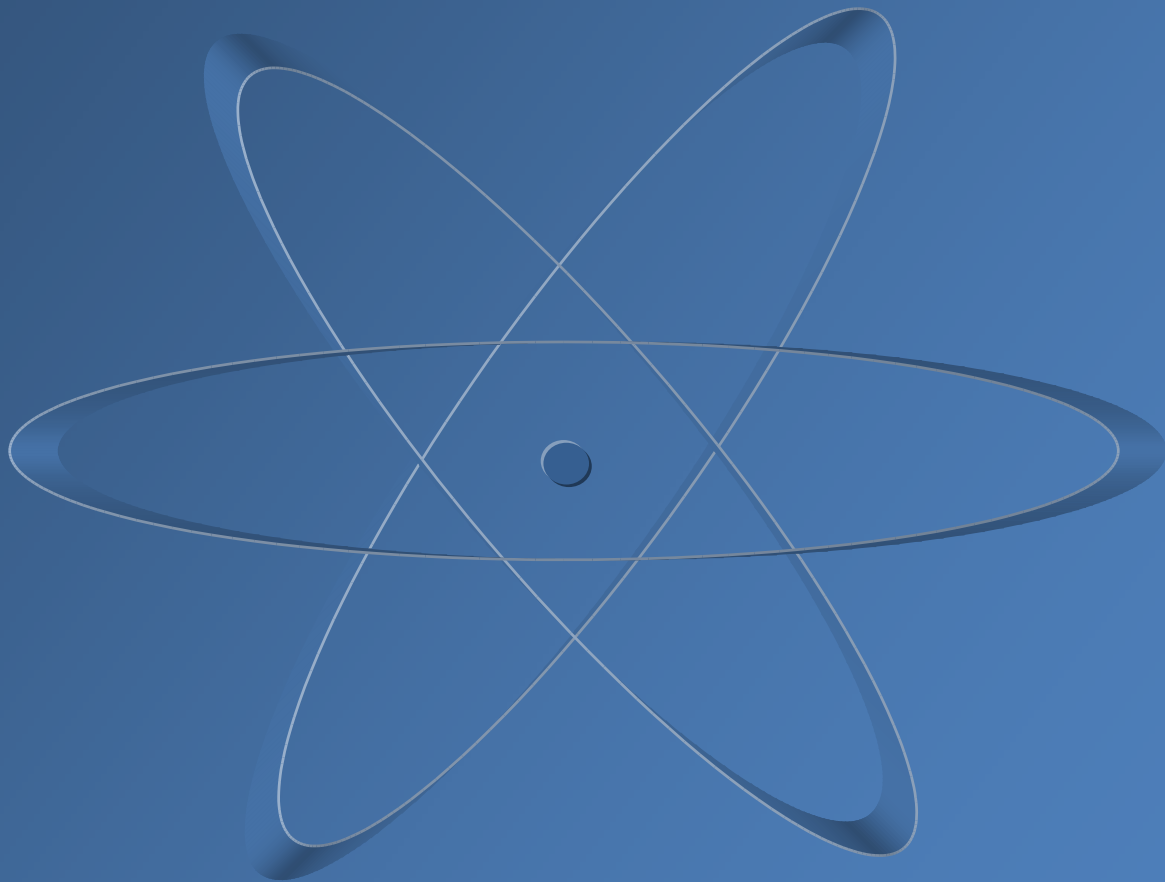


South Carolina Office of Regulatory Staff
Review of South Carolina Electric & Gas Company's
2010 3rd Quarter Report on
V. C. Summer Units 2 and 3
Status of Construction



January 1, 2011



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Introduction

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 Units 2 and 3 (the “Units”) and the Engineering, Procurement and Construction (“EPC”) Contract. This approval can be found in the Base Load Review Order No. 2009-104(A) filed in Docket 2008-196-E. Subsequently, on January 22, 2010, the Commission approved updated capital cost estimates and construction schedules in Order No. 2010-12, which is filed in Docket 2009-293-E.

SCE&G and the South Carolina Public Service Authority (“Santee Cooper”) are co-owners of the project at 55% and 45%, respectively. The South Carolina Office of Regulatory Staff (“ORS”) has no regulatory oversight of Santee Cooper. The two companies continue to operate jointly to construct the Units under the terms established in their Bridge Agreement. Negotiations continue between the two utilities to establish the terms of a final joint ownership contract. As previously reported in ORS reviews, SCE&G has disclosed that Santee Cooper is reviewing its level of participation in constructing the Units. On September 18, 2010, the The Post and Courier, a Charleston newspaper, indicated that Santee Cooper may seek a partner in its 45% ownership. This article indicates that Santee Cooper does not have a firm date for its decision. As of this review, ORS has no further information regarding this matter.

On November 15th, SCE&G submitted its 2010 3rd Quarter Report (“Report”) related to its construction of the Units. The Report is filed in Commission Docket No. 2008-196-E and covers the quarter ending September 30, 2010. The Company submitted its Report pursuant to S.C. Code Ann. § 58-33-277 (Supp. 2009) of the Base Load Review Act (“BLRA”), which requires the 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 by Section 58-33-270(B)(5);
4. Updated schedules of the anticipated capital costs; and
5. Other information as the Office of Regulatory Staff may require.

With reference to Section 58-33-275(A) of the BLRA, ORS’s review of the Company’s Report focuses on SCE&G’s ability to adhere to (1) the approved construction schedule and (2) the approved capital cost estimates.

Approved Schedule Review

Milestone Schedule

As of September 30, 2010, ORS verified that of the Milestone Schedule's 146 activities:

- 54 milestone activities are complete (includes 53 historical and 1 future milestones)
- 92 milestone activities remain to be completed (includes 2 delayed historical and 90 future milestones)

ORS also verified that during the 3rd quarter of 2010:

- One (1) milestone activity was scheduled to be completed. This milestone was completed seven (7) months early.

As of the end of the 3rd quarter of 2010 ORS verified that:

- None (0) of the milestones fall outside the deviation standards of being delayed up to 18 months or being accelerated up to 24 months.

As of the end of the 3rd quarter of 2010, ORS identified two (2) Caution Milestones. These milestones, which are detailed below, are those that have been delayed ten (10) months or greater:

- **Milestone Activity No. 55** – *Reactor Vessel Fabricator Notice to Contractor of Outlet Nozzle Welding to Flange Nozzle Shell Completion – Unit 2*. Delayed 10 months.

This activity was scheduled to be completed on February 28, 2010. Its revised target completion date is December 31, 2010. Doosan, located in South Korea, is the manufacturer for the reactor vessel. This milestone has been delayed to correct a distortion in the upper shell and has been impacted by work scheduling conflicts.

The Company reports to ORS that the causes of the delay have been addressed and SCE&G does not anticipate the delay to impact the receipt of this major component at the site.

- **Milestone Activity No. 80** – *Passive Residual Heat Removal Heat Exchanger Fabricator Notice to Contractor of Completion of Tubing - Unit 2.* Delayed 10 months.

This activity is scheduled to be completed on January 31, 2011. The revised target completion date is November 29, 2011. Mangiarotti, located in Italy, is the manufacturer for the heat exchanger and associated tubing.

The Company reports to ORS that a manufacturing hold was placed on Mangiarotti. This hold caused the delay and has since been lifted. The Company does not anticipate the delay to impact the receipt of this major component at the site.

SCE&G's Milestone Schedule attached to the Report indicates that overall construction is on schedule. ORS's review of the Milestone Schedule does not identify any issues that impact Unit 2 and Unit 3's substantial completion dates of April 1, 2016 and January 1, 2019, respectively. The one (1) work activity scheduled to be completed during the 3rd quarter was completed seven (7) months early.

ORS reviewed the invoice associated with the milestone completed during the 3rd quarter and found the invoice amount to be consistent with the EPC payment schedules. Appendix A shows details of the Milestone Schedule as of September 30, 2010.

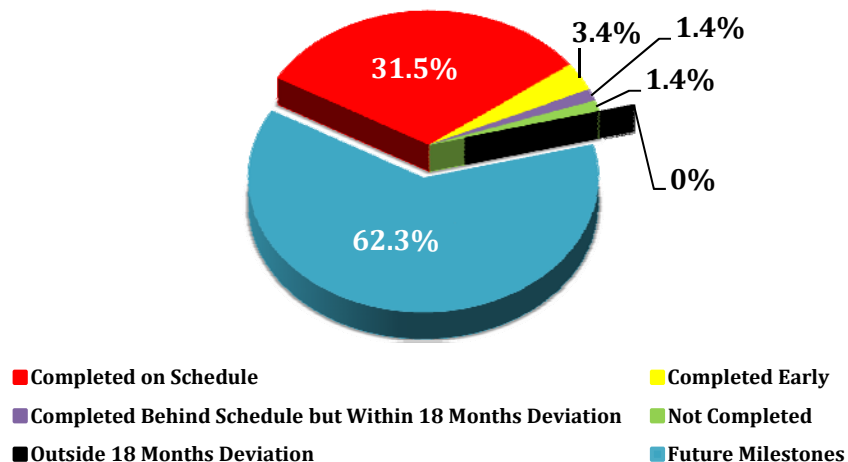
Table 1 shows the status of the 55 historical milestones and Chart 1 shows the status of all 146 milestones for the 3rd quarter 2010 and prior.¹

Table 1:

Historical Milestones		
<i>3rd Quarter 2010 and Prior</i>		
55 of 146 total Milestones		
	# of Milestones	% of All Milestones
Completed on Schedule	46	31.5%
Completed Early	5	3.4%
Completed Behind Schedule but Within 18 Months Deviation	2	1.4%
Not Completed	2	1.4%
Outside 18 Months Deviation	0	0%
Total Historical Milestones	55	37.7%

Chart 1:

Milestone Status
3rd Quarter 2010 and Prior



¹ The numbers reported by ORS and SCE&G will vary. For reporting purposes, ORS applies a 30 day threshold before a milestone is deemed accelerated or delayed. SCE&G uses a threshold less than 30 days. For instance, if a milestone is scheduled to be completed July 2, 2010 and the actual completion date is June 29, 2010, SCE&G deems the milestone as completed one month early since it is completed in a prior calendar month. ORS would report this milestone as being done on schedule since it was completed within 30 days of the scheduled completion date.

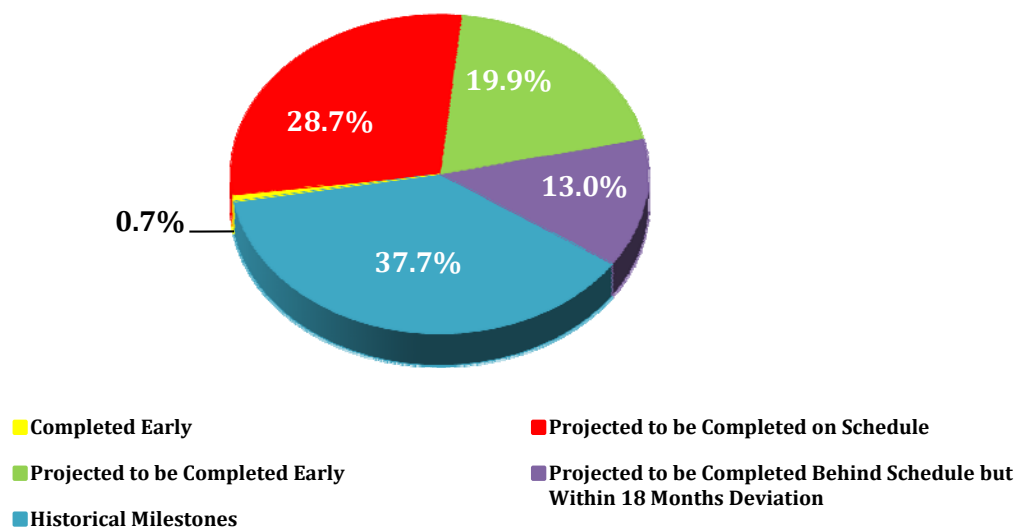
Table 2 shows the status of the 91 future milestones and Chart 2 shows the status of all 146 milestones for the 4th quarter 2010 and beyond.²

Table 2:

Future Milestones <i>4th Quarter 2010 and Beyond</i> 91 of 146 total Milestones		
	# of Milestones	% of All Milestones
Completed Early	1	0.7%
Projected to be Completed on Schedule	42	28.7%
Projected to be Completed Early	29	19.9%
Projected to be Completed Behind Schedule but Within 18 Months Deviation	19	13.0%
Total Future Milestones	91	62.3%

Chart 2:

Milestone Status
4th Quarter 2010 and Beyond



² The numbers reported by ORS and SCE&G will vary. For reporting purposes, ORS applies a 30 day threshold before a milestone is deemed accelerated or delayed. SCE&G uses a threshold less than 30 days. For instance, if a milestone is scheduled to be completed July 2, 2010 and the actual completion date is June 29, 2010, SCE&G deems the milestone as completed one month early since it is completed in a prior calendar month. ORS would report this milestone as being done on schedule since it was completed within 30 days of the scheduled completion date.

