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RS-16-035 10 CFR 50.90

February 3, 2016

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

Dresden Nuclear Power Station, Units 2 and 3
Renewed Facility Operating License Nos. DPR-19 and DPR-25
NRC Docket Nos. 50-237 and 50-249

LaSalle County Station, Units 1 and 2
Facility Operating License Nos. NPF-11 and NPF-18
NRC Docket Nos. 50-373 and 50-374

Quad Cities Nuclear Power Station, Units 1 and 2
Renewed Facility Operating License Nos. DPR-29 and DPR-30
NRC Docket Nos. 50-254 and 50-265

Subject: Request for License Amendment to Address Secondary Containment Access Openings

In accordance with 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," Exelon Generation Company, LLC (EGC) requests an amendment to Renewed Facility Operating License Nos. DPR-19 and DPR-25 for Dresden Nuclear Power Station, Units 2 and 3, Facility Operating License Nos. NPF-11 and NPF-18 for LaSalle County Station, Units 1 and 2, and Renewed Facility Operating License Nos. DPR-29 and DPR-30 for Quad Cities Nuclear Power Station, Units 1 and 2.

The proposed change revises Technical Specifications (TS) 3.6.4.1, "Secondary Containment," Surveillance Requirement (SR) 3.6.4.1.2 to provide an allowance for brief, inadvertent, simultaneous opening of redundant secondary containment access doors during normal entry and exit conditions.

This request is subdivided as follows.

- Attachment 1 provides a description and evaluation of the proposed change.
- Attachment 2 provides a markup of the affected TS pages.
- Attachment 3 provides a markup of the affected TS Bases pages. The TS Bases pages are provided for information only, and do not require NRC approval.

The proposed change has been reviewed by the Plant Operations Review Committees at each station and approved by the Nuclear Safety Review Board in accordance with the requirements of the EGC Quality Assurance Program.

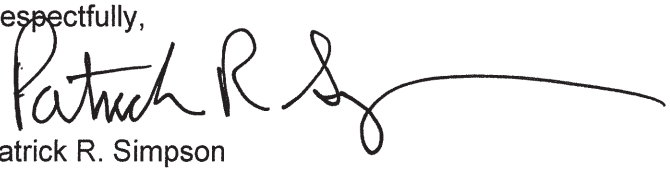
EGC requests approval of the proposed change by February 3, 2017. Once approved, the amendment will be implemented within 90 days. This implementation period will provide adequate time for the affected station documents to be revised using the appropriate change control mechanisms.

In accordance with 10 CFR 50.91, "Notice for public comment; State consultation," paragraph (b), EGC is notifying the State of Illinois of this application for license amendment by transmitting a copy of this letter and its attachments to the designated State Official.

There are no regulatory commitments contained in this letter. Should you have any questions concerning this letter, please contact Mr. Kenneth M. Nicely at (630) 657-2803.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 3rd day of February 2016.

Respectfully,



Patrick R. Simpson
Manager – Licensing

Attachments:
1. Evaluation of Proposed Change
2. Markup of Proposed Technical Specifications Pages
3. Markup of Proposed Technical Specifications Bases Pages

cc: NRC Regional Administrator, Region III
NRC Senior Resident Inspector – Dresden Nuclear Power Station
NRC Senior Resident Inspector – LaSalle County Station
NRC Senior Resident Inspector – Quad Cities Nuclear Power Station
Illinois Emergency Management Agency – Division of Nuclear Safety

ATTACHMENT 1
Evaluation of Proposed Change

1.0 SUMMARY DESCRIPTION

In accordance with 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," Exelon Generation Company, LLC (EGC) requests an amendment to Renewed Facility Operating License Nos. DPR-19 and DPR-25 for Dresden Nuclear Power Station (DNPS), Units 2 and 3, Facility Operating License Nos. NPF-11 and NPF-18 for LaSalle County Station (LSCS), Units 1 and 2, and Renewed Facility Operating License Nos. DPR-29 and DPR-30 for Quad Cities Nuclear Power Station (QCNPS), Units 1 and 2.

