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RS-17-126

10 CFR 50.71(e)
10 CFR 54.37(b)

October 19, 2017

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

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: Quad Cities Updated Final Safety Analysis Report (UFSAR), Revision 14 and
Fire Protection Report (FPR), Revision 23

In accordance with the requirements of 10 CFR 50.71, "Maintenance of records, making of reports," paragraph (e)(4), Exelon Generation Company (EGC), LLC submits Revision 14 to the Updated Final Safety Analysis Report (UFSAR) for Quad Cities Nuclear Power Station, Revision 23 to the Fire Protection Report (FPR), and a summary of evaluations conducted pursuant to 10 CFR 54.37(b), "Additional records and recordkeeping requirements." Summary of evaluations conducted pursuant to 10 CFR 50.59 "Changes, tests, and experiments," are submitted under separate cover.

The UFSAR is being submitted on Optical Storage Media (OSM) in its entirety, including documents incorporated by reference (Technical Requirements Manual, Technical Specifications Bases, and the FPR). UFSAR pages changed as a result of this update are delineated with "Revision 14, October 2017" in the page footer.

Attachment A provides a brief summary of the changes incorporated into UFSAR Revision 14.

Attachment B provides a brief summary of the changes incorporated into FPR Revision 23.

Attachment C provides the summary report pursuant to 10 CFR 54.37(b).

Attachment D contains the directory path, filename, and size of each individual file.

A053
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One (1) OSM is enclosed in this submission. The OSM labeled, "Exelon Generation – Quad Cities Nuclear Power Station UFSAR Revision 14, FPR Amendment 23, October 2017, contains the following components:

- 001 QDC UFSAR Rev 14.pdf, 46.4 MegaBytes (MB)
- 002 QDC TRM.pdf, 1.63 MB
- 003 QDC Tech Spec Bases.pdf, 1.83 MB
- 004 QDC FPR Amend 23.pdf, 3.98 MB

As required by 10 CFR 50.71(e)(2)(i), I certify that to the best of my knowledge, the information contained in the Enclosures and attachments to this letter accurately reflect information and analyses submitted to the NRC or prepared pursuant to NRC requirements, and changes made under the provisions of 10 CFR 50.59.

There are no new commitments made in this document. Should you have any questions concerning this letter, please contact:

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Respectfully,



Dominic M. Imburgia
Manager – Licensing Programs

Enclosure: OSM – Quad Cities Nuclear Power Station - UFSAR Revision 14, FPR Amendment 23

Attachments:

Attachment A – Updated Final Safety Analysis Report (UFSAR) - Revision 14 Change Summary Report
Attachment B – Fire Protection Report (FPR) - Revision 23 Change Summary Report
Attachment C - 10 CFR 54.37(b) Aging Management Review Summary
Attachment D - OSM Directory Structure

cc: Regional Administrator - NRC Region III
NRC Senior Resident Inspector – Quad Cities Nuclear Power Station
NRC Project Manager, NRR – Quad Cities Nuclear Power Station
Director – Emergency Response Development, INPO

Attachment A

UFSAR Revision 14 Change Summary Report

15-R14-001, Revision to UFSAR Section 8.3

Revised to reflect the fact that the fast transfer will not occur on a loss of Reserve Aux Transformer (RAT) with a LOCA signal.

15-R14-002, Revision to UFSAR Section 8.3

Revised to clarify the described design basis concerning cable tray/pan design for cable installation to be consistent with design basis documents.

15-R14-003, Revision to UFSAR Section 6.3

Revised to add the Torus Cooling system to the system discussed in the Gas Accumulation Management section of the UFSAR.

15-R14-004, Revision to UFSAR Section 7.6

Revised to clarify the described design basis for the Reactor Vessel level instrumentation. Removed statement about sensor type and vendor diversity. This statement is not consistent with the design basis description provided elsewhere in the UFSAR.

15-R14-005, Revision to UFSAR Table 6.2-7

Revised to add the new PCIV 1-1699-98 valve for the Hardened Vent System.

15-R14-006, Revision to UFSAR Section 7.6 and Figure 7.6-16

Revised to remove references to the low and intermediate setpoints of Rod Block Monitor (RBM) and the manual switch reset, which is an operator distraction removed by a station modification.

15-R14-007, Revision to UFSAR Section 6.3, Table 6.3-2,3D,14C & 19C

Revised to update the discussion to include the newly approved Westinghouse LOCA analysis. These changes involve correcting references, updating how SLO and/or ADSOOS penalties are applied, updating details of the new LOCA model and to update appropriate results.

