

Table of Accomplishments

Activity	Accomplishment
Industry Trends Program Support SA-3	Since the last RIRIP update, the staff has continued to support the NRC's Industry Trends Program (ITP) by analyzing and trending the operating experience data contained in its databases. This included updating trends for initiating events, component and system reliability, common-cause failures, and fire events, and then providing this information on the internal and public RES Web sites. In November 2005, the staff updated the NRC Web page and provided to NRR updated trends, graphs, and charts for system studies, component studies, common-cause failure evaluations, and initiating event evaluations with data through FY 2004. In March 2006, the staff provided NRR the update program plan for the Baseline Risk Indicator of Initiating Events (BRIIE).
Reactor Performance Data Collection Program SA-4	<p>In December 2005, the staff updated the Integrated Data Collection and Coding System with the FY 2005 data. In February 2006, the staff coordinated with the Operating Experience Clearinghouse to inform and update agency users concerning the Equipment Performance and Information and Exchange System (EPIX) maintained the Institute of Nuclear Power Operations.</p> <p>The data collected include component and system failures, demands on safety systems, initiating events, fire events, and common-cause failures. The data, and data-analysis results, are stored in database systems for use by the NRC staff as part of other regulatory processes to help identify potential safety issues. These include the Industry Trends Program (ITP), the Accident Sequence Precursor (ASP) Program for evaluating the risk associated with operational events and/or conditions, and the Reactor Oversight Process (ROP). In addition, the data are used as input for the risk assessment models known as Standardized Plant Analysis Risk (SPAR) models. The database systems include the Integrated Data Collection and Coding System (IDCCS), Reliability and Availability Data System (RADS), Common-Cause Failure Database, Fire Events Database, and ASP Events Database. RES continues to develop and maintain the operating experience database systems.</p>

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<p>Accident Sequence Precursor (ASP) Program</p> <p>SA-5</p>	<p>In October 2005, the staff provided input to the NRC's Office of the Chief Financial Officer (OCFO) concerning significant precursors through June 2005. Also in October 2005, the staff provided ASP trends through FY 2004 to NRR as part of the support for the Industry Trends Program.</p> <p>The risk associated with operational events and/or conditions is evaluated under the Accident Sequence Precursor (ASP) Program by systematically reviewing and evaluating operating experience to identify precursors to potential severe core damage sequences, documenting precursors, categorizing them by plant-specific and generic implications, and providing a measure of trends associated with nuclear plant core damage risk.</p>
<p>Risk Management Technical Specifications (RMTS)</p> <p>SA-10</p>	<p>The staff continued to work on risk-informed initiatives to modify the NRC's standard technical specifications:</p> <ul style="list-style-type: none"> • Initiative 1, "Modified End States," Combustion Engineering (CE) TSTF-422, "Risk-Informed Modification to Selected Action End States for Pressurized-Water Reactors Operated by the CE Owners' Group," and the Boiling-Water Reactor (BWR) TSTF-423, "Risk-Informed Modification to Selected Action End States for Boiling-Water Reactors." In July 2005, the TSTF-422 safety evaluation and model application was published in the <i>Federal Register</i>, noticing availability as part of the Consolidated Line Item Improvement Process (CLIIP). In December 2005, the TSTF-423 safety evaluation was noticed in the <i>Federal Register</i> requesting public comment, as part of CLIIP. The draft of the safety evaluation report for the Babcock & Wilcox (B&W) topical report was completed in March 2006. • Initiative 4b, "Risk-Informed Completion Times." The industry and staff met in March 2005 to define RMTS Initiative 4b requirements with respect to PRA and configuration risk management plan (CRMP) scope and capability. South Texas Project (STP) had already submitted its pilot plant license amendment request in August 2004. Based on a visit to STP earlier in the year to observe their CRMP capabilities, the staff provided STP with requests for additional information (RAIs) in June 2005. The staff met with STP in December 2005 to resolve these RAIs. • Initiative 7, "Non-TS Support system Impact in TS System Operability": The draft of the safety evaluation for TSTF-427 was completed in March 2006.

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<p>Fire Protection for Nuclear Power Plants</p> <p>SA-11</p>	<p>In February 2003, the staff held a facilitated workshop to discuss risk-informing the post-fire safe-shutdown electrical circuit inspections. The purpose of this workshop was to exchange information with our stakeholders concerning risk-informing the inspections. The staff also held a workshop for a number of regional inspectors in July 2004. The staff issued Regulatory Issue Summary (RIS) 2004-03 on March 2, 2004, to discuss risk-informing this process. The staff revised the inspection procedure, and held another public workshop in October 2004 to discuss how the associated circuit analysis inspections will be risk-informed. In December 2004, a revision to RIS 2004-03, which included the risk-informed inspection process and notification that circuit analysis inspections would resume in January 2005, was issued. Subsequently, the staff issued RIS 2005-30 in December 2005 to re-clarify compliance expectations with regard to circuits.</p>

