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SUBJECT: Responds to NRC 920206 ltr re violations & proposed  
 imposition of civil penalty noted in Insp Rept 50-397/91-44  
 on 911104-1208. Corrective actions: Plant Sys Operating  
 Procedures PPM 2.3.3A/B revised.

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March 6, 1992  
G02-92-056

Docket No. 50-397

U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
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Subject: WNP-2, OPERATING LICENSE NO. NPF-21  
NRC INSPECTION REPORT 91-44  
RESPONSE TO NOTICE OF VIOLATIONS AND PROPOSED  
IMPOSITION OF CIVIL PENALTY

Reference: Letter, G02-92-039, dated February 13, 1992, GC Sorensen (SS) to  
J Lieberman (NRC), "Payment of Civil Penalty EA-91-183"

The Washington Public Power Supply System hereby replies to the Notice of Violations and proposed imposition of civil penalty contained in your letter dated February 6, 1992. The reference acknowledged the civil penalty and transmitted payment of same. Our reply to the Notice of Violation, pursuant to the provisions of Section 2.201, Title 10, Code of Federal Regulations, consists of this letter and Appendix A (attached). In Appendix A, the violations are addressed with an explanation of our position regarding validity, corrective action and date of full compliance.

Your letter encouraged the Supply System to consider how the lessons learned from the Containment Atmospheric (CAC) occurrences relate to our attention to other safety systems. In response to the CAC events the Supply System has developed a detailed action plan that addresses specific CAC items but also extends to other broader issues. For example, the system engineer walkdown program is being given more emphasis.

A more specific action being taken in response to the problems associated with the CAC System involves the identification of other systems that may have characteristics similar to those which are believed to have contributed to the CAC situation. This evaluation considered seven criteria: 1) Late additions to plant design, 2) Not fully testable, 3) Not fully designed by Burns and Roe 4) Not fully designed by General Electric 5) Low work control priority, 6) Importance of the system to Plant Organizations and 7) Current status of system deficiencies. The results of this evaluation recommended four systems for consideration of additional reviews: Control Room Chillers, Post Accident Sampling, Main Steam Leakage Control and Process Radiation Monitors. The scope and schedule for these reviews is currently being defined.


JEH



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RESPONSE TO NOTICE OF VIOLATIONS AND PROPOSED  
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Finally, the Supply System would like to point out that the first sentence on the top of page three of your letter needs a minor change. We have recently identified that Train "A" of the CAC system was not operable during the whole time when Train "B" was inoperable from December 17, 1991 to January 24, 1992. Operability reviews discovered that Train "A" was inoperable for a 5 1/2 hour period during the time period that Train "B" was inoperable. Additional details regarding this event were described in LER 92-003.

Sincerely,

  
L. L. Grumme, Acting Director  
Licensing & Assurance

CLF/bk  
Attachments

cc: JB Martin - NRC RV  
NS Reynolds - Winston & Strawn  
TR Quay - NRR  
DL Williams - BPA/399  
NRC Site Inspector - 901A



## APPENDIX A

During an NRC inspection conducted on November 4 through December 8, 1991, violations of NRC requirements were identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," 10 CFR Part 2, Appendix C (1991), the Nuclear Regulatory Commission proposes to impose a civil penalty pursuant to Section 234 of the Atomic Energy Act of 1954, as amended (Act), 42 U.S.C. 2282, and 10 CFR 2.206. The particular violations and associated civil penalty are set forth below:

### A Violation Assessed a Civil Penalty

Section 3.6.6.1 of the WNP-2 Technical Specifications states"

"Two independent drywell and suppression chamber hydrogen recombiner systems shall be OPERABLE.

APPLICABILITY: OPERATIONAL CONDITIONS 1 and 2

ACTION: With one drywell and suppression chamber hydrogen recombiner system inoperable, restore the inoperable system to OPERABLE status within 30 days or be in at least HOT SHUTDOWN within the next 12 hours."

Section 3.0.3 of the Technical Specifications states, in part: "When a Limiting Condition for Operation is not met, except as provided in the associated ACTION requirements, within one hour action shall be initiated to place the unit in an OPERATIONAL CONDITION in which the specification does not apply by placing it, as applicable, in:

1. At least STARTUP within the next 6 hours,
2. At least HOT SHUTDOWN within the following 6 hours, and
3. At least COLD SHUTDOWN within the subsequent 24 hours,"

Contrary to the above:

1. Both hydrogen recombiner systems were inoperable, in that they would not function in automatic, from before initial plant startup in 1984 until August 1991 due to installation of the wrong type of recycle flow controllers, and the requirements of the above action statements were not met.
2. The "A" Train hydrogen recombiner system was inoperable from on or about December 8, 1990 until April 12, 1991 because of an undetected loss of lubricating oil from the Train "A" blower, with the reactor operating in OPERATIONAL CONDITION 1, and the requirements of the applicable action statement were not met.

