

## Update on Tier 1 Activities

### Mitigation Strategies Order EA-12-049

On March 12, 2012, the U.S. Nuclear Regulatory Commission (NRC) issued Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events" (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12056A045). The order requires a three-phase approach for mitigating beyond-design-basis external events. The initial phase requires the use of installed equipment and resources to maintain or restore core cooling, containment, and spent fuel pool (SFP) cooling capabilities. The transition phase requires providing sufficient portable onsite equipment and consumables to maintain or restore these functions until they can be performed with resources brought from offsite. The final phase requires obtaining sufficient offsite resources to sustain those functions indefinitely.

As described in the last update, on August 29, 2012, the NRC staff issued interim staff guidance (ISG) JLD-ISG-2012-01, Revision 0, "Compliance with Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events" (ADAMS Accession No. ML12229A174). This document assists nuclear power reactor applicants and licensees with the identification of measures needed to comply with the requirements of the Order. The ISG endorses, with clarifications, the methodologies described in the industry guidance document, Nuclear Energy Institute (NEI) 12-06, "Diverse and Flexible Coping Strategies Implementation Guide," Revision 0 (ADAMS Accession No. ML12242A378). This industry document outlines one possible approach that can be used by licensees, construction permit holders, and combined license holders to address the requirements of the order. Both the ISG and NEI 12-06 support implementation of the order by the Commission-directed completion date of December 2016.

By February 28, 2013, all licensees submitted their integrated plans to the NRC (except for Crystal River, Unit 3, because of its plan to permanently cease operations). These integrated plans contain each licensee's site-specific implementation details for meeting the requirements of the Order. To accomplish the review of the integrated plans on the desired timeline, the Mitigation Strategies Directorate (MSD) was created on August 12, 2013.

The MSD interacts with industry and other stakeholders to resolve generic concerns and initiated a formal audit process (according to the Office of Nuclear Reactor Regulation's Office (NRR) Instruction LIC-111, "Regulatory Audits") to complete a timely review of licensees' integrated plans. In addition to issuing the associated audit plan (ADAMS Accession No. ML13234A503), MSD developed supplemental staff guidance for the review of beyond-design-basis external events (ADAMS Accession No. ML13238A263). Following the audit plan and associated guidance, MSD reviewed licensees' integrated plans and issued Interim Staff Evaluations (ISEs) between November 22, 2013, and February 26, 2014, for each licensee about whether or not their integrated plan, if implemented as described, would provide a reasonable path for compliance with the Order. For areas in which insufficient information was available, open and confirmatory items were identified for the staff to review as the details become available.

After the issuance of the ISEs, the NRC staff intends to conduct electronic and on-site audits, with close engagement with resident inspectors, before the compliance date for the first unit at a site. Though the scope and specifics of each review may vary, the purpose of these audits will be to review the closeout of the open and confirmatory items identified in the ISEs. In accordance with the requirements of the Order, licensees will notify the NRC when full compliance is achieved. Once all units at a site are in compliance, the NRC staff intends to issue a final safety evaluation (SE) documenting the staff's review of the licensees' last update to their program.

The first operating units are scheduled to comply with the requirements of the Order by the fall of 2014. The Order established a schedule for all licensees to achieve full compliance within two refueling outages after submittal of the integrated plans, and no later than December 2016. A limited number of licensees (two) requested, and have been granted, schedule relaxation to allow three refueling outages until compliance. Additional facilities (six) have requested relaxation to align with the schedule requirements of Order EA-13-109, "Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation under Severe Accident Conditions" (ADAMS Accession No. ML13130A067). The staff is currently evaluating these additional six requests.

The NRC staff plans to conduct post-compliance inspections after all units at a site indicate that they are in compliance and an SE is issued for that site. A Temporary Instruction is currently being drafted and onsite inspections are anticipated to begin in late summer 2015.

Lastly, the NRC staff notes that the licensees for Kewaunee, Crystal River, and San Onofre Nuclear Generating Station (SONGS) have notified the NRC of their intent to begin decommissioning those sites. As a result, all three sites have requested relaxation or rescission of Order EA-12-049. The Order has been rescinded for Crystal River, and the requests from Kewaunee and SONGS are under staff review.

