

March 8, 2002

Mr. Oliver D. Kingsley, President
and Chief Nuclear Officer
Exelon Nuclear
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, Illinois 60555

SUBJECT: CLINTON POWER STATION, UNIT 1 - ISSUANCE OF AMENDMENT
(TAC NO. MB2744)

Dear Mr. Kingsley:

The U.S. Nuclear Regulatory Commission (Commission) has issued the enclosed Amendment No. 143 to Facility Operating License No. NPF-62 for the Clinton Power Station, Unit 1. The amendment is in response to the application from AmerGen Energy Company, LLC, dated August 13, 2001.

The amendment defers withdrawal of the first set of reactor vessel surveillance specimens until 10.4 effective full power years, expected to be one additional operating cycle.

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/

Jon B. Hopkins, Senior Project Manager, Section 2
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-461

Enclosures: 1. Amendment No. 143 to NPF-62
2. Safety Evaluation

cc w/encls: See next page

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OFFICE	PM:PD3-2	LA:PD3-2	OGC	SC:PD3-2
NAME	JHopkins	THarris	DCummings	AMendiola
DATE	2/22/02	2/22/02	2/28/02	3/5/02

OFFICIAL RECORD COPY

Clinton Power Station, Unit 1

cc:

Chief Operating Officer
Exelon Generation Company, LLC
4300 Winfield Road
Warrenville, Illinois 60555

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

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

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

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

Manager Licensing - Clinton and LaSalle
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, Illinois 60555

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

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

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

Site Vice President - Clinton Power Station
AmerGen Energy Company, LLC
Clinton Power Station
RR 3, Box 228
Clinton, IL 61727-9351

Clinton Power Station Plant Manager
AmerGen Energy Company, LLC
Clinton Power Station
RR 3, Box 228
Clinton, IL 61727-9351

Regulatory Assurance Manager - Clinton
AmerGen Energy Company, LLC
Clinton Power Station
RR 3, Box 228
Clinton, IL 61727-9351

Clinton Power Station, Unit 1

- 2 -

cc:

Resident Inspector
U.S. Nuclear Regulatory Commission
RR#3, Box 229A
Clinton, IL 61727

R. T. Hill
Licensing Services Manager
General Electric Company
175 Curtner Avenue, M/C 481
San Jose, CA 95125

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

Chairman of DeWitt County
c/o County Clerk's Office
DeWitt County Courthouse
Clinton, IL 61727

J. W. Blattner
Project Manager
Sargent & Lundy Engineers
55 East Monroe Street
Chicago, IL 60603

AMERGEN ENERGY COMPANY, LLC

DOCKET NO. 50-461

CLINTON POWER STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 143
License No. NPF-62

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by AmerGen Energy Company, LLC (the licensee), dated August 13, 2001, 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, by Amendment No. 143, the license is amended to authorize revision of the updated safety analysis report (USAR), as set forth in the application for amendment by AmerGen Energy Company, LLC dated August 13, 2001. AmerGen Energy Company, LLC shall update the USAR to reflect the revised licensing basis authorized by this amendment in accordance with 10 CFR 50.71(e).

(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. 143 are hereby incorporated into this license. AmerGen Energy Company, LLC 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 in the next periodic update to the updated safety analysis report (USAR) in accordance with 10 CFR 50.71(e). Implementation of the amendment is the incorporation into the USAR of the change to the facility as described in the licensee's application dated August 13, 2001, and evaluated in the staff's safety evaluation attached to this amendment.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Anthony J. Mendiola, Chief, Section 2
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Date of Issuance: March 8, 2002

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 143 TO FACILITY OPERATING LICENSE NO. NPF-62
AMERGEN ENERGY COMPANY, LLC
CLINTON POWER STATION, UNIT 1
DOCKET NO. 50-461

1.0 INTRODUCTION

By letter dated August 13, 2001, AmerGen Energy Company, LLC (the licensee), submitted a request for approval of a proposed change to the updated safety analysis report (USAR) regarding the reactor pressure vessel (RPV) material surveillance program schedule for Clinton Power Station (CPS). The licensee proposed to change the withdrawal time for the first surveillance capsule of the CPS vessel from 10 effective full power years (EFPY) to 10.4 EFPY in order to defer withdrawal for one additional operating cycle.

CPS is a member of the Boiling Water Reactor Vessel and Internals Project (BWRVIP) which has developed a RPV Integrated Surveillance Program (ISP). This plan was developed in accordance with Appendix H to 10 CFR Part 50, Section III.C, "Requirements for the Integrated Surveillance Program." The proposed BWRVIP strategy, "BWR Vessel and Internals Project, BWR Integrated Surveillance Program Plan (BWRVIP-78)," is currently under Nuclear Regulatory Commission (NRC) staff review.

