

## V.C. Summer Nuclear Station Units 2 & 3

### **Quarterly Report to the South Carolina Office of Regulatory Staff Submitted by South Carolina Electric & Gas Company Pursuant to Public Service Commission Order No. 2009-104(A)**

**Quarter Ending December 31, 2016**

#### **I. Introduction and Summary**

##### **A. Introduction**

This quarterly report concerning the status of the construction of V.C. Summer Nuclear Station (VCSNS) Units 2 and 3 (the Units) is submitted by South Carolina Electric & Gas Company (SCE&G or the Company) to the Public Service Commission of South Carolina (Commission) and the South Carolina Office of Regulatory Staff (ORS). It is submitted in satisfaction of the requirements of S.C. Code Ann. § 58-33-277 (2015) and the terms of Commission Order No. 2009-104(A). All amounts set forth in this Quarterly Report are based on SCE&G's existing 55% interest, except where expressly stated to be based upon 100% of the cost.

The construction and capital cost schedules and forecasts presented in this report are compared against those approved in Order No. 2016-794 dated November 28, 2016.

##### **B. Structure of Report and Appendices**

The current reporting period is the quarter ending December 31, 2016. Unless otherwise stated, the information set forth in this report is current as of December 31, 2016. The report is divided into the following sections:

Section I: Introduction and Summary;

Section II: Progress of Construction of the Units;

Section III: Anticipated Construction Schedules;

Section IV: Schedules of the Capital Costs Incurred Including Updates to the Information Required by S.C. Code Ann. § 58-33-270(B)(6) (the Inflation Indices);

Section V: Updated Schedule of Anticipated Capital Costs; and

Section VI: Conclusion.

**Appendices 1, 2, and 4** to this report contain detailed financial, milestone and other

information updating the schedules approved by the Commission in Order No. 2016-794. For reference purposes, **Appendix 3** provides a copy of the capital cost schedule for the project as approved in Order No. 2016-794. **Appendix 5** provides a list of the License Amendment Requests (LARs) filed by SCE&G with the Nuclear Regulatory Commission (NRC).

Attached to the end of the report is a glossary of acronyms and defined terms used.

## **1. Construction Schedule and Milestones**

**Milestones.** Order No. 2016-794 established that the substantial completion dates of the two Units are the only (BLRA) milestones left to complete. Recent schedule information from Westinghouse Electric Company, LLC (WEC) indicates that the substantial completion dates of the Units remain within the 18-month contingency provided in the Order.

**Construction Costs and Cost Forecasts.** As of December 31, 2016, the company has spent approximately \$100 million less than the capital cost schedule approved in Order No. 2016-794. These cost forecasts include the cost increases agreed to in the 2015 Amendment to the Engineering, Procurement and Construction Agreement (EPC) Contract as well as the exercise of the Fixed Price Option that the Amendment grants to SCE&G and its partner in the project, Santee Cooper.

**Cost Comparisons.** In Order No. 2009-104(A), the Commission recognized that forecasts of Allowance for Funds Used During Construction (AFUDC) and escalation would vary over the course of the project and required those forecasts to be updated with each quarterly report. Escalation indices were issued in November 2016 for the period of January through June 2016 and have been used in forecasting the construction costs for the project that are presented here.

**Chart A** below compares the current capital cost forecast to the forecast presented in the last quarterly report. This chart shows an increase in Gross Construction Costs of \$4.6 million over the life of the project. With each quarterly update, a quarter that had been subject to the five-year escalation rate becomes subject to the one-year rate. The figures reported on Chart A also include the effect of calculating escalation on an updated cash flow projection for the project.

**Chart A: Reconciliation of Capital Cost (\$000)**

<b>Forecast Item</b>	<b><u>Projected @ 12/31/16</u> <u>(Five-Year Average Escalation Rates)</u></b>	<b><u>Projected @ 09/30/16</u> <u>(Five-Year Average Escalation Rates)</u></b>	<b>Change</b>
Gross Construction	\$7,678,324	\$7,673,698	\$4,626
Less: AFUDC	\$343,045	\$340,234	\$2,811
Total Project Cash Flow	\$7,335,279	\$7,333,465	\$1,814
Less: Escalation	\$530,528	\$528,714	\$1,814
<b>Capital Cost, 2007 Dollars</b>	<b>\$6,804,751</b>	<b>\$6,804,751</b>	<b>\$0</b>

**Chart B** compares the current capital cost forecast to the forecast on which the Commission relied in adopting Order No. 2016-794. The cost of the plant in future dollars has increased by approximately \$20 million since Order No. 2016-794 was issued.

**Chart B: Reconciliation of Capital Cost (\$000)**

<b><u>Forecast Item</u></b>	<b><u>Projected @ 12/31/2016 (Five Year Average Escalation Rates):</u></b>	<b><u>As Forecasted and Approved In Order No. 2016-794</u></b>	<b><u>Change</u></b>
Gross Construction	\$7,678,324	\$7,658,210	\$20,114
Less: AFUDC	\$343,045	\$321,322	\$21,723
Total Project Cash Flow	\$7,335,279	\$7,336,888	(\$1,609)
Less: Escalation	\$530,528	\$532,137	(\$1,609)
<b>Capital Cost, 2007 Dollars</b>	<b>\$6,804,751</b>	<b>\$6,804,751</b>	<b>\$0</b>

**Chart C** below shows the current forecast of the cost of the Units compared to the cost forecasts underlying the initial BLRA order, which was issued by the Commission in 2009, and the update orders that the Commission issued subsequently. The decline in capital cost forecasts in 2007 dollars between Order No. 2010-12 and 2011-345 reflects the removal of Owner’s contingency amounts from the forecasts as required by the opinion of

the Supreme Court of South Carolina in *South Carolina Energy Users Comm. v. South Carolina Pub. Serv. Comm'n*, 388 S.C. 486, 697 S.E.2d 587 (2010). This chart shows that cost of the project in future dollars is approximately \$1.365 billion above the initial forecast.

**Chart C: Summary of Nuclear Filings (billions of \$)**

<b><u>Forecast Item</u></b>	<b><u>Order No.</u></b> <b><u>2009-104(A)</u></b>	<b><u>Order No.</u></b> <b><u>2010-12</u></b>	<b><u>Order No.</u></b> <b><u>2011-345</u></b>	<b><u>Order No.</u></b> <b><u>2012-884</u></b>	<b><u>Order No.</u></b> <b><u>2015-661</u></b>	<b><u>Order No.</u></b> <b><u>2016- 794</u></b>	<b><u>Currently</u></b> <b><u>Projected</u></b>
Capital Cost, 2007 Dollars	\$4.535	\$4.535	\$4.270	\$4.548	\$5.247	\$6.805	\$6.805
Escalation	\$1.514	\$2.025	\$1.261	\$0.968	\$1.300	\$0.532	\$0.531
Total Project Cash Flow	\$6.049	\$6.560	\$5.531	\$5.517	\$6.547	\$7.337	\$7.335
AFUDC	\$0.264	\$0.316	\$0.256	\$0.238	\$0.280	\$0.321	\$0.343
<b>Gross Construction</b>	<b>\$6.313</b>	<b>\$6.875</b>	<b>\$5.787</b>	<b>\$5.755</b>	<b>\$6.827</b>	<b>\$7.658</b>	<b>\$7.678</b>

## **2. Escalation Rates**

As provided in Order No. 2009-104(A), the most current one-year inflation indices are used to escalate costs expected to be incurred in the twelve-month period after the date of each quarterly report. The most current escalation indices are found in the Handy-Whitman July 2016 update that was issued in November 2016 and reports data for the period January to June 2016. Those rates are reflected in this report. The approved capital cost targets have been adjusted to reflect the currently reported historical escalation rates.

**Appendix 4** shows historical utility construction cost escalation rates. Current escalation rates are shown below on **Chart D**.

## CHART D – ESCALATION RATE COMPARISON

<b><u>Escalation Rate Comparison</u></b>		
	<b>Jul-Dec 2015</b>	<b>Jan-June 2016</b>
<b>HW All Steam Index:</b>		
One-Year Rate	<b>2.58%</b>	<b>1.27%</b>
Five-Year Average	<b>2.79%</b>	<b>2.21%</b>
Ten-Year Average	<b>3.76%</b>	<b>3.48%</b>
<b>HW All Steam/Nuclear Index:</b>		
One-Year Rate	<b>2.75%</b>	<b>1.27%</b>
Five-Year Average	<b>2.86%</b>	<b>2.27%</b>
Ten-Year Average	<b>3.80%</b>	<b>3.52%</b>
<b>HW All Transmission Plant Index:</b>		
One-Year Rate	<b>1.48%</b>	<b>1.30%</b>
Five-Year Average	<b>1.89%</b>	<b>1.24%</b>
Ten-Year Average	<b>3.11%</b>	<b>2.80%</b>

### 3. AFUDC

Consistent with Order No. 2009-104(A), SCE&G computes and accrues AFUDC based on the Federal Energy Regulatory Commission (FERC) approved methodology as applied to the balance of Construction Work in Progress (CWIP) that is outstanding between rate adjustments. SCE&G’s AFUDC rate is currently 5.82%, which is the rate that applied when Order No. 2016-794 was issued. Consistent with Order No. 2009-104(A), projected AFUDC is based on currently applicable rates.

### 4. Compliance with the Commission-Approved Cumulative Project Cash Flow Target

The current Cumulative Project Cash Flow target for the project was adopted by the Commission in Order No. 2016-794. In Order No. 2009-104(A), the Commission provided that the applicable Cumulative Project Cash Flow target would be adjusted with each quarterly report to reflect updated escalation data.

**Appendix 2** provides the Commission-approved Cumulative Project Cash Flow target updated for current escalation data. The cash flow targets through June 2016 have

been updated to reflect actual escalation rates. The cash flow targets for the third quarter of 2016 and beyond have been updated based on the most recently available inflation indices, which for purposes of this report, are the indices provided in November 2016 that report data for the period January through June 2016. When final actual indices for 2016 become available, the cash flow data for 2016 will be revised to reflect the actual escalation rates.

**Appendix 2** compares the approved Cumulative Project Cash Flow target to the current cumulative cash flow schedules for the project, which include actual costs where available and SCE&G's working forecasts of annual cash flows for future years.

## **II. Progress of Construction of the Units**

### **A. Construction Management**

In an effort to improve the pace of construction, WEC is augmenting its management staff and taking a more direct role in managing the Nuclear Island (NI) work which is on the critical path for the project.

### **B. Construction**

**Workforce:** There are approximately 5,700 contractor and subcontractor personnel on site daily. Of these, approximately 3,650 are craft workers. A majority of these jobs are held by South Carolina residents. The net increase in craft workers during the period was approximately 650. WEC's staffing of a back shift for the project increased from approximately 500 craft personnel to 675 during the period.

**Project Completion:** At the close of the period, WEC reported the project to be 60.9% complete. During the period, completion of the project advanced by 1.8%.

**Chart E** provides completion percentage and change in completion percentages by functional area.

[Chart E begins on the following page]

## CHART E

<b><u>Completion Percentages</u></b>			
Phase	% Complete 3rd Quarter	% Complete 4th Quarter	% Change
Engineering	94.0%	94.9%	+0.9%
Procurement	83.2%	84.6%	+1.4%
Construction	28.5%	30.9%	+2.4%
Start-up	6.8%	7.7%	+0.9%
<b>Total</b>	<b>59.1%</b>	<b>60.9%</b>	<b>+1.8%</b>

**Productivity:** The productivity rate for the project to date was 2.05, and was 3.41 during December 2016. Productivity rates measure the number of direct craft labor hours expended to complete the tasks accomplished during the period compared to the number of craft hours estimated to be needed to complete those tasks on a standard construction work-site.

**Critical Paths:** Due to schedule advances, the Unit 2 current critical path no longer runs through Shield Building fabrication and construction. Now critical path is completing the Containment Building through system turnover, testing, and startup. The current focus is on delivery dates of mechanical and floor sub-modules to support the critical path work.

Due to schedule advances, the critical path for Unit 3 no longer runs through construction of the Annex Building. Critical path for Unit 3 now runs through the concrete placement and cure of shield wall concrete Layer F2 on the west side of the Shield Building, followed by placement of Layer G concrete to support the installation of the upper horizontal transition panels at elevation 146', which is the driver to completing the Shield Building erection through system turnover, testing, and startup.

### 1. Unit 2 Inside-Containment Vessel (CV) Construction

During the period, concrete Layers 8, 9, and 10 East were successfully placed inside the Unit 2 CV, and both Unit 2 Accumulator Tanks were set. The Unit 2 Hot and Cold Leg Reactor Coolant System piping is in place and is being welded to the Reactor Vessel (RV) and a Steam Generator. Concrete placement within the walls of Structural Module CA01 continued.

### 2. Unit 2 Containment Vessel (CV)

Fabrication of the Unit 2 CV Top Head is 95% complete. The platforms and

attachments for Ring 2 of the Unit 2 CV were completed during the period and the ring is ready to be lifted and set in place. Schedule compliance by the vendor providing platforms and stairs, Paxton & Vierling Steel (PVS), continues to be a focus area.

Acceptance rates based on the Radiographic Testing (RT) of welds on the Units 2 and 3 CV Rings and Top Head remain above 99%.

### **3. Unit 2 Shield Building Construction**

Unit 2 Shield Building Panels up to Course 15 have been welded into pairs and are ready to be lifted and set in place. Work continues on concrete placement at the interface between the Shield Building and the Auxiliary Building. This concrete will support placement of Shield Building Panel Courses 5 and higher.

### **4. Unit 2 Annex Building**

Construction of the Annex Building continued with the placement of concrete walls, structural steel and supplemental steel.

### **5. Unit 2 Auxiliary Building**

During the period, piping modules R251, R161 and R106, mechanical modules KB22, KB27, and KB28, and multiple pre-fabricated floors were set in the Unit 2 Auxiliary Building. Concrete was placed for multiple walls in the Unit 2 Auxiliary Building.

### **6. Unit 2 Turbine Building**

The Unit 2 Turbine Building Main Crane was set in place during the period and work began installing the roof trusses for the building. Work continues to prepare piping to support installation of the Moisture Separator Reheaters.

### **7. Unit 3 Nuclear Island (NI)**

Commodities were installed in the Unit 3 NI in preparation for placing Layer 3 concrete.

### **8. Unit 3 Containment Vessel (CV)**

Fabrication of the Unit 3 CV Top Head continues and is 75% complete. Welding of the Unit 3 CV Rings was completed in prior periods.

### **9. Unit 3 Auxiliary and Annex Building**

Weld-out continued on Unit 3 Structural Module CA20. The connections between CA20 and the Unit 3 Auxiliary Building were completed. Mechanical Modules KB04 and



KB14 were installed. Concrete placement, back filling, piping installation and steel erection continued.

#### **10. Unit 3 Turbine Building**

During the period, Lower and Upper Condenser Assemblies A, B and C were lifted and set in place in the Unit 3 Turbine Building. Fit-up of the upper and lower sections of Unit 3 Condenser A has begun and welding continued on Condensers B and C. Concrete placements for walls and floors continued.

#### **11. Unit 3 Shield Building**

Following the placement of Layer E1 and E2 concrete, which form the foundation for the Shield Building, the initial course of Unit 3 Shield Building Panels was installed and filled with concrete. Unit 3 Shield Building Panels have been welded into pairs up to Course 7. Layer F2 concrete is being placed.

#### **12. Cooling Towers**

The Units' four Cooling Towers are structurally complete. Mechanical and electrical work continues. The Unit 2 and Unit 3 Pump structures are 100% and 85% structurally complete, respectively.

#### **13. Unit 2 High-Side Switchyard**

Oil filling and outfitting of the Unit 2 High-Side Switchyard transformers continues.

#### **14. Offsite Water System (OWS)**

Work on recoating the storage tanks of the OWS continues. The OWS is otherwise substantially complete.

#### **15. Service Building**

Work on the Service Building by M. B. Kahn construction commenced during the period and is progressing as planned.

### **C. Module and Shield Building Panel Fabrication and Assembly**

The on-site assembly of structural modules remains a potential critical path item for the project, as does the quality and fabrication schedule of mechanical modules.

#### **1. Mechanical and Submodule Production**

Forty-eight (48) of 52 Unit 2 mechanical modules have been delivered to the site,

as have 23 of the corresponding Unit 3 modules.

All mechanical modules formerly assigned to CB&I Lake Charles (CB&I-LC) have been moved to other vendors.

