

Decommissioning Costs and Financial Assurances for Uranium Mines and Mills in Canada

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ABSTRACT

The Athabasca Basin region of northern Saskatchewan is now the location of all uranium production in Canada. About one-third of world primary production originates from the region with seven projects, as follows, currently licensed by the Canadian Nuclear Safety Commission (CNSC) and by Saskatchewan Environment (SE)

- Rabbit Lake – underground and (formerly) open pit mining, mill, tailings management facilities- operating
- Cluff Lake – underground and open pit mining, mill, tailings management facility – decommissioning (operations ceased in 2002)
- Key Lake – (formerly) open pit mining, mill, tailings management facilities – operating (ore from McArthur River)
- McClean Lake – open pit mining, mill, tailings management facility – operating
- McArthur River – underground mine (ore to Key Lake) – operating
- Cigar lake – underground mine – construction
- Midwest – future mine development – site preparation licence.

Preliminary decommissioning plans, and financial guarantees for future decommissioning, are a requirement of each licence. The Elliott Lake area of Canada has also had extensive uranium mining and milling activities, with the last operating mine closing in 1996. Decommissioning has been completed by the licensees, however monitoring, care and maintenance of the sites is ongoing. This leads to a reduced, but ongoing, requirement for financial guarantees.

Decommissioning objectives for a uranium mine and mill site must consider that the waste rock and tailings resulting from the operation, as well as the majority of the waste materials resulting from removing the physical facilities, will be managed on site for the long term. This is a fundamental difference from many other types of nuclear facilities, where all of the physical facilities, and the wastes which have been produced during operations, are removed and disposed elsewhere. Other factors which differ from many other nuclear facilities are the remote location, and the need for an extended period of post-decommissioning monitoring to confirm the performance of the methods used for waste rock and tailings disposal.

This paper will discuss the various factors controlling decommissioning costs, which are estimated in the 35 to 45 million dollar range for the major northern Saskatchewan mine/mill sites. Much lower costs are associated with the ongoing maintenance and

monitoring activities at the decommissioned sites in the Elliott Lake area. The form of the financial guarantee will also be described.