U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report:	50-397/93-12
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:	April 5-9, 1993

Inspected by: L. C. Carson II, Reactor Radiation Specialist — Date Signed 4/29/93

V. L. Beaston, Radiation Specialist — Date Signed 29 Apr 93

Approved by: James H. Reese, Chief, Facilities Radiological Protection Branch — Date Signed 5/3/93

Summary:

Areas Inspected: This routine announced inspection covered the licensee's planning and preparation for refueling outage eight (R-8) in the areas of radiation protection and ALARA. Inspection procedures 83729 and 83750 were used.

Results: The licensee's planning and preparation for the R-8 outage appeared adequate for meeting radiation protection and ALARA safety objectives. One violation was identified:

A worker did not wear an alarming dosimeter as required by a Radiation Work Permit (RWP), which was a failure to follow radiation protection procedures in accordance with Technical Specification 6.11.1.

DETAILS

1. Persons Contacted

Licensee

*J. Baker, Plant Manager
*W. Davison, Plant Quality Assurance Manager
*J. Gearhart, Director, Quality Assurance
*L. Grumme, Manager, Nuclear Safety Assurance
*R. James, Health Physics Planning Supervisor
*P. MacBeth, Radwaste Supervisor
*C. Madden, Quality Assurance Engineer
*M. Monopoli, Support Services Manager
*V. Parrish, Assistant Director of Operation
*D. Pisarcik, Radiation Protection Manager (RPM)
*W. Shaeffer, Operations Manager
*V. Shockley, Health Physics Manager, Corporate
*G. Smith, Operations Division Manager
*G. Sorensen, Regulatory Programs Manager
*D. Werlau, HP, Chemistry, GET Training Manager

NRC

*V. Beaston, Radiation Specialist

(*) Denotes those individuals who attended the exit meeting on April 9, 1993. The inspectors met and held discussions with additional members of the licensee's staff during the inspection.

2. Occupational Exposure During Extended Outages and ALARA (83729 & 83750)

a. Organization and Personnel Changes

The licensee filled two previously vacant positions. The positions of Corporate Radiological Health Officer and Corporate Chemist were filled by personnel whose qualifications met the requirements as stated in WNP-2's Technical Specifications (TS) 6.3, "Unit Staff Qualifications." WNP-2 committed that staff personnel's qualifications will meet the standards in ANSI N18.1-1971, and NRC Regulatory Guide (RG) 1.8.

The inspectors had no concerns in this area.

b. Planning and Preparation for the R-8 Refueling Outage

The inspectors examined radiation protection and ALARA planning for the R-8 refueling outage to determine if WNP-2 was consistent with NRC Regulatory Guide (RG) 8.8 "Information Relevant to Ensuring that Occupational Radiation Exposures at Nuclear Power Stations will be As Low As Reasonably Achievable," and RG 8.10 "Operating Philosophy for Maintaining Occupational Radiation Exposures As Low As Reasonably Achievable." Discussions were held

with WNP-2 management on exposure goals, personnel training, work scope, and design changes. Preparation for the R-8 outage was in progress at the time of this inspection.

(1) ALARA Goals

The R-8 outage ALARA exposure, personnel contamination, and solid radioactive waste (SRW) goals were 140 person-rem, 100 skin/clothing contaminations, and 4000 cubic feet of SRW generated, respectively. The radiation protection (RP) department considered the R-8 ALARA goals as aggressive, particularly the exposure goal of 140 person-rem, because a review of the R-8 work scope revealed a potential exposure of 240 person-rem. The licensee has the potential to spend 240 person-rem on work in the Drywell, Reactor Bldg. and Refueling Floor. The RP department and ALARA group, along with the cooperation of the various work groups, plan to aggressively manage each R-8 outage job. The R-8 jobs with the most potential for exposures were as follows:

JOB	PERSON-REM
Maintenance & Surveillance Work	50
Refueling Floor Activities	40
In-Service Inspection (ISI)	36
Drywell Shielding	32
Personnel Tours, Inspection & Support	31
Motor Operated Valve (MOV) work	28
Main Steam & Safety Relief Valve work	17
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These ALARA goals were approved by the Site Senior ALARA Committee. The inspectors had no concerns in this area.

(2) R-8 Outage Work Scope and ALARA/Radiation Work Permits

The inspectors examined the R-8 work scope in order to assess its impact on the readiness of the ALARA and RP staff. Discussions were held with the Radiation Protection Manager (RPM), Outage manager, and ALARA staff. The number of R-8 activities were not finalized, but there were no anticipated changes that would increase the work scope. Approximately 85 new radiation work permits (RWPs) had to be written for this outage, of which 76 (90%) were written at the time of this inspection. Approximately 4000 preventive maintenance (PMs) tasks, 1261 maintenance work requests (MWRs), and 39 systems basic design changes (BDCs) were being implemented during this R-8 outage. As of April 2, 1993, the ALARA and RP staff had received 723 (60%) of the R-8 outage MWRs, also, 95% of the post-job ALARA reviews from the R-7 outage that would be needed to support the R-8 outage were complete.

