U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report No. 50-397/84-20

Docket No. 50-397 License No. NPF-21

Licensee: Washington Public Power Supply System (WPPSS)
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: July 31 thru August 3, 1984 and
telephone conversations on August 8-9, 1984

Inspector: GP Yuhas for
C. I. Sherman, Radiation Specialist — 8/24/84 Date Signed

Approved By: GP Yuhas
G. P. Yuhas, Chief
Reactor Radiation Protection Section — 8/24/84 Date Signed

Summary:

Inspection on July 31 to August 3, 1984, in office inspection effort August 6 - August 8, 1984 and telephone conversations on August 8-9, 1984

Areas Inspected: Routine, unannounced inspection of the licensee's startup radiation protection program, startup radwaste processing and NUREG-0737 items II.B.3 and II.F.1.

The inspection involved 27 hours onsite by one regionally based inspector and 14 nours of in office examination.

Result: Of the areas inspected, no violations or deviations were identified.

DETAILS

1. Persons Contacted

D. Bennett, Radiochemist
J. Bovington, Health Physicist
#*R. Graybeal, Health Physics/Chemistry Manager
*J. Martin, Plant Manager, WNP-2
*V. Shockley, Health Physics/Chemistry Support Supervisor
*L. Berry, Health Physics Supervisor
J. Thomas, Startup Test Engineer
*D. Walker, Plant QA Manager
L. Coleman, Chemical Process Engineer
L. Morrison, Chemistry Supervisor
*C. Powers, Reactor Engineering Supervisor
W. Kruger, Nuclear Engineer
D. Gano, Shift Technical Advisor
D. Rinehart, HP/Chemistry General Employee Training Supervisor
*D. Larson, Manager, Radiological Programs
A. Davis, Radiochemist
G. Bouchey, Director Support Services
T. Strong, Department of Social and Health Services
P. Murphy, Department of Social and Health Services

*Indicates those individuals attending the exit interview on August 3, 1984.

#Indicates these individuals involved in telephone conversations on August 8 and August 9, 1984.

2. Licensee Action on Previous Inspection Findings

The following four (4) items were identified during an Emergency Implementation Preparedness Inspection conducted June 20 - July 1, 1983. The items represent a variety of findings related to PASS and accident monitoring instrumentation. These items are considered closed. Any outstanding findings are transferred to line items and identified in other paragraphs of this report.

(Closed) (83-23-14): Inspector identified item involving the PASS and effluent monitors.

At the time of this inspection:

PASS installation and testing is essentially complete.
Main Steam Line monitors are operational.
Radiation monitor installation is complete.
PASS accessory shields, sample holders and analytical equipment are available.

The inspector had no further questions on this matter.

(Closed)(83-23-38): Inspector identified item involving procedures for PASS, analytical procedures and procedures for operation and analysis of the containment air and stack effluent samples.

As described in NRC Inspection Report 50-397/84-07 and this report approved procedures have been established for the PASS. Provisions for line purge time has been included. Health Physics guidance has been incorporated into several procedures. Procedures for containment air sampling and analysis have been implemented. Procedures for stack effluent sample analysis have been implemented as procedures for obtaining these samples. The need for specificity regarding radiation protection is addressed elsewhere in this report. This matter is considered closed

(Closed)(83-23-46): Inspector identified item regarding training of personnel to operate the PASS and PASS EPIP's. PPM 12.10 rather than EPIP's cover operation of the PASS. A training program has been established and implemented. The need to complete training of additional technicians has been brought to the licensee's attention. The inspector had no further questions on this matter.

(Closed)(83-23-56): Inspector identified item related to the general unacceptability of PASS at the time of the inspection. Individual open item numbers will be established for each specific open item. This item is considered closed.

3. Post-Accident Sampling

License Condition 2.c.(13), Post-Accident Sampling (PAS) requires that prior to exceeding five (5) percent power, the PASS shall be installed tested and be operable. Technical Specification 3/4.3.7.5, Accident Monitoring Instrumentation, Table 3.3.7.5-1 items 24 and 29 specify instruments and surveillances required as part of the PASS. Technical Specification 6.8.4.c, Post-Accident Sampling Procedures and Programs requires that a PAS program be implemented.

Preoperational Tests of the PAS were approved for performance November 22, 1983. Test results were approved December 12, 1983. This system was released to the plant for operation and accepted December 18, 1983. The inspector verified completion of several Master Completion List (MCL) items. Operability of the PASS is demonstrated by completion of PPM 7.4.0.5.51, PSR Valve Operability and PASS Operability.

This procedure verifies operation of valves serving an isolation function that are controlled from the PASS panel. The procedure also provides for verification that samples can be obtained and analysis completed. The procedure provides acceptance criteria for valve operability, PASS sampling operability and analytical acceptance criteria. The procedure also provides action guidelines when acceptance criteria cannot be met. This test is to be performed quarterly.

Instruments required for the PASS station by TS 3/4.3.7.5 were found to be installed, tested and operable.

