Nuclear Operating Company

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

March 17, 2000
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U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555-0001

South Texas Project
Units 1 and 2
Docket Nos. STN 50-498, STN 50-499
Proposed Amendment to Technical Specification 3/4.7.4
to Revise the Surveillance Requirements for the Essential Cooling Water System

The STP Nuclear Operating Company (STPNOC) proposes to amend the South Texas Project (STP) Technical Specifications to eliminate the requirement that the Essential Cooling Water System traveling screens and screen wash booster pumps start on a safety injection signal. To complement this change, STPNOC proposes to incorporate the Westinghouse Standard Improved Technical Specification (NUREG 1431) wording for the other Essential Cooling Water surveillance requirements.

South Texas Project has reviewed the proposed amendment pursuant to 10CFR50.92 and determined that it does not involve a significant hazards consideration. In addition, South Texas Project has determined that the proposed amendment satisfies the criteria of 10CFR51.22(c)(9) for categorical exclusion from the requirement for an environmental assessment. The South Texas Project Plant Operations Review Committee and the Nuclear Safety Review Board have reviewed and approved the proposed amendment.

The required affidavit, Safety Evaluation and Determination of No Significant Hazards Consideration, and Environmental Assessment are included as attachments. The marked-up affected page of the Technical Specifications and proposed revised page are also included as attachments to this letter. In accordance with 10CFR50.91(b), South Texas Project is notifying the State of Texas of this request for license amendment by providing a copy of this letter and its attachments.

A001

If there are any questions regarding the proposed amendment, please contact Mr. A. W. Harrison at (361) 972-7298 or me at (361) 972-8757.

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

Attachments:

1. Affidavit
2. Description of Change and Safety Evaluation
3. Determination of No Significant Hazards Considerations
4. Environmental Assessment
5. Annotated Technical Specification Page
6. Revised Technical Specification Page
7. Revised Bases

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

# AFFIDAVIT

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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| In the Matter of | ) | | |
| | ) | | |
| STP Nuclear Operating Company, et al., | ) | Docket Nos. | STN 50-498 |
| | ) | | STN 50-499 |
| South Texas Project Units 1 and 2 | ) | | |

AFFIDAVIT

I, J. J. Sheppard, being duly sworn, hereby depose and say that I am Vice President, Engineering & Technical Services of STP Nuclear Operating Company; that I am duly authorized to sign and file with the Nuclear Regulatory Commission the attached proposed changes to Technical Specification 3/4.7.4; that I am familiar with the content thereof; and that the matters set forth therein are true and correct to the best of my knowledge and belief.

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

STATE OF TEXAS )
)
COUNTY OF MATAGORDA )

17th Subscribed and sworn to before me, a Notary Public in and for the State of Texas, this day of March, 2000,.

LINDA RITTENBERRY
Notary Public, State of Texas
My Commission Expires
OCT. 9, 2001

Linda Rittenberry
Notary Public in and for the
State of Texas

# Description of Change and Safety Evaluation

## Background

The STP Technical Specifications require a surveillance to demonstrate that the Essential Cooling Water (ECW) traveling screens and screen wash booster pump start on a receipt of a safety injection signal. This requirement has imposed an unnecessary burden on the station, in particular with regard to the screen wash booster pumps. As will be discussed in the Safety Evaluation section below, the screen wash booster pumps and the traveling screens are non-risk significant components. In addition, there is no deterministic reason they would be called on to operate in a safety injection event, and the very infrequent occasions where these components are called on to operate are not occasions that would result in a safety injection. In addition to the elimination of the surveillance requirement for the screen wash system, the change incorporates the NUREG 1431 standard wording for the other Essential Cooling Water surveillance requirements.

## Description of Change

STPNOC proposes to revise Technical Specification 3/4.7.4 to revise Surveillance Requirements 4.7.4.b.1 and 4.7.4.b.2 to incorporate the wording from the Westinghouse Standard Improved Technical Specifications (NUREG 1431) and to delete Surveillance Requirement 4.7.4.b.3. Surveillance Requirement 4.7.4.b.3 requires verifying at least once per 18 months each screen wash booster pump and the traveling screen start automatically on a Safety Injection test signal. STPNOC may also physically eliminate this automatic start on safety injection at a convenient time.