The inspectors concluded that the licensee's readiness prior to this R-8 outage was well ahead of the R-7 outage planning and preparation that took place in 1992. The licensee stated that they were decreasing WNP-2's outage frequency in the future, which should relieve some ALARA and RP staff constraints. The inspectors had no concerns in this area.

(3) Training & Qualifications of R-8 Personnel

The inspectors reviewed WNP-2 programs for training and qualifications (T&Q) of personnel associated with the R-8 outage. Discussions were held with the Manager of Health Physics (HP), Chemistry, and General Employee's Training (GET). The inspectors reviewed the April 1993 HP, chemistry, and GET training schedule. During the R-8 outage an additional 535 contract workers will be hired, which includes 280 craftworkers, 180 specialists, and 75 HP technicians. Fifty out of the 75 contract HPs will be qualified as Sr. HPs, and 25 will be qualified as Jr. HPs. At least 40 of the contract HPs worked at WNP-2 during the R-6 and R-7 outages, and were qualified as HP technicians in accordance with ANSI N 3.1 "Selection, Qualification and Training of Personnel for Nuclear Power Plants." The licensee's TS 6.3 included T&Q requirements for contract personnel, and procedure PPM 1.8.4, "Qualifications of Plant and Support Contractor Personnel," implemented the TS requirements. The licensee's R-8 training schedule revealed that all contract workers will receive a variety of WNP-2 and NRC required training.

The inspectors had no concerns with contract workers T&Q.

(4) ALARA Design and Implementation Reviews

Discussions the inspectors had with WNP-2 personnel, and reviews of system basic design changes (BDCs) revealed ALARA engineering design phase concerns. BDCs associated with the spent fuel pool cooling (SFPC) pump seal changeout, the low power range monitor's (LPRMs) material changeout, and the control rod drive SCRAM discharge volume flush connection modifications were reviewed by the inspectors. The inspectors reviewed several BDCs that were evaluated by WNP-2 engineers against the following:

* RG 8.8
* RG.8.10
* WNP-2 Engineering Instruction (EI) 2.8, "Generating Facility Design Changes Process," section on "Criteria for ALARA Reviews"

* PPM 1.4.1, "Plant Modifications"

* PPM 1.11.2, "ALARA Program Description"

* PPM 11.2.2.8, "ALARA Engineering Analysis"

The inspectors found some BDCs that were reviewed by WNP-2 engineers per EI 2.8, which seem to not thoroughly evaluate ALARA design considerations. The inspector noted that the EI 2.8 BDC design approval form's did not require concurrence by a member of the ALARA staff. Therefore, the ALARA staff did not have the opportunity to perform an ALARA Engineering Analysis in accordance with PPM 11.2.2.8. Further inquiry on this matter revealed two licensee documents that identified the lack of proactive ALARA engineering guidance in EI 2.8, and the resulting absence of both Corporate Health Physics and RP department interface in the systems BDC process. The inspectors reviewed Problem Evaluation Request (PER) 293-267, dated March 9, 1993, which identified that the BDC for LPRM would not have a positive ALARA impact. Additionally, the inspectors reviewed Quality Finding Report (QFR) 92-254, dated July 30, 1992, on the Quality Assurance (QA) department's finding that the radiation protection staff was not in the ALARA review loop for engineering modification packages. The inspector concluded from reviewing the PER, QFR, and from discussions with licensee management that the concern on adequate ALARA reviews would be resolved.

The inspector found that the WNP-2 ALARA staff had not completed ALARA engineering design analysis on the 39 BDCs being implemented during the R-8 outage. The ALARA staff committed to perform an ALARA engineering design analysis on all BDCs that were being implemented during the R-8 outage before April 23, 1993.

Based on the licensee's PER, QFR, and pre-outage ALARA staff's review of BDCs, the inspectors has no further concerns in this matter.

(5) ALARA Training for Engineers

ALARA training and course records for WNP-2 engineers were reviewed by the inspectors. Most of the 70 WNP-2 design, project, and system engineers completed the advanced ALARA training course 82-RDT-100 in 1991 and 1992, and 15 engineers completed ALARA training prior to 1991. While there is no specific regulatory requirement or timetable for providing engineers ALARA training, the inspectors considered the licensee's program as adequate.

(6) ALARA Shielding of Spent Fuel Pool Cooling Piping

Maintenance Work Request (MWR) AP3153 required that lead sheet half-rounds be fabricated and affixed to SFPC Skimmer Tank piping, located in the overhead of the 548' level of the Reactor Bldg. The shielding was being installed as part of the licensee's ALARA source term reduction program.