2.0 REGULATORY REQUIREMENTS

Appendix H to 10 CFR Part 50 requires licensees to establish RPV surveillance capsule withdrawal schedules consistent with the edition of American Society for Testing and Materials (ASTM) Standard E-185, "Standard Practice for Conducting Surveillance Tests for Light-Water Cooled Nuclear Power Reactor Vessels," that was current at the time RPV was purchased. Licensees may, however, elect to use later editions of ASTM E-185, through the 1982 Edition, as the basis for establishing their surveillance capsule withdrawal schedule. Section III.B.3 of Appendix H also specifies that, "[a] proposed withdrawal schedule must be submitted with a technical justification as specified in 10 CFR 50.4. The proposed schedule must be approved prior to implementation." This section of Appendix H was interpreted by the Atomic Safety and Licensing Board and the Commission. In NRC Administrative Letter 97-04, "NRC Staff Approval for Changes to 10 CFR Part 50, Appendix H, Reactor Vessel Surveillance Specimen Withdrawal Schedules," the following was stated:

The U.S. Nuclear Regulatory Commission (NRC) is issuing this administrative letter to inform licensees that changes to their facilities' reactor vessel surveillance specimen capsule withdrawal schedules as specified in Appendix H to Part 50 of Title 10 of the Code of Federal Regulations (10 CFR) that do not conform to the required ASTM standard referenced in Appendix H will be treated as license amendments requiring public notice and opportunity for a hearing.

The current CPS RPV surveillance capsule withdrawal schedule is not in accordance with ASTM E-185-82. ASTM E-185-82 requires that the first of three sets of vessel surveillance specimens should be withdrawn during the outage which is nearest to 6 EFPY. In a letter from D. V. Pickett, NRC, to R. F. Phares, Illinois Power Company (the previous CPS licensee), dated April 4, 1994, the NRC staff approved the increase in the first CPS surveillance capsule exposure limit to 10 EFPY. The approved schedule indicates that the first capsule should be withdrawn before an exposure of 10 EFPY. The current CPS RPV surveillance capsule withdrawal schedule reflects this 10 EFPY limit for the first surveillance capsule. Therefore, the licensee has requested a license amendment to implement a change to the surveillance capsule withdrawal schedule in CPS USAR Chapter 5, Section 5.3.1.6, since the requested deferral of the first capsule withdrawal to 10.4 EFPY does not conform to the requirements of ASTM E-185-82.

NRC staff guidance has been published regarding licensee requests to obtain one cycle capsule withdrawal deferrals in support of the BWRVIP ISP. The ISP was designed to integrate and share data from the surveillance programs from all existing BWR reactors in the United States. BWRVIP noted that, for some licensees, it would be necessary to obtain capsule deferrals for at least one cycle to support obtaining high quality data from some existing surveillance capsules. In addition, since some existing surveillance capsules would not need to be tested if the ISP were approved by the staff, licensees with such capsules desired to seek deferral of their removal and testing to reduce monetary expenditures and personnel exposure. The NRC staff has noted its general support for the ISP proposal, and in a letter dated May 16, 2000, from Jack Strosnider, Director of the Division of Engineering of the NRC Office of Nuclear Reactor Regulation, to Carl Terry, BWRVIP Chairman, the staff set three conditions for the approval of a deferral request while the staff completes its review of the proposed ISP. The first criterion stipulated that the licensee should demonstrate that the requested surveillance capsule deferral was a direct outcome of, or not in conflict with, the capsule withdrawal schedule in the proposed ISP. The second criterion stipulated that the licensee should demonstrate that acquisition of material property data from the surveillance capsule to be deferred was not necessary to ensure that the RPV could be safely operated through the period of the deferral. The third criterion stipulated that the licensee should demonstrate that acquisition of neutron dosimetry data from the surveillance capsule to be deferred was not necessary to ensure that the RPV could be safely operated through the period of the deferral.

3.0 EVALUATION

In its letter of August 13, 2001, the licensee provided the following information to answer the three staff requirements for a deferral request. In order to explain how the deferral is consistent with the ISP plan submitted in BWRVIP-78, the licensee stated:

Based on the selection criteria in the BWRVIP-78 program plan, e.g., chemistry match, baseline data, and fabrication details, the BWRVIP did not select CPS [Clinton Power Station] capsules for analysis. Instead, AmerGen will characterize CPS RPV material by using the results from the analysis of River Bend's capsules. Therefore, in accordance with the BWRVIP program, no CPS capsules will have to be withdrawn during the CPS operating license period.

