

## POLICY ISSUE INFORMATION

August 9, 2011

SECY-11-0110

FOR: The Commissioners

FROM: R. W. Borchardt  
Executive Director for Operations

SUBJECT: STAFF STATEMENT IN SUPPORT OF THE UNCONTESTED HEARING  
FOR ISSUANCE OF COMBINED LICENSES AND LIMITED WORK  
AUTHORIZATIONS FOR VOGTLE ELECTRIC GENERATING PLANT,  
UNITS 3 AND 4 (DOCKET NOS. 52-025 AND 52-026)

PURPOSE:

The U.S. Nuclear Regulatory Commission's (NRC's) Office of New Reactors (NRO) has completed its review of the application for two combined licenses (COLs) to authorize construction and operation of Vogtle Electric Generating Plant (VEGP) Units 3 and 4, located in Burke County, GA. The COL application also includes a request for two limited work authorizations (LWAs). This reference COL (RCOL) application references the AP1000 Design Control Document (DCD), Revision 19, as well as the VEGP Early Site Permit (ESP) (ESP-004), dated August 26, 2009.

NRO presents this information paper pursuant to the revised Internal Commission Procedures dated May 12, 2011 (see <http://www.nrc.gov/about-nrc/policy-making/internal.html>). Issuance of this paper follows the issuance of the VEGP COL final safety evaluation report (FSER) (Agencywide Documents Access and Management System (ADAMS) Accession No. ML110450302). Previously, the agency issued the VEGP COL final supplemental environmental impact statement (FSEIS), NUREG-1947, on March 25, 2011 (ADAMS Accession No. ML11076A010). Two other references to this paper are a draft COL and draft

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LWA for VEGP Unit 3 (ADAMS Accession Nos. ML111780143 and ML112140559, respectively). This paper, with its references, provides the information requested to support the Commission's determination that the staff's review has been adequate to support the findings set forth in Title 10 of the *Code of Federal Regulations* (10 CFR) 52.97, "Issuance of combined licenses," 10 CFR 50.10, "License required; limited work authorization," and 10 CFR 51.107, "Public hearings in proceedings for issuance of combined licenses; limited work authorizations."

The staff's review of the application is complete. Subject to the final certification by rulemaking of the amended AP1000 design referenced by the application, the staff concludes that all required findings can be made to support issuance of the COLs and LWAs. Although the design certification rulemaking is ongoing, there are no significant technical or policy issues related to the rulemaking that the staff believes would be of significant Commission interest for this action or would preclude issuance of the COLs and LWAs upon the effective date of the rule.

Subject to the completion of rulemaking and Commission approval, the final rule is scheduled for publication in January 2012. The rule would become effective 30 days after publication in the *Federal Register* (FR).

#### SUMMARY:

This paper addresses each of the findings in 10 CFR 52.97(a), 10 CFR 50.10(e), and 10 CFR 51.107(a) and (d) and provides an adequate basis for the Commission to conclude that each of these findings can be made. This paper also focuses on non-routine or novel matters such as unique features of the facility or novel issues that arose as part of the review process. This paper does not address routine aspects of the safety and environmental review process.

#### BACKGROUND:

##### I. Application History

###### *Application, Ownership, and Location*

Southern Nuclear Operating Company (SNC) submitted an application for the planned VEGP Units 3 and 4, on March 28, 2008. SNC most recently updated the VEGP COL application on June 24, 2011 (ADAMS Accession No. ML11180A086). The publicly available portions of the application are available in ADAMS and on the NRC website at <http://www.nrc.gov/reactors/new-reactors/col/vogtle/documents.html>.

SNC is a wholly owned subsidiary of Southern Company and is engaged in the operation of nuclear power plants. SNC is a corporation organized and existing under the laws of the State of Delaware. SNC currently operates Edwin I. Hatch Nuclear Plant, Units 1 and 2, and VEGP, Units 1 and 2, for co-owners Georgia Power Company, Oglethorpe Power Corporation, Municipal Electric Authority of Georgia, and the City of Dalton (i.e., Dalton Utilities). SNC also operates Joseph M. Farley Nuclear Plant, Units 1 and 2, for Alabama Power Company. The combined electric generation of the existing Hatch, VEGP, and Farley plants is in excess of 6,000 megawatts electric (MWe). The traditional service area of Southern Company includes Alabama, Georgia, and portions of Mississippi and Florida. Southern Company's portfolio of

power plants had a total installed generating capacity of over 42,000 MWe as of January 1, 2010.

VEGP owner Georgia Power Company (which acts as agent for the other VEGP owners) has authorized SNC to apply for COLs for VEGP Units 3 and 4. SNC will construct and operate these units on behalf of the VEGP owners. As noted above, VEGP has the following co-owner co-licensees:

- Georgia Power Company (45.7 percent ownership)
- Oglethorpe Power Corporation (an Electric Membership Corporation) (30.0 percent ownership)
- Municipal Electric Authority of Georgia (22.7 percent ownership)
- City of Dalton, GA, an incorporated municipality in the State of Georgia acting by and through its Board of Water, Light and Sinking Fund Commissioners (Dalton Utilities) (1.6 percent ownership)

The site of proposed VEGP Units 3 and 4 is located on a 3,169-acre coastal plain bluff on the southwest side of the Savannah River in eastern Burke County, GA. The site is approximately 30 river miles above the U.S. 301 bridge and directly across the river from the U.S. Department of Energy's Savannah River Site (Barnwell County, SC). The VEGP site is approximately 15 miles east-northeast of Waynesboro, GA, and 26 miles southeast of Augusta, GA. It is also about 100 miles from Savannah, GA, and 150 river miles from the mouth of the Savannah River.

Additional information about the applicant and ownership appears in Part 1 (General and Financial Information) of the VEGP COL application. Additional information about the site location and characteristics appears in Part 2 (Final Safety Analysis Report (FSAR)), Chapters 1 and 2, of the COL application. As noted previously, the COL application references the VEGP ESP, by which the NRC approved the suitability of the site.

#### *Referenced Design Certification and Design Certification Amendments*

Westinghouse Electric Company is the applicant for certification of the amended AP1000 design (DCD Revision 19) referenced in the VEGP COL application. Westinghouse Electric Company was also the applicant for the AP1000 design certified in Appendix D, "Design Certification Rule for the AP1000 Design," to 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants." On February 24, 2011, the staff issued a proposed rule to amend the Westinghouse AP1000 design certification based on DCD Revision 18. Westinghouse submitted the referenced DCD Revision 19 on June 13, 2011 (ADAMS Accession No. ML11171A287). In August 2011, the NRC staff issued an FSER for the DCD (ADAMS Accession No. ML112061231). The rulemaking that would certify the AP1000 design amendment is pending, and the staff expects a final rule would be issued by January 2012.

*Referenced Early Site Permit and Limited Work Authorization*

The VEGP COL application incorporates by reference the VEGP ESP and LWA (LWA-1) (ESP-004), dated August 26, 2009 (ADAMS Accession No. ML092290157). To document its review of the ESP application, the NRC issued an FSER (NUREG-1923, ADAMS Accession No. ML090130038) and final environment impact statement (FEIS) (NUREG-1872, ADAMS Accession No. ML082260190) for the ESP and LWA on February 5, 2009, and August 8, 2008, respectively. Following both a contested and an uncontested evidentiary hearing, the Atomic Safety and Licensing Board (ASLB) issued findings and an order authorizing issuance of the ESP and LWA-1 (ADAMS Accession No. ML092290724) on August 17, 2009. During the COL review, based on amendment requests from SNC relating to activities authorized under LWA-1, the NRC approved three amendments to the ESP that addressed the sources and categorization of backfill material to be used in the installation of the nuclear island foundation; these amendments were issued on May 21, June 25, and July 9, 2010 (ADAMS Accession Nos. ML101400509, ML101760370, and ML101870522, respectively).

On October 2, 2009, SNC requested an additional LWA (LWA-2) for each unit that would allow additional limited construction activity at the VEGP site, including installation of reinforcing steel, sumps, and drain lines and other embedded items in the nuclear island foundation base slabs, and placement of concrete for the nuclear island foundation base slabs for Units 3 and 4 (ADAMS Accession Nos. ML092960549 and ML092960512). The LWA-2 request was included as a supplement to the COL application. The staff technical review of the safety aspects of the LWA-2 request is complete and appears in Section 3.8.5 of the FSER. The FSEIS for the COL, prepared as a supplement to the ESP FEIS as required by NRC regulations, also addresses environmental considerations associated with issuance of LWA-2, in accordance with 10 CFR 50.10(e)(1)(i). Additional information about the LWA-2 request appears in the discussion of Other Aspects of the Staff Review Not Tied to Specific Findings, at the end of the Discussion section of this paper.

The staff has completed preparation of a draft LWA for VEGP Unit 3 that is available to the Commission for information (ADAMS Accession No. ML112140559). The draft LWAs for Units 3 and 4 are expected to be identical.

*Reference Combined License*

The VEGP COL application is the RCOL application for the AP1000 design center. Before early 2009 the RCOL applicant for the AP1000 design center was the Tennessee Valley Authority Bellefonte Nuclear Station, Units 3 and 4, and VEGP was a subsequent COL (SCOL) applicant. In April 2009, the NuStart Energy Development, LLC, consortium informed the NRC that it had changed the RCOL designation for the AP1000 design center from Bellefonte Units 3 and 4 to VEGP Units 3 and 4. Because of this change, some portions of the VEGP FSER contain information from previously issued safety evaluations for Bellefonte. In these areas, the two applicants submitted similar information and, in accordance with "New Reactor Standardization Needed to Support the Design-Centered Licensing Review Approach" (RIS 2006-06, ADAMS Accession No. ML053540251), the staff determined that the similar information was standard for the AP1000 design center and that the evaluation of the Bellefonte application was directly applicable to the VEGP units. The portions of the application where a single review was performed for multiple applicants are referred to as "standard content."

The staff has completed preparation of draft COL for VEGP Unit 3, and the Unit 3 draft license is available to the Commission for information (ADAMS Accession No. ML111780143). The draft licenses for Units 3 and 4 are expected to be identical except for an inspection, test, analysis, and acceptance criterion (ITAAC) pertaining to the common technical support center (TSC) (see discussion of Other Aspects of the Staff Review Not Tied to Specific Findings, at the end of this paper).

