



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

February 18, 2020

Mr. Eric Carr
President and Chief Nuclear Officer
PSEG Nuclear LLC - N09
P.O. Box 236
Hancocks Bridge, NJ 08038

SUBJECT: HOPE CREEK GENERATING STATION AND SALEM NUCLEAR
GENERATING STATION, UNIT NOS. 1 AND 2 – ISSUANCE OF AMENDMENT
NOS. 221, 332, AND 313 RE: REVISE EMERGENCY PLAN STAFFING
REQUIREMENTS (EPID L-2019-LLA-0145)

Dear Mr. Carr:

The U.S. Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment Nos. 221, 332, and 313 to Renewed Facility Operating License Nos. NPF-57, DPR-70, and DPR-75 for the Hope Creek Generating Station, and Salem Nuclear Generating Station, Unit Nos. 1 and 2, respectively. These are in response to your application dated July 8, 2019, as supplemented by letter dated November 4, 2019.

The amendments revise the emergency response plan for the facilities above by changing the emergency response organization staffing requirements for the facilities.

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

Sincerely,

/RA/

James S. Kim, Project Manager
Plant Licensing Branch I
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-354, 50-272, and 50-311

Enclosures:

1. Amendment No. 221 to NPF-57
2. Amendment No. 332 to DPR-70
3. Amendment No. 313 to DPR-75
4. Safety Evaluation

cc: Listserv



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PSEG NUCLEAR LLC

DOCKET NO. 50-354

HOPE CREEK GENERATING STATION

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 221
Renewed License No. NPF-57

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment filed by PSEG Nuclear LLC, dated July 8, 2019, as supplemented by letter dated November 4, 2019, 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 set forth in 10 CFR Chapter I;
 - 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. 221, the license is amended by a revision to the emergency response plan as set forth in the licensee's application dated July 8, 2019, as supplemented by letter dated November 4, 2019, and evaluated in the NRC staff's safety evaluation for this amendment.
3. The license amendment is effective as of its date of issuance and shall be implemented within 60 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/ Mirela Gavrilas for

Ho K. Nieh, Director
Office of Nuclear Reactor Regulation

Date of Issuance: February 18, 2020



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PSEG NUCLEAR LLC

EXELON GENERATION COMPANY, LLC

DOCKET NO. 50-272

SALEM NUCLEAR GENERATING STATION, UNIT NO. 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 332
Renewed License No. DPR-70

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment filed by PSEG Nuclear LLC, acting on behalf of itself and Exelon Generation Company, LLC (the licensees), dated July 8, 2019, as supplemented by letter dated November 4, 2019, 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 set forth in 10 CFR Chapter I;
 - 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. 332, the license is amended by a revision to the emergency response plan as set forth in the licensee's application dated July 8, 2019, as supplemented by letter dated November 4, 2019, and evaluated in the NRC staff's safety evaluation for this amendment.
3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/ Mirela Gavrilas for

Ho K. Nieh, Director
Office of Nuclear Reactor Regulation

Date of Issuance: February 18, 2020



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

PSEG NUCLEAR LLC

EXELON GENERATION COMPANY, LLC

DOCKET NO. 50-311

SALEM NUCLEAR GENERATING STATION, UNIT NO. 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 313
Renewed License No. DPR-75

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment filed by PSEG Nuclear LLC, acting on behalf of itself and Exelon Generation Company, LLC (the licensees), dated July 8, 2019, as supplemented by letter dated November 4, 2019, 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 set forth in 10 CFR Chapter I;
 - 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. 313, the license is amended by a revision to the emergency response plan as set forth in the licensee's application dated July 8, 2019, as supplemented by letter dated November 4, 2019, and evaluated in the NRC staff's safety evaluation for this amendment.
3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/ Mirela Gavrilas for

Ho K. Nieh, Director
Office of Nuclear Reactor Regulation

Date of Issuance: February 18, 2020



UNITED STATES
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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NOS. 221, 332, AND 313 TO
RENEWED FACILITY OPERATING LICENSE NOS. NPF-57, DPR-70, AND DPR-75
PSEG NUCLEAR LLC
HOPE CREEK GENERATING STATION
AND
PSEG NUCLEAR LLC
EXELON GENERATION COMPANY, LLC
SALEM NUCLEAR GENERATING STATION, UNIT NOS. 1 AND 2
DOCKET NOS. 50-354, 50-272, AND 50-311

