



# OFFICE OF THE INSPECTOR GENERAL

U.S. NUCLEAR REGULATORY COMMISSION  
DEFENSE NUCLEAR FACILITIES SAFETY BOARD

## Evaluation of Proposed NRC Modifications to the Probabilistic Risk Assessment Process

OIG-17-A-26

September 21, 2017



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**UNITED STATES**  
**NUCLEAR REGULATORY COMMISSION**  
WASHINGTON, D.C. 20555-0001

**OFFICE OF THE  
INSPECTOR GENERAL**

September 21, 2017

MEMORANDUM TO: Victor M. McCree  
Executive Director for Operations

FROM: Dr. Brett M. Baker */RA/*  
Assistant Inspector General for Audits

SUBJECT: EVALUATION OF PROPOSED NRC MODIFICATIONS TO  
THE PROBABILISTIC RISK ASSESSMENT PROCESS  
(OIG-17-A-26)

Attached is the Office of the Inspector General's (OIG) report titled *Evaluation of Proposed NRC Modifications to the Probabilistic Risk Assessment Process*.

The report presents the results of the subject evaluation. Following the August 22, 2017, exit conference, agency staff indicated that they generally agreed with the report results and recommendation, and opted to provide formal comments for inclusion in this report. The agency provided comments to the report on September 6, 2017 which appear in Appendix B.

Please provide information on actions taken or planned on the recommendation within 30 days of the date of this memorandum. Actions taken or planned are subject to OIG followup as stated in Management Directive 6.1.

We appreciate the cooperation extended to us by members of your staff during the evaluation. If you have any questions or comments about our report, please contact me at (301) 415-5915 or Paul Rades, Team Leader, at (301) 415-6228.

Attachment: As stated



# Office of the Inspector General

U.S. Nuclear Regulatory Commission  
Defense Nuclear Facilities Safety Board

OIG-17-A-26  
September 21, 2017

## Results in Brief

### Why We Did This Review

The Nuclear Regulatory Commission (NRC) and its licensees use the Probabilistic Risk Assessment (PRA) process to estimate the risk of potential accidents at nuclear power plants. PRA is a structured, analytical process for identifying potential weaknesses and strengths of plant designs and operations in an integrated fashion. PRA considers accident scenarios to determine what can go wrong, the likelihood of occurrence, and the consequences for people and the plant.

NRC has a tool to estimate risk at nuclear power plants known as Standardized Plant Analysis Risk (SPAR) Model Development Programs. SPAR models are used by NRC staff in support of risk-informed activities. During the period January 2016 through July 2016, NRC staff assessed alternatives to using SPAR models, including use of licensee PRA models.

The OIG evaluation objective was to assess NRC's process for piloting alternative risk modeling techniques including analyzing costs, benefits, and feasibility of these alternatives. Appendix A contains the evaluation objective, scope, and methodology.

### *Evaluation of Proposed NRC Modifications to the Probabilistic Risk Assessment Process*

#### What We Found

Improved coordination and documentation of staff assessments would better support NRC's efforts to evaluate the costs, benefits, and feasibility of alternatives to its current risk modeling program (SPAR). Although preliminary staff assessments show credible cost and feasibility limitations to adopting industry risk models, NRC has yet to document the results of this work and use it as the basis for a formal policy position. These actions are particularly important in the current regulatory climate, which emphasizes risk-informed decision-making. Moreover, better process management can help NRC more efficiently revisit SPAR alternatives if new cost data and feasibility solutions become available.

#### What We Recommend

OIG made a recommendation to improve the process for assessing alternatives to using SPAR models. Specifically, OIG recommends that the Executive Director for Operations formally document evaluation results that will establish the agency position on NRC's use of licensee PRA models, to include reliable, verifiable cost data.

NRC management stated their agreement with the results and recommendation in this report, and opted to provide formal comments for inclusion in this report. Appendix B contains a copy of the agency's formal comments.

