U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report: 50-397

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: Onsite: October 19 - 23, 1992
In-Office: October 26 - 30, 1992

Inspected by: _____ 11/20/92
L. C. Carson II, Reactor Radiation Specialist Date Signed

_____ 11/20/92
J. L. Coblentz, Senior Radiation Specialist Date Signed

Approved by: _____ 11/23/92
James H. Reese, Chief Date Signed
Facilities Radiological Protection Branch

Summary:

Areas Inspected: This routine unannounced inspection covered followup items and the licensee's radioactive waste management program. The inspection included gaseous radwaste (GRW) management, liquid radwaste (LRW) management, and the Radiological Environmental Monitoring Program (REMP). Inspection procedures 92701, 92702, and 84750 were used.

Results: The licensee's programs for radioactive waste management appeared adequate in meeting the licensee's safety objectives. Three violations, however, were identified:

1. The licensee had released low levels of radioactivity in liquids to the onsite storm drain pond, a method of disposal not approved by 10 CFR 20.301.

2. The licensee had not performed a written safety evaluation for continuing to operate the "non-radioactive" Turbine Building sumps as a radioactive system.

3. Operators had failed to respond appropriately to alarms on WOA-RIS-31A, the Control Room ventilation system remote air intake radiation monitor.

One non-cited violation was identified, regarding the failure of radiation protection technicians to maintain positive control of doors to "high-high" radiation areas, as required by Technical Specification 6.12.1.

In addition, two items were opened for future inspection, regarding (1) the lack of timeliness in resolving the unanticipated presence of low-level radioactivity in the storm drain pond, and (2) the alternate acceptance criteria used for completing the calibration of the meteorological wind speed and wind direction instruments with the output computer inoperable.

Finally, the inspection identified as a strength the comprehensive and well-documented efforts of the Radiological Environmental Monitoring Program, which exceeded the requirements of the Offsite Dose Calculation Manual for maintaining effective oversight of radiological conditions in the immediate site environs.

DETAILS

1. Persons Contacted

Licensee

*J. Baker, Plant Manager
R. Barbee, Instrumentation and Controls (I&C) Technical Supervisor
*C. Card, Supervisor, Radiological Environmental Monitoring Program
*J. Chasse, Regulatory Programs Environmental Engineer
*J. Dabney, Work Control Manager
*A. Davis, Principal Health Physicist and Radiochemist
*W. Davison, Plant Quality Assurance Manager
C. Halbfoster, Chemistry Manager (Institute of Nuclear Power Operations)
*D. Feldman, Assistant Maintenance Manager
*J. Gearhart, Director, Quality Assurance
*S. Grundhauser, I&C Supervisor
*L. Harrold, Assistant Plant Manager
*S. Kim, ALARA Engineer
*P. MacBeth, Radwaste Supervisor
*C. McGilton, Operational Assurance Programs Manager
*C. Madden, Quality Assurance Engineer (QAE)
*V. Parrish, Assistant Director of Operations
*J. Peters, Plant Administration Manager
*D. Pisarcik, Radiation Protection (RP) Manager
*M. Reis, Plant Engineering/Compliance Supervisor
*J. Rhoads, Operations Event Assessment Manager
*W. Shaeffer, Operations Manager
*V. Shockley, Health Physics Manager, Corporate
*G. Sorensen, Regulatory Programs Manager
*R. Webring, Technical Manager

NRC

*S. Richards, Deputy Division Director, Division of Reactor Safety and Projects, Region V
*W. Ang, Acting Senior Resident Inspector
D. Proulx, Resident Inspector

(*) Denotes those individuals who attended the exit meeting on October 23, 1992. The inspectors met and held discussions with additional members of the licensee's staff during the inspection.

2. Followup (92701)

Item 50-397/IN-88-63 (Closed): The inspectors verified that the licensee had received, reviewed, and taken action on Information Notice 88-63, Supplement 2, "High Radiation Hazards from Incore Detectors and Cables."

Item 50-397/91-36-02 (Closed): This item involved the licensee's Updated Final Safety Analysis Report (UFSAR). The inspector had found that the UFSAR Chapter 11, "Radioactive Waste Management," did not

reflect the licensee's latest computer code method used in quantifying gaseous and liquid radioactive waste effluent releases. The Offsite Dose Calculation Manual (ODCM) had stated that the licensee used a computer code called LADTAP II; however, the UFSAR had still reflected that the licensee used the GALE computer code.

The inspectors reviewed the latest UFSAR change (Amendment 44), and found that the licensee had incorporated the appropriate ODCM references into the UFSAR, Chapter 11. The inspectors had no further concerns in this matter.