15-R14-008, Revision to UFSAR Section 4.3 & 4.4

Revised to update the current definition of shutdown margin consistent with TS 1.1. This change also updated the reactor water safety limit consistent with >23 ft above RPV flange.

15-R14-009, Revision to UFSAR Table 8.3-1

Revised to correct 480V switchgear 15,16,17,18 and 19 have incorrectly listed in the table as breaker AK-50 when these are AK-75. This is applicable to both units.

15-R14-010, Revision to UFSAR Section 9.1

Revised to change the refueling bridge interlock frequency from 7 days to periodically.

15-R14-012, Revision to UFSAR Section 6.3

Revised to reference #66 for LOCA analysis for the Optima 2 fuel. The Westinghouse LOCA analysis was updated from Revision 2 or Revision 3.

Attachment A

UFSAR Revision 14 Change Summary Report

15-R14-013, Revision to UFSAR Section 6.4 and Figure 6.4-3

Revised to remove the Main control room ammonia detector and sensor.

15-R14-014, Revision to UFSAR Section 9.4

Revised the design basis function of the diesel generator immersion heater.

15-R14-015, Revision to UFSAR Section 9.1

Revised to reflect the Fuel Channel Bow/Bulge evaluation and license amendment 263/258 associated with the transition to AREVA fuel from Westinghouse fuel.

15-R14-016, Revision to UFSAR Section 6.2

Revised to reflect the Reactor Building electrical penetration seal material currently used.

15-R14-017, Revision to UFSAR Section 8.3

Revised to remove the specific number cells for the Unit 1 and Unit 2 non-essential 250 VDC battery system.

15-R14-018, Revision to UFSAR Section 9.1

Revised to allow placement of the new AREVA fuel in the spent fuel pool, new fuel vault and the reactor core unirradiated.

15-R14-019, Revision to UFSAR Table 6.2-6

Revised to clarify that SBLC system initiation and RWCU non-regenerative heat exchanger high outlet are NOT group 3 signals.

15-R14-020, Revision to UFSAR Sections 1.2, 3.7, 3.9, 3.11, 4.1, 4.2, 4.3, 4.4, 4.6, 5.2, 6.2, 6.3, 7.6, 7.8, 10.2, 10.4, 15.1, 15.2, 15.3, 15.4, 15.5, 15.6, 15.7 and 15.8. Also revises Table 1.2-3, Tables 4.1-1, 2, & 3, Tables 6.3-2,3D, 3E, 7E, 12E, 14D & 19D, Tables 15.4-1 & 1B, Tables 15.6-5A, 5B, 7 & 8A, and Table 15.7-4B. Deletes Figure 4.2-1,2 and adds new Figure 4.2-3.

Revised to information associated with the AREVA ATRIUM 10XM fuel transition from license amendment 264 for Unit 1.

15-R14-021, Revision to UFSAR Sections 12.5 and 13.2

Revised the frequency of requalification training for protected access training and radiation worker training.

15-R14-022, Revision to UFSAR Section 3.7

Revised to include the new fuel storage vault in the discussion of the seismic analysis of the reactor-turbine building.

15-R14-024, Revision to UFSAR Section 6.4

Revised to explicitly refer to the manifold system as a backup to the SCBA's for Main Control Room air breathing.

Attachment A

UFSAR Revision 14 Change Summary Report

15-R14-025, Revision to UFSAR Figure 3.11-1

Correction of errors incorporated in previously approved changes. Addition of clarifying information to notes and references.

15-R14-026, Revision to UFSAR Section 9.6 (NEW)

Adding new Section 9.6 to discuss control of heavy loads.

15-R14-027, Revision to UFSAR Section 12.5 and 13.2

Revised to frequency of Protected Access Training (PAT) and Radiation Worker Training (RWT) from biennially to a frequency determined using the processes derived from a systemic approach to training (SAT).

15-R14-028, Revision to UFSAR Section 13.2

Add new section 13.2.1.2.7 that discusses the NRC approved certified fuel handler training and retraining program.

15-R14-029, Revision to UFSAR Sections 1.2, 15.4, and 15.7

Correction of miscellaneous editorial and typographical errors in the UFSAR.

