

March 19, 2018

MEMORANDUM TO: Chris G. Miller, Director  
Division of Inspection and Regional Support  
Office of Nuclear Reactor Regulation

FROM: Eric E. Bowman, Acting Chief **/RA/**  
Beyond-Design-Basis Management Branch  
Division of Licensing Projects  
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF RESULTS FROM NRC TEMPORARY INSTRUCTION  
2515/190, "INSPECTION OF THE LICENSEE'S PROPOSED INTERIM  
ACTIONS AS AN RESULT OF THE NEAR-TERM TASK FORCE  
RECOMMENDATION 2.1 FLOODING REEVALUATION".

By letter dated March 12, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12053A340), the Nuclear Regulatory Commission (NRC) issued a letter entitled "Request for Information Pursuant to Title 10 of the *Code of Federal Regulations* 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-Ichi Accident," (hereafter referred to as the 50.54(f) letter). Enclosure 2 of the 50.54(f) letter, requested that licensees reevaluate flood hazards at their sites using present-day guidance and methodologies consistent with those used for licensing of new reactors, and also provide documentation of interim actions, planned or taken, to address the reevaluated hazard(s) where the reevaluated hazard(s) exceeds the design basis. As a result, the staff developed and issued temporary instruction (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."

The objective of this TI was to independently evaluate the adequacy of the interim actions proposed by the licensees, and verify that these proposed actions will perform their intended function for flooding protection and/or mitigation. The information collected using this TI was to be used in order to determine if the sites were reasonably protected against the unbounded reevaluated hazards until a more detailed site response was completed (i.e: a focused evaluation or an integrated assessment), and to aid in evaluating whether additional NRC regulatory actions are warranted. The results of the TI 2515/190 indicate that all licensees, as applicable, have been inspected and that any deficiencies identified have been entered into their corrective action programs, as appropriate. This confirmatory evaluation performed under TI 2515/190 have led, in part, to the conclusion that all sites with proposed interim actions, taken or planned, have strategies that appear reasonable and provide an appropriate short-term response to address the unbounded reevaluated flood hazard(s) defined in the licensee's flood hazard reevaluation report.

Enclosures:  
As stated

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"INSPECTION OF THE LICENSEE'S PROPOSED INTERIM ACTIONS AS A  
RESULT OF THE NEAR-TERM TASK FORCE RECOMMENDATION 2.1  
FLOODING REEVALUATION" DATED: MARCH 19, 2018

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**ADAMS Accession No.: ML18068A256; \*via e-mail NRC-001**

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SUMMARY OF RESULTS FROM NRC 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”

I. BACKGROUND

By letter dated March 12, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12053A340), the NRC issued a letter entitled “Request for Information Pursuant to Title 10 of the *Code of Federal Regulations* 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-Ichi Accident,” (hereafter referred to as the 50.54(f) letter). The threshold for submittal of interim actions by a licensee is specified in Enclosure 2 of the 50.54(f) letter, which stated that “For the sites where the reevaluated flood exceeds the design basis, addressees are requested to submit an interim action plan that documents actions planned or taken to address the reevaluated hazard with the hazard evaluation.” The interim actions are intended to address the higher flooding hazards while the licensee performs and submits the longer-term focused evaluation or integrated assessment review. In order to review the interim actions, the NRC staff followed a three phase approach, as follows:

- Phase 1: Staff from headquarters (HQ), specifically the Office of Nuclear Reactor Regulation (NRR), performed a programmatic review of the information provided in the flood hazard reevaluation report (FHRR) for all sites that submitted interim actions. Whenever the staff identified areas of concern where clarifying information was needed, these information needs were sent out to the corresponding Region with inspection oversight as focus areas to be addressed, at the time of performing Temporary Instruction (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.”
- Phase 2: Regional staff performed a site inspection on the majority of sites with interim actions, independently verifying their adequacy, as described in the TI 2515/190. There were several sites where the reevaluated flood hazard mechanisms that were unbounded exceeded the site’s flooding design basis, but were still below the existing flood protection at the site and therefore, available physical margin existed to address the unbounded hazard(s) exceedance(s). For Regional and HQ staffing and resource purposes, a TI 2515/190 inspection was not performed at the sites where this was the case. In addition, the completion of all activities related to Recommendation 2.3 associated with the flooding walkdowns performed under Enclosure 3 of the 50.54(f) letter was used as a basis to determine that the site’s design-basis flooding protection would be reasonably expected to perform its intended safety function. The decision to not perform the TI 2515/190 inspection at these facilities was made in conjunction with the corresponding Regional office and documented accordingly in Phase 3, as described below. When applicable, the Regional staff also gathered the clarifying information requested by HQ staff in Phase 1. Subsequent to the TI 2515/190 inspection, the Regions documented the results

and any findings in Section 4OA5, "Other Activities" of the integrated quarterly report.

