



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

Enclosure 4 contains Sensitive information and is being withheld from public disclosure in accordance with 10 CFR 2.390(d)(1).

April 30, 2018  
NOC-AE-18003568  
10 CFR 50.71(e)  
10 CFR 2.390

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

South Texas Project  
Units 1 and 2  
Docket Nos. STN 50-498, STN 50-499  
Updated Final Safety Analysis Report Revision 19

Pursuant to 10 CFR 50.71(e), STP Nuclear Operating Company (STPNOC) submits an update to the South Texas Project Updated Final Safety Analysis Report (UFSAR). This revision addresses changes made to the STP UFSAR since submittal of the last biennial update on April 28, 2016.

Enclosure 1 to this letter includes a summary of changes made in Revision 19 under the provisions of 10CFR50.59 or in accordance with the guidance of NEI 98-03 and NEI 96-07.

Enclosure 2 to this letter includes a listing of information being withheld from Public Disclosure.

Enclosure 3 includes one DVD containing the redacted version of the South Texas Project UFSAR, Revision 19.

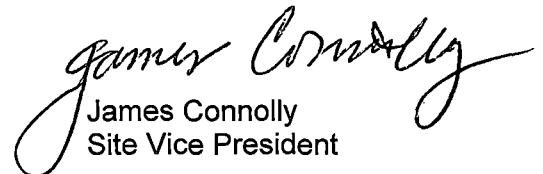
Enclosure 4 to this letter includes one DVD containing the non-public version of the UFSAR. Enclosure 4 contains sensitive information as defined by 10 CFR 2.390(d)(1) and should be withheld from public disclosure.

There are no commitments in this letter.

If you should have any questions on this submittal, please contact Marilyn Kistler at 361 972-8385 or Nicholas Boehmisch at (361) 972-8172.

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

Executed on April 30, 2018

  
James Connolly  
Site Vice President

- Enclosure 1: South Texas Project Updated Final Safety Analysis Report Revision 19, Summary of Changes
- Enclosure 2: Information retracted from the STPEGS UFSAR Revision 19
- Enclosure 3: Updated Final Safety Analysis Report, Revision 19 (Redacted - Public Version)
- Enclosure 4: Updated Final Safety Analysis Report, Revision 19 (Not for Public Disclosure)

STI: 34661249

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**Enclosure 1**

**South Texas Project Updated Final Safety Analysis Report**

**Revision 19, Summary of Changes**

South Texas Project  
Updated Final Safety Analysis Report Revision 19,  
Summary of Changes

Chapter 1, "Introduction and General Description of Plant"

1. Expanded description of Spent Fuel Pool storage to include fresh fuel, handling equipment, filters, and irradiated core components. (CN-3196) [1.2.2.11.1.2 and 1.2.2.11.1.3]
2. Revised to remove reference to the Auxiliary Boiler. (CN-3226) [1.2.2.1, 1.2.2.11.3, Table 1.2-1]

Chapter 2, "Site Characteristics"

1. Information updated as a result of upgrades to the system. (CN-3229) [2.3.3, Table 2.3-24]

Chapter 3, "Design Of Structures, Components, Equipment, and Systems"