Item 50-397/92-13-03 (Closed): This item involved the Radiological Environmental Monitoring (REMP) group's report that samples of the plant storm drain pond had contained State of Washington reportable levels of iodine-131, cerium-141, and cobalt-60. In addition, the iodine-131 levels exceeded the NRC reporting criterion. The licensee had held meetings with officials of the Washington State Departments of Health and Ecology, in June 1992. The licensee had issued a root cause and corrective action report on storm drain pond discharge operations.

The inspectors completed an assessment of the pond contamination and the licensee's evaluation. This matter is discussed in detail in Section 4(d) of this report.

3. Followup of Items of Noncompliance (92702)

Item 50-397/91-36-03 (Closed): This violation involved an engineer's failure to follow written radiation monitor calibration procedures. Also, the procedure had been technically incorrect, and the engineer had not written a procedure deviation as required by administrative procedures. Both instances were violations of Technical Specification (TS) 6.8.1.

The inspectors verified that corrective actions listed in the licensee's January 24, 1992, "Response to the Notice of Violation," had been implemented. Also, the licensee's radiation protection department had performed a self-assessment on procedural adherance in September 1992. The inspectors examined the status of the self-assessment as presented in a memorandum, "Status of Radiation Protection Department Procedure Compliance Plan," dated October 22, 1992. Based on the status of the procedure adherence self-assessment and the corrective actions in the response, the inspectors had no further concerns in this matter.

Item 50-397/92-13-02 (Closed): This violation involved the licensee's failure to have written and approved procedures for the calibration of installed personnel contamination monitors (IPMs). The WNP-2 plant had had at least 12 IPMs in service, and the corporate organization had had one IPM in-service. The violations had been against TS 6.8.1 for not establishing written and approved procedures for calibrating IPMs.

The inspectors verified that the corrective actions, as listed in the licensee's July 24, 1992, "Response to the Notice of Violation," had

been implemented. The inspectors verified that radiation protection, maintenance, and corporate health physics had developed procedures for calibrating IPMs owned by the Supply System. Based on the inspectors' review of the IPM calibration procedures, there is no further concern in this matter.

4. Radioactive Waste Treatment, Effluents, and the Radiological Environmental Monitoring Program (REMP) (84750)

a. Offgas Radiation Monitoring System

(1) Performance Monitoring

The inspectors reviewed offgas system data from the licensee's performance monitor (PME) program, including graphs trending six parameters from September 1990 to March 1992. In addition, the inspectors examined Procedure PPM 8.4.46, "Offgas System Performance Monitoring," and reviewed efficiency and reliability test results from October 1991 to September 1992.

In discussions with the system engineer and performance monitor engineer, the inspectors observed that the PME program did not trend any radiological parameter for offgas. The PME engineer acknowledged the inspectors' observation, and stated that consideration would be given to trending offgas radiological performance.

(2) Explosive Gas Monitoring

TS 3.3.7.12 requires that the explosive gas monitoring instrumentation channel be operable to detect hydrogen buildup in the offgas system. TS Action Statement 111 requires that offgas grab samples be collected and analyzed within an 8-hour period if the minimum number of hydrogen analyzer channels are not operable.

The inspectors reviewed applicable records related to operation and reliability of OG-AY-12A, the offgas hydrogen analyzer. In addition, discussions were held with cognizant maintenance and engineering personnel, and observations were made of work in progress. The inspectors noted the following items:

(a) OG-AY-12A had been in and out of service several times in October 1992. Review of the licensee's Limited Condition for Operations (LCO) Logbook revealed LCO entries for OG-AY-12A dated October 4 and 19, 1992.

In addition, Problem Evaluation Request (PER) 292-1170 stated that a violation of TS 3.3.7.12 had occurred on October 14, 1992, when the chemistry department had missed the 4-hour offgas hydrogen analysis. PER 292-1170 stated that the missed hydrogen analysis had been caused by a problem with the gas chromatograph. The licensee

subsequently issued Licensee Event Report (LER) 50-397/92-38-01 on this matter.

(b) On October 20, 1992, a chemistry technician was observed performing an offgas hydrogen sample and analysis pursuant to TS 3.3.7.12. The chemistry technician collected the sample and performed the analysis in accordance with surveillance test PPM 12.5.23A, "Recombiner Sampling and Analysis."

(c) Maintenance Work Request (MWR) AP-0911 had been written for repairs to OG-AY-12A. The inspectors observed a portion of these repairs in progress, and discussed monitor reliability with I&C personnel performing the repairs.

Later review of the MWR results revealed that OG-AY-12A was satisfactorily repaired, tested, and returned to service. In addition, the results of surveillance test PPM 7.4.3.7.12.23, "Offgas Hydrogen Analyzers A and B Monthly Channel Functional Test/Channel Calibration," indicated that the calibration was satisfactorily completed.

