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

February 28, 2001
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10CFR50.90
STI: 31232951

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
License Amendment Request –
Proposed Modification to Technical Specifications Requirements Associated With
Response Time Testing of Selected Pressure Sensors and Selected Protection Channels

In accordance with the provisions of 10 CFR 50.90, STP Nuclear Operating Company (STPNOC) proposes to revise the STP Unit 1 and Unit 2 Technical Specifications (TS) to eliminate periodic response time testing requirements on selected sensors and selected protection channels. The proposed amendment modifies TS Section 1.0 Definitions for "ENGINEERED SAFETY FEATURE (ESF) RESPONSE TIME" and "REACTOR TRIP SYSTEM (RTS) RESPONSE TIME" to provide for verification of response time for selected components provided that the components and the methodology for verification have been previously reviewed and approved by the NRC. Surveillances 4.3.1.2 and 4.3.2.2 are modified consistent with the new definitions. The associated Bases for specifications 3.3.1 and 3.3.2 will be revised to clarify that allocations for sensor response times may be obtained from: 1) historical records based on acceptable response time tests; 2) in place, onsite, or offsite (e.g., vendor) test measurements; or 3) utilizing vendor engineering specifications. WCAP-13632-P-A, Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements," provides both the technical basis for deleting periodic pressure and differential pressure sensor response time testing and the methodology for verifying the total channel response time using an allocated sensor response time. By letter dated September 5, 1995, Bruce A. Boger (NRC) to Roger A. Newton, Westinghouse Owners Group (WOG), the NRC approved WCAP-13632.

In addition, the Bases revision will clarify that allocations for signal processing and actuation logic response times may also be used in the verification of the overall protection system channel response times. WCAP-14036-P-A Revision 1, "Elimination of Periodic Protection Channel Response Time Tests" provides the basis and methodology for using allocated signal processing and actuation logic response times in the overall verification of the protection system channel response times. By letter dated October 6, 1998, Thomas H. Essig (NRC) to Lou Liberatori, Westinghouse Owners Group (WOG), the NRC approved WCAP-14036.

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Additionally, the proposed changes are consistent with those identified in traveler TSTF-111, Revision 6.

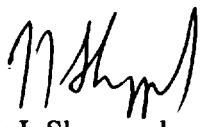
South Texas Project has reviewed the proposed amendment pursuant to 10CFR50.92 and determined that it does not involve a significant hazards consideration. In addition, South Texas Project has determined that the proposed amendment satisfies the criteria of 10CFR51.22(c)(9) for categorical exclusion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

Attachment 2 provides a description of and the basis for the proposed change, and includes a table that details the Process Channel and Actuation Logic response time allocations. Pursuant to 10 CFR 50.92, Attachment 3 demonstrates that the proposed change does not involve a significant hazard consideration, and Attachment 4 contains copies of the Westinghouse Owners Group (WOG) letters that transmitted WCAP-13632-P-A, Revision 2, WCAP-13787-A, Revision 2, WCAP-14036-P-A, Revision 1, and WCAP-14037-NP-A, Revision 1. Attachment 5 contains the STP response to NRC bulletins 90-01, and 90-01, Supplement 1, pertinent to Rosemount transmitters as discussed in Attachment 2. Attachment 6 is a mark-up of the affected pages from the STP Unit 1 and Unit 2 TS and the associated Bases pages. Attachment 7 provides the revised Technical Specification and Bases pages

In accordance with 10CFR50.91(b), South Texas Project is notifying the State of Texas of this request for a license amendment by providing a copy of this letter and its attachments.

Since the proposed change involves tests that are performed during refueling outages, STP will implement the proposed change during upcoming refueling outages. The next scheduled refueling outage for which the proposed change is requested is Unit 1 refueling outage 1RE10, which is currently scheduled for October 2001. Therefore, STP requests approval of the proposed change by October 2001, so that the changes may be implemented following the outage.

If there are any questions regarding the proposed amendment, please contact Mr. S. M. Head at (361) 972-7136 or me at (361) 972-8757.



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

JRM/

Attachments:

1. Affidavit
2. Description of and Basis for Proposed Change
3. Determination of No Significant Hazards
4. Copies of WOG letters that transmitted relevant WCAP Reports
5. STP response to NRC Bulletins 90-01, and 90-01, Supplement 1
6. Markup of Current Technical Specifications pages and associated Bases pages
7. Reconstituted Technical Specifications and Bases pages

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

ATTACHMENT 1

AFFIDAVIT

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
STP Nuclear Operating Company	)	Docket Nos. 50-498
	)	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 amendments to South Texas Project Operating Licenses NPF-76 and NPF-80; 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	)	

Subscribed and sworn to before me, a Notary Public in and for the State of Texas, this 28th day of February, 2001.

LOIS J. MILLS
Notary Public, State of Texas
My Commission Expires
JULY 27, 2003

Notary Public in and for the
State of Texas

ATTACHMENT 2

DESCRIPTION OF AND BASIS FOR PROPOSED CHANGE

Proposed Change

The current STP Technical Specifications require measurement of response times of reactor protection and engineered safety features instrumentation channels. The proposed change would eliminate the requirement to actually measure the response times. Instead, the response times would be verified by summing allocated times for sensors, the process protection system, the nuclear instrumentation system, and the logic system. These allocated values will be added to the measured times for the actuated devices and compared to the overall analysis limits. The proposed change requires revising the TS definition for "Engineered Safety Features (ESF) Response Time" and "Reactor Trip System (RTS) Response Time" to provide for verification of response time for selected components provided that the components and the methodology for verification have been previously reviewed and approved by the NRC. The TS requirements for response time verification will continue to be implemented by Surveillance Requirements (SRs) 4.3.1.2 and 4.3.2.2. The associated Bases for these SRs are revised to clarify that allocations for pressure and differential pressure sensor responses times may be derived from: (1) historical records based on acceptable response time tests (hydraulic, noise, or power interrupt tests), (2) in place, onsite, or offsite (e.g. vendor) test measurements, or (3) utilizing vendor engineering specifications.

IEEE Standard 338-1977, "Criteria for the Periodic Testing of Class 1E Power and Protection Systems," defines a basis for eliminating periodic response time testing. Section 6.3.4 of the Standard states:

> "Response time testing of all safety-related equipment, per se, is not required if, in lieu of response time testing, the response time of safety system equipment is verified by functional testing calibration checks, or other tests, or both."

The NRC accepted this Standard with Regulatory Guide 1.118, "Periodic Testing of Electric Power and Protection Systems, Revision 2. WCAP-14036-P-A Revision 1, "Elimination of Periodic Protection Channel Response Time Tests" provides the basis and methodology for using allocated signal processing and actuation logic response times in the overall verification of the protection system channel response time. The allocations for sensor, signal conditioning and actuation logic response times must be verified prior to placing the component into operational service and re-verified following maintenance that may adversely affect the response time. WCAP-15413, "Westinghouse 7300A ASIC-Based Replacement Module Licensing Summary Report" provides supplemental data for allocation of signal processing times.

Basis for Proposed Change for Sensors

WCAP-13632-P-A contains the technical basis and methodology for eliminating response time testing (RTT) requirements on sensors identified in the WCAP. The technical basis and methodology were approved by letter dated September 5, 1995 from Bruce A. Boger (NRC) to Roger A. Newton (WOG). The NRC safety evaluation for WCAP-13632-P-A requires

confirmation by the licensee that the generic analysis in the WCAP is applicable to their plant, and that licensees take the following actions:

1. Perform a hydraulic response time test (RTT) prior to installation of a new transmitter/switch or following refurbishment of the transmitter/switch (e.g., sensor cell or variable damping components) to determine an initial sensor-specific response time value.