1. Expanded description of Spent Fuel Pool storage to include fresh fuel, handling equipment, filters, and irradiated core components. (CN-3196) [3.1.2.6.2.1, 3.1.2.6.2.2 and 3.1.2.6.3.1]
2. Updated to reflect exemptions to GDC 35, GDC 38, and GDC 41 due to NRC-approved GSI-191 application and GL 2004-02 closure. (CN-3222) [Sections 3.1.2.4.6.1, 3.1.2.4.9.1, 3.1.2.4.12.1, Table 3.12] {NEI 98-03}
3. Correction to - Revised Table, "Balance of Plant-Quality Classification of Structures, Systems, and Components" to update the Code reference for the Cask Handling Overhead Crane. (CN-3201) [Table 3.2.A-1]
4. Added information for Unit 1 regarding the performance of the Mechanical Stress Improvement Project on the reactor pressure vessel inlet and outlet nozzle safe end dissimilar metal welds. (CN-3216) [3.6.2.1.1, Reference 3.6-38, 3.9.1.2.1, 3.9.1.4.3, Reference 3.9-24].
5. Updated to include values from WCAP-9135. Added a reference (CN-3183) [Table 3.9-18 and Reference 3.9-23]
6. Revised to align with Hydrogen Monitoring changes in accordance with approved License Amendments 165/155 and NUREG-0737, Item II.F.1 Attachment 6, and Regulatory Guide 1.7. (CN-3208) [Table 3.12] {NEI 98-03}
7. Revised STPEGS Position on conformity with Regulatory Guide 1.82 and added new Note 103 due to NRC-approved GSI-191 application and GL

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2004-02 closure (CN-3222) [Table 3.12-1] {NEI 98-03}

8. Adopted revision 3 of Regulatory Guide 8.7. (CN-3237) [Table 3.12] {NEI 98-03}

Chapter 4, "Reactor"

1. Added a note to stating, inlet temperatures listed correspond to vessel average temperature and thermal design flow. Higher flows result in different inlet and outlet temperatures. (CN-3209) [Table 4.1-1] {NEI 98-03}
2. Updated to reflect the best estimate flow calculation results from the bottom nozzle design loss coefficient update from 2012. (CN-3212) [Table 4.1-1]
3. Implemented the Robust Protective Grid to replace the current standard PGrid. (CN-3186) (CN-3203) [4.1, 4.2, Figure 4.2-2C, Figure 4.2-7C, 4.2-7D]
4. Incorporated the permanent operation with 56 control rods in Unit 1. (CN-3213) [4.2.2.3.4, Table 4.1-1, Figure 4.3-36] {NEI 98-03}
5. Generalized the existing quantitatively reported LOCA and Seismic results. (CN-3204) [4.2.3.5.3.1] {NEI 98-03}
6. Expanded description of Spent Fuel Pool storage to include fresh fuel, handling equipment, filters, and irradiated core components. (CN-3196) [4.3.2.6.2.1, 4.3.2.6.2.3 and 4.3.2.6.2.4]
7. Corrected a typographical error regarding criticality limit. (CN-3230) [4.3.6.1]
8. Updated F-Delta-H percent uncertainty to match section 4.3.2.2.7. (CN-3120) {4.4.2.10} {NEI 98-03}
9. Revised to state the use of WRB-2M DNB correlation is modified to incur a penalty above a local steam quality limit of 0.20. [4.4 Figure 4.4-1 and Figure 4.4.4] Editorial corrections. (CN-3219)

Chapter 5, "Reactor Coolant System"

1. Updated to reflect the best estimate flow calculation results from the bottom nozzle design loss coefficient update from 2012. (CN-3212) [Section 5.1.1, Table 5.1-1, and Notes to Figure 5.1-5]

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2. Added information for Unit 1 regarding the performance of the Mechanical Stress Improvement Project on the reactor pressure vessel inlet and outlet nozzle safe end dissimilar metal welds. (CN-3216) [5.1, Table 5.1-1, 5.2.3.1]
3. CN-3211 - Clarification of Human Machine Interface (HMI) device that provides the alarm and indication features which displays the amplitude and/or frequency of pump frame vibration. (CN-3211) [5.4.1.2] {NEI 98-03}

Chapter 6, "Engineered Safety Features"