Associated Bases changes and administrative changes to the Bases Index are also included.

## Safety Evaluation

### Incorporation of NUREG 1431 wording into SR 4.7.4.b.1 and SR 4.7.4.b.2

Incorporation of the wording from the Westinghouse Standard Improved Technical Specifications will focus these surveillance requirements on the valves in the Essential Cooling Water flow path instead of all automatic valves servicing safety-related equipment. In addition, the proposed change in the surveillance requirements will allow an actual signal, as well as simulated test signals, to meet the Surveillance Requirement.

By focusing on the automatic valves in the Essential Cooling Water flow path (such as the ECW pump discharge motor operated valves) instead of all safety related automatic valves in the system (which include safety-related but low or non-risk significant valves such as those for the Screen Wash System), the surveillance provides greater assurance that the system will perform its function. As described in the attached revised Bases page, this SR applies to valves that assure ECW flow to required safety related equipment (to CCW heat exchangers, Standby Diesel Generators, Essential Chillers, and CCW Pump Supplemental Coolers).

The proposed change allows taking credit for unplanned actuations if sufficient information is collected to satisfy the surveillance test requirements. Because an actual initiation is as good or better for testing than a simulated initiation, operability is adequately demonstrated in either case. As described in the attached Bases pages, the relevant signals for the surveillance are safety-injection and loss of offsite power.

This change is based on NUREG 1431. The current STP Technical Specification format is retained and the changes to the Bases reflect STP features.

**Elimination of SR 4.7.4.b.3 for automatic start of Screen Wash on Safety Injection Signal**

The ECW system is an open loop cooling system that removes heat from various safety related systems and rejects it to the STP Essential Cooling Pond, which is the ultimate heat sink. The ECW is a Safety Class 3 system that operates during normal plant operation and during accident conditions. It ultimately rejects heat to the Essential Cooling Pond from loads such as Residual Heat Removal, Standby Diesel Generators, and Spent Fuel Pool Cooling.

A traveling water screen is provided upstream of each ECW pump in the ECW Intake Structure (ECWIS) to minimize debris entering the ECWS which could cause damage to the pumps or could clog heat exchanger tubes. Trash bars are located in the intake (upstream of the traveling water screens) to protect the screens and pumps from debris. The head terminals of the traveling water screens are located on an operating deck which is above the maximum flood level in a missile-proof compartment over the pump bays. Screen wash booster pumps, which take suction from the ECW pump discharge piping, provide water to wash each traveling water screen. A control system is provided to automatically start and stop the traveling screens during normal operation. A high differential water level sensed across any traveling screen alarms in the control room and automatically starts the screen wash booster pump and, after reaching adequate screen wash pressure, starts the traveling screen. The screen wash valve is opened whenever the booster pump is running. The traveling screens and screen wash system are classified as Safety-Class 3. The traveling screens and screen wash booster pump start on a safety-injection signal and are therefore listed as active components in the STP UFSAR.

Only under very infrequent conditions in the Essential Cooling Pond would the ECW traveling screens and screen wash booster pumps be considered required support systems for the ECW. The ECP is typically free of debris that would require operation of the traveling screens or screen wash booster pumps. As described above, the traveling screens and screen wash booster pumps will automatically start on high differential water level. A safety-injection signal is not required to start the screen wash booster pump or the traveling screens under other circumstances. In addition, the STP design basis does not require postulation of environmental conditions that would cause debris accumulation in the ECP concurrent with any accident that would require safety-injection.

An event requiring safety-injection (such as a loss of coolant accident) at the same time the traveling screens or screen wash booster pump is required is of such low probability that it need not be considered in the design basis. The STP Probabilistic Risk Assessment (PRA)

corroborates this position. The relevant PRA event is an external flood where the ECW system fails. The PRA assumes the screen wash system is not effective; consequently, it is not modelled in the PRA. The external flood is not a significant contributor to core damage frequency (CDF) at STP. Since they are not modelled in the PRA and have no effect on CDF, the traveling screens and the screen wash booster pumps are classified as non-risk significant components. Eliminating their automatic start on a safety-injection signal will have no effect on the core damage frequency or large early release frequency calculated in the STP PRA.