(3) Offgas Radiation Monitoring

The inspector reviewed surveillance test procedures PPM 7.4.11.2.7.2, "Isotopic Analysis of Gases at the Main Condenser," and PPM 7.4.4.5.4, "Isotopic Analysis of Offgas Samples," used for performing isotopic analysis on offgas. The inspector found both procedures were adequate for quantifying offgas.

The inspector observed a chemistry technician perform surveillance test PPM 7.1.1, "HP/Chemistry Shift Channel Check." This test provided a method for routinely ensuring the operability of process and effluent radiation monitors as required by TS 3.3, TS 3.3.7, TS 3.4.3.1, and ODCM 6.2.2.6.3. The inspector compared the results of three PPM 7.1.1 radiation monitor surveillances. No notable differences were found in the data examined.

(4) REA-RIS-609 A, B, C, and D WNP-2 Isolation and Actuation Signals

The REA-RIS-609 Reactor Building Vent Monitors provide WNP-2's "Z" isolation and actuation signals when the Reactor Building Exhaust Plenum radiation level measures 13 millirad/hour. The isolation signal closes the Reactor Building secondary containment system isolation valves ROA-V-1 and 2, and REA-V-1 and 2. The actuation signal starts the standby gas treatment system.

TS Table 3.3.2-2a, TS Table 4.3.2.1-1, and TS Table 3.6.5.2-1 require the Reactor Building Exhaust Plenum radiation monitors to be demonstrated operable by testing the isolation and actuation functions. The inspectors examined the licensee's test program

for demonstrating the REA-RIS-609 "Z" isolation and actuation functions operable.

(a) "Z" Signal Surveillance Testing

The inspectors held discussions with plant system engineers about the surveillance test programs for verifying REA-RIS-609 "Z" signal functions. The system engineers discussed the following surveillance test procedures:

* PPM 7.4.6.5.2.1, "Reactor Building Ventilation Isolation Valve Operability"

* PPM 7.4.3.2.2.11, "Balance of Plant Logic System Functional Test"

* PPM 7.4.3.2.3.7, "Secondary Containment Isolation on Reactor Building Exhaust High"

The inspectors found the system engineers knowledgeable about the test requirements, and the surveillance tests adequately tested the "Z" signal functions.

(b) REA-RIS-609 A, B, C, and D Calibrations

The inspectors examined the calibration program for REA-RIS-609 radiation monitors, and held discussions with the responsible engineer. The engineer discussed the following calibration and surveillance test procedures:

* Instrument Master Data Sheet for REA-RIS-609 A, B, C, and D

* PPM 12.3.7, "Reactor Building HVAC Exhaust Plenum Monitor Calibration"

* PPM 7.4.3.2.1.15A, "Secondary Containment Isolation Reactor Building Channel Functional Test"

* PPM 7.4.3.2.1.16, "Secondary Contaiment Isolation Reactor Building Vent Channel A Channel Calibration"

* PPM 7.4.3.2.1.81, "Radiation Calibration of Reactor Building Exhaust Plenum Monitor REA-RIS-609A"

The system engineer was knowledgeable about the calibration and test programs for the REA-RIS-609 monitors. The inspectors reviewed results from the June 1992 calibrations of REA-RIS-609A and REA-RIS-609B, and did not find any problems. The inspectors concluded that the REA-RIS-609 radiation monitor calibration program was adequate.

(c) Setpoint Calculation for the REA-RIS-609 Monitors

The licensee was implementing a program for re-verifying setpoint calculations of various instruments, including the REA-RIS-609 monitors.

The inspectors compared the licensee's February 1985 setpoint calculation for the REA-RIS-609 monitors to the updated setpoint calculations from May 1992. The inspectors' review of the two REA-RIS-609 setpoint calculation methods did not reveal any concerns. The inspectors considered the licensee's setpoint calculation method program a positive effort.

The licensee's program for offgas radiation monitoring, in the aspects reviewed, was adequate in meeting the licensee's safety objectives. No violations of NRC requirements were identified.

b. Standby Gas Treatment System

The inspector examined the licensee's standby gas treatment (SBGT) system surveillance test program. The SBGT system is a engineered-safety-feature atmosphere clean-up system that has high efficency particulate air (HEPA) filtration units and charcoal adsorption units. Technical Specification (TS) 3.6.5.3 sets the requirement for testing the SBGT system consistent with Regulatory Guide (RG) 1.52, "Design, Testing, and Maintenance Criteria for Post-Accident Engineered-Safety-Feature Atmosphere Clean-up System Air Filtration and Adsorption Units of Light Water Cooled Nuclear Power Plants."

