

U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report: 50-397
License: NPF-21
Licensee: Washington Public Power Supply System (WPPSS)
P.O. Box 968
3000 George Washington Way
Richland, WA 99352
Facility: Washington Nuclear Project 2 (WNP-2)
Inspection location: WNP-2 Site, Benton County, Washington
Inspection duration: August 2-13, 1993

Inspected by: *L. C. Carson II* 9/2/93
L. C. Carson II, Reactor Radiation Specialist Date Signed
N. Mamish 9/2/93
N. Mamish, Radiation Specialist Date Signed
Approved by: *James H. Reese* 9/2/93
James H. Reese, Chief Date Signed
Facilities Radiological Protection Branch

Summary:

Areas Inspected: This routine announced inspection covered followup items and the licensee's radioactive waste management program. The inspection included gaseous radwaste (GRW) management, liquid radwaste (LRW) management, and the Radiological Environmental Monitoring Program (REMP). Inspection procedures 92701, 92702, 84725, and 84750 were used.

Results: The licensee's radioactive waste management programs were adequate to meet regulatory requirements. The inspector identified strengths in testing of the new Reactor Building Stack Monitoring System by the technical staff. Reviews, evaluations, and trending of radiation monitor performance data, and lack of timely corrective actions to violations were areas in need of improvement. No violations or deviations were identified.

DETAILS

1. Persons Contacted

Licensee

- *H. Aeschliman, Emergency Planner
- J. Albers, Radiation Protection Manager & Corporate Radiological Health Officer
- *A. Alexander, Radiation Protection
- *W. Barley, Radiation Protection Consultant
- *J. Benjamin, Manager, Quality Assessment
- J. Chasse, Regulatory Programs Environmental Engineer
- *D. Coleman, Supervisor, Regulatory Services
- *M. Eades, Licensing Engineer
- *C. Fies, Licensing Engineer
- *J. Gearhart, Director, Quality Assurance
- *D. Graham, Senior Fire Protection Specialist
- *L. Harrold, Manager, Maintenance Division
- *S. Kim, ALARA Engineer
- *A. Klauss, Emergency Planning
- *R. Koenigs, Manager, Design Engineering
- *D. Larson, Manager, Emergency Preparedness
- *K. Lewis, Licensing Engineer
- *T. Love, Chemistry Manager
- *K. Meehan, Supervisor, Emergency Planning
- *M. Monopoli, Manager, Support Services
- *K. Newcomb, Fire Marshal
- R. Patch, Supervisor, Radiation Protection
- *S. Peck, Manager, Equipment Engineering
- *K. Pisarcik, General Aide, Licensing
- *J. Rhoads, Manager, Operating Events and Resolution
- *J. Sampson, Manager, Maintenance Production
- *W. Sawyer, Shift Manager, Operations
- *G. Smith, Manager, Operations Division
- *G. Sorensen, Manager, Regulatory Programs
- *J. Swailes, Plant Manager
- *D. Swank, Licensing Engineer
- *R. Utter, Supervisor, EP Operations
- *R. Webring, Technical Manager
- *J. Wiles, QA Engineer

NRC

- *R. Barr, Senior Resident Inspector
- *A. McQueen, Emergency Preparedness Analyst
- *J. Reese, Chief, Facilities Radiological Protection Branch
- *W. Wagner, Fire Protection Inspector

(*) Denotes those individuals who attended the exit meeting on August 13, 1993. The inspector met and held discussions with additional members of the licensee's staff during the inspection.



2. Followup (92701)

- a. Item 50-397/92-41-04 (Closed): This unresolved item concerned the need for performing a 10 CFR 50.59 evaluation of radioactive contamination in the service air system. The licensee had indicated that samples had been taken, and that results of these samples were available.

Upon the request of the NRC, the licensee forwarded the sample results to Region V inspectors. The inspector had no further questions in this matter.

