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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

August 17, 1979

Docket No. 50-155

Mr. David Bixel
Nuclear Licensing Administrator
Consumers Power Company
212 West Michigan Avenue
Jackson, Michigan 49201

Dear Mr. Bixel:

We have initiated our review of the proposed Big Rock Point spent fuel storage pool modification submitted by your letters of April 23, 1979 and June 26, 1979 and have a number of questions, enclosed, related to structural, mechanical and material aspects of the modification. To maintain our review schedule, we request your response within 45 days of the date of this letter.

Additional questions related to these or other aspects of your application may develop as the review proceeds. We will transmit any partial set of questions when they are developed.

Sincerely,

Thomas V. Wambach
for Dennis L. Ziemann, Chief
Operating Reactors Branch #2
Division of Operating Reactors

Enclosure:
Request for Additional
Information

cc:
See next page

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Mr. David Bixel

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August 17, 1979

cc

Mr. Paul A. Perry, Secretary
Consumers Power Company
212 West Michigan Avenue
Jackson, Michigan 49201

Judd L. Bacon, Esquire
Consumers Power Company
212 West Michigan Avenue
Jackson, Michigan 49201

Hunton & Williams
George C. Freeman, Jr., Esquire
P. O. Box 1535
Richmond, Virginia 23212

Peter W. Steketee, Esquire
505 Peoples Building
Grand Rapids, Michigan 49503

Charlevoix Public Library
107 Clinton Street
Charlevoix, Michigan 49720

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REQUEST FOR ADDITIONAL INFORMATIONBIG ROCK POINT PLANTDOCKET NO. 50-155SPENT FUEL STORAGE POOL MODIFICATION

1. Justify your structural acceptance criteria which allows local stresses to exceed strength limits. In addition, provide a detailed description of and criteria for the phrase, "no loss of function of the fuel rack."
2. Verify that all provisions of the NRC guidance on spent fuel pool modifications, entitled "Review and Acceptance of Spent Fuel Storage and Handling Applications" (including errata), are met, and that the pool continues to conform to all FSAR analysis methodology and acceptance criteria. Justify any deviations.
3. Assuming the double pump failure which you postulated, verify that the maximum thermal load is within acceptable limits and has been considered in the analysis of the existing racks, liner, and concrete pool structure.
4. Provide more detailed description and sketches of a typical fuel rack and fuel can including details of the supporting grids, fuel seating surface, leveling legs, and connections between various elements. Explain in detail the load path along which all postulated forces are transmitted to the spent fuel pool structure. Make clear how the cans are supported vertically and laterally within the fuel racks.
5. Provide descriptive information including plans and sections showing the spent fuel pool in relation to other plant structures. Specifically sketches should show the spent fuel pool location with respect to the other features represented in the model shown in Figure 5-2.
6. Justify the statement that the 8X11 rack type has the greatest potential for tipping and will develop the greatest internal forces.
7. Provide a detailed description of the boundary conditions between the fuel racks and pool floor liner, and between the fuel racks and pool walls and how they were determined for each of the models used. Also describe the properties of the top-grid restraint and specify how they were obtained. Describe the location, intent, and actual physical interface of the top-grid and base horizontal fixed supports shown in Figure 5-3. Provide detailed sketches of the restraints and supports.
8. Provide a discussion describing the seismic input used with each of the models in Figures 5-3, 5-4, and 5-5. Specifically, state how the input excitations were obtained, and provide the procedure used to obtain the equivalent static loading.
9. Specify the minimum distances between racks, racks and pool walls, and racks and other equipment. Also, verify that the stated 1/2" rack sliding is based on the absolute sum of displacements of two adjacent racks.

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10. Discuss any interaction or impacting between fuel and cans during maximum seismic excitation and verify that their integrity is not compromised as a result of impact.
11. Discuss the effects of the increased horizontal loads on the liner and concrete structure (walls) of the pool. Verify that the walls and liner are capable of withstanding these loads.
12. Provide calculations showing how the kinetic energy of the dropped fuel assemblies was determined, and justify that the worst postulated drop results in a kinetic energy of 195,000 in. lbs. For each of the fuel assembly drop cases, quantify the resultant rack stresses, reaction loads, effect on the leveling legs, and the number of equivalent fuel assemblies damaged. Verify that the integrity of both the stored spent fuel and the dropped fuel assembly is not compromised due to the effects of the worst case drop. Verify that the possibility of cans or rack overturning or separation of cans from the grid system have been considered with a worst case drop, and will not occur.
13. Specify the heaviest load that will be transported over the spent fuel racks and the maximum possible drop height. Verify that the worst case drop (fuel assembly or cask) on the pool liner will not compromise its integrity. Also, verify that a worst case drop on the edge or corner of a rack will not adversely affect the integrity of the rack.
14. Provide the fundamental frequency of the pool walls, and verify, if they are flexible (i.e., fundamental frequency less than 33 Hz), that the provisions of the NRC guidance on spent fuel pool modifications (see question 2) have been met.
15. Provide a detailed discussion describing the sequence of installation, and the handling procedures and requirements of the new fuel racks, and a description of the precautions to be taken to prevent damage to the stored fuel during the construction phase.
16. Describe the planned inservice inspection and surveillance of the new racks and supporting liner. Discuss the potential for corrosion of the liner, considering thermal and other stresses occurring during the life of the facility. Provide the water chemistry of the fuel pool water and the procedures available to monitor and maintain the quality. Verify that no corrosion of the racks, fuel cladding, or the pool liner will occur over the lifetime of the plant based on the spent fuel pool water environment.

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