#### *Advisory Committee on Reactor Safeguards*

The staff presented the results of its review to the Advisory Committee on Reactor Safeguards (ACRS) AP1000 subcommittee at four meetings on June 24–25, July 21–22, September 20–21, and December 15–16, 2010. In addition, the staff presented the results of its review of the Bellefonte COL application, including the review of standard content, at ACRS AP1000 subcommittee meetings on July 23–24, 2009, February 2–3, 2010, and April 22, 2010. The standard content in the Bellefonte COL application has been endorsed by other AP1000 COL applicants, including VEGP. Following the change in the RCOL from Bellefonte to VEGP, standard content now also refers to the portions of the VEGP application that will be endorsed by future SCOLs. The staff presented the results of its VEGP COL review to the ACRS full committee on January 13, 2011. ACRS issued its final recommendation on January 24, 2011 (ADAMS Accession No. ML110170006). The ACRS conclusions and recommendations and the staff response are discussed further in later sections of this paper.

## II. Outreach

### *Public Meetings*

After the NRC docketed the application on May 30, 2008, the staff held a public outreach meeting in Waynesboro, GA, on July 17, 2008, to explain the COL review process and take questions from the public. After issuing the draft supplemental environmental impact statement (DSEIS) on September 10, 2010, the staff held a public meeting on October 7, 2010, to present an overview of the DSEIS and to accept comments on the document. While reviewing the application, the staff conducted approximately 60 public meetings and public conference calls.

### *Federal Register Notices*

The NRC published *Federal Register* notices as required for key milestones of the licensing process:

- After the NRC received the COL application on March 28, 2008, the agency published notice of such receipt in the FR on May 5, 2008 (73 FR 24616).
- The NRC staff docketed the COL application on May 30, 2008, and published a notice of docketing on June 11, 2008 (73 FR 33118).
- On September 16, 2008, the NRC published a notice of hearing and opportunity to petition for leave to intervene (73 FR 53446). On May 3, 2010, in light of the LWA-2

request by SNC, the agency published a supplementary notice of hearing and opportunity to petition for leave to intervene (75 FR 23306).

- On September 28, 2009, the NRC published a notice of intent to prepare a supplemental environmental impact statement (74 FR 49407).
- On September 3, 2010, the NRC published a notice of the availability of the DSEIS for public comment and a public meeting to present an overview of the DSEIS and accept public comments on the document (75 FR 54190).
- On March 3, 10, 17, and 24, 2011, the NRC published notices of the COL application in accordance with Section 182(c) of the Atomic Energy Act of 1954, as amended, and 10 CFR 50.43(a)(3) (76 FR 11822, 13241, 14699, and 16645).
- On March 24, 2011, the NRC published a notice of availability of the FSEIS (76 FR 16645).

### *Consultations*

In accordance with Section 657 of the Energy Policy Act of 2005, the NRC consulted with the Department of Homeland Security. As part of its environmental review in accordance with National Environmental Policy Act (NEPA) and other applicable statutes, including the Endangered Species Act and the National Historic Preservation Act, the staff consulted with and obtained input from appropriate Federal, State, local, and Tribal organizations.

### *Adjudicatory Actions*

On September 16, 2008, the NRC published in the *Federal Register* (73 FR 53446) a notice of an opportunity to petition for leave to intervene. In response to this notice, a group of five petitioners filed a petition to intervene on November 17, 2008. The ASLB granted the petition and admitted a contention that addressed low-level radioactive waste storage (LBP-09-03; ADAMS Accession No. ML090640918). On May 19, 2010, the ASLB issued a memorandum and order granting a motion filed by SNC on January 29, 2010, for summary disposition of the admitted contention (LBP-10-08; ADAMS Accession No. ML101390246). In granting summary disposition, the ASLB determined that the purported failures of the FSAR to provide information about design, location, and worker health impacts related to the storage of low-level radioactive waste did not identify a deficiency under 10 CFR 52.79(a)(3).

On August 12, 2010, a group of three petitioners filed a late-filed petition to intervene regarding the AP1000 containment design and containment coatings inspection program. A board established to rule on the petition denied it on November 30, 2010 (LBP-10-21; ADAMS Accession No. ML103340432). The petitioners appealed denial of their petition, and the appeal is currently pending before the Commission.

From April 14 to 18, 2011, a number of organizations jointly filed an emergency petition to suspend all pending reactor licensing decisions and related rulemaking decisions pending investigation of lessons learned from the Fukushima Dai-ichi Nuclear Power station accident (ADAMS Accession No. ML111091154). This petition was filed on numerous adjudicatory

dockets, including in the Vogtle COL proceeding. The Commission has not yet ruled on the petition.

### III. Review Process/Methodology

The key processes and methodologies used to ensure quality, consistency, and completeness in preparation of the FSER and FSEIS are described below.

**NUREG-0800, “Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition.”** The principal purpose of the standard review plan (SRP) is to ensure the quality and uniformity of staff safety reviews. The staff uses the SRP as a routine tool for evaluating the safety of nuclear power plant designs. The SRP was comprehensively updated in 2007 and is the most definitive basis available for demonstrating that an application meets the set of regulations established by the Commission. Each section of the SRP outlines the specific regulations that will be met when the review is complete, including the general design criteria from Appendix A, “General Design Criteria for Nuclear Power Plants,” to 10 CFR Part 50, “Domestic Licensing of Production and Utilization Facilities.” Section 1.9.2 of the applicant’s FSAR identifies the departures from the SRP associated with the VEGP COL application. This list does not include SRP departures associated with the AP1000 DCD and VEGP ESP that have been incorporated by reference.

**NUREG-1555, “Standard Review Plans for Environmental Reviews for Nuclear Power Plants: Environmental Standard Review Plan.”** This guidance, including a 2007 update that addresses environmental reviews for COLs, contains environmental SRPs that NRC staff uses when conducting environmental reviews of applications related to nuclear power plants, in accordance with NEPA and the NRC’s NEPA implementing regulations in 10 CFR Part 51, “Environmental protection regulations for domestic licensing and related regulatory functions.”

**Regulatory Guides.** Regulatory guides provide guidance to licensees and applicants on implementing specific parts of the NRC’s regulations, techniques used by the NRC staff in evaluating specific problems or postulated accidents, and data needed by the staff in its review of applications for permits or licenses. Appendix 1AA to the applicant’s FSAR identifies the regulatory guides associated with the VEGP COL application and whether the applicant conforms with or departs from each regulatory guide. This list does not include departures from regulatory guidance associated with the AP1000 DCD and VEGP ESP that have been incorporated by reference.

**Interim Staff Guidance.** For areas where the existing SRP does not contain review guidance, the staff prepared and used interim staff guidance (ISG) documents. The ISGs clarify technical review approaches and address questions related to processes and licensing. The staff used the following ISGs in the VEGP review (and it is indicated below to which FSER section(s) each ISG primarily related):

- DC/COL-ISG-1, “Interim Staff Guidance on Seismic Issues of High Frequency Ground Motion,” dated May 19, 2008; see FSER Section 3.8.4
- DC/COL-ISG-3, “PRA Information to Support Design Certification and Combined License Applications,” dated June 11, 2008; see FSER Sections 19.55, 19.58, and 19.59

- COL/ESP-ISG-4, "Interim Staff Guidance on the Definition of Construction and on Limited Work Authorizations," dated February 9, 2009
- DC/COL-ISG-7, "Assessment of Normal and Extreme Winter Precipitation Loads on the Roofs of Seismic Category I Structures," dated June 23, 2009; see FSER Sections 2.3.1 and 3.7.2
- DC/COL-ISG-8, "Necessary Content of Plant-Specific Technical Specifications," dated December 9, 2008; see FSER Section 16.1.4.3.3
- DC/COL-ISG-11, "Finalizing Licensing-Basis Information," dated November 2, 2009; see FSER Section 1.1
- DC/COL-ISG-15, "Post-Combined License Commitments," dated October 7, 2009; see FSER Sections 1.4.4 and 1.5.4
- DC/COL-ISG-16, "Compliance with 10 CFR 50.54(hh)(2) and 10 CFR 52.80(d)," (non-public) dated June 9, 2010; see FSER Section 19A
- DC/COL-ISG-20, "Seismic Margin Analysis for New Reactors Based on Probabilistic Risk Assessment," dated March 15, 2010; see FSER Chapter 19
- DC/COL-ISG-22, draft for comment, "Interim Staff Guidance on Impact of Construction of New Nuclear Power Plants on Operating Units at Multi-Unit Sites," dated February, 7, 2011; see FSER Section 1.4.4

**Office Instructions.** In its review, the staff followed administrative guidance contained in a number of Office Instructions. These internal documents address a range of procedure matters, including the staff's process for issuing requests for additional information, performance of audits, qualification and training of technical staff and managers, ensuring consistency between staff offices, and interactions with applicants, interveners, and public stakeholders.

**Design-Centered Review Approach, SECY-06-0019, "Semiannual Update on the Status of New Reactor Licensing Activities and Future Planning for New Reactors," dated January 31, 2006 (ADAMS Accession No. ML053530315).** Under the design-centered review approach, NRO has used, to the extent practicable, a "one issue-one review-one position" strategy in order to optimize the review effort and resources needed to perform these reviews. Within the AP1000 design center, the staff has conducted one technical review for each reactor design issue and is using this one decision to support the review of multiple COL applications.

**"Addressing Construction and Preconstruction Activities, Greenhouse Gas Issues, General Conformity Determinations, Environmental Justice, Need for Power, Cumulative Impact Analysis, and Cultural/Historical Resources Analysis Issues in Environmental Impact Statements," dated December 10, 2010 (ADAMS Accession No. ML100760503).** This guidance assisted the staff in addressing certain aspects of the environmental reviews for ESP and COL applications that had evolved since the 2007 update to NUREG-1555 or were identified during the first several reviews of ESP and COL applications.



#### IV. ACRS Report

The ACRS review of the VEGP COL application culminated with a January 24, 2011, letter to the Commission concluding that there is reasonable assurance that VEGP Units 3 and 4 can be built and operated without undue risk to public health and safety and that the SNC COL application for VEGP should be approved following its final revision. The ACRS letter also identified specific recommendations. On March 3, 2011, the staff issued a response to the letter, which provided for specific changes to the application and the FSER, other actions, and appropriate explanation (ADAMS Accession No. ML110480429). The ACRS conclusions and recommendations and the staff response are summarized below.

