

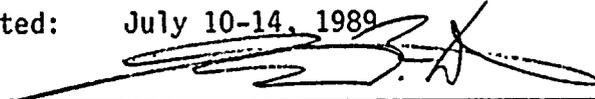
U.S. NUCLEAR REGULATORY COMMISSION  
REGION V

Report No. 50-397/89-20  
License No. NPF-21  
Licensee: Washington Public Power Supply System  
P. O. Box 968  
Richland, Washington 99352

Facility Name: Washington Nuclear Project No. 2  
Inspection at: WNP-2 Site, Benton County, Washington

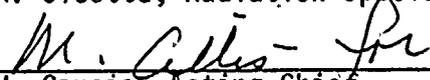
Inspection Conducted: July 10-14, 1989

Inspected by:

  
G. R. Cicotte, Radiation Specialist

8-1-89  
Date Signed

Approved by:

  
E. M. Garcia, Acting Chief  
Facilities Radiological Protection Section

8/1/89  
Date Signed

Summary:

Inspection during the period of July 10-14, 1989 (Report No. 50-397/89-20)

Areas Inspected: Routine unannounced inspection by a regionally based inspector of liquids and liquid wastes, radioactive waste management, ALARA, and follow-up of open and unresolved items. Inspection procedures 30703, 84723, 84850, 83728, 90712, 90713, 92701, and 92702 were addressed.

Results: Of the four areas addressed, no violations were identified in two areas. In one area, a violation of Technical Specification 6.5.2 was identified, regarding audit of personnel performance, training, and qualifications (paragraph 2.A). In another area, one violation of Department of Transportation requirements pursuant to 49 CFR 173, regarding packaging was identified (paragraph 4.C). A non-cited violation was also identified in paragraph 4.C, related to a shipment manifest error. Overall, the licensee's programs appeared capable of meeting their safety objectives.



## DETAILS

### 1. Persons Contacted

- \*J. W. Baker, Assistant Plant Manager
- \*J. D. Arbuckle, Compliance Engineer
- \*T. M. Brun, Plant Quality Assurance (QA) Engineer
  - A. I. Davis, Senior Radiochemist
- \*R. G. Graybeal, Health Physics/Chemistry (HP/C) Manager
- \*D. A. Kerlee, Principal QA Engineer
- \*D. E. Larson, Radiological Programs and Instrument Calibrations (RPIC) Manager
  - P. J. MacBeth, Engineering Supervisor
  - L. L. Mayne, Chemistry Craft Supervisor
  - D. B. Otley, Radiological Assessments Supervisor
- \*R. F. Patch, ALARA Coordinator
- \*D. J. Pisarcik, HP Support Supervisor
- \*L. A. Pritchard, HP Craft Supervisor
  - E. R. Ray, Instrumentation and Controls (I&C) Supervisor
  - K. A. Smith, Radwaste Program Leader
  - D. M. Werlau, Manager of HP/C & General Employee Training (GET)

\*Denotes those present at the exit interview held on July 14, 1989.

In addition to the individuals identified above, the inspector met and held discussions with other members of the licensee's and contractors' staff.

### 2. Liquids and Liquid Wastes (84723)

#### A. Audits

The following audits were examined for applicability and content related to this program area:

88-453, Training, Qualification and Performance of Plant 2 Staff  
dated October 20, 1988

89-490, Radiological Effluents, Environmental Monitoring and  
Offsite Dose Calculation Manual, dated June 19, 1989

Audit #89-490 contained no significant findings in the area of liquid wastes. At the time of the inspection, responses to the findings were not yet due. Audit 88-453 contained a number of findings related to records of training, mostly in departments other than HP, Chemistry, and radioactive waste handling.

The inspector examined audit #88-453 to determine if licensee personnel having responsibilities in the area of liquid waste processing had been audited. It was determined that the audit did not list Equipment Operators (EO), who operate the liquid waste processing and effluent systems.



Technical Specification (TS) 6.5.2.8 states in part: .

