

POLICY ISSUE

(NOTATION VOTE)

September 9, 2011

SECY-11-0124

FOR: The Commissioners

FROM: R. W. Borchardt  
Executive Director for Operations

SUBJECT: RECOMMENDED ACTIONS TO BE TAKEN WITHOUT DELAY FROM  
THE NEAR-TERM TASK FORCE REPORT

PURPOSE:

The purpose of this paper is to provide, for Commission consideration, the recommendations of the U. S. Nuclear Regulatory Commission (NRC) staff, regarding those Near-Term Task Force (NTTF) recommendations that can and, in the staff's judgment, should be initiated, in part or in whole, without delay.

In the Commission notation vote paper due on October 3, 2011, the staff plans to provide the prioritization of the NTTF recommendations to (1) reflect regulatory actions to be taken by the staff in response to the Fukushima lessons learned; (2) identify implementation challenges; (3) include technical and regulatory bases for the prioritization; (4) identify additional recommendations, if any; and (5) include a schedule and milestones with recommendations for appropriate stakeholder engagement and involvement of the Advisory Committee for Reactor Safeguards (ACRS).

BACKGROUND:

The NTTF was established to complete the near-term review required by the Chairman's tasking memorandum of March 23, 2011 (COMGBJ-11-0002). In SECY-11-0093, "Near-Term Report and Recommendations for Agency Actions Following the Events in Japan," dated July 12, 2011, the NTTF provided its recommendations to the Commission. The staff requirements memorandum (SRM) for SECY-11-0093, dated August 19, 2011, directed the staff, by September 9, 2011, to "identify and make recommendations regarding any NTTF recommendations that can, and in the staff's judgment, should be implemented, in part or in whole, without unnecessary delay."

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DISCUSSION:

As directed by SRM-SECY-11-0093, the staff reviewed the NTTF recommendations within the context of the NRC's existing framework and considered the various regulatory vehicles available to the NRC to implement the recommendations. This review was conducted by an ad hoc team consisting of NRC senior management representatives and technical experts. The staff determined the near-term regulatory actions based on its judgment of the potential and relative safety enhancement of each of the recommendations. Additionally, the staff developed this paper by focusing on those NTTF recommendations that can, and in the staff's judgment, should be initiated without delay in whole or in part. This is a subset of the total NTTF recommendations. The staff initially focused on Recommendations 2, 4, 5, 7, 8 and 9, because the other recommendations proposed longer-term reviews by the NRC staff. The staff believes that all the NTTF's overarching recommendations, if adopted, would enhance safety and the staff agrees with moving forward with each of these recommendations. As such, the staff will continue to evaluate approaches to implement all other NTTF recommendations. The process used by the staff to identify near-term actions should not be interpreted as a lack of support for other NTTF recommendations; prioritization is necessary to better manage the work and resources discussed below.

To further inform this process, the staff sought external stakeholder feedback regarding the NTTF recommendations that stakeholders consider to be most important and that the NRC should undertake in the near-term. To accomplish this, the NRC staff conducted a public meeting on August 31, 2011, to discuss the six NTTF recommendations under consideration for inclusion in this paper. The meeting minutes and transcript are available in the Agencywide Documents Access and Management System (ADAMS) at ML112490382. In addition, written stakeholder comments were received and are available in ADAMS at ML11249A161. The stakeholder panelists expressed a desire for stakeholder involvement in the regulatory process going forward regardless of the regulatory vehicle used. Additionally, the industry, the Federal Emergency Management Agency, and nongovernmental participants agreed in concept with the six recommendations discussed at the meeting, although various viewpoints emerged concerning the pace of implementation and associated regulatory vehicles.

To determine and recommend near-term regulatory actions that can and should be initiated without delay, the staff considered whether any of the NTTF recommendations identified an imminent hazard to public health and safety. The staff agrees with the NTTF that none of the recommendations rise to this level. While the staff recognizes that the NTTF raises important issues for consideration, it does not have sufficient resources to initiate actions on all recommendations in the near-term. The staff identified a subset of actions that the staff concludes has the greatest potential for safety improvement in the near-term. The remaining recommendations will be evaluated and prioritized, along with this subset, as part of the notation vote paper due on October 3, 2011.

The near-term actions identified are the following:

- 2.1 Seismic and flood hazard reevaluations
- 2.3 Seismic and flood walkdowns
- 4.1 Station blackout regulatory actions

- 4.2 Equipment covered under Title 10 of the *Code of Federal Regulations* (10 CFR) 50.54(hh)(2)
- 5.1 Reliable hardened vents for Mark I containments
- 8 Strengthening and integration of emergency operating procedures, severe accident management guidelines, and extensive damage mitigation guidelines
- 9.3 Emergency preparedness regulatory actions

In addition, the staff provided a discussion in the [enclosure](#) of NTTF Recommendation 9.4 regarding the modernization of the Emergency Response Data System (ERDS). This discussion provides a status of ongoing industry actions in this area. The staff concluded that additional regulatory action is not necessary at this time to ensure implementation of the ERDS modernization.

