

## Sub-Element 2.d—Radiological Assessment and Decisionmaking for the Ingestion Exposure Pathway

<b>What the Policy Says</b>	<p><b>Intent</b> NUREG-0654 provides that OROs should have the means to assess the radiological consequences for the ingestion exposure pathway, relate them to the appropriate PAGs, and make timely, appropriate protective action decisions to mitigate exposure from the ingestion pathway.</p> <p>During an accident at a nuclear power plant, a release of radioactive material may contaminate water supplies and agricultural products in the surrounding areas. Any such contamination would likely occur during the plume phase of the accident and, depending on the nature of the release, could impact the ingestion pathway for weeks or years.</p> <p><b>Criterion 2.d.1:</b> Radiological consequences for the ingestion pathway are assessed and appropriate protective action decisions are made based on the ORO's planning criteria. (NUREG-0654, J.9, J.11).</p> <p><b>Minimum Frequency</b> Criterion 2.d.1 is to be evaluated once in 6 years. The plume phase and the post-plume phase (ingestion, relocation, re-entry, and return) can be demonstrated separately.</p> <p><b>Extent of Play</b> We expect that the Offsite Response Organizations (ORO) will take precautionary actions to protect food and water supplies, or to minimize exposure to potentially contaminated water and food, in accordance with their respective plans and procedures. Often such precautionary actions are initiated by the OROs based on criteria related to the facility's Emergency Classification Levels (ECL). Such actions may include recommendations to place milk animals on stored feed and to use protected water supplies.</p> <p>The ORO should use its procedures (for example, development of a sampling plan) to assess the radiological consequences of a release on the food and water supplies. The ORO's assessment should include the evaluation of the radiological analyses of representative samples of water, food, and other ingestible substances of local interest from potentially impacted areas, the characterization of the releases from the facility, and the extent of areas potentially impacted by the release. During this assessment, OROs should consider the use of agricultural and watershed data within the 50-mile EPZ.</p> <p>The radiological impacts on the food and water should then be compared to the appropriate ingestion PAGs contained in the ORO's plan and/or procedures. (The plan and/or procedures may contain PAGs based on specific dose commitment criteria or based on criteria as recommended by current Food and Drug Administration guidance.) Timely and appropriate recommendations should be provided to the ORO decision-makers group for implementation decisions. As time permits, the ORO may also include a comparison of taking or not taking a given action on the resultant ingestion pathway dose commitments.</p>
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	<p>The ORO should demonstrate timely decisions to minimize radiological impacts from the ingestion pathway, based on the given assessments and other information available. Any such decisions should be communicated and, to the extent practical, coordinated with neighboring and local OROs.</p> <p>OROs should use Federal resources, as identified in the Federal Radiological Emergency Response Plan (FRERP), and other resources (for example, compacts, nuclear insurers, etc.), if available. Evaluation of this criterion will take into consideration the level of Federal and other resources participating.</p> <p>All activities must be based on the ORO's plans and procedures and completed as they would be in an actual emergency, unless noted above or otherwise indicated in the Extent of Play agreement.</p>
<p><b>Preparing to Evaluate This Criterion</b></p>	<p>Before the exercise, determine, according to the ORO's plan/procedures and the Extent of Play agreement:</p> <ul style="list-style-type: none"> <li>• Who (identify by title and organization) has the authority to make decisions in the ingestion exposure pathway?</li> <li>• Are the decision makers and the dose assessment staff located in the same facility? If not, arrange with another evaluator so that both parts of the criterion can be observed (and ensure that the Team Leader is aware of the arrangement).</li> <li>• What precautionary actions are considered before any analytical result is available on contamination levels in food or water? When, and on what basis are decisions made to implement precautionary actions?</li> <li>• How are the boundaries of any temporary embargo zones determined, if this approach is contemplated?</li> <li>• What laboratory provides testing for radionuclide concentrations in edible food or water?</li> <li>• Does the dose assessment staff compare analytical results with pre-determined Derived Intervention Levels (DILs) or are dose projections made based on the analytical results? If the latter, what assumptions are made with respect to; fraction of the diet assumed to be contaminated, quantity consumed, consumption period, dose conversion factors, and decay corrections.</li> <li>• Are the pre-determined DILs the same as the 1998 Food and Drug Administration (FDA) DILs? If not what are the differences?</li> <li>• What projected dose or doses are used to decide if protective actions are warranted? If other than the FDA PAGs (DILs as a surrogate) are used, what rationale is given for other decision criteria?</li> <li>• What are the options described for potential protective actions in the ingestion exposure pathway?</li> <li>• What arrangements are made to coordinate potential decisions with other political jurisdictions, if necessary?</li> <li>• What is the appropriate coordination between decision makers, if more than one individual has jurisdiction?</li> <li>• Are representatives from Nuclear Insurers going to play in the exercise and address compensation for loss of goods?</li> </ul>

<b>During the Exercise</b>	During the exercise, in addition to evaluating activities related to the items listed above, be sure to: <ul style="list-style-type: none"><li>• Note times for all decisions including precautionary actions.</li><li>• Observe all coordination activities between decision makers and technical staff.</li><li>• Obtain copies of all;<ul style="list-style-type: none"><li>➤ Laboratory data input (real or controller injected)</li><li>➤ Calculations</li><li>➤ Maps or descriptions of impacted areas</li><li>➤ Formal recommendations made to decision makers</li></ul></li></ul>
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