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

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U. S. Nuclear Regulatory Commission
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South Texas Project
Units 1 & 2
Docket Nos. STN 50-498 & 50-499
Technical Specification Bases Control Program

The attached pages are provided for information in accordance with the South Texas Project Technical Specification Bases Control Program. This submittal includes all Bases pages changed since the last submittal.

Page	Amendment	Description of Change
B 3 /4 3-4a	10-24562-4	Removed information regarding safety support systems for Remote Shutdown systems in section 3.3.3.5.
B 3/4 5-3	10-24562-3	Revised the Post-LOCA pH range from 7.5 and 10.0 to between 7.5 and 9.5.
B 3/4 7-6, B 3/4 7-7, B 3/4 8-5	10-24562-5	Added information for shutdown requirements if the required actions for inoperable Control Room Envelope (CRE) boundary specified by Technical Specification 3.7.7.d are not met. In addition, added information regarding an inoperable CRE to clarify the boundary is not a required system, subsystem, train, component, or device that depends on a Diesel Generator as a source of emergency power. [Amendments 195/183]

There are no commitments in this letter.

If you have any questions on this matter, please contact Marilyn Kistler at (361) 972-8385 or me at (361) 972-7298.

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Attachment: Revised Bases Pages

A001
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LCO

The Remote Shutdown System LCO provides the OPERABILITY requirements of the instrumentation and controls necessary to place and maintain the unit in MODE 3 from a location other than the control room. The instrumentation and controls required are listed in Table B 3.3.5-1.

The controls, instrumentation, and transfer switches are required for:

- Core reactivity control (initial and long term),
- RCS pressure control,
- Decay heat removal via the AFW System and the SG safety valves or SG PORVs,
- RCS inventory control via charging flow, and
- Safety support systems for the above Functions.

A Function of a Remote Shutdown System is OPERABLE if all instrument and control channels needed to support the Remote Shutdown System Function are OPERABLE. In some cases, Table B 3.3.5-1 may indicate that the required information or control capability is available from several alternate sources. In these cases, the Function is OPERABLE as long as one channel of any of the alternate instrumentation or control sources is OPERABLE.

The remote shutdown instrument and control circuits covered by this LCO do not need to be energized to be considered OPERABLE. This LCO is intended to ensure the instruments and control circuits will be OPERABLE if unit conditions require that the Remote Shutdown System be placed in operation.

APPLICABILITY

The Remote Shutdown System LCO is applicable in MODES 1, 2, and 3. This is required so that the unit can be placed and maintained in MODE 3 for an extended period of time from a location other than the control room.

ACTIONS

ACTION a. addresses the situation where one or more required Functions of the Remote Shutdown System is in a condition where one or more of its required channels are inoperable. This includes the control and transfer switches for any required Function. The Required Action is to restore the required Function to OPERABLE status within 30 days. The allowed outage time is based on operating experience and the low probability of an event that would require evacuation of the control room. If the Required Action and associated allowed outage time of ACTION a. is not met, the unit must be brought to a MODE in which the LCO does not apply. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours and to MODE 4 within 12 hours. The allowed outage time is reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

3/4.5.2 and 3/4.5.3 ECCS SUBSYSTEMS (Continued)

Specification 3.5.3.1 Action d prohibits the application of Specification 3.0.4.b to an inoperable ECCS high head subsystem when entering MODE 4. There is an increased risk associated with entering MODE 4 from MODE 5 with an inoperable ECCS high head subsystem and the provisions of Specification 3.0.4.b, which allow entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, should not be applied in this circumstance.

The Surveillance Requirements provided to ensure OPERABILITY of each component ensure that, at a minimum, the assumptions used in the safety analyses are met and that subsystem OPERABILITY is maintained. Surveillance Requirements for flow testing provide assurance that proper ECCS flows will be maintained in the event of a LOCA.

3/4.5.4 NOT USED

3/4.5.5 REFUELING WATER STORAGE TANK

The OPERABILITY of the refueling water storage tank (RWST) as part of the ECCS ensures that a sufficient supply of borated water is available for injection by the ECCS in the event of a LOCA or a steamline break. The limits on RWST minimum volume and boron concentration ensure that: (1) sufficient water is available within containment to permit recirculation cooling flow to the core, (2) the reactor will remain subcritical in the cold condition (68°F to 212°F) following a small break LOCA assuming complete mixing of the RWST, RCS, Containment Spray System and ECCS water volumes with all control rods inserted except the most reactive control rod assembly (ARI-1), (3) the reactor will remain subcritical in cold condition following a large break LOCA (break flow area > 3.0 ft^2) assuming complete mixing of the RWST, RCS, Containment Spray System and ECCS water volumes and other sources of water that may eventually reside in the sump post-LOCA with all control rods assumed to be out (ARO), and (4) long term subcriticality following a steamline break assuming ARI-1 and preclude fuel failure.

The maximum allowable value for the RWST boron concentration forms the basis for determining the time (post-LOCA) at which operator action is required to switch over the ECCS to hot leg recirculation in order to avoid precipitation of the soluble boron.

