

NRR-DMPSPEm Resource

From: Lamb, John
Sent: Friday, November 16, 2018 10:45 AM
To: Miner, Peter
Cc: Byrne, Robert M; Powers, Michael J; Couture III, Philip; Halter, Mandy
Subject: Request for Additional Information (RAI) - Pilgrim Post-Decommissioning Technical Specifications (PDTS) License Amendment Request (LAR) (EPID: L-2018-LLA-0268)

Importance: High

Dear Mr. Miner:

By letter dated September 13, 2018 (Agencywide Documents and Access Management System (ADAMS) No. ML18260A085), Entergy Nuclear Operations, Inc. (Entergy, the licensee) submitted a license amendment request (LAR) to revise Pilgrim Nuclear Power Station (Pilgrim) Renewed Facility Operating License and associated Technical Specifications (TS) to Permanently Defueled Technical Specifications (PDTS) consistent with the permanent cessation of reactor operation and permanent defueling of the reactor.

Based on the U.S. Nuclear Regulatory Commission (NRC) staff's initial review of Pilgrim's PDTS LAR request, the following request for additional information (RAI) is required to facilitate completion of the staff's technical review.

The enclosure to this email provides the RAI. On November 2, 2018, the draft RAI questions were sent to you to ensure that they were understandable, the regulatory bases for the questions were clear, and to determine if the information was previously docketed. On November 15, 2018, a clarifying teleconference was held and Entergy stated that they would respond to the RAI by January 10, 2019.

If you have any questions, please contact me at 301-415-3100 or via e-mail at John.Lamb@nrc.gov.

Sincerely,

John G. Lamb, Senior Project Manager
Special Projects and Process Branch
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-293

Enclosure:
Request for Additional Information

RAI

REQUEST FOR ADDITIONAL INFORMATION

LICENSE AMENDMENT REQUEST FOR PERMANENTLY DEFUELED

TECHNICAL SPECIFICATIONS

ENTERGY NUCLEAR OPERATIONS, INC.

PILGRIM NUCLEAR POWER STATION

By letter dated September 13, 2018 (ADAMS No. ML18260A085), Entergy Nuclear Operations, Inc. (Entergy, the licensee) submitted a license amendment request to revise Pilgrim Nuclear Power Station (Pilgrim) Renewed Facility Operating License and associated Technical Specifications (TS) to Permanently Defueled Technical Specifications (PDTs) consistent with the permanent cessation of reactor operation and permanent defueling of the reactor.

Regulatory Analysis Basis

The evaluation of the release of fission products into containment is used for determining the acceptability of both the plant site and the effectiveness of engineered safety features. In the past, power reactor licensees have typically used U.S. Atomic Energy Commission Technical Information Document (TID)-14844, *Calculation of Distance Factors for Power and Test Reactor Sites*, dated March 23, 1962, as the basis for design basis accident (DBA) source terms. The DBA offsite radiological dose consequences are evaluated against the guideline dose values, in terms of whole body and thyroid dose, given in 10 CFR Section 100.11, *Determination of Exclusion Area Boundary, Low Population Zone, and Population Center Distance*, which refers to TID-14844. Regulatory guidance for the review of DBAs based on TID-14844 is provided in Regulatory Guide (RG) 1.195, *Methods and Assumptions for Evaluating Radiological Consequences of Design Basis Accidents at Light-Water Nuclear Power Reactors*.

In December 1999, the U.S. Nuclear Regulatory Commission (NRC) issued the new regulation, Title 10 of the *Code of Federal Regulations* Part 50.67 (10 CFR 50.67), *Accident source term*, which provided a mechanism for licensed power reactors to replace the traditional accident source terms used in their DBA analyses with alternative source terms (AST). Regulatory guidance for the implementation of the AST is provided in RG 1.183, *Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors*.

Implementation revises the plant licensing basis to specify the AST in place of the previous accident source term and establishes the total effective dose equivalent (TEDE) as the new acceptance criteria. The TEDE acceptance criterion of 10 CFR 50.67(b)(2) replaces the previous whole body and thyroid dose guidelines of 10 CFR 100.11, to determine the exclusion area boundary (EAB), low population zone (LPZ), and population center distance. In addition, holders of operating licenses using an AST under 10 CFR 50.67 shall meet the requirements of Appendix A to 10 CFR Part 50, General Design Criteria (GDC), Criterion 19, *Control Room*, regarding control room (CR) access and occupancy. This applies not only to the analyses performed in the application, which may only include a subset of the plant analyses, but also to all future design basis analyses.

