

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of)
SOUTHERN NUCLEAR OPERATING CO.) Docket Nos.
(Vogtle Electric Generating Plant, Units 3 and 4)) 52-025-COL & 52-026-COL
)

ORDER
(Supplemental Responses and Post-Hearing Questions)

On September 27-28, 2011, the Commission held an evidentiary hearing at its Rockville, Maryland headquarters to receive testimony and exhibits in the uncontested portion of the captioned proceeding. During the course of the two-day hearing, the parties were asked, or offered, to provide written supplemental responses to questions posed by the Commissioners. For the convenience of the parties, the table below identifies instances where a supplemental response is indicated.

TABLE 1: SUPPLEMENTAL RESPONSES TO IN-HEARING QUESTIONS

<u>Item</u>	<u>Date</u>	<u>Panel</u>	<u>Transcript page(s) and line number(s)</u>
A	Sept. 27, 2011	Staff Overview Panel	p. 59, lines 24-25; p. 60, lines 1-4
B	Sept. 27, 2011	Staff Overview Panel	p. 79, lines 13-25; p. 80, line 1
C	Sept. 27, 2011	Safety Panel 1	p. 121, lines 18-25
D	Sept. 27, 2011	Safety Panel 1	p. 123, lines 10-25; p. 124, lines 1-4
E	Sept. 27, 2011	Safety Panel 2	p. 160, lines 15-19
F	Sept. 27, 2011	Safety Panel 2	p. 164, lines 11-19
G	Sept. 27, 2011	Safety Panel 3	p. 231, lines 8-21
H	Sept. 27, 2011	Safety Panel 3	p. 239, lines 6-23
I	Sept. 28, 2011	Safety Panel 4	p. 277, lines 12-25; p. 278, lines 1-25; p. 279, lines 1-8
J	Sept. 28, 2011	Safety Panel 4	p. 285, line 25; p. 286, lines 1-25; p. 287, lines 1-14
K	Sept. 28, 2011	Safety Panel 4	p. 293, lines 22-25
L	Sept. 28, 2011	Environmental Panel 1	p. 325, line 24 (identifying speaker), line 25 (last word, start of question); p. 326, lines 1-13

<u>Item</u>	<u>Date</u>	<u>Panel</u>	<u>Transcript page(s) and line number(s)</u>
M	Sept. 28, 2011	Environmental Panel 1	p. 327, lines 24-25; p. 328, lines 1-6
N	Sept. 28, 2011	Environmental Panel 1	p. 335, lines 10-25; p. 336, lines 1-5
O	Sept. 28, 2011	Environmental Panel 1	p. 336, lines 24-25; p. 337, lines 1-13
P	Sept. 28, 2011	Concluding Statements	p. 352, lines 10-15
Q	Sept. 28, 2011	Concluding Statements	p. 362, lines 14-21

The following post-hearing questions also have been identified:

TABLE 2: POST-HEARING QUESTIONS¹

<u>No.</u>	<u>Category</u>	<u>Reference</u>	<u>Directed To</u>	<u>Question</u>
1	Safety	General	Staff and Applicant	In the event the Commission decides to impose a license condition requiring implementation of all Commission approved recommendations from the near-term task force report, what language would you recommend?
2	Safety	General	Applicant	What process is the industry using on an ongoing basis to factor operating experience from across the world into construction best practices?
3	Safety	Tr. at 59–60	Staff	For COL action items for the Vogtle COL, please provide a breakdown of how each was resolved and whether each action was identified in the DCD to be completed by the Applicant or holder. For each COL action item to be completed by the holder, identify all associated license conditions, ITAACs, or other requirements that ensure the action will be completed. If a COL action item for the holder is not imposed by a requirement, please explain why the action is not necessary to support the conclusions of the FSER or the required findings.

¹ Acronyms used in the table: ACRS (Advisory Committee on Reactor Safeguards); ASME (American Society of Mechanical Engineers); COL (Combined License); DCD (Design Control Document); DNFSB (Defense Nuclear Facilities Safety Board); DOE (Department of Energy); EALs (Emergency Action Levels); FSAR (Final Safety Analysis Report); FSER (Final Safety Evaluation Report), Exhibit NRC000004; ITAAC (Inspection, Test, Analysis, and Acceptance Criterion/Criteria); LEFM (Leading Edge Ultrasonic Flow Monitor); SASSI (System for the Analysis of Soil-Structure Interaction); SSI (Soil-Structure Interaction).

