



# Management of Uranium Mine Waste Rock and Mill Tailings

## Discussion Paper DIS-10-01

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# DISCUSSION PAPER ON THE MANAGEMENT OF URANIUM MINE WASTE ROCK AND MILL TAILINGS

## 1.0 PURPOSE

The purpose of this regulatory position is to provide guiding principles and direction on the management of mine rock and tailings generated by uranium mining and milling operations, for the protection of the environment and the health and safety of people.

## 2.0 SCOPE

This document describes the expectations and principles of the Canadian Nuclear Safety Commission (CNSC) when making regulatory decisions regarding long-term management and control of mine rock and tailings during the full life cycle of a uranium mine or mill facility in Canada.

This position applies to mine waste rock and tailings that would require direct regulatory control to protect the environment and human health and safety.

## 3.0 DEFINITIONS

Uranium mine rock is categorized and defined into two main categories:

- a) Overburden and clean rock – soil horizon and organic material, and mine rock not requiring direct regulatory control
- b) Waste rock – mine rock requiring control because of its potential to release hazardous and/or nuclear substances, or is potentially acid generating

Tailings are the leached residues, chemical precipitates and the liquid solution arising from the processing of the uranium ore.

## 4.0 PRINCIPLES

The CNSC adheres to the principles and policy statements outlined in regulatory policies P-290, *Managing Radioactive Waste* and P-223, *Protection of the Environment*. When making regulatory decisions concerning uranium mine waste rock and tailings management, the CNSC will use a risk-informed approach and will consult with other regulatory agencies, relevant stakeholders and Aboriginal groups.

## 5.0 POSITION STATEMENT

When making regulatory decisions concerning the management of uranium mine waste rock and tailings, it is the position of the CNSC that:

- Tailings and mine waste rock shall be managed to maximize the use of mine workings such as open pits and underground developments, and natural and/or engineered barriers between the waste materials and the environment, to help ensure the long-term protection of Canada's terrestrial and aquatic environment, as well as the protection of current and future generations.
- Natural waterbodies frequented by fish shall be avoided to the extent practicable for the long-term management of mine waste rock and tailings.
- Tailings and mine waste rock management plans shall consider the characteristics of the mine rock or tailings, and best available techniques, in selecting a preferred option that ensures protection of the environment as a whole, such that:
  - i. Tailings and mine waste rock are managed in facilities that are designed to isolate and control the materials over the long term.
  - ii. Overburden and clean rock is used as construction material, or as a resource, to the extent possible and consistent with the concept of waste minimization.
  - iii. Reliance on institutional controls in the design of tailings and mine waste rock management systems is minimized.

## 6.0 EVALUATION

CNSC staff is responsible for evaluating the CNSC's adherence to this position as well as its effectiveness during periodic program reviews in accordance with management priorities.

Since waste management practices are continuously tested and improved upon with due consideration of Canadian climate, geological variability, and data derived from existing tailings and waste rock management facilities, this position shall be reviewed every five (5) years to take into consideration the evolving scientific understanding of mine waste management practices.

## 7.0 POSITION AUTHORITY

This position is issued by the CNSC under the authority of the *Nuclear Safety and Control Act*.

## 8.0 REFERENCES

P-290 *Managing Radioactive Waste* (July 2004)

P-223 *Protection of the Environment* (February 2001)