

**U.S. Nuclear Regulatory Commission – Requests for Additional Information (RAI)  
V.C. Summer Nuclear Station (VCSNS) Units 2 and 3 Combined License (COL) Environmental Review**

<b>General (Gen)</b>		
<b>RAI Number</b>	<b>Question Summary (RAI)</b>	<b>Full Text (supporting information)</b>
<b>RAI Gen-1</b> <i>(InfoNeed G-10)</i>	Provide a more legible version of the Site Plan (Environmental Report (ER) Figure 3.1-3).	The figure provided in packet NND-09-0135 is hard to read. Reduce the number of contours shown as background in this figure so that key site features are more readily identifiable.
<b>RAI Gen-2</b> ESRP – All <i>(InfoNeed G-9)</i>	Provide metadata to support all Geographic Information System (GIS) data previously delivered to the U.S. Nuclear Regulatory Commission (NRC). This information should at a minimum include purpose, access and use constraints, source, scale, capture date, contact information, processing steps, spatial reference, and data attribute definitions.	This RAI is intended to supplement the data provided by South Carolina Electric and Gas (SCE&G) to NRC dated May 7, 2009 (SCE&G ID# NND-09-0122). Capturing and providing metadata is standard practice for GIS professionals and normally accompanies delivery of spatial data. This information is needed to identify the data sources, processing methods, and the quality of the data used in the ER figures. Additionally, any supplemental analysis that uses these data for the Environmental Impact Statement (EIS) must be supported by a defensible resource. These metadata should be included for all data layers provided to NRC, including but not limited to the land use classification between Santee Cooper and SCE&G transmission-line siting studies.
<b>RAI Gen-3</b> ESRP - All <i>(InfoNeed G-9)</i>	Provide GIS data including metadata (source, scale, capture date, data quality, etc., as described in RAI Gen-2) for the VCSNS site and vicinity.	GIS data are needed to verify spatial analyses and to prepare maps for the environmental review.

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<b>Accidents (Acc)</b>		
<b>RAI Number</b>	<b>Question Summary (RAI)</b>	<b>Full Text (supporting information)</b>
<b>RAI Acc-1</b>  ESRP 7.1 10 CFR 50.34 10 CFR 52.79(1)(vi)(A)  <i>(InfoNeed – new)</i>	Verify the Design-Basis Accident (DBA) time-based isotopic activities listed in ER Tables 7.1-2 through 7.1-10. For each DBA, provide the two-hour period isotopic activities yielding the maximum dose.	An individual located at any point on the boundary of the exclusion area for any two-hour period following the onset of the postulated fission-product release should not receive a radiation dose in excess of 25 rem total effective dose equivalent (TEDE). The two-hour period isotopic activities yielding the maximum dose should be identified and used.
<b>RAI Acc-2</b>  ESRP 7.3 10 CFR 51.50(c)  <i>(InfoNeed - new)</i>	Justify application of the NRC staff conclusions for Design Control Document (DCD) Revision 15 (Rev. 15) presented in NUREG-1793 to DCD Rev.17 based on design considerations.	The conclusions described in Section 7.3.2 of the ER relate specifically to Rev. 15 of the AP1000 design, but the COL application references Rev. 17 of the design. What is the basis for assuming that the conclusions are appropriate? Have the source terms changed? Have the core-damage frequencies changed?
<b>RAI Acc-3</b>  ESRP 7.3 10 CFR 51.50(c)  <i>(InfoNeed Acc-5)</i>	Expand the discussion of administrative Severe Accident Mitigation Alternatives (SAMAs) found in the paragraph at the bottom of page 7.3-4 of the ER.	The paragraph beginning at the bottom of page 7.3-4 mentions administrative procedures. What is included in these procedures? Do they include plant operational procedures, policies and training? When will development of these items be completed? Will risk insights from probabilistic risk assessments be considered in the development of the plant procedures, policies, and training?

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<b>Alternatives (Alt)</b>		
<b>RAI Number</b>	<b>Question Summary (RAI)</b>	<b>Full Text (supporting information)</b>
<b>RAI Alt-1</b>  ESRP 9.3  10 CFR 51.50 10 CFR 51.71 10 CFR 51.75  <i>(InfoNeed Alt-2a)</i>	Revise ER section 9.3.2 to clearly describe the region of interest and ensure it is consistent with Chapter 1 (Project Description) and Chapter 8 (Need for Power) of the ER.	Provide the missing information and/or clarification so staff can provide timely and effective technical review of the alternatives analysis.  Although Santee Cooper was not a partner at the time in the siting study (with the result that geography was not included in the analysis), they have since joined with SCE&G, so references to the earlier situation are no longer valid. Is the analysis essentially geographically bound to the SCE&G service area? Explain.
<b>RAI Alt-2</b>  ESRP 9.3 10 CFR 51.50 10 CFR 51.71 10 CFR 51.75  <i>(InfoNeed Alt-2b)</i>	Provide a full reconnaissance-level evaluation of FA-1 alternative site due to its net scoring proximity to Cope Generating Station and uniform application of weighting and ranking criteria.	Due to the scoring proximity of the FA-1 site with the next-closest evaluated site (Cope Generating Station), it was requested that the FA-1 site be included in the reconnaissance-level evaluation.
<b>RAI Alt-3</b>  ESRP 9.3 10 CFR 51.50 10 CFR 51.71 10 CFR 51.75  <i>(InfoNeed Alt-2c)</i>	Provide an analysis of the proposed project at each one of the alternative sites. This analysis should include information on the placement of the powerblock, cooling towers, intake and outfall lines/corridors, and proposed corridors for transmission lines.	To evaluate each alternative site with respect to the proposed site, it is necessary to consider the impacts associated with the proposed project at each location. Indicate the location of the proposed action at each alternative site and address all known impacts associated with that action, and any known strategies to mitigate or reduce those impacts. Note that similar information is requested for RAI AqEco-8.

