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U.S. Nuclear Regulatory Commission  
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Subject: Indian Point 3 Nuclear Power Plant  
Docket No. 50-286  
Service Water System Problems Affecting Safety Related  
Equipment Generic Letter 89-13

Reference: 1. NYPA letter, John C. Brons to the NRC, dated February 6, 1990 (IPN 90-004),  
"Service Water System Problems Affecting Safety Related Equipment".

Dear Sir:

In Reference 1, the Authority submitted a response to Generic Letter 89-13 that provided a summary of the programs and schedules to enhance and ensure continued Service Water System (SWS) reliability. The purpose of this letter is to discuss those programs stated in Reference 1, that have been recently implemented at IP-3.

#### **Erosion/Corrosion Monitoring Program**

The Authority has implemented an Erosion/Corrosion program at IP-3 using both visual and volumetric inspection methods during the recently completed cycle 8/9 refueling outage. The visual method utilizes a robotic crawler with a high-resolution camera. The crawler is remotely controlled and can advance through the piping while making a video record of the internal pipe surface.

The Authority performed inspections of portions of the SWS piping to assess any degradation due to erosion/corrosion. Volumetric (UT) inspections were performed at 15 pre-selected locations on non-cement lined portions of the SWS piping. The results indicate that none of the areas inspected had less than the required wall thickness.

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The Authority also visually inspected approximately 300 feet of cement lined SWS header piping utilizing a robotic crawler. The results indicate that the cement liner is in good condition with no evidence of degradation. These results in conjunction with other plant inspections will be considered when selecting future inspection locations for the Erosion/Corrosion monitoring program.

The Authority is planning to inspect approximately 50 locations, primarily on cement lined portions of the SWS and some non-cement lined portions of the system by the completion of the scheduled cycle 9/10 refueling outage in 1994. Additional visual inspections of other portions of the system will be performed during future refueling outages to assess the condition of the cement liner in other areas. Based upon evaluation of the above inspection results, the Authority will determine long term SWS inspection requirements for IP-3.

### **Equipment Layup Program**

The Authority has developed a layup program. Nuclear Administrative Procedure NuAP-5.12 sets forth the methodology for evaluating layup requirements and Plant Procedure OD-14 (Operations Directive) summarizes the administrative controls and layup practices for various plant heat exchangers including the SWS heat exchangers.

Additionally, OD-14 describes the responsibilities of the various site groups relative to system layup requirements prior to planned outages. The Plant Layup Manual provides guidelines for actual layup practices for specific durations (i.e. 1 week, 1-5 weeks, >6 weeks) for each plant system. The program, as currently implemented, is flexible; permitting site departments to take additional actions based upon new conditions or specific outage tasks.

In accordance with OD-14, the present practice at IP-3 for the SWS is to leave the system "As-Is". The Safety Related portions of the SWS are maintained operable during plant refueling unless maintenance inspection/cleaning activities are performed. Therefore, the components are not placed in an "out of service" or "Layup" condition on a regular basis.

### **Heat Exchanger Test Program**

In Reference 1, the Authority stated that in lieu of a test program for SWS heat exchangers, it implemented an inspection/cleaning program based upon the IP-3 Preventive Maintenance (PM) Program which bases inspection frequency upon the results obtained. At present, one (1) Reactor Containment Fan Cooler Unit (FCU) is cleaned during each refueling outage. Emergency Diesel Generator (EDG) Lube Oil and Jacket Water heat exchangers are cleaned semi-annually during scheduled maintenance of the units. During the cycle 8/9 refueling outage, the Component Cooling Water heat exchangers and Control Room Coolers were replaced, therefore, inspection/cleaning was not required. The current PM schedule satisfies the intent of GL 89-13.

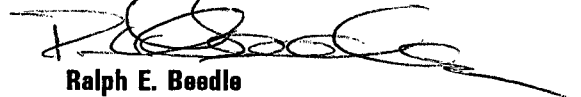
In addition to the above, the Authority committed to evaluate the need to develop a test program for the SWS heat exchangers. A Heat Exchanger Pilot Program including the development of analytical models for both the EDG and FCU heat exchangers, selection of test methodology consistent with EPRI NP-7552 Heat Exchanger Performance Monitoring Guidelines, issuance of approved test procedures and procurement of special test instrumentation was completed prior to the cycle 8/9 refueling outage.

During the cycle 8/9 refueling outage, an FCU heat exchanger was tested. The test validated the approach taken and demonstrated the ability of the instrumentation to provide accurate data. However, since the heat load inside Containment during outage conditions is significantly less than the normal heat load at power, the test results were inconclusive. Therefore, an FCU heat exchanger will be tested at power to increase the likelihood of a conclusive test. This test will be performed before October 31, 1992.

During the cycle 8/9 refueling outage, one of the Emergency Diesel Generators was completely overhauled and portions of the EDG SWS discharge header piping required replacement. Due to the maintenance and modification activities during the outage, the scheduled EDG pilot program test was postponed and will be performed before October 31, 1992.

The results of the pilot program testing will be used in evaluating whether or not a full testing program for SWS heat exchangers is feasible. At present, IP-3 will continue to rely on frequent inspection and cleaning in lieu of the test program.

Very truly yours,



Ralph E. Beadle

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