The proposed change revises Technical Specifications (TS) 3.6.4.1, "Secondary Containment," Surveillance Requirement (SR) 3.6.4.1.2 to provide an allowance for brief, inadvertent, simultaneous opening of redundant secondary containment access doors during normal entry and exit conditions.

2.0 DETAILED DESCRIPTION

The proposed change addresses issues related to the secondary containment access openings. The secondary containment is a single-train 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 10 CFR 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." The failure to meet the secondary containment SRs of TS 3.6.4.1 for any period of time requires declaring the secondary containment inoperable. Therefore, in accordance with the guidance of NUREG-1022, licensees must report the condition under 10 CFR 50.72 and 10 CFR 50.73, as applicable. This reporting requirement has resulted in numerous Licensee Event Reports (LERs) in the last several years even though in the vast majority of cases the secondary containment was restored to operable status quickly (i.e., much less than the four-hour Completion Time for an inoperable secondary containment) and the secondary containment continued to be capable of performing its safety function. These reports are an unwarranted use of licensee and NRC resources.

To prevent the need of reporting these issues, the following is proposed.

Proposed SR 3.6.4.1.2 Revision: The purpose of the proposed change is to provide an allowance for brief, inadvertent, simultaneous opening of both an inner and outer secondary containment access opening door during normal entry and exit conditions. While some plants have interlocks to prevent opening both an inner and outer door, the interlocks may not be effective depending on the timing of the openings, and the use of multiple inner or outer doors for a particular access opening. Under the DNPS, LSCS, and QCNPS TS, opening both an inner and outer door in an access opening at the same time would result in failure to meet SR 3.6.4.1.2, which requires one access door in each access opening to be closed. This situation requires declaring the secondary containment inoperable with the attendant reporting

requirements. NUREG-1434, "Standard Technical Specifications General Electric BWR/6 Plants," SR 3.6.4.1.3 contains an exception for both doors in an access opening to be open simultaneously for normal entry and exit, but the DNPS, LSCS, and QCNPS SRs do not have such an exception. The proposed change adds the NUREG-1434 BWR/6 exception to the DNPS, LSCS, and QCNPS SRs.

Proposed Bases Revision: The TS 3.6.4.1 Secondary Containment Bases are revised consistent with the proposed change discussed above.

A markup of the proposed TS change is provided in Attachment 2. Attachment 3 provides a markup of the affected Bases pages. The TS Bases pages are provided for information only and do not require NRC approval.

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. It is possible for the secondary containment pressure to rise relative to the environmental pressure during design basis events. 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. Following a design basis accident (DBA), the Standby Gas Treatment (SGT) system ensures the secondary containment pressure is less than the external atmospheric pressure.

The secondary containment boundary is the combination of walls, floor, roof, ducting, doors, hatches, penetrations and equipment that physically form the secondary containment. A secondary containment access opening contains at least one inner and one outer door. In some cases, secondary containment access openings are shared such that there are multiple inner or outer doors. 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 DBA to ensure the control room operator and offsite doses are within the regulatory limits. In conjunction with operation of the SGT system and closure of certain valves whose lines penetrate the secondary containment, the secondary containment is designed to reduce the activity level of the fission products that bypass or 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 system is in operation.

The secondary containment vacuum requirements, which demonstrate leak-tightness, and the SGT system together ensure radioactive material is contained. As long as a SGT subsystem can draw the required vacuum on the secondary containment when needed, the secondary containment can perform its safety function and remain capable of containing 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 limits.

SR 3.6.4.1.2 currently requires verification that one door is closed in each secondary containment access opening. The intent of this requirement is to not breach secondary containment at any time when secondary containment is required operable. When required operable, all secondary containment access doors are normally kept closed, except when the access opening is being used for entry and exit.

As discussed in Section 2.0 above, the reporting requirements in 10 CFR 50.72 and 50.73 require prompt notification and submittal of an LER whenever the secondary containment is inoperable, regardless of the length of time of the inoperability or whether secondary containment could still fulfill its safety function. To address this situation, the following change is proposed which will allow the secondary containment to be operable during brief circumstances which currently would require declaring the secondary containment inoperable.