The first three of eight American Society of Mechanical Engineers nuclear safety-related piping modules for Unit 2 have been received from Aecon. Schedule compliance by Aecon is a focus area for the project, as is production of other structural and mechanical modules.

## **2. Unit 2 Structural Modules and Submodules**

All six major structural modules required to complete Unit 2 have been fabricated and installed.

## **3. Unit 3 Structural Modules and Submodules**

At the close of the period, four of the six major structural modules required to complete Unit 3 had been fabricated and installed. Fabrication continues on site for Unit 3 Structural Modules CA02 and CA03. All Submodules for CA02 and CA03 are on site.

## **4. Shield Building Panels**

One hundred thirty-eight (138) of the 167 Shield Building panels for the Unit 2 Shield Building have been received on site from Newport News Industrial (NNI). Seventy-five (75) of the Unit 3 Shield Building panels have been received.

## **5. Unit 2 and Unit 3 Air Inlet and Tension Rings**

During the period, NNI completed its mock-up of the Air Inlet and Tension Rings. Fabrication of components is underway.

## **6. Conclusion**

Senior management from both SCE&G and WEC continue to monitor the fabrication and delivery process related to submodules, mechanical modules and Shield Building Panels. In addition to its other Quality Assurance/Quality Control (QA/QC) resources, SCE&G maintains an inspector on site at NNI and PVS, as well as a shared inspector for the Vigor Industrial and Greenberry Industrial sites near Portland, Oregon.

### **D. Equipment and Fabrication**

No major equipment was delivered to the site this period. Approximately 95% of the valves and 77% of auxiliary equipment for the project have been delivered to the site.

## **1. Steam Generators**

The welding of the second Reactor Coolant Pump (RCP) casing to Steam Generator 3A has been completed at the Doosan facility in South Korea, and the Steam Generator is being prepared for shipping. The scheduled delivery date of the Steam Generator 3A supports construction need dates. All other Steam Generators are on site.

## **2. Reactor Coolant Pumps (RCPs)**

Three of four Unit 2 RCPs have completed testing and are being prepared for shipping. Final assembly and testing are in process for the remaining Unit 2 and Unit 3 RCPs. The current delivery schedule for these items supports construction need dates.

## **3. Passive Residual Heat Removal (PRHR) Heat Exchangers**

Supplemental restraint bar installation is complete on the Unit 2 PRHR Heat Exchanger, which is being packaged for shipment. Supplemental restraint bar installation continues on the Unit 3 PRHR Heat Exchanger. Delivery dates support the project's construction need dates.

## **4. Squib Valves**

Assembly is complete for all 14-inch and 8-inch squib valves for Unit 2, and assembly continues on the 14-inch and 8-inch squib valves for Unit 3. The resulting delivery dates for these valves support construction need dates.

## **5. Information Technology**

**Handover and Turnover of Proprietary Information.** During the period, WEC delivered revisions to (a) the documentation turnover plan, (b) the project turnover procedures, and (c) the electronic document interface specifications. SCE&G has provided comments on these drafts and is awaiting revised documents from WEC.

SCE&G has put into production the first phase of the pull-in interface for loading the handover and turnover material that will be provided by WEC into the Configuration Management Information System (CMIS). SCE&G is gathering requirements for second phase modifications to this interface. SCE&G has requested that WEC begin providing historical design documents and other records to use in conducting comprehensive testing of the applicable interfaces.

**Configuration Management Information System (CMIS).** SCE&G has completed software coding to allow the CMIS to electronically retrieve turnover packages provided by WEC. SCE&G also completed the configuration of the master equipment list and engineering documents for Units 2 and 3 in CMIS. The software interface between the CMIS and the Work Management System (WMS) for the Units has been configured.

**Work Management System (WMS).** All WMS modules used to support Unit 2 pre-operational testing have been completed and were installed on January 23, 2017.

**Cyber Security.** WEC has delivered the second installment of data identifying the Critical Digital Assets (CDAs) that will be the focus of the cyber security project. The cyber security monitoring system is in design. At the close of the period, approximately 98% of total digital assets had been reviewed and approximately 63% of the anticipated CDA's had been identified.

## **E. Quality Systems**

### **1. Supplier Oversight**

SCE&G Quality representatives conducted quality assurance observations at the following supplier facilities:

- Curtis Wright—EMD—RCPs
- PVS—Structural Steel
- Aecon Industrial—Mechanical Modules
- Greenberry—Structural Modules
- Mangiarotti—PRHR Heat Exchanger and Pressurizer

No significant issues were identified.

### **2. On Site Quality Surveillance Activity**

SCE&G personnel completed 183 surveillances (including QA/QC surveillances) of construction activities at Jenkinsville. These surveillances were related to module installation and welding, electrical support installation, readiness reviews, adequacy of work packages, traceability of materials, training and qualification, commercial grade dedication, non-destructive examination, hydrostatic testing, subcontractor activities, foreign material exclusion, reactor coolant loop machining and welding, and risk release process. No significant issues were identified.

### **3. Quality Systems Audit Activity**

SCE&G personnel conducted a quality assurance audit of SCE&G Units 2 and 3 activities, including contractor oversight, and programs and procedures for operation of the Units. Seven findings were issued as a result of the audit but no significant conditions adverse to quality were identified. The audit concluded that these activities were conducted

in compliance with applicable QA standards, and SCE&G is effectively implementing its responsibilities under the SCE&G Units 2 and 3 QA Programs.

SCE&G personnel observed a WECTEC QA site audit of WECTEC Site Procurement and an audit of Carolina Energy Services (CES). Five findings were issued for the WECTEC Procurement Audit, and three findings for the audit of CES, but no significant conditions adverse to quality were identified. Both audits determined adequate and effective implementation of the quality programs.

SCE&G personnel participated in a Westinghouse AP1000 Audit at Cranberry, PA and Charlotte, NC. No findings were identified during the Cranberry audit, and three findings were identified during the Charlotte audit, but no significant conditions adverse to quality were identified. The programs were found effective.

SCE&G conducted an audit of Westinghouse/WECTEC Corrective Action Program (CAP) in August 2016. Implementation of the CAP was determined to not be fully effective in the areas of Causal Evaluation, Corrective Plan Implementation, and Timeliness of corrective actions. Collectively these issues represent a significant condition adverse to quality. These issues are still being addressed by Westinghouse/WECTEC. SCE&G Quality continues to monitor this and has changed CAP Audit frequency from annually to semi-annually.

SCE&G continues to monitor the status of issues related to Preventive Maintenance and Storage. During the quarter, SCE&G performed seven surveillances of storage and continues to identify issues with stored material and equipment. More surveillances are scheduled for the first quarter of 2017 to assess effectiveness of Westinghouse/WECTEC programs to maintain equipment in storage for both installed and stored materials and equipment.

## **F. Licensing and Permitting and Regulatory Proceedings**

### **1. NRC Inspections**

During the period, the NRC Resident Inspectors issued the Third Quarter 2016 Integrated Inspection Report. The report documented no findings. In the Fourth Quarter 2016, the NRC conducted inspections related to Quality Assurance Implementation, Human Factors Engineering ITAAC 739, Fitness for Duty/Safeguards, Piping Design Acceptance Criteria, Environmental Qualification ITAAC, and Civil Work QA Program implementation. During the Civil Inspection, the NRC identified one Green Non-Cited Violation (NCV) of 10 CFR 50, Appendix B, Criterion III, "Design Control," for failure to implement measures to control design changes. A Green finding is the least significant in the NRC Construction Reactor Oversight Process. It qualitatively indicates licensee performance is acceptable and that NRC Construction Reactor Oversight Process cornerstone objectives are fully met.

## **2. License Amendment Requests (LARs)**

The NRC has granted a total of 60 LARs, four of which were granted during the reporting period. Thirty-two LARs were pending at the close of the period. During the period, SCE&G filed eleven LARs with the NRC. For ease of reference, a report that tabulates all the LARs submitted by SCE&G to the NRC as of December 31, 2016, is attached as Appendix 5.

LAR 90 (SCE&G LAR 14-14) concerns floors that have passive heat removal structures in the form of fins. LAR 90 requests NRC approval for changes in the design to support constructability. LAR 90 remained under review at the close of the period. Three separate Preliminary Amendment Requests (PARs) received a “no objection” finding related to LAR 90.

## **3. Inspections, Tests, Analyses & Acceptance Criteria (ITAAC)**

During this period, SCE&G submitted 14 ITAAC Closure Notifications to the NRC. Of the 67 submitted ITAAC Closure Notifications, 49 have been verified complete and 18 are under review by the NRC. The ITAAC submittal rate continues to be an area of focus for the project. ITAAC submittal rates must increase significantly in 2017 to meet schedule requirements. Several hundred ITAACs are anticipated to be filed with the NRC during 2017. SCE&G has continued to raise concerns with WEC about timeliness and the level of engineering support being provided by WEC for this process. During the period, WEC took steps to increase staffing for ITAAC submittals.

### **G. Engineering**

#### **1. Engineering Completion Status**

As of December 31, 2016, the Units 2 and 3 engineering completion (including Nuclear Island (NI), Balance of Plant (BOP), Site Specific, and Instrumentation and Controls) was 94.9% complete. Delivery of design documents for construction continues to be a focus area for SCE&G.

### **H. Training**

#### **1. Initial Licensed Operator (ILO) Training**

During the period, the NRC reported that all candidates who took the written portion of the Initial Licensed Operator (ILO) exam in September passed. Of the 20 candidates who took the operating portion of the exam, 18 passed. In January 2017, the remaining four candidates who passed the May 2015 written exam, along with one of the unsuccessful candidates from the September operating exam, took the operating portion of the exam. These candidates are awaiting their exam results. SCE&G anticipates that the remaining

unsuccessful candidate will take the operating exam in the future. SCE&G is currently on track to meet its goal of having an adequate number of licensed operators in place prior to initial fuel load for the Units.

## **2. Maintenance and Technical (M&T) Staff Training**

During the period, the Institute of Nuclear Power Operations (INPO) conducted an accreditation team visit to review the Unit 2 and 3 Maintenance and Technical training programs. The team consisted of INPO accreditation experts, nuclear industry training professionals and managers from other nuclear utilities. They observed training, interviewed personnel, and conducted document reviews. The team concluded there were no impediments to initially accrediting the training programs. The accreditation process is expected to conclude in April 2017 when the Unit 2 and 3 leadership team participates in a National Academy for Nuclear Training Accrediting Board review.

### **I. Operational Readiness (OR)**

Schedule development and execution continue to be a priority for OR. Focus areas are staff training; the issuing of programs and procedures needed for system turnover and plant operations; and alignment with WEC on items necessary to support design authority transfer.

#### **1. Mission Critical Hiring**

SCE&G has hired all 63 positions identified as mission critical for 2016. One hundred and three (103) of 141 positions have been hired toward the overall 2016 hiring goal. To date, the 636 positions for all New Nuclear Deployment (NND) groups, including the Emergency Response Unit, have been filled.

#### **2. Initial Testing Program (ITP) Components**

During the period, SCE&G completed the review and acceptance of the Division of Responsibility (DOR) document generated by WEC that defines clear lines of responsibility for ITP execution and support. The DOR will be used for planning purposes to support execution of the ITP. Integration of work processes to support the Lock Out/Tag Out (LOTO) or Danger Tagging Program and work management for the ITP are being developed.

### **J. Change Control/Owners' Cost Forecast**

One new notice of change was received during the period related to Hurricane Matthew's impact on the site. WEC is in the process of quantifying the impacts to the Project and will be submitting a change order to SCE&G. SCE&G has not accepted responsibility for any additional cost at this time.

## **1. Training Staff Augmentation**

During the period, a change order was executed in the amount of \$7.1 million<sup>1</sup> for the costs of WEC personnel to augment SCE&G's training resources. This change order was considered and approved in prior BLRA proceedings.

## **2. Service Building**

During the period, SCE&G and WEC continued to develop a credit change order for the costs associated with the first and second floors of the Service Building, which had been included in the EPC Contract cost. This Change Order was considered and approved in prior BLRA proceedings.

## **3. Escrow – Software & Documentation**

During the period, a change order was executed in the amount of \$1.6 million for compiling and escrowing the source code for certain software, design data and facility documentation that would be required for completing construction of the Units independently of WEC. This Change Order covers two years of costs for the program. It was part of the adjustment to cost that was considered and approved in prior BLRA proceedings. In early February 2017, SCE&G received confirmation that WEC had begun depositing certain intellectual property and software into escrow. Costs associated with maintaining the escrowed information and in adding additional material to the escrow beyond 2018 will be the subject of future change orders.

## **4. Classroom Simulator**

During the period, SCE&G accepted the terms of the draft change order from WEC for the software necessary to implement a classroom simulator system to assist in training AP1000 licensed operators and requested WEC to proceed with issuing a formal change order. With an optional pre-paid maintenance provision, the cost is \$453,418. This Change Order was considered and approved in prior BLRA proceedings.

## **5. Plant Security Systems (SES) Integration**

During the period, SCE&G and WEC continued reviewing a draft change order to integrate the SESs for Units 2 and 3. The proposed cost in the change order was \$6.3 million. Scope issues remain in discussion. This Change Order was considered and approved in prior BLRA proceedings.

## **6. Patient Protection and Affordable Care Act (ACA)**

During the period, SCE&G received a draft change order from WEC for its increase

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<sup>1</sup> All of the values in this section regarding change orders are reported in current dollars.



in health care costs attributable to the ACA for 2015 in the amount of \$172,248. This Change Order was executed shortly after the close of the reporting period. SCE&G anticipates receiving separate, annual change orders for cost impacts due to the ACA from WEC. This Change Order was considered and approved in prior BLRA proceedings.

### **7. Plant Layout Security Phase 3**

During the period, SCE&G and WEC continued reviewing a draft change order in the amount of \$17.4 million for the work to enhance the physical security of the Units in light of the final layout of the plant and facilities. This Change Order was considered and approved in prior BLRA proceedings.

#### **K. EPC Contract Payments under the Milestone Payment Schedule**

On December 2, 2016, the Dispute Resolution Board (DRB) issued its Final Report establishing the payment of costs pursuant to SCE&G election of the Fixed Price Option. The DRB was created under the October 2015 Amendment to the EPC Contract. The DRB ruled that the \$3,345 million in payments under the Fixed Price Option shall be made as follows:

- **Construction Milestones (\$1,338 million).** WEC may invoice \$1,338 million based on the DRB-approved Construction Milestone Payment Schedule (CMPS) which identifies 607 specific construction milestones.
- **Interim Payments (\$989 million).** These interim payments were made from July 1, 2015 through December 2, 2016, the date of the DRB Final Report. These interim payments included those identified in the October 2015 Agreement and were the subject of the order from the DRB dated September 30, 2016.
- **Procurement Carve-out (\$441 million).** WEC may invoice SCE&G for certain equipment and materials as they are delivered to the site or other Owner controlled locations. The amount that can be invoiced is capped at \$441 million.
- **Subcontractor Carve-out (\$432 million).** WEC may invoice SCE&G for work performed by certain WEC subcontractors as those amounts are invoiced to WEC. Payments made to Westinghouse's major subcontractor, Fluor, are excluded. The amount that can be invoiced is capped at \$432 million.
- **F.1.1 Major Equipment Milestones (\$29 million).** A limited set of major equipment payment milestones were carried over from the original EPC Contract. WEC will invoice these amounts on a schedule approved by the DRB.
- **ITAAC Completion (\$5 million).** WEC may invoice SCE&G for ITAAC completion in four equal installments totaling \$5 million. Each installment can be invoiced when an additional 25% increment of the currently remaining ITAACs is submitted to the NRC.

- **Start-up Assistance (\$11 million).** WEC may invoice SCE&G for a total of \$11 million in start-up costs. The invoices will be in equal monthly installments during the last six months of the startup effort for each Unit.
- **Substantial Completion Hold Back (\$100 million).** One-hundred million dollars (\$100 million) of the Fixed Price Option payment will be paid in equal amounts upon the substantial completion of each Unit.

The total of all payments under the EPC Contract remains the amount stated in the Fixed Price Option. The DRB rejected a request by WEC to vary payment terms under the EPC Contract.

The invoicing of completed CMPS milestones commenced in mid-December 2016. No such payments were made by the close of the reporting period. Additionally, no invoices for any other Fixed Price Option components were received during the period.

