



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, DC 20555 - 0001**

November 8, 2011

The Honorable Gregory B. Jaczko
Chairman
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: ACRS REVIEW OF STAFF'S PRIORITIZATION OF RECOMMENDED ACTIONS TO BE TAKEN IN RESPONSE TO FUKUSHIMA LESSONS LEARNED (SECY-11-0137)

Dear Chairman Jaczko:

During the 588th meeting of the Advisory Committee on Reactor Safeguards (ACRS), November 3-5, 2011, we reviewed the staff's report on prioritization of the NRC Fukushima Near-Term Task Force (NTTF) recommendations, "Prioritization of Recommended Actions to be Taken in Response to Fukushima Lessons Learned," (SECY-11-0137) [1]. We were briefed by the staff on this report during our 587th meeting, October 6-8, 2011. We were briefed on the NTTF Report during our 586th meeting, September 8-10, 2011. We also reviewed information related to the Fukushima event on April 7, May 26, June 23, July 12, and August 16, 2011. During these reviews, we had the benefit of discussions with representatives of the NRC staff, the Nuclear Energy Institute (NEI), the Institute of Nuclear Power Operations (INPO), the Department of Energy (DOE), and members of the public. We also had the benefit of the documents referenced.

We documented our review of the NTTF Report [2], and the staff's report on recommended actions to be taken without delay [3] in a letter report dated October 13, 2011 [4].

CONCLUSIONS AND RECOMMENDATIONS

The staff's three-tier approach and criteria for prioritization of the NTTF recommendations are appropriate subject to the following additional recommendations:

1. Rulemaking activities related to strengthening of station blackout (SBO) mitigation capability should be expedited.
2. Tier 1 recommendations should be expanded to include the additional immediate actions recommended in our October 13, 2011 report regarding flooding hazard reevaluations, integrated walkdowns, station blackout, boiling water reactor (BWR) hardened vents, shared ventilation systems, hydrogen control and mitigation, spent fuel pools (SFPs), and integration of onsite emergency actions (Recommendations 1.a through 1.g, and 2.a through 2.d of our October 13, 2011 report).

3. NTTF Recommendation 10.2 regarding evaluation of the command and control structure and qualifications of decision makers should be initiated in parallel with Tier 1 activities related to integration of onsite emergency actions (NTTF Recommendation 8).
4. Tier 2 recommendations should be expanded to include the additional actions recommended in our October 13, 2011 report regarding enhancement of selected reactor and containment instrumentation, and the need to proactively engage in efforts to capture and analyze data from the Fukushima event (Recommendations 2.e and 2.f of our October 13, 2011 report).
5. Staff Tier 1 Recommendation 7.1-2, "Develop and issue order to licensees to provide reliable SFP instrumentation," should be reconsidered. Schedules for SFP instrumentation improvements and other modifications to the SFP should be informed by quantification of the contribution made by SFPs to overall plant risk.

BACKGROUND

The NTTF was established in response to the NRC Chairman's tasking memorandum of March 23, 2011 (COMGBJ-11-0002). The NTTF Report [2] was published on July 12, 2011. The staff requirements memorandum (SRM) to SECY-11-0093, "Near-term Report and Recommendations for Agency Actions Following the Events in Japan," dated August 19, 2011, [5] directed the staff to: (1) within 21 days of its issuance, identify and make recommendations regarding NTTF recommendations that can, and in the staff's judgment, should be implemented, in part or in whole, without unnecessary delay, and (2) within 45 days of its issuance, provide a prioritization of the NTTF recommendations reflecting all regulatory actions to be taken by the staff in response to the Fukushima lessons learned, identifying implementation challenges, including the technical and regulatory basis for the prioritization, identifying any additional recommendations, and including a schedule and milestones for appropriate stakeholder engagement and involvement of ACRS.