#### Spent Fuel Pool Instrumentation Order EA-12-051

On March 12, 2012, the NRC issued Order EA-12-051, "Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation" (ADAMS Accession No. ML12056A044), requiring all U.S. nuclear power plants to install reliable water-level measurement instrumentation in their SFPs. The instrumentation must remotely report at least three distinct water levels: (1) normal level, (2) low level but still high enough to shield workers above the pools from radiation, and (3) a very low level near the top of the spent fuel rods indicating that more water should be added without delay.

On August 29, 2012, the NRC staff issued its guidance document, ISG JLD-ISG-2012-03, Revision 0, "Compliance with Order EA-12-051, Reliable Spent Fuel Pool Instrumentation" (ADAMS Accession No. ML12221A339). This document provides an acceptable approach for satisfying the requirements of Order EA-12-051. At the end of February 2013, each of the overall integrated plans (OIPs) for the SFP instrumentation order was received.

The NRC staff issued ISE's for all plants affected by this Order between September 23, 2013, and December 12, 2013, except for Kewaunee, Crystal River, and SONGS (due to their

permanently shut down status). These ISEs included requests for additional information (RAI). Licensees are expected to provide the requested information in their 6-month status update letters as required by the terms of Order EA-12-051, but no later than 6 months before the date when full compliance is required. Prior to each licensee's compliance due date, a subsequent staff evaluation will provide the staff's assessment as to whether the licensees' proposed implementation plans appear consistent with the Order. The licensees for the first affected units are scheduled to complete the required actions by the end of each unit's fall 2014 refueling outage, and the staff has initiated instrument vendor audits for all licensees with compliance due dates this fall. The staff is also drafting the vendor audit report and staff evaluation for the pilot plant (i.e., Watts Bar). Public meetings were held in November 2013 and February 2014 to solicit industry and public comments regarding staff expectations for RAI responses, the conduct of vendor audits, and the level of detail for information provided to allow the staff to complete its assessments efficiently and effectively. Industry and NRC staff have aligned on expectations and the staff does not anticipate further RAIs will be necessary to complete the evaluations. All plants will complete the Order's requirements by December 2016 and the staff currently does not foresee any major technical issues that could extend the final implementation date. Onsite inspections, if needed, will be completed by the appropriate regional or resident inspectors for each facility. The staff has prepared a draft Temporary Instruction to enable this inspection to take place.

Lastly, the staff notes that the licensees for Kewaunee, Crystal River, and SONGS have notified the NRC of their intent to begin decommissioning those sites. As a result, all three sites have requested relaxation or rescission of Order EA-12-051. The order has been rescinded for Crystal River, and the requests from Kewaunee and SONGS are still under staff review.

#### Reliable Hardened Containment Vents for BWR Mark I and II Designs (Order EA-12-050 and Order EA-13-109)

The NRC issued Order EA-12-050, "Order Modifying Licenses with Regard to Reliable Hardened Containment Vents," on March 12, 2012 (ADAMS Accession No. ML12054A696), requiring all operating boiling-water reactors (BWRs) in the U.S. with Mark I and Mark II containments to install a reliable, hardened vent. After issuing the Order, additional NRC evaluations examined the benefits of venting *after* reactor core damage occurs. SECY-12-0157, "Consideration of Additional Requirements for Containment Venting Systems" (ADAMS Accession No. ML12345A030), was submitted to the Commission on November 26, 2012. In the staff requirements memorandum (SRM) for SECY-12-0157 on March 19, 2013 (ADAMS Accession No. ML13078A017), the staff was directed to require licensees with Mark I and Mark II containments to "upgrade or replace the reliable hardened vents required by Order EA-12-050 with a containment venting system designed and installed to remain functional during severe accident conditions." On June 6, 2013, the staff issued the modified Order EA-13-109, "Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation under Severe Accident Conditions" (ADAMS Accession No. ML13130A067), to ensure that those vents will remain functional in the conditions following reactor core damage.

