Southern Nuclear
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MAY 24 2010

SOUTHERN COMPANY

Docket No.: 52-011

ND-10-1005

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555-0001

Southern Nuclear Operating Company
Vogtle Electric Generating Plant Units 3 and 4
Early Site Permit Site Safety Analysis Report Amendment Request
Revised Site Safety Analysis Report Markup for Onsite Sources of Backfill Part 2

Ladies and Gentlemen:

By letter dated April 20, 2010, Southern Nuclear Operating Company (SNC) submitted a license amendment request (LAR) to the U.S. Nuclear Regulatory Commission (NRC), in accordance with 10 CFR 50.90, to change the Vogtle Electric Generating Plant (VEGP) Units 3 and 4 Early Site Permit (ESP) Site Safety Analysis Report (SSAR). The requested change would allow the use of onsite backfill borrow areas not specifically identified in the SSAR. During the NRC's review of this amendment request, the NRC identified a need for additional information, involving the extent of the requested area boundary and the rationale used to conclude that the Barnwell Group of sands extends throughout the VEGP site. By letter dated April 28, 2010, SNC responded to this request for additional information (RAI). Subsequently, during teleconferences held between SNC and NRC on May 12, 2010, the NRC identified a need for clarifying information regarding the geological origin of Category 1 and Category 2 backfill material. In addition, the NRC identified a need for additional information regarding the specific areas to be used as backfill sources relative to the Environmental Assessment (EA) for the LAR. By letter ND-10-0960, "Revised Site Safety Analysis Report Markup for Onsite Sources of Backfill" dated May 13, 2010, SNC responded to these requests for additional information and requested NRC to consider issuing a limited scope approval of a subset of onsite locations.

Enclosure 1 provides SNC's response to the information requests of May 12, 2010 for additional onsite backfill sources that were not included in SNC letter ND-10-0960. Enclosure 2 provides a revision to SSAR Section 2.5.4.5.4 that identifies three additional areas that are suitable as backfill sources. Enclosure 3 provides a LAR Environmental Report (ER) to support development of an EA for the LAR for the three additional onsite

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areas. The proposed changes to the SSAR do not affect the no significant hazards consideration provided in the amendment request dated April 20, 2010.

By this letter, SNC is providing additional information regarding the remainder of the areas within the scope of the LAR. SNC requests approval of the full scope LAR by July 1, 2010. NRC approval of the full scope LAR would supersede the limited scope request approved and issued by the NRC to SNC in License Amendment No. 1 to the Vogtle Electric Generating Plant, Units 3 and 4 (VEGP 3&4), Early Site Permit (ESP) Site Safety Analysis Report (SSAR). Pending NRC approval of the full scope LAR, the limited scope request approval would remain in effect.

If you have any questions regarding this letter, please contact Mr. Brandon Waites at (205) 992-7024. Thank you.

Mr. C.R. Pierce states he is the AP1000 Licensing Manager of Southern Nuclear Operating Company, is authorized to execute this oath on behalf of Southern Nuclear Operating Company and to the best of his knowledge and belief, the facts set forth in this letter are true.

Respectfully submitted,

SOUTHERN NUCLEAR OPERATING COMPANY

Charles R. Pierce

Charles R. Pierce

Sworn to and subscribed before me this 24th day of May, 2010

Notary Public: Charlotte A. Graham

My commission expires: 6/9/12

CRP/CHM/dmw

Enclosure 1: Responses to NRC Requests for Additional Information on the LAR
Enclosure 2: Proposed SSAR Markup Revision for the LAR
Enclosure 3: Additional Onsite Borrow Sources - Environmental Report (ER) for the LAR

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Enclosure 1

Responses to NRC Requests for Additional Information on the LAR

NOTE: The enclosed document is one (1) page in length.

NRC Question No. 1

Under 10 CFR 51.21, Criteria for and Identification of Licensing and Regulatory Actions Requiring Environmental Assessments, the LAR requires the NRC perform an environmental assessment (EA) evaluating the impacts associated with the proposed amendment. Please provide an evaluation of the environmental impacts associated with the proposed license amendment.

SNC Response:

The additional areas described in the LAR were not previously identified in the SSAR for use as onsite sources of backfill material.

In accordance with 10 CFR 51.21, SNC has completed an environmental evaluation of the LAR and determined the LAR activities do not result in substantive environmental impacts beyond those addressed in the ESP FEIS and do not alter the conclusions of the ESP FEIS. The impacts associated with the development of the additional borrow areas are temporary and of a short duration. Included in Enclosure 3 is the LAR Environmental Report (ER) which contains SNC's environmental evaluation of the proposed amendment, referencing, when appropriate, the applicable sections of the ESP FEIS.

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Enclosure 2

Proposed SSAR Markup Revision for the LAR

NOTE: The enclosed document is three (3) pages in length.

2.5.4.5.4 Backfill Sources

Sufficient sources of backfill have been identified on the Vogtle site through the boring and laboratory testing programs and analysis of their results as described below. Flowable fill may also be used as backfill in small restricted areas where adequate compaction cannot be achieved. The flowable fill mix will be designed to have similar strength characteristics as the compacted backfill.

