

Memo To: File

Subject: ADAMS Record of
2014 Risk-Informed Activity Public Website

Attached is a print out of each public webpage from the 2014 Risk-Informed Activity public website:

URL Link: <http://www.nrc.gov/about-nrc/regulatory/risk-informed/rpp.html>

Navigated from the NRC Public website by clicking:

- About NRC
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Risk-Informed Activities

The U.S. Nuclear Regulatory Commission (NRC) undertakes a variety of activities to integrate risk information and performance measures into the agency's regulations, regulatory guidance, and oversight processes.

The current activities are organized along the agency's major arenas, subarenas, and functional distinctions, as follows:

- Reactor Safety Arena
 - Operating Reactors
 - New Light-Water Reactors
 - Advanced Reactors
 - Research and Test Reactors
- Materials Safety Arena
 - Fuel Cycle
 - Byproduct Materials
- Waste Management Arena
 - Spent Fuel Storage and Transportation
 - Low-Level Waste and Decommissioning
- Cross-Cutting Activities (span multiple subarenas)

Additionally, in early 2011, a Task Force for Assessment of Options for More Holistic Risk-Informed, Performance-Based Regulatory Approach was commissioned. The Task Force's goal was to develop a strategic vision and options for adopting a more comprehensive and holistic risk-informed, performance-based regulatory approach for reactors, materials, waste, fuel cycle, and transportation that would continue to ensure the safe and secure use of nuclear material. Findings from the task force were published in NUREG-2150.

This list of activities originates from a long history of risk plans including, the Risk-Informed and Performance-Based Plan (RPP), the Risk-Informed Regulation Implementation Plan (RIRIP) and the PRA Implementation Plan. The most recent plan, the RPP, 1) included performance-based elements, 2) organized activities along the agency's three primary regulatory arenas of reactors safety, material safety, and waste management and 3) formalized objectives, bases, and goals for each subarena to help to determine which initiatives the NRC should continue, which initiatives the agency should discontinue, and which new initiatives the agency may need to implement.

See also the History of the NRC's Risk-Informed Regulatory Programs for more information on the PRA Implementation Plan, the RIRIP, the RPP and links to the periodic status reports for each of these initiatives.

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Operating Reactors Sub-Arena

The Nation's fleet of operating reactors comprises one of four sub-arenas that the staff of the U.S. Nuclear Regulatory Commission (NRC) identified in considering which areas of the reactor safety arena to target for greater use of risk information. This page summarizes the following aspects of the Operating Reactors Sub-Arena:

- Objective
- Basis
- Goals
- Risk-Informed and Performance-Based Activities

Objective

Make continuing, incremental improvements in rulemaking, licensing, and oversight of operating reactors, while focusing on implementing existing risk-informed and performance based activities.

This objective focuses on activities that are already in progress to risk-inform the operating reactor subarena, including completed rulemaking activities, guidance documents, and implementation of some initiatives.

The NRC will revisit and update this objective (as appropriate) once the industry has implemented the currently planned activities and feedback becomes available.

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Basis

The risk-informed initiatives currently in progress were originally selected using screening criteria similar to those presented in the RPP. Consequently, the five activities (listed below) that support the goals for this subarena satisfy the following screening criteria:

- The risk-informed initiatives that are currently underway help to improve the effectiveness and efficiency of the NRC's regulatory process, including improved safety and reduction of unnecessary regulatory burden.
- Information and analytical models of operating reactors, particularly for at-power operations, exist and are fairly mature.
- The cost-beneficial nature of several of the risk-informed initiatives is evidenced by their voluntary adoption by licensees.
- No factors have been identified to date that would motivate changing the regulatory approach in the areas where risk-informed activities are already underway. Stakeholder feedback substantiates that there is no immediate need to initiate any new risk-informed initiatives, and that the NRC should focus on completing currently identified activities and allowing the industry time to implement those activities.
- Goals and activities to meet the objective for this subarena will be performance-based, to the extent that they meet the following four criteria:
 1. measurable parameters to monitor performance
 2. objective criteria to assess performance
 3. flexibility to allow licensees to determine how to meet the performance criteria
 4. no immediate safety concern as a result of failure to meet the performance criteria

Risk-informed activities for operating reactors occur in five broad categories:

- applicable regulations
- licensing process
- revised oversight process
- regulatory guidance
- risk analysis tools, methods, and data

The activities in these categories are derived from the Commission's policy statements and guidance, and include revisions to technical requirements in the regulations; risk-informed technical specifications; a new framework for inspection, assessment, and enforcement actions; guidance on other risk-informed applications (e.g., in-service inspections); and improved standardized plant analysis risk models.

Goals

The following goals are derived from the Commission's policy statements and guidance, which reflect the current phase of NRC and industry development, as well as the current implementation of risk-informed activities:

- Finish the development of current risk-informed regulations (e.g., 10 CFR 50.46a rulemaking) and associated regulatory/staff guidance.
- Implement existing NRC risk-informed activities [e.g., risk-informed technical specifications and pilots for 10 CFR 50.69 and the National Fire Protection Association (NFPA) Standard 805].
- Encourage the industry to implement risk-informed rules and approved/endorsed activities.
- Continue making incremental improvements to the established licensing, rulemaking, and oversight activities.
- Modify/update established activities to account for lessons learned.

Risk-Informed and Performance-Based Activities

The following tables specify the ongoing programs and projects that the staff of the U.S. Nuclear Regulatory Commission (NRC) has targeted for greater use of risk information in the Operating Reactors Sub-Arena within the Reactor Safety Arena.

This page includes links to files in non-HTML format. See Plugins, Viewers, and Other Tools for more information.

Rulemaking Function for Operating Reactors

Initiative, Program or Project	Project Description and Major Activities	Status 2014
Emergency Core Cooling System (ECCS) Requirements: Make risk-informed changes to LOCA-related technical requirements Re-definition of Loss-of-Coolant Accidents (LOCAs) (10 CFR 50.46a).	<ul style="list-style-type: none"> • Issue final rule (revised 10 CFR 50.46) to redefine large LOCA. 	More Information <i>ML14295A217</i>
Emergency Core Cooling System (ECCS) Requirements: Remove the requirement to consider a LOOP in conjunction with a LOCA-Loss of Offsite Power (LOOP)	<ul style="list-style-type: none"> • Complete safety evaluation of the LOCA-LOOP topical report promulgated by the Boiling-Water Reactor Owners' Group (BWROG). • Issue final rule to remove LOCA-LOOP requirement. 	More Information <i>ML14295A218</i>