Notice of Violation

This is a Severity Level III violation (Supplement I).  
Civil Penalty - \$25,000





### Validity of Violation

The Supply System acknowledges that automatic control of recycle flow was not available for the period stated. A contract engineer working for the Supply System identified this issue while evaluating the instrumentation associated with the CAC system as part of the Supply System's setpoint evaluation program. The root cause of this event is less than adequate design and design change implementation. Design Change 218-I-3923 was not driven to completion by the change process during construction and plant startup testing. There are also contributing root causes that allowed this event to go undetected. The first contributor was an error/oversight regarding tracking of the change and procurement of the correct part. Responsibility for procurement was being changed during this time period which may have contributed to the error. The second contributor was a less than adequate Preoperational Test which failed to identify the wrong flow controller. The third contributor was a less than adequate surveillance testing program that failed to adequately test the functionality of the recycle flow control subsystem. An LER, 91-029, has been submitted and provides additional detail regarding this event.

The Supply System also acknowledges that one train of CAC was inoperable due to the loss of lubricating oil causing the blower shaft to seize. The condition did not exist prior to the successful surveillance test performed on December 8, 1990. The train should have been operable until plant shutdown on April 21, 1991. This condition was discovered by the Supply System during the system operability test being performed prior to restart in September 1991 as reported in LER 91-025. The root cause for failure of the CAC train was that the procedures for reassembly of the blower were less than adequate. A contributing cause was the apparent isolated oversight in tightening the plugs during blower reassembly. It is believed this condition is isolated as additional plugs on both blowers were properly installed. In addition, a review of plant documentation on all systems showed a very limited number of other missing/loose plug events.

### Corrective Steps Taken/Results Achieved

1. For the recycle flow controller problem Plant System Operating Procedures, PPM 2.3.3A/B, Containment Atmospheric Control, were revised to require operation of CAC with CAC-FC-67A/B in the manual mode. This was completed prior to startup following the extended refueling outage.
2. The design change process in place during construction depended on contractors to implement changes that were issued by the Architect-Engineer. It is concluded, based on the turnover process put in place at the end of construction, that the failure to implement Design Change PED 218-I-3923 is an isolated occurrence. The construction design change process in place when this event began was completely changed when the plant went into operation. Therefore, no further corrective action is warranted.



Corrective actions taken in response to the loss of lubricating oil included:

1. A new blower was installed prior to Startup.
2. Drain plugs for both trains were verified tight prior to startup. In addition, the plugs were lockwired in place.
3. A Basic Design Change, 55-1760-OA, has been issued to require the blower drain plugs to be lockwired.
4. A Maintenance and Operations Bulletin (MOB) has been issued to reenforce the importance of assuring proper drain plug installation.
5. The CAC system is being run every 30 days until the ongoing Supply System Safety System Functional Inspection (SSFI) is complete and its recommendations are evaluated.

#### Corrective Action to be Taken

Since events associated with the flow controller have some safety significance, Plant Management has requested a SSFI be performed on the CAC System by the Nuclear Safety Assurance Department. This review is to include an assessment of the design, testing, and operation of the system. This SSFI was originally scheduled for completion by the end of January 1992. However, the CAC review has not been completed due to the complexity of the system. Based upon a preliminary review the Supply System has retained outside expertise to assist in resolving potential issues. Upon completion of the review a meeting will be scheduled with the NRC to discuss the results.

For the part of the violation associated with the loss of blower oil an evaluation, including recommendations in the manufacture's literature, will be performed to determine the appropriate interval for shaft rotation.

#### Date of Full Compliance

The above corrective actions were believed to have placed WNP-2 in full compliance. However, recent events uncovered by the SSFI and other reviews have resulted in additional reportable events and a plant shutdown on March 25, 1992. Corrective actions are being implemented to place the plant in full compliance.



B. Violation Not Assessed a Civil Penalty

1. 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings", states in part: "Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings."

Section 5.2.1 of the WPPSS Operational Quality Assurance Program Description (OQAPD) Manual, Revision 13, states: "Activities that affect safety-related functions of plant items shall be described procedures, instructions, or drawings, as appropriate."