1. Added Reactor Platform Steel Supports, editorial correction. (CN-3187) [Table 6.1-4 and Notes to Table 6.1-4]
2. Revised to include information resulting from NRC-approved GSI-191 application and GL 2004-02 closure. Includes discussion of RoverD methodology. (CN-3222) [Sections 6.2.2.1.2, 6.2.2.2.3, 6.3.1; Tables 6.2.2-4, 6.3-1] {NEI 98-03}
3. Revised to incorporate analysis results. (CN-3233) [6.2.1.1.3.6]
4. Revised to incorporate analysis results. (CN-3236) [Figures 6.2.1.1-30, 6.2.1.1-31 and 6.2.1.1-32]
5. Revised Containment LOCA analysis results to add a note for clarification of results. (CN-3234) [6.2.1.1-2] {NEI 98-03}
6. Revised note a. for Table 6.2.1.2-5B to list Temperature = 120°F. (CN-3242) [Table 6.2.1.2-5B]
7. Updated UFSAR maximum low head safety injection and high head safety injection flows for consistency with Technical Specification 4.5.2.g. Also provided clarification for Containment Spray pump maximum flow. (CN-3223) [Section 6.2.2.3.5, Table 6.3-1] {NEI 98-03}
8. Revised to align with Hydrogen Monitoring changes in accordance with approved License Amendments 165/155. (CN-3208) [6.2.5.2] {NEI 98-03}
9. Corrected UFSAR description for Low Head Safety Injection pump bearing material. (CN-3193) [Section 6.3.2.2]

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10. Added new Appendix 6A to discuss the risk-informed approach to potential impact of debris blockage on emergency recirculation during design basis accidents due to NRC-approved GSI-191 application and GL 2004-02 closure. (CN-3222) {NEI 98-03}
11. Added reference to License Amendment Request for GSI 191. (CN-3224) [Appendix 6A] {NEI 98-03}
12. Added clarifications to Section 1.1 of new Appendix 6A to describe impact of results of revised containment analysis and to Appendix 6A Section 2.1.1 to reference correct Appendix 6A section and note that a given temperature value is for Peak Clad Temperature. (CN-3232) [Sections 6.A.1.1, 6.A.2.1.1] {NEI 98-03}

Chapter 7. "Instrumentation and Controls"

1. Revised to align with Hydrogen Monitoring changes in accordance with approved License Amendments 165/155. (CN-3208) [Table 7.1-1, Figure 7.1-1 Sheet 2 of 6, Reference 7.5-4, 7.6.5, 7A II.F.1, Attachment 6, Table 7B.5-1, and Table 7B.6-1] {NEI 98-03}
2. Clarified when nuclear instrumentation periodic testing is performed. (CN-3189) [7.2.2.2.3.10]
3. Added a reference to IEEE 603-1980 and IEEE 7-4.3.2. (CN-3192) [7.5.6]
4. Wind direction and speed, atmospheric stability  $\Delta T$  Sigma Theta revised due to system upgrade. (CN-3229) [Table 7.5-2]
5. Revised to show the Boron Concentration Monitoring System is no longer functional. (CN-3227) [Section 7.7, Figure 7.7-10, Figure 7.7-11, Figure 7.7-12, Figure 7.7-13]

Chapter 8. "Electric Power"

1. Changed the 345 kV transmission line from Dow-Velasco 18 to Jones Creek 18. (CN-3215) [8.1.1, 8.1.3, 8.2.1.1, Table 8.2-, Figure 8.2-1, Figure 8.2-3, Figure 8.2-3A Sheet 1 of 3, Figure 8.2-4]
2. Updated to reflect the installation the new Unit 1 transformer with a rating of 850/900 MVA at 65 degrees C. (CN-3164) [8.2.1.5]
3. Removed Auxiliary ESF Transformer ID numbers for those transformers that do or do not have an On-Load Tap Changer. This will avoid issuing a

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change to the UFSAR each time a design change is implemented. (CN-3190) [8.3.1.1.2]

