

U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report No. 50-397/91-03

License No. NPF-21

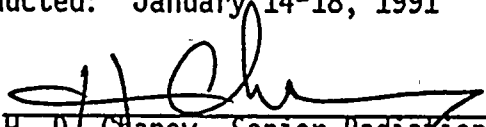
Licensee: Washington Public Power Supply System (Supply System)
P. O. Box 968
3000 George Washington Way
Richland, WA 99352

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

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

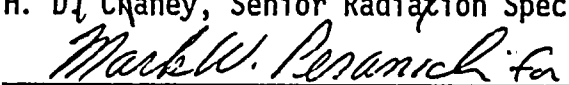
Inspection Conducted: January 14-18, 1991

Inspected by:


H. D. Chaney, Senior Radiation Specialist

2/13/91
Date Signed

Approved by:


G. P. Yuhas, Chief, Reactor Radiological
Protection Branch

2/13/91
Date Signed

Summary:

Inspection During January 14-18, 1991, (Report No. 50-397/91-03)

Areas Inspected: Routine unannounced inspection of the licensee's radiation protection (RP) program including: liquid radioactive waste processing system (radwaste), gaseous radwaste systems, and radioactive material transportation activities. Inspection procedures 86750, 84523, and 84524 were used.

Results: One non-cited licensee-identified violation involving the failure to properly block and brace a component in a radioactive material shipment was identified (see paragraph 2). No deviations were identified. The licensee's liquid and gaseous radwaste systems appear to be as described in the Update Final Safety Analysis Report (UFSAR); and engineering oversight and resolution of technical issues are adequate.



DETAILS

1. Persons Contacted

Licensee

- *L. Harrold, Assistant Plant Manager
- *R. Graybeal, HP/Chemistry Manager
- *P. Macbeth, Generation Engineering General Engineer
- *R. Webring, Plant Technical Manager

Others

- *C. Sorensen, Senior NRC Resident Inspector
- *D. Proulx, NRC Project Inspector
- *L. Carson, Reactor Radiation Specialist

The above noted personnel were at the exit meeting held on January 18, 1991. Additional licensee personnel were in attendance at the exit meeting and other licensee personnel were contacted during the course of the inspection and not reflected in the above listing.

2. Solid Radioactive Waste Management and Transportation of Radioactive Materials (86750)

The licensee's radioactive material shipment program was examined to determine compliance with the requirements of 10 CFR Part 71.5 and Department of Transportation (DOT) regulations contained in 49 CFR Parts 170 through 189; and agreement with the guidance provided in NRC Inspection and Enforcement Information Notice (IEIN) No. 87-31, "Blocking, Bracing, and Securing of Radioactive Materials Packages in Transportation."

On January 16, 1991, at approximately 1:00 p.m. the licensee's health physics (HP) and chemistry manager informed the inspector of a transportation incident involving a radioactive materials shipment that was made on January 14, 1991, to an equipment vendor in California. The licensee received a call from the sole use carrier of the shipment that one of the three packages on the trailer may have come loose during normal transport and that there had been no vehicle accident associated with the package coming loose. The licensee instructed the driver to not proceed further and await for the arrival of WNP-2 personnel. HP and maintenance personnel were dispatched to evaluate the shipment integrity, and to provide personnel with radiological support while stabilizing the load. The licensee informed the State of California Department of Health Services, Radiological Health Branch and the NRC Agreement State Officer on the same day. Based on the low dose rates (less than 20 millirem per hour on contact with packages) and radiological hazards associated with this particular shipment, (3 ton main steam throttle valve and ancillary equipment with low levels of loose and fixed radioactive contamination contained within the valve and on the components) the state elected not to respond to the incident and left the response and radiological

controls up to the licensee's response team. The licensee's response team arrived at the shipment the same day. They determined that the package which contained the throttle valve was still in place but the valve had come loose from the cribbing within the wooden (strong tight) shipping container and had a puncture hole in one side of the container. The team resecured and braced the valve, repaired the package, and verified that the other packages were appropriately secured and their contents were properly braced to prevent movement during the remainder of the trip. No loose contamination or excessive radiation levels were detected during the repair work.

Discussions held with the radioactive material shipping specialist upon return to WNP-2 (January 17th) disclosed that even though the valve was extensively cribbed and braced in the wooden container there was no cribbing to prevent forward movement of the valve (forward axis of the trailer/truck orientation) within the wooden container except for the downward force applied by the cribbing above the valve.

