Exhibit _ (KMY-1A)

Originally Filed As
Direct Testimony of
Kyle M. Young
on Behalf of
South Carolina Electric & Gas Company in
Docket No. 2017-370-E

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 1 of 51

DIRECT TESTIMONY
OF
KYLE M. YOUNG

Table of Contents

I. REGULATORY OVERSIGHT OF THE PROJECT 4

II. THE PROJECT'S STATUS IMMEDIATELY PRECEDING WESTINGHOUSE'S BANKRUPTCY 16

III. THE WESTINGHOUSE BANKRUPTCY 39

IV. ABANDONMENT ACTIVITIES 42

V. ASSETS BEING PLACED IN SERVICE 46

VI. CONCLUSION 49

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 2 of 51

DIRECT TESTIMONY OF

KYLE M. YOUNG

ON BEHALF OF

SOUTH CAROLINA ELECTRIC & GAS COMPANY

DOCKET NO. 2017-370-E

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND POSITION.

A. My name is Kyle M. Young and my business address is P.O. Box 88, Jenkinsville, South Carolina 29065. I am the Manager, Nuclear Plant Demobilization for South Carolina Electric & Gas Company ("SCE&G" or the "Company").

Q. DESCRIBE YOUR EDUCATIONAL BACKGROUND AND BUSINESS EXPERIENCE.

A. I have a Civil Engineering degree from Tennessee Technological University. After graduation, I started my career as an Engineer with the United States Army Corp of Engineers. From 2003 to 2008, I was employed with several engineering and construction firms, beginning as an engineer and then working in project management. I began working for SCE&G in 2008 as a Projects Specialist. Thereafter, I was promoted to a Supervisor, Nuclear Construction in 2010. In 2015, I was promoted to the position of Manager, Nuclear Plant Construction. In 2018, my title was changed to Manager, Nuclear Plant Demobilization.

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 3 of 51

Q. WHAT ARE YOUR DUTIES WITH SCE&G?

A. Currently, as Manager, Nuclear Plant Demobilization, I have responsibility for the activities associated with the abandonment of the New Nuclear Deployment Project (the "Project" or the "NND Project"). As Manager, Nuclear Plant Construction, I had daily oversight of project management of the NND Project in which Westinghouse Electric Company, LLC ("Westinghouse" or "WEC") and Chicago Bridge & Iron ("CB&I") (collectively "WEC/CB&I" or the "Consortium") were constructing two Westinghouse AP1000 nuclear generating Units in Jenkinsville, South Carolina, (the "Units"). The Units were jointly owned by SCE&G and South Carolina Public Service Authority ("Santee Cooper"). I was also the lead of SCE&G's Project Management Organization, which was responsible for oversight of project management, issue management, and portions of the project controls activities for construction of the Units.

Q. HAVE YOU EVER TESTIFIED BEFORE THIS COMMISSION?

A. No. This will be the first time I testify before the Public Service Commission of South Carolina (the "Commission").

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to discuss the status and activities associated with construction during the time immediately preceding the decision to abandon the Project, the abandonment activities that followed, and the current status of the site. Also, I will describe the oversight of the

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 4 of 51

Project by the representatives of the public based on my experience with this Project.

Q. HOW IS YOUR TESTIMONY ORGANIZED?

A. My testimony is organized into the following sections:

I. Regulatory Oversight of the Project

II. The Project's Status Immediately Preceding Westinghouse's Bankruptcy

III. The Westinghouse Bankruptcy

IV. Abandonment Activities

V. Assets Being Placed in Service

VI. Conclusion.

Q. WHAT IS THE BASIS FOR YOUR TESTIMONY CONCERNING THE PROJECT TODAY?

A. In describing the recent history of the Project, I rely on my direct personal knowledge of the Project and the activities undertaken by my team. I also cite to quarterly reports and sworn testimony previously given by others before the Commission.

I. REGULATORY OVERSIGHT OF THE PROJECT

Q. WHO WERE THE KEY REGULATORS AND WHAT WERE THEIR PRIMARY ROLES IN REGULATING THE PROJECT?

A. When describing the Project, I typically reference four broad categories: Safety, Quality, Schedule and Cost. As concerns Safety, the key

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 5 of 51

regulators were the Nuclear Regulatory Commission (NRC) and the Occupational Safety and Health Administration (OSHA), which is administered in South Carolina by the Department of Labor, Licensing, and Regulation (LLR). The LLR regulated industrial safety of work on site by performing periodic inspections of the Project. Also, SCE&G, the Consortium and its subcontractors filed required reports to OSHA/LLR documenting hours worked and notifying the LLR of any injuries requiring a recorded report.

The NRC closely monitored the Project's construction and operational preparations to ensure adequate protection of public health and safety, to promote the physical and digital security of the Units, and to protect the environment. NRC engineers and other experts reviewed the submission of the Combined Operating and Construction Licenses ("COLs") and scrutinized any subsequent changes to the COLs, which were categorized as License Amendment Requests ("LARs"), requiring NRC pre-approval before proceeding with construction, or with any departures from existing licensing specifications. These matters were all subject to periodic NRC inspection.

The NRC had a broad scope of review concerning the Project, covering anything potentially "safety-related" or that ultimately was "important to safety" in constructing and operating the two Units. NRC personnel inspected the SCE&G programs, processes and procedures for

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 6 of 51

technical soundness and administrative accuracy, ensured SCE&G and the Consortium were employing workers who were fit-for-duty, inspected vendors supplying the Project with equipment, materials and services, reviewed engineering drawings and specifications, and witnessed fabrication and construction activities. To do this they utilized individual and teams of inspectors and subject matter experts to review changes to the COL. The NRC also deployed project managers and schedulers to monitor the progress of the Project and retained and employed multiple on-site Resident Inspectors to perform daily inspections, the findings of which they published quarterly in their Inspection Reports. The number of NRC inspectors on Site were typically five to six but at any time could be as many as 12 to 15. The NRC was also a key regulator for the second category, Quality, because safety and quality are intertwined.

Additionally, DHEC regulated many environmental aspects of the Project, including the quality of the storm water runoff through construction and industrial storm water permits; the quality of the air through operating permits for the on-site concrete batch plant; the protection of water quality through NPDES discharge and Clean Water Act Section 401 permits; and the regulatory compliance of the Project's potable water facilities and wastewater treatment and disposal facilities. DHEC reviewed and approved all the permits listed above and performed periodic inspections on site as well.

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 7 of 51

The FERC regulated water withdrawals and construction activities involving existing FERC hydro power projects, specifically the Monticello and Parr Reservoirs. The U.S. Army Corps of Engineers ("USACE") regulated the waters of the U.S. through a Section 404 permit for wetlands and streams on Project land and mitigated their use by improving quality in other locations within the state.

For the third and fourth categories, Schedule and Cost, the key regulator was the Office of Regulatory Staff (ORS) and the Commission. ORS was the agency with principal on-going oversight responsibility for Schedule and Cost.

This Project was closely regulated by multiple state and federal regulatory agencies. It was subject to a very high degree of ongoing regulatory scrutiny from these agencies and their inspectors.