The inspector performed a system walkdown with the SBGT system engineer, and reviewed the following surveillance tests:

* PPM 7.4.6.5.3.1, "Standby Gas Treatment System Operability Test"

* PPM 7.4.6.5.3.5, "Standby Gas Treatment System HEPA DOP Test and Visual Inspection"

* PPM 7.4.6.5.3.5B, "Standby Gas Treatment System Unit "B" HEPA Filter Test"

* PPM 7.4.6.5.3.6B, "Standby Gas Treatment System Unit "B" Filtration System Carbon Adsorber Test"

* PPM 7.4.6.5.3.6, "Standby Gas Treatment System Adsorber Bypass Leakage Test"

The inspector examined SBGT system performance monitoring evaluation (PME) data. The licensee's PME group had trended several SBGT filter parameters that were based on PPM 7.4.6.5.3.1 test data from February 1991 to August 1992. The inspector found the trended data on SBGT a positive indication of system performance.

The surveillance tests reviewed had been conducted in a timely manner, and had been performed successfully in accordance with TS 3.6.5.3 and RG 1.52. The inspector concluded that the licensee's SBGT program was fully capable of meeting the licensee's safety objectives. No violations of NRC requirements were identified.

c. Control Room Ventilation Systems

The inspectors reviewed the status of the Control Room normal and emergency ventilations systems by system walkdowns, discussions with the system engineer, and reviews of procedures and calibrations. Selected surveillances required by TS 4.7.2 were reviewed, including the following tests:

* 7.4.7.2.1, "Control Room Emergency Ventilation System Operability"
* 7.4.7.2.2B, "Control Room Div-B Emergency Filtration System HEPA Filter Test"
* 7.4.7.2.3B, "Control Room Div-B Filtration System - Carbon Adsorber Test"
* 7.4.7.2.5, "Control Room Emergency Filtration Heater Operability"
* 7.4.7.2.8, "Control Room Ventilation Pressurization Flow Test"
* 7.4.3.7.1.25, "Radiological Calibration of Remote Air Intake Monitor WOA-RIS-31A"

The surveillance tests reviewed had been conducted in a timely manner, and had been performed successfully in accordance with TS requirements.

During a system walkdown, the inspectors noted a deficiency tag, dated October 12, 1992, for WOA-RIS-31A (a control room emergency ventilation system remote intake radiation monitor). The deficiency tag indicated that the monitor was spuriously alarming every 5 minutes.

To understand the significance of this condition, the inspectors reviewed several procedures and records, and held discussions with operators, system engineers, and RP personnel.

(1) Inspector Followup

The inspectors asked the on-shift Control Room supervisor whether WOA-RIS-31A was considered operable. The supervisor stated that the spurious alarms had not been observed recently, and that the monitor appeared to be operating normally. The supervisor stated further that based on these observations the monitor should be considered operable. The supervisor stated that, to his knowledge, no operability determination had been performed for the monitor.

The inspectors reviewed the Control Room log for TS Limiting Conditions for Operation (LCOs), and verified that no entry had been made in the LCO log for WOA-RIS-31A. In addition, the inspectors reviewed the Control Room operator's log for October 12, 1992, but were unable to find any entry regarding alarms or abnormal performance related to WOA-RIS-31A.

The inspectors also discussed the condition of the monitor with the RP effluent analyst and the I&C Technical Supervisor. Both individuals stated that they had only recently been informed of the monitor's condition. The inspectors were also informed that the monitor's behavior indicated a possible detector failure, and that a detector replacement and monitor calibration were scheduled for October 22, 1992.

(2) Licensee Followup

On Wednesday, October 21, the inspectors were informed that the detector replacement would be delayed, due to performance of a written safety evaluation (per 10 CFR 50.59) for voluntary entry into an LCO, occasioned by taking the monitor out of service for repair. The inspectors were informed, further, that detector replacement might not be necessary, because welding had been going on near the monitor, and electronic noise engendered by the welding was seen as a possible cause of the spurious monitor alarms.

On October 22, the inspectors were informed that the RP effluent analyst had compiled data from computer records of October 12. These records indicated that the alarms on WOA-RIS-31A had not, in fact, been spurious, but had been due to the actual presence of radioactivity.

The inspectors reviewed these records with the RP effluent analyst. The monitor records showed a build-up and decrease in radioactivity over approximately a 4-hour period. Other radiation monitors with sample points in the same general area of the site showed a similar rise and fall in activity levels (although no other monitors were recorded as alarming).

The RP effluent analyst had also reviewed records of meteorological data for the same 4-hour period. This data indicated that the source of radioactivity had probably been the "building wake effect," as observed on previous occasions under similar meteorological conditions. Levels of radioactivity, wind speed and direction, and ventilation system configuration supported this conclusion.