The staff concluded that additional review is needed to identify specific regulatory actions related to NTTF Recommendation 7 regarding enhanced spent fuel pool makeup capacity and instrumentation for spent fuel pools. For example, the resolution strategy for Recommendation 2.1 may influence the seismic qualification of potential instrumentation for spent fuel pools.

Relative to Recommendations 4.2 and 5.1, the staff is proposing to issue Orders that would redefine the level of protection of public health and safety that should be regarded as adequate. While the basis for the staff's recommendation is provided in the [enclosure](#), the supporting rationale for these Orders will be more fully developed as the technical and regulatory basis is formulated. For the remaining recommendations discussed in this paper, the staff is proposing initiating this subset of actions as safety improvements. As such, the final regulatory action taken will depend on Commission direction, the supporting basis, and whether the applicable action is supportable under agency procedures and applicable backfitting requirements, including the potential to redefine what level of protection of public health and safety should be regarded as adequate.

For all the NTTF recommendations identified as potential near-term actions, the staff performed a more focused assessment to further define the regulatory activities that would be required, and to gain a sense of the resource impacts that could be incurred. This process, while principally centered on safety, gave consideration to the staff's estimate of the current supporting regulatory basis, the need for stakeholder engagement, and technical and scheduler dependencies (i.e., practical feasibility of undertaking action immediately). Enclosed are the assessments for each of the NTTF recommendations the staff proposes can and should be initiated without delay.

In general, the NTTF identified a specific regulatory vehicle (e.g., Order or rulemaking) for each recommendation. Initially, the staff assessed each recommendation independent of the regulatory vehicle proposed by the NTTF. This allowed the staff to determine the actions that should be taken to assess, develop, or complete the supporting technical and regulatory bases. In many cases, external stakeholder engagement is recommended to inform these efforts so that the regulatory action and licensee actions taken effectively resolve the identified issues and implementation challenges are identified in advance. In developing the proposed regulatory vehicle for each staff recommendation in the [enclosure](#), the staff considered the wide range of regulatory tools available. As discussed above, the staff recommends issuance of Orders as

the appropriate regulatory vehicle in those cases where the staff believes that sufficient basis exists to support the initiation of the development of new requirements in the near-term to redefine what level of protection of public health and safety should be regarded as adequate. The technical and regulatory basis for these Orders will be fully established as the Orders are developed. In cases where the staff determined that more information is required before taking additional regulatory action, the staff recommends issuance of requests for information pursuant to 10 CFR 50.54(f). In the remaining cases, the staff proposes to initiate rulemaking.

While not explicitly stated in the enclosed recommendations, the staff will evaluate licensee responses, document staff reviews, and oversee licensee implementation through inspections, consistent with our well-established regulatory processes.

The staff agrees with the NTTF assessment of the approach that should be taken for Watts Bar Unit 2 and Bellefonte Units 1 and 2. Those operating license reviews and the licensing itself should include all of the recommended regulatory actions and rule changes that have been completed at the time of licensing. Any additional rule changes would be imposed on the plants in the same manner as for other operating reactors. With regard to near-term combined license reviews, the staff discusses options in SECY-11-0110, "Staff Statement In Support of the Uncontested Hearing for Issuance of Combined Licenses and Limited Work Authorizations for Vogtle Electric Generating Plant, Units 3 and 4 (Docket Nos. 52-025 and 52-026), dated August 9, 2011, and SECY-11-0115, "Staff Statement in Support of the Uncontested Hearing for Issuance of Combined Licenses for the Virgil C. Summer Nuclear Station, Units 2 and 3 (Docket Nos. 52-027 and 52-028)," dated August 19, 2011.

The remainder of the NTTF recommendations, with the exception of NTTF Recommendation 1 as directed by the Commission, will be evaluated further in the notation vote paper due on October 3, 2011. Included in that evaluation will be any elements of the NTTF recommendations that were evaluated as part of the short-term effort and were concluded to be longer-term regulatory actions (e.g., NTTF Recommendation 2.2). Within schedule constraints and practical limitations given the limited understanding of the ultimate regulatory action that might be taken, the staff will provide its estimate for the supporting schedules and milestones with recommendations for appropriate stakeholder engagement and involvement of the ACRS in the notation vote paper due on October 3, 2011.