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## ABBREVIATIONS AND ACRONYMS

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CIGIE	Council of Inspectors General on Integrity and Efficiency
EPRI	Electric Power Research Institute
INL	Idaho National Laboratory
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
NRR	Office of Nuclear Reactor Regulation
OIG	Office of the Inspector General
PRA	Probabilistic Risk Assessment
RES	Office of Nuclear Regulatory Research
RIDM	Risk-Informed Decision-Making
RISC	Risk-Informed Steering Committee
SAPHIRE	Systems Analysis Programs for Hands-on Integrated Reliability Evaluations
SPAR	Standardized Plant Analysis Risk

## I. BACKGROUND

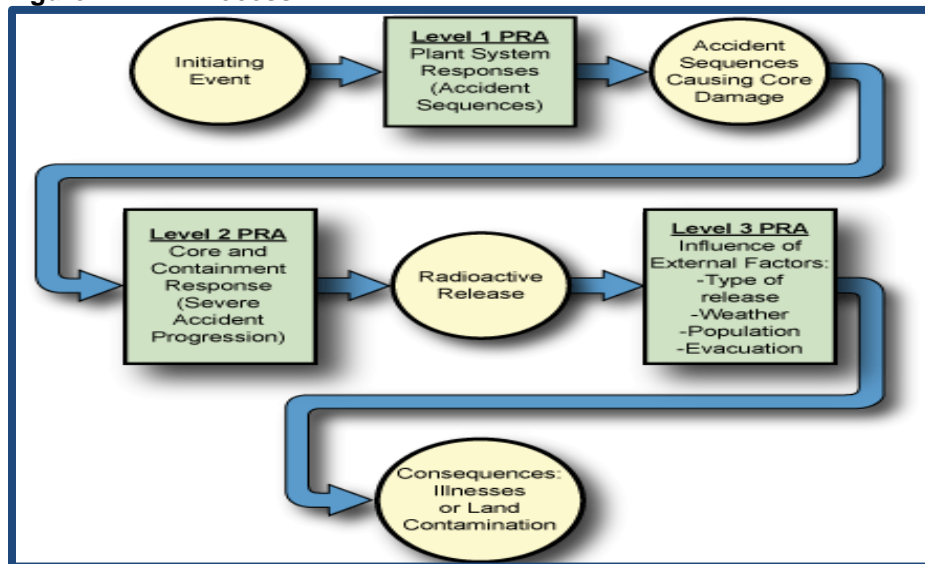
NRC and its licensees use the PRA process to estimate the risk of potential accidents at nuclear power plants. PRA is a structured, analytical process for identifying potential weaknesses and strengths of plant designs and operations in an integrated fashion. PRA considers accident scenarios to determine what can go wrong, the likelihood of occurrence, and the consequences for people and the plant.

### NRC PRA Use

NRC staff use PRA to fulfill NRC’s regulatory responsibilities for oversight of civilian use of nuclear power. NRC staff, including engineers and analysts, use PRA in rulemaking, licensing, inspection, incident investigation, and enforcement programs. NRC’s PRA program is designed to estimate three levels of risk including

- Frequency of accidents that cause damage to the nuclear reactor core.
- Frequency of accidents that release radioactivity from the nuclear power plant.
- Consequences, in terms of injury to the public and damage to the environment from radioactivity release accidents.

Figure 1: PRA Process



Source: NRC Public Web Site.

## **NRC SPAR Models**

NRC's system for assessing risks of potential accidents at nuclear power plants is conducted using the SPAR model software. NRC uses SPAR models to evaluate potential weaknesses and strengths of plant designs for each of the operating nuclear power reactors NRC regulates. SPAR models simulate accident sequence progression, plant systems and components, and plant operator actions. NRC's SPAR model software code has the ability to calculate the change in risk between a baseline case and an event case, and automatically adjusts certain parameters to reflect analyzed conditions. SPAR models also use standardized modeling conventions that allow more efficient use, maintenance, and updating of these plant-specific PRA models.

Some nuclear industry professionals characterize SPAR models as conservative relative to industry PRA models, in that equipment and system failures projected by SPAR models are more likely to arrive at a reactor core damage state as compared to licensee PRA models. However, NRC staff indicated that although licensee PRA models are generally more detailed compared to SPAR models, lack of those details do not necessarily result in conservatisms. Differences in licensee and NRC assessments are largely driven by differences in assumed boundary conditions and input assumptions rather than the PRA model itself. Notably, SPAR models are benchmarked against licensee models and NRC assesses the differences between the models.

