TERA

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON D. C. 20555

November 30, 1979

Docket No. 50-309

Mr. Robert H. Groce
Licensing Engineer
Maine Yankee Atomic Power Company
20 Turnpike Road
Westboro, Massachusetts 01581

Dear Mr. Groce:

We have reviewed your submittals of November 22, 1978, and September 18, 1979, concerning modified spent fuel pin storage at the Maine Yankee Nuclear Facility.

We find tnat we will need additional information before we can complete our review and evaluation. The enclosure addresses engineering concerns, but as previously discussed, additional information requests will be forthcoming regarding environmental and radiological concerns. Please submit the information requested within 30 days of receipt of this letter to permit timely review of this issue.

Sincerely,

Robert W. Reid, Chief
Operating Reactors Branch #4
Division of Operating Reactors

Enclosure:
Request for additional information

cc: w/enclosure
See next page

1614 018

7912180 233 P

cc:
E. W. Thurlow, President
Maine Yankee Atomic Power Company
9 Green Street
Augusta, Maine 04330

Mr. Donald E. Vandenburgh
Vice President - Engineering
Yankee Atomic Electric Company
20 Turnpike Road
Westboro, Massachusetts 01581

John A. Ritsher, Esquire
Ropes and Gray
225 Franklin Street
Boston, Massachusetts 02110

Mr. John M. R. Paterson
Assistant Attorney General
State of Maine
Augusta, Maine 04330

Mr. Nicholas Barth
Executive Director
Sheepscot Valley Conservation
Association, Inc.
P. O. Box 125
Alna, Maine 04535

Wiscasset Public Library Association
High Street
Wiscasset, Maine 04578

Mrs. L. Patricia Doyle, President
SAFE POWER FOR MAINE
Post Office Box 774
Camden, Maine 04843

Mr. Robert R. Radcliffe
Office of Energy Resources
55 Capitol Street
Augusta, Maine 04330

ENCLOSURE

MAINE YANKEE ATOMIC POWER COMPANY
MAINE YANKEE ATOMIC POWER PLANT
SPENT FUEL PIN STORAGE MODIFICATION

REQUEST FOR ADDITIONAL INFORMATION

1. Specify whether all provisions, including the January 18, 1979 addenda, to "Review and Acceptance of Spent Fuel Storage and Handling Applications" have been considered and to what extent all provisions are met.

2. Provide a more detailed description and sketches of a typical fuel rack and fuel pin storage skeleton including details of the spacer and support grids and the tie rods. Describe the modifications which are required to the present racks. Explain in detail the load path along which all postulated forces are transmitted to the spent fuel pool structures.

3. Describe the storage cage location and structural support while it is partially filled, prior to placing it in the fuel rack. Verify that it can withstand all loads and load combinations for which the rack is designed, with no loss of integrity or impact to other items in the spent fuel pool.

4. Verify that the increased compressive loads on the ABC plastic insulator have been considered and that no degradation occurs which would decrease its insulating integrity.

5. Provide the results of the pool wall design re-evaluation. Verify that the pool wall integrity is maintained, considering the additional seismic restraints.

6. Provide the total increase in weight supported by the floor which will result from using the pin storage concept. Verify that the effect of this increase on the dynamic response characteristics of the spent fuel pool has been considered.

7. Verify that the racks have been analyzed for seismic and impact loads. Provide details of the analysis. Discuss any interaction or impacting between fuel assemblies, storage cages, and racks during maximum seismic excitation, and verify that their integrity is not compromised.

8. Provide a detailed description of the model, and its development, used in the dynamic analysis. Specifically describe the properties of connecting members, the gap elements, and the independent modes, and describe how they were developed. In addition, justify the direct use of the ground spectra with the rack model.

9. Provide technical bases to justify the dynamic load factor used to represent the effect of fuel assembly impact. Provide a more detailed description of your analyses and results.

10. Verify that the drop of a compacted fuel assembly on a compacted or disassembled storage cage has been considered. Verify that the integrity of both the fuel assembly and the storage cage is not compromised, and that the storage cage will not overturn or impact other storage cages.

11. Provide the weight of a fully compacted fuel rack. In addition, 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 of a compacted fuel rack on another rack will not adversely affect the integrity of the racks.

12. Discuss whether the movement of any racks will be necessary during fuel consolidation. Describe the handling procedures and the precautions which will be taken to prevent damage to the spent fuel and the racks.

13. Demonstrate that the values of water level in the pool, the cooling water velocity and the water temperature will be identical to the values used in developing the original thermal design loads.

    Discuss at least the following items:

    - influence of increased thermal load on stresses/strains in concrete walls and bottom of the pool and in the liner and also of the racks.

    - influence of the increased weight of the spent fuel stored in the pool of the virtual mass of the water, horizontal forces on the bottom and the walls during an earthquake and the influence of the liner and racks. Discuss the potential need for improved surveillance during normal operation of the plant and after seismic and/or tornadic occurrences.