##### *Containment Interior Debris Limitation*

The ACRS noted that, in a previous letter discussing the AP1000 design, it had concluded that the stringent cleanliness requirements specified for the AP1000 containment interior are needed to ensure that long-term core cooling requirements are met. In order to ensure that the cleanliness requirements are not relaxed during plant life without consideration by the NRC staff and to make them highly visible to both the plant operators and to the NRC staff, the ACRS recommended that the plant technical specifications include these requirements.

In response, the AP1000 applicant changed the designation of the cleanliness requirement in the DCD from Tier 2 to Tier 2\* (see DCD Section 6.3.2.2.7.1). This will ensure that changes to these criteria by the COL applicant will require NRC review and that the criteria will be standardized across the entire fleet of AP1000 COLs.

##### *Inservice Inspection/Inservice Testing Requirements for Squib Valves*

The ACRS noted that the automatic depressurization system ADS-4 squib valves must operate to achieve passive long-term cooling after a loss-of-coolant accident. The valves, actuated by an explosive charge, are one-time-use valves until the internals are replaced. According to the ACRS, the development of an effective inservice inspection/inservice testing (ISI/IST) program to ensure the operability of the valves is needed. The ACRS suggested that periodic removal and firing of the explosive charge that initiates operation of the valve may not be sufficient for ensuring the operability of these critical components. The ACRS recommended that the NRC establish a regulatory requirement focused on the development of an ISI/IST program, including a review of the lessons learned from the valve design and qualification process.

The staff addressed this recommendation through several actions that will culminate in a requirement for an ISI/IST program for squib valves in new reactors. The near-term actions include coordination and information exchanges between the staff, Westinghouse, SNC, nuclear regulators in other countries, and the American Society of Mechanical Engineers. However, these actions do not necessitate any changes to the Vogtle COL application or proposed COLs as part of the response.

*Power Measurement Uncertainty*

The applicant proposed using an ultrasonic flow meter that the staff has previously approved to support a 1-percent power uncertainty. The ACRS recommended that the NRC require the applicant to make an explicit commitment to perform calibrations both prior to installation and as part of the commissioning process.

In response, the applicant revised the FSAR to include a specific commitment for appropriate calibration and testing of the instrument prior to installation and as part of the commissioning process.

*Future Changes to the AP1000 DCD and VEGP FSAR*

The staff conducted the VEGP COL application review in parallel with the review of the AP1000 design certification amendment (DCA) application. As a consequence, the VEGP COLA reviewed by the ACRS referenced DCD Revision 17 (plus additional changes that were proposed but not yet included in DCD Revision 18), whereas the staff's FSER references DCD Revision 19. The ACRS asked the staff to review with them the changes and commitments in the final DCD and FSAR that deviate significantly from those the ACRS previously reviewed.

The staff evaluated the changes made to the DCD and FSAR after the ACRS review and determined that none of the changes had significance warranting further interaction with the ACRS.

**V. Task Force Evaluation of Fukushima Dai-ichi Nuclear Power Plant Event**

The Commission has options associated with a decision to proceed with new reactor licensing in light of the recommendations from the Fukushima Task Force report (ADAMS Accession No. ML111861807). The Fukushima Task Force report contains three specific recommendations for near-term COL applications: 1) confirm station blackout and spent fuel pool capabilities associated with the AP1000 design, 2) enhance onsite emergency response capability through the integration of emergency operating procedures, severe accident management guidelines, and extensive damage mitigation guidelines and 3) enhance emergency planning to address prolonged station blackout and multi-unit accidents. Prior to issuance of the COLs, the Commission could choose to adopt some or all of these recommendations and implement them in the COLs through license conditions. Alternatively, the Commission could issue the COLs and later modify, add, or delete any terms or conditions of the COLs to reflect any new Commission requirements in accordance with the regulatory provisions found in 10 CFR 52.83, 52.98, and 50.109, depending on whether the conditions address matters within the scope of the referenced ESP or certified design. Under this approach, the criteria for implementation of any Commission decisions on the Task Force recommendations generally would be comparable for both the near-term COLs and for operating reactors.

DISCUSSION:

## I. Excluded Matters

This information paper does not discuss matters that were previously addressed and resolved in the context of other reviews undertaken as part of the 10 CFR Part 52 process. Such excluded matters include issues addressed under the AP1000 DCA review or the VEGP ESP and LWA-1 review.

Excluded matters under the realm of the ESP and LWA include, for example, the excavation and placement of backfill, the seismic characteristics of the site, and aspects of the VEGP emergency plan reviewed under the ESP. The FSER and FEIS for the VEGP ESP contain a complete listing of matters resolved by the VEGP ESP and LWA-1. In the Vogtle ESP proceeding, the Board conducted a contested hearing on three environmental contentions and an uncontested (mandatory) hearing that considered the adequacy of the staff's review, including such aspects as cumulative water use impacts, radiological impacts, ground water impacts on safety-related structures, environmental impacts of alternatives, the LWA-1 and the site redress plan, the site emergency plan, the seismic evaluation, severe accident mitigation design alternatives, and future regulatory and licensing activities associated with the ESP. Following the proceeding, the Board determined that the staff's safety and environmental review was adequate and supported issuance of the ESP and LWA (see Vogtle ESP First Partial Initial Decision on the contested hearing, LBP-09-07, dated June 22, 2009 (ADAMS Accession No. ML091770506), and VEGP ESP Second and Final Partial Initial Decision on the uncontested hearing, LBP-09-19, dated August 19, 2009 (ADAMS Accession No. ML092290724)).

Excluded matters under the AP1000 DCA include design issues such as the use of design acceptance criteria for digital instrumentation & control and piping, the ability of the AP1000 shield building to withstand stresses from seismic and aircraft impacts, and performance of the containment sump strainer during a postulated loss-of-coolant accident. A discussion of matters that the staff considers resolved by the design certification can be found in the proposed rule at 76 FR 10269 and in the FSER for the DCA. In some instances, where technical areas involved interfaces between the COL and the excluded matters addressed by the design certification, they were accordingly addressed as part of the COL proceeding. For example, the COL loss of large areas (LOLA) review (Chapter 19 of the FSER) and the emergency plan review (Section 13.3 of the FSER) interface with the DCA aircraft impact analysis, and the COL containment cleanliness program review interfaces with the performance of the containment sump strainer evaluated in the DCA. Two tables in the DCA identify COL areas that interface with corresponding areas of the DCA. Table 1.8-1 of the DCA presents a complete listing of interfaces between the COL and the DCA. Table 1.8-2 of the DCA lists COL information items, which address those areas for which a COL applicant referencing the AP1000 design must provide additional supporting information to meet a regulatory requirement. The staff review confirmed that the applicant satisfactorily addressed all interface items and COL information items.

Also excluded from consideration in the uncontested hearing is the part of the applicant's containment coatings inspection program (Section 6.1.2 of the FSER) that is the subject of the one denied contention currently under appeal to the Commission.

Finally, excluded from consideration from the uncontested hearing is an emergency petition to suspend all pending reactor licensing decisions and related rulemaking decisions pending investigation of lessons learned from the Fukushima Dai-ichi Nuclear Power station accident. A number of organizations filed this petition jointly on numerous adjudicatory dockets between April 14 and 18, 2011, including in the Vogtle COL proceeding. The Commission has not yet ruled on the petition.

## II. Exemptions, Departures, and Variances

### *Exemptions from NRC Regulations*

The staff evaluated and found acceptable the following three exemptions from NRC regulations requested by the applicant:

<b>Description</b>	<b>Regulation</b>	<b>Location of Evaluation in FSER</b>
COL application organization and numbering	10 CFR Part 52, Appendix D, Section IV.A.2.a	Section 1.5.4
Exemption criteria	10 CFR 52.93(a)(1)	Section 1.5.4
Special nuclear material control and accounting (MC&A) program description	10 CFR 70.22(b), 70.32(c), 74.31, 74.41, 74.51	Section 1.5.4

For the COL organization and numbering exemption request, the applicable regulation (see 10 CFR Part 52, Appendix D, Section IV.A.2.a) requires that a COL application referencing a certified design include a plant-specific DCD using the same organization and numbering as the generic DCD. In support of its exemption request, the applicant asserted that complying with this requirement would be less efficient and indicated that a modified organization is needed to address the topics identified in Regulatory Guide (RG) 1.206, "Combined License Applications for Nuclear Power Plants (LWR Edition)," and NUREG-0800, and to include plant-specific discussions.

Before considering whether this numbering exemption should be granted, the staff needed to address a threshold question regarding the review standard applicable to the request. Under 10 CFR 52.93(a)(1), if a request for an exemption is from any part of a design certification rule, then the Commission may grant the exemption if the exemption complies with the appropriate change provision in the referenced design certification rule or, if there is no applicable change provision, if the exemption complies with 10 CFR 52.63. Here, there is no applicable change provision in the referenced design certification rule, so according to Section 52.93(a)(1), the exemption must meet 10 CFR 52.63. However, the pertinent standards of 10 CFR 52.63, by their terms, also do not apply to this change. As such, the numbering exemption cannot comply with the plain language of Section 52.93(a)(1); accordingly, this exemption should have fallen under 10 CFR 52.93(a)(2), and, thus, be analyzed under the requirements in 10 CFR 52.7. Because the plant-specific DCD's organization and numbering is not "certification information" but solely administrative, the language of Section 52.93(a)(1) does not appear to serve the underlying purpose of the regulation as described by the Commission in the Statements of

Consideration to the rule, in which the Commission stated that only changes to certification information must meet 10 CFR 52.63 (see 72 FR 49444). Therefore, pursuant to 10 CFR 52.7, for the purpose of determining the standards applicable to the numbering exemption, the staff finds an exemption to Section 52.93(a)(1) to be acceptable.

For the MC&A program exemption request, the applicable regulations in 10 CFR Parts 70 and 74 require that a special nuclear material license application contain a description of an MC&A program and that the applicant establish, implement, maintain, and follow an MC&A program. The applicant noted that the cited regulations include exceptions from these requirements for nuclear reactors licensed under 10 CFR Part 50. The applicant stated that, for the MC&A program, there is no reason to treat reactors licensed under 10 CFR Part 52 differently than those licensed under 10 CFR Part 50.

Part 7, Section B, of the COL application presents a full discussion of the exemption requests.