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<b>Alternatives (Alt)</b>		
<b>RAI Number</b>	<b>Question Summary (RAI)</b>	<b>Full Text (supporting information)</b>
<b>RAI Alt-4</b>  ESRP Chapters 1, 8 and 9  10 CFR 51.71 10 CFR 51, Appendix A(4)  <i>(InfoNeed Alt-3)</i>	Make consistent the project’s ‘Statement of Purpose and Need’ within all chapters of the ER.	Clarify project’s ‘Statement of Purpose and Need’ in ER Chapter 1.3 so it is consistent and provides bounding conditions to ensuing chapters of the EIS. The discussion of Statement of Purpose provided in Chapter 1.3 (Purpose and Need for the Proposed Action) directly links to Chapter 8’s discussion (Need for Power) and impacts how it is presented. The discussion also provides background for Chapter 9.2 (Alternative Energy) and 9.3 (Alternative Sites), which describe alternatives within those bounding conditions.

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<b>Cultural and Historic Resources (CR)</b>		
<b>RAI Number</b>	<b>Question Summary (RAI)</b>	<b>Full Text (supporting information)</b>
<b>RAI CR-1</b>  ESRP 2.5.3 ESRP 4.6 ESRP 4.1.3 36 CFR 800(C)  <i>(InfoNeed CR-3)</i>	Provide information on impacts to cultural resources resulting from the new Emergency Operations Facility (EOF).	Provide information and/or clarification so the staff can evaluate impacts of construction and operation activities on cultural resources. Analysis performed does not clearly specify whether impacts resulting from all construction activities associated with the new units have been analyzed. Clear discussion on all construction impacts is needed.  Information provided by SCE&G on 5/11/2009 (SCE&G ID# NND-09-125) should be clarified as to why the EOF is not considered part of the scope of Units 2 and 3. (It is assumed that the intention is for it to be used to support Units 2 and 3?)
<b>RAI CR-2</b>  ESRP 2.5.3 ESRP 4.1.3 ESRP 5.1.3 ESRP 3.7 36 CFR 800(C)  <i>(InfoNeed CR-6)</i>	Provide a description of how SCE&G and Santee Cooper intend to address impacts to cultural resources from modifications to existing transmission lines as well as construction of new transmission lines. Include correspondence with State Historic Preservation Officer (SHPO) and consulting parties associated with the cultural resource investigations.	To evaluate each respective impact resulting from construction of transmission lines, staff will need documentation describing how potential cultural resources will be identified, and if they are identified, how impacts to these will be addressed.
<b>RAI CR-3</b>  ESRP 2.5.3 ESRP 4.1.3 ESRP 5.1.3 36 CFR 800(C)  <i>(InfoNeed CR-8)</i>	Provide two Area of Potential Effect (APE) maps, one showing locations of cultural resources and one without. Describe how the APEs were defined.	Definition of the APE for construction and operation for the Combined License Application (COLA) is necessary under 36 CFR Part 800 and ESRP 2.5.3, so that it is clear that the direct and indirect effects on all cultural resource types from construction and operation activities are appropriately considered.

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<b>RAI Number</b>	<b>Question Summary (RAI)</b>	<b>Full Text (supporting information)</b>
<b>RAI CR-4</b>  ESRP 2.5.3 ESRP 4.1.3 ESRP 5.1.3 36 CFR 800(C)  <i>(InfoNeed CR-10)</i>	Provide copies of all ongoing correspondence between the applicant and the SHPO/Tribes regarding all ongoing, past and present cultural resource activities completed for the COLA.	Correspondence between SHPO and Tribes, the applicant, and the applicant’s cultural-resources contractor provides regulatory input that assists the NRC staff in conducting their analysis of construction and operating impacts.
<b>RAI CR-5</b>  ESRP 2.5.3 ESRP 4.1.3 ESRP 5.1.3 ESRP 4.6 ESRP 3.7 36 CFR 800(C)  <i>(InfoNeed CR-11)</i>	Provide a copy of the preliminary cultural resources analysis reports completed by Santee Cooper and SCE&G, which discuss known cultural resources located within two kilometers of proposed transmission routes and existing transmission routes to be modified, as well as future cultural resources investigations. (Include impacts to Traditional Cultural Property (TCPs) once transmission line routes have been finalized.)	Analysis of transmission line impacts on cultural resources is necessary to understand cumulative as well as direct and indirect impacts resulting from transmission line modifications and new construction of transmission lines (construction) and operations.
<b>RAI CR-6</b>  ESRP 2.5.3 ESRP 4.1.3 ESRP 5.1.3 36 CFR 800(C)  <i>(InfoNeed CR-14)</i>	Provide documentation describing the methodology used to identify interested parties as part of the process of identification of historic properties and assessment of effects for transmission lines.	Obtaining interested-party input on historic properties is necessary for the review.

