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

August 19, 2002
NOC-AE-02001252
File No.: G25
10CFR50.90

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

South Texas Project
Units 1 & 2
Docket Nos. STN 50-498, STN 50-499
Proposed Amendment to Technical Specification 3/4.3.2 to
Reduce Actuation Relay Test Frequency

Reference: Letter, Scott Head to U. S. Nuclear Regulatory Commission Document Control Desk, "Response to NRC Regulatory Issue Summary 2001-21," dated January 17, 2002 (NOC-AE-02001243)

Pursuant to 10CFR50.90, the South Texas Project requests approval of an amendment to the Unit 1 and Unit 2 Operating Licenses revising Technical Specification 3/4.3.2, "Engineered Safety Features Actuation System Instrumentation," to extend the interval between slave relay tests from three months to 18 months. This amendment request is one of the fourteen plant-specific submittals that the South Texas Project intends to submit in fiscal 2002 (reference).

The South Texas Project has reviewed the attached proposed amendment pursuant to 10CFR50.92 and determined that it does not involve a significant hazards consideration. In addition, the 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 Nuclear Safety Review Board has reviewed and approved the proposed changes.

There is precedent for extending the slave relay test interval. Similar amendments have been approved for:

- Diablo Canyon Nuclear Power Plant Units 1 and 2, extending the test interval for all Potter and Brumfield MDR slave relays in ESFAS to 18 months. (August 19, 1996)
- Vogtle Electric Generating Plant Units 1 and 2, extending the interval for ESFAS surveillance requirements for slave relay testing from 92 days to 18 months for circuits containing Potter & Brumfield MDR Series relays. (August 22, 2000)

Justification for extending these slave relay test intervals is based on information contained in the Westinghouse Electric Corporation reports WCAP-13878, Revision 2-P-A (proprietary version) and WCAP-14117-NP-A, Revision 2 (nonproprietary version), "Reliability Assessment of Potter & Brumfield MDR Series Relays," dated August 2000.

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The licensee evaluation of the proposed change, the proposed and revised replacement pages of the Technical Specifications, and a summary of commitments are included as attachments to this letter.

In accordance with 10CFR50.91(b), the South Texas Project is providing the State of Texas with a copy of this proposed amendment.

The South Texas Project requests NRC review and approval of the proposed change by June 1, 2003. The implementation of the proposed Technical Specifications will require procedure changes and rescheduling of the surveillances. The South Texas Project requests 30 days following approval by the NRC to allow for implementation of procedure revisions.

If there are any questions, please contact either Mr. P. L. Walker at (361) 972-8392 or me at (361) 972-7902.

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

Executed on Aug. 19, 2002.

T. J. Jordan
Vice President,
Engineering & Technical Services

PLW

Attachments: 1) Licensee Evaluation
2) Proposed Technical Specification Changes
3) Revised Technical Specification Pages
4) Summary of Commitments

ATTACHMENT 1

SOUTH TEXAS PROJECT

LICENSEE EVALUATION

PROPOSED AMENDMENT TO TECHNICAL SPECIFICATION 3/4.3.2, "ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION," TO REDUCE ACTUATION RELAY TEST FREQUENCY

LICENSEE EVALUATION

1.0 DESCRIPTION

The South Texas Project proposes to revise Technical Specification Table 4.3-2, "Engineered Safety Features Actuation System Instrumentation Surveillance Requirements," to extend the interval between relay tests for specified slave relays. Currently, these relay tests are performed quarterly. The proposed interval is 18 months.

2.0 PROPOSED CHANGE

The South Texas Project proposes changes to Technical Specification Table 4.3-2 to extend the slave relay test interval from three months to 18 months for the following Engineered Safety Feature systems:

- Safety Injection
- Containment Spray
- Containment Isolation
- Steam Line Isolation
- Turbine Trip and Feedwater Isolation
- Auxiliary Feedwater
- Automatic Switchover to Containment Sump

This proposed Technical Specification change applies to the following slave relay types:

- Potter & Brumfield MDR Series 4103-1
- Potter & Brumfield MDR Series 4121-1
- Potter & Brumfield MDR Series 4156

Footnotes to Technical Specification Table 4.3-2 will be revised as shown in the attachments to this amendment request.

3.0 BACKGROUND

3.1 SYSTEM DESCRIPTION

The Solid State Protection System (SSPS) is designed to shut down the reactor and/or actuate Engineered Safety Feature (ESF) components in response to the appropriate input signals. The SSPS consists of two redundant, electrically independent logic trains, which actuate three electrically independent actuation trains. Either SSPS logic train can actuate each actuation train. Redundant ESF components ensure that an SSPS logic train failure or actuation train failure will not result in loss of a required safety function.

ESF components are actuated directly or indirectly by slave relays. The slave relays are actuated by master relays, which are actuated by the logic circuits of the SSPS. Each slave relay actuates one or more ESF components. Most slave relays actuate the ESF components directly; however, a small number of slave relays actuate ESF components through isolation or auxiliary relays.

3.2 RELAY TESTING

The South Texas Project tests the SSPS as part of the ESF Actuation System (ESFAS) surveillance requirements. Several tests are performed to confirm the operability of all parts of the SSPS. An actuation logic test verifies the reactor trip and ESF logic signal output given simulated input signals to the SSPS.