Proposed SR 3.6.4.1.2 Revision

SR 3.6.4.1.2 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 italics, below, is 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.*

The NUREG-1434 BWR/6 SR 3.6.4.1.3 contains an exception for both doors in an access opening being opened simultaneously for normal entry and exit, but the current DNPS, LSCS, and QCNPS SRs do not. This allowance is reasonable because the doors are under the continuous control of the person(s) accessing the doors, and the doors will be promptly closed following entry or 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. Brief, simultaneous opening of secondary containment access doors is acceptable due to the low probability of an event that requires secondary containment during the short time in which the secondary containment access doors are open.

The intent of the proposed change is to allow for brief, inadvertent, simultaneous opening of redundant secondary containment access doors during normal entry and exit. The proposed change does not involve planned simultaneous opening of redundant secondary containment 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 in accordance with the existing TS requirements.

For inadvertent, simultaneous opening of the doors, the administrative controls involve the fact that both doors are under continuous control of the individuals accessing the doors, and that the doors are promptly closed following entry and exit, restoring the secondary containment boundary. The phrase "being used for entry and exit" in the proposed change ensures that the time both doors may be open simultaneously is limited to the time it takes to traverse through a door, which is insignificant.

The TS SRs require 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 operable. Therefore, when required operable, secondary containment access doors are normally kept closed, except when the access doors are being used for entry and exit.

There are many doors in a nuclear power plant that are credited as barriers, such as fire doors, security doors, flooding doors, high energy line break doors, control room doors, and secondary containment doors. Administrative controls are applied to these types of doors and the person using the door is responsible for opening and closing the door securely and for not keeping the door open any longer than necessary for entry. Under the proposed change, secondary containment doors will be treated in a manner similar to other barrier doors. For example, TS 3.7.4 for DNPS, LSCS, and QCNPS contains an LCO Note that allows the control room envelope (CRE) boundary to be opened intermittently under administrative control. The TS Bases state:

> The LCO is modified by a Note allowing the CRE boundary to be opened intermittently under administrative controls. ...For entry and exit through doors, the administrative control of the opening is performed by the person(s) entering or exiting the area.

DNPS, LSCS, and QCNPS have administrative requirements to open only one secondary containment door at a time when secondary containment is required to be operable. Should both doors be inadvertently opened simultaneously, the proposed exception in the SR of "being used for entry and exit" ensures that the time that both doors may be open is limited to the time it takes to traverse through a door. If an accident should occur during the brief period that both doors could be open for entry and exit, and should that accident require secondary containment vacuum to be established by the SGT system, it might not be possible for the SGT system to establish the required vacuum until one door is closed. However, the accident analyses assume only one SGT subsystem is in operation and the secondary containment is initially at atmospheric pressure. Therefore, the few seconds required to close at least one secondary containment door should not have any significant effect on the ability to establish secondary containment vacuum as assumed in the accident analysis.

Proposed Bases Revisions

The TS 3.6.4.1 Secondary Containment Bases are revised consistent with the proposed change discussed above.

4.0 REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

The following regulatory requirements have been considered:

- 10 CFR 50.36, "Technical specifications," in which the NRC 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 of operation will be met."

The proposed change to secondary containment SR 3.6.4.1.2 does not affect compliance with these regulations.

For LSCS, the applicable 10 CFR Part 50, Appendix A, General Design Criteria, 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.

DNPS and QCNPS were not licensed to the 10 CFR 50, Appendix A, General Design Criteria. The plants' Updated Final Safety Analysis Reports, Section 3.1, "Conformance with NRC General Design Criteria," provides an assessment against the draft General Design Criteria published in 1967. As such, for DNPS and QCNPS, the applicable Draft General Design Criteria, issued July 1967, was considered as follows:

- Criterion 10 – Containment shall be provided. The containment structure shall be designed to sustain the initial effects of gross equipment failures, such as a large coolant boundary break, without loss of required integrity and, together with other engineered safety features as may be necessary, to retain for as long as the situation requires the functional capability to protect the public.

