

UNITED STATES NUCLEAR REGULATORY COMMISSION  
SOUTHERN NUCLEAR OPERATING COMPANY ET AL.  
DOCKET NO. 52-011  
VOGTLE ELECTRIC GENERATING PLANT ESP SITE  
EARLY SITE PERMIT AND LIMITED WORK AUTHORIZATION  
ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT

By letter dated May 24, 2010, Southern Nuclear Operating Company, Inc. (Southern), on behalf of itself and the co-owners of the Vogtle Electric Generating Plant (VEGP), submitted a license amendment request (LAR) to amend the early site permit (ESP) and limited work authorization (LWA) that was issued to Southern and the same co-applicants on August 26, 2009, for the VEGP site. The LAR was supplemented by a letter dated June 2, 2010. In particular, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Section 52.39(e), the request seeks to amend the ESP Site Safety Analysis Report (SSAR) 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 (EGB). The United States Nuclear Regulatory Commission (NRC) is considering issuance of an amendment that would authorize this change. Pursuant to 10 CFR 51.21, "Criteria for and Identification of Licensing and Regulatory Actions Requiring Environmental Assessments," the NRC has prepared an environmental assessment (EA) evaluating the impacts associated with the LAR. Based on this EA, the NRC has reached a Finding of No Significant Impact.

## ENVIRONMENTAL ASSESSMENT

### Background:

In August 2009, the NRC issued ESP-004, which included an LWA to Southern and several co-applicants for the VEGP site in Burke County, Georgia. An ESP is an NRC approval of a site suitable for construction and operation of one or more new commercial nuclear reactors. An LWA, which may be requested as part of an ESP application, authorizes the commencement of limited safety-related construction activities with prior approval of the Commission. The NRC's detailed review of the environmental impacts of constructing and operating two new units (Units 3 and 4) at the VEGP ESP site is documented in NUREG-1872, Vol. 1, "Final Environmental Impact Statement for an Early Site Permit (ESP) at the Vogtle Electric Generating Plant Site" (ESP FEIS) (NRC 2008). Southern submitted an application in April 2008 for combined licenses (COLs) for the proposed Units 3 and 4; as permitted by NRC regulations, the COL application references the VEGP ESP. The COL application has been docketed and is still under NRC review.

The ESP LWA issued for the VEGP site authorized Southern to undertake the following safety-related construction activities:

- Installation of engineered backfill
- Installation of retaining walls (mechanical stabilized earth walls)
- Installation of lean concrete backfill
- Installation of mudmats
- Installation of waterproof membrane

Southern started performing limited safety-related construction activities at the VEGP site in March 2010 as authorized by the LWA. Based on the excavations performed since the start of the LWA activities, the applicant has determined that the onsite borrow sources

described in the ESP SSAR will not provide sufficient quantities of Category 1 and 2 backfill to complete the permitted activities. On April 20, 2010, Southern submitted a LAR to amend the ESP to allow the use of onsite backfill areas not specifically identified in the VEGP, Units 3 and 4 SSAR. On May 13, 2010, Southern requested a limited scope approval (LSA) of a subset to the borrow locations identified in the April 20, LAR. Although the onsite areas to which the LSA request was limited, they were not evaluated in the NRC staff's ESP safety review as potential sources of backfill. However, they were previously identified and evaluated in the ESP FEIS as areas that would be affected by activities associated with building Units 3 and 4. These selected areas were described in the LSA request and in the ESP FEIS as follows:

- Cooling Tower
- Temporary Parking
- Temporary Warehouse, Office, and Laydown
- Spoils Areas.

On May 21, 2010, based on its safety and environmental review of the LSA request, the NRC issued Amendment 1 to the ESP (NRC 2010a) for the VEGP site, which revised the Vogtle Electric Plant ESP Site Safety Analysis Report (SSAR) to allow for the use of Category 1 and 2 backfill material from additional onsite areas that were not specifically identified in the VEGP ESP SSAR as backfill sources for the activities approved under the ESP. This amendment only approved the subset of onsite locations identified in the LSA request. On May 24, 2010, Southern submitted a clarification to its April 20 LAR, limiting the remainder of the proposed amendment to the use of three additional onsite backfill areas not encompassed by the LSA. On June 25, 2010, the NRC issued Amendment 2 (NRC 2010b) which authorized the use of backfill from those three additional onsite backfill areas.

