Introduction

- AICER—new software for Ecological Risk Assessment.
- Designed for radiological and non-radiological contaminants.
- Capabilities comparable to RESRAD-BIOTA and ERICA
- Developed in accordance with QA standard CSA N286.7

Assessment Steps

- Selection of receptors and characterization
- Selection of radionuclides of concern
- Selection of over exposure pathways
- Development of conceptual assessment model
- Calculation of dose to non-human biota
- Comparison with the appropriate benchmark values

Graded Approach

1. Screening level risk assessment (SLRA): Equivalent to a Tier 1 risk assessment, SLRA represents the less detailed assessment and serves as the most conservative and broadest form of risk assessment.
2. Preliminary quantitative risk assessment (PQRA): Equivalent to a Tier 2 risk assessment, PQRA is carried out based on available site concentration data to produce a preliminary estimation of exposure and risk for each receptor.
3. Detailed quantitative risk assessment (DQRA): Equivalent to a Tier 3 risk assessment, a DQRA can involve a refined exposure assessment and risk characterization, or can consider other lines of evidence. At this level of assessment, additional site-specific monitoring data or more sophisticated modelling to estimate more realistic exposure concentrations can be used to reduce uncertainty about exposure, dose and risk.

Functionality

- Step 1: Select Species
- Step 2: Provide concentrations
- Step 3: Display the results

Intercomparison

<table>
<thead>
<tr>
<th>Computer code</th>
<th>AICER</th>
<th>RESRAD BIO-TA</th>
<th>ERICA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approach</td>
<td>Screening level assessment for conventional contaminants</td>
<td>Quantitative risk assessment for radiological contaminants</td>
<td>Graded quantitative risk assessment</td>
</tr>
<tr>
<td>Contaminants</td>
<td>Chemical contaminants, Radioisotopic contaminants</td>
<td>Reference organisms, option to configure user-defined organisms</td>
<td>Reference organisms</td>
</tr>
<tr>
<td>Organisms</td>
<td>Actual indicator species</td>
<td>Radiological contaminants, Reference organisms, option to configure user-defined organisms</td>
<td>Radiological contaminants</td>
</tr>
</tbody>
</table>

Result format

- Provides dose breakdown by pathways and radionuclides
- Provides dose breakdown by environmental media and radionuclides
- Provides dose breakdown by environmental media and radionuclides