

U.S. NUCLEAR REGULATORY COMMISSION

REGION V

Report Nos: 50-397/93-06, 50-508/93-02
Docket Nos: 50-397, 50-508
License Nos: NPF-21, CPPR-154
Licensee: Washington Public Power Supply System
P. O. Box 968
Richland, WA 99352
Facility Name: Washington Nuclear Project No. 2 (WNP-2)
Washington Nuclear Project No. 3 (WNP-3)
Inspection at: WNP-2 site near Richland, Washington
WNP-3 site near Elma, Washington
Inspection Conducted: February 16 - March 29, 1993 (WNP-2)
February 24, 1993 (WNP-3)
Inspectors: R. C. Barr, Senior Resident Inspector
D. L. Proulx, Resident Inspector
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J. F. Melfi, Resident Inspector

Approved by:


P. H. Johnson, Chief
Reactor/Projects Section 1

4/30/93
Date Signed

Summary:

Inspection on February 16 - March 29, 1993 (Report No. 50-397/93-06)
Inspection on February 24, 1993 (Report No. 50-508/93-02)

Areas Inspected: At WNP-2, a routine inspection by the resident inspectors of control room operations, licensee action on previous inspection findings, operational safety verification, surveillance program, maintenance program, licensee event reports, special inspection topics, and procedure adherence. During this inspection, Inspection Procedures 61726, 62703, 71707, 71710, 90712, 92700, 92701, 92702 and 93702 were used.

At WNP-3, a routine inspection through the containment, control room, auxiliary building and warehouses and observation of the condition of the licensee's in-place and stored equipment (Paragraph 11). The inspector used Inspection Procedure 92050 as guidance during the inspection.

Safety Issues Management System (SIMS) Items: None.



Results (WNP-2):

General Conclusions and Specific Findings

Significant Safety Matters: None

Summary of Violations and Deviations: Ten examples of a previous violation were identified involving the failure to follow the procedure for tagging hoses containing radioactive material (Paragraph 5.b(6)). One non-cited violation was also identified involving the failure to maintain a contaminated area barrier (Paragraph 5.b(9)).

Open Items Summary:

Six followup items and three LERs were closed. Five unresolved items were opened. One non-cited violation was opened and closed during the inspection period.

Results (WNP-3):

Site inspection activities indicated that the WNP-3 site is being appropriately maintained (Paragraph 11).

DETAILS

1. Persons Contacted

WNP-2

- *V. Parrish, Assistant Managing Director for Operations
- *J. Gearhart, Director, Quality Assurance
- *J. Baker, Plant Manager
 - G. Smith, Operations Division Manager
 - L. Harrold, Maintenance Division Manager
 - G. Sorensen, Regulatory Programs Manager
- *D. Pisarcik, Radiation Protection Manager
 - A. Hosler, Licensing Manager
- *S. Davison, Quality Assurance Manager
 - J. Peters, Administrative Manager
- *M. Mann, Assistant Operations Manager
- *R. Webring, Technical Services Manager
- *D. Atkinson, Reactor Engineering Manager
- *T. Messersmith, Maintenance Support Manager
- *J. Rhoads, Manager, Operational Events Analysis and Resolution
- *J. Harmon, Maintenance
- *M. Davidson, Supply System Legal Department
- *C. Fies, Licensing Engineer
- *K. Pisarcik, Licensing Assistant

*Attended the WNP-2 exit meeting on April 15, 1993.

WNP-3 (Paragraph 11)

- @C. Butros, WNP 3/5 Site Manager
- @J. Cooper, Project Business Manager
- @S. DeLoe, Acting Administration Manager
- @M. Deboard, Program Support Manager
- @W. Drinkard, Quality Assurance Manager
- @J. Hayes, Warehouse Supervisor
- @L. Hill, Plant (Operations/Maintenance) Manager
- @R. Marzano, Security and Safety Manager
 - J. Perreault, Engineering Manager
 - S. Ratcliff, I&C Supervisor
- @C. Reid, Preservation Engineering Manager
- @J. Rett, Site Support Services Manager
 - D. Strassburger, Records and Document Control Supervisor

@Attended the WNP-3 exit meeting on February 24, 1993.

The inspectors also interviewed various control room operators, shift supervisors and shift managers, maintenance, engineering, quality assurance, and management personnel.



2. Plant Status

At the start of the inspection period, the plant was in Mode 1 at 25% power. The plant achieved full power on February 20, 1993. The reactor continued to operate at 100% power until the licensee declared the End-of-Cycle (EOC) recirculation pump trip (RPT) inoperable due to a missed surveillance. After applying more conservative operating limits because the EOC RPT was inoperable, operators reduced reactor power to 99%. On March 19, 1993, the licensee declared the reactor core isolation cooling (RCIC) system inoperable because a design review identified that a potential accident scenario could result in excessive containment leakage. The licensee received an NRC Notice of Enforcement Discretion since the RCIC system could not be restored to operability prior to the end of its 14-day Technical Specifications action statement. The reactor continued to operate at 99% power (except for momentary downpower maneuvers to support control rod exercises and bypass valve testing) until the end of the inspection period.

