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RS-21-107

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

October 21, 2021

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 16 and  
Fire Protection Report (FPR), Revision 25

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 16 to the Updated Final Safety Analysis Report (UFSAR) for Quad Cities Nuclear Power Station, Revision 25 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 16, October 2021" in the page footer.

Attachment A provides a brief summary of the changes incorporated into UFSAR Revision 16.

Attachment B provides a brief summary of the changes incorporated into FPR Revision 25.

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 included on the OSM.

One (1) OSM is enclosed in this submission. The OSM labeled, "Exelon Generation - Quad Cities Nuclear Power Station - UFSAR Revision 16 - FPR Revision 25 - October 2021", contains the following components:

- 001 QDC UFSAR Rev 16.pdf, 55.4 MegaBytes (MB)
- 002 QDC FPR Rev 25.pdf, 4.12 MB
- 003 QDC TRM.pdf, 2.98 MB
- 004 QDC Tech Spec Bases.pdf, 2.37 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 Enclosure 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,

David M. Gullott  
Director – Licensing

Enclosure: OSM – Exelon Generation - Quad Cities Nuclear Power Station - UFSAR Revision 16 -  
FPR Revision 25 - October 2021

Attachments:

Attachment A – Updated Final Safety Analysis Report (UFSAR) - Revision 16 Change Summary Report  
Attachment B – Fire Protection Report (FPR) - Revision 25 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

# QUAD CITIES STATION

## Attachment A

### Updated Final Safety Analysis Report (UFSAR) Revision 16 Change Summary Report

**19-R16-002, Revision to UFSAR Section 7.3**

Revised to add information regarding the installation of 4 keylock switches to defeat the Primary Containment Isolation System (PCIS) Group I signal prior to reaching -59" reactor water level.

**19-R16-003, Revision to UFSAR Sections 6.0, 6.2, 6.3, 13.3, & 15.6. Also revises Tables 15.6-5b, 15.6-7, 15.6-8a, 15.6-9 and Figure 15.6-7**

Revised to add information about the increased MSIV leakage limits and separates total containment leakage allowable from MSIV leakage as related to the Appendix J testing.

**19-R16-004, Revision to UFSAR Section 9.1**

Revised to update the discussion of nucleate boiling to align with the Extended Power Upgrade (EPU) GE spent fuel analysis.

**19-R16-005, Revision to UFSAR Sections 9.1 and 12.3**

Revised to utilize 10CFR50.68 in lieu of exemption from 10CFR70.24.

**19-R16-006, Revision to UFSAR Section 9.4**

Revised to remove excessive detail in the system description of computer room ventilation.

**19-R16-007, Revision to UFSAR Section 11.5 and Figure 11.5-1**

Revised to change the Off Gas Isolation Valve (holdup valve) from fail-closed to fail-open. It also shows that the valve does not have redundant instrument air solenoid valve.

**19-R16-009, Revision to UFSAR Section 8.2 and Table 8.3-1**

Revised to add information on the new Unit 2 Unit aux transformer.

**19-R16-010, Revision to UFSAR Section 3.5**

Revised to add a new section 3.5.4.1, "Missile Impact Evaluation" for additional discussion/clarification on impact of missiles on exterior walls. Also added new section 3.5.4.2, "Tornado Missile Protection" that includes discussion on applicable reviews associated with tornado protection.

**19-R16-011, Revision to UFSAR Table 1.2-3**

Revised to remove lift station from the balance of plant batteries.

**19-R16-012, Revision to UFSAR Section 6.2 and 9.3, Tables 1.8-1 and 6.2-7, and Appendix A**

Revised to add reference to NEI 94-01 and adds a notation to several valves in Table 6.2-7. In Section 9.3 removed sentence regarding LLRT of two containment isolation check valves. Also removed Reg Guide 1.163 requirement from Table 1.8-1 and Appendix A.

**19-R16-013, Revision to UFSAR Section 8.3**

Revised to address the change in open phase detection relay configuration per a plant modification.

**19-R16-014, Revision to UFSAR Table 6.2-7**

Revised to update primary containment isolation valve information.

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## Attachment A

### Updated Final Safety Analysis Report (UFSAR) Revision 16 Change Summary Report

**19-R16-015, Revision to UFSAR Sections 6.3 and 15.0 and Tables 6.3-3E, 6.3-12E, 6.3-14D, 6.3-19D**

Revised to update the new LOCA and MAPLHGR analysis performed for the Unit 2 Cycle 26 nuclear fuel reload. Section 15.0 was updated to support use of the "infrequent event" categorization for lost parts capable for causing high percentage of flow orifice blockage and other editorials changes.

**19-R16-016, Revision to UFSAR Section 7.6**

Revised to add calibration intervals controlled by the Surveillance Frequency Control Program (SFCP).

**19-R16-017, Revision to UFSAR Section 6.3 and Figure 6.3-41A**

Revised the wetwell pressure in the figure and other administrative changes to align the UFSAR with the approved peak primary containment internal pressure and the max allowable containment leakage rate.

**19-R16-018, Revision to UFSAR Section 13.1 & 13.2**

Revised to change standard ANSI N18.1-1971 to ANSI/ANS 3.1-2014 revision and associated dates and document title

**19-R16-019, Revision to UFSAR Table 8.3-1**

Revised to change from SF6 to vacuum for Bus 13 breakers.

**19-R16-020, Revision to UFSAR Table 6.2-7**

Revised to table to add notation to the test class column and various notes for various types of testing for different valves. In addition, editorial changes to fields and column names were made.

