

South Carolina Office of Regulatory Staff  
Review of South Carolina Electric & Gas Company's  
2017 3<sup>rd</sup> Quarter Report on  
V. C. Summer Units 2 & 3  
Status of Construction

*December 19, 2017*



## Introduction and Background

On March 2, 2009, the Public Service Commission of South Carolina (“Commission”) approved South Carolina Electric & Gas Company’s (“SCE&G” or the “Company”) request for the construction of V.C. Summer Nuclear Station AP1000 Units 2 & 3 (the “Units”) in Jenkinsville, SC and the Engineering, Procurement and Construction (“EPC”) Contract with Westinghouse Electric Company (“WEC”) and Stone & Webster, Inc.. In 2013, Chicago Bridge and Iron purchased Stone & Webster, Inc. to become CB&I Stone and Webster, Inc. (CB&I) and subsequently took over Stone & Webster’s EPC responsibilities. In 2015, the EPC Contract was amended releasing CB&I, thereby leaving WEC as the primary member of the Consortium (CB&I was acquired by WEC and continues to be a member of the Consortium as a subsidiary of WEC). Working as sub-contractor, WEC engaged Fluor Corporation as the construction manager of the Units. The Commission’s approval of the Units can be found in the Base Load Review Order No. 2009-104(A) filed in Docket No. 2008-196-E.

Subsequent to the Base Load Review Order, the Commission has held five (5) hearings regarding the Units and issued the following Orders:

- **Order No. 2010-12**: Issued on January 21, 2010 and filed in Docket No. 2009-293-E. The Commission approved SCE&G’s request to update milestones and capital cost schedules.
- **Order No. 2011-345**: Issued on May 16, 2011 and filed in Docket No. 2010-376-E. The Commission approved SCE&G’s petition for updates and revisions to schedules which included an increase to the base project cost of approximately \$174 million.
- **Order No. 2012-884**: Issued on November 15, 2012 and filed in Docket No. 2012-203-E. The Commission approved SCE&G’s petition for updates and revisions to schedules which included an increase to the base project cost of approximately \$278 million.
- **Order No. 2015-661**: Issued on September 10, 2015 and filed in Docket No. 2015-103-E. The Commission approved SCE&G’s petition for updates and revisions to schedules which included an increase to the base project cost of approximately \$698 million.
- **Order No. 2016-794**: Issued on November 28, 2016 and filed in Docket No. 2016-223-E. The Commission approved SCE&G’s petition for updates and revisions to schedules which included an increase to the base project cost of approximately \$831 million.

The anticipated dependable capacity from the Units was approximately 2,234 megawatts (“MW”), of which 55% (1,228 MW) would have been available to serve SCE&G customers. South Carolina Public Service Authority (“Santee Cooper”) was contracted to receive the remaining 45% (1,006 MW) of the electric output and is paying 45% of the costs of the construction of the Units.

In October 2011, SCE&G and Santee Cooper executed the permanent construction and operating agreements for the project. The agreements granted SCE&G primary responsibility for oversight of the construction process and operation of the Units as they come online.

On March 30, 2012, the Nuclear Regulatory Commission (“NRC”) voted to issue SCE&G a Combined Construction and Operating License (“COL”) for the construction and operation of the Units.

On March 29, 2017, WEC filed Chapter 11 bankruptcy. Subsequently, SCE&G, Santee Cooper and WEC entered into an Interim Assessment Agreement to allow the project to continue pending SCE&G and Santee Cooper’s evaluation to either continue or abandon the Units.

On July 31, 2017, SCE&G announced that it will cease construction of the units and file a petition with the Commission seeking approval of an abandonment plan [From 7-31-17 Press Release]. The Company instructed Fluor Corporation and WEC to cease all work activities other than efforts to safely abandon the Units. Also, on July 31, 2017, SCE&G gave WEC a five (5) day notice to terminate the Interim Assessment Agreement.

On August 1, 2017, SCE&G filed a Petition with the Commission for a prudency determination regarding abandonment of the Units. On August 15, 2017, the Company withdrew its Petition.

On November 14, 2017, SCE&G submitted its 2017 3<sup>rd</sup> Quarter Report (“Quarterly Report”) related to construction of the Units. The Quarterly Report is filed in Commission Docket No. 2008-196-E and covers the quarter ending September 30, 2017 (“Review Period”). The Company’s Quarterly Report was submitted pursuant to S.C. Code Ann. § 58-33-277 (2015) of the Base Load Review Act (“BLRA”), which requires the Quarterly Report to include the following information:

1. Progress of construction of the plant;
2. Updated construction schedules;
3. Schedules of the capital costs incurred including updates to the information required in Section 58-33-277 (2015);
4. Updated schedules of the anticipated capital costs; and
5. Other information as the Office of Regulatory Staff may require.