Specific Construction Activities

The overall site construction activities are progressing well. The existing construction workforce consists of approximately 800 workers. SCE&G and EPC Contractors account for approximately 15% and 85% of the workforce, respectively. Some of the major construction activities during the 3rd quarter of 2010 are listed below:

- Excavation of the Nuclear Island for Unit 2, which provides the foundation for the reactor, continued. This is the first critical path activity and ORS continues to closely monitor all critical path activities.
- Unit 2 Power Block excavation was progressing ahead of schedule and rock removal began. The Nuclear Regulatory Commission (“NRC”) geological team visited the site in August to observe excavation, mapping and data collection pertaining to the Nuclear Island.
- Earthwork on the table top area – where the AP1000 units will be located – was nearing completion at the 400 foot elevation level.
- The Circulating Water System (CWS) pipe installation was ongoing.
- The Cable Storage Building – Warehouse Building 57 – was completed.
- The section of earthwork grading in the Cooling Tower area above the existing wetlands area was completed.
- The first of two on-site concrete batch plants has been completed and is in operation.
- Construction continued on the Nuclear Learning Center expansion. The center is on target to begin occupancy by the end of 2010.
- Crane rails were delivered and were ready to be set in the Modular Assembly Building. The Modular Assembly Building was approximately 85% complete.
- One hundred twenty five (125) of the foundation shafts in the Switchyard were completed. Also, the installation of the Switchyard grounding grid has begun.
- Work on the foundation for the Heavy Lift Derrick (“Bigge Crane”) continued with steel reinforcement being installed.
- Work continued on the on-site fabrication pads for the Containment Vessel. Meetings were held with the contractor to prepare for the Containment Vessel fabrication activities.

Photographs of 3rd quarter construction activities are shown in Appendix B.

Change Orders

During the 3rd quarter of 2010, Change Order Nos. 6 and 7 were approved by the Company and SCE&G was developing Change Order Nos. 8 and 10.

Change Order No. 6 – approved July 13, 2010 by the Company – substitutes hydraulic nuts (HydraNuts) in place of the standard plant reactor vessel stud tensioners and conventional reactor vessel closure head nuts. This request provides standardization across SCE&G's nuclear fleet and increases the efficiency of reactor vessel maintenance activities.

Change Order No. 7 – approved July 13, 2010 by SCE&G – is related to the engineering effort to redesign the Unit 2 switchyard communication system which interconnects with substations located on St. George transmission lines 1 and 2. The new engineering design will reflect a power line carrier communication system in lieu of the original fiber optic communication system design.

Change Order No. 8 – On August 10, 2010, SCE&G entered into an agreement with the consortium consisting of Westinghouse Electric Company (“WEC”)/Shaw. This agreement permits certain specific items of the EPC Contract that were originally included in the Target Price cost category to be moved to the Fixed Price or Firm Price cost categories.

Change Order No. 10 – provides licenses and software to allow SCE&G direct digital access to WEC's Primavera “live” integrated project schedule without incurring periodic software update costs.

Table 3 details the Change Orders and Amendments.

Table 3:

Change Orders and Amendments					
No.	Summary	Cost Categories Involved	Type of Change	Date Approved	Status
1	Operator training for WEC Reactor Vessel Systems and Simulator training	Fixed Price with 0% escalation ³	Owner Directed	7/22/2009	Approved
2	Limited Scope Simulator	Firm	Owner Directed	9/11/2009	Approved
3	Repair of Parr Road	Time and Materials	Owner Directed	1/21/2010	Approved
4	Transfer of Erection of CA20 Module from WEC to Shaw	Target Price work shifting to Firm Price	Contractor Convenience	N/A	Superseded by #8
5	<i>*Addition to Change Order #1*</i> Increased training by two weeks	Fixed Price with 0% escalation ³	Owner Directed	5/4/2010	Approved
6	Hydraulic Nuts	Fixed Price	Owner Directed	7/13/2010	Approved
7	St. George Lines 1 & 2	Firm and Target Price	Entitlement	7/13/2010	Approved
8	Target to Firm/Fixed Shift	Target, Firm and Fixed Price Categories	Owner Directed	Pending	Under Development
9	Switchyard Line Reconfiguration ⁴	Target and Firm Price Categories	Owner Directed	11/30/10	Approved
10	Primavera	Fixed Price with 0% escalation	Owner Directed	Pending	Under Development

Amendment #1	Includes Change Orders 1 and 2	Executed on 8/2/2010
Amendment #2	Will incorporate Change Orders 3, 5-9	Under Development

³ Fixed Price with 0% escalation, but applied to Time and Materials Work Allowances by adding a new category for Simulator Instructor training and reducing Startup Support by commensurate amount.

⁴ This Change Order was approved in the 4th Quarter and will be addressed in ORS's review of SCE&G's 4th Quarter Report.

Approved Budget Review

As reported in ORS's 2nd Quarter Review, the South Carolina Supreme Court ruled on August 9, 2010 that SCE&G may not recover "contingency costs" under the BLRA. S.C. Energy Users Comm. vs. South Carolina Pub. Serv. Comm'n, 388 S.C. 486, 697 S.E.2d 587 (2010). Previously, contingency costs had been approved as a capital cost category by the Commission in Order No. 2009-104(A), as modified by Order No. 2010-12. The Supreme Court's ruling removes all contingency costs totaling \$438.293 million from the budget for the Units, thereby reducing the overall approved budget. That is, the total approved SCE&G project commitment (in 2007 dollars) is reduced from \$4.534 billion to \$4.096 billion.

The Supreme Court ruling was issued during the pendency of SCE&G's revised rates request in Commission Docket No. 2010-157-E, which included \$2.277 million in contingency costs spent as of June 30, 2010. The day after the Supreme Court ruling, ORS supplied the Commission with a revised rates filing removing the \$2.277 million in contingency dollars from the revised rates request. Accordingly, the resulting retail revenue requirement was reduced by approximately \$270,000. The Company concurred with ORS's filing by separate letter. It should be noted that Commission Docket No. 2010-157-E is the Company's second request for revised rates. SCE&G's first request for revised rates in Commission Docket No. 2009-211-E contained **no** contingency costs. In summary, the Company is not permitted to recover costs considered "contingency costs" under the BLRA and ratepayers have not paid for any contingency costs through their rates.

As a result of the August 9, 2010 Supreme Court Ruling, on November 15, 2010, the Company filed, concurrently with its Report, a request with the Commission in Docket No. 2010-376-E (the "Filing") to recover approximately \$174 million in capital costs which would have been deducted from the Company's \$438.293 million (in 2007 dollars) budget for contingency costs. The Filing updates the gross construction cost – which includes escalation and Allowance for Funds Used During Construction ("AFUDC") – of the project to show a decrease from \$6.188 billion⁵ to \$5.838 billion, which is an overall reduction of approximately \$350 million in the total cost to construct the Units. SCE&G's Report reflects the removal of the \$438.293 million (in 2007 dollars) in contingency dollars, the request to recover approximately \$174 million (in 2007 dollars) in capital costs and the corresponding updated gross construction cost of the project.

ORS's budget review includes an analysis of the 3rd quarter 2010 cost estimates, project cash flow, escalation and AFUDC.

⁵ \$6.188 billion reflects the removal of the contingency dollars. The gross construction cost per Commission Order No. 2010-12 is \$6.875 billion.

Cost Estimates

To determine how closely the Company adheres to the budget approved by the Commission in Order No. 2010-12, ORS evaluates nine (9) major cost categories for variances. These cost categories are:

- Fixed with Adjustment at 0%
- Firm with Fixed Adjustment A
- Firm with Fixed Adjustment B
- Firm with Indexed Adjustment
- Actual Craft Wages
- Non-Labor Cost
- Time & Materials
- Owners Costs
- Transmission Projects

ORS found multiple variances which were due to various project changes (e.g., shifts in work scopes, payment timetables, construction schedule adjustments, change orders, etc). As of the end of the 3rd quarter of 2010, the cumulative impact of these changes increases the total base project cost⁶ (in 2007 dollars) from the approved \$4.096 billion to \$4.270 billion, which is an increase of approximately \$174 million – the amount SCE&G seeks to recover in its Filing.

Project Cash Flow

In its Report, the Company also compares its current project cash flow to the cash flow schedule approved by the Commission in Order 2010-12. To produce a common basis for the comparison, SCE&G adjusts the approved cash flow schedule to reflect the current escalation rates. As of September 30, 2010, the comparison shows the yearly maximum annual variance above and below the approved cash flow schedule through the life of the project. The comparison also shows the cumulative project cash flow is forecasted to be roughly \$44.4 million over budget at the end of 2010. Also, at the end of the project in 2018, the cumulative project cash flow is forecasted to be approximately \$264 million over budget.

⁶ Base project cost does not include contingency dollars.

Table 4 shows the annual and cumulative project cash flows as compared to those approved in Order No. 2010-12.

Table 4:

Project Cash Flow Comparison			
<i>\$'s in Thousands ⁷</i>			
		Annual Over/(Under)	Cumulative Over/(Under)
Actual	2007	-	-
	2008	\$0	\$0
	2009	(\$3,886)	(\$3,886)
Projected	2010	\$48,286	\$44,400
	2011	(\$35,917)	\$8,483
	2012	\$78,635	\$87,118
	2013	\$31,082	\$118,201
	2014	\$5,477	\$123,677
	2015	\$75,647	\$199,325
	2016	\$15,408	\$214,733
	2017	\$16,382	\$231,115
	2018	\$33,214	\$264,329

In summary, the Report shows an increase in the total base project cost of approximately \$174 million (in 2007 dollars) resulting in an additional project cash flow requirement of approximately \$264 million necessary to complete the project in 2018. The Company seeks to reconcile the base project cost requirements and the project cash flow deficiency in its Filing.

⁷ There will be slight variances in these numbers due to rounding.

AFUDC and Escalation

The forecasted AFUDC for the project through the 3rd quarter of 2010 is \$302.775 million and is based on a forecasted 7.10% AFUDC rate. This is a decrease of approximately \$26.990 million from the Company's 2010 2nd Quarter Report.

As reported by ORS in its review of the SCE&G's 2010 2nd Quarter Report, the decline in the five-year average escalation rates reduce the projected project cash flow. Current worldwide economic conditions continue to reduce the projected cost escalation of the project. Currently, the U.S. inflation rate forecast indicates a decrease in escalation for the remainder of 2010. Primarily due to the decrease in escalation rates, the overall project is considered under budget. More specifically, as of September 30, 2010, the forecast of gross construction cost of the plant is \$5.838 billion as compared to the approved gross construction cost of \$6.188 billion which reflects an approximate \$350 million overall reduction in the cost of the project.

