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 using 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 external to the site (i.e., offsite). The final phase requires obtaining sufficient offsite resources to sustain those functions indefinitely.

As described in the update dated August 29, 2012, 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 U.S. nuclear power reactor licensees with the identification of measures needed to comply with the requirements of the order. The ISG endorses, with clarifications, the methods 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 licensees, construction-permit holders, and combined license holders can use to meet 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 overall integrated plans (OIP) to the NRC (except for Crystal River, Unit 3, Nuclear Generating Plant (Crystal River) which has permanently ceased operations and received NRC approval to relax its order response date. The order was subsequently rescinded). The OIPs contain each licensee's site-specific implementation details for meeting the requirements of the order.

In reviewing licensee's mitigation strategies, NRC staff interacts with industry and other stakeholders to resolve generic concerns and initiated a formal audit process (according to the Office of Nuclear Reactor Regulation (NRR) Office Instruction LIC-111, "Regulatory Audits," ADAMS Accession No. ML082900195) to complete a timely review of licensees' integrated plans. In addition to issuing the associated audit plan (ADAMS Accession No. ML13234A503), staff developed supplemental staff guidance for the review of beyond-design-basis external events (ADAMS Accession No. ML13238A263). Following the audit plan and associated guidance, staff reviewed licensees' integrated plans and issued interim staff evaluations (ISEs) between November 22, 2013, and February 26, 2014, for each licensee about whether their integrated plan, if carried out 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 became available.

After the issuance of the ISEs, NRC staff began conducting both electronic and onsite audits. The onsite audits are being performed through close engagement with the regions before the compliance date for the first unit at a site. Though the scope and specifics of each review might vary, the purpose of these audits is to review the closeout of the open and confirmatory items identified in the ISEs. As of February 28, 2015, NRC staff has completed 29 of 61 audits and has a target goal to complete all audits by the 4th quarter of Fiscal Year 2016. 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, NRC staff will issue a final safety evaluation (SE) documenting the staff's review of the licensees' last update to their program.

In the fall of 2014, the first operating units scheduled to meet the requirements of the order notified the NRC that they were in compliance. 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). Licensees for 12 sites requested, and have been granted, schedule relaxation to allow up to three refueling outages until compliance. All 12 of these licensees will still come into compliance by December 2016. Licensees for nine more sites have requested, and been granted, schedule 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 compliance date for these licensees will extend past December 2016.

NRC staff will conduct post-compliance inspections after the licensee has notified the NRC that all units at the site are in compliance and an SE has been issued for that site. NRC staff has developed temporary instruction (TI) 2515/191, "Inspection of the Licensee's Implementation of Mitigation Strategies and Spent Fuel Pool Instrumentation Orders and Emergency Preparedness Communication/Staffing Plans." A pilot inspection was conducted at Watts Bar Nuclear Plant, Units 1 and 2, during the week of March 30, 2015. More inspections will begin at other sites later in 2015 as sites come into compliance with the order.

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 monitor at least three distinct spent fuel pool 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 OIPs for the SFP instrumentation order was received.

The NRC staff issued ISEs for all plants affected by this order between September 23, 2013, and December 12, 2013 (except for Kewaunee, Crystal River, and San Onofre Nuclear Generating Station (SONGS) because these facilities had permanently shut down. The orders for each of these units were ultimately rescinded). These ISEs included requests for additional information (RAI) with a due date no later than six months before the date when full compliance is required.

In March 2014, the NRC staff notified all licensees and construction-permit holders that audits will be conducted on their responses to Order EA-12-051, in accordance with NRR Office Instruction LIC-111, "Regulatory Audits," as discussed above. Licensees for the first affected units scheduled to meet the requirements of the order have notified the NRC that they have completed the required actions. As part of the review, the staff completed SFP instrument vendor audits for the three vendors (Westinghouse, AREVA, and MOHR) of this level-measurement technology. The staff's vendor audit reports for the three pilot plants (Watts Bar, McGuire, and D.C. Cook) have been issued. 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 has aligned on expectations and do not anticipate that further RAIs will be necessary to complete the evaluations. NRC staff is conducting plant onsite audits of Order EA-12-051 implementation concurrently with the audits for Order EA-12-049.