3. Previously Identified NRC Inspection Items (92701, 92702)

The inspectors reviewed records, interviewed personnel, and inspected plant conditions relative to licensee actions on previously identified inspection findings:

a. (Closed) Followup Item (397/91-39-02): Verification and Validation (V&V) not performed for EOP-Referenced Procedures

During the referenced inspection period, the inspector found that V&V had not been performed for several procedures called out by the Emergency Operating Procedures (EOPs). The inspector was concerned that there may have been undetected errors in these procedures. During development of the "Phase II" EOPs, the licensee performed V&V of these procedures and approved appropriate deviations. The inspector reviewed the licensee's documentation, and considered the actions and the records to be satisfactory. This item is closed.

b. (Closed) Apparent Violation (397/92-37-02): Design and Operation of Core not in Accordance with General Design Criteria (GDC) 12.

During followup inspection after the Augmented Inspection Team (AIT) assessment of the August 15, 1992, power oscillation event, the inspector noted that the licensee's basic design and operation of the core did not appear to adhere to GDC 12. The inspector questioned whether operators could readily and reliably detect and suppress regional core power oscillations. Further NRC evaluation and analysis of licensee procedures indicated that the licensee's procedures were adequate to detect and suppress this condition. This item is closed.

c. (Closed) Apparent Violation (397/92-37-03): Inadequate 50.59 Review for Cycle 8 Core.

During followup inspection after the core power oscillation AIT of the August 15, 1992, power oscillation event, the inspector

questioned whether the licensee's safety evaluation per 10 CFR 50.59 was adequate, in that, it did not identify the reduced margin to stability. Further NRC evaluation of the licensee's methodology indicated that the 10 CFR 50.59 review was adequate despite this concern. The Supply System used technical information and computer codes licensed for use for the Cycle 8 core. Therefore, the licensee did not violate 10 CFR 50.59. This item is closed.

d. (Closed) Part 21 Notification (397/92-004-P21) Improper Design of Anchor/Darling Motor Operated Valve (MOV) Yoke Clamps.

The licensee submitted a 10 CFR Part 21 notification of potential defects in safety-related equipment concerning the improper design of Anchor/Darling MOV yoke clamps. Three MOVs in the high pressure core spray system had undersized yoke clamps that could potentially fail, due to cyclic fatigue, during the valve's closure. The licensee performed non-destructive examination (NDE) on each of these valve's yoke clamps to determine if the valves were previously inoperable. The licensee found no degradation of the valves, and determined that HPCS was previously operable, and that an LER was not required. After performing the NDE, WNP-2 replaced the undersized yoke clamps with the proper size. This item is closed.

e. (Closed) Part 21 Notification (397/92-005-P21) Limitorque Model SMB-000 MOV Capscrews.

The licensee submitted a 10 CFR Part 21 notification of potential defects in safety-related equipment concerning the use of commercial-grade fasteners in Limitorque Model SMB-000 MOV capscrews. The vendor had provided WNP-2 with seven Limitorque Model SMB-000 motor operators which had grade 1 or 2 capscrews instead of grade 5. Licensee testing of the actual material properties of the capscrews indicated that they were acceptable for the applied loads. This item is closed.

f. (Closed) Part 21 Notification (397/92-006-P21) Siemens Power Corporation (SPC) Minimum Critical Power Ratio (MCPR) Calculations

The licensee submitted a 10 CFR Part 21 notification of a potentially defective analysis provided by SPC. SPC found that errors in the computer code for calculating MCPR during a loss of feedwater transient resulted in a non-conservative analysis late in the fuel cycle. SPC corrected these errors and resubmitted the analysis. No loss of feedwater events challenged the MCPR limit at WNP-2. The inspector reviewed the second submittal with respect to the loss of feedwater transient and it appeared to be satisfactory. This item is closed.

4. Event Followup (93702)

a. Reactor Core Isolation Cooling (RCIC) System Inoperability

On March 19, 1993, the licensee identified that if a small break loss of coolant accident (LOCA) were to occur simultaneously with a



loss of Division 1 direct current (DC) power, primary containment integrity through the RCIC system could be compromised. For this scenario, the licensee assumed RCIC to be aligned to the suppression pool. The loss of DC power, which causes DC motor-operated valves to fail in the as-is condition and the loss of the vacuum tank drain pump, results in a 5-10 gpm flow path through the RCIC suction valve, the lube oil cooling water supply valve, the barometric condenser, the vacuum tank, and vacuum tank relief valve. With the loss of the vacuum tank drain pump, the static head of water from the suppression pool is sufficient to fill the vacuum tank and lift the relief valve. Water from the suppression pool would then flow from the relief valve to the equipment drain in secondary containment.

The licensee took compensatory action to prevent this flow path by opening the breaker that allows transfer of the RCIC suction from the condensate storage tank (CST) to the suppression pool. Because the TS require the RCIC system to be capable of taking a suction from the suppression pool, the licensee declared the RCIC system inoperable. At the end of the inspection period, the RCIC system was in the 13th day of the action statement. Subsequently, the NRC issued a Notice of Enforcement Discretion to allow the licensee to continue to operate in this condition until the refueling outage. Shortly thereafter, WNP-2 received a TS amendment that allowed operation until the upcoming refueling outage.

