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

November 10, 2016

Mr. Bryan C. Hanson
Senior Vice President
Exelon Generation Company, LLC
President and Chief Nuclear Officer
Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: 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 – REQUEST FOR ADDITIONAL INFORMATION REGARDING LICENSE AMENDMENT REQUEST TO REVISE SECONDARY CONTAINMENT ACCESS OPENING REQUIREMENTS (CAC NOS. MF7325–MF7330)

Dear Mr. Hanson:

By application dated February 3, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16034A542), Exelon Generation Company, LLC (Exelon, the licensee) submitted a request to revise surveillance requirement (SR) 3.6.4.1.2 for 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. The proposed change would revise 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.

By letter dated June 29, 2016 (ADAMS Accession No. ML16172A111), the U.S. Nuclear Regulatory Commission (NRC) staff issued a request for additional information (RAI). The licensee provided a response to this RAI by letter dated July 28, 2016 (ADAMS Accession No. ML16210A478). The licensee's response to RAI-2 was incomplete. Based on the staff's review of the licensee's application and partial response to the staff's RAI, the staff determined that it needs additional information to complete its review. A response to the enclosed request for additional information is requested to be provided within 30 days from the date of this letter.

The NRC staff discussed this request with Mr. Nicely, a member of your staff, on November 10, 2016. If Exelon does not respond to this request within 30 days from the date of this letter, the NRC may deny the application under the provisions of Title 10 of the *Code of Federal Regulations*, Section 2.108.

Should you have any questions, please contact me at 301-415-1380 or by email at blake.purnell@nrc.gov.

Sincerely,

Blake Purnell, Project Manager
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-237, 50-249, 50-373, 50-374,
50-254, and 50-265

Enclosure: Request for Additional Information

cc w/encl: Distribution via Listserv

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

REQUEST FOR ADDITIONAL INFORMATION

LICENSE AMENDMENT REQUEST TO REVISE

REQUIREMENTS FOR SECONDARY CONTAINMENT ACCESS OPENINGS

DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3

LASALLE COUNTY STATION, UNITS 1 AND 2

QUAD CITIES NUCLEAR POWER STATION, UNITS 1 AND 2

DOCKET NOS. 50-237, 50-249, 50-373, 50-374, 50-254, AND 50-265

By application dated February 3, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16034A542), as supplemented by letter dated July 28, 2016 (ADAMS Accession No. ML16210A478), Exelon Generation Company, LLC (Exelon, the licensee) submitted a request to revise surveillance requirement (SR) 3.6.4.1.2 for Dresden Nuclear Power Station, Units 2 and 3 (DNPS); LaSalle County Station, Units 1 and 2 (LSCS); and Quad Cities Nuclear Power Station, Units 1 and 2 (QCNPS). The proposed change would revise 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.

The U.S. Nuclear Regulatory Commission (NRC) has reviewed the application, as supplemented, and determined that the information below is needed to complete its review. Note that the numbering is continued from the previous request for additional information (RAI) issued on June 29, 2016 (ADAMS Accession No. ML16172A111).

Background

The licensee provided a response to the NRC staff's June 29, 2016, RAI in its letter dated July 28, 2016. The licensee's response to RAI-2 was incomplete. In RAI-2, the NRC staff requested the licensee to address the following (emphasis added):

> Provide a quantitative comparison of the time with which both doors may be opened simultaneously to the margin in the secondary containment drawdown time assumed in the design-bases analysis for each facility. Explain how the functional capability of secondary containment and the SGT [standby gas treatment] system will be maintained during brief, inadvertent, simultaneous opening of the inner and outer access doors.

The licensee's July 28, 2016, response did not provide a quantitative comparison as requested. For LSCS, there was no discussion of the margin in the drawdown time. For DNPS and QCNPS, the licensee stated that the "alternative source term [AST] analyses do not assume an explicit secondary containment drawdown time."

The licensee also provided a list of licensee event reports (LERs) describing events at each facility where the inner and outer access doors for secondary containment were opened simultaneously. The licensee stated that for each of these LERs, "secondary containment differential pressure was maintained." These LERs all appear to be for normal operating conditions when the SGT was not in operation and does not appear to be applicable to accident conditions.

