U.S. NUCLEAR REGULATORY COMMISSION

REGION V

Report No. 50-397/91-22

Docket No. 50-397

License No. NPF-21

Licensee: Washington Public Power Supply System
P.O. Box 968
Richland, Washington 99352

Facility Name: Washington Nuclear Project No. 2 (WNP-2)

Inspection at: WNP-2 Site, Benton County, Washington

Inspection Conducted: June 3 through July 5, 1991

Inspector: C. A. Clark, Reactor Inspector

Approved by: F. R. Huey, Chief
Engineering Section
7/24/91
Date Signed

Inspection Summary:

Inspection During the Period of June 3, 1991 through July 5, 1991 (Report No. 50-397/91-22)

Areas Inspected: An unannounced routine inspection by one regional based inspector of Inservice Inspection (ISI), Inservice Testing (IST), Maintenance and Erosion/Corrosion Inspection activities. Inspection procedures 62700, 73051, 73753, 73755, 73756 and 92701 were used as guidance for the inspection.

Results:

General Conclusions and Specific Findings:

- Licensee procedures did not ensure that installed check valve internal lock tab washers were not reinstalled after valve maintenance and/or inspection without first being evaluated by cognizant licensee engineering personnel.

- Performance of licensee ISI activities appeared acceptable, with no concerns identified.

Significant Safety Matters: None

Summary of Violations: None

Open Item Summary: There were no new open items identified.

DETAILS

1. Persons Contacted

   a. Washington Public Power Supply System

   D. Curver, Maintenance Mechanical Supervisor
   *L. Harrold, Assistant Plant Manager
   T. Hoyle, Codes Program Supervisor
   P. Inserra, Check Valve Reliability Program Lead Engineer
   *L. Mauws, Specialty Programs Supervisor
   R. Rana, ISI Program Lead Engineer
   *G. Sorensen, Regulatory Programs Manager
   *R. Webring, Technical Manager
   *D. Welch, Nondestructive Examinations (NDE) Supervisor
   K. Worthen, IST Surveillance Test Coordinator

   b. Factory Mutual Insurance

   D. Hoggarth, Authorized Nuclear Inservice Inspector (ANII)

   The inspector also held discussions with other licensee and contractor personnel during the course of the inspection.

   *Denotes those attending the exit interview on June 7, 1991.

2. Maintenance Program Implementation (62700)

   A review of maintenance activities associated with safety related check valves was performed. The inspector noted that standard industry practice is to install new internal lock tab washers in a valve, once the tabs on the original lock tab washers have been bent (once for valve assembly and a second time for valve disassembly). The inspector also noted that reuse of previously bent lock tab washers has lead to the failure of the lock tab washers and loss of previously bent tabs into piping systems, as a result of system vibration, fluid flow forces, etc. The failure of a lock tab washer could result in the failure of a safety related check valve to perform its safety function. A review of engineering, maintenance, quality control (QC) and training activities and associated documents, identified a concern with the WNP-2 maintenance activities. When applicable WNP-2 documents were reviewed and this subject was discussed with applicable personnel, they identified it was the licensee practice/ policy to only reinstall new internal locking devices in safety related check valves that were disassembled. The licensee agreed with the inspector, that while this may have been their stated policy, there were no documents issued to identify that this policy had been placed in effect at this facility. The licensee agreed to revise applicable engineering,

maintenance, QC and training documents as required to ensure only new internal lock tab washers are installed in safety related check valves, and/or cognizant licensee engineering personnel are involved in evaluating the reuse of any original internal lock tab washers.

No violations or deviations were identified in the areas reviewed.

3. Inservice Inspection-Review of Program (73051)

A general review of the licensee's Inservice Inspection (ISI) program was performed to ascertain that it was complete and in conformance with regulatory requirements and the licensee's commitments. There were some procedure weaknesses identified with how some specific visual examinations were identified. This concern is specifically discussed in Section 4 of this report.

No violations or deviations were identified in the areas reviewed.

4. Inservice Inspection-Observation of Work and Work Activities (73753)

Work activities were reviewed to ascertain that ISI, repair and replacement of components were being performed in accordance with applicable requirements. The licensee was conducting the sixth (R6) refueling outage (RF91A). This was the third refueling outage of the second period of the first ten-year ISI inspection interval (which started December 13, 1984).

The ISI examinations performed during this outage, were performed by the licensee staff and contractor personnel supplied by G.E. Nuclear Energy. The inspector reviewed the qualification and certification records for the ISI examiners, and the equipment certifications. The reviewed documentation appeared acceptable.