As noted earlier, the NRC staff will conduct post-compliance inspections after the licensee has notified the NRC that all units at a site are in compliance and an SE has been issued for that site. As with inspections for Order EA-12-049, the staff will use TI 2515/191, "Inspection of the Licensee's Implementation of Mitigation Strategies and Spent Fuel Pool Instrumentation Orders and Emergency Preparedness Communication/Staffing Plans," to conduct inspections for this order.

Reliable Hardened Containment Vents for Boiling Water Reactors with 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, other 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, issued 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 after reactor core damage.

The revised order contains two distinct phases of implementation. Phase 1, which must be implemented 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 also to remain functional during severe accident conditions. Phase 2, which must be implemented by June 2019, requires licensees to: (a) increase protection for severe accident conditions through installation of a reliable severe-accident-capable drywell vent system, or (b) develop a reliable containment venting strategy that makes it unlikely to need to vent from the containment drywell during severe accident conditions. OIPs for Phase 1 were required by January 1, 2014, and OIPs for Phase 2 are due by December 31, 2015.

Since the issuance of the revised order, NRC staff issued the ISG for Phase 1 of Order EA-13-109 on November 14, 2013. The ISG endorses, with exceptions and clarifications, the methods described in NEI 13-02, Rev. 0, "Industry Guidance for Compliance with Order EA-13-109." All applicable licensees submitted an OIP for NRC review on or before June 30, 2014, which included a description of how they would comply with Phase 1 requirements (the licensee for Vermont Yankee Nuclear Power Station (Vermont Yankee) received a schedule relaxation for the OIP response date due to its planned decommissioning. The order was subsequently rescinded). The staff is reviewing the Phase 1 OIPs and auditing licensee progress toward compliance with Phase 1 of Order EA-13-109. By June 30, 2015, the staff plans to issue ISEs to all applicable licensees documenting open and confirmatory items associated with implementation of the Phase 1 OIPs. As of March 13, 2015, nine ISEs have been issued including the ISEs for all eight plants with 4th quarter 2016 Phase 1 compliance dates. Staff is ahead of the June 30, 2015, target for issuing the remaining 10 ISEs for the remaining applicable plants, all of which have 2nd quarter 2017 compliance dates. In lieu of a Phase 1 OIP, the Oyster Creek Nuclear Generating Station submitted a request for an extension to comply with Order EA-13-109 on June 2, 2014. NRC staff expects to make a decision on the extension request in the near future.

The Phase 2 portion of Order EA-13-109 builds on the Phase 1 activities, and also takes advantage of studies related to the development of a regulatory basis for the Containment Protection and Release Reduction (CPRR) rulemaking. On December 10, 2014, NEI submitted for NRC staff review and endorsement a revised industry document NEI 13-02, "Industry Guidance for Compliance with Order EA-13-109, Revision 0E2." The staff is currently reviewing this revision and will refer to this document in developing the ISG for implementation of Phase 2 requirements. NRC staff plans to issue the ISG for Phase 2 by April 30, 2015. As discussed above, licensees are required to submit their OIPs for Phase 2 by December 31, 2015.

Containment Protection and Release Reduction Rulemaking

As discussed above, 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 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.

Since the issuance of the SRM for SECY-12-0157, NRC staff has held several public meetings to discuss the Commission's decision and the regulatory basis for the rulemaking. The most recent meeting was on December 11, 2014, where the industry provided their updated cost-benefit analysis and the results from their severe accident calculations, and the staff presented their proposed planned path forward for the CPRR rulemaking.

Technical activities that support the development of regulatory basis for rulemaking include four components: (1) development of a core damage event tree and an accident progression event tree as a front-end probabilistic risk assessment (PRA) to identify and select risk-dominant accident sequences; (2) accident progression and source term analyses of selected accident sequences using MELCOR; (3) a consequence analysis, based on MELCOR source terms using MACCS; and (4) a risk assessment based on MACCS consequence results and PRA.

In August 2014, NRC staff briefed the Advisory Committee on Reactor Safeguards (ACRS) Joint Subcommittee (Reliability and PRA and Fukushima) on the status of the CPRR rulemaking. NRC staff briefed the ACRS PRA subcommittee again in November 2014 on the CPRR rulemaking activities, and another meeting is scheduled for June 25, 2015.

