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SUBJECT: Forwards addl info re recommended actions in Generic Ltr 89-13 re svc water sys problems affecting safety-related equipment.Recommendations implemented at Unit 3 during recently completed refueling outage.

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WILLIAM F. CONWAY
EXECUTIVE VICE PRESIDENT
NUCLEAR

161-04031-WFC/JRP

July 1, 1991

Docket Nos. STN 50-528/529/530

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station P1-37
Washington, D. C. 20555

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1, 2, and 3
Additional Information Regarding NRC Generic Letter 89-13 "Service Water System Problems Affecting Safety Related Equipment"
File: 91-010-026

The purpose of this letter is to confirm that the recommended actions, as discussed in Arizona Public Service Company's (APS) response to Generic Letter 89-13 (APS letter 161-02801-JNB/JST, dated January 16, 1990), were implemented for PVNGS Unit 3 during the recently completed refueling outage. The Unit 2 refueling outage is currently scheduled to begin on October 17, 1991, and the Unit 1 refueling outage is scheduled to begin on February 1, 1992, at which time the recommended actions will be implemented for these units.

If you should have any questions, please contact Michael E. Powell of my staff at (602) 340-4981.

Sincerely,

WFC/JRP/pmm

Attachment

cc: J. B. Martin
D. H. Coe
A. C. Gehr
A. H. Gutterman

A065

ATTACHMENT

APS Response Action I:

As stated previously, the only safety-related open cycle service water system at PVNGS is the spray pond system which serves as the Ultimate Heat Sink (UHS). This system does not come in contact with any untreated water or outside sources of biofouling. Therefore, only water chemistry controls are necessary to prevent piping corrosion and the growth of algae and microbiological organisms. This control is accomplished by maintaining the UHS chemistry within the bounds established in administrative control procedure 74AC-9CY04, "System Chemistry Specifications."

The chemistry program for the UHS includes the following:

- Maintaining a regular biocide (chlorination) treatment for the essential spray ponds including regular applications of the biocide and routine testing.
- Weekly microbiological analyses performed on all the spray ponds and all the closed cooling water systems.
- Non-routine applications of non-oxidizing biocides to the closed cooling water systems in response to microbiological activity test results which indicate any positive activity and, non-routine non-oxidizing biocide applications to the essential spray ponds in response to microbiological activity greater than 10,000 colonies/ml.
- Maintenance of all water chemistry analytical data in a computer data base dating back to initial system files and operation.

The site chemistry control program addresses the actions necessary to maintain proper chemistry control in cooling water systems. The specifications associated with maintaining cooling systems chemistry control are contained in administrative control procedure 74AC-9CY04. The analytical methodology for performing microbiological testing has been formally proceduralized in 74CH-9XC64, "Determination of Total Bacteria Count." Previously, the additional microbiological testing was performed by an offsite vendor.

As stated in the referenced letter, System Engineering continues to monitor the spray pond system flows and pressure drops monthly. This activity is continuous as a part of the system engineer performance monitoring and trending program 70PR-0A01. The data continues to show no detectable system performance degradation.

APS Response Action II:

APS performs testing on only one train of safety-related heat exchangers each refueling outage. Previous inspections and testing have shown essentially no degradation in heat exchanger performance or significant biofouling and support the conclusion that this testing interval is adequate to ensure no detrimental effect on safety-related equipment performance will occur between test intervals.

Test procedure 70TI-9SP02, "Thermal Performance Monitoring of Shutdown Heat Removal Systems," was prepared and performed in Unit 3 while the unit was being cooled down on the shutdown cooling "A" train at the beginning of the current refueling outage. Analysis of the data shows that with the significant amount of decay heat available, the demonstrated heat transfer coefficient for both the essential cooling water and shutdown cooling heat exchangers were significantly greater than the design basis heat transfer coefficients. Data taken for the "B" train diesel generator heat exchangers during integrated safeguards testing shows similar performance margin results.

APS Response Action III:

Existing preventative maintenance tasks regularly inspect the components identified in the Generic Letter. Additional preventative maintenance tasks have been created to inspect heat exchangers cooled by the open cycle cooling water system (spray pond system). These inspections were performed for both "A" and "B" trains in Unit 3 during its current refueling outage. Results showed no significant fouling, blockage or corrosion of the heat exchanger tubes. There was some corrosion of the heat exchanger shell due to failure of the epoxy coating. The epoxy coating has been replaced and the previous coating failure is being addressed on a Root Cause of Failure, Engineering Evaluation Request, EER 90-SP-012.

APS Response Action IV:

Procedure 70TI-9SP02 confirms that the service water system performs its intended function by demonstrating the heat transfer capability of the shutdown cooling heat exchangers, essential cooling water heat exchangers and the spray ponds. In addition to monitoring the shutdown heat removal systems, the Nuclear Engineering Department has completed single failure analysis for the essential spray pond system and the essential cooling water system and have completed satisfactory walkdowns of these systems.

APS Response Action V:

The PVNGS Operator Training Department has conducted a review to determine if any of the concerns associated with failures of emergency cooling, component cooling or service water systems as discussed in Generic Letter 89-13 could occur on similar systems at PVNGS. The review was made to determine if there was a need to change training materials to address concerns identified that were not addressed in the current operator training. A review of incident reports on the service water systems indicate that training is adequate and that operators have responded to system problems both promptly and correctly. There have been no operator errors which has caused service water system failure.

The current training of operators on cooling water systems is based on task analysis for both normal and abnormal conditions. The procedures for normal operation and the loss of a single train of cooling water or both trains of cooling water are used in both initial and continuing training programs.