Identified onsite sources of borrow material for the proposed backfill include acceptable materials from the Upper Sand stratum excavated from the power block and a borrow area (switchyard) north of the power block. An alternative borrow area is located about 4,000 feet north of the power block. This alternative location (Borrow Area 4) was also identified and investigated during construction of VEGP Units 1 and 2.

Approximately 3,900,000 cubic yards of material (including an allowance for ramps) will be excavated for the Units 3 and 4 power blocks. Approximately 3,600,000 cubic yards of material will be required to backfill these excavations. Based on a review of the 70 SPT boring logs and laboratory test results on selected samples from the COL subsurface investigation, approximately 50 percent of the material excavated from the power block areas will qualify for reuse as Seismic Category 1 or 2 backfill. However, because a portion of the excavated material may be difficult to segregate, an estimated 30–50 percent of the excavated material is designated for borrow. This quantity accounts for approximately 1,200,000–2,000,000 cubic yards.

Additional backfill for the power blocks, approximately 1,600,000 cubic yards, is available from a borrow source located immediately north of the power blocks (Units 3 and 4 switchyard area). See Figures 2.5.4-15 and 2.5.4-16 for plan and section views, respectively. The switchyard borrow source was explored with 15 SPT borings and five test pits during the COL investigation. The engineering properties of these materials were evaluated with laboratory tests on disturbed, undisturbed, and bulk samples. The COL laboratory testing program (Appendix 2.5.C) included sieve analyses of 27 samples that disclosed an average value of 15 percent fines and a median value of 15 percent. Based on the subsurface data, suitable backfill materials at the switchyard borrow source were identified. These materials were classified according to ASTM D 2488 as silty sands (SM) and poorly graded sands (SP). Clayey sands (SC) were also encountered in some samples. Compaction tests (ASTM D 1557) were conducted on five bulk samples taken from representative soils. Test results disclosed a range of 111 pcf to 125 pcf for the maximum dry density with an average value of 116 pcf.

If additional material is needed, an alternative borrow source is located about 4,000 feet north of the power block area, designated Borrow Area 4. It was explored with four SPT borings and three test pits during the COL investigation. This area was previously explored but not utilized during the design and construction of Units 1 and 2. Sieve analyses were conducted on 31 representative samples and disclosed values ranging from 7 percent to 43 percent fines content

with an average value of 16. Compaction tests (ASTM D 1557) were conducted on five bulk samples taken from representative soils. Test results disclosed a range of 113 pcf to 121 pcf for the maximum dry density with an average value of 116 pcf. Based on the subsurface data, suitable backfill materials at Borrow Area 4 are located at the surface (approximate El. 246 ft) to a depth of 36 ft (approximate El. 210 ft) and the borrow area is estimated to contain approximately 1,200,000 cubic yards.

Other localized deposits of suitable material within the Barnwell Group of the Upper Sand stratum located within the VEGP Exclusion Area Boundary (EAB) (Figure 1-4) outside of the above three borrow areas may be evaluated for use as borrow material. These additional borrow areas are limited to selected areas identified in NUREG 1872, Vol. 1, "Final Environmental Impact Statement for an Early Site Permit (ESP) at the Vogtle Electric Generating Plant Site," Table 4.3, as areas impacted by Vogtle 3 and 4 construction. These selected areas are described in NUREG 1872 as follows:

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

In addition, three additional areas have been identified as containing suitable backfill material. These areas are identified as follows:

- Western portion of North Stockpile area (NOI 3, west)
- Borrow Area 1C (NOI 25)
- Railroad Borrow Area (NOI 28)

Deposits within these areas may be identified by review of existing boring data, additional informational borings or test pits, or excavation activities incidental to construction. The evaluation to use such material would include a geologic review of the materials, a laboratory testing program, and an engineering review of soil properties. This material would be designated as suitable for use as Category 1 and 2 backfill provided the evaluation concludes that the material meets the acceptance criteria contained in Table 2.5.4-15. Once identified as suitable backfill, the material will be qualified and placed in accordance with all requirements for Category 1 and 2 backfill.

Table 2.5.4–15 Criteria for Evaluation of Borrow Material from Outside of the Three Designated Category 1 and 2 Borrow Areas

Parameter	Acceptance Criteria
Location	Exclusion Area Boundary (Figure 1-4)
Geological Origin	Barnwell Group
Soil Classification	SP, SP-SM or SM
Maximum Dry Density (Modified Proctor)	Engineering Evaluation
Fines Content, Percent passing on a #200 Sieve	3% Minimum 25% Maximum
Gradation	Table 2.5.4-14 and associated text in Section 2.5.4.5.3

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Enclosure 3

Additional Onsite Borrow Sources - Environmental Report (ER) for the LAR

Revision 0

NOTE: The enclosed document is twenty-three (23) pages in length.