License Amendment No. 212, dated April 28, 2005 (ADAMS Accession Number ML051040065), "Pilgrim Nuclear Power Station – Issuance of Amendment RE: Alternative Source Term for the Fuel Handling Accident Dose Consequences (TAC. No. MC2705)," approved the selective implementation of the AST for analyzing radiological consequences of the fuel handling accident (FHA) using RG 1.183 methodology to demonstrate compliance with the dose criteria in 10 CFR 50.67 and the regulatory dose acceptance criteria of RG 1.183.

The regulatory requirements from which the NRC staff are evaluating the requested licensing action are based against the following: in terms of whole body and thyroid dose, given in 10 CFR Section 100.11 which references TID-14844; the reference values in 10 CFR 50.67; the accident specific guideline values in Regulatory Position 4.4 of RG 1.183; and, Table 1 of SRP Section 15.0.1.

Technical Basis for Request #1

In letter dated September 13, 2018, it states:

Section 14 of the PNPS UFSAR describes the OBA scenarios that are applicable during plant operations. After certifications for permanent cessation of operations and permanent removal of fuel from the reactor vessel are submitted to the NRC in accordance with 10 CFR 50.82(a)(1)(i) and (ii) and they are docketed for PNPS, the 10 CFR Part 50 license will no longer permit operation of the reactor or placement of fuel in the reactor vessel in accordance with 10 CFR 50.82(a)(2). With the reactor in a permanently shut down and defueled condition, the SFP and its cooling systems are dedicated only to spent fuel storage. In this condition, the spectrum of credible accidents is much smaller than for an operational plant. Therefore, most of the accident scenarios postulated in UFSAR Section 14 will no longer be applicable after PNPS is in the permanently defueled condition. The only remaining DBAs will be the FHA and the radioactive waste handling accident [emphasis added].”

A review of Section 14 of the Pilgrim Updated Final Safety Analysis Report (UFSAR) found no Design-Basis Accident (DBA) related to a radioactive waste handling accident. It appears that the licensee is proposing a new, or different kind of, accident from any accident previously evaluated.

The licensee refers to Calculation No. M1421, “Offsite Doses Following the Drop of a High Integrity Container,” Revision 0 in their evaluation of dropping a high integrity container (HIC) containing a bounding mix of radioisotopes onto another fully loaded HIC. Results of this analysis concluded “No station structures, systems, or components were utilized to mitigate the consequences of the event.” The TSs specifications are derived from the analyses and evaluations included in the UFSAR and amendments thereto. The regulation at 10 CFR 50.36(c)(2) requires limiting conditions for operation to be established for any items that the criterion stated in 10 CFR 50.36(c)(2)(ii).

ARCB - RAI #1

Please provide the following information regarding the radioactive waste handling accident:

- a) Which section of the UFSAR describes the radioactive waste handling accident and what changes are proposed to this section that reflect the permanently shut down and defueled condition of the reactor?
- b) Is the licensee proposing a new, or different kind of, DBA from any accident previously evaluated? If so, which TS(s) is added or does it impact?
- c) Is the radioactive waste handling accident maintained in a licensee-controlled document? If so, what is the name of the document? If not, will the radioactive waste handling accident be added to the Pilgrim UFSAR?
- d) Is it the licensee’s intent of including the radioactive waste handling accident as “general information” of “other accidents considered” and not a proposed new, or difference kind of, DBA?
- e) Does the radioactive waste handling accident bound the radiological consequences of the Radwaste System Accident DBAs found in Pilgrim UFSAR Section 14.5.6 when Pilgrim is in a permanently shutdown and defueled condition?
- f) Please explain why the Radwaste System Accident DBAs found in Pilgrim UFSAR Section 14.5.6 are no longer applicable when Pilgrim is in a permanently shutdown and defueled condition?

Hearing Identifier: NRR_DMPS
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Mail Envelope Properties (John.Lamb@nrc.gov20181116104400)

Subject: Request for Additional Information (RAI) - Pilgrim Post-Decommissioning
Technical Specifications (PDS) License Amendment Request (LAR) (EPID: L-2018-LLA-0268)
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Options

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