Licensing Function for Operating Reactors

Initiative, Program or Project	Project Description and Major Activities	Status 2014
Revise Regulatory Guide 1.201	Guidelines for Categorizing Structures, Systems, and Components (SSCs) in Nuclear Power Plants (NPPs) According to Their Safety Significance <ul style="list-style-type: none"> • Conduct pilot application of Title 10, Section 50.69, of the <i>Code of Federal Regulations</i> (10 CFR 50.69). 	More Information <i>ML14295A219</i>
Update Regulatory Guide 1.174	This activity is to review Regulatory Guide (RG) 1.174 and other related guidance documents (e.g., RGs 1.175, 1.177, and 1.178) to support updating them using revised guidance and insights from the development of PRA consensus standards, insights gained from the Risk Management Regulatory Framework activities, and considering information related to NRC's efforts to better integrate the concepts of defense-in-depth and risk-informed regulation to assure that the NRC's defense-in-depth philosophy is interpreted and implemented consistently within a risk-informed regulatory framework.	More Information <i>ML14295A220</i>

Develop risk-informed improvements to the standard technical specifications (STS)	<p>Initiative 1 - Define the preferred end-state for technical specification actions [usually hot-shutdown for More pressurized-water reactors (PWRs)].</p> <p>Initiative 2 - Modify Surveillance Requirement 3.0.3 to allow a delay period of 24 hours or up to the Information ML14295A221</p> <p>Surveillance Frequency interval, whichever is longer.</p> <p>Initiative 3 - Increase Flexibility in Mode Restraints Limiting Condition for Operation 3.0.4.</p> <p>Initiative 4a - Individual Risk Informed Completion Times.</p> <p>Initiative 4b - Modify the current system of fixed completion times to allow reliance on a configuration risk management program (CRMP) to determine risk-informed completion times.</p> <p>Initiative 5 - Optimize surveillance frequencies.</p> <p>Initiative 6 - Modify actions associated with Limiting Condition for Operation (LCO) 3.0.3 to allow a risk-informed evaluation to extend operating time prior to shutdown.</p> <p>Initiative 7a - Impact of Non Technical Specification Design Features on Operability Requirements - Barriers.</p> <p>Initiative 8 - Risk-inform the scope of 10 CFR 50.36.</p> <p>Risk Basis: Consistent with the Commission's policy statement on technical specifications and the use of PRA, the NRC and the industry continue to develop more fundamental risk-informed improvements to the current system of technical specifications. Initiatives for fundamental improvements to the Standard Technical Specifications are being developed by the industry and discussed with the NRC staff in public meetings.</p>
National Fire Protection Association (NFPA) Standard 805	<p>Review the implementation of NFPA 805, "Performance-Based Standard for Fire Protection for Light- More Water Reactor Electric Generating Plants." Information ML14295A222</p> <p>Risk Basis: NFPA 805 is a performance-based standard, endorsed via 10CFR50.48[c], that critically depends on risk information in the form of Fire PRA to enable licensees to transition from existing "deterministic" fire protection programs to ones that are "risk-informed, performance-based." Fire PRA is an integral part of the new licensing basis, and includes both quantitative evaluations of base risk and changes to base risk in accordance with RG 1.174 guidelines as well as supporting qualitative considerations, such as traditional defense in depth and safety margin, also as per RG 1.174.</p>
Methods associated with the transition to 10 CFR 50.48c National Fire Protection Association Standard NFPA 805	<p>Risk-Informed, Performance-Based Implementation and Improvements in Fire PRA and related activities. More Information ML14295A246</p> <p>Risk Basis: The (RES) tasks identified provide support for the continuing implementation of the risk informed, performance-based fire protection rule Title 10 of the Code of Federal Regulations (CFR) 50.48(c), National Fire Protection Association (NFPA) Standard 805, and other on-going fire protection activities. Research projects incorporate risk information to further the state of the art application of methods tools and data used in accordance with NUREG/CR-6850 (EPRI 1011989)</p>
Digital Systems Probabilistic Risk Assessment (PRA)	<p>Development of methods, tools, and guidance for (1) including digital system models in nuclear power More plant (NPP) PRAs and (2) incorporating digital systems into the NRC's risk-informed licensing and Information ML14295A223</p> <p>oversight activities. Specific areas currently being pursued by RES include the quantification of software reliability (software failure quantification). Subsequent to this software reliability study, enhancement in the state-of-the-art for PRA modeling of digital systems (e.g., modeling of self-diagnostics, reconfiguration, and surveillance; software common-cause failure; and data for hardware failures of digital components) is considered as future research areas.</p> <p>Interrelationships: This research is a standalone program at present. However, as this research matures it will supplement other risk informed research by addressing digital system failures in NPP PRAs.</p> <p>Risk Basis: This research directly contributes to the NRC's risk-informed licensing and oversight activities by including digital I&C failure risks into NPP PRAs.</p>

Oversight Function for Operating Reactors

Initiative, Program or Project	Project Description and Major Activities	Status 2014
Risk Informed Steering Committee (RISC)	<p>The NRC's Risk-Informed Steering Committee (RISC) is an NRC senior management committee that More will provide strategic direction to the NRC staff to advance the use of risk-informed decision-making Information ML14295A234</p> <p>in licensing, oversight, rulemaking, and other regulatory areas, consistent with the Commission's PRA Policy Statement. The NRC's RISC is chaired by the Director of NRR, with membership of Deputy Office Directors from NRO, RES, NRR, NSIR, and NMSS, as well as the Region I Administrator. The NRC RISC has held several public meetings with the industry's own RISC. The industry's RISC is a counterpart to the NRC RISC with its membership comprised of licensee chief nuclear officers and other senior level executives, as well as representation from the Nuclear Energy Institute (NEI). The NRC and industry each agreed to form two working groups which will focus on</p>	

