Nuclear Operating Company

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

February 14, 2002
NOC-AE-02001267
File No.: G25
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U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555-0001

South Texas Project
Units 1 & 2
Docket Nos. STN 50-498, STN 50-499
Additional Information to Support the Request for Approval
of Power Uprate and a Revision to the Technical Specifications

Reference: Letter from J. J. Sheppard to NRC Document Control Desk, "Proposed Amendment to Facility Operating Licenses and Technical Specifications Associated with a 1.4-percent Core Power Uprate," August 22, 2001 (NOC-AE-01001162)

The referenced letter requested approval of increasing the plant operating power level by 1.4 percent and submitted a license amendment supporting associated revisions to Technical Specifications. As the result of phone conversations with the NRC on February 4, 7 and 11, 2002, additional information to support review of the licensing application is provided in Attachment 1 to this letter.

There are no licensing commitments in this letter. If you should have any questions concerning this matter, please contact Mr. Ken Taplett at (361) 972-8416 or me at (361) 972-8757.

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

Executed on: 2/14/02

J. J. Sheppard
Vice President,
Engineering & Technical Services

KJT/

Attachments: 1. Additional Information

A001

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ATTACHMENT 1

ADDITIONAL INFORMATION

By letter dated August 22, 2001, STP Nuclear Operating Company (STPNOC), the licensee for South Texas Project Units 1 & 2, requested a license amendment to raise the plant operating power level by 1.4 percent. The NRC staff reviewed the application and determined that it needs additional information to complete its review. The additional information is provided below.

1. The following additional information is provided to support the licensing application of August 22, 2001 (Reference 1).

Section 3.6 of Attachment 6 to the South Texas power uprate licensing application of August 22, 2001 stated:

> "With respect to the CROSSFLOW UFM uncertainties, uncertainty calculations have been performed and determined a mass flow accuracy of better than 0.5 percent of rated flow for the South Texas Units 1 and 2."

After submitting the licensing application, South Texas performed a quality calculation, which allows maximum flexibility in operating the CROSSFLOW ultrasonic flow meter (UFM) system by optimizing buffer size and standard deviation limits while maintaining better than 1.0% feedwater flow uncertainty. The new calculation limits feedwater flow uncertainty to 0.97% at a 95% confidence interval which supports the assumed 1.0% feedwater flow uncertainty input to the thermal power calculation. Programming the CROSSFLOW UFM instrument to achieve this revised uncertainty will allow operating flexibility and still meet the requirements for the revised rated thermal power calculation. South Texas plans to implement the 1.4-percent uprate with a 0.97% uncertainty programmed into the CROSSFLOW UFM instrument.

2. The following supplements the information provided in Section 3.7 of Attachment 6 to Reference 1.

The feedwater piping configuration consists of a 36" main header, which branches into four 18", schedule 120, carbon steel lines feeding each of four steam generators. The permanent UFMs are mounted approximately six pipe diameters downstream of the venturi on each loop. Because it was unknown if flow was fully developed in this area, the UFMs had to be calibrated to a known standard to meet the stated accuracy. The piping configuration for loops A, B, and C have elbows a few feet downstream of the UFM that prevents installation of a second calibration UFM on these loops. However loop D has a long run of straight pipe downstream of the venturi where flow is fully developed. South Texas calibrated all four UFMs by installing a second UFM 30 pipe diameters downstream of the venturi in the loop D and comparing the indicated flow of the

two devices. With this methodology A correction factor was developed for the permanent UFMs using this methodology. The following is a physical description of the delta loop. The distance from the main header to the venturi is 31' or 24.6 pipe diameters. The venturi is 3' long. The distance from the venturi exit to the thermal well is 8.1' or 6.4 pipe diameters. The Crossflow UFM is mounted just upstream of the thermal well. The tapered thermowell extends into the pipe 4.5 inches with a diameter of 1.5 inches at the internal pipe surface decreasing to 1.0 inches at the thermowell end. The distance from the thermal well to the pipe elbow is 39.8' or 31.3 pipe diameters. In order to calibrate the permanent Crossflow device located upstream of the thermal well a second device was installed approximately 30 pipe diameters downstream of the thermal well, just upstream of the elbow. A several hour calibration test was conducted in order to ensure sufficient data was collected to ensure statistical accuracy. Both instruments agreed within 0.1%. Considering that the warranted uncertainty is 0.5% and small deviations in flow indication can occur due to the removal and installation process, it was determined that both meters were reading essentially the same and the calibration factor between the units was set at 1.0. In-situ tests conducted at full flow/100% power provide the most accurate calibration test results. Based on the calibration results a calibration factor of one was applied to all meters.