NRC has agreements with the Idaho National Laboratory (INL) for SPAR models and PRA-related technical support. These agreements include routine model updates, model software (SAPHIRE)<sup>1</sup> updates and quality controls, data updates, user technical support, new reactor SPAR models, and maintenance as required. The NRC Office of Nuclear Regulatory Research (RES) staff manage NRC agreements with INL. The INL agreements pertaining to SPAR models in effect during the course of this evaluation have the period of performance of December 15, 2011, through September 30, 2019. The total contract ceiling of the INL agreement was \$11,080,860.01 as of March 31, 2017.

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<sup>1</sup> SPAR models run on Systems Analysis Programs for Hands-on Integrated Reliability Evaluations (SAPHIRE) software.

## Licensee PRA Use

Licensees also use PRA in their nuclear power plant operations. Licensee PRA models replicate the plant design, with PRA models that are specific to individual plants. Industry-wide, licensees use at least four different software packages. According to industry representatives, licensee PRA models are used to focus on an individual nuclear plant’s peak operational efficiency and resource allocation. An industry representative indicated PRA analysis should realistically assess plant risks without being overburdened by unnecessary conservatism built into the models.

The following chart summarizes a comparison between the NRC SPAR models and licensee PRA models.

**Figure 2: Comparison between NRC SPAR Models and Licensee PRA Models**

	<u><i>NRC SPAR Models</i></u>	<u><i>Licensee PRA Models</i></u>
<b>Software Needs</b>	➤ One software platform	➤ Four or more software platforms used industry-wide
<b>Information Use</b>	<ul style="list-style-type: none"> <li>➤ Independent regulatory oversight</li> <li>➤ Operating experience is reviewed industry-wide for applicability</li> </ul>	<ul style="list-style-type: none"> <li>➤ Efficient plant operation</li> <li>➤ Provides detailed information that replicates individual plant design</li> </ul>

Source: OIG-generated from analysis of agency documentation.

## PRA Interest

NRC’s use of PRA has been a matter of public interest for a number of years. The Three Mile Island accident in 1979 substantially changed the character of the analysis of severe accidents worldwide, and led to NRC establishing policy on the use of PRA methods. *Use of Probabilistic Risk Assessment Methods in Nuclear Regulatory Activities Final Policy Statement*, August 16, 1995, in part, calls for increased use of PRA.



NRC clarified its position on PRA use in regulatory decision-making in March 1999.<sup>2</sup> The Commission affirmed that NRC did not endorse a risk-based approach to regulatory decision-making (i.e., decision-making solely based on the numerical results of a risk assessment), validated the use of probabilistic calculations to demonstrate compliance with certain criteria, such as radiation dose limits, and defined the risk-informed<sup>3</sup> approach to regulatory decision-making.

The Commission reaffirmed in 2003 that it was possible for NRC to perform independent assessments using the SPAR models, and that insights obtained from analyses with SPAR models (taken together with operating experience reviews and in-depth technical assessments) provide NRC with a sound technical basis for regulatory decision-making.<sup>4</sup>

In 2007, NRC conducted an evaluation on NRC's use of licensee PRA models.<sup>5</sup> This evaluation concluded licensee PRA models were not standardized, did not support NRC's independent oversight processes, and had major logistical and resource constraints to maintain and use 70+ licensee models. Therefore, licensee models were not ready for NRC's use.

Consistent with the NRC's 1999 PRA policy statement, the NRC risk-informed steering committee (RISC) was established in 2014 to provide strategic direction to NRC staff to advance the use of risk-informed decision-making (RIDM) in various NRC activities. Chaired by the Office Director, Office of Nuclear Reactor Regulation (NRR), the NRC RISC is comprised of a senior management committee representing the NRC program offices.

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<sup>2</sup> March 1, 1999, Staff Requirements SECY-98-144, *White Paper on Risk-Informed and Performance-Based Regulation*.