The Office of Regulatory Staff (“ORS”) voluntarily provided a written review of SCE&G’s Quarterly Reports from 2009 until 2015. In March of 2015, SCE&G filed a petition to update the schedule and the budget. In May of 2015, SCE&G filed its Quarterly Report for the first quarter in which the schedule and the budget was based on its pending Petition, and not a schedule or a budget that had been approved by the Commission. Therefore, until the Commission issued an order in response to SCE&G’s Petition, ORS suspended issuing its written reviews after the first quarter of 2015. SCE&G followed a similar practice in 2016 when its Quarterly Reports were based on yet another Petition before the Commission. Given the WEC bankruptcy in the first quarter of 2017 and SCE&G’s subsequent announcement to abandon, ORS is no longer monitoring construction of the Units. ORS will provide written reviews of the Quarterly Reports submitted by SCE&G which document remaining activities related to V.C. Summer.

With reference to Section 58-33-275(A) of the BLRA, the review by the ORS of the Company’s Quarterly Report focuses on SCE&G’s ability to adhere to the approved construction schedule and the approved capital cost schedule. Given SCE&G’s decision to abandon the Units, ORS’s report provides a general status of the Units with regard to the approved schedule and the approved budget with reference to the Company’s Quarterly Report and with respect to July 31, 2017 (“Abandonment Date”).

## Approved Schedule Review

### Milestone Schedule

Commission Order No. 2016-794 established new substantial completion dates of August 31, 2019 and August 31, 2020 for Units 2 & 3, respectively. Given SCE&G’s decision to abandon the Units, its Quarterly Report did not provide a complete update to the BLRA milestones. According to SCE&G’s Quarterly Report, as of the Abandonment Date, 119 of the 146 (or 82%) BLRA milestones were completed while 27 are shown as incomplete.

### Specific Construction Activities

As of the Abandonment Date, approximately 5,700 workers were on-site, 5100 contractors and subcontractor personnel and 600 SCE&G.

Due to the SCE&G’s decision to abandon the Units, site activities focus on safely demobilizing the site. Certain rental, sub-contractor and WEC equipment – where ownership is not in dispute – is being dismantled and removed from the site; however, SCE&G and WEC continue to dispute ownership of many other site assets.

SCE&G's Quarterly Report does not provide a status report on Project Completion. However, its 2017 2nd quarter report, dated August 14, 2017, includes an update in Chart E which notes overall construction for the Units was 66.6% complete. This percentage includes completion for: Engineering (97.1%); Procurement (91.8%); Construction (36%); and Start-up (9.6%). Major construction activities prior to the Abandonment Date are discussed below:

## **Unit 2**

- Both Steam Generators (No.1 and No. 2) were set in place.
- The Pressurizer Vessel was set in place.
- One of the four Reactor Coolant Pumps arrived on-site.
- The Containment Vessel Ring 3 was set in place.
- Fabrication for the Containment Vessel Top Head for Unit 2 was reported complete.
- One hundred and sixty (160) Shield Building Panels were on site.
- The Turbine Building primary overhead crane was installed and energized.

## **Unit 3**

- Structural Module CA03 was complete and awaiting installation.
- Eighty-four (84) of 167 Shield Building Panels are on site.
- Turbine Building structural steel platforms were set. All condensers have been set and water boxes installed. The Auxiliary Boiler was set.

## **Cooling Towers**

The four (4) Cooling Towers are structurally complete. Electrical work on the Cooling Towers was approximately 92% complete.

## **Offsite Water System**

Work continues on the Offsite Water System ("OWS"). SCE&G does not intend to abandon this system but proposes it be completed and operated to support its existing nuclear unit, V.C. Summer Unit 1. The OWS is near completion and being tested for formal transfer to V.C. Summer Unit 1 operations.

## **Service Building**

The Service Building is substantially complete and was scheduled for occupancy at the end of August 2017. New office furniture including cubicles had been purchased and received by the Abandonment Date. This furniture has not been assembled and is being stored in the Service Building.

## **Transmission**

In 2011, SCE&G entered into a contract with Pike Electric, LLC for the permitting, engineering and design, procurement of material, and construction of multiple transmission lines and associated facilities related to the Units.