Additional ORS Monitoring Activities

ORS continually performs the following activities as well as other monitoring activities as deemed necessary.

- Audits capital cost expenditures and resulting AFUDC in Construction Work in Progress
- Physically observes construction activities
- Performs bi-monthly on-site review of construction documents
- Holds monthly update meetings with SCE&G
- Meets quarterly with representatives of WEC
- Participates in NRC conference calls
- Attends NRC Public Meetings regarding SCE&G Combined License Application
- Attends NRC Advisory Committee on Reactor Safeguards ("ACRS") meetings

Notable Activities Occurring after September 30, 2010

The BLRA allows SCE&G 45 days from the end of the current quarter to file its Report. Items of importance that occurred subsequent to the closing of the 3rd quarter are reported below.

As a result of the August 9, 2010 South Carolina Supreme Court Ruling, the Company's November 15, 2010 Filing with the Commission seeks to recover approximately \$174 million in capital costs which would have been included in the Company's budget for contingency costs. The Commission has scheduled a hearing to be held on April 4, 2011.

As mentioned in previous ORS reviews of the Company's Quarterly Reports, SCE&G has negotiated with Shaw to use a single, large Bigge Crane as opposed to two smaller cranes contemplated in the EPC Contract. SCE&G reports to ORS that Change Order No. 8 satisfies the Company's concerns regarding the use of a single large crane. The dollars associated with Change Order No. 8 are included in the Company's Filing. ORS will evaluate Change Order No. 8 as a Party to the Filing.

On October 19, 2010, Fairfield County and Midlands Technical College (MTC) held a Ribbon Cutting and Open House for the new Fairfield QuickJobs Center on the MTC Fairfield Campus in Winnsboro, SC. SCE&G participated in the development of the Center to enhance the pool of potential project workers from Winnsboro. The Center provides educational programs that can prepare students for skilled positions.

The NRC issued a Notice of Violation ("NOV") to WEC in response to the NRC inspection of WEC's Aircraft Impact Assessment ("AIA") on October 28, 2010. Specifically, the NOV states that WEC did not use realistic analyses for certain aspects of its AIA and did not fully identify and incorporate into the design those design features and functional capabilities credited. On November 12, 2010, WEC replied to NRC stating that it had taken corrective actions to respond to the NOV. On November 23, 2010, the NRC responded to the WEC reply stating that it had no further questions. This regulatory correspondence is attached as Appendix C.

The NRC issued a Revised Review Schedule to SCE&G on October 29, 2010. The revised NRC schedule supports issuance of the final safety evaluation report in June 2011 and the final environmental impact statement in April 2011. The NRC letter, which updates and replaces previously established schedule dates, is attached as Appendix D.

On December 13, 2010, the ACRS reported to the NRC stating: "we conclude that there is reasonable assurance that the revised design can be built and operated without undue risk to the health and safety of the public." The ACRS provides reputable – but nonbinding – input to

the NRC. The NRC will consider the ACRS findings before deciding whether to approve the rulemaking for the revised AP1000 design. The ACRS report is attached as Appendix E.

Based on ORS’s monitoring of the federal licensing activities, Table 5 provides the most current dates for the review of SCE&G’s combined license application.

Table 5:

Review Schedule for SCE&G’s Combined License Application		
Key Milestone		Completion Date
Application		
Application Submitted		Completed - 3/27/2008
Safety Review		
Phase A	Requests for Additional Information (RAIs) and Supplemental RAIs	Completed - 9/10/2009
Phase B	Advanced Final Safety Evaluation Report (SER) without Open Items	Completed - 12/10/2010
Phase C	ACRS Review of Advanced Final SER	Target - May 2011
Phase D	Final SER Issued	Target - June 2011
Environmental Review		
Phase 1	Environmental Impact Statement scoping report issued	Completed - 07/15/2009
Phase 2	Draft Environmental Impact Statement (DEIS)	Completed - 04/16/2010
Phase 3	Response to Public Comments on DEIS	Completed - August 2010
Phase 4	Final Environmental Impact Statement	Target - April 2011
Hearing		
NRC holds Mandatory hearing		Target - August 2011
License		
NRC Rulemaking Decision		Target - September 2011
NRC Issuance of Combined License		Target - November 2011

SCE&G’s 2010 4th Quarter Report is due 45 days after December 31, 2010. ORS expects to continue publishing a review evaluating SCE&G’s quarterly report.

Appendix A

Detailed Milestone Schedule as of September 30, 2010

Key:	Completed Prior to Q3-10	Current Quarter	Scheduled to Be Completed Q4-10	ORS Caution Milestone
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Activity Number	Milestone	Completion Date Approved in Order 2010-12	Scheduled Completion Date as of Q3-10	Outside 18 - 24 Month Contingency?	Impact to Substantial Completion Date?	Actual Completion Date	Deviation from Order 2010-12
1	Approve Engineering, Procurement and Construction Agreement	5/23/2008		No	No	5/23/2008	
2	Issue Purchase Orders ("P.O.") to Nuclear Component Fabricators for Units 2 and 3 Containment Vessels	12/3/2008		No	No	12/3/2008	
3	Contractor Issue P.O. to Passive Residual Heat Removal Heat Exchanger Fabricator - First Payment - Unit 2	8/31/2008		No	No	8/18/2008	
4	Contractor Issue P.O. to Accumulator Tank Fabricator - Unit 2	7/31/2008		No	No	7/31/2008	
5	Contractor Issue P.O. to Core Makeup Tank Fabricator - Units 2 & 3	9/30/2008		No	No	9/30/2008	
6	Contractor Issue P.O. to Squib Valve Fabricator- Units 2 & 3	3/31/2009		No	No	3/31/2009	
7	Contractor Issue P.O. to Steam Generator Fabricator - Units 2 & 3	6/30/2008		No	No	5/29/2008	1 Month Early
8	Contractor Issue Long Lead Material P.O. to Reactor Coolant Pump Fabricator - Units 2 & 3	6/30/2008		No	No	6/30/2008	
9	Contractor Issue P.O. to Pressurizer Fabricator - Units 2 & 3	8/31/2008		No	No	8/18/2008	
10	Contractor Issue P.O. to Reactor Coolant Loop Pipe Fabricator - First Payment- Units 2 & 3	6/30/2008		No	No	6/20/2008	

Key:	Completed Prior to Q3-10	Current Quarter	Scheduled to Be Completed Q4-10	ORS Caution Milestone
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Activity Number	Milestone	Completion Date Approved in Order 2010-12	Scheduled Completion Date as of Q3-10	Outside 18 - 24 Month Contingency?	Impact to Substantial Completion Date?	Actual Completion Date	Deviation from Order 2010-12
11	Reactor Vessel Internals – Issue Long Lead Material P.O. to Fabricator Units 2 & 3	11/21/2008		No	No	11/21/2008	
12	Contractor Issue Long Lead Material - P.O. to Reactor Vessel Fabricator - Units 2 & 3	6/30/2008		No	No	5/29/2008	1 Month Early
13	Contractor Issue P.O. to Integrated Head Package Fabricator - Units 2 & 3	7/31/2009		No	No	7/31/2009	
14	Control Rod Drive Mechanism – Issue P.O. for Long Lead Material to Fabricator - Units 2 & 3 - First Payment	6/21/2008		No	No	6/21/2008	
15	Issue P.O.s to Nuclear Component Fabricators for Nuclear Island Structural CA20 Modules	7/31/2009		No	No	8/28/2009	
16	Start Site Specific and Balance of Plant Detailed Design	9/11/2007		No	No	9/11/2007	
17	Instrumentation & Control Simulator - Contractor Place Notice to Proceed - Units 2 & 3	10/31/2008		No	No	10/31/2008	
18	Stream Generator - Issue Final P.O. to Fabricator for Units 2 & 3	6/30/2008		No	No	6/30/2008	
19	Reactor Vessel Internals - Contractor Issue P.O. for Long Lead Material (Heavy Plate and Heavy Forgings) to Fabricator - Units 2 & 3	1/31/2010		No	No	1/29/2010	
20	Contractor Issue Final P.O. to Reactor Vessel Fabricator - Units 2 & 3	9/30/2008		No	No	9/30/2008	

Key:	Completed Prior to Q3-10	Current Quarter	Scheduled to Be Completed Q4-10	ORS Caution Milestone
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Activity Number	Milestone	Completion Date Approved in Order 2010-12	Scheduled Completion Date as of Q3-10	Outside 18 - 24 Month Contingency?	Impact to Substantial Completion Date?	Actual Completion Date	Deviation from Order 2010-12
21	Variable Frequency Drive Fabricator Issue Transformer P.O. - Units 2 & 3	4/30/2009		No	No	4/30/2009	
22	Start Clearing, Grubbing and Grading	1/26/2009		No	No	1/26/2009	
23	Core Makeup Tank Fabricator Issue Long Lead Material P.O. - Units 2 & 3	10/31/2008		No	No	10/31/2008	
24	Accumulator Tank Fabricator Issue Long Lead Material P.O. - Units 2 & 3	10/31/2008		No	No	10/31/2008	
25	Pressurizer Fabricator Issue Long Lead Material P.O. - Units 2 & 3	10/31/2008		No	No	10/31/2008	
26	Reactor Coolant Loop Pipe - Contractor Issue P.O. to Fabricator - Second Payment - Units 2 & 3	4/30/2009		No	No	4/30/2009	
27	Integrated Head Package - Issue P.O. to Fabricator - Units 2 & 3 - Second Payment	7/31/2009		No	No	7/31/2009	
28	Control Rod Drive Mechanism - Contractor Issue P.O. for Long Lead Material to Fabricator - Units 2 & 3	6/30/2008		No	No	6/30/2008	
29	Contractor Issue P.O. to Passive Residual Heat Removal Exchanger Fabricator - Second Payment - Units 2 & 3	10/31/2008		No	No	10/31/2008	
30	Start Parr Road Intersection Work	2/13/2009		No	No	2/13/2009	

Key:	Completed Prior to Q3-10	Current Quarter	Scheduled to Be Completed Q4-10	ORS Caution Milestone
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Activity Number	Milestone	Completion Date Approved in Order 2010-12	Scheduled Completion Date as of Q3-10	Outside 18 - 24 Month Contingency?	Impact to Substantial Completion Date?	Actual Completion Date	Deviation from Order 2010-12
31	Reactor Coolant Pump - Issue Final P.O. to Fabricator - Units 2 & 3	6/30/2008		No	No	6/30/2008	
32	Integrated Heat Packages Fabricator Issue Long Lead Material P.O. - Units 2 & 3	10/31/2009		No	No	10/1/2009	1 Month Early
33	Design Finalization Payment 3	1/31/2009		No	No	1/30/2009	
34	Start Site Development	6/23/2008		No	No	6/23/2008	
35	Contractor Issue P.O. to Turbine Generator Fabricator - Units 2 & 3	2/28/2009		No	No	2/19/2009	
36	Contractor Issue P.O. to Main Transformers Fabricator - Units 2 & 3	9/30/2009		No	No	9/25/2009	
37	Core Makeup Tank Fabricator Notice to Contractor Receipt of Long Lead Material - Units 2 & 3	11/30/2010	12/31/2010	No	No		Delayed 1 Month
38	Design Finalization Payment 4	4/30/2009		No	No	4/30/2009	
39	Turbine Generator Fabricator Issue P.O. for Condenser Material - Unit 2	8/31/2009		No	No	8/28/2009	
40	Reactor Coolant Pump Fabricator Issue Long Lead Material Lot 2 - Units 2 & 3	4/30/2009		No	No	4/30/2009	