The revised Order contains two distinct phases of implementation. Phase 1, which all licensees are required to implement by June 2018, requires licensees to upgrade the venting capabilities from the containment wetwell to provide reliable hardened vents to assist in preventing core damage and in addition remain functional during severe accident conditions. Phase 2, which all

licensees are required to implement by June 2019, requires licensees to provide additional protections for severe accident conditions through installation of a reliable severe-accident-capable drywell vent system, or to develop a reliable containment venting strategy that makes it unlikely to need to vent from the containment drywell during severe accident conditions, and to submit an OIP by December 31, 2015.

Since the issuance of the revised Order, the NRC staff has held frequent public meetings with the industry to develop guidance for implementation of the new requirements. Significant challenges encountered during the development of the guidance for Phase 1 includes the interactions between Orders EA-12-049 and EA-13-109, and the determination of temperature conditions in the drywell during severe accident conditions. The staff issued the ISG for Phase 1 of Order EA-13-109 on November 14, 2013. The ISG endorses, with exceptions and clarifications, the methodologies described in NEI 13-02, Rev. 0, "Industry Guidance for Compliance with Order EA-13-109," that was prepared by NEI. The ISG and the NEI guidance reflect the broad agreement, with clarifications, that was reached between the industry and the NRC regarding the challenges stated above. The licensees are required to submit an OIP for NRC review by June 30, 2014, including a description of how compliance with Phase 1 requirements will be achieved. The staff is currently holding public meetings with the industry to develop an acceptable OIP template and resolve most foreseeable licensee questions and reduce staff RAIs through the staff's upfront involvement. The NRC staff will issue ISEs to support implementation of the Phase 1 OIPs.

The Phase 2 portion of Order EA-13-109 builds upon the Phase 1 activities and also takes advantage of studies related to the development of a regulatory basis for the accident management and filtering strategies rulemaking. The staff plans to issue the ISG for Phase 2 by April 30, 2015, barring unforeseen technical issues arising during the guidance development. Licensees are required to submit their OIPs for Phase 2 by December 31, 2015.

#### Accident Management and Filtering Strategies Rulemaking for Boiling Water Reactors with Mark I and Mark II Containments

After issuing Order EA-12-050, "Order Modifying Licenses with Regard to Reliable Hardened Containment Vents" on March 12, 2012, additional NRC evaluations examined the benefits of venting after reactor core damage occurs. SECY-12-0157, "Consideration of Additional Requirements for Containment Venting Systems," was submitted to the Commission on November 26, 2012. In the SRM for SECY-12-0157, dated March 19, 2013, the Commission directed the NRC staff to develop the regulatory basis and proceed with a rulemaking for filtering strategies with drywell filtration and severe accident management of BWRs with Mark I and Mark II containments. The Commission directed the staff to provide to the Commission the regulatory basis for the rulemaking on March 19, 2014, the proposed rule and draft staff guidance on March 19, 2015, and the final rule and guidance on March 19, 2017.

Since the issuance of the SRM for SECY-12-0157, the NRC staff has held several public meetings to discuss the Commission's decision and the regulatory basis for the rulemaking. The public meetings included interaction with the public on potential performance measures, probabilistic risk assessments, and accident progression event trees for the regulatory basis.

Currently, the final rulemaking date is in accordance with the schedule provided in SRM-SECY-12-0157. The regulatory basis and proposed rule dates were extended by

9 months. The NRC staff continues to work through normal rulemaking activities and will keep the Commission apprised of any challenges that could impact the schedule.

The NRC staff continues with a Division Director Steering Committee (DDSC) to guide this activity. This is a normal step taken for complex rulemakings, done in accordance with agency rulemaking procedures. The working group and DDSC will keep senior management informed of progress on this activity.