The NRC regulations contained in 10 CFR Part 71.5 require, in part, that each licensee who delivers licensed material to a carrier for transport shall comply with the regulations appropriate to the mode of transport of U.S. Department of Transportation (DOT) in 49 CFR Parts 170 through 189. DOT regulations contained in 49 CFR Part 173.425, "Transport requirements for low specific activity (LSA) radioactive materials," requires, in part, (4) shipments must be loaded by the consignor ..., and (6) shipment must be braced so as to prevent shifting of lading under conditions normally incident to transportation.

Contrary to the above, licensee shipment No. 91-03-2 was not adequately blocked or braced to prevent its movement during transit to the consignee. This is considered a violation of NRC requirements. However, in view of the following: (1) an individual under contract to the licensee identified the violation, (2) the violation is an apparent isolated incident, (3) the licensee has taken immediate corrective action, and (4) the licensee is initiating an investigation into the incident in order to determine appropriate long term corrective actions, this violation will be classified as a noncited violation in accordance with the criteria set forth in 10 CFR Part 2, Appendix C, Section V.G. of the Enforcement Policy. (397/91-03-01)

No additional violations or deviations were identified in this area of the inspection.

3. Audits

The NRC inspector reviewed audits related to WNP-2 staff training and a surveillance of liquid radwaste operations. Licensee Audit No. 90-537, "Training, Qualification and Performance of WNP-2 Unit Staff," conducted August 13 through September 17, 1990, (in accordance with WNP-2 Technical Specifications (TS) 6.5.2.8.b) identified some weaknesses in the implementation of the licensee's training program for technical support staff and managers (TTM 5.3.6, "WNP-2 Technical Support Staff and Managers Training Program Description.") Quality Finding Reports were issued for the deficiencies noted in the audit. Some of the audit findings were resolved during the audit and all others were addressed



in accordance with the licensee's corrective action program in a timely manner. No performance based problems were noted during the review of equipment operator activities during the audit. Licensee surveillance No. 2-90-082, conducted May 9 through June 6, 1991, addressed influent processing activities associated with equipment drain and floor drain recovery (EDR and FDR) systems. Selected radioactive liquid releases were reviewed by the QA engineer during this surveillance which included activities related to tank recirculation times and monitoring instrument flushes. Observations and deficiencies were identified concerning HP procedure compliance, performance of activities not covered by procedures, control of miscellaneous chemical disposal into EDR/FDR systems, and evaluations of total organic content in the EDR system.

The licensee's audits and surveillances appeared to be well planned and executed with adequate attention to WNP-2 TSs and procedural requirements.

No violations or deviations were identified in this area of the inspection.

4. Liquids and Liquid Wastes (84523)

The licensee's liquid radwaste system and processing program was examined to determine: (1) whether components and installations were as described in the UFSAR Chapter 11 and in agreement with the recommendations of NRC Regulatory Guide (RG) 1.143 and industry standard ANSI/ANS-N55.6-1979; (2) whether design safety changes evaluations have been accomplished in accordance with the requirements of 10 CFR Part 50.59, (3) whether operational procedures were established, implemented and maintained, and (4) whether liquid radwaste systems were being properly utilized to meet the requirements of General Design Criterion 60 of Appendix A of 10 CFR Part 50, and TS 3.11.1.3 and 4.11.1.2.

The NRC inspector also held discussions with cognizant system engineers, examined installed plant equipment, examined selected design changes (DCs) and safety analyses for the DCs; and reviewed licensee initiated special reports on system deficiencies and corrective actions.

a. Liquid Waste System Construction and Installation

The licensee's liquid radwaste collection and processing systems and liquid appeared to be as described in Chapters 9 and 11 of the UFSAR. The following selected design changes (basic design change) were reviewed:

Basic Design Change/Plant
Modification Request No.

Activity/Title

86-0621-0A

Spare/Remove Inoperable Leak
Detection Equipment

87-0151-0A

Replace Gate Valves Above Dry-
well Sumps with Ball Valves to
Control Leakage



The DCs were reviewed and approved by all required groups and by health physics personnel. Radiation protection and ALARA concerns were addressed in the development and review cycles for each DC. The licensee controls plant modifications in accordance with the instructions contained in Plant Procedures Manual (PPM) Procedure 1.4.1, "Plant Modifications" and Project Design Standard No. 5. No unresolved safety issues were identified during the review of the above referenced DCs. Necessary changes to TS and/or UFSAR were identified and were being processed in accordance with licensee instructions.

