Nuclear Operating Company
South Texas Project Electric Generating Station P.O. Box 289 Wadsworth, Texas 77483

November 10, 2009
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U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
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South Texas Project
Units 3 and 4
Docket Nos. 52-012 and 52-013
Responses to Request for Additional Information

Attached are responses to NRC staff questions in Request for Additional Information (RAI) letter 280, related to COLA Part 2, Tier 2, Section 8.3.1, "AC Power Systems." This letter provides the complete response to RAI letter 280.

Attachments 1 and 2 provide the responses to the following NRC staff questions:

08.03.01-13 08.03.01-14

There are no new commitments in this letter.

If you have any questions regarding these responses, please contact me at (361) 972-7136, or Bill Mookhoek at (361) 972-7274.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on 11/10/09

Scott Head
Manager, Regulatory Affairs
South Texas Project Units 3 & 4

rhb

Attachments:
1. RAI 08.03.01-13
2. RAI 08.03.01-14

STI 32568199 D091
NRO

cc: w/o attachments and enclosure except*

(paper copy)

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RAI 08.03.01-13

Question:

In response to RAI 08.03.01-10 pertaining to periodic testing of isolation devices, the applicant stated that Class 1E to non-Class 1E isolation devices are safety related and, as such, they would be covered by FSAR subsection 8.3.4.30. This subsection indicates that the applicant would develop procedure(s) for the periodic testing of all Class 1E electrical systems and equipment in accordance with surveillance and test requirements of Section 7 of IEEE 308. The applicant, however, appeared to imply that they would not perform periodic testing of isolation devices in Instrumentation and Control Circuits. STP reached this conclusion on the basis that IEEE Standard 384, Section 7.2.1, does not specifically include a requirement for periodic testing of isolation devices in instrumentation and control (I&C) circuits and that the Standard only requires that "the capability of a device to perform its isolation function shall be demonstrated by qualification tests."

However, the test requirement in Section 7.2.2.1 (not 7.2.1) of IEEE 384-1992 is only intended to confirm the isolation capability of the isolation device. Appendix B, Criterion XI, Test Control, states, in part: "A test program shall be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptance limits contained in applicable design documents. The test program shall include, as appropriate, proof tests prior to installation, preoperational tests, and operational tests during nuclear power plant or fuel reprocessing plant operation, of structures, systems, and components." This requirement makes no distinction between electrical and I&C components. The continuous capability of electrical devices to perform their safety function is also discussed in IEEE 308, Section 6.4, which does not exclude isolation devices in the statement that, "Tests shall be performed at scheduled intervals to detect within practical limits the deterioration of the equipment toward an unacceptable condition." Test intervals should be developed based on the guidance of IEEE 338, Section 6.5.

Based on the above, confirm that isolation devices in I&C circuits will be included in the STP periodic test program. Isolation devices include those components used to isolate redundant Class 1E circuit as well as safety-related circuits from non-safety related ones. If the isolation devices in I&C circuits are not included in the STP periodic test program, discuss how it can be assured that these devices will continue to perform their isolation function throughout the life of the plant.

Response:

IEEE 384, Section 7.2.2.1, addresses general requirements for I&C isolation devices. It includes a requirement that the capability of the device to perform its isolation function be demonstrated by qualification testing. The response to RAI 08.03.01-10 stated that the capability of I&C devices to perform their isolation function will be demonstrated by qualification tests.

In addition, the response to RAI 08.03.01-10 states, "The standard does not include a requirement to periodically test isolation devices for instrumentation and control circuits". IEEE 384, Section 7.2.2.1 does not address periodic testing requirements for I&C isolation devices.

I&C devices performing isolation functions will be included in the STP periodic test program and will be tested at vendor-recommended intervals in accordance with vendor-approved test practices. However, it is likely that the isolation devices may not require testing, or may not be required to be tested in a manner similar to a power device. In cases where isolation devices are not required to have periodic testing, the IEEE 384 qualification test is sufficient to demonstrate the capability of the isolation function.

As stated in FSAR section 19B.3.2, "the inspection and test program for fiber optic type isolators used between safety-related and non safety-related systems will be established prior to fuel loading. If other types of isolators are used (e.g., those subject to electrical leakage due to maximum credible electrical faults), the required testing, inspection and replacement guidance will be developed prior to fuel loading (COM 19B-1)."

No COLA revisions are required as a result of this response.

RAI 08.03.01-14

Question:

In RAI 08.03.01-12, the staff requested that the applicant discuss the effect of the temperature increase from 50°C to 60°C on (1) DG performance (DG rating, effects on electronic components associated DG control system, etc.), (2) Cable ampacity, (3) mild environment equipment qualification, and (4) operation of other equipment in the room if any. In their response to the staff questions, the applicant failed to address DG performance in the proposed ambient temperature.

The applicant is requested to discuss any derating that will be required if the temperature of the inlet air to the diesel is increased from 50°C to 60°C and if the generator is required to operate in an ambient temperature of 60°C. Also if a derating of the diesel and generator is required, discuss the impact of such derating on the diesel generator loading, both transient and steady-state.

Response:

As identified in the response to RAI 08.03.01-12, the safety-related equipment to be installed in the DG room is being specified and procured to be suitable for the DG room environmental conditions. As the temperature limit of 60°C has been specified as the design limit, no derating will need to be applied, and as such there will be no impact on performance in the proposed ambient temperature.

Based on DCD Tier 2, Section 9.5.8.2 and 9.5.8.3, the diesel engine combustion air intake is taken from outside the reactor building; therefore, the increase in DG room temperature from 50°C to 60°C indicated in STP DEP T1 2.15-2 does not impact DG intake air temperature.

As the generator is within the diesel room, the generator will be in an environment with a maximum design temperature of 60°C. Again, the generator is a part of the diesel equipment which is being specified and procured to the 60°C temperature requirement; as such there will be no derating required.

As discussed above, there is no derating of the engine or generator. As such, there is no impact on the diesel generator loading.

No COLA revision is required as a result of this response.