

September 16, 2002

Mr. John L. Skolds, President
Exelon Nuclear
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: QUAD CITIES NUCLEAR POWER STATION, UNIT 1 - EXEMPTION FROM
THE REQUIREMENTS OF 10 CFR 50.55a(g)(4)(ii) REACTOR PRESSURE
VESSEL EXAMINATIONS (TAC NO. MB5585)

Dear Mr. Skolds:

The Commission has approved the enclosed exemption from specific requirements of Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Section 50.55a(g)(4)(ii), for the Quad Cities Nuclear Power Station, Unit 1. This action is in response to your letter of July 10, 2002.

A copy of the exemption has been forwarded to the Office of the Federal Register for publication.

Sincerely,

/RA/

Carl F. Lyon, Project Manager, Section 2
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-254

Enclosure: Exemption

cc w/enclosure: See next page

Quad Cities Nuclear Power Station Units 1 and 2

cc:

Site Vice President - Quad Cities Nuclear Power Station
Exelon Generation Company, LLC
22710 206th Avenue N.
Cordova, IL 61242-9740

Quad Cities Nuclear Power Station Plant Manager
Exelon Generation Company, LLC
22710 206th Avenue N.
Cordova, IL 61242-9740

Regulatory Assurance Manager - Quad Cities
Exelon Generation Company, LLC
22710 206th Avenue N.
Cordova, IL 61242-9740

Quad Cities Resident Inspectors Office
U.S. Nuclear Regulatory Commission
22712 206th Avenue N.
Cordova, IL 61242

William D. Leech
Manager - Nuclear
MidAmerican Energy Company
P.O. Box 657
Des Moines, IA 50303

Vice President - Law and
Regulatory Affairs
MidAmerican Energy Company
One River Center Place
106 E. Second Street
P.O. Box 4350
Davenport, IA 52808

Chairman
Rock Island County Board
of Supervisors
1504 3rd Avenue
Rock Island County Office Bldg.
Rock Island, IL 61201

Regional Administrator
U.S. NRC, Region III
801 Warrenville Road
Lisle, IL 60532-4351

Illinois Department of Nuclear Safety
Office of Nuclear Facility Safety
1035 Outer Park Drive
Springfield, IL 62704

Document Control Desk-Licensing
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

Senior Vice President - Nuclear Services
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

Vice President
Mid-West Operations Support
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

Senior Vice President
Mid-West Regional Operating Group
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

Vice President - Licensing and Regulatory
Affairs
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

Director - Licensing
Mid-West Regional Operating Group
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

Quad Cities Nuclear Power Station Units 1 and 2

- 2 -

Senior Counsel, Nuclear
Mid-West Regional Operating Group
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

Manager Licensing - Dresden and Quad Cities
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

September 16, 2002

Mr. John L. Skolds, President
Exelon Nuclear
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: QUAD CITIES NUCLEAR POWER STATION, UNIT 1 - EXEMPTION FROM
THE REQUIREMENTS OF 10 CFR 50.55a(g)(4)(ii) REACTOR PRESSURE
VESSEL EXAMINATIONS (TAC NO. MB5585)

Dear Mr. Skolds:

The Commission has approved the enclosed exemption from specific requirements of Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Section 50.55a(g)(4)(ii), for the Quad Cities Nuclear Power Station, Unit 1. This action is in response to your letter of July 10, 2002.

A copy of the exemption has been forwarded to the Office of the Federal Register for publication.

Sincerely,
/RA/

Carl F. Lyon, Project Manager, Section 2
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-254

Enclosure: Exemption

cc w/enclosure: See next page

Distribution:

PUBLIC	OGC, O15B18	C. Long
PD3-2 r/f	ACRS, T2E26	C. Rosenberg
H. Nieh, EDO	M. Ring, RIII	F. Lyon
A. Mendiola	S. Coffin	JZwolinski/LMarsh
G. Hill (2)		

ADAMS Accession Number: ML022380161 *SE dated 8/16/02 **No legal objection

OFFICE	PM:LPD3-2	LA:LPD3-2	SC:EMCB	OGC/NLO**	SC:LPD3-2	D:PDIII	D:DLPM
NAME	FLyon	CRosenberg	SCoffin*	SUttal	AMendiola	SBajwa	JZwolinski
DATE	08/27/02	08/27/02	8/16/02	09/11/02	09/13/02	09/13/02	09/16/02

OFFICIAL RECORD COPY

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
EXELON GENERATION COMPANY, LLC
QUAD CITIES NUCLEAR POWER STATION, UNIT 1
DOCKET NO. 50-254
EXEMPTION

1.0 BACKGROUND

The Exelon Generation Company, LLC (the licensee) is the holder of Facility Operating License No. DPR-29, which authorizes operation of the Quad Cities Nuclear Power Station (Quad Cities), Unit 1. The license provides, among other things, that the facility is subject to all rules, regulations, and orders of the U.S. Nuclear Regulatory Commission (NRC, the Commission) now or hereafter in effect.

