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

December 13, 1978

Docket No. 50-219

Jersey Central Power & Light Company
ATTN: Mr. I. R. Finfrock, Jr.
Vice President - Generation
Madison Avenue at Punch Bowl Road
Morristown, New Jersey 07960

Gentlemen:

At our meeting with you on May 31, 1978, we stated that completed topic assessments would be sent to you for information and review and would be placed in the Public Document Rooms.

Our evaluation of SEP Topic V-10.A, Residual Heat Removal System Heat Exchanger Tube Failures, is enclosed. You are requested to carefully examine the facts upon which the staff has based its evaluation and respond either by confirming that the facts defining your plant are correct, or by identifying any errors. If in error, please supply corrected information for the docket. Additionally, we encourage you to supply any other material for the docket related to this topic that might affect the staff's further use of this topic.

Please provide your response to this request by December 18, 1978.

Sincerely,

Dennis L. Ziemann, Chief
Operating Reactors Branch #2
Division of Operating Reactors

Enclosure:
SEP Topic V-10.A

cc:
See next page

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as a backup for the engineering design mentioned above. Further, the reactor water cleanup system filters and demineralizers serve to maintain reactor coolant purity. We conclude that Oyster Creek satisfies present requirements and that resolution of this topic is complete.

As a means of demonstrating that leakage of contaminants into the primary system during normal shutdown cooling system operation is indeed a low probability event, Oyster Creek personnel recently took readings at the shutdown cooling system heat exchangers when the plant was shutdown and depressurized, as requested by the NRC. These readings, showing primary (shutdown cooling) at 112 - 150 psig and secondary (cooling-reactor building closed cooling water) at 90 psig, demonstrate that any leakage, even with shutdown cooling at its lowest operating pressure, would be into the RBCCW system.

There is, however, an opportunity for leakage from reactor building closed cooling water into the shutdown cooling system when the shutdown cooling system is being secured after operation. This of course assumes a leak in one of the shutdown cooling system heat exchangers. Even if such leakage were to occur, it would be limited because reactor building closed cooling flow is throttled to allow only a small flow of cooling water, and also because the heat exchanger and pump inlet and outlet isolation valves of the shutdown cooling system are shut.

We are satisfied that the chances of radioactive leakage to the environment are minimized by the design of the two cooling water systems and the included radioactive monitors. Also, although there is a small chance that leakage could occur during shutdown cooling system isolation, the Oyster Creek Technical Specifications include sampling reactor coolant. This sample, taken at least 72 hours during operation or shutdown, is analyzed for chloride ion and conductivity and serves

coolant and requires monitoring and sampling of the primary coolant system. These Standard Review Plans were used only in the comparison of the Oyster Creek plant against today's criteria and were not used as absolute requirements which must be met, expecially if the plant incorporates other equally viable means of accomplishing the stated goals.

Unlike the statement of the problem in the topic definition, Oyster Creek's shutdown cooling system would normally be at a higher pressure than the reactor building closed cooling water system, which would in turn be at a higher pressure than the service water system, which forms the ultimate heat sink. However, it would take simultaneous failures of tubes in a combination of one of the three shutdown cooling and one of the two reactor building closed cooling water heat exchangers, to result in leakage to the environment.

Oyster Creek is provided with instrumentation to prevent such an occurrence. As a first line of defense against either leakage into the reactor or out to the environment, the reactor building closed cooling water system incorporates a radiation detector, and the surge tank of this system has high and low level alarms which will indicate leakage either into or out of the system.

As a further measure against the leakage of radioactive material to the environment, the service water system includes a radiation detector prior to the discharge of the cooling water back to the environment.

SYSTEMATIC EVALUATION PROGRAM

PLANT SYSTEMS/MATERIALS

OYSTER CREEK

Topic V-10.A Residual Heat Removal System Heat Exchanger Tube Failures

The safety objective of this review is to assure that impurities from the cooling water system are not introduced into the primary coolant in the event of shutdown cooling system heat exchanger tube failure. This was expanded to assure that adequate monitoring exists to assure no leakage of radioactive material in the other direction - into the service water and thus to the environment.

Information for this assessment was gathered from plant personnel during the safe shutdown review site visit. Information was also taken from Oyster Creek system drawings and the Oyster Creek Technical Specifications.

The bases for the review of these cooling systems on today's plants include: (1) the NRC's Standard Review Plan (SRP) 9.2.1, which requires that the service water system include the capability for detection and control of radioactive leakage into and out of the system and prevention of accidental releases to the environment; (2) SRP 9.2.2 requires that auxiliary cooling water systems (such as the shutdown cooling system) include provisions for detection, collection and control of system leakage and means to detect leakage of activity from one system to another and preclude its release to the environment; and (3) SRP 5.2.3, which discusses compatibility of materials with reactor