

NRR-DMPSPeM Resource

From: Venkataraman, Booma
Sent: Monday, January 29, 2018 3:13 PM
To: Williams, Christian D:(GenCo-Nuc); Reynolds, Ronnie J.:(GenCo-Nuc)
Subject: Request for Additional Information: FitzPatrick License Amendment Request to revise Technical Specifications to address Secondary Containment personnel access door openings(CAC: MG0239, EPID: L-2017-LLA-0298)
Attachments: Request for Additional Information for LAR to address secondary containment access door openings.docx
Expires: Friday, March 30, 2018 12:00 AM

Mr. Williams and Mr. Reynolds,

By letter dated September 14, 2017 (ADAMS Accession No. ML17257A193), Exelon Generation Company, LLC (Exelon, the licensee), in accordance with 10 CFR 50.90, submitted a license amendment request for the James A. FitzPatrick Nuclear Power Plant (FitzPatrick) to revise the Technical Specifications (TS) to address secondary containment personnel access door openings. The proposed changes would revise the FitzPatrick TS surveillance requirement (SR) 3.6.4.1.3 to allow for brief, inadvertent, simultaneous opening of both an inner and outer secondary containment personnel access door during normal entry and exit conditions.

A draft request for information (RAI) was sent to you on January 12, 2018. A clarification call was held on January 24, 2017. The final RAI version after the clarification is attached to this e-mail. It was agreed that Exelon will respond to the attached RAI with a supplement by March 15, 2018.

Please treat this e-mail as transmittal of formal RAIs. If circumstances result in the need to revise the requested response date, please contact me at (301) 415-2934 or via email at Booma.Venkataraman@nrc.gov.

Sincerely, Booma

Booma Venkataraman, P.E.

Project Manager, NRR/DORL/LPL1

Office of Nuclear Reactor Regulation

Booma.Venkataraman@nrc.gov

301.415.2934

Hearing Identifier: NRR_DMPS
Email Number: 137

Mail Envelope Properties (Booma.Venkataraman@nrc.gov20180129151200)

Subject: Request for Additional Information: FitzPatrick License Amendment Request to revise Technical Specifications to address Secondary Containment personnel access door openings(CAC: MG0239, EPID: L-2017-LLA-0298)

Sent Date: 1/29/2018 3:12:34 PM

Received Date: 1/29/2018 3:12:00 PM

From: Venkataraman, Booma

Created By: Booma.Venkataraman@nrc.gov

Recipients:

"Williams, Christian D:(GenCo-Nuc)" <Christian.Williams@exeloncorp.com>

Tracking Status: None

"Reynolds, Ronnie J.:(GenCo-Nuc)" <Ronnie.Reynolds@exeloncorp.com>

Tracking Status: None

Post Office:

Files	Size	Date & Time
MESSAGE	1385	1/29/2018 3:12:00 PM
Request for Additional Information for LAR to address secondary containment access door openings.docx		
28353		

Options

Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date: 3/30/2018
Recipients Received:

REQUEST FOR ADDITIONAL INFORMATION

LICENSE AMENDMENT REQUEST TO REVISE TECHNICAL SPECIFICATIONS TO ADDRESS

SECONDARY CONTAINMENT PERSONNEL ACCESS DOOR OPENINGS

JAMES A. FITZPATRICK NUCLEAR POWER PLANT

EXELON GENERATION COMPANY, LLC

DOCKET NO. 50-333

By letter dated September 14, 2017 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17257A193), Exelon Generation Company, LLC (Exelon, the licensee), in accordance with 10 CFR 50.90, submitted a license amendment request (LAR) for the James A. FitzPatrick Nuclear Power Plant (FitzPatrick) to revise the Technical Specifications (TS) to address secondary containment personnel access door openings. The proposed changes would revise the FitzPatrick TS surveillance requirement (SR) 3.6.4.1.3 to allow for brief, inadvertent, simultaneous opening of both an inner and outer secondary containment personnel access door during normal entry and exit conditions.

The U. S. Nuclear Regulatory Commission (NRC) staff is reviewing the submittal and has determined that the additional information is needed to complete its review.

Section 3.0, "Technical Evaluation," in Attachment 1 to the LAR, dated September 14, 2017, states in relevant parts:

For the secondary containment to be considered Operable, it must have adequate leak tightness to ensure that the required vacuum can be established and maintained by a single SGT [standby gas treatment] subsystem, when that subsystem is in operation.

The secondary containment and SGT System together ensure radioactive material is contained. As long as a SGT subsystem can draw down and maintain the required vacuum in the secondary containment when needed, the secondary containment can perform its safety function.