The licensee was actively pursuing the elimination of radiation hot spots in the liquid waste collection system. Operational procedures appeared to contain suitable instructions for minimizing personnel exposures during system operations.

b. Liquid Leakage, Overflows, and Spillage

The licensee effectively utilizes installed leakage collection systems for equipment, floors, and chemical wastes. Reactor building sumps are capable of containing the liquids in the event that one or more tanks of the holdup tanks are breached. The licensee has implemented a program for performing system walkdowns to verify potential leak paths. This program has been successful in identifying and resolving potential leak paths out of the secondary containment such as roof drain valves and installed sanitary drain piping exiting the reactor building. The licensee has issued a Licensee Event Report (LER No. 90-032) concerning the sanitary drain pipe problem. This LER was reviewed by the NRC Resident Inspector for WNP-2. This item will be addressed in NRC Inspection Report No. 50-397/90-31.

c. Liquid Sampling

The licensee's liquid sampling program appears to satisfy the guidance contained in RG 1.143 and implements the requirements of NUREG 0737 concerning sampling of systems following reactor accidents. Individual sample line flows and purge values identifications are provided in licensee procedures. The following licensee procedures were examined during this portion of the inspection:

<u>PPM No.</u>	<u>Title</u>
12.2.1	Sampling Schedule
12.2.2	Sampling System Components Location and Valve Line Up
12.2.4	Sampling Instructions & Procedures
12.5	Specialized Sampling and Analytical Methods - Liquid Effluent Discharge Determination



- 12.5.29 Sampling Radwaste Collector Tanks EDR-TK-2
or FDR-TK-6.
- 12.10.9 Post Accident Sampling and Analysis -
Handling of Highly Radioactive Samples

d. Liquid Process and Effluent Monitors

The licensee's process and effluent monitors for liquid radwaste management were examined. Operational and calibration procedures for selected monitors were reviewed.

<u>PPM No.</u>	<u>Title</u>
1.11.5	Quality Assurance Program for Effluent Monitoring
1.11.10	Radiation Instrument Set Point & Action Level Guidelines
12.13.11	Process and Effluent Monitors - Radwaste Effluent Monitor (calibration)

The licensee's calibration and channel check procedures were concise and provided sufficient technical detail. The licensee routinely utilizes mixed isotopic concentrations to perform primary instrument calibrations and traceable transfer sources for other calibrations.

The inspector concluded that licensee activities were conducted in a manner that ensures adequate safety and protection are afforded to the plant workers and public. QA and engineering oversight were evident in the licensee's activities associated in this subject area.

No violations or deviations were identified in this area of the inspection.

5. Gaseous Waste System (84524)

The licensee's gaseous radwaste management program was examined to determine: (1) whether selected components and installation are as described in the UFSAR Chapter 9 and 11 and in agreement with the recommendations of NRC Regulatory Guide (RG) 1.143 and industry standard ANSI/ANS-N55.4-1979; (2) whether design changes have been accomplished in accordance with the requirements of 10 CFR Part 50.59, and whether operational procedures have been established, implemented, and are being maintained; (3) whether the gaseous radwaste systems are being properly utilized to meet the requirements of the limiting condition for operation requirements as prescribed in TS 3.3.2, 3.6.5.3, 3.11.2.4, 3.11.2.5, 3.11.2.7 and (4) whether the surveillance requirements of TS 4.6.5.3, 4.11.2.1.1, 4.11.2.1.2, 4.11.2.5.1, 4.11.2.5.2, 4.11.2.7.2, and General Design Criterion 60 of Appendix A of 10 CFR Part 50 were being implemented.



a. Construction and Installation

The inspector held discussions with cognizant system engineers, examined installed plant equipment, examined selected design changes and safety analyses for the modifications and reviewed licensee initiated special reports on system deficiencies and corrective actions.

An inspector walkdown of the Reactor Building sump ventilation, standby gas treatment (SGT), offgas processing, and Reactor Building ventilation (RBV) systems was performed. Selected portions of SGT and RBV piping configuration were verified (drawings M544, Revision 47 and M545-3, Revision 3 respectively) and the following selected design changes were reviewed:

Basic Design Change/Plant
Modification Request No.

Activity/Title

86-0081-0A

Various Fan Damper Control Logic Modification

87-0104-0A

SGT Filter Unit Strip Heater Replacement

87-0106-0A

SGT Temperature Sensor Replacement

Design safety analyses and ALARA reviews were found to be satisfactory and conducted in accordance with the licensee's procedures. Selected configurations were found to be consistent with design change documents.

b. Surveillances and Tests

The following selected TS surveillances of the SGT system were examined for the period September 1989 through April 1990:

Surveillance
Procedure No.