Among other items in the Notice of Enforcement Discretion, the inspectors verified that the licensee completed the compensatory actions to which they had committed, and verified that no work was performed on the HPCS system. In addition, the inspectors interviewed operators to confirm that the operators understood the reasons for RCIC inoperability, and the actions necessary in the unlikely event of a LOCA. The licensee intends to submit an LER for this event. Until the NRC reviews the LER to determine if the root cause and effective corrective actions were identified, this is an unresolved item. (Unresolved Item 397/93-06-01)

b. End-of-Cycle (EOC) Recirculation Pump Trip (RPT) Inoperability

On March 4, 1993, the licensee found that the EOC RPT breakers had not been properly tested. TS 4.3.4.2.3 requires that the RPT breakers be tested every 60 months to verify that the arc suppression time is less than or equal to 83 milliseconds. Plant Procedures Manual (PPM) 7.4.3.2.3.3A and PPM 7.4.3.2.3.3B perform this surveillance for the RPT 3- and 4-series breakers. The tests are conducted by recording the amount of time between actuation of a trip coil in the breaker and the time when the breaker arc has been interrupted. The procedures used to conduct these tests initiate the trip through actuation of a different trip coil (TC-1) than the trip coil which performs the safety function for the breaker (TC-2). The licensee stated that if TC-1 and TC-2 have only slightly different characteristics the response time for the breaker would be inaccurate. These inadequate response time tests existed for RPT breakers 3A, 3B, 4A, and 4B.



Subsequent to this discovery, the licensee declared both EOC-RPT systems inoperable. The licensee's Core Operating Limits Report (COLR) requires operators to increase the limit for the Minimum Critical Power Ratio (MCPR) if the EOC-RPT is inoperable. The licensee inserted these new limits into the plant computer, which resulted in the licensee restricting operation of the plant to 99% power. The inspectors verified that the licensee took the proper actions, and that the correct limits were being used. The licensee had not determined if the MCPR limits had been exceeded prior to discovery that the EOC-RPT had been inoperable. The licensee intends to properly test the EOC RPT breakers during the R8 refueling outage. Because the licensee had not yet determined through testing whether the EOC RPT could have performed its intended safety function, the inspectors will perform additional followup when the licensee submits their LER for this event, and after proper testing of the TC-2 coil. This is an unresolved item. (Unresolved Item 397/93-06-02)

c. Main Turbine Bypass System Setpoint Discrepancy

On March 4, 1993, the licensee found that the turbine bypass system setpoint that enables the system above 25% power was set improperly. The licensee had set the enabling relays based on 25% of rated electrical power. However, TS 3.7.9 states that the main turbine bypass system shall be operable when thermal power is greater than 25% of rated thermal power. At low power levels, plant efficiency is lower than at full power due to reduced feedwater heating. Therefore, 25% electrical power does not correlate well with 25% thermal power. The licensee determined that the reactor produces 33% thermal power when generator output is 25% electrical power. Therefore, the licensee determined that their design and setpoint violated the TS.

The licensee stated that the main turbine bypass system would be declared inoperable when reactor power is less than 35% thermal power. The action statement for this condition requires the reactor to be less than 25% power within four hours. Licensee management stated that they will reset the arming relays for the bypass system during the R8 refueling outage, and the new setpoint will conservatively correlate to 25% thermal power. The licensee intends to submit an LER for this event. Until the NRC reviews the LER to determine if the root causes and corrective actions have been identified, this is an unresolved item. (Unresolved Item 397/93-06-03)

No violations or deviations were identified.

5. Operational Safety Verification (71707)

a. Plant Tours

The inspectors toured the following plant areas:

- Reactor Building
- Control Room

- Diesel Generator Building
- Radwaste Building
- Service Water Buildings
- Technical Support Center
- Turbine Generator Building
- Yard Area and Perimeter

b. The inspectors observed the following items during the tours:

- (1) Operating Logs and Records. The inspectors reviewed records against Technical Specification and administrative control procedure requirements.
- (2) Monitoring Instrumentation. The inspectors observed process instruments for correlation between channels and for conformance with Technical Specification requirements.
- (3) Shift Manning. The inspectors observed control room and shift manning for conformance with 10 CFR 50.54(k), Technical Specifications, and administrative procedures. The inspectors also observed the attentiveness of the operators in the execution of their duties and the control room was observed to be free of distractions such as non-work related radios and reading materials.
- (4) Equipment Lineups. The inspectors verified valves and electrical breakers to be in the position or condition required by Technical Specifications and administrative procedures for the applicable plant mode. This verification included routine control board indication reviews and conduct of partial system lineups. Technical Specification limiting conditions for operation were verified by direct observation.
- (5) Equipment Tagging. Selected equipment, for which tagging requests had been initiated, was observed to verify that tags were in place and the equipment was in the condition specified.
- (6) General Plant Equipment Conditions. Plant equipment was observed for indications of system leakage, improper lubrication, or other conditions that would prevent the system from fulfilling its functional requirements. Annunciators were observed to ascertain their status and operability.

