

## PMVogtleCOLPEm Resource

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**Subject:** Southern Nuclear Submittal Letter ND-10-0227, Environmental Report in Support of Revision 1 to VEGP Units 3 & 4 COL Application Part 6  
**Attachments:** ND-10-0227 LWA\_B Env Report.pdf

On Friday, February 5, 2010, Southern Nuclear submitted letter ND-10-0227 (attached) to the NRC Document Control Desk. This letter provides an Environmental Report in support of Revision 1 to VEGP Units 3 and 4 COL Application Part 6, LWA Request.

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ND-10-0227  
10 CFR 51.49

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

Southern Nuclear Operating Company  
Vogtle Electric Generating Plant Units 3 and 4 Combined License Application  
Environmental Report to Support Revision 1 to Part 6, LWA Request

Ladies and Gentlemen:

On March 28, 2008, Southern Nuclear Operating Company (SNC) submitted an application to the U.S. Nuclear Regulatory Commission (NRC) requesting combined licenses (COLs) for two AP1000 advanced passive pressurized water reactors designated Vogtle Electric Generating Plant (VEGP) Units 3 and 4. On October 2, 2009, SNC submitted Revision 1 to COL Application Part 6, "LWA [Limited Work Authorization] Request," to support additional work scope under the LWA provisions of 10 CFR 52. This request is to allow a second LWA under the COL in addition to the LWA issued by the NRC with the Early Site Permit (ESP) in August 2009. In the October 2, 2009 LWA Request Submittal, SNC referenced information in the ESP Environmental Report (ER) to satisfy environmental requirements of the LWA process based on discussions with the NRC staff. Subsequently, the NRC staff requested SNC to summarize the information contained in the ESP ER in an Environmental Report – Limited Work Authorization Stage to support the LWA process. This ER is a separate document summarizing the environmental impacts evaluated in the ESP and COL ERs. In accordance with 10 CFR 51.49(a), please find enclosed the Environmental Report – Limited Work Authorization Stage to support Revision 1 to COL Application Part 6. This environmental report will be added as an appendix to COL Application Part 6 in a future revision.

Please note that, consistent with common licensing practice, most of the ER text is written in the present tense, active voice, including discussions of facilities and programs not yet built or implemented. It should be understood, however, that statements regarding facilities (e.g., structures, systems and components) and pre-construction, pre-operational, and operational activities (e.g., procedures and programs) typically address activities that have not yet been performed and will not be performed until it is reasonable and appropriate to do so.

If you have any questions regarding this report, please contact Mr. Wes Sparkman at (205) 992-5061 or Mr. Dale Fulton at (205) 992-7536.

Mr. Charles 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

Sworn to and subscribed before me this 5<sup>th</sup> day of February, 2010

Notary Public: Dana M. Williams

My commission expires: 12/29/2010

CRP/BJS/dmw

Enclosure: Vogtle Electric Generating Plant Units 3 and 4 COL Application LWA Request  
Environmental Report

cc: Southern Nuclear Operating Company

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**Southern Nuclear Operating Company**

**ND-10-0227**

**Enclosure**

**Vogtle Electric Generating Plant Units 3 and 4**

**COL Application**

**LWA Request**

**Environmental Report**

**NOTE:** The enclosed Environment Report is a stand-alone document that is 23 pages in length.



**Vogtle Electric Generating Plant, Units 3 & 4**

**Applicant's Environmental Report — Limited Work  
Authorization Stage**

**to support**

**COL Application**

**Part 6 - LWA Request, Rev 1**

**Vogtle Electric Generating Plant, Units 3 & 4**  
**Limited Work Authorization**  
**Environmental Report**

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**ACRONYMS**

<b>ACRONYM</b>	<b>DEFINITION</b>
CAA	[Federal] Clean Air Act
CFR	Code of Federal Regulations
COL	Combined Operating License
COLA	Construction and Operating License Application
CWA	[Federal] Clean Water Act
DCD	Design Control Document
EIS	Environmental Impact Statement
EPD	[Georgia] Environmental Protection Division
ER	Environmental Report
ESP	Early Site Permit
GDNR	Georgia Department of Natural Resources
GPC	Georgia Power Company
ITAAC	Inspections, Tests, Analyses, and Acceptance Criteria
LWA	Limited Work Authorization
mrem	millirem
NI	nuclear island
NPDES	National Pollutant Discharge Elimination System
NRC	[U.S.] Nuclear Regulatory Commission
SNC	Southern Nuclear Operating Company
VEGP	Vogtle Electric Generating Plant

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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 NRC for an Early Site Permit (ESP) for the VEGP site and for a limited work authorization (LWA). The NRC issued the ESP and limited work authorization on August 26, 2009. SNC, on behalf of the co-owners, submitted, on March 31, 2008, an application for Combined Operating Licenses (COLs) to construct and operate two Westinghouse AP1000 reactors at the VEGP site. On October 2, 2009 SNC submitted Revision 1 of the COL Application Part 6 to include an application for a second LWA.

