



New England Power

NEP 1 & 2 Nuclear Project

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NRC-N-100

Director of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Dear Sir:

DOCKET NOS. STN 50-568 AND STN 50-569  
CLASSIFICATION OF MAIN FEEDWATER ISOLATION VALVES

Your letter of June 27, 1978, required that the NEP 1 & 2 design be modified to meet the current staff position for feedwater isolation valves. You further stated that the staff position for construction permit applications requires that the feedwater valves relied upon to mitigate the consequences of a postulated main steam line break be classified as Quality Group B and seismic Category I. In addition, the staff position requires that these valves must be operated by controls that meet IEEE 279-1971 and must meet the quality assurance requirements of 10CFR50, Appendix B.

NEP 1 & 2 is being licensed as a replicate plant under your standardization policy. Seabrook is the base plant. According to WASH-1360 and your qualification review letter on our docket dated 11/3/75, NEP is required to address only significant safety issues identified by the staff in their qualification review. This issue was not addressed in the 11/3/75 letter. We are not aware the Regulatory Requirement Review Committee has ruled this to be a significant safety issue. If this does occur, and if it is ruled a base plant requirement, we would automatically endorse the base plant resolution. However, at this time it appears that the Staff is arbitrarily assuming the outcome of a decision not yet even placed before RRRC.

We believe that the required isolation capability is adequately performed by the existing Quality Group D feedwater control valves which are designed in accordance with General Design Criteria 1; i.e., they are designed, fabricated, and tested to quality standards commensurate with the importance of the safety function to be performed to assure satisfactory performance.

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In our letter of August 31, 1978 on the same subject, we provided a number of reasons for justifying our use of a Quality Group D valve to mitigate the consequences of a main steam line break (MSLB). The major reasons are summarized below:

1. The safety function of the valve is its capability to operate to the closed position and not the capability of the valve body to act as a pressure boundary.
2. The operator and control circuits perform the safety function of the control valve and as such are qualified in accordance with IEEE 279-1971 criteria assuring a high degree of reliability in performing the safety function which is not further enhanced by the imposition of Quality Group B requirements.
3. Non-destructive examination will be performed to assure that the valve body will not fail and interrupt performance of the plant during normal operation.
4. The use of non-safety grade valves for mitigating the consequences of a MSLB analysis is acceptable, as stated in NUREG-138, based on the reliability of these valves.

We have evaluated the reliability of the NEP 1 & 2 control valves using component statistics compiled by the Nuclear Plant Reliability Data System (NPRDS). Statistics from NPRDS show a failure to close rate of 6.7 failures per million in-service hours ( $6.7 \times 10^{-6}/\text{hr}$ ) for flow control, pneumatically operated globe valves in the size range of 12 to 19.99 inches. Comparing this failure rate with operating statistics on pneumatically operated gate valves in the same size range, NPRDS reports a mean failure rate for all modes of  $4.51 \times 10^{-6}/\text{hr}$ . Therefore, these control valves are essentially as reliable as the safety grade isolation valves. Similarly, these control valves are as reliable as the valves used typically as main steam isolation valves, for which NPRDS reports mean failure rates of  $11.5 \times 10^{-6}/\text{hr}$  for 20 to 39.99 inch hydraulically operated globe valves and  $8.87 \times 10^{-6}/\text{hr}$  for 20 to 39.99 inch pneumatically operated globe valves. Of the failures of flow control globe valves identified by NPRDS (one failure to close reported) as well as those identified in the Licensee Event Reports (two failures to close reported), these failures would not have been prevented by upgrading the valve to Quality Group B. Furthermore, combining the probabilities of failure of the isolation gate valve and the flow control valve results in a probability of simultaneous failure of both valves to close (i.e., required safety function) of  $3.02 \times 10^{-11}/\text{hr}$ . This probability shows the extreme unlikelihood that a feedwater line would not be isolated in the event of a main steam line break inside containment.

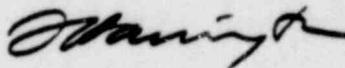
Beyond the above technical discussion, we wish to identify an inconsistency between the NRC staff position and the current regulatory requirements in Standard Review Plan (SRP) 15.1.5, Revision 1. Section 2 of SRP 15.1.5, under Acceptance Criteria, paragraph 3i states the following:

For postulated instantaneous pipe failures in seismically qualified portions of the main steam line (inside containment and upstream of the MSIV's), only safety grade equipment should be assumed operative. If, in addition, a single malfunction or failure of an active component is postulated, credit may be taken for the use of a backup non-safety grade component to mitigate the consequences of the break.

This contradiction supports our contention that the present NRC position as imposed on NEP 1 & 2 is unwarranted and without basis.

In conclusion, we do not consider necessary the change described in your June 27 letter. It is our position that the feedwater control valves are presently designed to perform their safety function and that upgrading to Quality Group B requirements would not enhance their ability to perform that safety function. We hereby appeal imposition by the staff of that requirement on NEP 1 & 2. We are prepared to discuss this further at your convenience.

Very truly yours,



Joseph Harrington  
Project Manager