A review of the licensee ISI Program, the R6 ISI Outage Plan and other licensee documentation used during inspection activities, identified a procedure weakness. During review of required visual examinations in some licensee documents, the inspector noted that the document did not always identify the specific visual examinations required. There are normally four specific visual examinations that can be performed, VT-1, VT-2, VT-3, and/or VT-4. Article IWA-2000, "Examination and Inspection", of Section XI of the American Society of Mechanical Engineers (ASME) Code provides detailed instructions/guidance for each specific visual examination. As an example, Section 5.3.3 (JET Pump Holddown Beams) of the Licensee ISI Program (pages 5-8) states in the last sentence, "The examinations will consist of a visual examination and a special UT examination of the hold down beams." This document should have identified the visual examination required, as a VT-1 examination, since the licensee was inspecting the hold down beams for cracks. The licensee agreed to review and revise ISI documents as required to ensure each required visual examination is properly identified as a VT-1, VT-2, VT-3 or VT-4 visual examination.

No violations or deviations were identified in the areas reviewed.

5. Inservice Inspection-Data Review and Evaluation (73755)

Available nondestructive examination (NDE) ISI calibration sheets, data sheets, and other associated documents were reviewed to ascertain that the required data was recorded, reviewed and evaluated in accordance with previously established requirements and acceptance criteria. The licensee's disposition of adverse findings was also reviewed to ensure that it was consistent with regulatory requirements.

During the above reviews, the inspector identified some minor discrepancies in data packages, that were corrected by the licensee at the time of identification.

No violations or deviations were identified in the areas reviewed.

6. Inservice Testing of Pumps and Valves (73756)

A review of various activities occurring in the Inservice Testing (IST) area was performed to determine whether IST regulatory requirements and licensee commitments were being met. The following information was identified:

A. IST Program - The licensee received a Safety Evaluation of its IST Program May 7, 1991, from the Office of Nuclear Reactor Regulation, and was still evaluating this report.

B. Check Valves - The licensee had not completed full flow testing of all check valves, as discussed in Generic Letter (GL) 89-04, "Guidance on Developing Acceptable Inservice Testing Programs." The licensee had identified some check valves that they may not be able to full flow test, and was reviewing actions to be taken for those valves. The licensee had established a Check Valve Reliability Program (CVRP) to prevent catastrophic failure of safety-function check valves, caused by either misapplication and/or lack of preventative maintenance. This program was discussed in licensee procedure No. 8.3.131, "Check Valve Reliability Program", Revision 1, dated May 8, 1991. Thirteen check valves were disassembled during the fifth refueling outage (R5) in 1990, for inspection under this program. During this outage (R6) one check valve was disassembled for inspection. Some of the disassembled check valves were inspected to meet Section XI IST inspection requirements. The licensee scheduled several Velan testable check valves for disassembly and inspection during the 1990 and 1991 outages (R5/R6), but delayed this work since they expected a modification package to be issued for Velan testable check valves. Some Velan testable check valves have been scheduled for inspection during the seventh refueling outage (R7) in 1992, if the valve modification packages are available. The licensee has reviewed various diagnostic techniques, such as ultrasonics and acoustic monitoring of check valves, for their usefulness in trouble shooting or monitoring selected valves.

No violations or deviations were identified in the areas reviewed.

7. Follow-up (92701)

The inspector reviewed recent licensee Erosion/Corrosion Program activities. This program was discussed in licensee procedure No. 8.3.63, "Surveillance Procedures for Monitoring Pipe Wall," revision 2, dated April 18, 1881 and the WNP-2 Pipe Wall Thinning Program Plan approved July 13, 1989. The licensee selected approximately 245 piping lines for inspection and at the end of the fifth outage had monitored over 170 locations on these lines through five cycles of plant operations. During this outage (R6) the licensee repeated inspections of thirty previous inspected areas and inspected an additional twenty-eight areas for new baseline inspection information. It appears that approximately 200 of the original selected inspection locations have been inspected/monitored to date. Wall losses were recorded in almost every inspection location that measurements were taken. Estimations of the rate of thinning ranged from almost zero to 300 mils per cycle.

The licensee identified that the high wall thinning locations were rare and isolated to specific locations where pipe design significantly aggravated the flow conditions. Areas where the wall thickness was found below the applicable minimum wall thickness, were repaired or replaced as required.

No violations or deviations were identified in the areas reviewed.

8. Exit Meeting (30703)

The inspector met with the licensee management representatives denoted in Section 1, on June 7, 1991. The scope of the inspection and the inspector's findings up to the time of the meeting were discussed. At this meeting the inspector identified that he had obtained some information, and requested some additional information be sent to the regional office. This additional information would be reviewed later in the region, with those findings documented in this report. The available information was reviewed and the findings included in Sections 6 and 7 of this report.