The SRM to SECY-11-0093 directed the ACRS to "formally review all Task Force recommendations and the staff's evaluation and recommended prioritization of the Task Force recommendations, and document its review in letter reports to the Commission." To that end, on October 13, 2011, we issued a report identifying additional recommendations and immediate actions beyond those included in the NTTF Report [2] and the staff's 21-day report [3]. Here, we document our review of the staff's prioritization report (SECY-11-0137 or the 45-day report, [1]).

SECY-11-0137 has focused on developing the schedules, milestones, and resources associated with near-term activities. Assessment of longer-term NTTF recommendations was deferred pending completion of evaluation of the resource impacts of the near-term recommendations. Hence, the objectives of this ACRS report are: (1) to assess the appropriateness of the proposed regulatory vehicles, action plans, and timelines for implementation of the near-term recommendations included in SECY-11-0137, and (2) to identify additional NTTF or ACRS recommendations which need to be included in the staff's near-term action plans. We intend to review future updates of the staff's prioritization, including action plans for the long-term recommendations, as they become available. Additional ACRS reports will be provided as we evaluate the implementation plans to be developed by the staff for each NTTF recommendation.

The staff's prioritization of NTTF recommendations groups the recommendations into three "Tiers" [1]. Tier 1 consists of NTTF recommendations which, in the staff's view, should be started without unnecessary delay and for which sufficient resource flexibility, including availability of critical skill sets, exists. This tier includes all the immediate actions specified in the staff's 21-day report (SECY-11-0124) [3], namely, NTTF Recommendations 2.1, 2.3, 4.1, 4.2, 5.1, 7.1, 8, and 9.3, along with two additional recommendations related to inclusion of hardened vents in BWR plants with Mark II containments, and implementation of NTTF Recommendation 7.1 regarding spent fuel pool instrumentation.

Tier 2 consists of NTTF recommendations which, in the staff's view, do not require long-term study. However, they cannot be initiated in the near term due to factors that include the need for further technical assessment and alignment, dependence on Tier 1 issues, or availability of critical skill sets. These include NTTF Recommendations 7.2 through 7.5 regarding SFP makeup capability, and part of NTTF Recommendation 9.3 related to emergency preparedness regulatory actions.

Tier 3 consists of NTTF recommendations which, in the staff's view, require further study to support a regulatory action, have an associated shorter-term action that needs to be completed to inform the longer-term action, are dependent on the availability of critical skill sets, or are dependent on the resolution of NTTF Recommendation 1. These include NTTF Recommendations 2.2, 3, 5.2, 6, 9.1, 9.2, 10, 11, 12.1, 12.2, and part of Recommendation 9.3 related to Emergency Response Data System (ERDS) capability.

As noted earlier, the staff's 45-day report has focused on developing the schedules, milestones, and resources associated with near-term (Tier 1 and Tier 2) activities. Assessment of longer-term NTTF recommendations (Tier 3) was deferred pending completion of evaluation of the resource impacts of the Tier 1 and Tier 2 recommendations.

DISCUSSION

We agree with the staff's three-tier prioritization scheme. However, we offer the following additional recommendations.

The staff's schedule and projected timeline for rulemaking to strengthen SBO requirements (NTTF Recommendation 4.1) includes 4.25 years for development and issuance of the final rule, to be followed by licensing and inspection activities of undetermined durations. Given the potential severe consequences of a prolonged SBO, we believe that rulemaking to strengthen SBO requirements should be expedited.

The list of Tier 1 and Tier 2 actions needs to be expanded to include the additional recommendations specified in our October 13, 2011 report. Tier 1 recommendations should be expanded to include our recommended additional immediate actions regarding expedited update of regulatory guidance, methods, and data for external flooding; expansion of walkdowns to address the integrated effects of severe storms as well as seismic and flooding events; issuance of an advanced notice of rulemaking and requiring licensees to provide an assessment

of the capabilities to cope with an extended station blackout; extension of the requirements for hardened vents to BWR plants with Mark II containments; assessment of the vulnerabilities introduced by shared ventilation systems or shared stacks in multi-unit sites; initiation of stakeholder discussions regarding additional hydrogen control and mitigation measures in the reactor buildings of BWR plants with Mark I and Mark II containments; requesting information from licensees regarding spent fuel pool instrumentation, power supplies, and sources of makeup and cooling water; and inclusion of fire response procedures in the integration of onsite emergency actions (Recommendations 1.a through 1.g, and 2.a through 2.d of our October 13, 2011 report). Actions related to the assessment of vulnerabilities introduced by shared ventilation systems or shared stacks in multi-unit sites should be conducted in parallel with those related to the installation of reliable hardened vents in BWR Mark I and Mark II containments.