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Develop structure for new plant licensing EF-6 (including EF-19)	The staff issued SECY-06-007 on January 9, 2006, (1) requesting Commission approval to issue an ANPR soliciting stakeholder feedback on rulemaking for a risk-informed performance based revision of 10 CFR Part 50, and (2) providing the Commission, as part of the ANPR, the program plan to develop a risk-informed performance-based revision of 10 CFR Part 50.
Methods for Assessing Fire Safety in Nuclear Facilities EF-7	<p>The development of risk-informed, performance-based fire standards and regulations requires a sound understanding of fire and its contribution to power plant risk. A fire research program has been developed and is being implemented to address the complex issues associated with fire risk and to support risk-informed changes to these standards and regulations. The staff worked with the National Fire Protection Association (NFPA) to develop a performance-based risk-informed fire protection standard (NFPA 805) for nuclear power plants.</p> <p>In January 2006, the staff completed fire PRA review guidance for NRR specialists – in accordance with 10 CFR 50.48(c), endorsing NFPA 805.</p>

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<p>Special Treatment Requirements (EF-18)</p>	<p>The Commission decided in 1998 to consider promulgating new regulations that would provide an alternative risk-informed approach for special treatment requirements in the current regulations for power reactors. Special treatment requirements on structures, systems, and components go beyond industry-established requirements for equipment classified as “commercial grade.” Special treatment requirements provide additional confidence that the equipment is capable of meeting its functional requirements under design-basis conditions. These special treatment requirements include additional design considerations, qualification, change control, documentation, reporting, maintenance, testing, surveillance, and quality assurance requirements.</p> <p>In March 2000, the Commission invited comments, advice, and recommendations from interested parties on the contemplated approach for this rulemaking. Beginning in September 2000, the staff worked with industry and stakeholders to resolve issues associated with industry-developed guidance intended to implement the rule. The staff has also interacted with industry on pilot activities to test the implementing guidance at four reactor sites.</p> <p>The experience from guidance development was factored into development of a proposed rule. The new requirements were to be given in a new Section 50.69, “Risk-Informed Categorization and Treatment of Structures, Systems and Components for Nuclear Power Plants.”</p> <p>The final rulemaking package for § 50.69 was completed and went into rulemaking concurrence in April 2004. The associated RG 1.201 for trial use was published in the Federal Register (71 FR 6795) in February 2006.</p>
<p>ROP Support — Mitigating Systems Performance Index and Risk Assessment Standardization Project EF-20</p>	<p>The NRC’s Office of Nuclear Regulatory Research (RES) supports the agency’s Reactor Oversight Process (ROP) by developing and piloting the Mitigating Systems Performance Index (MSPI) which monitors risk associated with changes in performance of selected mitigating systems, accounting for plant-specific design and performance data. As such, the MSPI enhances the safety of nuclear plants by addressing known problems with the existing Safety System Unavailability Performance Indicator, and providing a measure of both system reliability and availability. Public workshops for MSPI implementation were held monthly throughout FY 2005.</p> <p>From September 2005 through November 2005 staff provided training and guidance to NRR and the regions to help focus staff reviews of licensee submittals of MSPI basis documents. In January 2006, a memorandum summarizing this training activity was sent to NRR.</p>

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<p>10 CFR 50.46 [including frequency estimates for loss-of-coolant accidents (LOCA) and single-failure criterion (SFC)]</p> <p>EF-22</p>	<p>In March 2005, the staff forwarded the proposed rule defining the risk-informed ECCS requirements and evaluation criteria for associated plant design and operational changes to the Commission (SECY-05-0052). On July 29, 2005, the Commission approved publication of the proposed rulemaking subject to the comments and specific changes provided in the SRM. In November 2005, a proposed rule on risk-informing 50.46 was issued for public comment. (The comment period expires in March , unless extended.)</p> <p>Draft NUREG-1829, “Estimating Loss-of-Coolant Accident (LOCA) Frequencies Through the Elicitation Process,” provides preliminary LOCA frequency estimates, which have been developed using an expert elicitation process to consolidate service history data and insights from probabilistic fracture mechanics (PFM) studies with the knowledge of plant design, operation, and material performance. Separate BWR and PWR piping and non-piping passive system LOCA frequency estimates have been developed as a function of effective break size and operating time. The public comment period for the report ended on November 30, 2005. Comments are in the process of being evaluated.</p> <p>In an SRM, dated March 31, 2003, the Commission directed the staff to pursue “a broader change to the single failure criterion” (broader than just the relaxation of the requirement to be able to mitigate a large-break LOCA coincident with loss of offsite power with an additional single failure) and inform the Commission of its findings. The staff issued a Commission paper (SECY-05-0138) and associated technical report in August 2005. The paper presented the results of the staff’s technical evaluation regarding a risk-informed and performance-based change to the single-failure criterion. The Commission responded with an SRM in September 2005, directing the staff to seek additional stakeholder involvement by making the draft technical report on the single-failure criterion available to the public. The Commission also directed the staff to include efforts to risk-inform the single failure criterion in on-going efforts related to risk-informing the reactor requirements of 10 CFR Part 50.</p> <p>Recently, concerns have arisen regarding the effect of seismic events on the frequency estimates contained in NUREG-1829. In July 2005, the staff briefed the Commissioners’ Technical Assistants on seismic effects on LOCA frequencies and their potential impact on the transition break size. The staff completed a follow-on analysis that incorporated realistic assumptions, analysis methods and input data to assess seismic effects on LOCA frequencies. The results of this study, “Seismic Considerations for the Transition Break,” were released via the NRC’s public Web site in December 2005.</p>