

**ENCLOSURE**

**U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV**

Docket No.: 50-397  
License No.: NPF-21  
Report No.: 50-397/96-17  
Licensee: Washington Public Power Supply System  
Facility: Washington Nuclear Project-2  
Location: 3000 George Washington Way  
Richland, Washington 99352  
Dates: August 4 through September 14, 1996  
Inspectors: R. C. Barr, Senior Resident Inspector  
G. D. Replogle, Resident Inspector  
Approved By: F. R. Huey, Acting Chief, Project Branch E  
Division of Reactor Projects

**ATTACHMENT:**

Attachment 1: Partial List of Persons Contacted  
List of Inspection Procedures Used  
List of Items Opened, Closed, and Discussed  
List of Acronyms

## EXECUTIVE SUMMARY

### Washington Nuclear Project-2 NRC Inspection Report 50-397/96-17

#### Operations

- In general, the conduct of operations was professional and safety conscious (Section O1.1).
- Operations involvement and control of testing associated with the adjustable speed drive (ASD) reactor recirculation pump control system and digital feedwater (DFW) modifications were effective, representing an improvement from the previous reporting period (Section O2.1).

#### Maintenance

- Maintenance activities were generally completed thoroughly and professionally (Section M1.1).

#### Engineering

- Engineering's redesign review of the ASD and DFW modifications was thorough and effective (Section E1.1).

## Report Details

### Summary of Plant Status

The inspection period began on August 4, 1996, with the reactor at approximately 60 percent power with postmodification testing of the ASD and DFW modifications in progress. The inspection period concluded with the reactor at 100 percent power.

## I. Operations

### **O1 Conduct of Operations**

#### **O1.1 General Comments (71707)**

Using Inspection Procedure 71707, the inspectors conducted frequent reviews of ongoing plant operations. In general, the conduct of operations was professional and safety-conscious; specific events and noteworthy observations are detailed in the sections below.

### **O2 Operational Status of Facilities and Equipment**

#### **O2.1 Engineered Safety Feature System Walkdowns (71707)**

The inspectors used Inspection Procedure 71707 to walk down accessible portions of the following engineered safety feature systems:

- High Pressure Core Spray
- Emergency Diesel Generators 1 and 2
- Low Pressure Core Spray
- Residual Heat Removal System
- Reactor Core Isolation Cooling System

Equipment operability, material condition, and housekeeping were acceptable.

#### **O2.2 Control Of ASD and DFW Testing (71707)**

During this inspection period, operations involvement and control of testing associated with the ASD and DFW modifications were effective, representing an improvement from the previous reporting period. The shift manager and the control room supervisor effectively assured the facility was correctly configured and operators were adequately briefed for the maintenance and testing activities which were performed.

### **O8 Miscellaneous Operations Issues (92700)**

- O8.1 (Closed) Licensee Event Report (LER) 50-397/96-004: manual reactor scram due to DFW system error found during testing. This LER discussed a reactor scram that occurred due to an unexpected response from the DFW system testing software and**

was discussed in detail in NRC Inspection Report 50-397/96-12. This LER is closed based on those inspection efforts.

O8.2 (Closed) Unresolved Item 50-397/9603-03: reactor water level reduction prior to reactor shutdown. This item questioned the effect on safety of lowering reactor water level to approximately 25 inches just prior to reactor shutdown from approximately 15 percent power. The licensee provided the inspector a revised safety screening that thoroughly described why this operation did not represent a challenge to safety or an unreviewed safety question. Additionally, the inspector met with a fuels vendor representative, who provided the inspector with information that verified safety limits associated with the fuel would not be exceeded for all analyzed accidents at power levels below 20 percent.

## II. Maintenance

### M1 Conduct of Maintenance

#### M1.1 General Comments

##### a. Inspection Scope (62703)

The inspectors observed all or portions of the following work activities:

- PPM 7.0.0: Shift and Daily Checks in Modes 1, 2, and 3
- PPM 7.1.2: Chemistry Daily Channel and Source Checks
- PPM 7.4.3.1.1.80: Local Power Range Monitor Gain Calibration
- Various WOTs: Work order tasks associated with the troubleshooting and testing of the ASD and DFW systems

##### b. Observations and Findings

The observed maintenance and surveillances were acceptable.

### M8 Miscellaneous Maintenance Issues (92700)

The issues that resulted in the following LERs were evaluated and discussed in NRC Inspection Report 50-397/96-19. The following LERs are closed based on that inspection.

M8.1 (Closed) LER 50-397/96-003: failure to comply with Technical Specification recirculation system loop flow balance surveillance requirements due to inadequate procedures.

