Westinghouse

FAX COVER SHEET

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COMMENTS:

Tom

Here's late breaking backup. Please distribute for tomorrow, if possible.

Thanks

Jim

Question 410.290

Question 9.2.10.3 of the Safety Evaluation Report states that instruments are provided for monitoring system parameters. Essential system parameters are monitored in the main control room via information taken from the hot water heating system through the plant data display and processing system. What are the essential system parameters related to the hot water heating system. The instruments for the heat exchanger and pumps were initially designed locally on the piping system. Do these instruments provide indication in the control room for the hot water heating system after the design change?

Response

[illegible] stated that the hot water heating system serves no safety-related function and therefore has no nuclear safety design basis. The information provided in the subsection is sufficient for review of the system's potential for impact on the safety of the plant. The subsection also states that instruments are provided for monitoring system parameters and that essential system parameters are monitored in the main control room. The current design of the integrated data display and control systems have instruments in the hot water heating system [illegible]

operating display of system parametric data will be developed as part of the man-machine interface, human factors engineering process described in Chapter 18 of the SSAR.

SSAR Revision: NONE

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PRELIMINARY

Question: DSER-OI 10.4.9-2

STARTUP FEEDWATER SYSTEM, FWS, WATER HAMMER) Westinghouse should address the issue of plant damage due to water hammer during startup.

Response: DSER-OI 10.4.9-2

Information contained in SSAR, section 10.4, Revision 6, and in SSAR Appendix 3B, Revision 7, addresses the potential for water hammer in feedwater lines. The "Main Feedwater Line" portion of SSAR subsection 3B.2.3 addresses a number of design features included in the main and startup feedwater system, piping, components and control that minimize the potential for water hammer. The potential for water hammer during startup is minimized by having a startup feedwater system separate from the main feedwater system. This startup system can not add cold water to the hot main feedwater system, is sized appropriately for startup, has control valves and other features designed for startup service, is routed to minimize geometric sources of water hammer, and feeds a steam generator nozzle and feed spray system separate from the main feed ring. This item is closed.

Question 410.287

Section 9.2.10.3 of the SSAR (Revision 3) states that the hot water heating system (VYS) is a high energy system and has no safety-related function. Provide information regarding the system pressure and temperature and verify that any failure of the VYS piping or equipment will not directly or indirectly result in lose of required redundancy in any portion of the systems or equipment in the safety-related areas. Also, explain why the system was changed to a high-energy system from a moderate-energy system.

Response:

SSAR subsection 9.2.10.3, Revision 6, provides the basis for hot water system not requiring a nuclear safety evaluation. The subsection also provides a description of the design response to the fact that the hot water heating system is a high energy system. The specification change from moderate-energy to high-energy was as a result of a natural design progression. The system design parameters were respecified to ensure its ability to provide hot water under all design conditions.

SSAR Revision: NONE

Question 410.284

Section 9.2.7.2.1 of the SSAR (Revision 3) states that the high capacity subsystem consists of two chilled water pumps, two water-cooled chillers, a chemical feed tank, and an expansion tank. An air separator was eliminated from the previous SSAR revision. However, each of the two loops of the low capacity subsystem still contains of an air separator and other components that are similar to the high capacity subsystem. Explain why the air separator is not required in the high capacity subsystem.

Response:

SSAR subsection 9.2.7.2.1, Revision 6, Properly describe the low capacity subsystem without an air separator. Air separators are not required since the expansion tank is sized and located to serve this function.

SSAR Revision: NONE

PRELIMINARY

3.7 PLANT SYSTEMS

3.7.7 Startup Feedwater Isolation and Control Valves

LCO 3.7.7 Both Startup Feedwater Isolation Valves and Control Valves shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Only one valve OPERABLE in a single flow path.	A.1 Restore both a control and an isolation valve in each flow path to OPERABLE status.	72 hours
	OR	
	A.2 Isolate the flow path.	72 hours
B. Two valves in the same flow path inoperable.	B.1 Enter LCO 3.0.3	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.7.1	Verify both startup feedwater isolation and control valves are OPERABLE.	~~31 days~~ In accordance with the Inservice Testing Program

PRELIMINARY

PRELIMINARY

B 3.7 PLANT SYSTEMS

B 3.7.7 Startup Feedwater Isolation and Control Valves

BASES

BACKGROUND

The startup feedwater system supplies feedwater to the steam generators during plant startup, hot standby and cooldown, [illegible] reliability

[illegible] system serves no safety-related function and has no safety-related design basis, except to isolate feedwater in the event of a feedwater or steam line break inside containment.