- b. Item 50-397/93-14-01 (Closed): This item involved the licensee's lack of a method for properly evaluating and complying with Certificate of Compliance (CofC) revisions of shipping casks. The licensee had revised Licensing Program Instruction 8.0, "Processing of Incoming Regulatory Correspondence," on June 15, 1993, to ensure that incoming regulatory correspondence was reviewed for applicable distribution, actions required were appropriately assigned, and commitments were followed up in a timely manner.

Other licensee actions included the revision of procedures to ensure that new CofC requirements were met prior to future shipments of radioactive waste, and the routing of documentation associated with this discrepancy to radioactive waste personnel to ensure that the importance of careful reviews of shipping related documentation was clearly understood.

The inspector had no further concerns in this area.

- c. NRC Information Notice 93-06 (Closed): The inspector verified that the licensee had received NRC Information Notice 93-06, "Potential Bypass Leakage Around Filters Installed in Ventilation Systems," and had taken appropriate actions to ensure that similar problems did not exist at WNP-2.

The inspector had no further questions in this matter.

3. Followup of Items of Noncompliance (92702)

- a. Item 50-397/92-35-02 (Closed): This violation involved the release of liquid radioactive waste from the non-radioactive Turbine Building Sumps to the Storm Drain Pond in violation of 10 CFR 20.301. As corrective action, the licensee had accomplished the following:

- (1) Performed an assessment of WNP-2's free release policy and procedures. The assessment identified a few specific areas where procedure clarification was desirable.



- (a) Revised the Nuclear Standard Operating Policy, NOS-38, "Radiation Protection," with regard to the release of potentially contaminated material.
- (b) Transmitted a letter to the NRC indicating that the releases of low-level contamination to the Storm Drain Pond was an issue that may be addressed by the use of 10 CFR 50.75(g).

The inspector noted, however, that the licensee had committed in the original response to the violation that an application would be filed, by April 15, 1993, with the Federal and State authorities for permission to discharge small amounts of tritium to the storm drain pond.

The inspector informed the licensee that it was not appropriate to use provisions of 10 CFR 50.75(g) to control releases of radioactive material. Additionally, the inspector apprised the licensee that since this issue (i.e., releases of low-level contamination to the storm drain pond) may be resolved through the NRC headquarters office, this specific commitment would be viewed an open item for future followup (50-397/93-30-01).

- (c) Completed on February 26, 1993, a review of Plant Operating Procedures that govern the release of water from turbine sumps to the Storm Drain Pond. The inspector noted, however, the licensee had committed, in response to the violation, that this item would be completed by February 1, 1993.
 - (d) Established on August 1, 1993, a corporate level oversight capability for radiation protection/radioactivity release issues. However, the inspector noted that the licensee had not completed this item in a timely manner. The licensee had committed to establishing a corporate level oversight capability by July 1, 1993.
 - (e) Established a program to control the movement and use of hoses in the plant for temporary routing of fluids.
- (2) Completed, on February 10, 1993, a technical evaluation to determine the feasibility of a design change to allow increased batch processing capability from the turbine building. The inspector noted, however, the licensee had committed, in response to the violation, that this item would be completed by February 1, 1993.
 - (3) Performed a walkdown of the inputs to all clean plant floor drains associated with the storm drain system. No inputs from radioactive systems were found.



- (4) Performed a radiological survey of all clean drains and sumps associated with the storm drain system. Results of the surveys had indicated that contamination was not detected.
- (5) Reviewed the in-plant sampling program and process controls to ensure that further radioactive releases to the storm drain pond are limited and controlled.
- (6) Revised the Root Cause Analysis Procedure to ensure the appropriate level of knowledge and experience was applied to each root cause determination.

In touring the reactor building and radioactive waste building, the inspector did not identify examples of liquid radioactive systems being routed to non-radioactive systems.

The inspector had no further questions in this matter.

- b. Item 50-397/92-41-02 (Closed): This violation concerned the failure to survey a solid radioactive waste shipment as required by 10 CFR 20.201(b). As corrective action, the licensee had improved the scaling factor trending process, reviewed and enhanced the radioactive waste program and procedure, and bench-marked its radioactive waste program with other nuclear utilities to ensure the program was consistent with industry standards.