As part of its review of Amendment 1 and Amendment 2, the staff prepared two environmental assessments (EAs) (NRC 2010a, NRC 2010b); as documented in those EAs, the staff determined that the proposed actions would have no significant impact.

The LAR currently under consideration, if approved, would constitute Amendment 3 to the ESP. Pursuant to 10 CFR 52.39(e), the holder of an ESP may not make changes to the ESP, including the SSAR, without prior Commission approval. In accordance with 10 CFR 52.39(e) and 10 CFR 50.90, Southern submitted a LAR to allow the use of EGB over the excavation side slopes rather than Category 1 and 2 backfill as is currently stated in the ESP SSAR. On June 2, 2010, Southern responded to an NRC staff Request for Additional Information (RAI) concerning the extent of land-disturbing activities on the VEGP property that would be associated with the LAR. Southern stated that “[a]ll onsite backfill currently being considered for use as EGB material will be excavated from areas evaluated in” the ESP FEIS, Amendment 1, and Amendment 2.

In response to this application, the NRC staff will prepare its technical evaluation of the LAR. This EA evaluates the environmental impacts of the requested activities to inform the NRC staff determination concerning the LAR. The NRC staff’s review of the safety aspects of the LAR will be documented in a separate safety evaluation report (SER).

Identification of the Proposed Action:

The proposed action, as described in the Southern request for the amendment in accordance with 10 CFR 50.90, would allow Southern to use engineered backfill over the excavation side slopes rather than Category 1 and Category 2 backfill. The backfill would be obtained from the onsite borrow areas identified and evaluated in the ESP FEIS and the onsite borrow areas specified in the amendments to the VEGP ESP.

Need for the Proposed Action:

As stated in Southern's amendment request, the proposed amendment is needed to conserve limited onsite Category 1 and 2 backfill material resources, reduce the need for offsite sources, and reduce the potential for additional environmental impacts and schedule delays associated with expanding borrow areas.

Environmental Impacts of the Proposed Action:

The environmental impacts associated with obtaining backfill material from onsite areas were analyzed in the ESP FEIS as well as in the EAs in support of Amendments 1 and 2 to the VEGP ESP. Accordingly, the NRC staff has previously evaluated the impacts to the onsite borrow areas from which either EGB and Category 1 and Category 2 backfill would be obtained, if the LAR is approved. The NRC staff concluded in both EAs that approving the use of Category 1 and 2 backfill materials from additional onsite areas would not result in significant impacts to land use, surface and groundwater resources, terrestrial and aquatic resources, threatened and endangered species, socioeconomic factors and environmental justice, cultural and historical resources, air quality, and non-radiological human health. The NRC staff likewise concluded that activities associated with obtaining backfill from the locations specified in Amendments 1 and 2 would not result in a significant increase in occupational radiation exposure compared to the exposures previously evaluated in the ESP FEIS and found not to be significant.

As stated in Southern's June 2, RAI response, the EGB material that would be used pursuant to the LAR would be excavated from the onsite borrow areas already evaluated as sources of Category 1 and Category 2 backfill. No additional areas are proposed to be disturbed as a result of this LAR; the LAR would alter the classification of backfill authorized to be used within portions of the excavation, but not the onsite sources of that backfill.

The NRC staff finds that the non-radiological environmental impacts from obtaining EGB from the same onsite areas are bounded by the previously-analyzed non-radiological environmental impacts from obtaining Category 1 and 2 backfill. Therefore, the NRC staff concludes that granting the proposed amendment would not result in changes to the non-radiological environmental impacts described within the ESP FEIS and the EAs for Amendments 1 and 2 and found not to be significant.

