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

**Subject: Beaver Valley Power Station, Unit No. 2**
**Docket No. 50-412, License No. NPF-73**
**Request for Enforcement Discretion**
**Technical Specification 3.7.13.1**

This letter requests that the NRC exercise enforcement discretion regarding compliance with the Technical Specification 3.7.13.1, "Standby Service Water System," action statement. The Standby Service Water System was declared inoperable at 1550 hours on April 20, 1999, due to damage to the traveling screen which provides a supporting function to the standby service water pumps. The plant is currently in Mode 1 at approximately 100% power with repairs to the traveling screen for the alternate intake structure approximately 99% complete. The current schedule for finishing the repairs and required post maintenance testing is 0600 hours on April 27, 1999. This request for enforcement discretion is provided as a contingency in the event the Standby Service Water System is not restored to operable status within the allowable time. Therefore, it is requested that enforcement discretion be granted to allow for continued plant operation beyond the 7 day action time so that sufficient time is available to complete the required repairs to the traveling screen in the alternate intake structure and perform post maintenance testing. This additional time is only for completion of the repairs and required post maintenance test to demonstrate operability and shall not exceed 3 days.

Details supporting this request are located in the enclosure which has been prepared following the guidance contained in NRC Administrative Letter 95-05, Revision 1, "Revisions to Staff Guidance for Implementing NRC Policy in Notices of Enforcement Discretion." This request has been reviewed by the Onsite Safety Committee and Nuclear Safety Review Board and has been determined to be appropriate.

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Sincerely,

S. C. Jain



Attachment

DELIVERING QUALITY ENERGY

c: Mr. D. S. Collins, Project Manager
Mr. D. Kern, Sr. Resident Inspector
Mr. H. J. Miller, NRC Region I Administrator

**ENCLOSURE**
**Beaver Valley Power Station - Unit No. 2**
**Docket No. 50-412, License No. NPF-73**
**Request for Enforcement Discretion Regarding Compliance with Technical Specification 3.7.13.1, Standby Service Water System**

1. *The Technical Specification (TS) or other license condition that will be violated:*

Beaver Valley Power Station Unit 2 (BV-2) Technical Specification Limiting Condition for Operation (LCO) 3.7.13.1, Standby Service Water System (SWE), requires that at least one standby service water subsystem shall be operable in Modes 1, 2, 3, and 4. The LCO action statement requires that with less than one SWE subsystem operable, restore at least one subsystem to operable status within 7 days or be in at least Hot Standby within the next 6 hours and in Cold Shutdown within the following 30 hours.

2. *The circumstances surrounding the situation, including apparent root causes, the need for prompt action and identification of any relevant historical events:*

On April 19, 1999, during routine "A" Train solid state protection Safety Injection testing, one of the two installed non-safety related BV-2 SWE pumps (2SWE-P21A) was operating to provide service water cooling to one of the two in-service safety related service water headers to maintain normal header pressures and plant cooling. When an SWE pump starts, the alternate intake bay traveling screen starts and operates while the SWE pump is running. Both BV-2 SWE pumps are supplied by one traveling screen. (See attached sketch)

During the test on April 19, 1999, the traveling screen stopped rotating and the drive motor continued to turn. Movement of the traveling screen is necessary to allow the removal of accumulated debris by the screen wash system. Maintenance was contacted to investigate the condition. On April 20, 1999, the traveling screen was inspected and several screen basket sections were observed to be bent or misaligned to one side above the operating deck. Due to the unknown condition of the screen sections below the deck level and below the river water level, both SWE pumps were declared inoperable. The 7 day action requirement of Technical Specification LCO 3.7.13.1 was entered at 1550 hours on April 20, 1999. The SWE pumps and traveling screen were placed on clearance and steps were initiated to de-water the bay to further inspect the screens below the operating deck.

Subsequent disassembly and inspection of the traveling screen revealed that one of the screen chain sections on one side had broken due to thinning of the carbon steel from corrosion and age. When the chain broke, the screens became misaligned and

folded into the chain sprocket. The sprocket jammed against the chain and caused the drive sprocket sheer pin to break, stopping the screen.