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<b>RAI Number</b>	<b>Question Summary (RAI)</b>	<b>Full Text (supporting information)</b>
<b>RAI CR-7</b>  ESRP 2.5.3 ESRP 4.1.3 ESRP 5.1.3 36 CFR 800(C)  <i>(InfoNeed CR-15)</i>	Provide documentation on how SCE&G intends to address and implement SHPO concerns described in the letter from the SHPO dated August 16, 2007.	The letter from the SHPO dated August 16, 2007, describes concerns of the SHPO regarding how SCE&G will assure that impacts to cultural resources resulting from the proposed project will be resolved. Understanding how the applicant intends to address input from the SHPO will assist the NRC staff in conducting their analysis of construction and operating impacts.  NND-09-0125 provides a partial answer, indicating that a Programmatic Agreement (PA) will be developed. However, no mention is made of specific protection/avoidance measures to be implemented, such as a protective covenant as recommended by the SHPO or avoidance plans. There is also no discussion of management plans.
<b>RAI CR-8</b>  ESRP 4.1.3 ESRP 5.1.3 36 CFR 800(C)  <i>(InfoNeed CR-18)</i>	Provide documentation (i.e., a management plan), describing how SCE&G would avoid impacting significant cultural resources such as Pearson Cemetery, 38FA349, 38FA366 and 38FA 360 during construction and operation of the new units.	Several significant cultural resources have been identified that are located within the proposed project’s APE. To complete an analysis of construction and operating impacts to these resources, details describing how these impacts would be avoided are necessary.  A partial response was provided in NND-09-125. Has there been any input from the SHPO on appropriate avoidance mechanisms, such as fencing or signage? These details, and consultation with SHPO to provide input on these details, should be addressed in the PA or management plan.

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<b>RAI Number</b>	<b>Question Summary (RAI)</b>	<b>Full Text (supporting information)</b>
<p><b>RAI CR-9</b></p> <p>ESRP 4.1.3 ESRP 5.1.3 36 CFR 800(C)</p> <p><i>(InfoNeed CR-19)</i></p>	<p>Provide copies of the Environmental Management Plan (EMP) and Unit 1 procedures that pertain to cultural resources referenced in the ER, and describe how these would be applied to construction and operating impacts resulting from Units 2 and 3.</p>	<p>Several significant cultural resources have been identified that are located within the APE. SCE&amp;G currently has procedures in place for Unit 1 that pertain to the protection of cultural resources on site, and to required actions in case of inadvertent discovery. Similar procedures are necessary to assure that construction and operating impacts resulting from the new units can be analyzed.</p> <p>Provide copies of SAP-404, SAP-405, the EMP and Unit 1 procedures for docketing, to provide clarification as to how these are implemented. Provide a more detailed description of how these procedures would be implemented for Units 2 and 3, and more detail on how environmental evaluations that are specifically for cultural resources are conducted.</p>
<p><b>RAI CR-10</b></p> <p>ESRP 2.5.3 ESRP 4.1.3 ESRP 5.1.3 ESRP 4.6 ESRP 3.7 36 CFR 800(C)</p> <p><i>(InfoNeed CR-21)</i></p>	<p>Provide the timeline for when it is anticipated that SCE&amp;G and Santee Cooper would be conducting cultural resource investigations for new transmission lines and modifications to existing lines.</p>	<p>Analysis of transmission-line impacts on cultural resources is necessary to understand cumulative as well as direct and indirect impacts resulting from transmission-line modifications, construction of new transmission lines, and operations.</p> <p>A schedule was provided in NND-09-0125; however, clarification is needed concerning how updates will be provided as the cultural resources surveys progress.</p>



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<b>RAI CR-11</b> ESRP 4.1.3 ESRP 5.1.3 36 CFR 800(C)  <i>(InfoNeed CR-22)</i>	Clarify how the cultural resources training module will be implemented and whether or not it will be part of the Environmental Protection procedure, and which workers will receive the training described in this module.	Several significant cultural resources have been identified that are located within the APE. SCE&G currently has a cultural resources training module in place for Unit 1; similar training procedures are necessary to assure that construction and operating impacts resulting from the Units 2 and 3 can be analyzed.
<b>RAI CR-12</b> ESRP 9.3  <i>(InfoNeed CR-24)</i>	Provide information on how cultural resources were weighted in the alternative sites selection process.	In accordance with ESRP 9.3, cultural resources are considered in the alternative sites selection process. To complete this analysis, NRC staff needs to understand how the applicant weighted cultural resources in their analysis.  From the information received from SCE&G on 5/7/2009 (SCE&G ID# NND-09-0121), it is not clear where impacts to cultural resources were included in the list of environmental factors for determining weighting of alternative sites.

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<b>Ecology – Aquatic (AqEco)</b>		
<b>RAI Number</b>	<b>Question Summary (RAI)</b>	<b>Full Text (supporting information)</b>
<b>RAI AqEco-1</b> ESRP 2.4.2  <i>(InfoNeed AQ-1)</i>	Provide copies of the reports detailing winter and spring 2009 aquatic surveys for Mayo Creek and winter 2009 aquatic surveys for the Monticello Reservoir.	To adequately describe the spatial and temporal distribution of aquatic biota within the site vicinity, complete quarterly data on the nearby water bodies is needed. Quarterly data on aquatic communities for Mayo Creek and Monticello Reservoir have not been provided.
<b>RAI AqEco-2</b> ESRP 2.4.2  <i>(InfoNeed AQ-1)</i>	Provide a copy of the report describing the spatial and temporal distribution of ichthyoplankton in Monticello Reservoir.	Currently, there are no recent data in the ER pertaining to ichthyoplankton. These data will be used to provide a holistic description of the aquatic biota at the site.
<b>RAI AqEco-3</b> ESRP 2.4.2  <i>(InfoNeed AQ-3)</i>	Provide information on the spatial and temporal distribution of benthic macroinvertebrates in Monticello and Parr Reservoirs.	Macroinvertebrates are important prey resources for fish, but they also serve as indicators of ecosystem condition. The macroinvertebrate dataset will provide an understanding of the aquatic ecology condition within the reservoirs.

