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

Attention: Mr. Thomas M. Novak
Assistant Director for Operating Reactors
Division of Licensing

Subject: Indian Point 3 Nuclear Power Plant
Docket No. 50-286
Reactor Coolant System Load Combination;
SSE and LOCA

Dear Sir:

In response to your July 31, 1980 letter regarding combination of seismic (SSE) and LOCA responses for the Reactor Coolant System, the Authority herewith provides the requested information in Attachment I.

As noted in your July 31, 1980 letter, the strain components of the SSE and LOCA loads were absolutely combined since the Indian Point Unit 3 SSE responses have been calculated elastically and the LOCA responses have been calculated inelastically.

Very truly yours,


J. P. Bayne

Senior Vice President
Nuclear Generation

Att.

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ATTACHMENT I

To complete the review of the analysis of the reactor coolant system for Indian Point Unit 3, the NRC has required the assessment of the effect of combining the seismic (SSE) and LOCA responses. The NRC has stated that in cases where the SSE responses have been calculated elastically and the LOCA responses have been calculated inelastically, an acceptable method of computing the combined responses is to combine the LOCA and SSE strain components absolutely. The effect of this load combination on the analysis presented in WCAP-9117 is given in Table 1. The ultimate strain for the support material falls in the range of 20% to 30%. The onset of strain hardening is at a strain level of approximately 2%. Initial yield occurs at approximately 0.2% strain. Since the maximum total strain from the combined SSE and LOCA responses is approximately 0.5%, the system is at a level of strain well within the capability of maintaining its function of supporting the components.

The proposed primary shield wall restraints are not presented in the table, because the restraint was designed with a gap and would not be loaded during an SSE. The maximum load in a primary shield wall whip restraint for a 0.568 inch reactor vessel LOCA motion is 2450 kips. This load is well below the 4860 kip capacity of this restraint. Therefore, the shield wall restraints are acceptable for SSE + LOCA loads.

TABLE 1

SSE AND LOCA STRAINS FOR THE
HIGHEST LOADED MEMBER OF THE SG AND
RCP OF INDIAN POINT NO. 3

<u>SUPPORT MEMBER</u>	<u>SSE STRAIN (IN/IN)</u>	<u>LOCA STRAIN (IN/IN)</u>	<u>SSE+LOCA STRAIN (IN/IN)</u>
1. SG Support			
a) 12" Pipe Stub Columns	.00027	.00252	.00279
b) 14W158 Vertical Frame Columns	.00008	.00144	.00152
c) Double 12" Channel at Elev. 63'-6"	.00057	.00140	.00197
d) 12W65 Stub Column Bracing Members	.00126	.00404	.00530
3) 12W120 Diagonal Bracing Members	.00022	.00049	.00071
2. RCP Support			
a) Pipe Columns	.00035	.00214	.00249
b) Tie Rods	.00009	.00460	.00469