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 No Significant Hazards Consideration

In accordance with 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," Exelon Generation Company, LLC (EGC) requests an amendment to Renewed Facility Operating License Nos. DPR-19 and DPR-25 for Dresden Nuclear Power Station (DNPS), Units 2 and 3, Facility Operating License Nos. NPF-11 and NPF-18 for LaSalle County Station (LSCS), Units 1 and 2, and Renewed Facility Operating License Nos. DPR-29 and DPR-30 for Quad Cities Nuclear Power Station (QCNPS), Units 1 and 2.

The proposed change revises Technical Specifications (TS) 3.6.4.1, "Secondary Containment," Surveillance Requirement (SR) 3.6.4.1.2 to provide an allowance for brief, inadvertent, simultaneous opening of redundant secondary containment access doors during normal entry and exit conditions.

According to 10 CFR 50.92, "Issuance of amendment," paragraph (c), a proposed amendment to an operating license involves no significant hazards consideration if operation of the facility in accordance with the proposed amendment would not:

(1) Involve a significant increase in the probability or consequences of any accident previously evaluated; or

(2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or

(3) Involve a significant reduction in a margin of safety.

EGC has evaluated the proposed change, using the criteria in 10 CFR 50.92, and has determined that the proposed change does not involve a significant hazards consideration. The following information is provided to support a finding of no significant hazards consideration.

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

   Response: No

   The proposed change allows temporary conditions during which secondary containment SR 3.6.4.1.2 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 change 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 change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change 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 change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

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

   Response: No

   The proposed change allows temporary conditions during which secondary containment SR 3.6.4.1.2 is not met. The allowance for both an inner and outer secondary containment access door to be open simultaneously for entry and exit does not affect the safety function of the secondary containment 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 access doors during normal entry and exit conditions does not affect the ability of the Standby Gas Treatment system to establish the required secondary containment vacuum. Therefore, the safety function of the secondary containment is not affected.

   Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above evaluation, EGC concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92, paragraph (c), and accordingly, a finding of no significant hazards consideration is justified.

4.3 Conclusions

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or the health and safety of the public.

5.0 ENVIRONMENTAL CONSIDERATION

EGC 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, "Standards for Protection Against Radiation." 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, "Criterion for categorical exclusion; identification of licensing and regulatory actions eligible for categorical exclusion or otherwise not requiring environmental review," paragraph (c)(9). Therefore, pursuant to 10 CFR 51.22, paragraph (b), no environmental impact statement or environmental assessment needs to be prepared in connection with the proposed amendment.

ATTACHMENT 2
Markup of Proposed Technical Specifications Pages

Dresden Nuclear Power Station, Units 2 and 3
Renewed Facility Operating License Nos. DPR-19 and DPR-25

LaSalle County Station, Units 1 and 2
Facility Operating License Nos. NPF-11 and NPF-18

Quad Cities Nuclear Power Station, Units 1 and 2
Renewed Facility Operating License Nos. DPR-29 and DPR-30