TS 6.8.4.c.1 requires that the PAS program provide for training of personnel. The inspector verified that training including lecture, system walkdown and practical factors training has been completed for five individuals. The inspector noted that two of these individuals have been transferred to the training group, therefore, at present, only two technicians and one supervisor are qualified to operate the PASS. The inspector stated at the exit interview that completion of training for additional individuals should be accomplished promptly.

TS 6.8.4.c.2 establishes the requirement for procedures for PASS sampling and analysis. The licensee has established sampling procedures specific for the PASS. Analytical procedures established for the PASS address specific considerations for the PASS samples. The chemistry section of the PPM contains routine procedures for calibration and operation of analytical instrumentation. Observations regarding several PASS procedures in the review and approval cycle were documented in NRC Inspection Report 50-397/84-07.

Status of the majority of these items were reviewed by the inspector during this inspection and considered satisfactory. The following approved procedures were examined during this inspection.

Licensee Designation	Title	Revision
9.3.22	Core Damage Evaluation	
12.10.1	Sample Station Operation	1*
12.10.2	Small Volume Liquid Analysis	1
12.10.3	Determination of Chlorides	1
12.10.4	Determination of Boron	1
12.10.5	Gas Sample Analysis	2
12.10.6	Iodine and Particulate Filter Analysis	0
12.10.7	pH of a Post Accident Sample	0
12.10.8	Dissolved Gas Analysis	2
12.10.9	Handling of Highly Radioactive Samples	0
12.10.10	Retrieval of Elevated Release Duct Iodine Sample Cartridge	0
12.10.11	High Activity Sample Gamma Spectrum Analysis	0
1.11.6	Post-Accident Sample System Program	0

*Rev. 2 under preparation was also examined.

With respect to this examination, the following observations were noted:

a. Dissolved gas capability has been restored. The procedure examined is consistent with that provided by letter dated October 13, 1983, G. Sorensen (SS) to A. Schwencer (NRC).

b. The core damage evaluation procedure provides guidance for determining damage in the event the PASS is not operational. This procedure does not specifically outline the steps to be taken if the PASS is unavailable.

c. Administrative Procedure 1.11.6, PASS Program delineates responsibilities for management and supervisory personnel and establishes the PASS program. Item 1.11.6.4.B.3.e indicates that procedures shall be available to provide guidance concerning ALARA planning of PASS tasks. Procedure 12.10.9, 'Handling of Highly Radioactive Samples' provides general guidance regarding radiation protection specific to PASS.

The inspector noted that this and other PASS procedures do not provide adequate specificity in the area of radiation protection for individuals who may be called upon to perform tasks. For example, several procedures indicate that an ALARA review should be performed prior to work. Procedure 12.10.9 indicates the scope of this review to include, 'Dosimetry whole body and extremity,...Respiratory protection equipment,..., survey instruments,...ingress and egress routes.' Details for these items are not provided in PASS procedures or EPIP's. This matter was discussed at the exit interview and with cognizant individuals.

The remainder of the PASS program description and its implementation is considered satisfactory.

d. Procedure 12.10.6, 'Iodine and Particulate Filter Analysis' is incomplete in the following regards:

i. Maximum acceptable dose rate for counting in the chemistry laboratory is not specified;

ii. Handling instructions are not provided;

iii. Actions to be taken if filters are found to have high dose rates are not provided;

iv. Guidance to purge the sample of Noble Gases is not included in this procedure nor in 12.10.10.

e. Procedure 12.10.11, 'High Activity Sample Gamma Spectrum Analysis,' is not complete in that a complicated series of calculations must be performed to correct for attenuation of the absorbers and that one of the equations presented is in error.

TS 6.8.4.c.3 establishes a requirement to have provisions for maintenance of sampling and analysis equipment. The PASS program administrative procedure, the PASS operability procedure and routine chemistry analytical equipment usage and calibration procedures provide reasonable assurance that the capability to obtain and analyze reactor coolant and containment atmosphere will not be degraded.

As identified in NRC Inspection Report 50-397/84-17, the inspector observed portions of a PASS drill. Evaluation of that drill by the licensee identified several findings that need to be corrected before the PASS and PAS program are considered complete.

Licensee action in regard to findings identified above and final inspection of the PASS will be completed in a subsequent inspection. Specific items to be addressed are as follows:

a. Completion of training for additional chemistry technicians, (Open, 84-20-01);

b. Adequate specificity for radiation protection incorporated in procedures, (Open, 84-20-02);

c. Completion of procedure 12.10.6 and 12.10.11, (Open, 84-20-03).;

d. Details regarding movement of high activity samples incorporated in procedures, (Open, 84-20-04);

e. Items identified in PASS drill (Open, 84-20-05).

No violations or deviations were identified at this time. However, due to the open items noted above an overall finding regarding acceptability of the PASS and PAS program could not be completed at the time of this inspection. An overall examination of the licensee's capability will be conducted in a subsequent inspection (Open, 84-20-06).