## **L. Transmission**

### **1. The VCS2-St. George 230 kV Line No. 1 and the VCS2-St. George 230 kV Line No. 2**

Construction activities continued on the VCS2-St. George 230 kV Lines No. 1 and No. 2 segment between the Saluda rapids and Dunbar Road and between Gaston and Orangeburg. These activities included installation of construction access and erosion control measures, spotting and framing of poles, removal of the existing lines and installation of pole foundations, poles and conductors.

### **2. Wateree-St. George-Williams 230 kV Line**

During prior periods, construction was completed on the first approximately two-mile section of the project to rebuild the St. George to Summerville segment of the Wateree-St. George-Williams 230 kV Line. During the current period, construction began on a second 13 mile section including installation of erosion control measures and construction access, spotting and framing of poles and vibratory caissons, removal of existing lines and poles and installation of vibratory caissons and new poles.

### **3. Upgrades to the Unit 1 Switchyard**

The Unit 1 Switchyard is currently interconnected to the transmission grid directly and through the Unit 2 and 3 Switchyard. SCE&G has determined that for the Unit 1 Switchyard to function reliably in this configuration, modifications will be necessary regarding fault current in the switchyard. The fault current and modification options are currently being studied.

### III. Anticipated Construction Schedules

**Appendix 1** to this quarterly report lists and updates each of the milestones constituting the anticipated construction schedules for the Units pursuant to S.C. Code Ann. § 58-33-270(B)(1) and Order No. 2016-794.

### IV. Schedules of the Capital Costs Incurred Including Updates to the Information Required by S.C. Code Ann. § 58-33-270(B) (6) (the Inflation Indices)

The Capital Costs section of this report (Section IV.A) provides an update of the cumulative capital costs incurred and forecasted to be incurred in completing the project. These costs are compared to the cumulative capital cost targets approved by the Commission in Order No. 2016-794. The approved capital cost targets have been adjusted to reflect the currently reported historical escalation rates. There has not been any use by the Company of the capital cost timing contingencies that were approved by the Commission in Order No. 2009-104(A). The Inflation Indices section (Section IV.B) of this report provides updated information on inflation indices and the changes in them.

#### A. Capital Costs

**Appendix 2** shows the Cumulative Project Cash Flow target as approved in Order No. 2016-794 and as updated for escalation and other Commission-approved adjustments under the heading “**Per Order 2016-794 Adjusted.**”

**Appendix 2** also shows the cumulative cash flow for the project based on actual expenditures to date and the Company’s current forecast of cost and construction schedules under the heading “**Actual through December 2016 plus Projected.**”

As shown on **Appendix 2**, the expenditures for the project for the 12 months ending December 31, 2016, total approximately \$852 million. As shown on **Appendix 2**, line 39, the cumulative amount spent on the project as of December 31, 2016, is approximately \$4.331 billion. As shown on **Appendix 2**, line 18, the Cumulative Project Cash Flow target approved by the Commission for year-end 2016 adjusted for current escalation is approximately \$4.433 billion. As a result, the cumulative cash flow at year-end 2016 is approximately \$102 million less than the target.

For comparison purposes, **Appendix 3** sets out the cash flow schedule for the project as it was approved in Order No. 2016-794. **Appendix 3** does not include any adjustments to the cash flow schedule for changes in inflation indices or adjustments in capital cost schedules made by the Company. The AFUDC forecast presented in **Appendix 3** is the AFUDC forecast that was current at the time of Order No. 2016-794.

## **B. Inflation Indices**

**Appendix 4** shows the updated inflation indices approved in Order No. 2009-104(A). Included is a history of the annual Handy-Whitman All Steam Index, South Atlantic Region; the Handy-Whitman All Steam and Nuclear Index, South Atlantic Region; the Handy-Whitman All Transmission Plant Index, South Atlantic Region; and the Chained GDP Index for the past ten years.

## **V. Updated Schedule of Anticipated Capital Costs**

The updated schedule of anticipated capital costs for Units 2 and 3 is reflected in Appendix 2.

## **VI. Conclusion**

WEC officials, in a discussion the morning of February 14, 2017, indicated that WEC and its parent guarantor, Toshiba Corporation, are committed to completing Units 2 and 3, with a revised completion schedule of April 2020 and December 2020, respectively; however, the Company will continue to monitor WEC's ability to adhere to the new schedule, as well as the financial condition of WEC and Toshiba and its effect on their ability to complete the project. The total project capital cost is now estimated at approximately \$7.7 billion including escalation and allowance for funds used during construction (SCE&G's portion in future dollars).

The Company maintains a staff that monitors the work of its contractors and continues to closely monitor areas of concern related to the cost and schedule for the project. SCE&G continues to work diligently to verify the project is safely completed and that all costs are reasonable. The Company will continue to update the Commission and the ORS of progress and concerns as the project proceeds.

**ATTACHMENT 1**  
**GLOSSARY OF ACRONYMS OR DEFINED TERMS**

<b>Acronym or Defined Term</b>	<b>Reference</b>
ACA	Affordable Care Act.
Aecon	Aecon Industrial- a supplier of mechanical modules for the project.
AFUDC	Allowance for Funds Used During Construction.
Amendment	The October 2015 Amendment to the EPC Contract.
AP1000	The WEC designed Advanced Pressurized water nuclear reactor of approximately 1000 megawatts generating capacity.
APOG	A group of utilities who have submitted applications for AP1000 COLs.
ATV	Accreditation Team Visit- performed by the INPO to accredit training programs.
BLRA	The Base Load Review Act, S.C. Code Ann. § 58-33-210 et seq. (Supp. 2009).
BOP	Balance of Plant –areas outside of the nuclear island not classified as nuclear safety related.
CA	The designation for specific pre-fabricated structural modules that form part of the reactor building or auxiliary building, such as Module CA20.
CAP	Corrective Action Program.
CAP-I	Corrective Action Program Interface – between the owner’s and contractor’s quality assurance information systems.
CAR	Corrective Action Report – related to design, engineering or construction of the Units, or related processes, that must be corrected.
CAS	Commission (NRC) Approved Simulator –for the training of licensed system operators and modeling of plant responses to specified conditions.
CB&I	Chicago Bridge & Iron – a former member of the Consortium.
CB&I-LC	CB&I Lake Charles – the module fabrication unit located in Lake Charles,

<b>Acronym or Defined Term</b>	<b>Reference</b>
	Louisiana.
CB&I Services	A subsidiary of CB&I that is fabricating the containment vessels on site under contract with Westinghouse.
CDA	Critical Digital Assets –as identified for cyber security purposes.
CES	Carolina Energy Solutions – a subcontractor located in Rock Hill, South Carolina.
CGD	Commercial Grade Dedication – a quality assurance designation for certain materials and supplies used in nuclear construction.
CIP	Critical Infrastructure Protection – the goal of the cyber security program.
CMIS	Configuration Management Information System – the digital system which documents the configuration of the plant including its equipment, physical assets and computer systems.
CMMS	Computerized Maintenance Management System – the digital system which schedules and documents maintenance of the plant.
CMPS	Construction Milestone Payment Schedule –the schedule for making payments to WEC based on the accomplishment of defined construction milestone schedules
COLs	Combined Operating Licenses – licenses issued by the NRC for construction and operation of a nuclear unit.
COLA	A Combined Operating License Application.
Commission	The Public Service Commission of South Carolina.
Consortium	The joint venture between WEC and Stone & Webster to construct the Units under the terms of the EPC Contract. Stone & Webster is now a subsidiary of WEC.
CR	Condition Report – a report communicating and memorializing concerns with the design, engineering or construction of the Units, or related processes, which in some cases can become the basis for a Corrective Action Report.
CV	Containment Vessel – the structure which provides containment for

<b>Acronym or Defined Term</b>	<b>Reference</b>
	the reactor vessel and associated equipment.
CVBH	Containment Vessel Bottom Head – the structure that forms the bottom of the Containment Vessel.
CWIP	Construction Work in Progress – a concept of regulatory accounting.
CWP	Circulating Water Pipe –part of the Circulating Water System.
CWS	Circulating Water System –the system that will transport waste heat from the turbines to the cooling towers.
Cyber Security	Technologies, processes and practices designed to protect networks, computers, programs and data from attack, damage or unauthorized access.
DCD	Design Control Document – a document approved by the Nuclear Regulatory Commission which sets forth the approved design of a nuclear reactor.
Departures	Departures – minor deviations from the approved Design Control Document included in the licensing basis for the Units that do not rise to the level requiring a LAR.
DOR	Division of Responsibility.
DRB	Dispute Review Board – a three-person board established under the Amendment to hear commercial disputes under the EPC Contract.
ECoE	WEC’s Engineering Center of Excellence.
EMD	Electro-Mechanical Division of Curtiss-Wright Corp. – the supplier for the Reactor Coolant Pumps.
EPA	The United States Environmental Protection Agency.
EPC Contract	The Engineering, Procurement and Construction Agreement for construction of the Units as amended from time to time.
ER	Equipment Reliability.
ERB	Emergency Response Building – the building which provides office space and housing for the emergency response personnel and

<b>Acronym or Defined Term</b>	<b>Reference</b>
	equipment for all three units.
Exit Debriefing	A meeting held between the NRC and the licensee at the conclusion of an NRC inspection to discuss the results of the inspection.
FAA	Functional Area Assessment – a work flow review to improve efficiency.
FAS	First Article Survey.
FERC	The Federal Energy Regulatory Commission.
Fixed/Firm	Prices under the EPC Contract which are either fixed or are firm but subject to defined escalation rates.
Fluor	The Fluor Corporation
GDP	Gross Domestic Product.
HFE/ISV	Human Factors Engineering/Integrated Systems Validation –part of the development of a training simulator for the Units.
HL or Hot Leg	That part of the Reactor Cooling Loop that transports steam to the steam generators.
HLD	Heavy Lift Derrick – the derrick that was erected on site to move large modules and equipment.
IBF	A subcontractor of Tioga that manufactures the Reactor Coolant Loop (RCL) piping.
I&C	Instrumentation and Control – systems for monitoring and controlling the reactor and other aspects of the plant.
ICN	ITAAC Closure Notification – the letter from a COL licensee to notify the NRC that an ITAAC is complete in accordance with 10 CFR 52.99(c)(1).
ICP	Integrated Construction Plan – the construction plan for the Units.
IFC	Issued for Construction – engineering drawings that include information necessary for construction of specific structures, systems and components.



<b>Acronym or Defined Term</b>	<b>Reference</b>
ILO	Initial Licensed Operator – An individual licensed to operate a nuclear reactor.
INPO	Institute of Nuclear Power Operations – an industry sponsored group that establishes standards, certifies training, and audits nuclear operations to ensure safe operations of nuclear units.
IPS	Integrated Project Schedule – the schedule for licensing and construction of the Units.
ISV	Integrated Systems Validation – part of the NRC process for ensuring that I&C systems support nuclear safety compliance.
ITAAC	Inspections, Tests, Analyses, and Acceptance Criteria – the inspections, tests, analyses and acceptance criteria that the NRC has determined to be necessary and sufficient to demonstrate that a nuclear unit has been constructed and will operate in conformity with the COLs, the Atomic Energy Act of 1954, as amended, and the NRC’s regulations.
ITP	Initial Testing Program – NRC mandated testing for individual systems and for each Unit to certify that they will perform as licensed.
LAR	License Amendment Request – a formal request made by VCSNS to amend the combined operating license, its appendices, or its associated bases.
LNTP	Limited Notice to Proceed – a notice which authorize a vendor to commence specific work.
LOTO	Lock-Out, Tag-Out – the safety-related process for ensuring equipment is not energized or put in motion while maintenance or inspection is taking place.
LSA	Limited Scope Audit – an audit of QA programs.
LSS	Limited Scope Simulator –a training simulator with limited functionality that can be used for the initial stages of operator training.
M&T	Maintenance and Technical – a designation for personnel who require training and certification in nuclear safety matters but are not ILOs or SLO.

<b>Acronym or Defined Term</b>	<b>Reference</b>
MAB	Module Assembly Building – a building on the construction site where large modules will be constructed and equipment will be prepared for installation in a space that is protected from the elements.
Mangiarotti	Mangiarotti Nuclear, S.p.A. – major equipment vendor to the project.
MEL	Master Equipment List – a list that identifies the attributes for assets which are permanent plant equipment used in the plant.
MTS	Maintenance Training Skid – an equipment skid used for training purposes.
NCV	Non-Cited Violations – issues identified and pointed out in NRC inspections which do not rise to a level requiring citation and documentation as violations.
NDE	Non-Destructive Examination.
NEI	Nuclear Energy Institute – a nuclear industry trade association.
NI	Nuclear Island – the structures comprising the steel Containment Vessel, the Reactor Building, and the Auxiliary Building.
NLC	Nuclear Learning Center - a training facility operated by SCE&G at the Jenkinsville site.
NLO	Non-Licensed Operator – an operator who may support ILOs and SLOs and work under their supervisions.
NNAB	National Nuclear Accrediting Board.
NND	New Nuclear Deployment Team – the team within SCE&G that is directly responsible for the project.
NNI	Newport News Industrial – a module fabrication subcontractor to WEC.
NON	Notice of Non-conformance – a finding that quality and design requirements are not met.
NPDES	National Pollutant Discharge Elimination System – the Federal water quality protection system.
NRC	The United States Nuclear Regulatory Commission.

<b>Acronym or Defined Term</b>	<b>Reference</b>
NUPIC	Nuclear Procurement Issues Committee--an international association of nuclear utilities that conducts independent audits of companies involved in the nuclear supply chain.
OR	Operational Readiness
ORS	South Carolina Office of Regulatory Staff.
OWS	Offsite Water System – the system that withdraws water from Monticello Reservoir and provides potable and filtered water for the Units.
PAR	Preliminary Amendment Request – a formal request made by a COL licensee to proceed at its own risk with work consistent with a LAR prior to approval of that LAR.
PDC	Power Distribution Center - prefabricated, modular enclosures housing electrical equipment such as switchgear, motor control center equipment and other auxiliary equipment.
Pike	Pike Energy Solutions, a contractor for transmission and switchyard related work.
PM	Preventative Maintenance.
PMO	Project Management Organization – the WEC organization overseeing construction of the Units.
PMP	Probable Maximum Precipitation – the standard for assessing the adequacy and performance of site storm water drainage systems.
PO	Purchase Order.
PRA	Probabilistic Risk Assessment – an assessment of safety-related risks and their probabilities of occurring.
PRHR	Passive Residual Heat Removal Heat Exchanger –a heat exchange unit that provides cooling to the AP1000 reactor during emergency situations as a part of the passive safety system which.
PRS	Plant Reference Simulator – a training simulator with full functionality that can be used in all stages of operator training and in

<b>Acronym or Defined Term</b>	<b>Reference</b>
	operating the Units.
PVS	Paxton & Vierling Steel - the vendor providing safety related steel and structural steel modules.
PWS	The Potable Water System – the system which provides potable water to the site.
QA	Quality Assurance – the planned and systematic activities implemented in a quality system so that the quality requirements for a product or service will be fulfilled.
QAP	Quality Assurance Program – the program for ensuring effective Quality Assurance is achieved.
QA/QC	Quality Assurance/Quality Control.
QC	Quality Control – the observations, techniques and activities used to fulfill requirements for quality.
QMS	Quality Management System – the system for ensuring QA/QC.
QS	Quality Systems – equivalent to QMS.
RAI	Requests for Additional Information – information requests issued by the NRC staff or other regulators to licensees and others.
RCA	Root Cause Analysis – the identification and evaluation of the reason for non- conformance, an undesirable condition, or a problem which (when solved) restores the status quo.
RC/SC	Reinforced Concrete to Steel Component.
RCL	The Reactor Coolant Loop – the piping and related equipment that transports heat from the reactor to the steam generator.
RCP	The Reactor Coolant Pump – pumps which forms part of the Reactor Coolant System.
RCS	The Reactor Coolant System – the complete system for transferring and transporting heat from the reactor to the steam generator.
RFI	Requests for Information – information requests issued by the NRC staff

<b>Acronym or Defined Term</b>	<b>Reference</b>
	to licensees.
ROE	Return on Equity.
ROW	Right-of-way.
RT	Radiographic Testing – a nondestructive testing method of inspecting materials for hidden flaws by using the ability of short wavelength electromagnetic radiation (high energy photons) to penetrate various materials.
RV	Reactor Vessel – the metal vessel which contains the nuclear reactor and related controls.
RWS	Raw Water System – the system for withdrawing and transporting raw water from the Monticello Reservoir.
SAT	Site Acceptance Testing –testing to ensure that systems and the Units conform to design parameters.
SCDHEC	The South Carolina Department of Health and Environmental Control.
SCDNR	The South Carolina Department of Natural Resources.
SCE&G or the Company	South Carolina Electric & Gas Company.
SDS	Simulator Development System.
SER	Safety Evaluation Report – a report generated by the NRC as a precondition to licensing or amending a license.
SES	Plant Security Systems – the systems for ensuring physical security of the site.
SNC	Southern Nuclear Company – a subsidiary of Southern Company and licensed operator of the Vogtle Nuclear Units and two other nuclear plants.
SPX	SPX-Copes Vulcan– the supplier of Squib Valves for the project.
SRO	Senior Reactor Operator – a reactor operator licensed to train and supervise other reactor operators.