The licensee's evaluation concluded that the October 12, 1992, alarms on WOA-RIS-31A had been valid alarms, and that the monitor had been operable at all times.

(3) NRC Assessment and Conclusion

In review of applicable TSs, licensee procedures, and records, the inspectors noted the following:

* TS 3.3.7.1 requires a minimum of two monitor channels to be operable per remote intake. If one of the required monitors is inoperable, isolation of the associated remote air intake is required within 1 hour.

* TS 6.8.1 requires that written procedures shall be established, implemented, and maintained covering the activities referenced in Regulatory Guide 1.33, Appendix A.

* Regulatory Guide 1.33, Appendix A, Section 5, references procedures for abnormal, off-normal, or alarm conditions.

* Licensee Procedure 4.826.P1, Revision 1, describes the following required action for responding to a control room emergency ventilation system remote intake radiation monitor alarm:

    2. Determine the source of radioactivity in the remote intake.

The inspectors noted that the Control Room operators had not responded appropriately to the October 12, 1992 alarms on WOA-RIS-31A, in several ways:

(a) The operators had mistakenly assumed that the alarms were invalid, and therefore failed to determine the source of radioactivity in the remote intake.

(b) Even if the operators' assumptions had been correct (such that the alarms were invalid and the monitor inoperable), their response would not have been justified, because they had not followed TS requirements for an inoperable monitor.

(c) Because of the lack of operator action, the analysis of the source of radioactivity had not taken place until 10 days after the alarm condition.

The inspectors also noted that plant design, as currently configured, depended on operator action for manual isolation of the air intake valves under adverse radiological conditions. This action was based on maintaining a habitable Control Room during accident conditions in accordance with General Design Criterion 19 of 10 CFR 50, Appendix A. The inspectors observed that prudent operator response to alarms was an essential feature in determining the source of radioactivity and responding appropriately.

The inspectors concluded, further, that the failure of Control Room operators to follow Licensee Procedure 4.826.P1, as given above, constituted a violation of TS 6.8.1 (50-397/92-35-01).

With the exceptions noted, the licensee's programs for maintenance and operation of the Control Room ventilation systems appeared adequate in accomplishing the licensee's safety objectives. One violation was identified.

d. Liquid Effluent Monitoring

The inspectors reviewed aspects of the licensee's liquid effluent monitoring program by performance of system walkdowns, discussions with system engineers and RP personnel, and review of applicable procedures and records. The following surveillance tests were reviewed:

* 16.5.3, "Turbine Sump 1 Radiation Monitor - Channel Functional Test"

* 16.5.6, "Turbine Sump 2 Radiation Monitor - Channel Functional Test"

* 16.5.9, "Turbine Sump 3 Radiation Monitor - Channel Functional Test"

* 16.5.1, "Turbine Sump 1 Radiation Monitor - Channel Calibration"

* 16.5.4, "Turbine Sump 2 Radiation Monitor - Channel Calibration"

In review of the Turbine Building sump drain system, the inspectors raised several concerns, as presented in the following discussion.

(1) System Description

Drains in the Turbine Building flow to five major sumps. Sumps T-1, T-2, and T-3 are non-radioactive by design. Sumps T-4 and T-5 are radioactive by design.

Discharge from the radioactive sumps is normally routed to radwaste. Discharge from the non-radioactive sumps is normally routed (via the roof drain system) to the storm drain pond, located outside the protected area, near the WNP-2 warehouse. During normal operation, the storm drain pond receives approximately 30,000 gallons of liquid per day. The storm drain pond is unlined, and has no outlet.

The non-radioactive sumps have radiation monitors, set at 80% of the liquid effluent limits of 10 CFR 20, Appendix B, Table II. Exceeding these setpoints will automatically redirect sump discharge to radwaste.

(2) Background and Timeline

On July 30, 1992, the licensee had sent the NRC a Special Report regarding unanticipated levels of radioactivity that had been detected in the storm drain ponds (see discussion in Section 2, above). During the onsite inspection, the inspectors reviewed the licensee's history of storm drain pond sampling, in order to determine the timeliness of the licensee's actions in responding to the unanticipated levels of radioactivity.

(a) Technical Evaluation Request (TER) 88-0157, April 1988: This TER stated that low levels of radioactivity had been found in the storm drain pond. It recommended a thorough investigation and corrective actions to determine and eliminate the source of unanticipated radioactivity.

(b) Problem Evaluation Request (PER) 289-0731, September 1989: This PER stated that low levels of zinc-65 and other nuclides had been found in soil samples from the storm drain pond. These concerns were incorporated into the ongoing action for TER 88-0157 (discussed above).