"Audits of unit activities shall be performed under the cognizance of the CNSRB [Corporate Nuclear Safety Review Board]. These audits shall encompass: . . . ."

"b. The performance, training and qualifications of the entire unit staff at least once per 12 months;"

When the matter was discussed with the licensee's audit personnel, they stated that the EOs had been purposely excluded from the audit. They further stated that this was done in order to allow more time to examine the other areas more thoroughly, as numerous findings had already been made in those areas. The inspector asked the audit personnel if they had a systematic method for assuring that representative populations are audited, such as minimum sample size and composition, or if they had any guidance on the matter. They stated that they relied on their experience to determine proper audit scope. They further stated that they had not recognized the exclusion as being contrary to TS 6.5.2.8. The CNSRB meeting minutes of January 5, 1989, did not address the change in the scope of audit #88-453.

The licensee acknowledged that TS 6.5.2.8.b does not allow exclusion of a major group of personnel on the unit staff, such as EOs. The last performance of an audit in this area was conducted in audit #87-416, dated October 9, 1987. At the time of the inspection, the next scheduled audit was to be performed in August/September, 1989. The licensee stated that an audit of training was conducted in May, 1989, and that some elements of EO training had been addressed. The inspector asked if that portion of the audit had been performed to address the lack of audit in 88-453. The licensee stated that it had not, and that there had been no findings specifically related to EOs.

The inspector concluded that no audit of EO performance, training, or qualifications had been performed for the purpose of satisfying TS 6.5.2.8.b, from October 9, 1987, when audit #87-416 was issued, until the time of the inspection, a period of 21 months. This appears to be a violation of TS 6.5.2.8.b(50-397/89-20-01).

B. Changes

No major changes to the licensee's processing and monitoring systems had been made since the last inspection of this program area. Revision 6 to the Offsite Dose Calculation Manual (ODCM) was submitted with the July-December 1988 Semi-Annual Effluent Release Report. Most of the changes were to correct previously identified deficiencies. The licensee responded by separate correspondence to NRC concerns regarding the licensee's rationale for some of the changes.



C. Effluents

Radioactive liquid effluent release records for the first half of 1989 were reviewed. No major concerns were identified. However, several omissions were noted in release permits, PPM 7.4.11.1.1.1, Radioactive Liquid Waste Discharge to the River. The omissions were administrative in nature, and did not significantly affect the release itself. However, the number, about one third of those permits reviewed, did indicate a certain lack of attention to detail by technicians and in the review process by Chemistry supervision, the Shift Support Supervisor, and the Shift Supervisor. Similar concerns were identified in review of radiation surveys performed for radioactive waste shipping (see paragraph 4.C). Liquid effluents were within Technical Specification 3.11; 10 CFR 20; Appendix B; and 10 CFR 50, Appendix I, limits.

D. Instrumentation

Representative maintenance records for liquid process effluent monitors were reviewed. The effluent monitoring instrumentation appeared to be maintained in a manner consistent with the licensee's program, although several discharges were performed without the monitor due to unavailability. Licensee procedures provided for increased sampling and analysis in accordance with TS 3.3.7.11 action statements.

Overall, the licensee's program appeared capable of meeting its safety objectives. Other than that noted in paragraph 2.A above, no violations or deviations were identified.

3. Radioactive Waste Management (84850)

A. Management Controls

The following licensee documents and Plant Procedure Manuals (PPM) were reviewed to determine if they addressed the regulatory requirements contained in 10 CFR 20 and 10 CFR 61:

- PPM 1.12.1, Radioactive Waste Management Program, 12/14/87
- PPM 1.12.2, Radioactive Waste Process Control Program, 12/14/87
- PPM 1.12.3, Contract (Vendor) Waste Processing, 12/14/88
- PPM 1.12.4, Process Fluids - Water Balance and Consumptive Use, 10/27/87
- NOS-40, Radioactive Waste Management
- NOS-41, Quality Assurance Program for Radioactive Materials Shipping Packages

Responsibilities and authority of licensee personnel were clearly assigned by the above referenced procedures. The licensee was conducting waste operations and shipping in a manner consistent with their established implementing procedures, with some exceptions as noted below. One problem, discussed in paragraph C, below, was the manner in which the licensee had been assigning HP personnel to perform shipping functions. No major concerns were identified.