For each of these exemptions, the staff evaluation determined that the exemption is authorized by law, will not present an undue risk to public health or safety, and is consistent with the common defense and security, and that special circumstances are present (10 CFR 50.12(a)(2)(ii)). For all three exemptions, the special circumstance present is that application of the regulation is not necessary to achieve the underlying purpose of the rule. The staff evaluation of the exemption requests appears in Section 1.5.4 of the FSER.

#### *Departures from AP1000 DCD Revision 19*

The staff evaluated and found acceptable the applicant's proposed departures from Tier 2 information in AP1000 DCD Revision 19, presented in the table below. Part 7, Section A, of the COL application describes and justifies the departures and evaluates each departure against the criteria in Section VIII.B.5 of Appendix D to 10 CFR Part 52, determining whether the applicant can implement the departure without NRC approval.

<b>DCD Departure Number</b>	<b>Location of Evaluation in COL FSER</b>	<b>Description and Acceptability</b>
VEGP DEP 1.1-1	Section 1.5.4	Administrative departure for organization and numbering of the FSAR sections. This departure is administrative and is related to the corresponding exemption request.
VEGP DEP 2.5-1	Section 2.5.4	Mudmat thickness. The COL specifies 6 inches as the nominal thickness while the DCD specifies 6 inches as the minimum thickness. The staff agreed that the nominal thickness specification would still allow the mudmat to meet the DCD functional requirements, including providing a working surface for construction of the foundation, protecting the waterproof membrane, and providing an adequate transfer of shear forces.

<b>DCD Departure Number</b>	<b>Location of Evaluation in COL FSER</b>	<b>Description and Acceptability</b>
VEGP DEP 3.4-1	Sections 3.4.1 and 3.8.5	Waterproofing membrane material. The applicant initially proposed the selected material in the VEGP ESP, and the staff reviewed and approved it in Section 3.8.5 (page 3-18) of the ESP FSER. The selected material does not fall within the class of materials specified in DCD Revision 19. However, for the reasons explained in the ESP FSER, the staff determined the material to be acceptable because it would limit infiltration of subsurface water for seismic Category I structures below grade and would also provide for adequate transfer of horizontal seismic shear forces, consistent with the design described in the DCD. The COL application incorporates by reference an inspection, test, analysis, and acceptance criterion (ITAAC) in the ESP SSAR for testing the waterproof membrane to confirm a minimum coefficient of friction to resist sliding.
STD DEP 8.3-1	Section 8.3.2	Class 1E voltage regulating transformer current limiting features. The staff found the departure acceptable because the use of breakers and fuses, instead of the current limiting characteristics specified in the DCD, to provide the isolation function of regulating transformers is consistent with recommendations in applicable industry standards. This is a “standard” departure for AP1000 COL applicants in that it is expected to be requested generically by future AP1000 COL applicants.
VEGP DEP 9.2-1	Section 9.2.5	Potable water system filtration. The staff agreed that filtration of the potable water supply was not needed because the available onsite well water proposed by the applicant meets applicable regulatory standards for safe drinking water.

DCD Departure Number	Location of Evaluation in COL FSER	Description and Acceptability
VEGP DEP 18.8-1	Section 13.3.4	<p>Emergency response facility locations. This departure proposed locations of the TSC and the operational support centers (OSCs) that differed from those specified in the DCD. The proposed location of the TSC also is different from that stated in the ESP SSAR (see Variance 1.2-1, below). The staff had found the previously proposed locations of the OSCs and the centralized TSC acceptable when initially evaluated in Section 13.3.2.2.8 of the VEGP ESP FSER (page 13-58). The staff found the TSC location proposed in the COL to still be acceptable because it was not materially different from that previously accepted in the ESP. For the OSC, the staff found the proposed locations in each unit's control support area acceptable because the location of the control support area exceeded requirements for an OSC in NUREG-0696, "Functional Criteria for Emergency Response Facilities," issued February 1981, and NUREG-0737, "Clarification of TMI Action Plan Requirements," Supplement 1, "Requirements for Emergency Response Capability," issued January 1983. An ITAAC for a full participation emergency response exercise was established to demonstrate the adequacy of the TSC location.</p>

*Variances from the VEGP ESP Application SSAR, Revision 5*

The applicant requested six variances from the VEGP ESP, listed in the table below. The NRC staff evaluated each variance request and determined that, for each variance, the alternative information supplied by the applicant was acceptable. Part 7, Section C, of the COL application describes the variances in detail.

ESP Variance Number	Location of Evaluation in FSER	Description and Justification
VEGP ESP VAR 1.6-1	Section 1.4.4	These three variances correspond to areas where the COL incorporates by reference information from a more recent version of the AP1000 DCD (Revision 19) than the version referenced in the ESP (Revision 15). 1.6-1—Overall reference to AP1000 DCD relating to LWA 1.6-2—Foundations 1.6-3—Accident analysis
VEGP ESP VAR 1.6-2	Section 3.8.5	
VEGP ESP VAR 1.6-3	Chapter 15	
VEGP ESP VAR 1.2-1	Section 13.3	Variance from VEGP ESP SSAR Section 1.2, “General Site Description,” and Section 13.3, “Emergency Planning,” and VEGP ESP Part 5, “Emergency Plan.” This variance provides for updated site layout information, including relocation of the TSC.
VEGP ESP VAR 2.2-1	Section 2.2	Variance from VEGP ESP SSAR Section 2.2.3.2, “Hazardous Chemicals,” and Table 2.3-6, “Potential Hazards.” This variance provides for updated information about hazardous chemicals in the vicinity of the site.
VEGP ESP VAR 2.3-1	Section 2.3	Variance from VEGP ESP SSAR Section 2.3.1.5, “Meteorology.” This variance provides for updated climatological data.

### III. Nonroutine, Unique Facility Features or Novel Issues

#### *Safety Matters*

- a. **Cyber Security**—Following the terrorist attacks on September 11, 2001, the NRC issued a series of advisories and orders requiring nuclear power plants to take certain actions, including enhancing the protection of their computer systems. Since that time, the NRC has replaced those interim measures with regulations. The NRC added a cyber-security threat component to the design-basis threat in 2007. In March 2009, the NRC issued cyber-security requirements under 10 CFR 73.54, “Protection of Digital Computer and Communication Systems and Networks.” The scope of systems under 10 CFR 73.54 includes systems associated with safety, important-to-safety, security, and emergency preparedness functions, as well as support systems and equipment that, if compromised, could adversely impact safety, security, and emergency preparedness functions.



The NRC also developed regulatory guidance for cyber security. In January 2010, NRC issued RG 5.71, "Cyber Security Programs for Nuclear Facilities." This regulatory guide provides an acceptable approach for protecting digital computers, communications systems, and networks from a cyber attack.

The applicable regulations used by the staff in conducting the evaluation include 10 CFR 73.54, 10 CFR 73.55(a)(1), 10 CFR 73.55(b)(8), 10 CFR 73.55(m), and Appendix G, "Reportable Safeguards Events," to 10 CFR Part 73, "Physical Protection of Plants and Materials." The staff also used RG 5.71 to review the cyber security plan (CSP).

The review of the VEGP COL applicant's CSP was the first CSP review for a new reactor. Although the NRC received the VEGP COL application in March 2008, the applicant did not submit its CSP until June 2010, after the issuance of RG 5.71. The VEGP CSP describes how VEGP meets the new regulation, and the plan is based on a generic CSP template in Appendix A to RG 5.71. Key elements of RG 5.71 that were adopted by the applicant include identifying and analyzing critical digital assets, establishing a cyber security team, applying defensive architecture, addressing 148 security controls to each critical digital asset, implementing defensive strategies, and conducting ongoing assessments of security measures for effectiveness.

The staff recognizes the cyber security program as an additional operational program as discussed in SECY-05-0197, "Review of Operational Programs in a Combined License Application and Generic Emergency Planning Inspections, Tests, Analyses, and Acceptance Criteria," dated October 28, 2005. The applicant's CSP describes the program, and the applicant would complete implementation of the entire program between NRC issuance of the COL and the establishment of an operational protected area prior to fuel load. Consistent with the policy established in SECY-05-0197, this program would not be subject to ITAAC. However, the NRC would conduct post-licensing inspections to confirm that the applicant has implemented the program as required. The draft COL contains a license condition requiring that the applicant provide a schedule that would support NRC inspections of the detailed elements of the program.

The staff reviewed the CSP at the same time that the Commission reached the policy decision that clarified that the scope of 10 CFR 73.54(a)(1)(i) structures, systems, and components (SSCs) important-to-safety functions includes balance of plant (BOP) SSCs that have a nexus to radiological health and safety (see Staff Requirements Memorandum (SRM) CMWCO-10-0001, "Regulation of Cyber Security at Nuclear Power Plants," dated October 21, 2010, and SECY-10-0153, "Cyber Security—Implementation of the Commission's Determination of Systems and Equipment within the Scope of Title 10 of the *Code of Federal Regulations*, Section 73.54," dated November 19, 2010). The expanded scope of SSCs in the BOP includes important-to-safety SSCs having the potential to directly or indirectly affect the reactivity of the nuclear power plant. After the Commission's policy decision, the VEGP applicant revised its CSP to clarify that the scope of the program included the covered SSCs as defined in the Commission policy.

The CSP review considered 69 deviations taken by the applicant from the CSP template in RG 5.71. The staff analyzed each deviation individually and found that the deviations

were all acceptable. The applicant justified each deviation from RG 5.71, explaining that the deviations were to clarify the intent of certain statements taken from RG 5.71 that had been adopted in the VEGP CSP, to provide the applicant flexibility, or to use an alternative approach from that used in RG 5.71. For each deviation, the staff determined that the RG 5.71 objective was still met or protection to the plant was not reduced. The staff evaluation, which appears in Section 13.8 of the FSER, follows the organization of the CSP. It includes a section-by-section evaluation of the VEGP CSP against the CSP template in Appendix A to RG 5.71, followed by a separate evaluation for each individual deviation against the regulatory positions in RG 5.71.

The staff determined that the VEGP cyber security program will likely be employed by other AP1000 COL applicants; thus, the staff's evaluation of the VEGP application is expected to be generically applicable to AP1000 SCOLs. Accordingly, the staff does not anticipate addressing the evaluation of the cyber security programs for SCOLs in its Commission papers for future mandatory hearings unless there is a plant-specific difference between the RCOL and SCOL programs.