Repair efforts were initiated on April 20, 1999. Removal efforts include installation of the bay stop log, dewatering the intake bay, removal of the entire traveling screen assembly from the Alternate Intake Structure, disassembly of the damaged components, and procurement and delivery of replacement parts. Reinstallation efforts include partial reassembly of the traveling screen, reinstallation of the traveling screen into the Alternate Intake Structure, completing the remaining reassembly of the screen components, reflooding of the intake bay, removal of the bay stop log and post maintenance testing of the SWE subsystem. The current schedule for completion of these efforts is 0600 hours on April 27, 1999.

If the BV-2 traveling screen is not restored to operability by 1550 hours on April 27, 1999, the plant is then required to initiate a shutdown and be in at least Hot Standby within the next 6 hours in accordance with the action requirement of Technical Specification 3.7.13.1. This request for Notice of Enforcement Discretion (NOED) is being submitted as a contingency to allow continued plant operation beyond the 7 day action time if the required repairs and post maintenance testing are not completed within the allowable outage time.

During the later stages of the licensing process of Beaver Valley Power Station Unit 1 (BV-1), the NRC concluded that the probability of a gasoline barge impact and explosion at the Main Intake Structure was high enough to consider this postulated accident in the design of the facility. To address this concern, Duquesne Light Company (DLC) committed to installing an Auxiliary River Water System (ARWS) that included an Alternate Intake Structure, which would not be affected by a postulated gasoline barge impact/explosion at the Main Intake Structure. BV-1 received its initial operating license (OL) on January 30, 1976, which authorized fuel loading and low power testing up to 5% power. The OL contained a condition which required completion of the ARWS by December 31, 1976. On May 28, 1976, Amendment 3 to the OL authorized BV-1 operation up to 35% power. Included with this amendment was a supplemental initial decision from the Atomic Safety and Licensing Board (ASLB) which discussed DLC's proposed compensatory measures for operation of BV-1 until the ARWS was completed and operational. These measures included a temporary alternate cooling system and emergency procedures to supply water to the plant from the cooling tower basin, and the stationing of a river towboat and crew near the Main Intake Structure to intercept a postulated runaway gasoline barge. On July 2, 1976, Amendment 4 of the OL authorized full power operation of BV-1. This amendment modified the ARWS license condition and required that the alternate cooling system be maintained in a

state of readiness including required testing frequencies. The BV-1 ARWS was operationally tested on December 7, 1976. On February 14, 1977, Amendment 8 of the BV-1 OL deleted the ARWS license condition and added Technical Specification 3/4.7.13 for the ARWS.

A similar licensing action required a BV-2 response to an event presented in U.S. Atomic Energy Commission (USAEC) Regulatory Staff Position 22 (BV-2 preliminary safety analysis report (PSAR), Q2.18, July 20, 1973). The response concluded that the SWE conveys water from the Alternate Intake Structure to provide heat sink requirements when the Seismic Category I Main Intake Structure is disabled by the postulated event (BV-2 PSAR, USAEC Question No. 2.18, Amendment 8, July 1973, Amendment 12, December 1973, and Amendment 13, February 1974). In accordance with Regulatory Guide 1.27, the SWE is capable, as a minimum, of providing its design function during site-related historic events.

There have been no past events involving a runaway barge collision with the Main Intake Structure during the 22 years of operation at Beaver Valley.

3. *The safety basis for the request, including an evaluation of the safety significance and potential consequences of the proposed course of action. This evaluation should include at least a qualitative risk assessment derived from the licensee's PRA:*

The SWE is designed to provide cooling water to shut down the unit from 100 percent power and to subsequently cool down the Reactor Coolant System to less than 200°F for as long as necessary after the postulated loss of the Category I Main Intake Structure due to the specified design basis events. The SWE pumps share the Alternate Intake Structure with the BV-1 ARWS pumps that are located in a separate bay. The Alternate Intake Structure is provided to ensure that cooling water is available in a postulated event where the Main Intake Structure is disabled by damage from a gasoline barge impact/explosion. The risk associated with extending the 7 day action time for Technical Specification 3.7.13.1 has been evaluated. The Alternate Intake Structure and SWE are only required in the event the Main Intake Structure and Service Water System have been made inoperable as a result of an uncontrolled gasoline barge impact/explosion causing sufficient damage to the Main Intake Structure. The risk associated with the requested extension is that no Alternate Intake Structure and SWE would be available in the event the postulated gasoline barge impact/explosion occurred at the Main Intake Structure during the requested extension period.