NRC regulations at 10 CFR 51.49(a) require that an applicant for an LWA submit with its application a separate document entitled "Applicant's Environmental Report - Limited Work Authorization Stage." This document is that environmental report.

### **1.2 PROPOSED LIMITED WORK AUTHORIZATION ACTIVITIES**

As described in Revision 1 COL Application Part 6, the requested LWA consists of the following construction activities:

- Installation of reinforcing steel, sumps and drain lines, and other embedded items in the nuclear island (NI) foundation base slab.

The rebar and other embedded items will be installed above the mudmats and inside the mechanically stabilized earth wall that will serve as the permanent formwork for the NI foundation base slab. The design of the NI's foundation base slab reinforcing and the applicable codes and standards are described in the Westinghouse AP1000 Design Control Document (DCD) Tier 2, Section 3.8, "Design of Category I Structures." No additional Inspections, Tests, Analyses and Acceptance Criteria (ITAAC) are planned for the rebar or embedded items.

- Placement of concrete for the NI foundation base slab.

Design of the NI foundation base slab concrete and the applicable codes and standards are described in the Westinghouse AP1000 DCD Tier 2, Section 3.8, "Design of Category I Structures." No additional ITAAC are planned for the concrete placement.

In addition to the LWA requested activities discussed above, the following ancillary activities will be completed to support the LWA activities and were considered in this environmental report:

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- Installation of construction laydown areas to be used to store bulk materials and to fabricate portions of the requested LWA items, such as assembling reinforcing steel sections to be placed in the base slab formwork prior to the NI concrete pours.
- Construction of two concrete batch plants.
- Dedicated workforce.
- Transportation of material to the site.

### 1.3 THE NEED FOR THE PROPOSED ACTIVITIES

SNC requested certain activities be allowed under an LWA in its application for an ESP. That LWA was received on August 26, 2009. SNC is requesting a second LWA as part of the COL application in accordance with 10 CFR 50.10(d) "Request for limited work authorization." SNC was unable to request this additional scope as part of the ESP LWA because the basemat design had not been finalized at that time. This LWA request is to support the project schedule by assuring these activities occur independent of the COL issuance schedule and contribute to maintaining a margin in the construction schedule that ensures the operation need dates will be met.

### 1.4 COMPLIANCE AND CONSULTATIONS

Some of the activities requested under the second LWA require environmental permits. Table 1.4-1 provides the permits and authorizations required to perform the activities requested by the LWA, and the status of those permits and authorizations.

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**Table 1.4-1 Permits and Authorizations Required for Limited Work Authorization Activities**

Agency	Authority	Requirement	License/ Permit No.	Expiration Date	Activity Covered	Status
GDNR	GA Groundwater Use Act (O.C.G.A. 12-5-90 et seq.) GA Rules and Regulation 391-3-2-.09	Permit to withdraw groundwater	017-0006	03/13/2012	Dewater for foundation if needed for no more than 60 days	Received
GDNR	Federal Clean Air Act (CAA) GA Air Quality Act (O.C.G.A. 12-9-1 et seq.) GA Rules and Regulation 391-3-1	Part 70 Air Quality Construction Permit	1629-033-0039-S-01-1		Construction of air emission sources	Received
GDNR	GA Erosion and Sedimentation Act (O.C.G.A. 12-7-1 et seq.) GA Rules and Regulation 391-3-7	Land Disturbing Activity Permit	GAR 100001	07/31/2013	Permission to conduct land disturbing activities of one acre or larger, or within 200 feet of the bank of any state waters. For site (and rail corridor) upgrades.	SNC has developed Erosion, Sedimentation, and Pollution Control Plans and submitted Notices of Intent to GA Environmental Protection Division for coverage under GAR 100001
GDNR	CWA, GA Water Quality Control Act (O.C.G.A. 12-5-31 et seq.) GA Rules and Regulation 391-3-6	Permit to discharge process waste water	GA0039276 (pending EPD issuance)	5 years from date of issuance	Ready-mix concrete batch plant process waste water discharges	EPS has issued a draft permit for public comment. Issuance of final permit expected in March, 2010
GDNR	CWA, GA Water Quality Control Act (O.C.G.A. 12-5-31 et seq.) GA Rules and Regulation 391-3-6	Industrial Storm Water Permit	GAR 000000	07/31/2011	Permit to discharge storm water associated with industrial activity	SNC is preparing to submit to EPD a storm water pollution prevention plan and Notice of Intent for coverage under GAR 000000



