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October 12, 1985
ST-HL-AE-1395
File No.: G9.17

Mr. George W. Knighton, Chief
Licensing Branch No. 3
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, DC 20555

South Texas Project
Units 1 and 2
Docket Nos. STN 50-498, STN 50-499
Responses to DSER/FSAR Items

Dear Mr. Knighton:

The attachments enclosed provide STP's response to Draft Safety Evaluation Report (DSER) or Final Safety Analysis Report (FSAR) items.

The item numbers listed below correspond to those assigned on STP's internal list of items for completion which includes open and confirmatory DSER items, STP FSAR open items and open NRC questions. This list was given to your Mr. N. Prasad Kadambi on October 8, 1985 by our Mr. M. E. Powell.

The attachments include mark-ups of FSAR pages which will be incorporated in a future FSAR amendment unless otherwise noted below.

The items which are attached to this letter are:

Attachment	Item No.*	Subject
1	F 9.2-23	Table 9.2.7-3 Failure Modes and Effects Analysis - Reactor Makeup Water System

* Legend
D - DSER Open Item
C - DSER Confirmatory Item
F - FSAR Open Item
Q - FSAR Question Response Item

L1/DSER/q

A001
1/1

If you should have any questions concerning this matter, please contact Mr. Powell at (713) 993-1328.

Very truly yours,

M. R. Wisenburg
Manager, Nuclear Licensing

SMH/bl

Attachments: See above

L1/DSER/q

cc:

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Revised 9/25/85

*Plant Modes
1. Power Operation
2. Start-up
3. Hot standby
4. Hot shutdown
5. Cold shutdown
6. Refueling

TABLE 9.2.7-3

Reactor Makeup Water System

FAILURE MODES AND EFFECTS ANALYSIS

DESCRIPTION OF COMPONENT	SAFETY FUNCTION	PLANT OPERATING MODE	FAILURE MODE(S)	METHOD OF FAILURE DETECTION	FAILURE EFFECT ON SYSTEM SAFETY FUNCTION CAPABILITY	GENERAL REMARKS
RHWST fill control valve LV-7651 (normally closed)	No safety function. Valve controls filling of RHWST from the MUD	1-6	Valve fails to open or is stuck closed	RHWST level indication, valve position indication lights	None. Isolation valve FV-7659 and 7663 close on tank low level (Non-1E). Sufficient inventory is available for safety function	Makeup is also from the BRS
			Once open, valve fails to close	Same as above		

INSERT
X →

Insert X

~~In addition~~, the RMWS Tank has a high-high level alarm to indicate that the valve failed to close. If the valve alarms, manual operation of the deniz. water pumps and the valve can be initiated. The operator has sufficient time (at least 30 mins) to terminate the pump or manually close the valve.

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TABLE 9.2.7-3 (cont')

Reactor Makeup Water System

FAILURE MODES AND EFFECTS ANALYSIS

DESCRIPTION OF COMPONENT	SAFETY FUNCTION	PLANT OPERATING MODE	FAILURE MODE(S)	METHOD OF FAILURE DETECTION	FAILURE EFFECT ON SYSTEM SAFETY FUNCTION CAPABILITY	GENERAL REMARKS
RHWS Pumps (normally not operating)	Provides assured source of emergency make-up to safety systems	1-6	One pump fails to operate when called for	Discharge pressure and local flow instrumentation (Both non-1E) Pump status light	None. Redundant pump available.	
Isolation valves FV-7659, 7663 (normally open)	close	1-6	one valve fails close	position indication in control room	None. Redundant valve available	
RHWS pump 1A discharge check valve (normally open) M-0003	open	1-6	fails to open	Periodic testing per plant technical specifications.	None. Redundant pump available	

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TABLE 9.2.7-3 (cont')

Reactor Makeup Water System

FAILURE MODES AND EFFECTS ANALYSIS

DESCRIPTION OF COMPONENT	SAFETY FUNCTION	PLANT OPERATING MODE	FAILURE MODE(S)	METHOD OF FAILURE DETECTION	FAILURE EFFECT ON SYSTEM SAFETY FUNCTION CAPABILITY	GENERAL REMARKS
RMWS pump 1B discharge check valve RM-0010 (normally open)	open	1-6	fails to open	same as above	None. Redundant pump available	
Class 1E AC power train B (train C analogous)	provide power to train A AC components	1-6	loss of power on bus	Bus undervoltage alarms ESF status monitoring for ESF diesel generator system & components ESF monitoring for system AC components	None - train C still available to provide system safety capability	
Instrument air (non-safety)	none	1-6	instrument air lost	header pressure indication and alarms	None - loss of instrument air causes air-operated components to go to their safety position.	

[a]Plant Modes
1. Power Operation
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TABLE 9.2.7-3 (cont)

Reactor Makeup Water System

FAILURE MODES AND EFFECTS ANALYSIS

DESCRIPTION OF COMPONENT	SAFETY FUNCTION	PLANT OPERATING MODE	FAILURE MODE(S)	METHOD OF FAILURE DETECTION	FAILURE EFFECT ON SYSTEM SAFETY FUNCTION CAPABILITY	GENERAL REMARKS
ESF Actuation System train (analogous for train C)	provide actuation signals as required to safety related components Manual actuation of non-operating train is possible if automatic actuation does not occur.	1-6	Fails to generate and send actuation signals	Loss of power or actuation train in test is alarmed by ESF monitoring other train. Individual bi-stables used to generate actuation signals are individually provided with lights and combined with other similar inputs (for same signals) are alarmed on annunciator, all on Main Control Board	None - system safety function is assured by actuation of other train.	Operator is expected to see that two trains of equipment are operating and one is not. Manual action is then possible to start systems.

[a]Plant Modes
1. Power Operation
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3. Hot standby
4. Hot shutdown
5. Cold shutdown
6. Refueling

TABLE 9.2.7-3 (cont)

Reactor Makeup Water System

FAILURE MODES AND EFFECTS ANALYSIS

DESCRIPTION OF COMPONENT	SAFETY FUNCTION	PLANT OPERATING MODE	FAILURE MODE(S)	METHOD OF FAILURE DETECTION	FAILURE EFFECT ON SYSTEM SAFETY FUNCTION CAPABILITY	GENERAL REMARKS
Channel III DC Power (Train B)	Provide DC power to Channel III components	1-6	Loss of DC power	ESF monitoring on UPS failure, DC trouble alarm ESF monitoring for pump (not running, no control power)	None-redundant train provides system capability	Pump status lights off
Channel IV DC Power (Train C)	Provide DC power to Channel IV components	1-6	Loss of DC power	ESF monitoring on UPS failure, DC trouble alarm	←	←
				ESF monitoring for pump (not running, no control power)	None-redundant train provides systems safety capability	Pump status lights off