



UNITED STATES  
ATOMIC ENERGY COMMISSION

WASHINGTON, D.C. 20545

JUL 6 1973

Donald J. Skovholt, Assistant Director  
for Operating Reactors  
Directorate of Licensing

REVIEW OF MILLSTONE NUCLEAR POWER STATION, UNIT NO. 1, INTERIM REPORT,  
FEEDWATER SPARGER FAILURE, JUNE 12, 1973, AND APPENDUM 1, JUNE 29, 1973

Plant Name: Millstone Nuclear Power Station, Unit No. 1  
Licensing Stage: Post operating license  
Docket Number: 50-245  
Requesting Branch and Project Manager: ORB-2, C. J. DeBevec  
Requested Completion Date: July 6, 1973  
Technical Review Branches Involved: Materials Engineering Branch  
Review Status: Complete

The Materials Engineering Branch has reviewed the subject report and Appendix 1 and agree with the licensee that the cause of failure of the feedwater spargers was high cycle fatigue that arose from vibration of the sparger arms in response to some undetermined hydraulic turbulence in the system. We disagree, however, that loss of the preload stress on the sparger arm necessarily preceded failure of the spargers, since incipient cracks were found on the southeast sparger, which had retained its full preload.

We concur with the licensee that reducing the allowable vibration amplitude by adding rigid welded supports, eliminating the resonant frequency of vibration of the sparger arms by carefully positioning these supports, and reducing the preload stress on these spargers will minimize the probability of their failure by this mode in the future. We believe that the vibration monitoring instrumentation installed to determine motion of the new spargers during the proposed hot flow test, coupled with the pressure differential sensors installed to indicate failure of any one of the new spargers will provide adequate assurance of sparger integrity until the next scheduled refueling shutdown.

Based on information contained in Appendix C of the Millstone Interim Report, Appendix I, and telephone conversations held with personnel from Regulatory Operations, we conclude that the welding of the spargers is being performed in accordance with the requirements of ASME Boiler and Pressure Vessel Code, Sections III and IX and is acceptable. We also conclude that the post-weld non-destructive examination requirements of the Code are being complied with.

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We recommend that the welding repair procedures and documents submitted to RO also be provided to Materials Engineering Branch for information.

*R. R. Maccary*

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for Engineering  
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