At the close of the Review Period, approximately 88% of the transmission structures and 82% of the miles of wire were complete. The transmission infrastructure constructed to support Unit 2 is substantially complete.

The Company does not intend to abandon the transmission system constructed for the Units but proposes the system be completed and operated to enhance the capacity and reliability of SCE&G's transmission network.

Map 1 shows the new transmission lines and facilities supporting the Units. The transmission lines are represented by the corresponding line color indicated below:

### **Green Line:**

VCS1-Killian Line is complete and energized.

### **Red Line:**

VCS2- Lake Murray Line No. 2 is complete and energized.

VCS2-St George Line No. 1 will be energized when the remaining St. George segment (Purple Line) is complete.

### **Purple Line:**

VCS2-St. George Lines Nos. 1 and 2 Construction activities continued on VCS2-ST. George 230 kV Lines No. 1 and No. 2 segment between the Saluda rapids and Dunbar Road and between Gaston and Orangeburg.

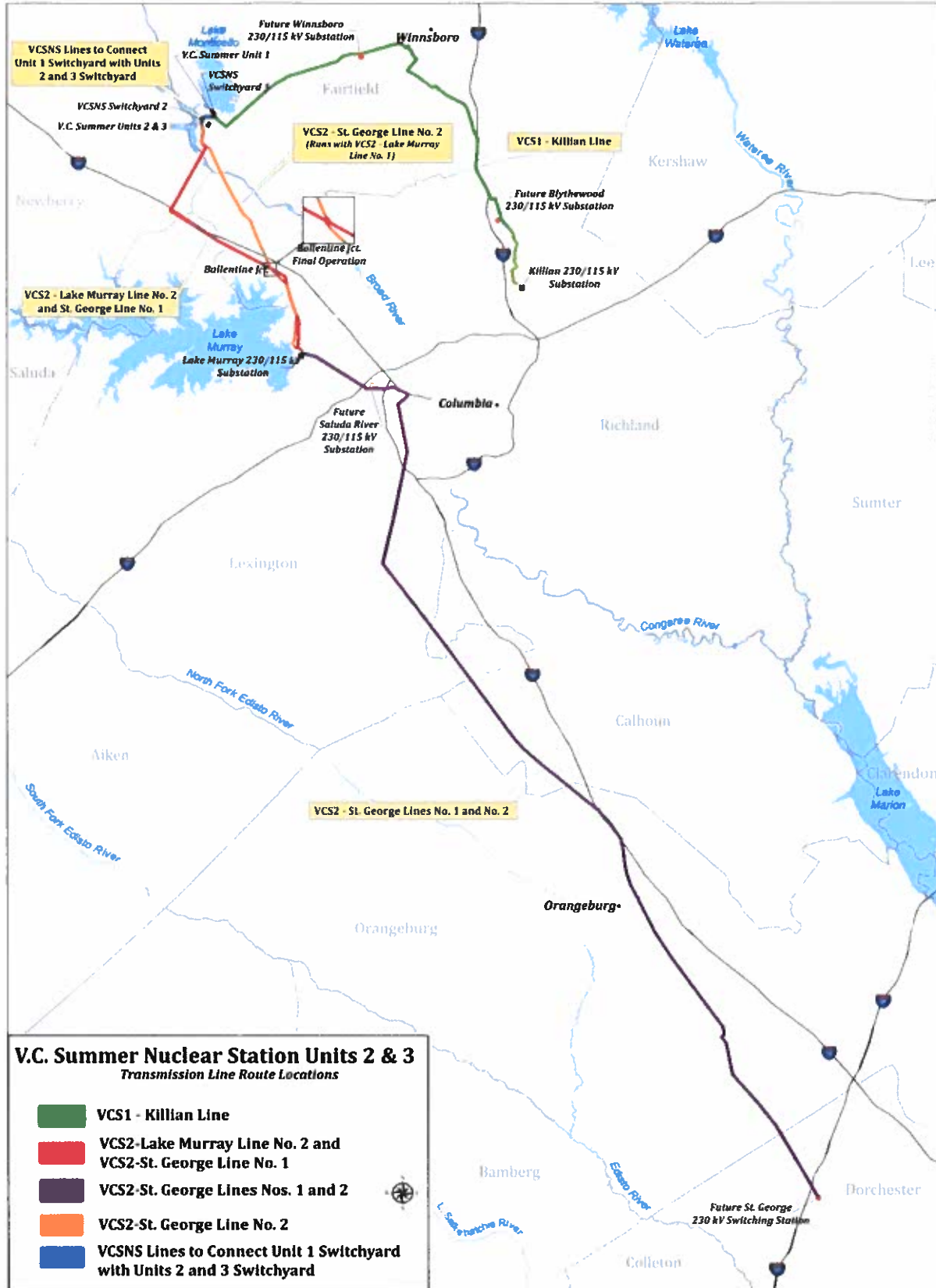
### **Yellow Line:**

The portion of the VCS2-St. George Line No. 2 segment between VCS2 and the Lake Murray substation is complete and energized.

