

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION

Ho K. Nieh, Director

In the Matter of)	Docket No. 50-293
)	
Holtec Pilgrim, LLC)	
Holtec Decommissioning International, LLC)	License No. DPR-35
)	
Pilgrim Nuclear Power Station)	

DIRECTOR'S DECISION UNDER 10 CFR 2.206

I. Introduction

By letter dated June 24, 2015,¹ Mr. David Lochbaum (“the petitioner”), on behalf of the Union of Concerned Scientists, along with seven co-petitioners (collectively “the petitioners”), filed a petition pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Section 2.206, “Requests for Action Under This Subpart,” related to the Pilgrim Nuclear Power Station (Pilgrim). The petitioners requested that the U.S. Nuclear Regulatory Commission (NRC) “take enforcement action to require that the current licensing basis for the Pilgrim Nuclear Power Station (PNPS) in Plymouth, Massachusetts explicitly includes flooding caused by local intense precipitation/probable maximum precipitation events.”²

¹ Agencywide Documents Access and Management System (ADAMS) Accession No. ML16029A407.

² Page 1 of the petition.

The petition references a letter from Entergy Nuclear Operations, Inc. (“Entergy”)³ to the NRC dated March 12, 2015,⁴ containing Pilgrim’s flood hazard reevaluation report (FHRR). Entergy submitted the FHRR in response to the NRC’s letter dated March 12, 2012, “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.”⁵ The NRC sent this request for information to power reactor licensees and holders of construction permits in active or deferred status to address one of the agency’s recommendations in response to the accident at the Fukushima Dai-ichi nuclear power plant in Japan in March 2011. As the basis for the request, the petitioners state that Pilgrim’s reevaluations in the FHRR show that as a result of heavy rainfall events, the site could experience flood levels nearly 10 feet higher than anticipated when the plant was originally licensed. Although existing doors installed at the site protect important equipment from being submerged and damaged by heavy rainfall events and flooding, the petitioners assert that neither regulatory requirements nor enforceable commitments exist that ensure the continued reliability of those doors. The petition states, in relevant part, “the petitioners seek to rectify this safety shortcoming by revising the current licensing basis to include flooding caused by heavy rainfall events.”⁶

³ The NRC approved the direct transfer of Entergy licensed authority to Holtec Decommissioning International, LLC (HDI) and the indirect transfer of control of Entergy Nuclear Generation Company’s (ENGCO) (to be known as Holtec Pilgrim, LLC) ownership interests in the facility licenses to Holtec International (Holtec) on August 22, 2019 (ADAMS Accession No. ML19170A265). By letter dated August 22, 2019 (ADAMS Accession No. ML19234A357), Entergy stated that following the license transfer, HDI will assume responsibility for all ongoing NRC regulatory actions and reviews underway for Pilgrim. On August 27, 2019, the NRC staff issued a conforming amendment to HDI and Holtec Pilgrim, LLC to reflect the license transfer (ADAMS Accession No. ML19235A050).

⁴ ADAMS Accession No. ML15075A082.

⁵ ADAMS Accession No. ML12073A348.

⁶ Page 1 of the petition.

On August 5, 2015, in a public teleconference,⁷ the petitioners presented additional clarification and supplementary issues to the petition review board. The NRC staff considered this supplementary information during its evaluation.

In a letter dated February 11, 2016,⁸ the NRC informed the petitioners that the portion of their request seeking enforcement action to require Pilgrim's current licensing basis to include flooding caused by local intense precipitation (LIP) or probable maximum precipitation events meets the acceptance criteria in NRC Management Directive 8.11, "Review Process for 10 CFR 2.206 Petitions," revised October 25, 2000.⁹ The letter noted that the NRC referred the petition to the Office of Nuclear Reactor Regulation (NRR) for appropriate action. This letter also informed the petitioners that the two supplementary issues raised in the August 5, 2015, teleconference do not meet the criteria for consideration under 10 CFR 2.206. The letter explained that the petitioners' concerns about the impact of precipitation events on safety-related submerged cables do not meet the criteria for review because this issue was reviewed and resolved in a previous 10 CFR 2.206 director's decision.¹⁰ Furthermore, the letter noted that the request for an updated site plan of Pilgrim does not meet the criteria for review because it is outside the scope of the 10 CFR 2.206 process.

II. Discussion

Under 10 CFR 2.206(b), the Director of the NRC office with responsibility for the subject matter shall either institute the requested proceeding to modify, suspend, or revoke a license or advise the person who made the request in writing that no proceeding will be instituted, in whole or in part, with respect to the request and give the reason for the decision. The petitioners raised concerns about safety shortcomings related to flooding hazards caused by heavy rainfall events at Pilgrim based on the FHRR information submitted by Entergy on March 12, 2015.