The cyber security evaluation in the VEGP FSER focuses on a comparison between the VEGP CSP and the CSP template in RG 5.71. While the VEGP CSP is a nonpublic document that appears in Part 9, "Withheld Information," of the VEGP COL application, the staff evaluation, which appears in Section 13.8 of the FSER, is a public document.

- b. **Loss of Large Areas of the Plant Due to Explosions or Fires**—The provisions of 10 CFR 50.54(hh)(2), promulgated in March 2009 (74 FR 13926), require licensees to develop and implement guidance and strategies for addressing the LOLAs of the plant because of explosions or fires from a beyond-design-basis event. The guidance and strategies address the provisions necessary to maintain or restore core cooling, containment, and spent fuel pool (SFP) cooling capabilities including fire fighting, operations to mitigate fuel damage, and actions to minimize radiological release. Applicants document the guidance and strategies in a mitigative strategies document (MSD).

Because the NRC promulgated the LOLA rule so recently, the design aspects of the LOLA requirements were not included in the previously approved AP1000 DCD, Revision 15, certified in 2007. The LOLA review for the VEGP COL is the first LOLA review performed for a new reactor applicant requesting a license under 10 CFR Part 52. The applicant submitted an MSD pursuant to 10 CFR 50.54(hh)(2). The staff reviewed the applicant's MSD using ISG-16 and referenced documents (Nuclear Energy Institute (NEI) 06-12, "B.5.b Phase 2 & 3 Submittal Guideline," dated December 2006, and the February 25, 2005, guidance letter, "NRC Staff Guidance for Use in Achieving Satisfactory Compliance with February 25, 2002 Order Section B.5.b,").

SNC's approach was in most ways similar to that used by operating reactors licensed under 10 CFR Part 50. In particular, as part of demonstrating conformance with the guidance in ISG-16, the applicant considered Attachment 2 to the ISG, "Experience Gained from Implementation of Temporary Instruction 2515/171 at Currently Licensed Power Reactor Sites and Related Staff Positions." Following this guidance ensured that

the applicant applied lessons learned from LOLA evaluations of operating reactors, further demonstrating the adequacy of the applicant's LOLA provisions.

Although the approaches taken by the Part 52 applicants and 10 CFR Part 50 licensees were similar, there was one significant difference. ISG-16 recognizes that the strategies required by 10 CFR 50.54(hh)(2) are similar to those operational programs, as described under SECY-05-0197, for which a description of the program is provided as part of the COL application but the program is implemented later, after COL issuance but prior to initial fuel load. The staff reviewed the program description (the MSD) provided in the application as part of the licensing process. The staff found that the program description complied with the regulation and, for those instances where the program details could not be finalized and implemented until the construction phase, the applicant identified such commitments for future action and documented the aspects of the program that would be finalized prior to initial fuel load. The staff reviewed the commitments in the applicant's MSD and is satisfied that all procedural and strategy development is appropriately scheduled prior to initial fuel load.

While 10 CFR 50.54(hh) requires the applicant to develop and implement the program, the staff ensured the timely maintenance of the mitigative strategies by including in the draft license a license condition requiring that the licensee maintain the program. This license condition addresses the concern that 10 CFR 50.54(hh)(2) does not explicitly require maintenance of the guidance and strategies.

In its MSD, the applicant provided a mitigative strategies table that followed the template guidance in NEI 06-12. The mitigative strategies table addresses various areas and issues pertinent to LOLAs and describes commitments that are most appropriately implemented closer to the completion of construction. The commitments made in the submittal would be implemented prior to initial fuel load.

The MSD addresses the three phases considered in NEI 06-12—firefighting, SFP cooling, and reactor core cooling and fission product release mitigation. During the staff's review, SFP cooling was a significant technical issue that was ultimately resolved with a design change as part of the AP1000 DCA (ADAMS Accession Nos. ML072130353 and ML102290038), which increased the spray capacity to the SFP. This change was needed to provide more complete coverage of cooling water spray to the SFP. Section 6.2.2.2 of the FSER for the AP1000 DCD evaluates the design change.

The staff determined that, with some exceptions, the VEGP approach will likely be employed by other AP1000 COL applicants; thus, the staff's evaluation of the LOLA MSD is expected to constitute a standard review for the AP1000 COLs. Site-specific portions of the evaluation involved water sources for firefighting and locations for various functions related to emergency response, such as firefighting dressout areas, personnel assembly areas, and radio spare battery and charger storage areas. Accordingly, the staff does not anticipate addressing the LOLA evaluation for SCOLs in future mandatory hearings unless there are plant-specific differences between the RCOL and SCOL programs.

The staff found the applicant's proposed mitigative strategies acceptable, and details of the staff's review are documented in the nonpublic Attachment A to Section 19.A of the VEGP FSER and summarized in the publicly available FSER, Section 19A.

- c. **Licenses for Byproduct, Source, and Special Nuclear Material under 10 CFR Parts 30, 40, and 70**—The review of the application and supporting information for issuance of associated material licenses under 10 CFR Part 30, "Rules of General Applicability to Domestic Licensing of Byproduct Material," 10 CFR Part 40, "Domestic Licensing of Source Material," and 10 CFR Part 70, "Domestic Licensing of Special Nuclear Material," is a first-of-a-kind review for an application in the 10 CFR Part 52 licensing process. At this time, NRC has not yet issued formal guidance to address how a 10 CFR Part 52 applicant can meet applicable regulatory requirements for 10 CFR Parts 30, 40, and 70.

NRO staff coordinated the review for 10 CFR Parts 30, 40, and 70 licenses with the other NRC offices responsible for these reviews from applicants not applying under 10 CFR Part 52, including the Office of Nuclear Material Safety and Safeguards (for 10 CFR Part 70), the Office of Federal and State Materials and Environmental Management Programs and NRC Region I (for 10 CFR Parts 30 and 40), and the Office of Nuclear Security and Incident Response (for security and emergency preparedness requirements applicable to 10 CFR Parts 30, 40, and 70).

For 10 CFR Part 30 and 40 reviews, the staff used portions of NUREG-1556, "Consolidated Guidance About Materials Licenses," as a guide for evaluating the applications. For 10 CFR Part 70 safety and security reviews, the staff used portions of NUREG-1520, "Standard Review Plan for the Review of a License Application for a Fuel Cycle Facility," and NUREG-0800.

The review confirmed that some of the key information requirements under 10 CFR Parts 30, 40, and 70 were met by information previously submitted by SNC to meet 10 CFR Part 52 requirements. In particular, 10 CFR Part 52 information pertaining to radiation protection, fire protection, emergency planning, and physical security, including the operational programs for those areas, was directly applicable to the licensing requirements of 10 CFR Parts 30, 40, and 70 (ADAMS Accession No. ML092120064). This aspect of the staff review is discussed in Section 1.5.5 of the FSER.

A key element of the staff review was to ensure the presence of appropriate controls on sources and materials during construction (i.e., prior to fuel load). Therefore, the draft license includes license conditions that establish limits on the type and quantity of materials that the licensee may possess before the finding in 10 CFR 52.103(g) is made. The staff focused on the control of these materials during construction, because the staff found that once the 52.103(g) finding is made, the requirements for these sources and materials are met by the control programs in place for the operation of the reactor.

The staff determined that the VEGP approach will likely be employed by other AP1000 COL applicants; thus, the staff evaluation of the VEGP requests for material licenses is expected to constitute a standard review for the AP1000 COLs. The staff does not

anticipate addressing the evaluation of the materials license requests for SCOLs in future mandatory hearings unless there is a plant-specific difference between the RCOL and SCOL programs.

The applicant also requested an exemption from the provisions of 10 CFR 70.22(b), 10 CFR 70.32(c), 10 CFR 70.31, 10 CFR 70.41, and 10 CFR 70.51, related to the applicant's MC&A program for special nuclear material. These regulations include an exemption for nuclear reactors licensed under 10 CFR Part 50, but not those licensed under 10 CFR Part 52. The staff's evaluation and approval of the exemption appears in Section 1.5.4 of the FSER and is summarized above in Section II of the discussion portion of this paper.

### *Environmental Matters*

**Review of Impacts for ESP Amendment and COL** - As described previously, the COL application references the previously-issued VEGP ESP and LWA. The applicant's environmental report in support of the ESP, and subsequently the staff's ESP FEIS, evaluated the impacts at the VEGP site of building and operating new units with the parameters of a specific plant design (rather than using the plant parameter envelope approach employed by previous ESP applicants), namely the AP1000 certified design. The applicant also chose to address additional topics that under NRC regulations are optional for ESP applicants, such as analyses of the economic, technical, and other benefits and costs of the project and evaluation of alternative energy sources, so the staff likewise evaluated those matters in the EIS. Because these optional issues were addressed and because the review was based solely on design parameters from the existing AP1000 certified design, there were no unresolved environmental issues at the ESP stage.

Consequently, pursuant to 10 CFR 51.92, the staff's COL environmental review focused on whether there was new and significant information. For information to be significant it must be material to the issue being considered. That is, it must have the potential to affect the staff's finding or conclusions from the ESP FEIS. The staff began the COL environmental review by conducting a site audit where the staff reviewed environmental information and analyses to determine if the design of the facility remained within the site characteristics and design parameters specified in the early site permit; reviewed new and potentially significant information; and reviewed the applicant's methodology for identifying and evaluating the significance of new information to determine if the applicant's process was reasonable. Based on its independent review, the staff determined that the process was adequate. Moreover, the scope and nature of potentially new and significant information was consistent with the short time between the completion of the ESP environmental review and the COL review. The staff also found new information that warranted further analysis but which it determined was not significant within the meaning of 10 CFR 51.92.

There was one resource area in which new information arising during the COL review resulted in a change in the staff's conclusion in the ESP FEIS. Concurrent with the staff's preparation of the COL DSEIS, the applicant was completing work authorized under the LWA, which included installation of Category 1 and 2 engineered backfill for the foundation of the nuclear island. As the LWA work proceeded, SNC determined that there was insufficient backfill of adequate quality from areas reviewed and approved as part of the LWA and described in the ESP SSAR.