### **Blue Line:**

VCNS Lines to connect Unit 1 Switchyard with Units 2 and 3 Switchyard are complete and energized.

# Map 1: New SCE&G Transmission Lines and Facilities Supporting V.C. Summer Units 2 & 3



# Licensing and Inspection Activities

## **Federal Activities**

Given SCE&G's decision to abandon the Units, SCE&G plans to request withdrawal of its COLs by year end December 2017. The COLs have not been withdrawn as of the date of this report.

## **State Activities**

Given SCE&G's decision to abandon the Units, state activities are primarily associated with closing environmental permits.

## **Commission Activity**

- On June 22, 2017, in Docket 2017-207-E, Friends of the Earth and Sierra Club filed a complaint against SCE&G.
- On August 1, 2017, in Docket 2017-244-E, SCE&G filed a Petition for Prudency Determination Regarding Abandonment. On August 15, 2017, SCE&G withdrew its Petition.
- On August 1, 2017, in Docket 2017-246-E, the Company filed a Notice of Intent stating that SCE&G will file an application seeking its Annual Request for Revised Rates with the Commission. On August 15, 2017, the Company withdrew its Notice of Intent SCE&G filed a Notice of Intent to request
- On September 26, 2017, in Docket 2017-305-E, ORS filed a Request for Rate Relief. Subsequently, on October 17, 2017 and in the same Docket, ORS filed a Motion to Amend its Request asking the Commission to consider the appropriate application of the Guarantee Payment to benefit SCE&G customers.
- On November 9, 2017, SCE&G provided the status of activities at the V.C. Summer nuclear Construction Site to the Commission during an Allowable Ex Parte Communication Briefing. (See Appendix A)

SCE&G has not filed another petition to abandon, but filed a Notice of Intent with the commission on December 12, 2017 to adjust rates. The SC ORS in Docket No. 2017-305-E requested the commission suspend collection of revised rates and issue refunds or credits, if the BLRA is repealed or determined unconstitutional. In a separate docket, Docket No. 2017-207-E, the Sierra Club and Friends of the Earth have requested refunds for revised rates. SCE&G has filed a motion to Dismiss in both dockets.



## Approved Budget Review

ORS's budget review includes an analysis of the 3rd quarter 2017 capital costs, project cash flow, escalation and Allowance for Funds Used during Construction ("AFUDC"). The forecasted AFUDC for the total project as of September 30, 2017 is approximately \$194.665 million and is based on an AFUDC rate.

SCE&G's Quarterly Report (in Appendix 2) shows actual "all-in" grand total project dollars spent for Construction Work in Progress (which includes escalation and AFUDC), through 2017 to be \$5.063 billion. It also shows an "all-in" grand total dollars projected to be spent for Construction Work in Progress, through the year of 2018 to be \$5.105 billion, which is associated with on-going transmission construction costs.

Per the Company's Quarterly Report (Appendix 3), the "all-in" grand total project cost for Construction Work in Progress approved by the Commission in Order No. 2016-794 is \$7.658 billion through the year of 2020.

The Company's Quarterly Report (in Chart A) identifies post abandonment costs of \$36.933 million which have occurred since the Abandonment Date and through September 30, 2017. These costs are in addition to costs presented in Appendix 2 and are categorized in Table 1:

**Table 1:**

<b>Activity</b>	<b>Cost</b>
Stabilize the Site	\$4,075,000
Cancel the Project	\$21,794,000
Preventative Maintenance	\$115,000
Asset Disposition	\$17,000
Interest	\$10,932,000
<b>Total</b>	<b>\$36,933,000</b>

### **Annual Request for Revised Rates**

Pursuant to the BLRA, SCE&G may request revised rates no earlier than one year after the request of a Base Load Review Order or any prior revised rates request. On August 1, 2017, the Company filed a Notice of Intent for Annual Request for Revised Rates (Docket No. 2017-246-E) with the Commission. On August 15, 2017, the Company withdrew its Notice of Intent. Table 2 shows a summary of SCE&G's Revised Rate Filings with the Commission.

