



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

May 16, 2019
NOC-AE-19003637
10 CFR 50.90
10 CFR 50.36 (c) (3)

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

South Texas Project
Units 1 & 2
Docket No. STN 50-498, STN 50-499
Supplement to South Texas Project (STP) Units 1 & 2 License Amendment Request to
Revise Technical Specification 3.8.1.1 (A.C. Sources, Operating) (L-2018-LLA-0078)

References:

1. Letter; J. Connolly to USNRC Document Control Desk; "License Amendment Request to Revise Technical Specification 3.8.1.1 (A.C. Sources, Operating)"; March 27, 2018; (NOC-AE-17003529) (ML18086B761).
2. E-mail; L. Regner (NRC) to D. Richards (STP); "Final RAI – South Texas Standby DG TS change (L-2018-LLA-0078)"; October 10, 2018; (AE-NOC-18003142) (ML18283B952).
3. Letter; J. Connolly to USNRC Document Control Desk; "Response to Request for Additional Information for South Texas Project (STP) Units 1 & 2 License Amendment Request to Revise Technical Specification 3.8.1.1 (A.C. Sources, Operating) (L-2018-LLA-0078)"; December 6, 2018; (NOC-AE-18003602) (ML18340A206).
4. E-mail; L. Regner to D. Richards; "DRAFT Round 2 RAI - SBDG Voltage and Frequency LAR (L-2018-LLA-0078)"; March 21, 2019; (AE-NOC-19003170) (ML19081A151).

By Reference 1, STP Nuclear Operating Company (STPNOC) requested approval of a license amendment to Technical Specification 3.8.1.1 to revise certain minimum voltage and frequency acceptance criteria for steady-state standby diesel generator surveillance testing. By Reference 2, the NRC staff sent a request for additional information (RAI) to complete its review and STPNOC responded to the RAI in Reference 3. By Reference 4, the NRC staff sent a follow-up RAI to complete its review.

STPNOC's response to the follow-up RAI and a supplement to the referenced license amendment request is provided in Attachment 1 to this letter. Revised Technical Specification markup pages and revised clean Technical Specification pages are included as Attachment 2 and Attachment 3, respectively. Attachments 2 and 3 replace the markup and clean pages for Technical Specification page 3/4 8-3 provided in Reference 1.

STI: 34825078

STPNOC has reviewed the enclosed RAI response and supplement and determined that the No Significant Hazards Consideration provided in the original submittal is not altered by the additional information provided.

The proposed amendment has been reviewed and approved by the STPNOC Plant Operations Review Committee and has undergone an independent organizational unit review.

There are no commitments in this letter.

If there are any questions or if additional information is needed, please contact Wendy Brost at (361) 972-8516 or me at (361) 972-7888.

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

Executed on 5/16/2019



Michael Schaefer
Site Vice President

web/MAS

- Attachments:
- 1) Supplement and Response to South Texas Project (STP) Request for Additional Information for Units 1 & 2 License Amendment Request to Revise Technical Specification 3.8.1.1 (A.C. Sources, Operating) (L-2018-LLA-0078)
 - 2) Revised Technical Specification Markup
 - 3) Revised Clean Technical Specification Pages

cc:

Regional Administrator, Region IV
U.S. Nuclear Regulatory Commission
1600 E. Lamar Boulevard
Arlington, TX 76011-4511

Glen E. Miller
Senior Project Manager
U.S. Nuclear Regulatory Commission
One White Flint North (O9E01)
11555 Rockville Pike
Rockville, MD 20852

NRC Resident Inspector
U.S. Nuclear Regulatory Commission
P.O. Box 289, Mail Code: MN116
Wadsworth, TX 77483

Attachment 1

Supplement and Response to South Texas Project (STP) Request for Additional Information for Units 1 & 2 License Amendment Request to Revise Technical Specification 3.8.1.1 (A.C. Sources, Operating) (L-2018-LLA-0078)

STP Nuclear Operating Company
South Texas Project Electric Generating Station Units 1 & 2
Docket Numbers 50-498 and 50-499

Supplement and Response to South Texas Project (STP) Request for Additional Information
for Units 1 & 2 License Amendment Request to Revise
Technical Specification 3.8.1.1 (A.C. Sources, Operating) (L-2018-LLA-0078)

Supplement

STP Technical Specification Surveillance Requirement (SR) 4.8.1.1.2.a.2) currently applies to both the rated and non-rated surveillance starts using SPECIFICATION NOTATION (3). In the March 27, 2018 license amendment request (LAR), STPNOC proposed to revise the current SR 4.8.1.1.2.a.2) to apply to only non-rated (or “slow”) surveillance starts and add a new SR 4.8.1.1.2.a.5) to apply to rated (or “fast”) surveillance starts.

