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

April 17, 2017

Mr. John A. Dent, Jr.
Site Vice President
Entergy Nuclear Operations, Inc.
Pilgrim Nuclear Power Station
600 Rocky Hill Road
Plymouth, MA 02360-5508

SUBJECT: PILGRIM NUCLEAR POWER STATION – RELAXATION OF THE SCHEDULE REQUIREMENTS FOR ORDER EA-13-109: ORDER MODIFYING LICENSES WITH REGARD TO RELIABLE HARDENED CONTAINMENT VENTS CAPABLE OF OPERATION UNDER SEVERE ACCIDENT CONDITIONS (CAC NO. MF4470)

Dear Mr. Dent:

The U.S. Nuclear Regulatory Commission (NRC) staff is responding to the request from Entergy Nuclear Operations, Inc. (Entergy, the licensee), for relaxation from the schedule requirements of NRC Order EA-13-109 for Pilgrim Nuclear Power Station (Pilgrim). The NRC staff has determined that good cause exists for some aspects of the schedule relaxation and has partially granted the request as described below.

By letter dated March 12, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12054A694), the NRC issued Order EA-12-050 to all Operating Boiling-Water Reactor Licensees with Mark I and Mark II Containments. The order, in part, required licensees to install a reliable hardened containment vent system. By letter dated June 6, 2013 (ADAMS Accession No. ML13143A334), the NRC superseded the requirements of Order EA-12-050, with Order EA-13-109, "Issuance of Order to Modify Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions."

Section IV of Order EA-13-109 states that licensees proposing to deviate from requirements of the order may request that the Director, Office of Nuclear Reactor Regulation, relax or rescind certain requirements. By letter dated June 24, 2016 (ADAMS Accession No. ML16187A325), Entergy requested an extension of the final compliance dates of Order EA-13-109. Specifically, the licensee requested an extension to comply with the requirements in Section IV of NRC Order EA-13-109 concerning implementation of the Phase 1 (wetwell vent) and Phase 2 (drywell vent) at Pilgrim until December 31, 2019. Entergy's letter dated June 24, 2016, states that based on the timelines contained in Order EA-13-109, Pilgrim is required to be in compliance with Phase 1 (severe accident capable wetwell venting system) prior to startup from the refueling outage in spring 2017, and Phase 2 (severe accident capable drywell venting system) prior to startup from the refueling outage in spring 2019, or June 30, 2019, whichever comes first.

By letter dated November 10, 2015 (ADAMS Accession No. ML15328A053), Entergy notified the NRC of Entergy's intent to permanently shut down Pilgrim and cease operation no later than June 1, 2019. The licensee's extension request dated June 24, 2016, also stated that Entergy will submit a request for rescission of Order EA-13-109 no later than December 31, 2019, based on the permanent shutdown condition of the plant at that time. Entergy's extension request is based on the limited remaining operational time for Pilgrim and the existing capability to address venting under severe accident conditions.

By letter dated September 7, 2016 (ADAMS Accession No. ML16251A500), the organization Pilgrim Watch, in conjunction with several other non-governmental organizations, filed a request for hearing with the NRC in order to challenge Entergy's extension request. There were several pleadings filed under this matter by the parties involved and by NRC staff. The Commission considered all the pleadings, and on April 6, 2017 (ADAMS Accession No. ML17096A736), issued Memorandum and Order CLI-17-06 which denied the hearing request and referred the pleadings filed in this matter to the NRC's Director of Nuclear Reactor Regulation for consideration in reaching a decision on Entergy's relaxation request. The NRC staff has reviewed the pleadings, and the germane issues are addressed in the following analysis.

As noted in NRC Generic Letter 89-16, "Installation of a Hardened Wetwell Vent," Pilgrim has had a hardened containment vent system (HCVS) for the wetwell since 1989. The HCVS was evaluated by NRC staff as part of the mitigation strategies implemented at Pilgrim to show compliance with NRC Order EA-12-049, "Order Modifying Licenses With Regard To Requirements For Mitigation Strategies For Beyond-Design-Basis External Events." In a safety evaluation dated March 3, 2016 (ADAMS Accession No. ML16008B077), the NRC staff concluded that if the mitigation strategies were implemented according to the licensee's plans, they would adequately address the requirements of Order EA-12-049. In an onsite inspection in May 2016, NRC inspectors verified that the mitigation strategies had been appropriately implemented at Pilgrim, in accordance with the safety evaluation. The NRC's evaluation of the licensee's mitigation strategies (which include the use of the HCVS) confirms that the strategy is sufficient to prevent fuel damage during an extended loss of alternating current power as postulated in Order EA-12-049. However, Order EA-13-109 adds additional requirements to the HCVS to ensure the capability to operate the HCVS during a severe accident, if it is needed.