TS Requirements

Title

7.4.6.5.3.6

4.6.5.3.b.1

In-place Bypass Leakage Test

7.4.6.5.3.3

4.6.5.3.b.2

Charcoal Adsorber Test

7.4.6.5.3.2

4.6.5.3.d.1

Flow and Pressure Drop Test

7.4.6.5.3.1

4.6.5.3.a

10 Hour Operational Test

7.4.6.5.3.4

4.6.5.3.d(3-4)

Manual Initiation & Heater Test

4.6.5.3.5

4.6.5.3.b.1-2

In-Place HEPA Filter Test and Visual Inspections

The inspector verified that licensee's safety related system procedures for performing surveillances were being implemented in accordance with the TS and that Charcoal testing was performed by vendors certified by the licensee's Quality Assurance Department. The inspector examined other surveillances associated with the

verification of HEPA and charcoal filtration and adsorber system performance for nonsafety related systems and portable ventilation systems. No concerns were identified.

c. Process and Effluent Monitors

The following TS surveillances associated with gaseous effluents monitors were examined:

<u>Surveillance Procedure No.</u>	<u>TS Requirements</u>	<u>Title</u>
7.4.11.2.1.1	4.11.2.2/3	Noble Gas Particulate and Iodine Sample Collection and Analysis - Evaluation of Annual Dose
7.4.11.2.1.2.1	4.11.2.8.3	Containment Vent or Purging Gaseous Radioactivity Analysis
7.4.11.2.7.2	4.11.2.7.2	Monthly Main Air Ejector Discharge Activity Calculations

The inspector requested that the licensee verify the alarm and actuation setpoints on the Reactor Building Exhaust Air Plenum Radiation Monitors (REA-RIS-609A/B/C/D). Setpoints were verified using the instrument master data sheet for the selected instruments. Licensee instrument technicians using PPM 7.4.3.2.1.15A, Revision 0 performed the verifications. Radiation monitor setpoints were found to be in accordance with TS 3.3.2 and Table 3.3.2-1 item 2.a values. The inspector performed a cursory review of the licensee's calculations (NE-02-84-14, Revision 1) for establishing the isolation/diversion valve actuation signal setpoint (13.0 millirem per hour) and determined that the assumptions and methodologies agreed with UFSAR system design parameters (offsite dose limits, system flow rate, and lag time for valve to fully close). No concerns were noted as a result of this review.

The inspector examined the licensee's use of light emitting diodes (LEDs) in place of radioactive sources for performance of TS required response/channel source checks. WNP-2 TS clearly define the need to utilize a radioactive source for "source checks" (TS 1.43). The licensee has several airborne gaseous and particulate radioactivity monitors that utilize LEDs for qualitatively assessing channel operational status. One set of monitors are the mid-range noble gaseous channels on the Main Plant Vent (REA-RIS-19A), Turbine Building ventilation exhaust (TEA-RIS-13A), and the Radwaste Building ventilation exhaust (WEA-RIS-14A) monitoring instrumentation. Channel checks and the test frequencies for these instruments are set forth in TS 4.3.7.12. The LEDs on these monitors provide a pulse downstream of the detector (at the photomultiplier tube) for performing the daily channel checking of the instrument.

Daily source checking of these instruments are not required by the TS. TS 4.3.7.12/Table 4.3.7.12-1 requires that each radioactive gaseous effluent monitoring intermediate instrumentation channel shall be source checked on a monthly frequency. WNP-2 procedure PPM 7.1.4, "HP/Chemistry Monthly Source and Channel Checks," provides for the source checking of the above noted instruments with radioactive sources.

The licensee also has two airborne particulate monitors that are used for reactor coolant system leakage sensing and have LEDs installed for assessing channel response in a fashion similar to that noted above for the intermediate range noble gas monitors. WNP-2 TS 3.4.3.1 requires that these monitors (CMS-RIS-12/1A & 1B) only be channel checked on a shiftly basis and no reference is made to source checking of the instruments. Licensee procedures PPM 7.1.1, "HP/Chemistry Shift Channel Checks," and PPM 7.1.3, "HP/Chemistry Weekly Iodine, Particulate and Tritium Analysis Results," provides for shiftly channel checks of the monitors with the installed LEDs and a weekly comparison of monitor reading to filter media radioactivity analysis results. The licensee's program for conduct of TS required surveillances for these monitors appears to comply with TS requirements.

d. System Testing

The licensee had completed air flow/pressure rebalancing for the Reactor Building (a result of corrective actions to LER 88-023) during refueling outage R-4, the Turbine Building during outage R-5, and the Radwaste Building will be completed following outage R-6 this year.

The licensee's gaseous radwaste system; as examined, disclosed that there was a high degree of technical staff involvement, engineering oversight, and management attention. The system reviewed appeared to be built as described in the UFSAR.

No violation or deviations were identified in this area of the inspection.

6. Exit Meeting

The inspector met with licensee representatives identified in paragraph 1 of the report on January 18, 1991. The inspector discussed the scope and findings of the inspection. The licensee acknowledged the inspectors findings regarding the noncited violation discussed in paragraph 2 of this report.

