Nuclear Operating Company

South Texas Project Electric Generating Station 4000 Avenue F – Suite A Bay City, Texas 77414

October 20, 2010
U7-C-STP-NRC-100232

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
One White Flint North
11555 Rockville Pike
Rockville MD 20852-2738

South Texas Project
Units 3 and 4
Docket Nos. 52-012 and 52-013
Revised Response to Request for Additional Information

Reference: Letter, Scott Head to Document Control Desk, "Responses to Requests for Additional Information," U7-C-STP-NRC-100101, dated May 3, 2010, (ML101260118)

Attached is an STP Nuclear Operating Company (STPNOC) revised response to Request for Additional Information (RAI) question 10.04.07-3, related to Combined License Application (COLA) Part 2, Tier 2, Section 10.4.7 Condensate and Feedwater System (CFS). The original response was provided in the referenced letter.

The Attachment provides the response to the RAI question listed below:

RAI 10.04.07-3, Revision 1

COLA changes will be incorporated in the next routine revision of the COLA following NRC acceptance of the RAI response.

There are no commitments in this letter.

If you have any questions regarding these responses, please contact Scott Head at (361) 972-7136, or Bill Mookhoek at (361) 972-7274.

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NRD

STI 32766258

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

Executed on 10/20/2010

Mark McBurnett
Vice-President, Oversight and Regulatory Affairs
South Texas Project Units 3 & 4

jaa

Attachment:
RAI 10.04.07-3 Response, Revision 1

cc: w/o attachment except*
(paper copy)

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RAI 10.04.07-3 Response, Revision 1

Question:

10 CFR 52 requires that applicants submit ITAAC that are necessary and sufficient to provide a reasonable assurance that the facility has been constructed and will operate as designed (§ 52.80(a)). It is also stated in section 52.80(a)(2), that "if the applicant reference a standard design certification, the ITAAC contained in the certified design must apply to those portions of the facility design which are approved in the design certification."

The staff previously issued RAI 10.04.07-1 (Question 359) requesting STP to provide justification as to why the information in Tier 1, Section 2.10.2 regarding the Condensate and Feedwater System (CFS) description and ITAAC was not updated to reflect design changes to the system as a result of departure STP DEP 10.4-5. In it's response the applicant indicated that "the CFS alters the specific design, but does not modify the functional arrangement," and that "detailed design drawings, which will expand the basic configuration to include the condensate booster pumps along with other refinements perform these inspections." The staff found this response unacceptable since the Tier 1 design in the DCD is not consistent with the STP CFS design, and since the Tier 1 CFS information incorporated by reference is no longer reflective of the STP design.

The STP application incorporates by reference the design description, functional arrangement, and ITAAC for the CFS standard design included in ABWR DCD Tier 1, Section 2.10.2. In the STP COLA, the applicant departs from the standard design, and incorporates into the CFS additional significant SSC's. Because the COL design differs significantly from the design certified in the DCD, the ABWR ITAAC in the DCD, which confirms the certified design, is not applicable to the STP design. Provide an update to the referenced CFS design (design description and/or functional arrangement) in Tier 1, Section 2.10.2, so that the referenced ITAAC in Tier 1 Table 2.10.2a is applicable to the CFS design being licensed in the STP COLA.

Revised Response:

The previous response to RAI 10.04.07-3 (U7-C-STP-NRC-100101, dated May 3, 2010, ML101260118) is replaced in its entirety with the following revised response.

As requested in RAI 10.04.07-3, STPNOC is proposing a departure to update the design description and figure showing the basic system configuration for the Condensate and Feedwater System (CFS) in Tier 1 Section 2.10.2.

STD DEP 10.4-5 incorporated changes consistent with this departure.

This change potentially affects the condensate system included in the Chapter 19 Probabilistic Safety Analysis (PRA). In the Standard Safety Analysis Report, Chapter 19, the feedwater and condensate systems are included in the Level 1 core damage frequency model, the low power and shutdown PRA model, and in the seismic margins assessment model. The condensate

system model for the Level 1 model is an operator basic event with a value of 0.1 to restore condensate flow in order to provide an alternate source of water if the reactor is depressurized. In the seismic margins assessment, a similar operator action basic event, V2, with the same value is included. The low power and shutdown model includes a fault tree for the condensate pumps which also includes an operator action basic event, with a value of 0.02, and a maintenance on the condensate system basic event with a value of 0.1. In all models, the success criterion for the condensate system requires starting one of the four condensate pumps to provide flow to the depressurized reactor vessel. Random failure of four condensate pumps, using pump failure data included in the PRA, is several orders of magnitude less likely than the operator action or maintenance terms included in the various PRA models described in Chapter 19.

