

THE FEDERAL EVALUATION AND REVIEW PROCESS UNDER CHAPTER 22 OF THE JAMES BAY AND NORTHERN QUEBEC AGREEMENT

ANNEX TO THE DIRECTIVE

This Annex complements the directive issued by the Federal Administrator and includes recommendations to assist the project proponent with preparing the Impact Statement. These recommendations are primarily from the Canadian Nuclear Safety Commission (CNSC).

PROJECT DESCRIPTION

Treatment and removal of contaminated water

Once the list and data sheet of chemical products used is compiled and is compared with the applicable standards and government programs as requested under section 3.3.4.2 of the directive, the project proponent is encouraged to also verify if the chemical substances are subject to the Government of Canada's Chemicals Management Plan (see references).

DESCRIPTION OF THE BIOPHYSICAL AND SOCIAL ENVIRONMENT

Geology, climate and hydrogeology

Under section 3.4.2.1 of the directive, the project proponent is required to use the most up to date information to identify natural hazards. The CNSC suggests the project proponent use the most recent seismic hazard model (Adams and Atkinson, 2003) and incorporate it into the 2005 National Building Code of Canada (<http://earthquakescanada.nrcan.gc.ca/hazard-alea/interpolat/index-eng.php>) to determine the specific seismic risk to the site.

If another method is used, the project proponent must demonstrate how the selected approach exceeds or is more appropriate than the suggested method.

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

Impacts on the biophysical environment

From the characterization study on the impacts of radioactive effects (section 3.5.1), the project proponent must evaluate the short-, medium- and long-term effects of the radioactive contaminants and other contaminants that could potentially be released in the water source from waste rock piles. For the long-term assessment, the project proponent must become familiar with the G-320 Regulatory Guide from the Canadian Nuclear Safety Commission "Assessing the long-term safety of radioactive waste management" (see references).

As well, to correctly identify the impacts associated with radioactive effects, the project proponent must consider the Priority Substances List for the releases of radionuclides (Environment Canada and Health Canada 2003), and also the most recent PROTECT reports from the European Commission (Andersson et al. 2008 and Beresford et al. 2008).

REFERENCES OF INTEREST

The following references were either cited in this Annex or listed here because of their relevance to the assessment of the effects that is to be prepared by the project proponent.

Adams and Atkinson, (2003) Development of seismic hazard maps for the proposed 2005 edition of the National Building Code of Canada. *Can. J. Civ. Eng.* 30(2): 255–271

Andersson, P., Beaugelin-Seiller, K., Beresford, N. A., Copplestone, D., Della Vedova, C., Garnier-Laplace, J., Howard, B. J., Howe, P., Oughton, D.H., Wells, C., Whitehouse, P. (2008) Numerical benchmarks for protecting biota from radiation in the environment: proposed levels, underlying reasoning and recommendations. *Protection of the Environment from Ionising Radiation in a Regulatory Context (PROTECT)*, European Commission, <http://www.ceh.ac.uk/PROTECT/outputs/>

Beresford N.A., A. Hosseini, J.E. Brown, C. Cailles, D. Copplestone, C.L. Barnett, K. Beaugelin-Seiller (2008) Evaluation of approaches for protecting the environment from ionising radiation in a regulatory context, *Protection of the Environment from Ionising Radiation in a Regulatory Context (PROTECT)*, European Commission., <http://www.ceh.ac.uk/PROTECT/outputs/>

Code National du Bâtiment du Canada 2005
(http://seismescanada.rncan.gc.ca/hazard/interpolator/index_f.php)

Commission Canadienne de la Sûreté Nucléaire (2006a). Guide d'application de la réglementation. Guide G-320. Évaluation de la sûreté à long terme de la gestion des déchets radioactifs.
http://www.nuclearsafety.gc.ca/pubs_catalogue/uploads_fre/G-320_FinalPaper_f.pdf

Commission Canadienne de la Sûreté Nucléaire (2006b). Key Lake Present Operations Cumulative Effects CNSC Staff Determination of Environmental Risk. August 2006. CNSC, Ottawa ON. CNSC EDOC #3238507.

Environnement Canada et Santé Canada (2003) Rejets de radionucléides des installations nucléaires (Effets sur les espèces autres que l'être humain). Liste des substances d'intérêt prioritaire : Rapport d'évaluation. ISBN 0-662-75224-4

Gouvernement du Canada. Portail des substances chimiques

http://www.chemicalsubstanceschimiques.gc.ca/interest-interet/index_f.html

McKee, P. M.; Snodgrass, W. J.; Hart, D. R.; Duthie, H. C.; McAndrews, J. H.; Keller, W., (1987) SEDIMENTATION-RATES AND SEDIMENT CORE PROFILES OF U-238 AND TH-232 DECAY CHAIN RADIONUCLIDES IN A LAKE AFFECTED BY URANIUM MINING AND MILLING. *Can. J. Fish. Aquat. Sci.*,44(2), 390-398.

Murray D.L., Cox E.W., Ballard W.B., Whitlaw H.A., Lenarz M.S., Custer T.W., Barnett T., Fuller T.K., Pathogens, Nutritional Deficiency, and Climate Influences on a Declining Moose Population. *Wildlife Monographs* 166: 1–30

Schelske C. L., Peplow A., Brenner M. and Spencer C. N. (1994) Low-background gamma counting: applications for ²¹⁰Pb dating of sediments. *J. Paleolimnol.* 10, 115–128.

Thompson P.A., Kurias J., S. Mihok (2005) Derivation and use of sediment quality guidelines for ecological risk assessment of metals and radionuclides released to the environment from uranium mining and milling activities in Canada. *Environmental Monitoring and Assessment*, 110:71-85.