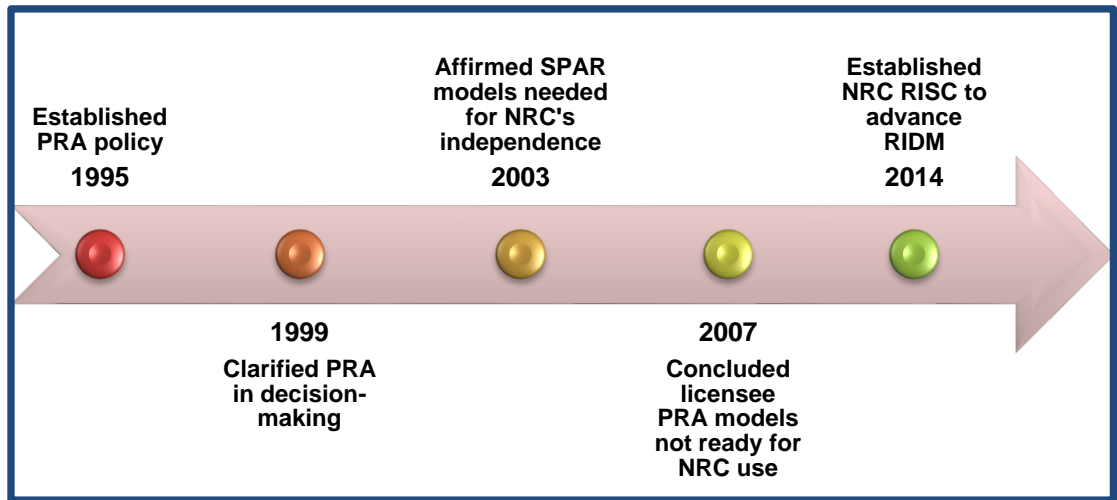
<sup>3</sup> The risk-informed approach to regulatory decision-making represents a philosophy whereby risk insights are considered together with other factors to establish requirements that better focus licensee and regulatory attention on design and operational issues commensurate with their importance to public health and safety.

<sup>4</sup> NRC letter dated December 24, 2003, from the NRC Executive Director for Operations to the NRC Chairman of the Advisory Committee on Reactor Safeguards, titled, *Regulatory Effectiveness of Unresolved Safety Issue A-45, "Shutdown Decay Heat Removal Requirements,"* ML033510551.

<sup>5</sup> *Significance Determination Process Evaluation*, enclosure to the October 15, 2007, letter to the Nuclear Energy Institute from the NRC Executive Director for Operations.

The following timeline indicates key PRA policy developments at NRC.

**Figure 3: NRC PRA Policy Developments**



Source: OIG analysis based on NRC data.

### **NRC Proposed Modification to the Use of PRA Models**

The NRC RISC directed an NRR evaluation team to evaluate the potential for using licensee PRA models. The NRC RISC directed this effort because of concern about the annual cost of maintaining SPAR models. During the period January 2016 through July 2016, NRR staff led the effort to evaluate the three following alternatives:

- Use licensee PRA models, which includes purchasing licensee software.
- Use licensee PRA results.
- Continue using NRC SPAR models.

The NRC RISC directed staff to stop evaluating the option of using licensee PRA results based on concerns that this option would compromise NRC's regulatory independence. Based on the preliminary cost benefit analysis and lack of industry interest, the NRC RISC decided that staff evaluation of the use of licensee PRA models in lieu of SPAR models for operations reactors should be terminated. The Office of New Reactors indicated it would continue to explore the possibility of using licensees' models for regulatory decision-making.

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## II. OBJECTIVE

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The evaluation objective was to assess NRC's process for piloting alternative risk modeling techniques including analyzing costs, benefits, and feasibility of these alternatives.

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## III. RESULTS

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Improved coordination and documentation of staff assessments would better support NRC's efforts to evaluate the costs, benefits, and feasibility of alternatives to its current risk modeling program, such as using industry models. Although preliminary staff assessments show credible cost and feasibility limitations to adopting industry risk models, NRC has yet to document the results of this work and use it as the basis for a formal policy position. These actions are particularly important in the current regulatory climate, which emphasizes risk-informed decision-making. Moreover, better process management can help NRC more efficiently revisit SPAR alternatives if new cost data and feasibility solutions become available.

