

SAFETY EVALUATION BY THE OFFICE OF NEW REACTORS

RELATED TO AMENDMENT NO. 20

TO THE COMBINED LICENSE NO. NPF-91

AND LICENSE NO. NPF-92

SOUTHERN NUCLEAR OPERATING COMPANY, INC

GEORGIA POWER COMPANY

OGLETHORPE POWER COMPANY

MUNICIPAL ELECTRIC AUTHORITY OF GEORGIA

CITY OF DALTON, GEORGIA

VOGTLE ELECTRIC GENERATING PLANT UNITS 3 AND 4

DOCKET NOS. 52-025 AND 52-026

1.0 INTRODUCTION

By letter dated December 20, 2013 (Agencywide Document Access and Management System (ADAMS) Accession No. ML13358A085), Southern Nuclear Operating Company, Inc. (SNC or the licensee) submitted a license amendment request (LAR) requesting U.S. Nuclear Regulatory Commission's (NRC or Commission) approval for changes to the Vogtle Electric Generating Plant (VEGP) Units 3 and 4 Emergency Plan, and to amend the combined licenses (COLs) for VEGP Unit 3 and VEGP Unit 4, COL Numbers NPF-91 and NPF-92, respectively.

The proposed amendment will revise the VEGP Units 3 and 4 Emergency Plan to comply with the NRC Final Rule, "Enhancements to Emergency Preparedness Regulations," published on November 23, 2011 (76 FR 72560) (hereinafter referred to as "Final Rule"), pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix E, Section I.5. In addition, the requested amendment proposes to add a license condition to the VEGP Units 3 and 4 COLs, which will require the performance of a detailed staffing analysis (assessment) for on-shift emergency response personnel in accordance with Nuclear Energy Institute (NEI) technical report NEI 10-05, "Assessment of On-Shift Emergency Response Organization Staffing and Capabilities," Revision 0, and submission of the assessment to the NRC no later than 180 days before initial fuel load.

In a letter dated April 4, 2014 (ADAMS Accession No. ML14094A300), the licensee provided additional information that clarified the application and did not change the staff's original proposed "no significant hazards consideration" determination published in the *Federal Register* on February 4, 2014 (79 FR 6643).

2.0 REGULATORY EVALUATION

The NRC staff considered the following regulatory requirements in reviewing the licensee's LAR:

10 CFR Part 50, Appendix E, Section I.5, allows a COL applicant whose application was docketed before December 23, 2011, to defer compliance with the changed emergency planning requirements in the November 23, 2011 Final Rule, until after issuance of the COL. 10 CFR Part 50, Appendix E, Section I.5 also states that if that applicant chooses to defer compliance, it shall subsequently request to amend the COL by December 31, 2013, to address the changed emergency preparedness regulations.

10 CFR 50.47(b) requires that the onsite emergency response plan meet the requirements of 16 planning standards. 10 CFR Part 50, Appendix E, Section IV, sets requirements for the content of emergency plans.

10 CFR 50.47(b)(2) requires that 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.

10 CFR Part 50, Appendix E, Section IV.A.9 requires an analysis to be performed to assure that on-shift personnel are not assigned responsibilities that would prevent timely performance of assigned duties.

10 CFR 50.47(b)(8) requires that adequate emergency facilities and equipment to support the emergency response are provided and maintained. 10 CFR Part 50, Appendix E, Section IV.E.8.d requires an alternative facility (or facilities) that would be accessible even if the site is under threat of or experiencing hostile action, to function as a staging area for augmentation of emergency response staff and collectively having the following characteristics: the capability for communication with the emergency operations facility, control room, and plant security; the capability to perform offsite notifications; and the capability for engineering assessment activities, including damage control team planning and preparation, for use when onsite emergency facilities cannot be safely accessed during hostile action.

10 CFR 50.47(b)(10) requires that a range of protective actions be developed for the plume exposure pathway Emergency Planning Zone (EPZ) for emergency workers and the public. In developing this range of actions, consideration has been given to evacuation, sheltering, and, as a supplement to these, the prophylactic use of potassium iodide (KI), as appropriate. Evacuation time estimates have been developed by applicants and licensees. Licensees shall update the evacuation time estimates on a periodic basis. Guidelines for the choice of protective actions during an emergency, consistent with Federal guidance, are developed and in place, and protective actions for the ingestion exposure pathway EPZ appropriate to the locale have been developed.