Additionally, a corporate level technical review was completed by the licensee on all radioactive waste shipments to ensure that the site's procedures and practices are in compliance with regulatory requirements.

The inspector had no further concerns in this area.

- c. Items 50-397/92-41-08 and 50-397/92-41-09 (Closed): These violations concerned the failure to follow radiation protection procedures by licensee workers as required by Technical Specification (TS) 6.11.1. The licensee had concluded that the violations were the result of hasty ingress or egress of the radiologically controlled area.

The licensee had revised the Personnel Performance Expectation Section of the General Information Handbook to include a statement of radiological protection expectations for employees. Additionally, lessons learned from the violations were incorporated into the General Employee Training.

The inspector had no further concerns in this area.

- d. Item 50-397/93-07-01 (Closed): This violation involved the failure to tag liquid radioactive waste hoses in violation of TS 6.8.1. As corrective actions, the licensee had revised Plant Procedure PPM 1.3.19, "Plant Material Condition Inspection Program," on July 6,

1993, to incorporate some-procedural clarifications. Additionally, the licensee completed, by June 18, 1993, the development of a guide for use as an aid in planning and implementing major changes to WNP-2 established policies.

The inspector noted, however, that the licensee had committed, in response to the violation, that the procedural changes and guide development would be completed by June 1, 1993, and June 15, 1993, respectively.

The inspector concluded that while the licensee's responses to the above violations were thorough and comprehensive, corrective actions had not been completed in a timely manner. In discussions with the inspector, the licensee indicated that a health physics specialist may be assigned to provide overall coordination of root cause analysis and to ensure that effective corrective actions were implemented in a timely manner.

No violations or deviations were noted. One inspection followup item was identified.

4. Post Accident Sampling System (84725)

The Post Accident Sampling System (PASS) is designed to obtain grab samples which may be analyzed on site following an accident. The sample station was located in the radioactive waste building and was shielded to reduce radiation exposures to operators.

The inspector performed a walkdown of the PASS with the cognizant system engineer and the chemistry manager. Additionally, the inspector discussed with licensee staff a selection of open Technical Evaluation Reports (TERs), Request For Technical Services (RFTSs), and Maintenance Work Requests (MWRs).

The inspector inquired about the elevated number of requests that had been initiated involving PASS drawings. The licensee indicated that the increased number of requests involved the licensee's efforts in converting General Electric based drawings to WNP-2 based drawings.

No violations or deviations were identified.

5. Radioactive Waste Treatment, Effluents, and the Radiological Environmental Monitoring Program (REMP) (84750)

The inspector evaluated this program area by interviewing cognizant personnel, reviewing procedures and records, and observing work in progress. Tours of the Reactor and Radioactive Waste Buildings were conducted by the inspector.

a. Audits

The inspector reviewed Audit Report 92-601, "Radiological and Non-Radiological Environmental Effluent Monitoring," completed on May



14, 1993. The audit evaluated the licensee's compliance with the Offsite Dose Calculation Manual, National Pollution Discharge Elimination System, Non-radiological Environmental Monitoring, Plant Support Chemistry Laboratory, and Radiological Environmental Monitoring. The audit did not cover radiological environmental concerns associated with the Sanitary Waste Pond and Storm Drain Pond.

The audit had identified deficiencies associated with procedural inconsistencies and record keeping. Overall audit results, however, concluded that the aforementioned programs were effectively implemented and met regulatory requirements and commitments.

The inspector noted that the audit had been thorough and probing, and that corrective actions were appropriately being addressed. No discrepancies were identified.

b. Radiation Monitoring Systems

(1) Main Steam Line Radiation Monitors (MSLRM)

The MSLRMs provide a trip signal to the Reactor Protection System (RPS), which initiates a one-half reactor SCRAM. On August 3, 1993, WNP-2 had a reactor SCRAM, which was partially initiated when instrumentation and controls (I&C) technicians performed Technical Specification (TS) Surveillance 7.4.3.1.1.12D, "Main Steam Line High Radiation Channel "D" Calibration. Licensee Problem Evaluation Request (PER) 293-1032 stated that this issue was immediately reportable pursuant to 10 CFR 50.72(b)(2)(ii).