### *What We Found*

#### **Stakeholder Coordination and Documentation of the Process Used for Evaluating PRA Modeling Alternatives Could Be Improved**

NRC could improve the process for evaluating PRA modeling alternatives with better internal and external stakeholder coordination of cost benefit analysis and process documentation.

#### Internal Stakeholder Coordination of Cost Benefit Analysis

NRC internal stakeholders could have benefitted from better coordination when conducting the cost benefit analysis to determine whether to use

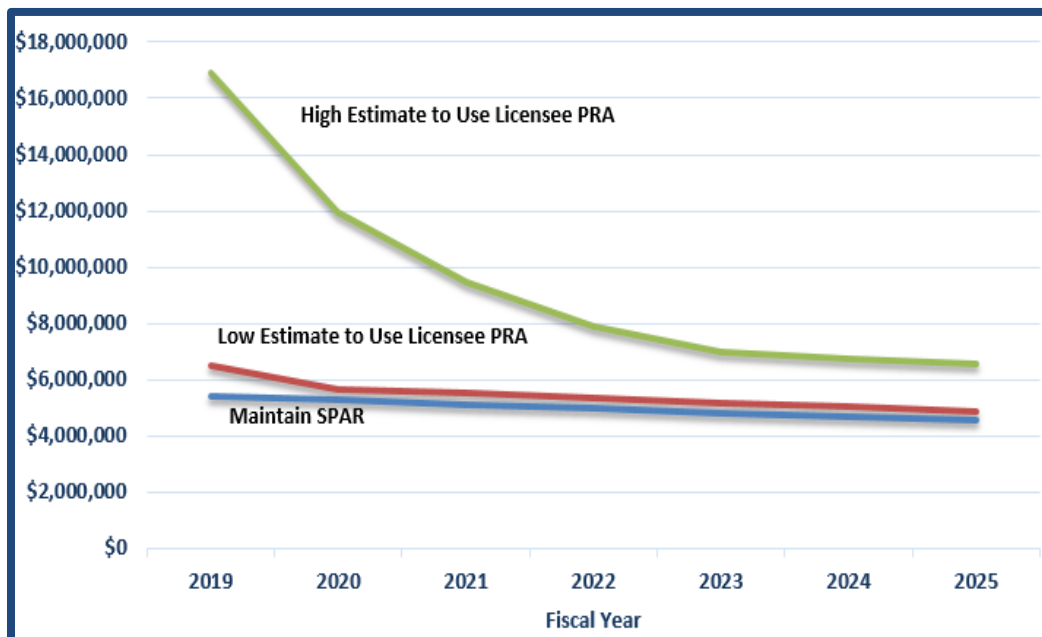
licensee PRA models. NRR staff conducted a cost benefit analysis of the relative cost of using current SPAR models compared to licensee PRA models without communicating cost data information with some key internal stakeholders.

The NRR cost benefit analysis estimated the cost of transitioning from using the current SPAR models to using licensee PRA models. The NRR cost benefit analysis considered integrating new software and plant-specific criteria; and the additional staff that would need to be hired and trained. NRR staff also considered, but could not quantify, the future impact on industry oversight. NRR used an agency-approved, commercially-obtained software tool to develop the cost benefit analysis. NRR staff indicated that RES's previously generated cost data had been considered and incorporated into the NRR cost benefit analysis. However, other NRR staff indicated that they did not know that RES previously generated cost data.

NRR's cost benefit analysis was comprised of the following four main expense categories: contract, user, training, and other. The four main expense categories included estimates for expenses such as help desk support and software training.