During a tour of the Reactor Building on March 22, 1993, the inspector noted several instances in which the licensee did not appear to be following their procedure for the tagging of temporary hoses and electrical lines in the plant. Paragraph 4.2.11 of PPM 1.3.19, "Plant Material Condition Inspection Program," requires that all rubber and tygon hoses used in the power block to route equipment drains, vents, leaks, pump from sump to sump, etc. shall be tagged with a 'Work in Progress' tag. The tag shall show the procedure number for performing the vent or drain operation, or in cases of hoses used in conjunction with a Maintenance Work Request (MWR) or equipment



deficiency identification, the MWR number or equipment deficiency tag number shall be used. For hoses used to route leakage from leaking valves or other components to a drain or catch basin the equipment piece number (EPN) of the leaking equipment, the date the drain was installed, and the name of the individual authorizing installation of the drain will be recorded on the tag. The number of the hose, if applicable, will be recorded on the tag.

In addition, licensee management interpreted this procedure to also require tagging of temporary electrical cables. During the tour, the inspector observed the following examples of personnel not following PPM 1.3.19:

- A tag attached to a hose in the B residual heat removal (RHR) pump room was missing a signature for the individual authorizing the hose installation.
- A tag attached to a hose in the B reactor feedwater pump room was missing the signature for the individual authorizing the hose installation.
- A tag attached to a hose in the auxiliary condensate pump room was missing a signature for the individual installing the hose, and for the person authorizing the hose installation.
- A tag attached to a hose in RHR A pump room was missing the EPN, hose number, date, and signatures for installing and authorizing the hose.
- A tag attached to a hose in the reactor core isolation cooling (RCIC) pump room was missing the EPN, hose number, date, and signatures for installing and authorizing the hose.
- A tag attached to a hose in the fuel pool cooling pump room was missing the EPN, hose number, date, and signatures for installing and authorizing the hose.
- A hose connected to a drain on CMS-SR-13 was missing the Work in Progress tag.
- On the 572-foot level of the reactor building, near the reactor building ventilation units, a tag attached to a hose going to a barrel was missing the EPN, hose number, date, and signatures for installing and authorizing the hose.
- A tag attached to a hose coming out of the traversing incore probe (TIP) room was missing the EPN, the hose number, date, and signatures for installing and authorizing the hose.



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- A tag attached to a hose connected to a drain line from DW-V-100-60 was missing the procedure number, estimated completion date, and authorizing signatures.
- In addition, the inspector found 6 instances in which temporary power cables were not tagged.

PPM 1.3.19, Revision 13, was signed by the Plant Manager on January 28, 1993, and issued on January 29, 1993. This procedure was issued pursuant to a Supply System commitment in their response to the Notice of Violation (NOV) issued with NRC Inspection Report No. 50-397/92-35, to establish a hose control program by February 1, 1993. The procedure had been approved by the Plant Operating Committee (POC) in December 1992, and placed on administrative hold to allow time for personnel training on the new procedure requirements. However, as noted by licensee management in a subsequent NOV response, personnel training and compliance verification by plant supervision were inadequate for implementation of Revision 13 of PPM 1.3.19.

During an NRC inspection conducted on February 16 through 22, 1993 (refer to NRC Inspection Report No. 50-397/93-07), the inspector identified a violation of PPM 1.3.19, Revision 13, involving four instances of failure to properly tag hoses containing radioactive liquids. This was cited in a Notice of Violation issued on March 25, 1993.

On February 24, 1993, in response to the NRC-identified violation, line management was directed to conduct walkdowns to ensure compliance with Revision 13 of PPM 1.3.19. On February 26, 1993, a procedure deviation was approved in an attempt to make it less restrictive. On March 2, 1993, QA initiated a Problem Evaluation Request (PER) to address their findings that approximately ten percent of the hoses in the plant were not properly tagged.

Licensee management stated that lack of effective supervision in the plant was a partial cause of these problems, and that more frequent plant tours and work observation would be undertaken to ensure that personnel understood and followed PPM 1.3.19. However, based on the additional discrepancies identified by the inspector on March 22, 1993, as noted above, it appeared that the licensee had not taken effective steps to ensure proper implementation of PPM 1.3.19.

Because the Notice of Violation for this violation was not forwarded until March 25, 1993, and the licensee's corrective actions for the violation of PPM 1.3.19 had not been in effect for very long, these occurrences were not cited as a new violation. However, the inspector was concerned that these new examples indicate that the actions for the previous violation have not been effective in preventing recurrence of this problem. The effective implementation of the corrective



actions for this violation will be followed in a future inspection as a review of Violation 50-397/93-07-01.

The inspector also noted that the licensee's April 23, 1993, response to the Notice of Violation issued on March 25, 1993, included an apparently incorrect statement. Item 5 under "Corrective Steps Taken/ Results Achieved" in Appendix A incorrectly stated that PER 293-318 was initiated on March 22, 1993, to address PPM 1.3.19 discrepancies identified during management housekeeping tours. These discrepancies were actually identified by the NRC inspector, as discussed above. This incorrect statement was identified to licensee management in a telephone call on May 4, 1993. The licensee committed to provide by May 14, 1993, a letter correcting and explaining this error. The inspectors will determine during the next inspection period whether this incorrect statement violated NRC requirements. (Unresolved Item 397/93-06-04)

- (7) Fire Protection. The inspectors observed fire fighting equipment and controls for conformance with administrative procedures.
- (8) Plant Chemistry. The inspectors reviewed chemical analyses and trend results for conformance with Technical Specifications and administrative control procedures.
- (9) Radiation Protection Controls. The inspectors periodically observed radiological protection practices to determine whether the licensee's program was being implemented in conformance with facility policies and procedures and in compliance with regulatory requirements. The inspectors also observed compliance with Radiation Work Permits, proper wearing of protective equipment and personnel monitoring devices, and personnel frisking practices. Radiation monitoring equipment was frequently monitored to verify operability and adherence to calibration frequency.

