

POLICY ISSUE
(Notation Vote)

December 6, 2013

SECY-13-0132

FOR: The Commissioners

FROM: Mark A. Satorius
Executive Director for Operations

SUBJECT: U.S. NUCLEAR REGULATORY COMMISSION STAFF RECOMMENDATION
FOR THE DISPOSITION OF RECOMMENDATION 1 OF THE NEAR-TERM
TASK FORCE REPORT

PURPOSE:

The purpose of this paper is to seek Commission approval of the U.S. Nuclear Regulatory Commission (NRC) staff's recommendations for dispositioning Recommendation 1 in the Near-Term Task Force (NTTF) Report, "Recommendations for Enhancing Reactor Safety in the 21st Century," dated July 12, 2011 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML111861807). The staff's recommendations considered, among other things, the nuclear power reactor recommendations presented in the Risk Management Task Force (RMTF) Report, NUREG-2150, "A Proposed Risk Management Regulatory Framework," dated April 2012 (ADAMS Accession No. ML12109A277).

SUMMARY:

The staff working group developed three potential regulatory improvement activities to disposition NTTF Recommendation 1. These potential improvement activities were developed after evaluation of the considerations underlying the NTTF's recommendation and consideration of the RMTF's power reactor recommendations. These activities constitute practical, low-cost improvements that can be implemented while consideration is given to other safety and regulatory initiatives such as the Risk Management Regulatory Framework. The improvement activities are:

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RELEASED TO THE PUBLIC IN 10 WORKING DAYS

- (1) Establish a design-basis extension category of events and requirements and associated internal NRC guidance, policies, and procedures. The design-basis extension category would be applied in a forward-looking and generic basis. The internal NRC guidance would specify how to write future design-basis extension requirements in a consistent, logical, and complete manner, including the need to address “attributes” such as performance goals, treatment requirements, documentation requirements, change processes, and reporting requirements.
- (2) Establish Commission expectations for defense-in-depth through the development of a policy statement that includes: the definition, objectives, and principles of defense-in-depth; associated implementation guidance containing decision criteria for ensuring adequacy of defense-in-depth; and conforming guidance to ensure integration of defense-in-depth with risk.
- (3) Clarify the role of voluntary industry initiatives in the NRC regulatory process by specifying when these initiatives may be credited and providing guidance regarding what type and level of licensee documentation and NRC oversight is appropriate for future industry initiatives.

The staff developed an outline for implementing these three improvement activities, including identification of regulatory products to be developed, key issues that need to be resolved, and cost and schedule estimates. The staff also evaluated the pros and cons for implementing each improvement activity.

The staff recommends that all three of these improvement activities be implemented as set forth in this SECY paper. These activities, if implemented, have the capability to improve the clarity, efficiency, and effectiveness of the current regulatory framework. The improvement activities are not needed to maintain safety of nuclear power reactors. Nonetheless, the staff expects that the improvement activities would result in modest safety enhancements.

BACKGROUND:

Following the accident at the Fukushima Dai-ichi nuclear power plant in Japan in March 2011, the Commission established a senior level agency task force to conduct a systematic and methodical review of NRC processes and regulations to determine whether the agency should make additional improvements to its regulatory system and to make recommendations to the Commission for its policy direction, as set forth in Tasking Memorandum COMGBJ-11-0002 and its related staff requirements memorandum (SRM), SRM-COMGBJ-11-0002 (ADAMS Accession Nos. ML110800456 and ML110820875, respectively). The NTTF issued its report on July 12, 2011 (ADAMS Accession No. ML111861807), as an enclosure to SECY-11-0093, “Near-Term Report and Recommendations for Agency Actions Following the Events in Japan” (ADAMS Accession No. ML11186A959).