Testing can identify relay failures before the relay is required to perform its intended

function. However, relay testing has the potential to cause inadvertent ESF actuation and/or reactor trip. Relaxing the test frequency reduces the number of tests performed on the relays, thus reducing the potential for unnecessary ESF actuation or reactor trip.

NRC Generic Letter 93-05, "Line Item Technical Specification Improvements to Reduce Surveillance Requirements for Testing During Power Operation," documents the results of a study of surveillance testing required by Technical Specifications. The studies found that, while some testing at power is essential to verify equipment and system operability, reducing the amount of testing at power will improve safety, decrease equipment degradation, and relieve personnel burden.

4.0 TECHNICAL ANALYSIS

This proposal to extend the slave relay test intervals is based on information contained in WCAP-13878, Revision 2-P-A (proprietary), "Reliability Assessment of Potter & Brumfield MDR Series Relays," dated August 2000.

WCAP-13878 contains the technical basis and methodology for extending slave relay test requirements for Potter & Brumfield MDR slave relays. Following review of WCAP-13878, the Nuclear Regulatory Commission issued safety evaluations dated May 31, 1996, and July 12, 2000, which state the conclusion that the failure data and analysis provided for Potter & Brumfield MDR slave relays used in SSPS applications support the proposed test interval extension. Based on the conclusions of WCAP-13878, slave relay testing of Potter & Brumfield MDR relays on a refueling frequency (i.e., 18 months) is adequate to confirm reliability and continuing operability of the slave relays. The WCAP specifies Potter & Brumfield MDR slave relay models 4103-1 and 4121-1. Model 4156 is included in this application because of its similarity to Model 4121-1.

4.1 SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

For plant-specific approval, the NRC requested that licensees provide the following information:

4.1.1 Confirm the applicability of the WCAP-13878, Revision 1, analyses to the South Texas Project.

WCAP-13878 documents a reliability assessment by Westinghouse to establish a basis for determining the reliability of Potter & Brumfield MDR rotary relays. A particular objective was to demonstrate that surveillance testing of the relays at 18-month intervals would not adversely affect the reliability of the SSPS.

As stated in WCAP-13878, the typical SSPS slave relay:

- Is normally de-energized, operating only in response to trip demands or during periodic testing,
- Is protected from the damaging effects of debris and contamination, and
- Is protected from the extremes of high ambient temperature and high relative humidity by HVAC.

The South Texas Project uses MDR Model 4103-1 and 4121-1 relays in slave relay applications, and also a small number of MDR Model 4156 relays which can be considered identical to the MDR Model 4121-1 relays evaluated in the WCAP. MDR relays used as slave relays at the South Texas Project are normally de-energized.

MDR Model 4156 relays are used in slave relay applications subject to low level load

applications. The relays are identical to MDR Model 4121-1 relays except for gold-plated contacts on the MDR Model 4156 and for differences in contact labeling.

Westinghouse Replacement Component Services specifies shelf life requirements for MDR relays (i.e., <120°F for 40 years). The South Texas Project Potter & Brumfield MDR Series relays are located in air-conditioned rooms in the Electrical Auxiliary Building. Environmental conditions for these relays are milder than those specified by Westinghouse storage requirements.

The subject relays will be replaced in accordance with WCAP-13878 recommendations.

Therefore, the WCAP-13878 Revision 1 analyses are applicable to the South Texas Project.

4.1.2 Ensure that the procurement program for Potter & Brumfield MDR relays is adequate for detecting the identified failure types.

Applicability of the referenced failure types to the South Texas Project is as follows:

- Relays in normally energized applications

  No MDR slave relays are used in normally energized applications.

- Substandard or refurbished relays

  MDR slave relays currently in place have met application requirements. Should any need to be replaced, South Texas Project would currently procure qualified replacement relays from Westinghouse. In addition, the MDR relay manufacturer (Tyco Electronics Corp.) is surveyed periodically under the Nuclear Procurement Issues Committee Joint Commercial Grade Item Survey Program. The survey ensures that standards of control are met in design, procurement, materials, manufacturing processes, inspection, testing, and measurement and test equipment.

  The South Texas Project procurement program specifies that only new MDR relays are acceptable. No refurbished slave relays will be used.

4.1.3 Ensure that all pre-1992 Potter & Brumfield MDR relays used in either normally energized or a 20% duty cycle have been removed from ESFAS applications.

No slave relays are used in normally energized applications. Scheduled plant activities result in a duty cycle of less than 5%.

4.1.4 Ensure that the contact loading analysis for Potter & Brumfield MDR relays has been performed to determine the acceptability of these relays.

Contact loading of MDR relays at the South Texas Project was addressed in 1987. Evaluation of the MDR relays for contact loading has been completed and corrective actions have been taken to resolve discrepancies. Review of inductive loading of contact ratings is included in current practice for new designs.

NRC Information Notice 92-19, "Misapplication of Potter & Brumfield MDR Rotary Relays," reported cases of misapplying MDR relays in switching low-level loads. The South Texas Project uses Potter & Brumfield MDR Model 4156 relays for low-level load switching. Model 4156 relays have been designed for such applications.