2. For transmitters and switches that use capillary tubes, perform a RTT after initial installation and after any maintenance or modification activity that could damage the capillary tubes.

3. If variable damping is used, implement a method to assure that the potentiometer is at the required setting and cannot be inadvertently changed, or perform a hydraulic RTT of the sensor following each calibration.

4. Perform periodic drift monitoring of all Model 1151, 1152, 1153, and 1154 Rosemount pressure and differential pressure transmitters, for which RTT elimination is proposed, in accordance with the guidance contained in Rosemount Technical Bulletin No. 4 and continue to remain in full compliance with any prior commitments to Bulletin 90-01, Supplement 1, "Loss of Fill-Oil in Transmitters Manufactured by Rosemount." As an alternative to performing periodic drift monitoring of Rosemount transmitters, licensees may complete the following actions: (a) ensure that operators and technicians are aware of the Rosemount transmitter loss of fill-oil issue and make provisions to ensure that technicians monitor for sensor response time degradation during the performance of calibrations and functional tests of these transmitters, and (b) review and revise surveillance testing procedures, if necessary, to ensure that calibrations are being performed using equipment designed to provide a step function or fast ramp in the process variable and that calibrations and functional tests are being performed in a manner that allows simultaneous monitoring of both the input and output response of the transmitter under test, thus allowing, with reasonable assurance, the recognition of significant response time degradation.

STP has reviewed the plant data for STP Units 1 and 2. The sensors installed at the units are those that are bounded by the generic analysis contained in WCAP-13632-P-A. The list of sensors is identified in the Basis for Proposed Change for Protection Channels.

STP responses to the conditions of the NRC SER contained in WCAP-13632-P-A are as follows:

Response to Item 1

Consistent with the proposed TS changes (including the associated Bases for SR 4.3.1.2 and SR 4.3.2.2) and EPRI Report NP-7243, Revision 1, the applicable plant surveillance test procedures will include revisions which stipulate that pressure sensor response times

must be verified by performance of an appropriate response time test prior to placing a sensor into operational service and re-verified following maintenance that may adversely affect sensor response time.

Response to Item 2

Plant procedure revisions (and/or other appropriate administrative controls) will stipulate that pressure sensors (transmitters and switches) utilizing capillary tubes, e.g., containment pressure, must be subjected to RTT after initial installation and following any maintenance or modification activity which could damage the transmitter capillary tubes. When sensor RTT is required, the resultant pressure sensor response times will be documented in the plant procedure data packages.

Response to Item 3

STP has no pressure transmitters with variable damping installed in any RTS or ESFAS application for which RTT is required; therefore, no STP procedure changes or enhanced administrative controls are required. If STP replaces any transmitters in the future with variable damping capability, then STP will either perform hydraulic RTT of the sensor following each calibration, or will implement procedure changes and/or establish appropriate administrative controls to assure the variable damping potentiometer cannot be inadvertently changed. Examples of such administrative controls may include use of pressure transmitters that are factory set and hermetically sealed to prohibit tampering or in situ application of a tamper seal (or sealant) on the potentiometer to secure and give a visual indication of the potentiometer position.

Response to Item 4

STP responses to NRC Bulletins 90-01, "Loss of Fill-Oil in Transmitters Manufactured by Rosemount" and 90-01, Supplement 1, "Loss of Fill-Oil in Transmitters Manufactured by Rosemount", are listed in Attachment 5. As stated in Attachment 5, STP has no Rosemount transmitters that were manufactured prior to July 1989 in any RTS or ESFAS application, and therefore no periodic drift monitoring of Rosemount transmitters, for which response time testing elimination is proposed, is required. The Rosemount transmitters currently used in RTS and ESFAS applications were manufactured no earlier than year 1999, and were not installed until year 2000.

Basis for Proposed Change for Protection Channels

WCAP-14036-P-A, Revision 1 contains the technical basis and methodology for RTT requirements on protection channels identified in the WCAP. The basic justification for the elimination of periodic response time testing is based on a Failure Modes and Effects Analysis (FMEA) that: 1) determined that individual component degradation had no response time impact; or 2) identified components that may contribute to trip system response time degradation. Where

potential response time impact was identified, testing was conducted to determine the magnitude of the response time degradation, or a bounding response time limit for the system or component was determined. As a result of the FMEA, the only components that were tested were the Westinghouse 7100 and 7300 Process Protection System circuit boards and modules. For the remainder of the hardware types shown in segments 2 and 3 of Figure 1 of the WCAP (e.g., NIS, Eagle 21, SSPS and relay logic), bounding response time allocations were determined. In these cases the bounding response time allocation is derived from design response time specifications for the component.

For the 7100 and 7300 process protection system circuit boards and modules, the FMEA was performed by having a circuit designer review the circuits and identify those components that may increase the response time if they degrade from their nominal value. The time response of dynamic function (i.e., lead-lag, etc.) cards is verified during periodic calibration testing and, therefore, these cards were not included in the program. Where it was necessary to provide a response time limit with component degradation, the conclusions of the FMEA were quantified by testing card and module response times with degraded components.

The FMEA does the following:

- identifies response time sensitive components on the cards and modules via circuit analysis;
- evaluates the impact on the response time if a component fails or degrades;
- identifies detectability of degraded component via calibration; and
- identifies components that impact calibration but not response time.

The analysis identified capacitors and resistors as the dominant response time sensitive components. Other tested components included diodes, zener diodes, inductors, and potentiometers. Increased capacitance tends to lead to increased response time. Manufacturers of sensitive capacitors on the printed circuit cards identified the failure mechanism and the maximum change in capacitance which could be reached before the capacitor failed. One manufacturer stated that the capacitance will not increase beyond 25% of the nominal value. All of the responses of the manufacturers provided gross estimates that capacitors identified in the 7300 circuits do not have a failure mechanism that will double the nominal capacitance. Based on this information, a conservative increase of 50% in capacitance was used to determine the maximum change in response time for capacitor degradation. Resistors were assumed to degrade to as much as 200% of the nominal resistance, which is a conservative increase based on engineering judgement.

Actual testing was used to verify and further quantify the FMEA results. The test procedures were used to verify and/or determine actual response time of the card or module with a degraded capacitor or resistor. Components of different values were substituted to simulate various

degrees of degradation. The procedures required calibration checks on the card and module after each component change to determine if the calibration could or could not detect the degraded component. If the post-component change calibration inaccuracy exceeded 0.5% of span, then the degradation was considered detectable.

An input step change was used to obtain step response traces. The response time was defined as the time to reach 63% of the final output. This time is equal to the time constant of a dynamic system with a characteristic first order lag. For the 7300 cards, a slightly more conservative limit of 67% was used. In summary, the tests:

- measured the response time of calibrated production modules and provided response time base-line data;

- verified the analysis by measuring response times and obtaining calibration data for the card or module when the component(s) identified by analysis as having an impact on response time were degraded;

- verified that similar results would be obtained if testing was done at a temperature that more closely modeled the rack environment; and

- measured the response time of a simulated protection channel from input to output with components degraded.

Sections 4.2 - 4.5 of the WCAP present the results of the FMEA and testing with degraded components. Testing verified that the FMEA was conservative and provided a baseline response time value for each card and module tested. Testing components with simulated degradations was deemed necessary to precisely quantify the increase in response time, because the Westinghouse 7100 and 7300 process protection system FMEAs show that components can degrade and impact response time without a corresponding calibration or functional test failure. Because the degradation would be undetectable by routine calibration testing, bounding response times with a degraded component were determined. In cases where more than one component impacted the response time, the individual response time degradation increments were summed to estimate the total response time degradation for the card. The bounding response time is justified because of its small magnitude when compared to the total response time limit for the protection channel and because the simulated degradations were conservatively exaggerated as described above.