#### RECOMMENDATIONS:

The staff recommends that the Commission provide direction to the staff to take the actions as described in the enclosure. The [enclosure](#) provides further description of each recommendation discussed above.

#### RESOURCES:

For each of the recommended near-term actions, the staff performed an initial assessment to identify the skill sets, applicable organizations, and estimated resources that are needed to support the actions. There will be resource impacts associated with the recommended actions. The notation paper due on October 3, 2011, will provide a further discussion of the resources needed to accomplish the activities proposed in this paper, and staff activities that may be delayed or deferred as a result.

#### 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.

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R. W. Borchardt  
Executive Director  
for Operations

[Enclosure](#): Staff Assessment of Near-Term  
Task Force Recommendations

## Staff Assessment of Near-Term Task Force Recommendations

As directed by SRM-SECY-11-0093, U. S. Nuclear Regulatory Commission (NRC) staff reviewed the Near-Term Task Force (NTTF or Task Force) recommendations within the context of the NRC's existing framework and gave consideration to the various regulatory vehicles available to the NRC to implement the recommendations. The staff determined the near-term regulatory actions based on the staff's judgment of the potential and relative safety enhancement of each of the recommendations.

Each of the following assessments includes the recommendation as presented in the NTTF report, the associated regulations and guidance, the staff's assessment of the recommendation, and the staff's recommendations for regulatory actions to be initiated without delay.

### NTTF Recommendation 2.1

The Task Force recommends the NRC require licensees to reevaluate and upgrade as necessary the design-basis seismic and flooding protection of SSCs [structures, systems, and components] for each operating reactor.

- 2.1 Order licensees to reevaluate the seismic and flooding hazards at their sites against current NRC requirements and guidance, and if necessary, update the design basis and SSCs important to safety to protect against the updated hazards.

### Regulations and Guidance

1. General Design Criterion (GDC) 2, "Design Bases for Protection Against Natural Phenomena," of Appendix A, "General Design Criteria for Nuclear Power Plants," to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," requires, in part, that SSCs important to safety be designed to withstand the effects of natural phenomena such as floods, tsunamis, and seiches without loss of capability to perform their safety functions. Plants that received construction permits before issuance of GDC 2 in 1971 meet the intent of the GDC.
2. 10 CFR Part 100, "Reactor Site Criteria," Appendix A, "Seismic and Geologic Siting Criteria for Nuclear Power Plants," was established to provide detailed criteria to evaluate the suitability of proposed sites and the suitability of the plant design basis established in consideration of the seismic and geologic characteristics of the proposed sites.
3. Regulatory Guide (RG) 1.29, "Seismic Design Classification," issued June 1972 and updated August 1973, February 1976, September 1978, and March 2007.
4. RG 1.59, "Design Basis Floods for Nuclear Power Plants," issued August 1973 and updated April 1976 and August 1977.

5. RG 1.60, "Design Response Spectra for Seismic Design of Nuclear Power Plants," issued October 1973 and updated December 1973.
6. RG 1.102, "Flood Protection for Nuclear Power Plants," issued October 1975 and updated September 1976.
7. RG 1.125, "Physical Models for Design and Operation of Hydraulic Structures and Systems for Nuclear Power Plants," issued March 1977 and updated October 1978 and March 2009.
8. RG 1.208, "A Performance-Based Approach To Define the Site-Specific Earthquake Ground Motion," issued March 2007.

#### Staff Assessment of NTTF Recommendation 2.1

The staff's assessment of this recommendation indicates that plants may differ in the way they ensure safety against natural phenomena. The staff concluded that sufficient regulatory guidance currently exists to permit licensee reevaluations. However, the staff noted that results of inspections of SSCs at Fukushima Daiichi and Daini Nuclear Power Stations may help inform the implementation of this recommendation. To the extent practical, the new information on the events at Fukushima Daiichi and Daini should be incorporated into the reevaluations. The staff also noted that the implementation of this recommendation would require significant resources for both licensees and NRC, as well as specialized expertise to review licensee reevaluations and to document results of staff evaluations.

*Seismic hazards.* The state of knowledge of seismic hazards within the United States has evolved to the point that it would be appropriate for licensees to reevaluate the designs of existing nuclear power reactors to ensure that SSCs important to safety will withstand a seismic event without loss of capability to perform their intended safety function. The staff notes that ongoing activities to resolve Generic Issue 199, "Implications of Updated Probabilistic Seismic Estimates in Central and Eastern United States on Existing Plants," are directly related to this issue and will be considered in the resolution of Recommendation 2.1.