### Seismic Hazard Walkdowns

On March 12, 2012, the NRC staff asked licensees of U.S. nuclear power plants to perform a detailed inspection, or "walkdown," of their currently installed seismic and flooding protection features. Licensees were also asked to verify the current plant configuration with the current seismic licensing basis and to identify, correct, and report any degraded, non-conforming, or unanalyzed conditions. The walkdowns were completed and reports were submitted to the NRC by November 2012. NRC resident inspectors used a Temporary Instruction (TI-2515/188) to independently verify, using a sampling process, that each licensee's seismic walkdown activities were conducted using the walkdown methodology endorsed by the NRC. Resident inspectors completed the inspection requirements set forth in TI-2515/188 concurrently with the licensee's walkdown activities, and documented the inspection results in their quarterly reports.

Since the last 6-month update paper, the NRC staff has issued the audit reports for the six audited sites: Point Beach, Comanche Peak, DC Cook, Beaver Valley, Seabrook, and Sequoyah. The audits, which were performed during the period from July through September of 2013, were informative to the staff and helped to clarify the process that was to be followed by licensees when conducting the seismic walkdown activities. Two common concerns were identified during the audits which resulted in a request for information (RFI) to all licensees except Comanche Peak, DC Cook, Beaver Valley, Seabrook, and Sequoyah. For the audited sites, the staff discussed these concerns with the licensee during the audit and they agreed to address them in a supplement to their walkdown report. The concerns were discussed in several public meetings and involved the licensees' disposition of potentially adverse seismic conditions and the conduct of peer review activities. All licensees have responded, and the staff is evaluating the responses for inclusion in the staff assessments for each unit's walkdown report and supplemental information. The purpose of the staff assessment is to determine whether conduct of the plant walkdown met the intent of the endorsed guidance, thereby verifying that the walkdowns met the objectives in Enclosure 3 of the 50.54(f) letter.

Several NRC staff assessments have been issued, and the staff continues to assess the remaining walkdown reports and RAI responses. The staff assessments are scheduled to be completed by May 2014.

Originally, some of the licensees indicated a long timeframe (beyond their next refueling outage) was needed to complete delayed walkdowns on items that were inaccessible. As a result of the staff's interactions with those licensees, the completion for the delayed walkdown items has been improved to be within a 180-day response period. The staff expects that all inaccessible items will have had walkdowns completed by the end of calendar year 2014.

### Flooding Hazard Walkdowns

On March 12, 2012, the NRC staff asked licensees for the U.S. nuclear power plants to perform a walkdown of their currently installed flooding protection and mitigation features, including a review of associated manual actions. The industry developed—and the NRC endorsed—NEI 12-07, “Guidelines for Performing Verification Walkdowns of Plant Protection Features,” to conduct these walkdowns. All plants had to ensure that the features met current licensing basis requirements, and also identify, correct, and report any degraded conditions. The plants completed their walkdowns by November 2012 and the NRC resident inspectors completed their inspections in accordance with TI-2515/187, “Inspection of Near-Term Task Force Recommendation 2.3 Flooding Walkdowns,” in parallel with the performance of the walkdowns. Inspection reports for the staff walkdowns were issued by February 2013.

If the licensees discovered deficiencies during their walkdowns, the issues were entered into the licensee’s corrective action program. These corrective actions are being followed-up by the NRC resident inspectors, in accordance with normal NRC processes.

As discussed in the previous update, the NRC staff performed seven site audits to evaluate whether the walkdowns were performed in accordance NEI 12-07. Audits were performed at the following plants: Brunswick, Salem, Hope Creek, Quad Cities, Millstone, Vermont Yankee, and Oyster Creek. These plants entered the NRC audit team’s observations into their corrective action programs and are working on the appropriate corrective actions. All observations that raised current licensing-basis compliance questions were transitioned into the Reactor Oversight Process for significance determination and resolution.

Since the last 6-month update, the NRC staff has continued to assess each plant’s walkdown report. Based on the results of the staff’s flooding walkdown audits and review to date of the flooding walkdown reports, the staff requested that all licensees provide additional information regarding the available physical margin methodology. This information is required to complete the walkdown staff reviews. The staff expects most staff assessments to be completed by April 2014, with the timing of a few licensees’ responses delaying completion of the staff’s assessments until summer 2014.