Key:	Completed Prior to Q3-10	Current Quarter	Scheduled to Be Completed Q4-10	ORS Caution Milestone
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Activity Number	Milestone	Completion Date Approved in Order 2010-12	Scheduled Completion Date as of Q3-10	Outside 18 - 24 Month Contingency?	Impact to Substantial Completion Date?	Actual Completion Date	Deviation from Order 2010-12
41	Passive Residual Heat Removal Heat Exchanger Fabricator Receipt of Long Lead Material - Units 2 & 3	5/31/2010		No	No	5/27/2010	
42	Design Finalization Payment 5	7/31/2009		No	No	7/31/2009	
43	Start Erection of Construction Buildings Including Craft Facilities for Personnel, Tools, Equipment; First Aid Facilities; Field Offices for Site Management and Support Personnel; Temporary Warehouses; and Construction Hiring Office	10/9/2009		No	No	12/18/2009	Delayed 2 Months
44	Reactor Vessel Fabricator Notice to Contractor of Receipt of Flange Nozzle Shell Forging - Unit 2	7/31/2009		No	No	8/28/2009	
45	Design Finalization Payment 6	10/31/2009		No	No	10/7/2009	
46	Instrumentation and Control/Simulator - Contractor Issue P.O. to Subcontractor for Radiation Monitor System - Units 2 & 3	12/31/2009		No	No	12/17/2009	
47	Reactor Vessel Internals - Fabricator Start Fit and Welding of Core Shroud Assembly - Unit 2	6/30/2011	2/28/2011	No	No		4 Months Early
48	Turbine Generator Fabricator Issue P.O. for Moisture Separator Reheater/Feedwater Heater Material Unit 2	4/30/2010		No	No	4/30/2010	
49	Reactor Coolant Loop Pipe Fabricator Acceptance of Raw Material - Unit 2	4/30/2010		No	No	2/18/2010	2 Months Early

Key:	Completed Prior to Q3-10	Current Quarter	Scheduled to Be Completed Q4-10	ORS Caution Milestone
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Activity Number	Milestone	Completion Date Approved in Order 2010-12	Scheduled Completion Date as of Q3-10	Outside 18 - 24 Month Contingency?	Impact to Substantial Completion Date?	Actual Completion Date	Deviation from Order 2010-12
50	Reactor Vessel Internals - Fabricator Start Weld Neutron Shield Spacer Pads to Assembly - Unit 2	10/31/2011	10/31/2011	No	No		
51	Control Rod Drive Mechanisms - Fabricator to Start Procurement of Long Lead Material - Unit 2	6/30/2009		No	No	6/30/2009	
52	Contractor Notified That Pressurizer Fabricator Performed Cladding on Bottom Head - Unit 2	11/30/2010	11/30/2010	No	No		
53	Start Excavation and Foundation Work for the Standard Plant for Unit 2	3/15/2010		No	No	3/15/2010	
54	Steam Generator Fabricator Notice to Contractor of Receipt of 2nd Steam Generator Tubesheet Forging - Unit 2	2/28/2010		No	No	4/30/2010	Delayed 2 Months
55	Reactor Vessel Fabricator Notice to Contractor of Outlet Nozzle Welding to Flange Nozzle Shell Completion - Unit 2	2/28/2010	12/31/2010	No	No		Delayed 10 Months
56	Turbine Generator Fabricator Notice to Contractor Condenser Fabrication Started - Unit 2	5/31/2010		No	No	5/17/2010	
57	Complete Preparations for Receiving the First Module On Site for Unit 2	8/18/2010		No	No	1/22/2010	Completed - 7 Months Early
58	Steam Generator Fabricator Notice to Contractor of Receipt of 1st Steam Generator Transition Cone Forging - Unit 2	4/30/2010		No	No	4/21/2010	
59	Reactor Coolant Pump Fabricator Notice to Contractor of Manufacturing of Casing Completion - Unit 2	11/30/2010	11/30/2010	No	No		

Key:	Completed Prior to Q3-10	Current Quarter	Scheduled to Be Completed Q4-10	ORS Caution Milestone
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Activity Number	Milestone	Completion Date Approved in Order 2010-12	Scheduled Completion Date as of Q3-10	Outside 18 - 24 Month Contingency?	Impact to Substantial Completion Date?	Actual Completion Date	Deviation from Order 2010-12
60	Reactor Coolant Loop Pipe Fabricator Notice to Contractor of Machining, Heat Treating & Non-Destructive Testing Completion - Unit 2	12/31/2010	2/28/2011	No	No		Delayed 2 Months
61	Core Makeup Tank Fabricator Notice to Contractor of Satisfactory Completion of Hydrotest - Unit 2	5/31/2011	2/29/2012	No	No		Delayed 9 Months
62	Polar Crane Fabricator Issue P.O. for Main Hoist Drum and Wire Rope - Units 2 & 3	2/28/2011	2/28/2011	No	No		
63	Control Rod Drive Mechanisms - Fabricator to Start Procurement of Long Lead Material - Unit 3	6/30/2011	6/30/2011	No	No		
64	Turbine Generator Fabricator Notice to Contractor Condenser Ready to Ship - Unit 2	10/31/2011	1/31/2012	No	No		Delayed 3 Months
65	Start Placement of Mud Mat for Unit 2	7/14/2011	7/14/2011	No	No		
66	Steam Generator Fabricator Notice to Contractor of Receipt of 1st Steam Generator Tubing - Unit 2	1/31/2011		No	No	9/28/2010	Completed - 4 Months Early
67	Pressurizer Fabricator Notice to Contractor of Welding of Upper and Intermediate Shells Completion - Unit 2	10/31/2010	3/31/2011	No	No		Delayed 5 Months
68	Reactor Vessel Fabricator Notice to Contractor of Closure Head Cladding Completion - Unit 3	2/28/2012	2/28/2012	No	No		

Key:	Completed Prior to Q3-10	Current Quarter	Scheduled to Be Completed Q4-10	ORS Caution Milestone
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Activity Number	Milestone	Completion Date Approved in Order 2010-12	Scheduled Completion Date as of Q3-10	Outside 18 - 24 Month Contingency?	Impact to Substantial Completion Date?	Actual Completion Date	Deviation from Order 2010-12
69	Begin Unit 2 First Nuclear Concrete Placement	10/3/2011	10/1/2011	No	No		
70	Reactor Coolant Pump Fabricator Notice to Contractor of Stator Core Completion - Unit 2	9/30/2011	9/30/2011	No	No		
71	Fabricator Start Fit and Welding of Core Shroud Assembly - Unit 2	6/30/2011	2/28/2011	No	No		4 Months Early
72	Steam Generator Fabricator Notice to Contractor of Completion of 1st Steam Generator Tubing Installation - Unit 2	5/31/2011	7/31/2011	No	No		Delayed 2 Months
73	Reactor Coolant Loop Pipe - Shipment of Equipment to Site - Unit 2	12/31/2012	8/31/2011	No	No		16 Months Early
74	Control Rod Drive Mechanism - Ship Remainder of Equipment (Latch Assembly & Rod Travel Housing) to Head Supplier - Unit 2	12/31/2011	12/31/2011	No	No		
75	Pressurizer Fabricator Notice to Contractor of Welding of Lower Shell to Bottom Head Completion - Unit 2¹	10/31/2010	3/31/2011	No	No		Delayed 5 Months
76	Steam Generator Fabricator Notice to Contractor of Completion of 2nd Steam Generator Tubing Installation - Unit 2	6/30/2011	9/30/2011	No	No		Delayed 3 Months
77	Design Finalization Payment 14	10/31/2011	10/31/2011	No	No		

¹ Previously this milestone incorrectly described welding of Upper & Intermediate Shells and was a duplication of #67. In its 3Q-10 Report SCE&G updated the milestone to accurately reflect work on the bottom head.

Key:	Completed Prior to Q3-10	Current Quarter	Scheduled to Be Completed Q4-10	ORS Caution Milestone
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Activity Number	Milestone	Completion Date Approved in Order 2010-12	Scheduled Completion Date as of Q3-10	Outside 18 - 24 Month Contingency?	Impact to Substantial Completion Date?	Actual Completion Date	Deviation from Order 2010-12
78	Set Module CA04 For Unit 2	1/27/2012	1/27/2012	No	No		
79	Passive Residual Heat Removal Heat Exchanger Fabricator Notice to Contractor of Final Post Weld Heat Treatment - Unit 2	6/30/2010	1/31/2011	No	No		Delayed 7 Months
80	Passive Residual Heat Removal Heat Exchanger Fabricator Notice to Contractor of Completion of Tubing - Unit 2	1/31/2011	11/29/2011	No	No		Delayed 10 Months
81	Polar Crane Fabricator Notice to Contractor of Girder Fabrication Completion - Unit 2	2/28/2012	10/31/2012	No	No		Delayed 8 Months
82	Turbine Generator Fabricator Notice to Contractor Condenser Ready to Ship - Unit 3	8/31/2013	7/31/2013	No	No		1 Month Early
83	Set Containment Vessel Ring #1 for Unit 2	4/3/2012	4/3/2012	No	No		
84	Reactor Coolant Pump Fabricator Delivery of Casings to Port of Export - Unit 2	3/31/2012	9/30/2011	No	No		6 Months Early
85	Reactor Coolant Pump Fabricator Notice to Contractor of Stator Core Completion - Unit 3	8/31/2013	1/31/2013	No	No		7 Months Early
86	Reactor Vessel Fabricator Notice to Contractor of Receipt of Core Shell Forging - Unit 3	9/30/2012	9/30/2012	No	No		

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Activity Number	Milestone	Completion Date Approved in Order 2010-12	Scheduled Completion Date as of Q3-10	Outside 18 - 24 Month Contingency?	Impact to Substantial Completion Date?	Actual Completion Date	Deviation from Order 2010-12
87	Contractor Notified that Pressurizer Fabricator Performed Cladding on Bottom Head - Unit 3	1/31/2013	11/30/2011	No	No		14 Months Early
88	Set Nuclear Island Structural Module CA03 for Unit 2	8/30/2012	8/30/2012	No	No		
89	Squib Valve Fabricator Notice to Contractor of Completion of Assembly and Test for Squib Valve Hardware - Unit 2	5/31/2012	8/31/2012	No	No		Delayed 3 Months
90	Accumulator Tank Fabricator Notice to Contractor of Satisfactory Completion of Hydrotest - Unit 3	12/31/2012	12/31/2012	No	No		
91	Polar Crane Fabricator Notice to Contractor of Electric Panel Assembly Completion - Unit 2	7/31/2012	3/31/2013	No	No		Delayed 8 Months
92	Start Containment Large Bore Pipe Supports for Unit 2	4/9/2012	4/5/2012	No	No		
93	Integrated Head Package - Shipment of Equipment to Site - Unit 2	10/31/2012	2/28/2013	No	No		Delayed 4 Months
94	Reactor Coolant Pump Fabricator Notice to Contractor of Final Stator Assembly Completion - Unit 2	11/30/2012	10/31/2012	No	No		1 Month Early
95	Steam Generator Fabricator Notice to Contractor of Completion of 2nd Steam Generator Tubing Installation - Unit 3	5/31/2013	4/30/2013	No	No		1 Month Early

