



UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, D. C. 20555

February 13, 1980

Honorable John F. Ahearne
Chairman
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

SUBJECT: NRC ACCEPTANCE CRITERIA FOR THE MARK I CONTAINMENT LONG TERM PROGRAM

Dear Dr. Ahearne:

During its 238th meeting, February 7-9, 1980, the Advisory Committee on Reactor Safeguards reviewed the NRC Acceptance Criteria for the Mark I Containment Long Term Program. This matter was considered at ACRS Fluid Dynamics Subcommittee meetings held on May 23, 1978, November 28-30, 1978, September 13-14, 1979, and November 16, 1979. During its review, the Committee had the benefit of discussions with representatives of the NRC Staff and the Mark I Owners Group.

The NRC Acceptance Criteria for the Mark I Containment Long Term Program are intended to establish design basis loads that are appropriate for the anticipated life of each Mark I BWR facility and to restore the originally intended design safety margins to each Mark I containment system.

The Mark I program was initiated in 1975 in response to loss of coolant accident and safety relief valve (SRV) dynamic loads identified by the General Electric Company during the course of performing large scale testing for the Mark III pressure-suppression containment in 1972-1974. A period of reevaluation resulted in issuance of the Short Term Program Acceptance Criteria in December 1975 which established interim design bases for continued operation of the Mark I BWRs. The Acceptance Criteria for the Long Term Program have been developed from a program of small and full scale tests in two and three dimensional geometries.

The Mark I Owners submitted proposed loads in the "Mark I Containment Program Load Definition Report" in December 1978 and detailed the methods to be used in plant unique analyses in the "Mark I Containment Program Structural Acceptance Criteria Plant Unique Analysis Applications Guide." Following review of the available information, the NRC Staff determined that certain changes and clarifications to the criteria proposed by the Mark I Owners were necessary. The NRC Staff technical requirements were delineated in the "NRC Acceptance Criteria for the Mark I Containment Long Term Program" issued in October 1979 and also in several additions to the acceptance criteria as discussed during the 238th ACRS meeting. The additions to the Acceptance Criteria were intended, in part, to alleviate some of the difficulties the Mark I Owners had in calculating credible structural responses to SRV actuations.

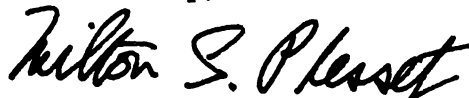
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The Committee recognizes the thoroughness of the efforts taken by the NRC Staff and the Mark I Owners to resolve the generic Mark I issues and believes that the NRC Acceptance Criteria and additions, as proposed, provide a suitably conservative basis for performing the Long Term Mark I Containment structural response analyses. The Mark I Owners indicated that they continue to have significant difficulty in calculating credible structural responses to some SRV loads and they would like to continue to work with the Staff on a generic basis to resolve these difficulties. The NRC Staff would like to complete the generic Mark I program and resolve any remaining problems as they arise from the plant unique analyses. The Committee believes that the individual Mark I Owners can work with the Staff to resolve any additional difficulties that may arise from the plant unique analyses as modifications are being made to the containment structures.

The Committee believes that the Staff should assure the adequacy of the requirements for verification of the design, fabrication, and inservice inspection of the Mark I containment modifications and, in particular, the SRV discharge piping in the wetwell airspace. Further, in the interim period while the Mark I modifications are being performed, the Staff should investigate the potential for and consequences of a failure in the SRV discharge piping in the wetwell airspace for the existing designs. The Committee wishes to be kept informed on this matter.

The Committee believes that, with due consideration to the above items, the generic Mark I Long Term Program can be concluded and the modifications to the individual Mark I BWRs can be implemented on a reasonable schedule over the next 18 months.

Sincerely,



Milton S. Plesset
Chairman

References:

1. General Electric Company, "Mark I Containment Program Load Definition Report," Revision 0, NEDO 21888, December 1978.
2. General Electric Company, "Mark I Containment Program Structural Acceptance Criteria Plant Unique Analysis Applications Guide," NEDO 24583, December 1978.
3. U.S. Nuclear Regulatory Commission, "NRC Acceptance Criteria for the Mark I Containment Long Term Program," October 1979, and additions included in the February 8, 1980, transcript of the 238th ACRS Meeting.