On February 11, 1993, during the previous inspection period, the inspector found a contamination area boundary sign and rope down on the 422 foot level of the reactor building. Several licensee employees were in the room at the time; however, none of these employees were aware that the boundary was down, or had been in the contaminated area. Section 3.1.7.4.3 of the WNP-2 Health Physics Program Description states that "an area shall be posted as a contaminated area when loose surface contamination exists above 100 dpm/100 cm² alpha and/or 1000 dpm/100cm² beta-gamma as determined by smear tests. Posting of such an area shall include a sign reading CAUTION, CONTAMINATED AREA." TS 6.8.1.k requires procedures to be established, implemented, and maintained for the Health Physics/Chemistry Support Program. The failure to post a contaminated area is a violation of TS 6.8.1 which requires the licensee to follow health physics procedures.



The licensee conducted an incident review board and found that personnel error was the cause of the event. Because of this event, and previous instances in which HP boundaries were not restored during personnel passage, HP supervision toured the plant and installed swing gates in place of rope boundaries to preclude any further instances of rope boundaries not being restored. In addition, the licensee employed assistance from INPO for additional improvements in radiological postings.

Due to the low safety significance, and because the criteria of Section VII.B(1) of the NRC Enforcement Policy were satisfied, this violation was not cited. (NCV 397/93-06-05, Closed)

- (10) Plant Housekeeping. The inspectors observed plant conditions and material/equipment storage to determine the general state of cleanliness and housekeeping. Housekeeping in the radiologically controlled area was evaluated with respect to controlling the spread of surface and airborne contamination.

During tours performed on February 22-23 and March 22, the inspector found a number of items which indicated that housekeeping and plant material condition problems may be increasing. The inspector discussed the following items with licensee management:

- A 24-inch flanged elbow stored near safety-related instrument tubing.
- Four valves in the RCIC missing handwheels
- Unrestrained tool boxes in the RHR A and B pump rooms.
- A loose fire extinguisher on the floor of the RHR A pump room.
- All lights burned out in the RHR B heat exchanger room, and four of five lights burned out in the RHR A heat exchanger room.
- Temporary power cables wrapped around Division 1 and Division 2 power cable.
- A personnel safety chain attached to safety-related cabling.

In addition, the inspector found loose rags and unsecured ladders throughout the reactor building.

The inspector discussed the above observations with the Maintenance Division Manager, who stated that these problems did not meet his expectations and corrected them in a timely manner. The inspector will continue to monitor plant housekeeping in future inspections.



(11) Security. The inspectors periodically observed security practices to determine if the licensee followed the security plan per site procedures, search equipment at the access control points was operational, vital area portals were kept locked and alarmed, personnel allowed access to the protected area were badged and monitored, and the monitoring equipment was functional.

c. Engineered Safety Features Walkdown

The inspectors walked down selected engineered safety features (and systems important to safety) to confirm that the systems were aligned in accordance with plant procedures. During walkdown of the systems, items such as hangers, supports, electrical power supplies, cabinets, and cables were inspected to determine that they were operable and in a condition to perform their required functions. The inspectors checked major components for adequate lubrication and cooling. The inspectors also verified that certain system valves were in the required position by both local and remote position indication, as applicable.

The inspectors walked down accessible portions of the following systems on the indicated dates:

<u>System</u>	<u>Dates</u>
Diesel Generator Systems, Divisions 1, 2, and 3.	March 18
Hydrogen Recombiners	March 18
Low Pressure Coolant Injection (LPCI) Trains "A", "B", and "C"	March 18, 22
Low Pressure Core Spray (LPCS)	March 18, 22
Reactor Core Isolation Cooling (RCIC)	March 18
Residual Heat Removal (RHR), Trains "A" and "B"	March 18
Scram Discharge Volume System	March 18
Standby Liquid Control (SLC) System	March 18
Standby Service Water System	March 18
125V DC Electrical Distribution, Divisions 1 and 2	March 18
250V DC Electrical Distribution	March 18, 22

No violations or deviations were identified.



6. Surveillance Testing (61726)

The inspectors reviewed a sampling of Technical Specifications (TS) surveillance tests verify that: (1) a technically adequate procedure existed for performance of the surveillance tests; (2) the surveillance tests had been performed at the frequency specified in the TS and in accordance with the TS surveillance requirements; and (3) test results satisfied acceptance criteria or were properly dispositioned.

The inspectors observed portions of the following surveillance on the dates shown:

<u>Procedure (PPM)</u>	<u>Description</u>	<u>Dates Performed</u>
7.4.8.2.1.20	Weekly Surveillance for Battery E-B1-1	March 12
7.1.1	Health Physics Shiftly Channel Checks	March 23
7.1.2	Chemistry Daily Channel and Source Checks	March 24
7.4.5.1.9	RHR B System Operability	March 25
12.13.34	Stack Monitor Daily Monitoring Data	March 25

On March 25, 1993, during the performance of PPM 7.4.5.1.9, the inspector noted that the licensee obtained 7423 gallons per minute (gpm) while operating RHR loop B in the suppression pool cooling mode (SPCM). However, paragraph 7.2, step 20, allows the operator to augment the flow for suppression pool cooling by opening RHR-V-27B, the wetwell spray valve. Operators opened RHR-V-27B and flow increased to 7500 gpm. Operators recorded 7500 gpm in the procedure and signed off the step as satisfactory.