RAI-3 (LSCS)

In its letter dated July 28, 2016, the licensee stated in response to RAI-2:

> The LSCS alternative source term analyses assume a 15 minute reactor building drawdown time. LSCS SR 3.6.4.1.3 requires verification that the secondary containment can be drawn down to ≥ 0.25 inch of vacuum water gauge in ≤ 900 seconds using one SGT subsystem.

For LSCS, provide a quantitative comparison of the time when both doors may be opened simultaneously to the margin in the secondary containment drawdown time assumed in the design-bases analysis.

RAI-4 (DNPS and QCNPS)

By letter dated September 11, 2006 (ADAMS Package Accession No. ML062070292), the NRC staff approved license amendments for DNPS and QCNPS to adopt the AST methodology permitted by Title 10 of the *Code of Federal Regulations* Section 50.67, "Accident source term." These amendments were issued in response to the licensee's application dated October 10, 2002 (ADAMS Package Accession No. ML022940351). The AST methodology is used in the design-basis analysis for DNPS and QCNPS. In a letter dated September 15, 2003 (ADAMS Accession No. ML032671358), the licensee provided supplemental information in support of the AST amendments. Attachment 1 to the licensee's supplemental letter states, on page 11 of 15 (emphasis added):

> In the event of a design basis LOCA [loss-of-coolant accident], secondary containment instrumentation automatically initiates closure of appropriate secondary containment isolation valves and starts the SGT System to limit fission product release. The reactor building is at a negative pressure at the beginning of the event, SGT automatically starts and maintains negative pressure, hence the reactor building pressure is always negative and no exfiltration will occur in the LOCA accident sequence.

The licensee's February 3, 2016, application states (emphasis added):

> 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 the 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.

Given that the reactor building serves as the secondary containment structure, the two statements above appear to be inconsistent.

Clarify the assumptions regarding secondary containment pressure used in the design-basis accident analysis for DNPS and QCNPS.

RAI-5 (DNPS and QCNPS)

In its letter dated July 28, 2016, the licensee stated in response to RAI-2:

> The DNPS and QCNPS alternative source term analyses do not assume an explicit secondary containment drawdown time. The reactor building ventilation system maintains the reactor building atmosphere at a slight negative pressure during normal plant operation. In the event of a design basis loss-of-coolant accident, secondary containment instrumentation automatically initiates closure of appropriate secondary containment isolation valves and starts the Standby Gas Treatment (SGT) system to limit fission product releases.

For DNPS and QCNPS, the AST analysis for a LOCA assumes the following: (1) negative pressure is always maintained in secondary containment, (2) there is no secondary containment drawdown time, (3) there is zero secondary containment bypass, and (4) no exfiltration will occur in the LOCA accident sequence.[1] Allowing the secondary containment access doors to be simultaneously opened, even during brief periods of time, appears to be inconsistent with these assumptions.

For DNPS and QCNPS, demonstrate that the functional capability of secondary containment is maintained during accident conditions, without an explicit secondary containment drawdown time. The demonstration shall include the brief, inadvertent, simultaneous opening of the secondary containment access doors.

---

[1] Licensee's October 10, 2002, AST application, Attachment A, page 36 of 48, and September 15, 2003, supplemental letter, Attachment 1, page 11 of 15.

Should you have any questions, please contact me at 301-415-1380 or by email at blake.purnell@nrc.gov.

Sincerely,

/RA/

Blake Purnell, Project Manager
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-237, 50-249, 50-373, 50-374,
50-254, and 50-265

Enclosure: Request for Additional Information

cc w/encl: Distribution via Listserv

DISTRIBUTION:

PUBLIC	LPL3-2 R/F	RidsAcrs_MailCenter	RidsNrrDorlLpl3-2
RidsNrrPMLaSalle	RidsNrrPMDresden	RidsNrrPMQuadCities	RidsNrrPMExelon
RidsRgn3MailCenter	RidsNrrLASRohrer	RidsNrrDssSbpb	RidsNrrDraArcb
RidsNrrDssStsb	EDickson, NRR	MChernoff, NRR	NKaripineni, NRR

ADAMS Accession No. ML16308A100 *by email

OFFICE	LPL3-2/PM	LPL3-2/LA	ARCB/BC	LPL3-2/BC(A)	LPL3-2/PM
NAME	BPurnell	SRohrer	UShoop*	GEMiller	BPurnell
DATE	11/3/16	11/3/16	11/2/16	11/4/16	11/10/16

OFFICIAL RECORD COPY