

10 CFR 50.90

JAFP-17-0074

September 14, 2017

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-0001

James A. FitzPatrick Nuclear Power Plant  
Renewed Facility Operating License No. DPR-59  
NRC Docket No. 50-333

Subject: License Amendment Request - Proposed Change to the Technical Specifications to Address Secondary Containment Personnel Access Door Openings

Pursuant to 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," Exelon Generation Company, LLC (Exelon) proposes changes to the Technical Specifications (TS), Appendix A, of Renewed Facility Operating License No. DPR-59 for James A. FitzPatrick Nuclear Power Plant (JAF).

The proposed changes revise the JAF TS to allow for brief, inadvertent, simultaneous opening of redundant secondary containment personnel access doors during normal entry and exit conditions. Specifically, TS Surveillance Requirement (SR) 3.6.4.1.3 is modified to acknowledge that secondary containment access openings may be open for entry and exit.

The proposed changes have been reviewed by the JAF On-Site Safety Review Committee in accordance with the requirements of the Exelon Quality Assurance Program.

Attachment 1 provides the Evaluation of Proposed Changes. Attachment 2 provides the Proposed TS Marked-Up Page. Attachment 3 provides the Proposed Technical Specifications Bases Marked-Up Page for information only.

Exelon requests approval of the proposed amendment by August 1, 2018. Once approved, the amendment shall be implemented within 60 days.

This amendment request contains no regulatory commitments.

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Exelon has concluded that the proposed change presents no significant hazards consideration under the standards set forth in 10 CFR 50.92.

In accordance with 10 CFR 50.91, "Notice for public comment; State consultation," paragraph (b), Exelon is transmitting a copy of this application and its attachments to the designated State Officials.

Should you have any questions concerning this submittal, please contact Ron Reynolds at (610) 765-5247.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 14<sup>th</sup> day of September 2017.

Respectfully,



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James Barstow  
Director - Licensing & Regulatory Affairs  
Exelon Generation Company, LLC

Attachments: 1) Evaluation of Proposed Changes  
2) Proposed Technical Specification Marked-Up Page  
3) Proposed Technical Specification Bases Marked-Up Page

cc:	USNRC Region I, Regional Administrator	w/attachments
	USNRC Senior Resident Inspector, JAF	w/attachments
	USNRC Project Manager, JAF	w/attachments
	A. L. Peterson, NYSERDA	w/attachments

**ATTACHMENT 1**

**License Amendment Request**

**James A. FitzPatrick Nuclear Power Plant**

**Docket No. 50-333**

**EVALUATION OF PROPOSED CHANGES**

**Proposed Change to the Technical Specifications to Address  
Secondary Containment Personnel Access Door Openings**

- 1.0 SUMMARY DESCRIPTION**
- 2.0 DETAILED DESCRIPTION**
- 3.0 TECHNICAL EVALUATION**
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  - 4.1 Applicable Regulatory Requirements/Criteria**
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- 5.0 ENVIRONMENTAL CONSIDERATION**
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## 1.0 SUMMARY DESCRIPTION

Pursuant to 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," Exelon Generation Company, LLC (Exelon) proposes changes to the Technical Specifications (TS), Appendix A, of Renewed Facility Operating License No. DPR-59 for James A. FitzPatrick Nuclear Power Plant (JAF).

The proposed changes revise the JAF TS to allow for brief, inadvertent, simultaneous opening of redundant secondary containment personnel access doors during normal entry and exit conditions. Specifically, TS Surveillance Requirement (SR) 3.6.4.1.3 is modified to acknowledge that secondary containment access openings may be open for entry and exit.

## 2.0 DETAILED DESCRIPTION

The proposed changes address issues related to the secondary containment personnel access door openings. The secondary containment is a single system that performs a safety function. There is no redundant train or system that can perform the secondary containment function should the secondary containment be inoperable.