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1.0 INTRODUCTION

Georgia Power Company (GPC), Oglethorpe Power Corporation (an Electric Membership Corporation), the Municipal Electric Authority of Georgia, and the City of Dalton, Georgia, an incorporated municipality in the State of Georgia acting through its Board of Water, Light, and Sinking Fund Commissioners (Dalton Utilities) are co-owners of Vogtle Electric Generating Plant (VEGP) Units 1 and 2 in Burke County, Georgia. The nuclear reactors are operated for the co-owners by Southern Nuclear Operating Company (SNC).

1.1 BACKGROUND

In 2006, SNC, on behalf of the co-owners, submitted an application to the Nuclear Regulatory Commission (NRC) for an Early Site Permit (ESP) for the VEGP Units 3 and 4 site. The NRC issued the ESP on August 26, 2008. In accordance with 10 CFR 50.90, SNC submitted a License Amendment Request (LAR) on April 20, 2010 to allow for backfill material to be used from areas not previously identified in the Site Safety Analysis Report (SSAR) but evaluated in NUREG 1872, Vol. 1, "Final Environmental Impact Statement (FEIS) for an Early Site Permit (ESP) at the Vogtle Electric Generating Plant Site" (NUREG 1872).

Under 10 CFR 51.21, Criteria for and Identification of Licensing and Regulatory Actions Requiring Environmental Assessments, the LAR requires that the NRC prepare an environmental assessment (EA) evaluating the impacts associated with the proposed amendment. During review of the LAR, NRC requested additional information regarding the location of backfill sources and their associated environmental impacts. SNC is providing this environmental report (ER) to support the NRC's review of the LAR and development of the EA. This ER addresses the impacts associated with potential backfill sources within the Vogtle property boundary not previously considered in NUREG 1872.

Additional onsite backfill sources not previously included in the SSAR, but evaluated in NUREG 1872 were included in the EA dated May 21, 2010, (75 FR 28664). This EA was completed to support the approval of the Southern Nuclear Operating Company, Vogtle Electric Generating Plant ESP Site, Docket No. 52-011, Amendment to Early Site Permit and Limited Work Authorization, (Amendment No. 1, ESP-004) dated May 21, 2010. The NRC staff concluded in the May 21, 2010 EA "that there are no significant environmental impacts from the proposed action."

The areas evaluated in the NRC EA (75 FR 28664) do not yield quantities sufficient to complete the backfill activities. Therefore, additional areas on the VEGP site containing suitable backfill material have been identified and the environmental impacts associated with the additional areas are included in this ER.

1.2 PROPOSED ACTION

A LAR was submitted to the NRC requesting the use of additional backfill sources not previously included in the ESP SSAR. Localized deposits of suitable material within the Barnwell Group of the Upper Sand stratum within the VEGP site boundary, other than

those previously listed in the ESP SSAR, have been identified. By letter ND-10-0960, "Revised Site Safety Analysis Report Markup for Onsite Sources of Backfill" (dated May 13, 2010), SNC provided information to NRC on additional backfill sources that were evaluated for construction impacts in NUREG 1872.

SNC also identified to the NRC additional areas on the VEGP site that could be utilized to provide backfill. Letter ND-10-0526, "Supporting Information for Environmental Report Review," dated March 12, 2010, provided supporting information on additional areas considered as potential sources of suitable borrow material **(SNC 2010a)**. Three of these areas are evaluated in this ER and include the western portion of the North Stockpile area (NOI 3), Borrow Area 1C (NOI 25), and the Railroad Borrow Area (NOI 28).

The North Stockpile Area, (NOI 3) includes approximately 42 acres in the northwest part of the VEGP property that were identified in NUREG 1872 for use as a strip pile. The impacts of construction on this area were evaluated in NUREG 1872. NOI 3 has been expanded to include an additional 19 acres that were not previously evaluated in NUREG 1872. The environmental impacts associated with the additional 19 acres are included in this ER. This additional area will be referred to as NOI 3, west. **(SNC 2010a)**

Portions of Borrow Area 1C (NOI 25) were identified in the ESP ER. The ESP ER referred to these areas as the spoils and overflow storage area south of the Unit 1 and 2 access and north of River Road. Part of NOI 25 was used as a borrow area during the construction of Units 1 and 2. The borrow area has been reclaimed and planted with longleaf and loblolly pines. Cultural resources, threatened and endangered species and wetland surveys were conducted for this area to support the development of the ESP ER. Impacts associated with construction activities in NOI 25 were not included in NUREG 1872. NOI 25 is approximately 154 acres. **(SNC 2010a)**

The Railroad Borrow Area (NOI 28) is 94 acres and includes the areas previously identified as NOI 26 (29 acres) and NOI 27 (42 acres) in SNC letter ND-10-0526 (dated March 12, 2010). NOI 28 combines the two areas and includes an additional 23 acres between or adjacent to NOI 26 and NOI 27. This area consists of the existing rail spur and planted pines as described in SNC letter ND-10-0923, dated May 10, 2010. NOI 28 was disturbed during the construction of Units 1 and 2, and parts of it were identified as Units 3 and 4 construction parking, transmission corridor, and construction access road in the ESP ER. Cultural resources, threatened and endangered species and wetland surveys were conducted to support the development of the ESP ER and included in the ESP ER. Impacts associated with construction activities in NOI 28 were not included in NUREG 1872. **(SNC 2010a and SNC 2010b)**

