



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

September 23, 2021  
NOC-AE-21003842  
10 CFR 50.59 (d)(2)

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

South Texas Project  
Units 1 & 2  
Docket Nos. STN 50-498, STN 50-499  
10 CFR 50.59 Summary Report

Pursuant to the requirements of 10 CFR 50.59 (d)(2), the attached report contains a brief description and summary of the 10 CFR 50.59 evaluations of changes, tests and experiments conducted at the South Texas Project from September 23, 2019, through September 22, 2021.

There are no commitments in this letter.

If there are any questions regarding this summary report, please contact Tim Hammons at (361) 972-7347 or me at (361) 972-7666.

A handwritten signature in blue ink, appearing to read "AMR", is positioned above the name of the signatory.

Andrew M. Richards Jr.  
Manager, Regulatory Affairs

tjh

Attachment: 10 CFR 50.59 Evaluation Summaries September 23, 2019 – September 22, 2021

cc:

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

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**10 CFR 50.59 Evaluation Summaries  
September 23, 2019 – September 22, 2021**

**Summary of the following 10 CFR 50.59 Evaluations is provided in this attachment:**

| <b>No.</b> | <b>Condition Report</b> | <b>Subject</b>  |
|------------|-------------------------|---|
| 1          | 11-26605-2              | Update the UFSAR to replace the existing fuel misloading event evaluation with an updated evaluation  |
| 2          | 14-5772-53              | High Pressure Turbine instrumentation/electrical changes  |
| 3          | 16-5792-13              | Update the UFSAR to incorporate revised Hot Zero Power (HZP) Main Steam Line Break (MSLB) core response analysis due to a Rod Cluster Control Assembly (RCCA) removal |
| 4          | 19-9961-6               | Change in RCS boron limit prior to blocking automatic safety injection with P-11 permissive   |
| 5          | 20-5797-1               | Process revised qualification report for replacement Size 3 & 4 Magnetic Motor Starters for Class 1E application  |
| 6          | 20-6185-8               | Raise the fuel oil API gravity setpoint   |

**1. 11-26605-2: Update the UFSAR to replace the existing fuel misloading event evaluation with an updated evaluation**

**Description:** Replace the existing UFSAR Chapter 15.4.7 fuel misloading event evaluation with an updated evaluation.

**Summary:** Revise UFSAR Section 15.4.7 to incorporate an updated generic fuel assembly misloading evaluation based on WCAP 16676-NP, "Analysis Update for the Inadvertent Loading Event," dated March 2009, from the PWR Owner's Group. The elements of this change, the misloading evaluation method employed, and the power distribution calculation method used meet the criteria for being the same as or more conservative than either the previous revision of the same methodology or another methodology previously accepted by the NRC through issuance of an SER.

The evaluation determined that prior NRC approval was not required.

**2. 14-5772-53: High Pressure Turbine instrumentation/electrical changes**

**Description:** Evaluate the change from using a pressure signal from the High Pressure (HP) Turbine impulse pressure from safety related transmitters to using HP Turbine Inlet pressure from non-safety related transmitters, to perform non-safety related Structures, Systems, and Components (SSC) design functions described in the UFSAR. This change applies to Unit 1 only.

**Summary:** The new non-safety related transmitters will be the same make and model as the safety related transmitters. This will ensure that the

control, indication, and alarm functions will still be performed with the same accuracy. Using the same type of power supply card and transmitter ensures that comparison between the HP turbine inlet pressure signals for each pressure signal is not affected by using different components so that the channel indications can be compared. The new non-safety related circuit will use the same 7300 types of cards as the safety related circuit, again so that the accuracy will be similar and the comparison between the channels will not be affected.

The evaluation determined that prior NRC approval was not required.

**3. 16-5792-13: Update the UFSAR to incorporate revised Hot Zero Power (HZP) Main Steam Line Break (MSLB) core response analysis due to a Rod Cluster Control Assembly (RCCA) removal**

**Description:** Update UFSAR Section 15.1.5 to incorporate a revised MSLB core response analysis to account for the removal of a RCCA in location D-6 in Unit 1. This analysis is bounding for both Unit 1 and Unit 2 and applies to both units.