4. Changed Reference 8.3-11, "Revised Station Blackout (SBO) Position, South Texas Project, Units 1 and 2 (STP), July 24, 1995 (ST-AE-HL94257) to 8.3-16, "13-DJ-006, 125 VDC Battery four hour coping analysis". Added Reference 8.3-16. (CN-3197 [8.3.2.12 and Reference Section.]
5. Added credited design features for Open Phase Condition detection and actuation. (CN-3228) [8.3 and references]

Chapter 9, "Auxiliary Systems"

1. Revised reference in Section 9.1.1.3 and deleted information regarding flooding of the new fuel storage pit from fuel sources inside the Fuel handling Building. (CN-3185) [9.1.1.3]
2. Expanded description of Spent Fuel Pool storage to include fresh fuel, handling equipment, filters, and irradiated core components. (CN-3196) [9.1.2.1, 9.1.2.2, and 9.1.4.2.4.2]
3. Generalized the existing method for new fuel handling receipt process. (CN-3205) [9.1.4.2.1] {NEI 98-03}
4. Revised to address the abandonment of the Boron Thermal Regeneration System (BTRS) Chillers 1A & 2A. (CN-3217) [9.2, 9.3 Table 9.3-10]
5. Revised to show the Boron Concentration Monitoring System is no longer functional. (CN-3227) [9.3,]
6. Revised to remove reference to the Auxiliary Boiler. (CN-3226) [Table 9.3-4, 9.5, Table 9.5-3, 10.4, 14.2]
7. Corrected design data for the Electro-Hydraulic Cabinet Enclosure HVAC system. (CN-3220) [Table 9.4-2.4.9.a]
8. Revised to incorporate organization reporting structure due to organizational changes. (CN-3188) [9.5.1.6]
9. Corrected statement that RMPF Fire Detection alarms are received in the Control Room to alarms transmitted to West Gate House OCA Fire Panel and noted this as an exception in the Fire Protection Detection, Control, and Alarm System section (CN-3225) [9.5.1.2.19, 9.5.1.2.19.12]



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10. Deleted the statement regarding maintaining a list of Communications Technicians phone numbers in the Control Room. (CN-3231) [9.5.2.2.3] {NEI 98-03}

Chapter 10, "Steam and Power System Conversions"

1. Revised the turbine inspection frequencies from completing a total inspection every 10 years to approximately 100,000 operating hours. (CN-3184) [10.2.4]
2. Updated to show the piping on the Circulating Water System is abandoned and removal of the vacuum priming skid on top of the Circulating Water System. (CN-3191) [10.4.5.2, 10.4.6.1.1]

Chapter 11, "Radioactive Waste Management"

1. Expanded description of Spent Fuel Pool storage to include fresh fuel, handling equipment, filters, and irradiated core components. (CN-3196) [11.4.2.3]
2. Updated to reflect only one onsite storage facility is now used. (CN-3198) [11.4.2.3]

Chapter 13 "Conduct of Operation"s

1. Change in position titles. Removed a statement regarding Shift Manager filling the position of the Operations Manager, in his absence. (CN-3235) [13.1.2, Figure 13.1-1 and 13.1-2].
2. Correction Operations manager Title, changed from Unit Operations Division Manager to Operations Division Manager. (CN-3239) [13.1.2 and 13.1-2]. {NEI 98-03}

Chapter 14, "Initial Test Program"

1. Revised to address the abandonment of the Boron Thermal Regeneration System (BTRS) Chillers 1A & 2A. (CN-3217) [14.2]

Chapter 15, "Accident Analyses"

1. Added a note to stating, inlet temperatures listed correspond to vessel average temperature and thermal design flow. Higher flows result in different inlet and outlet temperatures. (CN-3209) [Table 15.0-3, Figure 15.0-1A] {NEI 98-03}

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2. Reissued information inadvertently removed from UFSAR Revision 18. (CN-3194) [References, Table 15.1-1, Table 15.1-2, and Table 15.1-3] {NEI 98-03}
3. Added new Section 15.6.5.5 to discuss risk-informed assessment of debris on ECCS sump strainers due to NRC-approved GSI-191 application and GL 2004-02 closure. (CN-3222) {NEI 98-03}
4. Revised to reflect change in Peak Clad Temperature for Unit 2 Cycle 19. (CN-3199) [Table 15.6-21] {NEI 98-03}