Contrary to the above, activities affecting quality and prescribed by vendor drawings CVI 4-1371-18.20 were not accomplished in accordance with this drawings, in that seven instances were identified between September 26 and October 10, 1991 wherein containment atmospheric control (CAC) system pipe supports had not been configured as prescribed in this drawing.

This is a Severity Level IV violation (Supplement I).

Validity of Violation

The Supply System acknowledges the existing surveillance did not provide physical verification of fastener tightness. Many of the specific conditions identified were probably present on the recombiner skids (CAC-HR-1A and CAC-HR-1B) when they were delivered. However, based on an engineering evaluation the capability of the CAC system to withstand an Safe Shutdown Earthquake has been verified.

The cause of this condition was an apparent work practice/oversight during the initial installation. The skid design and a limited operational history eliminates vibration as a cause. Only four of the fifteen items were potentially affected by maintenance activities as shown by a review of maintenance history. The remaining eleven items appeared to originate during the initial installation. A contributing cause for this condition was an inadequate procedure for performing the "walkdown" surveillance. The walkdown that is specified by Technical Specifications is covered by a single verification step in PPM 7.4.6.6.1.4(5). Interviews with engineers who conducted this procedure, indicate they made a cursory and mostly visual inspection, much of it concurrent with the performance of the procedure. None professed that they consciously and systematically hand tested fasteners on the skid for tightness as a part of that inspection. The surveillance procedure did not specify the level of inspection required to uncover such problems.



Corrective Steps Taken/Results Achieved

A review was performed that provides a response to each of the identified pipe support (PS) problems.

CAC-HR-1A

- |       |           |   |
|-------|-----------|---|
| PS-3  | Problem:  | Missing both jam nuts - primary nuts are finger tight.  |
|       | Response: | Jam nuts are not required per CVI 71-00, 83,1. The strap type U-bolt is to be snug on the valve.  |
| PS-5  | Problem:  | Wrong configuration - should be jam nutted instead of straddling angle support; however, U-bolt is tight.   |
|       | Response: | Jam nuts are not required per CVI 71-00, 83,1. The U-bolt is required to be snug on the 3" diameter pipe.   |
| PS-10 | Problem:  | Missing 3 of 4 nuts on 1/2" diameter line - U-bolt held in place by remaining unit.   |
|       | Response: | Other supports would have restrained the pipe vertically upward, e.g. PS-22, PS-10 (1" line), and the rigid equipment pipe anchor. Horizontally, this configuration has increased flexibility, but the U-bolt would still have been able to restrain the pipe. The U-bolt is not strongly dependent on the retaining nuts for load transfer into the supporting steel since the U-bolt is loaded in shear. Therefore, the horizontal restraint would be retained in spite of the loose or missing nuts. Also, the pipe would not have been unstable horizontally due to the support of PS-22, PS-10 (1" line), and the rigid equipment pipe anchor. |





PS-12

Problem: Loose nuts.

Response: An evaluation was performed of these deficient conditions to determine their impact on safety as follows: Even though the nuts were loose, the piping would still have been restrained. The gap around the U-bolt and the fact that the U-bolt is not completely tight would have helped absorb energy during a seismic event. The seismic event is of such a low frequency that it would not have shaken the nuts loose from the U-bolt. Relative to frequency content two factors are considered. First, even though the support installation deficiencies have increased the respective piping system flexibility, i.e. lowered the piping frequency content, the piping spans are still quite short on the CAC skids. Thus it is judged that these short spans still yield frequencies which are sufficiently separated from the driving seismic input, i.e. pipe and pipe support loads remain low. Secondly, the number of vibratory cycles contained within the short duration seismic event (<15 seconds of strong motion) are quite limited and are judged insufficient to induce significant further loosening of an already loose nut. Securing the U-bolt by means of lock nuts is primarily done to prevent loosening by high frequency modulation, e.g. a pump motor.

PS-15

Problem: Missing both jam nuts - primary nuts are tight.

Response: See response for PS-3 above.

PS-18

Problem: Loose nuts.

Response: See response for PS-12 above.



CAC-HR-1B

PS-10	Problem:	All 4 nuts missing, U-bolt still in place.
	Response:	See response for PS-10(A) above.
PS-14	Problem:	Missing one lock nut - others loose.
	Response:	Piping would still have been restrained on either side of PS-14 by PS-1 and partially by PS-20. Also, see response for PS-12(A) above.
PS-15	Problem:	Missing both jam nuts - primary nuts tight.
	Response:	See response for PS-3(A) above.
PS-18	Problem:	Missing one lock nut - others tight.
	Response:	As stated above (PS-12(A)), the seismic event would not have loosened the primary nut without the lock nut because it is of such a low frequency content. Therefore, piping would have been fully restrained.
PS-20	Problem:	2 of 4 nuts loose.
	Response:	See response for PS-12(A) above.
PS-22	Problem:	Missing one jam nut, but threads are staked above single nut.
	Response:	Staking would not be required for jam nuts. This problem should probably state, "missing one lock nut". See response for PS-18(B) above.
PS-23	Problem:	Missing one jam nut, primary nut tight.
	Response:	See response for PS-18(B) above.



