U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report No.	50-397/82-30	
Docket No.	50-397 License No. CPPR	-93 Safeguards Group
Licensee;	Washington Public Power Supply System	(WPPSS)
_	P. O. Box 968	
· · · · · · · · · · · · · · · · · · ·	Richland, Washington 99352	
Facility Na	me:Washington Nuclear Project No. 2	(WNP-2) .
Inspection	at: WNP-2 Site and Corporate Office,	Benton County, Washington
Inspection	conducted: December 20-23, 1982	
Inspectors:	C. I. Sherman, Radiation Specialist	 Date Signed
(G. P. Yunas, Radiation Spegialist	
Approved by	F. A. Wenslawski F. A. Wenslawski, Chief	/11/83 / Date Signed
Approved by	Reactor Radiation Protection Section	
	H. E. Book, Chief Radiological Safety Branch A. E.	Book 1/11/83
		Date Signed

Summary:

Inspection on December 20-23, 1982 (Report No. 50-397/82-30)

<u>Areas Inspected:</u> Routine, unannounced followup inspection of the licensee's preoperational environmental monitoring program including: organization, procedures, thermoluminescent dosimetry and audits. Extensive tours of the WNP-2 facility were made to observe the status of completion and to note actions taken by the licensee to improve storage and control of radioactive materials.

The inspection involved 52 hours onsite and at the corporate office by two regionally based inspectors.

Results: Of the areas inspected, no items of noncompliance were identified.

DETAILS

1. Persons Contacted

a. WPPSS Corporate Office

*D. Mazur, Director of Operations

*W. Taylor, Manager, Health and Safety Programs

*R. Chitwood, Manager, Environmental Science and Engineering

*D. Larson, Manager, Radiological Programs

*M. Monopoli, Manager, Operations Assurance Programs

*R. Craig, Supervisor, Radiological Services

*J. Bovington, Senior Health Physicist, Radiological Services

L. Schledger, Assitant Environmental Engineer

b. WNP-2 Site

*R. Graybeal, Manager, Health Physics/Chemistry

*J. Peters, Manager, Administration

*D. Walker, Manager, Plant Quality Assurance

*J. Hedges, Maintenance

L. Berry, Supervisor, Radiation Protection

W. Flory, Radiation Protection Foreman

*Indicates those individuals attending the exit interview on December 23, 1982.

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

2. Licensee Action on Previous Inspection Findings

(Closed) (50-397/82-20-01) Noncompliance, possession of a radioactive source not specifically described in their license (License No. 46-1794-01). Review of the licensee's November 5, 1982 response and inspection of the source storage facility indicated that corrective action had been taken. The inspector discussed Condition 18 of SNM-1890 with the Manager, Radiological Programs.

(Closed) (50-397/82-20-02) Inspector followup item involving calibration of environmental air samplers. The licensee revised and implemented SLI-24-6, "Calibration of RADECO Air Flow Sampler."

(Closed) (50-397/82-20-03) Inspector followup item involving calibration of environmental water samplers. The licensee established and implemented SLI-24-7, "Calibration of Collins Model 42 Composite Sampler." This matter is discussed further in Paragraph 4 of this report. (Closed) (50-397/82-20-04) Inspector followup item involving veracity of initial air particulate and river water sample results in view of calibration deficiencies observed. The licensee's evaluation of the magnitude of error due to negative pressure at the rotameter did not result in the need to adjust results (less than 5 percent change). Since the WNP-2 river water intake composite sampler is redundant with the discharge sampler prior to plant operation, no adjustment of water activity results was necessary.

(Closed) (FW-06-16) Followup item involving I. E. Information Notice 82-18, "Assessment of Intakes of Radioactive Material by Workers." The licensee received this Notice on June 18, 1982 and documented their evaluation in a July 12, 1982 memorandum.

No items of noncompliance were identified in this area.

3. Preoperational Environmental Monitoring

A. Organization

Since the last inspection (Inspection Report No. 50-397/82-20) the licensee has implemented Environmental Program Instruction 12.0, "Radiological Environmental Monitoring," Revision 0, dated November 8, 1982. This procedure describes the organizational structure and responsibilities by which Environmental Sciences and Engineering and outside support organizations will operate in conducting and documenting the radiological environmental monitoring program.

A Senior Scientist has been assigned the Program Leader position pursuant to EPI 12.0. An Environmental Scientist with radiological monitoring experience has been contracted from Battelle Pacific Northwest Laboratories to assist in technical development.