1.0 INTRODUCTION

By application dated July 8, 2019 (Reference 1), as supplemented by letter dated November 4, 2019 (Reference 2), PSEG Nuclear LLC (PSEG, the licensee) submitted proposed changes to the Hope Creek Generating Station (Hope Creek) and Salem Nuclear Generating Station, Unit Nos. 1 and 2 (Salem) Radiological Emergency Response Plan (RERP) for U.S. Nuclear Regulatory Commission (NRC or the Commission) prior review and approval pursuant to Section 50.54(q) of Title 10 of the *Code of Federal Regulations* (10 CFR). The proposed change to the Salem and Hope Creek RERP includes removal of chemistry personnel from the on-shift emergency response organization (ERO).

The supplemental letter dated November 4, 2019, provided additional information that clarified the application but did not expand the scope of the application as originally noticed nor change the NRC staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on August 13, 2019 (84 FR 40099).

2.0 REGULATORY EVALUATION

2.1 Regulatory Requirements

10 CFR 50.47, "Emergency plans," sets forth the NRC's emergency response plan requirements for nuclear power plant facilities.

The planning standards in 10 CFR 50.47(b) establish the requirements that the onsite and offsite emergency response plans must meet for the NRC staff to make a finding that there is reasonable assurance that the licensee can, and will, take adequate protective measures in the event of a radiological emergency. Specifically, on-shift and augmented ERO staffing is addressed under 10 CFR 50.47(b)(2), which states:

On-shift facility licensee responsibilities for emergency response are unambiguously defined, adequate staffing to provide initial facility accident response in key functional areas is maintained at all times, timely augmentation of response capabilities is available, and the interfaces among various onsite response activities and offsite support and response activities are specified.

Appendix E to 10 CFR Part 50, "Emergency Planning and Preparedness for Production and Utilization Facilities," Section IV, Part A, "Organization," states, in part:

The organization for coping with radiological emergencies shall be described, including definition of authorities, responsibilities, and duties of individuals assigned to the licensee's emergency organization...

The regulatory requirements regarding the assessment and monitoring of offsite radiological releases are addressed in planning standard 10 CFR 50.47(b)(9), which states:

Adequate methods, systems, and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency condition are in use.

Further requirements for determining the magnitude of, and for continually assessing the impact of, the release of radioactive materials are addressed in Appendix E to 10 CFR Part 50, Section IV, Part B, "Assessment Actions," paragraph 1, which states, in part:

The means to be used for determining the magnitude of, and for continually assessing the impact of, the release of radioactive materials shall be described, including emergency action levels that are to be used as criteria for determining the need for notification and participation of local and State agencies, the Commission, and other Federal agencies, and the emergency action levels that are to be used for determining when and what type of protective measures should be considered within and outside the site boundary to protect health and safety.

The proposed changes to the licensee's emergency plan were submitted to the NRC by the licensee for technical and regulatory review and approval prior to implementation, as required under 10 CFR 50.54(q)(4).

2.2 Regulatory Guidance

Regulatory Guide 1.101, Revision 2, "Emergency Planning and Preparedness for Nuclear Power Reactors," dated October 1981 (Reference 3), provides guidance on methods acceptable to the NRC staff for complying with specific parts of the NRC's regulations, which in this case are 10 CFR 50.47(b)(2) and Appendix E to 10 CFR Part 50, Section IV, Part A. Regulatory Guide 1.101 endorses Revision 1 to NUREG-0654/FEMA-REP-1 (hereafter referred to as NUREG-0654), "Criteria for Preparation and Evaluation of Radiological Emergency Response

Plans and Preparedness in Support of Nuclear Power Plants,” dated November 1980 (Reference 4), which provides specific acceptance criteria for complying with the standards set forth in 10 CFR 50.47(b). These criteria provide a basis for NRC licensees, and State and local governments to develop acceptable radiological emergency plans and to improve emergency preparedness.

