



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

April 29, 2015  
NOC-AE-15003223  
10 CFR 50.90

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  
License Amendment Request:  
Proposed Revision to the South Texas Project Electric  
Generating Station Updated Final Safety Analysis Report Table 15.6-17

- References:
1. Letter from G.T. Powell, STPNOC, to NRC Document Control Desk, "Updated Final Safety Analysis Report Revision 17," dated April 28, 2014 (NOC-AE-14003129) (ML14132A289)
  2. Letter from D.W. Rencurrel, STPNOC, to NRC Document Control Desk, "Updated Final Safety Analysis Report Revision 16," dated April 26, 2012 (NOC-AE-12002849) (ML12159A521)
  3. Letter from M.C. Thadani, NRC, to J.J. Sheppard, STPNOC, "South Texas Project, Units 1 and 2 - Issuance of Amendments Re: Adoption of Alternate Radiological Source Term in Assessment of Design-Basis Accident Dose Consequences (TAC Nos. MD4996 and MD4997)," dated March 6, 2008 (ML080160013)

In accordance with the provisions of 10 CFR 50.90, STP Nuclear Operating Company (STPNOC) submits this request for an amendment to the South Texas Project Operating Licenses NPF-76 and NPF-80 to revise the South Texas Project Electric Generating Station (STPEGS) Updated Final Safety Analysis Report (UFSAR) Table 15.6-17.

The proposed amendment will correct the radiological doses previously reported in UFSAR Revisions 16 and 17 Table 15.6-17 (References 1 and 2) and approved in Amendment 182 for Unit 1 Operating License and Amendment 169 for Unit 2 Operating License (Reference 3).

Upon approval of this request, a change will be made to the STPEGS UFSAR. The licensing commitment for implementing this change is provided as an Attachment to the Enclosure of this letter. There are no other NRC commitments in this letter.

The STPNOC Plant Operations Review Committee has reviewed and concurred with the proposed change to the STP Operating License.

A053  
NRR

STI: 34055163

In accordance with 10 CFR 50.91, STPNOC is notifying the State of Texas of this License Amendment Request by transmitting a copy of this letter and enclosure to the designated State Official.

If there are any questions or if additional information is needed, please contact Marilyn Kistler at (361) 972-8385.

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

Executed on April 29, 2015

A handwritten signature in black ink, appearing to read "G.T. Powell", written in a cursive style.

G.T. Powell  
Site Vice President

Enclosure: Evaluation of the Proposed Change

cc:

(paper copy)

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## **ENCLOSURE**

### **Evaluation of the Proposed Change**

Subject: Proposed Revision to the South Texas Project Electric Generating Station  
Updated Final Safety Analysis Report Table 15.6-17

1. SUMMARY DESCRIPTION
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#### **ATTACHMENT:**

1. List of Regulatory Commitments

## **1. SUMMARY DESCRIPTION**

This evaluation supports a change to the STPEGS Updated Final Safety Analysis Report (UFSAR) Table 15.6-17, "Dose Resulting from Large Break Loss of Coolant Accident". The proposed amendment will correct an error in the radiological dose results listed in Table 15.6-17. The error occurred during data transcription from a calculation performed in support of a License Amendment Request (LAR) related to the application of the Alternate Source Term (AST) to the South Texas Project (STP) UFSAR (Reference 1).

## **2. DETAILED DESCRIPTION**

On March 22, 2007, STP Nuclear Operating Company (STPNOC) submitted a LAR related to the Application of Alternate Source Term (Reference 1). STPNOC also submitted calculations performed in support of the amendment request (References 2 and 3). Several sets of requests for additional information (RAIs) followed (References 4 through 8). The amendment request was granted by the issuance of a Safety Evaluation Report (Reference 9). As part of the implementation of the AST amendment, the STPEGS UFSAR was updated and Revision 16 was submitted to the NRC as required by 10 CFR 50.71(e) (Reference 10).

During the preparation of STPEGS UFSAR Revision 17 (Reference 11), an error in the radiological dose results was discovered in UFSAR Table 15.6-17. The error originated in Table 4.3-14 of the AST LAR, "LOCA Dose Results (rem TEDE)" (Reference 1). Table 4.3-14 presented the results of the LOCA radiological analyses and these dose results were replicated in Attachment 8 to the AST LAR in a markup of UFSAR Table 15.6-17. Following NRC approval of the AST LAR, UFSAR Table 15.6-17 was updated using these incorrect dose results. This condition was entered in the STPNOC Corrective Action Program.

The incorrect dose results in UFSAR Table 15.6-17 were not used as inputs in either the LOCA analysis or any other analyses. The calculations used for the LOCA analysis contained the correct dose results (Reference 2 and 3)<sup>1</sup>. The technical basis for the analysis is correct and remains unchanged. The incorrect analysis results in UFSAR Table 15.6-17 have not been used as inputs in any other analyses. Any usage of the analysis results would be reviewed by Reactor Analysis engineers and the supervisor who are familiar with the error.