The NTTF developed 12 overarching recommendations, limited to radiological health and safety considerations for nuclear power reactors (common defense and security concerns were not directly addressed in the NTTF report). Recommendation 1 consists of an overall recommendation and four sub-recommendations. The overall recommendation is to establish a “logical, systematic, and coherent regulatory framework for adequate protection that

appropriately balances defense-in-depth and risk considerations.” The four sub-recommendations are:

- 1.1 Draft a Commission policy statement that articulates a risk-informed, defense-in-depth framework that includes extended design-basis requirements in the NRC’s regulations as essential elements for ensuring adequate protection.
- 1.2 Initiate rulemaking to implement a risk-informed, defense-in-depth framework consistent with the above recommended Commission policy statement.
- 1.3 Modify the Regulatory Analysis Guidelines to more effectively implement the defense-in-depth philosophy in balance with the current emphasis on risk-based guidelines.
- 1.4 Evaluate the insights from the IPE and IPEEE efforts as summarized in NUREG-1560, “Individual Plant Examination Program: Perspectives on Reactor Safety and Plant Performance,” issued December 1997, and NUREG-1742, “Perspectives Gained from the Individual Plant Examination of External Events (IPEEE) Program,” issued April 2002, to identify potential generic regulations or plant-specific regulatory requirements.

In an August 19, 2011, SRM for SECY-11-0093 (ADAMS Accession No. ML112310021), the Commission set forth its direction to the staff with respect to the recommendations in the NTTF report. For Recommendation 1, the Commission stated:

Recommendation 1 should be pursued independent of any activities associated with the review of the other Task Force recommendations. Therefore, the staff should provide the Commission with a separate notation vote paper within 18 months of the issuance of this SRM. This notation vote paper should provide options and a staff recommendation to disposition this Task Force recommendation.

Also, on June 14, 2012, then-Chairman Jaczko issued a tasking memorandum, “Evaluating Options Proposed for a More Holistic Risk-Informed, Performance-Based Regulatory Approach” (ADAMS Accession No. ML121660102), directing the NRC staff to consider, when developing options for the disposition of Recommendation 1, the regulatory framework recommendations for nuclear power reactors in the RMTF report, NUREG-2150. The improvement activities recommended in this SECY reflect staff consideration of the RMTF report for power reactors. A detailed discussion of how each improvement activity addresses each applicable RMTF report recommendation is contained in Enclosure 1.

DISCUSSION:

Staff Approach for Developing Its Recommendation on NTTF Recommendation 1 for Nuclear Power Reactors

The staff formed a working group consisting of senior staff members from the Office of Nuclear Reactor Regulation, Office of New Reactors, Office of Nuclear Material Safety and Safeguards, Office of Nuclear Security and Incident Response, Office of Federal and State Materials and Environmental Management Programs, Office of Nuclear Regulatory Research, and the Office

of the General Counsel. The NTTF Recommendation 1 working group also included members from the original RMTF. A group of senior NRC managers overseeing staff actions associated with the NTTF recommendations, known as the Japan Lessons Learned Project Directorate (JLD) Steering Committee, was informed of the working group's activities, and provided direction to the working group throughout the development of this SECY paper.

The staff reviewed both the NTTF report and the RMTF report and considered different approaches in developing the improvement activities. During development of its recommendations, the working group held three public meetings, met routinely with the JLD Steering Committee, met six times with the Advisory Committee on Reactor Safeguards (ACRS), solicited and evaluated written public comments, and provided several rounds of briefings to individual Commissioners on the status of the Recommendation 1 effort. Enclosure 2 provides a detailed chronology of the NRC staff's outreach to external stakeholders in the development of these improvement activities for the disposition of NTTF Recommendation 1.

Consistent with the scope of the NTTF report and then-Chairman Jaczko's tasking memorandum, this SECY paper contains recommendations only for light-water nuclear power reactors. It does not contain recommendations for non-power reactors, nuclear materials (e.g., power reactor fuel, including spent fuel) at nuclear power plants, or other nuclear materials regulated by the NRC (such as materials used in medical or in industrial uses such as well logging); nor does it address security issues.