The major CPRR rulemaking milestones are:

- Final regulatory basis: September 19, 2015;
- Proposed rule and draft staff guidance: September 19, 2016; and
- Final rule: December 19, 2017.

Using the normal rulemaking process, NRC staff is developing a Commission information paper and the draft CPRR regulatory basis, which are both in the concurrence process. NRC staff will seek public comments, and meet with the ACRS and public to answer any questions on the draft regulatory basis.

Flooding and Seismic Hazard Walkdowns

On March 12, 2012, NRC staff issued a request for information pursuant to Title 10 of the *Code of Federal Regulations* Part 50, Section 50.54(f) (hereafter referred to as the 50.54(f) letter) requesting that licensees for the U.S. nuclear power plants walkdown their installed flooding-protection, seismic-protection, and hazard-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 Flood Protection Features," and Electric Power Research Institute (EPRI) 1025286, "Seismic Walkdown Guidance," to conduct these walkdowns. All plants had to ensure that the features met current licensing basis requirements and had to identify, correct, and report any degraded conditions. The walkdowns were completed and reports were submitted to NRC staff by November 2012. NRC resident inspectors used TI-2515/187, "Inspection of Near-Term Task Force Recommendation 2.3 Flooding Walkdowns," and TI-2515/188, "Inspection of Near-Term Task Force Recommendation 2.3 Seismic Walkdowns," to independently verify that each licensee's flooding walkdown activities used NRC-endorsed methods. Resident inspectors completed the

inspection requirements set forth in these TIs concurrently with the licensee's walkdown activities and documented the inspection results in their quarterly reports.

If the licensees discovered deficiencies during their walkdowns, the issues were entered in the licensee's corrective-action program. NRC resident inspectors are following up on these corrective actions in accordance with normal NRC processes.

Nine greater-than-Green findings were identified related to licensee vulnerability to external flooding. The majority of the findings were identified as a result of licensee flooding walkdowns. The findings noted deficiencies in three broad areas:

- Inadequate seals that would allow floodwaters into safety-related spaces;
- Procedurally directed actions that could not be accomplished in the time allotted by the final safety analysis report for design-basis flooding events; and
- Incomplete procedures that did not provide sufficient direction during design-basis flooding events

The resident inspectors identified several findings related to licensee vulnerability to seismic events during their walkdown related inspections. These findings were all of very low safety significance (Green). Most of the issues were identified as a result of licensee seismic walkdowns. Potential seismic issues mostly were related to the following three broad areas:

- Degraded equipment and hardware (e.g. missing bolts, corrosion, open s-hooks);
- Spatial seismic interactions; and
- Problems associated with housekeeping procedures and/or implementation (e.g. temporary installations, portable equipment).

NRC staff completed the release of staff assessment reports for the operating reactor fleet from December 2013 through July 2014. The staff assessments determined that the plant walkdowns consistently followed the intent of the endorsed guidance, thereby verifying that the walkdowns met the objectives in Enclosure 3 of the 50.54(f) letter.

Although NRC staff review has found that licensees have properly carried out the walkdown guidance, a number of plants are in the process of completing and reporting their review of delayed seismic walkdowns on items that were inaccessible while at power. NRC staff expects that the NRC will receive the last licensee seismic walkdown update on the inaccessible items by March 31, 2015.

Lessons learned from the walkdowns are being incorporated into NRC processes. On January 9, 2015, NRC staff issued Information Notice 2015-01, "Degraded Ability to Mitigate Flooding Events" (ADAMS Accession No. ML14279A268), to inform licensees of recent operating experience related to external flood protection. Through feedback to the Reactor Oversight Process, NRC staff has revised Inspection Procedure (IP) 71111.01, "Adverse Weather Protection," and a proposed revision to IP71111.18, "Plant Modifications," is being

processed. NRC staff will be developing a lessons learned report to document insights from the walkdowns.

Seismic Hazard Reevaluations

On March 12, 2012, NRC staff asked U.S. nuclear power plant licensees to use current regulations and guidance to reevaluate the seismic hazards that could affect their sites. If these newly reevaluated hazards are not bound by the current design-basis, the licensee will determine whether interim protection measures are needed while the longer term evaluation is completed. Since the last 6-month update, a significant amount of work has been completed on the seismic reevaluations.