In the LAR, STPNOC omitted necessary changes to SR 4.8.1.1.2.a.2) to remove the requirements for verifying nominal speed and generator voltage and frequency in less than or equal to 10 seconds. This supplement proposes the following addition to Section 2.4, Description of the proposed change, of the original LAR:

Technical Specification Surveillance Requirement 4.8.1.1.2.a.2)

- 2) Verifying the diesel starts from standby condition and accelerates to 600 rpm (nominal) in less than or equal to 10 seconds.⁽³⁾ The achieves a generator voltage and frequency of shall be 4160 ± 416 volts and 60 ± 1.2 Hz. within 10 seconds⁽³⁾ after the start signal. The diesel generator shall be started for this test by using one of the following signals: ...

To maintain consistency with the current and proposed SR 4.8.1.1.2.a.2), STPNOC is proposing changes to new SR 4.8.1.1.2.a.5). For a rated surveillance start, these changes would retain the requirements for verifying nominal speed and generator voltage and frequency in less than or equal to 10 seconds. STPNOC is also proposing to add the list of allowable test start signals to proposed SR 4.8.1.1.2.a.5). This supplement proposes to replace the applicable mark-up for SR 4.8.1.1.2.a.5) in Section 2.4, Description of the proposed change, of the original LAR with the following:

[NEW] Technical Specification Surveillance Requirement 4.8.1.1.2.a.5)

- 5) Verifying the diesel starts from standby conditions and accelerates to 600 rpm (nominal) in less than or equal to 10 seconds. The generator voltage and frequency shall be 4160 ± 416 volts and 60 ± 1.2 Hz within 10 seconds after the start signal. The steady-state voltage and frequency shall be 4160 ± 208 volts and 60 ± 0.3 Hz. The diesel generator shall be started for this test by using one of the following signals:
 - a) Manual, or
 - b) Simulated loss-of-off site power by itself, or
 - c) Simulated loss-of-offsite power in conjunction with a Safety Injection test signal, or
 - d) A Safety Injection test signal by itself.

Response to Request for Additional Information

Follow-up STSB 1-1

In a March 27, 2018, license amendment request (LAR) (Agencywide Documents Access and Management System (ADAMS) Accession No. ML18086B761), South Texas Project Nuclear Operating Company (STPNOC) proposed to modify the current Surveillance Requirement (SR) for Technical Specification (TS) 3/4.8.1 "A.C. Sources" to address a non-conservative TS. This non-conservatism was due to the difference between the required voltage and frequency band for the standby diesel generator (SBDG) and the assumptions in the transient model calculation supporting the sites' design basis accident analyses. Thus, STPNOC proposed to change the steady-state voltage acceptance criteria to correct the non-conservatism.

As part of the LAR, STPNOC proposed a separate surveillance requirement [SR 4.8.1.1.2.a.5)] to be performed on a less frequent basis, that is, every 6 months* using a new voltage and frequency bands calculated to ensure the SBDG would fulfill its specified function during design basis accidents. The licensee retained the existing monthly* surveillance requirement [SR 4.8.1.1.2.a.2)] without the new voltage and frequency band and retaining the existing / wider voltage and frequency band.

By letter dated December 6, 2018 (ADAMS Accession No. ML18340A206), the licensee responded to a NRC staff request for additional information, in which the NRC staff requested the licensee to explain how the SRs for the SBDGs would demonstrate that 10 CFR 50.36(c)(3) "Surveillance requirements," would be satisfied for South Texas Project, Units 1 and 2 (STP).

The licensee responded that only the steady-state voltage and frequency bands were determined to be non-conservative, more specifically, only the semi-annual SR acceptance criteria were non-conservative. The licensee also stated that the STP procedure for the non-steady-state, or monthly, SR does not require measurement of steady-state voltage and frequency.

The NRC staff reviewed the licensee's response, but it did not provide sufficient information to allow the NRC staff to make an adequacy determination that the proposed STP technical specification (TS) changes comply with 10 CFR 50.36(c)(3).

As stated in STP SR 4.8.1.1.2, "[e]ach standby diesel generator shall be demonstrated OPERABLE." In STP TS 1.20, it states "[a] system, subsystem, train, component or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified function(s)..."