4.1.5 Re-evaluate the adequacy of the extended surveillance interval if two or more P&B MDR ESFAS subgroup relays fail in a 12-month period.

To support implementation of the extended surveillance interval, the South Texas Project

will implement a program to monitor performance results of the MDR slave relays. If two or more Potter & Brumfield MDR ESFAS subgroup relays fail in a 12-month period, the program will ensure the appropriateness of the extended surveillance interval is re-evaluated and that corrective action is taken as indicated.

4.2 RISK ASSESSMENT

The South Texas Project does not propose the changes described in this application as risk-informed changes to be reviewed in conformance with the criteria of Regulatory Guides 1.174 and 1.177. However, a risk assessment was performed to evaluate the impact of the proposed surveillance test interval (STI) changes on Core Damage Frequency (CDF) and Large Early Release Frequency (LERF).

The reference, average maintenance, STP PRA model was changed to increase the ESFAS slave relay latent failure multiplier by a factor of 6 (the change in STI, 18 months/3 months). The basic event and common cause group equations used to model ESFAS slave relay failures were increased by this multiplier. A Level 1 and Level 2 event tree quantification was subsequently performed to determine the change in CDF and LERF.

The difference in CDF between the reference PRA model and the STI study case described above is less than 1E-07 events per year. The corresponding difference in LERF is less than 1E-09 events/year. These changes in risk measures are considered to be not significant.

In addition, a review was performed to determine the impact of the proposed surveillance test interval changes on the risk-informed inservice testing program submitted to the NRC, dated May 21, 2001. Increases in the Core Damage Frequency (CDF) and Large Early Release Frequency (LERF) from changing the test interval from quarterly to eighteen months for those relays reviewed were found to be less than 1E-07. This is well below the requirements of RG 1.177, because of the "LOW" risk rank of the components affected.

4.3 CONCLUSION

Based on the Westinghouse findings, the South Texas Project concludes that there will be no adverse impact on the health and safety of the public by the proposed Technical Specification changes.

5.0 REGULATORY SAFETY ANALYSIS

5.1 NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

Pursuant to 10CFR50.91, this analysis provides a determination that the proposed change to the Technical Specifications described previously, does not involve any significant hazards consideration as defined in 10CFR50.92, as described below:

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

   Response: No

   This change to the Technical Specifications will not result in a condition where the design, material, and construction standards that were applicable prior to the change are altered. The same ESFAS instrumentation will be used and the same ESFAS system reliability is expected. The proposed change will not modify any system interface or function and could not increase the likelihood of an accident because

these events are independent of this change. The proposed activity will not change, degrade, or alter any assumptions previously made in evaluating the radiological consequences of an accident described in the safety analysis report.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

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

Response: No.

The proposed change will not alter the performance of the ESFAS mitigation systems assumed in the plant safety analysis. Changing the interval for periodically verifying ESFAS slave relays (assuring equipment operability) will not create any new accident initiators or scenarios. Only the testing frequency is changed. No physical changes will be made to the Solid State Protection System or the ESF Actuation System as a result of this change.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3) **Does the proposed change involve a significant reduction in a margin of safety?**

Response: No.

The proposed change will not affect the total ESFAS response assumed in the safety analysis because the reliability of the slave relays will not be significantly affected by the increased surveillance interval. The relays have demonstrated a high reliability and insensitivity to short term wear and aging effects. The overall reliability, redundancy, and diversity assumed available for the protection and mitigation of accident and transient conditions is unaffected by this proposed Technical Specification change.

Therefore, the proposed change does not involve a reduction in a margin of safety.

Conclusion

Based on the above safety evaluation, the South Texas Project concludes that the change proposed by this License Amendment Request satisfies the no significant hazards consideration standards of 10 CFR 50.92(c) and, accordingly, a finding of no significant hazards is justified.

5.2 APPLICABLE REGULATORY REQUIREMENTS

5.2.1 Requirements

The regulatory basis for the Technical Specification surveillance requirements is to ensure that accident conditions are sensed and operation of systems and components important to safety is initiated in order to protect against violating core design limits, challenging the Reactor Coolant System boundary, and to mitigate the consequences of accidents.

GDC 20, "Protection system functions," requires that the protection system be designed to initiate the operation of systems and components important to safety.

GDC 21, "Protection system reliability and testability," requires that the protection system shall be designed for high functional reliability and inservice testability commensurate with the safety functions to be performed. GDC 21 also requires that the protection system be designed so as to permit functional testing during reactor operation in order to determine and identify failures and losses of redundancy.

GDC 29, "Protection against anticipated operational occurrences," requires that protection systems be designed to assure an extremely high probability of accomplishing their functions in the event of anticipated operational occurrences.

10CFR50.55a(h) requires that protection systems meet the requirements set forth in IEEE 279, "Criteria for Protection Systems for Nuclear Power Generating Stations." Section 4.10 of IEEE 279-1971 requires that capability be provided for testing and calibrating protection system equipment and indicates when such equipment must be tested during reactor operation.

5.2.2 Resolution

The requirements of GDC 20, 21, and 29 continue to be met because the change being proposed will not affect the design capability, function, operation, or method of testing the SSPS or associated slave relays. The requirements of IEEE 279 continue to be satisfied because the only change being proposed is a reduction in the frequency of required testing; the frequency of required testing is not specified in IEEE 279.