This correction to the dose results reported in UFSAR Table 15.6-17 failed the 10 CFR 50.59 screening criteria because the dose to the TSC operators increased by more than 10% of the margin to the dose limit and thus requires prior NRC approval.

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<sup>1</sup> The calculation of the LOCA doses was presented in STP calculation NC-06013, Revision 16, submitted to the NRC in References 2 and 3. The dose results are on Page 23 of the calculation.

The NRC Project Manager for STP has been notified of this error and a statement was added to the transmittal letter for UFSAR Revision 17 referencing the error.

This proposed amendment would modify UFSAR Table 15.6-17 to reflect the correct results of the AST analyses submitted in References 2 and 3. STPNOC requests approval of the proposed amendment by August 1, 2015. Once approved, the amendment shall be implemented within 90 days.

### 3. TECHNICAL EVALUATION

The technical description of the LOCA analysis is provided in Section 4.3 of the AST LAR (Reference 1). The results of the LOCA analyses were summarized in Table 4.3-14 of Reference 1, as shown below:

Table 1

[Reference 1] Table 4.3-14  
LOCA Dose Results  
(rem TEDE)

Dose Component	EAB (worst 2 hour)		LPZ		Control Room/TSC (30 days)		
	Result	Limit	Result	Limit	Control Room	TSC	Limit
Containment Leakage <sup>2</sup>	5.49		2.52		1.93	0.11	
Elec. Penetration Room	0.01		0.01		0.02	Negligible	
ESF Leakage	0.10		0.27		1.57	0.04	
Supplemental RCB Purge	0.02		0.01		0.02	Negligible	
Shine dose	N/A		N/A		0.14	1.06	
TOTAL	5.62	25	2.81	25	3.68	1.21	5

Table 4.3-14 of the AST LAR is the source of the original error in the radiological doses. The data on Table 1 was replicated on Table 15.6-17 in Revision 16 and 17 of the UFSAR.

The actual calculation of the LOCA doses was presented in STP calculation NC-06013, Revision 16, submitted in References 2 and 3.

<sup>2</sup> The containment release is direct to the environment.

A comparison of the previously reported dose results and the correct results is shown in Table 2, below:

Table 2  
Comparison of LOCA Dose Results  
(rem TEDE)

Dose Component	EAB		LPZ		Control Room		TSC	
	Current	Revised	Current	Revised	Current	Revised	Current	Revised
Containment Leakage	5.49	5.55	2.52	2.60	1.93	1.99	0.11	1.83
Elec. Penetration Room	0.01	0.01	0.01	0.01	0.02	0.02	Negligible	0.02
ESF Leakage	0.10	0.10	0.27	0.27	1.57	1.57	0.04	1.47
Supplemental RCB Purge	0.02	0.02	0.01	0.01	0.02	0.02	Negligible	0.02
Shine dose	N/A	N/A	N/A	N/A	0.14	0.14	1.06	1.06
TOTAL	5.62	5.68	2.81	2.89	3.68	3.74	1.21	4.40

The corrected LOCA Dose Results are shown in Table 3, below:

Table 3  
Corrected LOCA Dose Results  
(rem TEDE)

Dose Component	EAB (worst 2 hour)		LPZ		Control Room/TSC (30 days)		
	Result	Limit	Result	Limit	Control Room	TSC	Limit
Containment Leakage	5.55		2.60		1.99	1.83	
Elec. Penetration Room	0.01		0.01		0.02	0.02	
ESF Leakage	0.10		0.27		1.57	1.47	
Supplemental RCB Purge	0.02		0.01		0.02	0.02	
Shine dose	N/A		N/A		0.14	1.06	
TOTAL	5.68	25	2.89	25	3.74	4.40	5

The proposed change would revise UFSAR Table 15.6-17, "Dose Resulting from a Large Break [LOCA]," to reflect the values in Table 3, above. The revised dose values continue to meet the applicable dose limits of 10 CFR 50.67 and General Design Criteria (GDC) 19.

#### 4. REGULATORY EVALUATION

##### 4.1 Applicable Regulatory Requirements/Criteria

The applicable regulatory requirements and criteria for calculating the radiological consequences of design basis accidents (DBAs) are described in Section 5.2 of the AST LAR (Reference 1). That discussion remains applicable to this proposed change.

Based on the considerations discussed in Section 5.2 of the AST LAR:

- (1) There is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner
- (2) Such activities will be conducted in compliance with the Commission's regulations, and
- (3) The issuance of the amendment will not be inimical to the common defense and security or the health and safety of the public.