We note that one of our recommendations pertaining to inclusion of hardened vents in BWR plants with Mark II containments (our Recommendation 1.d) has already been included in the staff's Tier 1 actions, while another (our Recommendation 1.f) related to plant-specific SFP instrumentation, power supplies, and sources of makeup and cooling water has been partially included in the staff's Tier 1 actions.

We are concerned that the Tier 1 recommendation to issue orders to all licensees requiring that they meet new reliability requirements for SFP instrumentation could interfere with other work that could be more important, for example, responses to protect reactors from weaknesses with respect to potential beyond-design-basis events. Once the Tier 1 information gathering process is complete, plant-specific SFP instrumentation vulnerabilities can be evaluated and plant-specific priorities for such work can be integrated into the overall Fukushima response plans. Except for unusual cases that reveal severe deficiencies during the information gathering process of the Tier 1 activities, we expect the SFP contribution to overall plant risk to be small.

As stated in our October 13, 2011 letter, enhancement and integration of the various onsite emergency response capabilities (emergency operating procedures, severe accident management guidelines, extensive damage mitigation guidelines, and fire response procedures) and the development of command and control and decision making structures (as identified in NTTF Recommendations 8 and 10.2) will be a complex effort, which should begin immediately, but should be viewed as a long-term endeavor. We, therefore, recommend that NTTF Recommendation 10.2 regarding evaluation of the command and control structure and qualifications of decision makers should be initiated in parallel with Tier 1 activities related to integration of onsite emergency actions (NTTF Recommendation 8 as modified by Recommendations 1.g and 2.d of our October 13, 2011 report).

Consistent with the staff's criteria for the three-tier prioritization, Recommendations 2.e and 2.f of our October 13, 2011 report, related to the need to enhance selected reactor and containment instrumentation to withstand beyond-design-basis accident conditions and the need for the NRC to proactively engage in efforts to capture and analyze data from the Fukushima event, should be designated as Tier 2 actions.

Since it is unlikely that any of the Tier 1 and Tier 2 recommendations will be negated or rendered inappropriate by the acquisition of additional information from Fukushima, expedited implementation of such recommendations is appropriate. The staff should develop implementation schedules for Tier 1 and Tier 2 recommendations with realistic completion dates and interim milestones while recognizing differences due to site-specific considerations.

We intend to review future updates of the staff's prioritization report, including action plans for Tier 3 recommendations as they become available. We also intend to review specific actions related to Tier 1 and Tier 2 recommendations.

We look forward to working with the staff on these important matters.

Sincerely,

/RA/

Said Abdel-Khalik
Chairman

REFERENCES:

1. Notation Vote SECY-11-0137, "Prioritization of Recommended Actions to be Taken in Response to Fukushima Lessons Learned," October 3, 2011 (ML11272A111).
2. "Recommendations for Enhancing Reactor Safety in the 21st Century, The Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident," July 12, 2011 (ML111861807).
3. Notation Vote SECY-11-0124, "Recommended Actions to be Taken without Delay from the Near-Term Task Force Report," September 9, 2011 (ML11245A158).
4. ACRS Letter to the NRC Chairman, "Initial ACRS Review of: (1) the NRC Near-Term Task Force Report on Fukushima and (2) Staff's Recommended Actions to be Taken Without Delay," October 13, 2011 (ML11284A136).
5. Staff Requirements Memorandum to SECY-11-0093, "Near-Term Report and Recommendations for Agency Actions Following the Events in Japan," August 19, 2011 (ML112310021).

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