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MAY 19 1977

Docket No. 50-263

Northern States Power Company
 ATTN: Mr. L. O. Mayer, Manager
 Nuclear Support Services
 414 Nicollet Mall - 8th Floor
 Minneapolis, Minnesota 55401

Gentlemen:

RE: MONTICELLO NUCLEAR GENERATING PLANT UNIT 1

The purpose of this letter is to advise you that, as a result of our continuing review of information related to the Mark I Containment Program, the NRC staff has revised its previously expressed position regarding the acceptance criteria for removal (or reduction below 1.0 psid) of required drywell-wetwell differential pressure controls. Our current position is described in Enclosure 1 and should be considered prior to any request for authorization to remove or reduce differential pressure control requirements.

In addition, as discussed at the February 4, 1977 meeting between the NRC staff and representatives of the Mark I Owners Group, we have reassessed our position regarding utilization of the test data from the NRC-sponsored 1/5th scale testing program currently in progress at Lawrence Livermore Laboratory. Our current position is described in Enclosure 2 and is provided for your information.

If you have any questions regarding this information we would be pleased to discuss them with you.

Sincerely,

(=)

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 P PDR

Don K. Davis, Acting Chief
 Operating Reactors Branch #2
 Division of Operating Reactors

Enclosures:

1. Acceptance Criteria for Removal or Reduction of Drywell-Wetwell Differential Pressure Controls
2. Application of Data from the Lawrence Livermore Laboratory Pool Dynamics Test Program

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DATE →	5/17/77	5/18/77	5/19/77		

MAY 19 1977

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ENCLOSURE 1

ACCEPTANCE CRITERIA FOR THE REMOVAL OR REDUCTION OF DRYWELL - WETWELL DIFFERENTIAL PRESSURE CONTROLS

The loading criteria for the Short Term Program's (STP) plant unique analyses utilized the base case downward loads taken from the 1/12 scale Phase II (December) test series. This was found acceptable primarily because the Phase II tests represented a larger data base for the base case (no differential pressure) condition and because there was reason to believe that the downward load anomaly observed in the Phase III (January) test results was caused by facility configurational problems. Additional consideration was given to the load sensitivity curves for differential pressure control (ΔP); which were developed using Phase III test data. The ΔP load sensitivity curves account for a fraction of the downward load anomaly, depending on the magnitude of the differential pressure.

In meetings with the Mark I Owners Group during February 2-3, 1977, some preliminary results from the 1/12 scale Phase IV tests were presented. The purpose of this test series was to investigate the cause of the downward load anomaly observed in the Phase III tests. The preliminary results of the Phase IV tests, while showing an influence of the natural frequency of the test facility, tend to confirm the higher magnitude of the downward loads observed during the Phase III tests.

Therefore, for those plants whose licensees propose to operate without differential pressure controls, we will require that the licensee determine the effect of a 33% increase⁽¹⁾ in the downward load, and subsequently demonstrate a limiting stress ratio of less than 0.5 (factor of safety greater than two) for the critical structural element, consistent with the STP requirements for "most probable load". In making this evaluation, we will find acceptable the assumption of a linear relationship between the downward load and the stress ratio. Further, for those plants whose licensees propose to reduce the magnitude of the differential pressure, because of the normalization of the Phase III data to the Phase II downward load, operation of ΔP control below 1.0 psid will not be allowed.

This position has been developed to allow the removal of the differential pressure control requirements with an adequate margin of safety to permit the continued investigation and resolution of the downward load anomaly. Once the downward load anomaly has been resolved, we will appropriately revise the criteria for the removal or reduction in differential pressure controls.

(1) NEDC 20989 P (Addendum 2), Loads and their Application for Torus Support System Evaluation, page 105.

ENCLOSURE 2

APPLICATION OF DATA FROM THE LAWRENCE LIVERMORE LABORATORY

POOL DYNAMICS TEST PROGRAM

During meetings with the Mark I Owners Group on February 2-3, 1977, we discussed use of the forthcoming data from the Lawrence Livermore Laboratory (LLL) pool dynamics test program in conjunction with the Long-Term Program (LTP). As you know, the NRC has undertaken the test program at LLL to provide confirmatory hydrodynamic load data for the Mark I configuration.

Based on our review of the Mark I owners revised Program Action Plan, we have found that the current test programs have several deficiencies relating to three-dimensional pool swell effects. We believe that these deficiencies will result in an NRC requirement for additional margins to account for the associated uncertainty, prior to its application in the LTP.

The LLL test facility, on the other hand, does not have these deficiencies, and will provide confirmatory data useful in the further resolution of three-dimensional pool swell loads for the Mark I containment design. We, therefore, recommend that the Mark I owners make provisions in the LTP to utilize the data from the LLL air test series for the purpose of confirming the method (analytical or empirical) that will be used to establish the hydrodynamic pool swell loads.

Provisions have been made to have the Mark I owners represented during our discussions on the LLL test programs and to provide the data obtained from the program to the Owners Group on a timely basis. The Mark I owners should be in a position to use the data from the LLL program just as they would data from any other source.