TS 4.6.2.3.b states, "The suppression pool cooling mode of the RHR system shall be demonstrated operable by verifying that each of the required RHR pumps develops at least 7450 gpm on recirculation flow through the RHR heat exchanger and the suppression pool when tested pursuant to 4.0.5." The inspector questioned the licensee's practice of augmenting SPCM with spray flow because it did not appear to meet the intent of this TS. The inspector considered that the intent of the TS was to test the SPCM as in actual plant operations to meet the surveillance requirement. The inspector also questioned the ability to trend degraded flow conditions in SPCM in a manner which would be possible if the operators only recorded flow through the test return line (RHR-V-24B).

The inspector also noted that neither the Emergency Operating Procedures (EOPs) nor the system operating procedure (PPM 2.4.2) recognize the practice of augmenting SPCM with wetwell spray flow. The EOPs only allow spraying the wetwell when certain containment parameters exist, due to differential pressure considerations. Also, FSAR Section 7.3.1.1.5



provides a valve-by-valve description of the SPCM flow path of RHR. This flow path does not include RHR-V-27B. In addition, FSAR Section 6.2.2.1 states that the RHR system is capable of obtaining the full flow of 7450 gpm through the test return line.

The licensee responded by stating that because all flow went through the RHR heat exchanger and eventually returned to the suppression pool, the RHR flow path complied with the TS requirement. Furthermore, preliminary licensee calculations indicated that only 7000 gpm were required, and that the system was operable. The inspector did not agree with the licensee's logic for compliance with the TS, and questioned the licensee's methodology for determining if adequate flow was available for SPCM. The licensee's calculation assumed that the design basis heat load for SPCM was the decay heat 20 hours after shutdown. However, FSAR Section 5.4.7.1.1.3 states, "The functional design basis for the suppression pool cooling mode is that it shall have the capacity to ensure that the suppression pool temperature immediately after a blowdown shall not exceed 170 degrees." Therefore, it appears that incorrect assumptions were used in the preliminary calculations.

The licensee stated that neither the A or B SPCM loop could meet the required SPCM flow rate of 7450 gpm during startup testing in 1983, and that PPM 7.4.5.1.9 was changed to include augmenting with wetwell spray flow at that time. The licensee plans to submit a FSAR amendment to provide the actual flow rate of SPCM, and the actual system design basis. In addition, the licensee changed PPM 7.4.5.1.9 to include an extra data block for recording SPCM flow prior to augmentation with wetwell spray flow.

The NRC must complete further evaluation to determine whether the licensee complied with TS 4.6.2.3.b, and whether or not the system is within its design basis. This is an unresolved item (Unresolved Item 397/93-06-06).

One unresolved item was identified, as discussed above.

7. Plant Maintenance (62703)

During the inspection period, the inspector observed and reviewed documentation associated with maintenance and problem investigation activities to verify compliance with regulatory requirements and with administrative and maintenance procedures, required QA/QC involvement, proper use of clearance tags, proper equipment alignment and use of jumpers, personnel qualifications, and proper retesting. The inspector verified that reportability for these maintenance activities was correct.

The inspector witnessed portions of the following maintenance activities:

<u>Description</u>	<u>Dates Performed</u>
PPM 1.6.63, Replace Cell on Battery E-B1-1	March 12

AP 3030, Repair OG-RF-20B (Offgas Chiller)	March 23
AR9492, Fabricate and Install Anchor Bolts and Seismic Supports for Stack Radiation Monitor	March 24
AP2141, Install New Stack Radiation Monitor Panel	March 25

No violations or deviations were identified.

8. Licensee Event Report (LER) Followup (90712, 92700)

The inspector reviewed the following LERs associated with operating events. Based on the information provided, the NRC concluded that reporting requirements had been met, root causes had been identified, and corrective actions were appropriate. The below LERs are considered closed.

<u>LER NUMBER</u>	<u>DESCRIPTION</u>
50-397/88-05-01	B Control Room Emergency Filtration System Bypass Flow Exceeded Technical Specifications
50-397/91-05-01	Wetwell Oxygen Concentration Not Measured per Technical Specification Surveillance requirements
50-397/91-06-01	EDG 1 Inoperable Due to High Particulate in the Generator Lubricating Oil

In addition, the corrective actions for the following LER were evaluated.

(Open) 50-397/92-044, "High Pressure Core Spray System (HPCS) Pump
Suction Valve Automatic Switchover Actuation"

This LER described an automatic switchover, that occurred on December 8, 1992, of the HPCS suction valve from the condensate storage tank (CST) to the suppression pool (SP) when the conditions required for the switchover did not exit. The licensee concluded that the root cause of the switchover was indeterminate, but suspected the cause of the switchover was spurious actuation of either one or both of the CST pipe break detectors, since the detectors had been found to have excessive setpoint drift. As immediate corrective action, the license changed the calibration interval of those detectors from every 18 months to every month. Longer term corrective actions included evaluating replacement of the detectors and investigating the susceptibility of the detectors to radio frequency emissions. The licensee did not expect to submit a supplemental report.

