



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

June 19, 2008
NOC-AE-08002316
10CFR50.54(f)

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
One White Flint North
11555 Rockville Pike
Rockville, MD 20852

South Texas Project
Units 1 and 2
Docket Nos. STN 50-498 and STN 50-499
Request for Extension for Final Response to Generic Letter 2004-02
and Implementation of Revised Design Basis for ECCS Sump
(TAC Nos. MC4719 and MC4720)

- References:
1. Letter dated November 8, 2007 from William H. Ruland, NRC, to Anthony R. Pietrangelo, NEI, "Plant-Specific Requests for Extension of Time to Complete One or More Corrective Actions for Generic Letter 2004-02, "Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized Water Reactors" (ML073060581)
 2. Letter dated December 10, 2007 from David W. Rencurrel, STPNOC, to NRC Document Control Desk, "Request for Extension for Final Response to Generic Letter 2004-02 and Implementation of Revised Design Basis for ECCS Sump" (NOC-AE-07002237, ML073520021)
 3. Letter dated December 19, 2007, from Mohan C. Thadani, NRC, to James J. Sheppard, STPNOC, "South Texas Project, Units 1 and 2 - Approval Of Extension Request For Corrective Actions Re: Generic Letter 2004-02, "Potential Impact Of Debris Blockage On Emergency Recirculation During Design Basis Accidents At Pressurized Water Reactors" (TAC Nos. MC4719 and MC4720), (ML073520076)
 4. Letter dated February 29, 2008, from David W. Rencurrel, STPNOC, to NRC Document Control Desk, "Supplement 3 to the Response to Generic Letter 2004-02" (NOC-AE-07002240, ML080700338)

In accordance with the guidance of Reference 1 for Case 2 plants, STP Nuclear Operating Company (STPNOC) requests an extension of the completion date for final review and approval activities needed to fully implement NRC Generic Letter (GL) 2004-02 corrective actions at South Texas Project (STP) Units 1 and 2 to December 12, 2008. Additional time is required to complete and document testing and to implement requirements of the STPNOC Quality Assurance Program, specifically 10 CFR 50, Appendix B activities related to design control, document control, control of purchased services and quality assurance records.

In References 2 and 3, STPNOC requested and the NRC approved an extension to the commitment to be in full compliance with the regulatory requirements discussed in the applicable regulatory requirements section of GL 2004-02 from December 31, 2007 to June 30, 2008. In Reference 4, STPNOC submitted an updated response to GL 2004-02, providing details of the design of the new STP sump strainers.

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Plant hardware modifications developed in response to issues identified in GL 2004-02 are installed in STP Units 1 and 2 in support of compliance with the regulatory requirements for long term cooling following a design basis loss of coolant accident. Similarly, implementation is complete for STPNOC plant administrative procedures and processes needed to support the GL 2004-02 hardware modifications and to support the current assumptions, initial conditions and conclusions of GL 2004-02 related evaluations, including the current evaluations of design basis accident debris generation and transport, sump strainer performance, impact of chemical effects and downstream effects of debris.

Substantial plant-specific testing that supports assumptions and corresponding conclusions contained in the GL 2004-02 evaluations for STP has been performed. The strainer head loss testing for chemical effects scheduled to be completed in February 2008 as identified in Reference 2 was performed. Based on the results of that testing, STPNOC determined that the debris generation and transport calculations require revision and additional testing will be required to confirm performance of the strainers with the revised debris loading. The additional testing has been scheduled for July 2008. In addition to completion of the testing, there are additional actions required prior to the vendor completing a final test report that meets the requirements of the procurement specifications, including those of 10 CFR 50, Appendix B for control of purchased services and procurement document control. The test report is currently scheduled to be available in September 2008. Following receipt of the final test report from the vendor, additional actions are also required by STPNOC to complete formal verification of design inputs, assumptions and conclusions of STPNOC calculations and evaluations conducted in response to issues identified in GL 2004-02, including possible revision of the downstream effects analyses. These activities also include compliance with 10 CFR 50, Appendix B requirements for design control, document control and quality assurance records.

Based on the extensive experience gained while conducting and assessing actions taken in response to issues identified in GL 2004-02 and the margin in the sump design, STPNOC believes that the testing results, when fully documented in the test report, will fully support all corrective actions taken in response to issues identified in GL 2004-02.

Hardware, procedures and administrative controls required to support actions taken in response to issues identified in GL 2004-02 are already implemented at STP; consequently, STPNOC has reasonable assurance that if an accident of the type described in GL 2004-02 were to occur at STP, plant systems and plant operators would respond in a manner consistent with the intent of the GL 2004-02 corrective actions, including conformance with the regulatory requirements listed in GL 2004-02. In addition, the STP reactor coolant system (RCS) piping has been analyzed for leak-before-break as part of its licensing basis, thereby giving operators substantial time to identify and respond to RCS leakage conditions that might be a precursor to a break.

