

CATEGORY 1

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 AUTH. NAME AUTHOR AFFILIATION
 PARRISH, J.V. Washington Public Power Supply System
 RECIP. NAME RECIPIENT AFFILIATION
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SUBJECT: Submits response to NRC Bulletin 96-003, "Potential
 Plugging of Emergency Core Cooling Suction Strainers by
 Debris in BWRs."

DISTRIBUTION CODE: IE73D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 6
 TITLE: NRC Bulletin 96-03, "Potential Plugging of ECCS Strainers by Debris in BWRs."

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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

P.O. Box 968 • 3000 George Washington Way • Richland, Washington 99352-0968 • (509) 372-5000

November 4, 1996
GO2-96-217

Docket No. 50-397

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

Gentlemen:

Subject: **WNP-2, OPERATING LICENSE NPF-21, RESPONSE TO NRC BULLETIN 96-03, "POTENTIAL PLUGGING OF EMERGENCY CORE COOLING SUCTION STRAINERS BY DEBRIS IN BOILING WATER REACTORS"**

- References:
- 1) NRC Bulletin 96-03, dated May 6, 1996, "Potential Plugging of Emergency Core Cooling Suction Strainers by Debris in Boiling Water Reactors"
 - 2) Letter, GO2-96-202, dated October 16, 1996, JV Parrish (SS) to NRC, "Request for Extension in Implementation of Emergency Core Cooling System Suction Strainer Modifications Associated with NRC Bulletin 96-03"
 - 3) Letter, GO2-95-247, dated November 16, 1995, JV Parrish (SS) to NRC, "Response to NRC Bulletin 95-02"

This letter is in response to Reference 1 which requested that all Boiling Water Reactor (BWR) licensees take the following actions:

- 1) Implement appropriate procedural measures and plant modifications to minimize the potential for clogging of emergency core cooling system (ECCS) suppression pool suction strainers by debris generated during a loss-of-coolant-accident (LOCA), and

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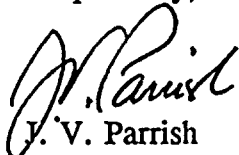
RESPONSE TO NRC BULLETIN 96-03, "POTENTIAL PLUGGING OF EMERGENCY CORE COOLING SUCTION STRAINERS BY DEBRIS IN BOILING WATER REACTORS"

- 2) Provide, by November 2, 1996, a written report indicating whether the licensee intends to comply with the requested actions, including a description of planned actions and mitigative strategies, a schedule for implementation, and proposed Technical Specification changes if appropriate. An additional report is required confirming completion and summarizing any actions taken.

The Supply System recognizes the significance of the issues addressed by Reference 1. The attachment to this letter provides the requested information.

Should you have any questions or desire additional information regarding this matter, please call me or Ms. L. C. Fernandez at (509) 377-4147.

Respectfully,



J. V. Parrish
Chief Executive Officer
Mail Drop 1023

REB

Attachment

cc: LJ Callan - NRC RIV
KE Perkins, Jr. - NRC RIV, Walnut Creek Field Office
NS Reynolds - Winston & Strawn
TG Colburn - NRR
DL Williams - BPA/399
NRC Sr. Resident Inspector - 927N

STATE OF WASHINGTON)
)
COUNTY OF BENTON)

Subject: Response to NRC Bulletin 96-03

I, J. V. PARRISH, being duly sworn, subscribe to and say that I am the Chief Executive Officer for the WASHINGTON PUBLIC POWER SUPPLY SYSTEM, the applicant herein; that I have the full authority to execute this oath; that I have reviewed the foregoing; and that to the best of my knowledge, information, and belief the statements made in it are true.

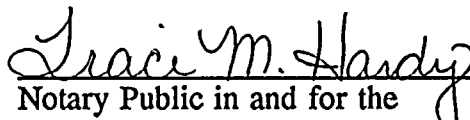
DATE November 4, 1996



J. V. Parrish
Chief Executive Officer

On this date personally appeared before me J. V. PARRISH, to me known to be the individual who executed the foregoing instrument, and acknowledged that he signed the same as his free act and deed for the uses and purposes herein mentioned.

GIVEN under my hand and seal this 4th day of November 1996.



Notary Public in and for the
STATE OF WASHINGTON

Residing at Kennelworth, WA

My Commission Expires 8/9/99



RESPONSE TO NRC BULLETIN 96-03, "POTENTIAL PLUGGING OF EMERGENCY CORE COOLING SUCTION STRAINERS BY DEBRIS IN BOILING WATER REACTORS"

Attachment
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Bulletin 96-03 requires a written report indicating whether the licensee intends to comply with the requested actions, including a description of planned actions and mitigative strategies, a schedule for implementation, and proposed Technical Specification changes if appropriate. The Supply System intends to comply with the requested actions of the Bulletin, with exceptions noted below. Additional detail is as follows:

Planned Actions and Mitigative Strategies

The Supply System will focus on three strategies to resolve the concerns raised by Bulletin 96-03:

- o Installation of large capacity passive strainers
- o Periodic cleaning of the suppression pool by underwater vacuuming and inspection of ECCS suction strainers
- o Maintenance of a Foreign Material Control program to limit debris and preclude ECCS strainer clogging.

