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Docket Number 50-348

License Number NPF-3

Serial Number 1884

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United States Nuclear Regulatory Commission
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Subject: Response to NRC Generic Letter 90-06, Resolution of Generic Issue 70, "Power-Operated Relief Valve and Block Valve Reliability," and Generic Issue 94, "Additional Low-Temperature Overpressure Protection for Light-Water Reactors," Pursuant to 10 CFR50.54(f)

Gentlemen:

Nuclear Regulatory Commission (NRC) Generic Letter 90-06 (Toledo Edison letter Log Number 3267) dated June 25, 1990 advised licensees of the NRC staff positions resulting from the resolution of Generic Issue 70 (GI-70), Power Operated Relief Valve (PORV) and Block Valve Reliability, and Generic Issue 94 (GI-94), Additional Low-Temperature Overpressure Protection for Light-Water Reactors. Generic Issue 70 is applicable to Babcock and Wilcox (B&W) designed plants, whereas Generic Issue 94 (GI-94) does not apply to B&W designed plants.

Attached is Toledo Edison's response for the Davis-Besse Nuclear Power Station (DBNPS) to Enclosure A of Generic Letter 90-06 addressing GI-70. Enclosure B of Generic Letter 90-06 addresses GI-94 and is not applicable to B&W designed plants such as the DBNPS. Therefore, GI-94 is not addressed in this response.

Toledo Edison, as discussed in the attachment to this letter, is in general agreement with NRC recommendation items 3.1.1 and 3.1.2 provided in Generic Letter 90-06. The DBNPS Quality Assurance Program, Pump and Valve Testing Program, and the maintenance and maintenance training programs will ensure reliable PORV and block valve operation. Toledo Edison's position on recommendation item 3.1.3 is discussed in the attachment. This position concludes that the existing DBNPS Technical Specifications for the PORV and block valve contain appropriate shutdown requirements and changes are not necessary.

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Should you have any questions concerning this matter, please contact Mr. R. W. Schreiner, Manager - Nuclear Licensing at (419) 249-2366.

Very truly yours,

A handwritten signature in cursive script, appearing to read "R. W. Schreiner".

Attachment

cc: P. M. Byron, DB-1 NRC Senior Resident Inspector
A. B. Davis, Regional Administrator, NRC Region III
M. D. Lynch, DB-1 Senior Project Manager
Utility Radiological Safety Board

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Attachment 1

RESPONSE TO GENERIC LETTER 90-06

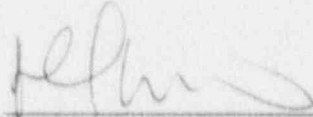
FOR

DAVIS-BESSE NUCLEAR POWER STATION


UNIT NUMBER 1

This letter is submitted pursuant to 10CFR50.54(f). Enclosed is Toledo Edison's response (letter Serial Number 1884) to Generic Letter 90-06, Resolution of Generic Issue 70, "Power Operated Relief Valve and Block Valve Reliability," and Generic Issue 94, "Additional Low Temperature Overpressure Protection for Light-Water Reactors."

By:


D. C. Shelton, Vice President - Nuclear

Sworn and subscribed before me this 21st day of December, 1990.


Notary Public, State of Ohio

JUDITH HIRSCH
Notary Public State Of Ohio
My Commission Expires June 30, 1992

TOLEDO EDISON RESPONSE TO GENERIC LETTER 90-06

NRC Recommendation Item 3.1.1:

Include PORVs and block valves within the scope of an operational quality assurance program that is in compliance with 10 CFR Part 50, Appendix B. This program should include the following elements:

- a. The addition of PORVs and block valves to the plant operational Quality Assurance List.
- b. Implementation of a maintenance/refurbishment program for PORVs and block valves that is based on the manufacturer's recommendations or guidelines and is implemented by trained plant maintenance personnel.
- c. When replacement parts and spares, as well as complete components are required for existing non-safety-grade PORVs and block valves (and associated control systems), it is the intent of this generic letter that these items may be procured in accordance with the original construction codes and standards.

Toledo Edison Response to Recommendation Item 3.1.1:

- a. The PORV (RC-2A) and Block Valve (RC-11) are "Q" components as defined and controlled by the Davis-Besse Quality Assurance Program. The PORV's nuclear safety related (NSR) component functions are specified as reactor coolant pressure boundary and pressure relief on the "Q" list. The block valve's NSR function is specified as reactor coolant pressure boundary on this list. In the future, Toledo Edison plans to maintain these valves in accordance with the multi-category QA program being established at Davis-Besse. This program will make provisions for applying selected quality requirements of 10 CFR 50 which are necessary to assure nuclear safety and apply selected quality assurance controls to equipment that affects the capacity or availability of the plant. The development of this program is underway at the present time. The multi-category QA program at Davis-Besse is planned to be made a part of the Davis-Besse Quality Assurance Program in 1991. The Quality Assurance Program is in compliance with the requirements of 10 CFR 50 Appendix B.