Sections 4.6 - 4.9 of the WCAP present the results of the FMEA for the NIS, EAGLE 21, SSPS and relay logic protection system. These systems did not require testing with degraded components. In some cases, the FMEA did not identify any response time sensitive components that are subject to degradation, and in other cases the effects of component degradation are accounted for in the overall response time allocation for the system.

In Section 8 of the WCAP, the methodology to integrate the component response time results into the determination of the limit for protection channels is presented. This information is then combined with the results of the actuated component periodic response time tests to ensure that the Technical Specification response time limits are verified.

Westinghouse 7300A ASIC-Based Replacement Modules (ABRMs)

WCAP-15413, "Westinghouse 7300A ASIC-Based Replacement Module Licensing Summary Report" section 9 provides the details supporting response time test deletion for ASICs type cards. The same methodology used in WCAP-14036 was used to analyze the ABRMs. The FMEA circuit analysis determined which components on the Main Board and Personality Modules were critical to response time. In lieu of testing, due to the less complex ABRM, the analysis took into account catastrophic component failure and degraded component performance to determine a bounding response time for the ABRM modules. This response time bounds the limit to which response time can be increased by degraded or failed components without that degradation or failure affecting calibration. The FMEA shows that component degradation will not increase the response time beyond the bounding response time without that degradation being detectable by other periodic surveillance test, such as channel check, functional tests and/or calibrations.

STP has reviewed the plant data for STP Units 1 and 2. Table 1 provides the listing of equipment installed in Units 1 and 2 that is bounded by the generic analysis contained in WCAP-14036-P-A, WCAP-15413, and WCAP-13632-P-A.

Table 1
South Texas Units 1 and 2
Process Channel & Actuation Logic Response Time Allocations

Reactor Trip System

FUNCTION	SENSOR	TIME	QDPS	ABRM/NIS STRING	TIME	SSPS RELAYS	TIME
PZR. PRESS. HI	Tobar 32PA1	200ms	N/A	NLP+NAL	130ms	Input	20ms
	Veritrak 76PH	200ms					
	Rosemount 1154HP6	200ms					
PZR. PRESS. LO	Tobar 32PA1	200ms	N/A	NLP+NAL	130ms	Input	20ms
	Veritrak 76PH	200ms					
	Rosemount 1154HP6	200ms					
SG LEVEL LO-LO	Tobar 32DP	400ms	(Note 1)	NLP+NAL	130ms	Input	20ms
	Veritrak 76DP	400ms					
	Rosemount 1154DP4	200ms					
RCS FLOW LO	Barton 752	30ms	N/A	NLP+NAL	130ms	Input	20ms
	Rosemount 1154HP6	200ms					
	Rosemount 1153HD5	200ms					
OPDT (Vary T_{avg})	RdF 21232-1/51709	(Note 1)	(Note 2)	NRA+NSA+NSA+NSA+NAL	479.6ms	Input	20ms
OPDT (Vary DeltaT)	RdF 21232-1/51709	(Note 1)	(Note 2)	NRA+NSA+NAL	278ms	Input	20ms
OTDT (Vary T_{avg})	RdF 21232-1/51709	(Note 1)	(Note 2)	NRA+NSA+NSA+NAL	378.8ms	Input	20ms
OTDT (Vary DeltaT)	RdF 21232-1/51709	(Note 1)	(Note 2)	NRA+NSA+NAL	278ms	Input	20ms

Table 1
South Texas Units 1 and 2
Process Channel & Actuation Logic Response Time Allocations

Reactor Trip System

FUNCTION	SENSOR	TIME	QDPS	ARBM/NIS STRING	TIME	SSPS RELAYS	TIME
OTDT (Vary Press)	Tobar 32PA1	200ms	N/A	NLP+NSA+NSA+NAL	331.6ms	Input	20ms
	Veritrak 76PH	200ms					
OTDT (Vary Flux)	Detectors Exempt	N/A	N/A	NIS (1ms) + NSA+NCH (Note 3)+NSA+NAL	302.6ms	Input	20ms
PZR. LEVEL HI	Tobar 32DP1	400	(Note 1)	NLP+NAL	130ms	Input	20 ms
	Veritrak 76DP2	400					
RCP VOLTAGE LO	ITE-27D	(Note 1)		N/A	N/A	Input	20ms
RCP FREQ. LO	ITE-27D	(Note 1)		N/A	N/A	Input	20ms
NIS LEVEL HI	Detectors Exempt	N/A		NIS FMEA	65ms	Input	20ms
NIS RATE HI	Detectors Exempt	N/A	N/A	NIS FMEA	200ms	Input	20ms
CONTAINMENT PRESS. REACTOR TRIP FROM (SI)	Barton 752/351	1.0sec	N/A	NLP+NAL	130ms	Input	20ms

Table 1
South Texas Units 1 and 2
Process Channel & Actuation Logic Response Time Allocations

Reactor Trip System

FUNCTION	SENSOR	TIME	QDPS	ARBM/NIS STRING	TIME	SSPS RELAYS	TIME
STEAMLINE PRESS LO REACTOR TRIP FROM (SI)	Tobar 32PA1	200ms	N/A	NLP+NAL	130ms	Input	20ms

(Note 1) Allocated times not used for these variables. These components will continue to be tested as required.

(Note 2) T_{hot} input provided through QDPS but T_{cold} input through NRA results in maximum allocation for ABRM string.

(Note 3) Maximum allocation results from substituting 7300 NCH card.

Allocated sensor times are derived from method (3) section (9) WCAP-13632 Rev. 2 (Vendor Engineering Specifications). Tobar, Veritrak, and Barton times were provided on Table 9-1. Rosemount times are from Rosemount manuals 4302 and 00809-0100-4514. The Rosemount response time specifications may also be found in NUREG/CR-5383. Transmitter FMEAs are based upon EPRI Report NP-7243 Rev. 1.

Values for ABRMs are from Table 9-1 of WCAP-15413. If 7300 cards are installed the values for 7300 cards in tables 4-7 through 4-12 of WCAP-14036 Rev. 1 result in a smaller allocation except where noted. 7300 cards installed are 4NCH, 4NRA, 6NLP, 4NSA, and 9NAL or older artwork levels. NIS components installed are; Summing and Level Amp (3359C48G01), Isolation Amp (6065D75G01), Rate Circuit Assy (3359C41G01), and Bistable Relay Driver Assy (3359C39G01). These were evaluated per NIS FMEA schematic diagram 6065D99.

SSPS Input and Master relays are Midtex Series 156 and Potter & Brumfield KH series relays. SSPS Slave relays are Potter & Brumfield MDR relays. Values are tabulated from Section 4.8 Westinghouse SSPS FMEA. SSPS components installed are: Safeguards Driver Card 6069D07, Universal Logic Board 1046F57 and Undervoltage Output Board 60101D27G01 (similar to 6058D90 with fuse in output circuit). These were evaluated per WCAP-14036 Rev. 1.

