Second Requests for Additional Information (RAIs)
William States Lee Nuclear Station
Combined Operating License Application

Item	ESRP/ Regulatory Basis	RAI	Supporting Information
		RADIOLOGICAL HEALTH	
104	ESRP 5.4.2 10 CFR 50.34a(d)	Inhalation doses in ER Table 4.5-8 could not be replicated using NRCDose and input values provided by the applicant. Provide the methodology used, and either verify that the values in Table 5.4-8 are correct or provide updates.	The values in 5.4-8 (Annual Dose to a Maximally Exposed Individual from Gaseous Effluents) can be exactly replicated using the information in the ER, except for inhalation.
105	ESRP 5.4.2 10 CFR 50.34a(d)	Doses in ER Table 4.5-9 could not be replicated using NRCDose and input values from the ER. Verify that the maximum organ indicated in Table 5.4-9 is correct, or provide updates.	Table 5.4-9 (Estimated Population Dose from Liquid effluents via the Aquatic Food Pathway) indicates Liver as the maximum organ for population dose. The numeric values in the ER for Liver dose are the same as NRCDose calculated numeric values for Thyroid.

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106	ESRP 5.4.2 10 CFR 50.34a(d)	Neither Table 5.4-10 nor 5.4-13 can be reconciled with Tables 5.4-4 or 5.4-8. Verify that the values in Tables 5.4-10 and 5.4-13 are correct, or provide updates.	Tables 5.4-10 (Liquid Pathway Comparison of Maximum Individual Dose to 40CFR190 Limit) and 5.4-13 (Comparison of Maximum Individual Dose to 40CFR190 Limit – Gaseous Pathway) contain *exactly* the values. Neither table can same be reconciled with Tables 5.4-4 (Liquid Pathway Comparison of Maximum Individual Dose to 10CFR50 Appendix I Criteria) or 5.4-8 (Annual Dose to a Maximally Exposed Individual from Gaseous Effluents)

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107	ESRP 5.4.2 10 CFR 50.34a(d)	Table 5.4-11 (Annual Population Doses – Gaseous pathway) could not be replicated using NRCDose and input values from the ER: a. GASPAR II does not provide collective doses for the Goat Milk Ingestion pathway (see NUREG/CR-4653 page 3.1). What methodology was used for the Goat Milk Ingestion pathway? b. The population input in Table 5.4-3 does not provide the required input values for GASPAR. Provide the input population table with sectors in miles used to generate the GASPAR collective dose results to correspond to the required GASPAR inputs. c. Provide the methodology used to calculate the dose values in Table 5.4-11from the meat pathway, and either verify that the values in Table 5.4-8 are correct or provide updates.	a. GASPAR II does not provide collective doses for the Goat Milk Ingestion pathway (see NUREG/CR-4653 page 3.1). b. The population input in Table 5.4-3 (which summarizes Tables 2.5-1 through 2.5-4) is provided for annual rings in convenient metric units. This table does not correspond to the inputs needed for GASPAR, which requires inputs at distances in miles. Attempts to convert this table, using the same technique described in the dose calculation package, may have induced differences between our inputs and those used in the Duke calculation. c. The dose reported from the meat pathway could not be replicated.

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108	ESRP 5.4.2 10 CFR 50.34a(d)	For Table 5.4-14 8. a. What methodology was used to calculate the values in Table 5.4-14? Verify that the values in Table 5.4-14 are correct, or provide updates. b. The "Dose to Another Organ" values in Tables 5.4-14 could not be replicated. Verify that the values in Table 5.4-14 are correct, or provide updates.	Table 5.4-14 (Total Site Dose – Comparison of Maximum Site Individual Dose to 40 CFR 190) does not appear to be derived from either Tables 5.4-10 and 5.4-13 nor 5.4-4 and 5.4-8. .
109	ESRP 5.4.2 10 CFR 50.34a(d)	Regarding the biota doses presented in Table 5.4-17 (Dose to Biota for Liquid and Gaseous Effluents): a. What assumptions were used with the LADTAP computer code to estimate dose to biota from liquid effluents? b. What assumptions were used to estimate inhalation dose to terrestrial biota?	a. The assumptions necessary to produce Table 5.4-17 are not described in Section 5.4.4.1 or Footnote (b) to Table 5.4-17 of the ER. b. The terrestrial inhalation dose reported in Table 5.4-17 for Muskrat is only about 1% of the dose for the other organisms.

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110	ESRP 5.4.2 10 CFR 50.34a(d)	In the second paragraph on page 5.4-4 of the ER it states that Table 5.4-5 presents the gaseous pathway consumption factors used by the computer program to calculate doses for both the maximally exposed individual and for the general population. Table 5.4-5 does not appear to contain that information. What methodology was used to calculate doses for the general population, and what population average input values were used?	On ER page 5.4-4, is stated that "Table 5.4-5 presents the gaseous pathway consumption factors used by the computer program to calculate doses for both the maximally exposed individual and for the general population." The table appears to provide only the MI parameters; population average values are different from these and are not shown.
111	ESRP 5.4.2 10 CFR 50.34a(d)	LADTAP input parameters given for population exposures via swimming and boating in Table 5.4-2 conflict with the Maximally Exposed Individual calculations, which use defaults of zero hours swimming and boating. How is the pathway described in Section 5.4.1.1, referring to immersion in contaminated water as a pathway, used in the calculation of individual dose?	LADTAP input parameters are given for population exposures via swimming and boating in Table 5.4-2. However, the Maximally Exposed Individual calculations use the LADTAP defaults of zero hours swimming and boating.