NUREG-1022, Revision 3, "Event Report Guidelines 10 CFR 50.72 and 50.73," discusses the reporting criteria contained in the Code of Federal Regulations (CFR), Title 10, Paragraphs 50.72 and 50.73. The discussion of 50.72(b)(3)(v) and 50.73(a)(2)(v), "Any event or condition that ... could have prevented the fulfillment of the safety function ... ," states, "There are a limited number of single-train systems that perform safety functions (e.g., the HPCI system in BWRs). For such systems, inoperability of the single train is reportable even though the plant TS may allow such a condition to exist for a limited time." Under this guidance, failure to meet the secondary containment SRs for any period of time requires declaring the secondary containment inoperable and, therefore, reporting the condition under 10 CFR 50.72 and 10 CFR 50.73, as applicable. This reporting requirement has resulted in Licensee Event Reports (LERs) in the last several years, even though secondary containment was restored to operable status quickly (i.e., typically in a matter of seconds) and secondary containment continued to be capable of performing its safety function. These reports are an unwarranted use of licensee and NRC resources and could diminish public confidence with unnecessary reporting. To prevent the need for reporting these issues, the following changes are proposed:

Under the JAF TS, opening both doors simultaneously in the access way would result in failure to meet LCO SR 3.6.4.1.3, which requires one access door in each access opening to be closed. This situation would require declaring the secondary containment inoperable with the attendant reporting requirements. NUREG-1434 BWR/6 Improved Standard Technical Specification (ISTS) (Reference 1), SR 3.6.4.1.3, contains an exception that allows both doors in an access opening to be open simultaneously for normal entry and exit, but JAF TS follow NUREG-1433 BWR/4 ISTS (Reference 2) and SR 3.6.4.1.3 does not have such an exception. The proposed change adds the BWR/6 exception to the JAF SR 3.6.4.1.3.

The purpose of the proposed change is to provide an allowance for brief, inadvertent, simultaneous opening of both an inner and outer secondary containment personnel access door during entry and exit conditions. While some plants have mechanical interlocks to prevent

opening both an inner and outer door, JAF does not. JAF was not originally designed with these interlocks. Installation of interlocks at all doors is not viable given the initial design and construction. The interlocks that have been installed on some of the secondary containment doors after initial construction do not prevent simultaneous opening of the doors. Declaring secondary containment inoperable for these brief occurrences is not warranted because negative pressure is not significantly impacted. The change to the LCO and SR description would resolve this inconsistency.

The JAF TS Bases for Secondary Containment is revised consistent with the proposed change to SR 3.6.4.1.3.

### **3.0 TECHNICAL EVALUATION**

The secondary containment is a structure that completely encloses the primary containment and those components that may contain primary system fluid. To prevent ground level exfiltration of radioactive material while allowing the secondary containment to be designed as a conventional structure, the secondary containment requires support systems to maintain the control volume pressure at less than atmospheric pressure during design basis events. During normal operation, non-accident systems are used to maintain the secondary containment at a negative pressure. It is possible for the secondary containment pressure to rise relative to the environmental pressure during design basis events.

The secondary containment boundary is the combination of walls, floors, roof, ducting, doors, hatches, penetrations and equipment that physically form the secondary containment. For penetrations that consist of a hatch, typically one hatch is provided. For penetrations that contain doors, there exists at least one inner and one outer door. All secondary containment access doors are normally kept closed, except when the access opening is being used for entry and exit of personnel or equipment.

The safety function of the secondary containment is to contain, dilute, and hold up fission products that may leak from primary containment following a Design Basis Accident (DBA) to ensure the control room operator and offsite doses are within the regulatory and NRC-approved limits. In conjunction with operation of the Standby Gas Treatment (SGT) System, and closure of certain valves whose lines penetrate the secondary containment, the secondary containment is designed to contain the fission products that leak from primary containment, or are released from the reactor coolant pressure boundary components located in secondary containment prior to release to the environment. 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 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 functions.

There are two principal accidents for which credit is taken for secondary containment operability. These are a Loss of Coolant Accident (LOCA) and a Refueling Accident involving handling recently irradiated fuel inside secondary containment. The JAF TS ensure the operability of secondary containment in all modes applicable to these principal accidents.

The JAF design basis accident analyses demonstrate that the dose consequences associated with a LOCA and Refueling Accident remain well below the regulatory limits of 10 CFR 100 and 10 CFR 50.67, respectively. The design basis accident analyses assumptions are in accordance with NRC Regulatory Guide 1.183 for the refueling accident and NRC Regulatory Guide 1.3 for a LOCA. JAF submitted application for selective implementation of the Alternative Source Term (AST) for the Design Basis Refueling Accident by letter dated June 7, 2002. The NRC approved implementation by letter dated September 12, 2002. The JAF LOCA dose consequence analysis was submitted to the NRC as part of the power uprate application dated June 12, 1992, as supplemented through November 20, 1996. The NRC approved the JAF LOCA dose consequence analysis by letter dated December 6, 1996.

