

U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report No: 50-397/90-15

Docket No: 50-397

Licensee: Washington Public Power Supply System
P. O. Box 968
Richland, WA 99352

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

Inspection at: WNP-2 Site near Richland, Washington

Inspection Conducted: May 21 - 25, 1990

Inspected by: *E. M. Garcia* July 3, 1990
E. M. Garcia, Senior Radiation Specialist Date Signed

M. Cillis 7/3/90
M. Cillis, Senior Radiation Specialist Date Signed

Approved by: *F. A. Wenslawski* 7/3/90
F. A. Wenslawski, Chief Date Signed
Facilities Radiological Protection Section

Summary:

Inspection during the period of May 21 - 25, 1990 (Report No. 50-397/90-15)

Areas Inspected: Routine unannounced inspection by two regionally based inspectors of occupational exposures during extended outages. The guidance in inspection procedures 30703, and 83729 was used.

Results: The licensee's program meets the required safety objectives but weakness in contamination control and individual adherence to radiological requirements were identified. This weakness resulted in a non-cited violation for failure to perform required surveys. This weakness was also exemplified by the observations made during plant tours and examples of individuals ignoring or not following instructions on posted signs. These matters are discussed in Sections 2.E, 2.F and 2.H.



DETAILS

1. Persons Contacted

A. Supply System

- C. M. Powers, Plant Manager
- *D. R. Kobus, Quality Assurance Manager
- *J. A. Baker, Assistant Plant Manager
- R. G. Graybeal, Health Physics and Chemistry Manager
- *J. Harmon, Maintenance Manager
- *D. E. Larson, Radiological Programs and
Instrument Calibrations Manager
- *D. M. Werlau, Health Physics, Chemistry, and
General Employee Training Manager
- *L. L. Bradford, Health Physics Supervisor
- *D. J. Pisarcik, Health Physics Support Supervisor
- J. R. Allen, Health Physics Craft Supervisor
- L. A. Prichard, Health Physics Craft Supervisor
- R. F. Patch, ALARA Coordinator
- *R. L. Wardlow, Radiological Services Supervisor
- *D. Merhar, Operations
- *D. Ottley, Radiological Services Supervisor

B. Other Entities

- *C. R. Berezich, Site Manager, Bechtel
- *E. J. James, ALARA Coordinator, Bechtel
- *J. T. Irish, Program Analyst, Bonneville Power Administration
- *C. Bosted, Sr. Resident Inspector, USNRC
- *A. D. Toth, Maintenance Inspection Team Leader, USNRC
- *K. E. Johnston, Maintenance Inspection Team Member, USNRC

*Denotes those present at the exit interview held on May 25, 1990.

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

2. Occupational Exposures During Extended Outages (83729)

A. Audits and Appraisals

No audits of the health physics program had been performed or were scheduled to be performed during this refueling outage. Two Operational Quality Assurance Surveillance Reports, for surveillances performed since the last inspection, were reviewed. A level III quality finding report (QFR) was identified in surveillance 2-90-071. This finding refers to inadequate and confusing posting of "Clean Areas" within the radiological control area (RCA). This type of posting is not required by NRC regulations. The response to this QFR had not been completed at the time of the inspection. No other QFR had been issued to the health physics program.



The fact that no audits of the health physics program had been scheduled for this refueling outage was discussed during the exit interview.

B. Changes

Equipment and furniture in the RCA access control point in the Service Building had been rearranged to improve entry and egress from the RCA. The inspector noted that this new arrangement improved the entry into and egress from the radiological control area (RCA). Directionally controlled traffic paths for entry and egress into the drywell had been established for the outage. These traffic paths were intended not only to improve traffic flow but to reduce the spread of contamination. During the exit interview the inspector listed these two changes among the improvements observed.

C. Planning and Preparation

The licensee augmented their health physics technician staff for this outage by 54 senior technicians and 28 junior technicians. Comments received from individuals regarding this staffing level ranged from "thin" to "adequate to do the job."

For at least one job the health physics technician coverage may not have been adequate. On May 20, 1990, work on the removal of the fuel sipping equipment from the reactor cavity eventually involved approximately 20 individuals under two separate radiation work permits (RWP) with three distinct work areas. Only one health physics technician was covering the work. This evolution resulted in seven personnel and/or clothing contaminations and one uptake of radioactive materials by one individual. Whole body counts by the licensee and their contractor indicate that the uptake was below the 40 mpc-hour control measure of 10 CFR 20.103 (b) (2). The licensee issued a radiological occurrence report and has initiated a root cause analysis. This matter remains as an open item pending inspection of the licensee's analysis of this incident (Open 90-15-01).

The licensee's supplies of health physics related equipment and other outage supplies were discussed in section 3.C of inspection report 50-397/90-07. No concerns were identified with available supplies and equipment.