Installation of Large Capacity Passive Strainers

The Supply System has considered the options available and determined that the installation of large capacity passive strainers is the most viable option for WNP-2. This determination is based on a preliminary strainer sizing evaluation based on methodology under development by the Boiling Water Reactor Owner's Group (BWROG) and criteria contained in Regulatory Guide 1.82, Revision 2, dated May 1996. The replacement strainers will be installed in the three loops of the Residual Heat Removal (RHR) System, in the Low Pressure Core Spray (LPCS) System, and in the High Pressure Core Spray (HPCS) System.

The assumptions utilized in the preliminary strainer sizing evaluation are discussed in Reference 2. The preliminary evaluation indicates that the replacement large capacity passive strainers (36" in diameter and approximately 24" long) are able to provide adequate net positive suction head (NPSH) margins. As noted in Reference 2, completion of the final strainer sizing evaluation is dependent on staff review and approval of the proposed methodology. The BWROG recommended strainer design methodology, currently titled "Utility Resolution Guidance (URG) for Suction Strainer Blockage," is scheduled for submittal to the staff in November, 1996.

RESPONSE TO NRC BULLETIN 96-03, "POTENTIAL PLUGGING OF EMERGENCY CORE COOLING SUCTION STRAINERS BY DEBRIS IN BOILING WATER REACTORS"

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Guidance from the staff approved URG will be used to define and approve the following evaluation parameters:

- o Break zone of influence for debris generation
- o Destruction factors for debris generation
- o Drywell to wetwell debris transport fractions
- o Drywell and suppression pool debris sources
- o Calculation methods for sizing suction strainers
- o Performance of new, alternate design strainers.

Following staff approval of the URG, the WNP-2 strainer sizing evaluation will be finalized.

Periodic Suppression Pool Cleaning and Inspection of ECCS Suction Strainers

Sediments accumulate in the suppression pool during normal plant operation. The combination of fibrous materials and sediment on the surfaces of a strainer can create unacceptable head loss across strainer surfaces. The strainer head loss prediction methodology developed by the BWROG accounts for this phenomenon. The preliminary strainer sizing evaluation assumed that sediments in the suppression pool are removed on a three (3) year interval. Sediments will be removed from the pool by underwater vacuuming on a frequency consistent with the value used in the final strainer sizing evaluation.

An inspection of the ECCS suction strainers will be completed during each refueling outage. The intent of this inspection is threefold. First, the inspection will confirm the integrity and material condition of the strainers. Second, any debris found on the strainer surfaces is removed and its probable source evaluated. Third, the inspections will ensure that the strainer surfaces are free of debris for the next operating cycle. In addition, during each refueling outage, an underwater inspection of the suppression pool will be performed. Any foreign materials identified on the pool surfaces or in the downcomers that could potentially clog ECCS suction strainers will be removed.

Maintenance of a Foreign Material Control Program

The WNP-2 Foreign Material Control program ensures that the containment drywell and suppression pool areas are maintained free of debris that could clog ECCS suction strainers. The program is designed to maintain control of items taken into the drywell which could be transported through the suppression pool downcomer openings into the suppression pool. The

RESPONSE TO NRC BULLETIN 96-03, "POTENTIAL PLUGGING OF EMERGENCY CORE COOLING SUCTION STRAINERS BY DEBRIS IN BOILING WATER REACTORS"

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program is also designed to maintain control of items taken into the wetwell which could clog ECCS system suction strainers, damage ECCS pump internals, or interfere with the pressure suppression function of the primary containment.

Schedule For Implementation

As noted in Reference 2, the Supply System will provide final resolution of Bulletin 96-03 issues by installing large capacity passive strainers during the scheduled Spring 1998 refueling outage. Based on the time necessary to obtain staff approval of the URG document, complete the final strainer sizing evaluation, and fabricate and deliver new strainers, the Supply System does not believe it is practical or appropriate to attempt to install new strainers during the Spring 1997 refueling outage. Implementation of final resolution of Bulletin 96-03 issues by Spring 1998 is still within the time frame and intent of the Bulletin, particularly had the Supply System been on an 18 or 24 month refueling cycle.

Proposed Technical Specification Surveillances

The Supply System does not plan to prepare a new Technical Specification surveillance to verify the cleanliness of ECCS suction strainers. The current WNP-2 Technical Specifications and NRC standards for BWRs (NUREG 1433 and 1434) do not contain surveillance requirements for ECCS suction strainers. As noted in Reference 3, the Supply System committed to the staff to perform a cleanliness inspection of ECCS suction strainers and the suppression pool on an annual basis, consistent with the 12 month refueling cycle. The results of past ECCS suction strainer inspections have shown the ECCS suction strainers to be clean and capable of supporting ECCS safety functions. Based on the observed cleanliness of the strainers and the suppression pool, the Supply System hereby changes our commitment to perform ECCS suction strainer inspections from an annual to a once per refueling cycle basis, in order to accommodate future refueling cycles that may extend to 18 or 24 months. A 24 month refueling cycle would be consistent with the 24 month maintenance interval that will be implemented on conversion to the Improved Technical Specifications.

The Supply System will issue a report to the staff within 30 days after installation of new passive ECCS suction strainers, confirming completion, and summarizing actions taken in response to Reference 1.