M8.2 (Closed) LER 50-397/96-005: failure to comply with Technical Specification average power range monitor (APRM) flow signal channel check surveillance requirements due to inadequate procedures.

M8.3 (Closed) LER 50-397/96-006: APRM rod block downscale surveillance not performed prior to entry into Mode 1. This LER also briefly described other instances, involving different instruments, where surveillance requirements were not met.

### Engineering

#### E1 Conduct of Engineering

##### E1.1 Reactor Recirculation and Feedwater System Postmodification Testing

###### a. Inspection Scope (37551)

The inspectors observed selected portions of reactor recirculation pump and DFW pump postmodification testing. At the conclusion of the testing, the inspectors noted that the licensee had not fully demonstrated the recirculation pump runback design features upon loss of a feedwater pump. The inspectors reviewed pertinent portions of the Final Safety Analysis Report (FSAR) to evaluate the licensee's position.

###### b. Observations and Findings

The inspectors assessed selected portions of the licensee's redesign review of the ASD and DFW modifications. The review was performed due to the problems that had self-disclosed during earlier testing. The inspectors considered the review thorough and effective. The inspectors also observed selected maintenance and testing of these modifications during this inspection period and identified no problems.

While reviewing the FSAR, the inspectors noted that the reactor recirculation control (RRC) system was designed with a recirculation runback feature. The control circuit reduced reactor recirculation system flow in the event of a reactor feedwater pump trip from power levels as high as 100 percent. The intent of the runback was to decrease reactor power to within the capacity of the remaining reactor feedwater pump, thus avoiding a scram on low reactor water level. Successful accomplishment of this design feature would require appropriate system response from both the RRC and RFW systems (both of which were modified substantially during Refueling Outage R11). The FSAR documented that this design feature was to minimize challenges to safety systems by preventing a reactor scram.

The inspectors noted that this design feature had been tested during preoperational testing and that the current test plan for the ASD and DFW modifications called for this test to be performed during the power ascension between 95 and 100 percent power. The licensee deferred this test to a later date and proceeded to 100 percent power. The licensee had not decided when, or if, this feature would be tested, but postulated that the RRC runback feature may not be tested until the end of the operating cycle.

The inspectors concluded that, since the design feature is identified in the FSAR, and the licensee has not effectively demonstrated that the system is capable of performing this function, deferring the testing to the end of the operating cycle may not be acceptable without a safety evaluation. During the exit meeting on October 2, 1996, the licensee acknowledged the concern and stated that they had also recognized the need to perform an appropriate 50.59 assessment if the testing was not performed. This issue is considered an unresolved item (URI) pending further NRC review of the licensee's actions (URI 50-397/9617-01).

#### E1.3 Conclusions on Conduct of Engineering

One unresolved item was opened regarding testing of the RRC system.

### V. Management Meetings

#### X1 Exit Meeting Summary

The inspectors presented the inspection results to members of licensee management after the conclusion of the inspection on October 2, 1996. The licensee acknowledged the findings presented.

The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

## PARTIAL LIST OF PERSONS CONTACTED

### Licensee

P. Bemis, Vice President for Nuclear Operations  
L. Fernandez, Licensing Manager  
C. Fu, Quality Assurance Engineer  
J. Parker, Projects/Engineering Supervisor  
B. Pfitzer, Licensing Engineer  
G. Smith, Plant General Manager  
J. Swailes, Engineering Director  
R. Webring, Vice President Operations Support

## INSPECTION PROCEDURES USED

IP 37551: Onsite Engineering  
IP 62703: Maintenance Observations  
IP 71707: Plant Operations  
IP 92700: Onsite Followup of Written Reports of Nonroutine Events

## ITEMS OPENED, CLOSED, AND DISCUSSED

### Opened

50-397/9617-01 URI RRC runback feature

### Closed

50-397/9603-03 URI Reactor Water Level Reduction Prior to Reactor Scram

50-397/96-003 LER failure to comply with technical specification recirculation system loop flow balance surveillance requirements

50-397/96-004 LER manual reactor scram due to DFW system error found during testing

50-397/96-005 LER failure to comply with technical specification APRM flow signal channel check surveillance requirements

50-397/96-006 LER APRM rod block downscale surveillance not performed prior to entry into Mode 1

LIST OF ACRONYMS USED

ASD	adjustable speed drive
DFW	digital feedwater
FSAR	Final Safety Analysis Report
LER	licensee event report
NRC	U.S. Nuclear Regulatory Commission
PPM	plant procedure manual
RRC	reactor recirculation control
URI	unresolved item
WNP-2	Washington Nuclear Project-2