- Phase 3: For each site that described interim actions in its FHRR, HQ documented the results of the programmatic review and the TI 2515/190 inspection (when performed) in a systematic manner using the guidance described in Office Instruction LIC-504 "Integrated Risk-Informed Decision-Making Process for Emergent Issues," Revision 4. Following this process ensured that the decisionmaking process was performed in a uniform and consistent manner.

The TI 2515/190 was first issued on August 30, 2013 with an expiry date of December 31, 2015. Revision 1 of the TI was issued on September 4, 2015 and the expiry date was extended until December 31, 2016. The evaluation performed under TI 2515/190 sought to confirm the adequacy of the proposed interim actions by ensuring that, among other things:

- The procedures or activities can be executed as specified/written, and within the available time, if time-dependent. This was achieved by performing a reasonable simulation, when appropriate.
- Water levels and associated effects (e.g., waves/run-up, debris) and severe weather conditions would not impair support functions and would not impede performing necessary interim actions.
- Other factors at single or multi-unit sites (e.g., equipment availability and staffing) would not prevent implementation of the interim actions.
- The proposed interim actions do not result in adverse consequences. (For example, interim actions do not impair or negatively affect other safety or security functions (e.g., installing temporary flood covers over vents needed for air cooling that could potentially impair cooling of equipment in the building)).
- The procedures or activities should include a discussion on warning time & notification that a flood event is coming.

Given that this was a confirmatory inspection of a beyond-design-basis event under a 50.54(f) letter, the inspection was considered closed (completed) when the interim actions were independently reviewed and any noted deficiencies were either resolved or entered into the licensee's corrective action program (CAP).

## II. SUMMARY OF RESULTS OF TI 2515/190

A summary of the interim actions review, specific to TI 2515/190, is presented in the Table below:

Category	Completion Data	
Sites with FHRRs submitted	61/61	100%
Sites with FHRRs and Interim Actions (IAs)	55/61	90%
Sites with IAs inspected under TI 2515/190	39/55	71%

Attachment 1 of this Enclosure contains Table 2-1, "Summary of TI 2515/190 Inspections," which provides the complete list of details for each plant where a TI2515/190 was performed. The following examples describe interim action scenarios proposed by licensee's that were inspected under TI 2515/190:

Hatch: Based on the hazard mechanisms determined to be non-bounded in the FHRR, the licensee planned to revise its procedures for adverse weather protection to include a table of the “at-risk” door locations, and administrative controls to ensure the appropriate amount of sand (to be used in sand bags) was available for use, as necessary, during flood protection. Additionally, the licensee stated that they would revise procedures for handling a Beyond-Design-Basis PMF to include additional warning times, prestaging of certain pumps, as well as evaluate the site’s overall ability to handle such an event.

Turkey Point: Based on the hazard mechanisms determined to be non-bounded in the FHRR, the licensee planned to add pumping capacity in the CCW pump area by acquiring equipment, revising procedures, training personnel and validating operations/maintenance action timelines. In addition, the licensee planned to repair several manholes by adding sealant and replacing gaskets. Finally, another interim action was to reinforce the stoplogs on the east side of the plant to withstand hydrostatic, hydrodynamic, waterborne projectile and debris loading.

Brunswick: Based on the hazard mechanisms determined to be non-bounded in the FHRR, the licensee planned to install metal “Cliff Edge Barriers” at targeted areas on site. These barriers are installed 1 to 3 days prior to hurricane landfall and remain in place until the threat has passed.

Overall, the performance of TI 2515/190 resulted in an independent verification of all applicable interim actions, and that reasonable assurance exists that these flood protection /mitigation measures can be expected to perform their intended safety functions. In addition, any identified deficiencies were either resolved or entered into the corrective action program.

