

## PURPOSE

This purpose of this document is to inform the public about the Nuclear Regulatory Commission's (NRC) implementation of actions resulting from a differing professional opinion (DPO) submittal on the use of probabilistic risk assessment (PRA) related terms.

## BACKGROUND INFORMATION

The DPO Program<sup>1</sup> is a formal process that allows employees and NRC contractors to have their differing views on established, mission-related issues considered by the highest level managers in their organizations (i.e., Office Directors and Regional Administrators). The process also provides managers with an independent, multi-person review of the issue with one person chosen by the employee. After a decision is issued to an employee, he or she may appeal the decision to the Executive Director for Operations (EDO).

On April 22, 2016, DPO-2016-001 was submitted to the NRC. A DPO panel was convened and provided its analysis and conclusions on August 11, 2016. The Director of the Office of Nuclear Regulatory Research (RES) provided his decision with on the DPO on September 22, 2016. Documents related to the DPO-2016-001 case file are available in the NRC's Agencywide Document Access and Management System (ADAMS) under accession number ML17013A015.

DPO-2016-001 raised the issue of using different terms when assessing whether a PRA was acceptable for regulatory risk-informed decisionmaking. Historically, different terms have been used interchangeably and inconsistently to describe the overall goodness of a PRA for NRC regulatory processes.<sup>2</sup> The Director of RES decided that "...the term 'PRA Acceptability' should be used consistently within our other regulatory guidance, standard review plans, training materials, and other information that supports our regulatory program."

On October 3, 2016, the decision on DPO-2016-001 was appealed to the Executive Director for Operations (EDO). On January 10, 2017, the EDO issued his decision that "...it is appropriate to uphold the RES Director's decision..." The EDO also stated that "'PRA acceptability' be used as the high-level term to discuss the overall 'goodness' of a PRA model used for a regulatory application..."

The EDO's decision memo requested that several actions, including the following key items, be implemented:

1. Adopt the term "PRA Acceptability" rather than "PRA quality" or "technical adequacy" in Regulatory Guide (RG) 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis."
2. Identify other documents and information (e.g., training materials) that would need to be revised to adopt consistently "PRA Acceptability."
3. Coordinate these planned revisions with the public and stakeholders.

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<sup>1</sup> See NRC Management Directive 10.159, "NRC Differing Professional Opinion Program," for additional detail.

<sup>2</sup> See DPO Panel report in the DPO-2016-001 case file for additional historical background on the usage of terms.

## IMPLEMENTATION OF DECISION ON DPO-2016-001

1. The NRC staff will adopt the term “PRA Acceptability” with the following description:

PRA Acceptability<sup>3</sup> describes the ability of a PRA to support risk-informed regulatory decisionmaking. PRA Acceptability is measured in terms of its appropriateness with respect to scope, conformance with the technical elements of a PRA, level of detail, and plant representation.

- The scope of a PRA describes the range of challenges that are included in an analysis. It is defined in terms of metrics used in characterizing the risk, plant operating states for which the risk is to be evaluated, and causes of initiating events (hazard groups) that can potentially challenge and disrupt the normal operation of the plant.
  - The technical elements describe the minimal set of attributes and characteristics a PRA must have to be considered complete. Conformance with technical elements ensures that the attributes and characteristics used in the development of the PRA model are consistent with accepted methods, tools, and data.
  - The level of detail describes the degree to which plant design and operation is modeled; specific plant experience is incorporated into the model; and realism is incorporated into the analyses that reflect the expected plant response. The level of detail needs to be sufficient to ensure that the impacts of designed-in dependencies (e.g., support system dependencies, functional dependencies, and dependencies on operator actions) are correctly captured.
  - Plant representation describes the degree to which the PRA model represents the as-built, as-operated plant to the extent needed to support the application. Plant representation ensures that the design information, operational information, test and maintenance, and engineering aspects for a given plant are properly reflected in the PRA model.
2. The NRC staff will implement the term “PRA Acceptability” consistently in its documents and communications. In the near term, the NRC will add the term “PRA Acceptability” to its online glossary of terms and the next revision of NUREG-2122, “Glossary of Risk-Related Terms in Support of Risk-Informed Decisionmaking.” The NRC will consistently adopt the term PRA Acceptability in other NRC documents (e.g., regulatory guidance, standard review plans, etc.) and information (e.g., training material, etc.) during the course of routine scheduled document and information updates.
  3. The NRC staff will communicate and coordinate the adoption of the term “PRA Acceptability” by holding a public meeting on the information within this document and requesting comments.

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<sup>3</sup> RG 1.200, “An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities,” provides additional detailed information on these aspects of PRA

## **USAGE OF PRA ACCEPTABILITY**

The NRC's use of the term PRA Acceptability does not change the implementation of any NRC regulatory processes (e.g., current policies and practices are not affected); rather its use is intended to help ensure consistency in their implementation. The NRC, the nuclear power industry, and other stakeholders have historically used other terms interchangeably and inconsistently to describe the overall goodness of a PRA for in risk-informed decisionmaking. The NRC's implementation plan on the DPO decision does not require or compel, nor is it intended to suggest that the nuclear power industry change its documents and records to comport to the NRC staff's use of the term "PRA Acceptability."