10 CFR Part 50, Appendix E, Section IV.4, requires that evacuation time estimates (ETEs) be performed using the most recent U.S. Census Bureau data and that the ETE be submitted to the NRC. Licensees must submit the ETE at least 180 days before using it to form protective action recommendations and providing it to State and local government authorities for use in developing offsite protective action strategies.

10 CFR Part 50, Appendix E, Section IV.5, requires that during the years between the decennial period, licensees must estimate Emergency Planning Zone (EPZ) permanent resident population changes once every year not to exceed 365 days from the previous estimate.

10 CFR Part 50, Appendix E, Section IV.6, requires that anytime during the decennial period, should the EPZ permanent resident population increase such that the longest ETE for the permanent resident population increases by 25 percent or 30 minutes, whichever is less, the ETE updated analysis must be submitted to the NRC within 365 days of determining that the ETE updating criteria have been met and at least 180 days before using it to form protective action recommendations and providing it to State and local government authorities for use in developing offsite protective action strategies.

10 CFR 50.47(b)(14) requires that periodic exercises are (will be) conducted to evaluate major portions of emergency response capabilities, periodic drills are (will be) conducted to develop and maintain key skills, and deficiencies identified as a result of exercises or drills are (will be) corrected. 10 CFR Part 50, Appendix E Section IV.F.2.j defines the expected content of exercise objectives to be accomplished over a defined exercise cycle of eight years.

Interim Staff Guidance (ISG) NSIR/DPR-ISG-01, "Emergency Planning for Nuclear Power Plants," Revision 0, November 2011 (ADAMS Accession No. ML113010523) provides updated guidance based on changes to the emergency preparedness regulations in 10 CFR 50.47 and 10 CFR Part 50, Appendix E, which were published in the November 23, 2011, Final Rule.

3.0 TECHNICAL EVALUATION

The VEGP Units 3 and 4 Emergency Plan is being revised to comply with the regulatory changes in the Final Rule, which was published with an effective date of December 23, 2011. Many of the changes to the regulations in the new rule are based on guidance provided in earlier NRC communications (e.g., Bulletin 2005-02, Security Advisory SA-05-02) and have already been incorporated into industry programs.

Eleven topics for change were described in the Final Rule:

1. Emergency Plan Change Process
2. Evacuation Time Estimate Updating
3. Licensee Coordination with Offsite Response Organizations
4. On-shift Multiple Responsibilities Staffing Analysis
5. Emergency Action Levels for Hostile Action
6. Emergency Declaration Timeliness
7. Alert and Notification System (ANS) Backup Means
8. Emergency Operations Facility Performance Based Approach
9. Emergency Response Organization Augmentation and Alternative Facilities
10. Challenging Drills and Exercises
11. Protective Actions for On-Site Personnel

The LAR presents a synopsis of all of the 11 new emergency preparedness enhancements, described in the Final Rule, and how they have been, or will be implemented. Of the 11 enhancements described above, the LAR only requests an amendment with regard to four of the enhancements (Enhancements 2, 4, 9, and 10 above). The LAR does not ask for NRC approval of the licensee's described approach to the remaining seven requirements, and the staff did not evaluate the adequacy of the descriptions because the remaining seven requirements were previously evaluated as part of the COL application review.

3.1 Evacuation Time Estimate Updating (Enhancement 2)

10 CFR 50.47(b)(10) requires, in part, that a licensee develop an evacuation time estimate (ETE), and update the ETE on a periodic basis. In addition, the Final Rule added 10 CFR Part 50, Appendix E, Sections IV.4, IV.5, and IV.6, which address required ETE updating, including reflection of the most recent U.S. Census Bureau data (see Section 2.0, above). To address these new Appendix E requirements associated with developing and updating the ETE, the licensee proposed changes to the VEGP Units 3 and 4 Emergency Plan. These include revising Section J.2.3, "Evacuation and Sheltering," to note that the ETE summary previously located in Table J-4, "Evacuation Time Estimates," is located in Appendix 6, "Evacuation Time Estimates for the Vogtle Electric Generating Plant Plume Exposure Pathway Emergency Planning Zone." In addition, Table J-4 is removed from the VEGP Units 3 and 4 Emergency Plan, and Appendix 6 is replaced with a summary of the ETE performed for the VEGP site following the availability of the 2010 census data.