<b>Acronym or Defined Term</b>	<b>Reference</b>
SROC	Senior Reactor Operator Certification – certification as a SRO.
Target	Costs under the EPC Contract where targets have been established but where SCE&G pays actual costs as incurred.
TSU	Technical Specification Upgrade.
Units	V. C. Summer Nuclear Station Units 2 & 3.
Update Docket	A proceeding under the BLRA seeking Commission approval of updated cost and construction schedules for the Units.
UPS	Uninterruptible Power Supply –back up power systems.
URI	Unresolved Items – A term used by the NRC during inspections for items that require further action.
USACOE	The United States Army Corps of Engineers.
VCSNS or VCSN	V. C. Summer Nuclear Station.
WEC	Westinghouse Electric Company, LLC.
WECTEC	A subsidiary of WEC principally established to house engineering and supervisory personnel transitioning from CB&I.
WMS	Work Management System –the system for assigning work duties and tasks in nuclear testing and operations.
WTP	Water Treatment Plant – the off-site which will take water from Lake Monticello and treat it to potable water standards.
WWS	Waste Water System – the system for collection, treatment and disposal of domestic waste water generated on site.

## **VII. APPENDIX 1**

### **V. C. Summer Nuclear Station Units 2 & 3**

#### **Quarterly Report to the South Carolina Office of Regulatory Staff Submitted by South Carolina Electric & Gas Company Pursuant to Public Service Commission Order No. 2009-104(A)**

#### **Quarter Ending December 31, 2016**

**Appendix 1** list and update each of the milestones which the Commission adopted as the Approved Construction Schedule for the Units, pursuant to S.C. Code Ann. § 58-33- 270(B)(1) in Order No. 2016-794. Consistent with that Order, Appendix 1 also reports on the milestones which were approved in Order No. 2015-661 but which were not carried forward as operative milestones for BLRA monitoring purposes. Appendix 1 provides columns with the following information:

1. Milestone tracking ID number.
2. The description of the milestone as established in Order No. 2015-661.
3. The BLRA milestone date as approved by the Commission in Order No. 2015-661 or Order No. 2016-794, as applicable.
4. The currently projected milestone completion date.
5. For each completed milestone, the date by which it was completed. For milestones completed prior to the current reporting quarter, the milestone entry is shaded in gray.
6. Information as to whether any milestone adopted under Order No. 2016-794 has been shifted outside of the +18/-24 Month Contingency approved by the Commission.
7. Notes.

**Appendix 1**  
**VC Summer Units 2 and 3**

Tracking ID	Order No. 2016-794 Description	Order No. 2016-794	16-4Q Targeted Milestone Completion Date	Actual Completion Date	Delta Months from Order No. 2016-794 Date	Outside +18/-24 Months Contingency?	Notes
1	Approve Engineering Procurement and Construction Agreement	Complete		5/23/2008			
2	Issue POs to nuclear component fabricators for Units 2 & 3 Containment Vessels	Complete		12/3/2008			
3	Contractor Issue PO to Passive Residual Heat Removal Heat Exchanger Fabricator - First Payment - Unit 2	Complete		8/18/2008			
4	Contractor Issue PO to Accumulator Tank Fabricator - Unit 2	Complete		7/31/2008			
5	Contractor Issue PO to Core Makeup Tank Fabricator - Units 2 & 3	Complete		9/30/2008			
6	Contractor Issue PO to Squib Valve Fabricator - Units 2 & 3	Complete		3/31/2009			
7	Contractor Issue PO to Steam Generator Fabricator - Units 2 & 3	Complete		5/29/2008			
8	Contractor Issue Long Lead Material PO to Reactor Coolant Pump Fabricator - Units 2 & 3	Complete		6/30/2008			
9	Contractor Issue PO to Pressurizer Fabricator - Units 2 & 3	Complete		8/18/2008			
10	Contractor Issue PO to Reactor Coolant Loop Pipe Fabricator - First Payment - Units 2 & 3	Complete		6/20/2008			
11	Reactor Vessel Internals - Issue Long Lead Material PO to Fabricator - Units 2 & 3	Complete		11/21/2008			
12	Contractor Issue Long Lead Material PO to Reactor Vessel Fabricator - Units 2 & 3	Complete		5/29/2008			
13	Contractor Issue PO to Integrated Head Package Fabricator - Units 2 & 3	Complete		7/31/2009			
14	Control Rod Drive Mechanism Issue PO for Long Lead Material to Fabricator - Units 2 & 3 - first payment	Complete		6/21/2008			
15	Issue POs to nuclear component fabricators for Nuclear Island structural CA20 Modules	Complete		8/28/2009			
16	Start Site Specific and balance of plant detailed design	Complete		9/11/2007			
17	Instrumentation & Control Simulator - Contractor Place Notice to Proceed - Units 2 & 3	Complete		10/31/2008			
18	Steam Generator - Issue Final PO to Fabricator for Units 2 & 3	Complete		6/30/2008			



**Appendix 1**  
**VC Summer Units 2 and 3**

Tracking ID	Order No. 2016-794 Description	Order No. 2016-794	16-4Q Targeted Milestone Completion Date	Actual Completion Date	Delta Months from Order No. 2016-794 Date	Outside +18/-24 Months Contingency?	Notes
19	Reactor Vessel Internals - Contractor Issue PO for Long Lead Material (Heavy Plate and Heavy Forgings) to Fabricator - Units 2&3	Complete		1/29/2010			
20	Contractor Issue Final PO to Reactor Vessel Fabricator - Units 2&3	Complete		9/30/2008			
21	Variable Frequency Drive Fabricator Issue Transformer PO - Units 2&3	Complete		4/30/2009			
22	Start clearing, grubbing and grading	Complete		1/26/2009			
23	Core Makeup Tank Fabricator Issue Long Lead Material PO - Units 2 & 3	Complete		10/31/2008			
24	Accumulator Tank Fabricator Issue Long Lead Material PO - Units 2&3	Complete		10/31/2008			
25	Pressurizer Fabricator Issue Long Lead Material PO - Units 2 & 3	Complete		10/31/2008			
26	Reactor Coolant Loop Pipe - Contractor Issue PO to Fabricator - Second Payment - Units 2 & 3	Complete		4/30/2009			
27	Integrated Head Package - Issue PO to Fabricator - Units 2 and 3 - second payment	Complete		7/31/2009			
28	Control Rod Drive Mechanisms - Contractor Issue PO for Long Lead Material to Fabricator - Units 2 & 3	Complete		6/30/2008			
29	Contractor Issue PO to Passive Residual Heat Removal Heat Exchanger Fabricator - Second Payment - Units 2 & 3	Complete		10/31/2008			
30	Start Parr Road intersection work	Complete		2/13/2009			
31	Reactor Coolant Pump - Issue Final PO to Fabricator - Units 2 & 3	Complete		6/30/2008			
32	Integrated Heat Packages Fabricator Issue Long Lead Material PO - Units 2 & 3	Complete		10/1/2009			
33	Design Finalization Payment 3	Complete		1/30/2009			
34	Start site development	Complete		6/23/2008			
35	Contractor Issue PO to Turbine Generator Fabricator - Units 2 & 3	Complete		2/19/2009			
36	Contractor Issue PO to Main Transformers Fabricator - Units 2 & 3	Complete		9/25/2009			

**Appendix 1**  
**VC Summer Units 2 and 3**

Tracking ID	Order No. 2016-794 Description	Order No. 2016-794	16-4Q Targeted Milestone Completion Date	Actual Completion Date	Delta Months from Order No. 2016-794 Date	Outside +18/-24 Months Contingency?	Notes
37	Core Makeup Tank Fabricator Notice to Contractor Receipt of Long Lead Material - Units 2 & 3	Complete		12/30/2010			
38	Design Finalization Payment 4	Complete		4/30/2009			
39	Turbine Generator Fabricator Issue PO for Condenser Material - Unit 2	Complete		8/28/2009			
40	Reactor Coolant Pump Fabricator Issue Long Lead Material Lot 2 - Units 2 & 3	Complete		4/30/2009			
41	Passive Residual Heat Removal Heat Exchanger Fabricator Receipt of Long Lead Material - Units 2 & 3	Complete		5/27/2010			
42	Design Finalization Payment 5	Complete		7/31/2009			
43	Start erection of construction buildings, to include craft facilities for personnel, tools, equipment; first aid facilities; field offices for site management and support personnel; temporary warehouses; and construction hiring office	Complete		12/18/2009			
44	Reactor Vessel Fabricator Notice to Contractor of Receipt of Flange Nozzle Shell Forging - Unit 2	Complete		8/28/2009			
45	Design Finalization Payment 6	Complete		10/7/2009			
46	Instrumentation and Control Simulator - Contractor Issue PO to Subcontractor for Radiation Monitor System - Units 2 & 3	Complete		12/17/2009			
47	Reactor Vessel Internals - Fabricator Start Fit and Welding of Core Shroud Assembly - Unit 2	Complete		7/29/2011			
48	Turbine Generator Fabricator Issue PO for Moisture Separator Reheater/Feedwater Heater Material - Unit 2	Complete		4/30/2010			
49	Reactor Coolant Loop Pipe Fabricator Acceptance of Raw Material - Unit 2	Complete		2/18/2010			
50	Reactor Vessel Internals - Fabricator Start Weld Neutron Shield Spacer Pads to Assembly - Unit 2	Complete		8/28/2012			
51	Control Rod Drive Mechanisms - Fabricator to Start Procurement of Long Lead Material - Unit 2	Complete		6/30/2009			
52	Contractor Notified that Pressurizer Fabricator Performed Cladding on Bottom Head - Unit 2	Complete		12/23/2010			

**Appendix 1  
VC Summer Units 2 and 3**

Tracking ID	Order No. 2016-794 Description	Order No. 2016-794	16-4Q Targeted Milestone Completion Date	Actual Completion Date	Delta Months from Order No. 2016-794 Date	Outside +18/-24 Months Contingency?	Notes
53	Start excavation and foundation work for the standard plant for Unit 2	Complete		3/15/2010			
54	Steam Generator Fabricator Notice to Contractor of Receipt of 2nd Steam Generator Tubesheet Forging - Unit 2	Complete		4/30/2010			
55	Reactor Vessel Fabricator Notice to Contractor of Outlet Nozzle Welding to Flange Nozzle Shell Completion - Unit 2	Complete		12/30/2010			
56	Turbine Generator Fabricator Notice to Contractor Condenser Fabrication Started - Unit 2	Complete		5/17/2010			
57	Complete preparations for receiving the first module on site for Unit 2	Complete		1/22/2010			
58	Steam Generator Fabricator Notice to Contractor of Receipt of 1st Steam Generator Transition Cone Forging - Unit 2	Complete		4/21/2010			
59	Reactor Coolant Pump Fabricator Notice to Contractor of Manufacturing of Casing Completion - Unit 2	Complete		11/16/2010			
60	Reactor Coolant Loop Pipe Fabricator Notice to Contractor of Machining, Heat Treating & Non-Destructive Testing Completion - Unit 2	Complete		3/20/2012			
61	Core Makeup Tank Fabricator Notice to Contractor of Satisfactory Completion of Hydrotest - Unit 2	Complete		11/26/2012			
62	Polar Crane Fabricator Issue PO for Main Hoist Drum and Wire Rope - Units 2 & 3	Complete		2/1/2011			
63	Control Rod Drive Mechanisms - Fabricator to Start Procurement of Long Lead Material - Unit 3	Complete		6/14/2011			
64	Turbine Generator Fabricator Notice to Contractor Condenser Ready to Ship - Unit 2	Complete		3/26/2012			
65	Start placement of mud mat for Unit 2	Complete		7/20/2012			
66	Steam Generator Fabricator Notice to Contractor of Receipt of 1st Steam Generator Tubing - Unit 2	Complete		9/28/2010			
67	Pressurizer Fabricator Notice to Contractor of Welding of Upper and Intermediate Shells Completion - Unit 2	Complete		10/28/2011			
68	Reactor Vessel Fabricator Notice to Contractor of Closure Head Cladding Completion - Unit 3	Complete		6/28/2012			
69	Begin Unit 2 first nuclear concrete placement	Complete		3/9/2013			

**Appendix 1**  
**VC Summer Units 2 and 3**

Tracking ID	Order No. 2016-794 Description	Order No. 2016-794	16-4Q Targeted Milestone Completion Date	Actual Completion Date	Delta Months from Order No. 2016-794 Date	Outside +18/-24 Months Contingency?	Notes
70	Reactor Coolant Pump Fabricator Notice to Contractor of Stator Core Completion - Unit 2	Complete		12/1/2011			
71	Fabricator Start Fit and Welding of Core Shroud Assembly - Unit 2	Complete		7/29/2011			
72	Steam Generator Fabricator Notice to Contractor of Completion of 1st Steam Generator Tubing Installation - Unit 2	Complete		1/27/2012			
73	Reactor Coolant Loop Pipe-shipment of Equipment to Site - Unit 2	Complete		12/19/2013			
74	Control Rod Drive Mechanism - Ship Remainder of Equipment (Latch Assembly & Rod Travel Housing) to Head Supplier - Unit 2	Complete		7/16/2012			
75	Pressurizer Fabricator Notice to Contractor of Welding of Lower Shell to Bottom Head Completion - Unit 2	Complete		12/22/2011			
76	Steam Generator Fabricator Notice to Contractor of Completion of 2nd Steam Generator Tubing Installation - Unit 2	Complete		5/4/2012			
77	Design Finalization Payment 14	Complete		10/31/2011			
78	Set module CA04 for Unit 2	Complete		5/3/2014			
79	Passive Residual Heat Removal Heat Exchanger Fabricator Notice to Contractor of Final Post Weld Heat Treatment - Unit 2	Complete		5/24/2011			
80	Passive Residual Heat Removal Heat Exchanger Fabricator Notice to Contractor of Completion of Tubing - Unit 2	Complete		5/29/2012			
81	Polar Crane Fabricator Notice to Contractor of Girder Fabrication Completion - Unit 2	Complete		10/23/2012			
82	Turbine Generator Fabricator Notice to Contractor Condenser Ready to Ship - Unit 3	Complete		8/26/2013			
83	Set Containment Vessel ring #1 for Unit 2	Complete		6/3/2014			
84	Reactor Coolant Pump Fabricator Delivery of Casings to Port of Export - Unit 2	Complete		7/6/2013			
85	Reactor Coolant Pump Fabricator Notice to Contractor of Stator Core Completion - Unit 3	Complete		7/18/2013			

**Appendix 1**  
**VC Summer Units 2 and 3**

Tracking ID	Order No. 2016-794 Description	Order No. 2016-794	16-4Q Targeted Milestone Completion Date	Actual Completion Date	Delta Months from Order No. 2016-794 Date	Outside +18/-24 Months Contingency?	Notes
86	Reactor Vessel Fabricator Notice to Contractor of Receipt of Core Shell Forging - Unit 3	Complete		3/29/2012			
87	Contractor Notified that Pressurizer Fabricator Performed Cladding on Bottom Head - Unit 3	Complete		11/9/2011			
88	Set Nuclear Island structural module CA03 for Unit 2	Complete		7/22/2016			
89	Squib Valve Fabricator Notice to Contractor of Completion of Assembly and Test for Squib Valve Hardware - Unit 2	Complete		5/10/2012			
90	Accumulator Tank Fabricator Notice to Contractor of Satisfactory Completion of Hydrotest - Unit 3	Complete		9/16/2013			
91	Polar Crane Fabricator Notice to Contractor of Electric Panel Assembly Completion - Unit 2	Complete		3/6/2013			
92	Start containment large bore pipe supports for Unit 2	Complete		11/13/2014			
93	Integrated Head Package - Shipment of Equipment to Site - Unit 2	Complete		5/9/2014			
94	Reactor Coolant Pump Fabricator Notice to Contractor of Final Stator Assembly Completion - Unit 2	Complete		12/17/2013			
95	Steam Generator Fabricator Notice to Contractor of Completion of 2nd Steam Generator Tubing Installation - Unit 3	Complete		2/7/2014			
96	Steam Generator Fabricator Notice to Contractor of Satisfactory Completion of 1st Steam Generator Hydrotest - Unit 2	Complete		1/14/2013			
97	Start concrete fill of Nuclear Island structural modules CA01 and CA02 for Unit 2	12/10/2016	5/15/2017				
98	Passive Residual Heat Removal Heat Exchanger - Delivery of Equipment to Port of Entry - Unit 2	Complete		4/25/2014			
99	Refueling Machine Fabricator Notice to Contractor of Satisfactory Completion of Factory Acceptance Test - Unit 2	Complete		1/8/2015			
100	Deliver Reactor Vessel Internals to Port of Export - Unit 2	Complete		1/29/2016			
101	Set Unit 2 Containment Vessel #3	2/15/2017	4/6/2017				
102	Steam Generator - Contractor Acceptance of Equipment at Port of Entry - Unit 2	Complete		1/16/2015			
103	Turbine Generator Fabricator Notice to Contractor Turbine Generator Ready to Ship - Unit 2	Complete		5/28/2013			