Attachment B

Change Packages Incorporated into Quad Cities Station Fire Protection Report – Revision 23

FPR-R23-001, Revision to FPR Volume 1, Section 2.1, Table 2.1-2, Page 2.1-4

NFPA 12 Code Deviations were added for the U2 DG and Day Tank rooms regarding the cardox system. The cardox system was tested in the early 1990s in all three diesel generator rooms, and the U1 and U2 rooms failed acceptance criteria. However, a deviation was only taken for the U1 system at the time.

FPR-R23-002, Revision to FPR Volume 2, Section 6.7.1.1, Page 6-6

The interlock door modification changed the way those doors operate slightly. The text explaining the technical functionality of the doors was altered.

FPR-R23-003, Revision to FPR Volume 1, Section 4.3, Page 4.3-219

The hardened vent modification added a battery bank to fire zone 8.2.6.C. The battery bank was added as a hazard in the area.

FPR-R23-004, Revision to FPR Volume 1, Section 2, Table 2.1-2, Page 2.1-20

A deviation to NFPA 72D was added regarding the cardox system. The cardox system was previously identified as not meeting NFPA 72D requirements.

FPR-R23-005, Revision to FPR Volume 2, Section 3, Table 3.0-1, Pages 21, 22, 35, 36

This change removed the residual heat removal service water (RHRSW) pressure indicators from the required equipment lists. These pressure indicators were previously removed from the safe shutdown procedures.

FPR-R23-006, Revision to FPR Volume 2, Section 5.2.4, page 5-12

This change clarified the operation of the electromagnetic relief valves control switches during the initiation of the automatic depressurization system.

FPR-R23-007, Revision to FPR Volume 2, Section 3, Table 3.0-1, Pages 19, 20, 33, 34; Section 5, Table 5.2-3, Pages 2, 6

This change added residual heat removal (RHR) to radwaste valves 1(2)-1001-20 and 1(2)-1001-21 to the required equipment list and hot short table. The valves had previously been removed from the table, but it was identified that the valves should be added back to the table.

FPR-R23-008, Revision to FPR Volume 1, Section 4.3, Pages 4.3-313, 4.3-329, 4.3-335, 4.3-344, 4.3-353, 4.3-362

Various corrections to descriptions of locations of fire areas relative to each other were implemented in this change. This change also added mention as to how the MG sets have been drained.

FPR-R23-010, Revision to FPR Volume 2, Section 6.6, Page 6-5

The safe shutdown analysis referred to a defunct satellite as if it was still usable. That satellite was disconnected long ago and is not credited as communications equipment necessary for safe shutdown. Therefore, it will be removed from the fire protection report.

Attachment B

Change Packages Incorporated into Quad Cities Station Fire Protection Report – Revision 23

**FPR-R23-011, Revision to FPR Volume 1, Section 3 Table 3.3, Pages 3.3-4, 3.3-4;
Section 4.2, Pages 4.2-1, 4.2-15, 4.2-16; Revision to FPR Volume 2, Section 2,
Table 2.1-1, Page 4**

The Robust Flex Building was added as a new outside Fire Zone. Several pages in both volumes had to be modified to account for the new zone, but the changes do not impact safe shutdown strategy.

FPR-R23-012, Revision to FPR Volume 1, Section 4.3, Page 4.3-275

A typo was corrected in the equivalent fire severity in Fire Zone: 11.1.1.A.

FPR-R23-013, Revision to FPR Volume 2, Section 3, Table 3.0-1, Pages 10, 28

The alternate vent fan feeds for the Unit 1 and Unit 2 emergency diesel generators were removed from the required equipment list because they are not credited for safe shutdown.

FPR-R23-014, Revision to FPR Volume 1, Section 2, Table 2.1-2, Page 2.1-1

A deviation to NFPA 10 was added allowing extinguishers not to face outward.

**FPR-R23-015, Revision to FPR Volume 2, Section 3, Table 3.0-1, Pages 15, 19, 21,
31, 32, 35, and 37**

Various alternate feeds were added to the required equipment list to enhance the level of detail in the required equipment list. This change was documentation related and not associated with any shift in safe shutdown strategy.

**FPR-R23-016, Revision to FPR Volume 1, Section 2, Page 2.3-1; Section 3,
Table 3.8-1, Pages 30, 31; Section 5, Pages 5.4-8, 5.4-11**

NFPA 262 was added as an explicitly valid basis for meeting fire protection cable requirements. Before, NFPA 262 was implied to be acceptable but not explicitly mentioned.