Risk Prioritization Initiative (RPI)	<p>guidance in two selected areas related to PRA technical adequacy and dealing with uncertainties in risk-informed decision-making. These working groups are holding public meetings to continue the efforts and have presented problem statements and action plans to the RISC.</p> <p>In February 2013, the Commission approved SRM COMGEA-12-0001/COMWDM-12-0002 – "Proposed Initiative to Improve Nuclear Safety and Regulatory Efficiency," dated February 6, 2013 (ADAMS Accession No. ML13037A541) to further explore the idea of enhancing nuclear safety and regulatory efficiency by applying probabilistic risk assessment (PRA). This initiative could encourage the development of high-quality, plant-specific PRA models by allowing licensees to use PRA models to propose a schedule for implementing regulatory actions as an integrated set and in a way that reflects their risk significance on a plant-specific basis. The staff is developing options to present to the Commission in March 2015.</p>	More Information ML14295A235
Consequential Steam Generator Tube Rupture (C-SGTR)	<p>Develop an enhanced risk-assessment procedure for C-SGTR by closing technical gaps.</p> <p>Risk Basis: Steam generator tube ruptures are potentially significant containment bypass events. If the tube rupture is due to a severe accident, the tube rupture can lead to a direct fission product release path to the environment. This project is being done to improve agency risk tools for assessing the potential for severe accident induced SG tube rupture events.</p>	More Information ML14295A224
Development of Standardized Plant Analysis Risk (SPAR) Models	<p>Maintain and develop Standardized Plant Analysis Risk (SPAR) Model Development Program. SPAR models are plant-specific PRA models that treat accident sequence progression, plant systems and components, and plant operator actions. The standardized models represent the as-built and as-operated plant. As such, they permit the staff to perform risk-informed regulatory activities by independently assessing the risk of events or degraded conditions at operating nuclear power plants. The staff provided the Commission with an update of these activities in SECY-14-0107, "Status of the Accident Sequence Precursor Program and the Standardized Plant Analysis Risk Models," dated October 6, 2014.</p> <p>Risk Basis: The SPAR models are used to support a variety of agency risk-informed programs including the reactor significance determination process and the Accident Sequence Precursor program.</p>	SECY-14-0107
Maintenance and development of the Systems Analysis Programs for Hands-on Analysis Integrated Reliability Evaluations (SAPHIRE) Code	<p>This activity involves the maintain and update the SAPHIRE software and documentation. The staff provided the Commission with an update of these activities included in SECY-14-0107, "Status of the Accident Sequence Precursor Program and the Standardized Plant Analysis Risk Models," dated October 6, 2014.</p> <p>Risk Basis: SAPHIRE is a software application for performing probabilistic risk analyses (PRAs). SAPHIRE offers state-of-the-art capability for assessing the risk associated with core damage frequency (Level 1 PRA) and the risk from containment performance and radioactive releases (Level 2 PRA).</p>	SECY-14-0107
Event and Condition Assessment: Technical Guidance	<p>Maintain an integrated handbook for the analysis of internal, external, and low-power/shutdown operational events in support of revised methods and user needs.</p> <p>Risk Basis: Maintaining analysis tools and formal guidance associated with risk analysis, supports risk informed decision making by the staff.</p>	More Information ML14295A225
Event and Condition Assessment: Technical Support	<p>Maintain analysis methods to support user needs, and provide on-call technical assistance to senior reactor analysts and NRR.</p> <ul style="list-style-type: none"> • Provide event-specific methods and SPAR model modifications (MD 8.3, ROP, ASP). • Provide Significance Determination Process (SDP) analysis reviews, as requested. • Provide support (methods and models) to the Risk Assessment Standardization Project (RASAP) help desk. <p>Risk Basis: Maintaining analysis tools and formal guidance associated with risk analysis, supports risk informed decision making by the staff.</p>	
Assess Debris Accumulation on PWR Sump Performance, GSI-191	<p>Description: The generic issues program and 10CFR50.46c rulemaking are considering debris accumulation on the Emergency Core Cooling System (ECCS) sump screen that might restrict water flow to the pumps, following a LOCA. Licensees calculate the portions of core damage frequency (CDF) and large early release frequency (LERF) attributable to debris and compare them to the risk acceptance guidelines in Regulatory Guide 1.174.</p> <p>Following the accident at the Fukushima Dai-ichi nuclear plant in Japan, the NRC initiated actions to evaluate lessons learned and to implement appropriate changes in nuclear power plant designs and</p>	More Information ML14295A226

Implementing Lessons Learned from Fukushima	<p>procedures. Initial recommendations were included in the Near Term Task Force (NTTF) report entitled "Recommendations for Enhancing Reactor Safety in the 21st Century." Several of the items (e.g., Recommendation 1 regarding improving the regulatory framework and Recommendation 2.1 on re-evaluating seismic and flooding hazards) include incorporation of risk-informed, performance-based approaches into NRC activities. The status and program plans for items identified for longer term evaluations were reported to the Commission in SECY 12-0095. Recommendation 1 was closed by the Commission without approving staff proposed improvement activities in SRM-SECY-13-0132. A status update was provided in SECY-14-0046.</p> <p>Risk Basis: Recommendation 1 has been closed by the Commission (see above). Licensee's are using a probabilistic seismic hazard approach in their responses to NRC's request for updated seismic hazard information as part of NTTF Recommendation 2.1. Seismic risk insights from the Individual Plant Examination of External Events for Severe Accident Vulnerabilities are being used to determine which plants will need to perform a seismic risk assessment. For plants that need to perform the seismic risk assessment, NRC will use that information as part of the determination of whether additional regulatory action is warranted.</p>	More Information from Topic Web on Site
Full-scope site Level 3 Probabilistic Risk Assessment (PRA)	<p>Develop a Level 3 PRA, generally based on current state-of-practice methods, tools, and data, that (1) reflects technical advances in PRA and related fields, as well as plant modifications, that have occurred since the NUREG-1150 studies were published in 1990, and (2) addresses scope considerations that were not considered in NUREG-1150 (e.g., low power and shutdown, multiunit risk, and spent fuel storage). The Commission-directed Level 3 PRA Project is not supporting a specific risk-informed regulatory application. However, as described in SECY 12-0123, "Update on Staff Plans to Apply the Full-Scope Site Level 3 PRA Project Results to the NRC's Regulatory Framework," the results and insights of the Level 3 Project are expected to benefit a variety of ongoing regulatory initiatives. Additionally, as described in the project Technical Analysis approach Plan, the Level 3 project is leveraging ongoing and completed agency-risk informed initiatives to the extent possible. For example, the project has benefitted from previous work completed on the Spent Fuel Pool Scoping Study and the State-of-the-Art Reactor Consequence Analysis project. The leveraging of these other activities helps to avoid duplication of effort for the project and ensures that the project is utilizing the latest available information.</p> <p>Risk Basis: This Level 3 PRA project involves performance of a full-scope site Level 3 PRA that addresses all internal and external hazards, all plant operating modes, and all reactor units, spent fuel pools, and dry cask storage.</p>	More Information ML14295A227
Improvement of Human Reliability Analysis (HRA) methods and practices	<p>HRA efforts address the suitability of an individual method to a regulatory application; consistency among HRA practitioners in use of methods; the absence of guidance on the rigor needed for quantifying human reliability; and the scarcity of empirical data to evaluate human performance.</p> <ul style="list-style-type: none"> • International HRA Empirical Study for benchmarking HRA methods. • US Study for benchmarking HRA methods. • NRC/EPRI collaborative effort to address HRA model differences (SRM-M061020). • Develop HRA methodology for risk analyses of external events, shutdown events, and Level-3 PRA. <p>Risk Basis: Regulatory Guide (RG) 1.200 provides an acceptable approach for determining the technical adequacy of PRA results for risk-informed activities. HRA is as a key element in the PRA; different HRA methods often have different assumptions and approximations and, therefore, may yield different results. Thus, improving HRA methods enhances the consistency and quality of HRA and PRA.</p>	More Information ML14295A228
Operator Simulator Exercise Data Collection	<p>Data collection for HRA</p> <ul style="list-style-type: none"> • Collaborate with international research institutes to evaluate the NRC's Scenario Authoring, Characterization and Debriefing Application (SACADA) system in collecting operator simulator performance data to inform human reliability analysis. This work supports "Event and Condition Assessment: Technical Support" to improve human reliability analysis quality "Improvement of Human Reliability Analysis (HRA) methods and practices." <p>Risk Basis: Acquiring data to improve the credibility and consistency of human error probability estimates are an integral part of determining the human contribution to overall plant risk.</p>	More Information ML14295A229