6.0 ENVIRONMENTAL CONSIDERATION

The South Texas Project has determined that the proposed amendment would change a surveillance requirement. However, the proposed amendment does not involve:

- A significant hazards consideration;
- A significant change in the types, or significant increase in the amounts, of any effluents that may be released offsite; or
- A significant increase in individual or cumulative occupational radiation exposures.

Consequently, the proposed changes meet the eligibility criteria for categorical exclusion set forth in 10CFR51.22(c)(9). Therefore, pursuant to 10CFR51.22(b), an environmental assessment of the proposed changes is not required.

7.0 IMPLEMENTATION PLAN

The implementation of the proposed Technical Specifications will require procedure changes and rescheduling of the surveillances. The South Texas Project requests 30 days following approval by the NRC to allow for implementation of procedure revisions.

ATTACHMENT 2

PROPOSED TECHNICAL SPECIFICATION CHANGES

TABLE 4.3-2

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

CHANNEL FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	DIGITAL OR ANALOG CHANNEL OPERATIONAL TEST (7)	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
1. Safety Injection (Reactor Trip, Feedwater Isolation, Control Room Emergency Ventilation, Start Standby Diesel Generator, Reactor Containment Fan Coolers, and Essential Cooling Water)								
a. Manual Initiation	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1, 2, 3, 4
b. Automatic Actuation Logic	N.A.	N.A.	N.A.	N.A.	Q(1)	N.A.	N.A.	1, 2, 3, 4
c. Actuation Relays	N.A.	N.A.	N.A.	N.A.	N.A.	Q(6)	Q(~~4, 5~~ 8)	1, 2, 3, 4
d. Containment Pressure High-1	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3, 4
e. Pressurizer Pressure-Low	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
f. Compensated Steam Line Pressure -Low	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

CHANNEL FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	DIGITAL OR ANALOG CHANNEL OPERATIONAL TEST (7)	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
2. Containment Spray								
a. Manual Initiation	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1, 2, 3, 4
b. Automatic Actuation Logic	N.A.	N.A.	N.A.	N.A.	Q(1)	N.A.	N.A.	1, 2, 3, 4
c. Actuation Relays	N.A.	N.A.	N.A.	N.A.	N.A.	Q(6)	Q(8)	1, 2, 3, 4
d. Containment Pressure-High-3	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
3. Containment Isolation								
a. Phase "A" Isolation								
1) Manual Initiation	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1, 2, 3, 4
2) Automatic Actuation Logic	N.A.	N.A.	N.A.	N.A.	Q(1)	N.A.	N.A.	1, 2, 3, 4
3) Actuation Relays	N.A.	N.A.	N.A.	N.A.	N.A.	Q(6)	Q(8)	1, 2, 3, 4
4) Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.							
b. Containment Ventilation Isolation								
1) Automatic Actuation Logic	N.A.	N.A.	N.A.	N.A.	Q(1)	N.A.	N.A.	1, 2, 3, 4
2) Actuation Relays	N.A.	N.A.	N.A.	N.A.	N.A.	Q(6)	Q(8)	1, 2, 3, 4

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

CHANNEL FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	DIGITAL OR ANALOG CHANNEL OPERATIONAL TEST (7)	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
3. Containment Isolation (Continued)								
3) Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.							
4) RCB Purge Radioactivity - High	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3, 4, 5*, 6*
5) Containment Spray - Manual Initiation	See Item 2. above for Containment Spray manual initiation Surveillance Requirements.							
6) Phase A Isolation - Manual Initiation	See Item 3. a. above for Phase "A" Isolation manual initiation Surveillance Requirements.							
c. Phase "B" Isolation								
1) Automatic Actuation Logic	N.A.	N.A.	N.A.	N.A.	Q(1)	N.A.	N.A.	1, 2, 3, 4
2) Actuation Relays	N.A.	N.A.	N.A.	N.A.	N.A.	Q(6)	Q[8]	1, 2, 3, 4
3) Containment Pressure -- High-3	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
4) Containment Spray- Manual Initiation	See Item 2. above for Containment Spray manual initiation Surveillance Requirements.							
d. RCP Seal Injection Isolation								
1) Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	N.A.	Q	Q[8]	1, 2, 3, 4
2) Charging Header Pressure - Low	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3, 4
Coincident with Phase "A" Isolation	See Item 3.a. above for Phase "A" surveillance requirements.							

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TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

CHANNEL FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	DIGITAL OR ANALOG CHANNEL OPERATIONAL TEST (7)	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
4. Steam Line Isolation								
a. Manual Initiation	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1, 2, 3
b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	Q(1)	Q(6)	Q(8)	1, 2, 3
c. Steam Line Pressure-Negative Rate - High	S	R	Q	N.A.	N.A.	N.A.	N.A.	3
d. Containment Pressure – High - 2	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
e. Compensated Steam Line Pressure - Low	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
5. Turbine Trip and Feedwater Isolation								
a. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	Q(1)	Q(6)	Q(8)	1, 2, 3
b. Steam Generator Water Level-High-High (P-14)	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
c. Deleted								
d. Deleted								
e. Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.							