One section of the NRR cost benefit analysis estimates high and low annual costs of using licensee PRA models, and compares these costs to maintaining NRC's SPAR models over the FY 2019 to FY 2025 period based on a 3% discount rate. For FY 2019, initial costs of using licensee PRA models range between \$16.9 million and \$6.5 million, compared with \$5.4 million to maintain SPAR models. These costs become closer by FY 2025, when the estimated costs of using licensee PRA models range between \$6.6 million and \$4.9 million, compared with \$4.5 million to maintain SPAR models. The graph in Figure 4 shows NRR's estimated costs for using licensee PRA models and SPAR models from FY 2019 through FY 2025.

**Figure 4: NRR Estimated Transition Cost to Use Licensee PRA Models  
FY 2019 - FY 2025 in Millions of Dollars**



Source: OIG analysis based on NRC data.

RES staff previously conducted a separate cost benefit analysis and summary cost estimate based on less-detailed cost data. The RES summary cost estimate divided cost benefit analysis data into three expense categories: models, application, and software. These expenses were then subdivided into additional expense categories for cost driver activities, including technical support and PRA licensing software fees. The RES summary cost estimate indicated the approximate cost of \$3.0 million in FY 2017 to maintain SPAR models, \$7.9 million initial transition costs for NRC to begin, and \$3.2 million annual costs to sustain, use of licensee PRA models.

However, NRR staff did not communicate with RES staff throughout the evaluation process. NRR staff did not discuss the cost development process with RES staff or provide RES staff an opportunity to comment on the method NRR used to develop the NRR cost benefit analysis.

The NRR cost benefit analysis was not fully completed. Although NRR staff did not formally present the detailed results of the NRR cost benefit analysis to the NRC RISC, the NRR evaluation team briefed the NRC RISC using the RES summary cost estimate. Staff reported that the cost to switch to licensee PRA would likely be cost neutral or even higher than

existing SPAR model costs. NRR management indicated that the NRR preliminary cost benefit analysis results were sufficient to support the informed decision that using licensee PRA models would not be cost beneficial.

The summary cost estimate briefed to the NRC RISC cannot be used to support a formal agency position on NRC's use of licensee PRA models because the NRR cost analysis was never finalized. NRC also needs to address additional NRC staff-identified unquantifiable costs and considerations associated with NRC's use of licensee PRA models, including

- Costs associated with perceived loss of independence.
- Loss of efficiencies that would exist when using a commercial PRA code including loss of ability to rapidly perform system and component risk studies, analyses for multiple plants in support of generic issue assessment, and calculations and analyses that would be done by hand.
- Impacts to other Federal agencies that use SAPHIRE.

#### External Stakeholder Coordination

NRR staff were unable to coordinate effectively with external stakeholders in order to obtain data needed to determine whether to use licensee PRA models. NRR staff were not able to obtain licensee PRA model cost information from licensees due to licensee reluctance to share detailed cost information. NRR staff therefore generated their own estimates for licensee labor costs, based on publicly available information from the U.S. Department of Labor.

In addition, NRC staff and industry representatives raised concern for the protection of proprietary data if NRC was to use licensee PRA models. This data can include proprietary commercial calculations, calculation methods, and software algorithms. The concern is that NRC cannot assure absolute protection of this information, which, if released or compromised, could damage the licensee's competitive market position. NRC has not clearly articulated and addressed the industry concerns for the potential loss of industry proprietary data.

NRC staff initially identified protection of proprietary data among over 20 challenges that were presented to the NRC RISC. Even though this was



one of the challenges, NRC management noted that protection of proprietary data was not an insurmountable challenge because NRC staff handles and protects proprietary information regularly, and NRC has processes and controls in place to protect licensees' proprietary model data. Furthermore, NRC management noted that the NRC evaluation focused its attention on determining whether NRC could obtain licensees' PRA models, and whether the benefits of doing so would offset the associated limitations.

NRC staff indicated that industry's preference is to provide its PRA model results to NRC. However, NRC will not consider this alternative because using a licensee's PRA model results without independent verification conflicts with NRC's role as an independent regulator.

#### Documentation of Evaluation Process, Results and Decision

NRR staff conducted an evaluation per the NRC RISC request. However, to date, the agency has not formally documented the evaluation process, the evaluation results, and the decision not to use licensee PRA models. NRR staff indicated that they are working on a final evaluation report.