*Flooding hazards.* The assumptions and factors that were considered in flood protection at operating plants vary. In some cases, the design bases did not consider the effects from the local intense precipitation and related site drainage. In other cases, the probable maximum flood is calculated differently at units co-located at the same site, depending on the time of licensing, resulting in different design-basis flood protection. The NTTF and the staff noted that some plants rely on operator actions and temporary flood mitigation measures such as sandbagging, temporary flood walls and barriers, and portable equipment to perform safety functions. For several sites, the staff noted that all appropriate flooding hazards are not documented in the Updated Final Safety Analysis Report. The NTTF and the staff also noted that flooding risks are of concern because of a "cliff-edge" effect, in that the safety

consequences of a flooding event may increase sharply with a small increase in the flooding level. Therefore, all licensees should confirm that SSCs important to safety are adequately protected from floods.

### Staff Recommendations

The staff recommends that the NRC, as a near-term action, undertake regulatory activities to:

1. Continue stakeholder interactions to discuss the technical basis and acceptance criteria for conducting a reevaluation of site specific seismic hazards. This would include implementation considerations of the hazard and risk methodologies described in draft Generic Letter (GL) 2001-XX, "Seismic Risk Evaluations for Operating Reactors," issued for public comment on September 1, 2011, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML111710783).
2. Initiate stakeholder interaction to discuss application of the present-day regulatory guidance and methodologies being used for early site permit and combined license reviews to the reevaluation of flooding hazards at operating reactors.
3. Develop and issue a request for information to licensees pursuant to 10 CFR 50.54(f) to (1) reevaluate site specific seismic hazards using the methodology discussed in item 1 above, and (2) identify actions that have been taken or are planned to address plant-specific vulnerabilities associated with the updated seismic hazards.
4. Develop and issue a request for information to licensees pursuant to 10 CFR 50.54(f) to (1) reevaluate site specific flooding hazards using the methodology discussed in item 2 above, and (2) identify actions that have been taken or are planned to address plant-specific vulnerabilities associated with the updated flooding hazards.
5. Evaluate licensee responses and take appropriate regulatory action to resolve vulnerabilities associated with updated site specific hazards.

### NTTF Recommendation 2.3

The Task Force recommends that the NRC require licensees to reevaluate and upgrade as necessary the design-basis seismic and flooding protection of SSCs for each operating reactor.

- 2.3 Order licensees to perform seismic and flood protection walkdowns to identify and address plant-specific vulnerabilities and verify the adequacy of monitoring and maintenance for protection features such as watertight barriers and seals in the interim period until longer-term actions are completed to update the design basis for external events.

### Regulations and Guidance

1. GDC 2, "Design Bases for Protection Against Natural Phenomena," of Appendix A, "General Design Criteria for Nuclear Power Plants," to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," requires, in part, that SSCs important to safety be designed to withstand the effects of natural phenomena such as floods, tsunami, and seiches without loss of capability to perform their safety functions.
2. 10 CFR Part 100, "Reactor Site Criteria," Appendix A, "Seismic and Geologic Siting Criteria for Nuclear Power Plants," was established to provide detailed criteria to evaluate the suitability of proposed sites and the suitability of the plant design basis established in consideration of the seismic and geologic characteristics of the proposed sites.
3. RG 1.29, "Seismic Design Classification," issued June 1972 and updated August 1973, February 1976, September 1978, and March 2007.
4. RG 1.59, "Design Basis Floods for Nuclear Power Plants," issued August 1973 and updated April 1976 and August 1977.
5. RG 1.60, "Design Response Spectra for Seismic Design of Nuclear Power Plants," issued October 1973 and updated December 1973.
6. RG 1.102, "Flood Protection for Nuclear Power Plants," issued October 1975 and updated September 1976.
7. RG 1.125, "Physical Models for Design and Operation of Hydraulic Structures and Systems for Nuclear Power Plants," issued March 1977 and updated October 1978 and March 2009.

### Staff Assessment of NTTF Recommendation 2.3

The NRC should undertake regulatory activities to have licensees perform seismic and flood protection walkdowns to ensure that existing protection and mitigation measures are available, functional, and adequately maintained.

*Seismic hazards.* The staff's assessment of this recommendation indicates that some guidance for seismic protection walkdowns exists. Recent plant inspections by staff in accordance with Temporary Instruction 2515/183, "Followup to the Fukushima Daiichi Nuclear Station Fuel Damage Event," and licensees' plant inspections in response to the Fukushima Daiichi accidents will help inform the implementation of this recommendation. In addition, the staff noted that results of ongoing inspections and evaluations of SSCs at Fukushima Daiichi and Daini Nuclear Power Stations may provide some insights for this recommendation. To the extent practical, the new information on the events at Fukushima Daiichi and Daini should be incorporated into the reevaluations. Evaluations of the recent earthquake near the North Anna Power Station on August 23, 2011, may also provide valuable insights.