Q. WHAT WERE YOUR INTERACTIONS WITH THESE KEY REGULATORS?

A. The NND group employed a Licensing department to ensure the plant was constructed and operated in compliance with NRC, State, and Federal licenses, regulations, requirements, permits, and commitments. As a member of the Construction department, I supported the Licensing department to ensure compliance with all required permits and completion of all necessary inspections. Concerning OSHA/LLR, I participated in the debriefing from their initial site inspection and ensured appropriate SCE&G personnel were

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 8 of 51

assigned to support their subsequent inspections. As to interaction with SCDHEC, I met with SCDHEC staff in their office multiple times during the storm water permitting process and was part of a team supporting SCDHEC's periodic inspections. As to the FERC, I performed field walk-downs with the Licensing department and the SCE&G Fossil/Hydro business unit as a part of our internal process of ensuring compliance with existing FERC project permits and in regulatory requirements and in support of permit applications submitted by our Licensing department. Concerning the USACE, I supported permit applications with our Licensing Department, and I interacted with the Charleston District personnel as part of the Clean Water Act Section 404 permit application process during a site walk-down of the limited on-site wetlands and stream that were disturbed as part of construction.

Concerning the NRC, I interacted with multiple levels of personnel from multiple areas within the NRC throughout the course of the Project. I answered questions on a near-daily basis from on-site Resident Inspectors, presented information and answered questions from Inspectors during team inspections, attended entrance and exit meetings from multiple inspections, and publically presented SCE&G's requests related to several particularly urgent LAR submittals that were needed to resolve or prevent delays in the construction progress. I performed multiple site walk downs with NRC senior staff and NRC Commissioners.

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 9 of 51

Concerning ORS, I performed multiple site walk downs with the ORS staff members and their consultant who conducted site walk downs on a regular basis. I met with ORS staff during regular monthly visits, and presented information to ORS leadership during monthly meetings with the leadership of the NND construction team. I also participated in several meetings related to special topics of interest or concern to the ORS, which were convened at ORS's request.

Q. WHAT ROLE DO YOU UNDERSTAND ORS TO HAVE PLAYED IN PROVIDING PUBLIC OVERSIGHT FOR THE PROJECT DURING THE PERIOD YOU WERE INVOLVED IN IT?

A. As I understand it, ORS served as the representative of the public in monitoring the construction of the Units and provided direct regulatory oversight of the Project. ORS personnel were routinely present on site. My understanding is that ORS has regularly reported its findings, concerns and conclusions regarding the Project to the Commission and the public. As previously described, the ORS was primarily focused on the schedule and cost aspects of the Project during my interactions. They also took an interest in the safety and quality aspects of the Project, and reviewed and analyzed the reports of inspections and other actions that the NRC undertook in oversight of the Project.

Q. HOW HAS ORS DESCRIBED ITS OVERSIGHT ACTIVITIES RELATED TO THE PROJECT?

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 10 of 51

A. In the 2015 Update Proceeding, Docket No. 2015-103-E, the head of ORS's New Nuclear Development Office, Mr. Anthony James, summarized ORS's oversight activities as follows:

> ORS visits the construction site in Jenkinsville at least twice per week to perform on-site reviews of numerous documents that relate to the approved construction schedule. These documents include, but are not limited to: the weekly construction activities report, detailed construction schedules, milestone comparison activity reports, milestone schedule recovery plans, major component fabrication status log and meeting minutes. ORS also attends on-site Plan of the Day meetings with "front-line" Project Managers to learn about immediate construction activities and challenges. On a monthly basis, ORS and its consultant meet with SCE&G's on-site lead project representatives to discuss the overall status of the Units and perform an in-depth site tour to observe construction progress.

(2015 Update Proceeding, Tr. at 707).

Q. IS THIS DESCRIPTION OF ORS OVERSIGHT ACTIVITIES GENERALLY CONSISTENT WITH WHAT YOU OBSERVED AS SUPERVISOR, NUCLEAR CONSTRUCTION SINCE 2010?

A. Yes. This description is generally consistent with what I observed. I was at various times involved in briefing ORS personnel and outside experts; leading, co-leading or arranging site tours for ORS personnel; and attending monthly meetings scheduled for the purpose of giving ORS personnel and outside experts access to information about the project and the opportunity to directly question SCE&G construction personnel. I was involved in answering questions from ORS oversight personnel and experts both in and outside of those meetings, and providing documentation to ORS personnel

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 11 of 51

as requested. The description of ORS's activities as Mr. James described in his testimony in 2015 is generally consistent with what I saw.

Q. DID YOU MEET WITH ORS AS ONE OF THE "ON-SITE LEAD PROJECT REPRESENTATIVES" AS MR. JAMES DESCRIBED?

A. Yes, for about the first five years of the Project, ORS would visit the site with various ORS staff members and their consultant(s) and ask questions to the on-site SCE&G leadership. The ORS would then convene more formal meetings with key NND department manager level personnel and other relevant SCE&G personnel, such as Transmission management, every month at ORS's offices in downtown Columbia. After approximately five years, the ORS decided to move these more formal meetings to the Jenkinsville site and to supplement them with quarterly meetings between ORS's senior leadership and senior leaders from SCE&G, supplemented with periodic updates and meetings with SCANA executives and Consortium project directors. These quarterly meetings were held in ORS's offices in Columbia. At ORS's request, ORS began meeting monthly with the Consortium project director on site and conducting a monthly on-site meeting with SCANA senior executives.

I often supported the ORS site walk downs, and if I was unavailable for any given monthly walk down, I sent my designee. My General Manager, Alan Torres, was a regular attendee for the on-site and Columbia meetings

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 12 of 51

between site leadership and the ORS. I would attend these meetings as his designated alternate if he was unavailable.

Q. WHAT HAPPENED AT THESE MONTHLY MEETINGS?

A. At these monthly meetings, NND department managers and other lead personnel from the site briefed ORS and its experts on the current progress and status of the Project. A broad range of topics were discussed. It should be kept in mind that ORS was routinely reviewing the same monthly and weekly construction reports that the Consortium provided to SCE&G. ORS identified the questions and agenda items that established the scope of these meetings based on those reports. The topics discussed in these meetings included the progress by WEC/CB&I in the design, licensing, and construction of the Project and in the procurement and fabrication of equipment, material, modules and submodules. SCE&G also updated ORS about SCE&G's progress in recruiting, training and licensing the staff needed to operate and maintain the Units and concerning SCE&G's program to ensure operational readiness, which means SCE&G's ability to conduct acceptance testing for the Units and its systems once completed and to operate the Units when placed into commercial service.

At those meetings, SCE&G also briefed ORS on upcoming construction and equipment fabrication milestones, any issues or problems related to those milestones, issues or problems with construction generally or issues or problems related to equipment or module fabrication. In those

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 13 of 51

meetings, SCE&G personnel identified and discussed SCE&G's list of focus areas for the Project, which are the areas where challenges had been encountered that were serious enough to pose an important risk to the overall success of the Project. Focus areas received management and Project team oversight attention and resources at the highest level.

SCE&G typically brought its NND department managers or their designated alternates to its monthly meetings with ORS so that ORS could hear directly from the personnel most directly involved with each aspect of the Project and ask whatever questions ORS had. At these meetings, ORS set the agenda by coordinating with SCE&G Business and Finance staff ahead of the meetings and generating a list of prepared questions and agenda topics. At these meetings, ORS representatives requested any documentation that they wanted to review in addition to the monthly, quarterly and other reports and minutes of site reporting meetings that were routinely provided to ORS. I and other SCE&G personnel responded to particular requests of the ORS for information, and my team supplied information as requested. ORS was operating under a non-disclosure agreement which allowed them to access the WEC/CB&I confidential or business proprietary data that we received from the Consortium.