⁷ Transcript available at ADAMS Accession No. ML15230A017.

⁸ ADAMS Accession No. ML15356A735.

⁹ ADAMS Accession No. ML041770328.

¹⁰ ADAMS Accession No. ML13255A191.

Referring to the FHRR, the petitioners noted that heavy rainfall events constitute a significantly greater flooding hazard at Pilgrim than the design-basis flood hazard posed by an extreme storm surge.

The NRC staff analyzed the petitioners' concerns, and the results of those analyses are discussed below. The decision of the Director of NRR is provided for each of these concerns. To provide clarity and context, this discussion provides definitions of commonly used terms in the analysis and relevant background information, followed by a response to the petitioners' concerns.

Definitions

The NRC staff uses the terms "current licensing basis," "design-basis events," and "design bases" throughout the document. These terms have different regulatory definitions and are not interchangeable. For clarity, a short definition of each of these terms is provided below.

The NRC defines "current licensing basis" in 10 CFR 54.3, "Definitions." The current licensing basis of a plant is the "set of NRC requirements applicable to a specific plant and a licensee's written commitments for ensuring compliance with and operation within applicable NRC requirements and the plant-specific design basis (including all modifications and additions to such commitments over the life of the license) that are docketed and in effect." The current licensing basis includes:

- legally binding regulatory requirements on the licensee (e.g., regulations, orders, license conditions)
- mandated documents and programs developed and maintained in accordance with regulatory requirements (e.g., updated final safety analysis report)
- regulatory commitments provided by the licensee in official correspondence

The NRC defines the term "design-basis events" in 10 CFR 50.49, "Environmental Qualification of Electric Equipment Important to Safety for Nuclear Power Plants."

"Design-basis events" are those events that the NRC requires licensees to consider when

identifying safety-related structures, systems, and components (SSCs) needed to provide key safety functions.

“Design bases” information is an important subset of the current licensing basis and is defined in 10 CFR 50.2, “Definitions.” Design bases include the specific functions and reference bounds for the design of plant SSCs. The design bases of specific SSCs can include information related to design-basis events, beyond-design-basis events, or both.¹¹

Safety-related SSCs typically have associated technical specification requirements in accordance with 10 CFR 50.36(c)(2)(ii)(C). SSCs that address a beyond-design-basis regulatory obligation do not necessarily have associated technical specification requirements but are nevertheless expected to be functional in order to demonstrate a licensee’s compliance with the underlying obligation.

The NRC staff also uses the term “beyond-design-basis events” throughout this document. The term “beyond-design-basis events,” is not defined in NRC regulations, however in the past, the NRC has adopted regulations requiring licensees and applicants to address certain events and accidents without considering them to be “design-basis events.” Examples include the NRC’s regulations for station blackout in accordance with 10 CFR 50.63, “Loss of All Alternating Current Power,” and regulations for loss of large areas of the plant because of explosions or fires in accordance with 10 CFR 50.54(hh)(2).¹² The use of the term “beyond-design-basis external events” in this document relates to the consideration of lessons learned as a result of the accident at Fukushima Dai-ichi. This accident highlighted the possibility that certain external events may simultaneously challenge the prevention, mitigation, and emergency preparedness measures that provide defense-in-depth protections for nuclear power plants.

¹¹ Figure 1. Design and Licensing Basis for Nuclear Power Plants (ADAMS Accession No. ML15127A401).

¹² The requirements previously in 10 CFR 50.54(hh)(2) have been relocated to 10 CFR 50.155(b)(2) in accordance with the staff requirements memorandum (SRM) dated January 24, 2019 (ADAMS Accession No. ML19023A038).

Background

The NRC's assessment of the lessons learned from the experiences at Fukushima Dai-ichi led to the conclusion that additional requirements were needed to increase the capability of nuclear power plants to address certain beyond-design-basis external events. As a result, the NRC imposed new requirements to enhance safety by issuing Order EA-12-049, "Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," dated March 12, 2012.¹³ The NRC also required licensees to reevaluate seismic and flooding hazards using present-day standards and guidance and provide that information to the NRC in accordance with the March 12, 2012, 10 CFR 50.54(f) letter. Entergy submitted the Pilgrim FHRR dated March 12, 2015, in response to the March 12, 2012, 10 CFR 50.54(f) letter.

The NRC staff reviewed the Pilgrim FHRR as part of the NRC's response to the Fukushima Dai-ichi accident, as noted in the NRC's February 11, 2016, letter to the petitioners.⁸ The letter noted, in relevant part, "the issue [raised by the petitioners] is being addressed by a 10 CFR 50.54(f) letter, dated March 12, 2012...."