### III. CONCLUSION

The staff evaluated the appropriateness of the proposed interim action(s) in the context of whether the actions provide a reasonable, short-term means to address the reevaluated flooding hazard(s). The review considered the licensee’s ability and capability to respond to the reevaluated flooding hazard(s) to ensure that these actions would maintain the plant in a safe condition. The review did not verify or evaluate the flood-causing mechanisms described in the FHRR or evaluate the appropriateness of the interim actions for purposes beyond the short-term application for which they are intended.

Using the results and the data collected by performing TI 2515/190, as applicable, the staff was able to conclude that all sites with proposed interim actions, taken or planned, have strategies that appear reasonable and provide an appropriate short-term response to address the unbounded reevaluated flood hazard(s) in the licensee’s flood hazard reevaluation report until a more detailed site response associated with subsequent submittals associated with the 50.54(f) letter are performed.

## ATTACHMENT 1

**Table 2-1 “Summary of TI 2515/190 Inspections”**

Site	Interim Actions (Y/N)	TI 2515/190 done? (Y/N)	Regional Quarterly Report Accession No.	
Byron	N	N	N/A	Sites with ALL reevaluated mechanisms bounded by the CDB
Callaway	N	N	N/A	
Clinton	N	N	N/A	
Fermi	N	N	N/A	
South Texas	N	N	N/A	
Susquehanna	N	N	N/A	
Arkansas	Y	N	N/A	Sites with at least one reevaluated mechanisms NOT bounded by the CDB
Beaver Valley	Y	N	N/A	
Braidwood	Y	Y	ML15041A728	
Browns Ferry	Y	Y	ML15313A352	
Brunswick	Y	Y	ML15310A162	
Calvert Cliffs	Y	Y	ML13309B550	
Catawba	Y	Y	ML15033A234	
Columbia	Y	N	N/A	
Comanche Peak	Y	N	N/A	
Cooper	Y	Y	ML15043A512	
D.C. Cook	Y	Y	ML16039A333	
Davis Besse	Y	Y	ML15028A034	
Diablo Canyon	Y	Y	ML15317A216	
Dresden	Y	Y	ML14023A632	
Duane Arnold	Y	N	N/A	
Farley	Y	Y	ML17027A147	
Fitzpatrick	Y	Y	ML15314A130	
Fort Calhoun	Y	Y	ML16111B099	
Ginna	Y	Y	ML15302A040	
Grand Gulf	Y	N	N/A	
Harris	Y	N	N/A	
Hatch	Y	Y	ML15026A507	
Hope Creek	Y	Y	ML15036A006	
Indian Point	Y	Y	ML13317A101	
LaSalle	Y	Y	ML15042A250	
Limerick	Y	Y	ML15307A386	
McGuire	Y	Y	ML15034A580	
Millstone	Y	Y	ML15316A261	
Monticello	Y	N	N/A	
Nine Mile Point	Y	Y	ML13317B750	

Site	Interim Actions (Y/N)	TI 2515/190 done? (Y/N)	Regional Quarterly Report Accession No.	Sites with at least one reevaluated mechanisms NOT bounded by the CDB
North Anna	Y	Y	ML14041A423	
Oconee	Y	Y	ML13318A936	
Oyster Creek	Y	Y	ML16305A329	
Palisades	Y	Y	ML16047A125	
Palo Verde	Y	N	N/A	
Peach Bottom	Y	N	N/A	
Perry	Y	Y	ML16042A640	
Pilgrim	Y	Y	ML15317A030	
Point Beach	Y	Y	ML15302A428	
Prairie Island	Y	N	N/A	
Quad Cities	Y	Y	ML15029A666 ML15211A636	
River Bend	Y	N	N/A	
Robinson	Y	Y	ML15028A121	
Saint Lucie	Y	Y	ML16124A490	
Salem	Y	Y	ML15030A400	
Seabrook	Y	Y	ML16319A114	
Sequoyah	Y	N	N/A	
Summer	Y	Y	ML14041A474	
Surry	Y	Y	ML15316A264	
Three Mile Island	Y	N	N/A	
Turkey Point	Y	Y	ML14031A306	
Vogtle	Y	N	N/A	
Waterford	Y	Y	ML16116A210	
Watts Bar	Y	Y	ML15310A360	
Wolf Creek	Y	Y	ML15042A388	

Temporary Instruction (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."