Based on the evaluation above, there is no deterministic or risk-significant justification for retaining the automatic start of the traveling screens and screen wash booster pumps on a safety-injection signal. STPNOC proposes that Technical Specification SR 4.7.4.b.3) be deleted from the STP Technical Specifications. STPNOC would make complementary changes to the STP UFSAR. STPNOC may also physically eliminate the safety-injection automatic start feature from STP Units 1 and 2 at a convenient time after the NRC approves the proposed change to the Technical Specifications.

**Implementation:**

STPNOC requests 30 days from the effective date of the proposed amendment to complete implementation.

# Determination of No Significant Hazards Considerations

## Determination of No Significant Hazards Considerations

**1. Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?**

**NUREG 1431 related changes:**

Incorporating the NUREG 1431 wording for SR 4.7.4.b.1 and SR 4.7.4.b.2 does not significantly increase the probability of an accident because the surveillance testing of the Essential Cooling Water system has no effect on accident initiation probability. This change does not significantly increase the consequences of an accident because the surveillance requirements still provide adequate assurance that the Essential Cooling Water system can provide its design function.

**Screen wash system changes:**

Eliminating the requirement for the Essential Cooling Water traveling screens and screen wash booster pumps to start on a safety injection signal does not increase the probability of any accident previously evaluated. The traveling screens and the screen wash booster pumps have no potential for initiating an accident. Eliminating the requirement for the traveling screens and the screen wash booster pumps to start on a safety injection signal does not increase the consequences of any accident previously evaluated. A control system is provided to automatically start and stop the traveling screens during normal operation. A high differential water level sensed across any traveling screen alarms in the control room and automatically starts the screen wash booster pump and, after reaching adequate screen wash pressure, starts the traveling screen. A safety injection signal is not needed for this function. In addition, there are no circumstances associated with any event requiring a safety injection signal that would cause a high differential water level across the traveling screen.

The changes to the Bases Index are administrative and have no relevance to accident probability or consequences.

Based on the above, STPNOC concludes that the proposed change does not increase the probability or consequences of an accident previously evaluated.

**2. Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?**

**NUREG 1431 related changes:**

Incorporation of the NUREG 1431 wording into the surveillance requirements does not create the possibility of a new or different kind of accident because the surveillance requirements are not substantially changed and do not involve any different operational configurations for the station.

**Screen wash system changes:**

Elimination of the requirement to start the traveling screen and screen wash booster pump on a safety injection signal will not create the possibility of a new or different kind of accident from any accident previously evaluated. As discussed above, the traveling screens and screen wash booster pump have no potential to initiate an accident. In addition, STPNOC is not proposing any different operational configurations for the station.

The changes to the Bases Index are administrative and have no relevance to accidents.

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

**Does the proposed amendment involve a significant reduction in a margin of safety?**

**NUREG 1431 related changes:**

Incorporation of the NUREG 1431 wording for SR 4.7.4.b.1 and SR 4.7.4.b.2 does not significantly change the way the surveillance requirements will be performed. The Surveillance Requirements still provide adequate assurance that the Essential Cooling Water will perform its function. There is no change in the operational configuration of the plant. Consequently, the changes to these surveillance requirements do not significantly affect the margin of safety.

**Screen wash system changes:**

Elimination of the requirement for the traveling screen and screen wash booster pump to start on a safety injection signal will not prevent the traveling screen and screen wash booster pump to start when required. The systems will start automatically without the need for a safety injection signal. In addition, there is no design basis or mechanistic reason to postulate the need to automatically start the traveling screens or screen wash booster pump on a safety injection signal.

The changes to the Bases Index are administrative and have no relevance to the safety margin.

Based on the above, STPNOC concludes that the proposed change does not involve a significant decrease in the margin of safety.