In Section 2, "Evacuation Time Estimate Updating," of LAR Enclosure 1, the Licensee referenced a revised ETE for VEGP Units 1 and 2 that was submitted to the NRC on November 26, 2013 (ADAMS Accession No. ML13330B638), and proposed a change to the VEGP Units 3 and 4 Emergency Plan to incorporate the results of the revised ETE. In addition, the licensee stated that specific details addressing the required periodic ETE reviews and updates are included in the SNC fleet procedure for conduct of operations, which has been implemented fleet wide for SNC.

The staff reviewed the revised ETE against the proposed revision in LAR-13-030 Enclosure 4, Appendix 6, and identified possible inconsistencies in population numbers, and the need for the Licensee to clarify in LAR-13-030 the absence of special facility residents within the 10-mile EPZ for VEGP, which were addressed in the revised ETE. On March 11, 2014, the staff requested additional information from the Licensee to address the staff's questions, in Request for Additional Information (RAI) Letter No. 01, (ADAMS Accession No. ML14070A243).

In its April 4, 2014, response to the staff's March 11, 2014, RAI, the licensee clarified the source and accuracy of the ETE population numbers questioned by the staff, and revised Appendix 6 to include the statement that no special facility residents are located in the 10-mile EPZ. Based on its review of the licensee's clarification of ETE population numbers and revisions to Section J.2.3, Table J-4, and Appendix 6, the staff finds that the proposed changes to the VEGP Units 3 and 4 Emergency Plan are acceptable, because they are consistent with the applicable requirements in 10 CFR Part 50, Appendix E, Sections IV.4, IV.5, and IV.6, and provide for the VEGP Units 3 and 4 Emergency Plan to continue to meet the requirement in 10 CFR 50.47(b)(10) for periodic ETE updating. Therefore, the staff finds that the April 4, 2014, response to the staff's March 11, 2014, RAI is resolved for this issue.

3.2 On-shift Multiple Responsibilities Staffing Analysis (Enhancement 4)

10 CFR 50.47(b)(2) requires, in part, that a licensee provide and maintain adequate emergency response staffing in key functional areas, including the availability of timely augmentation of response capabilities. In addition, the Final Rule added 10 CFR Part 50, Appendix E, Section IV.A.9, which requires that the licensee perform a detailed analysis by December 24, 2012, demonstrating that on-shift personnel assigned emergency plan implementing functions are not assigned responsibilities that would prevent the timely performance of their assigned functions as specified in the emergency plan.

The Final Rule also added 10 CFR Part 50, Appendix E, Section I.5, which allows certain COL applicants to defer compliance with the changes to emergency preparedness under the Final Rule. Specifically, if the COL application was docketed before December 23, 2011, the COL applicant may defer compliance with performing the staffing analysis required by Section IV.A.9 of Appendix E until after COL issuance, but the COL licensee must request an amendment to the COL by December 31, 2013. The VEGP Units 3 and 4 COL applications were docketed on May 30, 2008 (Docket Nos. 52-0025 and 52-0026, respectively), with both COLs issued February 10, 2012. The LAR was submitted on December 20, 2013, which meets the requirement in Section I.5 for requesting deferral of compliance with any changes to emergency preparedness regulations under the Final Rule (e.g., completion of the staffing analysis by December 24, 2012, as required by Section IV.A.9 of Appendix E).

The Licensee is proposing the addition of the following new license condition for both VEGP Units 3 and 4 COLs, which provides for a detailed staffing analysis for on-shift emergency response personnel, as required by Section IV.A.9 of Appendix E.

No later than 180 days before initial fuel load, SNC shall submit to the Director of NRO, or the Director's designee, in writing, an assessment of emergency response staffing performed in accordance with NEI 10-05, "Assessment of On-Shift Emergency Response Organization Staffing and Capabilities," Revision 0.

The Licensee stated that the intent of providing the staffing assessment to the NRC is to enable the staff (1) to confirm the assessment was performed in accordance with NEI 10-5, and (2) to confirm that the results of the staffing assessment are appropriately reflected in the Emergency Plan.

The licensee further stated that because the construction of VEGP Units 3 and 4 facilities is not yet complete, and because the abnormal and emergency operating procedures that would be used in such an analysis are not yet complete, the required analysis cannot be effectively completed at this time. Consequently, a license condition is proposed to require completion of the required analysis and submittal to the Director of NRO, or designee, no later than 180 days before initial fuel load.