Identifying the problem that NTTF Recommendation 1 is attempting to resolve

To help the staff identify and assess options for the disposition of NTTF Recommendation 1, the staff developed the following problem statement describing the issues that Recommendation 1 is directed at resolving:

The existing regulatory framework for power reactors effectively addresses design-basis events, including design-basis accidents. However, for non design-basis accidents, the existing framework could be improved to facilitate more consistent, efficient, timely, and transparent Commission decisions to address new issues and information. These improvements would allow the NRC's regulatory framework to provide:

- An improved structure and set of criteria for identifying and categorizing hazards and events not previously recognized as significant that may require regulatory action (e.g., extended station blackout) (addressed by Improvement Activity 1).
- A structure and criteria for consistently and predictably evaluating how defense-in-depth should be addressed for an effective NRC regulatory response to new information or events or accidents not previously recognized as significant (e.g., evaluation of a possible requirement for filtered vents) (addressed by Improvement Activity 2).
- A regulatory process that ensures licensee implementation and consistent long-term maintenance of voluntary industry initiatives (e.g., Severe

Accident Management Guidelines (SAMGs)) (addressed by Improvement Activity 3).

The NNTF's concern about a "patchwork" of beyond-design-basis requirements and voluntary initiatives must be understood in context with the NNTF's recommendation for a "framework" in which current design-basis requirements would remain largely unchanged and the current "beyond design-basis" requirements would be complemented with new requirements to establish a more balanced and effective application of defense-in-depth. The NNTF stated that a new framework would establish a more logical, systematic, and coherent set of requirements addressing defense-in-depth. The staff believes that the problem statement presented above effectively captures the NNTF's concern about a "patchwork."

Improvement Activities for the Disposition of NNTF Recommendation 1

The staff developed three improvement activities for the disposition of Recommendation 1. These three improvement activities are summarized below. Enclosure 1 provides the staff's detailed discussion of each improvement activity, including a discussion of how the three activities relate to and address NNTF Recommendation 1 and the RMTF recommendations for nuclear power reactors. Enclosure 1 also explains the NRC staff's rationale for not recommending full implementation of the NNTF or RMTF recommendations.

A viable and acceptable alternative to implementing any or all of these improvement activities would be to maintain the existing regulatory framework of design-basis events augmented with additional regulations as needed. The NRC would continue under its current processes to issue new regulations as needed on a case-by-case basis, as is being done in the NRC's response to the Fukushima Dai-ichi event. Maintaining the existing regulatory framework would maintain nuclear safety while preserving an approach to regulation that has been successful and is well-understood. If the Commission chooses not to adopt these improvement activities at this time, the staff notes that such a decision would not preclude the Commission from pursuing these improvement activities in the future as resources and circumstances permit. A more detailed discussion of maintaining the existing framework is included in Enclosure 1.

The estimates of the costs of each improvement activity provided in Enclosure 1, do *not* reflect possible future savings attributable to the improvement activities, either as benefits or averted costs. The NRC staff's proposed improvement activities have been defined in such a way as to provide increased regulatory efficiency, clarity, and coherence and modest safety benefits without requiring significant resource expenditure or an undue increase in regulatory burden. They build incrementally on the NRC's existing approach to the regulation of nuclear power reactors.

The NRC staff believes that these improvement activities represent improvements that can be accomplished without significant burden on current nuclear power plant licensees and applicants. Implementation of the improvement activities would confirm the findings of NUREG-1412, "Foundation for the Adequacy of the Licensing Bases," dated December 31, 1991 (ADAMS Accession No. ML080310668), with respect to the evolving nature of the NRC's regulatory process, which the NRC relied upon when adopting the nuclear power plant license renewal requirements in 10 CFR Part 54 (56 FR 64943; December 13, 1991). Although the Commission may adopt none or any one or more of the improvement activities, the staff recommends that all three activities be adopted because implementation of the three activities

would be synergistic (e.g., Improvement Activity 2 on defense-in-depth may increase the implementation effectiveness of Improvement Activities 1 and 3). The three improvement activities are consistent with the Commission's existing "White Paper on Risk-Informed and Performance-Based Regulation" and the Commission's PRA Policy Statement, "Use of Probabilistic Risk Assessment Methods in Nuclear Regulatory Activities." If approved by the Commission, these three improvement activities could serve as a logical foundation which the staff can build upon when developing its plan to address the RMTF report recommendations for establishing a Risk Management Regulatory Framework.