The PORV and associated block valve power supply and controls were not originally designed as safety-related. However, as discussed in the Davis-Besse Feed and Bleed Modification Summary, submitted to the NRC by letter dated September 18, 1990 (Toledo Edison letter Serial Number 1836) various upgrades to the PORV power supply and controls have been made. During the Fifth Refueling Outage the PORV power source was reconfigured to be supplied from an essential DC Distribution Panel, D2N, and the solenoid coil on the PORV was environmentally qualified for the containment atmosphere as calculated for the feed and bleed scenario. During the Sixth Refueling Outage, the circuitry required to manually open the PORV was upgraded to "Q". The installed upgrade was designed to account for voltage degradation that may occur after postulated battery use. Also, the power supply associated with the PORV demand position indicating lights was transferred to an essential 120 VAC instrument distribution panel.

The block valve, RC11, is powered from 480V vital bus E16B. This vital bus can be supplied by an emergency diesel generator.

- b. The PORV was manufactured by the Crosby Valve and Gage Company. Maintenance on the PORV is conducted in accordance with the plant procedure for PORV maintenance DB-MM-09000 "Pressurizer PORV Maintenance." This procedure references the vendor manual "Installation, Operating and Maintenance Instruction for Pressurematic Valve Style HPV-SN Solenoid Pilot Operated Relief Valve." The vendor manual does not provide a formal maintenance/refurbishment program. Information obtained by valve testing at the DBNPS is utilized to evaluate valve problems.

The block valve consists of a Limitorque valve operator and a gate valve manufactured by Velan Valve Corporation. Preventive maintenance is performed for the valve operator in accordance with the DBNPS maintenance procedure DB-ME-09301, "Preventive Maintenance for Type SMB and SMC Limitorque Valve Operators," which is based on the manufacturer's recommendations in the "Limitorque Instruction and Maintenance Manual." The block valve maintenance is performed in accordance with DR-MM-09051, "Velan Forged Gate Valve Maintenance", which has been developed based on information received from the valve manufacturer. The block valve maintenance is implemented by trained maintenance personnel.

The Institute of Nuclear Power Operations accredited training program at the DBNPS includes the elements necessary to provide training in the maintenance and repair of the PORV and block valve.

- c. Consistent with the guidance of Generic Letter 90-06, Toledo Edison may procure replacement parts and spares, as well as complete components required for its DBNPS PORV and block valve (and associated control systems) in accordance with the original construction codes and standards.

NRC Recommendation Item 3.1.2:

Include PORVs, valves in PORV control air systems, and block valves within the scope of a program covered by Subsection IWV, "Inservice Testing of Valves in Nuclear Power Plants," of Section XI of the ASME Boiler and Pressure Vessel Code. Stroke testing of PORVs should only be performed during Mode 3 (HOT STANDBY) or Mode 4 (HOT SHUTDOWN) and in all cases prior to establishing conditions where the PORVs are used for low-temperature overpressure protection. Stroke testing of the PORVs should not be performed during power operation. Additionally, the PORV block valves should be included in the licensees' expanded MOV test program discussed in NRC Generic Letter 89-10, "Safety-Related Motor Operated Valve Testing and Surveillance," dated June 28, 1989.

Toledo Edison Response to Recommendation Item 3.1.2:

The PORV and block valve are included in Davis-Besse's Second Ten-Year Interval Pump and Valve Testing Program submitted to the NRC under Toledo Edison letter Serial Number 1838, dated August 28, 1990. This Pump and Valve Testing Program incorporates the 1986 Edition of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, which is the most recent edition incorporated by reference in 10 CFR 50.55a(b) and includes a relief request (RV-1) for the PORV stroking and timing as discussed below.

The PORV, RC2A, is a solenoid actuated, pilot operated relief valve. As such, control air is not used to actuate this valve.

Full stroking and timing cannot be visually verified or measured on this valve since the valve mechanisms are internal. The indication in the control room is an electrical signal to the PORV pilot valve position which does not indicate true valve position but rather indicates the demand signal. Acoustic monitors provide flow indication, however, these are independent of the valve. The fail position for this valve (by design) is closed.