Key:	Completed Prior to Q3-10	Current Quarter	Scheduled to Be Completed Q4-10	ORS Caution Milestone
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Activity Number	Milestone	Completion Date Approved in Order 2010-12	Scheduled Completion Date as of Q3-10	Outside 18 - 24 Month Contingency?	Impact to Substantial Completion Date?	Actual Completion Date	Deviation from Order 2010-12
96	Steam Generator Fabricator Notice to Contractor of Satisfactory Completion of 1st Steam Generator Hydrotest - Unit 2	5/31/2012	7/31/2012	No	No		Delayed 2 Months
97	Start Concrete Fill of Nuclear Island Structural Modules CA01 and CA02 for Unit 2	2/26/2013	2/26/2013	No	No		
98	Passive Residual Heat Removal Heat Exchanger - Delivery of Equipment to Port of Entry - Unit 2	4/30/2012	2/28/2012	No	No		2 Months Early
99	Refueling Machine Fabricator Notice to Contractor of Satisfactory Completion of Factory Acceptance Test - Unit 2	2/28/2013	8/31/2012	No	No		6 Months Early
100	Deliver Reactor Vessel Internals to Port of Export - Unit 2	7/31/2013	7/31/2013	No	No		
101	Set Unit 2 Containment Vessel #3	4/17/2013	4/17/2013	No	No		
102	Steam Generator - Contractor Acceptance of Equipment at Port of Entry - Unit 2	3/31/2013	2/28/2013	No	No		1 Month Early
103	Turbine Generator Fabricator Notice to Contractor Turbine Generator Ready to Ship - Unit 2	4/30/2013	4/30/2013	No	No		
104	Pressurizer Fabricator Notice to Contractor of Satisfactory Completion of Hydrotest - Unit 3	2/28/2014	2/28/2013	No	No		12 Months Early

Key:	Completed Prior to Q3-10	Current Quarter	Scheduled to Be Completed Q4-10	ORS Caution Milestone
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Activity Number	Milestone	Completion Date Approved in Order 2010-12	Scheduled Completion Date as of Q3-10	Outside 18 - 24 Month Contingency?	Impact to Substantial Completion Date?	Actual Completion Date	Deviation from Order 2010-12
105	Polar Crane - Shipment of Equipment to Site - Unit 2	5/31/2013	11/30/2013	No	No		Delayed 6 Months
106	Receive Unit 2 Reactor Vessel On Site From Fabricator	5/20/2013	5/20/2013	No	No		
107	Set Unit 2 Reactor Vessel	6/18/2013	6/18/2013	No	No		
108	Steam Generator Fabricator Notice to Contractor of Completion of 2nd Channel Head to Tubesheet Assembly Welding - Unit 3	12/31/2013	11/30/2013	No	No		1 Month Early
109	Reactor Coolant Pump Fabricator Notice to Contractor of Final Stator Assembly Completion - Unit 3	8/31/2014	2/28/2014	No	No		6 Months Early
110	Reactor Coolant Pump - Shipment of Equipment to Site (2 Reactor Coolant Pumps) - Unit 2	9/30/2013	9/30/2013	No	No		
111	Place First Nuclear Concrete for Unit 3	8/1/2013	8/1/2013	No	No		
112	Set Unit 2 Steam Generator	9/9/2013	9/9/2013	No	No		
113	Main Transformers Ready to Ship - Unit 2	9/30/2013	2/28/2013	No	No		7 Months Early

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Activity Number	Milestone	Completion Date Approved in Order 2010-12	Scheduled Completion Date as of Q3-10	Outside 18 - 24 Month Contingency?	Impact to Substantial Completion Date?	Actual Completion Date	Deviation from Order 2010-12
114	Complete Unit 3 Steam Generator Hydrotest At Fabricator	2/28/2014	3/31/2014	No	No		Delayed 1 Month
115	Set Unit 2 Containment Vessel Bottom Head on Basemat Legs	11/21/2011	11/21/2011	No	No		
116	Set Unit 2 Pressurizer Vessel	1/24/2014	1/24/2014	No	No		
117	Reactor Coolant Pump Fabricator Notice to Contractor of Satisfactory Completion of Factory Acceptance Test - Unit 3	2/28/2015	3/31/2015	No	No		Delayed 1 Month
118	Deliver Reactor Vessel Internals to Port of Export - Unit 3	6/30/2015	6/30/2015	No	No		
119	Main Transformers Fabricator Issue P.O. for Material - Unit 3	4/30/2014	4/30/2014	No	No		
120	Complete Welding of Unit 2 Passive Residual Heat Removal System Piping	3/19/2014	3/19/2014	No	No		
121	Steam Generator Contractor Acceptance of Equipment At Port of Entry - Unit 3	4/30/2015	1/31/2015	No	No		3 Months Early
122	Refueling Machine - Shipment of Equipment to Site - Unit 3	5/31/2014	5/31/2014	No	No		
123	Set Unit 2 Polar Crane	4/3/2014	4/3/2014	No	No		

Key:	Completed Prior to Q3-10	Current Quarter	Scheduled to Be Completed Q4-10	ORS Caution Milestone
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Activity Number	Milestone	Completion Date Approved in Order 2010-12	Scheduled Completion Date as of Q3-10	Outside 18 - 24 Month Contingency?	Impact to Substantial Completion Date?	Actual Completion Date	Deviation from Order 2010-12
124	Reactor Coolant Pumps - Shipment of Equipment to Site - Unit 3	6/30/2015	6/30/2015	No	No		
125	Main Transformers Ready to Ship - Unit 3	9/30/2014	6/30/2015	No	No		Delayed 9 Months
126	Spent Fuel Storage Rack - Shipment of Last Rack Module - Unit 3	12/31/2014	6/30/2014	No	No		6 Months Early
127	Start Electrical Cable Pulling in Unit 2 Auxiliary Building	12/26/2014	12/18/2014	No	No		
128	Complete Unit 2 Reactor Coolant System Cold Hydro	8/3/2015	7/3/2015	No	No		1 Month Early
129	Activate Class 1E DC Power in Unit 2 Auxiliary Building	3/5/2015	2/25/2015	No	No		
130	Complete Unit 2 Hot Functional Test	9/21/2015	9/21/2015	No	No		
131	Install Unit 3 Ring 3 for Containment Vessel	7/30/2015	2/19/2015	No	No		5 Months Early
132	Load Unit 2 Nuclear Fuel	10/28/2015	10/2/2015	No	No		
133	Unit 2 Substantial Completion	4/1/2016	4/1/2016	No	No		

Key:	Completed Prior to Q3-10	Current Quarter	Scheduled to Be Completed Q4-10	ORS Caution Milestone
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Activity Number	Milestone	Completion Date Approved in Order 2010-12	Scheduled Completion Date as of Q3-10	Outside 18 - 24 Month Contingency?	Impact to Substantial Completion Date?	Actual Completion Date	Deviation from Order 2010-12
134	Set Unit 3 Reactor Vessel	10/1/2015	5/14/2015	No	No		4 Months Early
135	Set Unit 3 Steam Generator #2	12/22/2015	8/6/2015	No	No		4 Months Early
136	Set Unit 3 Pressurizer Vessel	5/16/2016	12/18/2015	No	No		5 Months Early
137	Complete Welding of Unit 3 Passive Residual Heat Removal System Piping	6/20/2016	2/1/2016	No	No		5 Months Early
138	Set Unit 3 Polar Crane	7/18/2016	2/5/2016	No	No		5 Months Early
139	Start Unit 3 Shield Building Roof Slab Rebar Placement	1/16/2017	8/2/2016	No	No		5 Months Early
140	Start Unit 3 Auxiliary Building Electrical Cable Pulling	4/6/2017	12/2/2016	No	No		4 Months Early
141	Activate Unit 3 Auxiliary Building Class 1E DC Power	6/9/2017	12/27/2016	No	No		5 Months Early
142	Complete Unit 3 Reactor Coolant System Cold Hydro	1/1/2018	5/3/2017	No	No		8 Months Early
143	Complete Unit 3 Hot Functional Test	2/15/2018	5/17/2018	No	No		Delayed 3 Months

Key:	Completed Prior to Q3-10	Current Quarter	Scheduled to Be Completed Q4-10	ORS Caution Milestone
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Activity Number	Milestone	Completion Date Approved in Order 2010-12	Scheduled Completion Date as of Q3-10	Outside 18 - 24 Month Contingency?	Impact to Substantial Completion Date?	Actual Completion Date	Deviation from Order 2010-12
144	Complete Unit 3 Nuclear Fuel Load	7/31/2018	7/19/2018	No	No		
145	Begin Unit 3 Full Power Operation	10/31/2018	10/23/2018	No	No		
146	Unit 3 Substantial Completion	1/1/2019	1/1/2019	No	No		

Appendix B

Construction Site Pictures



9/07/10

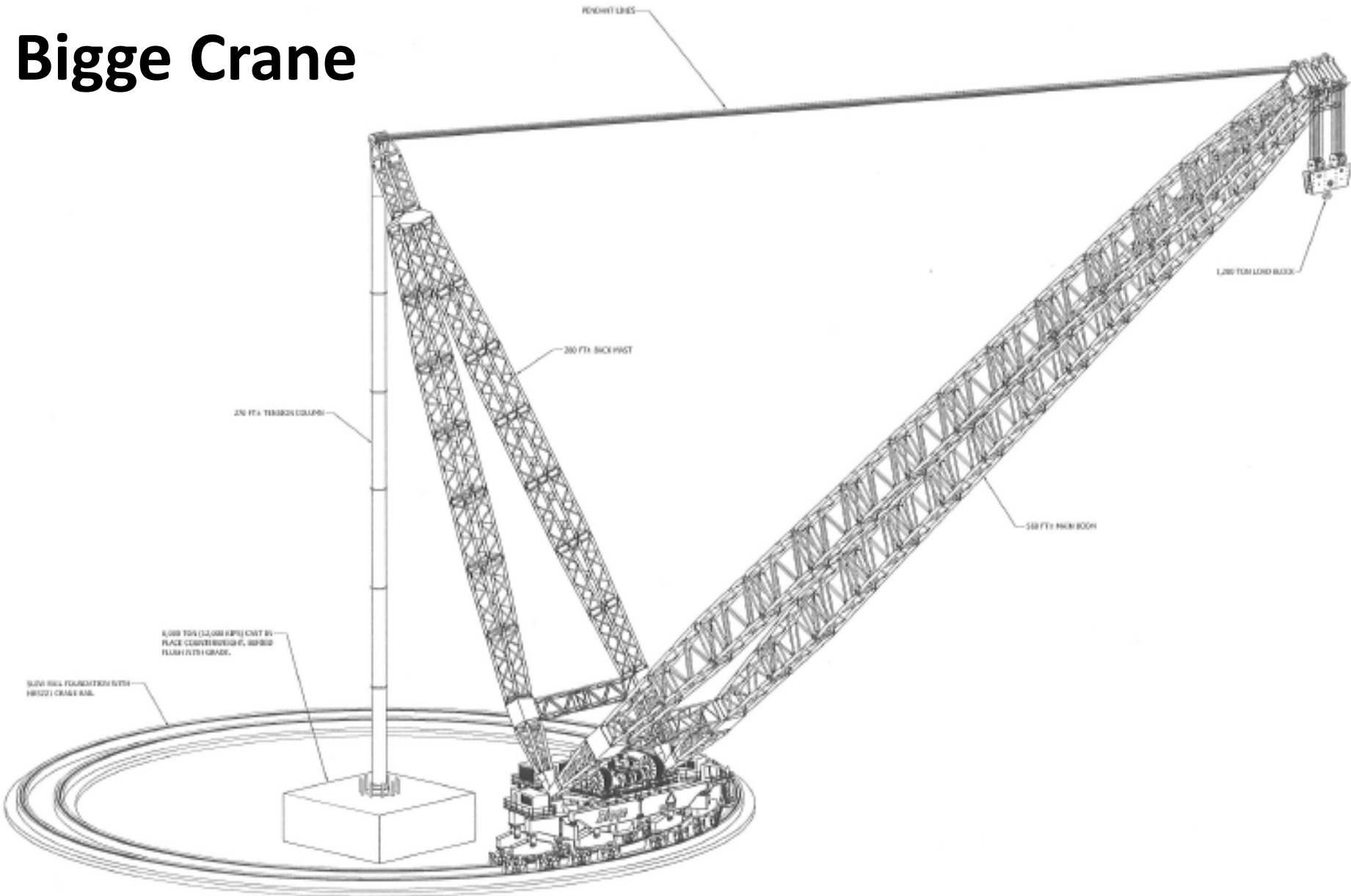
HLD Counterweight Anchor Bolt Cluster

HLD Ring Foundation



9/07/10

Bigge Crane





Batch Plant

9/07/10



Module Assembly Building (MAB)

9/07/10

Switchyard



Appendix C

Regulatory Correspondence

October 28, 2010

Mr. Robert Sisk, Manager
AP1000 Licensing Strategy
Westinghouse Electric Company
1000 Westinghouse Dr, Suite 115
Cranberry Township, PA 1606

SUBJECT: AP1000 PRESSURIZED WATER REACTOR DESIGN AIRCRAFT IMPACT
ASSESSMENT INSPECTION, NRC INSPECTION REPORT NO. 05200006/2010-
203 AND NOTICE OF VIOLATION

Dear Mr. Sisk:

On September 27, 2010, through October 01, 2010, the U.S. Nuclear Regulatory Commission (NRC) conducted an inspection of the Westinghouse Electric Company (WEC) Aircraft Impact Assessment (AIA) pertaining to activities conducted in support of your application, dated May 26, 2005, requesting an amendment to the AP1000 design certification rule. This inspection was performed in the WEC offices located in Cranberry Township, PA. The purpose of the inspection was to perform a limited-scope inspection to assess WEC's compliance with the provisions of Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.150, "Aircraft impact assessment." The enclosed report presents the results of this inspection. This inspection report does not constitute NRC's endorsement of your overall AIA.