*Flooding hazards.* With regard to flooding hazards, the Task Force and the staff have noted some plants rely on operator actions and temporary flood mitigation measures such as sandbagging, temporary flood walls and barriers, and portable equipment to perform safety functions. Results of staff's inspections at nuclear power sites in accordance with Temporary Instruction 2515/183 identified potential issues and observations regarding mitigation measures. Recent flooding at the Fort Calhoun site showed the importance of temporary flood mitigation measures.

The staff noted that guidance should be developed for both the seismic and flooding walkdowns with external stakeholder involvement to ensure consistency.

### Staff Recommendations

The staff recommends that the NRC, as a near-term action, undertake regulatory activities to:

Develop and issue a request for information to licensees pursuant to 10 CFR 50.54(f) to (1) develop a methodology and acceptance criteria for seismic and flooding walkdowns to be endorsed by the staff following interaction with external stakeholders, (2) perform seismic and flood protection walkdowns to identify and address plant-specific vulnerabilities (through corrective action program) and verify the adequacy of monitoring and maintenance for protection features, and (3) inform the NRC of the results of the walkdowns and corrective actions taken or planned.

#### NTTF Recommendation 4.1

The Task Force recommends that the NRC strengthen SBO [station blackout] mitigation capability at all operating and new reactors for design-basis and beyond-design-basis external events.

- 4.1 Initiate rulemaking to revise 10 CFR 50.63 to require each operating and new reactor licensee to: (1) establish a minimum coping time of 8 hours for a loss of all ac [alternating current] power, (2) establish the equipment, procedures, and training necessary to implement an “extended loss of all ac” coping time of 72 hours for core and spent fuel pool cooling and for reactor coolant system and primary containment integrity as needed, and (3) preplan and prestage offsite resources to support uninterrupted core and spent fuel pool cooling, and reactor coolant system and containment integrity as needed, including the ability to deliver the equipment to the site in the time period allowed for extended coping, under conditions involving significant degradation of offsite transportation infrastructure associated with significant natural disasters.

#### Regulations and Guidance

1. 10 CFR 50.63, “Loss of All Alternating Current Power” (known as the “Station Blackout Rule”), requires that each nuclear power plant must be able to cool the reactor core and maintain containment integrity for a specified duration of an SBO.
2. RG 1.155, “Station Blackout,” issued August 1988, describes an acceptable means to comply with 10 CFR 50.63.

#### Staff Assessment of NTTF Recommendations

The NRC should undertake regulatory activities intended to strengthen SBO mitigation capability at all operating and new reactors to address prolonged SBO stemming from design-basis and beyond-design-basis external events to provide core and spent fuel pool cooling, reactor coolant system integrity, and containment integrity. This regulatory action would consider the need for SBO power source(s) and mitigating equipment to be diverse and protected from external events. This regulatory action would also examine whether there is a need to expand SBO mitigation requirements to require power reactors to mitigate an SBO event at a plant (each unit for multi-unit site) until either the onsite or offsite power source is restored to bring the power reactor to a cold shutdown and to maintain spent fuel pool cooling. This rulemaking would primarily amend 10 CFR 50.63 and would impact both operating reactor licensees and new reactor applications.

### Staff Recommendation

The staff recommends that the NRC, as a near-term action:

Engage stakeholders in support of rulemaking activities to enhance the capability to maintain safety through a prolonged SBO. These activities will include the development of the regulatory basis, a proposed rule, and implementing guidance.

## NTTF Recommendation 4.2

The Task Force recommends that the NRC strengthen SBO mitigation capability at all operating and new reactors for design-basis and beyond-design-basis external events.

- 4.2 Order licensees to provide reasonable protection for equipment currently provided pursuant to 10 CFR 50.54(hh)(2) from the effects of design-basis external events and to add equipment as needed to address multi-unit events while other requirements are being revised and implemented.

## Regulations and Guidance

1. 10 CFR 50.54(hh)(2) requires licensees to develop and implement guidance and strategies intended to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities under circumstances associated with the loss of large areas of the plant due to explosions or fire.
2. The required strategies include firefighting, operations to mitigate fuel damage, and actions to minimize radiological release.
3. Nuclear Energy Institute (NEI) 06-12, Revision 2, "B.5.b Phase 2 & 3 Submittal Guidance," issued December 2006, provides guidance supporting 10 CFR 50.54(hh)(2).
4. The equipment procured and used to implement the strategies of 10 CFR 50.54(hh)(2) is controlled through the licensee's commitment management process (which follows NEI 99-04, "Guidelines for Managing NRC Commitment Changes," issued July 1999).