1.3 THE NEED FOR THE PROPOSED ACTION

NUREG 1872 states that "[b]orrow material would be taken from the excavation for the powerblock and 500 kV switchyard..." NUREG 1872 also identifies an additional 31-acre borrow area that would be used as a backfill source in the event inadequate quantities were recovered from the powerblock and switchyard. Based on current estimates of suitable backfill material recovered from the borrow areas identified in

NUREG 1872 and in 75 FR 28664, additional backfill sources are required. Following an onsite investigation, additional areas were identified as containing suitable backfill material. These areas are listed in Section 1.2 of this report. A LAR has been submitted to revise the SSAR to allow borrow material to be removed from these locations and used as backfill.

1.4 REFERENCES

(SNC 2010a) Southern Nuclear Operating Company, Vogtle Electric Generating Plant Units 3 and 4 Combined License Application, Supporting Information for Environmental Report Review, March 12, 2010 (Letter Report ND-10-0526)

(SNC 2010b) Southern Nuclear Operating Company, Vogtle Electric Generating Plant Units 3 and 4 Combined License Application, Post New and Significant Audit Supporting Information, May 10, 2010 (Letter Report ND-10-0923)

2.0 AFFECTED ENVIRONMENT

Chapter 2 of NUREG 1872 described the VEGP site, and the vicinity or the region, as appropriate, for each resource that could be affected by the construction or operation of two new nuclear units at the VEGP site. LAR activities will be limited to the following areas of the VEGP site:

- North Stockpile Area (NOI 3, west)
- Borrow Area 1C (NOI 25)
- Railroad Borrow Area (NOI 28)

2.1 SITE LOCATION

VEGP ESP FEIS Chapter 2, Section 2.1 described the VEGP site and the proposed locations of the new reactors.

2.2 LAND

VEGP ESP FEIS Chapter 2, Section 2.2 described the habitat types on the VEGP site and the proposed transmission line corridor, the land uses in the vicinity and region, access to the site, and nearby communities.

All the areas evaluated in this ER and described in Section 1.2 are within the VEGP exclusion area boundary.

2.3 METEOROLOGY AND AIR QUALITY

VEGP ESP FEIS Chapter 2, Section 2.3 described the climate and air quality of the VEGP site and region and the existing meteorological monitoring program at the VEGP site.

2.4 GEOLOGY

VEGP ESP FEIS Chapter 2, Section 2.4 described the basic geology underlying the VEGP site and region.

2.5 RADIOLOGICAL ENVIRONMENT

VEGP ESP FEIS Chapter 2, Section 2.5 described radiological doses to the maximally exposed individual due to operation of VEGP Units 1 and 2.

2.6 WATER

VEGP ESP FEIS Chapter 2, Section 2.6 described the hydrological processes governing movement and distribution of groundwater and surface water, water use, and water quality in the vicinity of the VEGP site. Section 2.6 also described the existing VEGP hydrological monitoring program and the chemical monitoring required under the existing VEGP National Pollutant Discharge Elimination System (NPDES) permit.

2.7 ECOLOGY

VEGP ESP FEIS Chapter 2, Section 2.7 described the terrestrial and aquatic ecology in the vicinity of the VEGP site.

Each of the NOIs were evaluated for habitats suitable for threatened or endangered species in 2005, as part of a site-wide screening process conducted while preparing the ESP ER, and no suitable habitats were identified. In October 2006, the Georgia Department of Natural Resources (GDNR) updated its list of protected species, including the listing as threatened of the Southeastern pocket gopher (*Geomys pinetis*). This species was not targeted in the 2005 threatened and endangered species surveys of the site **(NUREG 1872)**. During recent surveys of NOI 28, mounds indicative of the Southeastern pocket gopher were identified. Also observed during the surveys were several individual specimens of the Sandhills milkvetch (*Astragulus michauxii)*, also a Georgia listed threatened species. **(SNC 2010b)**

In 2007 GPC, SNC and GDNR entered into the Cooperative Safe Harbor Agreement for Red-Cockaded Woodpeckers (*Piocides borealis*) and Their Habitat on Private Land in Georgia **(SNC 2010b)**. The purpose of the safe harbor agreement is to maintain and enhance habitat for the red-cockaded woodpecker on lands owned by the cooperator. Approximately 940 acres on the VEGP site are included in the agreement. Nineteen acres of NOI 3 and 18 acres of NOI 25 are included in the safe harbor agreement. No red-cockaded woodpeckers have been observed on the VEGP site.

No wetlands are present in any of the three areas described in Section 1.2 of this ER.

2.8 SOCIOECONOMICS

VEGP ESP FEIS Chapter 2, Section 2.8 described the socioeconomics of the region of interest for the VEGP site.

2.9 HISTORIC AND CULTURAL RESOURCES

VEGP ESP FEIS Chapter 2, Section 2.9 described the historic background and cultural resources known on the site.