The addition of four condensate booster pumps in the condensate flow path, with a similar success criterion of one of four pumps and similar failure data, does not affect the quantification or the results and insights presented in the PRA described in FSAR Chapter 19 due to the operator action or maintenance terms included in the various PRA models. The changes in Chapter 19 to reflect the addition of the condensate booster pumps were determined to be editorial and were included in FSAR Chapter 19 as a result of STD DEP 10.4-5. FSAR Table 19.2-2 identifies the Subsections of Chapter 19 modified by STD DEP 10.4-5.

As a result of this RAI response, the COLA will be revised as shown below to reflect a Tier 1 standard departure to COLA Part 2, Tier 1, Section 2.10 Power Cycle Systems. The changes are shown bubbled on Figure 2.10.2a and with grey shading elsewhere.

COLA Part 2, Tier 1 changes:

2.10 Power Cycle Systems

The information in this section of the reference ABWR DCD, including all subsections, tables, and figures, is incorporated by reference with ~~no~~ the following departures ~~or supplements~~.

STD DEP T1 2.10-1 (Figure 2.10.2a)

2.10.2 Condensate Feedwater and Condensate Air Extraction System

The Condensate Feedwater and Condensate Air Extraction (CFCAE) System consists of two subsystems: the Condensate and Feedwater System (CFS) and the Main Condenser Evacuation System (MCES).

Design Description

Condensate and Feedwater System
The function of the CFS is to receive condensate from the condenser hotwells, supply condensate to the Condensate Purification System (CPS), and deliver feedwater to the reactor. Condensate is pumped from the main condenser hotwell by the condensate

pumps, through the CPS to the condensate booster pumps, passes through the low pressure feedwater heaters to the feedwater pumps, and then is pumped through the high pressure heaters to the reactor. Figure 2.10.2a shows the basic system configuration. The CFS boundaries extend from the main condenser outlet to (but not including) the seismic interface restraint outside the containment.