In addition, the JAF LOCA [Loss of Coolant Accident] evaluation demonstrates that Peak Cladding Temperature (PCT) is not reached until approximately ninety-seven (97) seconds post-accident. The SGT system is initiated due to high drywell pressure. This set point is reached approximately one (1) second after initiation of the accident. Based on the above times, it is reasonable to conclude that the secondary containment airlock doors would be returned to their required positions prior to release of the LOCA source term into secondary containment. In the unlikely event that an accident would occur when both personnel access doors are open for entry or exit, the brief time required to close one of the doors is small compared to the time for the core to reach PCT and the drywell leakage to reach the secondary containment.

SCPB-RAI-1

Currently, the FitzPatrick SR 3.6.4.1.4 verifies that the secondary containment can be maintained ≥ 0.25 inch of vacuum water gauge for 1 hour using one SGT subsystem at a flow rate ≤ 6000 cubic feet per minute (cfm). There are no SRs to verify that the secondary containment can be drawn down to the required vacuum within a prescribed time. In addition, the LAR did not provide a specific draw down time applicable to FitzPatrick other than referencing the 97 seconds in the LAR.

Therefore, please state the draw down time applicable to FitzPatrick and discuss how the draw down time is tested periodically at FitzPatrick. In addition, please provide the results of the draw down tests performed during the last three years.

ARCB-RAI-1

The FitzPatrick LOCA radiological dose consequence analysis was approved by letter dated December 6, 1996 (ADAMS Accession No. ML010960125), as part of the power uprate application and is reflected in Updated Final Safety Analysis Report (UFSAR) Section 14.8.2.1.1, "Loss of Coolant Accident." The PCT evaluation stated above is part of thermal hydraulic analysis that was used as the basis for the current radiological dose consequence analysis for LOCA at FitzPatrick. The design basis analysis assumptions which, evaluate the LOCA analysis, are in accordance with Regulatory Guide (RG) 1.3, "Assumption Used for Evaluating the Potential Radiological Consequences of a Loss of Coolant Accident for Boiling Water Reactors," (ADAMS Accession No. ML003739601). RG 1.3 and UFSAR Section 14.8.2.1.1 assume that all the noble gases and 25 percent of the halogens become airborne within the drywell at the time of the accident and are available for release. In addition, the FitzPatrick LOCA analysis assumes that all the noble gases and halogens leaking from the drywell into the reactor building are exhausted to the atmosphere via the SGT system and the main stack. Furthermore, the charcoal filter efficiency of the SGT system is 90 percent. This means that the current FitzPatrick licensing basis for the LOCA analysis assumes:

1. An instantaneous release at the time of the accident,
2. Secondary containment vacuum is establish at the start of the accident by the SGT system (i.e., there is no secondary containment draw down time),
3. The secondary containment is maintained at the required vacuum for the duration of the accident,
4. The amount of release is reduced by the SGT system charcoal and particulate filters,
5. The release occurs from a pathway with an elevated release point (i.e., main stack), and
6. None of the release bypasses the secondary containment.

The simultaneous opening of both an inner and outer secondary containment door, appears to allow a ground level release to occur which bypasses the SGT system which is not consistent with the FitzPatrick licensing basis radiological dose consequence analysis for LOCA.

Therefore, with regard to the current licensing basis radiological dose consequence analysis for LOCA, please demonstrate that the proposed change does not bypass the SGT system and cause a ground level release and that the functional capability of secondary containment is maintained, without an explicit secondary containment drawdown time.

Alternatively, please provide a revised radiological consequence analysis for LOCA that (1) states what assumptions and inputs are changing, (2) provides the technical reasoning for the

changes, (3) explains how the brief, inadvertent, simultaneous opening of the secondary containment access doors is accounted for, and (4) demonstrates that the regulatory limits are met.

ARCB-RAI-2

Section 3.0, "Technical Evaluation," in Attachment 1 to the LAR, dated September 14, 2017, states in part:

Empirical data from two previously reported events in which both secondary containment airlock doors were inadvertently opened simultaneously demonstrates that this condition does not significantly impact the secondary containment differential pressure. Neither of these events resulted in violation of the required secondary containment vacuum requirement (References 3 & 4).

It is not clear to the NRC staff how it was determined that the secondary containment differential pressure would be maintained during accident conditions. These reported events are not representative of the conditions present during a LOCA.

Please provide additional information demonstrating how these reported events would apply during LOCA conditions and that the functional capability of secondary containment is maintained during accident conditions. The demonstration shall include the brief, inadvertent, simultaneous opening of the secondary containment access doors.