# Environmental Assessment

**Environmental Assessment:**

The proposed Technical Specification changes have been evaluated against the criteria for and identification of licensing and regulatory actions requiring environmental assessment in accordance with 10 CFR 51.21. The proposed changes meet the criteria for categorical exclusion as provided for under 10 CFR 51.22(c)(9). The following is a discussion of how the proposed changes meet the criteria for categorical exclusion.

Although the proposed amendment involves changes with respect to inspection or surveillance requirements:

(i) the proposed changes involve no Significant Hazards Consideration (refer to the No Significant Hazards Consideration section of this Change Request);

(ii) there is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite since the proposed changes do not affect the generation of any radioactive effluents nor do they affect any of the permitted release paths; and

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

Accordingly, the proposed changes meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Based on the aforementioned, and pursuant to 10 CFR 51.22(b), no environmental assessment or environmental impact statement need be prepared in connection with the issuance of an amendment to the Technical Specifications incorporating the proposed changes of this request.

# Annotated Technical Specification Page

PLANT SYSTEMS

3/4.7.4 ESSENTIAL COOLING WATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.4 At least three independent essential cooling water loops shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With only two essential cooling water loops OPERABLE, restore at least three loops to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.4 At least three essential cooling water loops shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying that each valve (manual, power-operated, or automatic) servicing safety-related equipment that is not locked, sealed, or otherwise secured in position is in its correct position;

b. At least once per 18 months during shutdown, by verifying that:

1) ~~Each automatic valve servicing safety-related equipment actuates to its correct position on a safety injection, ECW pump start, screen wash booster pump start and essential chiller start test signals, as applicab~~ Each Essential Cooling Water automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal, and

2) Each Essential Cooling Water pump starts automatically on an actual or simulated ~~Safety Injection or a Loss of Offsite Power test~~ signal~~, and~~

~~3) Each screen wash booster pump and the traveling screen start automatically on a Safety Injection test signal.~~

# Revised Technical Specification Pages

PLANT SYSTEMS

## 3/4.7.4 ESSENTIAL COOLING WATER SYSTEM

### LIMITING CONDITION FOR OPERATION

3.7.4 At least three independent essential cooling water loops shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

With only two essential cooling water loops OPERABLE, restore at least three loops to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

### SURVEILLANCE REQUIREMENTS

4.7.4 At least three essential cooling water loops shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying that each valve (manual, power-operated, or automatic) servicing safety-related equipment that is not locked, sealed, or otherwise secured in position is in its correct position;

b. At least once per 18 months during shutdown, by verifying that:

1) Each Essential Cooling Water automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal, and

2) Each Essential Cooling Water pump starts automatically on an actual or simulated signal.

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BASES

# Revised Bases Pages

3/4.7.1.6 ATMOSPHERIC STEAM RELIEF VALVES

The atmospheric steam relief valves are required for decay heat removal and safe cooldown in accordance with Branch Technical Position RSB 5-1. In the safety analyses, operation of the atmospheric steam relief valves is assumed in accident analyses for mitigation of small break LOCA, feedwater line break, loss of normal feedwater and loss-of-offsite power.

The atmospheric steam relief valve manual controls must be OPERABLE in Modes 1, 2, 3, and 4 (Mode 4 when steam generators are being used for decay heat removal) to allow operator action needed for decay heat removal and safe cooldown in accordance with Branch Technical Position RSB 5-1.

The atmospheric steam relief valve automatic controls must be OPERABLE with a nominal setpoint of 1225 psig in Modes 1 and 2 because the safety analysis assumes automatic operation of the atmospheric steam relief valves with a nominal setpoint of 1225 psig with uncertainties for mitigation of the small break LOCA. In order to support startup and shutdown activities (including post-refueling low power physics testing), the atmospheric steam relief valves may be operated in manual and open in Mode 2 to maintain the secondary side pressure at or below an indicated steam generator pressure of 1225 psig.

The verification that all atmospheric steam relief valves will open and close fully prior to startup following a COLD SHUTDOWN of 30 days or longer, or following any refueling shutdown, allows for operation using either manual or automatic controls.