The entire VEGP site was evaluated for the potential for cultural resources as part of a site-wide screening process to prepare the ESP ER and the results are included in NUREG 1872. No cultural resources eligible for inclusion on the National Register of Historic Places were identified within any of the areas described in Section 1.2 of this ER.

2.10 ENVIRONMENTAL JUSTICE

VEGP ESP FEIS Chapter 2, Section 2.10 described the minority and low-income populations within the region around VEGP.

2.11 RELATED FEDERAL PROJECTS AND CONSULTATION

VEGP ESP FEIS Chapter 2, Section 2.11 described Federal activities in the region surrounding VEGP.

2.12 REFERENCES

(NUREG 1872) U.S. Nuclear Regulatory Commission, 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.

(SNC 2010a) Southern Nuclear Operating Company, Vogtle Electric Generating Plant Units 3 and 4 Combined License Application, Supporting Information for Environmental Report Review, March 12, 2010 (Letter Report ND-10-0526)

(SNC 2010b) Southern Nuclear Operating Company, Vogtle Electric Generating Plant Units 3 and 4 Combined License Application, Post New and Significant Audit Supporting Information, May 10, 2010 (Letter Report ND-10-0923)

3.0 SITE LAYOUT AND PLANT DESCRIPTION

This chapter is not relevant to the LAR environmental report.

4.0 ENVIRONMENTAL IMPACTS OF LAR ACTIVITIES

Chapter 4 describes the effects of the proposed LAR activities.

4.1 LAND-USE IMPACTS

VEGP ESP FEIS Chapter 4, Section 4.1 described the land-use effects of constructing two new units at the VEGP site. The LAR activities described in Section 1.2 of this environmental report are consistent with the evaluations described in NUREG 1872. The environmental impacts associated with the three areas, were included in the new and significant evaluations provided to the NRC in support of the COL draft EIS development **(SNC 2010a and SNC 2010b)**. Additional details regarding the new and significant evaluation for land use impacts in the areas follow:

NOI 3, west – NOI 3 was identified in NUREG 1872 for use as a strip pile. Suitable borrow has been identified in and adjacent to this area and NOI 3 was increased in size by approximately 19 acres (NOI 3, west). NOI 3, west, is part of a managed timber stand of longleaf pine (*Pinus palustris*) planted in 1999 and is included in the red-cockaded woodpecker Safe Harbor Agreement. However, because the impacts will be temporary and the area will be replanted with pine, its use as a source of backfill will not necessitate that it be removed from the agreement. SNC has filed a Notice of Intent for coverage under the NPDES construction storm water General Permit with the Georgia Environmental Protection Division (GEPD) and committed to using best management practices, such as silt fences, to minimize erosion. Impacts to this area are temporary and no adverse environmental impacts are expected. **(SNC 2010a)**

NOI 25 – Use of NOI 25 as a borrow source will impact approximately 154 acres. Of those, 43 acres are a natural longleaf pine stand maintained since 1956, 18 acres are planted longleaf pine established in 2000, and the remaining area (about 79 acres) is planted with loblolly pine (*P. taeda*) established in 1996. The 18 acres of planted longleaf are included in the red-cockaded woodpecker safe harbor agreement. However, because the impacts would be temporary and the area will be replanted with pine, its use as a source of backfill will not necessitate that it be removed from the agreement. No other areas within NOI 25 were included in the red-cockaded woodpecker safe harbor agreement. With the exception of the natural longleaf pine stand, NOI 25 is an old borrow pit previously disturbed during construction of Vogtle Units 1 and 2. SNC has filed a Notice of Intent for coverage under the NPDES construction storm water General Permit with GEPD and is committed to using best management practices, such as silt fences, to minimize erosion. Impacts to this area are temporary and no adverse environmental impacts are expected. **(SNC 2010a and SNC 2010b)**

NOI 28 - Use of NOI 28 as a borrow source will impact approximately 94 acres. NOI 28 was disturbed during the construction of Units 1 and 2, and was planted in longleaf pine during the 1990s. The area was not included in the red-cockaded woodpecker safe harbor agreement. SNC has filed a Notice of Intent for coverage under the NPDES construction storm water General Permit with the GEPD and is committed to using best management practices, such as silt fences, to minimize erosion. Impacts to this area are temporary and no adverse environmental impacts are expected. **(SNC 2010a and SNC 2010b)**

NUREG 1872 concluded that impacts to land use from all construction activities would be SMALL. Impacts to land use from the additional construction activities in these three areas would be SMALL and temporary. During construction, the site will be stabilized in accordance with the construction storm water General Permit issued by GEPD. After construction is completed, SNC would re-grade the borrow areas and replant with species, including longleaf pine, consistent with the VEGP Land Management Plan. The Vogtle site is designated as a Certified Wildlife Habitat by the Wildlife Habitat Council in 1994. The Land Management Plan serves as the main vehicle for recertification. The plan contains information on timber and vegetation management and will be used to support replanting of areas disturbed during VEGP Units 3 and 4 construction. A brief narrative of the VEGP Land Management Plan was included in SNC letter ND-10-0923 **(SNC 2010b, Attachment F)**.