D. Training and Qualifications of New Personnel

The areas of general employee training (GET) and the selection and training of contract health physics personnel were examined. Proper training of radiation workers and technicians is an important component of any radiation protection program. The inspectors participated in the GET, including the computer delivered and practical factors portions, and reviewed parts of the refresher course and documents of the selection and training of contractor health physics technicians.



The GET program appears to be consistent with the requirements of 10 CFR 19.12. Three minor discrepancies with the handout materials were brought to the attention of the licensee. These were (1) the NRC Form-3 in the handout is not the current revision, (2) the diagram of the access control area of the service building does not reflect the current configuration, and (3) NRC Region V is no longer part of the Office of Inspection and Enforcement as was reflected in the handout material. The inspectors complimented the licensee on their development of a practical exercise where the student is required, within a time limit, to locate contamination on a grid. This exercise assists in developing good frisking skills.

Examination of the selection criteria, resumes and onsite training records of contract health physics technicians indicated that the licensee is meeting or exceeding their commitments in this area (ANSI N18.1-1971). The licensee requires applicants for senior technician positions to have 6000 hours of appropriate experience, with no more than 2000 hours in any one year. Applicants are also required to successfully complete a written examination prior to being hired.

A six to eight hour program of training on Supply System procedures was provided to the selected technicians. Additional briefings were presented on departments' policies and unplanned radiation overexposures at other sites. A small booklet with the floor plans for the Reactor, Radwaste, and Turbine Generator buildings was provided to the new technicians to assist them with their orientation of the site.

A training session, similar to that provided to health physics technicians, has been developed and presented to maintenance crafts on unplanned radiation overexposures at other sites.

During the exit interview, the inspectors commended the licensee for their process of selecting contractor health physics technicians and on the floor plan booklet. The inspectors suggested that the licensee consider providing the floor plan booklets to all new radiation workers.

E. External Exposure Control

Through observations during plant tours, discussions with plant staff and review of records, the inspectors examined the licensee's implementation of external radiation exposure controls.

During plant tours the inspectors observed that individuals were wearing appropriate dosimetry, and in the appropriate locations. No examples of improper posting or labeling were observed.

The licensee was reviewing their assignment of exposures recorded by dosimeters located on the mid lower leg. Previously the licensee had assigned these exposures as extremity exposure and not as whole body exposures as required by 10 CFR 20.101. This incorrect

assignment was due to a misunderstanding of the guidance in Information Notice 81-26, Part 3, Supplement 1. The licensee had identified 11 instances where dosimetry records needed to be modified. The increases on assigned whole body exposures ranged from 3 to 267 mrem with the new quarterly whole body exposures ranging from 15 to 1663 mrem. As required by 10 CFR 20.102, the licensee had Form NRC-4 for the five individuals with quarterly exposures greater than 1250 mrem.

In discussions with plant staff, the senior resident inspector, and review of selected Radiological Occurrence Reports, the inspectors determined that the licensee has experienced problems with individuals not following the instructions on some of their radiation control signs. These failures to follow instructions on signs has resulted in individuals crossing into areas posted as contaminated without the required protective clothing, individuals crossing into clean areas without conducting a frisk, and an individual entering the radiological control boundary without the having the required dosimetry. The licensee had initiated Radiological Occurrence Reports (RORs) on each instance. During the exit interview, the inspectors discussed the difficulties that the licensee was having with individual compliance with their radiological control program.

F. Control of Radioactive Materials and Contamination, Surveys, and Monitoring

Through observations during plant tours, discussions with plant staff and review of records, the inspectors examined the licensee's implementation of radiological work practices.

The inspectors reviewed a licensee identified event that occurred on April 30, 1990. This review included an ROR and a draft root cause analysis that were initiated shortly after the event. A worker received facial contamination and a minor but likely preventable radioactive uptake while installing temporary shielding on the reactor water clean up (RWCU) piping in the RWCU room mezzanine. Review of RWP 2-90-00219, associated radiation and contamination surveys, skin contamination report 2-90-031 and discussions with responsible personnel indicate that the most recent contamination survey (#4-6031) of the work area prior to the event was conducted at noon on April 28, 1990. This survey was performed two days before the work that resulted in the facial contamination and uptake. Between the last survey and the shielding installation, three evolutions occurred in the area. These were a local leak rate test (LLRT), a valve manipulation and the installation of a wooden prop to support the additional shielding to be installed. No surveys were performed after the removal of the LLRT equipment, an evolution that resulted in another individual receiving facial contamination. Licensee procedure 11.2.13.9, Personnel Skin and/or Clothing Contamination Survey, requires under step 11.2.13.9.6 D.2.a that a follow up survey of the work area be performed to ascertain whether contamination had been spread. This survey was not performed.

10 CFR 20.201 requires that surveys be made that are reasonable under the circumstances to evaluate the extent of radiation hazards that may be present. Contrary to the above on April 30, 1990, individuals were permitted to install temporary shielding in the RWCU room mezzanine without contamination surveys after an evolution that has the potential to spread contamination. This failure is an apparent violation of 10 CFR 20.201. The violation is not being cited because the criteria specified in Section V.G. of the Enforcement Policy were satisfied (Close NCV 90-15-02).