The subsystem consists of two series startup feedwater motor driven valves pumps, each taking suction from the deaerator and discharging into the main feedwater piping. An alternate suction feed is provided from the condensate tank. The combined capacity of both pumps is equivalent to 7% of the normal feedwater flow. Each startup feedwater line contains a control valve and an isolation valve, which bypass the main feedwater line and provide feedwater control for low feedwater demand conditions. Feedwater can be supplied

APPLICABLE SAFETY ANALYSES

The basis for the requirement to isolate the startup feedwater system is established by the analysis for large Steam Line Break (SLB) inside containment. It is also influenced by the analysis for a large Feedline Break (FLB).

uptake for tube rupture also

Failure to isolate the startup feedwater system following a SLB or FLB can lead to additional mass and energy being delivered to the steam generators, resulting in excessive cooldown and additional mass and energy release in containment.

T-cold--Low or high steam level signals closes the startup feedwater control and isolation valves and trips the startup feedwater pumps.

The startup feedwater isolation and control valves are components which actuate to mitigate a Design Basis Accident, and as such meet Criterion 3 of the NRC Policy Statement.

(continued)

to the startup feedwater line via either the main or startup feedwater pumps. The feedwater is delivered directly to the SG independent of the main feedwater line. Each startup feedwater line contains one control valve and one isolation valve.

PRELIMINARY

PRELIMINARY

BASES (continued)

LCO

This LCO ensures that the startup feedwater isolation and control valves will actuate on command, following a SLB or FLB, and isolate startup feedwater flow to the steam generators.

The startup feedwater isolation and control valves are considered OPERABLE when they close on an isolation actuation signal, and their isolation times are within the required limits.

APPLICABILITY

The startup feedwater isolation and control valves must be OPERABLE whenever there is significant mass and energy in the Reactor Coolant System and the steam generators. This ensures that, in the event of a high energy line break, a single failure will not result in the blowdown of more than one steam generator. In MODES 1, 2, and 3, the startup feedwater isolation and control valves are required to be OPERABLE in order to limit the amount of mass and energy that could be added to containment in the event of a SLB or FLB. When the valves are closed, they are already performing their safety function.

In MODES 4, 5, and 6, the energy in the steam generators are low, and isolation of the startup feedwater system is not required.

ACTIONS

A.1 and A.2

With only one valve (isolation or control) OPERABLE in a single flow path, there is no redundant capability to isolate the flow path. In this case, both an isolation and a control valve in each flow path must be restored to OPERABLE status with 72 hours, or the flow path must be isolated. A Completion Time of 72 hours is acceptable since, with one valve in a flow path inoperable, there is a second valve available in the flow path to isolate the line.

If both the isolation and control valves in a single flow path cannot be restored to OPERABLE status in the required Completion time, then the flow path must be isolated by closing the OPERABLE valve.

(continued)

PRELIMINARY

PRELIMINARY

BASES

ACTIONS

A.1 and A.2 (continued)

The allowed Completion Time assures expeditious action will be taken, and is based on the low probability of a Design Basis Accident occurring during this time.

B.1

If both isolation and control valves in a single flow path are inoperable, this constitutes a loss of function and the plant must enter LCO 3.0.3 immediately.

SURVEILLANCE REQUIREMENTS

SR 3.7.7.1

This surveillance requires verification ~~every 31 days~~ that both startup feedwater isolation and control valves are OPERABLE. The Frequency ~~of 31 days~~ is adequate considering the low probability of a SLB or FLB during this time.

is in accordance with the IST program to assure

REFERENCES

None.

PRELIMINARY