Southern Nuclear

Charles R. Pierce
Regulatory Affairs Director

40 Inverness Center Parkway
Post Office Box 1295
Birmingham, AL 35242
205 992 7872 tel
205 992 7601 fax

crpierce@southernco.com

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U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555-0001

Edwin I. Hatch Nuclear Plant Units 1 and 2
Response to Verbal Request for Additional Information on Technical Specifications
Revision Request to Implement TSTF-500, "DC Electrical Re-write"

Ladies and Gentlemen:

By letter dated August 11, 2015, Southern Nuclear Operating Company (SNC) submitted a license amendment request (LAR) to revise the Technical Specifications (TS) to adopt TSTF-500, "Direct Current (DC) Electrical Re-write", for the Edwin I. Hatch Nuclear Plant Units 1 and 2.

There have been several correspondences between SNC and the Nuclear Regulatory Commission (NRC) staff since the original SNC submittal, including an electronic request for additional information (RAI) on October 17, 2016. SNC responded to the RAI on November 16, 2016.

On January 9, 2017, a telephone call was held between NRC and SNC concerning that November 16, 2016 RAI response. The NRC requested clarification on SNC's response to Question #4.

This letter provides that clarification in the enclosure.

The entire response to Question #4 is provided. Part a) of the response is amended to provide the clarification. Part b) of the original response to Question #4 did not change but is repeated here for continuity. Therefore, the response to Question #4 in this letter supersedes the SNC response to Question #4 from the November 16, 2016 letter.

This letter contains no NRC commitments. If you have any questions, please contact Ken McElroy at 205.992.7369.

Mr. C.R. Pierce states he is Regulatory Affairs Director of Southern Nuclear Operating Company, is authorized to execute this oath on behalf of Southern Nuclear Operating Company and, to the best of his knowledge and belief, the facts set forth in this letter are true.

Respectfully submitted,

C. R. Pierce

C. R. Pierce
Regulatory Affairs Director

CRP/OCV/

Sworn to and subscribed before me this 6th *day of* February, *2017.*

Notary Public

My commission expires: 1-2-2018

Enclosure: Response to Request for Additional Information

cc: Southern Nuclear Operating Company
Mr. S. E. Kuczynski, Chairman, President & CEO
Mr. D. G. Bost, Executive Vice President & Chief Nuclear Officer
Mr. D. R. Vineyard, Vice President – Hatch
Mr. M. D. Meier, Vice President – Regulatory Affairs
Mr. D. R. Madison, Vice President – Fleet Operations
Mr. B. J. Adams, Vice President – Engineering
Mr. G. L. Johnson, Regulatory Affairs Manager – Hatch
RType: CHA02.004

U. S. Nuclear Regulatory Commission
Ms. C. Haney, Regional Administrator
Mr. M. D. Orenak, NRR Project Manager – Hatch
Mr. D. H. Hardage, Senior Resident Inspector – Hatch

State of Georgia
Mr. R.E. Dunn, Director – Environmental Protection Division

Edwin I. Hatch Nuclear Plant Units 1 and 2

Enclosure

Response to Request for Additional Information

NRC Question #4

In the LAR, the licensee proposed TS 3.8.4, Condition D and TS 3.8.5, Condition B that apply when one or more (two) required station service battery charger(s) in one unit become inoperable. The required Action D.1 and B.1 associated with TS 3.8.4, Condition D and TS 3.8.5 Condition B, respectively, require restoring battery terminal voltage to greater than or equal to the minimum established float voltage within 2 hours. According to TSTF-500, required actions D.1 and B.1 imply that either an alternate means (spare battery charger(s)) is used to restore battery terminal voltage or the inoperable charger(s) is (are) restored to Operable status within the 2 hour time frame.

The licensee stated that station service direct current (DC) system for each HNP unit is made up of two separate subsystems. Each station service DC subsystem includes two 125-volt (V) batteries connected in series and three battery chargers. Two of the three battery chargers are normally in service and one is in standby (spare). A station service subsystem is considered operable per TS Limiting Condition for Operation (LCO) 3.8.4 and LCO 3.8.5 when two 125-V batteries and two of the three battery chargers are Operable.

a) Since a HNP station service DC subsystem includes only one spare battery charger, please explain how HNP will restore the terminal voltages of both 125-V DC batteries to greater than or equal to the minimum established float voltage (required actions D.1 and B.1) when two battery chargers are inoperable.

Inoperable station service/diesel generator battery chargers are required to be restored to operable status within 72 hours. The 72 hour completion time is a bracketed value in TSTF-500.

b) Please provide the basis for the 72 hour completion time.