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

CHANNEL FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	DIGITAL OR ANALOG CHANNEL OPERATIONAL TEST (7)	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
5. Turbine Trip and Feedwater Isolation (Continued)								
f. Tavg - Low Coincident with Reactor Trip (P-4) (Feedwater Isolation Only)	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
6. Auxiliary Feedwater								
a. Manual Initiation	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1, 2, 3
b. Automatic Actuation Logic	N.A.	N.A.	N.A.	N.A.	Q(1)	N.A.	N.A.	1, 2, 3
c. Actuation Relays	N.A.	N.A.	N.A.	N.A.	N.A.	Q(6)	Q[8]	1, 2, 3
d. Steam Generator Water Level--Low-Low	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
e. Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.							
f. Loss of Power	See Item 8. below for all Loss of Power Surveillance Requirements.							
7. Automatic Switchover to Containment Sump								
a. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	Q(6)	Q(6)	Q[8]	1, 2, 3, 4
b. RWST Level -- Low-Low	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3, 4
Coincident With: Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.							

NO CHANGES ON THIS PAGE.

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

CHANNEL FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	DIGITAL OR ANALOG CHANNEL OPERATIONAL TEST (7)	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
8. Loss of Power								
a. 4.16 kV ESF Bus Undervoltage (Loss of Voltage)	N.A.	R	N.A.	Q	N.A.	N.A.	N.A.	1, 2, 3, 4
b. 4.16 kV ESF Bus Undervoltage (Tolerable Degraded Voltage Coincident with SI)	N.A.	R	N.A.	Q	N.A.	N.A.	N.A.	1, 2, 3, 4
c. 4.16 kV ESF Bus Undervoltage (Sustained Degraded Voltage)	N.A.	R	N.A.	Q	N.A.	N.A.	N.A.	1, 2, 3, 4
9. Engineered Safety Features Actuation System Interlocks								
a. Pressurizer Pressure, P-11	N.A.	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
b. Low-Low T_{avg}, P-12	N.A.	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
c. Reactor Trip, P-4	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1, 2, 3
10. Control Room Ventilation								
a. Manual Initiation	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	All

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

NO CHANGES ON THIS PAGE.

CHANNEL FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	DIGITAL OR ANALOG CHANNEL OPERATIONAL TEST (7)	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
10. Control Room Ventilation (Continued)								
b. Safety Injection	See Item 1. above all Safety Injection Surveillance Requirements.							
c. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	Q(6)	N.A.	N.A.	All
d. Control Room Intake Air Radioactivity-High	S	R	Q	N.A.	N.A.	N.A.	N.A.	All
e. Loss of Power	See Item 8. above for all Loss of Power Surveillance Requirements.							
11. FHB HVAC								
a. Manual Initiation	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1, 2, 3, 4, or with irradiated fuel in the spent fuel pool
b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	Q(6)	N.A.	N.A.	1, 2, 3, 4, or with irradiated fuel in the spent fuel pool

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

CHANNEL FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	DIGITAL OR ANALOG CHANNEL OPERATIONAL TEST (7)	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
11. FHB HVAC (Continued)								
c. Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.							
d. Spent Fuel Pool Exhaust Radio-activity-High	S	R	Q	N.A.	N.A.	N.A.	N.A.	With irradiated fuel in spent fuel pool.

TABLE NOTATION

(1) Each train shall be tested at least every 92 days on a STAGGERED TEST BASIS.

(2) Deleted

(3) Deleted

(4) ~~Except relays K807, K814, K829 (Train B only), K831, K845, K852 and K854 (Trains B and C only) which shall be tested at least once per 18 months during refueling and during each COLD SHUTDOWN exceeding 24 hours unless they have been tested within the previous 92 days.~~ Deleted

(5) ~~Except relay K815 which shall be tested at indicated interval only when reactor coolant pressure is above 700 psig.~~ Deleted

(6) Each actuation train shall be tested every 92 days on a STAGGERED TEST BASIS. Testing of each actuation train shall include master relay testing of both logic trains. If an ESFAS instrumentation channel is inoperable due to failure of the Actuation Logic Test and/or Master Relay Test, increase the surveillance frequency such that each train is tested at least every 62 days on a STAGGERED TEST BASIS unless the failure can be determined by performance of an engineering evaluation to be a single random failure.

(7) For channels with bypass test instrumentation, input relays are tested on an 18-month (R) frequency.

(8) The test interval is R for Potter & Brumfield MDR Series slave relays.

* During CORE ALTERATIONS or movement of irradiated fuel within containment.

3/4.3.1 and 3/4.3.2 REACTOR TRIP SYSTEM and ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

The OPERABILITY of the Reactor Trip System and the Engineered Safety Features Actuation System instrumentation and interlocks ensures that: (1) the associated ACTION and/or Reactor trip will be initiated when the parameter monitored by each channel or combination thereof reaches its Setpoint, (2) the specified coincidence logic is maintained, (3) sufficient redundancy is maintained to permit a channel to be out-of-service for testing or maintenance, and (4) sufficient system functional capability is available from diverse parameters.