In these meetings, ORS personnel often referenced the reports and other documentation that SCE&G provided to ORS electronically by means of the electronic document room which was set up for ORS's use. The

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 14 of 51

reports ORS referenced in these meetings included the monthly and weekly reports on the Project that the Consortium provided SCE&G, and the weekly and quarterly reports that SCE&G provided to its senior leadership team.

Q. WHAT IS YOUR UNDERSTANDING CONCERNING THE PLAN OF THE DAY MEETINGS THAT ORS REFERENCED IN ITS 2015 UPDATE PROCEEDING TESTIMONY?

A. ORS began sending personnel out to the site once a week to attend a plan-of-the-day meeting. These were meetings which WEC/CB&I held at the start of each workday to discuss the plan for that day's work, weekly objectives, and near-term milestones. One of the important purposes of these meetings was to elevate problems to management from across the site and to discuss barriers or concerns about the work going forward. At these meetings, each lead or manager from the primary areas of the Project as well as functional managers for safety, quality, licensing, engineering, procurement and startup, would report out plans, objectives, milestones, problems and barriers. These plan-of-the-day meetings were a cornerstone of the day-to-day management of the Project. The Consortium directors attended these meetings so that they could hear and aid in resolving emergent issues. SCE&G construction personnel were present to provide amplifying information from SCE&G's oversight functions, question the means and methods of the contractor, and advise the Consortium leadership. This was required to be done in a manner that did not direct the Consortium's work as

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 15 of 51

the choice of means and methods was reserved to the Consortium under the EPC Contract. As ORS testified in 2015, by attending these meetings, ORS's construction experts and other personnel were able "to learn about immediate construction activities and challenges," from "front-line Project Managers." (2015 Update Proceeding, Tr. at 707). By attending these meetings, ORS was in a position to hear about specific construction issues at the same time and in the same way that SCE&G's project oversight personnel did.

Q. DID ORS ATTEND ANY OTHER FRONT-LINE MEETINGS?

A. Yes, I am aware that ORS representatives monitored and participated in NRC public meetings related to LARs. ORS also attended many of the pre-job briefings that were conducted by the Consortium before undertaking major milestones, such as, for example, the lift and set of major structural modules or major items of equipment like a reactor vessel. I am also aware that ORS regularly read the NRC inspection reports and other documents because I was questioned about them by ORS.

Q. DID OTHER REGULATORS ATTEND THE PLAN-OF-THE-DAY MEETING?

A. Yes, the NRC Resident Inspectors, in addition to ORS representatives, regularly attended the Plan-of-the-Day meetings.

Q. WERE YOU AWARE OF ORS VISITING OFF-SITE FABRICATIONS FACILITIES FOR THE PROJECT?

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 16 of 51

A. Yes, more than once I heard ORS personnel discuss visits to off-site fabrication locations, such as the CB&I Lake Charles facility in Louisiana (formerly the Shaw Modular Solutions (SMS) facility) and the Newport News Industries facility in Virginia. As Mr. James testified, "ORS travel[ed] to fabrication facilities in South Carolina, Virginia, Louisiana and Florida to monitor the fabrication of major structural modules, shield building panels, mechanical modules, and components." (2015 Update Proceeding, Tr. at 710). Although I did not participate in those trips, this statement is consistent with the references to those trips that ORS personnel made in the meetings I attended.

II. THE PROJECT'S STATUS IMMEDIATELY PRECEDING WESTINGHOUSE'S BANKRUPTCY

Q. WOULD YOU CONSIDER THIS PROJECT TO HAVE BEEN A FIRST-OF-A-KIND IN ITS EARLY STAGES?

A. Yes. This Project and the project to build sister units at Plant Vogtle in Waynesboro, Georgia (the "Vogtle Project") were first-of-a-kind projects. They were the first AP1000 Advanced Passive Safety units to be licensed in the United States and among the first in the world. They were the first new nuclear construction projects to be launched in the United States in nearly four decades. They were the first new nuclear construction projects undertaken under the NRC licensing and oversight structure contained in 10 C.F.R. Chapter 52, which imposed a very different licensing structure than

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 17 of 51

the structure under which the earlier generations of units were built. These were the first new nuclear construction projects in the United States to significantly rely on modular construction techniques.

Q. IN MID-2016, WHERE DID THE PROJECT STAND IN LIGHT OF THESE SORTS OF FIRST-OF-A-KIND CHALLENGES?

A. By 2016, most of the unique or first-of-a-kind challenges — apart from startup testing — had been encountered and overcome or largely mitigated.

Q. CAN YOU OUTLINE THE CHALLENGES THAT WERE OVERCOME OR LARGELY MITIGATED BY 2016?

A. Yes. Among the principal challenges encountered by the Project in its early years, the following six had largely been mitigated or overcome by 2016:

1. Of the 19 major permits, certifications or categories of permits required for the Project, all but one had been issued. The one which was not issued was determined not to be needed.
2. The majority of the equipment required to construct an AP1000 unit had been successfully fabricated and tested. Of the 13 items of major equipment required to construct Unit 2, ten had been successfully fabricated, tested and received on-site. This equipment was being stored and maintained, awaiting installation. Of the three items of major equipment that were not on site, two

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 18 of 51

(the Reactor Coolant Pumps) had been recently modified and were in the final stages of the testing to validate those modifications. One (a heat exchanger) was being up-fitted with improvements to extend its operating life.

3. Design finalization, which was a major problem earlier in the Project, was nearing its conclusion. The design of the most complex systems and structures, those related to the Nuclear Island, was close to complete. Westinghouse had begun to more fully implement mitigation strategies, like moving design engineers to site to respond to problems by evaluating them and implementing design changes as they arose.

4. The new and untested NRC licensing structure under 10 C.F.R. Part 52 had been implemented. These regulations had been adopted by the NRC under the Energy Policy Act of 1995 and were being implemented for the first time in the context of new nuclear construction. SCE&G and Southern Nuclear Company had employed a number of mitigation strategies with the NRC, such as closing some Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) and requesting early confirmation of the NRC's review and acceptance; placing all licensing changes in the schedule and prioritizing them for the NRC; implementing a Preliminary Approval Request (PAR) process that allowed for

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 19 of 51

construction to proceed while a LAR change was being reviewed by the NRC; and holding frequent regular meetings with senior NRC staff and Commissioners to align the NRC with project priorities.

5. A construction workforce able to meet strict nuclear-safety and fitness-for-duty standards had been recruited and deployed on site. While recruiting and training these personnel had many challenges, the Consortium employed a number of mitigation strategies throughout the course of the Project to ensure enough craft of key disciplines were available to work.

6. SCE&G recognized from the beginning that there was a risk that a disaster anywhere in the global nuclear power industry could derail the Project. Such a disaster occurred at the Daiichi Fukushima nuclear generating facility on March 11, 2011. It caused some delay in the issuance of the NRC license for the Units but otherwise did not set the Project back materially. The seismic resiliency of the AP1000 design had been confirmed and additional emergency response resources were added to the V.C. Summer Station plan to ensure that the three V.C. Summer Units could respond to a multi-unit event and a region-wide natural disaster such as the one that occurred when the 2011 tsunami struck coastal areas in Japan. Additionally, the passive design of

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 20 of 51

the AP1000 plant meant that not as many of the emergency response resources were required compared to the existing fleet of U.S. nuclear plants.