##### 4.2 Precedent

None

##### 4.3 No Significant Hazards Consideration

According to 10 CFR 50.92, "Issuance of amendment," paragraph (c), a proposed amendment to an operating license involves no significant hazards consideration if operation of the facility in accordance with the proposed amendment would not:

- (1) Involve a significant increase in the probability or consequences of an accident previously evaluated; or
- (2) Create the possibility of a new or different kind of accident from any accident previously evaluated, or
- (3) Involve a significant reduction in a margin of safety.

In support of this determination, an evaluation of each of the three criteria set forth in 10 CFR 50.92 is provided below regarding the proposed license amendment.

- (1) **The proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.**

The proposed change of correcting UFSAR Table 15.6-17 does not involve physical modifications to plant equipment and does not change the operational methods or procedures. The proposed change does not affect any of the parameters or conditions that could contribute to the



initiation of any accidents. Since design basis accident initiators are not being altered by adoption of the proposed change, the probability of an accident previously evaluated is not affected.

The safety margins and analytical conservatisms associated with the AST methodology have been evaluated and were found acceptable. The results of the revised DBA analyses, performed in support of the AST methodology change, are subject to specific acceptance criteria as specified in RG 1.183. The dose consequences resulting from these DBAs remain within the acceptance criteria presented in 10 CFR 50.67 and RG 1.183. The proposed change of correcting UFSAR Table 15.6-17 does not change the analytical results of the previously approved AST methodology change.

Based on the above discussion, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

**(2) The proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated**

The proposed change is administrative in nature and does not require any physical changes to any structures, systems or components involved in the mitigation of any accidents. No new initiators or precursors of a new or different kind of accident are created. No new equipment or personnel failure modes that might initiate a new type of accident are created as a result of the proposed change.

Based on the above discussion, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

**(3) The proposed change does not involve a significant reduction in a margin of safety.**

The proposed change is administrative in nature and does not result in a significant reduction in the margin of safety. The safety margins and analytical conservatisms associated with the AST methodology were evaluated and found acceptable. The results of the revised DBA analyses, performed in support of the proposed change, are subject to specific acceptance criteria as specified in RG 1.183. The dose consequences resulting from these DBAs remain within the acceptance criteria presented in 10 CFR 50.67 and RG 1.183.

The proposed change continues to ensure that the dose results at the exclusion area boundary (EAB) and low population zone boundary (LPZ), as well as the Control Room and TSC, are within the specified regulatory limits.

Based on the above discussion, the proposed change does not involve a significant reduction in a margin of safety.

## **ENVIRONMENTAL CONSIDERATION**

STPNOC has evaluated the proposed changes against the criteria for identification of licensing and regulatory actions requiring environmental assessment in accordance with 10 CFR 51.21, "Criteria for and identification of licensing and regulatory actions requiring environmental assessments." The proposed changes meet the criteria for a categorical exclusion as set forth in 10 CFR 51.22, "Criterion for categorical exclusion; identification of licensing and regulatory actions eligible for categorical exclusion or otherwise not requiring environmental review," paragraph (c)(9), and as such, has determined that no irreversible consequences exist in accordance with 10 CFR 50.92, "Issuance of amendment," paragraph (b).

This determination is based on the fact that this change is being proposed as an amendment to a license issued pursuant to 10 CFR 50, "Domestic Licensing of Production and Utilization Facilities," which changes a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, "Standards for Protection Against Radiation," or that changes an inspection or a surveillance requirement, and the amendment meets the following specific criteria.

**(i) The amendment involves no significant hazards consideration.**

As demonstrated in Section 4.3 above, the proposed change does not involve a significant hazards consideration.

**(ii) There is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite.**

STPNOC meets the radiological criteria described in 10 CFR 50.67 for the EAB and the LPZ.

**(iii) There is no significant increase in individual or cumulative occupational radiation exposure.**

STPNOC meets the radiological criteria described in 10 CFR 50.67 for the Control Room and Technical Support Center. Control Room and Technical Support Center exposure to Operators is less than five rem total effective dose equivalent (TEDE) over 30 days for all accidents.

As discussed in Reference 1, the implementation of the AST methodology has been evaluated in revisions to the analyses of the limiting DBAs at STP. Specifically, for the proposed change, the loss of coolant accident was analyzed and documented in Reference 1. Based upon the results of this analysis, it has been demonstrated that, with the proposed change, the dose consequences of this limiting event are within the bounds of the regulatory guidance provided by the NRC for use with the alternative

source term approach (i.e., 10 CFR 50.67 and RG 1.183). There will be no significant increase in either individual or cumulative occupational radiation exposure.

## 5. CONCLUSION

The proposed changes correct a data transcription error from a calculation to the AST submittal text. The technical basis for the analysis is correct and remains unchanged as presented in Reference 1, 2 and 3, as supplemented by References 4 through 8.