The OPERABILITY of these systems is required to provide the overall reliability, redundancy, and diversity assumed available in the facility design for the protection and mitigation of accident and transient conditions. The integrated operation of each of these systems is consistent with the assumptions used in the safety analyses. The Surveillance Requirements specified for these systems ensure that the overall system functional capability is maintained comparable to the original design standards. The periodic surveillance tests performed at the minimum frequencies are sufficient to demonstrate this capability. Specified surveillance intervals and surveillance and maintenance outage times have been determined in accordance with WCAP-10271, "Evaluation of Surveillance Frequencies and Out of Service Times for the Reactor Protection Instrumentation System," supplements to that report, WCAP-14333-P-A, Rev. 1, "Probabilistic Risk Analysis of the RPS and ESFAS Test Times and Completion Times," and the South Texas Project probabilistic safety assessment (PSA). Surveillance intervals and out of service times were determined based on maintaining an appropriate level of reliability of the Reactor Protection System instrumentation.

[INSERT]

ACTION 4 of Table 3.3-1 is modified to indicate that normal plant control operations that individually add limited positive reactivity (e.g., temperature or boron fluctuations associated with RCS inventory management or temperature control) are not precluded by this Action, provided they are accounted for in the calculated SHUTDOWN MARGIN required by Technical Specifications. Introduction of coolant inventory must be from sources that have a boron concentration greater than what would be required in the RCS for minimum SHUTDOWN MARGIN. This may result in an overall reduction in RCS boron concentration, but provides acceptable margin to maintaining subcritical operation. Introduction of temperature changes must also be evaluated to ensure they do not result in a loss of SHUTDOWN MARGIN. Control rod withdrawal is not allowed.

ACTION 5 of Table 3.3-1 for the Extended Range Neutron Flux Instrumentation is similar to ACTION 4 for the Source Range Instrumentation. The Action indicates that normal plant control operations that individually add limited positive reactivity (e.g., temperature or boron fluctuations associated with RCS inventory management or temperature control) are not precluded by this Action, provided they are accounted for in the calculated SHUTDOWN MARGIN required by Technical Specifications. Introduction of coolant inventory must be from sources that have a boron concentration greater than that required in the RCS for minimum SHUTDOWN MARGIN or refueling boron concentration. This may result in an overall reduction in RCS boron concentration, but provides acceptable margin to maintaining subcritical operation. Introduction of temperature changes including temperature increases when operating with a positive Moderator Temperature Coefficient must also be evaluated to ensure they do not result in a loss of SHUTDOWN MARGIN. Control Rod withdrawal is not allowed.

FOR INFORMATION ONLY

Insert for Technical Specification Bases page 3/4 3-1

The 18-month slave relay test interval is based on information contained in WCAP-13878, Rev. 1, "Reliability Assessment of Potter & Brumfield MDR Series Relays." This assessment sets conditions and provides guidance for maintaining the reliability necessary to continue 18-month testing

ATTACHMENT 3

REVISED TECHNICAL SPECIFICATION PAGES

TABLE 4.3-2

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

CHANNEL FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	DIGITAL OR ANALOG CHANNEL OPERATIONAL TEST (7)	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
1. Safety Injection (Reactor Trip, Feedwater Isolation, Control Room Emergency Ventilation, Start Standby Diesel Generator, Reactor Containment Fan Coolers, and Essential Cooling Water)								
a. Manual Initiation	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1, 2, 3, 4
b. Automatic Actuation Logic	N.A.	N.A.	N.A.	N.A.	Q(1)	N.A.	N.A.	1, 2, 3, 4
c. Actuation Relays	N.A.	N.A.	N.A.	N.A.	N.A.	Q(6)	Q(8)	1, 2, 3, 4
d. Containment Pressure High-1	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3, 4
e. Pressurizer Pressure-Low	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
f. Compensated Steam Line Pressure -Low	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3

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Unit 2 - Amendment No. ~~47, 125~~

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

CHANNEL FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	DIGITAL OR ANALOG CHANNEL OPERATIONAL TEST (7)	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
2. Containment Spray								
a. Manual Initiation	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1, 2, 3, 4
b. Automatic Actuation Logic	N.A.	N.A.	N.A.	N.A.	Q(1)	N.A.	N.A.	1, 2, 3, 4
c. Actuation Relays	N.A.	N.A.	N.A.	N.A.	N.A.	Q(6)	Q(8)	1, 2, 3, 4
d. Containment Pressure-High-3	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
3. Containment Isolation								
a. Phase "A" Isolation								
1) Manual Initiation	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1, 2, 3, 4
2) Automatic Actuation Logic	N.A.	N.A.	N.A.	N.A.	Q(1)	N.A.	N.A.	1, 2, 3, 4
3) Actuation Relays	N.A.	N.A.	N.A.	N.A.	N.A.	Q(6)	Q(8)	1, 2, 3, 4
4) Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.							
b. Containment Ventilation Isolation								
1) Automatic Actuation Logic	N.A.	N.A.	N.A.	N.A.	Q(1)	N.A.	N.A.	1, 2, 3, 4
2) Actuation Relays	N.A.	N.A.	N.A.	N.A.	N.A.	Q(6)	Q(8)	1, 2, 3, 4