(c) PER 292-0531, May 1992: This PER stated that elevated activity and abnormal red color had been observed in surface water samples from the pond. This PER resulted in the Special Report being sent to NRC.

(d) Quality Finding Report (QFR) 292-014, June 12, 1992: This QFR stated that unmonitored releases (such as those to the storm drain pond) indicated a programmatic failure. The QFR made numerous references to the licensee's UFSAR, NRC regulations, and NRC bulletins and information notices.

(e) PER 292-0781, June 27, 1992: This PER stated that temporary drain lines had been inadvertently routed from main condenser conductivity cell taps to the non-radioactive Turbine Building sumps without prior sampling.

The PER also stated, as part of the evaluation, that followup sample results had found the T-2 (non-radioactive) sump to contain 4.6 E-7 microcuries/milliter (uci/ml). Since this level was less than the limits of 10 CFR 20, Appendix B, however, the sump had been realigned to the storm drain pond (with the apparent concurrence of the PER evaluators).

(f) Response to QFR 292-014, August 3, 1992: This response stated that a root cause analysis of the problem had been completed. Most of the radioactivity in the storm drain ponds was attributed to liquids from turbine overhaul.

The root cause analysis attached to the response cited

specific transfers of red liquid that had been made from the T-5 (radioactive) sump to the T-2 (non-radioactive) sump on May 3 and May 12. The activity of the liquid, as recorded, had been approximately 7.0 E-6 uci/ml. A total of approximately 1000 gallons had been transferred to T-2 (and subsequently discharged to the storm drain pond).

As one corrective action, the response recommended a thorough evaluation of potential leak paths into the non-radioactive Turbine Building drain system by September 7, 1992.

(3) Regulatory and License Requirements

10 CFR 20.301 requires that no licensee dispose of licensed radioactive material except by certain specified methods (i.e., by approved transfer methods or via approved effluent discharge paths). 10 CFR 20.302 allows licensees to apply for approval of procedures for alternate methods of disposal not otherwise authorized.

10 CFR 50.59 requires, in part, that the licensee shall maintain records of changes to the facility or procedures described in the UFSAR, including a written safety evaluation that provides the basis for determining that the change does not involve an unreviewed safety question.

UFSAR Section 9.3.3, "Equipment and Floor Drainage Systems," states in part:

> Equipment and floor drainage systems are provided to handle radioactive and non-radioactive wastes in separate systems. Radioactive wastes are collected in the building sumps and and transferred to the radwaste system for treatment, sampling and disposal or reuse within the plant. Roof drains and non-radioactive floor drains are drained by gravity or pumped to the storm drain system.

UFSAR Section 9.3.3.2.3.1 describes the non-radioactive Turbine Building sumps that are routed to the storm drain system.

NRC IE Bulletin 80-10, "Contamination of Nonradioactive System and Resulting Potential for Unmonitored, Uncontrolled Release of Radioactivity to Environment," requests operating licensees to take several actions. Specific action is designated for situations in which nonradioactive systems become radioactively contaminated:

(a) Use of the system must be restricted until the cause of contamination is identified and corrected, and the system decontaminated.

(b) If continued operation is necessary with the system contaminated, a safety evaluation must be performed per 10 CFR 50.59 (as given above).

(c) If the evaluation concludes that the system may be operated as a radioactive system, any potential releases must be controlled and maintained to the levels addressed in 10 CFR 50, Appendix I.

(4) Discussions With Plant RP Management

On October 22, 1992, the inspectors discussed with members of plant RP management the levels of radioactivity found in the storm drain pond samples. The inspectors noted the following points of discussion:

(a) Plant RP management stated that, to their knowledge, issues surrounding the radioactivity in the storm drain pond did not represent a non-compliance with NRC requirements or a non-conformance to license conditions.

(b) Based on their belief that this matter did not constitute a non-compliance, plant RP management also felt that the storm drain radioactivity concerns had been addressed in a timely manner.

(c) Plant RP management was not aware of any instances in which radioactive liquid had knowingly been routed to the non-radioactive Turbine Building sumps or discharged to the storm drain pond.

On October 23, 1992, the inspectors discussed with plant RP management the response to QFR 292-014 and the associated root cause analysis (see Section 4.d(2), above). The inspectors pointed out that the root cause analysis described instances in which radioactive liquid had knowingly been sent to the storm drain pond. After review, plant RP management acknowledged the statements in the root cause analysis, but stated that neither the QFR response nor the root cause analysis had ever been routed to them.

(5) NRC Assessment

After review of the documents discussed above, and after discussions with plant RP management and other members of the plant staff, the inspectors noted the following points:

(a) Sample results from the storm drain pond indicated the presence of radioactivity in levels well above environmental background; however, none of the sample results or surveys of the pond indicated radioactivity in levels that would pose a significant radiological hazard by a reasonable

pathway of exposure.