The inspectors made the following observations during review of this LER:

- The licensee investigation of the event found that from September 8, 1991, to April 7, 1992, the detectors had drifted; however, the



licensee's investigation did not determine why the calibration frequency had not been previously increased. In subsequent discussion with the licensee, the inspector learned the licensee believed it was inappropriate to change calibration frequency based on a single set of drift values. The inspector also noted the system engineer for the system had not been aware that the instruments had previously exhibited drift.

- The inspector found that the setpoint of the instrument had recently been changed as a result of the licensee's setpoint program. The change in setpoint, which required the instrument to respond faster to a pipe break, caused the instrument to be at the limits of its reproducible response band. In reviewing licensee documentation associated with the LER, the inspector found that, prior to implementing the setpoint change, the licensee had not evaluated the instrument's performance characteristics. The inspector found the licensee's investigation of the event recognized that a setpoint change had occurred, but considered this not to be a contributing cause of the event. The potential implication of the effect of the setpoint change was not described in the LER. The licensee's corrective actions did not include further evaluation of the implementation of the setpoint program to determine if reviews of setpoint changes are of appropriate detail.

The inspectors concluded that the licensee's documentation of events that led to the switchover of the HPCS suction valves was poor. As a result, the licensee's ability to effectively determine root cause for this event was documented as indeterminate and could potentially result in additional events due to inappropriate setpoint change implementation. The licensee stated they would evaluate the inspectors concerns with respect to out-of-calibration reviews and the implementation of setpoint changes. This LER remains open for further evaluation of these issues.

No violations or deviations were identified.

9. 1993 Refueling Outage (R-8) Preparations

The R-8 Outage, which includes major work items such as refueling, motor operated valve testing, ventilation system modifications, and jet pump cleaning, was scheduled to begin on April 15, 1993, and take approximately 45 days. At the request of Bonneville Power Administration (BPA), the Supply System deferred the beginning of R-8 until May 1, due to regional power demand. Outage duration is still planned for 45 days.

The inspectors discussed preparations, in progress for the WNP-2 R-8 Outage, with the Outage Manager and other members of the plant staff. The discussions included topics such as ALARA planning, maintenance work package preparation, and work coordinators. The inspectors also examined a limited number of the work packages that had been completely planned for the Outage. From the discussions and work package reviews the inspectors made the following observations:

- Planning for the R-8 Outage, as compared to the R-7 Outage, was improved. On March 18, 1993, the inspectors found that about 25% of



the approximately 1300 work packages were fully planned; however, according to the Outage Manager, at the same time last year only about 15% of the work was completely planned. Most of the remaining work packages were in the planning process.

- A significant amount of the ALARA planning remained to be completed.
- Most of the parts required for the worked planned to begin early in the outage were available.
- The licensee plans to assign area coordinators for specific areas within the plant to control work activities within those areas. In addition, the licensee plans to use work control field managers to identify and resolve emergent work restraints that occur during the course of daily activities.
- The licensee plans to evaluate the daily schedule for shutdown risk to ensure the number of available safety systems remains high and never gets below the minimum required by technical specifications.

No violations or deviations were identified.

10. Engineered Safety Feature System Walkdown (71710)

The inspectors performed a detailed walkdown of accessible portions of the high pressure core spray (HPCS) system. The inspectors made the following observations:

- The HPCS lineup procedures matched plant drawings and the as-built configuration.
- Generally, HPCS equipment and components were in acceptable condition. However, several equipment deficiencies were noted to be greater than 24-months old.
- The inspectors noted several housekeeping discrepancies and a poor work practice. Several T-handles on small HPCS globe valves were loose and one had no retaining nut. During the repair of a fluorescent light fixture on the mezzanine level of the HPCS pump room, the craftsmen left the area with the light suspended from its power cord and the fluorescent tubes upright on a grated floor. The inspectors referred these observations to the licensee and the deficiencies were corrected.
- The inspectors found that HPCS component labeling was generally satisfactory. They observed that the components located in the higher areas of the HPCS pump room were labeled with small metal tags and that those components were especially difficult to identify from the grating level. Some of those valves were on the facility locked-valve list.
- The inspectors noted that many of the doors in areas that contained HPCS components or support equipment had fire impairments. Some of the impairments were greater than 12-months old. The impaired doors



were verified to be part of periodic fire tours. Upon further facility touring, the inspectors observed that a very high percentage of facility fire doors had impairments, some of which were greater than 18-months old. The inspectors discussed this observation with the licensee at the exit meeting.

- The inspectors observed that HPCS instruments were within their calibration periodicity and that process parameters were within the expected band for the operational state of the system.
- The inspectors observed proper electrical breaker position at the local distribution panel and at remote locations.

In general, the inspectors found that the HPCS system was maintained adequately. The discrepancies the inspectors observed suggest that the quality and attention to detail of operator and supervisory tours require strengthening.

No violations or deviations were identified.