Additionally, the staff will be developing a lessons-learned report to document insights from the flooding walkdowns. Moreover, any significant generic issues identified during the review of the walkdown reports and audits will be evaluated to determine the appropriate regulatory course of action.

### Seismic Hazard Reevaluations

On March 12, 2012, the NRC staff asked licensees for U.S. nuclear power plant licensees to reevaluate the seismic hazards that could impact their site using current regulations and guidance. These newly reevaluated hazards, if they are higher than the plant was designed for, will be analyzed by licensees to determine whether plant structures, systems, and components need to be modified to protect against the updated hazard.

Since the last 6-month update paper, a significant amount of work has been done on seismic reevaluations. The NRC staff has held several public meetings on seismic reevaluations since the last status update paper in early September 2013.

By September 13, 2013, licensees of nuclear plants in the Central and Eastern United States were to have submitted information related to the characterization of their sites in support of performing seismic hazard reevaluations (NTTF Recommendation 2.1 – Seismic). All licensees have responded to the 50.54(f) letter, Enclosure 1, and are in the process of submitting the seismic hazard re-evaluations. These submittals are being processed through document control and sensitive unclassified non-safeguards information review, and are expected to be publically available in April 2014. Only one plant (Monticello) requested a delayed submittal, but provided a letter on time informing the staff of the expected submittal date (May 14, 2014), acknowledged that they will screen-in, and provided an interim evaluation.

As planned, the NRC staff's screening groups comprised of geophysicists, structural engineers, and risk analysts are in the process of reviewing the submittals in accordance with the NRC-endorsed industry guidance document, which specifies the screening, prioritizing, and implementation details.

By the licensees' determination, about half of the sites (approximately 30) have screened out of performing a detailed risk evaluation. Of those, approximately 12 sites have self-screened out of any further analysis (i.e., the safe shutdown earthquake remains higher than the new ground motion response spectra for the entire range of frequencies); and approximately 12 have applied to use their individual plant examination of external events (IPEEE) results to screen out of the detailed risk evaluation. Additionally, licensees have indicated that the Expedited Approach will be completed for approximately 40 sites, which includes those sites that licensees have determined screen out from further risk evaluation based on their IPEEE. The Expedited Approach is intended to identify if any site modifications are needed to assure that specified equipment and systems can withstand the new seismic hazard, and safely shutdown during a loss of all alternating-current (AC) power or ultimate heat sink accident.

As planned, if the NRC staff is unable to make a determination of the screening to perform a detailed risk evaluation, the plant will temporarily (or conditionally) screen in, while further staff-licensee interactions take place such that the staff has sufficient information to make a final determination. Until then, sites that temporarily screen in will provide an interim evaluation, and will be informed they should perform and submit the Expedited Approach by December 2014.

The Expedited Approach will evaluate equipment and systems at the new seismic hazard level that are necessary for a safe shutdown following a loss of all AC power or ultimate heat sink accidents.

In May 2014, the NRC staff plans to complete the screening and prioritization, as described above, and will keep all internal stakeholders apprised of progress to the extent practical. The screening results and prioritization will be shared with applicable stakeholders prior to issuance.

Note, SONGS, Kewaunee, and Crystal River have ceased operation and notified the NRC of their intent to decommission, and have therefore submitted requests for relief from further responding to the obligations of the March 12, 2012, RFI. The NRC staff approved these requests on January 22, 2014 (ADAMS Accession Nos. ML13329A826, ML13322B255, and ML13325A847, respectively).

### Flooding Hazard Reevaluations

On March 12, 2012, the NRC staff asked all U.S. power reactor licensees and holders of construction permits in active or deferred status to reevaluate the flooding hazards that could impact their site. If the reevaluated flooding hazard at a site is not bounded by the current design basis, respondents are requested to perform an assessment of the plant's ability to cope with the reevaluated flood hazard (referred to as the integrated assessment). The NRC staff will review the responses to the request for information and determine whether regulatory actions are necessary to provide additional protection against flooding.