Table 1
South Texas Units 1 and 2
Process Channel & Actuation Logic Response Time Allocations

Engineered Safety Features Actuation System

FUNCTION	SENSOR	TIME	QDPS	ABRM/NIS STRING	TIME	SSPS RELAYS	TIME
CONT. PRESS HI-1	Barton 752/351	1.0sec		NLP+NAL	130ms	Input + Master + Slave	88ms
CONT. PRESS HI-2	Barton 752/351	1.0sec		NLP+NAL	130ms	Input + Master + Slave	88ms
CONT. PRESS HI-3	Barton 752/351	1.0sec		NLP+NAL	130ms	Input + Master + Slave	88ms
STEAM LINE PRESS LO	Tobar 32PA1	200ms		NLP+NAL	130ms	Input + Master + Slave	88ms
STEAM LINE PRESS HI NEG RATE	Tobar 32PA1	200ms		NLP+NAL	130ms	Input + Master + Slave	88ms
PZR PRESS LO SI	Tobar 32PA1	200ms		NLP+NAL	130ms	Input + Master + Slave	88ms
	Veritrak 76PH	200ms					
RWST LEVEL LO-LO	Barton 752	30ms		NLP+NAL	130ms	Input + Master + Slave + Slave	124 ms
	Rosemount 1153DB5	200ms					
SG LEVEL LO-LO	Tobar 32DP1	400ms	(Note 1)	NLP+NAL	130ms	Input + Master + Slave	88ms
	Veritrak 76DP2	400ms					
	Rosemount 1154DP4	200ms					

Table 1
South Texas Units 1 and 2
Process Channel & Actuation Logic Response Time Allocations

Engineered Safety Features Actuation System

FUNCTION	SENSOR	TIME	QDPS	ABRM/NIS STRING	TIME	SSPS RELAYS	TIME
SG LEVEL HI-HI	Tobar 32DP1	400ms	(Note 1)	NLP+NAL	130ms	Input + Master + Slave	88ms
	Veritrak 76DP2	400ms					
	Rosemount 1154DP4	200ms					
CONTAINMENT AREA RADIATION LEVEL HI	Sorrento RD52	(Note 1)	N/A	N/A	N/A	Input + Master + Slave	88ms
CONTAINMENT VENT RADIATION LEVEL HI	Sorrento RD52	(Note 1)	N/A	N/A	N/A	Input + Master + Slave	88ms

(Note 1) Allocated times not used for these variables. These components will continue to be tested as required.

Allocated sensor times are derived from method (3) section (9) WCAP-13632 Rev. 2 (Vendor Engineering Specifications). Tobar, Veritrak, and Barton times were provided on Table 9-1. Rosemount times are from Rosemount manuals 4302 and 00809-0100-4514. The Rosemount response time specifications may also be found in NUREG/CR-5383. Transmitter FMEAs are based upon EPRI Report NP-7243 Rev. 1.

Values for ABRMs are from Table 9-1 of WCAP-15413. If 7300 cards are installed the values for 7300 cards in tables 4-7 through 4-12 of WCAP-14036 Rev. 1 result in a smaller allocation except where noted. 7300 cards installed are 4NCH, 4NRA, 6NLP, 4NSA, and 9NAL or older artwork levels.

SSPS Input and Master relays are Midtex Series 156 and Potter & Brumfield KH series relays. SSPS Slave relays are Potter & Brumfield MDR relays. Values are tabulated from Section 4.8 Westinghouse SSPS FMEA. SSPS components installed are: Safeguards Driver Card 6069D07, Universal Logic Board 1046F57 and Undervoltage Output Board 60101D27G01 (similar to 6058D90 with fuse in output circuit). These were evaluated per WCAP-14036 Rev. 1.

ATTACHMENT 3

DETERMINATION OF NO SIGNIFICANT HAZARDS EVALUATION

Determination Of No Significant Hazards Evaluation

Description Of The Amendment Request

As required by 10 CFR 50.91 (a)(1), an analysis is provided to demonstrate that the proposed license amendment to delete the requirement for certain response time testing does not involve a significant hazards consideration. The proposed amendment revises Section 1.1 Definitions for "ENGINEERED SAFETY FEATURE (ESF) RESPONSE TIME" and "REACTOR TRIP SYSTEM (RTS) RESPONSE TIME", and the Specifications and associated Bases for Surveillance Requirements 4.3.1.2 and 4.3.2.2. The revisions to the Technical Specifications would allow the total response time to be determined based on the results of WCAP-13632-P-A Revision 2 for pressure and differential pressure sensors, and the results of WCAP-14036-P-A Revision 1 and WCAP-15413 for the process racks and trip logic.

Evaluation

Pursuant to 10 CFR 50.92, it has been determined that this request involves no significant hazards considerations. The determination of no significant hazards was made by applying the Nuclear Regulatory Commission established standards contained in 10 CFR 50.92. These standards assure that any changes to the operation of South Texas Project in accordance with this request consider the following:

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

   Response: No.

   This change to the Technical Specifications does not result in a condition where the design, material, and construction standards that were applicable prior to the change are altered. The same RTS and ESFAS instrumentation is being used; the time response allocations/modeling assumptions in the Chapter 15 analyses are still the same; only the method of verifying time response is changed. The proposed change will not modify any system interface and could not increase the likelihood of an accident since these events are independent of this change. The proposed activity will not change, degrade or prevent actions or alter any assumptions previously made in evaluating the radiological consequences of an accident described in the SAR. Therefore, the proposed amendment does not result in any increase in the probability or consequences of an accident previously evaluated.

Determination Of No Significant Hazards Evaluation

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

Response: No.

This change does not alter the performance of the pressure and differential pressure transmitters and switches, Process Protection racks, Nuclear Instrumentation, and Logic Systems used in the plant protection systems. All sensors, Process Protection racks, Nuclear Instrumentation, and Logic Systems will still have response time verified by test before placing the equipment into operational service and after any maintenance that could affect the response time. Changing the method of periodically verifying instrument response times for certain equipment (assuring equipment operability) from time response testing to calibration and channel checks will not create any new accident initiators or scenarios. Periodic surveillance of these instruments will detect significant degradation in the equipment response time characteristics. Implementation of the proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3) Will the change involve a significant reduction in a margin of safety?

Response: No.

This change does not affect the total system response time assumed in the safety analysis. The periodic system response time verification method for selected pressure and differential pressure sensors and for Process Protection racks, Nuclear Instrumentation, and Logic Systems is modified to allow use of actual test data or engineering data. The method of verification still provides assurance that the total system response time is within that assumed in the safety analysis. Based on the above, it is concluded that the proposed license amendment request does not result in a reduction in margin of safety.

Conclusion

Based on the preceding analysis, it is concluded that elimination of periodic equipment response time testing is acceptable and the proposed license amendment does not involve a Significant Hazards Consideration as defined in 10 CFR 50.92.

ATTACHMENT 4

COPIES OF WESTINGHOUSE OWNERS GROUP LETTERS THAT TRANSMITTED RELEVENT WCAP REPORTS

OG-98-005

WCAP-14036-P, Rev 1
WCAP-14037-NP, Rev 1
Project Number 694

January 22, 1998

Document Control Desk
US. Nuclear Regulatory Commission
Washington, DC 20555-0001

Attention: Chief, Information Management Branch, Division of Inspection and Support Programs

Subject: Westinghouse Owners Group
Transmittal of Reports: WCAP-14036-P, Rev. 1 (Proprietary) and WCAP-14037-NP,
Rev. 1 (Non-Proprietary), Entitled "Elimination of Periodic Protection Channel Response Time Tests" (MUHP-3042)

This letter transmits fifteen (15) copies of the report WCAP-14036-P, Rev. I (Proprietary) and twelve (12)
copies of the report WCAP-14037-NP, Rev. I (Non-Proprietary), all entitled 'Elimination of Periodic Protection Channel Response Time Tests", dated January 5, 1996.

Also attached are:

1. One (1) copy of the Application of Withholding Proprietary Information from Public Disclosure, CAW-98-1198 (Non-proprietary).