Improvement Activity 1: Establish a Design-Basis Extension Category of Events and Associated Regulatory Requirements

Improvement Activity 1 is intended to address the recommendations of the NTTF and RMTF with respect to establishing a category of beyond-design-basis events and accidents. In the staff's view, the common concern underlying the NTTF and RMTF recommendations arises from the lack of clarity in the NRC's regulatory terminology associated with "beyond-design-basis accidents," which leads to inconsistent approaches for addressing these types of accidents—particularly when years or decades separate the regulatory decisions. The staff believes that the NTTF Recommendation 1 proposal to make extensive changes to the regulations and to develop and implement new processes and criteria to identify new events and accidents will not substantively improve nuclear safety and could divert resources away from other, more effective activities to improve safety. This is especially true given the development and implementation of other post-Fukushima improvements such as providing equipment and mitigating strategies to address conditions such as an extended loss of electrical power, which will serve to reduce the overall risk associated with nuclear power reactors. This paper presents the staff's recommendations for a simpler, less costly way to address NTTF and RMTF common concerns, consistent with the staff's problem statement.

The staff proposes that the NRC adopt a new term—"design-basis extension"—to define and describe the events and requirements for nuclear power plants that have typically been characterized as "beyond-design-basis" events and accidents, even though they are within the "design bases" as defined in Title 10 of the *Code of Federal Regulations* (10 CFR) 50.2. Design-basis extension events would be those that are not currently considered to be design-basis events or accidents, but that must be regulated because their prevention and/or mitigation is necessary for reasonable assurance of adequate protection or should be regulated because their prevention and/or mitigation would result in a substantial safety improvement at a cost that is justified in view of the increased protection. The staff recommends that the design-basis extension category include requirements for adequate protection (e.g., recent Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," on mitigating strategies), as well as "cost-justified safety enhancements" (e.g., station blackout; 10 CFR 50.63, "Loss of All Alternating Current Power"). The staff recommends establishing and implementing the new design-basis extension category through internal NRC policies, guidance, and procedures rather than through rulemaking. Implementation would include developing a publicly available document (e.g., NUREG) to describe the new category and specify how future design-basis extension requirements should be written in a consistent, logical, and complete manner. The process defined in that publicly available document would be implemented by conforming changes to internal NRC policies, guidance, and procedures. Matters to be addressed when writing a design-basis extension rule would include (but are not limited to):

- performance goals, including analysis methods and acceptance criteria
- treatment requirements, such as design criteria, level of quality assurance needed, and environmental qualification
- documentation requirements for information that the NRC has determined needs to be developed and maintained with respect to demonstrating compliance with the design-basis extension requirements
- change processes for licensee-initiated facility changes related to compliance with design-basis extension rules
- reporting requirements
- characterization of each future design-basis extension requirement as a matter of adequate protection or safety enhancement, even if the requirement is not subject to the backfit rule, 10 CFR 50.109, or the issue finality provisions in 10 CFR Part 52, “Licenses, Certifications, and Approvals for Nuclear Power Plants”