Since the last 6-month update SECY paper, many activities have been completed associated with the flooding reevaluations. For example, the NRC staff has held numerous public meetings associated with either the flooding hazard reevaluations or the integrated assessment. In March 2013, the first set of plants submitted their flooding hazard reports. Six sites requested and were approved for extensions, primarily to allow usage of different numerical models that will yield more accurate results. Two of the six sites for which an extension was granted have since submitted their flood hazard reevaluation reports. The second set of flooding hazard reports is due in March 2014, and the third (final) set of reports is due in March 2015. The staff is currently reviewing the first set of submittals and will be issuing staff assessments for the respective plants.

Based on the first set of hazard submittals, several sites indicated that they will be taking interim actions (e.g., procuring sandbags or other temporary barriers) to address the reevaluated hazard if the reevaluated hazard exceeds the capability of existing flood protection or mitigation. The NRC staff issued temporary instruction 2515/190, "Inspection of The Licensee's Proposed Interim Actions as a Result of the Near-Term Task Force Recommendation 2.1 Flooding Reevaluation," to facilitate inspection of those actions.

The majority of sites indicated that they will be performing an integrated assessment following interim staff guidance JLD-ISG-2012-05, "Guidance for Performing the Integrated Assessment for External Flooding." The integrated assessments are due to the NRC 2 years after the submittal of the hazard reevaluation. The NRC staff is continuing to work with industry to support the development of several examples applying the new staff guidance. After the integrated assessments are received from the required plants, the staff will use existing NRR processes to document and, if appropriate, take actions based on the information received.

The NRC staff received requests for assistance from licensees to obtain information on dams upstream of eight nuclear power plants in order to complete their flooding hazard reevaluations at these sites. These requests were received between August and December of 2013. All eight sites had flooding hazard reevaluations due to the NRC by March 12, 2014. The NRC entered into an interagency agreement with the U.S. Army Corps of Engineers to have them compute the water height at these eight sites should these upstream dams fail. All calculations will be performed in accordance with NRC's guidance document JLD-ISG-2013-01, "Guidance for Estimating Flooding Hazards Due to Dam Failure." Because of the dates of the assistance request letters, the U.S. Army Corps of Engineers was not able to complete their assessments by March 2014, and thus the eight sites have submitted hazard reevaluation extension requests. The NRC staff is currently reviewing the extension requests.



SONGS, Kewaunee, and Crystal River have ceased operation and notified the NRC staff of their intent to decommission, and have therefore, submitted requests for relief from further responding to the obligations of the March 12, 2012, RFI letter. The staff approved these requests on January 22, 2014 (ADAMS Accession Nos. ML13329A826, ML13322B255, and ML13325A847, respectively).

#### Emergency Preparedness Staffing and Communications

The March 12, 2012, RFI letter asked licensees to assess a large-scale event that causes the loss of all AC power and might affect multiple reactors at their site. It also requested licensees to assess and implement enhancements to help ensure that communications can be maintained during such an event.

All licensees submitted their communications assessments by October 31, 2012. Safety assessments were issued documenting the staff's review to each licensee by July 2013, with the exception of SONGS, which has ceased operation.

On April 30, 2013, licensees submitted their staffing assessments based on existing station blackout (SBO) coping strategies with an assumption of multiple reactors being affected concurrently. The NRC staff issued the Phase 1 staffing assessment response letters on October 23, 2013, for the multiunit sites except Arkansas Nuclear One (ANO), Indian Point, and SONGS. The staff intends to issue letters for ANO and Indian Point once it receives and reviews responses to a request for additional information.

SONGS, Kewaunee, and Crystal River have ceased operation and notified the NRC staff of their intent to decommission, and have therefore submitted requests for relief from further responding to the obligations of the March 12, 2012, RFI letter. The staff approved these requests on January 22, 2014 (ADAMS Accession Nos. ML13329A826, ML13322B255, and ML13325A847, respectively).