**19-R16-021, Revision to UFSAR Sections 1.2 and 11.4**

Revised the description of solid wastes stored at the Interim Spent Fuel Storage Installation (ISFSI).

**19-R16-023, Revision to UFSAR Section 8.3 and Table 8.3-1**

Revised to add additional EDG overload ratings.

**19-R16-025, Revision to UFSAR Sections 4.1, 4.2, 4.3, 4.4, 5.2, 6.3, 15.4, 15.8 and Tables 4.1-1, 5.1-1, 6.3-3E, 6.3012E, 6.3-14D, and 6.3-19D**

Revised to update the new LOCA and MAPLHGR analysis for the Unit 1 fuel cycle.

**19-R16-026, Revision to UFSAR Section 8.3**

Revised to add a 120/240 VAC output transformer and discussion on the UPS system arrangement.

**19-R16-027, Revision to UFSAR Section 7.7 and Figure 4.3-9**

Revised to correct references to the Reactor Recirculation MG sets which were replaced with Adjustable Speed Drives (ASD) several years ago.

**19-R16-028, Revision to UFSAR Section 2.2**

Revised to remove reference to the sulfuric acid tank and sodium hydroxide tank that were once located in the turbine building trackway.

**19-R16-029, Revision to UFSAR Appendix A**

Revised to add newly identified EQ components to the License Renewal section.

**19-R16-030, Revision to UFSAR Table 6.2-7**

Revised to add notes regarding the Reactor Building to Suppression Chamber vacuum breakers

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## Attachment B

### Fire Protection Report (FPR) Revision 25 Change Summary Report

#### Revision Summary:

Fire Protection Report Change Packages 25-001, 25-003, 25-004.

#### Volume 1 (Fire Hazards Analysis):

1. **Change 25-001: EC 629295**  
Editing the fire zone sizes in the plant to more accurately account for total area of each fire zone. Many changes were made throughout section 4.3.
2. **Change 25-002:** Intentionally left blank
3. **Change 25-003: No EC**  
Editing to remove the electrical supervision requirements from the FHA. Changes made on section 2.1-11 and 5.5-7.
4. **Change 25-004: EC 618590**  
Editing to incorporate Trackway 2 expansion structure into FHA. Table 3.3-1 and 3.3-2 as well as sections 4.2 and 4.3 were updated to account for these changes.

#### Volume 2 (Safe Shutdown Report):

1. No changes were made to the SSA.

# QUAD CITIES STATION

## Attachment C

### 10 CFR 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.

The 10 CFR 54.37(b) review of changes to the plant Current Licensing Basis covered the period of August 2, 2019 to August 17, 2021. The review included:

- Engineering Changes that were installed or completed since the last UFSAR update,
- UFSAR pending change descriptions and revised text, and
- NRC Interim Staff Guidelines (ISGs) related to license renewal.

No "newly identified" SSCs were identified that require aging management or evaluation of TLAA's in accordance with the License Renewal Rule. Therefore, there are no associated updates required to the Quad Cities UFSAR described Aging Management Programs.

# QUAD CITIES STATION

## Attachment D

### OSM Directory Structure

Directory Path	File Name	Size
001 QDC UFSAR Rev 16	000 List of Effective Pages.pdf	203 KB
001 QDC UFSAR Rev 16	001 Chap 01 Introduction.pdf	386 KB
001 QDC UFSAR Rev 16	002 Chap 02 Site Characteristics.pdf	1337 KB
001 QDC UFSAR Rev 16	003 Chap 03 Design of Structs, Compnts, Equip.pdf	9065 KB
001 QDC UFSAR Rev 16	004 Chap 04 Reactor.pdf	6997 KB
001 QDC UFSAR Rev 16	005 Chap 05 Reactor Coolant Sys.pdf	2489 KB
001 QDC UFSAR Rev 16	006 Chap 06 Engineered Safety Features.pdf	13989 KB
001 QDC UFSAR Rev 16	007 Chap 07 Instrumentation and Controls.pdf	3528 KB
001 QDC UFSAR Rev 16	008 Chap 08 Electric Power.pdf	795 KB
001 QDC UFSAR Rev 16	009 Chap 09 Auxiliary Systems.pdf	9095 KB
001 QDC UFSAR Rev 16	010 Chap 10 Steam and Power Conversion.pdf	571 KB
001 QDC UFSAR Rev 16	011 Chap 11 Radioactive Waste Mgmt.pdf	2697 KB
001 QDC UFSAR Rev 16	012 Chap 12 Radiation Protection.pdf	425 KB
001 QDC UFSAR Rev 16	013 Chap 13 Conduct of Operations.pdf	716 KB
001 QDC UFSAR Rev 16	014 Chap 14 Initial Test Program.pdf	1164 KB
001 QDC UFSAR Rev 16	015 Chap 15 Accident and Transient Analyses.pdf	2888 KB
001 QDC UFSAR Rev 16	016 Chap 16 Technical Specifications.pdf	36 KB
001 QDC UFSAR Rev 16	017 Chap 17 Quality Assurance.pdf	49 KB
001 QDC UFSAR Rev 16	018 Appendix A.pdf	292 KB
002 QDC FPR Rev 25	001 QDC FPR VOL 1.pdf	3215 KB
002 QDC FPR Rev 25	002 QDC FPR VOL 2.pdf	1003 KB
003 QDC TRM	001 QDC TRM.pdf	3053 KB
004 QDC Tech Spec Bases	001 QDC Tech Spec Bases.pdf	2431 KB