Q. WHAT THEN WERE THE MOST IMPORTANT REMAINING RISK FACTORS FOR CONSTRUCTION?

A. From a construction standpoint, in the years leading up to 2016, the most important remaining risk factors for the Project that we identified were:

1. Effectively enforcing the terms of the EPC Contract without causing commercial issues with the Consortium that could inhibit Project progress necessary to successfully complete the Project.
2. Overcoming the scheduling and productivity challenges related to the fabrication of modules and submodules and procurement of major commodities which were increasing costs and delaying the construction schedule.
3. Improving the unsatisfactory productivity factors for on-site construction labor which were increasing costs and delaying the construction schedule.
4. Risks associated with startup and testing of the Units. However, due to the abandonment of the Units, startup and testing challenges never advanced beyond prospective challenges that the Project never had the opportunity to fully encounter. These risks, however, were being planned for and mitigated by SCE&G's

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 21 of 51

involvements with ongoing startups at the Chinese AP1000 construction through embedding Consortium and SCE&G personnel in the Chinese start-up activities. Additionally, SCE&G monitored the recent startup of Watts Bar Unit 2, which was in a U.S. regulatory environment, by communicating with TVA project leadership, reviewing results from Institute of Nuclear Power Operations (INPO) evaluations, and embedding personnel in the startup organization.

Q. HOW LONG HAD MODULE AND SUBMODULE PRODUCTION BEEN A FOCUS AREA FOR THE PROJECT?

A. Module and submodule production issues had been a focus area that SCE&G had identified and addressed continuously since 2010. As the Commission noted in Order No. 2015-661, "public records show that SCE&G discussed the seriousness of its concerns about submodule production . . . in each of the 21 quarterly reports filed since March 2010." (Order No. 2015-661 at 18.) The top Project issue between 2010 and 2015 was module and submodule production, fabrication, and assembly.

Q. WHAT ACTIONS HAD SCE&G TAKEN TO ADDRESS THAT ISSUE?

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 22 of 51

A. The efforts by SCE&G, Santee Cooper, and Southern Nuclear Company to resolve issues associated with module and submodule fabrication included:

1. Repeatedly challenging the leadership of the Consortium to take the steps required to correct problems at the submodule fabrication facility in Lake Charles, Louisiana;
2. Posting a permanent NND oversight resource at Lake Charles;
3. Convincing Westinghouse to post additional design engineers at Lake Charles to facilitate design changes required for submodule constructability;
4. Allowing CB&I to relocate important aspects of submodule fabrication to the Jenkinsville site, and to hire additional South Carolina-based crews to speed up the work;
5. Convincing CB&I to diversify its submodule supply chain by outsourcing submodule fabrication to alternative fabricators in the United States, Canada and Japan. SCE&G then posted additional oversight personnel in many of these locations and performed routine oversight visits to these facilities; and
6. Disputing any invoiced costs that were associated with delay in module production.

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 23 of 51

Q. HOW DID MODULE PRODUCTION CHALLENGES CHANGE THROUGHOUT THE COURSE OF THE PROJECT?

A. By 2015, module fabrication issues were not fully resolved but were being overcome. Of the six major structural modules required for Unit 2, three had been completed and set in place by the summer of 2015. A fourth was on site and structurally complete. All submodules required to complete the fifth module were on-site and being assembled. The submodules for the sixth module were being received. (Docket No. 2015-103-E, Tr. at 256.) Unit 3 submodules were beginning to be produced and shipped by the alternate vendors other than CB&I Lakes Charles.

By 2016, issues related to the fabrication of structural modules had ceased to be a critical path item for the Project. By 2016, all major structural modules for Unit 2 were in place and all submodules required to fabricate the Unit 3 major structural modules had been received on-site. SCE&G also pushed Westinghouse to further diversify its supply chain for key commodities such as rebar, embedment plates, and piping; Westinghouse responded by adding more vendors and facilities to the supply chain.

By 2017, SCE&G still continued to monitor the production at key module and commodity facilities to aid in mitigating the risk of the supply chain.

Q. WITH REFERENCE TO THE RISK FACTOR CONCERNING ON-SITE CONSTRUCTION PRODUCTIVITY, WHAT WAS THE

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 24 of 51

STATUS OF THAT ISSUE IN 2015 BEFORE THE EPC CONTRACT WAS AMENDED?

A. Of all the risk factors in 2015, on-site construction productivity proved to be the most difficult risk factor to overcome and continued to be an important risk factor up until the Project was suspended by Santee Cooper and abandoned by SCE&G. However, in 2015, SCE&G and Santee Cooper were able to substantially mitigate the cost implication of this risk factor by shifting the costs associated with labor productivity to Westinghouse through a major amendment to the EPC Contract.

Q. HOW WAS THIS ACCOMPLISHED?

A. In the October 2015 Amendment to the EPC Contract (the "2015 Amendment"), SCE&G and Santee Cooper negotiated a fixed price option (the "Fixed-Price Option") for completing all but a limited number of scopes of work under the EPC Contract. This meant that Westinghouse would be responsible for any increased costs if labor productivity did not improve and would be motivated by cost savings if productivity did improve. This change in the EPC Contract terms was coupled with large positive incentives and significant negative penalties and damages for Westinghouse to ensure that the Project was completed on time. Negotiating these changes to the EPC Contract in 2015 was an important part of how SCE&G responded to the labor productivity issue.

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 25 of 51

Q. BEFORE WE GO FURTHER, PLEASE EXPLAIN HOW CONSTRUCTION PRODUCTIVITY IS MEASURED.

A. Construction productivity is measured through productivity factors, or "PFs." PFs measure the standard amount of labor forecasted to be necessary to accomplish a particular scope of work compared to the amount of labor actually required to do so. A PF of 1.0 means that the scope of work has taken exactly the number of labor hours that were forecasted for it. As WEC/CB&I measured productivity, a PF of 2.0 meant that the scope of work had taken twice as many labor hours as were forecasted. A PF of 0.5 meant that the scope of work has taken half as many hours as were forecasted.

Q. IN YOUR EXPERIENCE WHAT FACTORS SIGNIFICANTLY CONTRIBUTE TO THE PF CALCULATION?

A. Since a PF is actual hours versus forecasted hours, each of these items can significantly affect the PF. The forecasted hours come from cost and schedule estimates, and depend on the accuracy of the Unit Rates the contractor is using. Unit Rates are a ratio that compare two quantities, in this case the amount of work hours it should take to install a given amount of a commodity. They depend on many factors, such as craft availability, craft skill level, work area congestion, work shift schedule, site conditions and logistics, work heights, and weather. They are expressed in terms of the standard units of the commodities to be installed in completing a scope of work such as cubic yards of reinforced concrete or earthmoving, tons of steel,

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 26 of 51

or linear feet of piping, electrical cable, cable trays, or conduit. By estimating the appropriate unit rates and accurate quantities of commodities required to complete a job, contractors can properly estimate the labor costs and time involved in completing a scope of work. After a scope of work is completed, contractors can use the same method to calculate the productivity factors actually achieved.

In practice, many factors affect the actual hours spent. These include accuracy of the timekeeping system, workforce skill, material availability, quality of leadership, time to respond and resolve issues, and whether tasks are repetitive or first-of-a-kind.

