



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

December 18, 2015

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

SUBJECT: CLINTON POWER STATION, UNIT 1 - ISSUANCE OF AMENDMENT
CONCERNING REVISION TO INTEGRATED LEAK TEST INTERVALS
(CAC NO. MF5291)(RS-14-308)

Dear Mr. Hanson:

The U.S. Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment No. 208 to Facility Operating License No. NPF-62 for the Clinton Power Station (CPS), Unit 1. The amendment is in response to an application from Exelon Generation Company, LLC, dated November 17, 2014, as supplemented by letters dated April 21, June 24, and November 16, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML14321A882, ML15111A258, ML15190A029 and ML15320A247, respectively).

The amendment revises the frequency requirement in Technical Specification (TS) 5.5.2, "Primary Coolant Sources Outside Containment" from "at refueling cycle intervals" to "at least once per 24 months." Additionally, this amendment adds a statement that allows the provisions of TS Surveillance Requirement 3.0.2 to apply to the TS 5.5.2 integrated leak test requirement.

B. Hanson

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A copy of the Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's next biweekly *Federal Register* notice.

Sincerely,

/RA/

Eva A. Brown, Senior Project Manager
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-461

Enclosures:

1. Amendment No. 208 to NPF-62
2. Safety Evaluation

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

EXELON GENERATION COMPANY, LLC

DOCKET NO. 50-461

CLINTON POWER STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 208
License No. NPF-62

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Exelon Generation Company, LLC (the licensee), dated November 17, 2014, as supplemented by letters dated April 21, June 24 and November 16, 2015, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-62 is hereby amended to read as follows:

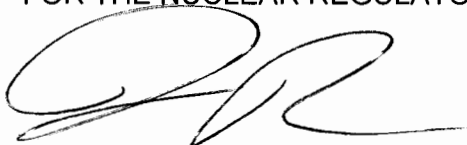
Enclosure 1

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 208, are hereby incorporated into this license. Exelon Generation Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Justin C. Poole, Acting Branch Chief
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications and Facility Operating License

Date of Issuance: December 18, 2015

ATTACHMENT TO LICENSE AMENDMENT NO. 208

FACILITY OPERATING LICENSE NO. NPF-62

DOCKET NO. 50-461

Replace the following pages of the Facility Operating License and Appendix "A" Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove

Insert

License NPF-62
Page 3

License NPF-62
Page 3

TSs
5.0-8

TSs
5.0-8

- (4) Exelon Generation Company, pursuant to the Act and to 10 CFR Parts 30, 40, and 70, to receive, possess, and use at any time any byproduct, source and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;
- (5) Exelon Generation Company, pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components;
- (6) Exelon Generation Company, pursuant to the Act and 10 CFR Parts 30, 40, and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility. Mechanical disassembly of the GE14i isotope test assemblies containing Cobalt-60 is not considered separation; and
- (7) Exelon Generation Company, pursuant to the Act and 10 CFR Parts 30, to intentionally produce, possess, receive, transfer, and use Cobalt-60.

C. This license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

Exelon Generation Company is authorized to operate the facility at reactor core power levels not in excess of 3473 megawatts thermal (100 percent rated power) in accordance with the conditions specified herein.

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 208, are hereby incorporated into this license. Exelon Generation Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

5.5 Programs and Manuals

5.5.1 Offsite Dose Calculation Manual (ODCM) (continued)

- c. Shall be submitted to the NRC in the form of a complete, legible copy of the entire ODCM as a part of, or concurrent with, the Radioactive Effluent Release Report for the period of the report in which any change in the ODCM was made. Each change shall be identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed, and shall indicate the date (i.e., month and year) the change was implemented.

5.5.2 Primary Coolant Sources Outside Containment

This program provides controls to minimize leakage from those portions of systems outside containment that could contain highly radioactive fluids during a serious transient or accident to levels as low as practicable. The systems include the:

- a. LPCS System;
- b. HPCS System;
- c. RHR System;
- d. RCIC System;
- e. Suppression Pool Makeup System;
- f. Combustible Gas Control System;
- g. Containment Monitoring System; and
- h. Post-accident Sampling System (until such time as a modification eliminates the PASS penetration as a potential leakage path).

The program shall include the following:

- a. Preventive maintenance and periodic visual inspection requirements;
- b. Integrated leak test requirements for each system at least once per 24 months; and
- c. In the event work is performed which could result in leakage from a component or system covered by this program, a visual inspection shall be performed and repairs made as required.