The current BV-2 Probabilistic Risk Assessment (PRA) core damage frequency (CDF) quantified with point estimate values is 7.12E-05 events per year (this value was chosen over the 7.54E-05 Monte Carlo quantification CDF in order to determine a true sensitivity for the SWE pumps unavailable condition). A bounding analysis to evaluate the impact of extending the 7 day action time up to an additional 14 days has been completed. The impact on CDF associated with removing both of the SWE pumps from service results in a point estimate instantaneous CDF value of 8.05E-05 events per year. Assuming that both of the SWE pumps are unavailable for 21 days, the core damage probability over this duration becomes 5.32E-07. This increase in risk considers internal initiating events along with internal fires and earthquakes. The impact due to external events resulting in the loss of the Main Intake Structure is not included in the above CDF calculation, since these events were screened from the Individual Plant Examination of External Events (IPEEE) due to meeting the Standard Review Plan (SRP) requirements (i.e., probability of CDF was less than 1.0E-06 events per year).

With a conservative initiating frequency of 1.0E-05 events per year for a loss of all service water due to external events, the associated CDF for this scenario is 9.56E-07 events per year and the combined point estimate instantaneous CDF would increase from 8.05E-05 to 8.14E-05 events per year. Assuming that both SWE pumps are unavailable for 21 days, the core damage probability due to this initiating event over this duration will become 5.50E-08 events per year and the combined core damage probability would increase from 5.32E-07 to 5.87E-07. This calculated risk associated with the proposed configuration falls within Region III of the USNRC Regulatory Guide 1.174 acceptance guidelines, and is considered to be non-risk significant per the Electric Power Research Institute Probabilistic Safety Assessment Applications Guide criteria.

4. *The basis for the licensee's conclusion that the noncompliance will not be of potential detriment to the public health and safety and that no significant safety hazard consideration is involved:*

*Criterion 1 - Does not involve a significant increase in the probability or consequences of an accident previously evaluated.*

Operation without the availability of the SWE has no effect on the probability of any design basis accidents previously evaluated in Chapter 15 of the BV-2 UFSAR as it has no impact on the causes of initiating events in the plant. The Main Intake Structure and Service Water System are credited for supplying cooling water in all design basis accidents except for the postulated gasoline barge impact/explosion.

Extending the 7 day action time up to an additional 3 days does not significantly affect the consequences of an accident previously evaluated due to the low probability that an uncontrolled gasoline barge will strike the Main Intake Structure and cause an explosion during this period. Therefore, operation without the availability of the SWE for up to an additional 3 days will not involve a significant increase in the probability or consequences of an accident previously evaluated based on the risk assessment described in Item 3 above.

*Criterion 2 - Does not create the possibility of a new or different kind of accident from any accident previously evaluated.*

The Alternate Intake Structure and SWE, which are non-safety related, are only required in the event the Main Intake Structure and Service Water System have been made inoperable as a result of an uncontrolled gasoline barge impact/explosion causing sufficient damage to the Main Intake Structure. Extending the 7 day action time up to an additional 3 days does not create the possibility of a new or different kind of accident from any accident previously evaluated due to the low probability that an uncontrolled gasoline barge will strike the Main Intake Structure and cause an explosion during this period. There are no hardware changes associated with this NOED, nor are there any changes in the method by which any safety-related plant system performs its safety function. No new accident scenarios, transient precursors, failure mechanisms or limiting single failures are introduced as a result of these changes. With the SWE system on clearance for completion of repairs, the auto start capability of the SWE pumps to start on low service water header pressure along with opening of the associated motor operated valves are disabled. Other than this, no other adverse effects are introduced to any safety-related system. Therefore, this NOED will not create the possibility of any new or different kind of accident from any accident previously evaluated.

*Criterion 3 - Does not involve a significant reduction in the margin of safety.*

The proposed NOED does not affect the acceptance criteria for any analyzed event nor impact any plant safety analyses since the assumptions used will remain unchanged. The safety limits assumed in the accident analyses and the design function of the equipment required to mitigate the consequences of any postulated accidents will not be changed since the proposed changes do not affect the accident analyses assumptions or equipment required to mitigate design basis accidents described in the UFSAR. Although extending the 7 day action time up to an additional 3 days is a deviation from the technical specification requirements, the effect is not significant considering the low probability of an uncontrolled gasoline barge striking the Main Intake Structure and causing an explosion during this period.

The technical specifications continue to assure the normal Service Water System operating parameters are maintained within the required limits during the requested extension period and therefore will not involve a significant reduction in the margin of safety.