**Appendix 1**  
**VC Summer Units 2 and 3**

Tracking ID	Order No. 2016-794 Description	Order No. 2016-794	16-4Q Targeted Milestone Completion Date	Actual Completion Date	Delta Months from Order No. 2016-794 Date	Outside +18/-24 Months Contingency?	Notes
104	Pressurizer Fabricator Notice to Contractor of Satisfactory Completion of Hydrotest - Unit 3	Complete		3/28/2015			
105	Polar Crane - Shipment of Equipment to Site - Unit 2	6/30/2016	3/15/2017				
106	Receive Unit 2 Reactor Vessel on site from fabricator	Complete		7/31/2013			
107	Set Unit 2 Reactor Vessel	Complete		8/30/2016			
108	Steam Generator Fabricator Notice to Contractor of Completion of 2nd Channel Head to Tubesheet Assembly Welding - Unit 3	Complete		4/24/2015			
109	Reactor Coolant Pump Fabricator Notice to Contractor of Final Stator Assembly Completion - Unit 3	Complete		8/30/2016			
110	Reactor Coolant Pump - Shipment of Equipment to Site (2 Reactor Coolant Pumps) - Unit 2	2/28/2017	2/28/2017				
111	Place first nuclear concrete for Unit 3	Complete		11/2/2013			
112	Set Unit 2 Steam Generator	11/17/2016	1/24/2017				
113	Main Transformers Ready to Ship - Unit 2	Complete		7/31/2013			
114	Complete Unit 3 Steam Generator Hydrotest at fabricator	Complete		8/21/2015			
115	Set Unit 2 Containment Vessel Bottom Head on basemat legs	Complete		5/22/2013			
116	Set Unit 2 Pressurizer Vessel	5/11/2017	5/25/2017				
117	Reactor Coolant Pump Fabricator Notice to Contractor of Satisfactory Completion of Factory Acceptance Test - Unit 3	7/1/2017	7/1/2017				
118	Deliver Reactor Vessel Internals to Port of Export - Unit 3	8/11/2017	8/31/2017				
119	Main Transformers Fabricator Issue PO for Material - Unit 3	Complete		1/15/2015			
120	Complete welding of Unit 2 Passive Residual Heat Removal System piping	5/19/2017	9/13/2017				
121	Steam Generator - Contractor Acceptance of Equipment at Port of Entry - Unit 3	10/30/2016	2/25/2017				
122	Refueling Machine - Shipment of Equipment to Site - Unit 3	5/15/2017	6/30/2017				
123	Set Unit 2 Polar Crane	6/28/2017	1/13/2018				
124	Reactor Coolant Pumps - Shipment of Equipment to Site - Unit 3	9/1/2017	9/1/2017				
125	Main Transformers Ready to Ship - Unit 3	Complete		7/29/2015			
126	Spent Fuel Storage Rack - Shipment of Last Rack Module - Unit 3	Complete		9/3/2015			

**Appendix 1**  
**VC Summer Units 2 and 3**

Tracking ID	Order No. 2016-794 Description	Order No. 2016-794	16-4Q Targeted Milestone Completion Date	Actual Completion Date	Delta Months from Order No. 2016-794 Date	Outside +18/-24 Months Contingency?	Notes
127	Start electrical cable pulling in Unit 2 Auxiliary Building	10/6/2016	5/10/2017				
128	Complete Unit 2 Reactor Coolant System cold hydro	8/16/2018	12/30/2018				
129	Activate class 1E DC power in Unit 2 Auxiliary Building	11/1/2017	3/11/2018				
130	Complete Unit 2 hot functional test	11/17/2018	4/2/2019				
131	Install Unit 3 ring 3 for containment vessel	11/29/2017	7/2/2018				
132	Load Unit 2 nuclear fuel	5/10/2019	8/5/2019				
133	Unit 2 Substantial Completion	8/31/2019	8/31/2019			No	
134	Set Unit 3 Reactor Vessel	12/14/2017	11/7/2017				
135	Set Unit 3 Steam Generator #2	2/21/2018	1/25/2018				
136	Set Unit 3 Pressurizer Vessel	3/30/2018	3/13/2018				
137	Complete welding of Unit 3 Passive Residual Heat Removal System piping	4/11/2018	2/2/2018				
138	Set Unit 3 polar crane	5/24/2018	5/15/2018				
139	Start Unit 3 Shield Building roof slab rebar placement	7/7/2019	7/28/2019				
140	Start Unit 3 Auxiliary Building electrical cable pulling	5/18/2017	7/31/2017				
141	Activate Unit 3 Auxiliary Building class 1E DC power	9/21/2018	10/15/2018				
142	Complete Unit 3 Reactor Coolant System cold hydro	8/15/2019	6/24/2019				
143	Complete Unit 3 hot functional test	11/11/2019	9/19/2019				
144	Complete Unit 3 nuclear fuel load	3/11/2020	2/10/2020				
145	Begin Unit 3 full power operation	7/12/2020	6/21/2020				
146	Unit 3 Substantial Completion	8/31/2020	8/31/2020			No	

**Note:** The Target Milestone Completion Dates in this Appendix are as of December 31, 2016. WEC officials, in a discussion the morning of February 14, 2017, indicated that WEC and its parent guarantor, Toshiba Corporation, are committed to completing Units 2 and 3, with a revised completion schedule of April 2020 and December 2020, respectively; however, the Company will continue to monitor WEC's ability to adhere to the new schedule, as well as the financial condition of WEC and Toshiba and its effect on their ability to complete the project.

## **VIII. APPENDIX 2**

### **V. C. Summer Nuclear Station Units 2 & 3**

#### **Quarterly Report to the South Carolina Office of Regulatory Staff Submitted by South Carolina Electric & Gas Company Pursuant to Public Service Commission Order No. 2009-104(A)**

#### **Quarter Ending December 31, 2016**

**Appendix 2** is an updated and expanded version of the information contained in the capital cost schedule approved by the Commission in Order No. 2016-794.

**Appendix 2** shows:

1. The actual expenditures on the project by plant cost category through the current period.
2. The changes in capital costs reflecting the Company's current forecast of expenditures on the project for each future period by plant cost category. In updating its cost projections the Company has used the current construction schedule for the project as set forth in **Exhibit 1** and the Commission-approved inflation indices as set forth in Appendix 4 to this report.
3. The cumulative CWIP for the project and the balance of CWIP that is not yet reflected in revised rates.
4. The current rate for calculating AFUDC computed as required under applicable FERC regulations.

The Cumulative Project Cash Flow target as approved in Order No. 2016-794 and as updated for escalation and other Commission-approved adjustments is found under the heading "Per Order 2016-794 Adjusted." The adjustments reflect:

1. Changes in inflation indices.
2. Budget Carry-Forward Adjustments used, where appropriate to track the effect of lower-than-expected cumulative costs on the future cumulative cash flow of the project.

Appendix 2 also shows the cumulative cash flow for the project based on actual expenditures to date and the current construction schedule and forecast of year-by-year costs going forward. This information is found under the heading "Actual through December 2016 plus Projected."



Appendix 2

**RESTATED and UPDATED CONSTRUCTION EXPENDITURES**

(Thousands of \$)

**V.C. Summer Units 2 and 3 - Summary of SCE&G Capital Cost Components**

<b>Per Order 2016-794 Adjusted</b>	<b>Total</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
Annual Project Cash Flow(per order)	7,336,888	21,723	100,905	340,003	398,551	349,061	562,946	537,569	511,965	656,378	952,397	1,335,245	965,395	463,740	141,010
Capital Cost Rescheduling Contingency	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Budget Carry-Forward Adjustment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Net</b>	<b>7,336,888</b>	<b>21,723</b>	<b>100,905</b>	<b>340,003</b>	<b>398,551</b>	<b>349,061</b>	<b>562,946</b>	<b>537,569</b>	<b>511,965</b>	<b>656,378</b>	<b>952,397</b>	<b>1,335,245</b>	<b>965,395</b>	<b>463,740</b>	<b>141,010</b>
Adjusted for Change in Escalation	7,325,818	21,723	100,905	340,003	398,551	349,061	562,946	537,569	511,965	656,378	954,182	1,327,751	962,078	462,340	140,366
Cumulative Project Cash Flow(Target)		21,723	122,629	462,632	861,183	1,210,244	1,773,190	2,310,759	2,822,724	3,479,101	4,433,283	5,761,034	6,723,113	7,185,453	7,325,818
<b>Actual through December 2016* plus Projected</b>															
<b>Plant Cost Categories</b>	<b>Total</b>	<b>Actual</b>										<b>Projected</b>			
Fixed with No Adjustment	3,657,458	4,628	35,199	22,066	67,394	50,551	66,057	22,960	11,634	366,348	727,099	939,773	948,896	355,786	39,068
Firm with Fixed Adjustment A	266,750	-	-	63,250	27,500	24,200	75,075	42,900	7,700	26,125	-	-	-	-	-
Firm with Fixed Adjustment B	238,868	-	5,499	35,768	49,513	39,371	45,043	31,048	22,834	9,791	-	-	-	-	-
Firm with Indexed Adjustment	873,741	-	45,869	148,713	115,172	137,871	118,769	150,530	129,994	26,822	0	-	-	-	-
Actual Craft Wages	133,306	-	312	1,937	9,779	11,682	21,091	25,217	38,785	24,503	0	-	-	-	-
Non-Labor Costs	406,936	-	1,271	31,255	79,778	9,298	65,227	70,154	105,390	44,564	(0)	-	-	-	-
Time & Materials	60,816	-	1,013	155	1,004	764	1,878	2,300	4,055	2,048	2,461	9,612	24,125	11,089	312
Owners Costs	837,364	17,096	8,198	15,206	23,743	29,276	43,643	47,245	51,807	56,885	74,658	173,313	127,821	106,102	62,372
Transmission Costs	329,512	-	26	724	927	11,964	51,677	56,593	46,439	44,401	32,224	63,982	20,555	-	-
<b>Total Base Project Costs(2007 \$)</b>	<b>6,804,751</b>	<b>21,723</b>	<b>97,386</b>	<b>319,073</b>	<b>374,810</b>	<b>314,977</b>	<b>488,461</b>	<b>448,947</b>	<b>418,639</b>	<b>601,486</b>	<b>836,442</b>	<b>1,186,680</b>	<b>1,121,397</b>	<b>472,977</b>	<b>101,752</b>
<b>Total Project Escalation</b>	<b>530,528</b>	<b>-</b>	<b>3,519</b>	<b>20,930</b>	<b>23,741</b>	<b>34,084</b>	<b>74,485</b>	<b>88,622</b>	<b>93,326</b>	<b>54,891</b>	<b>15,838</b>	<b>35,395</b>	<b>44,170</b>	<b>28,018</b>	<b>13,510</b>
<b>Total Revised Project Cash Flow</b>	<b>7,335,279</b>	<b>21,723</b>	<b>100,905</b>	<b>340,003</b>	<b>398,551</b>	<b>349,061</b>	<b>562,946</b>	<b>537,569</b>	<b>511,965</b>	<b>656,378</b>	<b>852,280</b>	<b>1,222,075</b>	<b>1,165,567</b>	<b>500,994</b>	<b>115,262</b>
Cumulative Project Cash Flow(Revised)		21,723	122,629	462,632	861,183	1,210,244	1,773,190	2,310,759	2,822,724	3,479,101	4,331,382	5,553,456	6,719,023	7,220,017	7,335,279
AFUDC(Capitalized Interest)	343,045	645	3,497	10,564	17,150	14,218	18,941	27,722	26,131	22,202	30,817	65,698	62,666	35,256	7,539
<b>Gross Construction</b>	<b>7,678,324</b>	<b>22,368</b>	<b>104,403</b>	<b>350,567</b>	<b>415,701</b>	<b>363,278</b>	<b>581,886</b>	<b>565,291</b>	<b>538,096</b>	<b>678,580</b>	<b>883,097</b>	<b>1,287,773</b>	<b>1,228,233</b>	<b>536,250</b>	<b>122,800</b>
<b>Construction Work in Progress</b>		<b>22,368</b>	<b>126,771</b>	<b>477,338</b>	<b>893,039</b>	<b>1,256,317</b>	<b>1,838,203</b>	<b>2,403,495</b>	<b>2,941,590</b>	<b>3,620,170</b>	<b>4,503,268</b>	<b>5,791,040</b>	<b>7,019,273</b>	<b>7,555,524</b>	<b>7,678,324</b>
<b>CWIP Currently in Rates</b>					<b>3,788,217</b>										
<b>December 31, 2016 Actual Incremental CWIP Not Currently in Rates</b>					<b>715,051</b>										

\*Applicable index escalation rates for 2016 are estimated. Escalation is subject to restatement when actual indices for 2016 are final.

Notes:

2017-2020 AFUDC rate applied

5.82%

The AFUDC rate applied is the current forecasted SCE&G rate. AFUDC rates can vary with changes in market interest rates, SCE&G's embedded cost of capital, capitalization ratios, construction work in process, and SCE&G's short-term debt outstanding.

## **IX. APPENDIX 3**

### **V. C. Summer Nuclear Station Units 2 & 3**

**Quarterly Report to the South Carolina Office of Regulatory Staff Submitted by South Carolina Electric & Gas Company Pursuant to Public Service Commission Order No. 2009-104(A)**

**Quarter Ending December 31, 2016**

For comparison purposes, **Appendix 3** provides the schedule of capital costs for the project which was approved by the Commission in Order No. 2016-794 as the Approved Capital Cost of the Units, pursuant to S.C. Code Ann. § 58-33-270(B)(2). **Appendix 3** also reflects the forecast of AFUDC expense based on these adjusted schedules and the AFUDC rates that were current at the time of Order No. 2016-794. **Appendix 3** is intended to provide a fixed point of reference for future revisions and updating. While the schedule of costs contained on **Appendix 3** is subject to revision for escalation, changes in AFUDC rates and amounts, capital cost scheduling contingencies and other contingency adjustments as authorized in Order No. 2009-104(A), no such adjustments have been made to the schedules presented here.

