SECRETARY

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

May 3, 2017

COMMISSION VOTING RECORD

DECISION ITEM: SECY-16-0144

TITLE: PROPOSED RESOLUTION OF REMAINING TIER 2 AND 3 RECOMMENDATIONS RESULTING FROM THE FUKUSHIMA DAI-ICHI ACCIDENT

The Commission acted on the subject paper as recorded in the Staff Requirements Memorandum (SRM) of May 3, 2017.

This Record contains a summary of voting on this matter together with the individual vote sheets, views and comments of the Commission.

Annette L. Vietti-Cook
Secretary of the Commission

Enclosures:
1. Voting Summary
2. Commissioner Vote Sheets

cc: Chairman Svinicki
Commissioner Baran
Commissioner Burns
OGC
EDO
PDR

VOTING SUMMARY – SECY-16-0144

RECORDED VOTES

	APPROVED	DISAPPROVED	ABSTAIN	NOT PARTICIPATING	COMMENTS	DATE
Chrm. Svinicki	X				X	04/28/17
Cmr. Baran	X	X			X	02/27/17
Cmr. Burns	X				X	04/13/17

NOTATION VOTE

RESPONSE SHEET

TO: Annette Vietti-Cook, Secretary

FROM: CHAIRMAN SVINICKI

SUBJECT: SECY-16-0144: PROPOSED RESOLUTION OF REMAINING TIER 2 AND 3 RECOMMENDATIONS RESULTING FROM THE FUKUSHIMA DAI-ICHI ACCIDENT

Approved _X__ Disapproved___ Abstain___ Not Participating___

COMMENTS: Below___ Attached _X__ None___

Entered in "STARS"

Yes ✓
No___

SIGNATURE

04/28/2017
DATE

Chairman Svinicki's Comments on SECY-16-0144
Proposed Resolution of Remaining Tier 2 and 3 Recommendations
Resulting from the Fukushima Dai-Ichi Accident

Having evaluated the staff's assessment of the remaining Tier 2 and 3 recommendations (termed "Group 3") as put forth in the enclosures to this paper, I support the staff's conclusions that:

1) Regulatory action to provide additional protection against high winds and snow loads is not warranted.
2) Current practices to assess new external hazard information are generally effective but could benefit from a limited number of identified enhancements to existing processes to ensure systematic identification of new hazard information and assessment of its risk significance.
3) An adequate radiological assessment capability already exists at NRC-licensed plants.

In light of these conclusions, I approve the development of the limited enhancements for ongoing assessment of natural hazard information and the closure of the three Group 3 recommendations.

With respect to the development of the process for ongoing assessment of natural hazard information as outlined in Enclosure 2 of the paper, the staff should provide a report to the Commission every six months regarding the development and implementation of the enhanced process, to include the status and content thereof, as well as the sufficiency of the staff's preliminary resource estimates. These reports may be discontinued upon delivery of a final report on the full, initial implementation of the enhanced process.

Kristine L. Svinicki 28 April 2017

NOTATION VOTE

RESPONSE SHEET

TO: Annette Vietti-Cook, Secretary

FROM: Commissioner Baran

SUBJECT: SECY-16-0144: PROPOSED RESOLUTION OF REMAINING TIER 2 AND 3 RECOMMENDATIONS RESULTING FROM THE FUKUSHIMA DAI-ICHI ACCIDENT

Approved_X_ Disapproved_X_ Abstain___ Not Participating___

COMMENTS: Below___ Attached_X_ None___

Entered in "STARS"
Yes ✓
No___

SIGNATURE

2/27/17
DATE

Commissioner Baran's Comments on SECY-16-0144,
"Proposed Resolution of Remaining Tier 2 and 3 Recommendations
Resulting from the Fukushima Dai-ichi Accident"

In this paper, the NRC staff presents its assessment and proposed resolution of the three remaining Tier 2 and Tier 3 recommendations developed in response to the March 11, 2011, Fukushima accident. The open items are: (1) an evaluation of natural hazards other than seismic and flooding hazards; (2) the development of a process to periodically reevaluate new scientific information about natural hazards; and (3) an evaluation of the efficacy of real-time radiation monitoring onsite and within the emergency planning zones (EPZs) of nuclear power plants.

Evaluation of Other Natural Hazards (Enclosure 1)

Using a screening process, the NRC staff identified and examined a variety of natural hazards that were not addressed in the existing licensing bases of plants or were "calculated to be more severe than described in the licensing basis documents when reevaluated using present-day information and methodologies." Ultimately, the staff focused more detailed analysis on two external hazards: high winds (from tornados or hurricanes) and snow loads on plant structures. For these hazards, the staff considered the probability of the event, the potential severity of the event, and a nuclear plant's ability to respond to the event with both permanent structures, systems, and components and post-Fukushima equipment and upgrades. The staff's evaluation examined the evolving regulatory guidance, the existing licensing bases of plants, insights from recent inspection findings, conservatism and safety margins built into plant designs, and the warning time associated with these events. After completing its evaluation, the staff concluded that additional regulatory requirements are not warranted to address high winds or snow loads. Based on the staff's analysis, I approve closing this Tier 2 item.