For additional perspective on the sample results, see Attachment A to this report.

(b) Although the storm drain pond is located outside the licensee's protected area, it is within the "restricted area" as presented in the UFSAR, Section 2.1.1.3. The inspectors noted, however, that the licensee did not control access to the storm drain pond area for the purposes of minimizing radiation exposure.

(c) Discussions with plant staff and review of records indicated a lack of understanding of the legitimate uses of the non-radioactive Turbine Building sumps, as follows:

(i) Since the sump monitor alarms had been set at 80% of the limits of 10 CFR 20, Appendix B, Table II, some members of plant staff had assumed that any liquids containing radioactivity in levels less than the alarm setpoint could legitimately be disposed of in these sumps.

(ii) The licensee's evaluation of PER 292-0781 (see Section 4.d(2), above) clearly demonstrated this lack of understanding. After sample results from the T-2 sump had shown the sump liquid to be radioactive (but less than 10 CFR 20, Appendix B levels), the sump discharge had been re-routed to the storm drain pond.

(d) The licensee was unable to provide evidence that TER 88-0157 had ever been closed, or that the evaluation of unmonitored radioactive inputs to the storm drains, requested by the TER, had ever been performed. The inspectors noted, specifically, that the evaluation requested by the 1988 TER was, in essence, the same as the evaluation requested by the 1992 QFR (QFR 292-014, discussed above).

(e) The licensee had not performed a written safety evaluation, per 10 CFR 50.59, to justify continued operation of the "non-radioactive" Turbine Building sumps as a radioactive system.

(f) The licensee had not applied to the NRC, per 10 CFR 20.302, for approval of disposal of licensed radioactive material via the storm drain pond.

(6) <u>Conclusion</u>

The inspectors concluded, first, that routing radioactive liquids to the storm drain pond was an unapproved method of disposal of licensed radioactive material, and as such constituted a violation

of 10 CFR 20.301 (50-397/92-35-02).

The inspectors concluded, second, that the licensee's failure to perform a written safety evaluation for operating as radioactive a system designed to be non-radioactive constituted a violation of 10 CFR 50.59 (50-397/92-35-03).

The inspectors concluded, finally, that the lack of timeliness surrounding the resolution of this area indicated the need for improvement by management in responding to radiological concerns. This item will be further addressed in a future inspection (50-397/92-35-04).

(7) Licensee Response

At the exit interview on October 23, 1992, the licensee acknowledged the inspectors' observations related to radioactivity in the storm drains. The licensee stated that priority would be given to resolving this matter.

In subsequent telephone conversations, the plant RP Manager stated that the non-radioactive Turbine Building sumps had been redirected to radwaste until evaluation of the situation could be more fully completed. In addition, the licensee was continuing to evaluate

(a) the amount and concentration of radioactive material currently in the storm drain pond,

(b) the potential pathways for unmonitored radioactive material to enter non-radioactive systems, and

(c) methods of restricting access to the storm drain pond for the purposes of minimizing radiation exposure.

The licensee's programs for monitoring and control of liquid radioactive waste appeared to warrant improvement in several areas, as discussed. Two violations of NRC requirements were identified.

e. Radiological Environmental Monitoring Program (REMP)

The inspectors evaluated aspects of this program area by interviews with cognizant personnel, reviews of recent records and reports, and observation of work in progress. Observations were made regarding (1) environmental sampling and analysis and (2) meteorological monitoring.

(1) Environmental Sampling and Analysis

The REMP sampling records and schedules indicated that sample collection had been conducted at the locations and frequencies prescribed in the Offsite Dose Calculation Manual (ODCM), Table 6.3.1.1-1. The inspectors noted the following items:

(a) In addition to the locations specified in the ODCM, the REMP group routinely sampled other site locations, in a commendable effort to maintain a thorough, comprehensive oversight of radiological conditions in the site environs. Sampling history and radiological profiles of each location had been well-documented.

(b) One inspector observed performance of Environmental Program Instruction (EPI) 12.4.5, "Sediment Sampling," at the upstream and downstream locations on the Columbia River bank. Sample collection was performed in a technically sound manner, and in accordance with the procedure.

(c) Review of selected sampling records indicated that the offsite vendor laboratory used by the licensee had been able, in all cases reviewed, to meet the requirements of the ODCM for achieving lower limits of detectability (LLDs).

(2) Meteorological Monitoring

The inspectors reviewed recent calibration and performance data for the meteorological monitoring instruments, and toured the licensee's meteorological monitoring system with the system engineer. Several observations were made:

(a) The licensee had upgraded the Control Room chart recorders during the last outage. The licensee also planned to install a new digitized 7-point recorder in the meteorological tower local equipment shed.