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## **1.5 REPORT CONTENTS**

As an aid to the reader, this environmental report has been formatted consistent with the COLA environmental report, which was organized to reflect the organization of the ESP EIS, and includes all the topics addressed in the EIS. Consistent formatting is one means to assure the reader that SNC considered all potential impacts of the proposed activity, even though the activity would have no impact on many of the site's resources. If the activity is not applicable to a particular topic, that is noted in this environmental report. Therefore, the ER is organized as follows. Chapter 1 describes the activities that would be conducted under the LWA and the status of regulatory compliance activities. Chapter 2 describes the environment that would be affected by construction activities, including LWA activities. Chapter 4 examines the environmental impacts of LWA activities. Chapter 7 evaluates the cumulative impacts of the LWA activity and other construction activities. Chapter 11 provides conclusions and recommendations. Chapters 3, 5, 6, 8, 9, and 10 are not applicable to an LWA environmental report.

## **1.6 ENVIRONMENTAL REPORT METHODOLOGY**

### **1.6.1 DEMONSTRATION THAT ER CONFORMS WITH REGULATORY REQUIREMENTS**

10 CFR Section 51.49(a) states that LWAs submitted as part of a complete combined license application, must include an environmental report that includes the following:

- (1) A description of the activities proposed to be conducted under the limited work authorization;
- (2) A statement of the need for the activities; and
- (3) A description of the environmental impacts that may reasonably be expected to result from the activities, the mitigation measures that the applicant proposes to implement to achieve the level of environmental impacts described, and a discussion of the reasons for rejecting mitigation measures that could be employed by the applicant to further reduce environmental impacts.

### **1.6.2 NEW AND SIGNIFICANT REVIEW**

As part of preparing the environmental report for the COL application, SNC reviewed the conclusions in the ESP EIS to determine if there was any new and significant information that had the potential to change the NRC's conclusions presented in the ESP EIS, as required by 10 CFR 51.50(c)(1)(iii). The methodology for that review is described in the COL application's environmental report (SNC 2009). SNC found no new and significant information regarding the impacts of construction. Because the activities covered in the LWA request were considered in the original analysis of construction impacts, and in the new and significant review, SNC has determined that there is no new and significant information regarding the LWA activities.

## **1.7 REFERENCES**

SNC 2009. Southern Nuclear Operating Company. 2009. Vogtle Electric Generating Plant, Units 3 & 4 COL Application. Rev. 1, Birmingham, AL. September.

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## **2.0     AFFECTED ENVIRONMENT**

Chapter 2 of the VEGP ESP EIS described the VEGP site, the vicinity or the region, as appropriate, for each environmental topic that could be affected by the construction or operation of two new nuclear units at the VEGP site. LWA activities will be limited to the area of the NI and construction support facilities.

### **2.1     SITE LOCATION**

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

### **2.2     LAND**

VEGP ESP EIS 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.

### **2.3     METEOROLOGY AND AIR QUALITY**

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

### **2.5     RADIOLOGICAL ENVIRONMENT**

VEGP ESP EIS Chapter 2, Section 2.5 described radiological doses to the maximally exposed individual due to operation of VEGP Units 1 and 2 as <0.1 mrem per year for the years 2001 – 2004.

### **2.6     WATER**

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

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**2.8 SOCIOECONOMICS**

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

**2.10 ENVIRONMENTAL JUSTICE**

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

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**3.0 SITE LAYOUT AND PLANT DESCRIPTION**

This chapter is not relevant to the LWA environmental report.

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#### **4.0 ENVIRONMENTAL IMPACTS OF LWA ACTIVITIES**

Chapter 4 describes the effects of the proposed LWA activities.

##### **4.1 LAND-USE IMPACTS**

VEGP ESP EIS Chapter 4, Section 4.1 described the land-use effects of constructing two new units at the VEGP site. The LWA activities described in Section 1.2 of this environmental report were considered in the ESP analysis and conclusions and would incur no additional impacts beyond those presented in the ESP EIS.

Land use impacts associated with the proposed LWA activities would be incurred by establishing laydown areas and concrete batch plants. As described in the Vogtle Units 3 & 4 Revised Disturbance Table (SNC [2009e] in Letter ND-09-1673, dated October 15, 2009) submitted by SNC as part of the COL application's new and significant review process, warehouse, office and laydown areas would occupy approximately 95 acres of previously disturbed land that was planted in loblolly and longleaf pine. The ESP analysis concluded that impacts to land use from all construction activities would be SMALL.