In order to explain how the acquisition of materials property data is not necessary to ensure RPV integrity through the deferral period in accordance with Appendix H to 10 CFR Part 50, the licensee stated:

Currently the CPS Technical Specifications contain pressure-temperature (P-T) curves applicable for up to 32 effective full power years (EFPY). The CPS vessel will be at 8.9 EFPY at the end of the current cycle in March 2002. No capsule removal is required to support these P-T curves in the next two operating cycles. In addition, the data from the capsule would not be expected to provide Charpy shift values above the 56°F for welds and 34°F for plates. These are the threshold values for the data to be distinguishable from the scatter in the Charpy test method based on equation 2 in Regulatory Guide 1.99, "Radiation Embrittlement of Reactor Vessel Materials," Revision 2. Accordingly, no capsule removal is required to evaluate material properties in order to support the P-T curves.

In order to explain how capsule dosimetry data testing would not affect the validity of the facility's RPV integrity assessments through the deferral period, the licensee stated:

The CPS vessel exposure will be 8.9 EFPY at the end of the current operating cycle, and the vessel exposure at the end of the following operating cycle is projected to be less than 10.4 EFPY. The vessel exposure calculations have been benchmarked based on analysis of dosimetry specimens in the first refueling outage, and the vessel fluence has recently been verified by GE [General Electric Company] using two-dimensional neutron transport analyses. In the first refueling outage, a dosimetry specimen was tested, but no Charpy specimens were withdrawn. The analyzed exposure of 32 EFPY provides ample margin to the exposure for the ninth refueling outage of 10.4 EFPY.

The licensee noted that the deferral would be acceptable because it is consistent with the intent of the proposed BWR ISP, would not delay needed data, and would not affect the reactor vessel integrity assessment.

The NRC staff reviewed the information supplied by the licensee, the regulatory requirements, and the guidance stated in Section 2.0 above. Regarding the requirements of ASTM E185-82, the staff concluded that the licensee's requested modification to their surveillance capsule withdrawal schedule would be acceptable.

The following are the staff's conclusions on the technical justifications provided in response to the three criteria given in the NRC staff's letter dated May 16, 2000. First, the staff accepts that deferral of the first CPS capsule is acceptable within the BWRVIP ISP plan. Based on the NRC staff's discussions with the BWRVIP, some modifications to the withdrawal schedule proposed as part of the ISP are expected. In addition, the ISP is intended to improve the quality of data acquired to assess the embrittlement of BWR RPVs. No CPS capsule would have to be

withdrawn during the CPS operating license period according to the proposed BWRVIP-78 program. Therefore, the proposed CPS surveillance capsule deferral would have no effect on the proposed ISP.

The licensee's rationale to address the second and third criterion depends on an evaluation of the CPS P-T limits. The period of the requested surveillance capsule deferral is less than the period over which the most recently approved P-T limits remain valid. Hence, the staff has concluded that, through the period of the requested capsule deferral, the most recently approved CPS P-T limits will continue to ensure that the integrity of the RPV will be maintained for heatup, cooldown, normal power operation, and leak rate testing. Further, the additional materials test data from the capsules to be deferred would not be expected to lead to significant modification of the CPS P-T limit curves if the capsules were tested in accordance with the current withdrawal schedule, since the data obtained would likely not be differentiable from data scatter.

Finally, the staff has concluded that the neutron dosimetry data from the capsule to be deferred is not necessary to continue to support safe operation of the CPS RPV through the period of the requested deferral. The use of P-T limit curves indexed to a projected 32 EFPY fluence value provides adequate assurance that the RPV can be safely operated through the requested deferral period. Therefore, all criteria from the staff's May 12, 2000, letter were satisfied.

Based on the above evaluation, the NRC staff has found that no additional material test or dosimetry data is required to ensure, nor would be expected to significantly contribute to, the integrity evaluation of the Clinton RPV through the period of the deferral. Therefore, the NRC staff has concluded, in accordance with the provisions of Appendix H to 10 CFR Part 50, that withdrawal of the first CPS RPV surveillance capsule may be deferred to 10.4 EFPY of operation. This change shall be included in the next USAR revision submitted to the NRC.

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

This amendment changes a surveillance requirement. 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 has previously issued a proposed finding that the amendment involves no significant hazards consideration and there has been no public comment on such finding (66 FR 52796). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). 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 staff 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) 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 Contributor: J. Collins

Date: March 8, 2002