Furthermore, the NRC staff has reviewed the potential radiological health impacts that would occur as a result of the LAR activities and found that the radiological health impacts presented in the ESP FEIS and in the EAs for Amendments 1 and 2 would bound any impacts associated with using engineered backfill as proposed in the LAR. The total quantity of backfill needed would not change as a result of the amendment; the onsite locations of the proposed backfill sources would remain the same; and no increase in the number of workers performing such activities is contemplated; consequently, there would be no effect on the anticipated occupational doses. Based upon the above, the NRC staff concludes that granting the proposed amendment would not result in changes to the radiological health impacts described within the ESP FEIS and the EAs for Amendments 1 and 2 and found not to be significant.

#### Alternatives to the Proposed Action

As an alternative to the proposed action, the NRC staff considered denial of the proposed amendment (i.e., the “no-action” alternative). Since approving the LAR would result in essentially no change in the onsite backfill activities, denial of the amendment request would neither result in nor avoid any significant environmental impacts. For the reasons already stated, the LAR would not alter the total quantity of backfill to be used in the Units 3 and 4 excavation and the onsite areas to be disturbed in obtaining the backfill remain limited to areas expected to be affected by site preparation activities that were previously evaluated in the ESP FEIS and the EAs for Amendments 1 and 2 to the VEGP ESP.

Moreover, if NRC staff were to deny the amendment request, Southern would still need to obtain the quantities of Category 1 and Category 2 material necessary to complete backfill of the VEGP Units 3 and 4 excavation, including the side slopes of the excavation area.

Other possible alternatives to the proposed action include acquiring engineered backfill from other onsite or offsite borrow sources. If sufficient quantities of suitable backfill material are not acquired from the onsite sources specified in the LAR request, Southern would need to obtain backfill material from other onsite or offsite borrow sources. However, since the total quantity of backfill needed remains unchanged regardless of the source from which it is obtained, the land area (and associated land disturbance) needed to obtain the material from another onsite or offsite source would be comparable to that of the requested onsite sources. Since the areas proposed under the LAR request are ones where land disturbance was already anticipated (as evaluated in the ESP FEIS and the EAs for Amendments 1 and 2) and for which the environmental impacts were determined not to be significant, the staff concludes that it is unlikely that the use of other onsite sources would be environmentally preferable to the sources defined in the LAR. Additionally, with respect to the offsite source alternative, Southern would need to demonstrate that backfill obtained offsite would have the same properties that were the basis for approving the onsite sources specified in the ESP SSAR. Furthermore, if suitable material is extracted from such an offsite source, it would have to be transported to the VEGP ESP site. As explained above, the NRC staff has determined that the impacts of obtaining backfill from the approved onsite borrow sources would not be significant. Accordingly, even assuming any additional impacts associated with transporting material to the VEGP site would be minimal, the staff concludes that the use of offsite borrow sources is unlikely to be an environmentally preferable alternative to the sources of EGB contemplated by the LAR request.

### Agencies and Persons Consulted

The NRC staff consulted with a number of Federal, State, regional, Tribal, and local organizations regarding the environmental impacts of constructing and operating two new units at the VEGP ESP site as documented in the ESP FEIS. The staff also contacted several of these organizations in the development of the EAs for Amendments 1 and 2 to the VEGP ESP. A complete list of organizations contacted can be found in the ESP FEIS and the EAs for Amendments 1 and 2 to the VEGP ESP (NRC 2008, NRC 2010a, NRC 2010b).

### Finding of No Significant Impact

The NRC staff has prepared this EA in support of its review of the proposed action. On the basis of this EA, the NRC finds that there are no significant environmental impacts from the proposed action. The LAR would not change the total quantity or locations of backfill material to be obtained from onsite sources and the impacts of acquiring EGB from the specified areas located within the VEGP site would remain within the scope of environmental impacts previously analyzed in the ESP FEIS and the EAs for Amendments 1 and 2 to the VEGP ESP and found not to be significant. Accordingly, the NRC staff has determined that there would be no significant environmental impacts associated with granting the LAR request.

### Further Information:

Documents related to this action are available electronically at the NRC Electronic Reading Room at <http://www.nrc.gov/reading-rm/adams.html>. From this site, persons can access the NRC Agency-wide Documents Access and Management System (ADAMS), which provides text and image files of NRC public documents. If you do not have access to ADAMS or have problems accessing the documents located in ADAMS, contact the NRC Public Document Room Reference (PDR) staff at 1-800-397-4209, 301-415-4737 or via e-mail to [pdr.resource@nrc.gov](mailto:pdr.resource@nrc.gov).