3/4.7.1.7 FEEDWATER ISOLATION VALVES

The OPERABILITY of the feedwater isolation valves ensures that no more than one steam generator will blow down in the event of a steam line or feedwater line rupture. The operability of the Feedwater Isolation valves will minimize the positive reactivity effects of the Reactor Coolant System cooldown associated with the blowdown, and limit the pressure rise within containment. The OPERABILITY of the feedwater isolation valves within the closure times of the Surveillance Requirements are consistent with the assumptions used in the safety analysis.

3/4.7.2 STEAM GENERATOR PRESSURE/TEMPERATURE LIMITATION

The limitation on steam generator pressure and temperature ensures that the pressure-induced stresses in the steam generators do not exceed the maximum allowable fracture toughness stress limits. The limitations of 70oF and 200 psig are based on a steam generator RTNDT of 10oF and are sufficient to prevent brittle fracture.

B 3/4.7.3 COMPONENT COOLING WATER SYSTEM

The OPERABILITY of the Component Cooling Water System ensures that sufficient cooling capacity is available for continued operation of safety-related equipment during normal and accident conditions. The redundant cooling capacity of this system, assuming a single failure, is consistent with the assumptions used in the safety analyses.

## B 3/4.7.4 ESSENTIAL COOLING WATER SYSTEM

The OPERABILITY of the Essential Cooling Water System ensures that sufficient cooling capacity is available for continued operation of safety-related equipment during normal and accident conditions. The redundant cooling capacity of this system, assuming a single failure, is consistent with the assumptions used in the safety analyses.

When a risk-important system or component (for example Essential Cooling Water) is taken out of service, it is important to assure that the impact on plant risk of this and other equipment simultaneously taken out of service can be assessed. The Configuration Risk Management Program evaluates the impact on plant risk of equipment out of service. A brief description of the Configuration Risk Management Program is in Section 6.8.3 (administration section) of the Technical Specification.

### SURVEILLANCE REQUIREMENTS

SR 4.7.4.a

Verifying the correct alignment for manual, power operated, and automatic valves in the ECW flow path provides assurance that the proper flow paths exist for ECW operation. This SR applies to valves that assure ECW flow to required safety related equipment (to CCW heat exchangers, Standby Diesel Generators, Essential Chillers, and CCW Pump Supplemental Coolers). This SR does not apply to valves that are locked, sealed, or otherwise secured in position, since they are verified to be in the correct position prior to being locked, sealed, or secured. This SR does not require any testing or valve manipulation; rather, it involves verification that those valves capable of being mispositioned are in the correct position. This SR does not apply to valves that cannot be inadvertently misaligned, such as check valves.

The 31 day Frequency is based on engineering judgment, is consistent with the procedural controls governing valve operation, and ensures correct valve positions.

SR 4.7.4.b.1

This SR verifies proper automatic operation of the ECW valves on an actual or simulated actuation signal. The relevant signals for the surveillance are safety-injection and loss of offsite power. The ECW is a normally operating system that cannot be fully actuated as part of normal testing. This SR applies to valves that assure ECW flow to required safety related equipment (to CCW heat exchangers, Standby Diesel Generators, Essential Chillers, and CCW Pump Supplemental Coolers). This Surveillance is not required for valves that are locked, sealed, or otherwise secured in the required position under administrative controls. The 18 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a unit outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown that these components usually pass the Surveillance when performed at the 18 month Frequency. Therefore, the Frequency is acceptable from a reliability standpoint.

SURVEILLANCE REQUIREMENTS (cont.)

SR 4.7.4.b.2

This SR verifies proper automatic operation of the ECW pumps on an actual or simulated actuation signal. The relevant signals for the surveillance are safety-injection and loss of offsite power.The ECW system is a normally operating system that cannot be fully actuated as part of normal testing during normal operation. The 18 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a unit outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown that these components usually pass the Surveillance when performed at the 18 month Frequency. Therefore, the Frequency is acceptable from a reliability standpoint.

## B 3/4.7.5 ULTIMATE HEAT SINK

The limitations on the ultimate heat sink level and temperature ensure that sufficient cooling capacity is available either: (1) provide normal cooldown of the facility or (2) mitigate the effects of accident conditions within acceptable limits.