2. One (1) copy of Affidavit CAW-98- 1198 (Non-proprietary).

3. One (1) copy of the Copyright Notice.

4. One (1) copy of the Proprietary Information Notice

This report (WCAP-14036-P, Rev. 1) provides the Westinghouse Owners Group (WOG) technical documentation and methodology to support the elimination of periodic response time testing for the electronic signal processing portion of the reactor protection circuitry. The WOG is submitting this licensing topical report, WCAP-14036-P, Rev. 1, under the NRC licensing topical report program for review and acceptance for referencing in licensing actions. The objective is that once approved, each WOG member may reference this report in implementing these testing relaxations for their plant. The Westinghouse Owners Group lead plant for first implementation is Southern Nuclear Operating Company's Vogtle plant. The anticipated Vogtle plant License Amendment Request (LAR) submittal is scheduled for February 28. 1998. The WOG requests your support in reviewing this report and is identifying an SER need date of January 31, 1999

As this report, WCAP-14036-P, Rev. 1, contains information proprietary to Westinghouse Electric Corporation, it is being transmitted with affidavits signed by Westinghouse, the owner of the information. The affidavits set forth the basis on which the information be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of Section 2.790 of the Commission's regulations. Accordingly, it is respectively requested that the information which is proprietary be withheld from public disclosure in accordance with 10CFR Section 2.790 of the Commission's regulations.

Correspondence with respect to the proprietary aspect of the Applications for Withholding or the supporting Westinghouse affidavits should reference CAW-98-1198 as appropriate and should be addressed to Mr. HA. Sepp, Manager, Regulatory and Licensing Engineering, Westinghouse Electric Corporation, P.O. Box 355, Pittsburgh, PA 15230-0355.

Invoices associated with the review of this WCAP should be addressed to:

Mr. Andrew P. Drake, Project Manager
Westinghouse Owners Group
Westinghouse Electric Corporation
(Mail Stop ECE 5-16)
P.O. Box *355*
Pittsburgh, PA 15230-0355

Very truly yours,

TV. Greene, Chairman

Westinghouse Owners Group

JDC/TVG/

attachments/ Attachments
cc: WOG Steering Committee (IL)
WOG Primary Representatives (IL)
WOG Licensing Subcommittee Representatives (IL)
T.H. Cloninger, Houston Lighting & Power (1L)
J. Bailey,TVA(IL)
Claudia Craig, USNRC (IL)
MM. DeWitt, W - ECE 5-43 (IL)
N.J. Liparulo, W - ECE 4-15 (1L)
A.P. Drake, W - ECE 5-16 (IL)

Westinghouse Energy Systems Box 355
Electric corporation Pittsburgh Pennsylvania 15230 0355

OG-96-017

February 27, 1996

WCAP-13632-P-A
WCAP-13787-NP-A
Project Number 694

Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Attention: Chief, Planning, Program and management Support Branch

Subject Westinghouse Owners Group
Transmittal of Reports: WCAP-13632-P-A [Proprietary] Approved and WCAP. 13787-A [Non-Proprietary] Approved Entitled "Elimination of Pressure Sensor Response Time Testing Requirements"

This letter transmits twenty three (23) copies of the report WCAP-13632-P-A [Proprietary] Approved and twelve (12) copies of WCAP-13787-A [Non-Proprietary], Approved all entitled "Elimination of Pressure Sensor Response Time Testing Requirements", dated January, 1996.

Reference: CAW-95-866, dated 8/2/95.

The above reference transmitted the following documents to Document Control Desk

1. One (1) copy of the Application of Withholding Proprietary Information from Public Disclosure, CAW-95-866 (Non-proprietary).

2. One (1) copy of Affidavit CAW-95-866 (Non-proprietary).

3. One (1) copy of the Copyright Notice.

4. One (1) copy of the Proprietary Information Notice.

This letter transmits the approved versions of the proprietary and non-proprietary WCAPs in accordance with the procedures established in NUREG-0390. Previous versions of these reports were transmitted to the NRC by Southern Nuclear Operating Company letter of 8-11-95, as part of the license amendment request for the Farley Nuclear Plant, one of the Westinghouse Owners Group lead plants for response time test elimination. The NRC SER approving the WCAP states that WCAP-13632 may be referenced in license amendment applications for all Westinghouse pressurized water reactor.

As WCAP-13632-P-A contains information proprietary to Westinghouse Electric Corporation, it is being controlled with affidavits transmitted previously and signed by Westinghouse, the owner of the information. The affidavits set forth the basis on which the information be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of Section 2.790 of the Commission's regulations. Accordingly, it is respectfully requested that the information which is proprietary be withheld from public disclosure in accordance with 10CFR Section 2.790 of the Commission's regulations.

Correspondence with respect to the proprietary aspect of the Applications for Withholding or the supporting Westinghouse affidavits should reference CAW-95-866 as appropriate and should be addressed to Mr NJ Liparulo, Manger, Nuclear Safety Regulatory and Licensing Activities, Westinghouse Electric Corporation, P.O. Box *355*, Pittsburgh, PA 15230-0355.

Very truly yours,

Lee Bush, Chairman
Licensing Subcommittee
Westinghouse Owners Group

LB/JDC/ys

attachments/Attachments

cc: Westinghouse Owners Group Steering Committee (1L)
Westinghouse Owners Group Primary Representatives (1L)
Westinghouse Owners Group Licensing Subcommittee Representatives (1L)
NJ. Liparulo, W (1L)
KJ. Voytell, W (1L)

Westinghouse
Electric Company LLC

Box 355
Pittsburgh Pennsylvania 15230-0355

WCAP-15413 Rev. 0
Project Number 694

WOG-ASIC-00-024
June 21, 2000

Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Attention: Chief, Planning Program and Management Support Branch

Subject: Westinghouse Owners Group
ASIC Subgroup
Submittal of Application Specific Integrated Circuit (ASIC) Licensing Summary Report (MUHP-7300)

Reference:
1) OG-97-069, dated July 10, 1997
2) WOG-ASIC-98-002, dated June 5, 1998
3) WOG-ASIC-99-019, dated August 9, 1999
4) WOG-ASIC-00-004, dated January 27, 2000
5) WOG-ASIC-00-005, dated February 7, 2000
6) WOG-ASIC-00-007, dated March 6, 2000
7) WOG-ASIC-00-019, dated May 9, 2000

Enclosed are three (3) copies of the "Westinghouse 7300A ASIC-Based Replacement Module Licensing Summary Report": WCAP-15413, Rev. 0 (Westinghouse Non-Proprietary Class 3), dated May 2000.

Application Specific Integrated Circuit (ASIC) technology is a state-of-the art technology that addresses the issues encountered by "Vintage Instrumentation and Control" (I&C) equipment life cycle management programs. The focus of the ASIC program was to design an ASIC-Based Replacement Module (ABRM) for a Westinghouse(W) supplied 7300 Process Protection System or Process Control System, that could he implemented at individual plant sites under 10 CFR 50.59 without prior NRC approval. The ASIC-based replacement card is intended to be a spare part and a card for card replacement for specific 7300 analog cards in operating plants.

The information contained in the attached non-proprietary summary report along with the proprietary information previously submitted and referenced meets the requirements of 10 CFR Section 2.790 of the Commission's regulations requiring submittal of both proprietary and non-proprietary versions on the ASIC licensing topical report once it is completed. Since a proprietary summary report would consist only of a compilation of the previously submitted proprietary information, referenced above, a proprietary summary report is not being issued.

It is the purpose of this report, as supplemented by the previous submittals and reports, to provide the NRC with sufficient information to conclude that implementation of ASIC-based replacement cards does not result in an unre viewed safety question.

Submittal of this report completes the documentation to he presented to the NRC in support of the ASIC—Based replacement cards.

Invoices associated with the review of this WCAP should be addressed to:

Mr. Andrew P. Drake, Project Manager
Westinghouse Owners Group
Westinghouse Electric Company
(Mail Stop ECE 5-16)
P.O. Box *355*
Pittsburgh, PA 15230-0355.