Five sites have completed all Near-Term Task Force (NTTF) 2.1 seismic information requests based on their low seismic hazard, Comanche Peak Nuclear Power Plant, Units 1 and 2; Grand Gulf Nuclear Station, Unit 1; St. Lucie Plant, Units 1 and 2; South Texas Project, Units 1 and 2; and Turkey Point Nuclear Generating, Units 3 and 4.

NRC staff has completed the initial review of the seismic hazard reports for 55 of 59 operating Central and Eastern United States (CEUS) sites. Licensee supplements are expected for the remaining four sites by April 2015. Completion of NRC staff review for these sites is pending receipt of the licensee supplements. For the 55 CEUS sites for which we have complete seismic hazard reports, NRC staff plans to issue staff assessments by October 2015.

NRC staff and external stakeholders continue to discuss the limited scope evaluations (e.g. high frequency and spent fuel pool evaluations) that licensees will perform. The SRM for COMSECY-13-0030 directed NRC staff to evaluate the existing process for seismic hazard reevaluation to determine if the SFP evaluations are necessary in light of the findings in COMSECY-13-0030. Licensees may be able to apply information from SFP generic studies for some purposes, which the staff expects to result in review efficiencies. However, licensees will need to determine whether and what portions of the generic studies are applicable to their particular site before relying on them to complete the SFP evaluations. The staff plans to discuss further SFP evaluation submittals with stakeholders in a future public meeting to ensure expectations are clear.

NRC staff is prepared to review licensee Western United States (WUS) seismic hazard reports. These submittals were received by March 12, 2015. The staff plans to complete a screening review similar to the CEUS site screening and prioritization. This is expected to be completed by the 4th quarter of 2016.

In December 2014, licensees for 33 CEUS operating sites provided an interim evaluation (i.e., expedited seismic evaluation process (ESEP) report) and planned actions, if any, to address a seismic hazard larger than its current licensing basis safe shutdown earthquake. By letter dated October 28, 2014 (ADAMS Accession No. ML14273A259), because of unresolved differences between Cooper's submitted Ground Motion Response Spectra (GMRS) and the staff's preliminary GMRS, the staff concluded that Cooper screened in to perform a seismic risk evaluation and should submit an ESEP. NRC staff approved a submission date of May 1, 2015, for the ESEP. Cooper is the final site required to submit an ESEP.

The following plants requested relief from completing the ESEP report: (1) Arkansas Nuclear One, Units 1 and 2; (2) Byron Station, Units 1 and 2; (3) Fort Calhoun Station, Unit 1; (4) Millstone Power Station, Units 2 and 3; (5) Salem Nuclear Generating Station, Units 1 and 2; and (6) Susquehanna Steam Electric Station, Units 1 and 2. The requests were based on their intention to not perform this assessment given that their previous Individual Plant Examination for External Events evaluations demonstrated capacities above the GMRS, as described in the NRC-endorsed guidance. Therefore, these licensees assert the ESEP would have no significant safety benefit. By letter dated December 15, 2014 (ADAMS Accession No. ML14310A033), the NRC agreed with the licensees' assessments and determined the information provided to justify the reasons for not performing the ESEP were sufficient.

NRC staff has begun reviewing the ESEP submittals. The ESEP reports consider primary mitigation strategies, systems and components that can be used to shut down a plant safely under the conditions of a loss of all alternating current power and loss of normal access to the ultimate heat sink. In the ESEP reports, licensees either confirm that a plant has additional seismic margin or list planned modifications that enhance seismic capacity while longer-term evaluations continue. Thirteen of 33 licensees have committed to completing limited plant modifications. Examples of the modifications include replacement of relays, strengthening of anchorages for components, and removal of structural interference around valves and conduit.

NRC staff completed the screening and prioritization reviews for the CEUS sites that were conditionally screened in for a seismic risk evaluation. Based on the reviews, 31 of the 59 operating CEUS sites are expected to perform seismic risk evaluations. Limited-scope high-frequency (e.g., for impacts on electrical relays) evaluations are expected for 54 sites, limited-scope SFP evaluations are expected for 42 sites, and limited-scope low-frequency evaluations (e.g., for impacts on water storage tanks) are expected for two sites.