Periodic Reevaluation of Natural Hazards (Enclosure 2)

In response to the Near-Term Task Force recommendation to reevaluate seismic and flooding hazards every ten years to address any new and significant information, the staff proposes to establish "a more routine, proactive, and systematic program for identifying and evaluating new information related to natural hazards." Under this approach, the staff would collect, aggregate, review, and assess new scientific information about a range of natural hazards on an ongoing basis. The staff would begin by compiling and organizing a "knowledge base" for each type of natural hazard consisting of all the information gathered through the agency's previous work. This would ensure that the data, models, documentation, and staff insights relied on in the past are readily retrievable in the future. Over time, the staff will expand this knowledge base through active and ongoing technical engagement with other federal agencies, academia, industry, international counterparts, professional societies, and consensus standards organizations. When the staff obtains new information about a natural hazard, "the staff will assess [the] new information for potential significance in the context of accumulated hazard information, rather than in isolation." As the staff explains, "[t]he overall objective ... is to determine if the new information could have a potentially significant effect on plant safety."

I think the staff's plan to actively and routinely seek out the latest scientific information about the natural hazards facing nuclear power plants will significantly enhance safety. Successful implementation of the proposed process will require a sustained, long-term effort by

the staff. But investing in a program to deepen and refine our understanding of natural hazards will pay dividends well into the future.

I therefore support adoption of the new process outlined by the staff and approve closure of this Tier 3 item. As the Advisory Committee on Reactor Safeguards recommends, the process should include periodic reporting of the staff's state of knowledge about all natural hazards.

Evaluation of Real-Time Radiation Monitoring (Enclosure 3)

The Near-Term Task Force recommended that the NRC staff "study the efficacy of real-time radiation monitoring onsite and within the EPZs (including consideration of AC [alternating current] independence and real-time availability on the Internet)." As I stated in my vote last year on the staff's proposed plan to close this item, a meaningful response to this recommendation must avoid a "purely backward-looking examination of past findings and decisions" and "should take a fresh look at the new technologies for real-time radiation monitoring and how they could inform emergency preparedness efforts." In my view, the staff's evaluation of this open item falls short of this standard in several areas.

The NRC staff's conclusion that fixed radiation monitoring stations "are inherently unable to provide reliable indications of the dose from a radioactive plume under all conditions" is based largely on a 1982 study. That study concluded that a monitoring system consisting of 16 or 32 stations could not provide reliable information about a radioactive plume because the plume could pass between stations undetected or could be underestimated if a less radioactive part of the plume passed over a detector. At a recent Commission meeting, I asked Patrick Mulligan of the New Jersey Department of Environmental Protection, which operates radiation monitoring systems at three plants, about this conclusion. Based on New Jersey's experience with these systems, he stated: "I disagree strongly with that."[1] Mr. Mulligan explained: "[a]ny data I get during a radiological incident is valuable data. ... for them to suggest that I can't tell what the peak is based on an off-center value is just not true. I can do that ... you can get data that you can really work with."

Despite questions about the conclusions of the 1982 study, the NRC staff did not take the next step to assess the effectiveness or capabilities of the radiation monitoring stations currently in service at plants in New Jersey, Illinois, and New York. Nor did the staff examine how many stations would be needed to provide effective radiation monitoring. Such an assessment is central to addressing the Near-Term Task Force's recommendation to study the efficacy of this technology. The staff's discussion of the performance of the radiation monitoring system at Fukushima Dai-ichi during the March 2011 accident is useful and on-point, but also highlights the importance of AC independence, which the staff did not analyze or discuss at all.

The staff further relied on the 1982 study to make assumptions about the costs of modern monitoring systems. Citing the study's cost estimate for a 16-station system, the staff asserted that "given inflation since 1982, the current costs would be significantly higher." This unsupported statement does not consider, or even acknowledge, the tremendous technological advances in sensors, data communications, and local power sources, such as solar panels or batteries, that have taken place over the last 35 years. I find it very hard to believe that a monitoring station with 1982-level capabilities would cost more to build today than it did 35

[1] Briefing on the Status of Lessons Learned from the Fukushima Dai-ichi Accident (Feb. 16, 2017).

years ago. It is much more likely that a monitoring station constructed in 2017 would have far greater capabilities at lower cost. In fact, during the Commission meeting, Mr. Mulligan indicated that "the costs [of monitors today] have either stayed the same or they're a little bit less now" than they were in 1988, when monitors were first installed at the New Jersey sites. The NRC staff later acknowledged in that public meeting that they did not look into the current costs of radiation monitors.