Please direct any questions or comments regarding the information in this submittal to Mr. Richard (Dick) B. Miller of Westinghouse at (412) 374-5953.

Very truly yours,

Michael G. Eidson, Chairman
ASIC Subgroup
Westinghouse Owners Group

Attachment (3 copies)

cc: ASIC Subgroup Representatives (1L, 1E)
WOG Steering Committee (1L)
Eric J. Lee, USNRC (1L, 1E)
Stephen D. Bloom, USNRC (1L, JE)
A. P. Drake, W - ECE 5-16 (1L)

ATTACHMENT 5

STP RESPONSE TO NRC BULLETINS 90-01, AND 90-01, SUPPLEMENT 1

STP provided responses to NRC Bulletins 90-01 and 90-01, Supplement 1 in the following correspondence:

1. Letter ST-HL-AE-3505, S. L. Rosen to NRC Document Control Desk, "Response to NRC Bulletin 90-01 'Loss of Fill-Oil in Transmitters Manufactured by Rosemount'", Dated July 23, 1990.

2. Letter ST-HL-AE-4346, S. L. Rosen to NRC Document Control Desk, "Response to NRC Bulletin 90-01, Supplement 1, 'Loss of Fill-Oil in Transmitters Manufactured by Rosemount'", Dated March 4, 1993.

3. Letter ST-HL-AE-4559, T. H. Cloninger to NRC Document Control Desk, "Supplemental Response to NRC Bulletin 90-01, Supplement 1, 'Loss of Fill-Oil in Transmitters Manufactured by Rosemount'", Dated September 29, 1993.

4. Letter ST-HL-AE-4957, T. H. Cloninger to NRC Document Control Desk, "Additional Information in Response to NRC Bulletin 90-01, Supplement 1, 'Loss of Fill-Oil in Transmitters Manufactured by Rosemount'", Dated January 31, 1995.

As stated in Rosemount Technical Bulletin No. 4, only Rosemount transmitters manufactured prior to July 1989 are suspect for potential loss of fill-oil. STP has no Rosemount transmitters that were manufactured prior to July 1989 in any RTS or ESFAS application, and therefore no periodic drift monitoring of Rosemount transmitters, for which response time testing elimination is proposed, is required. The Rosemount transmitters currently used in RTS and ESFAS applications were manufactured no earlier than year 1999, and were not installed until year 2000.

ATTACHMENT 6

MARKUP OF CURRENT TECHNICAL SPECIFICATIONS PAGES AND ASSOCIATED BASES PAGES

Note to Reviewer: Bases Page B 3/4 3-1, which is included in the marked-up pages for this proposed amendment request, is also being proposed to be revised in accordance with a separate amendment request in Letter NOC-AE-000394, dated December 20, 2000.

Ē - AVERAGE DISINTEGRATION ENERGY

1.12 Ē shall be the average (weighted in proportion to the concentration of each radionuclide in the sample) of the sum of the average beta and gamma energies per disintegration (MeV/d) for the isotopes, other than iodines, with half lives greater than 15 minutes, making up at least 95% of the total non-iodine activity in the coolant.

ENGINEERED SAFETY FEATURES RESPONSE TIME

1.13 The ENGINEERED SAFETY FEATURES (ESF) RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its ESF Actuation Setpoint at the channel sensor until the ESF equipment is capable of performing its safety function (i.e., the valves travel to their required positions, pump discharge pressures reach their required values, etc.). Times shall include diesel generator starting and sequence loading delays where applicable.

The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and methodology for verification have been previously reviewed and approved by the NRC.

FREQUENCY NOTATION

1.14 The FREQUENCY NOTATION specified for the performance of Surveillance Requirements shall correspond to the intervals defined in Table 1.1.

GASEOUS WASTE PROCESSING SYSTEM

1.15 A GASEOUS WASTE PROCESSING SYSTEM shall be any system designed and installed to reduce radioactive gaseous effluents by collecting Reactor Coolant System offgases from the Reactor Coolant System and providing for delay or holdup for the purpose of reducing the total radioactivity prior to release to the environment.

IDENTIFIED LEAKAGE

1.16 IDENTIFIED LEAKAGE shall be:

a. Leakage (except CONTROLLED LEAKAGE) into closed systems, such as pump seal or valve packing leaks that are captured and conducted to a sump or collecting tank, or

b. Leakage into the containment atmosphere from sources that are both specifically located and known either not to interfere with the operation of Leakage Detection Systems or not to be PRESSURE BOUNDARY LEAKAGE, or

c. Reactor Coolant System leakage through a steam generator to the Secondary Coolant System.

PROCESS CONTROL PROGRAM

1.24 The PROCESS CONTROL PROGRAM (PCP) shall contain the current formulas, sampling, analyses, tests, and determinations to be made to ensure that processing and packaging of solid radioactive wastes based on demonstrated processing of actual or simulated wet solid wastes will be accomplished in such a way as to assure compliance with 10 CFR Parts 20, 61, and 71, State regulations, burial ground requirements, and other requirements governing the disposal of solid radioactive waste.

PURGE - PURGING

1.25 PURGE or PURGING shall be any controlled process of discharging air or gas from a confinement to maintain temperature, pressure, humidity, concentration or other operating condition, in such a manner that replacement air or gas is required to purify the confinement.

QUADRANT POWER TILT RATIO

1.26 QUADRANT POWER TILT RATIO shall be the ratio of the maximum upper excore detector calibrated output to the average of the upper excore detector calibrated outputs, or the ratio of the maximum lower excore detector calibrated output to the average of the lower excore detector calibrated outputs, whichever is greater. With one excore detector inoperable, the remaining three detectors shall be used for computing the average.

RATED THERMAL POWER

1.27 RATED THERMAL POWER shall be a total reactor core heat transfer rate to the reactor coolant of 3800 MWt.

REACTOR TRIP SYSTEM RESPONSE TIME

1.28 The REACTOR TRIP SYSTEM RESPONSE TIME shall be the time interval from when the monitored parameter exceeds its Trip Setpoint at the channel sensor until loss of stationary gripper coil voltage.

The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and methodology for verification have been previously reviewed and approved by the NRC.

REPORTABLE EVENT

1.29 A REPORTABLE EVENT shall be any of those conditions specified in Section 50.73 of 10 CFR Part 50.

SHUTDOWN MARGIN

1.30 SHUTDOWN MARGIN shall be the instantaneous amount of reactivity by which the reactor is subcritical or would be subcritical from its present condition assuming all full-length rod cluster assemblies (shutdown and control) are fully inserted except for the single rod cluster assembly of highest reactivity worth which is assumed to be fully withdrawn.

3/4.3 INSTRUMENTATION

3/4.3.1 REACTOR TRIP SYSTEM INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.1 As a minimum, the Reactor Trip System instrumentation channels and interlocks of Table 3.3-1 shall be OPERABLE with RESPONSE TIMES as shown in Chapter 16 in the Updated Final Safety Analysis Report (UFSAR).

APPLICABILITY: As shown in Table 3.3-1.

ACTION:

As shown in Table 3.3-1.

SURVEILLANCE REQUIREMENTS

4.3.1.1 Each Reactor Trip System instrumentation channel and interlock and the automatic trip logic shall be demonstrated OPERABLE by the performance of the Reactor Trip System Instrumentation Surveillance Requirements specified in Table 4.3-1.

4.3.1.2 The REACTOR TRIP SYSTEM RESPONSE TIME of each Reactor trip function shall be ~~demonstrated~~ ***verified*** to be within its limit at least once per 18 months. Each ~~test~~ ***verification*** shall include at least one train such that both trains are ~~tested~~ ***verified*** at least once per 36 months and one channel per function such that all channels are ~~tested~~ ***verified*** at least once every N times 18 months where N is the total number of redundant channels in a specific Reactor trip function as shown in the "Total No. of Channels" column of Table 3.3-1.