Enclosure 6 to this SECY further discusses a proposal to include, in part, staffing and communications as part of a consolidated rulemaking activity.

#### Station Blackout Mitigation Strategies (SBOMS) Rulemaking

The principal objective of the NRC's SBOMS rulemaking effort would be to establish requirements, in the form of mitigation strategies, guidance, and relied-on equipment that provide additional mitigation capability (i.e., beyond the current capabilities that stem principally from implementation of requirements in General Design Criterion (GDC) 17 and 10 CFR 50.63, "Loss of All Alternating Current Power") for extreme external events that lead to extended loss of AC power that might also include loss of normal access to the ultimate heat sink. These requirements will reflect the requirements imposed in Order EA-12-049, issued on March 12, 2012, along with insights gleaned from implementation of the order as well as information on external hazards from the ongoing seismic and flooding reevaluations and stakeholder feedback solicited throughout the rulemaking process.

In SRM-SECY-11-0137, "Prioritization of Recommended Actions to Be Taken in Response to Fukushima Lessons Learned," dated October 3, 2011 (ADAMS Accession No. ML11272A111), the Commission approved the staff's proposed prioritization of NTTF Recommendation 4.1 on

strengthening SBO mitigation capability. The advanced notice of proposed rulemaking (ANPR) was published in the *Federal Register* on March 20, 2012 (77 FR 16175), and the comment period on the ANPR closed on May 4, 2012. On January 25, 2013, the staff submitted COMSECY-13-0002, "Consolidation of Japan Lessons Learned Near-Term Task Force Recommendations 4 and 7 Regulatory Activities" (ADAMS Accession No. ML13011A034), to engage the Commission in several aspects of the rulemaking, which included combining NTF Recommendations 4 and 7 and revising the rulemaking schedule to accommodate Commission direction to incorporate the lessons-learned from the mitigation strategies order. The Commission approved the COMSECY-13-0002 proposal on March 4, 2013 (ADAMS Accession No. ML13063A548).

On April 10, 2013, the NRC staff issued the draft SBOMS regulatory basis for public comment. The public comment period closed on May 28, 2013. The staff received 15 comment letters, considered the comments, and finalized the regulatory basis. The final SBOMS regulatory basis was issued on July 23, 2013 (78 FR 44035). The Commission's approval of COMSECY-13-0002 resulted in a revised schedule for the rulemaking activity. The revised due date for the proposed rule and the supporting draft guidance is June 30, 2014. Correspondingly, the revised due date for the final rule and supporting guidance is December 27, 2016. At present this rulemaking activity continues to be on track with no identified issues or challenges to the schedule.

The staff notes that if the proposal to consolidate post-Fukushima rulemakings, as described in Enclosure 6, is approved by the Commission. The proposed rule due date to the Commission would change from June 30, 2014, to December 31, 2014; but the final rule due date would remain the same (December 27, 2016).

#### Onsite Emergency Response Capabilities Rulemaking

The NRC's Onsite Emergency Response Capabilities rulemaking effort is expected to strengthen and integrate the various onsite emergency response capabilities at nuclear power plants. The new rule is expected to require plants to improve strategies for large-scale events to promote effective decisionmaking at all levels. The new rule is also expected to include training, qualification, and evaluation requirements for the key personnel expected to implement the procedures and strategies.

This lessons-learned activity originated from NTF Recommendation 8. As described in the last update, an ANPR was published for this rulemaking in the *Federal Register* on April 18, 2012 (77 FR 23161), and a draft regulatory basis was issued for comment on January 8, 2013.

The final regulatory basis was issued on October 25, 2013 (78 FR 63901). On November 4, 2013, the staff briefed the Rulemaking Steering Committee (comprising interoffice division directors) about the preliminary proposed rule language. The staff issued the rule language on November 11, 2013 (78 FR 68774), and held a public meeting on November 19, 2013, to give the public an opportunity to ask questions about the language. The staff is now developing the proposed rule package and supporting regulatory documents.