3. The following information is a clarification to the response provided to Question #20 in Attachment 1 of Reference 2. The clarifying information is indicated by a change bar.

Question #20: To show that the referenced generically approved LOCA analysis methodologies apply specifically to the South Texas plants, provide a statement that the South Texas plants and its vendor have ongoing processes which assure that LOCA analysis input values for peak cladding temperature sensitive parameters bound the as-operated plant values for those parameters.

Response with clarifying information:

The South Texas plants and its vendor do have ongoing processes which assure that LOCA analysis input values for peak cladding temperature sensitive parameters bound the as-operated plant values for those parameters. The following are some examples of how these processes work.

Westinghouse has processes in place which ensure that the PCT-sensitive parameters used as input to the large break LOCA (LBLOCA) and small break LOCA (SBLOCA) analyses bound the as-operated plant values for South Texas. The LBLOCA and SBLOCA analyses employ Appendix K methodology and require the use of the most conservative value for parameters which are PCT-sensitive. If a direction of conservatism is not apparent, nominal values are typically used. As a result, the LOCA analyses are based on conservative, bounding input parameters relative to where the plant will operate.

South Texas Units 1 and 2 are operated in accordance with their Technical Specification requirements. This helps to ensure that the LOCA analysis input values for peak cladding sensitive parameters bound the as-operated values for those parameters.

In addition, parameters that may be sensitive to fuel reloads are reviewed and confirmed prior to each reload as part of the reload safety analysis checklist (RSAC) process documented in WCAP-9272-P-A. This requires transmitting a list of LOCA analysis parameter limits to the core design group. The core design group compares the known and predicted parameters for the upcoming cycle to the analysis limits, to ensure the LOCA analyses will remain bounding.

4. The following supplements the information provided in Section 8.3.1.7 of Attachment 6 Reference 1.

The analysis for the single rod control cluster assembly withdrawal accident described in the Updated Final Safety Analysis Report (UFSAR) Section 15.4.3.2.3 uses cycle-specific power distributions to determine the number of rods in a departure from nucleate boiling (DNB) condition. The number of rods predicted to be in DNB must be less than 5% to support the dose analysis. The results of the analysis for the current fuel cycle show that less than 0.5% and less than 1% of the rods will be in DNB for the power uprate condition for Units 1 and 2 respectively. The results are much more sensitive to the cycle-specific power distribution than the 1.4-percent increase in reactor power. Future cycle-specific results will continue to be determined in accordance with WCAP 9272-P-A, "Westinghouse Reload Safety Evaluation Methodology," July 1985 (proprietary).

5. The following information is provided to clarify the discussion in Section 8.3.1.8 of Attachment 6 to Reference 1:

The initial power level for the Startup of an Inactive Reactor Coolant Loop at an Incorrect Temperature analysis discussed in Section 15.4.4 of the UFSAR is discussed in Section 15.0.3 of the UFSAR. Section 15.0.3 refers to Table 15.0-2a and 15.0-2b for a listing of the power rating input that is assumed in the individual accident analyses. Section 15.0.3.2 states that the analyses consider the maximum steady-state errors in conjunction with rated values. Specifically, a 2-percent allowance for calorimetric error was assumed for core power. Table 15.0-2a states that the assumed thermal power output for the Section 15.4.4 accident analysis was 2672 MWt with a minimum of 2 percent margin added. The Section 15.4.4 accident analysis calculation was performed at 2748 MWt. This value of 2748 MWt corresponds to 72% (70% plus > 2% uncertainty) of the nominal NSSS power of 3817 MWt. This value corresponds to the uprated power of 3853 MWt combined with a lower uncertainty of 0.6-percent. Therefore, the conclusions presented in the UFSAR remain valid.

References:

1. Letter from J. J. Sheppard to NRC Document Control Desk, "Proposed Amendment to Facility Operating Licenses and Technical Specifications Associated with a 1.4-percent Core Power Uprate," August 22, 2001 (NOC-AE-01001162)

2. Letter from J. J. Sheppard to NRC Document Control Desk, "Additional Information to Support the Request for Approval of Power Uprate and a Revision to the Technical Specifications," February 5, 2002 (NOC-AE-02001259)