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<b>Ecology – Aquatic (AqEco)</b>		
<b>RAI Number</b>	<b>Question Summary (RAI)</b>	<b>Full Text (supporting information)</b>
<b>RAI AqEco-4</b> ESRP 2.4.2 <i>(InfoNeed AQ-5)</i>	Provide fisheries data pertaining to the size, species, sample date, and site name as a result of surveys completed in Mayo Creek, Parr Reservoir, and Monticello Reservoir.	<p>Size-class information provided in site audit follow-up material from SCE&amp;G dated 5/11/2009 (NND-09-0126) is insufficient to permit a complete evaluation of the spatial and temporal life, history, and diversity of biotic assemblages.</p> <p>With regard to information provided in support of site audit Information Need AQ-5 (NND-09-0126):</p> <ul style="list-style-type: none"> <li>• Length data for the April 2007 sample period are missing (Tetra Tech 2007).</li> <li>• Length data associated with the “Limited Fish Community Assessment of Mayo Creek 2007-2008” appear to be missing.</li> </ul> <p>With regard to information provided in support of site audit Information Need AQ-6 (NND-09-0126), and in particular to the Normandeau 2007 and Normandeau 2008 reports, the information regarding size-class distribution provided in part 1 (Bechtel/Tetra Tech) is not sufficient. Length data should be displayed in a format that includes capture technique (electrofishing, gillnet, hoopnet), site/station name, sample date, species, length, and weight (if available). The information provided in conjunction with part 2 (SCE&amp;G) is sufficient and does not need to be supplemented with additional information at this time.</p>
<b>RAI AqEco-5</b> ESRP 2.4.2 <i>(InfoNeed AQ-9)</i>	Provide acreage of wetlands and linear footage of streams affected by the new transmission line corridor.  (Note: this RAI is similar to RAI TerEco-3 and RAI LU-1).	This information has been provided by SCE&G, but has not been provided by Santee Cooper. It will be used to evaluate the level of impacts on wetlands due to new transmission line corridors.

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<b>Ecology – Aquatic (AqEco)</b>		
<b>RAI Number</b>	<b>Question Summary (RAI)</b>	<b>Full Text (supporting information)</b>
<b>RAI AqEco-6</b> ESRP 2.4.2 <i>(InfoNeed AQ-10)</i>	Provide information substantiating the location of the new bridge to be constructed over Mayo Creek.	A map depicting the location of the bridge with relation to the 100-year floodplain was provided at the site audit, but has not been provided as a reference. To adequately document the level of impact, this information will need to be provided in a citable format.
<b>RAI AqEco-7</b> ESRP 2.4.2 <i>(InfoNeed AQ-21)</i>	If it is determined that dredging would be required as part of the construction and operation of the plant, provide information relevant to the area to be dredged as well as the location for dredge spoils.	A clear understanding of dredging approaches and methodologies is needed to appropriately evaluate the level of impacts. The anticipated size of the area to be dredged (both during construction and operational phases) should be provided for the purpose of assessing aquatic impacts. The quantity and disposal location of spoils should also be provided.
<b>RAI AqEco-8</b> ESRP 2.4.2 <i>(InfoNeed – new)</i>	Provide information regarding the location of intake and discharge structures at the four alternative sites.	This information should include the water body from which water would be withdrawn and discharged as well as the distance between these water bodies and the plant.  The information requested in this RAI is closely related to that requested in RAI Alt-3.

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<b>RAI AqEco-9</b>  ESRP 2.4.2  <i>(InfoNeed – new)</i>	Provide information regarding the spatial and temporal distribution of fish within Parr Reservoir and Monticello Reservoir. This information should include species catch (and corresponding effort) by site and date.	The information portrayed in the reports listed below is insufficient to adequately evaluate the spatial distribution of fish species encountered during survey efforts. <ol style="list-style-type: none"> <li>1. <i>Fish Community Assessment of Parr Reservoir 2007-2008</i>. August 2008.</li> <li>2. <i>Monticello and Parr Reservoirs Fisheries Surveys: Draft Final Report</i>. June 2007.</li> <li>3. <i>Monticello and Parr Reservoirs Fisheries Surveys: Summer Report</i>. August 2008.</li> </ol> Species data have been summarized by catches within the reservoirs rather than provided for each sampling location (Tables 4-7 in Tetra Tech (2007)). The spatial information will be used to independently evaluate impacts within the water bodies that are near the proposed VCSNS Units 2 and 3. The Mayo Creek report provides examples of data that have been summarized in a sufficient and useful manner.