4.2 METEOROLOGICAL AND AIR-QUALITY IMPACTS

VEGP ESP FEIS Chapter 4, Section 4.2 described the effects of constructing two new units at VEGP on the climate and air quality of the VEGP site and region. Air quality impacts associated with construction activities consist of heavy equipment exhaust, and fugitive dust emissions. As stated in NUREG 1872, construction activities would vary based on the level and duration of a specific activity, but the overall impact is expected to be temporary and limited in magnitude. The proposed LAR activities are consistent with those evaluated in NUREG 1872 and will not change the conclusion that impacts from construction activities on air quality at the VEGP site would be SMALL.

4.3 WATER-RELATED IMPACTS

VEGP ESP FEIS Chapter 4, Section 4.3 described the effects of constructing two new nuclear units at the VEGP site including the water usage by construction activities on hydrological processes and potential impacts to water resources and water quality. NUREG 1872 noted that the effects would be similar to those associated with any large construction project, and would be SMALL and would not require additional mitigation beyond what SNC proposed. These areas are currently covered under an NPDES permit for construction storm water. Excavations for backfill materials would not intersect the water table, and the excavations would not require dewatering. The proposed LAR activities are consistent with those evaluated in the ESP FEIS and will not change the conclusion that water related impacts from construction activities at the VEGP site would be SMALL.

4.4 ECOLOGICAL IMPACTS

VEGP ESP FEIS Chapter 4, Section 4.4 described the effects of constructing two new nuclear units at the VEGP site on terrestrial and aquatic resources, including protected species and wildlife habitat. The NRC concluded that construction activities at the VEGP site would have SMALL effects on terrestrial and aquatic resources, and that mitigation beyond what SNC has proposed would not be warranted. The environmental impacts associated with the areas described in Section 1.2 and evaluated in this ER, were included in the new and significant evaluations provided to the NRC in support of

the COL draft SEIS development **(SNC 2010a and SNC 2010b)**. Additional details regarding ecological impacts in these areas follow:

NOI 3, west – This area was included in the ESP ER threatened and endangered species surveys and found not to contain habitat suitable for protected species. This location was included in the site-wide wetlands survey which determined that no wetlands are present **(Southern 2007d).**

NOI 25 --This area was included in the ESP ER threatened and endangered species surveys and found not to contain habitat suitable for protected species. During site reconnaissance of NOI 25 conducted in January, April and May, 2010 no federal or state listed threatened or endangered species were observed. No southeastern pocket gophers (*Geomys pinetis*), or mounds indicative of their presence, were observed at this location. This location was included in the site-wide wetlands survey and no wetlands are present.

NOI 28 - During site reconnaissance of NOI 28 conducted in February, April and May, 2010, mounds indicative of the Southeastern pocket gopher were observed in portions of the site. Also observed during the May, 2010 site reconnaissance were several specimens of the Sandhills milkvetch, a Georgia listed threatened plant species. SNC is currently working with GDNR to voluntarily relocate individuals of these two species to other locations on the VEGP property. This location was included in the site-wide wetlands survey and no wetlands are present.

Although SNC has entered into a red-cockaded woodpecker Safe Harbor management agreement with GDNR, no red-cockaded woodpecker colonies, or their foraging areas, are known to occur on VEGP property.

The proposed LAR activities are temporary and consistent with those evaluated in NUREG 1872 and will not change the conclusion that ecological impacts from construction activities at the VEGP site would be SMALL.

4.5 SOCIOECONOMIC IMPACTS

VEGP ESP FEIS Chapter 4, Section 4.5 described the effects of constructing two new nuclear units at the VEGP site on socioeconomic conditions. Construction effects on local economies would be beneficial and SMALL except in Burke County, and possibly Screven County, where the impacts could be beneficial and MODERATE. The effect on tax revenues would be beneficial and SMALL, except in Burke County where they are expected to be beneficial and MODERATE. The temporary effects of construction traffic would be MODERATE on the two-lane highways in Burke County, particularly River Road and the roadways that feed into it and SMALL elsewhere.

Aesthetic and recreational effects would be SMALL at the VEGP site. The effects on housing and public services would be SMALL. The overall effects on infrastructure and community services would be SMALL. The LAR activities are consistent with those evaluated in the ESP FEIS and will have no additional impact to socioeconomic conditions.

4.6 HISTORIC AND CULTURAL RESOURCE IMPACTS

VEGP ESP FEIS Chapter 4, Section 4.6 described the effects of constructing two new nuclear units at the VEGP site on historic and cultural resources. The NRC concluded that effects to cultural resources would be MODERATE. As part of the new and significant evaluations to support the NRC's development of the COL draft SEIS existing historical and cultural resource surveys were evaluated to determine if land disturbing activities in these three areas would result in additional impacts **(SNC 2010a)**. The LAR activities are consistent with those evaluated in NUREG 1872 and impacts associated with excavating borrow material from the areas listed in Section 1.2 will not result in additional impacts to historic and cultural resources. The conclusions reached in NUREG 1872 remain valid for the LAR activities.