With respect to the question of whether real-time radiation monitoring information should be available on the internet, the staff notes that the existing fixed-station systems in the United States do not make data publicly available. The staff asserts that "[p]roviding the data to people who are untrained in interpretation of the data may impede the emergency response by triggering an inappropriate response." However, the staff does not offer any support for their conclusion that the availability of data online "could worsen the shadow evacuation phenomenon." The questions of whether and how to make real-time radiation monitoring information publicly available are complex, but the staff did not grapple with these tough issues. They offered conclusory statements without any supporting analysis.

I understand why licensee protective action recommendation strategies and NRC guidance call for initial protective action recommendations in response to an actual plant emergency "to be primarily based on plant conditions, rather than on radiological measurements, and without the delay of awaiting the onset of a radioactive material release or the availability of radiation monitoring and assessment results." But that does not mean that data from radiation monitoring stations would not be useful throughout an event. While the staff may be correct that portable field monitors are generally superior to fixed monitoring stations, the evaluation provided by the staff is not sufficient to reach this conclusion. In fact, Mr. Mulligan explained that, during Superstorm Sandy, when Oyster Creek had declared an alert, "roads were impassable" and "it would have been impossible to get field teams out." He stated: "At that point in time ... our fixed radiation monitoring sites were probably the only way we were going to get any radiation data should there have been an accident at one of those power plants."

I disapprove closing this Tier 3 item because the staff needs to more fully examine key aspects of this real-time radiation monitoring issue. The staff should not start from the premise that a meaningful evaluation of this topic is unnecessary because it could not result in any regulatory actions that would provide a substantial safety benefit. Instead, the staff should approach these issues with an open mind and make its findings based on a full consideration of up-to-date information. If NRC ultimately determines that no additional action is necessary in response to this recommendation, that determination should rest on a thorough and well-reasoned analysis.

NOTATION VOTE

RESPONSE SHEET

TO: Annette Vietti-Cook, Secretary

FROM: Commissioner Burns

SUBJECT: SECY-16-0144: PROPOSED RESOLUTION OF REMAINING TIER 2 AND 3 RECOMMENDATIONS RESULTING FROM THE FUKUSHIMA DAI-ICHI ACCIDENT

Approved_X_ Disapproved___ Abstain___ Not Participating___

COMMENTS: Below___ Attached_X_ None___

Entered in "STARS"

Yes _x___
No _____

SIGNATURE

13 April 2017
DATE

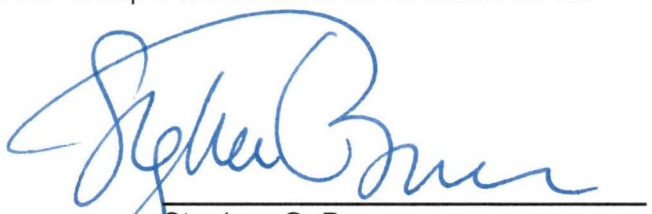
COMMISSIONER BURNS'S COMMENTS ON SECY-16-0144
PROPOSED RESOLUTION OF REMAINING TIER 2 AND 3 RECOMMENDATIONS RESULTING FROM THE FUKUSHIMA DAI-ICHI ACCIDENT

I appreciate the staff's work to evaluate the three remaining Tier 2 and 3 recommendations (known as "Group 3" recommendations) developed in response to the 2011 accident at Fukushima Dai-ichi. I agree with the staff's recommendations on each of the three issues, namely:

- The NRC should not initiate additional regulatory actions to address natural hazards other than seismic and flooding.
- The NRC should address the ongoing assessment of natural hazard information through enhanced internal processes to establish a more routine, proactive, and systematic program for identifying and evaluating new information related to external hazards.
- The NRC should not impose new requirements associated with real-time radiation monitoring onsite and within the emergency planning zones.

I also appreciate the review of the staff's work by the Advisory Committee on Reactor Safeguards (ACRS). The ACRS agreed with the staff's view that additional regulatory actions related to natural hazards other than seismic and flooding are not justified and that regulatory requirements for real-time radiation monitoring capability using fixed-station monitors onsite and within the EPZ at each site are not warranted. The ACRS also provided suggestions to the staff related to the ongoing assessment of natural hazard information.

Based on these considerations, I approve staff development of the process enhancements described in Enclosure 2 to SECY-16-0144 for ongoing assessment of natural hazard information and I approve closure of all three of the Group 3 recommendations based on the evaluations presented by the staff.



Stephen G. Burns
13 April 2017