(b) Records indicated that the system had been performing reliably. Channel checks and channel calibrations had been performed at the frequencies specified in TS Table 4.3.7.3-1.

(c) In review of the most recent calibration of the 33-foot and 245-foot wind speed and wind direction channels, the inspectors noted that certain readings had not been taken at output points MET-P01 and MET-P02, due to the computer being down. The inspectors asked the system engineer what alternate acceptance criteria had been used to ensure that the loop was satisfactorily calibrated. The system engineer stated that further research was necessary to determine what criteria had been used. This matter will be reviewed in a future inspection (50-397/92-35-05).

The licensee's REMP and meteorological monitoring program appeared adequate in meeting the licensee's safety objectives. The extra measures taken by the REMP group, in order to maintain a comprehensive and well-documented status of radiological conditions in the immediate site environs, appeared to be a program strength. No violations or deviations were identified.

5. Control of Access to "High-High" Radiation Areas

On October 21, 1992, the licensee notified the inspectors of two instances in which individuals violated TS 6.12.1 requirements for ensuring that doors to "high-high" radiation areas are controlled by radiation protection staff. (A "high-high" radiation area is an area in which dose rates measure 1000 millirem/hour or more.)

TS 6.12.1 requires that high-high radiation area doors have continuous health physics technician coverage when open. If health physics technicians are not present, the doors must be locked closed, and the keys must be under the control of the radiation protection department.

The inspector examined Problem Evaluation Request (PER) 291-1186 and PER 291-1187, which described both of the high-high radiation area doors as having been discovered open on the morning of October 21, 1992. PER 291-1186 stated that the gate to the "B" Reactor Water Cleanup Room in the Radwaste Building had been found open. PER 291-1187 stated that the gate to the Waste Storage Area in the Radwaste Building had been found open. In neither case had health physics technicians or other personnel remained in the area while the doors were open, and in both cases health physics technicians had been responsible for leaving the doors open.

The licensee's radiation protection staff had found the doors open during a routine tour. The licensee had taken prompt corrective action to restore access control by locking the doors and re-establishing key control. The licensee had determined, further, that the root cause of these incidents was preventable personnel error. A procedure change was implemented, requiring 2-person independent verification when locking high-high radiation area doors.

The inspectors concluded that leaving the two doors open and unattended was a violation of TS 6.12.1. However, based on the isolated nature of this matter, and based on the promptness and thoroughness of the licensee's corrective action, the inspectors concluded that the criteria in Section V.G of the NRC Enforcement Policy had been satisfied. As a result, this violation will not be cited (50-397/92-35-06).

6. Exit Interview

The inspectors met with members of licensee management at the conclusion of the onsite portion of the inspection on October 23, 1992. The scope and findings of the onsite portion of the inspection were summarized. The licensee acknowledged the inspectors' observations.

ATTACHMENT A: COMPARISON TABLE FOR STORM DRAIN POND SURFACE WATER SAMPLES
(all numbers given in picocuries/liter)

Nuclides	10 CFR 20 Appendix B Table II*	WNP-2 ODCM Reporting Levels**	State of Washington (DOH) Action Levels	Storm Drain Surface Water Sample Results***
Cobalt 60	30,000	300	100	124.7
Cerium 141	90,000	---	100	707
Cesium 137	20,000	50	100	5.7
Iodine 131	300	2	1	21.1
Manganese 54	100,000	1,000	100	5.8
Antimony 125	20,000	---	100	20.8
Zinc 65	100,000	300	100	52.9
Tritium	3,000,000	30,000****	1,000	100 - 270,000

* Values established for radioactivity in liquids discharged by approved effluent pathways to unrestricted areas (e.g., rivers and oceans--generally releases to large bodies of water, assuming substantial dilution).

** Standard reporting values for surface water (based on Standard Technical Specifications) as given in the WNP-2 Offsite Dose Calculation Manual (ODCM). These values were derived based on (1) 10 CFR 50, Appendix I limiting doses due to liquid effluents, and (2) 1970 "state-of-the-art" technology for monitoring and detection capabilities.

NOTE: Reporting is only required when these values are exceeded for all samples averaged over a calendar quarter.

*** Based primarily on May 13, 1992, sample of the storm drain pond. Tritium values are given over the range seen in 1992 samples. In addition:

1. The T-2 sump contents were discharged to the storm drain on June 27, 1992, at a concentration of 460 picocuries/liter (pCi/l).

2. The T-5 sump contents were transferred and discharged to the storm drain on May 3 and May 12, 1992, at a concentration of 7000 pCi/l.

**** For drinking water, a more restrictive value of 20,000 pCi/l is used, based on 40 CFR 141 (EPA drinking water standards).