Appendix 3

**RESTATED and UPDATED CONSTRUCTION EXPENDITURES**

(Thousands of \$)

**V.C. Summer Units 2 and 3 - Summary of SCE&G Capital Cost Components**

Per Order 2016-794

Plant Cost Categories	Total	Actual									Projected				
		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Fixed with No Adjustment	3,657,459	4,628	35,199	22,066	67,394	50,551	66,057	22,960	11,634	366,348	753,742	1,110,388	756,960	325,881	63,652
Firm with Fixed Adjustment A	266,750	-	-	63,250	27,500	24,200	75,075	42,900	7,700	26,125	-	-	-	-	-
Firm with Fixed Adjustment B	238,868	-	5,499	35,768	49,513	39,371	45,043	31,048	22,834	9,791	-	-	-	-	-
Firm with Indexed Adjustment	873,741	-	45,869	148,713	115,172	137,871	118,769	150,530	129,994	26,822	0	-	-	-	-
Actual Craft Wages	133,306	-	312	1,937	9,779	11,682	21,091	25,217	38,785	24,503	0	-	-	-	-
Non-Labor Costs	406,936	-	1,271	31,255	79,778	9,298	65,227	70,154	105,390	44,564	(0)	-	-	-	-
Time & Materials	60,816	-	1,013	155	1,004	764	1,878	2,300	4,055	2,048	6,761	9,413	24,329	6,686	410
Owners Costs	837,363	17,096	8,198	15,206	23,743	29,276	43,643	47,245	51,807	56,885	113,992	133,978	127,821	106,102	62,372
Transmission Costs	329,512	-	26	724	927	11,964	51,677	56,593	46,439	44,401	56,471	47,360	12,930	-	-
<b>Total Base Project Costs(2007 \$)</b>	<b>6,804,751</b>	<b>21,723</b>	<b>97,386</b>	<b>319,073</b>	<b>374,810</b>	<b>314,977</b>	<b>488,461</b>	<b>448,947</b>	<b>418,639</b>	<b>601,486</b>	<b>930,966</b>	<b>1,301,139</b>	<b>922,040</b>	<b>438,669</b>	<b>126,434</b>
<b>Total Project Escalation</b>	<b>532,137</b>	<b>-</b>	<b>3,519</b>	<b>20,930</b>	<b>23,741</b>	<b>34,084</b>	<b>74,485</b>	<b>88,622</b>	<b>93,326</b>	<b>54,891</b>	<b>21,431</b>	<b>34,105</b>	<b>43,355</b>	<b>25,071</b>	<b>14,576</b>
<b>Total Revised Project Cash Flow</b>	<b>7,336,888</b>	<b>21,723</b>	<b>100,905</b>	<b>340,003</b>	<b>398,551</b>	<b>349,061</b>	<b>562,946</b>	<b>537,569</b>	<b>511,965</b>	<b>656,378</b>	<b>952,397</b>	<b>1,335,245</b>	<b>965,395</b>	<b>463,740</b>	<b>141,010</b>
<b>Cumulative Project Cash Flow(Revised)</b>		<b>21,723</b>	<b>122,629</b>	<b>462,632</b>	<b>861,183</b>	<b>1,210,244</b>	<b>1,773,190</b>	<b>2,310,759</b>	<b>2,822,724</b>	<b>3,479,101</b>	<b>4,431,498</b>	<b>5,766,743</b>	<b>6,732,139</b>	<b>7,195,878</b>	<b>7,336,888</b>
<b>AFUDC(Capitalized Interest)</b>	<b>321,322</b>	<b>645</b>	<b>3,497</b>	<b>10,564</b>	<b>17,150</b>	<b>14,218</b>	<b>18,941</b>	<b>27,722</b>	<b>26,131</b>	<b>22,202</b>	<b>33,731</b>	<b>60,930</b>	<b>53,505</b>	<b>23,121</b>	<b>8,965</b>
<b>Construction Work in Progress</b>		<b>22,368</b>	<b>126,771</b>	<b>477,338</b>	<b>893,039</b>	<b>1,256,317</b>	<b>1,838,203</b>	<b>2,403,495</b>	<b>2,941,590</b>	<b>3,620,170</b>	<b>4,606,299</b>	<b>6,002,474</b>	<b>7,021,374</b>	<b>7,508,235</b>	<b>7,658,210</b>

**X. APPENDIX 4**

**V. C. Summer Nuclear Station Units 2 & 3**

**Quarterly Report to the South Carolina Office of Regulatory  
Staff Submitted by South Carolina Electric & Gas Company  
Pursuant to Public Service Commission Order No. 2009-104(A)**

**Quarter Ending December 31, 2016**

**Appendix 4** shows the changes in the inflation indices approved in Order No. 2009-104(A). Included is a ten year history of the Handy-Whitman All Steam Index, South Atlantic Region; the Handy-Whitman All Steam and Nuclear Index, South Atlantic Region; the Handy-Whitman All Transmission Plant Index, South Atlantic Region; and the Chained GDP Index. The change in the relevant indices from the Combined Application is also provided.

# Appendix 4, Chart A

## Inflation Indices, Chart A

HW All Steam Generation Plant Index, July 2016

<u>Year</u>	<u>Index</u>	<u>Yr/Yr change</u>	<u>Three Year Average</u>	<u>Five Year Average</u>	<u>Ten Year Average</u>
2016	639	1.27%	2.35%	2.21%	3.48%
2015	631	3.27%	2.61%	2.90%	4.11%
2014	611	2.52%	2.16%	3.21%	3.78%
2013	596	2.05%	2.91%	2.18%	
2012	584	1.92%	3.82%	3.60%	
2011	573	4.75%	2.31%	4.75%	
2010	547	4.79%	3.78%	5.31%	
2009	522	-2.61%	4.74%	4.36%	
2008	536	9.16%	8.13%		
2007	491	7.68%	5.07%		
2006	456	7.55%			
2005	424				

**HW All Steam Index:**

One year  
Five Year

<b>BLRA Filing Jul-07</b>	<b>Order 2010-12 Jan-09</b>	<b>Order 2011-345 Jul-10</b>	<b>Order 2012-884 Jan-12</b>	<b>Order 2015-661 Jul-14</b>	<b>Order 2016-794 Jan-16</b>	<b>Update Jul-16</b>
7.68%	4.83%	4.79%	4.51%	2.52%	2.58%	1.27%
5.74%	7.19%	5.31%	3.91%	3.21%	2.79%	2.21%

## Appendix 4, Chart B

### Inflation Indices, Chart B

HW All Steam and Nuclear Generation Plant Index, July 2016

<u>Year</u>	<u>Index</u>	<u>Yr/Yr change</u>	<u>Three Year Average</u>	<u>Five Year Average</u>	<u>Ten Year Average</u>
2016	640	1.27%	2.41%	2.27%	3.52%
2015	632	3.44%	2.67%	2.97%	4.15%
2014	611	2.52%	2.22%	3.21%	3.80%
2013	596	2.05%	2.97%	2.22%	
2012	584	2.10%	3.82%	3.64%	
2011	572	4.76%	2.31%	4.76%	
2010	546	4.60%	3.78%	5.32%	
2009	522	-2.43%	4.82%	4.40%	
2008	535	9.18%	8.15%		
2007	490	7.69%	5.09%		
2006	455	7.57%			
2005	423				

<u>HW All Steam/Nuclear Index:</u>	<b>BLRA Filing Jul-07</b>	<u>Order 2010-12 Jan-09</u>	<u>Order 2011-345 Jul-10</u>	<u>Order 2012-884 Jan-12</u>	<u>Order 2015-661 Jul-14</u>	<u>Order 2016-794 Jan-16</u>	<u>Update Jul-16</u>
One year	7.69%	4.84%	4.60%	4.52%	2.52%	2.75%	1.27%
Five Year	5.75%	7.20%	5.32%	3.87%	3.21%	2.86%	2.27%

## Appendix 4, Chart C

### Inflation Indices, Chart C

HW All Transmission Plant Index, July 2016

<u>Year</u>	<u>Index</u>	<u>Yr/Yr change</u>	<u>Three Year Average</u>	<u>Five Year Average</u>	<u>Ten Year Average</u>
2016	622	1.30%	1.55%	1.24%	2.80%
2015	614	1.66%	1.68%	1.94%	3.59%
2014	604	1.68%	1.07%	2.63%	3.42%
2013	594	1.71%	2.13%	1.09%	
2012	584	-0.17%	3.25%	2.56%	
2011	585	4.84%	1.30%	4.36%	
2010	558	5.08%	2.71%	5.23%	
2009	531	-6.02%	3.96%	4.21%	
2008	565	9.07%	9.02%		
2007	518	8.82%	6.00%		
2006	476	9.17%			
2005	436				

<u>HW All Transmission Plant Index</u>	<b>BLRA Filing Jul-07</b>	<u>Order 2010-12 Jan-09</u>	<u>Order 2011-345 Jul-10</u>	<u>Order 2012-884 Jan-12</u>	<u>Order 2015-661 Jul-14</u>	<u>Order 2016-794 Jan-16</u>	<u>Update Jul-16</u>
One year	8.82%	7.41%	5.08%	2.48%	1.68%	1.48%	1.30%
Five Year	6.86%	8.60%	5.23%	3.00%	2.63%	1.89%	1.24%

## Appendix 4

### Inflation Indices, Chart D

GDP Chained Price Index, 2016

SERIESTYPE	UNIT	SHORT LABEL			ID	2009	2010	2011	2012	2013	2014	2015	2016
<b>Chained Price Index--Gross Domestic Product</b>													
U.S. Macro - 10 Year Baseline	(2009=100)	Chained price index-gross domestic product , Source: BEA , Units: index- 2009=100.0			45158933	100.00	101.23	102.79	104.70	106.45	108.43	109.62	110.96
Annual Percent change							<b>1.23%</b>	<b>1.54%</b>	<b>1.86%</b>	<b>1.67%</b>	<b>1.86%</b>	<b>1.10%</b>	<b>1.22%</b>
3-Year Annual Percent change									1.54%	1.69%	1.80%	1.54%	1.39%
5-Year Annual Percent change											<b>1.63%</b>	<b>1.61%</b>	<b>1.54%</b>
<b>Consumer Price Index, All-Urban</b>													
U.S. Macro - 10 Year Baseline	Index	Consumer price index, all-urban , Source: BLS , Units: - 1982-84=1.00			45158182	2.15	2.18	2.25	2.30	2.33	2.37	2.37	2.39
Percent change							<b>1.40%</b>	<b>3.21%</b>	<b>2.22%</b>	<b>1.30%</b>	<b>1.72%</b>	<b>0.00%</b>	<b>0.84%</b>
3-Year Annual Percent change									2.28%	2.25%	1.75%	1.01%	0.85%
5-Year Annual Percent change											<b>1.97%</b>	<b>1.69%</b>	<b>1.22%</b>
<b>Producer Price Index--Finished Goods</b>													
U.S. Macro - 10 Year Baseline	(1982=1.0)	Producer price index-finished goods , Source: BLS , Units: index- 1982=1.0			45159751	1.73	1.80	1.91	1.94	1.97	2.00	1.94	1.91
Percent change							<b>4.05%</b>	<b>6.11%</b>	<b>1.57%</b>	<b>1.55%</b>	<b>1.52%</b>	<b>-3.00%</b>	<b>-1.55%</b>
3-Year Annual Percent change									3.91%	3.08%	1.55%	0.02%	-1.01%
5-Year Annual Percent change											<b>2.96%</b>	<b>1.55%</b>	<b>0.02%</b>

	BLRA Filing Jul-07	Order 2010-12 Jan-09	Order 2011-345 Jul-10	Order 2012-884 Jan-12	Order 2015-661 Jul-14	Order 2016-794 Jan-16	Update Jul-16
<u>GDP Chained Price Index</u>							
One year	2.66%	2.24%	0.43%	2.11%	1.55%	1.00%	1.22%
Five Year	2.81%	2.86%	1.97%	1.69%	1.55%	1.64%	1.54%



**XI. APPENDIX 5**

**V. C. Summer Nuclear Station Units 2 & 3**

**Quarterly Report to the South Carolina Office of Regulatory  
Staff Submitted by South Carolina Electric & Gas Company  
Pursuant to Public Service Commission Order No. 2009-104(A)**

**Quarter Ending December 31, 2016**

**Appendix 5** indicates those LARs that have been submitted by SCE&G to the NRC for review. Included is the title of each LAR, a brief description of the change(s) associated with the LAR, the date the LAR was submitted to the NRC, and the status of the requests.

## Appendix 5

### V.C. Summer Units 2 and 3 License Amendment Requests (LARs)

Topic	Description of Change	Submittal Date	Status
LAR 12-01 - Additional Electrical Penetration Assemblies	Provide additional penetrations of the Containment Vessel to allow sufficient space for electrical and instrument cables.	8/29/2012	Approved on 7/1/2013
LAR-12-02 - Tier 1 Table 3.3-1 Discrepancies	Conform the current ITAAC standards used to verify the shield building wall thickness to align with those approved in DCD Rev. 19.	9/26/2012	Approved on 5/30/2013
LAR 13-01 - Basemat Shear Reinforcement Design Spacing Requirements	Clarify the provisions for maximum spacing of the shear reinforcement in the basemat below the auxiliary building to be consistent with requirements shown in existing FSAR figures.	1/15/2013	Approved on 2/26/2013
LAR 13-02 - Basemat Shear Reinforcement Design Details	Revises the requirements for development of basemat shear reinforcement in the licensing basis from ACI 349 Appendix B to ACI 318-11, Section 12.6. The use of ACI 318 criteria for headed reinforcement results in longer shear ties and thicker concrete in areas below the elevator pits and a sump in the nuclear island basemat.	1/18/2013	Approved on 3/1/2013
LAR 13-03 - Turbine Building Eccentric and Concentric Bracing	Revises the turbine building main area to use a mixed bracing system using eccentrically and concentrically braced frames as a means of preventing the turbine building from collapsing onto the Nuclear Island (NI) during a seismic event. The structural design code is also changed to a code that includes adequate provisions for the new bracing system.	2/7/2013	Approved on 7/1/2013
LAR 13-04 - Reconciliation of Tier 1 Valve Differences	Reconciles valve related information contained in Tier 1 material to be consistent with corresponding Tier 2 material currently incorporated in the UFSAR.	2/7/2013	Approved on 9/3/2015

## Appendix 5

## V.C. Summer Units 2 and 3 License Amendment Requests (LARs)

Topic	Description of Change	Submittal Date	Status
LAR 13-05 - Structural Modules Shear Stud Size and Spacing	Revises Note 2 of UFSAR Figure 3.8.3-8, Sheet 1, which presents typical structural wall module details. This information needs to be changed to be consistent with the design basis calculations.	2/14/2013	Approved on 5/23/2013
LAR 13-06 - Primary Sampling System Changes	Alters the design of the Primary Sampling System (PSS) by replacing a check valve with a solenoid-operated gate valve, modifying the PSS inside-containment header and adding a PSS containment penetration.	2/7/2013	Approved on 8/22/2013
LAR 13-07 - Changes to the Chemical and Volume Control System (CVS)	Alters the design of the Chemical and Volume Control System (CVS) by adding/changing valves, separating the zinc and hydrogen injection paths and relocating the zinc injection point.	3/13/2013	Approved on 2/24/2014
LAR 13-08 - Module Obstructions and Details	Withdrawn after review with NRC-see Letter NND-13-202. <i>Superseded by LAR 13-20.</i>	2/28/2013	Withdrawn
LAR 13-09 - Annex/Radwaste Building Layout Changes	Updates column line numbers on Annex Building Figures and changes the configuration of the Radwaste building by adding three bunkers for storage and merging two rooms.	2/27/2014	Under NRC Review
LAR 13-10 - Human Factors Engineering Integrated System Validation Plan	Revises referenced document APP-OCS-GEH-320 from Revision D to Revision 2.	3/13/2013	Approved on 7/31/2014
LAR 13-11 - NI Wall Reinforcement Criteria	Revises structural code criteria for anchoring reinforcement bar within the NI walls (adopts ACI-318 for this purpose).	3/26/2013	Approved on 6/6/2013

## Appendix 5

## V.C. Summer Units 2 and 3 License Amendment Requests (LARs)

Topic	Description of Change	Submittal Date	Status
LAR 13-12 - Fire Area Boundary Changes	Revises various information to support fire area boundaries (HVAC information, stairwell changes, and other layout changes).	7/17/2013	Approved on 9/9/2014
LAR 13-13 - Turbine Building Layout Changes	Revises the door location, clarifies column line designations, changes floor to ceiling heights and increases elevations and wall thickness in certain areas.	7/30/2013	Approved on 5/12/2014
LAR 13-14 - Turbine Building Battery Room and Electrical Changes	Revises the Non-Class 1E dc and Uninterruptible Power Supply System (EDS) and Class 1E dc and Uninterruptible Power Supply System (IDS) by: (1) Increasing EDS total equipment capacity, component ratings, and protective device sizing to support increased load demand, (2) Relocating equipment and moving Turbine Building (TB) first bay EDS Battery Room and Charger Room. The floor elevation increases from elevation 148'-0" to elevation 148'-10" to accommodate associated equipment cabling with this activity, and (3) Removing the Class 1E IDS Battery Back-up tie to the Non-Class 1E EDS Battery.	10/2/2013	Approved on 10/24/2014
LAR 13-16 - Revision to Human Factors Engineering Design Verification Plan (GEH-120)	Revises referenced document APP-OCS-GEH-120 from Revision B to Revision 1.	9/25/2013	Approved on 7/31/2014
LAR 13-17 - Revision to Human Factors Engineering Task Support Verification (GEH-220)	Revises referenced document APP-OCS-GEH-220 from Revision B to Revision 1.	9/25/2013	Approved on 7/31/2014