Chapter 18 – “APPENDIX A Introduction and License Renewal Commitments”

1. Incorporation of Appendix A related to the Renewed License Renewed NPF-76 and Renewed License Renewed NPF 80. (CN-3238) [Appendix A] {NEI 98-03}

NRC Q&R's

Chapter 3

1. 372.25 – The information provided in CN-2754 was removed. The response to the original question was replaced. This response originally provided was information gathered at a specific time. (CN-3229)

**Enclosure 2**

**Information retracted from the STPEGS UFSAR Revision 19**

## Information retracted from the STPEGS UFSAR Revision 19

April 2018

In accordance with the request in Regulatory Issues Summary 2015-17, "Review and Submission of Updates to Final Safety Analysis Reports, Emergency Preparedness Documents, and Fire Protection Documents", the South Texas Project is providing a redacted version of Revision 18 to the South Texas Project Updated Final Safety Analysis (UFSAR). The UFSAR contains certain sensitive information. Using the guidance provided in SECY-04-0191, the information listed below has been redacted.

| <b><u>Document Number</u></b> | <b><u>Justification for Withholding</u></b> |
|-------------------------------|---|
| Figure 1.2-3, Plot Plan       | Figure shows "vital area boundary" fencing  |
| Figure 1.2-4, Plot Plan       | Figure shows "vital area boundary" fencing  |
| Table 2.4.1-1                 | Contains design information on nearby dams  |
| Table 2.4.1-2,                | Contains design information on nearby dams  |
| Table 2.4.1-3,                | Contains design information on nearby dams  |
| Table 2.4.1-4                 | Contains design information on nearby dams  |
| Table 2.4.1-5                 | Contains design information on nearby dams  |
| Table 2.4.1-6                 | Contains design information on nearby dams  |
| Table 2.4.1-7                 | Contains design information on nearby dams  |
| Table 2.4.1-8                 | Contains design information on nearby dams  |
| Table 2.4.1-9                 | Contains design information on nearby dams  |
| Table 2.4.1-10                | Contains design information on nearby dams  |
| Table 2.4.1-11                | Contains design information on nearby       |

Information retracted from the STPEGS UFSAR Revision 19

| <b><u>Document Number</u></b> | <b><u>Justification for Withholding</u></b>   |
|-------------------------------|---|
|                               | dams  |
| Table 2.4.1-12                | Contains design information on nearby dams  |
| Table 2.4.1-13                | Contains design information on nearby dams  |
| Table 2.4.1-14                | Contains design information on nearby dams  |
| Table 2.4.1-15                | Contains design information on nearby dams  |
| Table 2.4.1-16                | Contains design information on nearby dams  |
| Table 2.4.1-17                | Contains design information on nearby dams  |
| Table 2.4.1-18                | Contains design information on nearby dams  |
| Table 2.4.1-19                | Contains design information on nearby dams  |
| Table 2.4.1-20                | Contains design information on nearby dams  |
| Table 2.4.1-21                | Contains design information on nearby dams  |
| Table 2.4.1-22                | Contains design information on nearby dams  |
| Table 2.4.1-23                | Contains design information on nearby dams  |
| Table 2.4.1-24                | Contains design information on nearby dams  |
| Figure 6.2.1.2-3              | Subcompartment analysis drawings that show equipment locations, doorways, stairways |
| Figure 6.2.1.2-4              | Subcompartment analysis drawings that show equipment locations, doorways, stairways |