**Table 2:**

<b>SCE&amp;G Revised Rates History</b>					
<b>Docket No.</b>	<b>Order No.</b>	<b>Requested Increase</b>	<b>ORS Examination</b>	<b>Approved Increase</b>	<b>Retail Increase</b>
2008-196-E	2009-104(A)	\$8,986,000	(\$1,183,509)	\$7,802,491	0.43%
2009-211-E	2009-696	\$22,533,000	\$0	\$22,533,000	1.10%
2010-157-E	2010-625	\$54,561,000	(\$7,260,000)	\$47,301,000	2.31%
2011-207-E	2011-738	\$58,537,000	(\$5,753,658)	\$52,783,342	2.43%
2012-186-E	2012-761	\$56,747,000	(\$4,598,087)	\$52,148,913	2.33%
2013-150-E	2013-680(A)	\$69,671,000	(\$2,430,768)	\$67,240,232	2.87%
2014-187-E	2014-785	\$70,038,000	(\$3,800,546)	\$66,237,454	2.82%
2015-160-E	2015-712	\$69,648,000	(5,122,719)	\$64,525,281	2.57%
2016-224-E	2016-758	\$74,161,000	(9,733,187)	\$64,427,813	2.66%

## ORS Monitoring Activities

Since the Abandonment Date, ORS continues to perform its monitoring activities accordingly. General activities are listed below:

- Reviews SCE&G's Quarterly Reports.
- Issues Audit Information Requests.
- Audits capital cost expenditures and resulting AFUDC in Construction Work in Progress.
- Reviews invoices associated with the Units.
- Performs weekly on-site review of construction documents.
- Attends on-site Plan of the Day meetings with on-site abandonment construction managers.
- Attends on-site Plan of the Week meetings with SCE&G abandonment project managers.
- Performs periodic site assessments.

## Notable Activities

### General Assembly Activity

- Senate V.C. Summer Nuclear Project Review Committee Hearing Dates
  - August 22, 2017
  - September 18, 2017
  - October 25, 2017
  - November 21, 2017
- House Utility Ratepayer Protection Committee Hearing Dates
  - August 23, 2017
  - September 15, 2017
  - September 26, 2017
  - October 3, 2017

## **ORS Activity**

- See ORS activities at: [www.regulatorystaff.sc.gov](http://www.regulatorystaff.sc.gov).

## **Conclusion**

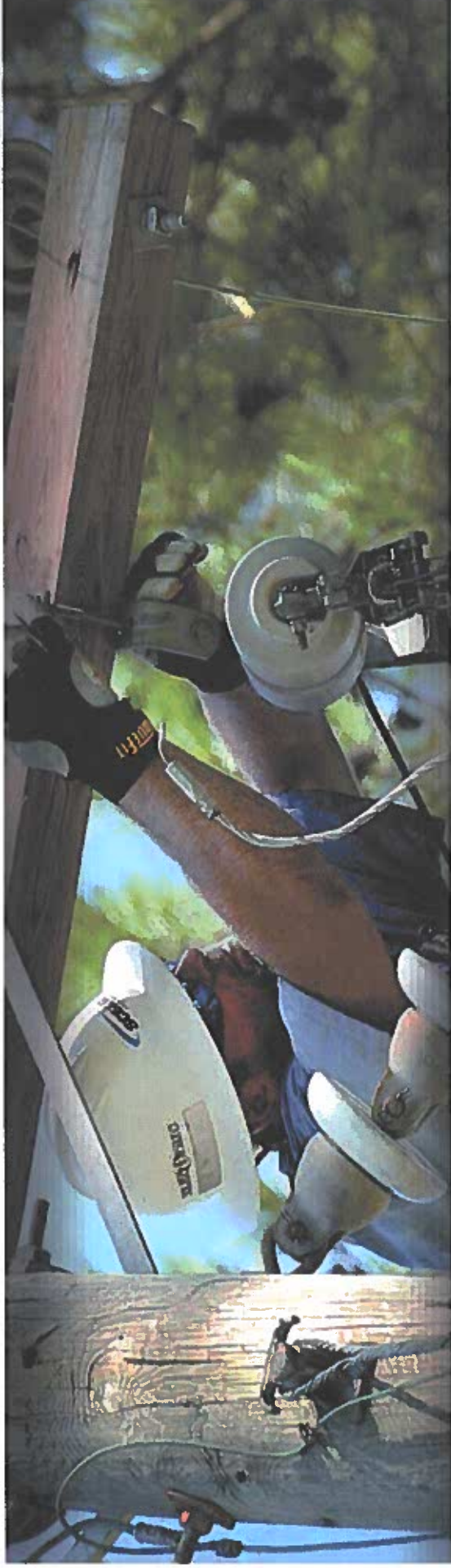
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## **Appendix A**