SNC Response

a) The HNP station service DC system has two subsystems. Each subsystem has one 250 V DC battery which is actually two 125 V DC batteries connected in series. Each subsystem has three 125 V DC, 400 amp battery chargers. Two of the battery chargers are normally in service and one is in standby. In addition to the three installed chargers per subsystem, HNP currently has one additional charger available in the warehouse. This was a previously installed charger in the station service DC system.

   For the station service system, two of the three chargers are required to be Operable for LCO 3.8.4 and LCO 3.8.5. Therefore, the LCO Condition (under TSTF-500) for inoperable battery chargers would not be entered unless two of the three installed battery chargers became inoperable.

In a situation where one of the three installed station service battery chargers were to go out of service, and it is believed that it could not quickly be returned to service, mobilization could begin of the available spare charger. This involves taking the charger from the warehouse to the staging area near the appropriate battery charger room. This also involves staging the connectors and cables necessary to tie the spare charger to the system, and testing the charger. The period of time from the start of mobilization to when the spare charger would be in place in its staged area, and tested, would likely be two or three twelve hour shifts.

As previously mentioned, the available charger in the warehouse was once an installed charger in the system, and therefore identical to the currently installed chargers. Consequently, following its successful testing, the charger would be deemed as an Operable Class 1E charger. Also, this charger would have the same circuit protection, such as overcurrent protection, as the installed chargers. After the mobilization to the staged area is completed, connecting the spare charger to the appropriate DC subsystem would take an additional four to eight hours. Once the spare charger is connected, the DC subsystem would once again have three Operable chargers. Therefore, should a second of the originally installed chargers become inoperable, it would be unnecessary to enter the battery charger inoperable LCO Condition since two Operable chargers would remain.

However, the test results on the spare battery charger could prove inconclusive or otherwise show that the charger could not be considered Operable. The battery charger may nonetheless be capable of restoring the Minimum Established Float Voltage (MEFV) on the battery. It could, therefore, still be connected to the appropriate DC subsystem as a standby charger. If another of the originally installed chargers subsequently became inoperable, the LCO Condition for an inoperable required battery charger would be entered and, assuming that the MEFV could be re-established and maintained on the battery, operation could continue until the 72 hour Completion Time expired or until a second charger became Operable.

The Diesel Generator (DG) DC system consists of five subsystems, each with one 125 V DC battery and two battery chargers. One battery charger is normally in service and the other is in standby. Similar to the station service system, there is one previously installed charger available in the site warehouse.

For the DG DC system, one 125 V DC battery and one of the two battery chargers must be Operable for the particular subsystem to be considered Operable.

The spare charger (in the site warehouse) for the DG DC system is identical to each of the two battery chargers installed in the DG DC

subsystems. Consequently, the scenario would play out the same as in the case for the station service charger with the same estimated durations for the mobilization and set-up of the spare charger. For the DG DC subsystems, mobilization of the spare DG charger from the warehouse would begin as soon as one of the two chargers was discovered inoperable, and it was determined that the battery charger could not quickly be returned to service.

Additionally, the LCO Condition for an inoperable required battery charger is useful should the station service or DG DC subsystem battery chargers become inoperable for an administrative reason. For example, if it is discovered that the chargers do not meet a required pedigree, e.g., an IEEE Standard, it may become necessary to declare all the chargers inoperable. In such a case, the chargers, although inoperable, remain available. Therefore, terminal battery voltage could be maintained at the minimum established float voltage, allowing use of the 72 hour Completion Time to recover Operability.

b) One of the differences between TSTF-360 and TSTF-500 is the Completion Time (CT) for inoperable required battery chargers. TSTF-360 had a 7 day CT, and TSTF-500 has a 72 hour CT for an inoperable required charger.

However, TSTF-500 provides an allowance for the use of a 7 day Completion Time for inoperable battery chargers, provided a Reg Guide (RG) 1.177 and RG 1.174 evaluation, which justifies the extended CT, is performed. TSTF-500 states:

> *As stated in a Reviewer's Note in the Bases, a licensee wishing to adopt a Completion Time longer than 72 hours will need to demonstrate that the Completion Time is appropriate for the plant in accordance with the guidance in RG 1.177 and RG 1.174. Alternatively, the 7 day CT can be justified by an acceptable method, such as a regulatory commitment that an alternate means to charge the batteries will be available that is capable of being supplied power from a power source that is independent of the offsite power supply. Otherwise, the 72 hour Completion Time must be adopted.*

SNC chose not to perform the appropriate RG analysis and thus adopted the 72 hour CT, as is required by the TSTF.

Furthermore, SNC believes that the 72 hours will allow, in many cases, a sufficient period of time to correct a charger problem. The 72 hour CT is also commensurate with the importance of maintaining the DC system's capability to adequately respond to a design basis event.