The specified frequency for integrated leak testing is met if the testing is performed within 1.25 times the interval specified.

(continued)



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 208 TO FACILITY OPERATING LICENSE NO. NPF-62

EXELON GENERATION COMPANY, LLC

CLINTON POWER STATION, UNIT NO. 1

DOCKET NO. 50-461

By letter to the U. S. Nuclear Regulatory Commission (NRC, the Commission) November 17, 2014, as supplemented by letters dated April 21, June 24, and November 16, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML14321A882, ML15111A258, ML15190A029, and ML15320A247, respectively) Exelon Generation Company, LLC (EGC, or the licensee) requested to revise Technical Specification (TS) 5.5.2, "Primary Coolant Sources Outside Containment," for Clinton Power Station, Unit 1 (CPS). Currently, TS 5.5.2 requires that an integrated leak test be performed on each system subject to TS 5.5.2 at refueling cycle intervals or less. The proposed change would require this test to be performed at least once per 24 months and adds a provision to apply surveillance requirement 3.0.2 to TS 5.5.2 requirements. The reason for the request is to support the CPS transition from 2-year to 1-year refueling cycles.

The April 21, 2015, supplement changed the NRC staff's initial proposed finding of no significant hazards consideration (February 17, 2015; 80 FR 8361) and, therefore, another Bi-weekly Notice was published in the *Federal Register* (May 12, 2015; 80 FR 27197). The licensee's supplements of June 24, and November 16, 2015, provided clarifying information only and did not affect the NRC staff's revised proposed finding of no significant hazards consideration.

2.0 REGULATORY EVALUATION

2.1 Description

Technical Specification 5.5.2 is an administrative controls program to minimize leakage to levels as low as practicable from those portions of systems outside containment that could contain highly radioactive fluids during a serious transient or accident. This program includes preventive maintenance, periodic inspections, and leak tests for the identified systems. This program also requires that system leak tests for each system be performed at refueling cycle intervals or less.

Revision 4 of NUREG-1434, "Standard Technical Specifications General Electric [Boiling Water Reactor] BWR/6 Plants Surveillance Requirement (SR) 3.0.2 states, in part,

[t]he specified Frequency for each SR is met if the Surveillance is

Enclosure 2

performed within 1.25 times the interval specified in the Frequency, as measured from the previous performance or as measured from the time a specified condition of the Frequency is met...

This SR establishes the requirements for meeting the specified Frequency for Surveillances and any Required Action with a Completion Time that requires the periodic performance of the Required Action on a "once per..." interval. SR 3.0.2 permits a 25 percent extension of the interval specified in the Frequency. This extension facilitates Surveillance scheduling and considers plant operating conditions that may not be suitable for conducting the Surveillance (e.g., transient conditions or other ongoing Surveillance or maintenance activities).

2.2 Regulatory Requirements and Guidance

The regulations in Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.36, "Technical specifications," contain the requirements for the content of TSs. Pursuant to 10 CFR 50.36(c), TSs are required to include items in the following five specific categories related to station operation: (1) safety limits, limiting safety system settings, and limiting control settings; (2) limiting conditions for operation (LCOs); (3) SRs; (4) design features; and (5) administrative controls.

Paragraph 10 CFR 50.36(c)(5) identifies Administrative controls as the provisions relating to organization and management, procedures, recordkeeping, review and audit, and reporting necessary to assure operation of the facility in a safe manner. Each licensee shall submit any reports to the Commission pursuant to approved TSs as specified in 10 CFR 50.4.

Revision 4.0 of NUREG-1434 contains the NRC-approved generic specifications for safe operation of BWR/6-designed plants. Plants that choose to adopt the STS must submit an application for review with plant-specific technical justification. The NUREG also provides a template for wording supporting the 25-percent scheduling flexibility extension provision of STS SR 3.0.2. Technical Specification Task Force (TSTF) Traveler TSTF-299-A, "Administrative Controls Program 5.5.2.b Test Interval and Exception," Revision 0 allows the provisions of TS SR 3.0.2 to be applicable to TS 5.5.2 integrated leak test requirements. TSTF-299 is a change to the STS, which is incorporated into NUREG-1434, Revision 4.0.

