

NovaTox

Ecological Risk Assessment, Cambrai Rifle Range, Makinsons, Newfoundland and Labrador

Client

Defence Construction
Canada

Location

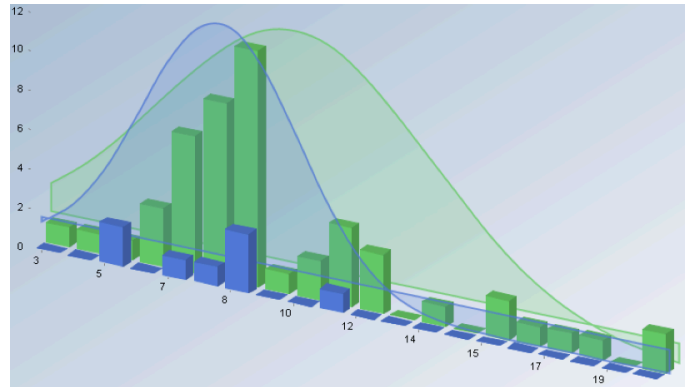
Makinsons, Newfoundland
and Labrador

Date Completed

2008

NovaTox staff conducted an ecological risk assessment for the Cambrai Rifle Range, a DND property near Makinsons, NL, with elevated levels of metals in soil, groundwater, sediment, and surface water. Historic site investigations and a screening assessment conducted in 2007 comparing metal concentrations to CCME environmental guidelines indicated the potential for metals to cause adverse effects to ecological receptors.

In 2008, a Detailed Quantitative ERA consistent with CCME guidance was conducted in support of a Remedial Action Plan for the property. A detailed fate and transport model was constructed to identify relevant surface and subsurface transport pathways for contaminants. The DQ-ERA evaluated the results of site-specific sampling of media compared



to local background concentrations from a nearby reference pond; regional forest inventories; biological surveys of terrestrial receptors, fish, benthic invertebrate assemblages, and species at risk; and laboratory toxicity testing of water and sediment to a panel of surrogate aquatic species (freshwater algae and macrophytes, daphnids, benthic invertebrates, and rainbow trout embryos). The results of testing at the site were used in a lines-of-evidence approach to evaluate risk to ecological receptors. Although ecological exposure models indicated exposure levels for some ecological receptors may exceed reference values from the literature, toxicity tests and biological surveys of both terrestrial and aquatic receptors suggested effects were likely to be minor in magnitude, and metals had not resulted in substantial adverse impacts to the ecological community. It was recommended that remedial options should focus on minimizing transport of metals via run-off from soils at the rifle range to local watercourses.

NovaTox Inc.

10 Crane Avenue
Guelph, Ontario N1G 2R2
Tel 1.877.680.7256
Fax 1.519.231.0130
<http://novatox.ca>

Christopher Marwood, PhD
Ecological Risk Assessment
marwood@novatox.ca

Mark J. Chappel, MSc, DABT
Human Health Risk Assessment
mchappel@novatox.ca