Based on the results of this inspection, the NRC has determined that a violation of NRC requirements occurred. The violation is cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding it are described in detail in the subject inspection report. The violation cites that WEC did not use realistic analyses for certain aspects of its AIA and did not fully identify and incorporate into the design those design features and functional capabilities credited. With the exception of the issues identified in the Notice, the NRC inspection team concluded that the portions of the WEC AP1000 AIA reviewed by the NRC inspection team comply with the applicable requirements of 10 CFR 50.150.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. If you have additional information that you believe the NRC should consider, you may provide it in your response to the Notice. The NRC will use your response to the Notice to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

It is important to note that the NRC inspection team performed a limited review of the AIA. The deficiencies identified may affect other portions of the AIA that the NRC inspection team did not review. Therefore, WEC must extend its review, where applicable, beyond the specific examples identified by the inspection team and apply corrective actions as appropriate. In your response to this violation, WEC should document the areas for which it extended its review beyond the specific examples of the deficiencies identified by the inspection team, the extent of its review, the additional findings, and the corrective actions implemented.

R. Sisk

In accordance with 10 CFR 2.390 of the NRC's "Public inspections, exemptions, requests for withholding," of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Document Access and Management System (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response, if applicable, should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request that such material is withheld from public disclosure, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If Safeguards Information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21, "Protection of Safeguards Information: Performance Requirements."

Sincerely,

/RA/

Richard Rasmussen, Chief
Quality and Vendor Branch 2
Division of Construction Inspection
& Operational Programs
Office of New Reactors

Docket No.: 05200006

Enclosure:

1. Notice of Violation
2. Inspection Report No. 05200006/2010-203 and Attachments

R. Sisk

In accordance with 10 CFR 2.390 of the NRC's "Public inspections, exemptions, requests for withholding," of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Document Access and Management System (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response, if applicable, should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request that such material is withheld from public disclosure, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If Safeguards Information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21, "Protection of Safeguards Information: Performance Requirements."

Sincerely,

/RA/

Richard Rasmussen, Chief
Quality and Vendor Branch 2
Division of Construction Inspection
& Operational Programs
Office of New Reactors

Docket No.: 05200006

Enclosure:

1. Notice of Violation
2. Inspection Report No. 05200006/2010-203 and Attachments

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ADAMS Package Accession No.: ML102980583

*concurring via email

NRO - 001

OFFICE	NRO/DE/SEB1	NRO/DSRA/SBPB	NRO/DSRA/SBPA	NRO/DCIP/CQVA	NRO/DCIP/CHPB
NAME	BTegeler	REul	TDinh	YDiaz-Castillo	TFrye
DATE	10/22/2010*	10/21/2010*	10/20/2010*	10/ 21/2010*	10/26 /2010*
OFFICE	NRO/DCIP/CQVA	QTE	NRO/DE/SEB1/BC	NRO/DRNL/DDIP/NR	NRO/DCIP/CQVB/BC
NAME	RPrato	QTE Resources *	BThomas	NGilles	RRasmussen *
DATE	10/20/2010*	10/26/2010*	10/28/2010*	10/ 27/2010*	10/28/2010*
OFFICE	NRO/DNRL/DDLO/NG	AIA FRP Chair	OGC/GCHEA/AGCMLE		
NAME	PBuckberg	JTappert	CScott		
DATE	10/ 20 /2010*	10/28 /2010*	10/28/2010*		

OFFICIAL RECORD COPY

NOTICE OF VIOLATION

Westinghouse Electric Company
Cranberry Township, PA 16066

Docket Nos.: 05200006
Inspection Report No.: 05200006/2010-203

During a U.S. Nuclear Regulatory Commission (NRC) inspection of the Westinghouse Electric Company (WEC) AP1000 Pressurized Water Reactor design aircraft impact assessment (AIA) conducted at the WEC facility in Cranberry Township, PA, on September 27 through October 1, 2010, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

Title 10, of the *Code of Federal Regulations* (CFR), Section 50.150, "Aircraft impact assessment," Paragraph (a)(1) requires that each applicant listed in 10 CFR 50.150(a)(3) shall perform a design-specific assessment of the effects on the facility of the impact of a large, commercial aircraft. Using realistic analyses, the applicant shall identify and incorporate into the design those design features and functional capabilities to show that, with reduced use of operator actions:

- (i) the reactor core remains cooled, or the containment remains intact; and
- (ii) spent fuel cooling or spent fuel pool integrity is maintained.

Contrary to the above, as of October 01, 2010, WEC failed to use realistic analyses in certain portions of its AIA. Specifically, in the AIA the applicant failed to include a second impact scenario that was performed on the Auxiliary Building South wall; failed to adequately perform a fire damage analysis for the spread of fire into the annulus region; failed to provide a technical justification for crediting a water tank and Turbine Building equipment in damage footprint analyses; credited less than a 3-hour rated fire barrier to prevent the propagation of fire into adjacent spaces; failed to adequately assess the vibration effects on the shield plate support structure; and failed to perform an impact analysis for a potential plant vulnerability on the Auxiliary Building. Further, the applicant failed to identify and incorporate into the design the design features and functional capabilities credited in the AIA to show the reactor remains cool, or containment remains intact; and spent fuel cooling or spent fuel pool integrity is maintained as required by 10 CFR 50.150(a)(1). Specifically, the AP1000 AIA credited five walls as 5 psid rated barriers to prevent the spread of fire and the Design Control Document (DCD) only identified two walls as 5 psid rated barriers.

This issue has been identified as Violation 05200006/2010-203-01.

This is a Severity Level IV Violation (Section 6.5).

Pursuant to the provisions of 10 CFR 2.201, "Notice of Violation," WEC is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Chief, Quality and Vendor Branch 1, Division of Construction Inspection and Operational Programs, Office of New Reactors, within 30 days of the date of the letter transmitting this Notice of Violation. This reply should be clearly marked as a "Reply to a Notice of Violation" and should include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been taken and the results achieved, (3) the

corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. Where good cause is shown, the NRC will consider extending the response time.

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's Agencywide Documents Access and Management System, accessible at <http://www.nrc.gov/reading-rm/adams.html>, to the extent possible, it should not include any personal privacy, proprietary, or Safeguards Information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If Safeguards Information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21, "Protection of Safeguards Information: Performance Requirements."

Dated this the 28th day of October 2010

EXECUTIVE SUMMARY

Westinghouse Electric Company
Inspection Report Nos.: 05200006/2010-203

The purpose of this U.S. Nuclear Regulatory Commission (NRC) inspection was to verify that Westinghouse Electric Company (WEC) had implemented the provisions of Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.150, "Aircraft impact assessment," and performed a design-specific assessment¹ of the effects on the facility of the impact of a large, commercial aircraft. The inspection was conducted at the WEC facility in Cranberry Township, PA during the period September 27 – October 1, 2010.

The following served as the bases for the NRC inspection:

- 10 CFR 50.150

The NRC inspection team implemented Inspection Procedure 37804, "Aircraft Impact Assessment," dated April 27, 2010, during the conduct of this inspection. This AIA inspection was performed to verify that the WEC AP1000 AIA complies with the requirements of 10 CFR 50.150 and to ensure consistency with the industry guidance documented in Nuclear Energy Institute (NEI) 07-13, "Methodology for Performing Aircraft Impact Assessments for New Plant Designs," issued May 2009. NEI 07-13 has been endorsed by the NRC in Draft Regulatory Guide 1176 (DG-1176) "Guidance for the Assessment of Beyond-Design-Basis Aircraft Impacts," as one means of performing an AIA acceptable to the NRC. Applicants, who choose to implement an alternate means to analyze any portion of the AIA, must identify the use of an alternate approach to ensure that the NRC inspection team verifies that each applied alternate approach complies with 10 CFR 50.150.

The NRC had not previously inspected the WEC AP1000 aircraft impact assessment (AIA). The list of WEC staff interviewed during this inspection is listed in Attachment 1 to this report. The results of this inspection are summarized below.

With the exception of the violation described below, the NRC inspection team concluded that the portions of the WEC AP1000 AIA reviewed by the NRC inspection team comply with the applicable requirements of 10 CFR 50.150.

Systems-Loss Assessment

The portions of the WEC AP1000 AIA systems-loss assessment reviewed by the NRC inspection team met the requirements of 10 CFR 50.150 and were performed consistent with the guidance provided in DG-1176.

Fire Damage Assessment

With the exception of the contributing deficiencies to Violation 052000060/2010-203-01, the portions of the WEC AP1000 AIA fire damage assessment reviewed by the NRC inspection team

¹ By a "design-specific" assessment, the NRC means that the impact assessment must address the specific design of the facility which is either the subject of a construction permit, operating license, standard design certification, standard design approval, combined license, or manufacturing license application (see 74 FR 28129; June 12, 2009).

met the requirements of 10 CFR 50.150 and were performed consistent with the guidance provided in DG-1176. Specifically, with regards to the AP1000 AIA fire damage assessment, the applicant failed to include a second impact scenario that was performed on the Auxiliary Building South wall; failed to adequately perform a fire damage analysis for the spread of fire into the annulus region; failed to identify and incorporate all the design features into its design; failed to provide a technical justification for crediting a water tank and Turbine Building equipment in damage footprint analyses; and credited less than a 3-hour rated fire barrier to prevent the propagation of fire into adjacent spaces.

Structural Damage Assessment

With the exception of the contributing deficiencies to Violation 052000060/2010-203-01, the portions of the AP1000 AIA structural damage assessment reviewed by the NRC inspection team met the requirements of 10 CFR 50.150 and were performed consistent with the guidance provided in DG-1176. Specifically, with regards to the AP1000 AIA structural damage assessment, the applicant failed to adequately assess the vibration effects on the shield plate support structure. In addition, the applicant failed to perform an impact analysis for a potential plant vulnerability on the Auxiliary Building.

Documentation and Quality Assessment

The portions of the WEC documentation and quality assessment reviewed by the NRC inspection team met the requirements of 10 CFR 50.150 and were performed consistent with the guidance provided in DG-1176.



