

## **RISK-INFORMED STEERING COMMITTEE – WORKING GROUP ON TREATMENT OF UNCERTAINTY IN DECISION-MAKING**

### **ACTION PLAN**

- Identify the specific challenges impeding more complete treatment of uncertainties (i.e., parametric, completeness, and model uncertainties) in current risk-informed applications

#### IDENTIFY FOUNDATIONAL ASPECTS

- Identify challenges when addressing uncertainty
  - Review several representative applications with respect to the current treatment of uncertainty (including not addressing each type of uncertainty), including industry/NRC PRA models, license amendment applications, significance determination process assessments.
  - Brainstorm on the reviewed material for causes/reasons for current lack of full treatment and define scope/success criteria for the issues identified
  - Provide to RISC the results of this task
  - Receive feedback from the RISC (individual and joint) on the issues, scope, and success criteria

#### IDENTIFY IMPLEMENTATION ASPECTS

- Identify related implementation and decision-making issues that need to be considered in addressing uncertainties, such as aggregation of results and differentiated treatment of uncertainty within and across hazards (e.g., seismic versus external flooding), and how they potentially impact decision-making (with pros and cons)
  - Identify specific topics to pursue further in the subsequent tasks and those that will be deferred and the rationale for the selection
  - Provide to RISC the results of this task
  - Receive feedback from the RISC (individual and joint) on the path forward
- Compare and evaluate current approaches for addressing uncertainties in risk-informed decision-making and identify where additional guidance would be beneficial (either to applicant, NRC or both) in addressing the issues being pursued, as identified in the prior task.
    - Review content of guidance documents and other relevant literature from both government (e.g., NRC, DOE, NASA) and industry (including nuclear and non-nuclear to the extent relevant) and identify areas that need to be exercised (e.g., tabletop) to determine if they adequately address the issues and if there are areas where additional guidance would be beneficial
    - Conduct review of relevant industry and NRC technical documents and identify potential application(s) for treatment of completeness uncertainty, parametric uncertainty, and model uncertainty, with pros and cons in their treatment
    - Identify current good practices in treatment of uncertainty in applications including options for treating uncertainties in specific applications and a recommendation for additional guidance on specific aspects, if identified
    - Provide to RISC the results of this task, and the rationale for that recommendation with the approach for the path forward
    - Receive feedback from the RISC (individual and joint) on the path forward

- Based on the results of the prior tasks, document the results of this working group and, as appropriate, propose an action plan (including different options) for developing the additional or revised guidance for addressing uncertainties. Include in the documentation of the task the following topics:
  - Characterize the different causes of uncertainty, and other related issues for risk-informed decision-making
  - Identify the reasons or causes why some uncertainties have not been addressed in past applications and which areas are being pursued and which are deferred
  - Identify what guidance is available to address specific types of uncertainties and current good practices.
  - Identify areas for enhanced and/or new guidance
  - Propose a plan (including options for the specific issues) for the development of the enhanced and/or new guidance, as appropriate
  - Provide the draft documentation and plan to RISC for their review
  - Receive feedback from the RISC (individual and joint) on the guidance development plan
  
- Identify potential education mechanisms (e.g., training, communications), for both PRA practitioners and broader audiences (e.g., non-PRA staff, managers, and decision-makers), with respect to the treatment of uncertainty
  - Review existing education mechanisms on risk communication and decision making from government (e.g., NRC, DOE, NASA) and industry programs (nuclear and non-nuclear to the extent relevant) to address lessons learned and gaps identified above
  - Identify areas for improvement and/or new options (e.g., enhanced/focused training)
  - Receive feedback from the RISC (individual and joint) on this task, including any plans for revising or creating new options