The facility consists of a boiling-water reactor located in Rock Island County, Illinois.

2.0 REQUEST/ACTION

Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, section 50.55a, "Codes and standards," paragraph (g)(4) requires that American Society of Mechanical Engineers (ASME) *Boiler and Pressure Vessel Code* (Code) Class 1, 2, and 3 components, including supports, shall meet the requirements, except the design and access provisions and the preservice examination requirements, as stated in the ASME Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," to the extent practical within the limitations of design, geometry, and materials construction of the components. 10 CFR 50.55a(g)(4)(ii) requires that inservice examination of components and system pressure tests

conducted during the first 10-year interval and subsequent intervals comply with the requirements in the latest edition and addenda of ASME Code, Section XI, incorporated by reference in 10 CFR 50.55a(b) twelve months prior to the start of the 120-month interval, subject to limitations and modifications listed therein. The 1989 Edition of the ASME Code is the code of record for the third 10-year interval for Quad Cities, Unit 1. Therefore, inservice inspection of the ASME Code Class 1, 2, and 3 components is to be performed in accordance with ASME Code, 1989 Edition, Section XI, Table IWB-2500, Examination Category B-D, Item Nos. B3.90 and B3.100.

The licensee's application dated July 10, 2002, requests a schedular extension for Quad Cities, Unit 1, from implementation of inservice examinations of certain reactor pressure vessel (RPV) nozzle-to-vessel welds and nozzle inside radius sections, per ASME Code, Section XI, Table IWB-2500, Examination Category B-D, Item Nos. B3.90 and B3.100, by the end of the current 120-month inspection interval, as required by 10 CFR 50.55a(g)(4)(ii). The current interval ends on February 17, 2003, for Quad Cities Unit 1. The proposed exemption would grant an extension for the performance of the third interval inspections until the completion of the Unit 1 refueling outage in January 2005.

The proposed action is needed to provide temporary relief from the regulation and to prevent unnecessary radiation worker exposure. Quad Cities, Unit 1, was designed and fabricated before the examination requirements of ASME Section XI were formalized and published. The plant was not specifically designed or constructed to permit easy access to the RPV nozzle-to-vessel welds and nozzle inside radius sections for inservice inspection, from the inside or outside surface. The biological shield, lead bricks, and insulation around the nozzles do not permit ready access by personnel for inservice examination from the outside surface. The inside surface is totally inaccessible due to the inherent design of the reactor vessel. The task to access a nozzle for inservice examination employs several work groups and a

significant number of man-hours with the attendant large radiation exposure accumulation. The estimated radiation dose avoided by exempting the nine nozzles until the fourth inspection interval is a minimum of 60 man-rem.

Plans to mitigate the radiation exposure accumulation by means of chemical decontamination of the reactor recirculation system piping were evaluated by the licensee for the November 2002 refueling outage. However, chemical decontamination would result in the removal of the noble metals chemical application (NMCA) coating on the piping. Re-application of NMCA to the reactor recirculation system piping during, or immediately after, the November 2002 outage is not desirable due to the potential effects of double exposure of fuel to the NMCA process. Without a planned re-application of NMCA until the January 2005 refueling outage, the affected piping would be more susceptible to intergranular stress corrosion cracking and potential crack creation and growth in the affected piping. Cracks would necessitate additional repair activities in a high radiation field. Given these potentially deleterious effects, the optimum time for source term reduction would be during the January 2005 outage concurrent with the next application of NMCA, permitting inspection activities to be performed in a lower dose environment.