Q. WHAT LABOR FACTORS HAD WEC/CB&I ACHIEVED AT THIS PROJECT?

A. The Project's productivity factors varied depending on the type of commodity, the area of the site or building, and the unit in which the work was being performed. For example, the civil site work PF was close to 1.0 during the course of the Project. For work in the nuclear islands and turbine buildings, WEC/CB&I had been consistently unable to meet the productivity factors on which their cost and schedule estimates had been based. This was true both for the V.C. Summer Units 2 & 3 Project and the Vogtle Project.

Q. HOW DID SCE&G RESPOND?

A. During the course of the Project, I observed SCE&G management consistently giving feedback to Consortium management on the poor

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 27 of 51

performance as demonstrated by their productivity factors. I was aware that SCE&G's senior executives directly discussed productivity with WEC/CB&I's senior leadership. Project actions were generated that recognized the need to improve productivity. SCE&G also independently calculated performance by performing short-term monitoring of key specific activities and gave this feedback to the Consortium, which included observations of issues causing delay.

Q. WHAT ACTIONS DID SCE&G TAKE TO MOTIVATE WEC/CB&I TO IMPROVE LABOR PRODUCTIVITY?

A. It became clear that the problem with productivity at the site was not due solely to learning curve issues or other matters which could be easily corrected. It was clear that the Consortium was not making significant progress in resolving these matters. As Mr. Kochems testifies, for that reason, beginning in 2014, SCE&G took action by disputing those portions of invoices that were believed to be caused either by poor productivity or delay. SCE&G's position was that these additional costs were incurred in violation of the obligation that Westinghouse and CB&I assumed under the EPC Contract to use good industry practices in building the Units.

Westinghouse and CB&I rejected this allegation and asserted that the productivity issues were not the result of failure to meet general construction standards but were the result of the complexity of the construction, the new NRC licensing regime, and other factors outside of their direct control.

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 28 of 51

Nevertheless, each month SCE&G computed the amount of each invoice it believed was related to poor productivity or delay and began disputing charges and withholding payments on that basis.

Q. IN 2015, WHAT WERE THE COST FORECASTS FOR COMPLETING THE PROJECT COMPARED WITH THE ORIGINAL COST FORECAST?

A. In the 2015 Update Proceeding, as Mr. Kochems testifies, SCE&G presented updated cost schedules which increased cost of the Units to $6.8[1] billion or approximately 8% more than the $6.3 billion which was approved by the Commission in 2009. As the Commission found in Order No. 2015-661 (p. 7).

Q. WHAT WERE THE PROPOSED COMPLETION DATES OF THE UNITS IN 2015?

A. In the 2015 Update Proceeding, SCE&G requested an update to the construction schedule for the Units to reflect a new schedule provided by Westinghouse and CB&I. That construction schedule delayed the substantial completion date of Unit 2 by 27 months to June 19, 2019 and Unit 3 by 25 months to June 16, 2020.

Q. AFTER THESE COMMERCIAL ISSUES WERE KNOWN, WHAT HAPPENED IN 2016 TO CHANGE THE PROJECT?

---

[1] All costs are SCE&G's 55% portion of the capital cost of the NND Project unless otherwise stated.

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 29 of 51

A. Shortly after the Commission hearing in the 2015 Update Proceeding concluded, Westinghouse and CB&I approached SCE&G indicating they agreed that the Consortium structure was broken and needed to be scrapped. CB&I wanted to leave the Project and Westinghouse was willing to take sole responsibility for the Project by buying CB&I's nuclear construction business. Westinghouse told us that if the sale went through, Westinghouse would substitute the Fluor Corporation as its construction subcontractor — but as a contractor only, not as a Consortium member. Westinghouse would be solely responsible for the conduct of the Project.

Q. WHAT WAS YOUR UNDERSTANDING CONCERNING WESTINGHOUSE'S COMMITMENT TO SUCCESSFULLY COMPLETE THE PROJECT?

A. My team and I had worked side by side with key Westinghouse personnel throughout the course of Project. We regularly interacted with our Westinghouse counterparts in both formal and informal settings. Our Westinghouse colleagues candidly shared with us their company's goal of growing to be the global supplier of advanced passive safety nuclear generation technology. On more than one occasion, our Westinghouse colleagues discussed with us the critical importance of successfully completing these Units to their global marketing plans, and specifically how important it was to complete these Units in the highly-regulated U.S. market where the regulatory and safety requirements of construction are as

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 30 of 51

challenging as anywhere in the world. My Westinghouse colleagues understood that the failure to complete the project successfully could hinder Westinghouse's ability to fulfill its long-term goals.

At the time, we had every reason to believe that Westinghouse was fully committed to finishing the Project. That was clearly the understanding of the Westinghouse personnel with whom we interacted.

Q. HOW WAS THE DECISION TO END THE CONSORTIUM STRUCTURE RECEIVED BY THE NND TEAM?

A. The NND team welcomed the idea of ending the Consortium structure. The divided responsibility for the Project had become a source of increasing friction between the parties and was creating delay and inefficiency. It was increasingly obvious that Westinghouse and CB&I could not agree on how to resolve recurring problems with the Project or who would pay for mitigation efforts. Westinghouse's willingness to take full responsibility for the Project going forward was consistent with what our Westinghouse colleagues had told us about the vital importance to Westinghouse of successfully completing this Project to the success of its global business strategy.

Q. HOW DID YOU FEEL ABOUT FLUOR JOINING THE PROJECT?

A. My team and I also were cautiously optimistic that Fluor Corporation would be taking responsibility for day-to-day operations on the site. Fluor is

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 31 of 51

a corporation with deep South Carolina roots and had successfully completed generation construction projects for SCE&G going back decades.

Fluor began work off-site in late 2015 to aid Westinghouse in their transition process. Fluor immediately started working with Westinghouse, SCE&G and Southern Nuclear Company to identify issues that were driving construction inefficiency and poor labor productivity. This was part of the transition process that Westinghouse was managing; they created teams to focus on transitioning the Stone & Webster business from CB&I to Westinghouse. Those review teams looked at these issues across both the Jenkinsville and Vogtle projects and included representatives from SCE&G, Santee Cooper, and the Southern Nuclear Company in addition to Westinghouse and Fluor. SCE&G participated in aspects of the transition process where it was not excluded by Westinghouse due to the fixed-price nature of the 2015 Amendment. Once the Stone & Webster transaction between CB&I and Westinghouse was completed in January 2016, Fluor was allowed to mobilize to the site. There they continued to work with Westinghouse and SCE&G on various Functional Area Assessments. These review teams conducted a deep dive into the problems hindering efficiency and formulated action plans to correct them. Fluor began implementing the results of these reviews as soon as they were available, pending Westinghouse funding.

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 32 of 51

Q. WHAT OTHER BENEFITS WAS SCE&G ABLE TO NEGOTIATE IN EXCHANGE FOR ALLOWING CB&I TO EXIT THE PROJECT?

A. The desire to have CB&I released from the Consortium gave SCE&G and Santee Cooper the opportunity to negotiate the option to fix the price for completion of the remaining scopes of work under the EPC Contract at $3.345 billion. This fixed price was subject only to limited exceptions. SCE&G and Santee Cooper were also able to renegotiate the liquidated damages Westinghouse would pay for missing completion deadlines and to increase them by fourfold. In addition, the 2015 Amendment resolved the existing disputes between the parties with only limited exceptions and prohibited the parties from filing lawsuits against each other before the Project was completed.