Risk Informing Emergency Preparedness Oversight: Radiological Emergency Response Plan Oversight	Study feasibility of using performance based evaluation techniques for emergency response programs. Risk Basis: This study is the final element of a risk informed and performance based EP regulatory regimen. It developed a performance based oversight regimen for evaluation of offsite radiological response programs that support nuclear power plants.	More Information ML14295A 230
Probabilistic Flood Hazard Assessment (PFHA)	Recent workshop coordinated with federal agency partners to share information on probabilistic assessments for other hazards causing or resulting in external floods such as: flood-induced dam and levee failures; tsunami flooding; riverine flooding, local intense precipitation flooding and storm surges. NUREG/CP-0302 documented the proceedings including recommendations that will be considered during the development of a NRC research plan on flooding. Risk Basis: The development of flooding models for all types of external events along with the methods to analyze their effects on a facility will support and improve risk analysis.	Workshop on Probabalistic Flood Hazard Assessment and Workshop Proceedings
Risk Informing Security Workshop	The staff continues to conduct workshops on risk-informing security as a follow-on to an earlier workshop. Risk Basis: Several areas will be analyzed to identify possibilities to better risk inform security, to include comparing risk implementation across disciplines, evaluating the likelihood of initiating events, and using risk to grade security based on the attractiveness of special nuclear material to the adversary.	More Information ML14295A 231
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New Light-Water Reactors Sub-Arena

New light-water reactors (LWRs) comprise one of four sub-arenas that the staff of the U.S. Nuclear Regulatory Commission (NRC) identified in considering which areas of the reactor safety arena to target for greater use of risk information. This page summarizes the following aspects of this sub-arena:

- Objective
- Basis
- Goals
- Risk-Informed and Performance-Based Activities

Objective

Implement risk-informed and performance-based activities to address the PRA elements of Title 10, Part 52, of the Code of Federal Regulations (10 CFR Part 52), and to increase the effectiveness and efficiency of the design certification, licensing, and oversight activities that the NRC staff conducts for new LWRs.

This objective has two main parts:

- First, this objective involves using the plant-specific PRA to implement risk-informed and performance-based programs. For example, the maintenance rule (10 CFR 50.65) will utilize the PRA to a great extent. Other examples include initiatives that a new reactor licensee may voluntarily pursue, such as risk-informed technical specification completion time, risk-informed in-service inspection, or special treatment under 10 CFR 50.69.
- Second, this objective involves using risk insights and PRA results to improve the NRC's effectiveness and efficiency in the licensing and oversight processes. For example, the staff will use risk insights, in conjunction with other considerations, to focus its review of a new reactor license application on those aspects that are important to risk. Other examples include developing risk-informed acceptance criteria for applications and adopting a risk-informed approach to sampling the inspection, testing, analysis, and acceptance criteria (ITAAC) to confirm the acceptability of the as-built plant.

Basis

The risk-informed and performance-based activities (listed below) for this sub-arena satisfy the following screening criteria:

- The stated objective will help to improve the effectiveness and efficiency of the NRC's regulatory process, while increasing nuclear plant safety and reducing unnecessary regulatory burden.
- The bases for developing a risk-informed and performance-based regulatory structure for licensing and oversight of new LWRs are articulated in several Commission documents, policy statements, and processes (including the 10 CFR Part 52 rulemaking).
- Goals and activities to meet the objective for this sub-arena will be performance-based, to the extent that they meet the following four criteria:
 1. measurable parameters to monitor performance
 2. objective criteria to assess performance
 3. flexibility to allow licensees to determine how to meet the performance criteria
 4. no immediate safety concern as a result of failure to meet the performance criteria

An applicant for a combined license (COL) for a new LWR is required to perform a PRA. The NRC staff expects such PRAs to be used for the following purposes:

- Identify risk-informed safety insights.

- Demonstrate how risk compares to the Commission's goals.
- Assess the balance between accident prevention and mitigation.
- Identify and address vulnerabilities, reduce risk contributors, and select among design alternatives during the design phase.
- Demonstrate that the plant design represents a reduction in risk (compared to existing operating plants).
- Demonstrate that the design addresses the requirements in 10 CFR 50.34(f), as they relate to Three Mile Island (TMI).

PRA results and insights are used to support the following programs (among others):

- Regulatory Treatment of Non-Safety Systems (RTNSS)
- Inspection, test, analysis, and acceptance criteria (ITAAC)
- Reliability Assurance Program (RAP)
- Future aspects of regulatory oversight, technical specifications, the maintenance rule (10 CFR 50.65), and others

Goals

The following goals are derived from the Commission's policy statements and guidance, which reflect the current phase of NRC and industry development, as well as the current implementation of risk-informed activities:

- Ensure (during the design certification phase) that the applicant used risk-informed safety insights to select among alternative features, operational strategies, and design options to reduce or eliminate the significant risk contributors of existing operating plants.
- Ensure that the risk associated with the design compares favorably with the Commission's goals of less than 1E-04/year for core damage frequency (CDF) and less than 1E-06/year for large release frequency (LRF).
- Using the results and insights from the PRA, ensure that the COL applicant supported the RTNSS process, including the identification of structures, systems, and components (SSCs).
- Using the results and insights from the PRA, ensure that the COL holder supported regulatory oversight processes, as well as programs associated with plant operations (such as technical specifications, reliability assurance, human factors, and maintenance rule implementation).
- Using the results and insights from the PRA, ensure that the applicant identified and supported the development of specifications and performance objectives for plant design, construction, inspection, and operation (such as the ITAAC, RAP, technical specifications, and COL action items and interface requirements).

Risk-Informed and Performance-Based Activities

The following table specifies the ongoing licensing initiatives, projects, and activities that the staff of the U.S. Nuclear Regulatory Commission (NRC) has targeted for greater use of risk information in the New Light-Water Reactors Sub-Arena within the Reactor Safety Arena.