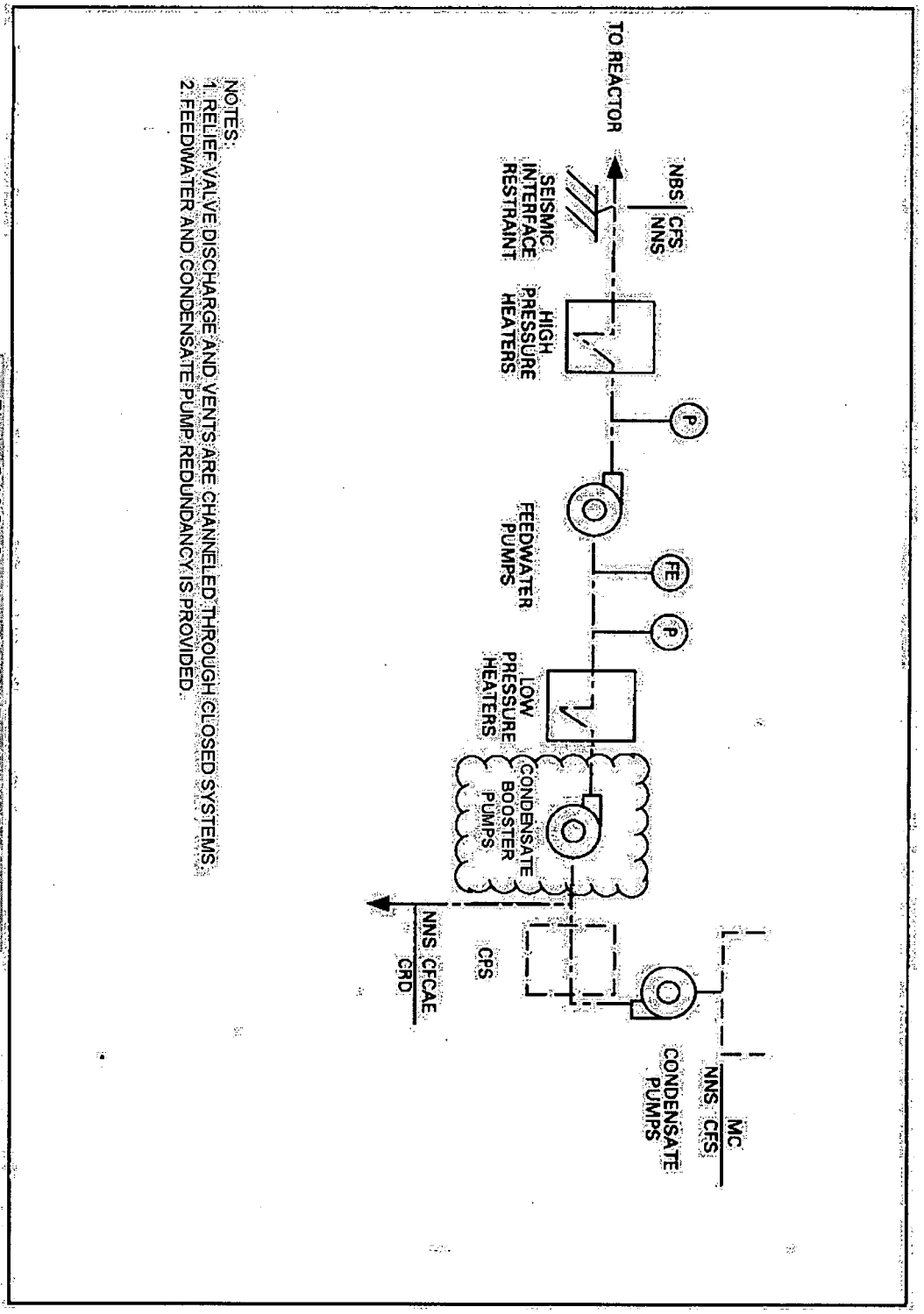

Figure 2.10.2a Condensate and Feedwater System

COLA Part 2, Tier 2 changes:

1.9S Conformance with Regulatory Criteria

Table 1.9S-4 Conformance of Tier 1 and Tier 2* Departures with the SRP

Departure Number	Subject	Affected COLA Sections	Applicable SRP Sections	Conformance with Applicable SRP/ Justification for Differences
STD DEP T1 2.10-1	Addition of Condensate Booster Pumps	Tier 1 Section 2.10	10.4.7	Conforms with applicable SRP sections

Table 19.2-2 PRA Assessments of STP COLA Departures from ABWR DCD

Departure Number	Design Basis	US ABWR/STP Design Basis	Potential Impact on PRA [STP COLA Section]
STD DEP T1 2.10-1 Addition of Condensate Booster Pumps	The function of the CFS is to receive condensate from the condenser hotwells, supply condensate to the Condensate Purification System (CPS), and deliver feedwater to the reactor. Condensate is pumped from the main condenser hotwell by the condensate pumps, and passes through the low pressure feedwater heaters to the feedwater pumps. (reference DCD Tier 1 Section 2.10.2).	The function of the CFS is to receive condensate from the condenser hotwells, supply condensate to the CPS, and deliver feedwater to the reactor. Condensate is pumped from the main condenser hotwell by the condensate pumps, through the CPS to the condensate booster pumps, and passes through the low pressure feedwater heaters to the feedwater pumps.	No direct affect on the PRA, editorial change to the PRA to reflect the addition of the condensate booster pumps.

COLA Part 7 Departures Report changes:

2.1 Tier 1 and Tier 2* Departures from the DCD

STD DEP T1 2.10-1, Addition of Condensate Booster Pumps

Description

DCD Tier 1 Figure 2.10.2a shows the basic system configuration of the Condensate and Feedwater System (CFS) with a single symbol for condensate pumps. This departure adds a second symbol to indicate the addition of condensate booster pumps in series. The CFS system is classified as non-safety-related and does not perform a safety function. The location/arrangement of the condensate pumps and condensate booster pumps, between the condenser hotwell and the low pressure heaters, does not adversely impact the ability of the CFS to perform the function described in the Tier 1 Design Description.

Evaluation Summary

This departure was evaluated per Section VIII.A.4 of Appendix A to 10 CFR Part 52, which requires 1) the design change will not result in a significant decrease in the level of safety otherwise provided by the design; 2) the exemption is authorized by law, will not present an undue risk to the public health and safety, and is consistent with the common defense and security; 3) special circumstances are present as specified in 10 CFR 50.12(a)(2); and 4) the special circumstances outweigh any decrease in safety that may result from the reduction in standardization caused by the exemption. As shown below, each of these four criteria are satisfied.

(1) As discussed above, the change recognizes the use of condensate pumps and condensate booster pumps. The CFS does not perform a safety function and therefore the change will not result in a significant decrease in the level of safety otherwise provided by the design.

(2) The exemption is not inconsistent with the Atomic Energy Act or any other statute and therefore is authorized by law. As discussed above, the change involves a system with no safety function and therefore will not present an undue risk to the public health and safety and the design change does not relate to security and does not otherwise pertain to the common defense and security.

(3) Special circumstances are present as specified in 10 CFR 50.12(a)(2). Specifically, special circumstance (ii) is present, since the design change does not affect safety. Accordingly, it is not necessary to preserve the configuration of the CFS as presented in Tier 1 in order to achieve the purpose of the ABWR design certification rule.

(4) This is a "standard" departure that is intended to be applicable to COL applicants that reference the ABWR DCD, thus the departure will not affect standardization. Additionally, the change does not adversely affect the configuration of the plant or adversely affect the manner in which the plant is operated.

As demonstrated above, this exemption complies with the requirements in Section VIII.A.4 of Appendix A to 10 CFR Part 52.