5. *The basis for the licensee's conclusion that the noncompliance will not involve adverse consequences to the environment:*

This NOED does not involve a change to the facility or operating procedures that would cause an increase in the amounts of effluents or create new types of effluents. The NOED does not involve changes to any instrumentation setpoints, system operating parameters, or system accident mitigation capabilities, nor does it affect the probability of any event initiators. Thus, the NOED does not reduce the margin of safety to any licensed design parameter. The NOED would not adversely affect the operation of the reactor, and would not affect any system that would affect occupational radiation exposure. The proposed change does not create additional exposure to personnel nor affect levels of radiation present. The NOED will not result in any increase in individual or cumulative occupational radiation exposure.

Based on the above, it is concluded that there will be no impact on the environment resulting from the request, and that the request meets the criteria specified in 10 CFR 51.22 for categorical exclusion from the requirements of 10 CFR 51.21 relative to requiring a specific environmental assessment by the Commission.

6. *Any proposed compensatory measure(s):*

- Both trains of the BV-2 Service Water System have been recently demonstrated operable as required by Technical Specification 3/4.7.4 surveillance requirements and will be maintained in compliance with applicable technical specifications.
- Discretionary maintenance activities that would require removing portions of the BV-2 Service Water System from service during the period that the NOED is in effect will be deferred until the SWE system is restored to operable status.

7. *The justification for the duration of the noncompliance:*

The NOED will only be in force for the time required to complete repairs to the traveling screen, perform post maintenance testing and return the system to

operability for a period not to exceed 3 days. The current schedule for completion of these activities is 0600 hours on April 27, 1999. Due to the extent of damage to the traveling screens in the Alternate Intake Structure for the BV-2 SWE, the repairs and post maintenance testing may not be completed within the 7 day technical specification action statement period. The non-safety related Alternate Intake Structure is provided to ensure that safety-related cooling water is available in a postulated event where the Main Intake Structure is affected. The Main Intake Structure remains operable and is unaffected. Extending the action time beyond the 7 day action time would allow continued plant operation up to an additional 3 days to complete the required repairs and perform post maintenance testing. This NOED will preclude an unnecessary plant transient, system realignments and the potential for challenging the Reactor Protection Systems if an unanticipated transient occurred during the shutdown process.

8. *A statement that the request has been approved by the facility Onsite Safety Committee:*

This request for enforcement discretion and its basis were reviewed by the Onsite Safety Committee and the Nuclear Safety Review Board on April 26, 1999, and found to be acceptable prior to the request being made to the NRC.

9. *The request must specifically address which of the NOED criteria for appropriate plant conditions specified in Section B is satisfied and how it is satisfied. (Ref. Administrative Letter 95-05 Revision 1):*

This request specifically addresses Criterion B.2.1 in NRC Administrative Letter 95-05 Revision 1 for an operating plant.

"For an operating plant, the NOED is intended to (a) avoid undesirable transients as a result of forcing compliance with the license condition and, thus, minimize potential safety consequences and operational risks or (b) eliminate testing, inspection, or system realignment that is inappropriate for the particular plant conditions."

This criteria is satisfied since BV-2 is currently operating in Mode 1. Compliance with the Technical Specification 3.7.13.1 action statement would initiate an undesirable transient and system realignments by requiring the plant to shutdown on April 27, 1999. Extending the action time beyond the 7 day action time would allow continued plant operation for only that additional time needed to perform the

required repairs and post maintenance testing, not to exceed 3 days. This NOED will preclude an unnecessary plant transient, system realignments and the potential for challenging the Reactor Protection System if an unanticipated transient occurred during the shutdown process. No safety benefit is gained by requiring a plant shutdown, as such, this request complies with the above stated criterion.

10. *If a follow-up license amendment is required, the NOED request must include marked-up TS pages showing the proposed TS changes and a commitment to submit the actual license amendment request within 48 hours:*

No license amendment is required since this is a region-issued NOED which is appropriate when the noncompliance is nonrecurring, will not exceed 14 days in duration, and a license amendment is not practical because the plant will return to compliance with the existing license in a short period of time. As this NOED addresses a nonrecurring noncompliance with the Technical Specification 3.7.13.1 action statement time limit, no license amendment is required.

11. *For NOEDs involving severe weather or other natural events.*

This NOED does not involve severe weather or other natural events.

# FIGURE

## ALTERNATE INTAKE STRUCTURE