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Initiative, Program or Project	Project Description and Major Activities	Status 2014
Development of ISG on PRA technical adequacy for ALWRs	"Develop Interim Staff Guidance (ISG) DC/COL-ISG-028, "Assessing the Technical Adequacy of the Advanced Light-Water Reactor (ALWR) Probabilistic Risk Assessment for the Design Certification Application and Combined License Application," to provide guidance on how the applicants can use the ASME/ANS PRA Standard (RA-Sa-2009) for assessing the technical adequacy of their PRA. This ISG supplements RG 1.200 to address the pre-operational phases (e.g., Part 52 licensing) and large release frequency (LRF) for ALWRs. It is expected to be incorporated into RG 1.200, RG 1.206, and SRP 19.0, following the issuance of next edition of PRA Standard. ACRS Subcommittee on Reliability and PRA was briefed on this ISG prior to the issuance for public comment. Risk Basis: The ISG is needed because the existing PRA Standard was developed based on current operating reactors. This guidance provides consistent consideration of the PRA Standard in assessing the technical adequacy of the PRA needed for Part 52 Design Certification/Construction Operating License (DC/COL) applications."	Issued for public comment on October 14, 2014. Expected to be incorporated into PRA Standard in Fall 2016.
Evaluate and develop risk- informed regulatory	In response to SRM-SECY-12-0081, "Risk-Informed Regulatory Framework for New Reactors," the staff submitted SECY-13-0137, "Recommendations for Risk-informing the Reactor Oversight Process (ROP) for New Reactors." In that SECY paper the staff recommended the development of an integrated risk-informed approach for evaluating the safety significance of inspection findings for new reactor	More information ML14295A232

guidance for new designs.

reactors

Risk Basis: The use of relative risk metrics that would provide a more risk-informed approach to the determination of the significance of inspection findings for new reactors are being considered.

Development of
Standardized
Plant Analysis
Risk (SPAR)
Models for New
LWRs

Develop design-specific SPAR models for new and advanced reactor designs. Internal events, at-power, SECY-14-0107
SPAR models have been developed for the AP1000, ABWR (GE and Toshiba), US APWR, and EPR
designs. In addition, some models have been extended by adding a shutdown model to the ABWR-
Toshiba model and a flooding, fire, and low power shutdown models to the AP1000 SPAR model.
Planned future activities include development of SPAR models for additional designs, including small
modular PWRs (e.g., mPower) and extension of existing SPAR models to include additional scope
considerations. The staff provided the Commission with an update of these activities included in SECY-
14-0107, "Status of the Accident Sequence Precursor Program and the Standardized Plant Analysis Risk
Models," dated October 6, 2014.

Risk Basis: The staff may use new reactor SPAR models to perform risk assessments to inform potential
risk-informed applications for Combined Licenses (COLs), focus construction inspection scope, or assess
the significance of construction inspection findings. Once the plants begin operation, independent
assessments using SPAR models will be used by the staff for the evaluation of operational findings and
events similar to the assessments performed for current operating reactors.

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Advanced Reactors Sub-Arena

Advanced reactors comprise one of four sub-arenas that the staff of the U.S. Nuclear Regulatory Commission (NRC) identified in considering which areas of the reactor safety arena to target for greater use of risk information. This page summarizes the following aspects of this sub-arena:

- Objective
- Basis
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Objective

Develop a coherent risk-informed and performance-based regulatory structure for design certification, licensing, and oversight of advanced reactors.

A coherent risk-informed and performance-based regulatory structure would offer significant improvements in effectiveness and efficiency (compared to the structure that has evolved for current-generation LWRs). For example, such coherence would ensure that the safety reviews conducted by the NRC consider design and operational aspects in an integrated manner. The bases for developing such a regulatory structure for licensing and oversight of advanced reactors are articulated in numerous Commission documents and policy statements. However, this guidance occurs largely in the context of existing and new LWRs and, consequently, needs to be adapted for advanced reactors.

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Basis

The bases for a coherent risk-informed and performance-based regulatory structure arise from the potential to realize benefits that are captured in the screening criteria that the NRC staff considers in undertaking regulatory improvement initiatives:

- **Effectiveness:** One hallmark of effectiveness is the ability to model the tradeoffs that are involved in a complex safety review. Sometimes, such tradeoffs are represented as the ability to achieve desired outcomes in the licensing process. A risk-informed and performance-based regulatory structure is inherently better able to do this, especially if it is applied in the early phases of developing a new regulatory structure for advanced reactors.
- **Effective Communication:** The explicit modeling of decision-making promotes transparency. Sometimes, the traditional prescriptive regulatory structure lacks transparency because it tends to emphasize compliance with a prescribed quantity, rather than focusing on the safety function.
- **Research:** The NRC staff has conducted significant research into the models and methodologies for the risk-informed and performance-based regulatory structure and the products and expertise from this work are available for implementation. Particularly notable examples include NUREG-1860, NUREG/BR-0303, and SECY-05-0138. Specific details will need to be determined and guidance developed based on the particular technology and design aspects of the application.
- **Costs:** The implementation of a coherent risk-informed and performance-based regulatory structure for advanced reactors will entail a combination of short- and long-term costs. The new regulatory approaches are likely to result in short-term costs. However, when considered in the context of implementing the Commission's strategic objectives, there are sound reasons to expect a significant reduction in the total cost to society.
- **Obstacles:** There are no apparent factors (e.g., state-of-the-art, adverse stakeholder perception) that would preclude implementing a risk-informed and performance-based approach to the design certification, licensing, and oversight of advanced reactors once sufficient operating experience is available to provide input to the activities.

The NRC developed its strategic planning process as a result of considerable effort (beginning in the late-1990s) to improve the agency's regulatory structure in a forward-looking way, while preserving the gains that the agency had achieved in operating reactor safety. Using the

most recent version of the Strategic Plan, development of a coherent risk-informed and performance-based regulatory structure for advanced reactors will involve implementing the strategies that the Commission articulated in the goal of "Safety". Under "Safety" strategies, the Commission directed the staff to "Use sound science and state-of-the-art methods to establish, where appropriate, risk-informed and performance-based regulations." This element continues to be part of the Strategic Plan for the Fiscal Year (FY) 2008–2013.

The basic infrastructure for the implementation of a risk-informed and performance-based approach exists at a high-level in Commission documents, such as the "White Paper on Risk-Informed and Performance-Based Regulation." The staff has also developed some specific guidance, including the risk-informed process for implementing the single-failure criterion (SECY-05-0138), but more may need to be developed. In many instances, the high-level documents superficially apply only to existing LWRs; however, more thorough study reveals considerable applicability to all reactor technologies. For example, the Reactor Oversight Process (SECY-99-007 and SECY-99-007A, as well as related staff requirements memorandum) provides a risk-informed and performance-based structure, although it is overlaid on top of existing LWR requirements.