The inspectors reviewed MWR AP3153, the ALARA work scope sheet, and RWP-2-93-00215, and noted that the documents were prepared according to PPM 1.11.8, "Radiation Work Permit," for work performed in radiologically controlled areas. The estimated dose for this job was 1.474 person-rem. The inspectors verified that the ALARA review for this job was performed as required by PPM 11.2.1.2, "ALARA Program." Both the mock-up training and the ALARA job planning meeting were observed by the inspectors. All individuals who were performing the work attended both the mock-up training and the ALARA job planning meeting.

While observing the actual shielding installation, the inspectors noted that the shielding job supervisor was working in the high radiation area, and not wearing an alarming dosimeter as required by RWP-2-93-00215. The inspectors then told the supervisor that he was not in compliance with the RWP. The supervisor told the inspectors that he was a qualified HP technician, and he was not required to wear an alarming dosimeter. The inspectors noted that the supervisor did not have a survey meter with him at that time. The inspectors also noted that the HP assigned to cover the job was not wearing an alarming dosimeter as required by the RWP, but that he was carrying and using a radiation monitoring device, which continuously indicated the radiation dose rate in the area in accordance with TS 6.12.1(b).

TS 6.11 required that, "Procedures for personnel radiation protection shall be prepared consistent with the requirements of 10 CFR Part 20 and shall be approved, maintained, and adhered to for all operations involving personnel radiation exposure."

Plant Procedures Manual (PPM) 1.11.11, "Entry Into, Conduct In, and Exit from Radiologically Controlled Areas," Section 4.5 required that, "Persons entering a radiologically controlled area shall adhere to all requirements specified by Health Physics personnel (i.e., RWP requirements, posted instructions, verbal instructions, etc.)"

Special Instruction 5 of RWP-2-93-00215, which was used for all workers during this SFPC shielding job required an alarming dosimeter for entry into the High Radiation Area.

Discussions were held with the RPM and RP supervision on TS 6.11.1 procedural compliance requirements for WNP-2 workers and HPs. Also, discussed was monitoring requirements for HPs and workers in high radiations areas in accordance with TS 6.12.1(a), and TS 6.12.1(b). The licensee and inspectors agreed that WNP-2 procedures would allow HPs in a high radiation area without an alarming dosimeter if a radiation monitoring device continuously indicated the radiation dose rate in the area, as stated in TS 6.12.1(a). The licensee and the inspectors concluded that the supervisor was not wearing an alarming dosimeter while working in the high radiation area, and was not in compliance with RWP 2-93-00215, which was a violation of procedure PPM 1.11.11 and TS 6.11.1 (50-397/93-12-01).

The licensee implemented corrective actions on April 8, 1993. WNP-2 Report of Radiological Occurrence (ROR) No. 293-380 identified long term corrective actions that should prevent recurrence. On April 12, 1993, the inspectors reviewed WNP-2's long term corrective actions, which were as follows:

* The RPM clarified managements expectations to strictly adhere to all RWP requirements in a memorandum to the RP staff.

* HPs involved in the SFPC shielding job were counselled regarding violation of RWP compliance.

* This subject matter was placed in a required reading file and presented in RP staff meetings.

* A copy of this ROR was forwarded to training to be incorporated into the GET and HP training programs.

The inspec[illegible]d no further concerns in this matter.

(7) Facility Tours

Tours of WNP-2 were conducted during this inspection period. Inspectors took independent radiation measurements using an ion chamber survey instrument, Eberline Model RO-2A, NRC number 008962, due for calibration on November 9, 1993, and a digital exposure ratemeter, Xetex Model 305B, NRC number 026211, due for calibration on July 5, 1993. An HP technician was observed using check sources to verify that the NRC RO-2A meter responded correctly. The following field observations were made:

* Postings of notices to workers (i.e., NRC Form 3 and Notice of Violations) were consistent with 10 CFR 19.11 requirements.

* Radiological postings observed during the plant tours were consistent with 10 CFR 20.203 requirements.

* HPs were inspecting plant continues air monitors (CAMs) and recorder charts in accordance with PPM 11.2.24 "Health Physics Work Routines."

* The inspectors randomly chose and inspected ten negative pressure respirators, which were ready for issue to workers. All ten respirators inspected were complete, clean, and ready for issue.

* The inspectors observed workers at a local contamination control point that was setup to monitor individuals who were sorting radioactive trash.

The licensee's ALARA program was capable of meeting its radiological safety objectives for the R-8 refueling outage. One violation was identified for not complying with radiation protection procedures as required by TS 6.11.1. No deviations were identified.

3. Exit Interview

The inspectors met with members of licensee management at the conclusion of the inspection on April 9, 1993. The scope and findings of the inspection were summarized. One violation of licensee requirements pursuant TS 6.11.1 was identified. No deviations were identified. The licensee acknowledged the inspectors observations.