SURVEILLANCE REQUIREMENTS

4.3.2.1 Each ESFAS instrumentation channel and interlock and the automatic actuation logic and relays shall be demonstrated OPERABLE by performance of the ESFAS Instrumentation Surveillance Requirements specified in Table 4.3.2.

4.3.2.2 The ENGINEERED SAFETY FEATURES RESPONSE TIME of each ESFAS function shall be ~~demonstrated~~ ***verified*** to be within the limit at least once per 18 months. Each ~~test~~ ***verification*** shall include at least one train so that:

a. Each logic train is ~~tested~~ ***verified*** at least once per 36 months,

b. Each actuation train is ~~tested~~ ***verified*** at least once per 54 months*, and

c. One channel per function so that all channels are ~~tested~~ ***verified*** at least once per N times 18 months where N is the total number of redundant channels in a specific ESFAS function as shown in the "Total No. of Channels" column of Table 3.3-3.

*If an ESFAS instrumentation channel is inoperable due to response times exceeding the required limits, perform an engineering evaluation to determine if the ~~test~~ ***verification*** failure is a result of degradation of the actuation relays. If degradation of the actuation relays is determined to be the cause, increase the ENGINEERED SAFETY FEATURES RESPONSE TIME surveillance frequency such that all trains are ~~tested~~ ***verified*** at least once per 36 months.

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, 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 Engineered Safety Features Actuation System Instrumentation Trip Setpoints specified in Table 3.3-4 are the nominal values at which the bistables are set for each functional unit. A Setpoint is considered to be adjusted consistent with the nominal value when the "as measured" Setpoint is within the band allowed for calibration accuracy.

The measurement of response time at the specified frequencies provides assurance that the Reactor trip and the Engineered Safety Features actuation associated with each channel is completed within the time limit assumed in the safety analyses. No credit was taken in the analyses for those channels with response times indicated as not applicable. ~~Response time may be demonstrated by any series of sequential, overlapping, or total channel test measurements provided that such tests demonstrate the total channel response time as defined. Sensor response time verification may be demonstrated by either: (1) in place, onsite, or offsite test measurements, or (2) utilizing replacement sensors with certified response times.~~

This paragraph relocated here from following page.

Response time may be verified by actual response time tests in any series of sequential, overlapping or total channel measurements, or by the summation of allocated sensor, signal processing and actuation logic response times with actual response time tests on the remainder of the channel. Allocations for sensor response times may be obtained from: (1) historical records based on acceptable response time tests (hydraulic, noise, or power interrupt tests), (2) in place, onsite, or offsite (e.g., vendor) test measurements, or (3) utilizing vendor engineering specifications. WCAP-13632-P-A Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements" provides the basis and methodology for using allocated sensor response times in the overall verification of the channel response time for specific sensors identified in the WCAP.

REACTOR TRIP SYSTEM and ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION (Continued)

Response time verification for other sensor types must be demonstrated by test. WCAP-14036-P-A Revision 1, "Elimination of Periodic Protection Channel Response Time Tests" and WCAP-15413, "Westinghouse 7300A ASIC-Based Replacement Module Licensing Summary Report" provide the basis and methodology for using allocated signal processing and actuation logic response times in the overall verification of the protection system channel response time. The allocations for sensor, signal conditioning and actuation logic response times must be verified prior to placing the component in operational service and re-verified following maintenance that may adversely affect response time. In general, electrical repair work does not impact response time provided the parts used for repair are of the same type and value. Specific components identified in the WCAP may be replaced without verification testing. One example where response time could be affected is replacing the sensing assembly of a transmitter. WCAP-15413 provides bounding response times where 7300 cards have been replaced with ASICs cards.

The Engineered Safety Features Actuation System senses selected plant parameters and determines whether or not predetermined limits are being exceeded. If they are, the signals are combined into logic matrices sensitive to combinations indicative of various accidents, events, and transients. Once the required logic combination is completed, the system sends actuation signals to those Engineered Safety Features components whose aggregate function best serves the requirements of the condition. As an example, the following actions may be initiated by the Engineered Safety Features Actuation System to mitigate the consequences of a steam line break or loss-of-coolant accident: (1) Safety Injection pumps start, (2) Reactor trip, (3) feedwater isolation, (4) startup of the standby diesel generators, (5) containment spray pumps start and automatic valves position, (6) containment isolation, (7) steam line isolation, (8) Turbine trip, (9) auxiliary feedwater pumps start and automatic valves position, (10) reactor containment fan coolers start, (11) essential cooling water pumps start and automatic valves position, (12) Control Room Ventilation Systems start, and (13) component cooling water pumps start and automatic valves position.

ACTION 27 for an inoperable channel of control room ventilation requires the associated train of control room ventilation to be declared inoperable and the appropriate action take in accordance with Specification 3.7.7. Each control room ventilation system (train) is actuated by its own instrumentation channel. Consequently an inoperable channel of ventilation actuation instrumentation renders that system/train of ventilation inoperable and Specification 3.7.7 prescribes the appropriate action.

With less than the minimum channels of Control Room Intake Air Radioactivity - High, ACTION 28 of Table 3.3-3 requires the Control Room Makeup and Cleanup Filtration System to be operated at 100% capacity in the recirculation and filtration mode. Any two of the three 50% Control Room Makeup and Cleanup Filtration System trains meet the 100% capacity requirement.

ATTACHMENT 7

RECONSTITUTED TECHNICAL SPECIFICATIONS PAGES AND ASSOCIATED BASES PAGES

Ē - AVERAGE DISINTEGRATION ENERGY

1.12 Ē shall be the average (weighted in proportion to the concentration of each radionuclide in the sample) of the sum of the average beta and gamma energies per disintegration (MeV/d) for the isotopes, other than iodines, with half lives greater than 15 minutes, making up at least 95% of the total non-iodine activity in the coolant.

ENGINEERED SAFETY FEATURES RESPONSE TIME

1.13 The ENGINEERED SAFETY FEATURES (ESF) RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its ESF Actuation Setpoint at the channel sensor until the ESF equipment is capable of performing its safety function (i.e., the valves travel to their required positions, pump discharge pressures reach their required values, etc.). Times shall include diesel generator starting and sequence loading delays where applicable. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and methodology for verification have been previously reviewed and approved by the NRC.

FREQUENCY NOTATION

1.14 The FREQUENCY NOTATION specified for the performance of Surveillance Requirements shall correspond to the intervals defined in Table 1.1.

GASEOUS WASTE PROCESSING SYSTEM

1.15 A GASEOUS WASTE PROCESSING SYSTEM shall be any system designed and installed to reduce radioactive gaseous effluents by collecting Reactor Coolant System offgases from the Reactor Coolant System and providing for delay or holdup for the purpose of reducing the total radioactivity prior to release to the environment.

IDENTIFIED LEAKAGE

1.16 IDENTIFIED LEAKAGE shall be:

a. Leakage (except CONTROLLED LEAKAGE) into closed systems, such as pump seal or valve packing leaks that are captured and conducted to a sump or collecting tank, or

b. Leakage into the containment atmosphere from sources that are both specifically located and known either not to interfere with the operation of Leakage Detection Systems or not to be PRESSURE BOUNDARY LEAKAGE, or

c. Reactor Coolant System leakage through a steam generator to the Secondary Coolant System.