The staff recommends that the initial set of regulations in this category be those existing regulations addressing what are currently referred to as “beyond-design-basis events,” even though these regulations are in the design basis for most plants. These regulations include station blackout (10 CFR 50.63); anticipated transients without scram (10 CFR 50.62, “Requirements for Reduction of Risk from Anticipated Transients Without Scram (ATWS) Events for Light-Water-Cooled Nuclear Power Plants”); combustible gas control (10 CFR 50.44, “Combustible Gas Control for Nuclear Power Reactors”); loss of large plant areas, (10 CFR 50.54(hh)); and aircraft impact assessment (10 CFR 50.150, “Aircraft Impact Assessment”). Initial designation of these regulations as design-basis extension may increase stakeholder understanding of the new category and provide a better basis for future regulatory actions with respect to these design-basis extension regulations. Current rulemakings that may be characterized as falling into the new design-basis extension category are the rulemakings on station blackout mitigation strategies, onsite emergency response capability, and containment filtering strategies. The staff recommends that the regulatory requirements for design-basis extension should be applied to both existing and new nuclear power plants, but only on a forward-looking¹ basis when: (1) addressing emergent issues, and (2) the NRC revises existing regulatory requirements due to new information. The staff recommends that the design-basis extension category be applied on a generic basis (i.e., by adoption of generically applicable regulations and issuance of broadly applicable orders), rather than on a plant-specific basis. Hence, issuing a regulation to require operating reactor licensees² to perform and periodically update plant-specific probabilistic risk assessments (PRAs) is not needed to implement this improvement activity. More discussion about the estimated costs and safety benefits of a PRA regulation is provided in Attachment 1 to Enclosure 1. Nonetheless, it is still expected that

¹ Note that under Improvement Activity 3, the staff recommends a retrospective review of certain existing voluntary initiatives which could result in the issuance of new design-basis extension requirements if the staff determines that those safety-significant voluntary initiatives have not been effectively implemented and maintained over time.

² 10 CFR Part 52 already requires new reactor applicants and licensees to develop and maintain a PRA.

existing plant-specific PRAs would continue to be used by operating reactors for risk-informed regulatory activities including the implementation of the improvement activities discussed in this paper even though the staff is not proposing that plant-specific PRAs be required by regulation.

The staff will develop a standard set of “attributes” and a standard set of treatment guidelines for each of the attributes which must be addressed for future requirements in the design-basis extension category. The development of this standard set will be accomplished via a public process. Because the proposed design-basis extension category would contain both adequate protection and safety enhancement requirements, it may not be possible to establish a standard set of treatment guidelines that would be appropriate for all requirements in the proposed category. In the event that a standard set of treatment guidelines cannot be defined, the staff would issue guidance to assist rulemaking staff to determine an appropriate set of treatment to be applied to each design-basis extension rule.

As recommended by the staff, the improvement activity would not impose additional incremental costs to the industry over what would otherwise be incurred if the NRC were to adopt new regulatory requirements addressing what are currently regarded as beyond-design-basis events and accidents. The recommended approach’s estimated costs for the NRC are expected to be small in that the changes could be incorporated into routine updates of the internal guidance documents. Conforming changes would also be incorporated into the planned update of the Regulatory Analysis Guidelines. Completion of the document to define the category and guidance documents to create and implement the design-basis extension category improvement activity could take 3 to 4 years.

Improvement Activity 1 meets the intent of NTF Recommendations 1.1 and 1.2, in part, because it clarifies the role of and expectations for regulations that extend the original design basis of nuclear power plants. This activity addresses the NTF’s “patchwork” observation by adding structure to the existing and future regulations intended to extend the plant’s design basis. It is a cost-effective way of improving the NRC’s regulatory system related to evaluating and establishing regulatory requirements for these events. The design-basis extension category would also increase transparency to the public in that the NRC would regulate all events that are identified as safety issues and clarify the regulatory controls over the systems, structures, and components that mitigate them.

The recommended generic approach can identify and resolve risk outliers associated with design characteristics common to a group of plants (e.g., ice condenser containment systems) but it is not expected to be able to provide additional safety benefits by identifying site-specific vulnerabilities. The staff believes that the possible safety benefits of a site-specific search for vulnerabilities are not justified. Plant-specific vulnerabilities have been searched for and addressed in the past (e.g., Generic Letter 88-20, “Individual Plant Examination for Severe Accident Vulnerabilities”) and are now sought routinely as part of the reactor oversight process and the reactor operating experience program. Site-specific vulnerabilities related to seismic and flooding events are being addressed by the post Fukushima actions (e.g., Recommendations 2.1 and 2.3). Thus, based on currently available information, it is unlikely that the safety benefits of plant-specific assessments would meet the “substantial increase in overall protection” threshold in the backfit rule (10 CFR 50.109). Details of the staff’s evaluation are provided in Attachment 1 to Enclosure 1.