The March 12, 2012, 10 CFR 50.54(f) letter states, in relevant part, "[t]he current regulatory approach, and the resultant plant capabilities, gave the NTTF [Near-Term Task Force] and the NRC the confidence to conclude that an accident with consequences similar to the Fukushima accident is unlikely to occur in the United States. The NRC concluded that continued plant operation and the continuation of licensing activities did not pose an imminent risk to public health and safety."

On September 30, 2015, the NRC completed an inspection at Pilgrim related to the interim actions Entergy provided as part of the FHRR. Entergy's interim actions included those activities that Entergy used to mitigate the reevaluated hazards at Pilgrim that exceeded

¹³ ADAMS Accession No. ML12054A735.

Pilgrim's current licensing basis. The staff presented the results of the inspection in Inspection Report 05000293/2015003, dated November 12, 2015.¹⁴ Page 29 of the inspection report documents the NRC's independent verification that Entergy's assumptions used in the FHRR interim actions reflected actual plant conditions. The NRC performed visual inspection of the installed flood protection features, where appropriate. The NRC also conducted external visual inspection for indications of degradation that would prevent the performance of the credited function for each identified feature. Additionally, the NRC determined flood protection feature functionality using either visual observation or review of other documents. The NRC's inspection of interim actions supported Entergy's conclusion that Pilgrim is able to cope with the reevaluated flooding hazard until the remaining assessments were performed.

On August 4, 2016, the NRC staff summarized¹⁵ its assessment of reevaluated flood-causing mechanisms described in the FHRR. The staff's assessment was consistent with Entergy's March 12, 2015, FHRR and concluded that Pilgrim has two flood-causing scenarios that are not bounded or not fully evaluated in the plant's design bases. The two scenarios are flooding caused by a LIP event and flooding caused by the combined effects of storm surge and wind-wave activity from the Atlantic Ocean.

On August 18, 2016, Entergy requested¹⁶ to permanently defer the remaining flooding assessments in response to the 10 CFR 50.54(f) letter of March 12, 2012, in anticipation of the planned permanent shutdown of Pilgrim no later than June 1, 2019¹⁷. On April 17, 2017, the NRC staff responded¹⁸ to Entergy's request and deferred the remaining flood assessments until December 31, 2019. The NRC noted that any meaningful further improvement to safety would not be achieved before permanent defueling of the plant consistent with Pilgrim's proposed shutdown date. The April 17, 2017, letter from the NRC staff also stated that if the plant

¹⁴ ADAMS Accession No. ML15317A030.

¹⁵ ADAMS Accession No. ML16215A086.

¹⁶ ADAMS Accession No. ML16250A018.

¹⁷ ADAMS Accession No. ML15328A053.

¹⁸ ADAMS Accession No. ML16278A313.

continues to operate beyond June 1, 2019, Entergy would still be expected to submit the remaining flooding assessments including a flooding mitigating strategies assessment and a flooding-focused evaluation or integrated assessment (if applicable) in accordance with NRC-endorsed guidance.

The Commission provided additional direction related to reevaluated flood mechanisms in the Affirmation Notice and Staff Requirements Memorandum (SRM) dated January 24, 2019,¹⁹ associated with SECY-16-0142, “Draft Final Rule—Mitigation of Beyond-Design-Basis Events (RIN 3150-AJ49).”²⁰ The SRM states the following:

For ongoing reevaluated hazard assessments, the site-specific 10 CFR 50.54(f) process remains in place to ensure that the agency and its licensees will take the needed actions, if any, to ensure that each plant is able to withstand the effects of the reevaluated flooding and seismic hazards. The staff should continue these efforts, utilizing existing agency processes to determine whether an operating power reactor license should be modified, suspended, or revoked in light of the reevaluated hazard.

On June 10, 2019,²¹ Entergy submitted a letter certifying permanent cessation of power operations at Pilgrim in accordance with 10 CFR 50.82(a)(1)(i) and certified that the fuel has been permanently removed from the Pilgrim reactor vessel and placed in the spent fuel pool in accordance with 10 CFR 50.82(a)(1)(ii). Entergy acknowledged in its letter that once these certifications are docketed, the Pilgrim license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel.

On June 19, 2019,²² Entergy provided its final response to the March 12, 2012, 10 CFR 50.54(f) activities related to the reevaluated seismic and flood hazards and affirmed that Pilgrim is no longer an operating plant and is a permanently shutdown and defueled reactor. Therefore, Entergy stated that it considered the requests of the March 12, 2012, 10 CFR 50.54(f) letter to no longer be applicable to Pilgrim and informed the staff that Entergy

¹⁹ ADAMS Accession No. ML19023A038.

²⁰ ADAMS Accession No. ML16291A186.

²¹ ADAMS Accession No. ML19161A033.