The Refueling Accident dose consequence analysis includes significant conservatism that bounds any potential impact of ingress/egress through secondary containment airlock doors under accident conditions. The JAF refueling accident analysis assumes an unfiltered Reactor Building vent release (ground level) for two minutes at a rate of 99,800 cfm.

The LOCA dose consequence analysis assumes that the secondary containment is maintained at the required vacuum (greater than or equal to 0.25 inches of water) for the duration of the accident. This is consistent with TS SR 3.6.4.1.1, which is applicable in Modes 1, 2, and 3. The drywell leakage source term is released via the plant stack (elevated). 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). In addition, the JAF LOCA 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.

The time both doors may be open simultaneously will be limited to the time it takes to traverse through a door, typically less than ten (10) seconds; therefore, substantial margin exists to ensure that the secondary containment remains operable and the functional capability of secondary containment is maintained during brief, inadvertent, simultaneous opening of inner and outer secondary containment personnel access doors. In these cases, the secondary containment remains capable of processing fission products that may leak from primary containment following a DBA, which will ensure the control room operator and offsite doses are within the regulatory and NRC-approved limits.



The proposed change does not involve planned simultaneous opening of redundant secondary containment personnel access doors. For situations that involve planned simultaneous opening of the doors, secondary containment will be declared inoperable and the appropriate TS action will be followed.

The TS SRs require verification that at least one door is closed in each secondary containment penetration. The intent of these requirements is to not breach secondary containment at any time when secondary containment is required. Therefore, secondary containment personnel access doors are normally kept closed, except when the access doors are being used for entry and exit. Secondary containment personnel access doors are equipped with security alarms, which can assist station personnel in complying with these requirements.

SR 3.6.4.1.3 is proposed to be revised to include the same exception as the NUREG-1434 BWR/6 SR 3.6.4.1.3. The text in bold italics, below, is proposed to be added.

Verify one secondary containment access door in each access opening is closed, ***except when the access opening is being used for entry and exit.***

NUREG-1434 BWR/6 ISTS, SR 3.6.4.1.3, contains an exception that allows both doors in an access opening to be opened simultaneously for normal entry and exit, but the JAF TS does not have such an exception. This allowance is reasonable because the doors will be closed following entry or exit because the doors are under the continuous control of the person(s) accessing the doors, and the doors will be promptly closed following entry and exit, restoring the secondary containment boundary. The phrase "being used for entry and exit" ensures that the time that both doors may be open simultaneously is limited to the time it takes to traverse through a door, which is insignificant.

JAF SR 3.6.4.1.3 requires verification that at least one door is closed in each secondary containment access opening. The intent of these requirements is to not breach secondary containment at any time when secondary containment is required. This is achieved by maintaining the inner or outer portion of the barrier closed at all times. All secondary containment personnel access doors are normally kept closed, except when the access opening is being used for entry and exit. Brief, inadvertent, simultaneous opening of secondary containment personnel access doors is acceptable due to the low probability of an event that requires secondary containment due to infrequent activities and during the short time in which the secondary containment doors are open.

For a LOCA (with a loss of offsite power), the SGT system would not be available until after the diesel generators (DGs) start and achieve the required voltage and frequency. TS SR 3.8.1.12 specifies that the DG subsystems auto-start from the standby condition, force parallel, and energize permanently connected loads in  $\leq 11$  seconds. This time bounds the time (i.e., typically less than 10 seconds) that redundant secondary containment access doors would be inadvertently simultaneously open. As a result, there would not be any impact on the ability of the SGT system to maintain secondary containment at the TS required vacuum condition. As stated above, the JAF LOCA evaluation demonstrates that PCT is not reached until approximately ninety-seven (97) seconds post-accident. This release would then have to be transported from the reactor pressure vessel into primary containment, and then into the

secondary containment volume. Since these timeframes bound the time that both doors in secondary containment access openings may be open under the proposed change (typically less  $\leq$  10 seconds), the functional capability of secondary containment will be maintained during accident conditions.