Valve testing can only occur during a defined Reactor Coolant System (RCS) pressure band that will ensure the valve has sufficient motive force to stroke open, and yet will limit any RCS system pressure transient, or generation of radwaste. The PORV is stroked in MODE 5 during heatup from refueling shutdown per DB-SP-03366, "Reactor Coolant System Vent Path Operability." This measures acceptable flow through the PORV by timing the pressure drop from 200 psig to 190 psig or from 100 psig to 90 psig. This drop in pressure is correlated to flow and must occur within a set time period. The PORV is not stroke tested during power operation.

The block valve, RC11, is tested in accordance with the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, Subsection IWV, 1986 Edition, with no exceptions. The block valve and its motor operator are included in the DBNPS Motor-Operated Valve Reliability and Improvement Program under NRC Generic Letter 89-10.

NRC Recommendation Item 3.1.3:

For operating PWR plants, modify the Limiting Conditions of Operation of PORVs and block valves in the Technical Specifications for Modes 1, 2, and 3 to incorporate the position adopted by the staff in recent licensing actions. Attachments A-4 and A-5 are provided for guidance.

Toledo Edison Response to Recommendation Item 3.1.3:

Davis-Besse Technical Specification 3/4.4.11, RCS-RCS Vents, presently includes requirements on the PORV and block valve. These requirements are applicable during MODES 1, 2, and 3 and include requirements to cycle each valve through at least one complete cycle of full travel during COLD SHUTDOWN or REFUELING. The PORV is not required for low-temperature overpressure protection (LTOP) at the DBNPS. The Decay Heat Removal System utilizes a relief valve (DH-4849) sized to

provide low-temperature overpressure protection during Modes 4 and 5. The Limiting Condition for Operation for DH-4849 for LTOP considerations is prescribed by Technical Specification 3/4.4.2, Safety Valves - Shutdown.

The NRC model Technical Specifications previously issued for PORV and block valves under cover letter dated July 2, 1980 (Toledo Edison letter Log Number 581) stipulated that a PORV inoperable for any reason be restored to OPERABLE within one hour, or the block valve closed and its power "removed." The NRC guidance of Generic Letter 90-06, Enclosure A, Attachment 4 revises this guidance by stipulating that if the PORV is inoperable due to excessive seat leakage the PORV be restored to OPERABLE within one hour or the block valve closed with its power "maintained."

Davis-Besse Technical Specification 3/4.4.11 does not require removal of power from the block valve if it has been closed, for example, due to PORV excessive seat leakage. A specific requirement to maintain the power to the block valve is considered unnecessary for the Davis-Besse Technical Specifications because the primary means of depressurization during a steam generator tube rupture accident is pressurizer spray. If pressurizer spray is not available, then DB-OP-02000, "Emergency Procedures" directs the use of the pressurizer vent (RC239A and RC200) as the primary means of reactor coolant system pressure reduction.

The use of the pressurizer vent for recovery from a steam generator tube rupture or cooldown during loss of all AC power has been chosen because a restricting orifice in the vent line limits flow to provide a controlled pressure reduction and prevent rupture of the pressurizer quench tank rupture disk. (See attached simplified drawing). The pressurizer vent motor-operated valves RC239A and RC200 are tested under the DBNPS Motor-Operated Valve Reliability and Improvement Program (Generic Letter 89-10) and are included in the second Ten-Year Interval Pump and Valve Testing Program.

Toledo Edison is not committed to Branch Technical Position RSB5-1 in Standard Review Plan 5.4.7, Residual Heat Removal (RHR) System. Use of the PORV for plant cooldown during a loss of offsite power is not desired at the DBNPS. DB-OP-06903, Plant Shutdown and Cooldown, Section 7.0, Cooldown on Natural Circulation, directs maintaining the plant in Hot Standby, if possible. If it is desired to cooldown, DB-OP-06903 restricts the cooldown rate in order to prevent forming a steam space in the reactor vessel head. Section 7.0 of the Plant Shutdown and Cooldown procedure directs the use of the pressurizer vent (RC239A and RC200)

During an off design basis total loss of feedwater event, the PORV would be opened to provide a relief path during "feed and bleed" cooling. However, upgrades to the RCS Makeup System, as described in Toledo Edison letter Serial Number 1836, have allowed for failure of the PORV to open without loss of feed and bleed capability.

A CHANNEL CALIBRATION of the pressurizer pilot operated relief (PORV) is performed every 18 months in accordance with Technical Specification 3/4.4.3., RCS-Safety Valves and Pilot Operated Relief Valve-Operating.

The block valve is demonstrated OPERABLE quarterly in accordance with Technical Specification 4.0.5 which conforms to the surveillance intervals specified in Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda.