**Summary:** The MSLB core response analysis was re-evaluated using a new set of reactivity coefficients to account for the removal of a RCCA in core location D-6. The limiting MSLB analysis is at HZP with offsite power available. This analysis for Unit 1 without RCCA D-6 bounds the Unit 2 MSLB core response with RCCA D-6. The UFSAR Chapter 15 MSLB dose results are not affected by this change. UFSAR Chapter 15.1.5 will be updated to reflect the new analysis with the revised reactivity coefficients. There is no physical change to the plant structures, systems, or components (SSCs). The physical change of removing D-6 was previously evaluated and received NRC approval. The subject of this evaluation (re-analysis of the MSLB core response with revised reactivity coefficients) uses the same approved Reload Safety Analysis method, the same calculational methods, and uses approved plant configuration (D-6 removal) to show compliance with safety analysis limits for an MSLB event with reactivity coefficients revised to address RCCA D-6 removal.

The evaluation determined that prior NRC approval was not required.

**4. 19-9961-6: Change in RCS boron limit prior to blocking automatic safety injection with P-11 permissive**

**Description:** The previous RCS Boron Concentration (Cb) limit required prior to blocking Automatic Safety Injection (SI) on low pressurizer pressure or low steam-line pressure was the xenon free shutdown margin value at a temperature of 68°F. The threshold is revised to credit xenon reactivity and ensure subcriticality at 200°F crediting all control rods. Shutdown Margin Cb as a function of RCS temperature is also maintained as the plant cools down in Mode 3. Boration will continue until the RCS Cb limit of 68°F xenon-free shutdown margin value is

reached prior to entering Mode 4. This change is necessary to provide a more expedient cooldown and depressurization of the RCS after shutdown.

**Summary:** The proposed change to the Mode 3 RCS shutdown boron limit prior to blocking automatic SI with P-11 permissive is within the plant's safety analyses and maintains the necessary shutdown margins for reactivity control. This change does not adversely impact the accidents and malfunctions previously evaluated in the UFSAR, nor does it create an accident of a new type or a malfunction of SSC with a different result. The consequences of postulated malfunctions and accidents as analyzed in the UFSAR remain bounding with the updated Mode 3 boration requirements. No design basis limit for a fission product barrier or UFSAR described analysis methodology is altered or impacted by this change.

The evaluation determined that prior NRC approval was not required.

**5. 20-5797-1: Process revised qualification report for replacement Size 3 & 4 Magnetic Motor Starters for Class 1E application**

**Description:** The General Electric (GE) magnetic motor starters (National Electrical Manufacturers Association Size 3 and 4 only) were modified by the vendor and qualified for use in Class 1E applications at STP. The subject modified starters are used in the 480 Volt safety related Motor Control Centers (MCC), which are designed to provide a reliable source of electrical power and adequate protection for safety related electrical loads. The modification of the magnetic motor starter consisted of installing a custom spring into the original starter provided by GE to enable motor starter operation at minimum degraded voltage conditions in accordance with STP requirements. All other electrical characteristics of the motor starter remain acceptable for its safety application.

**Summary:** The modification to the starter units by the vendor does not introduce any new failure modes for the component or associated 480V safety related MCC system. System reliability, redundancy, and independence are maintained for the 480V safety related MCC system and associated trains. The applicable codes, standards, and qualifications concerned with safety related power requirements of safety related components and systems are maintained as required. As a result, the modification to the starter does not adversely affect the design function of the starter or associated electrical distribution system.

The evaluation determined that prior NRC approval was not required.

**6. 20-6185-8: Raise the fuel oil API gravity setpoint**

**Description:** The proposed activity involves revising the Diesel Fuel Oil Testing Program procedure for the Standby Diesel Generators (SBDG) to increase the upper API gravity setpoint for fuel oil receipt and testing from 39° to 42°. Fuel oil with a higher API gravity has lower density and subsequently a lower volumetric heat value, which in this case results in approximately 2% increase in the volume of fuel consumed over the seven (7) day required time. This change is necessary for STP to align with the industry standard set to account for the broad range of API gravity fuel oil currently being produced.

**Summary:** The proposed change only affects the fuel oil API gravity upper limit. All other fuel oil specification parameters (including parameters that have an impact on reliable diesel generator operation) remain unchanged within the STP Fuel Oil Monitoring Program. The change satisfies applicable design bases requirements and will not degrade the performance of the SBDG below the level of performance assumed in the safety analysis.

The evaluation determined that prior NRC approval was not required.