The licensee has been actively soliciting for an Environmental Monitoring Scientist. Several qualified applicants have applied. The licensee has made a selection and extended an offer. They are optimistic the individual will accept the offer and begin employment shortly.

B. Procedures

The following procedures were reviewed in view of the licensee's commitment to utilize the guidance provided in American National Standards Institute (ANSI) N18.7-1976 and Regulatory Guide 4.15, "Quality Assurance for Radiological Monitoring Programs (Normal Operations) Effluent Streams and the Environment," Revision 1, February 1979.

EPI 12-0, Radiological E	nvironmental Monitoring	0	
EPI 12-0.3, Trip Directi Sampler Stat	ons to Environmental Air ion	1	
SLI 24-6, Calibration of	Radeco Air Flow Sampler	0	
SLI 24-7, Calibration of Sampler	Collins Model 42 Composit	e A	
NOS-37, Radiological Env	ironmental Monitoring	1	
HPP 3.4.12, Processing, Results from	Evaluation and Reporting o Environmental TLDs	f O	
HPP 3.4.1, Cleaning TLDs		0	
HPP 3.4.2, Annealing CaS	0 ₄ :Dy TLDs	1	
HPP 3.4.4, Calibration o Dosimeters	f Thermoluminescent	0	
HPP 3.4.5, Operation of Model 9100 Re	the Teledyne Isotopes ader	0	
HPP 3.4.6, Operation of Model 8300 TL	the Teledyne Isotopes D Reader	0	

Based on this review the following observations were discussed with the licensee representatives.

- Inspection Report No. 50-397/82-20, Paragraph B.2 contained an error, in that, EPI 12-0.3 contains the correct directions to Stations 21 and 23.
- All HPP procedures are being revised into a new Radiological Program Instruction Manual.
- In the inspector's judgement SLI 24-6 and 24-7 lack specificity in directions to perform the actual calibration. From discussions with representatives of the standards laboratory the inspector learned that procedures are developed with the philosophy that well trained technicians need a minimal amount of step by step guidance. From discussions with Quality Assurance representatives and perusal of their review procedures it appears that little written guidance has been prepared to implement Section 5.2.2 of ANSI N18.7-1976. In response to this observation the Quality Assurance representative indicated the matter will be reviewed.

C. Environmental Thermoluminescent Dosimetry

The licensee is using a thermoluminescent dosimetry (TLD) system consisting of Model 9100 readers, CaSO₄:Dy TL material, and holders supplied by Teledyne Isotopes. The licensee also plans to use this system for personnel applications. The inspector reviewed the licensee's program to determine if the performance specifications outlined in NRC Regulatory Guide 4.13 have been met. NRC Regulatory Guide 4.13, "Performance, Testing and Procedural Specifications for Thermoluminescence Dosimetry: Environmental Applications" describes minimum acceptable performance criteria. This guide endorses American National Standards Institute (ANSI) N545-1975 (same title) with certain exceptions in statistical acceptance criteria.

The licensee presented vendor supplied data to show that their system will meet the above criteria. The data consists of a series of reports authored by Alan S. Klotz of Teledyne Isotopes. The report indicated that the following tests were performed and the stated acceptance criteria were met.

lest	Acceptance	Criteria	(ANSI	N545)/Reg.	Guide	4.13
Uniformity			4.3.1/	'C.4		
Reproducibility			4.3.2/	C.5		
Field Cycle Length	Dependence		4.3.3			
Energy Response			4.3.4			
Moisture Dependence			4.3.7			
Directional Dependen	nce		4.3.5			
Light Dependence			4.3.6			
Self Irradiation			4.3.8			

The licensee presented a report, "A Thermoluminescent Dosimetry System Employed in Environmental Radiation Monitoring", May 1977, PPSR-R-1, Maryland Power Plant Siting Program which presented data indicating that the Teledyne material in the "EB-2" style case would not meet the ANSI acceptance criteria under 4.3.4. The EB-2 case uses a single copper filter. The Teledyne tests which certify acceptable performance for energy response per ANSI N545 4.3.4 were performed using a different badge holder, the PB-2. This is documented in a Teledyne report, "PB-2 for Environmental Monitoring, Preliminary Interpretation" dated October 1981, G. Ascione.

The inspector reviewed the licensee program to determine if the established performance specifications and test requirements are being satisfied. Based on this review, several discrepancies are noted.