4. Power Ascension Chemical and Radiochemical Tests

WNP-2 FSAR Section 14.2.12.3.1 describes tests to be conducted during power ascention in the area of plant chemistry and radiochemistry. The inspector examined procedure 8.2.1 which is provided to implement this FSAR commitment. The test provides for plant chemistry parameter measurement and analysis at zero power, heatup, below 20% rated power, at about 50%, 80% and 100% of rated power. The test procedure provides for; collection, analysis and approval of test data; acceptance criteria for water quality, effluents, chemistry limitations and radiation monitoring instrumentation; prerequisites for the tests; and plant conditions necessary for each phase of the test.

Chemistry tests are performed for the following:

Conductivity
Chloride
Turbidity
Silica
Boron
Insoluble Iron
Dissolved Oxygen

Radiochemistry tests are performed for:

Sodium 24
Iodine 131
Iodine 133
Gross gamma activity (soluble)
Gross gamma activity (insoluble)
Nitrogen 13
Noble gas offgas release rate
Chlorine 38

A test is performed at 45-55% rated power to determine chemistry parameters without cleanup systems and with cleanup systems returned to service. The test procedure provides detailed instructions for carrying out the analysis for this test.

The tests also provide for comparison of effluent monitor readings against laboratory analyzed effluent concentrations as specified by NRC guidance.

The inspector concluded that the startup test procedure meets the FSAR commitment. Test results will be examined in a subsequent inspection (Open, 84-20-07).

No violations or deviations were identified.

5. Radiation Protection Startup Test

WNP-2 FSAR Section 14.2.12.3.2 describes tests to be conducted during the power ascention program in the area of neutron and gamma radiation surveys. This FSAR section states that neutron (fast), neutron (thermal) and gamma radiation measurements will be made at 25, 60 and 100 percent of rated power and that all potentially high radiation areas will be surveyed.

The inspector examined procedure 8.2.2, 'Power Ascention Test Program - Radiation Measurements' which implements the licensee commitment. This test procedure provides for surveys as stated in the FSAR. The inspector discussed the test procedure design with cognizant individuals. As a result of procedure review and discussions, the inspector made the following observations:

- Only selected drywell penetrations will be surveyed;
- Certain shields will not be surveyed as part of this procedure, these will be covered under the routine plant radiation survey program;
- Neutron and gamma measurements inside the drywell will be made with TLD devices;

- The test program does not incorporate certain guidance of ANSI/ANS-6.3.1-1980, "Program for Testing Radiation Shields in Light Water Reactors." Specific guidance not incorporated was a provision to scan shield walls at one meter intervals §5.31 and to survey each penetration or cluster §5.3.3.

The inspector concluded, based on this review that with the exception of not incorporating guidance from ANS-6.3.1, the test procedure was generally acceptable. This matter was discussed at the exit interview. Examination of final test results and data analysis will be conducted in a subsequent inspection (Open, 84-20-08).

No violations or deviations were identified.

6. TMI Action Item II.F.1

NRC Inspection Report 50-397/84-07 identified completion of preoperational testing and reviews of the effluent monitors conducted by the licensee indicating that these systems were ready for operation beyond five (5) percent power. Included in these reviews were the monitors installed to meet the criteria of NUREG-0737, "Clarification of TMI Action Plan Requirements," November 1980.

Pursuant to a license condition 2.C.(27) Effluent Radiation Monitors, the licensee conducted additional review of these monitors. The inspector examined results of this review, provided in a letter dated June 29, 1984, G. Sorensen (SS) to A. Schwencer (NRC), to the criterion of NUREG-0737.

Also examined was procedure 13.8.2 Rev. 1, 'Manual Offsite Dose Calculations' which provides the means to convert monitor readings to release rates in curies per second. This procedure also includes data to correct radiation monitor readings to equivalent Xenon-133 concentrations. The licensee has incorporated the monitor energy response function into a time dependent calibration factor for use in calculation of noble gas releases.

Procedures for removal and analysis of particulate and iodine samples are in place as described in paragraph 3 of this report. The procedure for calculating release rates of iodine in PPM 13.8.2 uses the plant intermediate range monitor readings to estimate release rate. PPM 12.10.6 provides information to calculate iodine concentration from analysis of filters removed from the PASS. PPM 12.10.10 provides information to estimate the I-131 content of the sample and the average release concentration from the sample cartridge radiation dose rate measurement.

There did not appear to be adequate guidance available for determination of quantitative release of iodines and particulates from the elevated release sample cartridge in the events of high sample activity. This matter will be examined in a subsequent inspection.

7. Exit Interview

An exit interview was conducted on August 3, 1984. Individuals in attendance are identified in paragraph 1. The inspector summarized the scope and findings of the inspection at that time.

Findings regarding PASS were presented including the need to improve procedures in the area of radiation protection and analysis of high activity samples.

Regarding startup radiation surveys, the inspector identified the need to reconsider guidance of ANS 6.3.1.

Procedures necessary to analyze particulates and iodines in plant effluents were examined subsequent to the inspection and discussed in telephone conversations with licensee representatives. The matter of adequate procedures to ensure that capability will be examined in a subsequent inspection.