The contained water volume limit includes an allowance for water not usable because of tank discharge line location or other physical characteristics.

The limits on contained water volume and boron concentration of the RWST also ensure a pH value of between 7.0 and 9.5 for the solution recirculated within containment after a LOCA. This pH band minimizes the evolution of iodine and minimizes the effect of chloride and caustic stress corrosion on mechanical systems and components.

3/4.5.6 RESIDUAL HEAT REMOVAL (RHR) SYSTEM

The OPERABILITY of the RHR system ensures adequate heat removal capabilities for Long-Term Core Cooling in the event of a small-break loss-of-coolant accident (LOCA), an isolatable LOCA, or a secondary break in MODES 1, 2, and 3. The limits on the OPERABILITY of the RHR system ensure that at least one RHR loop is available for cooling including single active failure criteria.

ACTION d:

If the unfiltered in-leakage of potentially contaminated air past the CRE boundary and into the CRE can result in CRE occupant radiological dose greater than the calculated dose of the licensing basis analyses of DBA consequences (allowed to be up to 5 rem total effective dose equivalent (TEDE)), or inadequate protection of CRE occupants from hazardous chemicals or smoke, the CRE boundary is inoperable. Actions must be taken to restore an OPERABLE CRE boundary within 90 days.

An inoperable CRE boundary results in making one or more Control Room Makeup and Cleanup Filtration Systems inoperable. However, absent of an additional condition that results in the System(s) being inoperable other than for an inoperable boundary, only entry into ACTION d is required.

During the period that the CRE boundary is considered inoperable, action must be initiated to implement mitigating actions to lessen the effect on CRE occupants from the potential hazards of a radiological or chemical event or a challenge from smoke. 0PGP03-ZE-0030, "Control Room Envelope Habitability Program" discusses appropriate mitigating actions.

A note precedes ACTION d. For this condition, the Control Room Makeup and Cleanup Filtration Systems are inoperable only because the CRE boundary is inoperable. The note clarifies that the CRE boundary is not a required system, subsystem, train, component, or device that depends on a diesel generator as a source of emergency power. TS ACTION 3.8.1.1.d with one standby diesel generator inoperable is satisfied when all required systems, subsystems, trains, components, and devices that depend on the remaining OPERABLE diesel generators as a source of emergency power are OPERABLE and the Control Room Makeup and Cleanup Filtration Systems are inoperable solely because the CRE boundary is inoperable . Since the boundary is a passive function that does not require emergency power, application of TS 3.8.1.1.d provides no effective compensatory action. Appropriate compensatory action is already required by the action of TS 3.7.7.

As stated in 0PGP03-ZE-0030, the mitigating actions are verified to ensure that CRE occupant radiological exposures will not exceed the calculated dose of the licensing basis analyses of DBA consequences, and that CRE occupants are protected from hazardous chemicals and smoke. These mitigating actions (i.e., actions that are taken to offset the consequences of the inoperable CRE boundary) should be preplanned for implementation upon entry into the condition, regardless of whether entry is intentional or unintentional. The 24 hour Completion Time for implementation of the mitigating actions is reasonable based on the low probability of a DBA occurring during this time period, and the use of the mitigating actions. The 90 day Completion Time is reasonable based on the determination that the mitigating actions will ensure protection of CRE occupants within analyzed limits while limiting the probability that CRE occupants will have to implement protective measures that may adversely affect their ability to control the reactor and maintain it in a safe shutdown condition in the event of a DBA. In addition, the 90 day Completion Time is a reasonable time to diagnose, plan and possibly repair, and test most problems with the CRE boundary.

For purposes of the compensatory measure described above when multiple trains of Control Room Makeup and Cleanup Filtration Systems and Containment Spray are affected, the purpose of the compensatory measure is met when the mitigating actions of Action d.(2). are in place. If multiple trains of Control Room Makeup and Cleanup Filtration System are inoperable solely because the CRE boundary is inoperable, then the affected trains can be considered to be in service when Action d.(2) is met and there are no restrictions in making a train (i.e. multiple trains are not allowed) of Containment Spray unavailable unless the mitigating actions require all Containment Spray Systems to be functional.

ACTION d: (continued)

Similarly, there are no restrictions on making multiple trains of Control Room Makeup and Cleanup Filtration Systems inoperable solely because the CRE boundary is inoperable if or when Containment Spray is not functional.

Surveillance Requirement 4.7.7.e.3 verifies the OPERABILITY of the CRE boundary by testing for unfiltered air in-leakage past the CRE boundary and into the CRE. The details of the testing are specified in the Control Room Envelope Habitability Program. The CRE is considered habitable when the radiological dose to CRE occupants calculated in the licensing basis analyses of DBA consequences is no more than 5 rem total effective dose equivalent (TEDE) and the CRE occupants are protected from hazardous chemicals and smoke. This SR verifies that the unfiltered air in-leakage into the CRE is no greater than the flow rate assumed in the licensing basis analyses of DBA consequences. When unfiltered air in-leakage is greater than the assumed flow rate in MODES 1, 2, 3, and 4, Action d must be entered. Action d allows time to restore the CRE boundary to OPERABLE status provided mitigating actions can ensure that the CRE remains within the licensing basis habitability limits for the occupants following an accident.