Personnel are trained in Nuclear General Employee Training (NGET) to not open a secondary containment personnel access door if the indicating light is illuminated. Additionally, administrative controls exist specifying that the user verifies an indicating light and pauses for 5 seconds prior to proceeding. The intent of these administrative controls is to allow personnel whom may have entered the airlock at an earlier time to successfully traverse to the exit door prior to the next attempted entry/exit. Occasionally, an individual may attempt access through the opposite airlock entry point, resulting in a simultaneous door opening by another individual. Well-intended individuals occasionally end up in this situation, which cannot be prevented under the original licensed design.

#### Proposed Bases Revisions

The JAF TS Bases for Secondary Containment will be revised consistent with the proposed changes to SR 3.6.4.1.3.

## **4.0 REGULATORY EVALUATION**

### **4.1 Applicable Regulatory Requirements/Criteria**

The following regulatory requirements have been considered:

Title 10 of the Code of Federal Regulations (10 CFR), Section 50.36, "Technical specifications," in which the Commission established its regulatory requirements related to the contents of the TS. Specifically, 10 CFR 50.36(c)(2) states, in part, "Limiting conditions for operation are the lowest functional capability or performance levels of equipment required for safe operation of the facility." 10 CFR 50.36(c)(3) states, "Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met."

The proposed changes to the secondary containment SRs do not affect compliance with these regulations.

The applicable 10 CFR Part 50, Appendix A, General Design Criteria (GDC), was considered as follows:

Criterion 16 - Containment Design. Reactor containment and associated systems shall be provided to establish an essentially leak-tight barrier against the uncontrolled release of radioactivity to the environment and to assure that the containment design conditions important to safety are not exceeded for as long as postulated accident conditions require.

The proposed change does not alter the design of the secondary containment or its ability to establish an essentially leak-tight barrier against the uncontrolled release of radioactivity.



## 4.2 Precedent

Letter from NRC (B. Purnell) to Exelon (B. Hanson), "Dresden Nuclear Power Station, Units 2 and 3; LaSalle County Station, Units 1 and 2; and Quad Cities Nuclear Power Station, Units 1 and 2 – Issuance of Amendments to Revise Surveillance Requirements for Secondary Containment Access Doors," dated February 16, 2017 (CAC NOS. MF7325 – MF7330).

Letter from NRC (B. Mozafari) to Exelon (B. Hanson), "Nine Mile Point Nuclear Station, Units 1 and 2 - Issuance of Amendments Re: Secondary Containment Personnel Access Door Openings," dated August 31, 2016 (CAC NOS. MF6974 AND MF6975).

## 4.3 No Significant Hazards Consideration

The proposed amendment would revise the JAF Technical Specification (TS) to allow for brief, inadvertent, simultaneous opening of redundant secondary containment personnel access doors during normal entry and exit conditions. Specifically, TS SR 3.6.4.1.3 is modified to acknowledge that secondary containment access openings may be open for entry and exit.

Exelon has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

1. **Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?**

Response: No.

The proposed change addresses conditions during which the secondary containment SR 3.6.4.1.3 is not met. The secondary containment is not an initiator of any accident previously evaluated. As a result, the probability of any accident previously evaluated is not increased. The consequences of an accident previously evaluated while utilizing the proposed changes are no different than the consequences of an accident while utilizing the existing four-hour Completion Time for an inoperable secondary containment. As a result, the consequences of an accident previously evaluated are not significantly increased.

Therefore, the proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. **Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?**

Response: No.

The proposed change does not alter the protection system design, create new failure modes, or change any modes of operation. The proposed change does not involve a physical alteration of the plant; and no new or different kind of equipment will be installed. Consequently, there are no new initiators that could result in a new or different kind of accident.

Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

**3. Does the proposed amendment involve a significant reduction in a margin of safety?**

Response: No.