## Information retracted from the STPEGS UFSAR Revision 19

| <b><u>Document Number</u></b> | <b><u>Justification for Withholding</u></b>   |
|-------------------------------|---|
| Figure 6.2.1.2-5              | Subcompartment analysis drawings that show equipment locations, doorways, stairways                                   |
| Figure 6.2.1.2-6              | Subcompartment analysis drawings that show equipment locations, doorways, stairways                                   |
| Figure 6.2.1.2-7              | Subcompartment analysis drawings that show equipment locations, doorways, stairways                                   |
| Figure 6.2.1.2-9              | Subcompartment analysis drawings that show equipment locations, doorways, stairways                                   |
| Figure 6.2.2-3                | Reactor Building composite piping drawings that show equipment locations  |
| Figure 6.2.2-6                | Reactor Building Containment Spray System spray coverage drawings that show equipment locations, doorways, stairways, |
| Figure 6.2.2-7                | Reactor Building Containment Spray System spray coverage drawings that show equipment locations, doorways, stairways, |
| Figure 6.2.2-8                | Reactor Building Containment Spray System spray coverage drawings that show equipment locations, doorways, stairways, |
| Figure 6.2.2-9                | Reactor Building Containment Spray System spray coverage drawings that show equipment locations, doorways, stairways, |
| Figure 6.2.2-10               | Reactor Building Containment Spray System spray coverage drawings that show equipment locations, doorways, stairways, |
| Figure 6.2.2-11               | Reactor Building Containment Spray System spray coverage drawings that show equipment locations, doorways, stairways, |
| Figure 6.2.2-12               | Reactor Building Containment Spray System spray coverage drawings that show equipment locations, doorways, stairways, |
| Figure 6.4-1                  | Control Room layout drawings showing equipment locations and doorways.  |

Information retracted from the STPEGS UFSAR Revision 19

| <u>Document Number</u> | <u>Justification for Withholding</u>                                   |
|------------------------|--|
| Figure 6.4-2           | Control Room layout drawings showing equipment locations and doorways. |
| Figure 9.5.1-40        | Equipment location   |
| Figure 9.5.1-41        | Equipment location   |
| Figure 9.5.1-42        | Equipment location   |
| Figure 9.5.1-43        | Equipment location   |
| Figure 9.5.1-44        | Equipment location   |
| Figure 9.5.1-45        | Equipment location   |
| Figure 9.5.1-46        | Equipment location   |
| Figure 15.0-7          | Failure Mode   |
| Figure 15.0-8          | Failure Mode   |
| Figure 15.0-9          | Failure Mode   |
| Figure 15.0-10         | Failure Mode   |
| Figure 15.0-11         | Failure Mode   |
| Figure 15.0-12         | Failure Mode   |
| Figure 15.0-13         | Failure Mode   |
| Figure 15.0-14         | Failure Mode   |
| Figure 15.0-15         | Failure Mode   |
| Figure 15.0-16         | Failure Mode   |
| Figure 15.0-17         | Failure Mode   |
| Figure 15.0-18         | Failure Mode   |
| Figure 15.0-19         | Failure Mode   |
| Figure 15.0-20         | Failure Mode   |
| Figure 15.0-21         | Failure Mode   |
| Figure 15.0-22         | Failure Mode   |
| Figure 15.0-23         | Failure Mode   |
| Figure 15.0-24         | Failure Mode   |
| Figure 15.0-25         | Failure Mode   |
| Figure 15.0-27         | Failure Mode   |
| Figure 15.0-28         | Failure Mode   |
| Figure 15.0-29         | Failure Mode   |
| Figure 15.0-30         | Failure Mode   |
| Figure 15.0-31         | Failure Mode   |

**Enclosure 3**

**Updated Final Safety Analysis Report,  
Revision 19 (Redacted – Public Version)**



Enclosure 4 contains Sensitive information and is being withheld from public disclosure in accordance with 10 CFR 2.390(d)(1).

**Enclosure 4**

**Updated Final Safety Analysis Report,**

**Revision 19 (Not for Public Disclosure)**