

U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report Nos.: 50-397/93-49

License Nos.: NPF-21

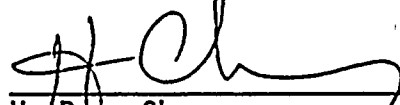
Licensee: Washington Public Power Supply System (WPPSS)
3000 George Washington Way
Richland, Washington 99352

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

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

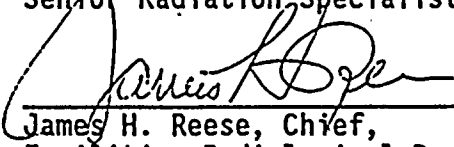
Inspection Dates: December 1-3, 1993

Inspector:


H. Dean Chaney,
Senior Radiation Specialist

2/3/94
Date Signed

Approved By:


James H. Reese, Chief,
Facilities Radiological Protection Branch

2/3/94
Date Signed

Summary:

Areas Inspected: A special announced inspection of the licensee's preparations for the January 1, 1994, implementation of changes to 10 CFR Part 20, as set forth in Federal Register 56 FR 23377, dated May 21, 1991.

Results: Overall, the licensee appears to be capable of implementing all the changes to 10 CFR Part 20 on January 1, 1994. No violations or deviations were identified.

DETAILS

1. PERSONS CONTACTED

Licensee

- J. Parrish, Assistant Managing Director for Operation
- *J. Albers, Radiation Protection Manager & Corporate Radiological Health Officer
- *J. Chase, Environmental Licensing Engineer
- *V. Shockly, Manager, Health Physics
- *D. Coody, Principal Environmental Specialist
- J. Kane, Training Specialist
- *L. Bradford, Health Physicist (HP)
- *D. Werlau, Manager, HP/Chemistry/General Employee Training
- L. Pritchard, Principal HP
- D. Kerlee, Principal Quality (QA) Assurance Engineer
- *R. Graybeal, Task Force Leader
- *R. Patch, Supervisor, HP Operations
- *J. Telander, Manager, Support Services
- *D. Coleman, Acting Manager, Regulatory Programs

Others

- R. Mertz, Health Physics Contractor
- *D. Williams, Nuclear Engineer, Bonneville Power Administration

*Denotes those attending the exit meeting.

2. OCCUPATIONAL RADIATION EXPOSURE (83750)

The licensee's preparations for the January 1, 1994, implementation of revisions to 10 CFR 20 were examined. This review focused on the following areas of licensee effort to implement the new 10 CFR 20 (renumbered Sections 20.1001-20.2402):

- Radiation Protection Program programmatic changes involving:
 - Annual radiation exposure limits (occupational and nonoccupational) and the total dose concept.
 - New radiation dose terminology.
 - Internal radiation exposure control and monitoring.
 - Planned Special Exposures.
 - Very High Radiation Area Controls.
 - Declared pregnant women and dose to the embryo/fetus.
 - Revised radioisotope exposure and effluent concentration limits.
 - Airborne radioactivity assessment and tracking.
 - Respiratory protection equipment use assessment.
 - Routine reports and event notifications.

- Also, previously existing RP Program attributes and supporting activities involving the following were reviewed:
 - Periodic RP Program reviews and assessments.
 - Employee radiation protection training.
 - RP instrument calibration.
 - ALARA program and prospective job dose assessments
 - Radioactive effluent release limits.
 - Radiological posting and monitoring.
 - High radiation area controls
 - Enhancements to the radiation dose assessment and radiological controlled area access control computer system.