- The licensee uses the "EB-2" case which is known to over respond to gamma radiation below 100KeV. The licensee indicated that the energy dependence requirement 4.3.4 of ANSI N545 cannot be met with the system in use.
- 2. Directional response of the dosimeter may vary if the holder is changed. The licensee has not performed tests to verify the criteria of 4.3.5 are being met for the holder in use.
- 3. Section C.3 of Regulatory Guide 4.13 and 3.3 of N545 specify that 95 percent of the final measurement (after all appropriate corrections are applied) shall differ from the correct values by less than 30 percent of the correct value.

The licensee has not documented that his overall system has met this performance specification. Paragraph 7.1 (8) of N545 implies that statistical propagation of error techniques can be used to show conformance with this criteria.

 Paragraph 3.1 of N545 requires an evaluation of system performance under laboratory conditions. The licensee has no procedural guidance as to when this evaluation should be performed.

On November 11, a representative of the Env ronmental Sciences and Engineering department and a consultant performed an audit of the environmental TLD monitoring program. Inspector review of this audit documented as, "WNP-2 Environmental TLD Monitoring: 82-01," dated November 12, 1982 indicated several deficiencies identified in meeting the criteria of ANSI N545, 3.1 and 3.3 Performance Specifications and 4.3.4 Energy Dependence Tests. A Surveillance Finding Report (SFR) Form was issued to address these deficiencies. The Manager, Environmental Sciences and Engineering and Manager, Radiological Services have concurred with the SFR findings and agreed to correct them in the next year. Licensee action in response to this internal audit and similar inspection findings in this paragraph will be reviewed in a subsequent inspection (50-397/82-30-01).

Records of results of TLD calibration and monitoring data from the second and third quarters of 1982 were reviewed. The inspector observed the facilities and operation of TLD processing. Based on review of records and discussion with licensee representatives, the inspectors commented that in their judgement record management of TLD data and the level of staffing (one foreman, one fulltime equivalent technician) may not be adequate to fully implement the monitoring program considering the expected personnel dosimetry load.

D. Audits

Quality Assurance Audit Report No. 82-231 documenting an audit performed on October 26-27, 1982 of Eberline Instrument Company's Nuclear Services Division, Albuquerque, New Mexico was reviewed. The audit resulted in two Quality Finding Reports (QFR) being issued. These findings involved failure to follow procedures associated with laboratory instrument background checks and maintenance of control charts. Eberline responded to the QFRs on December 16, 1982.

The inspector noted that this audit was conducted consistent with the guidance provided in Regulatory Guide 4.15.

No items of noncompliance or deviations were identified in this area.

4. Facility Tour

An extensive tour of radwaste processing systems, reactor building, and containment was conducted on December 22, 1982. The tour was conducted to observe the status of completion of radioactive waste processing systems, liquid effluent monitoring systems and gaseous effluent sampling probes. These systems are described in Chapter 11 and 12 of the final safety analysis report.

Paragraph 11.5.2.2.2.3 and Table 11.5-2 of the FSAR discuss the Liquid Radwaste Effluent Monitor. This system is described as an inline gamma scintilation detector. The FSAR also states that provisions will be made for flushing this system to reduce background activity. During the tour, a liquid effluent monitor sampling the discharge line from various waste sample tanks was observed. A cursory review indicated that the device was not configured for inline sampling. The inspector did not observe a backflush capability. The review also indicated that the sampling arrangement may fail to provide samples representative of the flow stream in accordance with the regulatory guidance provided by Regulatory Guide 4.15, paragraph C.5.

The licensee representative confirmed that the monitor observed was the Liquid Radwaste Effluent Radiation Monitor described in 11.5.2.2.2.3 (Am. 5) and Table 11.5-2 (page 11.5-26) of the FSAR. The licensee representative subsequently agreed that the system differs from that described in the FSAR. The licensee has not yet accepted this system.

The licensee has indicated that a change to the FSAR will be submitted. The licensee is expected to demonstrate that the monitor, as installed, will provide representative sampling and sensitivity to meet FSAR commitments.

The liqu'd radwaste monitoring system will be reviewed in a subsequent inspection (50-397/82-30-02).

No items of noncompliance were identified in this area.

5. Exit Interview

The inspector met with the licensee representatives (denoted in Paragraph 1) at the conclusion of the inspection on December 23, 1982. The inspector summarized the scope and findings of the inspection.

The inspector congratulated the license on actions taken to improve the radiological environmental menitoring program.

The inspector's observation regarding specificity of work instructions, and demonstration of satisfaction with the TLD performance criteria presented in Regulatory Guide 4.13 were also discussed.