##### **4.2 METEOROLOGICAL AND AIR-QUALITY IMPACTS**

VEGP ESP EIS 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 the proposed LWA activities would be incurred by heavy equipment exhaust, fugitive dust at the construction site, and emissions from the batch plants. These impacts were considered in the ESP analysis and conclusions; the LWA activities would incur no additional impacts beyond those already considered. SNC has received air permits for the construction equipment requiring them. Equipment with air emission permits that would be used to conduct the LWA activities are the concrete batch plants and stand-by generators (see Table 1.4-1). Construction effects would be temporary and SMALL and would not require additional mitigation beyond what SNC proposed.

##### **4.3 WATER-RELATED IMPACTS**

VEGP ESP EIS 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, water resources, and water quality, and 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. The batch plants will use groundwater to prepare concrete for a base mat at a rate that is bounded by the rates evaluated in the ESP EIS. This groundwater usage was considered in the ESP analysis and conclusions; the LWA activities would incur no additional impacts beyond those presented in the ESP EIS.

The LWA activities will have no impact on surface water because any discharges will be in have not compliance with established NPDES permit limits.

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#### **4.4 ECOLOGICAL IMPACTS**

VEGP ESP EIS Chapter 4, Section 4.4 described the effects of constructing two new nuclear units at the VEGP site on terrestrial and aquatic ecology, including protected species and wildlife habitat. The laydown areas and batch plants will be constructed in previously disturbed areas. 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 location of the batch plants and laydown areas was considered in the ESP EIS analysis and conclusions; the LWA activities would incur no additional impacts beyond those presented in the ESP EIS.

#### **4.5 SOCIOECONOMIC IMPACTS**

VEGP ESP EIS 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 LWA activities were considered in the ESP EIS analysis and conclusions and would incur no additional impacts beyond those presented in the ESP EIS.

#### **4.6 HISTORIC AND CULTURAL RESOURCE IMPACTS**

VEGP ESP EIS 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. All LWA activities will occur within the footprint of the new units, or on previously disturbed land. LWA activities will have no impact on historic or cultural resources.

#### **4.7 ENVIRONMENTAL JUSTICE IMPACTS**

VEGP ESP EIS 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. LWA activities will have no impact on environmental justice.

#### **4.8 NON-RADIOLOGICAL HEALTH IMPACTS**

VEGP ESP EIS Chapter 4, Section 4.8 evaluated the health effects of constructing two new units at the VEGP site 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 LWA activities were considered in the ESP EIS analysis and conclusions and would incur no additional impacts beyond those presented in the ESP EIS.

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#### 4.9 RADIOLOGICAL HEALTH IMPACTS

VEGP ESP EIS 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 LWA activities will have no impact on radiological health, and the dose to construction workers performing LWA activities were considered in the ESP EIS analysis and conclusions.

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

VEGP ESP EIS Chapter 4, Section 4.10 summarized the measures and controls SNC would invoke to ensure that adverse effects are minimized. SNC has acquired or is in the process of acquiring all the required federal, state and local permits and authorizations to perform the LWA work (with the exception of the NRC's issuance of the LWA). 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.

A list of applicable permits is included in Table 1.4-1.

#### 4.11 REDRESS PLAN

VEGP ESP EIS 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 an LWA would be remediated to return the site to an acceptable environmental condition.

In the EIS, the NRC determined that LWA activities addressed in the site redress plan were bounded by environmental effects for construction of the entire project. This assessment remains resolved under the current site redress plan. Activities that would be conducted under this LWA are considered in the site redress plan.

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**4.12 SUMMARY OF CONSTRUCTION IMPACTS**

VEGP ESP EIS Chapter 4, Section 4.12 summarized the effects of constructing two new nuclear units at the VEGP site. All impacts due to the requested LWA activities were considered in the analysis of the impacts of construction.

**4.13 REFERENCES**

SNC 2008. Southern Nuclear Operating Company, 2008. Vogtle Early Site Permit Application: Environmental Report, Rev. 5. Birmingham, AL. December.



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**5.0 STATION OPERATIONAL IMPACTS AT THE PROPOSED SITE**

This chapter is not relevant to the LWA environmental report.

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**6.0 FUEL CYCLE, TRANSPORTATION, AND DECOMMISSIONING**

This chapter is not relevant to the LWA environmental report.

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**7.0 CUMULATIVE IMPACTS**

VEGP ESP EIS 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 LWA activities contribution to cumulative impacts was considered in the ESP EIS.

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**8.0     NEED FOR POWER**

This chapter is not relevant to the LWA environmental report.

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**9.0 ENVIRONMENTAL IMPACTS OF ALTERNATIVES**

This chapter is not relevant to the LWA environmental report.

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

This chapter is not relevant to the LWA environmental report.

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**11.0 CONCLUSIONS AND RECOMMENDATIONS**

VEGP ESP EIS Chapter 11 provides the conclusions and recommendations associated with the proposed action. The LWA activities described in this report do not alter those conclusions and recommendations.