To support licensees that are preparing to perform seismic risk evaluations, NRC staff issued a guidance letter dated December 10, 2014 (ADAMS Accession No. ML14307B707). The letter: (1) informed licensees whether the NRC's preliminary review of licensee March 2014 seismic hazard reports are suitable for use in the development of seismic risk evaluations, (2) discussed coordination expectations with NRC staff to support review of early licensee submittal of seismic risk evaluations, and (3) encouraged licensees to use endorsed guidance and to inform NRC staff promptly when changes that would affect the seismic risk evaluation are being considered before submittal of the seismic risk evaluation. Additionally, consistent with the NRC letter dated May 9, 2014 (ADAMS Accession No. ML14111A147), for CEUS sites, NRC staff plans to review licensee interim evaluation reports and other available information to determine if a seismic evaluation is necessary for some licensees with relatively low hazards.

Flooding Hazard Reevaluations

On March 12, 2012, NRC staff issued the 50.54(f) letter asking all U.S. power reactor licensees and holders of construction permits in active or deferred status to reevaluate the flooding hazards that could affect their sites. If the reevaluated flooding hazard at a site is not bounded by the current design basis, respondents are asked to assess the plant's ability to cope with the reevaluated flood hazard (referred to as the integrated assessment). The staff will review the responses and determine whether regulatory actions are necessary to increase protection against flooding.

Between August 2013 and March 2014, 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. The NRC entered into an interagency agreement with the U.S. Army Corps of Engineers (USACE) to analyze upstream dam failures for the eight sites. 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 and the amount of effort required by the USACE to complete these evaluations, licensees requiring assistance submitted extension requests to allow them time to include the USACE results in their flooding hazard reevaluation submittal. NRC staff approved these extension requests.

In March 2014, the second set of flooding hazard reports was submitted. Eleven sites (out of 24) requested extensions. Eight of the requests were associated with the need to interact with the USACE about upstream dam failures. Two of the three remaining requests involved analysis of complex watersheds. The remaining request was based on the need to refine the flooding hazard model further for the site because the results were not consistent with the plant's observations. After a series of public interactions to better understand the basis for each extension request, nine of the 11 sites were granted extensions, as requested. The other two extensions, for Prairie Island Nuclear Generating Plant, Units 1 and 2, and Monticello Nuclear Generating Plant, Unit 1, were granted for four months less than requested. NRC staff granted these licensees shorter extensions because the licensee justification for the extension was based on the time needed to develop evaluations based on the USACE failure analysis. One of the eleven sites requesting an extension (Palo Verde Nuclear Generating Station, Units 1, 2, and 3) submitted their flooding hazard report on December 12, 2014.

NRC staff is reviewing the flood hazard reevaluation reports (FHRRs) and began issuing assessments of the flood hazard reevaluations in July 2014. NRC staff has issued its evaluation of the FHRRs for eight sites. The third and final set of FHRRs (20) were expected in March 2015. As of March 30, 2015, nine FHRRs remain to be submitted. Peach Bottom Atomic Power Station received an extension approval from the NRC on February 25, 2015 (ADAMS Accession No. ML15036A273). The Peach Bottom extension was granted to allow Exelon to compete a hydrometerological study requested by the Federal Energy Regulatory Commission which will be integrated into the Peach Bottom FHRR. The Waterford and Seabrook Stations requested extensions prior to the due date, and the staff is considering those requests. The remaining six FHRRs have all been extended based on work being completed by the USACE. The due dates for those site's FHRRs is dependent on completion of the USACE's work.

The reviews of the FHRRs are behind the project plan. Staff is working to shorten the review times and achieve greater efficiencies as more reviews are completed.

If the reevaluated hazard exceeds the capability of existing flood protection or mitigation, the 50.54(f) letter requests that licensees describe interim actions taken, or planned, to address the reevaluated hazard. Examples of interim actions proposed by licensees include the use of sandbags, or other temporary barriers, and using FLEX strategies. NRC staff issued TI 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.

Based on the FHRRs received to date, most sites have indicated that they will be performing an integrated assessment. Most integrated assessments are due to the NRC two years after the submittal of the hazard reevaluation report. However, for those sites that submitted their FHRR prior to June 2013, the NRC has granted a six-month extension by letter dated November 21, 2014 (ADAMS Accession No. ML14303A465). The extension was provided due to the extensive length of time spent coordinating the reviews. The staff will implement the direction provided by the Commission in COMSECY-14-0037, "Integration of Mitigating Strategies for Beyond-Design-Basis External Events and the Reevaluation of Flooding Hazards" (ADAMS Accession No. ML14238A616), and will reshape the flooding reviews and integrated assessments accordingly.

