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John H. Garrity
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FEB 25 1992

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Gentlemen:

In the Matter of the Application of	)	Docket Nos. 50-390
Tennessee Valley Authority	)	50-391

WATTS BAR NUCLEAR PLANT (WBN) UNITS 1 AND 2 - 10 CFR 50.55a(a)(3) - PROPOSED ALTERNATIVE TO THE MATERIALS REQUIREMENTS OF SECTION III, SUBSECTIONS NC/ND PARAGRAPH 7153 OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) BOILER AND PRESSURE VESSEL CODE

Pursuant to 10 CFR 50.55a(a)(3), TVA is requesting NRC authorization to use an alternative to the construction and installation requirements of Section III, subsections NC/ND, paragraph 7153, of the ASME Boiler and Pressure Vessel Code. TVA has determined that the proposed alternative provides an acceptable level of quality and safety, and that compliance with the specified requirements of subsections NC/ND, paragraph 7153, at this time would result in hardship or unusual difficulties without a compensating increase in the level of quality and safety.

Enclosure 1 is a description of the proposed alternative. Enclosure 2 identifies the commitments made in this report. This includes a commitment to revise the Final Safety Analysis Report after receiving NRC approval of this alternative.

If there are any questions, please telephone P. L. Pace at (615) 365-1824.

Sincerely,

John H. Garrity

Enclosures
cc: See page 2

FEB 25 1992

U.S. Nuclear Regulatory Commission

cc (Enclosures):
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ENCLOSURE 1

PROPOSED ALTERNATIVE TO THE CONSTRUCTION
AND INSTALLATION REQUIREMENTS
OF SECTION III, SUBSECTIONS NC/ND PARAGRAPH 7153
OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS
(ASME) BOILER AND PRESSURE VESSEL CODE

Contrary to ASME Code Section III subsections NC/ND, Articles 7000, paragraph 7153, requirements, four intervening "stop" (or block) valves (two for each unit) without positive controls and interlocks have been installed in the Boron Recycle System. These valves are located between the safety relief valve and the point of discharge for the Volume Control Tank, Boron Injection Tank, Waste Gas Compressor A, and Waste Gas Compressor B (see attachment).

The 1971 ASME Code in effect for the original Watts Bar design was interpreted by TVA that the intent of the Code was satisfied with a systems approach; that is, overpressure protection for the systems is provided through the use of prudent and conservative operating procedures. The administrative procedures used to control and verify the position of the isolation valves would be adequate to meet the intent of the Code. This position is consistent with Code interpretation III-80-67, which permitted the use of administrative controls on stop valves. The relief valve discharge piping was installed based on this interpretation.

The requirements for positive controls and interlocks were not clearly defined until Code Interpretation III-80-67R, which ruled that "operating procedures governing the use and application of the system" were not acceptable as the "controls." This decision apparently reversed the position previously stated in III-80-67. Interpretation III-1-89-25 restated that an arrangement such as described in this request does not meet the Code requirements.

The present arrangement of block valves in relief valve discharge lines to the holdup tanks (HUTs) allows isolation of either HUT for maintenance and isolation of the relief valves from the HUTs when removal of the HUT relief valve for testing and/or maintenance is required. Because this is a common system to both units, either HUT is available when one valve is closed to support continuous operation. Other possible methods for accomplishing relief valve testing and/or maintenance are as follows:

1. Isolation without block valves or blind flanges. This would require all relief valves tied in to the HUTs, the Gas Decay Packages, and both HUTs to be out of service for the duration of the maintenance. This alignment severely limits the availability of the Chemical and Volume Control System and Waste Gas Systems and the length of time a HUT can be out of service.

2. Venting both HUTs of their cover gases while flange connections are taken apart and blind flanges are installed at the block valve location. This is the same as having block valves without the same safeguards, therefore does not meet the ASME Code requirements. The alternative would require all relief valves tied into the HUTs, the gas decay packages, and both HUTs to be out of service for the duration of the blind flange installation operation and subsequent postmaintenance removal. Anytime the system pressure boundary would be broken in the alignment without block valves, there would be an increased ALARA risk.

3. Reroute the subject piping from the relief valves which discharge into the HUTs. This would relocate the block valves for the volume control and boron injection tanks to a single block valve between the Unit 1 and Unit 2 relief piping. In addition, the relief valve for each waste gas compressor would be routed separately to the HUT. This alternative would unitize the HUTs, such that isolation of a HUT for maintenance would require that the associated unit's volume control tank also be removed from service. This alignment limits the availability of the Chemical and Volume Control System and the waste gas compressors.

With the present arrangement, there are administrative controls in place to ensure the locked open position of at least one valve and flow path at all times. The plant instructions provide information and direction regarding the means of control, locking, position, applicability, and accessibility for these controlled valves. The information regarding the subject block valves is as follows:

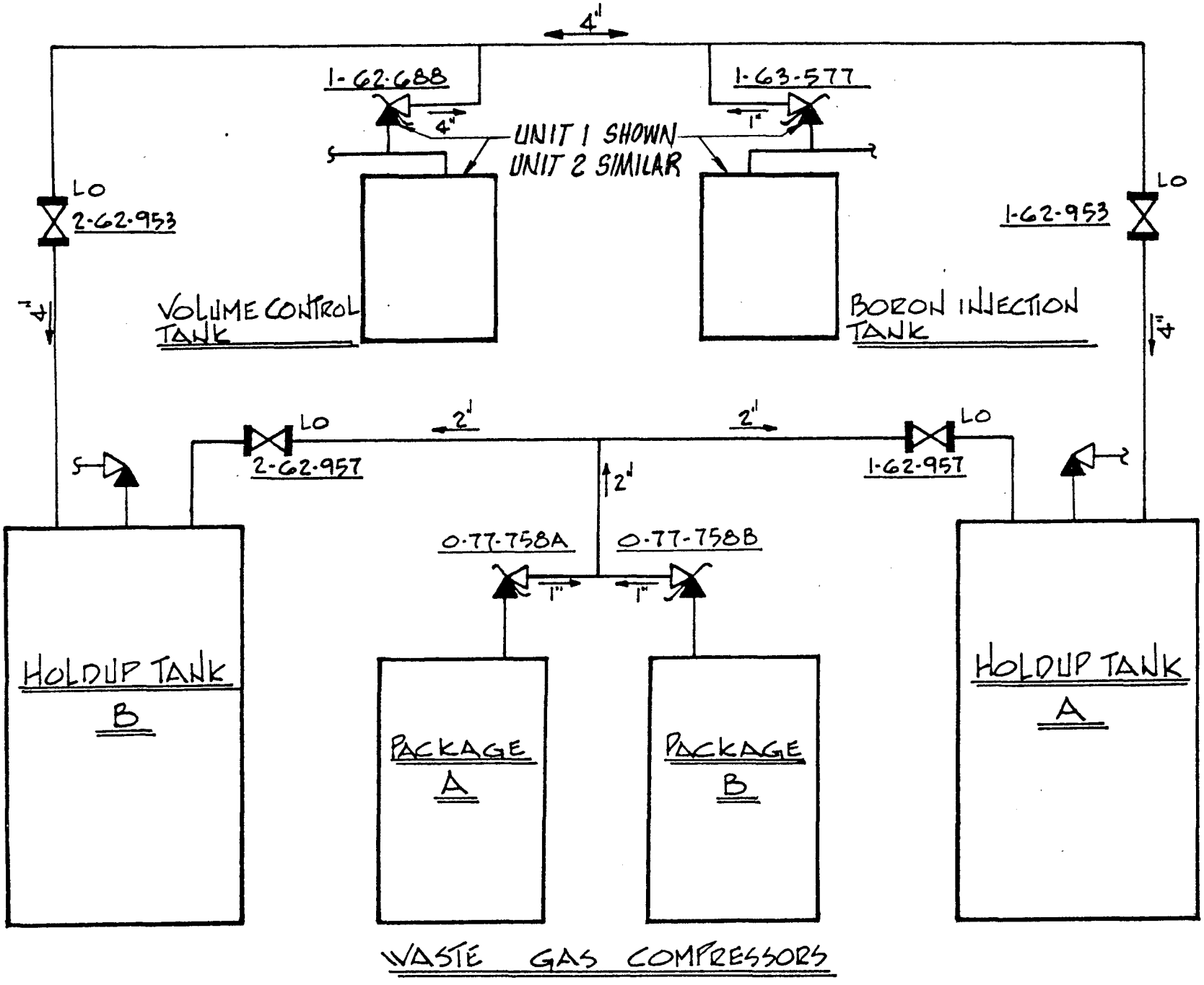
Requirement: PLANT SAFETY
Applicability: ALL MODES
Accessibility: ANYTIME
Means of Admin Control: LOCKED
Position: OPEN
In addition, references are also given to the applicable system operating instructions.

The plant operating instruction for the Boron Recycle System now requires position verification and checklist signoff before the system can be put into an operating mode that might result in an overpressurization. In addition, this instruction will be revised to require an independent verification of the valve position. Plant operating instructions for those systems such as the Waste Gas Disposal System, Safety Injection System, and Chemical Volume Control System that require relief through the subject valves will also be revised to insure that these valves are open before the system can be put into an operating mode that might result in an overpressurization. This means that prior to start (or restart) of any equipment that could produce overpressure in the system, the position of the block valves must be verified as OPEN and LOCKED. In the case that one of the valves is closed (for maintenance purposes), the position of the redundant valve must be verified as locked open.

It is the position of TVA that (1) the administrative control program and the verification requirements of the operating instructions are positive controls that will provide a high level of confidence that the relief valve discharge path cannot be blocked during system operation and (2) the present arrangement provides an acceptable alternative that meets the intent of the code requirements.

Therefore, the present design provides an acceptable level of quality and safety. The removal of the block valves would result in an operational hardship and a potential for increased airborne radiation and personnel exposure that cannot be justified by any marginal increase in level of safety. Rerouting the subject piping from the relief valves which discharge

into the HUTs would require pipe stress requalification and additional pipe supports. The pipe reroute method of accomplishing ASME code compliance would also result in a loss of operational flexibility. The replacement of the block valves with automatic valves using positive controls and interlocks would require the procurement and installation of new control valves, additional pressure sensing instrumentation and associated controls, and additional power and control cabling. Potential pipe reroutes resulting from space constraints associated with installing new control valves would also require pipe stress analysis requalification and possibly additional pipe supports. The existing arrangement provides a sound design, is safe for maintenance personnel, and provides operational flexibility and efficiency. Therefore, compliance with the specified code interpretation would result in hardship without a compensating increase in the level of quality and safety.



ATTACHMENT

SKETCH No. 1

RELIEF VALVE DISCHARGE BLOCK VALVES

ENCLOSURE 2

LIST OF COMMITMENTS

1. TVA will revise plant operating instructions for the Boron Recycle System to require an independent verification of the valve position. Plant operating instructions for those systems that require relief through the subject valves will also be revised to insure that these valves are open before the system can be put into an operating mode that might result in an overpressurization. This will be complete before system completion for preoperational testing.

2. TVA will revise the Final Safety Analysis Report (FSAR) to document the proposed alternative to ASME Section III regarding relief valve discharge line block valves after receiving NRC approval.