The NRC staff notes that Regulatory Issue Summary (RIS) 2012-10, "NRC Staff Position on Applying Surveillance Requirements 3.0.2 and 3.0.3 to Administrative Controls Program Tests," provides statements regarding the applicability of STS SRs 3.0.2 and 3.0.3 to TS 5.5 tests and discusses an NRC staff concern. A generic resolution by NRC staff is currently under review and may require further action by the licensee. Completion of that action is not required for the present license amendment.

The NRC staff notes that item III.D.1.1, "Integrity of Systems Outside Containment Likely to Contain Radioactive Material for Pressurized-Water Reactors and Boiling-Water Reactors," in NUREG-0737, "Clarification of Three Mile Island Action Plan Requirements," requires that the effectiveness of the leak test requirements be maintained.

3.0 TECHNICAL EVALUATION

The licensee has been performing integrated leak testing for the systems containing primary coolant outside containment on a 24-month frequency since the station transitioned to a 24-month cycle in October 2005. CPS has been operating under 24-month refueling cycles, since the NRC approved the extension of refueling cycle from 18-month to 24-month in October 2005. Starting in the spring of 2015, following startup from refueling outage C1R15, CPS will begin a 12-month operating cycles (i.e., 12-month refueling cycle outages. The C1R15 refueling outage will be a more traditional refueling outage consisting of both refueling activities and maintenance activities (i.e., "refueling/maintenance outages"). The following spring, in May 2016, refueling outage C1R16 will focus primarily on refueling activities with minimal maintenance activities (i.e., "refueling only outages").

Given the current TS 5.5.2, the planned 12-month refueling cycle would require CPS to perform integrated leak testing of the systems containing primary coolant outside containment on a 12-month frequency. Since, every other refueling outage in a 12-month refueling cycle is a more traditional refueling outage consisting of both refueling activities and maintenance activities, the licensee proposed to change TS 5.5.2 to maintain the current (i.e., 24-month) frequency for the integrated leak test requirements for primary coolant sources outside containment. The change proposes to modify TS 5.5.2, item b, from "Integrated leak test requirements for each system at refueling cycle intervals or less" to "Integrated leak test requirements for each system at least once per 24 months."

3.1 Test Frequency Extension

For the total emergency core cooling system leakage to secondary containment, an administrative limit is set significantly below the TS allowable leakage. In addition, any leakages identified are expected to be inspected again on a quarterly basis using CPS procedure until leaks are repaired. The NRC staff reviewed the results of the leakage rate for each system monitored under TS 5.5.2 for the last two outages including test acceptance criterion. In the June 24, 2015, supplement the licensee stated that leak testing at CPS had been performed in accordance with CPS plant procedure in which the acceptance criteria are specified to require any leakage level to be as low as practical. Based on the information provided by the licensee, the NRC staff found that the administrative limits were sufficiently established to prevent exceeding the TS allowable limit, and therefore concludes that the proposed change to TS 5.5.2 will have an insignificant impact, if any, on the effectiveness of the monitoring and leak test program.

In the November 17, 2014 submittal, the licensee stated that after conversion to 12-month refueling outages, the odd year refueling outages will be "refueling/maintenance outages" and even year refueling outages will be "refueling only outages", with minimal amount of maintenance activities performed during refueling only outages. The NRC staff questioned the impact of the "refueling only outage" concept on leakage pathways and associated leakage rates for each system under the scope of TS 5.5.2. In the June 24, 2015 supplement, the licensee stated that TS 5.5.2 leak testing will be continued on a 24-month frequency either during power operation or during the refueling/maintenance outages, and that it is equivalent to performing the tests at the current refueling cycle interval of every 24 months. The licensee stated that performing minimal maintenance activities during the refueling-only outages also

means that few systems will be taken out of service during these outages. By minimizing testing during these outages, no additional potential for increasing leakage should be introduced. Since the systems will not be operated any differently from the past, the licensee indicated that there should be no basis to suspect that the leakage would increase significantly during the cycle between the refueling-only outage and the refueling/maintenance outage. However, as indicated in the November 16, 2015 supplement, should equipment repairs or maintenance that may result in primary coolant system leakage be necessary during the refueling only outage a visual inspection will be performed and repairs conducted as necessary.

Given that the refueling-only being limited to minimal maintenance activities, the NRC staff concludes that introduction of an additional outage in the current 24-month outage cycle will have an insignificant impact on the effectiveness of the current TS 5.5.2 leakage monitoring and testing program with a frequency of 24 months. Based on the proposed changes not adversely affecting the effectiveness of the integrated leak rate program, the NRC staff finds that the change meets Item III.D.1.1 of NUREG-0737, and is, therefore, acceptable.