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<b>Terrestrial Ecology (TerEco)</b>		
<b>RAI Number</b>	<b>Question Summary (RAI)</b>	<b>Full Text (supporting information)</b>
<b>RAI TerEco-1</b>  ESRP 2.4.1, 4.3.1 ER 2.4.1, 4.3.1  <i>(InfoNeed G-9)</i>	Provide a figure depicting the wetlands at VCSNS with the construction footprint overlay.	The figure should make clear how many acres of wetlands would be impacted in comparison with the overall wetlands acreage. The publication-quality graphic of the aerial photo that was displayed at the site audit and that shows the wetlands and streams highlighted, with the construction overlay showing the area of impacts to wetlands onsite, would meet the needs of this RAI.
<b>RAI TerEco-2</b>  ESRP 2.4.1, ER 2.4.1  <i>(InfoNeed – new)</i>	Provide small mammal trapping data from spring 2009.	SCE&G stated that this information would be provided when complete (ER Rev.1 section 2.4.1).
<b>RAI TerEco-3</b>  ESRP 2.4.1, ER 2.4.1  <i>(InfoNeed G-9 and AQ-9)</i>	Provide the total acreage of wetlands and linear footage of streams to be disturbed in the 2.44 miles of Right of Way that would be widened by 100 feet for the Santee Cooper transmission line.  (Note: this RAI is similar to RAI AqEco-5 and RAI LU-1).	Section 4.4 (Land Cover/Vegetation, page 4-10) of the Santee Cooper Transmission Line Siting Study does not provide the requested information.

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<b>Health Physics (HP)</b>		
<b>RAI Number</b>	<b>Question Summary (RAI)</b>	<b>Full Text (supporting information)</b>
<b>RAI HP-1</b> ESRP 5.4.1-5.4.4 ESRP 5.4 <i>(InfoNeed HP-3)</i>	Provide updated input and output files for computer codes GASPAR II, LADTAP II, and XOQDOQ.	This request is for updated input and output files for LADTAP II, GASPAR II, and XOQDOQ, which include the 0.25-mile distance for biota dose calculations based on the assumption changes described in the SCE&G information submittal of 6/1/2009 (SCE&G ID# NND-09-0148).
<b>RAI HP-2</b> ESRP 4.5 and 4.7 <i>(InfoNeed-new)</i>	ER (Rev. 1) Table 4.8-1 has a row labeled "4.5 Radiation Exposure to Construction Workers". Clarify what portion of the 80% Construction Impact Significance for Unit 3 occurs prior to Unit 2 operation, and what portion occurs after Unit 2 begins operating.	The estimated proportions of preconstruction and construction impacts make sense for Units 2 and 3. However, some portion of the 80% Construction Impact Significance for Unit 3 will occur while Unit 2 is under construction and the remainder of the 80% Construction Impact Significance will occur after Unit 2 begins operation. After Unit 2 begins operation, workers on Unit 3 will receive exposure from Unit 1 (as throughout the project), but also from the newly operating Unit 2

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<b>Surface Water Hydrology (SW)</b>		
<b>RAI Number</b>	<b>Question Summary (RAI)</b>	<b>Full Text (supporting information)</b>
<b>RAI SW-1</b>  ESRP 2.3.1  <i>(InfoNeed SW-1)</i>	Correct inconsistencies in the ER for the representation of the bottom slope.	The sections 2.3.1.1.1 and 2.3.1.1.6 of ER do not appear consistent. In 2.3.1.1.1, the gradient of the Broad River is reported to be about 0.0007, and in 2.3.1.1.6 it is reported as 0.06%.
<b>RAI SW-2</b>  ESRP 2.3.1 ER 2.3.1 ESRP 5.2.4 ER 5.2.4  <i>(InfoNeed SW-3)</i>	Provide publication-quality graphics (clearly reproducible in black and white) of NND-09-0126 Figures SW-12-1, SW-12-2, and SW-12-3.	The figures of water quality, stream flow, and radiological monitoring locations provided in NND-09-0126 show the features and annotations discussed during the audit as related to Site Audit Information Need SW-3, but are needed in high-resolution, publication-quality graphic format (e.g., .png).
<b>RAI SW-3</b>  ER 10.5.2 ESRP 10.5.2  <i>(InfoNeed SW-14)</i>	Provide quantitative measure of “small” in terms of water use impact and the level of uncertainty in the reported stream flow measurement used to characterize flow in the Broad River.	Needed for clarity in understanding how water use impacts were evaluated as “small” within the ER.



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<b>Groundwater Hydrology (GW)</b>		
<b>RAI Number</b>	<b>Question Summary (RAI)</b>	<b>Full Text (supporting information)</b>
<b>RAI GW-1</b> ESRP 2.3.1 <i>(InfoNeed GW-2)</i>	Provide estimates for total and effective porosity of the deep bedrock zone. Describe uncertainties in effective porosity values for the saprolite/shallow bedrock zone and deep bedrock zone.	
<b>RAI GW-2</b> ESRP 2.3.1 <i>(InfoNeed GW-3)</i>	Describe the selection and uncertainties in the conservative hydraulic conductivity values used in the groundwater pathline analysis for the saprolite/shallow bedrock zone and deep bedrock zone.	
<b>RAI GW-3</b> ESRP 2.3.1 <i>(InfoNeed GW-3)</i>	Evaluate eastern groundwater pathways from the proposed new units in the saprolite/shallow bedrock zone and deep bedrock zone toward possible receptors (e.g. Mayo Creek and wells). Also, evaluate possible westward pathways from the proposed new units in the deep-bedrock pathway (the western pathway in the saprolite/shallow bedrock zone is the only pathway described in the ER).	
<b>RAI GW-4</b> ESRP 2.3.1 and 2.3.2 <i>(InfoNeed GW-5)</i>	Provide additional information on local public and private wells in the area surrounding the site (i.e., distances, pumping rates, and depths if available).	
<b>RAI GW-5</b> ESRP 2.3.2 <i>(InfoNeed GW-6)</i>	Describe future groundwater use predicted for the area surrounding the site.	