Explain how performance of the monthly SR 4.8.1.1.2.a.2 to a voltage and frequency band less restrictive than that assumed in the sites' design basis accident analyses may be used to demonstrate continued operability of the DG.

* Or in accordance with the surveillance frequency control program

STPNOC response

Measuring voltage and frequency within the proposed narrow-band steady-state values for non-rated standby diesel generator (SBDG) surveillance tests introduces a hardship by requiring installation of a test recorder. The non-rated surveillance tests are typically performed during night shift to minimize distractions to Operators. Installation of a test recorder requires additional maintenance personnel support that is not available during night shift. In addition, the SBDG is placed in “pull-to-stop” during installation of a test recorder which renders the SBDG inoperable. Installing a test recorder for the non-rated monthly surveillance test would result in unnecessary burden to station personnel and would add avoidable inoperability time for the SBDG.

STPNOC evaluated using Control Room instrumentation to measure SBDG voltage and frequency rather than using a test recorder. A review of the Control Room meter instrumentations’ accuracy and readability shows that these devices, though effective for operator monitoring, cannot measure voltage and frequency with the required precision to ensure that the SBDG parameters are within the narrow band.

During shutdown (i.e., refueling outages), SR 4.8.1.1.2.e, is performed to ensure that the SBDG is within safety limits. This surveillance simulates a loss-of-offsite power (LOOP) and verifies that the SBDG auto-starts within 10 seconds and that Engineered Safety Feature (ESF) busses are properly shed and loaded. Testing is also conducted to verify that the SBDG properly operates for a Safety Injection signal, both with and without a corresponding LOOP signal. SR 4.8.1.1.2.e is the only Technical Specification SR that fully demonstrates SBDG operation within safety limits for voltage and frequency, 10-second start, and ESF bus shed and loading.

Rated surveillance tests are conducted at a frequency (currently six months) in accordance with the Surveillance Frequency Control Program (SFCP) to provide assurance that the SBDG can (1) start from standby conditions and accelerate to 600 rpm within 10 seconds, and (2) provide steady-state voltage and frequency within the proposed narrow band; these surveillance tests do not, however, demonstrate that the ESF busses are properly shed and loaded.

The current and proposed SBDG non-rated surveillance test (described in SR 4.8.1.1.2.a.2)) is performed at a frequency (currently monthly) in accordance with the SFCP to provide assurance that the SBDG can be started and loaded and that SBDG voltage and frequency are broadly within the required range. Specifically, the non-rated monthly surveillance test provides assurance that the SBDG can (1) start and provide voltage and frequency within the currently licensed wide band, (2) be synchronized, loaded, and operated for at least 60 minutes with a load of 5000 to 5500 kW, and (3) provide standby power to the associated ESF busses; these surveillance tests do not demonstrate that the ESF busses are properly shed and loaded, nor do they verify that the SBDG can start in 10 seconds or maintain steady-state voltage and frequency within the proposed narrow bands.

The SBDG SRs listed in SR 4.8.1.1.2 together demonstrate continued operability and meet the 10 CFR 50.36(c)(3) requirements for surveillances. STPNOC has concluded that it is not required to verify the narrow-band voltage and frequency during non-rated monthly SBDG surveillance tests to demonstrate continued operability of the SBDGs. During all SBDG surveillance tests, involved plant personnel monitor various parameters; if anomalous or unusual conditions are observed, a Condition Report would be generated and dispositioned through the Corrective Action Program.

Based on the above discussion and the actual SBDG surveillance test results for voltage and frequency provided in the original LAR and RAI response, STPNOC has reasonable assurance that SBDG operability can be demonstrated with the proposed SRs. Furthermore, STPNOC has determined that the proposed SBDG Technical Specification SRs meet the requirements of 10 CFR 50.36(c)(3) and provide assurance that the quality of the SBDGs is maintained.

Attachment 2

Revised Technical Specification Markup

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS

4.8.1.1.1 Each of the above required independent circuits between the offsite transmission network and the Onsite Class 1E Distribution System shall be:

- a. Determined OPERABLE at a frequency in accordance with the Surveillance Frequency Control Program by verifying correct breaker alignments, indicated power availability, and
- b. Demonstrated OPERABLE at a frequency in accordance with the Surveillance Frequency Control Program during shutdown by transferring the unit power supply from the normal circuit to each of the alternate circuits.