11. WNP-3 Inspection (92050)

On February 24, 1993, an inspector visited the WNP-3 site. The WNP-3 site is in an extended construction delay status. The inspector toured the containment, control room, auxiliary building and warehouses, observing the condition of the licensee's in-place and stored equipment. The condition of the equipment was satisfactory. Instrumentation monitoring the temperature and humidity was in-place, in calibration, and operating. The inspector concluded that the plant equipment was satisfactorily maintained.

a. Background and Plant Status

WNP-3 is in a construction delay status and is approximately 76% completed. There is no fuel on site. Plant equipment is maintained according to WMC-051, "WNP-3 Preventive Maintenance Program." These documents describe the equipment storage requirements that have been implemented, and specify periodic equipment preservation maintenance. Personnel assignments at the site has been stable. WNP-3 management consists of both Supply System and Ebasco employees.

Events that occurred at WNP-3 in 1992 include:

- The licensee sold WNP-5 components and these components were removed from site. The licensee combined several WNP-3 warehouse items into this space.
- The licensee is doing an extensive re-lamping effort, replacing incandescent fixtures with high efficiency florescent fixtures. This reduces the energy used on site.

In order to maintain the status and material condition of the site equipment, the licensee has designated four levels of equipment

warehouse storage, Levels A, B, C, and D, which are consistent with ANSI/ASME N45.2.2-1973 classifications. The inspector observed that equipment storage within areas A, B and C appeared proper and appropriate for each classification level.

b. Work Observation at WNP-3

The inspector observed part of a non-routine maintenance activity at WNP-3. This activity was a flush of a pump filled with Vaportec, an additive the licensee previously used to inhibit corrosion and preserve internals of plant equipment. The addition of the Vaportec degraded some elastomeric components and caused sticking of internals, making them difficult to rotate. The licensee reported this to the NRC as a potential 10 CFR 50.55(e) report on April 21, 1989, which the NRC will continue to followup until the issue concerning Vaportec is fully dispositioned. The licensee is investigating different ways to remove the Vaportec without disassembly of equipment. The inspector observed that the licensee tested an approach by using citric acid to flush some pump internals that were difficult to rotate. After the flush, the licensee inspected the pump internals. The Vaportec had substantially dissolved, but some remained (where the flowrates were lower). The licensee is continuing to resolve the Vaportec problem and will inform the NRC if this approach will be used.

c. Plant Equipment and Material Inspection at WNP-3

The inspector conducted a walk-through inspection of equipment and material storage areas. These storage areas included the containment, control room, reactor auxiliary building (RAB), and Warehouse Nos. 1, 2, 3, 4, 6 and 7. These areas contained Levels A, B and C storage. Material storage and use of dunnage appeared adequate and in accordance with the licensee's procedures. Dunnage for pipes stored in outside areas appeared adequate. The licensee's Level A and B storage areas had operable automatic fire protection systems.

No evidence of water or abnormal material corrosion was observed in any of the inside storage areas. Cleanliness, preservation, and protection of equipment, including housekeeping, were satisfactory. Corrosion coupons or bare metal surfaces in the containment and auxiliary buildings did not show any significant deterioration. Hygrothermographs (instruments monitoring humidity and temperature) inside these storage areas were in calibration, in operation, and reading in specification.

d. Measuring and Test Equipment (M&TE)

The inspector observed that the licensee had replaced the previous hygrothermographs with a newer model. These hygrothermographs monitor the temperature and humidity within the storage areas, and provide the QA record that the ANSI storage requirements are maintained. Since this was a newer model, the inspector reviewed the calibration procedure, 10.700.76, "Calibration of Hygrothermo-



graphs, All Makes - All Models," to assess the adequacy of the procedure.

After reviewing calibration procedure 10.700.76, the inspector questioned whether this procedure was adequate for calibrating the instruments, since only two points (approximately 32% and 75% humidity) were checked. The licensee stated that their calibration procedure is based on the vendor's manual. The inspector's concern was assuring the linearity of the humidity instrument, since this was not a standard five-point calibration.

In further discussions, the licensee showed that the instrument was accurate to within 3% for a humidity between 20% and 90%. Based on this information and discussions with the licensee, this concern is resolved. The licensee further stated that the humidity readings correlate well when checked against different humidity instruments.

No violations or deviations were identified.

12. Unresolved Items

Unresolved items are matters about which the NRC requires more information to determine whether they are acceptable items, violations, or deviations. Paragraphs 4.a, 4.b, 4.c, 5.b(6), and 6 of this report discuss unresolved items addressed during this inspection.

13. Exit Meeting

The inspectors met with licensee management representatives periodically during the report period to discuss inspection status. An exit meeting was conducted with the indicated personnel (refer to Paragraph 1) on April 15, 1993. The inspectors discussed the scope of the inspection and the inspection findings with licensee management. Licensee representatives acknowledged the inspectors' findings.

An exit meeting was held with the licensee's staff (refer to Paragraph 1) at WNP-3 on February 24, 1993. The inspection scope and findings of Paragraph 11 were discussed.

The licensee did not identify as proprietary any of the information reviewed by or discussed with the inspectors during the inspection.



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- Docket File
- Project Inspector
- Resident Inspector
- B. Faulkenberry
- J. Martin
- R. Huey
- C. VanDenburgh
- P. Johnson
- J. Clifford, NRR
- G. Cook
- S. Richards

bcc w/o enclosure:

- M. Smith
- J. Bianchi
- J. Zollicoffer

See attached

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