Additionally, these documents may also be viewed electronically on the public computers located at the NRC Public document Room (PDR), Room O1-F21, One White Flint North, 11555 Rockville Pike, Maryland 20852. The PDR reproduction contractor will copy documents for a fee.

The ADAMS accession number for the April 20, 2010 amendment request is [ML101120089](#), this request was supplemented on April 23, 2010, ([ML101160531](#)), April 28, 2010, ([ML101230337](#)), and May 5, 2010, ([ML101270283](#)). The ADAMS accession number for the May 13, 2010, supplement requesting the LSA is ML101340649. The ADAMS accession number for the complete EA for Amendment 1 is ML101380114, and the accession number of Amendment 1 is ML101400509. The ADAMS accession number for the May 24, 2010, amendment request identifying the backfill sources evaluated in Amendment 2 is ML101470212. The ADAMS accession number for the complete EA for Amendment 2 is ML101670592, and the accession number of Amendment 2 is ML101690212. The ADAMS accession numbers for the ESP FEIS are ML082240145 and ML082240165, ML082260203, and ML082550040. The ADAMS accession number for the May 24, 2010, amendment request to change the classification of backfill over the slopes of Units 3 and 4 excavations from Category 1 and 2 backfill to EGB is ML101470213 and the accession number for the June 2 RAI response is ML101550510.

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Dated at Rockville, Maryland, this 30 day of June, 2010.

For The Nuclear Regulatory Commission.

**/RA/**

Scott Flanders, Director  
Division of Site and Environmental Reviews  
Office of New Reactors

References:

U.S. Nuclear Regulatory Commission (NRC). 2008. *Final Environmental Impact Statement for an Early Site Permit (ESP) at the Vogtle Electric Generating Plant Site. Main Report.* NUREG-1872, Vol. 1, Washington, D.C.

U.S. Nuclear Regulatory Commission (NRC) 2010a. *United States Nuclear Regulatory Commission Southern Nuclear Operating Company et al. Docket No. 52-011, Vogtle Electric Generating Plant ESP Site Early Site Permit and Limited Work Authorization Environmental Assessment and Finding of No Significant Impact.* (ML101380114), Washington, D.C.

U.S. Nuclear Regulatory Commission (NRC) 2010b. *United States Nuclear Regulatory Commission Southern Nuclear Operating Company et al. Docket No. 52-011, Vogtle Electric Generating Plant ESP Site Early Site Permit and Limited Work Authorization Environmental Assessment and Finding of No Significant Impact.* (ML101670592), Washington, D.C. Southern Nuclear Operating Company.

Southern Nuclear Operating Company, Vogtle Electric Generating Plant Units 3 and 4, Site Safety Analysis Report License Amendment Request, Revise Backfill Geometry. ND-10-0964. May 24, 2010. Birmingham, Alabama. Accession No. ML101470213.

Southern Nuclear Operating Company, Vogtle Electric Generating Plant Units 3 and 4, Site Safety Analysis Report License Amendment Request, Revise Backfill Geometry Response to Request for Additional Information. ND-10-1117. June 2, 2010. Birmingham, Alabama. Accession No. ML101550510.

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U.S. Nuclear Regulatory Commission (NRC). 2008. *Final Environmental Impact Statement for an Early Site Permit (ESP) at the Vogtle Electric Generating Plant Site. Main Report.* NUREG-1872, Vol. 1, Washington, D.C.

U.S. Nuclear Regulatory Commission (NRC) 2010a. *United States Nuclear Regulatory Commission Southern Nuclear Operating Company et al. Docket No. 52-011, Vogtle Electric Generating Plant ESP Site Early Site Permit and Limited Work Authorization Environmental Assessment and Finding of No Significant Impact.* (ML101380114), Washington, D.C.

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ADAMS Accession Number: ML101660076

\*See previous concurrences

NRO-002

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