The staff reviewed the licensee's proposed license condition, and finds it acceptable because it is consistent with the requirements established by the Final Rule in 10 CFR Part 50, Appendix E, Section IV.A.9, and the guidance in NSIR/DPR-ISG-01. The NRC endorsement of NEI 10-05, Revision 0, is addressed in NSIR/DPR-ISG-01, Section IV.C, "On-Shift Staffing Analysis," which states, in part, that NEI 10-05 establishes a standard methodology for a licensee to perform the required staffing analysis, and that the NRC has reviewed NEI 10-05 and finds it an acceptable methodology for this purpose. Therefore, the staff finds the proposed new license condition acceptable because it provides for the VEGP Units 3 and 4 Emergency

Plan to continue to meet the requirements in 10 CFR 50.47(b)(2) and 10 CFR Part 50, Appendix E, Section IV.A.9 for adequate emergency response staffing.

3.3 Emergency Response Organization (ERO) Augmentation and Alternative Facilities (Enhancement 9)

10 CFR 50.47(b)(8) requires that a licensee provide and maintain adequate emergency facilities and equipment to support the emergency response. In addition, the Final Rule added 10 CFR Part 50, Appendix E, Section IV.E.8.d, which requires an alternative facility (or facilities) that would be accessible even if the site is under threat of, or experiencing, hostile action, and would function as a staging area for augmentation of emergency response staff. Collectively, these facilities will have the following characteristics: the capability for communication with the emergency operations facility, control room, and plant security; the capability to perform offsite notifications; and the capability for engineering assessment activities, including damage control team planning and preparation, for use when onsite emergency facilities cannot be safely accessed during hostile action.

To address these new Appendix E requirements, the Licensee proposed a change to Section B.2, "Emergency Response Organization," of the VEGP Units 3 and 4 Emergency Plan. The licensee stated that the change will describe facility capabilities and locations where emergency response organization augmentation personnel can assemble and commence mitigating activities while the site is not accessible. The proposed alternative facilities would also provide for a swift coordinated augmented response. In addition, the revision to Section B.2 describes when the alternative facilities would be used, including the purpose and function of the alternative facilities.

The staff reviewed the proposed change to Section B.2 (included in LAR Enclosure 4), and determined that it did not adequately address the requirements in Section IV.E.8.d associated with alternative facilities. Specifically, the revised Section B.2 discussed various aspects of response to a hostile action event, including reference to alternative facilities and to their function as staging areas for augmented ERO staff, but did not identify what the specific alternative facilities were, or their locations, and did not discuss what characteristics the alternative facilities have that satisfy the criteria in Section IV.E.8.d of Appendix E (i.e., the capabilities for communications, offsite notifications, and engineering assessment activities).

In a March 11, 2014 RAI, the staff requested additional information from the Licensee, regarding the location(s) and capabilities of the alternative facilities, discussed above. In its April 4, 2014 response to the March 11, 2014 RAI, the licensee stated the following:

The VEGP Units 3 and 4 designated location of the alternative facility is the lower level of the VEGP Units 1 and 2 training center, which is located within the owner controlled area, but outside the protected area. The space within the training center designated as the alternative facility previously served as the Emergency Offsite Facility for VEGP 1 and 2. However, for business reasons the alternative facility will be relocated to a designated area in the Vogtle Joint Information Center (JIC) in Waynesboro, Georgia. The JIC is referred to as the Emergency News Center in the VEGP Units 3 and 4 Emergency Plan. Although located in the same building as the JIC, the alternative facility is independent of the JIC. The alternative facility will have sufficient space and be equipped to meet the requirements of 10 CFR 50, Appendix E, Section IV.E.8.d.

In addition, the licensee proposed a clarifying change to the seventh paragraph in Section B.2, to read as follows:

However, these events will warrant timely ERO augmentation. An alternative facility has been identified to ensure rapid access to the site by augmented staff due to its close proximity. The alternative facility is located in a designated area in the Joint Information Center (JIC) in Waynesboro, Georgia. This facility has been established to minimize delays in overall site response by permitting ERO assembly without exposing responders to the danger of hostile action. This facility functions as a staging area for augmented ERO staff until the site is secured.

The staff finds the applicant's response acceptable because it is consistent with requirements established in 10 CFR Part 50, Appendix E, Section IV.E.8.d, and provides for the VEGP Units 3 and 4 Emergency Plan to continue to meet the requirements of 10 CFR 50.47(b)(8) for adequate facilities and equipment. Therefore, the staff finds that the response to the April 4, 2014 response to the March 11, 2014 RAI resolves this issue.