B. Quality Control

The licensee maintains a QC program consistent with 10 CFR 61. Results of the most recent audits and corrective actions were addressed in Inspection Report 50-397/88-41, paragraph 2.A. Due to the number of findings in audit #87-420, the licensee had conducted an additional audit, #87-420-A. No additional concerns were identified by the audits in the area of shipping.

C. Waste Manifests

Representative radioactive waste shipment records were reviewed to determine if the manifests contained all the information required by regulations and the burial facility's license. Except for minor typographical errors, and one shipment discussed below, no concerns were identified.

On June 13, 1989, the licensee sent shipment #89-32-02 to the U.S. Ecology licensed burial site located at Richland, Washington, about 18 miles from the licensee's facility. On June 14, 1989, the licensee was informed by the State of Washington Department of Health and Social Services that the manifest was incorrect, in that the number on one of the packages, an LSA box, was not listed on the manifest, and that one number on the manifest was not represented by an accompanying LSA box. It should be noted that the regulatory requirements regarding manifests/shipping papers are prescribed in 49 CFR Parts 172.200-204, 10 CFR Part 20.311(b) and (c) and in the applicable burial sites' license. Each regulatory requirement requires the waste generator to certify on the manifests that the transported materials are properly classified, described, packaged, marked and labeled. The inspector noted that the numbers differed by one digit, that is, the manifest indicated the inclusion of box #94196, which was not shipped. Box #94186, which was shipped, was not on the manifest.

The licensee was further informed that the drain plugs on LSA boxes 94184, 94195, 94853, 95077, 95078, 95079, 95082, 105094, and 105095, were loose, constituting a failure to maintain strong tight packages in accordance with 49 CFR 173.425(b)(1), and that a radiation dose rate reading in the 'sleeper' portion of the truck cab was in excess of 2 millirem per hour (mr/hr), contrary to 49 CFR 173.441(b)(4). 49 CFR 173.411 states that radiation levels must not exceed 2 millirem per hour in any normally occupied spaces.

The information provided to the licensee on June 14, 1989, was followed by a written citation dated June 21, 1989, identifying the above three violations.

The inspector reviewed the records for shipment #89-32-02 and discussed the matter with licensee personnel. The licensee was taking the following corrective action:

- o Licensee procedures were being revised to assure that HP personnel would specifically match manifests to packages immediately prior to shipment, and that labor personnel would be warned to inform HP personnel of changes.



- The licensee's sign-off function for QC personnel was being revised such that in future they will sign for tightness of drain plugs, as contrasted with signing for presence thereof, as had been previously done.
- The Radwaste Program Leader (RWPL) had been instructed to personally verify manifest information, and provide more specific guidance to HP technicians on how surveys are to be performed.
- The procedures addressing surveys of the truck cab were being clarified to prevent recurrence of the greater than 2 mr/hr reading cited by the state of Washington. The licensee stated that the HP technician had non-conservatively assumed that "normally occupied positions on the vehicle" as delineated in PPM 11.2.23.4, LSA Radioactive Materials Shipments and other related procedures did not apply to the sleeper portion of the cab on an 18 mile trip.

The matter of the qualifications of the HP technician was discussed with the licensee. The HP technician was a contractor who had been terminated at the end of the most recent refueling outage. The licensee stated that an in-depth review had revealed that although the technician met the qualifications for ANSI N18.1-1971, he had no prior experience specifically in shipping, and had not attended the special radioactive waste shipping training provided to virtually all of the licensee HP technicians. The licensee further stated that future shipments would be conducted using only those personnel who had attended the training. The inspector asked the HP/C Manager how that would be assured. The HP/C Manager responded by stating that a memorandum to personnel responsible for assignment of technicians would be promulgated stating that commitment. The inspector verified that the technician had met the qualifications for ANSI N18.1-1971, and that the above noted memorandum had been developed for distribution.