## Staff Assessment of NTTF Recommendation

The staff concludes that equipment procured pursuant to 10 CFR 50.54(hh)(2) will provide, as an interim measure, some of the coping capability that is recommended for addressing the NTTF recommendations associated with prolonged SBO events. However, the staff notes the NTTF finding that the current guidance only addresses single unit capacity and storage of the equipment for security-related initiating events. Specifically, the guidance in the NRC-endorsed NEI 06-12, for equipment used to implement the strategies in 10 CFR 50.54(hh)(2) via the extensive damage mitigation guidelines (EDMGs), is silent on whether the equipment needs to be protected from the effects of external events. The staff agrees that there will be a benefit to reasonably protecting the mitigation equipment while still meeting the intended purpose for security-related events. Any regulatory action to direct licensees to reasonably protect this equipment will need to address what constitutes "reasonably protect." This will be framed to support licensees taking practical actions that increase the likelihood that the equipment will survive the effects of external events while not reducing the availability of the equipment to function for its intended purpose, which is to support implementation of the strategies to mitigate the loss of large areas of the plant due to explosions and fires. Accordingly, "reasonably

protect” would not necessarily mean locating the equipment in seismic Category I structures (unless that action is practical and does not adversely impact the mitigation of large fires and explosions).

The staff also concludes that use of this 10 CFR 50.54(hh)(2) equipment, as envisioned by the NTTF, will likely require the equipment be supplemented to address a multi-unit condition.

In the near-term, the staff concludes early interaction with external stakeholders would be beneficial to explore the 10 CFR 50.54(hh)(2) mitigation strategies that might be useful for prolonged SBOs as an interim measure until regulatory actions associated with Recommendation 4.1 (SBO rulemaking) are completed. In addition, this interaction would include a discussion of how those strategies might be expanded to better address the SBO conditions and how equipment might best be supplemented to support those modified strategies. The results of this interaction would inform the staff actions going forward on whether, and how, to amend 10 CFR 50.54(hh)(2) to address both loss of large areas due to explosions and fires and prolonged SBO.

The staff concludes that it would be appropriate to redefine what level of protection of public health and safety should be regarded as adequate for reasonable protection and capacity of the 10 CFR 50.54(hh)(2) equipment.

#### Staff Recommendations

The staff recommends that the NRC, as a near-term action, undertake regulatory activities to:

Develop and issue Orders to licensees to provide reasonable protection of the equipment used to satisfy the requirements of 10 CFR 50.54(hh)(2) from the effects of external events, and to establish and maintain sufficient capacity to mitigate multi-unit events. This would include stakeholder interactions to define acceptance criteria for reasonable protection of 10 CFR 50.54(hh)(2) equipment from design basis external hazards.

## NTTF Recommendation 5.1

The Task Force recommends requiring reliable hardened vent designs in BWR [boiling-water reactor] facilities with Mark I and Mark II containments.

- 5.1 Order licensees to include a reliable hardened vent in BWR Mark I and Mark II containments.
  - This order should include performance objectives for the design of hardened vents to ensure reliable operation and ease of use (both opening and closing) during a prolonged SBO.

## Regulations and Guidance

1. GL 89-16, "Installation of a Hardened Wetwell Vent," was issued to licensees of nuclear plants with BWR Mark I primary containments requesting that they consider voluntary installation of hardened wetwell vents under the provisions of 10 CFR 50.59, "Changes, Tests and Experiments," to provide assurance of pressure relief through a path with significant scrubbing of fission products should normal and design basis containment cooling systems not be available. Hardened wetwell airspace vents of varying designs, but all alternating current (AC) dependent, were installed in the currently operating units with Mark I containments primarily to avoid exceeding the primary containment pressure limit.
2. 10 CFR 50.54(hh)(2) requires licensees to develop and implement guidance and strategies to maintain or restore containment capabilities under the circumstances associated with loss of a large area of the plant due to explosions or fire; expectation B.2.e of the B.5.b Phase 1 Guidance Document dated February 25, 2002 (designated Safeguards Information) and Section 3.4.8 of the NRC-endorsed Phase 3 guidance in NEI 06-12, Revision 2, both specify that an acceptable means of meeting the 10 CFR 50.54(hh)(2) requirements includes the development of a procedure or strategy to allow venting primary containment to secondary containment, without AC power, as an alternate method to remove heat from the primary containment for BWR licensees. All currently operating BWR licensees, including those with BWR Mark I, Mark II, and Mark III containment designs, adopted this approach to meeting the requirements of 10 CFR 50.54(hh)(2). There are neither current NRC regulations that require this capability for other severe (beyond design basis) accidents nor design criteria for the vent paths used in this strategy.