The inspector reviewed the May 1993 radiological calibration records of MSLRMs MS-RIS-610 A,B,C, and D. MS-RIS-610 A,B,C, and D high alarms were set at 2000, 2400, 2200, and 1800 mr/hr, respectively, during calibration. The MS-RIS-610D high alarm calibration setpoint was consistent with the Instrument Master Data Sheet.

Based on reviews of calibration records, PER 293-1032, and the WNP-2 TSs, the inspector concluded that the MSLRMs functioned as designed. The inspector had no concerns in this area.

(2) Reactor Building Stack Effluent Monitors

During WNP-2's last refueling outage (April-July 1993), the licensee installed and tested a new Reactor Building Stack Monitoring System (RBSMS). This RBSMS consisted of three high purity germanium (HPGE) detectors (low, intermediate, and high range), which replaced an earlier system that was found to be deficient. Deficiencies related to the former Reactor Building Post-LOCA Grab Sampler system were reported in NRC Inspection Reports 50-397/85-20 and 50-397/90-29. The licensee,



subsequently, committed to installing the new RBSMS, and having the system operable in 1993.

The inspector reviewed RBSMS Basic Design Change (BDC) packages, test documents, held discussions with test engineers, and toured the RBSMS to determine its compliance with the following:

- * NUREG 0737, Items II.F.1-1 & 1-2
- * TSs Tables 3.3.7.5.-1 & 4.3.7.5-1
- * Regulatory Guide 1.97

Design, installation and testing requirements for the RBSMS were established in WNP-2s' BDC 90-0305-3, and included a design scope summary, system description, and 10CFR50.59 Design Safety Analysis.

The following two test procedures on the RBSMS were performed:

- * ATP-1380, "Subsystem Acceptance Test Procedures for Stack Monitoring System for WPPS-WNP-2"
- * PPM 8.3.286, "Reactor Building Stack Effluent Radiation Monitoring System Preoperational Test"

ATP-1380 was the RBSMS acceptance test conducted at the RBSMS laboratory by vendor engineers and two WNP-2 engineers. PPM 8.3.286 was the preoperational test of the WNP-2 field installed RBSMS, and was conducted by WNP-2 personnel that included the Principal Health Physicist, Technical Engineer, and the Design Engineering, Operations, Chemistry, and I&C. The inspector compared the ATP-1380 and PPM 8.3.286 RBSMS test acceptance criteria to the testing requirements that were established in BDC 90-0305-3. No significant deviations of test requirements were found. The licensee's testing efforts for the RBSMS were well coordinated, and represented a positive integrated effort. The inspector found no concerns with the licensee's test program for the RBSMS.

During this inspection, the inspector reviewed PERs 293-1014, and 293-1023, which described recent problems associated with the new RBSMS. PER 294-1014 identified, in July 1993, that voltage regulating transformers installed under RBSMS BDC 90-0305-05 overloaded because they were undersized. Subsequently, the Main Steam Leakage Control (MSLC) system and the RBSMS had to be declared inoperable per TSs 3.6.1-4 and 3.3.7.5, because of a power loss. PER 293-1023 stated that offsite dose assessment capability was temporarily lost, which left WNP-2 without adequate backup when the RBSMS was made inoperable. The licensee, subsequently, wrote Nonconformance Report (NCR) 292-1014 describing a root cause corrective action analysis of



the problem. During this inspection, the licensee had acquired replacement parts and restored permanent power to the RBSMS.

The inspector concluded that WNP-2 promptly and effectively resolved the problems related to the RBSMS. The inspector had no further concerns in this area.

(3) Radiation Monitoring Surveillances

The inspector observed a Chemistry Technician performing surveillance tests PPM 7.1.1, "Chemistry Shift Channel Checks," and PPM 7.1.2, "Chemistry Daily Channel and Source Checks," of process and effluent radiation monitors. Also, the inspector reviewed surveillance test procedures PPM 7.1.1 and PPM 7.1.2 results completed during August 1993. These PPMs provided a method for routinely ensuring the operability of process and effluent radiation monitors as required by TS 3.3, TS 3.3.7, TS 3.4.3.1, and ODCM 6.2.2.6.3. The inspector compared the results of two days of PPM 7.1.1 radiation monitor surveillances, and no significant concerns were identified.