Q. HOW DID THE 2015 AMENDMENT CHANGE THE RISK FACTORS THAT THE COMPANY HAD IDENTIFIED IN THE 2015 UPDATE PROCEEDING?

A. The Fixed-Price Option made Westinghouse primarily responsible for increased costs due to labor productivity and dramatically reduced SCE&G's exposure to price risks. The liquidated damages provisions shifted a great deal of schedule risk onto Westinghouse and made the important changes to the Project in the following areas.

1. Effectively enforcing the terms of the EPC Contract was greatly simplified since the Consortium was no longer two individual

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 33 of 51

companies, but solely Westinghouse, and the commercial terms of the EPC Contract were greatly streamlined by going to a milestone based payment schedule.

2. The scheduling and productivity challenges related to the fabrication of modules and submodules and procurement of major commodities were substantially mitigated by the elimination of CB&I and the centralization of authority in Westinghouse. These schedule and productivity challenges had been increasing costs and delaying the construction schedule. Centralizing responsibility and risk of non-performance in Westinghouse helped speed-up resolution of commercial challenges with vendors. More significant liquidated damages for schedule delays were important to motivate Westinghouse to procure these items in accordance with the overall schedule.

3. By eliminating CB&I and having Westinghouse contract directly with Fluor for labor, it was understood that Westinghouse could exert more direct control over productivity by providing penalties and incentives for improvements by Fluor. It could also motivate Westinghouse to reduce obstacles and barriers to improve labor productivity that were within Westinghouse's direct control, such as untimely changes by Westinghouse engineers in design documents and the procurement practices by Westinghouse and

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 34 of 51

CB&I which had been delaying the availability of construction material required by the on-site contractor.

4. Risks associated with startup and testing of the Units was reduced by transferring this scope of work from costs based Time & Materials pricing and including it within the fixed-price scope. In addition, the increased liquidated damages would provide an incentive for Westinghouse to complete the Units in a timely way that supported the new schedule.

By accepting the primary financial responsibility for labor productivity, and agreeing to terms which limited future disputes, Westinghouse reset the relationship between our companies and allowed us to move forward without the rancor or tension that had been growing in 2014 and 2015. All told, the 2015 Amendment fundamentally reduced the risk factors identified above.

Q. AFTER THE 2015 AMENDMENT TO THE EPC CONTRACT WAS EXECUTED, WERE YOU CONCERNED THAT THE UNITS COULD NOT BE SUCCESSFULLY COMPLETED?

A. No. After the 2015 Amendment to the EPC Contract was executed, the Company believed, as did I, that through the elimination of the Consortium structure, the addition of the Fixed-Price Option, the amended EPC Contract terms and Fluor's energy and expertise, the problems with construction productivity and other issues could be overcome. We believed

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 35 of 51

that Westinghouse would have to make several significant and fundamental changes to their processes, procedures, and the site culture to be successful. We believed that Fluor could help Westinghouse accomplish this, especially if Westinghouse negotiated a contract with Fluor that provided the right kind of incentives and penalties. Nevertheless, we did believe that the Project could be completed if Westinghouse would put the appropriate focus on planning, improving execution, and mitigating risks.

Q. AFTER THE 2015 AMENDMENT TO THE EPC CONTRACT WAS EXECUTED, WHAT WAS YOUR UNDERSTANDING CONCERNING WESTINGHOUSE'S COMMITMENT TO SUCCESSFULLY COMPLETING THE PROJECT?

A. After the 2015 Amendment to the EPC Contract was executed, the Westinghouse personnel we interacted with continued to give us every indication that Westinghouse was committed to completing the Project and that doing so was of primary importance to Westinghouse's global business strategy. The risks and obligations that Westinghouse agreed to accept under the 2015 Amendments supported our understanding that Westinghouse was willing to commit the financial and managerial resources to complete the Project successfully and that doing so was of critical importance to Westinghouse's global marketing strategy.

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 36 of 51

Q. BEFORE THE FOURTH QUARTER OF 2016, DID YOU HAVE ANY INDICATION THAT THERE WERE UNDISCLOSED ACCOUNTING IRREGULARITIES AT WESTINGHOUSE?

A. No. Before the fourth quarter of 2016, my team and I had no indication of any accounting issues at Westinghouse. In the latter half of 2016, I understood that Westinghouse was having delays in completing their Estimate To Complete ("ETC") of EPC costs and schedule for the Project, but I had no idea there were going to be negative accounting ramifications at Westinghouse or Toshiba.

Q. BEFORE DECEMBER OF 2016, DID YOU HAVE ANY INDICATION THAT WESTINGHOUSE MIGHT BE CONSIDERING BANKRUPTCY?

A. No. Before December 2016, my team and I had no indication that Westinghouse might be considering bankruptcy.

Q. WHAT WAS THE STATUS OF THE PROJECT IN MARCH 2017 WHEN WESTINGHOUSE DECLARED BANKRUPTCY?

A. In the months leading up to the bankruptcy filing on March 29, 2017, the Project in total was 64.1% complete. (*See* Quarterly Report at 8 (March 31, 2017) ("March Rpt."); Quarterly Report at 7 (Dec. 31, 2016) ("Dec. Rpt.").) All main structural modules for Unit 2 had been fabricated and installed within the Unit. (Quarterly Report at 7-8 (Sept. 30, 2016) ("Sept. Rpt.); Dec. Rpt. at 10.) All four cooling towers for the Project were

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 37 of 51

structurally complete. (Sept. Rpt. at 9); Dec. Rpt. at 9.) The switchyard, circulating water system and offsite water system were also structurally complete. (Quarterly Report at 11 (June 30, 2016) ("June Rpt."); Sept. Rpt. at 9.) The Unit 2 Pump structure for the Cooling Towers was structurally complete, and the Unit 3 Pump structure was 95% structurally complete. (March Rpt. at 10.)

The Unit 2 reactor vessel had been set in place. (Sept. Rpt. at 7-8.) Welding and assembly of the Unit 2 Containment Vessel Top Head continued and was approximately 95% complete. (March Rpt. at 9.) The Unit 2 Hot and Cold Leg Reactor Coolant System piping was also in place and being welded to the reactor vessel. (March Rpt. at 8-9.) The third of the three Unit 2 containment vessel rings had been fabricated and set in place and all major welding to fabricate the Unit 2 Top Head and the containment for Unit 3 had been completed. (June Rpt. at 10; March Rpt. at 8-9.)

The turbine building for Unit 2 was approaching structural completion, and components of the turbine generator were being installed. (March Rpt. at 9.) Work on the Unit 3 Nuclear Island, Unit 3 Containment Vessel, Unit 3 Auxiliary and Annex Building, Unit 3 Turbine Building, and Unit 3 Shield Building were underway. (Dec. Rpt. at 8-9; Sept. Rpt. at 8-9; March Rpt. at 9-10.)

All submodules needed to complete the major structural modules for Unit 3 had been received on-site. (March Rpt. at 11.) Structural submodule

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 38 of 51

fabrication had been a critical path item previously and the focus area for SCE&G's oversight of the Project but was not a critical path area or focus area any longer.

Fabrication and delivery of shield building panels was proceeding well at that time: 148 of the 167 Shield Building panels for the Unit 2 Shield Building had been received on site, and 81 of the Unit 3 Shield Building panels were on site. (March Rpt. at 11.)

