

July 27, 1982

Docket No. 50-155
LS05-82-07-069

Mr. David J. Vandewalle
Nuclear Licensing Administrator
Consumers Power Company
1945 W. Parnall Road
Jackson, Michigan 49201

Dear Mr. Vandewalle:

SUBJECT: SEP TOPIC III-6, SEISMIC DESIGN CONSIDERATION
BIG ROCK POINT NUCLEAR POWER PLANT

On July 15 and 16, 1982, meetings were held to review results of seismic analyses for Big Rock Point structures. Enclosure 1 is the list of attendees. Discussions centered around our review of August 1981 D'Appolonia reports on the Reactor and Turbine Buildings. Questions and open items from our review of structures are contained in Enclosure 2 and should be considered when applicable to all structures, in your responses.

The schedule for your responses to structural questions and the status of your review of piping, equipment and components were also discussed. We agreed to a follow-up meeting during the latter half of the first week in August to review your responses to questions on structures. As we discussed, you should provide by August 4, 1982, a detailed schedule, including milestones for NRC review, for the completion of your evaluations of piping, equipment and components.

Sincerely,

Original signed by:

Dennis M. Crutchfield, Chief
Operating Reactors Branch No. 5
Division of Licensing

Enclosures:
As stated

cc w/enclosures:
See next page

SE04

DSU USE 51(18)

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Mr. David J. Vandewalle

cc

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Mr. David J. Vandewalle

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PARTICIPANTS IN JULY 15 AND 16, 1982NRC/CPCo MEETINGSSEP TOPIC III-6

<u>NAME</u>	<u>ORGANIZATION</u>
R. Emch	NRC/DOL
P. F. O'Hara	D'Appolonia/CPCo
R. A. Vincent	CPCo
J. Daiza	CPCo
J. Kuemin	CPCo
R. B. Jenkins	CPCo
S. Chakrabarti	D'Appolonia
A. J. Eggenberger	D'Appolonia
K. Herring	NRC/DOL
W. Russell	NRC/DOL

SYSTEMATIC EVALUATION PROGRAM BRANCH
OPEN ITEMS RESULTING FROM THE JULY 15 AND 16, 1982 MEETINGS
SEP TOPIC III-6 FOR BIG ROCK POINT

1. Provide your responses to the January 19, 1982, NRC letter requesting additional information.
2. Wherever overstresses were predicted in the August 1981 D'Appolonia structural analysis, identify all such areas and/or items, and provide the details of your disposition and resolution of each. Specifically address any assumed load redistribution and its effect on your analyses results.
3. Provide the Addendum to the August 1981 D'Appolonia reports.
4. Identify any analyses which will be performed using the SEP Site Specific Spectrum for Big Rock Point and provide the criteria and method to be employed, and corresponding justifications thereof.
5. The August 1981 D'Appolonia reports address structural member capability but do not address connection capabilities, except for certain column base plate connections. Provide a basis for your assumption that concrete, and welded and bolted steel connections (considering base plate flexibility, as appropriate) are adequate to develop the full ultimate strength of the structural members.
6. Soil springs have not been varied in accordance with SEP guidelines, and your bases for the higher structural damping values used in your analyses (given that high stresses in structures are local) have not been adequately justified. You should demonstrate, using (1) a +50% variation in shear modulus, (2) the SEP Site Specific Spectrum; and (3) rigorously justified corresponding levels of assumed structural damping, that the August 1981 D'Appolonia results are conservative for the Reactor and Turbine Buildings. Parametric studies of these phenomena for these two structures may be used. Where this approach is used and results are presented at various points in these structures, comparative graphs using identical scales should be employed or the results should be plotted on the same graph. You may extend your conclusions drawn from these studies to other structures. In addition, you should quantify the effect of including uncertainties (e.g., floor spectra peak broadening) on the D'Appolonia Reactor Coolant Loop analysis.
7. Provide the details of your evaluations of the acceptability of those members for which AISC column and beam buckling criteria (both local and gross) were exceeded taking credit for no increase in the normal AISC limits without the 1.33 increase for considering earthquake loads.
8. Provide the details of the bases for your evaluations of steel angles considering only tension stresses over the gross area.

9. Provide the details of your evaluations of column bases. In addition, demonstrate that they are adequate to resist any additional loads (above those predicted by your analyses) due to the redistribution of loads from overstressed members.
10. Justify the acceptability of the method for determining overturning moment resistance as outlined on page C-16 of the August 1981 D'Appolonia report, Volume III. Provide the details of your calculations of factors of safety against overturning for all structures.
11. Summarize the bases for your selection of dynamic degrees of freedom.
12. Define and justify the adequacy of your criteria for identification of significant weights to be included in the D'Appolonia analyses. The justification should specifically include consideration of the adequacy of the criteria to allow for appropriate determination of local structural effects.
13. Provide the results of your review of the effects of floor flexibilities on equipment response. In addition, describe in detail how floor spectra are modified in your piping, equipment and component evaluations to account for member or structure flexibility between their attachment points and the points at which spectra have been derived.
14. Provide the details and corresponding bases for your determination of "stick model" member properties for the actual structural member assemblies. In addition, provide corresponding information for your determination of individual structural member forces from those resulting from your analysis of the "stick model."
15. Describe the methods by which the interactions of in-plane and out-of-plane loading on walls and other concrete elements are considered.
16. Provide the factor of safety on the soil bearing stress allowables assumed in your analyses and the corresponding bases for its determination.