## Staff Assessment of NTTF Recommendations

BWR Mark I primary containments should have a reliable hardened vent for mitigating beyond design basis events. The staff will further evaluate and address this recommendation with respect to BWR Mark II primary containments in the 45-day notation vote paper.

This portion of the NTTF recommendation is consistent with previous staff studies and evaluation of Mark I primary containment design capabilities to withstand beyond design basis accident scenarios. The Fukushima accident highlighted the importance of the wetwell vent function, the accessibility of the valves and the capability for operation independent of AC power.

The staff concludes that it would be appropriate to redefine what level of protection of public health and safety should be regarded as adequate for venting of BWR Mark I primary containments.

#### Staff Recommendation

The staff recommends that the NRC, as a near-term action, undertake regulatory activities to:

Develop and issue Orders to licensees with BWR Mark I primary containment designs to take action to ensure reliable hardened wetwell vents. This will include interactions with stakeholders to develop the technical bases and acceptance criteria for suitable design expectations for reliable hardened vents.

## NTTF Recommendation 8

The Task Force recommends strengthening and integrating onsite emergency response capabilities such as EOPs [emergency operating procedures], SAMGs [severe accident management guidelines], and EDMGs.

- 8.1 Order licensees to modify the EOP technical guidelines (required by Supplement 1, "Requirements for Emergency Response Capability," to NUREG-0737, issued January 1983 (GL 82-33), to (1) include EOPs, SAMGs, and EDMGs in an integrated manner, (2) specify clear command and control strategies for their implementation, and (3) stipulate appropriate qualification and training for those who make decisions during emergencies.
  - The Task Force strongly advises that the NRC encourage plant owners groups to undertake this activity rather than have each licensee develop its own approach. In addition, the Task Force encourages the use of the established NRC practice of publishing RGs (rather than NUREGs, supplements to NUREGs, or GLs) for endorsing any acceptable approaches submitted by the industry.
- 8.2 Modify Section 5.0, "Administrative Controls," of the Standard Technical Specifications for each operating reactor design to reference the approved EOP technical guidelines for that plant design.
- 8.3 Order licensees to modify each plant's technical specifications to conform to the above changes.
- 8.4 Initiate rulemaking to require more realistic, hands-on training and exercises on SAMGs and EDMGs for all staff expected to implement the strategies and those licensee staff expected to make decisions during emergencies, including emergency coordinators and emergency directors.

## Regulations and Guidance

1. RG 1.33, Revision 2, "Quality Assurance Program Requirements (Operation)," Appendix A, issued February 1978, required EOPs as a subset of the applicable procedures recommended in Section 5.0, "Administrative Controls," of licensee technical specifications.
2. NUREG-0737, "Clarification of TMI [Three Mile Island] Action Plan Requirements," Supplement 1, "Requirements for Emergency Response Capability," issued January 1983 (GL 82-33), required the development and submittal for review and approval of EOP technical guidelines.

3. Licensees developed SAMGs as a voluntary program, and the SAMGs are documented as meeting regulatory commitments. There is neither a requirement for realistic, hands-on training or exercises on SAMGs, nor a requirement for integration of the SAMGs, EOPs, and EDMGs.
4. 10 CFR 50.54(hh)(2) requires that licensees develop guidance and strategies. "EDMG" is the generic term used by industry for the required guidance and strategies. Requirements for exercise of EDMGs are included in the final rulemaking described in SECY-11-0053, "Final Rule: Enhancements to Emergency Preparedness Regulations (10 CFR Part 50 and 10 CFR Part 52)," dated April 8, 2011. There is no specific requirement for training on these guidance and strategies; the endorsed guidance on the subject in NEI 06-12, Revision 2, specifies training for 10 CFR 50.54(hh)(2).

#### Staff Assessment of NTTF Recommendations

EOPs, SAMGs, and EDMGs, should be strengthened and integrated. Transition points, command and control, decisionmaking, and training should be clarified.

SAMGs should be required along with qualification and training for those licensee staff expected to make decisions during beyond design basis accident scenarios using either the SAMGs or EDMGs.

Finally, the staff concludes that early interaction with stakeholders would be useful in determining the optimal mechanism for implementing these recommendations as requirements.

#### Staff Recommendations

The staff recommends that the NRC, as a near-term action, undertake regulatory action to resolve NTTF Recommendations 8.1, 8.2, 8.3 and 8.4:

Issue an advanced notice of proposed rulemaking to engage stakeholders in rulemaking activities associated with the methodology for integration of onsite emergency response processes, procedures, training and exercises. Interact with stakeholders to modify the EOP generic technical guidelines in order to include guidance for SAMGs and EDMGs in an integrated manner and to clarify command and control issues as appropriate.