The following observations regarding this matter were made:

- The manifest errors appeared to have been administrative in nature, as the result of a single digit transposition.
- The citation by the state of Washington had stated that a radiation reading of 2.8 mr/hr was obtained at the back wall of the 'sleeper' compartment of the transport vehicle. It did not indicate that this was a whole body penetrating dose rate. The driver's position had measured a dose rate of about 1 mr/hr. The 'sleeper' compartment was not occupied during the transport of shipment #89-32-02 to the burial site.
- The licensee had made only one shipment of radioactive waste since shipment #89-30-02, regarding which no significant problems were identified.
- The licensee had just developed a new lesson plan for the special radioactive waste handling training, to address issues identified by licensee audits and evaluations.



- The state of Washington did not withhold authorization to use the burial facility, but did request a 30-day response, which would be due July 21, 1989.
- A review of records did not reveal any recent examples of the same violation, although the State of Washington report of the violation noted that previous transposition errors on manifests had occurred in 1988.
- The changes to the licensee's procedures appeared adequate to prevent recurrence of the violation.

10 CFR Part 2, Appendix C, section V.A, Notice of Violation, states in part that for isolated Severity Level V violations, a notice of violation normally will not be issued regardless of who identifies the violation provided that the licensee has initiated appropriate corrective action before the inspection ends. The inspector determined that the manifest error met the criteria necessary to not cite the violation (NCV-50-397/89-20-02).

10 CFR Part 2, Appendix C, section V.G.1, allows NRC to exercise discretion to not cite a Severity Level IV violation, provided in part that the violation is identified by the licensee.

The failure to make the LSA boxes of shipment #89-30-02 strong tight packages in accordance with Department of Transportation requirements appears to be a violation of 49 CFR 173.425(b)(1) (50-397/89-20-03).

D. Waste Classification

The licensee's waste classification procedures and program provide reasonable assurance that low-level wastes are classified in accordance 10 CFR 61.55. No examples of improperly classified wastes were observed. The licensee was evaluating whether classification would be affected by the analysis errors discussed in paragraph E, below.

E. Waste Form and Characterization

The licensee's methodology of waste form and characterization were consistent with 10 CFR 61.56. The licensee uses a contractor to perform analyses for the purpose of developing input to their computerized waste characterization program. Computer output is routinely verified by independent calculation, and documented with the codes.

At the time of the inspection, the licensee had just received a letter from their contractor for waste stream characterization, which stated that calculations for some radioactive isotopes were incorrect. The error was the responsibility of the contractor, and the letter indicated that the contractor had already contacted NRC. The change in activity shipped was quickly determined by the licensee to affect approximately 130 packages. The recalculation



factors were relatively low, for isotopes which do not predominate in the licensee's waste stream. The licensee determined that no notifications were necessary at the time of the inspection, but had concluded that three semi-annual effluent release reports would likely be affected.

F. Waste Shipment Labeling

No examples of improperly labeled radioactive material were observed. The licensee's procedures contain a sign-off function for verification of the presence of the proper Class A, B, or C label.

One shipment of radioanalytical samples, which was shipped offsite, was observed to have been shipped by using licensee procedure PPM 11.2.23.6, Shipping Other Than LSA Radioactive Materials, Revision 6, dated 10/24/88. The shipment was categorized as "Radioactive Material, N.O.S., UN2982." PPM 11.2.23.6 states, in part:

"C. This procedure address the following shipping categories:

1. RAM, Limited Quantity, N.O.S., UN2910
2. RAM, Instruments and Articles, UN2911
3. RAM, Special Form, N.O.S., UN 2974
4. RAM, N.O.S., UN2912"

However, the checklist includes a portion for category UN 2982. While the material was not shipped as waste, it was handled by radwaste personnel. The inspector noted to the licensee that although the material was properly categorized, the procedure did not authorize its use for that category, and this procedural logic error was not recognized by their personnel. The licensee acknowledged the observation.