<u>No.</u>	<u>Category</u>	<u>Reference</u>	<u>Directed To</u>	<u>Question</u>
4	Safety	Tr. at 158–60	Staff	Regarding the containment debris limitation, please describe how Tier 2* information in the DCD will be captured to ensure that the appropriate change processes and limits are followed during plant operation. Compare the practical implications of reliance on the regulatory provisions in Appendix D of Part 52 to reliance on technical specifications during plant operation.
5	Safety	a. Tr. at 160–64 b. Tr. at 175	Staff	Squib Valve Surveillance Requirements: a. Staff explained during the hearing that the current ASME Code relevant to the squib valves is not adequate and is currently under revision. Therefore, the FSAR states that the surveillance requirements developed for the valves must incorporate lessons from that ongoing process. Staff further stated that the adequacy of those requirements will be determined during the operational program inspection before fuel load. Please explain the relevance of the findings of that inspection and any agency decision concerning operation of the plant including the regulatory basis for any agency action under 10 C.F.R. § 52.103. b. The Staff stated during the hearing that, while it has sufficient experience to describe a surveillance test for squib valves now, it did not do so because it wanted to exercise flexibility next year. Please explain the reasons for omitting a description of the necessary tests prior to the issuance of the COL to preserve flexibility and the basis for concluding that, without a description of the test, this complies with 10 C.F.R. § 52.97(b).

<u>No.</u>	<u>Category</u>	<u>Reference</u>	<u>Directed To</u>	<u>Question</u>
6	Safety	Tr. at 277–79	Staff	<p>The COL application is required to include emergency plans that comply with Appendix E to Part 50. 10 C.F.R § 52.79(a)(21). Part 50, Appendix E, provides, in B “Assessment Actions,” that initial EALs must be described, agreed upon by the Applicant and state and local government officials, and approved by the NRC. From the discussion during the hearing, it appears that these requirements have not been satisfied. Instead, the Staff stated it reviewed and approved a plan for developing EALs. Please respond to the following questions:</p> <ul style="list-style-type: none">a. Since the regulation requires NRC approval of the initial EALs, was the Applicant granted an exemption of the requirement to describe the EALs that are to be used? If not, why not?b. Are there any other instances where the Staff accepted a plan in lieu of any of the application contents required under 10 C.F.R § 52.79(a)(21)?c. The EAL license condition is silent on whether the NRC review and approval is required. Does the Staff plan to review the submittal?
7	Safety	Emergency Plan	Applicant	What is the relationship between the Savannah River Site and the Vogtle plants with respect to radiological protection? How does the Vogtle emergency plan address nuclear workers at the Savannah River Site? Are they considered nuclear workers or members of the public? Are they evacuated with the general public?
8	Safety	Physical Security Plan	Applicant	We understand that there are no NRC regulatory requirements for the physical security plan during the construction phase and fabrication of components. However, what measures are being taken to assure security at the site during construction? What is being done for receipt inspection of components that are received on site or the fabrication of components off site? How will you implement the transition from construction to operation? What changes will occur in the security to initially establish a secure site?

<u>No.</u>	<u>Category</u>	<u>Reference</u>	<u>Directed To</u>	<u>Question</u>
9	Safety	SER Chapter 3	Staff or Applicant	<p>In April 2011, the DNFSB sent a letter to DOE citing concerns with a computer code used for building analysis. This letter is publically available on the DNFSB web site² and explains that the computer code is used both by DOE for defense nuclear facilities and by the commercial nuclear power industry. The computer code is called SASSI and is used for evaluation of SSI effects between the building and its supporting soil. The letter states (at p. 1):</p> <p>Recently, SASSI users have identified significant technical and software quality assurance issues with this software. In August 2010, the Los Alamos National Laboratory . . . published LA-UR-10-05302, <i>Seismic Response of Embedded Facilities Using the SASSI Subtraction Method</i>, identifying issues with the SASSI subtraction method, which is extensively used in DOE's design and construction projects. The [DNFSB] is concerned that these issues could lead to erroneous conclusions that affect safety-related structural and equipment design at DOE defense nuclear facilities.</p> <p>Did building designers for this application use this computer code? Do the concerns cited by the DNFSB affect the Vogtle building design?</p>

² See <http://www.dnfsb.gov/board-activities/reports/staff-issue-reports/issues-related-sassi-computer-software> for a link to the letter.