4.7 ENVIRONMENTAL JUSTICE IMPACTS

VEGP ESP FEIS Chapter 4, Section 4.7 evaluated the effects of construction on the health and welfare of minority or low income populations within the region. The NRC concluded that adverse effects to these populations would be SMALL. The LAR activities are consistent with those evaluated in the ESP FEIS and will not result in additional impacts to the health and welfare of minority or low-income populations within the region.

4.8 NON-RADIOLOGICAL HEALTH IMPACTS

VEGP ESP FEIS Chapter 4, Section 4.8 evaluated the health effects of constructing two new units at VEGP on the residents in the area, the Units 1 and 2 workforce, and the construction workforce. Non-radiological effects from fugitive dust, noise, transport of materials and personnel, and occupational injuries would be SMALL, and would not warrant mitigation beyond that proposed by SNC. The LAR activities are consistent with those evaluated in the ESP FEIS and will not result in additional non-radiological effects from fugitive dust, noise, transport of materials and personnel, and occupational injuries.

4.9 RADIOLOGICAL HEALTH IMPACTS

VEGP ESP FEIS Chapter 4, Section 4.9 described the effects of radiation exposure from Units 1 and 2 on the construction workforce. Doses to the workforce would be well below NRC annual exposure limits and the effects of radiological exposure to the construction workforce would be SMALL. The LAR activities are consistent with those evaluated in the ESP FEIS and will not result in additional radiological health impacts.

4.10 MEASURES AND CONTROLS TO LIMIT ADVERSE IMPACTS DURING SITE PREPARATION ACTIVITIES AND CONSTRUCTION

VEGP ESP FEIS Chapter 4, Section 4.10 summarized the measures and controls SNC would invoke to ensure that adverse effects are minimized. SNC has acquired all the required federal, state and local permits and authorizations to perform the proposed LAR work (with the exception of NRC's issuance of the license amendment). The construction project is:

- In compliance with applicable local, state, and federal ordinances, laws and regulations intended to prevent or minimize the adverse environmental effects of construction activities on air, water, and land, workers and the public.
- In compliance with existing permits and licenses for the existing units.
- In compliance with existing SNC or GPC procedures and processes applicable to construction projects. Incorporates environmental requirements of construction permits in construction contracts.

4.11 REDRESS PLAN

VEGP ESP FEIS Chapter 4, Section 4.11 described SNC activities to redress the VEGP site should the project be cancelled after construction began. In December 2008, SNC submitted a revised site redress plan that addressed activities subject to regulation 10 CFR 50.10(d) that became effective November 8, 2007 **(SNC 2008)**. The revised site redress plan provides reasonable assurance that construction activities conducted under a Limited Work Authorization (LWA) would be remediated to return the site to an acceptable environmental condition.

In NUREG 1872, the NRC determined that LWA activities addressed in the site redress plan were bounded by the environmental effects for construction of the entire project. This assessment remains resolved under the current site redress plan. LAR activities that would be conducted for construction are consistent with the site redress plan.

4.12 SUMMARY OF CONSTRUCTION IMPACTS

VEGP ESP FEIS Chapter 4, Section 4.12 summarized the effects of constructing two new nuclear units at VEGP. All impacts resulting from the requested LAR activities are consistent with those evaluated in NUREG 18872. The impacts associated with the development of the additional borrow areas are temporary. Therefore, the activities associated with the LAR do not result in substantive environmental impacts beyond those addressed in NUREG 1872 and do not alter the conclusions of the ESP FEIS.

4.13 REFERENCES

(Southern 2007d) Southern Nuclear Operating Company, Vogtle Early Site Permit Application, Response to Requests for Additional Information on the Environmental Report; Attachment 2, Jurisdictional Water Report (prepared by Eco Sciences). Letter report from Southern Nuclear Operating Company (Birmingham, Alabama) to the U.S. Nuclear Regulatory Commission (Washington D.C.), January 31, 2007. Southern Company, Birmingham, Alabama. Accession No. ML0760460323.

(SNC 2008) Southern Nuclear Operating Company, Vogtle Early Site Permit Application, Revision 5. Southern Company, Birmingham, AL.

(SNC 2010a) Southern Nuclear Operating Company, Vogtle Electric Generating Plant Units 3 and 4 Combined License Application, Supporting Information for Environmental Report Review, March 12, 2010 (Letter Report ND-10-0526)

(SNC 2010b) Southern Nuclear Operating Company, Vogtle Electric Generating Plant Units 3 and 4 Combined License Application, Post New and Significant Audit Supporting Information, May 10, 2010 (Letter Report ND-10-0923)

5.0 STATION OPERATIONAL IMPACTS AT THE PROPOSED SITE

This chapter is not relevant to the LAR environmental report.

6.0 FUEL CYCLE, TRANSPORTATION, AND DECOMMISSIONING

This chapter is not relevant to the LAR environmental report.

7.0 CUMULATIVE IMPACTS

VEGP ESP FEIS Chapter 7 evaluated the effects of the proposed action, the construction and operation of two new nuclear units at the VEGP site, combined with other past, present, and reasonably foreseeable future actions in the vicinity to determine the magnitude of the cumulative impacts. The impacts associated with the development of the additional borrow areas are temporary and of a short duration. Therefore, the LAR activities do not result in substantive impacts beyond those evaluated in NUREG 1872 and the conclusions remain the same.