### ***Why This Is Important***

#### **Increased Emphasis on Risk-Informed Decision-Making**

NRC has continued to emphasize risk-informed decision-making, and NRC's potential use of licensee PRA models as a regulatory tool that could be a recurring matter of stakeholder interest in the coming years. Notably, in December 2016, the U.S. Senate Committee on Environment and Public Works asked NRC to describe the potential for using licensee PRA models and the agency actions (taken or planned) to address this potential opportunity. The Committee also requested periodic updates from NRC on PRA and other regulatory activities.

On the following two recent occasions, industry has also recently expressed interest in NRC's use of licensee PRA models. In January 2017, one licensee requested that NRC use licensee PRA models to determine the risk significance of a nuclear power plant performance deficiency when the NRC SPAR model and the licensee PRA models

differ significantly, and when the licensee's peer reviewed PRA model is more detailed. Subsequently, during NRC's May 11, 2017, public meeting on risk-informed regulation, industry conveyed its expectation for the Commission to consider a plan to improve realism in PRA information used in decision-making and emphasized that a new direction is required to move forward. Industry indicated that NRC senior staff had participated with industry on joint industry RISC and NRC RISC efforts.

NRC has continued to strengthen use of risk-informed decision-making methodologies through the establishment of new training programs in 2017. Part of this effort includes the availability of the *Risk-Informed Thinking Certificate Program*, a 12-month voluntary program for staff interested in gaining knowledge about incorporating the risk-informed decision-making process into their agency work activities. This program includes PRA classroom courses as well as independent learning activities.

The absence of a formal agency position explaining the reason NRC does not use licensee PRA models leaves the agency open to repeating previously completed data gathering and analysis. NRC management officials opined that the formal agency position on licensee PRA models use is well documented in a 2007 letter from NRC to NEI.<sup>6</sup> However, NRC would benefit from having an updated, formally documented, and verified evaluation so that, if the issue of using licensee PRA models arises again, there will be readily accessible and accurate information to support a formal agency position on the subject.

### **Recommendation**

OIG recommends that the Executive Director for Operations

1. Formally document evaluation results that will establish the agency position on NRC's use of licensee PRA models, to include reliable, verifiable cost data.

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<sup>6</sup> Enclosure to the October 15, 2007 letter to the Nuclear Energy Institute from the NRC Executive Director for Operations, titled *Significance Determination Process Evaluation*.

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## **IV. AGENCY COMMENTS**

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An exit conference was held with the agency on August 22, 2017. After reviewing a discussion draft, agency management provided comments that were incorporated into this report, as appropriate. As a result, agency management stated their general agreement with the results and recommendation in this report, and opted to provide formal comments for inclusion in this report. Appendix B contains a copy of the agency's formal comments.

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## OBJECTIVE, SCOPE, AND METHODOLOGY

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### Objective

The objective of this evaluation was to assess NRC's process for piloting alternative risk modeling techniques and analyzing costs, benefits, and feasibility of these alternatives

### Scope

The evaluation focused on NRC's process of assessing alternative risk modeling techniques. We reviewed NRC's assessment of alternative risk modeling techniques from March 2017 to June 2017, at NRC's headquarters in Rockville, Maryland. NRC is generally compliant with relevant laws and regulations. Throughout the evaluation, we considered the possibility of fraud, waste, and abuse within the program.

### Methodology

OIG reviewed relevant criteria for this evaluation, including

- *Use of Probabilistic Risk Assessment Methods in Nuclear Regulatory Activities; Final Policy Statement 1995 (60 FR 42622).*
- Government Accountability Office, *Designing Evaluations*, 2012 Revision, GAO-12-208G.
- Government Accountability Office, *Standards for Internal Control in the Federal Government*, GAO-14-704G.
- NUREG-1855, *Guidance on the Treatment of Uncertainties Associated with PRAs in Risk-Informed Decision-Making.*
- SECY-15-0124, *Status of the Accident Sequence Precursor Program and the Standardized Plant Analysis Risk Models.*

To obtain perspectives on the assessment of alternative risk modeling techniques, OIG interviewed NRC management and staff, as well as industry clients and their staff. OIG interviewed NRC management and staff from NRR, RES, and the NRC Office of New Reactors responsible for the agency's assessment of alternative risk modeling techniques. OIG observed an NRC staff demonstration of the SPAR model computer program to better understand the method NRC uses to determine nuclear power plant risk. OIG analyzed various cost analyses prepared by NRR and RES to view the cost differences for continuing the use of SPAR models or using industry PRA models. OIG also reviewed the current SPAR contracts in progress which are contracted to INL, an entity under the U.S. Department of Energy.

