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

January 28, 1980

Docket No. 50-309

Mr. Robert H. Groce
Senior Engineer-Licensing
Maine Yankee Atomic Power Company
25 Research Drive
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 that we will need additional information before we can complete our review and evaluation. The enclosure addresses concerns we have previously discussed with your staff 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

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

Enclosure:
Request for Additional
Information

cc: w/enclosure
See next page

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Enclosure

MAINE YANKEE ATOMIC POWER COMPANY

MAINE YANKEE ATOMIC POWER PLANT

SPENT FUEL PIN STORAGE MODIFICATION

REQUEST FOR ADDITIONAL INFORMATION

1. Section 1.1 of your September 18, 1979 submittal states that after all pins have been extracted from the standard type fuel assemblies and installed in the consolidated assemblies, the empty cage and end fittings will be transported to storage. State where this storage facility is located. Describe the procedure for dismantling, and removal, decontamination and disposal of these old assemblies. What is the total annual occupational dose from this operation?

2. In reference to Section 5.1 of your September 18, 1979 submittal, where did the 10% increase in solid waste originate? Is this based on annual solid waste increase for the plant?

3. In reference to Section 5.2 of your September 18, 1979 submittal, is there any data for 1978 MY vent stack releases for ^{85}Kr?

4. Explain why ^{60}Co is not included as a principal radionuclide in the SFP water. What is its concentration? Section 5.3.6 of your September 18, 1979 submittal specifies that there are ^{60}Co deposits along the walls of the pool and hence there is a possibility of it becoming an exposure problem.

5. Section 5.3.2 of your September 18, 1979 submittal states that dose rates measured in the SFP area are typically 1 MR/hr. Where were the measurements taken? What is the does rate over the edge and center of the pool?

Because many fuel pin movements will be involved in the reconstituted fuel assembly, it is likely that activated crud will be released from the fuel pins and result in an increase in area dose rates. On page 4 of the addendum to your September 18, 1979 submittal, you address this problem and state that:

(1) The SFP demineralizer system, with portable water filtration equipment, will be positioned in close proximity to the source of the particulates; and

(2) Operation will be suspended until area levels return to acceptable levels.

With reference to these statements and maintaining occupational exposure ALARA, the following should be addressed:

(a) Provide a discussion with respect to the manner in which the dose rate from crud build-up on the portable water filter will provide ALARA exposure to personnel occupying the area where the filter is located, describe the disposal technique for these filters and any additional man-rem that may be evolved;

(b) If the operation is suspended because of crud-induced higher area radiation levels, are the "acceptable levels" specified above, the 1 mrem/hr levels indicated in B.3 at the bottom of page 4. If not, what are these "acceptable levels"; what is the basis for their acceptability?

6. In reference to Section 5.3.4 of your September 18, 1979 submittal, it states that as a result of the expansion, an increase of less than 10% of present level of airborne activity would occur. Which radionuclides were considered and what is the basis of the 10% increase?

7. In reference to Section 5.3.5 of your September 18, 1979 submittal, what is the basis for change-out of the filter-demineralizer (e.g., pressure drop, dose rate)? How many additional change-outs per year will occur as a result of the modification which may transfer considerable activated crud from each pin into the SFP water. What is the estimated dose rate of the filters during change-out? Explain how your value of 0.050 man-rem was determined and how the cumulative dose as a result of the modification would only be increased by 0.005 man-rem per year.

8. Provide a break-down of the 10 man-rem annual occupational exposure from SFP operations.

9. When a pin is removed from a fuel assembly to be installed in a consolidated cage, the water shielding the pin may be reduced by about 14 feet as the pin is lifted towards the surface of the pool from the standard assembly for reinsertion into the modified one. Provide the dose rate above the SFP during this operation. Since one fuel assembly and reassembly takes 30 hours, what additional dose would be received as a result of this operation to the two men performing it (see Question 10)?

10. In the addendum to your September 18, 1979 submittal, your response on Page 5 indicates that 97 man-rem would be received in about 8 years of consolidating 1545 equivalent assemblies. This averages to about 12 man-rem per year. Is this dose in addition to the 10 man-rem dose received from normal operation in the SFP so that the total annual occupational exposure from all operation in the SFP is 22 man-rem? Does this dose include the man-rem dose addressed in Question 1?

11. Please describe your SFP clean-up system. Specify the increase of the plant's solid radioactive waste as a result of any additional spent resins that might be evolved as a result of the modification.

12. The FSAR states that the spent fuel pool cooling system is capable of maintaining the spent fuel pool water at a design temperature of 154°F for the most adverse condition. If the actual expected spent fuel pool bulk water temperature will be above the FSAR design value at any time during normal operation, discuss when this will occur, for what period of time it will occur, and the effects of this increased temperature on releases of radio iodine and tritium from the pool.

13. Discuss any present leakage due to imperfections in the spent fuel pool liner.

14. Describe the manner in which mock-up experience will be achieved in the handling of the fuel pins for consolidation of the new egg-crate pin storage assembly prior to using it for storage of irradiated fuel pins.

15. Discuss any scenarios which would result in damage to a sufficient number of fuel pins during the consolidation procedures to warrant discontinuing the procedures or reassessment of the procedures.

16. Provide the total weight of heavy metal currently authorized for storage in the spent fuel pool (equivalent to 953 full-assemblies) and the total weight of heavy metal equivalent to the 1545 assemblies proposed in your September 18, 1979 submittal for storage.