**FPR-R23-017, Revision to FPR Volume 1, Section 4.3, Pages 4.3-250, 4.3-252,
4.3-254, 4.3-264, 4.3-267, 4.3-269**

Fire extinguishers were removed from the Unit 1 heater bay during power operation so that they can be inspected in accordance with NFPA 10 requirements. The extinguishers are now staged right outside the heater bay during power operation and brought into the heater bay during outages.

**FPR-R23-018, Revision to FPR Volume 1, Section 4.3, Pages 4.3-178, 4.3-179,
4.3-180, 4.3-193, 4.3-195, 4.3-218, 4.3-219, 4.3-220, 4.3-258, 4.3-259, 4.3-260, 4.3-282,
4.3-284**

The compressed gas cylinders in the plant were evaluated regarding fire protection risk. Fire zones that have compressed gas cylinders were updated to refer to the evaluation.

Attachment C

10CFR 54.37(b) Aging Management Review Summary

In accordance with 10 CFR 54.37(b) and the guidance specified in Regulatory Issue Summary 2007-16, Revision 1, "Implementation of the Requirements of the 10 CFR 54.37(b) for Holders of Renewed Licenses," the UFSAR update required by 10 CFR 50.71€ must include any Structures, Systems or Components (SSCs) newly identified that would have been subject to an aging management review or evaluation of time-limited aging analyses in accordance with 10 CFR 54.21. This UFSAR update must describe how the effects of aging will be managed such that the intended function(s) in 10 CFR 54.4(b) will be effectively maintained during the period of extended operation.

A review of the aging management program which covered the period of June 1, 2015 to May 31, 2017 was performed. The review included:

- Interviews of Program Managers,
- Modifications that were installed since the last UFSAR update,
- Completed Engineering Evaluations,
- Changes to component safety classifications,
- UFSAR pending change description,
- NRC Interim Staff Guidelines (ISGs) related to license renewal, and
- NRC Inspection Reports associated with License Renewal Inspections.

No new components were identified to be within scope of the aging management program during this review.

Attachment D

OSM Directory Structure

Directory Path	File Name	Size
001 QDC UFSAR Rev 14	000 List of Effective Pages.pdf	528 KB
001 QDC UFSAR Rev 14	001 Chap 01 Introduction.pdf	292 KB
001 QDC UFSAR Rev 14	002 Chap 02 Site Characteristics.pdf	1578 KB
001 QDC UFSAR Rev 14	003 Chap 03 Design of Struc, Comp, Equip.pdf	5785 KB
001 QDC UFSAR Rev 14	004 Chap 04 Reactor.pdf	6872 KB
001 QDC UFSAR Rev 14	005 Chap 05 Reactor Coolant Sys.pdf	2104 KB
001 QDC UFSAR Rev 14	006 Chap 06 Engineered Safety Features.pdf	9611 KB
001 QDC UFSAR Rev 14	007 Chap 07 Instrumentation and Controls.pdf	2943 KB
001 QDC UFSAR Rev 14	008 Chap 08 Electric Power.pdf	569 KB
001 QDC UFSAR Rev 14	009 Chap 09 Auxiliary Systems.pdf	8969 KB
001 QDC UFSAR Rev 14	010 Chap 10 Steam and Power Conversion.pdf	667 KB
001 QDC UFSAR Rev 14	011 Chap 11 Radioactive Waste Mgmt.pdf	1827 KB
001 QDC UFSAR Rev 14	012 Chap 12 Radiation Protection.pdf	461 KB
001 QDC UFSAR Rev 14	013 Chap 13 Conduct of Operations.pdf	666 KB
001 QDC UFSAR Rev 14	014 Chap 14 Initial Test Program.pdf	1442 KB
001 QDC UFSAR Rev 14	015 Chap 15 Accident and Transient Analyses.pdf	2936 KB
001 QDC UFSAR Rev 14	016 Chap 16 Technical Specifications.pdf	38 KB
001 QDC UFSAR Rev 14	017 Chap 17 Quality Assurance.pdf	53 KB
001 QDC UFSAR Rev 14	018 Appendix A.pdf	170 KB
002 QDC TRM	001 QDC TRM.pdf	1678 KB
003 QDC Tech Spec Bases	001 QDC Tech Spec Bases.pdf	1875 KB
004 QDC FPR Rev 23	001 QDC FPR VOL 1.pdf	3278 KB
004 QDC FPR Rev 23	002 QDC FPR VOL 2.pdf	803 KB