10 CFR 50.12 permits the Nuclear Regulatory Commission to grant exemptions which are authorized by law, will not present undue risk to the health and safety of the public, and are consistent with the common defense and security, provided that special circumstances are present. Pursuant to 10 CFR 50.12(a)(2), the Commission believes that special circumstances exist in that the requested schedular exemption would provide only temporary relief from the applicable regulation and the licensee has made good faith efforts to comply with the regulation. The licensee states that all nine nozzles have received a minimum of three ultrasonic examinations in previous outages and each has received a baseline examination along with the two previous inservice examinations during the first and second 120-month

inspection intervals. Implementation of inspection requirements industry-wide, to date, for RPV nozzle-to-vessel welds and nozzle inside radius sections of Class I systems, have not resulted in any findings in any of the identified nozzles with the exception of boiling-water reactor feedwater and control rod drive return line nozzles (NUREG-0619, November 1980). Given that both plant and industry experience shows no evidence of service-induced flaws, the increased risk of extending the inspection interval is minimal. Therefore, an extension of the completion date from the third 120-month inspection interval refueling outage of November 2002 until the fourth 120-month inspection interval refueling outage of January 2005 to achieve the inservice examinations and reduce excessive radiation dose is beneficial. In addition, the requested exemption will only provide temporary relief from the applicable regulation and does not jeopardize the health and safety of the public. The delayed examinations performed during the fourth 10-year interval will be credited to the third 10-year interval. These examinations will be repeated during the fourth 10-year interval in accordance with the fourth 10-year interval inservice inspection program.

3.0 DISCUSSION

Pursuant to 10 CFR 50.12, the Commission may, upon application by any interested person or upon its own initiative, grant exemptions from the requirements of 10 CFR Part 50 when (1) the exemptions are authorized by law, will not present an undue risk to public health or safety, and are consistent with the common defense and security; and (2) when special circumstances are present. These circumstances include the special circumstances that the exemption would provide only temporary relief from the applicable regulation and the licensee or applicant has made good faith efforts to comply with the regulation.

The underlying purpose of the regulation is to ensure the structural integrity of the reactor pressure vessel.

The staff examined the licensee's rationale to support the exemption request and concluded that granting it would meet the underlying purpose of 10 CFR Part 50. Public health and safety will not be jeopardized by the granting of the delay because the components listed in the licensee's July 10, 2002, exemption request are not the limiting components for RPV embrittlement. Additionally, previous examinations of the RPV nozzle-to-vessel welds and nozzle inside radius sections have not detected service-induced flaws. The proposed delay of examinations of the components results in no reduction in the number, type, or coverage of the examinations. Finally, the requested exemption is consistent with the common defense and security.

The licensee asserts that under 10 CFR 50.12(a)(2)(iii), the requested schedular exemption "will avoid undue hardship or costs." However, 10 CFR 50.12(a)(2)(iii) requires for special circumstances that compliance would result in hardship or other costs that are significantly in excess of those contemplated or that the requirements are significantly in excess of those incurred by others similarly situated. The staff finds that there are no excessive hardships or costs.

10 CFR 50.12(a)(2)(v) requires that the exemption would offer only temporary relief from the applicable regulation and the licensee has made good faith efforts to comply with the regulation. All nine nozzles have received a minimum of three ultrasonic examinations in previous outages and each has received a baseline examination along with the two previous inservice examinations during the first and second 120-month inspection intervals. Coordinating the next inservice inspection with chemical decontamination and re-application of NMCA would be advantageous from the perspective of reducing both worker radiation exposure and vulnerability of the affected piping to intergranular stress corrosion cracking. The alternate inservice inspection schedule delays the planned inspections for a maximum of 26 months and results in a significant reduction in radiation exposure of a minimum of 60 person-rem. The

staff finds that the licensee merits the required special circumstances under 10 CFR 50.12(a)(2)(v).

Based upon a consideration that the exemption would offer only temporary relief from the regulation and result in a significant reduction in worker radiation exposure, the staff concludes that an extension of the completion date from the third 120-month inspection interval refueling outage of November 2002 until the fourth 120-month inspection interval refueling outage of January 2005 to achieve the inservice examinations is beneficial.

4.0 CONCLUSION

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12(a), the exemption is authorized by law, will not present an undue risk to the public health and safety, and is consistent with the common defense and security. Also, special circumstances are present. Therefore, the Commission hereby grants Exelon Generation Company, LLC an exemption for Quad Cities, Unit 1, from the requirements of 10 CFR 50.55a(g)(4)(ii) for implementation of inservice examinations of certain reactor pressure vessel (RPV) nozzle-to-vessel welds and nozzle inside radius sections, as listed in the licensee's July 10, 2002, application, per ASME Code, Section XI, Table IWB-2500, Examination Category B-D, Item Nos. B3.90 and B3.100, by the end of the current 120-month inspection interval.

Pursuant to 10 CFR 51.32, the Commission has determined that the granting of this exemption will not have a significant effect on the quality of the human environment (67 FR 56860).

This exemption is effective upon issuance.

Dated at Rockville, Maryland, this 16th day of September 2002.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

John A. Zwolinski, Director
Division of Licensing Project Management
Office of Nuclear Reactor Regulation