NUREG-0654, Section II, “Planning Standards and Evaluation Criteria,” Evaluation Criteria II.B.1 and II.B.5 address specific aspects of planning standard 10 CFR 50.47(b)(2) related to ERO on-shift and augmentation staffing.

Evaluation Criterion II.B.1 states:

Each licensee shall specify the onsite emergency organization of plant staff personnel for all shifts and its relation to the responsibilities and duties of the normal shift complement.

Evaluation Criterion II.B.5 states, in part:

Each licensee shall specify the positions or title and major tasks to be performed by the persons to be assigned to the functional areas of emergency activity. For emergency situations, specific assignments shall be made for all shifts and for plant staff members, both onsite and away from the site. These assignments shall cover the emergency functions in Table B-1 entitled, “Minimum Staffing Requirements for Nuclear Power Plant Emergencies.” The minimum on-shift staffing levels shall be as indicated in Table B-1. The licensee must be able to augment on-shift capabilities within a short period after declaration of an emergency. This capability shall be as indicated in Table B-1.

In a letter to the Nuclear Energy Institute dated June 12, 2018 (Reference 5), the NRC staff provided alternative guidance for Evaluation Criterion II.B.5 in NUREG-0654, Revision 1, for minimum ERO on-shift and augmentation staffing. The letter stated, in part:

The NRC has revised Section II.B, Table B-1 of NUREG-0654, based in part on comments received from the public on the draft Revision 2 of NUREG-0654, located at www.regulations.gov under Docket ID FEMA-2012-0026. The revised ERO staffing guidance has been finalized, and the NRC will include it when the entire NUREG-0654, Revision 2, is ready for issuance. Until then, the NRC staff is making available on an interim basis the ERO on-shift and augmentation staffing plan (attached). Regardless of whether a licensee chooses to use the guidance contained in Revision 1 of NUREG-0654, the attached, or an alternative approach, licensees are still required to adhere to 10 CFR 50.54(q) when revising their ERO staffing plans.

Hereafter, this guidance will be referred to as the “revised NUREG-0654, Table B-1” in this safety evaluation.

Regulatory Issue Summary (RIS) 2016-10, “License Amendment Requests for Changes to Emergency Response Organization Staffing and Augmentation,” dated August 5, 2016 (Reference 6), also provides examples of the scope and detail of information that should be provided in license amendment requests related to ERO staffing and augmentation to facilitate the NRC staff’s review.

In addition, NUREG-0654, Section II, Evaluation Criteria II.1.2 and II.1.7, address specific aspects of planning standard 10 CFR 50.47(b)(9) related to assessing and monitoring actual or potential offsite consequences of a radiological emergency condition.

Evaluation Criterion II.1.2 states, in part:

Onsite capability and resources to provide initial values and continuing assessment throughout the course of an accident shall include post-accident sampling...

Evaluation Criterion II.1.7 states:

Each organization shall describe the capability and resources for field monitoring within the plume exposure Emergency Planning Zone which are an intrinsic part of the concept of operations for the facility.

3.0 TECHNICAL EVALUATION

The NRC staff has reviewed the licensee's regulatory and technical analyses in support of the proposed changes to the Salem and Hope Creek RERP as described in the application dated July 8, 2019, as supplemented by letter dated November 4, 2019. The results of the NRC staff's review are documented in Section 3.1 below.

3.1 NRC Staff Evaluation

PSEG states that the proposed revision to the Salem and Hope Creek RERP would revise certain ERO positions to align with the alternative guidance provided in the revised NUREG-0654 Table B-1. Specifically, it would remove one (1) chemistry technician from the on-shift ERO at both Salem and Hope Creek. The licensee explained that the chemistry/radiochemistry function, as listed in Table B-1 to NUREG-0654, Revision 1, is no longer required, as the need for immediate reactor coolant sampling has been reduced due to the variety of available plant indications for the determination of fuel damage available at Hope Creek and Salem. The licensee further explained that early indications of fuel damage can be identified through containment radiation monitors, core instrumentation, or effluent radiation monitors, which are available in the control rooms of both Salem and Hope Creek.

The proposed removal of the chemistry technician position from the ERO on-shift staffing complement is consistent with the revised NUREG-0654, Table B-1, which determined that the chemistry/rad chemistry function listed in Table B-1 to NUREG-0654, Revision 1, is no longer required, as the need for immediate reactor coolant sampling has been reduced due to the variety of plant indications of fuel damage available to licensees.