PS-35            Problem:    Gap between U-bolt & pipe = 3/16"; should be 1/16" per drawing.

Response:    The small additional clearance is judged to have had very little effect on the seismic loading into piping. The gap around the U-bolt would have increased the structural damping and would therefore help absorb energy during a seismic event. Even assuming a total loss of function of PS-35, the horizontal motion would be carried by PS-38 and the vertical motion by PS-18.

PS-38            Problem:    2 of 4 nuts loose.

Response:    See response for PS-12(A) above.

Additional corrective steps taken include the following:

1. The process and direction used for system walkdowns has been strengthened and walkdowns on the CAC system are being performed on a weekly basis. This will continue until final resolution of the CAC issues.
2. General Mechanical Maintenance Procedures were reviewed to evaluate how fasteners and pipe supports were addressed. The Procedures reviewed were PPM 10.2.29, Installation, Modification, and Inspection of Pipe Supports, and PPM 10.2.10, Fastener Torque and Tensioning. The memo summarizing the review (SS2-PE-92-0047) recommended that enhancements be made to these procedures. Following this review, Plant Procedures PPMs 10.2.10 and 10.2.29 were deviated to provide improved guidance on installation of pipe fasteners and supports.

Corrective Action to be Taken

None

Date of Full Compliance

Full compliance was achieved in February 1992.

2. 10 CFR 50.72(b)(2) requires, in part: that if not reportable under paragraph (a) or (b)(1) of Section 50.72, "...the licensee shall notify the NRC as soon as practicably and in all cases, within four hours of the occurrence of any of the following:

(iii) Any event or condition that alone could have prevented the fulfillment of the safety function of structures or systems that are needed to...(D) Mitigate the consequences of an accident."

10 CFR 50.73 requires, in part: "The holder of an operating license for a nuclear power plant (license) shall submit a Licensee Event Report (LER) for any event of the type described in this paragraph within 10 days after the discovery of the event.... (2) The Licensee shall report:

(i) (B) Any operation or condition prohibited by the plant's Technical Specification.

(v) Any event or condition that alone could have prevented the fulfillment of the safety function of structures or systems that are needed to...(D) Mitigate the consequences of an accident.

(vii) Any event where a single cause or condition caused...two independent trains...to become inoperable in a single system designed to: (D) Mitigate the consequences of an accident."

Contrary to the above, the licensee determined on August 7, 1991, that the wrong type of recycle flow controllers had been installed in the CAC system, a system needed to mitigate the consequences of an accident, before initial plant startup in 1984, a condition which rendered both trains of the CAC system inoperable, but the NRC was not notified until October 31, 1991 and an LER was not submitted until December 2, 1991.

This is a Severity Level IV violation (Supplement I).

#### Validity of Violation

The Supply System acknowledges the validity of the violation. The complex and subtle nature of the CAC flow controller problem necessitated specific additional review by instrumentation, operating and system engineers to determine how the system would react in the automatic mode. However, it is acknowledged that a twelve week discovery time for this review was excessive. The cause of this event was an inadequate management process that allows decisions on reportability to extend beyond reasonable times.

Corrective Steps Taken/Results Achieved

1. Action was taken to reduce the backlog of items requiring a reportability evaluation to less than ten. A goal has been established to maintain the number of items at a very low level.
2. A survey was performed of the process/methods used by other utilities to manage reportable items. Information has been obtained from fourteen utilities on the process used to evaluate reportability and the average backlog.
3. The responsibility for root cause analysis in response to Notices of Violation has been transferred from the Compliance group (those responsible for performing reportability evaluations) to the Operating Experience Assessment group. This has freed up resources to perform reportability evaluations.

Corrective Action to be Taken

An independent assessment will be performed on the Reportability Evaluation process. This evaluation will look at resources vs tasks and determine how improvements can be made in the overall process taking into account information obtained from other utilities.

Date of Full Compliance

The Supply System is in compliance with this item at the present time as the backlog has been decreased to approximately ten open items. The independent assessment will be completed by July 1, 1992.