ECM

Goals

The staff's risk-informed and performance-based goals for advanced reactors relate to the following activities:

- Ensure advanced reactor applicants use risk-informed safety insights to select among alternative features, operational strategies, and design options to reduce or eliminate the significant risk contributors of existing operating plants.
- Ensure that the risk associated with advanced reactor designs compare favorably with the Commission's goals of less than 1E-04/year for core damage frequency and less than 1E-06/year for large release frequency

Risk-Informed and Performance-Based Activities

The following table specifies the ongoing rulemaking initiatives, projects, and activities that the staff of the U.S. Nuclear Regulatory Commission (NRC) has targeted for greater use of risk information in the Advanced Reactors Sub-Arena within the Reactor Safety Arena.

This page includes links to files in non-HTML format. See Plugins, Viewers, and Other Tools for more information.

Initiative, Program or Project	Project Description and Major Activities	Status 2014
Pre-application review for Next Generation Nuclear Plant (NGNP)	As part of the implementation of the NGNP licensing strategy, review white papers submitted by the NGNP project related to various licensing issues, including the use of risk-informed approaches. In a letter dated July 17, 2014, the NRC staff provided feedback on the four key licensing issues and provided an updated assessment of DOE's white paper submittals on NGNP fuel qualification and mechanistic source terms.	Currently, there are no further activities planned.
Pre-application review for SMR designs	Develop a framework, implementation strategy, and plans and schedules to more fully integrate the use of risk insights into pre-application activities and the review of small modular reactor (SMR) applications. The NRC staff has developed risk-informed, integrated review framework incorporating performance-based approaches to better align review resources with SSC safety and risk significance, consistent with regulatory requirements. The framework will be available for pre-application and post-application activities for light-water SMR licensing actions submitted under 10 CFR Part 52. Participation in the framework by applicants is optional and the requirements for applicants and applications are not changed. As part of the framework, the staff is developing Design Specific Review Standards (DSRSs) for use with designs by applicants that choose to engage the NRC in pre-application activities. The staff has developed a DSRS for the mPower(tm) design and is currently preparing another DSRS for the NuScale design. Risk Basis: Develop and implement a risk-informed and performance-based review framework consistent with existing regulations.	Ongoing Staff issued SECY 11-0024 (2/18/2011) to address this issue and the Commission issued an SRM dated 5/11/2011 to the staff approving the approach outlined in the SECY. The staff created NUREG-0800 Standard Review Plan Introduction, Part 2, to describe and implement a risk-informed, integrated review framework for light-water SMRs. The revised SRP received public comments and the final document was published in January 2014.

To request additional information, Contact Us About Risk-Informed, Performance-Based Regulation.

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Research and Test Reactors Sub-Arena

Research and test reactors comprise one of four sub-arenas that the staff of the U.S. Nuclear Regulatory Commission (NRC) identified in considering which areas of the reactor safety arena to target for greater use of risk information.

The staff will be conducting a review of NUREG-2150, "A Proposed Risk Management Framework," that will consider how modifications to the regulatory framework could be incorporated into important agency policy documents. As part of this review, the staff will seek stakeholder input on proposed options and recommendations. The proposed options and recommendations will be included in a paper to the Commission that will identify options and make recommendations. Those options and recommendations may or may not be applicable to research and test reactors. Estimated completion of this review, including the Commission Paper, is August of 2013.

Risk-Informed and Performance-Based Activities

Initiative, Program or Project	Project Description and Major Activities	Status 2014
There are no current Risk-Informed and Performance-Based Activities in the Research and Test Reactors Sub-Arena.		
There are no current Risk-Informed and Performance-Based Activities in the Research and Test Reactors Sub-Arena.		
To request additional information, Contact Us About Risk-Informed, Performance-Based Regulation .		

Page Last Reviewed/Updated Tuesday, November 25, 2014



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Fuel Cycle Sub-Arena

The Nation's fuel cycle facilities comprise one of two sub-arenas that the staff of the U.S. Nuclear Regulatory Commission (NRC) identified in considering which areas of the materials safety arena to target for greater use of risk information. This page summarizes the following aspects of this sub-arena:

- Objective
- Basis
- Goals
- Risk-Informed and Performance-Based Activities

Objective

For fuel cycle facilities, make continuous improvement in licensing and oversight, and risk inform new regulations as needed, while performing existing risk-informed functions.

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Basis

SECY-99-100 and SECY-04-0182, as well as the related staff requirements memorandum (SRM), provide the conceptual framework for risk-informing the NRC's fuel cycle activities. Guidance on how to apply this framework is provided in "Risk-Informed Decision-Making for Material and Waste Applications, Rev. 1," which is available in the NRC's Agencywide Documents Access and Management System (ADAMS), under Accession No.ML080720238. In particular, individual risk-informed applications must meet the established screening criteria.

The screening criteria applied to the goals (below) of implementing the NRC's revised regulatory requirements, as specified in Title 10, Part 70, of the Code of Federal Regulations (10 CFR Part 70), would indicate that the given activity was undertaken to increase confidence in the margin of safety of fuel cycle facilities by requiring the use of a risk-informed approach to identify and manage items that are relied on for safety. Cost/benefit was not a consideration, and technical feasibility was known because two licensees had already implemented such systems. The revision of 10 CFR Part 70 is expected to reduce staff effort, while improving regulatory effectiveness, by providing more frequent updates of licensee design information and related risk information.

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Goals

The staff has established the following goals for risk-informed and performance-based activities in this sub-arena:

- Revise the existing licensing guidance to reflect lessons learned from implementation of 10 CFR 70 Subpart H.
- Complete revision of inspection guidance to make use of the resulting risk information to focus inspections.
- Revise the Fuel Cycle Oversight Program to make it more risk-informed and performance-based consistent with Commission direction.

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Risk-Informed and Performance-Based Activities

The following table specifies the ongoing rulemaking initiatives, projects, and activities that the staff of the U.S. Nuclear Regulatory Commission (NRC) has targeted for greater use of risk information in the Fuel Cycle Sub-Arena within the Materials Safety Arena.

This page includes links to files in non-HTML format. See Plugins, Viewers, and Other Tools for more information.

Initiative, Program or Project	Project Description and Major Activities	Status 2014
Rulemaking for Reprocessing Facilities	SECY-13-0093 responded to SRM-SECY-11-0163. SRM-SECY-13-0093 approved development of a reprocessing-specific rule in a new 10 CFR Part 7X. Continued work of the framework should be limited in scope to resolution of Gap 5, Risk Assessment Methodologies.	SECY-13-0093
Create a Revised Fuel Cycle Oversight Program (RFCOP) to be more risk-informed, transparent, and predictable.	Risk Basis: Develop a risk-informed regulatory framework for reprocessing. Fuel Cycle Significance Determination Process. RFCOP Basis Document. Revised Inspection Manual Chapters. Risk Basis: As directed by the Commission, staff is developing and evaluating approaches to use risk information in making risk significance determinations in oversight of fuel cycle facilities.	More Information <i>ML 92-95A 233</i>
To request additional information, Contact Us About Risk-Informed, Performance-Based Regulation.		