Compensatory measures are discussed in Regulatory Guide 1.196, Section C.2.7.3, which endorses, with exceptions, NEI 99-03, Section 8.4 and Appendix F. These compensatory measures may also be used as mitigating actions as required by Action d. Temporary analytical methods may also be used as compensatory measures to restore OPERABILITY. Options for restoring the CRE boundary to OPERABLE status include changing the licensing basis DBA consequence analysis, repairing the CRE boundary, or a combination of these actions.

Compensatory actions (in support of Action d) also include administrative controls on coordinating opening or breaching the CRE boundary such that appropriate communication is established with the control room to assure timely closing of the boundary if necessary. Extended opening of the boundary is coordinated with the control room with appropriate plans for closure and communication.

Since the Control Room Envelope boundary integrity also affects operability of the overall system, entry and exit is administratively controlled. Administrative control of entry and exit through doors is performed by the persons entering or exiting the area. Entry and exit through doors under administrative controls does not require entry into Action d.

Depending upon the nature of the problem and the corrective action, a full scope in-leakage test may not be necessary to establish that the CRE boundary has been restored to OPERABLE status. There is no CRMCFS actuation for hazardous chemical releases or smoke and there are no surveillance requirements that verify operability for hazardous chemical or smoke. The hazardous chemical analyses for the South Texas Project do not assume any control room isolation and assumes air enters at normal makeup ventilation flow rates. No in-leakage test is required to determine unfiltered in-leakage from toxic gas since this would be a value much less than that currently assumed in the toxic gas analyses. There is no regulatory limit on the amount of smoke allowed in the control room. The plant's ability to manage smoke infiltration was assessed qualitatively. The conclusion is that the operator maintains the ability to safely shutdown the plant during a smoke event originating inside or outside the control room. Therefore, no in-leakage test is required to be conducted to measure the amount of smoke that could infiltrate into the control room.

A.C. SOURCES, D.C. SOURCES, and ONSITE POWER DISTRIBUTION (Continued)

"...required systems, subsystems, trains, components, and devices that depend on the remaining OPERABLE diesel generator as a source of emergency power" mean SSCs that are required by the Technical Specifications. TS 3.8.1.1.d. does not apply to non-TS SSCs that are governed by other documents (e.g. TRM).

The Control Room Envelope boundary is not a required system, subsystem, train, component, or device that depends on a diesel generator as a source of emergency power. TS ACTION 3.8.1.1.d. with one standby diesel generator inoperable is satisfied when all required systems, subsystems, trains, components, and devices that depend on the remaining OPERABLE diesel generators as a source of emergency power are OPERABLE and the Control Room Makeup and Cleanup Filtration Systems are inoperable solely because the CRE boundary is inoperable.

The 24-hour completion time is based on the capability of the operable equipment to mitigate all but the most severe design basis accidents as described above and the extremely low probability of the occurrence of a design basis accident. The 24-hour completion time also allows a deliberate planned response that may allow the inoperable equipment to be restored.

TS 3.8.1.1 Action e.

Operation may continue for a period that should not exceed 24 hours. This level of degradation means that the offsite electrical power system does not have the capability to effect a safe shutdown and to mitigate the effects of an accident; however, the onsite AC sources have not been degraded. This level of degradation generally corresponds to a total loss of the immediately accessible offsite power sources. With both of the required offsite circuits inoperable, sufficient onsite AC sources are available to maintain the unit in a safe shutdown condition in the event of a DBA or transient.

TS 3.8.1.1 Action f.

With two or three of the standby diesel generators inoperable, there is insufficient or no remaining standby AC sources. Thus, with an assumed loss of offsite electrical power, insufficient standby AC sources are available to power the minimum required ESF functions. A single train onsite AC source can effectively mitigate all but the most severe events with operator action in some cases. The events that cannot be mitigated by a single train onsite AC source are highly unlikely. Since the offsite electrical power system is the only source of AC power for this level of degradation, the risk associated with continued operation for a very short time could be less than that associated with an immediate controlled shutdown (the immediate shutdown could cause grid instability, which could result in a total loss of AC power). Since any inadvertent generator trip could also result in a total loss of offsite AC power, however, the time allowed for continued operation is severely restricted. The intent here is to avoid the risk associated with an immediate controlled shutdown and to minimize the risk associated with this level of degradation.

TS 3.8.1.1 Action i.

Specification 3.8.1.1 Action i prohibits the application of Specification 3.0.4.b to an inoperable standby diesel generator. There is an increased risk associated with entering a MODE or other specified condition in the Applicability with an inoperable standby diesel generator and the provisions of Specification 3.0.4.b, which allow entry into a MODE or other specified condition in the Applicability with the LCO not met after performance of a risk assessment addressing inoperable systems and components, should not be applied in this circumstance.