G. Tracking of Waste Shipments

The licensee's procedures contain provisions for investigation if receipt acknowledgement from the consignee is not received within one week, in accordance with 10 CFR 20.311. The licensee stated that no instances of late receipt acknowledgement had been experienced.

H. Disposal Site License Conditions

The licensee had a current version of the disposal site's license, WN-I019-2. No examples of failure to meet disposal site license conditions were observed.

Overall, the licensee's program appeared capable of meeting its safety objectives. Other than that noted in paragraph C above, no violations or deviations were identified.

#### 4. Maintaining Occupational Exposures ALARA (83728)

##### A. Audits and Appraisals

No audit of this program area was due or conducted since the last inspection.

##### B. ALARA Program Changes

The licensee had made personnel changes in ALARA. Responsibilities for various tasks had been divided among area coordinators, to allow the ALARA Coordinator to focus attention on overall function of the program. In an effort to improve access controls, the licensee had modified their pre-job briefing procedure such that two levels of briefing would be done, depending on the level of hazard present.

##### C. Worker Awareness and Involvement

Worker involvement in the ALARA process, via the licensee's ALARA Improvement Suggestion Program(AIS), had increased. Although some workers were not fully aware of their role in the program, knowledge of ALARA goals had improved.

##### D. ALARA Goals and Objectives

The licensee had revised estimates of collective exposure, usually in reaction to unscheduled outage activities. ALARA committee meeting minutes indicated that the licensee is regularly reviewing their goals and objectives to assure ALARA principles are met. The licensee's goal of 400 person-rem for the July 1989-July 1990 (fiscal year 1990) period is less than the previous actual accumulated dose, noted in paragraph 4.E, below.

The licensee had conducted several dose-reduction activities during the 1989 refueling outage. The ALARA Coordinator stated that these activities are expected to result in improved estimates and lower doses during some tasks.

##### E. ALARA Results

The licensee had revised estimated outage collective dose from 170 person-rem prior to the outage, to a dose estimate during the outage of 270 person-rem. The final dose had been approximately 397 person-rem. Much of this dose, however, had been accumulated during extensive maintenance which had not been decided upon prior to the outage. The licensee's total dose for calendar 1988 was 353 person-rem, which was less than for 1987. The total accumulated dose for 1989 was approximately 457 person-rem at the time of the inspection.

The inspector noted that the licensee had performed some tasks with less dose expended than is experienced in many plants of the same design.



Overall, the licensee's program appeared fully capable of meeting its safety objectives. No violations or deviations were identified.

5. Follow-up

A. Inoffice Review of Periodic and Special Reports (90713)

1988 Radiological Environmental Monitoring Program Annual Report:  
The review indicated that the licensee provided data and analysis results for radiological environmental samples and measurements for the period, in accordance with the program as described in Technical Specification 3/4.12. Comparison with pre-operational data and previous environmental surveillance reports indicates that their conclusion that airborne radioactivity, direct radiation, water, milk and food crops, among other dose pathways from the environment to man, did not affect plant environs. All sample results were below regulatory reporting levels. The report included maps, deviations from the monitoring program that were corrected so that no long-term effect will result, achievement of all LLDs at or below the levels required by the Technical Specifications, and results of EPA Intercomparison which help to assure continued Quality Control. The Land Use Census did not change significantly from the previous year.

Annual Environmental Operating Report 1988:

A report on plant effects in soil and vegetation, which is prepared for the State of Washington, has been studied annually since 1980 (preoperational to 1984). The WNP2 Environmental Protection Plan (EPP) requires a year monitoring program to assure the effects of the cooling tower draft. Results for 1988 soil chemistry and vegetation analysis shows no trends or abnormalities in relevant chemistry parameters.

No violations or deviations were identified.

B. Follow-up (92701), (92702), (90712)

50-397/88-41-01(Closed): This matter refers to adequacy of airborne monitoring in the breathing zone, and use of extremity dosimetry, during spent resin handling (see Inspection Report (IR) 50-397/88-41). The licensee had concluded that the ratio of extremity dose to whole body dose when standing on top of resin liners was not sufficient to warrant the additional monitoring. They had decided to continue an increased level of airborne radioactivity sampling for the evolution. The inspector determined that both actions were adequate to achieve the safety objective. This matter is considered closed.