The inspector determined that the licensee had accomplished the following with regard to implementing the revisions to 10 CFR 20 (new Part 20):

- Established necessary resources and formed a dedicated team of staff members and contracted technical experts for development of their new Part 20 implementing program.
- Performed a detailed review of each Part 20 change and established an individual technical position for each change. These positions were developed in concert with a full nuclear power industry effort, including a concerted Region V nuclear power licensees review and development effort aimed at achieving implementation consistency among the Region V facilities.
- Actively participated in the NRC's question and answer program, aimed at establishing an NRC and industry consensus on Part 20 changes and their meaning. Review and comment on NRC draft Regulatory Guides was actively pursued.
- Issued a purchase order for development and installation of a new computerized radiation exposure management and access control system (Total Exposure System).
- Converted their implementing positions into written requirements and identified specific portions of existing procedures that would need revision or the need to create new procedures.
- Assessed the need for updating of the Final Safety Analysis Report (FSAR) and other regulatory documents.
- Established a training program for general employees, radiation workers, and the RP Staff covering implementation program results.
- Initiated a detail personnel radiation dose characterization (isodose curves) of the entire WNP-2 site.

The above are only some of the licensee's activities directed at achieving the January 1, 1994, implementation date.

The Following observations were made by the inspector regarding some of the licensees implementing procedures and plans.

- The licensee elected to use a combination of revising and consolidation of existing radiation protection program procedures, and where necessary create new procedures in order to implement the new Part 20.
- Most program implementing procedures were found to be in final draft stage ready for approval. Overall the procedures reflected a great deal of effort and were of very good quality.
- All radiation protection procedures require a 10 CFR Part 50.59 safety analysis review and approval by the Plant Manager. The licensee expects to have all procedures approved by December 24, 1993.
- The licensee's revisions to Plant Procedures Manual 1.11.3, "Radiation Protection Program," Revision 6 (draft), appears to address all of the applicable revisions to Part 20, including the annual assessment of the effectiveness of the program.
- Their exposure and personnel access control program (Total Exposure System) was found to be in the final stages of acceptance testing and appeared that it would be ready for use on January 1, 1994.
- The licensee is implementing the following administrative dose limits on TEDE:
 - Annual whole-body dose: 2 rem TEDE
 - Life-time dose: 1 rem TEDE x (n), where n = workers age
- The licensee is currently using an ALARA cost-benefit value of \$8,000 per person-rem when the current regulatory guide references \$10,000 per person-rem. The licensee indicated that they too would be adopting the \$10,000 figure.
- The licensee's already existing procedures for implementing High and Very High Radiation Area controls of 20.1602 do not adequately incorporate the guidance of NRC Regulatory Guide 8.38, "Control of Access to High And Very High Radiation Areas in Nuclear Power Plants."
 - Potential "Very High Radiation Areas" have not been identified, and

- the existing VHRA control procedure did not give suitable information on acceptable isolation barriers for VHRAs.
- The licensee has elected to monitor occupationally exposed workers for both internal and external exposure, even though prospective analysis had shown internal exposures would be below the required monitoring threshold.

The licensee plans on implementing an effective air sample screening DAC (based on a review of historical in plant radiological air sampling data) of $1.0E-8$ microCuries per millimeter - cobalt 60 equivalent.

- The inspector noted that the licensee's study of possible doses to "members of the public" (20.1301) inside and outside of the existing Part 20 restricted area was of exceptionally high quality. This study was conducted while the plant was operating at 100 percent power. The study used pressurized ion chambers and thermoluminescent dosimeters, and included non-radiological workers, field sites, and occupied/un-occupied buildings. The study also included an evaluation as to what the effect would be on dose rates if the reactor water chemistry was changed to a hydrogen addition chemistry.
- Development training material and training of plant staff is progressing satisfactorily. Handout materials were found to be very well written and informative.
- The licensee's Quality Assurance Department is actively involved in the review of new Part 20 implementing activities and will be performing a detail audit of WNP-2's implementation in February 1994.

The inspector reviewed with the WNP-2 Radiation Protection Department staff his observations on the content of their implementing procedures. A few errors involving terminology and implementation of regulatory guidance were addressed by the inspector. The licensee expediently resolved the inspector's findings.

The inspector determined that the licensee was capable of implementing all of the Part 20 changes on January 1, 1994, and that the licensee's Quality Assurance organization was deeply involved a continuing assessments of the Radiation Protection Department's efforts in this area.

3. Exit Meeting

An exit meeting was held on December 3, 1993, with members of the licensee staff identified in Paragraph 1 of this report. The items

identified in this report were discussed at that time. The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspector during the inspection.