The inspector reviewed the August 1993 results of PPM 12.13.34, "Daily Monitor Data," for process and effluent radiation monitors. PPM 12.13.34 provided a method for recording and evaluating the performance of radiation monitors. The inspector compared several days of results of PPM 12.13.34 radiation monitor data. Data recorded for the reactor closed cooling radiation monitor RCC-RIS-607 on August 3-4, 1993, measured radiation levels between 28 counts/second (cps) and 288 cps. No explanation was provided for the difference in RCC-RIS-607 radiation levels. The inspector noted that the alarm setpoint for RCC-RIS-607 was 77 cps, but there was no mention by chemistry personnel that an alarm condition existed.

The Chemistry Manager's investigation found that entries into the Control Room Log on August 4, 1993, indicated that RCC-RIS-607 had not exceeded 29 cps, had not alarmed. The Chemistry Manager concluded that the Chemistry Technician recorded 288 cps in error, and the Chemistry Supervisor did not identify the error. The inspector reviewed the Control Room Log, and had no further concerns.

The inspector concluded that Chemistry Technicians adequately collected plant radiation monitor data, however, the review, evaluation, performance, and trending of data was an area needing improvement.

(4) Liquid Effluent Monitoring

The inspector reviewed the licensee's liquid effluent monitoring program by performing system walkdowns, holding discussions with system engineers and health physics personnel,



and reviewing applicable procedures and records. The following liquid effluent monitor surveillance tests and calibrations were reviewed:

- * PPM 16.6.2, Turbine Service Water (TSW)-RIS-5
- * PPM 16.8.2, Residual Heat Removal (RHR) Service Water (SW)-RIS-604
- * PPM 16.8.5, RHR SW-RIS-605
- * PPM 12.13.14, Reactor Closed Cooling (RCC)-RIS-607
- * PPM 16.9.1, Circulating Water Blowdown (CBD)-RIS-608

All of the liquid effluent monitors listed above were radiologically calibrated in 1993 by the Principal Health Physicist. The PPMs were portions of the Offsite Dose Calculation Manuals (ODCM) implementing procedures for calibrating the monitors. Based on the inspectors' review of the liquid effluent monitor's calibration results, it was concluded that the licensee's program was adequate.

c. Radiological Environmental Monitoring Program (REMP)

The inspectors evaluated the REMPs by conducting interviews with cognizant personnel, reviewing recent records and reports, and observing work in progress. Observations were made regarding environmental sampling and analysis for compliance with Technical Specification (TS) 6.5.2.8, and TS 6.8.1.

(1) Environmental Sampling, Analysis and Audits

The REMP sampling records and schedules indicated that sample collection were conducted at the locations and frequencies prescribed in the ODCM Table 6.3.1.1-1. Locations specified in the ODCM and other site locations were routinely sampled by the REMPs group in order to maintain a comprehensive oversight of radiological conditions in the site environs. Sampling requirements and radiological profiles of each location were well-documented.

The inspector reviewed the REMP Quality Assurance (QA) Audit 93-580, dated May 3, 1993, which covered the vendor services used by the licensee for REMP activities. The licensee's QA vendor audit concluded that this part of the REMP's was in compliance with Regulatory Guide 4.15, "Quality Assurance Program for Effluent Control and Environmental Monitoring." The inspector concluded that the QA audit of REMPs was thorough, and no concerns were identified.

(2) Expedited Response Action

WNP-2 has two Department of Energy (DOE) Hanford burial trenches located near the site. Burial trenches Nos 618-10 and 618-11 were located 5.6 kilometers (kms) and 0.25 kms from WNP-2, respectively. At the time of this inspection, the licensee's REMPs department and the State of Washington's Ecology Department (State) were collecting soil samples from the burial trenches as part of an Expedited Response Action (ERA) sampling plan.