The proposed change would provide an allowance for brief, inadvertent, simultaneous opening of redundant secondary containment personnel access doors during normal entry and exit conditions. The allowance for both an inner and outer secondary containment access door to be open simultaneously for entry and exit does not significantly impact the ability to maintain the required secondary containment vacuum as the doors are promptly closed after entry or exit, thereby restoring the secondary containment boundary. In addition, brief, inadvertent, simultaneous opening and closing of redundant secondary containment personnel access doors during entry and exit conditions does not significantly impact the ability of the Standby Gas Treatment (SGT) System to maintain the required secondary containment vacuum. Therefore, the safety function of the secondary containment is not affected.

Therefore, the proposed changes do not involve a significant reduction in a margin of safety.

Based on the above, Exelon concludes that the proposed amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c) and, accordingly, a finding of “no significant hazards consideration” is justified.

## **5.0 ENVIRONMENTAL CONSIDERATION**

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

## 6.0 REFERENCES

1. NUREG-1434, "Standard Technical Specifications, General Electric BWR/6 Plants," Revision 4.0, dated April 2012.
2. NUREG-1433, "Standard Technical Specifications, General Electric BWR/4 Plants," Revision 4.0, dated April 2012.
3. Licensee Event Report LER: 2016-003-00, Concurrent Opening of Reactor Building Airlock Doors, dated August 3, 2016.
4. Licensee Event Report LER: 2015-004-00, Concurrent Opening of Reactor Building Airlock Doors, dated November 6, 2015.

**ATTACHMENT 2**

**License Amendment Request**

**James A. FitzPatrick Nuclear Power Plant  
Docket No. 50-333**

**Proposed Change to the Technical Specifications to Address  
Secondary Containment Personnel Access Door Openings**

**Proposed Technical Specification Marked-Up Page**

**TS Page**

3.6.4.1-2

**ACTIONS (continued)**

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2 Initiate action to suspend OPDRVs.	Immediately

**SURVEILLANCE REQUIREMENTS**

SURVEILLANCE	FREQUENCY
SR 3.6.4.1.1 Verify secondary containment vacuum is $\geq 0.25$ inch of vacuum water gauge.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.1.2 Verify all secondary containment equipment hatches are closed and sealed.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.1.3 Verify one secondary containment access door in each access opening is closed. <span style="border: 1px solid red; padding: 2px; display: inline-block; margin-left: 10px;">, except when the access opening is being used for entry and exit.</span>	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.1.4 Verify the secondary containment can be maintained $\geq 0.25$ inch of vacuum water gauge for 1 hour using one SGT subsystem at a flow rate $\leq 6000$ cfm.	In accordance with the Surveillance Frequency Control Program

**ATTACHMENT 3**

**License Amendment Request**

**James A. FitzPatrick Nuclear Power Plant**

**Docket No. 50-333**

**Proposed Change to the Technical Specifications to Address  
Secondary Containment Personnel Access Door Openings**

**Proposed Technical Specification Bases Marked-Up Page  
(for information only)**

**Bases Page**

B 3.6.4.1-4



BASES

SURVEILLANCE  
REQUIREMENTS

SR 3.6.4.1.1 (continued)

installed instrumentation due to gusty wind conditions are considered acceptable and not cause for failure of this SR. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

3

SR 3.6.4.1.2 and SR 3.6.4.1.3

and

Verifying that secondary containment equipment hatches and one access door in each access opening are closed ensures that the infiltration of outside air of such a magnitude as to prevent maintaining the desired negative pressure does not occur. Verifying that all such openings are closed provides adequate assurance that exfiltration from the secondary containment will not occur. SR 3.6.4.1.2 also requires equipment hatches to be sealed. In this application, the term "sealed" has no connotation of leak tightness. ~~Maintaining secondary containment OPERABILITY requires verifying one door in the access opening is closed. An access opening contains one inner and one outer door. In some cases, secondary containment access openings are shared such that a secondary containment barrier may have multiple outer doors. The intent is to not breach the secondary containment at any time when secondary containment is required. This is achieved by maintaining the inner or outer portion of the barrier closed at all times. However, all secondary containment access doors are normally kept closed, except when the access opening is being used for entry and exit or when maintenance is being performed on an access opening.~~

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

(continued)

An access opening contains at least one inner and one outer door. The intent is to not breach the secondary containment, which is achieved by maintaining the inner or outer portion of the barrier closed. SR 3.6.4.1.3 provides an exception to allow brief, unintentional, simultaneous opening of both an inner and outer secondary containment access door for entry and exit.