Improvement Activity 2: Establish Commission Expectations for Defense-In-Depth

Improvement Activity 2 would establish the Commission's expectations for defense-in-depth as applied to nuclear power reactor safety, through a Commission policy statement that includes the definition, objectives, and principles of defense-in-depth. The policy statement would set forth the defense-in-depth approach as a hierarchy that includes specified levels of defense for reactor safety. This hierarchical approach is consistent with the International Atomic Energy Agency's approach to defense-in-depth. This improvement activity would also develop implementation guidance that includes details regarding the levels of defense and associated decision criteria to support regulatory decisions regarding the Commission's expectations for defense-in-depth. Revisions to the Regulatory Analysis Guidelines and substantial conforming changes to several existing regulatory guides would be part of this improvement activity.

The policy statement would reinforce the Commission's expectation that all regulatory decisions be made with appropriate consideration of uncertainties. The strategy and approach in the policy statement for defense-in-depth would clearly include prevention and mitigation strategies, include consideration of deterministic and probabilistic criteria, and assure that uncertainties, including those in risk assessments and traditional engineering analyses, are adequately compensated for based on clear deterministic criteria. As currently envisioned, the policy statement would have four major parts:

- (1) Statement of Commission Expectations
- (2) Definition of Defense-in-Depth
- (3) Objective of Defense-in-Depth
- (4) Defense-in-Depth Principles

In addition, it is envisioned that the implementation guidance would have two major parts:

- (1) Levels of Defense for Nuclear Power Reactor Safety
- (2) Decision Criteria

The staff recommends that the new policy statement and associated implementation guidance be applicable to all nuclear power reactors, but that it be applied only to future issues and regulatory and licensing actions (i.e., be forward-looking). The staff does not recommend an associated PRA regulation for currently operating 10 CFR Part 50 ("Domestic Licensing of Production and Utilization Facilities") reactors, for the sole purpose of informing the defense-in-depth policy. Nonetheless, risk insights from existing plant-specific PRAs would inform the development of the defense-in-depth policy statement and implementing guidance.

Improvement Activity 2 directly supports NTTF Recommendation 1, as well as specific sub-recommendations 1.1, 1.2, and 1.3, because defining defense-in-depth and developing decision criteria are necessary to implementing those recommendations. Completion of this improvement activity is expected to take 3 to 4 years.

A major benefit of Improvement Activity 2 is that it provides a uniform, technically justified, documented basis for the defense-in-depth principle of risk-informed decision making. Improvement Activity 2 also directly supports the Commission's PRA Policy Statement. The guidance developed will involve criteria and a process that will provide a structure for

decisionmaking on adequacy of defense-in-depth. However, there may be situations where the criteria may not be sufficiently definitive across all foreseeable applications.

Improvement Activity 3: Clarify the Role of Voluntary Industry Initiatives in the NRC Regulatory Process

Improvement Activity 3 does not address an explicit NTTF or RMTF recommendation but rather addresses an apparent NTTF concern as reflected in the NTTF Report discussion preceding Recommendation 1. It would clarify the role of certain industry initiatives in the NRC's regulatory processes by (1) re-affirming the Commission's expectation that initiatives may not be used in lieu of NRC regulatory action on adequate protection issues, (2) specifying when these initiatives may be credited in the baseline case for regulatory analyses, and (3) providing guidance regarding what type and level of licensee documentation and NRC oversight is appropriate for future voluntary initiatives. By "industry initiative," the staff is referring to proposals made by the nuclear power industry (e.g., commitments made by the Nuclear Energy Institute or proposals made by discrete groups of licensees and applicants, such as the Boiling-Water Reactor Owners Group). It does not include an individual plant's voluntary commitments, which are adequately addressed by existing processes³ and are excluded from Improvement Activity 3. Specifically, the staff's recommendation is focused on those industry initiatives which are developed in response to a potential generic safety concern that the NRC is considering addressing through a rulemaking or broadly-applicable order as a potential cost-justified safety enhancement.