As an additional function, the current Salem and Hope Creek RERP also assigns the chemistry technician from the unaffected station to support the affected station's onsite/offsite radiation monitoring team as a driver. In the supplemental letter dated November 4, 2019, PSEG stated that the Operational Support Center (OSC) radwaste operator from the unaffected station would now support the radiation protection technician as an onsite/offsite monitoring team driver rather than the chemistry technician. PSEG explained that the OSC radwaste operator at the unaffected station does not have any duty expectation to support the affected station, and the role of the driver for the affected station's onsite/offsite monitoring team does not

require any specific training or skills and is within the capabilities of the OSC radwaste operator.

Based on the reasons stated above, the NRC staff finds that the removal of chemistry personnel from the on-shift and minimum staffing list for the radiation protection function would not adversely impact the licensee's ability to assess and monitor actual or potential offsite consequences of a radiological emergency condition. The proposed change to the ERO staffing is also consistent with guidance provided in the revised NUREG-0654, Table B-1.

3.2 Summary

The NRC staff performed a technical and regulatory review of the proposed changes to the Salem and Hope Creek RERP. Based on this review, the NRC staff finds that the proposed emergency plan, as changed, continues to meet planning standards 10 CFR 50.47(b)(2) and (b)(9), and the requirements in Sections IV.A and IV.B.1 to Appendix E of 10 CFR Part 50, and provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. Therefore, pursuant to 10 CFR 50.54(q)(4), the NRC staff concludes that the proposed Salem and Hope Creek RERP, as described in the application dated July 8, 2019, and as supplemented by letter dated November 4, 2019, is acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the New Jersey State official was notified of the proposed issuance of the amendments on August 28, 2019. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

Pursuant to 10 CFR 51.21, 10 CFR 51.32, and 10 CFR 51.35, an environmental assessment and finding of no significant impact regarding this license amendment was published in the *Federal Register* on January 21, 2020 (85 FR 3433). Accordingly, based upon the environmental assessment, the Commission has determined that the issuance of these amendments will not have a significant effect on the quality of the human environment.

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 amendments will not be inimical to the common defense and security or to the health and safety of the public.

7.0 REFERENCES

1. PSEG Nuclear LLC letter to U.S. Nuclear Regulatory Commission, "License Amendment Request for Approval of Changes to Emergency Plan Staffing Requirements," dated July 8, 2019 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19189A316).
2. PSEG Nuclear LLC letter to U.S. Nuclear Regulatory Commission, "Response to Request for Additional Information, Re: License Amendment Request for Approval of Changes to Emergency Plan Staffing Requirements," dated November 4, 2019 (ADAMS Accession No. ML19308A595).
3. Regulatory Guide 1.101, Revision 2, "Emergency Planning and Preparedness for Nuclear Power Reactors," dated October 1981 (ADAMS Accession No. ML090440294).
4. NUREG-0654/FEMA-REP-1, Revision 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," dated November 1980 (ADAMS Accession No. ML040420012).
5. Kahler, R. E., U.S. Nuclear Regulatory Commission, letter to Susan Perkins-Grew, Nuclear Energy Institute, "Alternative Guidance for Licensee Emergency Response Organizations," dated June 12, 2018 (ADAMS Accession No. ML18022A352).
6. Regulatory Issue Summary 2016-10, "License Amendment Requests for Changes to Emergency Response Organization Staffing and Augmentation," dated August 5, 2016 (ADAMS Accession No. ML16124A002).

Principal Contributor: E. Robinson

Date: February 18, 2020

SUBJECT: HOPE CREEK GENERATING STATION AND SALEM NUCLEAR
 GENERATING STATION, UNIT NOS. 1 AND 2 – ISSUANCE OF AMENDMENT
 NOS. 221, 332, AND 313 RE: REVISE EMERGENCY PLAN STAFFING
 REQUIREMENTS (EPID L-2019-LLA-0145) DATED FEBRUARY 18, 2020

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ADAMS Accession No.: ML19352F231 *by memorandum dated **by e-mail

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