In its relaxation request dated June 24, 2016, Entergy stated that the HCVS design meets the requirements of Order EA-13-109 with three exceptions. The first is radiation monitoring. In lieu of permanently installing a radiation monitor in accordance with order criterion 1.2.9, Entergy will use the existing standby gas treatment system and HCVS radiation monitors. The standby gas treatment system monitor is a low-range monitor powered from a safety-related battery and will give immediate indication of an increase in radioactive releases. The HCVS radiation monitor is a high-range monitor that will be repowered from a diesel generator and will provide additional knowledge of HCVS operation. The second is a dedicated power supply. Instead of installing a dedicated power supply in accordance with order criterion 1.2.6, Entergy will utilize the safety-related station batteries to power the HCVS. The safety-related station batteries have a robust design and are expected to remain functional during the postulated events, with their battery chargers reenergized from diesel generators. The third is plans for testing and inspection. In lieu of developing detailed plans for testing and inspection in accordance with order criterion 1.2.13, Entergy will utilize the currently established testing and inspection program for the HCVS

during the remaining operational time. The NRC staff confirmed that the testing and inspection procedures for the existing HCVS demonstrate that the HCVS will function as designed. The NRC staff evaluated these three exceptions and finds them acceptable for the period extending to December 31, 2019.

In its relaxation request dated June 24, 2016, Entergy stated that appropriate compensatory measures have been implemented to ensure the existing HCVS can be used during a severe accident. The licensee stated that the HCVS is designed to allow initiation, control, and monitoring of venting from the main control room, which will minimize the operator's exposure to radiological conditions. The NRC staff evaluated the compensatory measures and the design of the HCVS and concluded that the HCVS could be operated during a severe accident. The NRC staff also evaluated the licensee's analysis of the potential for a hydrogen detonation during post-accident conditions causing damage to the HCVS and concluded that the analysis demonstrated that the post-accident vent conditions should prevent a detonation.

In light of the facts presented in the licensee's June 24, 2016, letter, the NRC staff has determined that the licensee has presented good cause for a relaxation of the order implementation date for Phase I implementation of Order EA-13-109. Given the implementation of the compensatory measures, as detailed in the license's letter, the licensee has shown that prior to the current compliance date for Phase 1 of the order, its HCVS will meet the most important safety characteristics of an HCVS, consistent with the Phase 1 requirements of NRC Order EA-13-109.

During the week of October 6, 2014, the NRC staff conducted an onsite audit at Pilgrim in order to examine the licensee's strategy for coping with a loss of all alternating current power caused by a beyond-design-basis external event, as required by NRC Order EA-12-049. The Pilgrim strategy involves using the HCVS to control the anticipated pressure increase in the containment. The NRC audit team did not identify any discrepancies in the design or capability of the HCVS as used in this strategy. During the week of May 23, 2016, the NRC staff conducted the TI-191 inspection of the strategy for Order EA-12-049 at Pilgrim, including the use of the HCVS. There were no inspection findings. The NRC staff finds that the existing HCVS meets the intent and purpose of Phase 1 of Order EA-13-109 with minor exceptions that do not impact the ability to safely and reliably use the HCVS.

The NRC staff notes that Entergy plans to permanently shut down Pilgrim prior to the compliance date of June 30, 2019, for Phase 2 of the order, and therefore the staff does not find good cause to extend the Phase 2 compliance date.

Accordingly, based upon the authority granted to the Director, Office of Nuclear Reactor Regulation, the requirement of the order for full implementation of Order EA-13-109, Phase 1 requirements for Pilgrim is relaxed until December 31, 2019.

If you have any questions, please contact John Boska, Orders Management Branch, at 301-415-2901 or at John.Boska@nrc.gov.

Sincerely,

William M. Dean, Director
Office of Nuclear Reactor Regulation

Docket No.: 50-293

cc: Listserv

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