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<b>Groundwater Hydrology (GW)</b>		
<b>RAI Number</b>	<b>Question Summary (RAI)</b>	<b>Full Text (supporting information)</b>
<b>RAI GW-6</b> ESRP 4.2.1 <i>(InfoNeed GW-9)</i>	Describe the impact of the post-construction / operational setting on water table elevations (site grading, including infilling on east below cooling towers, removal of saprolite/shallow bedrock zone, hydraulic properties and use of common fill and structural fill, changes in surface recharge) and subsurface pathways (directions and rates). This would include descriptions of changes in site grading, land cover, recharge rates, storm water ponds, and fill-material properties.	
<b>RAI GW-7</b> ESRP 6.3 and 6.6 <i>(InfoNeed GW-11)</i>	Provide a confirmatory statement that additional groundwater monitoring wells would be installed by the applicant in accordance with South Carolina Department of Health and Environmental Control (DHEC), NRC regulations, and Nuclear Energy Institute (NEI) 07-07.	
<b>RAI GW-8</b> ESRP 6.3 and 6.6 <i>(InfoNeed GW-11)</i>	Provide a confirmatory statement that groundwater monitoring would be conducted under the Unit 1 Groundwater Monitoring Plan, which will be updated in accordance with permitting requirements.	
<b>RAI GW-9</b> ESRP 2.3.1, 2.3.3, 6.3, 6.6 <i>(InfoNeed GW-7)</i>	Provide an updated large-scale topographic map of the VCSNS site and surrounding area showing wetlands.	At the site audit, SCE&G had the requested topographic map available for viewing. The mapped area extended beyond the site boundaries past Mayo Creek to the private residences on the east.

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<b>Land Use (LU)</b>		
<b>RAI Number</b>	<b>Question Summary (RAI)</b>	<b>Full Text (supporting information)</b>
<p><b>RAI LU-1</b></p> <p>ESRP 2.2.1</p> <p>10 CFR 51.71 10 CFR 51.75</p> <p><i>(InfoNeed LU-3)</i></p>	<p>Quantify the acreage of wetlands expected to be impacted in proposed or expanded transmission corridors, using consistent data sources.</p> <p>(Note that this RAI is similar to RAI AqEco-5 and Ter Eco-3).</p>	<p>Wetland acreages are better characterized in more recent State datasets. South Carolina Department of Natural Resources (SCDNR) Gap Analysis Program (GAP) analysis data should be used for consistency with the transmission line siting studies docketed separately. These data are important for the accurate characterization of land uses in the affected transmission corridors at the site and in the vicinity of VCSNS.</p>
<p><b>RAI LU-2</b></p> <p>ESRP 4.1.1</p> <p>10 CFR 51.71 10 CFR 51.75</p> <p><i>(InfoNeed LU-5)</i></p>	<p>Provide high-resolution digital scans of aerial photos taken before and during the VCSNS Unit 1 construction, which illustrate pre-construction conditions, the maximum extent of the VCSNS construction footprint, timber-clearing operations in preparation for filling the reservoir, and dam construction activities. Include views looking from the approximate current position of Unit 1 toward the current Training Center location or in the reverse direction.</p>	<p>The staff needs to compare observed land use changes associated with the VCSNS Unit 1 construction with the potential land use changes expected from the construction of the proposed units.</p>

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<b>Transmission Lines (TLine)</b>		
<b>RAI Number</b>	<b>Question Summary (RAI)</b>	<b>Full Text (supporting information)</b>
<b>RAI TLine-1</b>  ESRP 3.7  10 CFR 51.71 10 CFR 51.75  <i>(InfoNeed G-9)</i>	Provide the custom digital GIS coverages (shapefiles or geodatabases) used to construct Figure 3.4 and 3.5 in the Santee Cooper transmission siting study, including the transmission line layer and the point layer depicting the substation locations in these figures. Provide similar GIS data for Figures 4.2-1, 4.2-2 and 4.2-3 in the SCE&G transmission siting study.	The staff needs this information to independently verify the measurements and acreages reported in the two siting studies. Previously submitted GIS data from SCE&G does not contain this information.
<b>RAI TLine-2</b>  ESRP 3.7  10 CFR 51.71 10 CFR 51.75  <i>(InfoNeed – new)</i>	Provide land use classification data that are in a consistent format for the Santee Cooper and SCE&G transmission siting studies, with respect to Santee Cooper Table 3.8 and SCE&G Tables 4.3-1, 4.3-2, and 4.3-3, based on the most recent data source(s) for the two studies. Include the data source citation(s) for land use data reported in the SCE&G siting study Tables 4.3-1, 4.3-2, and 4.3-3.	The staff cannot determine the source of the land use data reported in the SCE&G transmission siting study. If the SCE&G and Santee Cooper studies used different land use GIS data, then the staff needs to know upon which source to rely.