## Appendix 5

### V.C. Summer Units 2 and 3 License Amendment Requests (LARs)

Topic	Description of Change	Submittal Date	Status
LAR 13-18 - Revision to Human Factors Engineering Issue Resolution Plan	Revises APP-OCS-GEH-420 to make a number of changes in order to refine the process for capturing and resolving Human Engineering Discrepancies (HEDs) from that process document as described in Revision B.	10/3/2013	Approved on 7/31/2014
LAR 13-19 - Revision to Human Factors Engineering Plan	Revises APP-OCS-GEH-520 to make a number of changes in order to confirm aspects of the HSI and OCS design features that could not be evaluated in other Human Factors Engineering (HFE) V&V activities.	10/3/2013	Approved on 7/31/2014
LAR 13-20 - Modules / Stud Channel Obstructions Revision	Revises requirements for design spacing of shear studs and wall module trusses and the design of structural elements of the trusses such as angles and channels. These revisions are to address interferences and obstructions.	7/17/2013	Approved on 11/19/2013
LAR 13-21 - CA03 Module Design Differences	Corrects inconsistencies between Tier 2* and Tier 2 information.	2/2/2014	Approved on 4/17/2015
LAR 13-22 - Annex Building Structure and Layout Changes	The proposed changes would revise the Combined Licenses (COLs) by (a) installing an additional nonsafety-related battery, (b) revising the annex building internal configuration by converting a shift turnover room to a battery room, adding an additional battery equipment room, and moving a fire area wall, (c) increasing the height of a room, and (d) increasing certain floor thicknesses. The proposed changes include reconfiguring existing rooms and related room, wall, and access path changes.	12/4/2014	Approved on 10/23/2015

**Appendix 5****V.C. Summer Units 2 and 3 License Amendment Requests (LARs)**

<b>Topic</b>	<b>Description of Change</b>	<b>Submittal Date</b>	<b>Status</b>
LAR 13-23 - Reinforced Concrete (RC) to Steel Plate Composite Construction (SC) Connections	The proposed amendment would revise Tier 2* and associated Tier 2 material related to the design details of connections in several locations between the steel plate composite construction (SC) used for the shield building and the standard reinforced concrete (RC) walls, floors, and roofs of the auxiliary building and lower walls of the shield building.	7/11/2014	Approved on 12/16/2014
LAR 13-24 - Containment Internal Floor Module Connections	The amendment request proposes to depart from UFSAR text and figures that describe the connections between floor modules and structural wall modules in the containment internal structures.	6/16/2016	Under NRC Review
LAR 13-25 - Tier 1 Editorial and Consistency Changes	Revises information to correct consistency and editorial issues. This submittal does not contain any technical changes.	7/2/2013	Approved on 7/31/2014
LAR 13-26 - EP Rule Changes	Revision to the Emergency Plan in order to comply with regulatory changes enacted by the Nuclear Regulatory Commission (NRC) in the Final Rule. These changes include the addition of text that 1) clarifies the distance of the Emergency Operations Facility (EOF) from the site, 2) updates the content of exercise scenarios to be performed at least once each exercise cycle, and 3) requires the Evacuation Time Estimate (ETE) to be updated annually between decennial censuses.	12/17/2013	Approved on 6/20/2014

## Appendix 5

## V.C. Summer Units 2 and 3 License Amendment Requests (LARs)

Topic	Description of Change	Submittal Date	Status
LAR 13-27 - Control Rod Drive Mechanism Latching Relays	The proposed change would revise Combined License (COL) numbers NPF-93 and NPF-94 for Virgil C. Summer Nuclear Station, Units 2 & 3, respectively, to specify the use of Control Rod Drive Mechanism (CRDM) latching control relays (referred to as control relays herein) in lieu of field breakers to open the CRDM motor generator (MG) set generator field on a diverse actuation system (DAS) signal.	10/30/2014	Approved on 6/10/2015
LAR 13-28 - Piping Line Number Additions, Deletions, and Functional Capability Re-designation	The proposed changes revise the Combined License (COL) in regard to changes to the Automatic Depressurization System (ADS), the Passive Containment Cooling System (PCS), the Passive Core Cooling System (PXS), the Normal Residual Heat Removal System (RNS), the Containment Air Filtration System (VFS), Spent Fuel Pool Cooling System (SFS) and the Sanitary Discharge System (SDS) piping line numbers to reflect the as-designed configuration resulting from changes in piping layout or rerouting. The changes consist of adding or deleting piping line numbers of existing piping lines, or updating the functional capability classification of existing process flow lines for the tables.	12/18/2014	Approved on 1/20/2016
LAR 13-29 - Consolidation of IDS Spare Battery Termination Boxes	The proposed changes revise COLs concerning the Class 1E dc and Uninterruptible Power Supply System (IDS). The proposed changes replace four Spare Termination Boxes (IDSS-DF-2, IDSS-DF-3, IDSS-DF-4, and IDSS-DF-5) with a single Spare Battery Termination Box (IDSS-DF-3), and make minor raceway and cable routing changes.	12/19/2014	Approved on 4/25/2016

## Appendix 5

## V.C. Summer Units 2 and 3 License Amendment Requests (LARs)

Topic	Description of Change	Submittal Date	Status
LAR 13-30 - Ventilation System Changes	The proposed changes revise the Combined Licenses (COLs) concerning the design details of the containment recirculation cooling system (VCS) and radiologically controlled area ventilation system (VAS).	12/21/2016	Under NRC Review
LAR 13-31 - Relocation of Air Cooled Chiller Pump 3, VWS-MP-03	The proposed changes modify the design of the low capacity Central Chilled Water Subsystem (VWS) by relocating Air Cooled Chiller Pump 3 (VWS-MP-03) and its associated equipment, including a new chemical feed tank, from the Auxiliary Building to the Annex Building.	10/21/2015	Under NRC Review
LAR 13-32 - WLS Changes	Clarifies the description of the WLS, including changing depiction of valves to be consistent with Tier 1 figure conventions, ensuring consistency between Tier 1 and Tier 2 descriptions, and clarifying the safety classification of the drain hubs.	8/30/2013	Approved on 1/8/2014
LAR 13-33 - Passive Core Cooling System (PXS) Condensate Return	Withdrew LAR after NRC review, see letter NND-16-0200.	7/8/2014	Withdrawn
LAR 13-34 - Clarification of Tier 2* Material in HFE Documents	The proposed changes reclassify portions of the five Tier 2* Human Factors (HF) Verification & Validation (V&V) planning documents listed in Updated Final Safety Analysis Report (UFSAR) Table 1.6-1 and Chapter 18, Section 18.11.2.	3/19/2014	Approved on 10/8/2014
LAR 13-35 - Update of Common Qualified (Common Q) Platform Software Program Manual and Topical Report	The newer revisions of WCAP-16096 and WCAP-16097 are being adopted for the AP1000 Protection and Safety Monitoring System (PMS) by adding them to the AP1000 licensing basis. This license amendment request (LAR) requests approval of the new and revised Tier 2 and Tier 2* UFSAR text.	3/4/2016	Under NRC Review



## Appendix 5

### V.C. Summer Units 2 and 3 License Amendment Requests (LARs)

Topic	Description of Change	Submittal Date	Status
LAR 13-36 - CIM / DAS Diversity Clarification	The requested amendment proposed to depart from approved AP1000 Design Control Document (DCD) Tier 2* information as incorporated into the Updated Final Safety Analysis Report (UFSAR) by clarifying the position on design diversity, specifically human diversity, as related to the Component Interface Module (CIM) and Diverse Actuation System (DAS) design.	9/11/2014	Approved on 7/17/2015
LAR 13-37 - VCSNS Units 2 & 3 Tech Spec Upgrade	Revises Technical Specifications to closer align with the guidance of the Technical Specifications Task Force (TSTF) Writer's Guide for Plant-Specific Improved Technical Specifications, TSTF-GG-05-01, Revision 1, and with NUREG-1431, Standard Technical Specifications - Westinghouse Plants as updated by NRC approved generic changes.	12/4/2013	Approved on 11/12/2014
LAR 13-38 - ACI Code Compliance with Critical Sections Higher Elevations	Withdrawn after review with NRC-see Letter NND-13-0745.	11/7/2013	Withdrawn
LAR 13-39 - EPZ Expansion LAR	This amendment proposes a change to the VCSNS Units 2&3 Radiation Emergency Plan (Plan). VCSNS proposes the following changes to the Units 2&3 Plan: expansion of the Emergency Planning Zone (EPZ) boundary, and revisions to the Evacuation Time Estimates (ETE) analysis and the Alert and Notification System (ANS) design reports to encompass the expanded EPZ boundary.	5/18/2015	Approved on 2/5/2016

## Appendix 5

## V.C. Summer Units 2 and 3 License Amendment Requests (LARs)

Topic	Description of Change	Submittal Date	Status
LAR 13-41 - Coating Thermal Conductivity	Revises Design Control Document (DCD) Tier 2 information as incorporated into the Updated Final Safety Analysis Report (UFSAR) to allow use of a new methodology to determine the effective thermal conductivity resulting from oxidation of the inorganic zinc (IOZ) used in the containment vessel coating system.	11/26/2013	Approved on 10/9/2015
LAR 13-42 - Tier 1 Editorial and Consistency Changes #2	Allows various changes to correct editorial errors in Tier 1 and promote consistency with the Updated Final Safety Analysis Report (Tier 2 information).	5/20/2014	Approved on 3/10/2015
LAR 14-01 - Auxiliary Building Roof and Floor Details	Departs from VCSNS Units 2 and 3 plant-specific Design Control Document (DCD) Tier 2* material contained within the Updated Final Safety Analysis Report (UFSAR) to identify design details of the floors of the auxiliary building that may vary due to design and loading conditions, in accordance with code requirements.	4/3/2014	Approved on 7/18/2014
LAR 14-02 - Wall 11 Design Related Changes	This amendment request proposes changes to the design of auxiliary building Wall 11 and proposes other changes to the licensing basis for use of seismic Category II structures. This submittal requests approval of the license amendment necessary to implement these changes.	12/17/2015	Approved on 5/31/2016
LAR 14-03 - Tier 2* Editorial and Clarification Changes	Departs from VCSNS Units 2 and 3 plant-specific Design Control Document (DCD) Tier 2* material contained within the Updated Final Safety Analysis Report (UFSAR) by making editorial and consistency corrections.	6/12/2014	Approved 11/20/2015

## Appendix 5

### V.C. Summer Units 2 and 3 License Amendment Requests (LARs)

Topic	Description of Change	Submittal Date	Status
LAR 14-05 - Containment Internal Structural Module Design Details	The requested amendment proposes to depart from Tier 2* information in the Updated Final Safety Analysis Report (UFSAR), plant-specific Tier 1 and corresponding COL Appendix C information, and involved UFSAR Tier 2 information to address changes in the UFSAR and design documents related to containment internal structural wall module design details.	7/17/2014	Approved on 3/12/2015
LAR 14-06 - Enclosures for Class 1E Electrical Penetrations in Middle Annulus	Departs from VCSNS Units 2 and 3 plant-specific Design Control Document (DCD) Tier 2* material contained within the Updated Final Safety Analysis Report (UFSAR) by eliminating the Division A fire zone enclosure and adding three new fire zones for Divisions B, C, and D Class 1 E electrical penetration rooms.	6/20/2014	Approved on 12/30/2014
LAR 14-07 - CA04 Structural Module ITAAC Dimensions Change	The proposed amendment would allow changes to adjust the concrete wall thickness tolerances of four Nuclear Island walls found in Tier 1.	9/25/2014	Approved on 8/24/2015
LAR 14-08 - Integrated Test Program (ITP)	The requested amendment requires changes to the Updated Final Safety Analysis Report (UFSAR) in the form of departures from the incorporated plant-specific Design Control Document (DCD) Tier 2 information, and involves changes to related plant-specific Tier 1 information with corresponding changes to the associated COL information. Many of the changes in this amendment request are done in order to conform to the Tier 1 Section 3.4 exemption request described in Enclosure 2. In that change, construction and installation testing is removed from the ITP and replaced with component testing.	10/23/2014	Approved on 9/9/2015

## Appendix 5

### V.C. Summer Units 2 and 3 License Amendment Requests (LARs)

Topic	Description of Change	Submittal Date	Status
LAR 14-09 - Turbine Building Switchgear Room and Office Layout Changes	The requested amendment would depart from VCSNS Units 2 and 3 plant-specific Design Control Document (DCD) Tier 2* material contained within the Updated Final Safety Analysis Report (UFSAR) by relocating fire area rated fire barriers due to changes to the layout of the switchgear rooms and office area in the turbine building. The requested amendment would also depart from plant-specific DCD Tier 2 material that involves the proposed Tier 2* departures.	9/18/2014	Approved on 12/18/2015
LAR 14-10 - Addition of Instruments to Design Reliability Assurance Program (D-RAP)	This license amendment request proposes to modify the existing feedwater controller logic to allow the controller program to respond as required to various plant transients while minimizing the potential for false actuation. The current configuration of the feedwater control system allows the startup feedwater (SFW) pumps to start upon initiation of a reactor trip. This proposed change will align the feedwater controller logic with the guidance in the Advanced Light Water Reactor Utility Requirements Document (ALWR URD).	7/6/2015	Approved on 5/2/2016
LAR 14-11 - Debris Screen Related Dimensions	The proposed changes are to information identifying the frontal face area and screen surface area for the In-Containment Refueling Water Storage Tank (IRWST) screens, the location and dimensions of the protective plate located above the containment recirculation (CR) screens, and increasing the maximum Normal Residual Heat Removal System (RNS) flowrate through the screens.	8/12/2016	Under NRC Review

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## V.C. Summer Units 2 and 3 License Amendment Requests (LARs)

Topic	Description of Change	Submittal Date	Status
LAR 14-12 - Core Makeup Tank Volume Inconsistency	A change is proposed to revise the COL Appendix A (Technical Specifications) SR 3.5.2.2 and UFSAR to reflect a minimum CMT volume of 2487 ft <sup>3</sup> . This lower value is supported by the Small Break Loss of Coolant Accident (SBLOCA) safety analysis, the analysis in which minimum CMT volume is a critical parameter, and aligns with the current ITAAC value.	5/12/2016	Under NRC Review
LAR 14-13 - Proposed Emergency Action Levels	This LAR proposes that the license conditions be modified to allow SCE&G to submit plant-specific EALs developed using criteria from NEI 07-01, Rev 0 and NEI 99-01. The proposed changes, including the modification of VCSNS Units 2&3 License Conditions 2.D(12)(c) and submittal of the new plant-specific EALs for both units, do affect the VCSNS Units 2&3 Combined Licenses, but do not alter requirements of the Emergency Plan or Technical Specifications.	10/9/2015	Under NRC Review
LAR 14-14 - Structural Design of Auxiliary Building Floors	Changes are proposed to the Updated Final Safety Analysis Report (UFSAR) descriptions and figures to address changes in the structural design of floors, including finned floors, in the auxiliary building. Changes include proposed modifications specific to the finned floors critical section, as well as additional clarification to define how similar finned floors other than the critical section and similar concrete on steel plate floors without fins can be different in the design details.	6/16/2016	Under NRC Review
LAR 14-15 - Compressed and Instrument Air Supply Modification	The proposed change would revise the Combined Licenses (COLs) in regard to removing a supply line from the Compressed and Instrument Air System (CAS) to the generator breaker package and involves changes to related plant-specific Tier 1 information, with corresponding changes to associated COL Appendix C information.	10/30/2014	Approved on 4/27/2016

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## V.C. Summer Units 2 and 3 License Amendment Requests (LARs)

Topic	Description of Change	Submittal Date	Status
LAR 14-17 - Core Reference Report Incorporation	This amendment is requested in order to incorporate WCAP-17524-P-A, Revision 1, AP1000 Core Reference Report.	3/14/2016	Approved on 9/20/2016
LAR 14-18 - Containment Hydrogen Igniter Changes	The proposed departures consist of changes to plant-specific Tier 1 (and COL Appendix C) tables and UFSAR tables, text, and figures related to the addition of two hydrogen igniters above the In-Containment Refueling Water Storage Tank (IRWST) roof vents to improve hydrogen burn capabilities, incorporating consistency changes to a plant-specific Tier 1 table to clarify the minimum surface temperature of the hydrogen igniters and igniter location, removal of hydrogen igniters from the Protection and Safety Monitoring System (PMS) from a plant-specific Tier 1 table, and clarification of hydrogen igniter controls in a Tier 1 table.	5/6/2015	Approved on 11/21/2016
LAR 14-19 - HFE OSA Task Update and Removal of WCAP-15847	Tier 2* document WCAP-15847 identifies documents that were used to support the AP1000 Design Certification. These documents have either been superseded or discontinued. Therefore, an amendment is being proposed to implement the necessary Tier 2* changes to delete WCAP-15847 from the UFSAR. In addition to this change, a Human Factors Engineering (HFE) Operational Sequence Analysis (OSA) task related to the Automatic Depressurization System (ADS) needs to be clarified.	1/27/2015	Approved on 6/2/2015