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

CHANNEL FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	DIGITAL OR ANALOG CHANNEL OPERATIONAL TEST (7)	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
3. Containment Isolation (Continued)								
3) Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.							
4) RCB Purge Radioactivity - High	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3, 4, 5*, 6*
5) Containment Spray - Manual Initiation	See Item 2. above for Containment Spray manual initiation Surveillance Requirements.							
6) Phase A Isolation - Manual Initiation	See Item 3. a. above for Phase "A" Isolation manual initiation Surveillance Requirements.							
c. Phase "B" Isolation								
1) Automatic Actuation Logic	N.A.	N.A.	N.A.	N.A.	Q(1)	N.A.	N.A.	1, 2, 3, 4
2) Actuation Relays	N.A.	N.A.	N.A.	N.A.	N.A.	Q(6)	Q(8)	1, 2, 3, 4
3) Containment Pressure -- High-3	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
4) Containment Spray- Manual Initiation	See Item 2. above for Containment Spray manual initiation Surveillance Requirements.							
d. RCP Seal Injection Isolation								
1) Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	N.A.	Q	Q(8)	1, 2, 3, 4
2) Charging Header Pressure - Low	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3, 4
Coincident with Phase "A" Isolation	See Item 3.a. above for Phase "A" surveillance requirements.							

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

CHANNEL FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	DIGITAL OR ANALOG CHANNEL OPERATIONAL TEST (7)	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
4. Steam Line Isolation								
a. Manual Initiation	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1, 2, 3
b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	Q(1)	Q(6)	Q(8)	1, 2, 3
c. Steam Line Pressure-Negative Rate - High	S	R	Q	N.A.	N.A.	N.A.	N.A.	3
d. Containment Pressure – High - 2	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
e. Compensated Steam Line Pressure - Low	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
5. Turbine Trip and Feedwater Isolation								
a. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	Q(1)	Q(6)	Q(8)	1, 2, 3
b. Steam Generator Water Level-High-High (P-14)	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
c. Deleted								
d. Deleted								
e. Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.							

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

CHANNEL FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	DIGITAL OR ANALOG CHANNEL OPERATIONAL TEST (7)	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
5. Turbine Trip and Feedwater Isolation (Continued)								
f. Tavg - Low Coincident with Reactor Trip (P-4) (Feedwater Isolation Only)	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
6. Auxiliary Feedwater								
a. Manual Initiation	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1, 2, 3
b. Automatic Actuation Logic	N.A.	N.A.	N.A.	N.A.	Q(1)	N.A.	N.A.	1, 2, 3
c. Actuation Relays	N.A.	N.A.	N.A.	N.A.	N.A.	Q(6)	Q(8)	1, 2, 3
d. Steam Generator Water Level--Low-Low	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
e. Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.							
f. Loss of Power	See Item 8. below for all Loss of Power Surveillance Requirements.							
7. Automatic Switchover to Containment Sump								
a. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	Q(6)	Q(6)	Q(8)	1, 2, 3, 4
b. RWST Level -- Low-Low	S	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3, 4
Coincident With: Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.							

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

NO CHANGES ON THIS PAGE.

CHANNEL FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	DIGITAL OR ANALOG CHANNEL OPERATIONAL TEST (7)	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
8. Loss of Power								
a. 416 kV ESF Bus Undervoltage (Loss of Voltage)	N.A.	R	N.A.	Q	N.A.	N.A.	N.A.	1, 2, 3, 4
b. 4.16 kV ESF Bus Undervoltage (Tolerable Degraded Voltage Coincident with SI)	N.A.	R	N.A.	Q	N.A.	N.A.	N.A.	1, 2, 3, 4
c. 4.16 kV ESF Bus Undervoltage (Sustained Degraded Voltage)	N.A.	R	N.A.	Q	N.A.	N.A.	N.A.	1, 2, 3, 4
9. Engineered Safety Features Actuation System Interlocks								
a. Pressurizer Pressure, P-11	N.A.	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
b. Low-Low T_{avg}, P-12	N.A.	R	Q	N.A.	N.A.	N.A.	N.A.	1, 2, 3
c. Reactor Trip, P-4	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1, 2, 3
10. Control Room Ventilation								
a. Manual Initiation	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	All

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

NO CHANGES ON THIS PAGE.

CHANNEL FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	DIGITAL OR ANALOG CHANNEL OPERATIONAL TEST (7)	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
10. Control Room Ventilation (Continued)								
b. Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.							
c. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	Q(6)	N.A.	N.A.	All
d. Control Room Intake Air Radioactivity-High	S	R	Q	N.A.	N.A.	N.A.	N.A.	All
e. Loss of Power	See Item 8. above for all Loss of Power Surveillance Requirements.							
11. FHB HVAC								
a. Manual Initiation	N.A.	N.A.	N.A.	R	N.A.	N.A.	N.A.	1, 2, 3, 4, or with irradiated fuel in the spent fuel pool
b. Automatic Actuation Logic and Actuation Relays	N.A.	N.A.	N.A.	N.A.	Q(6)	N.A.	N.A.	1, 2, 3, 4, or with irradiated fuel in the spent fuel pool

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

CHANNEL FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	DIGITAL OR ANALOG CHANNEL OPERATIONAL TEST (7)	TRIP ACTUATING DEVICE OPERATIONAL TEST	ACTUATION LOGIC TEST	MASTER RELAY TEST	SLAVE RELAY TEST	MODES FOR WHICH SURVEILLANCE IS REQUIRED
11. FHB HVAC (Continued)								
c. Safety Injection	See Item 1. above for all Safety Injection Surveillance Requirements.							
d. Spent Fuel Pool Exhaust Radio-activity-High	S	R	Q	N.A.	N.A.	N.A.	N.A.	With irradiated fuel in spent fuel pool.