Westinghouse Electric Company
Nuclear Power Plants
1000 Westinghouse Drive
Cranberry Township, PA 16066
USA

U.S. Nuclear Regulatory Commission
ATTENTION: Document Control Desk
Washington, D.C. 20555

Direct tel: 412-374-2035
Direct fax: 724-940-8505
e-mail: ziesinrf@westinghouse.com

Your ref: Docket No. 52-006
Our ref: DCP_NRC_003084

November 12, 2010

SUBJECT: REPLY TO NOTICE OF VIOLATION CITED IN NRC INSPECTION REPORT
NO.: 05200006/2010-203 dated October 28, 2010

Westinghouse acknowledges receipt of the NRC Inspection Report Number 05200006/2010-203 dated October 28, 2010 and the Notice of Violation: 05200006/2010-203-01. Westinghouse takes any notice of violation received from the NRC seriously and is taking appropriate actions to completely resolve these issues in a timely manner, and is committed to be in compliance with the provisions of Title 10, the *Code of Federal Regulations* (CFR), Section 50.150, "Aircraft impact assessment".

Westinghouse also values the results from this thorough review of the aircraft impact assessment (AIA) as it validates our overall implementation of applicable industry guidelines and regulations to ensure the robustness of the AP1000 design. In consideration of NRC comments made both during the inspection and in the exit meeting, Westinghouse immediately initiated corrective actions to resolve the specific issues identified in the Notice of Violation (NOV).

As requested, details of corrective actions associated with each of the issues that contributed to the NOV are described below and demonstrate the use of realistic analyses in the AIA.

Summary of Issues Contributing to the NOV and Immediate Corrective Actions

1. Need to include a second impact scenario that was performed on the Auxiliary Building South wall - The additional Auxiliary Building South wall scenario, including a description of the scenario and corresponding damage maps, was added to Section 5.1.8 in Westinghouse document APP-1000-GEC-002, resulting in Revision 2. This revision was completed prior to the conclusion of the inspection. The inspection team reviewed the revised scenario and found it to be accurate and complete. Corrective Action Status: COMPLETE

2. Need to improve the fire damage analysis for the spread of fire into the annulus region - Analysis has been completed to take credit for the additional 18" of concrete on the inside wall of the shield building, which conservatively exceeds the screening criteria in NEI 07-13. Additionally, a design change has been completed to ensure that the necessary penetrations and doors in the shield building wall contain 5psid seals on the inside of the shield wall. Westinghouse APP-1000-GEC-002 has been revised to require all personnel access penetrations through the shield building wall to meet necessary requirements. With 5psid seals and no damage to the inside of the shield building wall, there is no fire propagation expected. Westinghouse document APP-1000-GEC-002 has been updated.

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NRC

to Revision 3 in order to reflect the design changes described and is available for NRC review. Corrective Action Status: COMPLETE

3. Need to provide a technical justification for crediting a water tank and Turbine Building equipment in damage footprint analyses – Since the water tank and Turbine Building were actual obstructions in the scenario, Westinghouse viewed this analysis as realistic. Upon consideration of the NRC inspection results, Westinghouse agrees that the documented technical justification for including the mitigating affects of the intervening water tank and the Turbine Building Equipment was insufficient to support a conclusion in the assessment. During the inspection, Westinghouse re-analyzed the scenario to not take credit for these two obstructions, even though they exist, and demonstrated the acceptability of this revised, more conservative scenario. This revised scenario was included in Revision 2 of Westinghouse document APP-1000-GEC-002 prior to the conclusion of the inspection. The NRC inspection team reviewed the results of this revised scenario and found it acceptable. Corrective Action Status: COMPLETE

4. Correctly credit 3-hour rated fire barriers to prevent the propagation of fire into adjacent spaces - Westinghouse agrees that 1-hour and 2-hour rated fire barriers were inappropriately credited for stopping fire propagation into adjacent spaces. During the inspection, the assessment was revised to credit only 3-hour rated fire barriers for each impact scenario, and the results were documented in Revision 2 of APP-1000-GEC-002 prior to the conclusion of the inspection. The NRC inspection team reviewed the results of this revised scenario and found it acceptable. Corrective Action Status: COMPLETE

5. Need to adequately assess the vibration effects on the shield plate support structure - Westinghouse has incorporated the shield plate and supporting structures into the shield building LS-DYNA model. Both air inlet and cylindrical wall impact analyses were performed with the updated model to determine the nonlinear response to the shield plate. Details of this analysis are documented in Westinghouse APP-1000-S2C-167, R0, and show that the maximum ratio of stress/ultimate tensile strength of the material is in the cross sectional member (92%) and below the elongation maximum of the material (5.6% versus a material allowable of 20%). The analysis demonstrates the Westinghouse design shows adequate margin since these material properties are not exceeded. Westinghouse APP-1000-S2C-167 is available for NRC Review. Corrective Action Status: COMPLETE

6. Need to perform an impact analysis for a potential plant vulnerability on the Auxiliary Building - A design change has been processed to add a steel door to the outer wall of the Annex Building. This door's connections to the Annex Building wall are held to the same acceptance criteria as the wall itself. The analysis of this door was performed to determine the required thickness necessary to be considered equivalent to the wall in which it is located. This analysis was performed using formulas and analysis methods from NEI 07-03 Section 2.1.2.4 and DOE-STD-3014-2006 Section 6.3.2.2. A safety factor of 100% was then added to the calculated values. The design of the three oversized security doors located on the east wall of room 40357, the east wall of room 12351, and the shield building wall on the west side of room 12351 are now designated as key design features for the protection against the physical and fire damage resulting from the impact of a large commercial aircraft. As will be documented in RAI-SRP19F-AIA-01 R3, these key design features will be included in Section 19F.4.2 of the Design Control Document (DCD) that will be submitted for the design certification amendment request. Also, Westinghouse document APP-1000-GEC-002, Revision 3, now reflects the design changes described above and specifies minimum thickness for the other existing doors and their connections to eliminate this potential vulnerability. Westinghouse document APP-1000-GEC-002 is available for NRC review. Corrective Action Status: Design

change is complete and the AIA has been updated. RAI-SRP19F-AIA-01, R3 with DCD mark-ups will be issued prior to November 19, 2010.

7. Need to revise the Design Control Document (DCD) to list all walls credited in the AIA as 5 psid rated barriers to prevent the spread of fire – Westinghouse acknowledges that not all five walls credited in Westinghouse document APP-1000-GEC-002 were identified in the AP1000 DCD. During the inspection, RAI-SRP19F-AIA-09, R1 was issued to identify changes to the DCD to include each of the five walls that were credited as 5psid rated barriers. The inspection team reviewed the revised scenarios and found them to be accurate and complete. As part of the extent of condition review discussed below, Westinghouse identified 4 additional walls that should be included in the analysis. The analysis has been revised accordingly and Westinghouse document APP-1000-GEC-002 has been updated to Revision 3. In addition, the changes will be included in Section 9.5.1.2.1.1 of the DCD to identify these walls consistent with the revised analysis, as documented in RAI-SRP19F-AIA-09 R2. The changes discussed above will be included in the DCD to be submitted for the design certification amendment request. Corrective Action Status: Extent of condition is complete and RAI-SRP19F-AIA-09, R2 with DCD mark-ups will be issued prior to November 19, 2010.

Corrective Steps to Avoid Future Violations

As part of the Westinghouse corrective action process, action was taken immediately to ensure all specific issues were addressed. As discussed above, Westinghouse has completed all analyses, identified necessary design changes, and has updated the AIA as appropriate to resolve each specific issue associated with the NOV. The resolution of the issues will also be included in Revision 18 of the DCD, as described above pending final review and acceptance of the RAI responses that will be provided by November 19, 2010. Further, in support of this response to the NOV, Westinghouse has completed a corrective action investigation that: 1) evaluated activities that supported the development of the AIA; 2) assessed the contributing causes to the issues identified by the inspection; and 3) performed an extent of condition review to determine if the AIA contained any additional issues similar to those identified during the inspection.

Reason for the NOV: The investigation identified several activities that were accomplished prior to the inspection to provide assurance that the guidelines were being implemented appropriately. These activities included an independent peer review that involved the Electric Power Research Institute (EPRI) and a Westinghouse self-assessment that used the NRC inspection procedure IP37804 as the basis for the assessment. These activities were considered appropriate in recognition of the first-of-a kind application of the NEI guidelines and lack of industry experience in interpreting and applying the guidelines. While those activities resulted in improvements to the AIA, the underlying cause that contributed to the limited number of issues identified in the inspection report related to misinterpretation of the guidelines in NEI 07-13 attributed to first-of-a kind application and limited experience interpreting these guidelines consistent with NRC expectations. This led to a small number of engineering assumptions that were challenged during the inspection.

Extent of Condition: The extent of condition review found one additional case related to issue #7 discussed above. Specifically, 4 additional walls that should be included in the DCD and analysis were identified. The analysis has been revised accordingly and documented in Westinghouse APP-1000-GEC-002 R3. In addition, the response to NRC Request for Additional Information (RAI) RAI-SRP19F-AIA-09 R2 will be issued to identify changes to Section 9.5.1.2.1.1 of the DCD to identify these walls consistent with the revised analysis. Overall, Westinghouse concludes that the issues

identified were isolated cases and there are no systemic or process issues requiring further corrective action.

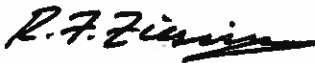
Future Action: Westinghouse considers that all needed corrective actions have been taken to resolve the issues identified by the subject NRC NOV. As a follow-up action beyond the scope of the NOV, Westinghouse will perform an effectiveness review of the corrective actions within 1 year to validate the corrective actions have been effectively implemented.

Conclusion

Westinghouse considers this response as objective evidence to provide sufficient information regarding the corrective actions to satisfactorily resolve the issues identified by the subject NOV. Given the extensive reviews prior to inspection, the inspection itself with resulting corrective actions, and the additional extent of condition review performed, Westinghouse considers the current AIA demonstrates, using realistic analyses, the robustness of the AP1000 design, properly implements NEI 07-13 guidance and complies with 10 CFR 50.150(a)(1).

Any additional questions related to this response should be addressed to R. F. Ziesing, Director, U.S. Licensing, Westinghouse Electric Company LLC, 1000 Westinghouse Drive, Suite 115, Cranberry Township, Pennsylvania 16066.

Very truly yours,



R. F. Ziesing, Director
U.S. Licensing

cc: D. Jaffe - U.S. NRC
E. McKenna - U.S. NRC
J. Peralta - U.S. NRC
R. Prato - U.S. NRC
S. Sanders - U.S. NRC
R. Rasmussen - U.S. NRC
T. Spink - TVA
P. Hastings - Duke Energy
R. Kitchen - Progress Energy
A. Monroe - SCANA
P. Jacobs - Florida Power & Light
C. Pierce - Southern Company
E. Schmiech - Westinghouse
G. Zinke - NuStart/Entergy
R. Grumbir - NuStart
T. Ray - Westinghouse

November 23, 2010

Mr. R. F. Ziesing, Director
U.S. Licensing, Nuclear Power Plants
Westinghouse Electric Company
1000 Westinghouse Drive, Suite 115
Cranberry Township, PA 16066

SUBJECT: WESTINGHOUSE ELECTRIC COMPANY RESPONSE TO U.S. NUCLEAR
REGULATORY COMMISSION (NRC) INSPECTION REPORT [05200006/2010-
203] AND NOTICE OF VIOLATION

Dear Mr. Ziesing:

Thank you for your November 12, 2010, letter in response to the Notice of Violation (NOV) that was discussed in the subject U.S. Nuclear Regulatory Commission (NRC) inspection report (IR).

Based on the information provided in your letter and the discussions held with your staff during conference calls on November 17, 2010, and November 22, 2010, we find your proposed corrective actions responsive to the NOV documented in IR 05200006/2010-203. We have no further questions or comments at this time and may review the implementation of your corrective actions during a future NRC staff inspection to determine that full compliance has been achieved and maintained.

Please contact Mr. Robert Prato at (301) 415-6035 or via electronic mail at: Robert.Prato@nrc.gov, if you have any questions or need assistance regarding this matter.