Over 80% of the major equipment for the Units had been received on-site, including the steam generators. (March Rpt. at 12.) The Air Inlet and Tension Ring mockups had been successfully fabricated and tested at NNI, and fabrication was proceeding as expected. (Dec. Rpt. at 10.) Final assembly testing for all Unit 2 and Unit 3 Reactor Coolant Pump components was in process. (Sept. Rpt. at 11.) The Unit 2 Passive Residual Heat Removal Heat Exchanger was received on site, and the similar component for Unit 3 was being prepared for shipment after having been upgraded with additional baffles to extend its useful life. (March Rpt. at 12.)

In summary, in March 2017, while there were important issues yet to be resolved, the Project was moving forward and significant progress was being made.

Q. AT THE TIME OF THE BANKRUPTCY ANNOUNCEMENT, WAS THERE ANY DESIGN, CONSTRUCTION OR TECHNICAL

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 39 of 51

REASON THAT THE UNITS COULD NOT BE SUCCESSFULLY COMPLETED?

A. I am not aware of any design, construction or technical reason why the Units could not have been completed with commitment and perseverance by all parties. I would note that the AP1000 units being constructed in China are nearing completion and one unit has been successfully placed in service. Had that bankruptcy not occurred, Westinghouse would still have the primary risk of completing the Project and we would be working toward doing so for the benefit of our customers.

III. THE WESTINGHOUSE BANKRUPTCY

Q. WHAT WAS YOUR TEAM'S ASSIGNMENT AFTER THE WESTINGHOUSE BANKRUPTCY?

A. In addition to our other duties concerning the ongoing construction work, immediately after the Westinghouse bankruptcy declaration, my team was tasked with receiving and evaluating the Westinghouse ETC, which included information from Fluor. Westinghouse was cooperative in this effort and provided us all the data that they had concerning costs and schedules and concerning the commercial arrangements they had with their subcontractors and vendors. This information had previously been considered proprietary commercial data by Westinghouse, but that changed with the bankruptcy filing.

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 40 of 51

After evaluating the Westinghouse ETC, we determined it to be insufficient for use by the Owners going forward to properly manage the Project. We were then tasked with independently compiling and verifying an Owner's ETC, to include a cost estimate and a construction schedule for completing the Units as an owner-directed project. We worked closely with representatives from Santee Cooper and from Fluor and with independent scheduling and cost estimating experts who were hired for this task. We also coordinated our efforts with the Southern Nuclear Company, who had made the same determination of Westinghouse's ETC and prepared a Vogtle Owner's ETC. At that time, the Vogtle Project was at a corresponding point of construction progress, had a comparable project organization, and was experiencing similar issues as V.C. Summer Units 2 & 3.

Q. WAS SCE&G'S DECISION TO CONTINUE CONSTRUCTION OF THE PROJECT UNDER AN INTERIM ASSESSMENT AGREEMENT REASONABLE AND PRUDENT?

A. Yes. The decision to continue construction while the evaluation of cost, schedules and options was underway was a reasonable and prudent[2] choice by SCE&G and Santee Cooper senior executives. As Mr. Addison testifies, the initial indications from Westinghouse were that the costs for

[2] When I use the word prudent, I use the common dictionary definition as I understood it at the time the Project was ongoing, not any definition subsequently given via statute.

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 41 of 51

SCE&G and Santee Cooper to complete the Units as owner-directed projects would be manageable, especially considering that Toshiba was standing by its corporate guarantee for the Project. The funds that SCE&G and Santee Cooper anticipated receiving from that corporate guarantee would have been sufficient to cover the additional construction costs as they were initially communicated by Westinghouse. However, as we dug into those costs, it became clear that a more reasonable and prudent costs assessment would involve substantially more expense than had been communicated initially by Westinghouse.

Q. WHY DID YOU CONTINUE TO WORK ON THE PROJECT PENDING THE OUTCOME OF THE ANALYSIS?

A. It would have been technically possible to suspend work on the Project while options were being evaluated. However, doing so would have been both expensive and time consuming. The cost of demobilizing and then re-mobilizing the construction team that was on site would have been significant. It would also have been expensive and could have a significant adverse impact to the construction schedule to ask off-site fabricators to stop work and then restart later.

Q. ONCE YOU PRESENTED YOUR INITIAL JULY 2017 ASSESSMENT OF A REASONABLE COST AND CONSTRUCTION SCHEDULE FOR COMPLETING THE PROJECT, WOULD IT HAVE BEEN PRUDENT TO ABANDON THE PROJECT THEN?

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 42 of 51

A. No. Even after we presented our initial analysis of costs and schedule to the executives of SCANA and Santee Cooper, there were still viable options to explore. As Dr. Lynch testifies, the economic analysis showed that with Santee Cooper as a co-owner, it would still be in customers' economic interest to complete Unit 2 and Unit 3; completing only Unit 2 with Santee Cooper as a co-owner was also shown to be reasonable. As Mr. Addison testifies, there were important construction, financial, regulatory, and other risks that had not yet been fully assessed.

Q. WHAT WAS YOUR TEAM'S ROLE IN THESE MATTERS AFTER COMPLETING THE REVIEW OF COSTS AND CONSTRUCTION SCHEDULES?

A. At the time the abandonment decision was made, my team was actively involved in oversight of the day-to-day activities of the Project, including setting up an Owner's Project control system. Also, I was part of the NND transition planning process, which included scoping and negotiating commercial agreements with Westinghouse, Fluor and other vendors and subcontractors to support the continuation of the Project in some form as an Owner-directed Project.

IV. <u>ABANDONMENT ACTIVITIES</u>

Q. WHAT DOES IT MEAN FROM A CONSTRUCTION STANDPOINT TO ABANDON THE SITE?

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 43 of 51

A. When the abandonment decision was made, we were instructed to put the site in a safe and stable condition, remove and dispose of hazardous substances, supervise the removal of contractor's rental property, but otherwise take no action inconsistent with abandonment of the Project as of year-end 2017.

Through December 29, 2017, preventative maintenance was being performed on some uninstalled equipment stored at the Site or stored in warehouses. Installed equipment has remained in the same condition as it was on the date it was decided to abandon construction. The majority of the major equipment, for example a steam generator, is not subject to degradation due to exposure to the elements. This equipment was intended to be installed in an un-sheltered construction site that would remain open to the elements through a multi-year construction process. In addition, the buildings that comprise an operating nuclear power plant, such as the reactor building, containment building, and turbine building, are hot, humid environments where the equipment must be able to withstand changes in temperature, condensation, humidity and corrosion. In fact, surface corrosion is fully expected for exposed metal surfaces in an operating nuclear plant because it forms a passive oxide layer which protects the underlying layers from additional corrosion. Even if the Units were to be completed, no further action would be taken regarding this passive oxide layer that has built up on existing components. It is entirely normal.

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 44 of 51

Q. WERE ANY MATERIALS SOLD TO ANY SALVAGE VENDORS?

A. No. Consistent with abandonment, SCE&G did not sell any materials other than the fly ash contained in a rental containers at the Westinghouse Batch Plant so that the rental container could be returned to the vendor.

Q. ARE THERE ANY FURTHER PLANS FOR MATERIALS ON SITE?

A. A small amount of materials, such as civil commodities like rebar, couplers, a major valve and two reactor coolant pumps are being sold to Southern Nuclear Company pursuant to a December 31, 2017 Letter of Intent. Due to the abandonment decision, SCE&G has no further plans for the materials on site consistent with abandonment. SCE&G has offered to transfer ownership of materials to Santee Cooper, which Santee Cooper is considering.