²² ADAMS Accession No. ML19170A391.

no longer plans to proceed with any further implementation of the requests in the March 12, 2012, 10 CFR 50.54(f) letter. In light of the Pilgrim shutdown, the staff assessed the need for any additional regulatory actions associated with the spent fuel pool in relation to the reevaluated flood hazard, as documented in its assessment dated July 5, 2019.²³ The NRC staff concluded in the July 5, 2019, assessment letter that no further responses or actions associated with the 10 CFR 50.54(f) letter are necessary for Pilgrim because Entergy is no longer authorized to load fuel into the vessel, and potential fuel-related accident scenarios are limited to the spent fuel pool. Unlike fuel in the reactor, the safety of fuel located in the spent fuel pool is assured for an extended period through maintenance of pool structural integrity, which preserves coolant inventory and maintains margin to prevent criticality. Small changes in the flooding hazard elevation would not threaten the structural integrity of the spent fuel pool because the bottom of the spent fuel pool is over 50 feet above plant grade level. As stated above, the two reevaluated flood-causing scenarios that are not bounded or fully evaluated in the plant's design bases are flooding caused by the combined effects of storm surge and wind-wave activity from the Atlantic Ocean and flooding caused by a LIP event. The staff evaluated these two reevaluated flood-causing scenarios and determined that the changes in flooding hazard evaluation would be small, particularly at plant grade level, and therefore, would not threaten the structural integrity of the spent fuel pool.

The NRC sent a copy of the proposed director's decision to the petitioners and to Holtec Decommissioning International, LLC and Holtec Pilgrim, LLC for comment on October 8, 2019. The NRC did not receive any comments on the proposed director's decision.

Response to Petitioners' Concerns

Concern 1: Pilgrim's flood hazard reevaluations indicate that as a result of heavy rainfall events, the site could experience flood levels nearly 10 feet higher than

²³ ADAMS Accession No. ML19168A231.

anticipated when the plant was originally licensed. Although existing doors protect important equipment from being submerged and damaged, neither regulatory requirements nor enforceable commitments exist that ensure the continued reliability of those doors. The petitioners seek to rectify this safety shortcoming by revising the current licensing basis to include flooding caused by heavy rainfall events.

The NRC staff's assessment dated July 5, 2019, concluded that no further regulatory actions are necessary; therefore, the staff will not revise Pilgrim's current licensing basis to include flooding caused by heavy rainfall events. Had the plant not permanently ceased operations, the staff would have reviewed the March 12, 2012, 10 CFR 50.54(f) reevaluated flood hazard information in accordance with the Commission direction provided in the SRM dated January 24, 2019, and determined whether further regulatory action was warranted.

Concern 2: Being outside the licensing basis means there are no applicable regulatory requirements. As a direct result, there can be no associated compliance commitments. Being within the current licensing basis invokes a wide array of associated regulatory requirements. For example, 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," requires that licensees find and fix problems with SSCs having safety functions credited within the current licensing basis.

The staff concluded in its July 5, 2019, letter that no further response or actions associated with the March 12, 2012, 10 CFR 50.54(f) letter are necessary, and therefore, SSCs relied on to address the reevaluated flood hazard are not required to be safety-related²⁴ and do not need to meet the quality assurance requirements in 10 CFR Part 50, Appendix B. Had the plant not permanently ceased operations, the staff would have reviewed the March 12, 2012, 10 CFR 50.54(f) reevaluated flood hazard information in accordance with the Commission

²⁴ 10 CFR 50.2.

direction provided in the SRM dated January 24, 2019, and determined whether further regulatory action was warranted.

III. Conclusion

The NRC evaluated the petitioners' concerns and determined that the petitioners' request is addressed through the staff's conclusion as stated in the July 5, 2019, letter and that no further response or actions associated with the March 12, 2012, 10 CFR 50.54(f) letter are necessary for Pilgrim because there is no longer an entity authorized to load fuel into the vessel, and potential fuel-related accident scenarios are limited to the spent fuel pool. Unlike fuel in the reactor, the safety of fuel located in the spent fuel pool is assured for an extended period through maintenance of pool structural integrity, which preserves coolant inventory and maintains margin to prevent criticality. The staff concludes that the small changes in the flooding hazard elevation projected for the two reevaluated flood-causing scenarios do not threaten the structural integrity of the spent fuel pool.

As provided in 10 CFR 2.206(c), a copy of this director's decision will be filed with the Secretary of the Commission for the Commission to review. The decision will constitute the final action of the Commission 25 days after the date of the decision unless the Commission, on its own motion, institutes a review of the decision within that time.

Dated at Rockville, Maryland, this 25th day of November, 2019.

For the Nuclear Regulatory Commission.

/RA/ Eric J. Benner for

Ho K. Nieh, Director,
Office of Nuclear Reactor Regulation.