*SCE&G Status of Activities at V.C. Summer Nuclear Construction Site*

# Allowable Ex Parte Communication Briefing Status of Activities at V.C. Summer Nuclear Construction Site



November 9, 2017



## SCE&G Presenters

- Stephen A. Byrne  
President-Generation and Transmission and  
Chief Operating Officer - SCE&G;  
Executive Vice-President - SCANA
- Todd B. Johnson  
General Manager, Organization and  
Development Effectiveness
- James E. Swan IV  
Vice-President and Controller

## The Situation

- Site preservation not in our customers' best interest
- The abandonment tax deduction represents largest benefit to customers and 2017 is pivotal
- Equipment not rotting
- Construction was top down and open to atmosphere
- At power, inside containment and turbine building are hot humid environment.



## Some preservation considerations

- Buried pipe is mostly concrete and high density polyethylene HDPE
- Many components intended for outside applications
  - Switchyard
  - Cooling towers
  - Transformers
- Passive oxide layer will form on carbon or stainless steel
  - Don't see on stainless due to chromium oxide being invisible



# Buried Circulating Water Pipe





# Project Site



Equipment storage tents

Turbine Bldg

Nuclear Island

Unit 2

Unit 3

Containment Vessel



# Project Site



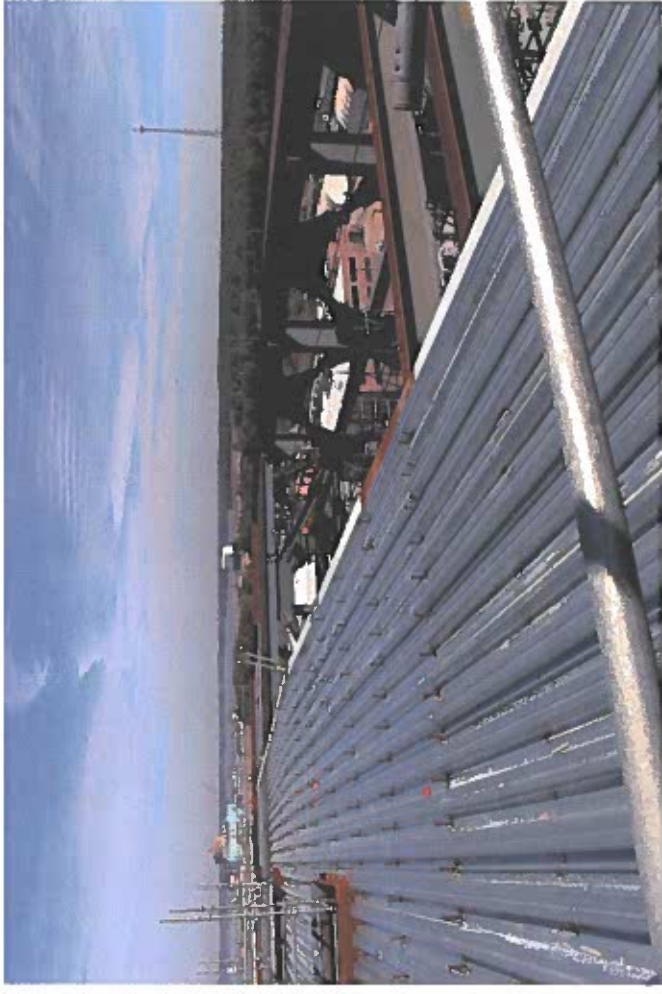


## Wind Down Efforts

- **Secure / Stabilize Site**
  - Secure partially installed equipments/materials
  - Backfill open trenches/excavations



