2-26-70

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Consumers Power Company
212 West Michigan Avenue
Jackson, Michigan 49201

Attention: Mr. Robert D. Allen
Senior Vice President

Gentlemen:

In our letters to you dated September 26, 1969 and January 8, 1970, we requested information on the data and method of analysis used in calculating the probable maximum flood level at the Midland site. Your replies to these questions did not provide sufficient information upon which to base our evaluation, As a consequence we are again requesting that you provide the information on flooding which is included in the attachment.

If you desire, we will be available to discuss this matter with you.

Sincerely,

Peter A. Morris, Director
Division of Reactor Licensing

Enclosure:
As stated above

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DATE ▶	2/20/70	2/24/70	2/24/70	2/24/70	2/25/70	2/25/70

Form AEC-318 (Rev. 9-53) AECM 0240

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ATTACHMENT

1. Probable Maximum Precipitation and Probable Maximum Flood Determinations

(1) The 24-hour probable maximum precipitation (PMP) on Table V, Amendment No. 6, shows the June PMP to be 13.6 inches derived from U. S. Weather Bureau, Hydrometeorological Report No. 33, for the 2400 square mile watershed where Table VII column 3 uses 13.0 inches rain, resulting in less runoff in determining the probable maximum flood estimate. This should be re-evaluated or justified.

(2) We request that you calculate the estimated probable maximum flood hydrograph using the All Season (July) PMP derived from Hydrometeorological Report No. 33. The PMP estimate for the All Season is about 13 percent higher than the June PMP from Report No. 33.

(3) The probable maximum flood estimate should be derived for Bullock Creek and diversions by use of at least 6 hour unit hydrographs and appropriate PMP from Report No. 33. The probable maximum flood estimate and resulting stage should be determined using acceptable techniques similar to those employed on the main channel of Tittabawassee River in the vicinity of the proposed project. The PMF on Bullock Creek and diversions should be analyzed for various concurrent flow conditions on Tittabawassee River.

2. Determination of Stage Discharge Relations

(1) The stage discharge curve in Amendment No. 6, Fig. No. 2.4.1, should be computed by appropriate step backwater computations for existing preproject and future project conditions. The proposed future project conditions will probably result in higher stages for the same discharges of extreme flood events than would have resulted prior to construction, due to greater restrictions in the flood plain. A more reliable stage discharge relationship should be determined by backwater profiles, computed considering the following:

(1) The water surface profiles for applicable floods of record including discharges and high water marks, should be verified as a basis for selecting the roughness coefficients ("n" values) for both the channel and over bank flow. For an appropriate step backwater computation, additional river and valley cross-sections downstream will be required. The cross-sections should be surveyed in the channel and up to the floods of record where appropriate. The cross-sections may be extended above the channel of historical floods using topographic maps where applicable.

(2) Using the roughness coefficients determined above and the surveyed cross-sections, determine the stage discharge relations for several extreme floods up to the PMF. This should be done under existing and project conditions with the modified geometry after the proposed project completion. The geometry modification should include the cooling pond dike and reasonable estimates of structures and flood protection measures which may be taken within the flood plain or river reach. In addition to the stage discharge curve at the proposed plant, the water surface profile should be presented.

(2) Failure of the upstream dams has been accounted for by increasing the effective precipitation over the basin based on storage volumes in the reservoirs. The effects of breaching upstream dams should be re-investigated by considering that the dam or dams failed at the most critical time and the resulting surge hydrograph should be routed to the project site. Dimensions, types of dams, estimated water surface elevations of head and tail water at time of breaching, plus all assumptions and methods of calculation should be presented.