PROCESS CONTROL PROGRAM

1.24 The PROCESS CONTROL PROGRAM (PCP) shall contain the current formulas, sampling, analyses, tests, and determinations to be made to ensure that processing and packaging of solid radioactive wastes based on demonstrated processing of actual or simulated wet solid wastes will be accomplished in such a way as to assure compliance with 10 CFR Parts 20, 61, and 71, State regulations, burial ground requirements, and other requirements governing the disposal of solid radioactive waste.

PURGE - PURGING

1.25 PURGE or PURGING shall be any controlled process of discharging air or gas from a confinement to maintain temperature, pressure, humidity, concentration or other operating condition, in such a manner that replacement air or gas is required to purify the confinement.

QUADRANT POWER TILT RATIO

1.26 QUADRANT POWER TILT RATIO shall be the ratio of the maximum upper excore detector calibrated output to the average of the upper excore detector calibrated outputs, or the ratio of the maximum lower excore detector calibrated output to the average of the lower excore detector calibrated outputs, whichever is greater. With one excore detector inoperable, the remaining three detectors shall be used for computing the average.

RATED THERMAL POWER

1.27 RATED THERMAL POWER shall be a total reactor core heat transfer rate to the reactor coolant of 3800 MWt.

REACTOR TRIP SYSTEM RESPONSE TIME

1.28 The REACTOR TRIP SYSTEM RESPONSE TIME shall be the time interval from when the monitored parameter exceeds its Trip Setpoint at the channel sensor until loss of stationary gripper coil voltage. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and methodology for verification have been previously reviewed and approved by the NRC.

REPORTABLE EVENT

1.29 A REPORTABLE EVENT shall be any of those conditions specified in Section 50.73 of 10 CFR Part 50.

SHUTDOWN MARGIN

1.30 SHUTDOWN MARGIN shall be the instantaneous amount of reactivity by which the reactor is subcritical or would be subcritical from its present condition assuming all full-length rod cluster assemblies (shutdown and control) are fully inserted except for the single rod cluster assembly of highest reactivity worth which is assumed to be fully withdrawn.

3/4.3 INSTRUMENTATION

3/4.3.1 REACTOR TRIP SYSTEM INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.1 As a minimum, the Reactor Trip System instrumentation channels and interlocks of Table 3.3-1 shall be OPERABLE with RESPONSE TIMES as shown in Chapter 16 in the Updated Final Safety Analysis Report (UFSAR).

APPLICABILITY: As shown in Table 3.3-1.

ACTION:

As shown in Table 3.3-1.

SURVEILLANCE REQUIREMENTS

4.3.1.1 Each Reactor Trip System instrumentation channel and interlock and the automatic trip logic shall be demonstrated OPERABLE by the performance of the Reactor Trip System Instrumentation Surveillance Requirements specified in Table 4.3-1.

4.3.1.2 The REACTOR TRIP SYSTEM RESPONSE TIME of each Reactor trip function shall be verified to be within its limit at least once per 18 months. Each verification shall include at least one train such that both trains are verified at least once per 36 months and one channel per function such that all channels are verified at least once every N times 18 months where N is the total number of redundant channels in a specific Reactor trip function as shown in the "Total No. of Channels" column of Table 3.3-1.

4.3.2.1 Each ESFAS instrumentation channel and interlock and the automatic actuation logic and relays shall be demonstrated OPERABLE by performance of the ESFAS Instrumentation Surveillance Requirements specified in Table 4.3.2.

4.3.2.2 The ENGINEERED SAFETY FEATURES RESPONSE TIME of each ESFAS function shall be verified to be within the limit at least once per 18 months. Each verification shall include at least one train so that:

a. Each logic train is verified at least once per 36 months,

b. Each actuation train is verified at least once per 54 months*, and

c. One channel per function so that all channels are verified at least once per N times 18 months where N is the total number of redundant channels in a specific ESFAS function as shown in the "Total No. of Channels" column of Table 3.3-3.

*If an ESFAS instrumentation channel is inoperable due to response times exceeding the required limits, perform an engineering evaluation to determine if the verification failure is a result of degradation of the actuation relays. If degradation of the actuation relays is determined to be the cause, increase the ENGINEERED SAFETY FEATURES RESPONSE TIME surveillance frequency such that all trains are verified at least once per 36 months.

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, 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 Engineered Safety Features Actuation System Instrumentation Trip Setpoints specified in Table 3.3-4 are the nominal values at which the bistables are set for each functional unit. A Setpoint is considered to be adjusted consistent with the nominal value when the "as measured" Setpoint is within the band allowed for calibration accuracy.

The measurement of response time at the specified frequencies provides assurance that the Reactor trip and the Engineered Safety Features actuation associated with each channel is completed within the time limit assumed in the safety analyses. No credit was taken in the analyses for those channels with response times indicated as not applicable.

Response time may be verified by actual response time tests in any series of sequential, overlapping or total channel measurements, or by the summation of allocated sensor, signal processing and actuation logic response times with actual response time tests on the remainder of the channel. Allocations for sensor response times may be obtained from: (1) historical records based on acceptable response time tests (hydraulic, noise, or power interrupt tests), (2) in place, onsite, or offsite (e.g., vendor) test measurements, or (3) utilizing vendor engineering specifications. WCAP-13632-P-A Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements" provides the basis and methodology for using allocated sensor response times in the overall verification of the channel response time for specific sensors identified in the WCAP.

REACTOR TRIP SYSTEM and ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION (Continued)

Response time verification for other sensor types must be demonstrated by test. WCAP-14036-P-A Revision 1, "Elimination of Periodic Protection Channel Response Time Tests" and WCAP-15413, "Westinghouse 7300A ASIC-Based Replacement Module Licensing Summary Report" provide the basis and methodology for using allocated signal processing and actuation logic response times in the overall verification of the protection system channel response time. The allocations for sensor, signal conditioning and actuation logic response times must be verified prior to placing the component in operational service and re-verified following maintenance that may adversely affect response time. In general, electrical repair work does not impact response time provided the parts used for repair are of the same type and value. Specific components identified in the WCAP may be replaced without verification testing. One example where response time could be affected is replacing the sensing assembly of a transmitter. WCAP-15413 provides bounding response times where 7300 cards have been replaced with ASICs cards.

The Engineered Safety Features Actuation System senses selected plant parameters and determines whether or not predetermined limits are being exceeded. If they are, the signals are combined into logic matrices sensitive to combinations indicative of various accidents, events, and transients. Once the required logic combination is completed, the system sends actuation signals to those Engineered Safety Features components whose aggregate function best serves the requirements of the condition. As an example, the following actions may be initiated by the Engineered Safety Features Actuation System to mitigate the consequences of a steam line break or loss-of-coolant accident: (1) Safety Injection pumps start, (2) Reactor trip, (3) feedwater isolation, (4) startup of the standby diesel generators, (5) containment spray pumps start and automatic valves position, (6) containment isolation, (7) steam line isolation, (8) Turbine trip, (9) auxiliary feedwater pumps start and automatic valves position, (10) reactor containment fan coolers start, (11) essential cooling water pumps start and automatic valves position, (12) Control Room Ventilation Systems start, and (13) component cooling water pumps start and automatic valves position.

ACTION 27 for an inoperable channel of control room ventilation requires the associated train of control room ventilation to be declared inoperable and the appropriate action take in accordance with Specification 3.7.7. Each control room ventilation system (train) is actuated by its own instrumentation channel. Consequently an inoperable channel of ventilation actuation instrumentation renders that system/train of ventilation inoperable and Specification 3.7.7 prescribes the appropriate action.

With less than the minimum channels of Control Room Intake Air Radioactivity - High, ACTION 28 of Table 3.3-3 requires the Control Room Makeup and Cleanup Filtration System to be operated at 100% capacity in the recirculation and filtration mode. Any two of the three 50% Control Room Makeup and Cleanup Filtration System trains meet the 100% capacity requirement.