8.0 NEED FOR POWER

This chapter is not relevant to the LAR environmental report.

9.0 ENVIRONMENTAL IMPACTS OF ALTERNATIVES

This chapter is not relevant to the LAR environmental report.

10.0 COMPARISON OF IMPACTS OF THE PROPOSED ACTION AND THE ALTERNATIVE SITES

This chapter is not relevant to the LAR environmental report.

11.0 CONCLUSIONS AND RECOMMENDATIONS

Chapter 11 summarizes the conclusions and recommendations made throughout the ESP FEIS.

11.1 IMPACTS OF THE PROPOSED ACTION

VEGP ESP FEIS Chapter 11, Section 11.1 summarized the potential cumulative impacts from construction and operation of Units 3 and 4 at the VEGP site with past, present, and reasonably foreseeable future actions. The impacts associated with the development of the additional borrow areas are temporary and of a short duration. Therefore, the impacts associated with the LAR activities described in Section 1.2 and discussed in Chapter 4 of this environmental report are consistent with the analysis and conclusions presented in NUREG 1872. The NRC determined that for each impact area, the cumulative impacts would be SMALL and mitigation would not be warranted. The impacts associated with the excavation of backfill material from these areas do not differ substantively from the construction activities described and evaluated in NUREG 1872.

11.2 UNAVOIDABLE ADVERSE ENVIRONMENTAL IMPACTS

VEGP ESP FEIS Chapter 11, Section 11.2 identified the unavoidable adverse impacts from construction and operation of Units 3 and 4 at the VEGP site (summarized in ESP FEIS Tables 11-1 for construction and 11-2 for operations).

The VEGP ESP FEIS stated that unavoidable adverse environmental impacts due to the construction activities would take place at the VEGP site and would not result in any significant adverse impacts that could not be redressed. The impacts associated with the proposed LAR activities described in Section 1.2 and analyzed in Chapter 4 of this environmental report are consistent with the analysis and conclusions in NUREG 1872.

11.3 ALTERNATIVES TO THE PROPOSED ACTION

No Action Alternative: The no action alternative would not meet SNC's basic project purpose, and is therefore not a practicable alternative. Under this alternative, quantities of material sufficient enough to complete backfill of the VEGP Unit 3 and 4 powerblock excavation would not be obtained. This alternative would avoid the minimal environmental impacts that would result from the proposed LAR.

Offsite Borrow Sources Alternative: If sufficient quantities of suitable backfill material is not acquired from additional onsite sources, SNC would be required to obtain the material from offsite borrow sources. Because the quantity of backfill needed remains unchanged regardless of the source from which it is obtained, the land area required to produce the material from an offsite source(s) would be comparable to that of the onsite sources. Additionally, once the material has been extracted, it would have to be transported to the VEGP Unit 3 and 4 site. In letters ND-10-0526, "Supporting Information for Environmental Report Review," dated March 12, 2010 and ND-10-0923, "Post New and Significant Audit Supporting Information," dated May 10, 2010, SNC provided the environmental evaluations for two offsite borrow delivery options, truck and

rail, respectively. Due to the additional impacts associated with transporting material to the VEGP site, the use of offsite borrow sources is not a preferred alternative. **(SNC 2010a and SNC 2010b)**

11.4 RELATIONSHIP BETWEEN SHORT-TERM USES AND LONG-TERM PRODUCTIVITY OF THE HUMAN ENVIRONMENT

This section is not relevant to the LAR environmental report.

11.5 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

VEGP ESP FEIS Chapter 11, Section 11.5 identified irreversible and irretrievable commitments of resources due to the construction and operation of Units 3 and 4 at the VEGP site. Resources that would be committed as part of the LAR activities described in Section 1.2 are consistent with the analysis and conclusions in NUREG 1872.

11.6 BENEFIT-COST BALANCE

VEGP ESP FEIS Chapter 11, Section 11.6 identified the benefits and costs of constructing and operating two new nuclear units on the VEGP site.

Benefits and costs that would occur as part of the LAR activities described in Section 1.2 are small in comparison to the benefits and costs evaluated in the NUREG 1872 analysis and conclusions. Not granting the proposed LAR has the potential to impact construction schedule and would require the need for offsite borrow sources, both potentially resulting in impacts to cost.

11.7 STAFF CONCLUSIONS AND RECOMMENDATIONS

The conclusions and recommendations for the environmental impacts associated with the proposed LAR to be completed by NRC staff.

11.8 REFERENCES

(SNC 2010a) Southern Nuclear Operating Company, Vogtle Electric Generating Plant Units 3 and 4 Combined License Application, Supporting Information for Environmental Report Review, March 12, 2010 (Letter Report ND-10-0526)

(SNC 2010b) Southern Nuclear Operating Company, Vogtle Electric Generating Plant Units 3 and 4 Combined License Application, Post New and Significant Audit Supporting Information, May 10, 2010 (Letter Report ND-10-0923)