community, and be a forum for information and discussion about the decision-making process including formal consultation as prescribed by legislation. The engagement must include consideration of the health of the community and how it may be altered by the proposed activity.

Participation of stakeholders in the decision-making process related to radiological protection is an effective way to take into account their concerns and expectations, as well as their knowledge about the issue at stake. It is expected that all stakeholders should be given the opportunity to participate in discussions, deliberations, and decision-making concerning situations that affect them.

The safety case² is the responsibility of the proponent and forms the main basis on which dialogue with stakeholders will be conducted and on which confidence in the safety of the facility or activity will be developed. A variety of social and cultural factors will need to be considered, and there may be disagreement on their relative importance, or on how to value or weigh these factors. The safety case should be transparent about what it includes, recognising any disagreements where they arise, and go beyond a simple balancing of direct health impacts against economic costs. In turn, this enables adoption of more effective, sustainable, and fair protective actions promoting empowerment and autonomy of stakeholders.

It is important to consider not only the outcomes of stakeholder engagement but also the processes and procedural values adopted during the engagement. An effective engagement process that prioritises accountability, transparency and inclusiveness should provide stakeholders with clear, relevant and timely information that allows them to effectively participate in the decision-making process. Stakeholders are an asset that will contribute knowledge to the decision-making processes.

How can an applicant demonstrate consideration of community health and well-being?

Health and well-being considerations should be included in the safety case for the facility. The safety case must clearly demonstrate that the proposed facility meets the objective of the *Australian Radiation Protection and Nuclear Safety Act 1998*, which is to protect the health and safety of people, and to protect the environment, from the harmful effects of radiation. This includes the ongoing and interactive process of optimisation of radiation protection and the consideration of societal factors.

The Disposal Facilities Code requires the licence applicant to consult with all stakeholders. However, engagement is broader than just formal consultation. Engagement with stakeholders, including the public, must be an integral part of the siting processes as well as during construction and operation. The role of stakeholders and their interaction with the proponent need to be clearly documented. In demonstrating radiation protection of the public, the proponent also needs to demonstrate the health and well-being of the community related to all stages of the proposed Disposal Facility and directly related to radiation exposure. For example, this may be achieved by:

- defining the community through all stages of the proposed disposal facility, including the rationale for how the community has been defined
- demonstrating an inclusive approach to engagement and formal consultation with stakeholders that ensures effective, culturally appropriate communication and provides all stakeholders with an opportunity to participate in discussions, deliberations, and decision-making concerning situations that affect them
- building effective partnerships with the community
- tracking and monitoring consultation outcomes and demonstrating how lessons learned from local experience are incorporated into the licensing process and as the safety case evolves
- implementing flexible plans and arrangements to provide appropriate social and community services, as required, to provide ongoing support for affected individuals and to the community.

What are the responsibilities of the regulator?

The relevant regulatory authority must be satisfied that the information provided demonstrates that the proposed conduct for a facility can be carried out without undue risk to the health and safety of people and the environment. The relevant regulatory authority will make an assessment of radiation risks and will evaluate the adequacy and quality of all of the safety related work that is associated with the facility to make an informed decision.

In addition to consultation by the applicant, the Disposal Facilities Code requires the regulator to identify all the relevant stakeholders and develop strategies for effective and ongoing engagement with those stakeholders. The relevant regulatory authority must promote the establishment of appropriate means of engaging stakeholders including the public about the possible radiation risks associated with disposal facilities and associated activities, and about the processes and decisions of the regulatory authority.

To assist in the processes of engagement, the regulatory authority must notify stakeholders including the public of the principles and associated criteria for safety established in its regulations and guides, and must make its regulations and guides available. The regulatory authority must engage early and be prepared to engage over considerable time. It must act autonomously and independently to the applicant and wider government interests. The regulator must be regarded as a trustworthy actor operating within its legislated mandate and in accordance with the established procedures governing the engagement, including consultation.

Additional guidance regarding the role and responsibilities of the regulator is available on the ARPANSA website ([Radioactive waste disposal and storage | ARPANSA; National Radioactive Waste Management Facility - Our role | ARPANSA](#)).

References

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