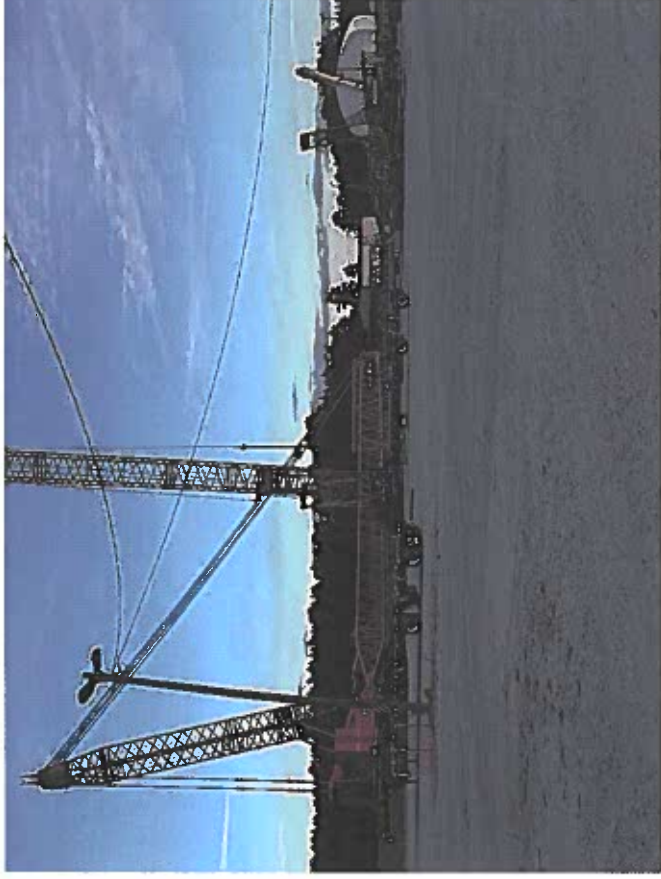
**Before make safe task –  
Unit 2 Turbine Building Roof**



**After make safe task –  
Unit 2 Turbine Building Roof**

## Wind Down Efforts

- **Remove Third Party Rental Equipment**
  - Retrieve equipment/materials from elevated decks/platforms
  - Stage/store for pickup by vendor
  - Remove rented temporary facilities (office trailers, connexes)



**Rental Return –  
Disassembly of cranes**

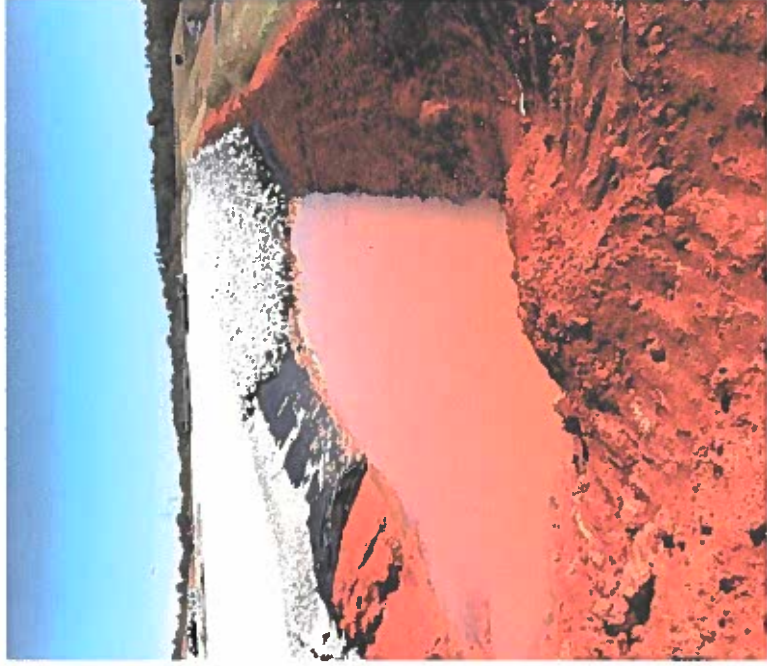


**Rental Return –  
Demobilize Equipment**



## Wind Down Efforts

- **Perform Environmental Work Required for Compliance**
  - DHEC - Stabilize and close all 15 construction permits SWPPP Phases
  - DHEC, FAA, etc. - Close open permits



**Construction Storm Water  
Permit Stabilize and File  
Termination**

## Wind Down Efforts

- **Perform Environmental Work Required for Compliance**
  - Remove cofferdams and restore Raw Water System intake & Waste Water System discharge; complete transmission lines



**Raw Water System  
Cofferdam Removal**



**Waste Water System  
Cofferdam and Dike  
Removal**



## Wind Down Efforts

- **Hazardous waste collection and removal**
  - Collecting, categorizing and disposing



**Hazardous Waste Cabinets – Emptied and moved to central collection**

## Wind Down Efforts

- **Oversight of Westinghouse and Subcontractors**
  - Removal of facilities and material from site by subs
  - WEC preparing for auctions of construction equipment and batch plant
  - WEC has not yet determined plans for Heavy Lift Derrick and Module Assembly Building
- **Vendor Payments**
  - Review of final payments due to vendors
- **Combined Operation License**
  - Still active
  - Notification of license termination to the NRC by December 15, 2017