REVISED TECHNICAL SPECIFICATIONS PAGES

Dresden Nuclear Power Station, Units 2 and 3

3.6.4.1-2

LaSalle County Station, Units 1 and 2

3.6.4.1-3

Quad Cities Nuclear Power Station, Units 1 and 2

3.6.4.1-2

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.1.1	Verify secondary containment vacuum is ≥ 0.25 inch of vacuum water gauge.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.1.2	Verify one secondary containment access door in each access opening is closed., except when the access opening is being used for entry and exit	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.1.3	Verify the secondary containment can be maintained ≥ 0.25 inch of vacuum water gauge for 1 hour using one SGT subsystem at a flow rate ≤ 4000 cfm.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.1.4	Verify all secondary containment equipment hatches are closed and sealed.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.1.1	Verify secondary containment vacuum is ≥ 0.25 inch of vacuum water gauge.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.1.2	Verify one secondary containment access door in each access opening is closed., except when the access opening is being used for entry and exit	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.1.3	Verify the secondary containment can be drawn down to ≥ 0.25 inch of vacuum water gauge in ≤ 900 seconds using one standby gas treatment (SGT) subsystem.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.1.4	Verify the secondary containment can be maintained ≥ 0.25 inch of vacuum water gauge for 1 hour using one SGT subsystem at a flow rate ≤ 4400 cfm.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.1.5	Verify all secondary containment equipment hatches are closed and sealed.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.1.1	Verify secondary containment vacuum is ≥ 0.10 inch of vacuum water gauge.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.1.2	Verify one secondary containment access door in each access opening is closed., except when the access opening is being used for entry and exit	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.1.3	Verify the secondary containment can be maintained ≥ 0.25 inch of vacuum water gauge for 1 hour using one SGT subsystem at a flow rate ≤ 4000 cfm.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.1.4	Verify all secondary containment equipment hatches are closed and sealed.	In accordance with the Surveillance Frequency Control Program

ATTACHMENT 3
Markup of Proposed Technical Specifications Bases Pages

Dresden Nuclear Power Station, Units 2 and 3
Renewed Facility Operating License Nos. DPR-19 and DPR-25

LaSalle County Station, Units 1 and 2
Facility Operating License Nos. NPF-11 and NPF-18

Quad Cities Nuclear Power Station, Units 1 and 2
Renewed Facility Operating License Nos. DPR-29 and DPR-30

REVISED TECHNICAL SPECIFICATIONS BASES PAGES

Dresden Nuclear Power Station, Units 2 and 3

B 3.6.4.1-5
B 3.6.4.1-6

LaSalle County Station, Units 1 and 2

B 3.6.4.1-4
B 3.6.4.1-5
B 3.6.4.1-6

Quad Cities Nuclear Power Station, Units 1 and 2

B 3.6.4.1-5
B 3.6.4.1-6

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.4.1.2 ~~and SR 3.6.4.1.4~~

Verifying that one secondary containment access door in each access opening is closed ~~and each equipment hatch is closed and sealed 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. ~~In this application, the term "sealed" has no connotation of leak tightness. In addition, for equipment hatches that are floor plugs, the "sealed" requirement is effectively met by gravity. Maintaining secondary containment OPERABILITY requires verifying one door in the access opening is closed.~~ An access opening contains ~~one~~ at least one inner and one outer door. In some cases a secondary containment barrier contains multiple inner or multiple outer doors. For these cases, the access openings share the inner door or the outer door, i.e., the access openings have a common inner door or outer door. The intent is to not breach the secondary containment , which ~~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,~~ except when the access opening is being used for entry and exit; i.e., all inner doors closed or all outer doors closed. Thus each access opening has one door closed. ~~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.

SR 3.6.4.1.3

The SGT System exhausts the secondary containment atmosphere to the environment through appropriate treatment equipment. Each SGT subsystem is designed to maintain the secondary containment at ≥ 0.25 inches of vacuum water gauge for 1 hour at a flow rate of ≤ 4000 cfm. To ensure that all

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.4.1.3 (continued)

fission products released to the secondary containment are treated, SR 3.6.4.1.3 verifies that a pressure in the secondary containment that is less than the lowest postulated pressure external to the secondary containment boundary can be maintained. When the SGT System is operating as designed, the maintenance of secondary containment pressure cannot be accomplished if the secondary containment boundary is not intact. SR 3.6.4.1.3 demonstrates that the pressure in the secondary containment can be maintained ≥ 0.25 inches of vacuum water gauge for 1 hour using one SGT subsystem at a flow rate ≤ 4000 cfm. The 1 hour test period allows secondary containment to be in thermal equilibrium at steady state conditions. The primary purpose of the SR is to ensure secondary containment boundary integrity. The secondary purpose of the SR is to ensure that the SGT subsystem being tested functions as designed. There is a separate LCO with Surveillance Requirements that serves the primary purpose of ensuring OPERABILITY of the SGT System. This SR need not be performed with each SGT subsystem. The SGT subsystem used for this Surveillance is staggered to ensure that in addition to the requirements of LCO 3.6.4.3, either SGT subsystem will perform this test. The inoperability of the SGT System does not necessarily constitute a failure of this Surveillance relative to secondary containment OPERABILITY. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

REFERENCES

1. UFSAR, Section 15.6.5.

2. NEDC-32988-A, Revision 2, Technical Justification to Support Risk-Informed Modification to Selected Required End States for BWR Plants, December 2002.