4.8.1.1.2 Each standby diesel generator shall be demonstrated OPERABLE: ⁽²⁾⁽¹¹⁾

a. At a frequency in accordance with the Surveillance Frequency Control Program by:

5) Verifying the diesel starts from standby conditions and accelerates to 600 rpm (nominal) in less than or equal to 10 seconds. The generator voltage and frequency shall be 4160 ± 416 volts and 60 ± 1.2 Hz within 10 seconds after the start signal. The steady-state voltage and frequency shall be 4160 ± 208 volts and 60 ± 0.3 Hz. The diesel generator shall be started for this test by using one of the following signals:

- a) Manual, or
- b) Simulated loss-of-offsite power by itself, or
- c) Simulated loss-of-offsite power in conjunction with a Safety Injection test signal, or
- d) A Safety Injection test signal by itself.

- 1) Verifying the fuel level in its associated fuel tank, achieves a
- 2) of Verifying the diesel starts from standby condition and accelerates to 600 rpm (nominal) in less than or equal to 10 seconds. ⁽³⁾ The generator voltage and frequency shall be 4160 ± 416 volts and 60 ± 1.2 Hz within 10 seconds ⁽³⁾ after the start signal. The diesel generator shall be started for this test by using one of the following signals:
 - a) Manual, or
 - b) Simulated loss-of-off site power by itself, or
 - c) Simulated loss-of-offsite power in conjunction with a Safety Injection test signal, or
 - d) A Safety Injection test signal by itself.
- 3) Verifying the generator is synchronized, loaded to 5000 to 5500 kW, and operates with a load of 5000 to 5500 kW for at least 60 minutes, ⁽⁴⁾⁽⁶⁾ and
- 4) Verifying the standby diesel generator is aligned to provide standby power to the associated emergency busses.

At a frequency in accordance with the Surveillance Frequency Control Program and after each operation of the diesel where the period of operation was greater than or equal to 1 hour by checking for and removing accumulated water from its associated fuel tank;

Maintain properties of new and stored fuel oil in accordance with the Fuel Oil Monitoring Program.

Attachment 3

Revised Clean Technical Specification Pages

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS

4.8.1.1.1 Each of the above required independent circuits between the offsite transmission network and the Onsite Class 1E Distribution System shall be:

- a. Determined OPERABLE at a frequency in accordance with the Surveillance Frequency Control Program by verifying correct breaker alignments, indicated power availability, and
- b. Demonstrated OPERABLE at a frequency in accordance with the Surveillance Frequency Control Program during shutdown by transferring the unit power supply from the normal circuit to each of the alternate circuits.

4.8.1.1.2 Each standby diesel generator shall be demonstrated OPERABLE: ⁽²⁾⁽¹¹⁾

- a. At a frequency in accordance with the Surveillance Frequency Control Program by:
 - 1) Verifying the fuel level in its associated fuel tank,
 - 2) Verifying the diesel starts from standby condition and achieves a voltage and frequency of 4160 ± 416 volts and 60 ± 1.2 Hz ⁽³⁾. The diesel generator shall be started for this test by using one of the following signals:
 - a) Manual, or
 - b) Simulated loss-of-off site power by itself, or
 - c) Simulated loss-of-offsite power in conjunction with a Safety Injection test signal, or
 - d) A Safety Injection test signal by itself.
 - 3) Verifying the generator is synchronized, loaded to 5000 to 5500 kW, and operates with a load of 5000 to 5500 kW for at least 60 minutes, ⁽⁴⁾⁽⁶⁾ and
 - 4) Verifying the standby diesel generator is aligned to provide standby power to the associated emergency busses.
 - 5) Verifying the diesel starts from standby conditions and accelerates to 600 rpm (nominal) in less than or equal to 10 seconds. The generator voltage and frequency shall be 4160 ± 416 volts and 60 ± 1.2 Hz within 10 seconds after the start signal. The steady-state voltage and frequency shall be 4160 ± 208 volts and 60 ± 0.3 Hz. The diesel generator shall be started for this test by using one of the following signals:
 - a) Manual, or
 - b) Simulated loss-of-offsite power by itself, or
 - c) Simulated loss-of-offsite power in conjunction with a Safety Injection test signal, or
 - d) A Safety Injection test signal by itself.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS

- b. At a frequency in accordance with the Surveillance Frequency Control Program and after each operation of the diesel where the period of operation was greater than or equal to 1 hour by checking for and removing accumulated water from its associated fuel tank;
- c. Maintain properties of new and stored fuel oil in accordance with the Fuel Oil Monitoring Program.