## Status of Equipment

- **Options for Equipment Preventative Maintenance**
  - Evaluated 3 options
    1. Full PMs – adopt WEC practice
    2. Targeted PMs (excludes installed) on highly likely to be salvaged
    3. No PMs
  - Unit 1 Maintenance contractor is providing services
    - Flexible, focused on Option 2 Targeted PMs
    - Initial focus on 1500 upcoming and current PMs
    - Crew Size - 14 Full-time and 2 Part-time
  - Performing PMs after 2017 is inconsistent with SCE&G's current tax abandonment claim
- **Warehouses**
  - Weekly walkdowns of warehouses and tents – being scheduled
  - Transfer Off-Site Warehouses to SCE&G – West Columbia & Blythewood

## Status of Equipment



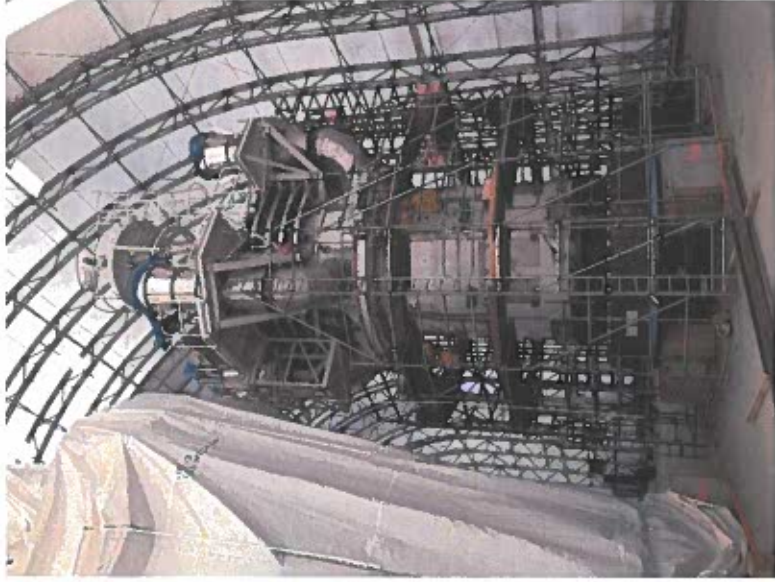
**Unit 2 Installed Steam  
Generator with Protective  
Oxidation**



**Unit 2 Containment –  
Coated and Sealed**



# Status of Equipment



**Integrated Reactor  
Vessel Head Package  
in storage**



**Integrated Reactor  
Vessel Closure Head  
under Nitrogen purge**

# Status of Equipment



**Dehumidifiers in  
place for Diesel  
Generator tent**



**Reactor Coolant  
Pump in storage**



**Heaters in place in  
tents**



# On-Site Warehouses



**Warehouse 20A**



**Warehouse 20B**

# West Columbia Warehouse

Warehouse  
240,916 sq ft

Office/Training  
21,216 sq ft





# West Columbia Warehouse





# Tax Abandonment Overview

## SCE&G Tax Abandonment Overview

- **Impact of the tax abandonment**
  - Approximately 40% of SCE&G's cost (when considered along with research deductions)
  - Tax deduction provides opportunity to prevent increase in customer rates
- **Timeframe**
  - Abandonment claim is most valuable for 2017
  - Carryback to 2015 is available (~\$200MM of taxes paid in 2015)
  - Deferring loss to 2018 or later is less valuable (Tax reform: 35% to 20%?)

**In order to qualify for the tax deduction, SCE&G must intend to discard assets irrevocably, and must affirmatively and consistently demonstrate this intention.**

# SCE&G Tax Abandonment Overview

- **Illustrations of the intent to abandon include:**
  - Public announcements of irrevocable intention to abandon
  - Endorsement by Board of Directors of the abandonment decision
  - PSC Petition seeking abandonment
  - Cessation of construction and demobilization of crews, vendors and contractors
  - Deconstruction of equipment
  - Removal of cost from CWIP for book, regulatory and tax purposes
- **Conversely, actions which might be viewed as inconsistent with the intent to abandon include:**
  - Preserving and protecting assets from weather or deterioration
  - Maintaining site and equipment for eventual future use, sale or salvage
  - Maintaining COL which requires preventative maintenance to be performed

# Questions