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		CULTURAL RESOURCES	
112	ESRP 5.1.3 36 CFR 800	Duke's response to RAI 46 discussed cumulative impacts but not secondary impacts. Provide an analysis of secondary impacts to cultural resources resulting from measures identified in Table 4.6-1 (Summary of Measures and Controls to Limit Adverse Impacts during Construction). Describe how these measures could impact cultural resources in terms of small, medium, or large based on that analysis.	Duke's response to RAI 46, submitted on September 26, 2008, referred to their letter of August 5. However, the August letter discussed cumulative impacts but not secondary impacts.
		COST-BENEFIT	
113	ESRP 10.4.-3 10 CFR 51.45 (c) 10 CFR 51.71 (d)	It is not clear if the revised net generation capacity of the plant (i.e. the defined benefit) provided in the response to RAI 35 accounts for unscheduled outages resulting from plant shut downs due to water shortages. Were such outages caused by low-flow conditions in the Broad River considered for the revised plant average annual electrical-energy generation value of 18.2 million MWh proposed for Subsection 10.4.1.2.1 of the Environmental Report in the response to RAI 35?	The expected net generation capacity of the plant (i.e. the defined benefit) should account for unscheduled outages resulting from plant shut downs due to water shortages.

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ALTERNATIVE ENERGY			
114	ESRP 9.2.3 10 CFR 51.71	Provide calculations, references, and the selected control strategies for the natural gas fired emissions.	In the RAI-48 response, applicant provides emissions estimates for (5) natural gas fired combined cycle units in Table 9.2-4. Applicant then includes a reference to EPA AP-42 (5^{th} Ed.) Section 1.4, as a reference. It is unclear if the emissions are calculated from this reference; if they are, the applicant should use Section 3.1 for stationary gas turbines, and select the appropriate control strategies they would intend to deploy assuming 114,847,104 MMBtu input per year.
TERRESTRIAL ECOLOGY			
115	ESRP 2.4.1	Identify the contaminants found in the stained soil, the location of the stained soils, applicable clean-up levels and/or their concentrations prior to and after site clean-up.	The response to RAI 67 discussed information on disposal of stained soil identified during the Phase 1 survey. The response did not identify the contaminants or provide details on the location of the stained soil or contaminant concentrations before and after clean-up.

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116	ESRP 5.6.1	Provide a more detailed description of the use of water from Make-up Pond A, including drawdown levels during water shortages, and provide a discussion of the expected water-level fluctuations of Make-up Pond A during operation.	In the response to RAI 82, the applicant indicates there are no plans to routinely drawdown Make-up Pond A. A detailed description of how water will be used was provided in the response for Make-up Pond B, but not for Make-up Pond A. This information is needed to determine impacts to biota.
117	ESRP 4.3.1	Provide a copy of the applicant's corporate policy on Avian Protection and its Avian Protection Plan.	The response to RAI 84 states that Duke Energy will follow corporate policy on Avian Protection and its Avian Protection Plan to reduce adverse impacts to migratory birds caused by site stormwater basins, settling ponds, lagoons and other water storage facilities, however, the response did not provide any details on the corporate policy or the Avian Protection Plan.
118	ESRP 4.3.1, ESRP 5.6.1	How and in what way does Duke Energy plan to consider the effects of nighttime security lighting on wildlife resources in its lighting system design? Provide a response discussing the effects of lighting system designs on wildlife resources. Provide a copy of the lighting system design when completed.	The response to RAI 85 says the plants lighting system design has not yet been completed. RAI 85 was a response to the U.S. Fish and Wildlife Service scoping comment expressing concern about the effects of nighttime security lighting on migratory birds, bats and other wildlife resources.

Item	ESRP/ Regulatory Basis	RAI	Supporting Information
119	ESRP 4.3.2 ESRP 2.4.1 10 CFR 51.45	Provide a copy of the Duke reports and consultation letters, as they become available, submitted to Federal and State agencies, e.g., USACE, SCDNR, USFWS, SCDHEC, etc.	Duke Energy is conducting studies and issuing reports to Federal and State agencies, e.g., the U.S. Army Corps of Engineers (USACE) and the South Carolina Department of Health and Environmental Control, in support of its applications for required permits from those agencies. Duke Energy has entered into consultation with agencies, e.g., the U.S. Fish and Wildlife Service (USFWS) and the South Carolina Department of Natural Resources (SCDNR), concerning its proposed transmission line rights-of-way. Duke Energy has completed a wetland delineation report for the Lee Site and provided it to the USACE.