
Development and Application of Models of Chemical Fate in Canada

Modelling Guidance Document

Report to Environment Canada

Revision to CEMN Report No. 200501

Replaces Section 2.2 Precaution and Conservatism

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2.2 Precaution and Conservatism

Canada has a long-standing history of implementing protective approaches in science-based programs related to health and safety, environmental protection, and natural resources conservation. With the increasing emphasis on the adoption of the precautionary principle in decision-making, the federal government has been working to develop a set of guiding principles to support consistent, credible, and predictable policy and regulatory decision-making across government when applying this principle.

During the preparation of an environmental risk assessment, an effort is made to be protective and to apply a plausible amount of conservatism in response to uncertainties, as well as to ensure that decisions are made with a precautionary perspective as required. The Canadian Environmental Protection Act (CEPA), 1999, specifically addresses the importance of applying the precautionary principle in relation to the assessment and management of substances. In the preamble to the Act and in the introduction under Administrative Duties of the Government of Canada it states that “where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation”. In addition, part V of CEPA, 1999, Section 76.1, which deals specifically with conducting and interpreting the results of a screening or PSL risk assessment, or the evaluation of a decision from another jurisdiction, prescribes the application of the precautionary principle through the statement that “Ministers shall apply a weight of evidence approach and the precautionary principle when preparing and interpreting the results of assessments”.

Historically, and as described in this document, the application of precaution and an appropriate level of conservatism will continue to be an integral part of the environmental risk assessment process. As a practical example, in the effects assessment stages, a protective approach may manifest itself through the selection of the lowest, most protective quantitative measurement or estimate from the available data, or conservatism may be applied through the application of conservative “assessment” factors which will lower the effect concentration even more to account for data limitations. For the development of the exposure scenarios, protective assumptions are often applied through the assumption of large or reasonable worst case use or release volumes and or, through the development of potential use or release scenarios.