



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 73 TO FACILITY OPERATING

LICENSE NO. NPF-73

DUQUESNE LIGHT COMPANY

OHIO EDISON COMPANY

THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

THE TOLEDO EDISON COMPANY

BEAVER VALLEY POWER STATION, UNIT 2

DOCKET NO. 50-412

1.0 INTRODUCTION

By letter dated April 26, 1995, the Duquesne Light Company (the licensee) submitted a request for changes to the Beaver Valley Power Station, Unit 2 (BVPS-2), Technical Specifications (TSs). The requested changes would add a requirement to TS 4.5.2.a to periodically verify that the High Head Safety Injection (HHSI) pump minimum flow valve, 2CHS*MOV373, is maintained open during plant operation in Modes 1, 2, and 3. Valve 2CHS*MOV373, must be maintained open to provide a minimum flowpath for the HHSI pumps and thereby minimize the likelihood of HHSI pump damage due to operating the pumps with insufficient flow. The proposed change would allow flexibility for local verification of valve position or flow indication if the control room indication is not available. The proposed amendment would also make several editorial changes to TS 3/4.5.2 for consistent format with other TSs.

2.0 BACKGROUND

The subject valve is located in the alternate minimum flow system (AMFS). The AMFS was implemented at BVPS-2 to prevent "deadheading" and consequent damage to the high head safety injection (HHSI) pumps during periods of high reactor coolant system (RCS) pressure accompanying such events as a main steam line or feedwater line break. This scenario could occur when the safety injection (SI) signal triggered by the event automatically closes the minimum flow valve and, at the same time, starts the HHSI pumps. The AMFS averts this problem by ensuring the proper alignment of the minimum flow valve when minimum flow capability is needed.

NRC Information Notice (IN) 92-61, "Loss of High Head Safety Injection," informed licensees of a waterhammer event in the AMFS at another facility which resulted in a loss of HHSI function. To preclude the occurrence of a similar event at BVPS-2 and to ensure that minimum flow was available to the HHSI pumps at all times, the licensee retired the AMFS in place by keeping the subject valve in the open position and removing its SI closure signal. However, this modification did not consider a single failure in an electrical system and therefore did not satisfy NRC Branch Technical Position (BTP) ICSB 18, "Application of the Single Failure Criterion to Manually-Controlled Electrically-Operated Valves."

Because this BTP was part of the BVPS-2 licensing basis, the licensee proposed corrective actions to meet the intent of the BTP. These actions included de-energizing the valve's motor operator and locking the manual operator in the open position, thereby removing the valve from active status. Since the BVPS-2 TSs list all electrically-operated valves to which the requirement for removal of electrical power is applied to satisfy the single failure criterion, the proposed revisions to TS 3/4.5.2 add the subject valve to this list. In addition, the revisions specify the surveillance needed to ensure that this valve remains open at all times.

3.0 EVALUATION

In support of the proposed locking open and de-energizing of minimum flow valve 2CHS*MOV373 and the associated revisions to TS 3/4.5.3, new safety analyses were performed by the licensee. These analyses assumed that the subject valve remained open during all postulated accident conditions and did not close on an SI signal. The effect of reduced injection flow due to partial flow diversion from the SI header to the (now open) minimum flow line and the attendant reduction in cooling during RCS high pressure conditions following events such as secondary side line breaks was examined. It was found that sufficient flow to the core would be maintained during these events and that the HHSI pumps would remain capable of performing their safety function with the minimum flow line kept open. Because the now open minimum flow line would carry recirculated water from the containment sump through certain safeguards areas of the plant, the effect of increased dose levels on equipment qualification and post-accident personnel access routes was also examined. No adverse impact was found.

The proposed surveillance requirements of revised TS 3/4.5.2 are consistent with the guidance in BTP ICSB 18 and ensure that the subject valve remains in the open position, as assumed in the revised safety analyses, and is not vulnerable to single failure.

Based on the above evaluation, we find that the de-energizing and locking open of minimum flow valve 2CHS*MOV373, and the surveillance requirements added to TS 3/4.5.2 to ensure that this valve remains open at all times, are acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Pennsylvania State official was notified of the proposed issuance of the amendments. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involve no significant hazards consideration, and there has been no public comment on such finding (60 FR 29874). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

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Date: August 25, 1995