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<b>Transmission Lines (TLine)</b>		
<b>RAI Number</b>	<b>Question Summary (RAI)</b>	<b>Full Text (supporting information)</b>
<b>RAI TLine-3</b>  ESRP 3.7  10 CFR 51.71 10 CFR 51.75 10 CFR 51.45 18 CFR 35  <i>(InfoNeed – new)</i>	Provide the following information in reference to the projected transmission line construction and operation: <ol style="list-style-type: none"> <li>1. Identification of the permitting authority(ies) for transmission line construction</li> <li>2. Description of the transmission line siting procedures that were or are to be followed</li> <li>3. A list of and schedule for environmental reviews that will be conducted as part of the transmission line siting procedure</li> <li>4. Standards/procedures for the interconnection operation and the right-of-way maintenance</li> <li>5. Identification of basic electrical design parameters, including transmission design voltage or voltages, minimum conductor clearances to ground, and the maximum induced current to ground from vehicles or obstacles under the transmission lines</li> <li>6. Predicted noise levels resulting from transmission system construction and operation</li> <li>7. Description of land use limitations within the transmission line corridors</li> <li>8. General methods of construction for the proposed new transmission lines and upgrades (e.g., tower foundations, stringing, location of access roads, span length, and clearing of rights-of-way).</li> </ol>	During the site audit, the staff was referred to the two siting studies to obtain this information; however these studies do not provide adequate detail for the items listed.

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<b>Socioeconomics (SEcon)</b>		
<b>RAI Number</b>	<b>Question Summary (RAI)</b>	<b>Full Text (supporting information)</b>
<p><b>RAI SEcon-1</b></p> <p>ESRP 2.5.2 10 CFR 51.45 10 CFR 51.71 <i>(InfoNeed SE-3)</i></p>	<p>Provide information about property taxes paid to jurisdictions including the following:</p> <ol style="list-style-type: none"> <li>1. Historical payments over the last 10 years to counties, cities or other taxing authorities for the VCSNS Unit 1</li> <li>2. Financial incentives being offered to the applicant's by taxing authorities</li> <li>3. Santee Cooper's tax obligations, if any</li> <li>4. Projected tax payments to local and state jurisdictions upon operation of the new units.</li> </ol>	<ol style="list-style-type: none"> <li>1. The ER provides tax information for FY 2005 only. The staff needs to see a reasonable time series of this type of information to assess trends.</li> <li>2. No information is provided regarding the potential role of financial incentives in influencing the applicant's decision to build.</li> <li>3. Nothing is stated about the Santee Cooper tax obligations. A statement on this topic is needed.</li> <li>4. The ER does not provide a projection of the expected tax revenues to be produced from the additional units at VCSNS.</li> </ol>
<p><b>RAI SEcon-2</b></p> <p>ESRP 2.5.2 ESRP 5.8.2  10 CFR 51.45 10 CFR 51.71 <i>(InfoNeed SE-5)</i></p>	<p>Provide information by which staff may predict county of residence for construction workforce.</p>	<p>These data are not summarized in the ER.</p>
<p><b>RAI SEcon-3</b></p> <p>ESRP 4.4.2  10 CFR 51.45 10 CFR 51.71 <i>(InfoNeed SE-5)</i></p>	<p>Provide information about the construction workforce assumptions discussed in Tables 3.10-1 and 4.4-5 of the ER, including the following:</p> <ol style="list-style-type: none"> <li>1. Basis for assumptions about skilled and managerial labor-supply locations</li> <li>2. Basis for assumptions used in reference to worker relocations and commuting</li> <li>3. Anticipated overtime wage assumptions.</li> </ol>	<p>The ER makes numerous assumptions in these areas without providing the bases or citations for those assumptions. Supplemental information provided by SCE&amp;G on 5/21/2009 (NND-09-0139) is deficient in the following areas:</p> <ol style="list-style-type: none"> <li>1. There is no connection made between the discussion of labor hours and the labor estimates provided.</li> <li>2. The Bureau of Labor Statistics (BLS) data source is not cited anywhere.</li> <li>3. The assumption of no overtime in the labor estimates does not seem reasonable.</li> </ol>

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<b>Socioeconomics (SEcon)</b>		
<b>RAI Number</b>	<b>Question Summary (RAI)</b>	<b>Full Text (supporting information)</b>
<b>RAI SEcon-4</b>  ESRP 4.4.2  10 CFR 51.45 10 CFR 51.71  <i>(InfoNeed SE-6)</i>	Provide the bases for any workforce transportation analysis assumptions, including the impact expected under the cases of two or three shifts as opposed to the four-shift scenario reported.	The staff needs the applicant’s quantitative assessment of site-related traffic impacts under the two-shift and three-shift scenarios suggested in the information provided by SCE&G on 5/7/09 (NND-09-0121).
<b>RAI SEcon-5</b>  ESRP 4.4.2  10 CFR 51.45 10 CFR 51.71  <i>(InfoNeed SE-8)</i>	Provide information about construction expenditure assumptions including the following: <ol style="list-style-type: none"> <li>1. Expected purchasing patterns in direct support of construction activities</li> <li>2. In-region versus out-of-region construction expenditures.</li> </ol>	No discussion of this information appears in the ER.
<b>RAI SEcon-6</b>  ESRP 5.8.1  10 CFR 51.71 10 CFR 51.75  <i>(InfoNeed SE-7)</i>	Provide the plume graphic from the SCE&G letter of 5/13/09 (NND-09-130) as a separate file in publication-quality format.	This graphic is needed to present the expected visual impacts to the public.