Consequently, SNC needed to obtain backfill from additional borrow areas. The use of material as Category 1 or 2 backfill from borrow sources other than those identified in the SSAR would require an amendment to the ESP. To determine additional sources of borrow material, the applicant identified potential additional sources onsite but also acknowledged the possible need for offsite borrow sources. (SNC ultimately determined that sufficient backfill was available from the onsite borrow areas and that it did not need to request an amendment to permit the use of backfill from offsite locations.) Some of the potential onsite borrow sources were located within the original ground disturbance footprint for preconstruction activities (cooling tower area, temporary parking area, temporary warehouse, office, and laydown area, and spoils area) and the environmental impacts of disturbing these areas were previously analyzed as part of the ESP FEIS. Three other onsite borrow locations were in areas that were previously undisturbed. Clearing and excavating backfill from these areas would affect two State-listed species (southeastern pocket gopher and sandhills milkvetch) and habitat enrolled in a Georgia safe-harbor program for the red-cockaded woodpecker (a Federally listed endangered species).

In April 2010, SNC submitted a license amendment request (LAR) to amend the ESP SSAR to obtain and install backfill material from additional onsite borrow locations. In May 2010, SNC also submitted an LAR seeking to change the classification of backfill over the slopes of Units 3 and 4 excavations from Category 1 and 2 backfill to engineered granular backfill, which would decrease the total amount of qualified backfill needed. The ESP EIS had concluded that impacts on terrestrial ecology resources would be SMALL, including with respect to the southeastern pocket gopher, sandhills milkvetch, and the red-cockaded woodpecker habitat. (The presence of sandhills milkvetch on the VEGP site, rather than its potential occurrence within 10 miles of it, was discovered during SNC's environmental evaluation of the new borrow areas.) As a result, while the staff would perform an environmental review for the ESP amendments, the applicant's need to obtain backfill material from additional onsite sources was also considered new and potentially significant information with respect to the COL environmental review.

Given the need to perform an environmental evaluation of these backfill activities in connection with the COL as well as the ESP amendments, the staff structured its review to ensure that the information was evaluated consistently in both contexts. The current regulatory framework does not specifically address how the staff should approach its environmental review for an ongoing COL action with a need to amend the ESP referenced by the COL. The Statements of Consideration for the Part 52 final rulemaking states the following:

The NRC is also adding a new provision to § 52.39 to allow ESP holders to make changes to the ESP, including changes to the SSAR, under the license amendment process. These changes will provide ESP holders with additional flexibility to resolve issues that were not addressed in the original ESP review and to achieve finality on new information. The NRC does not believe it is necessary to add rule language to address the situation where a COL applicant references an ESP for which there is an amendment review pending before the NRC. The NRC will address these situations on a case-by-case basis.

In this situation, since it was clear that the staff would need to consider the effects of the backfill amendments on its impact analysis in the COL DSEIS, the staff modified its timetable for issuing

the DSEIS so that it could integrate the environmental analysis being prepared for the ESP amendments.

The staff proceeded to prepare three environmental assessments for the LARs.<sup>1</sup> The first was for obtaining backfill from onsite borrow sources in areas whose disturbance had already been evaluated in the ESP EIS. The second was for borrow sources in previously undisturbed areas. The third was to change the classification of backfill over the slopes of Units 3 and 4 excavations. In each case, the staff reached a finding of no significant impact from the proposed action.

Consistent with NEPA, and to minimize duplication of effort, the staff discussed the three ESP amendments in the COL FSEIS, and incorporated the description and analysis in the second environmental assessment by reference. While the impacts discussed in the first and third environmental assessments were already encompassed by the analysis in the ESP EIS, the use of additional onsite borrow areas resulted in some impacts outside the footprint previously analyzed, in particular with respect to the sandhills milkvetch and the southeastern pocket gopher. The staff noted, however, that SNC identified some voluntary measures to mitigate impacts to these species and also committed to replant longleaf pine in areas that would be disturbed, if possible. The staff also found that potential impacts to these species would not jeopardize the stability or viability of the remaining populations in the State. Moreover, with respect to the red-cockaded woodpecker, as there were no active clusters or nest trees onsite or within foraging distance, the loss of some acreage of habitat enrolled in the safe-harbor program continued to support the ESP conclusion that this species would not be affected by the proposed action.

In integrating these new impacts to the sandhills milkvetch and the southeastern pocket gopher into the SEIS, the staff determined that environmental effects associated with site preparation and construction activities were now sufficient to alter noticeably, but not destabilize, important attributes of the resource, and therefore concluded that there could be an overall MODERATE impact on local terrestrial resources. Consequently, the conclusions regarding the magnitude of the impact to terrestrial species onsite changed from that stated in the ESP FEIS; however, as explained in the COL FSEIS, even in light of this change in the impacts associated with one resource area, the staff's conclusion with respect to the issuance of COLs was still that the benefits of the proposed action outweigh the environmental costs of the action.

In summary, the staff's review of the applicant's process for identifying and evaluating new information for significance, the staff's independent look for new information, and the staff's thorough evaluation of the new information identified, conformed to NRC's regulations implementing Section 102(2) of NEPA.

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<sup>1</sup> As explained above, the applicant submitted license amendment requests to obtain Category 1 and 2 backfill from additional onsite borrow sources and to change the classification of backfill over the slopes of Units 3 and 4 excavations. Because the staff determined that exigent circumstances existed to support a limited-scope approval of the initial LAR, SNC's requests were approved by the staff via the issuance of three amendments.

## IV. COL Findings

*10 CFR 52.97(a)(1):*

- (i) The applicable standards and requirements of the Act and the Commission's regulations have been met.

The staff reviewed the application and evaluated it against the applicable regulations in 10 CFR Parts 20, 26, 30, 31, 32, 40, 50, 51, 52, 55, 70, 73, 74, 100, and 140. The staff performed this evaluation using applicable portions of the SRP, ISG documents, regulatory guides, bulletins, and generic letters. Based on the staff's review, documented in the FSER and FSEIS, and the conclusions of the ACRS, the staff concludes that, for the purpose of issuing COLs for VEGP Units 3 and 4, the applicable standards and requirements of the Atomic Energy Act of 1954, as amended, and the Commission's regulations have been met.

- (ii) Any required notifications to other agencies or bodies have been duly made.

As required by Section 182(c) of the Atomic Energy Act of 1954, as amended, and 10 CFR 50.43(a), on March 2, 2011, the NRC notified the U.S. Department of Agriculture Rural Utilities Service, the U.S. Securities and Exchange Commission, the Federal Energy Regulatory Commission, and the Georgia Public Service Commission of the VEGP application. In addition, in October 2006 and October 2007, the NRC published a notice of the application in *The Aiken Standard*, *The Augusta Chronicle*, and *The True Citizen* serving Burke County and Waynesboro County. In accordance with Section 182(c), the staff also published a notice of the application in the *Federal Register* on March 3, 10, 17, and 24, 2011 (76 FR 11822, 13241, 14699, and 16645).

Based on the staff's completion of notifications to regulatory agencies and the public notices described above, the staff concludes that, for the purpose of issuing COLs for VEGP Units 3 and 4, all required notifications to other agencies or bodies have been duly made.

- (iii) There is reasonable assurance that the facility will be constructed and will operate in conformity with the licenses, the provisions of the Act, and the Commission's regulations.

The staff reviewed information provided by the applicant to ensure that the plants will be constructed and will operate in conformity with the licenses, applicable provisions of the Atomic Energy Act of 1954, as amended, and applicable regulations. This includes the FSAR and other portions of the application, including general and financial information; technical specifications; the emergency plan; requests for departures, variances, and exemptions; the quality assurance (QA) plan; and the security plan.

In areas where the staff found that the initially submitted information was incomplete or insufficient to allow the staff to reach a reasonable assurance conclusion, the staff issued RAIs to the applicant to obtain sufficient information. The staff reviewed applicant responses to ensure that the additional information provided was sufficient to support the



staff conclusion. Where necessary, the applicant provided multiple supplemental responses. As necessary, the staff also conducted audits of the applicant records and calculations and performed its own confirmatory calculations to confirm applicant statements.

In some cases, the staff's reasonable assurance finding required the imposition of license conditions or ITAAC as part of the licenses. The draft COL lists the license conditions and ITAAC. The basis for each license condition or ITAAC appears in the technical evaluations in the VEGP COL FSER or in the FSERs prepared for the VEGP ESP and AP1000 DCD referenced by the VEGP COL application.

On the basis of the staff's review of the application discussed in this information paper and documented in the FSER and FSEIS, the staff concludes that, for the purpose of issuing COLs for VEGP Units 3 and 4, there is reasonable assurance that the facility will be constructed and will operate in conformance with the licenses, the provisions of the Atomic Energy Act of 1954, as amended, and the Commission's regulations.

- (iv) The applicant is technically and financially qualified to engage in the activities authorized.

The staff reviewed information provided by the applicant about technical and financial qualifications.

- a. Technical Qualifications. The staff reviewed information provided by SNC about the technical qualifications of the applicant. The review included an evaluation of the operating experience, organizational structure, and QA program of SNC. SNC, with its architectural-engineering predecessor Southern Company Services, Inc., has over 30 years of experience in the design, construction, and operation of nuclear generating plants and has designed, constructed, and currently operates Edwin I. Hatch Nuclear Plant, Units 1 and 2, VEGP Units 1 and 2, and Joseph M. Farley Nuclear Plant, Units 1 and 2. The combined electric generation of the three plants is in excess of 5,900 MWe. SNC holds 10 CFR Part 50 licenses for these three nuclear power plants and has demonstrated its ability to build and operate these plants. SNC has demonstrated the ability to choose and manage the oversight of nuclear steam supply system vendors, architect-engineers, and constructors of nuclear-related work. The staff's review of the applicant's organizational structure concluded that the management, technical support, and operating organizations are acceptable. The staff reviewed the QA program and found it acceptable. This QA program includes requirements that will be implemented by SNC's nuclear steam supply system vendor, architect-engineer, and constructor.

The staff's evaluation of this information appears in Sections 1.4 and 13.1 and Chapter 17 of the FSER. Based on the staff's evaluation of SNC's experience with nuclear power plants, its operating organization, and its QA program, the staff concludes that SNC is technically qualified to hold licenses for VEGP Units 3 and 4 issued under 10 CFR Part 52 in accordance with 10 CFR 52.97(a)(1)(iv).