3.2 Ongoing Generic Concern RIS 2012-10

Currently, TS 5.5.2, "Primary Coolant Sources Outside Containment," states, in part:

The program shall include the following:

- a. Preventive maintenance and periodic visual inspection requirements; and
- b. Integrated leak test requirements for each system at refueling cycle intervals or less.

NUREG-1434 STS 5.5.2 states, in part:

The program shall include the following:

- a. Preventive maintenance and periodic visual inspection requirements and
- b. Integrated leak test requirements for each system at least once per [18] months.

The provisions of SR 3.0.2 are applicable.

As mentioned above the NRC staff has an ongoing concern that applying STS rules of usage would prohibit licensees from using the SR 3.0.2 and SR 3.0.3 allowances (i.e., 25 percent above the required surveillance interval) in Section 5.0 TS, unless the Section 5.0 TS tests are associated with a TS SR. The NRC staff indicated in RIS 2012-10 that:

...restructuring TS chapters during the development of improved standard technical specifications (STS) resulted in unintended consequences when Section 3.0, "Surveillance Requirement Applicability," provisions were made applicable to Section 5.0 TS. Specifically, applying STS rules of usage would prohibit licensees from using the SR 3.0.2 and SR 3.0.3 allowances in Section 5.0 TS, unless the Section 5.0 TS tests are

associated with a TS SR. Therefore, the NRC staff concluded that applying either the SR 3.0.2 or SR 3.0.3 general provisions on the applicability of SRs to non-TS testing required by program tests is generic and applies to all addressees with plant-specific TS based on improved STS (NUREG-1430 through NUREG-1434). Plant-specific TS that do not match up with NUREG-1430 through NUREG-1434 may apply to this position, depending on the extent to which the SR applicability and TS 5.5 deviate from STS content.

The resolution to this issue is currently under review by NRC staff and in the meantime, the STS NUREGs still contain references to SRs 3.0.2 and 3.0.3 in TS 5.5 programs. Since the testing requirements of CPS TS 5.5.2 are not associated with a TS surveillance, RIS 2012-10 states that SR 3.0.2 is not directly applicable to this program requirement. However, this does not impact the acceptability of this amendment.

The licensee addressed the NRC staff's concern by changing the TS 5.5.2 statement in the April 21, 2015, supplement, the licensee proposed revising TS 5.5.2 to state:

[t]he program shall include the following:

- a. Preventive maintenance and periodic visual inspection requirements; and
- b. Integrated leak test requirements for each system at refueling cycle internals or less.
- c. In the event work is performed which could result in leakage from a component or system covered by this program, a visual inspection shall be performed and repairs made as required.

The specified frequency for integrated leak testing is met if the testing is performed within 1.25 times the interval specified.

The licensee also stated in the submittal that:

This change also makes the CPS TS 5.5.2 consistent with Revision 4 of NUREG-1434, "Standard Technical Specifications General Electric BWR/6 Plants.

The NRC staff reviewed the proposed revised statement and found that it is better aligned with NUREG-1434 and is consistent with the NRC staff's intention in TSTF-299 to allow a 25 percent extension to the test frequency to facilitate scheduling. Based on minimal maintenance being performed during the refueling-only outage, the NRC staff concludes that the extension should not significantly degrade the reliability that results from performing the test at its specified frequency. Given the above NRC staff conclusions, the NRC staff finds that the proposed revision to TS 5.5.2 continues to assure the safe plant operation and is, therefore, acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Illinois State official was notified of the proposed issuance of the amendment. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission initially issued a proposed finding (February 17, 2015; 80 FR 8361) that the amendment involves no significant hazards consideration, that notice was later supplemented, and there has been no public comment on such finding (May 12, 2015; 80 FR 27197). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) and 10 CFR 51.22(c)(10). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) there is reasonable assurance that 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 to the health and safety of the public.

Principal Contributors: K. West, NRR
S. Peng, NRR

Date of issuance: December 18, 2015

B. Hanson

- 2 -

A copy of the Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's next biweekly *Federal Register* notice.

Sincerely,

/RA/

Eva A. Brown, Senior Project Manager
Plant Licensing Branch III-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-461

Enclosures:

1. Amendment No. 208 to NPF-62
2. Safety Evaluation

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*by memo

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