The current SECY due date for the proposed rule and supporting guidance is July 25, 2014. The current due date for the final rule and guidance is March 11, 2016. The staff plans to issue

supporting guidance for the rule that cites industry guidance currently under development by NEI. The staff continues to work closely with industry to ensure that supporting guidance is developed on a timeline commensurate with the rule schedule.

Note, that if the proposal to consolidate post-Fukushima rulemakings, as described in Enclosure 6, is approved by the Commission, the proposed rule due date to the Commission would change from July 25, 2014, to December 31, 2014; and the final rule due date would change from March 11, 2016, to December 27, 2016.

### Enhancements to the Capability To Prevent or Mitigate Seismically Induced Fires and Floods

This lessons-learned activity originated from NTTF Recommendation 3. It is intended to evaluate potential enhancements to the capability to prevent or mitigate seismically induced fires and floods.

In SRM-SECY-11-0137, the Commission directed the staff to initiate development of a probabilistic risk assessment (PRA) methodology to evaluate potential enhancements to plants' capability to prevent or mitigate seismically induced fires and floods as part of Tier 1 activities. However, consistent with the program plan for NTTF Recommendation 3 in SECY-12-0095, "Tier 3 Program Plans and 6-Month Status Update in Response to Lessons Learned from Japan's March 11, 2011, Great Tohoku Earthquake and Subsequent Tsunami" (ADAMS Accession No. ML12165A092), carrying out the broader evaluation (i.e., beyond the PRA methodology) of potential enhancements to the capability to prevent or mitigate seismically induced fires and floods would remain a longer-term Tier 3 activity. In SECY-12-0095, the staff supplied the following schedule and milestones to address Recommendation 3 for seismically induced fires and floods:

1. Continue development of PRA methodology for seismically induced fires and floods. This will include two main subtasks:
  - a) Engagement with PRA standards development organizations to develop the technical elements and standards for the PRA method (ongoing)
  - b) Completion of a feasibility scoping study to evaluate PRA approaches for assessing multiple concurrent events (December 2015)
- 2) Reevaluate Recommendation 3 based on information obtained from Tier 1 activities and PRA method development activities, as well as recommend further activities (December 2016).

The staff continues engagement with the American Society of Mechanical Engineers/American Nuclear Society (ASME/ANS) Joint Committee on Nuclear Risk Management (JCNRM) to leverage external stakeholders' expertise and to better focus future method development efforts. As a result of a recent balloting initiative on a number of crosscutting issues in the ASME/ANS PRA standard, JCNRM approved continuing development of standards for concurrent initiating events, such as seismically induced fires and floods. Based on the decision to include concurrent initiating events in a future revision of the PRA standard, the staff will continue engagement with ASME and ANS to support development of standards in this area.

The staff has continued the feasibility scoping study to better define the objectives and potential approaches for a PRA method suitable for assessing seismically induced fires and floods. As one part of the technical work plan developed for this project, a public workshop was held on December 11 and 12, 2013, in Rockville, Maryland. The workshop addressed a number of significant topics associated with seismically induced fires and floods, including:

1. Identification of failure mechanisms;
2. Availability of operating experience data and fragility information;
3. Adequacy of current PRA methods for assessing concurrent events;
4. Screening approaches;
5. Relationship of this topic with other post-Fukushima initiatives;
6. Relationship to ongoing PRA standard efforts for concurrent initiating events.

Approximately 30 experts in the areas of PRA, seismic analysis, fire protection, and flooding attended the workshop. These experts represented 16 external organizations and several NRC offices. The workshop provided the staff with valuable feedback on several key issues, including approaches for screening concurrent events and the use of qualitative risk assessment approaches to gain insights on risk-significant accident scenarios. The meeting summary documenting the results of the workshop is available in ADAMS at Accession No. ML14022A249. The NRC staff will continue PRA method development activities (including consideration of both quantitative and qualitative approaches) during fiscal year 2014.

Finally, the NRC staff will continue to monitor the progress of other NTF recommendations related to this issue to appropriately factor additional information related to seismic and flooding hazards and mitigation strategies into the eventual resolution of Recommendation 3.