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Byproduct Materials Sub-Arena

Byproduct materials comprise one of two sub-arenas that the staff of the U.S. Nuclear Regulatory Commission (NRC) identified in considering which areas of the materials safety arena to target for greater use of risk information. This page summarizes the following aspects of this sub-arena:

- Objective
- Basis
- Goals

Objective

Utilize risk information on a case-by-case basis for byproduct material regulation, licensing, and oversight.

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Basis

NUREG/CR-6642, "Risk Analysis and Evaluation of Regulatory Options for Nuclear Byproduct Material Systems," documents an assessment of risks for various byproduct material systems. (This report is not publicly available.) The assessment was used to support NRC staff activities, as described in SECY-00-0048.

In June 2001, the NRC published NUREG-1717, "Systematic Radiological Assessment of Exemptions for Source and Byproduct Material," which documents the staff's assessment of doses associated with byproduct and source material exemptions. NUREG-1717 also includes dose assessments for certain devices that are currently used under general or specific licenses that have been identified as candidates for use under exemptions. In addition, staff activities identified in SECY-07-0147, "Response to U.S. Government Accountability Office Recommendations and Other Recommendations to Address Security Issues in the U.S. Nuclear Regulatory Commission Materials Program," will address possible revisions to the agency's regulatory framework.

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Goals

The staff has established the following goals for risk-informed and performance-based activities in this sub-arena:

- Continue making incremental improvement (as practicable) to enhance the risk-informed and performance-based nature of rulemaking and guidance development, licensing, and oversight activities for byproduct materials.
- Encourage the industry and NRC licensees to use a risk-informed and performance-based approach in demonstrating compliance with the NRC's risk/dose criteria.

This page includes links to files in non-HTML format. See [Plugins](#), [Viewers](#), and [Other Tools](#) for more information.

Risk-Informed Performance-Based Activities

Initiative, Program or Project	Project Description and Major Activities	Status 2014
There are no current Risk-Informed and Performance-Based Activities in the Research and Test Reactors Sub-Arena.		
There are no current Risk-Informed and Performance-Based Activities in the Byproduct Materials Sub-Arena.		

To request additional information, Contact Us About Risk-Informed, Performance-Based Regulation.

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Spent Fuel Storage and Transportation Sub-Arena

Spent fuel storage and transportation comprises one of three sub-arenas that the staff of the U.S. Nuclear Regulatory Commission (NRC) identified in considering which areas of the waste management arena to target for greater use of risk information. This page summarizes the following aspects of this sub-arena:

- Objective
- Basis
- Goals
- Risk-Informed and Performance-Based Activities

Objective

Utilize risk information on a case-by-case basis to prioritize and address regulatory initiatives in spent fuel storage and radioactive materials transportation.

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Basis

SECY-99-100 and SECY-04-0182, as well as the related staff requirements memorandum (SRM), provide the conceptual framework for risk-informing the NRC's waste activities. Guidance on how to apply this framework is provided in "Risk-Informed Decision-Making for Material and Waste Applications". In particular, individual risk-informed applications must meet the established screening criteria.

In this subarena, the NRC staff is limited in its ability to risk-inform the agency's regulatory activities because it is not cost-beneficial to perform risk-assessment of each of the numerous storage or transport designs. As a result, the agency has conducted (or sponsored) risk assessments for a few selected designs. In addition, the staff may apply risk assessments to specific activities on a case-by-case basis, provided that the screening criteria are met. For example, the staff has completed and documented a pilot study PRA of a dry cask storage facility, and determined that the risk from that facility was negligibly small.

The goal described below meets the screening criterion for cost/benefit by assessing risk impacts by judgment.

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Goals

The staff has established the following goal for risk-informed and performance-based activities in this subarena:

- Produce updated versions of NUREG-1536, "Standard Review Plan for Dry Cask Storage Systems," and NUREG-1567, "Standard Review Plan for Spent Fuel Dry Storage Facilities."

Risk-Informed and Performance-Based Activities

The following table specifies the ongoing licensing initiatives, projects, and activities that the staff of the U.S. Nuclear Regulatory Commission (NRC) has targeted for greater use of risk information in the Spent Fuel Storage and Transportation Sub-Arena within the Waste Management Arena.

This page includes links to files in non-HTML format. See [Plugins](#), [Viewers](#), and [Other Tools](#) for more information.

Initiative, Program or Project	Project Description and Major Activities	Status 2014
Risk Informing Framework for Spent Fuel Storage and Transport (SFST)	Development of a risk-informed framework to better enable the staff to focus SFST regulatory efforts, improve guidance, streamline casework activities, help assess 10 CFR 72.48 changes, and evaluate requests for exemptions to the regulations while maintaining appropriate margins of safety and security.	Ongoing
Enhance Regulatory Framework for Extended Storage and Transportation of Spent Nuclear Fuel (SNF)	Continue current research activities that support the determination of the regulatory bases of extended storage and transportation of Spent Nuclear Fuel. Complete the extended storage and transportation regulatory gap assessments. Risk Basis: Use risk information and performance-based approaches in the gap assessments to identify technical and regulatory needs to expand the basis for regulating the extended storage and transportation of spent nuclear fuel.	SECY-13-0057: Annual Status Report: Activities Related to Extended Storage and Transportation Technical Information Needs Report will be finalized in 2014
Regulatory Framework for Spent Fuel Storage and Transportation	Development of a risk-informed framework to better enable the staff to focus SFST regulatory efforts, improve guidance, streamline casework activities, help assess 10 CFR 72.48 changes, and evaluate requests for exemptions to the regulations while maintaining appropriate margins of safety and security. Revise the spent fuel dry storage SRPs, NUREG-1536, "Standard Review Plan for Dry Cask Storage Systems" and NUREG-1567, "Standard Review Plan for Spent Fuel Dry Storage Facilities." Risk Basis: The updates of the SRPs include a priority ranking of the review procedures for the purpose of focusing the staff's review resources on those procedures that are considered to be the most effective and important to worker and public safety. The priority ranking is based on a method derived from the risk triplet and the expert judgment of experienced staff.	More Information ML14295A 248
Updated Assessment of Spent Fuel Transportation Risk	In January of 2014 NUREG-2125, "Spent Fuel Transportation Risk Assessment," was NUREG-2125 issued to obtain an updated and refined assessment of the risks associated with transportation of spent nuclear fuel. Risk Basis: The report is a risk assessment that staff will use to reconfirm the adequacy of NRC's transportation regulations for protecting public health and safety for transportation of spent nuclear fuel. The report can be a source of risk information to help risk inform future regulatory actions regarding spent nuclear fuel transportation.	
Spent Fuel Transportation Fire Safety Analyses	Understand how spent fuel transportation packages would perform in real-world railway and roadway accidents that have involved long-duration and/or severe fires. Risk Basis: The results of the analyses can be a source of risk information to help inform future regulatory actions regarding spent nuclear fuel transportation.	More Information ML14295A 247
To request additional information, Contact Us About Risk-Informed, Performance-Based Regulation.		