Emergency Preparedness Staffing and Communications

The March 12, 2012, 50.54(f) letter requested licensees to assess their means to power communications equipment onsite and offsite during a prolonged station blackout event and to assess and carry out enhancements to help ensure that communications can be maintained during such an event. Also, licensees were to assess the staffing required to fill all necessary positions to respond to a multiunit event with impeded access to the site.

All licensees submitted their communications assessments by October 31, 2012. NRC staff issued safety assessments documenting the staff's review to each licensee by July 2013, with the exception of SONGS, Units 2 and 3, which have ceased operation.

Licensees are responding to the staffing portion of the 50.54(f) letter in two phases to account for the implementation of mitigation strategies in connection with NTTF Recommendation 4.2. By April 30, 2013, licensees had submitted their Phase 1 staffing assessments based on existing station blackout coping strategies with an assumption of multiple reactors being affected concurrently. By October 23, 2013 (ADAMS Accession No. ML13233A183), NRC staff issued the Phase 1 staffing assessment response letters for most of the multiunit sites except Arkansas Nuclear One (ANO), Units 1 and 2; Indian Point Nuclear Generating (Indian Point), Unit Nos. 2 and 3; and SONGS. By April 28, 2014, the staff issued letters for ANO (ADAMS Accession No. ML14112A372) and Indian Point (ADAMS Accession No. ML14112A363) after reviewing responses to RAIs.

Phase 2 will provide an assessment of the staffing necessary to perform the functions related to the strategies developed in response to NTTF Recommendation 4.2. Thus, Phase 2 of the staffing assessment is due to occur in conjunction with the implementation of Mitigation Strategies Order EA-12-049. To date, the NRC staff has received all Phase 2 staffing assessments due before refueling outages in fall 2014 and spring 2015. As of December 2014, NRC staff had issued Phase 2 staffing assessment response letters for 10 licensee sites, including all sites due to submit Phase 2 staffing assessments before refueling outages in fall 2014. By January 30, 2015, NRC staff received Phase 2 staffing assessments for 25 more licensee sites, including the licensees required to submit staffing details four months before refueling outages in spring 2015. NRC staff is reviewing the remaining licensee assessments and expects to issue Phase 2 staffing assessment response letters for those plants by May 2015.

As with Orders EA-12-049 and -051, the staff will use TI 2515/191, "Inspection of the Licensee's Implementation of Mitigation Strategies and Spent Fuel Pool Instrumentation Orders and

Emergency Preparedness Communication/Staffing Plans," to evaluate activities completed in this area.

Rulemaking concerning staffing and communications is included in the Mitigation of Beyond-Design-Basis Events consolidated rulemaking activity approved in the SRM-SECY-14-0046, discussed below.

Mitigation of Beyond-Design-Basis Events Rulemaking

Staff continues to make progress in developing the Mitigation of Beyond-Design-Basis Events (MBDBE) rulemaking. The rulemaking will consolidate the rulemaking efforts that incorporate NTTF Recommendations 4, 7, 8, and portions of 9, 10, and 11. It now includes specific draft proposed rule text about reevaluated hazards (a point that was clarified in COMSECY-14-0037, "Integration of Mitigating Strategies for Beyond-Design-Basis External Events and the Re-evaluation of Flooding Hazards").

NRC staff presented the draft proposed rule language to the ACRS Fukushima subcommittee on November 21, 2014, and the full committee on December 4, 2014. NRC staff will meet with the ACRS Fukushima subcommittee and full committee in March and April 2015. The proposed rule is scheduled for delivery to the Commission by April 30, 2015. The final proposed rule is due to the Commission in December 2016. NRC staff plans to issue supporting guidance for the rule that cites industry guidance under development by NEI. The staff continues to work with industry to ensure that supporting guidance is developed on a timeline commensurate with the rule schedule.

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

This activity is unique in that it has a Tier 1 aspect and a Tier 3 aspect. The status update for all parts of this activity is included in Enclosure 3 under the same heading as this section.