Industry stakeholders, the Nuclear Energy Institute (NEI), and the Electric Power Research Institute (EPRI) provided insight on the advantages and disadvantages of NRC use of industry PRA models. OIG reviewed letters from industry to analyze industry's position on NRC use of licensee SPAR models. NEI provided limited data, and EPRI did not provide additional information regarding this topic.

OIG conducted this evaluation in accordance with Council of the Inspectors General on Integrity and Efficiency (CIGIE) *Quality Standards for Inspection and Evaluation*.

The evaluation was performed by Paul Rades, Team Leader; Vicki Foster, Audit Manager; Tim Wilson, Senior Management Analyst; Curtis Browne, Auditor; and John Thorp, Senior Technical Advisor.

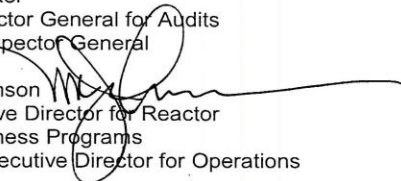
## AGENCY FORMAL COMMENTS



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

September 6, 2017

MEMORANDUM TO: Dr. Brett M. Baker  
Assistant Inspector General for Audits  
Office of the Inspector General

FROM: Michael R. Johnson   
Deputy Executive Director for Reactor  
and Preparedness Programs  
Office of the Executive Director for Operations

SUBJECT: FORMAL COMMENTS ON DRAFT REPORT: "AUDIT OF NRC'S  
EVALUATION OF PROPOSED NRC MODIFICATIONS TO THE  
PROBABILISTIC RISK ASSESSMENT PROCESS"

This memorandum is in response to your August 24, 2017, e-mail transmitting the Office of the Inspector General's (OIG) Draft Evaluation Report, "Audit of NRC's Evaluation of Proposed NRC Modifications to the Probabilistic Risk Assessment Process." I appreciate the time spent by the OIG in evaluating the Nuclear Regulatory Commission's (NRC) decision process.

The staff agrees to formally document evaluation results that will establish the agency position on NRC's use of licensees' Probabilistic Risk Assessment (PRA) models, to include reliable verifiable cost data.

In reviewing the OIG report, the staff noted that the report stresses the importance of the cost analysis in the overall Risk-Informed Steering Committee (RISC) decision. The RISC decision to terminate the staff evaluation of the use of licensee PRA models in lieu of Standardized Plant Analysis Risk models was based principally on the lack of broad industry support for sharing licensee PRA models; further refinement of the cost data to support a decision became unnecessary based on the lack of an industry commitment to sharing licensee PRA models. The general descriptions in the OIG report are not necessarily reflective of the staff's view regarding the relatively low importance of the cost analysis to the overall RISC decision to terminate the staff evaluation.

Again, I appreciate your efforts in reviewing our evaluation process and for the opportunity for us to comment on your draft report. In addition, staff review concluded that the draft report does not contain any sensitive unclassified information.

CONTACT: Russell N. Felts, NRR\DRA  
301-415-2884



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## TO REPORT FRAUD, WASTE, OR ABUSE

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### Please Contact:

Email: [Online Form](#)

Telephone: 1-800-233-3497

TTY/TDD: 7-1-1, or 1-800-201-7165

Address: U.S. Nuclear Regulatory Commission  
Office of the Inspector General  
Hotline Program  
Mail Stop O5-E13  
11555 Rockville Pike  
Rockville, MD 20852

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## COMMENTS AND SUGGESTIONS

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If you wish to provide comments on this report, please email OIG using this [link](#).

In addition, if you have suggestions for future OIG audits, please provide them using this [link](#).