<u>No.</u>	<u>Category</u>	<u>Reference</u>	<u>Directed To</u>	<u>Question</u>
10	Safety	SER Chapter 3	Staff	<p>There is an ITAAC in Table 3.6-1, Pipe Rupture Hazards Analysis ITAAC, which requires that an <u>as-designed</u> pipe rupture hazard analysis report exist. The report must conclude that the analysis performed for high and moderate energy piping confirms the protection of structures, systems, and components required to be functional during and following a design basis event. There is a very similar ITAAC in Table 3.12-1, Piping Design ITAAC, for compliance of the as-designed piping with ASME Code. What commitments, programs, or license conditions do we have in place to assure ourselves that the <u>as-installed</u> piping will match the <u>as-designed</u> piping to ensure that our safety conclusions remain valid?</p>
11	Safety	SER Chapter 3	Staff	<p>In Chapter 3, FSER section 3.7.1.4 the Staff states that the Applicant performed site-specific SSI analysis and there are a limited number of locations in the structure where the AP1000 design is exceeded. The Staff states the impacts of these exceedances have been evaluated and the justification provided by the Applicant ensures the design has not been compromised. What did the Staff do to justify this conclusion?</p>
12	Safety	SER Chapter 6	Staff	<p>The ACRS recommended a technical specification to ensure containment cleanliness does not compromise sump operability for long term cooling. The Staff's response to the ACRS was to change the cleanliness requirement from Tier 2 to Tier 2*, which will require NRC approval to change. In so doing, the Staff allowed a sampling to be performed on the containment for cleanliness after an outage and the results will be evaluated post-start up. The corrective action program will be used to address any deficiencies. This is described in FSER section 6.3.4 in response to STD COL 6.3-1. Why did the Staff not implement the ACRS recommendation such that containment cleanliness would be assured prior to start-up?</p>

<u>No.</u>	<u>Category</u>	<u>Reference</u>	<u>Directed To</u>	<u>Question</u>
13	Safety	SER Chapter 15	Staff or Applicant	In Chapter 15 of the Staff's FSER there is a discussion of the LEFM. There are also two license conditions related to determination of power calorimetric uncertainty and there is an ITAAC to assure the overall instrumentation uncertainty is less than the safety analysis uncertainty of 1%. There is little discussion of this in the application, but FSER p. 15-4 describes commitments that if the LEFM fails the plant will de-rate and use the feedwater flow venturi to ensure power is within safety analysis and uncertainty limits. How will the Applicant reconcile differences between the feedwater flow venturi and the LEFM if they are not consistent? Does the Staff expect the Applicant to monitor the differences between the two feedwater flow instruments through power ascension testing? There is a commitment in the FSER on p. 15-4 to perform periodic calibration on instrumentation used as inputs to the calorimetric. There is also the commitment to de-rate if the LEFM fails and to use the feedwater venturi instead. Since the Staff's safety evaluation is not used to require compliance—why are these not captured as commitments in the application?
14	Environmental	Tr. at 325–26	Applicant	Please describe your analysis of the environmental impacts of the Fukushima events. Identify the relevant information you drew from the task force report and any other sources and describe your analysis of that information and your conclusions.

Pursuant to my authority under 10 C.F.R. § 2.346(a) and (j), the parties are directed to file supplemental responses to in-hearing questions, as well as responses to the post-hearing questions, no later than October 17, 2011. Responses may be cross-referenced to the extent there may be overlap between the responses required pursuant to Tables 1 and 2. The responses should be filed as exhibits, using the previously-established numbering scheme, and should comply with our E-Filing rules (at 10 C.F.R. § 2.304(g)). The parties are directed to coordinate their responses to indicate whether

there are any objections to admitting the new exhibits into the record. Absent objection, new exhibits will be admitted.

IT IS SO ORDERED.

For the Commission

[NRC Seal]

/RA/

Annette L. Vietti-Cook
Secretary of the Commission

Dated at Rockville, Maryland,
this 6th day of October, 2011

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of)
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SOUTHERN NUCLEAR OPERATING COMPANY) Docket Nos. 52-025-COL and
) 52-026-COL
)
(Vogtle))
)
(Mandatory Hearing))

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing ORDER (SUPPLEMENTAL RESPONSES AND POST-HEARING QUESTIONS) have been served upon the following persons by Electronic Information Exchange and by electronic mail as indicated by an asterisk*.

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Vogtle, Docket Nos. 52-025-COL and 52-026-COL (Mandatory Hearing)
ORDER (SUPPLEMENTAL RESPONSES AND POST-HEARING QUESTIONS)

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[Original signed by R. Giitter]
Office of the Secretary of the Commission

Dated at Rockville, Maryland
this 6th day of October 2011