## NTTF Recommendations 9.3 and 9.4

The Task Force recommends that the NRC require that facility emergency plans address prolonged SBO and multiunit events.

9.3 Order licensees to do the following until rulemaking is complete:

- Determine and implement the required staff to fill all necessary positions for response to a multi-unit event

...

- Provide a means to power communications equipment needed to communicate onsite (e.g., radios for response teams and between facilities) and offsite (e.g., cellular telephones and satellite telephones) during a prolonged SBO.

...

9.4 Order licensees to complete the ERDS [Emergency Response Data System] modernization initiative by June 2012 to ensure multi-unit site monitoring capability.

## Regulations and Guidance

1. 10 CFR 50.47, "Emergency Plans," includes the 16 planning standards of 10 CFR 50.47(b), and Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities," to 10 CFR Part 50 describes information needed to demonstrate compliance with EP requirements.
2. NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, issued November 1980, describes guidance and an acceptable means for demonstrating compliance with the Commission's regulations.
3. SECY-11-0053, "Final Rule: Enhancement to Emergency Preparedness Regulations (10 CFR Part 50 and 10 CFR Part 52)," dated April 8, 2011, codifies hostile-action-based enhancements, among others.
4. 10 CFR 50.27(b)(5) and Section IV.D.3 of Appendix E to 10 CFR Part 50 require that "licensees provide notification and instruction to the public within the plume exposure pathway emergency planning zone (EPZ)."
5. Section IV of Appendix E to 10 CFR Part 50 codifies the requirements for the NRC's ERDS.
6. NUREG-0696, "Functional Criteria for Emergency Response Facilities," issued February 1981, describes the facilities and systems that licensees can use to improve emergency response to accidents, such as the technical support system, operational

support center, and emergency offsite facility.

#### Staff's Assessment of NTF Recommendations 9.3 and 9.4

The staff's assessment of Recommendation 9.3 indicates that regulatory action should be initiated to determine the required staffing to fill all necessary positions for responding to a multi-unit event. This would require both the NRC staff and licensees to reevaluate the current staffing assumptions and analysis for effectively responding to multi-unit incidents, in addition to actions being taken to satisfy the requirements of the recently affirmed Emergency Preparedness Final Rule. The staff is focused on licensees completing the staffing analyses only so that they could be done along with the actions required by the impending rule. Any resulting needs identified by those analyses related to work space or equipment will be considered as part of the 45-day review.

The staff also concludes that there is a need to strengthen the requirements to "provide a means to power communications equipment needed to communicate onsite (e.g., radios for response teams and between facilities) and offsite (e.g., cellular telephones and satellite telephones) during a prolonged SBO." This would require additional guidance regarding "acceptable" communications equipment that does not rely on the availability of facility AC power.

The staff's assessment of Recommendation 9.4 indicates this initiative is currently being implemented and is achievable without delay. The ERDS modernization initiative is already scheduled to be completed by June 2012. The NRC has an implementation schedule for all licensees regarding their site-specific ERDS modernization initiative; however, the staff will use additional regulatory tools if commitments are not met (e.g., a Confirmatory Order).

The staff notes early interaction with stakeholders will be essential to determine the optimal mechanisms for implementing each of the above recommendations.

#### Staff Recommendation

The staff recommends that the NRC, as a near-term action, undertake regulatory activities to:

1. Develop and issue a request for information to licensees pursuant to 10 CFR 50.54(f) to (1) perform a staffing study to determine the required staff to fill all necessary positions to respond to a multi-unit event, (2) evaluate what enhancements would be needed to provide a means to power communications equipment necessary for licensee onsite and offsite communications during a prolonged station blackout event, and (3) inform the NRC of the results of the staffing study and any actions taken or planned, along with their implementation schedules, to react to the staffing study results and to enhance the communications equipment.

2. Evaluate licensee responses and take appropriate regulatory action.

The request for information will include a schedule for interactions with stakeholders to inform the NRC as the technical bases and acceptance criteria are developed for (1) ensuring sufficient licensee staffing for responding to multi-unit events, and (2) ensuring reliable licensee onsite and offsite communications during a prolonged SBO.

The staff also recommends that the NRC more closely monitor the industry's completion of the ERDS modernization initiative. The ERDS modernization initiative is scheduled to be completed by June 2012; however, if licensees fail to meet their implementation schedules, the staff will use additional regulatory tools (e.g., an Order) to ensure that licensees meet all requirements associated with the ERDS capability.