Sincerely,

/RA/

Richard Rasmussen, Chief
Quality and Vendor Branch 2
Division of Construction Inspection
& Operational Programs

Docket No.: 05200006

Mr. R. F. Ziesing, Director
U.S. Licensing, Nuclear Power Plants
Westinghouse Electric Company
1000 Westinghouse Drive, Suite 115
Cranberry Township, PA 16066

SUBJECT: WESTINGHOUSE ELECTRIC COMPANY RESPONSE TO U.S. NUCLEAR
REGULATORY COMMISSION (NRC) INSPECTION REPORT [05200006/2010-
203] AND NOTICE OF VIOLATION

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Please contact Mr. Robert Prato at (301) 415-6035 or via electronic mail at: Robert.Prato@nrc.gov, if you have any questions or need assistance regarding this matter.

Sincerely,

/RA/

Richard Rasmussen, Chief
Quality and Vendor Branch 2
Division of Construction Inspection
& Operational Programs

Docket No.: 05200006

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ADAMS Package Accession No.: **ML103260442**

*concurrence via email

OFFICE	NRO/DCIP/CQVA	NRO/DNRL	NRO/DCIP/CQVA/BC
NAME	RPrato*	DMatthews	RRasmussen
DATE	11/ 22/2010	11/23/2010	11/23/2010

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Appendix D

NRC Revised Review Schedule

October 29, 2010

Mr. Ronald B. Clary, Vice President
New Nuclear Deployment
MC P40
South Carolina Electric & Gas Company
PO Box 88
Jenkinsville, SC 29065

SUBJECT: VIRGIL C. SUMMER NUCLEAR STATION UNITS 2 AND 3 COMBINED LICENSE
APPLICATION – REVISED REVIEW SCHEDULE

Dear Mr. Clary:

By letter dated March 27, 2008 (ML081300460), South Carolina Electric and Gas (SCE&G) submitted its application to the Nuclear Regulatory Commission (NRC) for a combined license (COL) for two AP1000 advanced passive pressurized water reactors pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Part 52. This letter transmits the Virgil C. Summer Nuclear Station (VCSNS) Units 2 and 3 COL application revised review schedule. The review supports the issuance of a final safety evaluation report in June 2011 and a Final Environmental Impact Statement (FEIS) in April 2011.

The VCSNS COL application review schedule has been previously communicated to you in several letters. This letter updates and replaces the review schedule discussed in the following letters:

- The safety review schedule provided to you by letter dated September 26, 2008 (Agencywide Documents Access and Management System (ADAMS) accession number ML082590543). The safety review milestones have been revised from this letter for reasons stated below.

Potential changes to the safety review schedule based on impacts associated with the emergency planning review that were discussed in a letter dated April 13, 2010 (ADAMS accession number ML100880135). The safety review milestones have been updated to reflect the emergency planning review schedule. In the letter dated April 13, 2010, the staff informed you that it would change the schedule based on a delay in your response to Federal Emergency Management Agency's (FEMA) request for additional information (RAI) regarding your offsite emergency plan. Previously the staff had established a deadline of March 15, 2010, for you to provide this response. You subsequently provided the response to the FEMA RAI in a letter dated June 24, 2010.

- The environmental review schedule that was discussed in a letter to you dated February 23, 2010 (ADAMS accession number ML100541130).

R. Clary

Safety Review Schedule

The VCSNS Units 2 and 3 COL application incorporates by reference both Appendix D to 10 CFR 52 and the AP1000 Design Control Document amendment submitted by Westinghouse as Revision 17. Thus, a substantial portion of the VCSNS Units 2 and 3 COL review schedule is dependent on the review schedule for the AP1000 Design Certification Amendment (DCA). In a letter dated June 21, 2010 (ML101680069), the NRC issued a revision to the review schedule for the AP1000 DCA. The VCSNS Units 2 and 3 COL safety review schedule has been rebaselined to be consistent with the AP1000 DCA schedule provided in the June 21, 2010, letter. The revised VCSNS Units 2 and 3 COL safety review schedule is provided in Table 1 of this letter. The revised schedule does not include any management reserve (margin) and remains dependent on the AP1000 DCA review schedule. The revised schedule also reflects the staff's schedule for the emergency planning review based on your FEMA RAI response dated June 24, 2010. The staff will inform you of further modifications to the safety review schedule if they are needed because of issues identified during the review of the AP1000 DCA or because of the review of the VCSNS Units 2 and 3 COL application.

Environmental Review Schedule

In the February 23, 2010, environmental review schedule letter, the staff indicated that the date for issuance of the VCSNS Draft Environmental Impact Statement (DEIS) would be April 2010. The staff issued the DEIS consistent with this schedule. The staff stated in the February 23, 2010, letter that it would review and re-baseline, if necessary, the environmental review schedule soon after the public comment period for the DEIS ended. The DEIS comment period ended on July 9, 2010. Certain issues that were raised during the comment period, including clarification of transmission line routes and the associated environmental impacts, are expected to require additional time to address. In order to resolve these and other technical issues, the date for issuing the Final Environmental Impact Statement (FEIS) is being revised from February 2011 to April 2011. The revised date is reflected in Table 1 of this letter. SCE&G recently provided additional information on refined transmission line routes that should be useful in addressing the associated comments in the FEIS. Once this information is fully reviewed by the NRC staff, the staff will determine whether further modifications to the environmental review schedule are needed.

R. Clary

Should you have any questions regarding the safety review schedule, please contact Joe Sebrosky at (301) 415-1132 or e-mail at joseph.sebrosky@nrc.gov. Should you have any questions regarding the environmental review schedule, please contact Pat Vokoun at (301) 415-3470 or e-mail at patricia.vokoun@nrc.gov.

Sincerely,

/RA/
David Matthews, Director
Division of New Reactor Licensing
Office of New Reactors

Docket Nos.: 52-027 and 52-028

Enclosure:
Table 1 Revised Safety Review Schedule for VCSNS Units 2 and 3 Combined License Application

cc: See next page

R. Clary

Should you have any questions regarding the safety review schedule, please contact Joe Sebrosky at (301) 415-1132 or e-mail at joseph.sebrosky@nrc.gov. Should you have any questions regarding the environmental review schedule, please contact Pat Vokoun at (301) 415-3470 or e-mail at patricia.vokoun@nrc.gov.

Sincerely,

/RA/

David Matthews, Director
Division of New Reactor Licensing
Office of New Reactors

Docket Nos.: 52-027 and 52-028

Enclosure:

Table 1 Revised Safety Review Schedule for VCSNS Units 2 and 3 Combined License Application

cc: See next page

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NRO-002

*see previous concurrence

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OFFICE	OGC	BC:DNRL/NWE1	DD:DSER	DD: DNRL
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DATE	08/23/2010	10/25/2010	10/25/2010	10/29/2010

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Table 1: Revised Safety and Environmental Review Schedule for the Virgil C. Summer Units 2 and 3 Combined License Application

Phase of Safety Review	Target Completion Date
Phase A Requests for Additional Information (RAIs) and Supplemental RAIs	Completed – September 2009
Phase B Advanced Safety Evaluation Report (SER) with no Open Items (OIs)	January 2011
Phase C ACRS review of Advanced SER with no OIs	May 2011
Phase D Final SER Issued	June 2011
Phase of Environmental Review	Target Completion Date
Phase 1 Environmental Impact Statement scoping report issued	Completed – July 2009
Phase 2 Draft Environmental Impact Statement (DEIS)	Completed – April 2010
Phase 3 Response to public comments on DEIS completed	Completed – August 2010
Phase 4 Final Environmental Impact Statement	April 2011

Appendix E

ACRS Report to the NRC



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, DC 20555 - 0001**

December 13, 2010

The Honorable Gregory B. Jaczko
Chairman
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

**SUBJECT: REPORT ON THE FINAL SAFETY EVALUATION REPORT ASSOCIATED
 WITH THE AMENDMENT TO THE AP1000 DESIGN CONTROL DOCUMENT**

Dear Chairman Jaczko:

During the 578th meeting of the Advisory Committee on Reactor Safeguards (ACRS), December 2-4, 2010, we reviewed the NRC staff's Advanced Final Safety Evaluation Report (AFSER) for the pending AP1000 Design Certification Amendment (DCA) application. The amendment is to be reflected in a revision to the AP1000 Design Control Document (DCD). The amendment involves changes to Tier 1 information, and its approval will require rulemaking. We had a number of subcommittee and full committee meetings to review the technical aspects of the amendment. During these meetings, we had the benefit of discussions with representatives of the NRC staff, Westinghouse Electric Company (WEC), and members of the public. We also had the benefit of the documents referenced.

CONCLUSION AND RECOMMENDATION

The changes proposed in the AP1000 DCA maintain the robustness of the previously certified design. We conclude that there is reasonable assurance that the revised design can be built and operated without undue risk to the health and safety of the public. This conclusion is contingent on the results of our concurrent reviews of the aircraft impact assessment and long-term core cooling issues which will be discussed in separate letters.

This conclusion relies in part on information and commitments provided by WEC during the course of our meetings which have not yet been confirmed to be included in the DCA application. This information and commitments are noted in the discussion following, and the staff should ensure they are appropriately documented as part of the DCA.

BACKGROUND

For its initial design approval and certification of the AP1000 design, the NRC issued NUREG-1793, "Final Safety Evaluation Report Related to Certification of the AP1000 Design," in September 2004 and published the proposed design certification rule on April 18, 2005. In December 2005, the NRC staff evaluated the conforming Revision 15 to the AP1000 DCD in Supplement 1 to NUREG-1793. The NRC published a final rule certifying the AP1000 standard plant design on January 27, 2006.

Thus, the existing AP1000 certification rule is reflected in DCD Revision 15. Revision 18 was submitted by WEC in a letter dated December 1, 2010, and it includes changes identified in Revision 16, submitted May 26, 2007, and in Revision 17, submitted September 22, 2008, as well as those changes made subsequent to submittal of Revision 17 which are identified in the AFSER, Chapter 23.

In addition, WEC submitted letters to supplement its DCA application dated October 26, November 2, and December 12, 2007, as well as January 11, and 14, 2008. Finally, NuStart Energy Development, LLC and WEC submitted a number of technical reports (TRs) for review. TRs typically address a topical area, such as the design of a component, structure, or process, in support of the AP1000 design.

The DCA application proposes to incorporate changes in the AP1000 certification rule reflecting the following:

- Design standardization, which was enhanced by elimination of numerous combined license (COL) open items currently in the existing rule.
- New regulatory requirements, including requirements related to aircraft impact. (As previously noted, review of compliance with the aircraft impact requirements will be discussed in a separate letter).
- Design finalization, which was required to produce construction drawings and procurement specifications. This includes reduced reliance on design acceptance criteria (DAC).

Significant changes proposed in the DCA application include the following:

- Redesign of the shield building to use a modular, steel concrete composite (SC) structure, replacing the existing reinforced concrete (RC) design. The redesign reduces passive heat removal air flow and affects seismic, aircraft impact, and other loading analyses.
- Redesign of the Reactor Vessel Support System to increase stiffness.
- Increase in the range of foundation soil conditions considered.
- Closure of four digital instrumentation and control (DI&C) DAC, with only one remaining open. Numerous I&C changes were made to reflect design evolution, such as addition of a reactor trip function, implementation of a rod withdrawal prohibit, and modification of the containment isolation logic for the Component Cooling System.
- Closure of four human factors engineering (HFE) DAC, with none remaining open.
- Modification of the reactor coolant pump (RCP) design, including an increase in its rotational inertia.
- Addition of a flow skirt at the inlet to the reactor vessel lower plenum.
- Redesign of the Steam and Power Conversion Systems.

Our review of the DCA application began with a status review by the Full Committee during the 562nd meeting in May 2009. Subsequently, our AP1000 subcommittee held 12 meetings, totaling 21 days of meetings, as listed in the appendix to this letter.