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<b>Socioeconomics (SEcon)</b>		
<b>RAI Number</b>	<b>Question Summary (RAI)</b>	<b>Full Text (supporting information)</b>
<b>RAI SEcon-7</b>  ESRP 5.8.2  10 CFR 51.45 10 CFR 51.71  <i>(InfoNeed SE-9)</i>	Provide information about operations expenditure assumptions including the following: <ol style="list-style-type: none"> <li>1. Expected purchasing patterns in direct support of operations activities</li> <li>2. In-region versus out-of-region operations expenditures</li> </ol>	No discussion of this information appears in the ER.



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<b>Benefits/Costs (BenCost)</b>		
<b>RAI Number</b>	<b>Question Summary (RAI)</b>	<b>Full Text (supporting information)</b>
<p><b>RAI BenCost-1</b></p> <p>ESRP 10.4.1 ESRP 5.8.2</p> <p>10 CFR 51.45 10 CFR 51.71</p> <p><i>(InfoNeed -new)</i></p>	<p>Provide estimates of the annual taxes expected to be paid as a result of constructing and operating two new operating units at the VCSNS over the lifetime of the new plants. Include expected property taxes paid to Fairfield County, expected annual sales taxes paid to the State of South Carolina, and any expected corporate taxes paid to jurisdictions affected by the VCSNS, that would be attributable to the new units.</p>	<p>No quantitative discussion of this information appears in the ER.</p>
<p><b>RAI BenCost-2</b></p> <p>ESRP 10.4.2</p> <p>10 CFR 51.45 10 CFR 51.71</p> <p><i>(InfoNeed BC-3)</i></p>	<p>Provide additional explanation and discussion of federal incentives mentioned in Section 10.4.2.3 of the ER. Describe how the provisions of the Energy Policy Act of 2005 specifically mitigate projected construction and operations costs over the life of the proposed facilities. Quantify the anticipated amount of federal incentives likely to apply to the proposed action from the following:</p> <ul style="list-style-type: none"> <li>• Production tax credit for the first advanced reactors brought on line in the United States</li> <li>• Federal risk insurance benefits expected as part of the Nuclear Power 2010 Partnership</li> <li>• Any other financial incentives</li> </ul> <p>Describe the expected impact of these incentives in terms of their role in the applicant’s decision to build, and the impact on the proposed action in case SCANA Corporation does not qualify for some or all of the incentives.</p>	

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<b>Benefits/Costs (BenCost)</b>		
<b>RAI Number</b>	<b>Question Summary (RAI)</b>	<b>Full Text (supporting information)</b>
<b>RAI BenCost-3</b>  ESRP 10.4.3  10 CFR 51.45 10 CFR 51.71  <i>(InfoNeed BC-1)</i>	Provide additional discussion relative to ER Section 10.4.3 as follows: <ul style="list-style-type: none"> <li>• Identify the important conclusions to be drawn from the summary in ER Table 10.4.2.</li> <li>• Identify and discuss the balancing of all internal and external benefits and costs, and provide a characterization of the net benefit (or cost) to society of the proposed action, based on this assessment.</li> <li>• For costs and benefits that cannot be precisely determined at this time, provide additional discussion of them in relative terms compared to the expected internal construction and operation costs, to facilitate amplified discussion of the benefit/cost balance.</li> </ul>	The applicant should provide its view of the benefit/cost balance. Discuss how SCE&G has characterized the benefits outweighing the costs (or <i>visa versa</i> ), given that not all benefits and costs can be monetized or otherwise compared in common terms. For those items that cannot be quantified, the applicant’s qualitative characterization should be provided. The intent is for the staff to understand how the applicant would reconcile the societal costs and benefits, especially when common units of measure such as dollars do not apply across measures of cost or benefit.

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<b>Meteorology and Air Quality (Met)</b>		
<b>RAI Number</b>	<b>Question Summary (RAI)</b>	<b>Full Text (supporting information)</b>
<b>RAI Met-1</b>  ESRP 2.7 (page 2.7-12)  Reg Guide 4.7  <i>(InfoNeed Met-4)</i>	Provide a summary of the traffic mitigation plan for both construction and operation as they relate to air quality.	Regulatory Guide 4.7, “ <i>General Site Suitability Criteria for Nuclear Power Stations</i> ”, describes the evaluation of the socioeconomic impacts of a new nuclear station on the surrounding community. Part of these considerations involves increased traffic during both construction and operation at the candidate site. If a traffic mitigation plan exists for the VCSNS that could be used to address impacts on the community, provide a summary meeting this purpose.
<b>RAI Met-2</b>  ESRP 2.7 (page 2.7-12)  <i>(InfoNeed Met-1)</i>	Provide a summary of the relevant regulations to be followed with regard to air quality during operation of the concrete batch plant.	Fugitive dust emissions from concrete batch plants can be significant and are regulated by South Carolina Regulation 61-62.5 Standard 1 (also listed in 40 CFR Part 60). A concrete batch plant is not documented in section 4.4.1.3 of the ER. Would a temporary concrete batch plant follow relevant state regulations?
<b>RAI Met-3</b>  ESRP 5.3.3.1 (page 5.3.3.1-3)  Reg Guide 4.7  <i>(InfoNeed Met-3)</i>	The amount of salt drift from the cooling towers reported in the ER was quite small. Provide the assumptions (including the total solids concentration within the Monticello Reservoir) used to confirm this calculation, or provide a revised calculation (with assumptions) if needed.	Regulatory Guide 4.7 describes nonradiological atmospheric considerations including cooling tower plumes. The amount of salt drift quoted in the ER, 0.025 pound per acre per month, is very small. Is this value correct?