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### V.C. Summer Units 2 and 3 License Amendment Requests (LARs)

Topic	Description of Change	Submittal Date	Status
LAR 15-01 - HFE V&V Plan Updates to Support ISV	The proposed changes will resolve inconsistencies and implement changes identified during the review of Human Factors (HF) Verification and Validation (V&V) plans. These changes involve revising Tier 2* information contained within the Human Factors Engineering (HFE) Design Verification, Task Support Verification and Integrated System Validation (ISV) plans.	2/10/2015	Approved on 9/23/2015
LAR 15-03 - Main Control Room Emergency Habitability System (VES) Design Changes	The proposed changes revise the COLs concerning the design details of the Main Control Room Emergency Habitability System (VES). These proposed changes would revise ASME safety classification and transition location, equipment orientation and removal, and identification of the number of emergency air storage tanks.	6/30/2015	Approved on 6/2/2016
LAR 15-04 - Diverse Actuation System (DAS) Cabinet Changes	The proposed changes revise the licensing basis of the COLs to modify the design of the Diverse Actuation System (DAS) to be consistent with the DAS fire-induced spurious actuation (smart fire) and single point failure criteria. The DAS is proposed to be revised by reconfiguring the signal processing in the two processor cabinets currently located in the Annex Building and relocating the cabinets to the Auxiliary Building. The proposed changes also eliminate the instrument cabinet located in the Auxiliary Building.	11/4/2015	Approved on 8/19/2016
LAR 15-05 - Tier 1 Editorial and Consistency Changes	The proposed changes would revise the Combined Licenses (COLs) by making various nontechnical changes to COL Appendix C and the corresponding plant-specific Tier 1 information along with one involved Updated Final Safety Analysis Report (UFSAR) Tier 2 change and one typographical change to COL paragraph 2.D.	5/16/2016	Approved on 11/25/2016

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### V.C. Summer Units 2 and 3 License Amendment Requests (LARs)

Topic	Description of Change	Submittal Date	Status
LAR 15-07 - Reclassification of Tier 2* Information on Fire Area Figures	The requested amendment and exemption identify portions of the licensing basis that would more appropriately be classified as Tier 2, specifically the Tier 2* information on Fire Area Figures 9A-1, 9A-2, 9A-3, 9A-4, 9A-5, and 9A-201 in the VCSNS 2 and 3 Updated Final Safety Analysis Report.	5/4/2015	Approved on 2/1/2016
LAR 15-08 - Supplemental Requirements for Mechanical Coupler Weld Acceptability	The proposed change is that, using the AISC N690-1994 SLC of 1.6, rebar sizes #4, #5, and #6 C2/C3J couplers demonstrate the required weld capacity through analysis. For rebar sizes #7 through #11 C2/C3J couplers, this activity proposes testing as permitted by AISC N690-1994 Section Q1.22.2 to demonstrate the weld capacity for 125% of the specified yield strength loading of the rebar by performing a series of a minimum of six static and three cyclic tests on representative samples of each of the five sizes of the coupler-rebar- weld system.	8/24/2015	Approved on 11/12/2015
LAR 15-09 - Use of AWS D1.1-2000 Criteria for Structural Welds	The requested amendment proposes to depart from Tier 2* and associated Tier 2 information in the Updated Final Safety Analysis Report (UFSAR) (which includes the plant-specific DCD Tier 2 information) to revise the application of American Institute for Steel Construction (AISC) N690-1994, Specification for the Design, Fabrication and Erection of Steel Safety-Related Structures for Nuclear Facilities, to allow use of American Welding Society (AWS) D1.1-2000, Structural Welding Code-Steel, in lieu of the AWS D1.1-1992 edition identified in AISC N690-1994.	5/26/2015	Approved on 9/1/2015



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### V.C. Summer Units 2 and 3 License Amendment Requests (LARs)

Topic	Description of Change	Submittal Date	Status
LAR 15-10 - Resolution of Auxiliary Building Wall Thickness and Description Inconsistencies	The proposed changes are to the auxiliary building structural design, specifically the design thicknesses of the auxiliary building column line 1 wall and column line I wall, and the location description for the auxiliary building labyrinth wall.	10/27/2016	Under NRC Review
LAR 15-11 - Boric Acid Storage Tank Suction Point ITAAC Changes	The proposed departures consist of changes to plant-specific UFSAR Figure 9.3.6-1 Sheet 2 of 2 and COL Appendix C Table 2.3.2-4 related to the configuration of the boric acid storage tank (BAST) suction point. The change also aligns the Tier 1 Chemical and Volume Control System (CVS) makeup flow rate with previously approved Tier 2 information.	9/29/2016	Under NRC Review
LAR 15-15 - Radiologically Controlled Area Ventilation System (VAS) Design Changes	The requested amendment proposes changes to the Radiologically Controlled Area Ventilation System (VAS) configuration and equipment list by relocating one radiation monitor and adding one radiation monitor.	12/17/2015	Approved on 10/31/2016
LAR 15-17 - Addition of New Turbine Building Sump Pumps to ITAAC	The proposed amendment would depart from plant-specific Tier 1 information by adding two turbine building sump pumps to accommodate the increased flow that will be experienced during condensate polishing system rinsing operations. The proposed change also indicates that there is more than one main turbine building sump. Because flow into the turbine building sumps may be radiologically contaminated, the turbine building sump pumps will cease operation if a high radiation signal is present.	9/30/2015	Under NRC Review

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## V.C. Summer Units 2 and 3 License Amendment Requests (LARs)

Topic	Description of Change	Submittal Date	Status
LAR 15-18 - Revision to VCSNS Units 2 and 3 Plant-Specific Emergency Planning ITAAC	Changes to the plant-specific emergency planning ITAAC are proposed to remove the copies of DCD Table 7.5-1, "Post-Accident Monitoring System," and FSAR Table 7.5-201, "Post-Accident Monitoring System," and to replace the references to DCD Table 7.5-1 and FSAR Table 7.5-201 with UFSAR Table 7.5-1 in Table C.3.8-1 for ITAAC Numbers C.3.8.01.01.01, C.3.8.01.05.01.05 and C.3.8.01.05.02.04.	10/1/2015	Approved on 5/2/2016
LAR 15-19 - Proposed Revision to Technical Specifications (TS) Section 5.0 Regarding Shift Supervisor Title Change	The proposed amendment will change Technical Specifications (TS) Section 5.0, "Administrative Controls" by revising the Shift Supervisor title to Shift Manager.	10/22/2015	Approved on 2/29/2016
LAR 15-20 - Increased Concrete Thickness Tolerance for Column Line J-1 and J-2 Walls above 66' -6"	The proposed change revises COL Appendix C (and plant-specific DCD Tier 1) Table 3.3-1 to change the tolerance for the concrete thickness of the column line J-1 and J-2 walls from $\pm 1$ inch to a tolerance of -1 inch and +4 inch for a length of 24 inches at the interface of these reinforced concrete walls to structural module connections at the CA20 module.	1/14/2016	Approved on 5/31/2016
LAR 15-21 - Use of Localized Shoring for Composite Floors and Roof in the Auxiliary Building	The proposed change is to allow use of shoring for the metal deck in the vicinity of penetrations and other openings and as temporary supports in place of an incomplete wall.	1/19/2016	Approved on 8/25/2016
LAR 16-01 - Pressurizer Surge Line Testing	The proposed changes to the UFSAR eliminate pressurizer spray line monitoring during pressurizer surge line first plant only testing. In addition, these proposed changes correct inconsistencies in testing purpose, testing duration, and the ability to leave equipment in place following the data collection period.	9/15/2016	Under NRC Review

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## V.C. Summer Units 2 and 3 License Amendment Requests (LARs)

Topic	Description of Change	Submittal Date	Status
LAR 16-02 - Passive Core Cooling System (PXS) Design Changes to Address Potential Gas Intrusion	The requested amendment proposes changes to the passive core cooling system (PXS), the normal residual heat removal system (RNS) and containment air filtration system (VFS) piping layout and routing design information.	6/2/2016	Approved on 11/25/2016
LAR 16-03 - Auxiliary Building Roof Rebar Configuration Design	The requested amendment proposes to depart from Tier 2* information in the Updated Final Safety Analysis Report (UFSAR) (which includes the plant-specific DCD Tier 2 information) related to the roof rebar configuration design of the auxiliary building.	6/28/2016	Under NRC Review
LAR 16-04 - PMS Logic Changes for Source Range Flux Doubling	This license amendment request (LAR) involves updates to the Protection and Safety Monitoring System (PMS) design to align it with the requirements in IEEE 603-1991, "IEEE Standard Criteria for Safety Systems for Nuclear Power Generating Stations." The PMS functional logic for blocking and resetting the source range neutron flux doubling signal requires revision to fully comply with this standard.	7/19/2016	Under NRC Review
LAR 16-05 - Slab Thickness Changes between Column Lines I to J-1 and 2 to 4 at Elevation 153'-0"	The requested amendment proposes to change thickness of one floor in the auxiliary building located between Column Lines I to J-1 and 2 to 4 at Elevation 153'-0".	7/5/2016	Under NRC Review
LAR 16-06 - Passive Core Cooling System (PXS) Condensate Return	The proposed amendment would revise the licensing basis information to reflect an increase in the efficiency of the return of condensate utilized by the passive core cooling system (PXS) to the in-containment refueling water storage tank (IRWST) to support the capability for long-term cooling.	11/18/2016	Under NRC Review

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### V.C. Summer Units 2 and 3 License Amendment Requests (LARs)

Topic	Description of Change	Submittal Date	Status
LAR 16-07 - Addition of Density Compensation to Reactor Trip System (RTS) Reactor Coolant Flow Signal	The requested amendment proposes to depart from UFSAR text by adding compensation, for changes in reactor coolant density using the $\Delta T$ power signal, to the reactor coolant flow input signal for the low reactor coolant flow trip function of the Reactor Trip System (RTS). Additionally, Technical Specification (TS) Surveillance Requirement (SR) 3.3.1.3 is added to the surveillances required for the Reactor Coolant Flow-Low reactor trip in TS Table 3.3.1-1, Function 7.	7/11/2016	Under NRC Review
LAR 16-08 - Automatic Depressurization System (ADS) Stage 2, 3 & 4 Valve Flow Area Changes and Clarifications	The requested amendment proposes changes to a plant-specific Tier 1 (and COL Appendix C) table and UFSAR tables to clarify the flow area for the Automatic Depressurization System (ADS) fourth stage squib valves and to reduce the minimum effective flow area for the second and third stage ADS control valves.	9/2/2016	Under NRC Review
LAR 16-09 - Nuclear Instrumentation System Excore Detector Surface Material Inspection Clarification	The requested amendment proposes clarifications to a plant-specific Tier 1 (and COL Appendix C) table and a UFSAR table in regard to the inspections of the excore source, intermediate, and power range detectors.	11/16/2016	Under NRC Review
LAR 16-10 - Shield Building Roof Changes	The proposed changes to the shield building roof will require changes to Updated Final Safety Analysis Report (UFSAR) information, which involve changes to plant-specific Tier 1, and corresponding changes to COL Appendix C, and changes to Tier 2* information.	11/21/2016	Under NRC Review

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## V.C. Summer Units 2 and 3 License Amendment Requests (LARs)

Topic	Description of Change	Submittal Date	Status
LAR 16-11 - NDE for Welds of Stainless Steel Couplers to Embedment Plates	The proposed departures consist of changes to Tier 2* information in the UFSAR to clarify how the quality and strength of a specific set of couplers welded to stainless steel embedment plates, already installed and embedded in concrete, is demonstrated through visual examination and static tension testing, in lieu of the nondestructive examination requirements of American Institute of Steel Construction (AISC) N690.	9/20/2016	Under NRC Review
LAR 16-12 - Incorporate Revisions to WCAP-17179 in UFSAR Appendix 7A	The proposed changes revise the Combined Licenses (COLs) to clarify information in WCAP-17179, "AP1000® Component Interface Module Technical Report" which demonstrates design compliance with licensing bases requirements. The requested amendment also proposes a change to the Component Interface Module (CIM) internal power supply which will enable proper functioning of the field programmable gate arrays (FPGA).	9/15/2016	Under NRC Review
LAR 16-13 - Fire Pump Head and Diesel Fuel Day Tank Changes	The proposed changes to COL Appendix C (and corresponding plant-specific DCD Tier 1 and Tier 2 information) involve changes to the required head for the two fire protection system (FPS) fire pumps and to the minimum volume of the diesel-driven fire pump's fuel day tank as described in the design commitment of Inspections, Tests, Analyses, and Acceptance (ITAAC) 2.3.04.08 and 2.3.04.09.	9/8/2016	Under NRC Review
LAR 16-14 - Design Reliability Assurance Program (D-RAP) Changes	The proposed changes involve changes to the Design Reliability Assurance Program (D-RAP) to identify the covers for the IRWST vents and overflow weirs as the risk-significant components included in the D-RAP and to differentiate between the rod drive motor-generator (MG) sets field control relays and the rod drive power supply control cabinets in which the relays are located.	9/22/2016	Under NRC Review

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### V.C. Summer Units 2 and 3 License Amendment Requests (LARs)

Topic	Description of Change	Submittal Date	Status
LAR 16-15 - ADS and IRWST Injection Block	The requested amendment proposes changes to provide additional design details related to the automatic depressurization system (ADS) actuation blocking device, which is used to reduce the potential for spurious actuations of the ADS valves.	11/28/2016	Under NRC Review
LAR 16-16 - IDS Fuse Isolation Panel Additions	The proposed changes revise the details of the Class 1E dc and uninterruptible power supply system (IDS), specifically adding seven Class 1E fuse panels to the IDS design. These proposed changes provide electrical isolation between the non-Class 1E IDS battery monitors and their respective Class 1E battery banks.	9/28/2016	Under NRC Review
LAR 16-17 - Qualified Data Processing System and Safety Display Description Changes	The proposed changes update the Protection and Safety Monitoring System (PMS) design, specifically the description of the roles of the qualified data processing system (QDPS) and the safety displays. The proposed changes add Main Control Room (MCR) safety-related display divisions A and D to plant-specific Tier 1 (and associated COL Appendix C) and the UFSAR, and correct the name of the QDPS in the UFSAR by referring to the QDPS as a system, rather than a subsystem.	10/24/2016	Under NRC Review
LAR 16-18 - Nondestructive Examination for Welds of Couplers to Carbon Steel Embedment	The proposed departure consist of changes to Tier 2* information in the UFSAR (which includes the plant-specific DCD information) to clarify how the quality and strength of a specific set of couplers welded to Carbon Steel embedment plates, already installed and embedded in concrete, is demonstrated through visual examination, static tension testing, and magnetic particle examination, in lieu of the nondestructive examination requirements of American Institute of Steel Construction (AISC) N690.	10/27/2016	Under NRC Review

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### V.C. Summer Units 2 and 3 License Amendment Requests (LARs)

Topic	Description of Change	Submittal Date	Status
LAR 16-19 - Addition of Interim Amendment Request Process to License Condition 2.D.(1)	The requested amendment proposes to add to License Condition 2.D.(1) of the VCSNS Units 2 and 3 COLs an Interim Amendment Request process for changes during construction when emergent conditions are present.	11/10/2016	Under NRC Review
LAR 16-20 - IRWST Volume Changes	This activity addresses inconsistencies in the Updated Final Safety Analysis Report (UFSAR) and the Combined License (COL) Appendix A Technical Specifications for the specification of the passive core cooling system (PXS) required in-containment refueling water storage tank (IRWST) minimum water volume.	12/6/2016	Under NRC Review
LAR 16-21 - Consistency Update to the Raceway Separation Requirements in the Main Control Room (MCR) and Remote Shutdown Room (RSR)	The proposed changes are for consistency to capture raceway separation requirements in the MCR and RSR in accordance with the UFSAR.	12/21/2016	Under NRC Review