U.S. NUCLEAR REGULATORY COMMISSION REGION V

Report No.:	50-397/92-24
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 Conduct	ted: June 8 through 19, 1992
Inspector:	C. A. Clark, Reactor Inspector

Approved by:

A. T. Gody, Jr., Acting Chiếf

Date Signed

Engineering Section

Inspection Summary:

Inspection During the Period of June 8 through 19, 1992 (Report No. 50-397/92-24)

<u>Areas Inspected</u>: An announced routine inspection of Inservice Inspection (ISI), Inservice Testing (IST), and Maintenance activities. Inspection procedures 62700, 73753, 73755, 73756 and 92701 were used as guidance for the inspection.

Results:

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General Conclusions and Specific Findings:

- 0 The discovery by the licensee of inappropriate fasteners in motor operated valves did not appear to have received timely followup and corrective actions.
- o Performance of licensee ISI activities were documented in Inspection Report No. 50-397/92-20.

Significant Safety Matters: None

Summary of Violations: None

Open Items Summary:

There were two new unresolved items identified in Section 3 of this report.



DETAILS

1. Persons Contacted

- Washington Public Power Supply System a.
 - *L. Harrold, Assistant Plant Manager
 - *T. Hoyle, Motor Operated Valve Program Lead
 - R. Moen, Materials and Inspection Manager

 - *D. Ramey, ISI Engineer *R. Rana, ISI Program Lead Engineer D. Swank, Compliance Engineer

 - *G. Sorensen, Regulatory Programs Manager
 - *R. Webring, Technical Manager
 - D. Welch, Nondestructive Examinations (NDE) Supervisor
- b. Factory Mutual Insurance

D. Hoggarth, Authorized Nuclear Inservice Inspector (ANII)

- <u>Other</u> c.
 - *A. Gody, Acting Chief, Engineering Section
 - *R. Nease, NRC Resident Inspector
 - *D. Proulx, NRC Resident Inspector
 - *C. Sorensen, Senior NRC Resident Inspector

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 12, 1992.

2. Maintenance Program Implementation (62700)

A review of maintenance activities associated with safety related components was performed to ensure they conformed with licensee administrative requirements and standard industry practices. A review of a sample of maintenance completed work packages, prior to operational testing, identified a concern with motor operated valves which is discussed in section 4 of this report. A review of a sample of work activities and current work procedures in use during work this outage did not identify any concerns.

No violations or deviations were identified in the areas reviewed.

Inservice Testing of Pumps and Valves (73756) 3.

> 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 inspector observed the following:

> IST Program - The licensee received a Safety Evaluation of its IST Α.

Program May 7, 1991, from the Office of Nuclear Reactor Regulation. Revision 4 of the IST Program Plan was submitted to the NRC on December 3, 1991 for review, in licensee Letter GO-91-220.

B. <u>IST Procedures</u> - The inspector reviewed a sample of recently issued ASME Section XI Surveillance Procedures and found that the procedures appeared to contain additional clarification information, and instructions over previous procedures. No concerns were identified during this procedure review.

C. <u>Motor Operated Valves</u> - The inspector's review of a sample of maintenance work packages identified that during current IST maintenance and testing activities, problems were identified with various motor operated valves (MOVs):

> Valve MS-V-19. On April 29, 1992 Problem Evaluation Request (PER) No. 292-379 identified that, "During as left testing of MOV Operator MS-MO-19, the torque switch possibly failed to perform its design function. The result of this malfunction led to the motor achieving a locked rotor condition. Due to the over-thrusting of the actuator, all four bonnet to actuator studs were stretched to the point where the torque thrust cell (TTC) was no longer flush with the bonnet seat (the TTC was mounted during testing). An attempt was made to retorque the studs to the design requirement of approximately 18 ft/lbs, however, this attempt led to the shearing of one of the studs (bolts). Impact: had the stall condition occurred, with bolt failure, during power operations the valve would have been unable to perform its design function."

Valve MS-V-19 is a ASME Code Class 1 Velan 3 inch flexwedge motor operated gate valve, used for containment isolation. The licensee's recommended corrective action for this PER was in part, to "generate stall torque\thrust calculations to verify no damage was done to the actuator, stem, or valve....evaluate stud material.... The torque switch should be inspected for mechanical wear or damage and replaced if required. Replace the damaged mounting studs. with a qualified grade of bolt or stud material."

On May 1, 1992 the Management Review Committee required that Maintenance Work Requests (MRWs) be issued for inspection and repair of the valve (MS-V-19) and motor operator (MS-MO-19), and that a failure analysis of the valve failure be performed.

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On May 1, 1992 licensee interoffice memorandum SS2-PE-92-0371 identified that the licensee had completed initial stall calculations and initial operator to valve yoke stud material examinations. This memo indicated that the studs were supposed to be ASTM A574 with a minimum yield strength of 135 thousand pounds per square inch (KSI). This memo also indicated that the installed studs were found to have a yield strength of 60 to 70 KSI. It appeared that SAE Grade 5 fasteners should have been installed in this application.

The inspector requested information from the licensee regarding: (1) the results of the root cause analysis; (2) the number of similar valves in the plant that could have non-Grade 5 stud material installed; (3) if there were any operational concerns with valves that could have non-Grade 5 stud material installed; and (4) how the non-Grade 5 stud material was installed in valve MS-V-19. At the time of the inspection, the licensee was still evaluating this problem.

The concern with the licensee's actions taken in response to the problems identified with valve MS-V-19 and operator MS-MO-19 is an unresolved item (50-397/92-24-01). The inspector observed that, the licensee's initial response actions for this problem did not appear timely, since a month had elapsed since the problem was identified.

Valve HPCS-V-23. On June 10, 1992 PER 292-662 identified that while performing final torquing of the upper housing cover bolts on motor operator HPCS-MO-23, installed on valve HPCS-V-23, one of the 1 inch bolts became elongated and cracked. Valve HPCS-V-23 is an ASME Code Class 2 high pressure core spray 12 inch motor operated globe valve, used for containment isolation. Limitorque maintenance update 89-1 identified two types of hardware used in the assembly of Limitorque housing covers and motors on the SMB series of actuators. The grade of hardware employed was linked to the type of fastener. Hex head cap screws SAE Grade 5 and socket head cap screws SAE Grade 8 (strength equivalent) were installed during operator assembly. Initial licensee verbal information identified that installation of non-Grade 5 fastener material may have been a factor in this fastener failure. The licensee was evaluating if a Part 21 report would be issued on these as received non-Grade 5 fasteners. The licensee was performing an investigation to identify how many valves could have the same non-Grade 5 fastener material installed and if there was a question

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about the operability of any similar motor operator with similar fastener material. The concern with the fastener failure on valve operator HPCS-MOV-23 is identified as an unresolved item (50-397/92-24-02).

No violations or deviations were identified in the areas reviewed.

4. <u>Unresolved_Item</u>

An unresolved item is a matter about which more information is required to ascertain whether it is an acceptable item, a deviation, or a violation.

5. <u>Exit Meeting</u>

The inspector met with the licensee management representatives denoted in Section 1, on June 12, 1992. 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. The inspector identified that 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 2 and 3 of this report.