Additional observations in this area are described in the sections on plant tours and planning and preparation.

G. Maintaining Occupational Exposure ALARA

The inspector examined the licensee's ALARA program by observations; discussions with responsible personnel, and review of applicable records.

Workers' Awareness and Involvement

Although there was generally an adequate level of ALARA awareness among workers interviewed and observed during the facility tours, some exceptions were noted. An individual was observed waiting for a telephone call to begin a local leak rate test (LLRT) while seated in a "pass through" radiation area. The radiation exposure rate where the individual was seated was 10 mr/hr. After a conversation with the inspectors the individual relocated to an area of lower radiation levels (less than 2 mr/hr) to wait for the call.

The daily status of cumulative exposure was reported on the cover sheet of the daily outage schedule and a graph of cumulative exposure vs date was maintained at the access control point of the Service Building. The inspectors noted that the cumulative exposure graph was not posted in a prominent area, having found it only after being told where it was. No posters or other techniques to maintain ALARA awareness in the minds of workers were observed. The inspector discussed ALARA reminders observed at other facilities with the responsible licensee personnel.

The inspectors reviewed the licensee's outage goals for cumulative personnel exposure, clothing and skin contamination, and the current status of these indicators. The licensee's emphasis during this outage was to reduce the cumulative personnel exposure to levels more comparable to other BWR plants. Jobs with a projected cumulative exposure greater than 5 person-rem received review by the ALARA committee. Members of the health physics support group were assigned for planning and following each of these major jobs. For this outage the cumulative personnel exposure goal was 300 person-rem and for clothing and skin contaminations the goals were set at 60 and 90 respectively.

At the time of the inspection, the ALARA Coordinator expected to meet the cumulative personnel exposure goal of 300 person-rem, exceed the skin contaminations goal and he noted that the clothing contaminations goal had already been exceeded. On May 24, 1990, the cumulative personnel exposure, using pocket ionization chamber (PIC) records, was 284 person-rem. There had been 108 recorded cases of clothing contaminations and 76 cases of skin contamination. The licensee had not yet determined if there was any identifiable commonality to the contamination events. The inspectors suggested the observations described under the section on plant tours as possible contributors to the numbers of contamination events.

H. Plant Tours

The following plant areas were toured by the inspectors during the course of the inspection:

- Reactor Building
- Diesel Generator Building
- Radwaste Building
- Turbine Generator Building
- Yard Area and Perimeter

The following items were observed during the tours:

- o Area radiation monitors (ARM) 24 and 5 in the Reactor Building were found alarming and being ignored by workers in the area. The workers had been told to ignore it. No signs were present indicating that the alarming condition was known and evacuation not required. The licensee had known that these monitors were in this condition for several days before being observed by the inspectors.
- o Evidence of eating, smoking, and drinking, in the form of candy and gum wrappers, a paper cup, and cigarette butts, were found in the Turbine Generator and Radwaste Buildings, and the Switch Yard. Similar items had been found by the resident inspectors and the licensee.
- o A contractor senior health physics technician at the control point on the 471 foot level of the Turbine Building was observed with his feet propped up on a desk, reading a book, and not enforcing protective clothing requirements (workers were not taping up properly).
- o Also at the 471 foot level of the Turbine Building individuals were observed performing personal frisking lasting less than 15 seconds. A senior health physics technician when asked about this practice stated that only a hand and foot frisk was required because people used the nearby whole body frisking monitor after this preliminary survey. The sign attached to the portable frisker stated that a three to five minute frisk was required.

- o Yellow hard hats were observed being reused inside areas posted as contaminated without being thoroughly cleaned or monitored. Also some yellow hard hats were observed abandoned at various locations throughout posted contaminated areas including the Drywell.
- o Hoses, electrical cords, and other leads were observed not being secured or fully contained within contaminated areas as required by procedures.
- o Rubber gloves, face shields and other equipment were found laying on floors in areas posted as contaminated.

When brought to the licensee's attention corrective action was initiated on each item identified. The inspectors discussed, during the exit interview, these observations as indications of poor radiological practices.

I. Conclusions:

The licensee's program meets the required safety objectives but weakness in contamination control and individual adherence to radiological requirements were identified. This weakness was exemplified by the incident in the RWCU room, the observations during plant tours and multiple examples of individuals ignoring or not following instructions on posted signs. These conclusions were discussed during the exit interview.

3. Exit Interview

At the conclusion of the inspection the inspectors met with the individuals identified in Section 1 of this report. The findings of the inspection were presented. The licensee was informed that a potential violation and an open item were identified. The potential violation was related to the April 30, 1990, facial contamination and radioactive material uptake by a worker while installing temporary shielding in the RWCU room (see Section 2.F). Other areas discussed are identified throughout the report.