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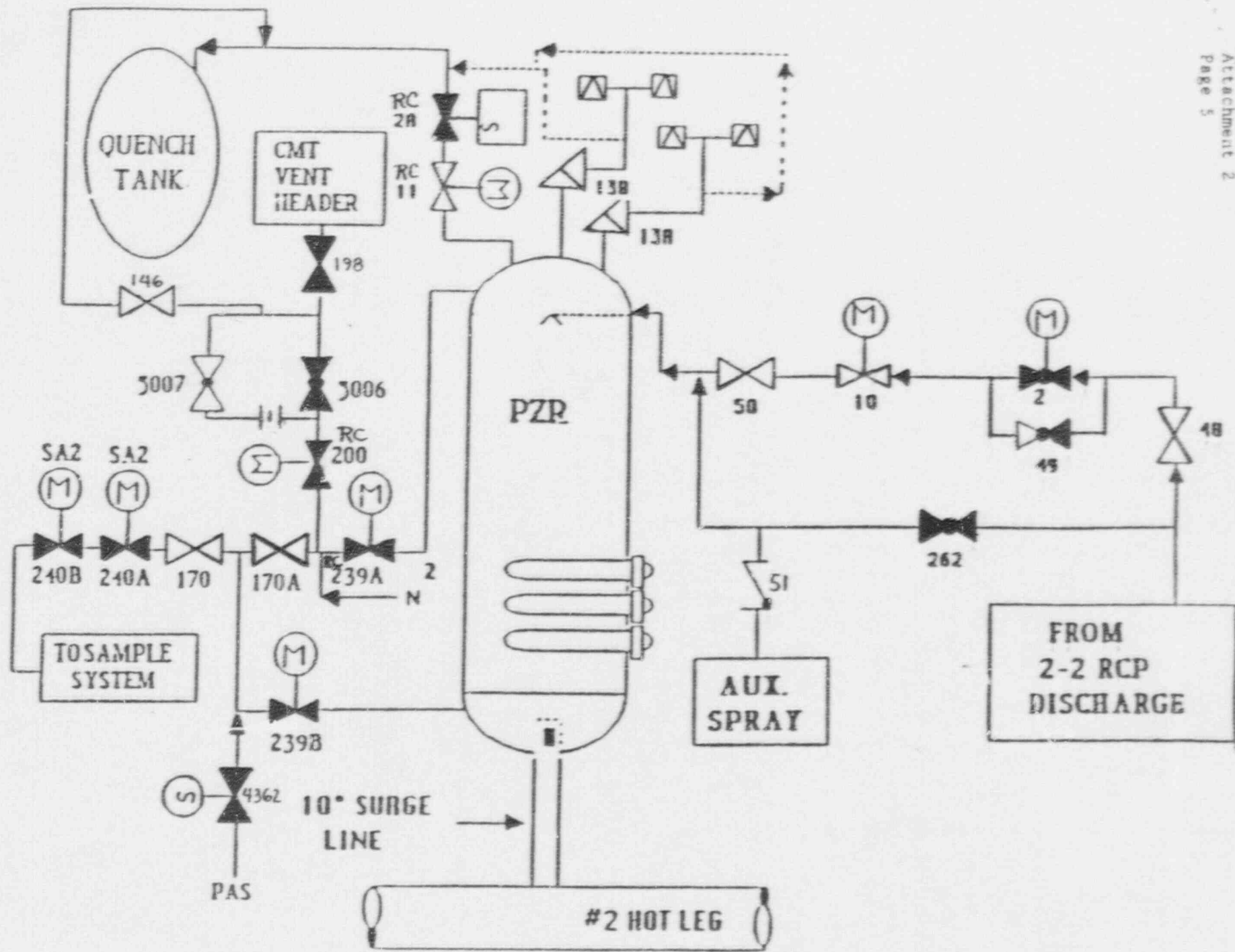
Attachment 2

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Technical Specification 3/4.4.11 requires that if the pressurizer vent path (RC239A and RC200) and the PORV/block valve (RC2A and RC11) path are inoperable, then one of these paths must be restored to OPERABLE within 30 days, or, the plant must be placed in HOT STANDBY (Mode 3) within 6 hours and in HOT SHUTDOWN (Mode 4) within the following 30 hours. Technical Specification 3/4.4.1 RCS-Pressurizer, requires that if the pressurizer is inoperable in Modes 1 or 2 the plant must be placed in at least HOT STANDBY with the control rod drive breakers open within 6 hours.

Accordingly, since Toledo Edison has Technical Specifications with appropriate shutdown requirements it is not necessary that Toledo Edison utilize the NRC's Generic Technical Specifications of Attachment A-4 in Enclosure A of Generic Letter 90-06.

However, Technical Specification 3/4.4.11 bases change will be submitted to the NRC before the end of the next refueling outage (7RFO) adding a discussion of the operability requirements for the PORV and block valve in the DENPS system configuration.



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