This correction to the dose results reported in UFSAR Table 15.6-17 failed the 10 CFR 50.59 screening criteria because the dose to the TSC operators increased by more than 10% of the margin to the dose limit and thus requires prior NRC approval.

Based on the above discussion, it has been determined that the requested change does not involve a significant increase in the probability or consequences of an accident previously evaluated; or create the possibility of a new or different kind of accident from any accident previously evaluated; or involve a significant reduction in a margin of safety. Therefore, the requested license amendment does not involve a significant hazards consideration based on the standards set forth in 10 CFR 50.92(c).

## 6. REFERENCES

### AST Submittal

1. Letter from D.W. Rencurrel, STPNOC, to NRC Document Control Desk, "South Texas Project Units 1 and 2 Docket Nos. STN 50-498, STN 50-499 Request for License Amendment Related to Application of the Alternate Source Term," dated March 22, 2007, (NOC-AE-07002127)(ML070890474).
2. Letter from Charles T. Bowman, STPNOC, to NRC Document Control Desk, "Supplementary Information for STPNOC Alternate Source Term License Amendment Application (TAC Nos. MD4996 and MD4997)," dated April 10, 2007, (NOC-AE-07002147)(ML071620446).
3. Letter from S.M. Head, STPNOC, to Kenny Nguyen,, NRC Document Control Desk, "Re-Transmittal of Supplementary Information for STPNOC Alternate Source Term License Amendment Application," dated June 6, 2007, (NOC-AE-07002174)(ML071630159).

### RAI's and Responses

4. Letter from D.W. Rencurrel, STPNOC, to NRC Document Control Desk, "South Texas Project Units 1 and 2 Docket Nos. STN 50-498, STN 50-499 Response to Request for Additional Information on Proposed Amendment for Alternate Radiological Source Term (AST) Methodology; TAC Nos. MD 4996 & MD 4997," dated July 18, 2007 (NOC-AE-07002186)(ML072050341).
5. Letter from D.W. Rencurrel, STPNOC, to NRC Document Control Desk, "South Texas Project Units 1 and 2 Docket Nos. STN 50-498, STN 50-499 Response

to Request for Additional Information on Proposed Amendment for Alternate Radiological Source Term (AST) Methodology; TAC Nos. MD 4996 & MD 4997," dated October 11, 2007 (NOC-AE-07002215)(ML072970308).

6. Letter from D.W. Rencurrel, STPNOC, to NRC Document Control Desk, "South Texas Project Units 1 and 2 Docket Nos. STN 50-498, STN 50-499 Response to Request for Additional Information on Proposed Amendment for Alternate Radiological Source Term (AST) Methodology; TAC Nos. MD 4996 & MD 4997," dated November 13, 2007 (NOC-AE-07002223)(ML073250369).
7. Letter from D.W. Rencurrel, STPNOC, to NRC Document Control Desk, "South Texas Project Units 1 and 2 Docket Nos. STN 50-498, STN 50-499 Supplement 2 to Request for License Amendment Related to Application of the Alternate Source Term (TAC Nos. MD 4996 & MD 4997)," dated December 13, 2007 (NOC-AE-07002230)(ML073580100).
8. Letter from S.M. Head, STPNOC, to NRC Document Control Desk, "South Texas Project Units 1 and 2 Docket Nos. STN 50-498, STN 50-499 Withdrawal of Proposed Revision to Technical Specification 3.8.1.2, A.C. Sources Shutdown (TAC Nos. MD4996 & MD4997)," dated December 18, 2007 (NOC-AE-07002250)(ML073610144).

#### AST SER

9. Letter from M.C. Thadani, NRC, to J.J. Sheppard, STPNOC, "South Texas Project, Units 1 and 2 – Issuance of Amendments Re: Adoption of Alternate Radiological Source Term in Assessment of Design-Basis Accident Dose Consequences (TAC Nos. MD 4996 and MD 4997)," dated March 6, 2008 (ML080160013).

#### STPEGS Updated Final Safety Analysis Report

10. Letter from D.W. Rencurrel, STPNOC, to NRC Document Control Desk, "Updated Final Safety Analysis Report Revision 16," dated April 26, 2012 (NOC-AE-12002849)(ML12159A521).
11. Letter from G.T. Powell, STPNOC, to NRC Document Control Desk, "Updated Final Safety Analysis Report Revision 17," dated April 28, 2014, (NOC-AE-14003129)(ML14132A289).

**List of Commitment(s)**

The following table identifies the action(s) committed to by STPNOC in this document. Any statements in this submittal with the exception of those in the table below are provided for information purposes and are not considered commitments. Please direct questions regarding this commitment to Marilyn Kistler at (361) 972-8385.

Commitment	Scheduled Completion Date	Tracking Number
Upon approval of this License Amendment Request STPNOC will correct the dose results listed in UFSAR Table 15.6-17.	STPNOC will implement this change within 90 days following the approval of this request	14-3491-3