In general, this improvement activity would involve revisions to existing guidance, reiterating the current Commission policy that the NRC will not accept industry initiatives in lieu of NRC regulatory action on adequate protection issues (May 27, 1999, Commission SRM (ADAMS Accession No. ML003752062) approving the staff's recommendations in SECY-99-063, "The Use by Industry of Voluntary Initiatives in the Regulatory Process," March 2, 1999 (ADAMS Accession No. ML992810068)).

The revised guidance would also direct that an industry initiative is credited in the baseline case as defined in the Regulatory Analysis Guidelines (NUREG/BR 0058, Revision 4) only when it is well-documented and there is a high likelihood that each licensee will effectively implement and maintain the initiative over time.

As a part of this proposed improvement activity, the staff will develop and implement an integrated program for Type 2⁴ voluntary industry initiatives. The program consists of the following two elements. First, the staff intends to evaluate the current status of implementation on those existing Type 2 initiatives that are most risk significant or safety significant. The staff

³ Office of Nuclear Reactor Regulation Licensing Instruction – LIC-105, "Managing Regulatory Commitments Made by Licensees to the NRC," dated September 5, 2013 (ADAMS Accession No. ML13193A358).

⁴ The following definition of Type 2 initiatives is from SECY-01-0121: "A Type 2 initiative is developed in response to a potential safety concern that is a potential cost-beneficial safety enhancement outside existing regulatory requirements. Such industry initiatives may be used to provide safety enhancements without the need for regulatory action. However, where it is determined that the proposed industry initiative is not effective in addressing the safety concern, the NRC may pursue rulemaking in accordance with the criteria described in 10 CFR 50.109." See the discussion of Improvement Activity 3 in Enclosure 1 for more details.

will use risk insights to identify the existing Type 2 initiatives which are the most risk and safety significant and then determine if the effectiveness of licensee implementation of the initiative(s) is already monitored (directly or indirectly) under an existing NRC oversight activity (e.g., inspections, performance indicators, licensee reports). Where an acceptable measure of effectiveness cannot be identified, the staff would verify licensee implementation of the initiatives (e.g., through a one-time audit, change to existing inspection procedure, or request for information). Based on the results of the verification activity, the staff would take appropriate action. Second, the staff would revise its policies and procedures to ensure that the staff monitors future Type 2 initiatives for continued effective implementation. The staff's process will ensure that licensee voluntary initiatives are well-documented and transparent to the public. Under the process, licensees would report certain information regarding safety-significant Type 2 voluntary initiatives and notify the NRC if it intends to change its decision to implement or maintain Type 2 industry initiatives which the NRC has publicly identified and relied on as the basis for not pursuing rulemaking. If the process includes rulemaking, staff would follow the routine process to request Commission approval to institute such a rulemaking.

In developing Improvement Activity 3, the staff considered three different approaches for addressing the NTTF concerns regarding voluntary initiatives. These three approaches are described and evaluated in Attachment 3 to Enclosure 1. There were conflicting views within the staff on the best path forward, regarding whether to recommend an approach that reflects the current Commission policy, enhances the current policy, or instead recommends that the Commission change its current policy to eliminate regulatory credit for voluntary initiatives. After consideration, the staff recommends the enhancements described above, which would improve the NRC's processes for accepting and overseeing voluntary initiatives. The staff believes that the recommended approach is appropriate because some safety enhancements could be put in place more quickly and efficiently via industry initiatives than by the more resource-intensive and time-consuming rulemaking process and the enhanced documentation and oversight will provide increased assurance that the initiatives remain effective over time.

Improvement Activity 3 partially addresses the NTTF's "patchwork" observation by more clearly stating the NRC's policies regarding industry initiatives and by adding risk-informed regulatory oversight of future and certain existing Type 2 industry initiatives. It also ensures that the safety benefits from industry initiatives are consistently implemented and maintained over time. The staff estimates that Improvement Activity 3 would take 2 years to implement.