SR 3.6.4.1.4

Verifying that secondary containment equipment hatches are closed ensures that the infiltration of outside air of such a magnitude as to prevent maintaining the desired negative pressure does not occur and provides adequate assurance that exfiltration from the secondary containment will not occur. In this application, the term "sealed" has no connotation of leak tightness. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

BASES

ACTIONS

C.1, C.2, and C.3 (continued)

Required Action C.1 has been modified by a Note stating that LCO 3.0.3 is not applicable. If moving irradiated fuel assemblies while in MODE 4 or 5, LCO 3.0.3 would not specify any action. If moving irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Therefore, in either case, inability to suspend movement of irradiated fuel assemblies would not be a sufficient reason to require a reactor shutdown.

SURVEILLANCE REQUIREMENTS

SR 3.6.4.1.1

This SR ensures that the secondary containment boundary is sufficiently leak tight to preclude exfiltration. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

SR 3.6.4.1.2 ~~and SR 3.6.4.1.5~~

Verifying that one secondary containment access door in each access opening is closed ~~and each equipment hatch is closed and sealed 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. ~~In this application, the term "sealed" has no connotation of leak tightness. In addition, for equipment hatches that are floor plugs, the "sealed" requirement is effectively met by gravity. Maintaining secondary containment OPERABILITY requires verifying one door in the access opening is closed.~~ An access opening contains ~~one~~ at least one inner and one outer door. In some cases a secondary containment barrier contains multiple inner or multiple outer doors. For these cases, the access openings share the inner door or the outer door, i.e., the access openings have a common inner door or outer door. The intent is to not breach the secondary containment ~~at any time when secondary containment is required.~~ , which ~~This~~ is achieved by maintaining the inner or outer portion of the barrier closed ~~at all times,~~ except when the access opening is being used for entry and exit; i.e., all inner doors closed or all outer doors closed. Thus each access opening has one

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.4.1.2 ~~and SR 3.6.4.1.5~~ (continued)

door closed. ~~However, each secondary containment access door is normally kept closed, except when the access opening is being used for entry and exit or when maintenance is being performed on the access opening.~~ The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

SR 3.6.4.1.3 and SR 3.6.4.1.4

The SGT System exhausts the secondary containment atmosphere to the environment through appropriate treatment equipment. Each SGT subsystem is designed to drawdown pressure in the secondary containment to ≥ 0.25 inches of vacuum water gauge in ≤ 300 seconds and maintain pressure in the secondary containment at ≥ 0.25 inches of vacuum water gauge for 1 hour at a flow rate of ≤ 4400 cfm. To ensure that all fission products released to secondary containment are treated, SR 3.6.4.1.3 and SR 3.6.4.1.4 verify that a pressure in the secondary containment that is less than the pressure external to the secondary containment boundary can rapidly be established and maintained. When the SGT System is operating as designed, the establishment and maintenance of secondary containment pressure cannot be accomplished if the secondary containment boundary is not intact. Establishment of this pressure is confirmed by SR 3.6.4.1.3, which demonstrates that the secondary containment can be drawn down to ≥ 0.25 inches of vacuum water gauge in ≤ 900 seconds using one SGT subsystem. SR 3.6.4.1.4 demonstrates that the pressure in the secondary containment can be maintained ≥ 0.25 inches of vacuum water gauge for 1 hour using one SGT subsystem at a flow rate ≤ 4400 cfm. This flow rate is the assumed secondary containment leak rate during the drawdown period. The 1 hour test period allows secondary containment to be in thermal equilibrium at