TABLE NOTATION

(1) Each train shall be tested at least every 92 days on a STAGGERED TEST BASIS.

(2) Deleted

(3) Deleted

(4) Deleted

(5) Deleted

(6) Each actuation train shall be tested every 92 days on a STAGGERED TEST BASIS. Testing of each actuation train shall include master relay testing of both logic trains. If an ESFAS instrumentation channel is inoperable due to failure of the Actuation Logic Test and/or Master Relay Test, increase the surveillance frequency such that each train is tested at least every 62 days on a STAGGERED TEST BASIS unless the failure can be determined by performance of an engineering evaluation to be a single random failure.

(7) For channels with bypass test instrumentation, input relays are tested on an 18-month (R) frequency.

(8) The test interval is R for Potter & Brumfield MDR Series slave relays.

* During CORE ALTERATIONS or movement of irradiated fuel within containment.

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Unit 2 - Amendment No. ~~47, 125~~

3/4.3.1 and 3/4.3.2 REACTOR TRIP SYSTEM and ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

The OPERABILITY of the Reactor Trip System and the Engineered Safety Features Actuation System instrumentation and interlocks ensures that: (1) the associated ACTION and/or Reactor trip will be initiated when the parameter monitored by each channel or combination thereof reaches its Setpoint, (2) the specified coincidence logic is maintained, (3) sufficient redundancy is maintained to permit a channel to be out-of-service for testing or maintenance, and (4) sufficient system functional capability is available from diverse parameters.

The OPERABILITY of these systems is required to provide the overall reliability, redundancy, and diversity assumed available in the facility design for the protection and mitigation of accident and transient conditions. The integrated operation of each of these systems is consistent with the assumptions used in the safety analyses. The Surveillance Requirements specified for these systems ensure that the overall system functional capability is maintained comparable to the original design standards. The periodic surveillance tests performed at the minimum frequencies are sufficient to demonstrate this capability. Specified surveillance intervals and surveillance and maintenance outage times have been determined in accordance with WCAP-10271, "Evaluation of Surveillance Frequencies and Out of Service Times for the Reactor Protection Instrumentation System," supplements to that report, WCAP-14333-P-A, Rev. 1, "Probabilistic Risk Analysis of the RPS and ESFAS Test Times and Completion Times," and the South Texas Project probabilistic safety assessment (PSA). Surveillance intervals and out of service times were determined based on maintaining an appropriate level of reliability of the Reactor Protection System instrumentation.

The 18-month slave relay test interval is based on information contained in WCAP-13878, Rev. 1, "Reliability Assessment of Potter & Brumfield MDR Series Relays." These assessments set conditions and provide guidance for maintaining the reliability necessary to continue 18-month testing.

ACTION 4 of Table 3.3-1 is modified to indicate that normal plant control operations that individually add limited positive reactivity (e.g., temperature or boron fluctuations associated with RCS inventory management or temperature control) are not precluded by this Action, provided they are accounted for in the calculated SHUTDOWN MARGIN required by Technical Specifications. Introduction of coolant inventory must be from sources that have a boron concentration greater than what would be required in the RCS for minimum SHUTDOWN MARGIN. This may result in an overall reduction in RCS boron concentration, but provides acceptable margin to maintaining subcritical operation. Introduction of temperature changes must also be evaluated to ensure they do not result in a loss of SHUTDOWN MARGIN. Control rod withdrawal is not allowed.

ACTION 5 of Table 3.3-1 for the Extended Range Neutron Flux Instrumentation is similar to ACTION 4 for the Source Range Instrumentation. The Action indicates that normal plant control operations that individually add limited positive reactivity (e.g., temperature or boron fluctuations associated with RCS inventory management or temperature control) are not precluded by this Action, provided they are accounted for in the calculated SHUTDOWN MARGIN required by Technical Specifications. Introduction of coolant inventory must be from sources that have a boron concentration greater than that required in the RCS for minimum SHUTDOWN MARGIN or refueling boron concentration. This may result in an overall reduction in RCS boron concentration, but provides acceptable margin to maintaining subcritical operation. Introduction of temperature changes including temperature increases when operating with a positive Moderator Temperature Coefficient must also be evaluated to ensure they do not result in a loss of SHUTDOWN MARGIN. Control Rod withdrawal is not allowed.

ATTACHMENT 4

SUMMARY OF COMMITMENTS

Summary of Commitments

1. The Potter & Brumfield type MDR relays will be replaced in accordance with WCAP-13878 recommendations. (Section 4.1.1)
2. To support implementation of the extended surveillance interval, the South Texas Project will implement a program to monitor performance results of the MDR actuation relays. If two or more Potter & Brumfield MDR ESFAS subgroup relays fail in a 12-month period, the program will ensure the adequacy of the extended surveillance interval is re-evaluated and corrective action taken. (Section 4.1.5)