Santee Cooper has contracted with Fluor to maintain a select list of high value equipment at least temporarily.

Q. HOW ARE ITEMS STORED IN OFF-SITE STORAGE BEING HANDLED?

A. SCE&G rents two offsite warehouses where materials are currently being stored. SCE&G pays 55% of the rent associated with these warehouses, and Santee Cooper pays 45%. The lease for one warehouse expires on August 21, 2018. The lease for the other expires on November 30, 2018. We offered to let Santee Cooper take over these leases if it wishes, but Santee

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 45 of 51

Cooper declined to assume the leases in a May 4, 2018 letter to SCE&G. SCE&G will remove these materials to the site and terminate the leases.

Q. IS THE REAL PROPERTY CONSIDERED ABANDONED?

A. No, the real property that the Units sit on has not been abandoned. SCE&G owns the real property in conjunction with Santee Cooper.

Q. HOW MANY PERMITS DOES SCE&G HAVE OUTSTANDING THAT NEED TO BE CLOSED OUT?

A. SCE&G currently has fifteen construction/storm water permits that are in the process of being terminated, as well as an NPDES discharge permit, an air quality batch plant permit, Norfolk Southern access permit, U.S. Army Corp of Engineers 404 permit, FERC permit, Federal Aviation Administration (FAA) permits, waste water and potable water piping permits, and termination of the Spill Prevention, Control and Countermeasures Plan. SCE&G is working with the appropriate regulatory agency, or third party in the case of Norfolk Southern, to ensure permit compliance and closure.

Q. WHAT IS THE STATUS OF THE COMBINED OPERATING LICENSES FOR THE TWO UNITS THAT WERE ISSUED BY THE NRC UNDER 10 C.F.R. PART 52?

A. SCE&G asked the NRC to terminate these Combined Operating Licenses on December 27, 2017. In January 2018, Santee Cooper asked the NRC to not take any action for 180 days. We did not object to this request.

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 46 of 51

Santee Cooper management has informed the NRC that they are committed to recommending to their Board that the COLs be terminated..

V. ASSETS BEING PLACED IN SERVICE

Q. ARE ANY CONSTRUCTION PROJECTS, APART FROM TRANSMISSION PROJECTS, BEING PLACED IN SERVICE AND NOT BEING ABANDONED?

A. SCE&G will place in service a number of construction projects that were undertaken as part of the NND Project but will be used to support generation activities on the V.C. Summer site. These aspects of the Project have not been abandoned and are being placed in service.

Q. WHAT ARE THESE ASSETS AND WHAT IS THEIR USE?

A. **The V.C. Summer Switchyard No. 2:** This portion of the project, which was constructed as part of the EPC Contract, is part of the SCE&G system and will not be abandoned. As Mr. Richards testifies, the new switchyard expands SCE&G's ability to terminate or interconnect lines at the V.C. Summer site, including lines from other transmission systems.

Off-Site Water System: The Off-Site Water System (OWS) provides potable water that is needed for Unit 1. The current Unit 1 water treatment system was built at the time of that unit's initial construction in the 1970's. It has aged significantly. It is more economical to replace the current Unit 1 system with a new system rather than to continue to repair and replace

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 47 of 51

components of the existing system through the end of Unit 1's useful life and eventual decommissioning.

Nuclear Operations Building (NOB): The former Unit 1 NOB was located near the current location of the Unit 1 Interim Spent Fuel Storage Installation (ISFSI). Nuclear security regulations required the relocation of the Unit 1 NOB to allow for the construction of the ISFSI. Also, the Unit 1 NOB was built at the time of initial construction of Unit 1 in the 1970's and had aged significantly. It was more economical to replace the current Unit 1 NOB than to continue to maintain the current facility through the end of Unit 1's useful life and eventual decommissioning.

Nuclear Learning Center Annex: The Nuclear Learning Center Annex is being repurposed to support Unit 1 in processing contracting employees, and in housing laboratories and staff that are now located in the former New Nuclear Deployment Building, which is being retired.

CHAMPS Work Management System: The software system formerly used by Unit 1 for work management had aged significantly and could no longer be supported. Therefore, it was decided to implement a multi-unit upgrade, which continues to improve the efficiency of operations at Unit 1 and could not be abandoned.

Emergency Response Building: The Emergency Response Building and associated equipment was constructed to meet regulatory and industry requirements, primarily due to new post-Fukushima regulations required of

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 48 of 51

expanded emergency response capabilities, and to reduce insurance costs. The upgraded facility will continue to support Unit 1 requirements and could therefore not be abandoned.

Security Training Facility: This facility was constructed to meet regulatory and industry physical security standards, and to replace the existing facility which was built in a recognized flood plain and within the boundary of the Parr Hydro FERC Project. FERC did not approve the long-term use of this location and the new security training facility will continue to support Unit 1 requirements and could therefore not be abandoned.

Software Licenses: Various software systems formerly used by Unit 1 have aged significantly or otherwise needed to be upgraded or replaced. These additional software licenses will continue to support Unit 1 requirements and could therefore not be abandoned.

Wastewater Treatment Facility: A new wastewater treatment facility was needed regardless of Units 2 or 3. The current Unit 1 wastewater treatment system was built at the time of initial construction and has aged significantly. It was more economical to replace the current Unit 1 system with a new system rather than to continue to repair and replace components of the existing system through the end of Unit 1's useful life and eventual decommissioning.

Railroad Spur: The railroad spur serving Unit 1 needed significant upgrades and repairs to support the delivery of large replacement

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 49 of 51

components for Unit 1 and for Fairfield Pumped Storage facility. These upgrades were completed as part of the realignment of the rail spur on to the tabletop leveled for the construction of Units 2 and 3. The cost of grading for the relocated rail bed was born entirely by the NND project. Unit 1 will bear only the cost of the new rail line itself (rails, ballast, ties, etc.) that serves it. Unit 1 would have been required to rebuild the rail line even if Units 2 and 3 had never been proposed

IT Facilities: These facilities were constructed for Units 2 & 3 but are now an integral part of the SCANA IT network and serve multiple SCANA facilities, including Unit 1 and ancillary facilities such as OWS. They represent a valuable upgrade to the IT facilities that had previously served the site.

Q. HOW ARE PROJECT RECORDS BEING HANDLED?

A. Other than certain records, like personnel records belonging to Human Resources, SCE&G is holding all records on site. Records belonging to Westinghouse have been boxed up, but they have not left the site and will not do so until SCE&G receives Commission authorization to do so, along with authorization from other interested parties.

VI. CONCLUSION

Q. ARE THE ACTIONS SCE&G HAS BEEN TAKING REGARDING ABANDONMENT ACTIVITIES REASONABLE AND PRUDENT?

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 50 of 51

A. Yes they are. As Manager for Nuclear Plant Demobilization, I am involved on an on-going basis with all major aspects of the abandonment. The abandonment activities are the result of a number of decisions and events, including Consortium project management, Westinghouse bankruptcy, the loss of the risk mitigation provided by the fixed-price EPC Contract, subsequent capital cost evaluation, evaluation of economic models for SCE&G's power generation, and the decision by Santee Cooper to suspend construction of the Project due to lack of need for power generation.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

ELECTRONICALLY FILED - 2018 September 24 6:15 PM - SCPSC - Docket # 2017-305-E - Page 51 of 51