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.4.1.3 and SR 3.6.4.1.4 (continued)

steady state conditions. The primary purpose of the SRs is to ensure secondary containment boundary integrity. The secondary purpose of these SRs is to ensure that the SGT subsystem being tested functions as designed. There is a separate LCO with Surveillance Requirements that serves the primary purpose of ensuring OPERABILITY of the SGT System. These SRs need not be performed with each SGT subsystem. The SGT subsystem used for these Surveillances is staggered to ensure that in addition to the requirements of LCO 3.6.4.3, either SGT subsystem will perform this test. The inoperability of the SGT System does not necessarily constitute a failure of these Surveillances relative to secondary containment OPERABILITY. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

REFERENCES

1. UFSAR, Section 15.6.5.

2. UFSAR, Section 15.7.4.

3. NEDC-32988-A, Revision 2, "Technical Justification to Support Risk-Informed Modification to Selected Required End States for BWR Plants," December 2002.

SR 3.6.4.1.5

Verifying that secondary containment equipment hatches are closed ensures that the infiltration of outside air of such a magnitude as to prevent maintaining the desired negative pressure does not occur and provides adequate assurance that exfiltration from the secondary containment will not occur. In this application, the term "sealed" has no connotation of leak tightness. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.4.1.2 ~~and SR 3.6.4.1.4~~

Verifying that one secondary containment access door in each access opening is closed ~~and each equipment hatch is closed and sealed 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. ~~In this application, the term "sealed" has no connotation of leak tightness. In addition, for equipment hatches that are floor plugs, the "sealed" requirement is effectively met by gravity. Maintaining secondary containment OPERABILITY requires verifying one door in the access opening is closed.~~ An access opening contains ~~at least~~ one inner and one outer door. In some cases a secondary containment barrier contains multiple inner or multiple outer doors. For these cases, the access openings share the inner door or the outer door, i.e., the access openings have a common inner or outer door. 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~~; i.e., all inner doors closed or all outer doors closed. Thus each access opening has one door closed. ~~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.

at least

, which

except when the access opening is being used for entry and exit

SR 3.6.4.1.3

The SGT System exhausts the secondary containment atmosphere to the environment through appropriate treatment equipment. Each SGT subsystem is designed to maintain the secondary containment at ≥ 0.25 inches of vacuum water gauge for 1 hour at a flow rate of ≤ 4000 cfm. To ensure that all fission products released to the secondary containment are treated, SR 3.6.4.1.3 verifies that a pressure in the

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.4.1.3 (continued)

secondary containment that is less than the lowest postulated pressure external to the secondary containment boundary can be maintained. When the SGT System is operating as designed, the maintenance of secondary containment pressure cannot be accomplished if the secondary containment boundary is not intact. SR 3.6.4.1.3 demonstrates that the pressure in the secondary containment can be maintained ≥ 0.25 inches of vacuum water gauge for 1 hour using one SGT subsystem at a flow rate ≤ 4000 cfm. The 1 hour test period allows secondary containment to be in thermal equilibrium at steady state conditions. The primary purpose of the SR is to ensure secondary containment boundary integrity. The secondary purpose of the SR is to ensure that the SGT subsystem being tested functions as designed. There is a separate LCO with Surveillance Requirements that serves the primary purpose of ensuring OPERABILITY of the SGT System. This SR need not be performed with each SGT subsystem. The inoperability of the SGT System does not necessarily constitute a failure of this Surveillance relative to secondary containment OPERABILITY. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

REFERENCES

1. UFSAR, Section 15.6.5.

2. UFSAR, Section 9.1.4.3.2.

3. NRC Safety Evaluation Report for the Holtec International HI-STORM 100 Storage System (Docket Number 72-1014, Certificate Number 1014, Amendment 2).

4. NEDC-32988-A, Revision 2, Technical Justification to Support Risk-Informed Modification to Selected Required End States for BWR Plants, December 2002.

SR 3.6.4.1.4

Verifying that secondary containment equipment hatches are closed ensures that the infiltration of outside air of such a magnitude as to prevent maintaining the desired negative pressure does not occur and provides adequate assurance that exfiltration from the secondary containment will not occur. In this application, the term "sealed" has no connotation of leak tightness. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.