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Low-Level Waste and Decommissioning Sub-Arena

Low-level waste and decommissioning comprise one of three sub-arenas that the staff of the U.S. Nuclear Regulatory Commission (NRC) identified in considering which areas of the waste management arena to target for greater use of risk information. This page summarizes the following aspects of this sub-arena:

- Objective
- Basis
- Goals
- Risk-Informed and Performance-Based Activities

Objective

Facilitate the application of risk-informed and performance-based approaches in implementing the NRC's rulemaking, licensing, and oversight functions for low-level waste, including waste incidental to reprocessing, and decommissioning on a case-by-case basis.

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Basis

The NRC staff engages with the agency's licensees and stakeholders (including the public) in making significant decommissioning decisions and implementing significant actions focusing on risk-significance and potential environmental impacts. The NRC's Office of Nuclear Material Safety and Safeguards (NMSS), in coordination with the Office of Nuclear Regulatory Research (RES) and the Center for Nuclear Waste Regulatory Analysis (CNWRA), is continuing development, maintenance, and evaluation of probabilistic environmental models and codes for risk/dose analysis. Use of probabilistic distributions as inputs to uncertain physical and behavior parameters is common in independent staff reviews in determining risk-significance and request for additional information development. The NRC also uses probabilistic tools with uncertainty analysis to review and assess dose impacts to demonstrate compliance with the dose criteria set forth in Subpart E of 10 CFR Part 20.

In review of waste determinations to be made by the U.S. Department of Energy that waste is incidental to reprocessing, the staff utilizes risk-informed performance-based approaches including uncertainty/sensitivity analyses and alternate conceptual models. The risk insights gained during the review are utilized to establish the monitoring areas for a site.

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Goals

The staff has established the following goals for risk-informed and performance-based activities in this subarena:

- Continue to evaluate current dose modeling approaches for low-level waste and decommissioning, and provide recommendations for a path-forward to enhance the use of risk-informed and performance-based approaches in licensing reviews and regulatory implementation.
- Continue making incremental improvement (as practicable) in rulemaking and guidance development, licensing, and oversight, to enhance the use of risk-informed and performance-based approaches.
- Encourage the industry and NRC licensees to use a risk-informed and performance-based approach in demonstrating compliance with the NRC's risk/dose criteria.

Risk-Informed and Performance-Based Activities

The following table specifies the ongoing licensing initiatives, projects, and activities that the staff of the U.S. Nuclear Regulatory Commission (NRC) has targeted for greater use of risk information in the Low-Level Waste and Decommissioning Sub-Arena within the Waste Management Arena.

This page includes links to files in non-HTML format. See Plugins, Viewers, and Other Tools for more information.

Initiative, Program or Project	Project Description and Major Activities	Status 2014
Part 61 Revisions: Require Site-Specific Analysis for disposal of facilities. The Commission was provided a draft rulemaking and guidance document in July 2013. In its February 12, 2014, SRM-SECY-13-0075, the Commission approved publication of the proposed rule and the associated draft guidance for public comment, subject to the comments and changes noted in the SRM. The NRC staff is currently revising the proposed rule and associated draft guidance.	Risk Basis: This rule improves on the risk-informed, performance-based framework already present in Part 61 to ensure that the safety analyses performed to evaluate long-term isolation are comprehensive and consistent.	More Information from Topic Web Site
Part 61 Implementation: Update Branch Technical Position (BTP) on Concentration Averaging and Encapsulation	Risk-inform, performance-base positions in this BTP. It was published draft for comment in 2012. The final version will be issued in late 2014. Risk Basis: The revised guidance provides additional means for licensed facilities to reduce worker exposure and include risk based approaches that provide measures to improve the process for the use of site- and waste-specific averaging approaches.	
To request additional information, Contact Us About Risk-Informed, Performance-Based Regulation.		

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Cross-Cutting Activities

The following table specifies the ongoing initiatives, projects, and activities that substantially crosscut multiple subarenas.

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Initiative, Program or Project	Project Description and Major Activities	Status 2014
Risk Management Regulatory Framework (RMRF)	NUREG-2150, "A Proposed Risk Management Regulatory Framework," recommended that a risk management regulatory framework applicable to all NRC program areas be adopted by the NRC. The Chairman's tasking memorandum dated June 12, 2012 directed the staff to "Review NUREG-2150 and identify options and make recommendations. Including the potential development of a Commission policy statement." The Commission's SRM dated May 19, 2014, on SECY-13-0132 directed that the staff's paper providing recommendations with respect to NUREG-2150 also include "a description of any interrelationships of ongoing risk-informed initiatives to ensure the activities are well coordinated, and effectively planned and implemented."	EDO approved an extension of the due date from November 19, 2014 until December 18, 2015.
Approach to PRA Technical Acceptability: PRA standards and RG 1.200, "An Approach for Determining the Technical Adequacy of Probabilistic Risk"	<p>Risk Basis: Staff Works with standard developing organization (SDO) and industry to develop necessary PRA standards and related peer review guidance for defining PRA technical acceptability in support of risk-informed activities. Develop with the industry standards that provide requirements for:</p> <ul style="list-style-type: none"> 1. Technical elements of the PRA 2. Peer review 3. Process to determine needed capability to support specific application <p>Scope of technical elements defining PRA technical acceptability in standard and peer review to address:</p> <ul style="list-style-type: none"> • Level 1, 2 and 3 • At-power and low power shutdown conditions • Internal and external hazards <p>Through revision and issue of a draft RG 1.200 provide guidance (staff position) in four areas:</p> <ul style="list-style-type: none"> 1. Technically acceptable PRA 2. SDO consensus standards and industry peer review guidance 3. Demonstration that PRA used in regulatory application is of sufficient technical adequacy 4. Documentation to support regulatory application 	<p>More Information</p> <p>ML142974 120</p>
Approach to PRA Quality: NUREG-1855, "Guidance on the Treatment of Uncertainties Associated with PRAs in Risk-Informed Decision Making"	<p>Risk Basis: Provide guidance on how to treat uncertainties associated with PRA in risk-informed Decision-making with regard to:</p> <ul style="list-style-type: none"> 1. Identifying and characterizing the uncertainties associated with PRA in support of the PRA Standard. 2. Performing uncertainty analyses to understand the impact of the uncertainties on the results of the PRA. 3. Factoring the results of the uncertainty analyses into the decision-making. <p>Scope of uncertainties associated with PRA to include:</p>	<p>More Information</p> <p>ML142974 121</p>

- Level 1 and 2
- At-power and low power shutdown conditions
- Internal hazards and seismic

To request additional information, Contact Us About Risk-Informed, Performance-Based Regulation.

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