50-397/88-41-03(Closed): This matter refers to an unauthorized entry of personnel into a posted High Radiation Area (HRA) (see IRs 50-397/88-41, 89-02, and 89-09). The licensee had conducted additional training, and had made changes as noted in paragraph 4.B, above, as committed to in their timely response to the Notice of



Violation. The inspector noted that there did not appear to have been a recurrence. This matter is considered closed.

50-397/89-09-01(Closed): This matter refers to the licensee's efforts to construct an enclosure of an area on the Turbine Building 501' elevation of greater than 1000 mrem/hr (see IR 50-397/89-02). The inspector observed that the enclosure had been constructed. This matter is considered closed.

50-397/89-09-02(Closed): This matter refers to a failure to maintain a radiation area posting (see IR 50-397/89-02). The licensee, in their timely response, had committed to evaluate the effectiveness of HP management tours, upgrade postings, and train supervisors in recognition of radiation safety issues. The corrective actions were verified to have been performed. This matter is considered closed.

50-397/89-01-X0(Closed): This matter refers to an inoperability of the Post-Accident Sampling System (PASS) containment atmospheric radiation monitor. The inspector verified that the licensee had addressed concerns expressed by NRC at the time the inoperability occurred on March 6, 1989. The licensee had submitted a timely Special Report, dated March 22, 1989, detailing additional maintenance which was performed or which was expected to be performed. No concerns were identified. This matter is considered closed.

50-397/IN-88-10(Closed): This is Information Notice #88-101, Shipments of Contaminated Equipment Between Nuclear Power Plants, which the licensee had received and distributed. The inspector verified that the licensee had considered and incorporated the information in their program. This matter is considered closed.

50-397/85-20-04(Unresolved): This refers to plateout of iodine on sampling lines under accident conditions. The licensee had conducted some of the in-plant testing which was discussed in IR 50-397/88-33. The licensee's staff stated that the laboratory testing was in the approval process prior to award of the contract. The data from the in-plant testing was preliminary at the time of the inspection. This matter will remain open pending further testing and evaluation by the licensee.

An unresolved item is one about which more information is required in order to determine if it is an acceptable item, a violation, or a deviation.

## 6. Tours of the Facility

Tours of the Radwaste Building (RWB), Reactor Building (RB), and Turbine Building (TB), were conducted. Independent radiation surveys were performed with NRC ion chamber survey instrument model #36100, serial #009162, that was due for calibration on September 2, 1989.

Radiological postings, contamination control stepoff pads, and other access controls which were observed were consistent with the licensee's procedures and TS requirements. Radiological work practices appeared to have improved over those observed during previous inspections.

The licensee was expending significant effort to restore cleanliness after the outage. Little clutter was observed. In one room, #R316, which was an electrical panel room, a large volume of combustible cleaning materials had been stocked. The room was marked with a large sign which read: "Combustible materials not allowed in this room." The licensee removed the material when it was brought to their attention.

On July 13, 1989, one portable contamination frisker, model RM-20, and a portal contamination monitor, model IPM-8, had not had their daily source response checks recorded on the attached daily instrument source check tag. The RM-20 had been marked as satisfactory on the licensee's inventory sheet for the day. Licensee staff personnel stated that the attached tag is the only record of the check for the IPM-8. However, the individual who performs the checks stated that the IPM-8 had been checked that day. Both monitors were checked satisfactorily the next day.

7. Exit Interview

The inspector met with those individuals, denoted in paragraph 1, at the conclusion of the inspection on July 14, 1989. The scope and findings of the inspection were summarized. The licensee committed to perform an audit of equipment operators as corrective action for the apparent violation (paragraph 2.A). The licensee was informed that a determination as to enforcement action regarding the three identified 49 CFR 173 violations would be made subsequent to the inspection. The licensee was informed by the Senior Resident Inspector that an issue of non-HP personnel adherence to good radiological work practices would be examined in later inspections.