3.4 Challenging Drills and Exercises (Enhancement 10)

10 CFR 50.47(b)(14) requires that a licensee conduct periodic drills and exercises to develop and maintain key skills, and to evaluate major portions of emergency response capabilities. In addition, the Final Rule added 10 CFR Part 50, Appendix E, Section IV.F.2.j, which defines the expected content of exercise objectives to be accomplished over a defined exercise cycle of eight years. The Final Rule changed the previously required 6-year exercise cycle to an 8-year exercise cycle.

To address this exercise cycle frequency change, the Licensee proposed a change to Section N.1, "Exercises," of the VEGP Units 3 and 4 Emergency Plan to reflect an 8-year exercise cycle commencing in the calendar year in which the VEGP Units 3 and 4 first exercise is conducted. The licensee stated that the change is intended to implement the revised exercise cycle, will establish an 8-year exercise cycle that enhances the ability to vary exercise scenario content in line with regulatory requirements, and does not represent a physical change to the design, construction, or operation of the nuclear plant.

The staff reviewed the proposed change to Section N.1 (included in LAR Enclosure 4), and finds that the change in exercise cycle frequency from six years to eight years is acceptable, because it is consistent with 10 CFR Part 50, Appendix E, Section IV.F.2.j, and provides for the VEGP Units 3 and 4 Emergency Plan to continue to meet the requirement in 10 CFR 50.47(b)(14) for periodic exercises.

3.5 Conclusion

Based on the technical evaluation above, the NRC staff concludes that, with the proposed changes to the VEGP Units 3 and 4 Emergency Plan and the new license condition, there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency at VEGP Units 3 and 4; and therefore, the VEGP Units 3 and 4 Emergency Plan continues to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations in 10 CFR 50.91(b)(2), the Georgia 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, "*Standards for protection against radiation.*" 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. Also, 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 (*Federal Register*, 79 FR 6643 dated February 4, 2014). 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 issuing the amendment.

6.0 CONCLUSION

The staff has concluded, based on the considerations discussed in Section 3.0, that there is reasonable assurance that (1) 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. Therefore, the staff finds the changes proposed in this license amendment request acceptable. The LAR addresses changes to the VEGP Units 3 and 4 Emergency Plan and a new license condition for VEGP Unit 3 (License No. NPF-91) and VEGP Unit 4 (License No. NPF-92).

7.0 REFERENCES

1. Southern Nuclear Operating Company's letter to the U.S. Nuclear Regulatory Commission, "Request for License Amendment: Revision to Vogtle Units 3 and 4 Emergency Plan to Comply with Emergency Preparedness Rules (LAR-13-030)," dated December 20, 2013 (SNC Letter No. ND-13-2450) (ADAMS Accession No. ML13358A085).
2. Southern Nuclear Operating Company's letter to the U.S. Nuclear Regulatory Commission, "Response to Request for Additional Information – Request for License Amendment: Revision to Vogtle Units 3 and 4 Emergency Plan to Comply with Emergency Preparedness Rules (LAR-13-030S)," dated April 4, 2014 (SNC Letter No. ND-14-0475) (ADAMS Accession No. ML14094A300).
3. Southern Nuclear Operating Company's letter to the U.S. Nuclear Regulatory Commission, "Joseph M. Farley Nuclear Plant – Units 1 and 2, Edwin I. Hatch Nuclear Plant – Units 1 and 2, Vogtle Electric Generating Plant Units 1 and 2, Evacuation Time Estimates Update," dated November 26, 2013 (SNC Letter No. NL-13-2340) (ADAMS Accession No. ML13330B638).

4. U.S. Nuclear Regulatory Commission's letter to Southern Nuclear Operating Company, "Request for Additional Information Letter No. 01 Related to License Amendment Request (LAR) 13-030, Revision to Vogtle 3 and 4 Emergency Plan to Comply with Emergency Preparedness Rules, for the Vogtle Electric Generating Plant Units 3 and 4 Combined Licenses," dated March 11, 2014 (E-Mail) (ADAMS Accession No. ML14070A243).
5. NEI 10-05, "Assessment of On-Shift Emergency Response Organization Staffing and Capabilities," Revision 0, November 2010 (ADAMS Accession No. ML103260219)
6. NSIR/DPR-ISG-01, "Interim Staff Guidance – Emergency Planning for Nuclear Power Plants", Revision 0, September 30, 2010 (ADAMS Accession Nom ML102700254)