50-255

Docket No. 50-255

APR 21 1979

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

Dear Mr. Bixel:

RE: TOPIC V-10.A - RESIDUAL HEAT REMOVAL SYSTEM HEAT EXCHANGER TUBE FAILURE

Enclosed is a copy of our revised safety assessment of Topic V-10.A, Residual Heat Removal System Heat Exchanger Tube Failure. This revision includes consideration of the comments received on the assessment issued by our letter dated January 9, 1979. Your letter dated April 3, 1979, provided comments on the assessment.

This revision completes our assessment of Topic V-10.A which will be used as input to the integrated review of the Palisades Plant.

If there are any errors in the facts of this revised assessment, please supply corrected information within 30 days of the date you receive this letter. If no response is received within that time, we will assume that you have no further comments or corrections.

Sincerely,
Original Signed by:
Dennis L. Ziemann

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

TMAY CCP

Enclosure:
Revised Assessment for Topic V-10.A

cc w/enclosure:
See next page

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SYSTEMATIC EVALUATION PROGRAM

PLANT SYSTEMS/MATERIALS

PALISADES

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

Ths 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 and from related telephone conversations. Information was also taken from Palisades system drawings and the Palisades 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, which 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 coolant and requires monitoring and sampling of the primary coolant system. These Standard Review Plans were used only in the comparison of the Palisades plant against today's criteria and were not used as licensing requirements which must be met, especially if the plant incorporates other equally viable means of accomplishing the stated goals.

The Palisades Shutdown Cooling System (SCS) heat exchangers (2) operate at pressures between 110 and 160 psig, although during shutdown of this system, pressures substantially lower will be experienced for a few minutes. The Component Cooling Water (CCW) system at this heat exchanger operates at a pressure between 70 and 110 psig. It can thus be readily seen that during operation of the SCS little chance exists for leakage from CCW into the SCS.

There are four other factors which make undetected leakage either into or out of the reactor coolant system through the SCS a very low probability event. These are:

(1) Technical Specification 4.5.3 requires testing of the SCS system outside containment at intervals not to exceed 12 months. This testing is required either by use during normal operation or at a hydrostatic test pressure of 255 psig. Although the staff would prefer specific hydrostatic testing of the SCS heat exchanger tubes, we will be satisfied with the above requirement until the implementation of

the requirements of 10 CFR 50.55a(g) governing inservice inspection. Such requirements will include the hydrostatic testing of the SCS heat exchanger tubes.

(2) Technical Specifications 3.1.6 and 4.2 require sampling the primary coolant for chloride ions during power operation at a frequency of 3 times/ 7 days with a maximum of 72 hours between samples. Sampling for fluoride ions is performed once/30 days and following modifications or repair to the primary system involving welding. We would recommend adding the requirement to sample the SCS while it is being shutdown or prior to its being used again, especially since, as discussed below, there could be an opportunity for inleakage into CCW from the service water system.

(3) The CCW system surge tank includes high and low level alarms to alert the plant operators to leakage into or out of the system from or to any of the CCW-cooled components.

(4) The CCW system includes a radiation monitor and alarm to warn the operators of radioactive leakage into the CCW system.

As briefly mentioned above, the possibility, albeit remote, exists for leakage from the service water system into the CCW system. This is because the lowest CCW system pressure, 70 psig (with a range of 70-110 psig), is lower than the highest service water pressure of 75 psig. However, in addition to the CCW surge tank high level alarm, plant procedures require a weekly sample of the CCW system. This sample includes pH, conductivity, chromate ion (a compound of which is used in the CCW system for corrosion inhibition), sodium ion, and activity. This sample is sufficient to detect leakage not only from the service water system to the CCW system, but also serves as a means to discover leakage from SCS (or any other CCW-cooled component) to the CCW system.

As a final defense against leakage to the environment, the Palisades service water system includes a radiation monitor to alert plant operators (1) to the unlikely failure of tubes in any combination of the two SCS and the two CCW heat exchangers or (2) failure of any other CCW-cooled component and failure of tubing in either (or both) CCW heat exchanger.

We conclude that the likelihood of contaminant leakage into the primary system from either (or both) the SCS or CCW heat exchangers is small, given the relatively small amount of time that primary pressure is low enough that inleakage could occur. The suggested expanded scope of the technical specifications will provide additional assurance.

We will review this recommendation further during the integrated assessment at the completion of Design Basis Event review. No action on the part of the licensee is necessary at this time. We also conclude that the systems adequately protect the environment.