Relationship Between NTTF Recommendation 1 and the Risk Management Regulatory Framework (RMRF)

Another interoffice working group (the RMRF working group) is responding to the June 12, 2012, tasking memorandum that stated "...the staff should review NUREG-2150 and provide a paper to the Commission that would identify options and make recommendations, including the potential development of a Commission policy statement...." The first and second proposed improvement activities in this SECY paper are related to RMRF.

Improvement Activity 1 addresses the recommendations of the NTTF and RMTF with respect to establishing a category of beyond design-basis events/accidents for nuclear power reactors. Staff was mindful of the RMTF proposals as it developed approaches to Recommendation 1.

Improvement Activity 2 recommends that a power reactor safety defense-in-depth policy statement and implementation guidance be developed and identifies possible concepts for such a policy statement and implementation guidance. The RMRF working group is exploring an RMRF policy statement which would be an overall agency policy statement broadly covering a risk management decisionmaking process where defense-in-depth would be a key element. This policy statement would be applicable across the agency, including nuclear power reactors.

Commission direction on NTTF Recommendation 1 will inform the staff's approach for implementation of an RMRF, which will build upon the approach outlined in Recommendation 1.

COMMITMENTS:

Listed below are the actions or activities committed to by the staff in this paper:

1. The staff will perform verification activities to ensure that certain existing industry initiatives are being consistently maintained.
2. Within six months of Commission approval of any of the recommended improvement activities, the staff will re-assess priorities and resource availability and provide implementation plans and schedules to the Commission for information.

RESOURCES:

Assuming the Commission directs the staff to pursue all three activities, resources will be needed in fiscal years 2014 through 2018 in the Operating Reactors Business Line. Detailed resource estimates can be found in Enclosure 5.

RECOMMENDATIONS:

The NRC staff recommends that the Commission approve the staff pursuing Improvement Activities 1, 2, and 3, as described above and in greater detail in Enclosure 1, to address NTTF Recommendation 1 and certain related RMTF recommendations for nuclear power reactors.

With respect to Improvement Activity 1, the staff specifically recommends adopting the new "design-basis extension" category of events as described above.

With respect to Improvement Activity 2, the staff specifically recommends developing a defense-in-depth policy statement and associated implementation guidance as described above. This activity would update the risk criteria in the Regulatory Analysis Guidelines to also incorporate objective criteria for appropriately considering defense-in-depth and thereby facilitate decision making that integrates defense-in-depth and risk considerations.

With respect to Improvement Activity 3, the staff plans to take the actions that do not require Commission approval set forth under "Commitments," above. In addition, the staff specifically recommends revising the Regulatory Analysis Guidelines to credit only those Type 2 initiatives that are well documented and are determined to be "highly likely" to be effectively implemented and maintained over time, which could be perceived as a change in Commission policy.

COORDINATION:

The Office of the General Counsel has reviewed this paper and has no legal objection. The Office of the Chief Financial Officer has reviewed this paper for resource implications and has concurred.

The staff has met five times with the ACRS subcommittee, and once with the ACRS full Committee to discuss Recommendation 1. In a letter dated November 20, 2013, the ACRS full Committee provided its views on these recommendations (Enclosure 6). These views have been addressed by the staff in its response to the Committee (Enclosure 7).

/RA/

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Enclosures:

1. Detailed Discussion of Recommended Improvement Activities
2. NRC Staff Responses to Public Comments on White Paper Dated May 14, 2013
3. Defense-in-Depth Observations and Detailed History
4. NRC Staff Outreach on Disposition of NTTF Recommendation 1
5. Resources Assessment for the Recommendation 1 Improvement Activities
6. Review by the Advisory Committee on Reactor Safeguards
7. Staff Response to the Advisory Committee on Reactor Safeguards

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ADAMS Accession No.: Pkg: ML13277A413

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