The inspector reviewed the ERA plan and held discussions on the plan with the REMPs supervisor and the Corporate Health Physics Manager. The DOE was planning to remediate the waste burial trenches as part of its Superfund activities. The State, DOE, and Environmental Protection Agency (EPA) agreed that a sampling program was required in order to establish a baseline characterization of the sites. According to licensee personnel, alpha radiation emitters such as, plutonium and uranium were reported as buried in the trenches. The licensee's primary concern was to establish baseline data in case the ERA remediation changes WNP-2's radiological environment. The inspector had no further concerns in this area.

The inspector concluded that the REMP was adequately evaluating radiological issues resulting from hazardous activities near site by DOE programs, and was adequate in meeting the licensee's safety objectives. No violations or deviations were identified.

d. Gaseous Radioactive Waste Treatment Systems

The inspector evaluated the licensee's Standby Gas Treatment System (SGTS) and Control Room Emergency Filtration System (CREFS) capabilities of treating gaseous radioactive waste by performance of system walkdowns, discussions with personnel, and review of procedures and records.

Technical Specifications (TSs) 3.6.5.3 and 3/4.7.2 set the requirements for testing the SGTS and CREFS respectively, in accordance with Regulatory Guide 1.52, "Design Testing, and Maintenance Criteria for Post Accident Engineered Safety Feature Atmospheric Clean up System Air Filtration and Absorption Units of Light Cooled Nuclear Power Plants," and American Nuclear Society Standards N510, "Testing of Nuclear Air-Cleaning Systems."

The inspector performed a walkdown of both systems with the cognizant system engineer and reviewed selected records associated with the associated TSs requirements. The reviewed records indicated that surveillance tests had been successfully conducted in accordance with required criteria, and were completed in a timely manner. No discrepancies were identified.



e. Facility Tours

The inspector conducted tours of the Reactor Building and Radioactive Waste Building to observe the general radiological controls of the radiation controlled area. Additionally, the inspector reviewed licensee records and procedures associated with radiation and contamination surveys. Observations were made regarding the accumulation of waste barrels, labeling, and housekeeping.

- (1) In touring the Radioactive Waste Building, the inspector raised some concerns regarding the number of waste barrels present on the 437-foot elevation. The inspector noted that the amount of waste barrels had significantly increased since the last inspection.

The licensee informed the inspector that most of the waste barrels contained slightly contaminated water that had accumulated during the last refueling outage. The licensee added that health physics personnel were currently processing the waste as quickly as possible.

- (2) The inspector found a yellow unlabeled bag inside a the 2A Residual Heat Remover (RHR) pump room on the 422-foot elevation of the reactor building. The licensee informed the inspector that the bag contained contaminated trash and its radiation levels were minimal (i.e., less than 2 millirem per hour at contact). The bag was promptly removed from the area.
- (3) A water spill, which was the result of an apparent leak from overhead piping on the 437-foot elevation in the Radioactive Waste Building, was found near the dressout area (behind the sorting table). The licensee apprised the inspector that the spill was mopped and the water was, in fact, not contaminated.

The inspector noted that, with the exceptions noted above, radioactive materials surveyed were appropriately labeled and controlled. Posting of radiation areas, high radiation areas, and radioactive material storage areas were appropriate in the areas toured. Additionally, the inspector observed that housekeeping in the RCA had significantly improved since the last inspection.

No violations or deviations were identified.

6. Exit Interview

The inspectors met with members of licensee management at the conclusion of the inspection on August 13, 1992. The scope and findings of the onsite portion of the inspection were summarized. The licensee acknowledged the inspectors' observations. At the conclusion of the meeting, the licensee did not identify as proprietary any material provided to or examined by the inspector.

During the exit, the licensee addressed concerns raised by the inspector during the inspection regarding the lack of timeliness in the implementation of corrective actions and the accumulation of waste barrels in the Radioactive Waste Building.

In response to the inspector's concerns, the licensee stated that additional efforts were underway to ensure that corrective actions were tracked and implemented in a timely manner, and that health physics personnel were aggressively processing the contaminated water.