- b. Financial Qualifications. The staff reviewed information provided by the applicant about financial qualifications. The review included an evaluation of financial qualifications, decommissioning funding assurance, foreign ownership, and nuclear insurance and indemnity. The staff evaluated information about the total cost of VEGP Units 3 and 4, consisting of engineering, procurement, and construction costs; owners' costs; financing costs; inflation; and information pertaining to funding sources for each of the VEGP owners. Applicable regulations and guidance considered by the staff include 10 CFR Part 140, "Financial Protection Requirements and Indemnity Agreements"; 10 CFR 52.97(a)(1)(iv); 10 CFR 50.33, "Contents of Applications; General Information"; Section I.A.2 of Appendix C, "A Guide for the Financial Data and Related Information Required To Establish Financial Qualifications for Construction Permits and Combined Licenses," to 10 CFR Part 50; and NUREG-1577, "Standard Review Plan on Power Reactor Licensee Financial Qualifications and Decommissioning Funding Assurance," Revision 1, issued February 1999.

The staff's evaluation of this information appears in Chapter 1 of the FSER and includes an evaluation of SNC as the applicant, operator, and a co-licensee of VEGP and Georgia Power Company, Oglethorpe Power Corporation, Municipal Electric Authority of Georgia, and the City of Dalton as co-owners and co-licensees of VEGP. Based on the staff's evaluation of financial information provided by SNC, the NRC staff concludes that the prospective co-licensees, co-owners and operator of VEGP Units 3 and 4, comprising Georgia Power Company, Oglethorpe Power Corporation, Municipal Electric Authority of Georgia, the City of Dalton, and SNC, have demonstrated that they possess or have access to the financial resources necessary to meet estimated construction costs, operation costs, and related fuel cycle costs. Therefore, the NRC staff concludes that the applicant is financially qualified to construct and operate VEGP Units 3 and 4 and engage in the activities authorized by the licenses.

- (v) Issuance of the licenses will not be inimical to the common defense and security or to the health and safety of the public.

The staff reviewed the COL application to assure that issuance of the licenses will not be inimical to the common defense and security or to public health and safety. Specifically, the staff evaluated the applicant's analysis and conclusions about site-specific conditions, including the geography and demography of the site; nearby industrial, transportation, and military facilities; site meteorology; site hydrology; and site geology, seismology, and geotechnical engineering to ensure that issuance of the licenses will not be inimical to public health and safety. With respect to conclusions about these site suitability issues that were incorporated by reference from the VEGP ESP without a variance, the staff verified that none of the criteria for disturbing ESP finality were met. The review also evaluated the design of structures, components, equipment, and systems to ensure safe operation, performance, and shutdown when subjected to extreme weather, floods, seismic events, missiles (including aircraft impacts), chemical and radiological releases, and loss of offsite power, to the extent not already resolved by the incorporation of the AP1000 design. The review confirmed that radiological releases

and human doses during both normal operation and accident scenarios will remain within regulatory limits, which supports the staff's conclusion that issuance of the licenses will not be inimical to public health and safety. The review determined that the physical security to be implemented at the site is adequate to protect the facility, which supports the staff's conclusion that issuance of the licenses will not be inimical to the common defense and security.

The review also determined that operational programs identified by the applicant are sufficiently described to assure the staff of compliance with regulations. Where the staff needed to confirm operational program implementation to reach a reasonable assurance finding but the details of program implementation were not governed by specific regulatory requirements, the draft license contains license conditions to ensure that operational programs will be properly implemented and thus that issuance of the COLs will not be inimical to the common defense and security or to public health and safety. The staff evaluation addressed the operational programs identified in SRM SECY-05-0197, dated February 22, 2006, as well as three additional operational programs, including a cyber security program, a special nuclear material MC&A program, and a special nuclear material physical security program. The staff's review of the applicant's emergency planning information, including the complete and integrated emergency plans that were reviewed and approved as part of the ESP and incorporated by reference in the COL, demonstrates that the emergency plan is acceptable and supports the staff's conclusion that issuance of the licenses will not be inimical to the health and safety of the public.

On the basis of the staff's review of the application, as discussed in this information paper and the referenced documents, the staff concludes that issuance of the COLs for VEGP Units 3 and 4 will not be inimical to the common defense and security or to public health and safety.

(vi) The findings required by Subpart A of 10 CFR Part 51 have been made.

As discussed below, the staff concludes that, for the purpose of issuing COLs for VEGP Units 3 and 4, the environmental review has been adequate to support the findings set forth in 10 CFR 51.107(a).

*10 CFR 52.97(a)(2):*

The staff concludes that there are no acceptance criteria from ITAAC in the referenced ESP or standard design certification that the applicant has asserted are met. Therefore, no Commission finding under this section is required for the purpose of issuing COLs for VEGP Units 3 and 4.

*10 CFR 51.107(a):*

- (i) Determine whether the requirements of Sections 102(2) (A), (C), and (E) of NEPA and the regulations in Subpart A of 10 CFR Part 51 have been met.

The staff reviewed the application and evaluated it against the applicable regulations in 10 CFR Parts 50, 51, 52, and 100. The staff performed this evaluation using applicable portions of the environmental SRP (NUREG-1555), issued in 2000 and updated in 2007, and ISG documents, regulatory guides, and generic letters. The staff addressed supplemental guidance providing additional information on contemporary and evolving issues in a memorandum dated December 10, 2010 (ADAMS Accession No. ML100760503).

In accordance with NEPA Section 102(2)(A) (42 U.S.C. § 4332(2)(A)), the staff prepared the FSEIS (NUREG-1947) and the FEIS for the VEGP ESP based on its independent assessment of the information provided by the applicant and information developed independently by the staff, including through consultation with other agencies. The staff's technical analysis used a systematic, interdisciplinary approach to integrate information from many fields, including the natural and social sciences as well as the environmental design arts. Consequently, the staff concludes that its review comports with the NRC's requirements in Appendix A, "Format for Presentation of Material in Environmental Impact Statements," to 10 CFR Part 51. The staff concludes that environmental findings in the FSEIS constitute the "hard look" required by NEPA and have reasonable support in logic and fact.

In accordance with NEPA Section 102(2)(C)(i-v) (42 USC § 4332(2)(C)(i-v)), the FSEIS for the VEGP COL and the FEIS for the VEGP ESP together address (1) the environmental impact of the proposed action, (2) any unavoidable adverse environmental effects, (3) alternatives to the proposed action, (4) the relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity, and (5) any irreversible and irretrievable commitments of resources that would be involved in the proposed action should it be implemented.

As supported by correspondence presented in Appendix F to the FSEIS, the staff concludes that it fulfilled the requirement of NEPA Section 102(2)(C) by consulting with and obtaining comments from other Federal agencies with jurisdiction by law or special expertise (see 42 USC § 4332(2)(C)). The staff did not identify any other Federal agencies as cooperating agencies in preparation of the FSEIS.

The staff concludes that the FSEIS demonstrates that the staff adequately considered alternatives to the proposed action to the extent that it involves unresolved conflicts concerning alternative uses of available resources, consistent with the requirements of NEPA Section 102(2)(E) (42 USC § 4332(2)(E)). The alternatives considered in the FSEIS include the no-action alternative, energy alternatives, and system design alternatives, with the focus on considering any new and significant information relevant to the alternatives examined in the ESP FEIS.

- (ii) Independently consider the final balance among conflicting factors contained in the record of the proceeding with a view to determining the appropriate action to be taken.

Section 11.6 of the FSEIS provides the staff summary of the cost-benefit assessment. The staff determined that the assessment of costs and benefits presented in the ESP FEIS remains valid. The staff concluded that “the construction and operation of the proposed Units 3 and 4, with mitigation measures identified by the staff, would have accrued benefits that most likely would outweigh the economic, environmental, and social costs associated with constructing and operating two new units at the VEGP site.”

- (iii) Determine, after weighing the environmental, economic, technical, and other benefits against environmental and other costs, and considering reasonable alternatives, whether the COL should be issued, denied, or appropriately conditioned to protect environmental values.

As noted above, in its FSEIS, the staff considered the cost-benefit analysis as well as reasonable alternatives. Based on that analysis, the staff recommends that the COLs be issued. The staff based its recommendation on (1) the VEGP COL application environmental report and responses to staff RAIs, (2) the staff’s review conducted for the VEGP ESP application and the assessment documented in the VEGP ESP EIS, (3) consultation with Federal, State, and Tribal agencies, (4) the staff’s own independent review of potential new and significant information available since preparation and publication of the VEGP ESP EIS, (5) the assessments summarized in the FSEIS, including the potential mitigation measures identified and consideration of public comments received on the DSEIS, and (6) the staff determination that the requested LWA construction activities defined at 10 CFR 50.10(a) and described in the site redress plan would not result in any significant adverse environmental impacts that cannot be redressed.

- (iv) Determine, in an uncontested proceeding, whether the NEPA review conducted by the NRC staff has been adequate.

The staff conducted an independent evaluation of the application; developed independent, reliable information; and conducted a systematic, interdisciplinary review of the potential impacts of the proposed action on the human environment and reasonable alternatives to the applicant’s proposal. Before development of the DSEIS, the staff issued a notice of intent and invited the public to provide any new and potentially significant information relevant to the environmental review since issuance of the ESP FEIS. The staff also provided opportunities for governmental and general public participation during the public meeting on the DSEIS and used publicly available guidance in the development of its SEIS in conformance with the requirements of Appendix A to 10 CFR Part 51.

The staff considered the purpose of and need for the proposed action, the environment that could be affected by the action, and the consequences of the proposed action, including mitigation that could reduce impacts. The energy alternatives and system design alternatives considered in the FSEIS for the COL are the same as those considered in the ESP FEIS. In the FSEIS, the staff also supplemented the ESP FEIS’s

evaluation of alternatives to the proposed action. The FSEIS considered the no-action alternative and evaluated whether any new and significant information affected the conclusions previously made in the ESP FEIS with respect to energy alternatives, system design alternatives, and the potential impact of conservation measures in determining the demand for power and consequent need for additional generating capacity. The FSEIS compared the alternatives to the proposed action. The staff considered any adverse environmental effects that could not be avoided should the proposed action be implemented, the relationship between short-term uses of the human environment and the maintenance and enhancement of long-term productivity, and any irreversible or irretrievable commitments of resources that would be involved in the proposed project.

The NRC filed the DSEIS with the U.S. Environmental Protection Agency (EPA) for its review consistent with its requirements of Section 309 of the Clean Air Act (see 42 U.S.C. § 7609). The staff considered all comments received on the DSEIS and, in Appendix E to the FSEIS, described the manner in which each comment was dispositioned.

On these bases, the staff concludes that, for the purpose of issuing the COLs, it conducted a thorough and complete environmental review sufficient to meet the requirements of NEPA and adequate to inform the Commission's action on the COL request.