Reference 1 requires a quantitative risk assessment if the proposed schedule extension will be beyond June 30, 2008. STPNOC performed the required assessment for a large break loss of coolant accident as described in Attachment 2 and calculated a conservative delta core damage frequency (CDF) of $2.4E-06$ and delta large early release frequency (LERF) of $5.7E-09$ for the duration of the proposed extension. STPNOC considers the calculated risk very small.

Based on the evaluation above, STPNOC has determined that STP meets the criteria for a Case 2 plant described in Reference 1. The guidance directs the licensees to apply the criteria of SECY-06-0078 for the basis for the extension request. STPNOC has concluded the criteria of the SECY are met:

- Criterion 1 for a plan with a milestone schedule is satisfied as discussed above.
- Criterion 2 for mitigative measures is satisfied since hardware, procedures and administrative controls required to support actions taken in response to issues identified in GL 2004-02 are

already implemented at STP. The Criterion 2 requirement for a quantitative risk assessment is satisfied by showing that the risk from the extension is very small.

Therefore, STPNOC requests an extension to December 12, 2008, to allow full completion of 10 CFR 50, Appendix B activities to support changing the plant design and licensing bases to be in compliance with actions taken in response to issues identified in GL 2004-02.

Following completion of the testing and 10 CFR 50, Appendix B activities described above and the associated changes to the STP licensing basis, STPNOC will submit a letter by December 12, 2008, confirming completion of all GL 2004-02 corrective actions and confirming compliance with the regulatory requirements listed in GL 2004-02.

Attachment 1 documents the commitment made to the NRC by this letter.

STPNOC requests approval of the proposed extension by June 30, 2008. If you have any questions concerning this matter, please contact Mr. A. W. Harrison at (361) 972-7298, or me at (361) 972-7566.

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

Executed on 6-19-08.



G. T. Powell
Vice President, Engineering

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Attachments:

1. Commitment
2. Quantitative Risk Assessment

cc:

(paper copy)

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Commitment

The following table identifies the action committed to by the STP Nuclear Operating Company 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 these commitments to Scott Head at (361) 972-7136.

Commitment	Due Date	Condition Report
Following completion of the 10 CFR 50, Appendix B activities described above and the associated changes to the STP licensing basis, STPNOC will submit a letter confirming completion of all GL 2004-02 corrective actions and confirming compliance with the regulatory requirements listed in GL 2004-02.	12/12/2008	04-12498-15

Quantitative Risk Assessment

STPNOC considers the risk assessment below to be conservative. The Large LOCA break initiating event frequency is based on a 6" break. The 6" break generates substantially less debris than the design basis for sump debris, which is the double-ended break of the largest reactor coolant system loop piping. NUREG-1829, "Estimating Loss of Coolant Accident (LOCA) Frequencies Through the Elicitation Process", provides a mean estimated initiating event frequency of 2.9E-08/yr for a 31" break that corresponds to the design basis break size, which would result in a delta CDF for this size RCS pipe break of about two orders of magnitude lower than the delta CDF from the PRA calculation below. The evaluation is also conservative in that it assumes no credit for the improved sump strainer design; i.e., recirculation is assumed to fail with a probability of 1.

1. Purpose and Scope

The purpose of this assessment is to use the STP PRA model of record to estimate the risk increase due to loss of recirculation capability caused by plugging of the containment emergency sump for the large LOCA initiating event.

2. Method

The assessment is performed by modifying the STP PRA model of record, STP_RV51. Blockage of the containment strainers to the extent that recirculation fails is the concern.

A large LOCA is defined as a RCS break within the capability of the ECCS but sufficiently large and located appropriately to rapidly depressurize the reactor coolant system so that successful operation of the low head safety injection system is needed to prevent core damage. The effective diameter for large LOCAs is greater than 6 inches. The frequency used in the STP PRA is taken from NUREG/CR-5750, *Rates of Initiating Events at U. S. Nuclear Power Plants: 1987 – 1995*.

The method chosen is to clone the current STP PRA model and fail the top events that model safety injection recirculation for trains A, B and C; i.e., guarantee failure of the recirculation function for each of the respective trains.

3. Assumptions

Such an event is postulated to only occur during a large LOCA.

4. Results

The core damage frequency (CDF) calculated from the cloned model with the failed SI recirculation is compared to the baseline STP CDF in the table below.

Model	CDF	LERF
Cloned model	1.27E-05	6.11E-07
Baseline model	1.04E-05	6.06E-07
Δ	2.4E-06	5.7E-09

This evaluation is not submitted as a change to the licensing basis, so Regulatory Guide (RG) 1.174 is not directly applicable. However, the RG provides perspective that the risk is very small. With respect to the acceptance criteria in RG 1.174, the delta CDF value meets Region II for the entire year (small change) and delta LERF meets the Region III for the entire year (very small change). For one half of a year, delta CDF value is on the border of Region II and Region III (very small change).