#### IV. Limited Work Authorization Findings

##### *10 CFR 50.10(e)(1)(iii):*

The applicable standards and requirements of the Atomic Energy Act of 1954, as amended, and the Commission's regulations applicable to the activities to be conducted under the LWAs have been met, the applicant is technically qualified to engage in the activities authorized, and issuance of the LWAs will provide reasonable assurance of adequate protection to public health and safety and will not be inimical to the common defense and security.

The staff reviewed the LWA-2 application and evaluated it against the applicable regulations in 10 CFR 50.55a, "Codes and Standards," and General Design Criteria 1, "Quality Standards and Records," 2, "Design Bases for Fire Protection against Natural Phenomena," and 4, "Environmental and Dynamic Effects Design Bases," of Appendix A to 10 CFR Part 50 in accordance with Section 3.8.5 of NUREG-0800. The activities requested under LWA-2 rely on incorporation by reference of a portion of the amendment to the AP1000 certified design for which rulemaking is currently pending. Based on the review documented in Section 3.8.5 of the FSEIS, including the incorporation by reference of Section 3.8 of AP1000 DCD, Revision 19, which the staff evaluated in NUREG-1793, "Final Safety Evaluation Report Related to Certification of the AP1000 Standard Design," issued September 2004, and its supplements prepared in support of the AP1000 DCA, the staff concludes that, subject to the completion of the AP1000 DCA rulemaking, the applicable standards and requirements of the Atomic Energy Act of 1954, as amended, and the Commission's regulations applicable to the activities to be conducted under LWA-2 have been met.

For the reasons described above in the staff finding for the technical qualification of the COL applicant according to 10 CFR 52.97(a)(1)(iv), the staff concludes that SNC is technically qualified to engage in the activities authorized under LWA-2.

For the reasons described above in the staff finding under 10 CFR 52.97(a)(1)(v) for the COLs, the staff concludes that issuance of LWA-2 will provide reasonable assurance of adequate protection to public health and safety and will not be inimical to the common defense and security.

*10 CFR 50.10(e)(1)(iv):*

There are no unresolved safety issues relating to the activities to be conducted under the LWAs that would constitute good cause for withholding the authorization.

All regulated activities that the applicant would perform under LWA-2 are consistent with the activities evaluated by the staff in the review of the COL application, including design information which the staff has found acceptable in the evaluation of AP1000 DCD, Revision 19, which is incorporated by reference into the COL application for VEGP Units 3 and 4. In evaluating the LWA-2 activities, the staff used the same technical standards applied in the evaluation of the COL application. During the review, the staff determined that all safety questions and issues had been satisfactorily resolved. Therefore, the staff concludes that, subject to the completion of the AP1000 DCA rulemaking, there are no unresolved safety issues relating to the activities to be conducted under LWA-2 that would constitute good cause for withholding the authorization.

*10 CFR 51.107(d)(1)(i):*

Determine whether the requirements of Section 102(2)(A), (C), and (E) of NEPA and the regulations in Subpart A of 10 CFR Part 51 have been met, with respect to the activities to be conducted under the LWAs.

The staff's NEPA evaluation documented in the FSEIS included consideration of the issuance of the LWAs, including with respect to potential adverse impacts and alternatives. Accordingly, the staff's independent assessment, consideration of alternatives, and consultation with agencies, described above in the corresponding 10 CFR 51.107(a)(1) finding for issuance of the COLs, evaluates and supports issuance of the LWAs. Therefore, the staff concludes that, for the purpose of issuing the LWAs, the requirements of Section 102(2)(A), (C), and (E) of NEPA and the regulations of 10 CFR Part 51, Subpart A have been met.

*10 CFR 51.107(d)(1)(ii):*

Independently consider the balance among conflicting factors with respect to the LWAs, which is contained in the record of the proceeding, with a view to determining the appropriate action to be taken.

Section 11.6 of the FSEIS presents the staff summary of the cost-benefit assessment, including an assessment of the LWAs. The staff determined that the assessment of costs and benefits presented in the ESP FEIS remains valid and that the economic and environmental costs

associated with the LWAs would be a small fraction of the overall costs of construction and operating the proposed facility. The primary benefit from authorizing the LWA activities in the second LWA request in advance of issuing the COLs is that it would enable the applicant to maintain the overall project schedule of construction and operation-need dates, thereby decreasing the chance for cost overruns. The staff concluded that “the construction and operation of the proposed Units 3 and 4, with mitigation measures identified by the staff, would have accrued benefits that most likely would outweigh the economic, environmental, and social costs associated with constructing and operating two new units at the VEGP site.”

*10 CFR 51.107(d)(1)(iii):*

Determine whether the redress plan will adequately redress the activities performed under the LWAs, should limited work activities be terminated by the holder or the LWAs be revoked by the NRC, or upon effectiveness of the Commission's final decision denying the COL application.

The LWA-2 application indicates that the existing site redress plan from the VEGP ESP application is applicable to the LWA-2 activities, and the activities requested in LWA-2 would involve no additional impacts beyond those presented in the ESP FEIS. The staff verified that the site redress plan discussed in the ESP EIS would adequately redress the impacts requested under LWA-2 in the event construction is terminated, the COL application is withdrawn or denied, or the LWAs are revoked. Therefore, the staff determined that the redress plan will adequately redress the activities performed under the LWAs, should limited work activities be terminated by the holder or the LWAs be revoked by the NRC, or upon effectiveness of the Commission's final decision denying the COL application.

*10 CFR 51.107(d)(1)(iv):*

In an uncontested proceeding, determine whether the NEPA review conducted by the NRC staff for the LWAs has been adequate.

After receipt of the LWA-2 request, the staff issued a supplemental notice of hearing stating that the staff would consider both the COL and LWA-2 in a supplement to the VEGP ESP FEIS. In developing the FSEIS, the staff supplemented the detailed analysis in the ESP FEIS that the Commission had determined to be adequate under NEPA to support issuance of the ESP. In its review, including consideration of whether new and significant information had been identified since the ESP review, the staff conducted an independent evaluation of the application for both the COLs and the LWAs, developed independent reliable information, and thereby documented a systematic, interdisciplinary review of the potential impacts of the proposed action on the human environment and reasonable alternatives to the applicant's proposal. The staff considered the purpose of and need for the proposed action, the environment that could be affected by the action, and the consequences of the proposed action, including mitigation that could reduce impacts. The DSEIS was filed with and reviewed by EPA, and the staff considered all comments received on the DSEIS. On these bases, the staff concludes that it conducted a thorough and complete environmental review sufficient to meet the requirements of NEPA and adequate to inform the Commission's action on the LWA-2 request.



## V. Other Aspects of the Staff Review Not Tied to Specific Findings

The staff identified the following two additional areas of interest for the Commission:

- Commission decision on LWA-2
- ITAAC in the draft COL for VEGP Unit 4

### *Commission Decision on LWA-2*

As noted above in the Summary section of this paper, on October 2, 2009, SNC requested an additional LWA (LWA-2) for each unit that would allow additional limited construction activity at the VEGP site, including installation of reinforcing steel, sumps, and drain lines and other embedded items in the nuclear island foundation base slabs, and placement of concrete for the nuclear island foundation base slabs for Units 3 and 4. This LWA request was included as part of the COL application. The staff review of LWA-2 is complete and appears in Section 3.8.5 of the FSEIS. The staff prepared the FSEIS for the COLs so that it also fulfilled applicable NEPA requirements for issuance of the LWAs.

Because the LWAs incorporate by reference portions of the AP1000 DCD (Section 3.8.5), the NRC cannot issue the LWA prior to completion of the AP1000 final rule. Any theoretical delay associated with the AP1000 rule would also delay the LWAs. However, in a situation where the Commission made affirmative decisions on the mandatory hearing for both the COLs and the LWAs, but an unspecified delay occurred affecting the issuance of the COLs, issuance of the LWA would still provide the applicant with some risk mitigation against the interruption of construction activities.<sup>2</sup>

### *ITAAC in the Draft COL for VEGP Unit 4*

The VEGP Units 3 and 4 FSAR Section 1.1.5 (Schedule) provides the anticipated schedule for construction and operation of Units 3 and 4. The VEGP FSAR indicates that the construction activities of Unit 4 will be completed after construction of Unit 3. Consequently, one Unit 3 ITAAC is not to be included in the Unit 4 COL because completion of ITAAC for Unit 4 is predicated on prior completion of ITAAC on Unit 3. However, if a licensee alters its schedule such that Unit 4 is constructed before Unit 3, there is a possibility that certain ITAAC included in the Unit 3 COL would not be satisfied at the time the licensee might seek the Commission's 10 CFR 52.103(g) finding for Unit 4. If such a situation were to arise, the NRC would use existing regulatory processes to ensure that Unit 4 remains subject to the requisite Unit 3 ITAAC, such as an order for Unit 4 specifying that Unit 4 must satisfy Unit 3 ITAAC before the Commission makes the 10 CFR 52.103(g) finding for Unit 4.

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<sup>2</sup> The staff notes that with respect to the presiding officer's findings under 10 CFR 51.107, the provisions of 51.107(d)(4) call for the presiding officer to issue its findings with respect to the LWA in a decision that is issued separate from and prior to that for the COL. However, under the present circumstances, in particular the expected date for completion of the AP1000 rulemaking on which both the COLs and LWA depend, it is unclear that there would be any practical advantage to issuing separate presiding officer decisions on the COL and LWA aspects of the mandatory hearing.

The Commissioners

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COORDINATION:

The Office of the General Counsel has reviewed this paper and has no legal objection.

***/RA by Martin J. Virgilio for/***

R. W. Borchardt  
Executive Director  
for Operations

COORDINATION:

The Office of the General Counsel has reviewed this paper and has no legal objection.

*/RA by Martin J. Virgilio for/*

R. W. Borchardt  
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for Operations

EDATS: NRO-2011-0010

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\* via email

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE COMMISSION

In the Matter of )  
 )  
SOUTHERN NUCLEAR OPERATING CO. ) Docket Nos. 52-025-COL and 52-026-COL  
 )  
(Vogtle Electric Generating Plant )  
Units 3 and 4) )  
 )

CERTIFICATE OF SERVICE

I hereby certify that copies of "Exhibit NRC000003" have been served upon the following persons by Electronic Information Exchange this 20<sup>th</sup> day of September, 2011:

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