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SUBJECT: Responds to IEB-88-007, Suppl 1 "Power Oscillation In BWR."

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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

P.O. Box 968 • 3000 George Washington Way • Richland, Washington 99352

March 3, 1989
G02-89-030

Docket No. 50-397

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
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Gentlemen:

Subject: NUCLEAR PLANT NO. 2
RESPONSE TO IE BULLETIN 88-07, SUPPLEMENT 1
"POWER OSCILLATIONS IN BOILING WATER REACTORS"

Reference: 1) IE Bulletin 88-07, Supplement 1, "Power
Oscillations in Boiling Water Reactors (BWRs)",
dated December 30, 1988
2) Interim Recommendations for Stability Actions,
BWROG to BWROG Executives, November 3, 1988
3) BWROG to NRC, "NRC Bulletin No. 88-07, Supplement 1
Power Oscillations in Boiling Water Reactors",
dated January 26, 1989

IE Bulletin 88-07, Supplement 1 (Reference 1) was issued by the NRC with the stated purpose of 1) providing additional information concerning power oscillations in BWRs, and 2) requesting that addressees take action to ensure that the safety limit for the plant minimum critical power ratio (MCPR) is not violated.

The following actions were requested to be implemented within 30 days of receipt of the supplement:

- 1) Within 30 days of receipt of this supplement, all BWR licensees should implement the GE interim stability recommendations (Reference 2). However, for those plants that do not have effective automatic scram protection in the event of regional oscillations, a manual scram should be initiated under all operating conditions when two recirculation pumps trip (or "no pumps operating") with the reactor in run mode.

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- 2) The boundaries of Regions A, B, and C shown in Figure 1 of the GE recommendations (Reference 2) were derived for those BWRs using NRC approved GE fuel. For BWRs using fuel supplied by other vendors, these regions should be adopted in principle, but the power/flow boundaries should be based on existing boundaries that have been previously approved by the NRC. For proposed new fuel designs, the stability boundaries should be reevaluated and justified based on any applicable operating experience, calculated changes in core decay ratio using NRC approved methodology, and/or core decay ratio measurements. There should be a high degree of assurance that instabilities will not occur under any circumstances of operation in Region C.
- 3) The BWROG recommendations (Reference 2) are ambiguous with respect to permissible conditions for entry of Regions B and C. Although the recommendations state that intentional operation in Region B is not permitted and operation in Region C is permitted only for purposes of fuel conditioning during rod withdrawal startup operations, intentional entry into Region B and C is also allowable in situations where rod insertion or a flow increase is required by procedures to exit Regions A and B after unintentional entry. Licensees should ensure that the procedures and training employed for implementation of these recommendations avoid any similar ambiguity which could lead to operation confusion.

The purpose of this letter is to complete the reporting requirements of Supplement 1, that: "Within 50 days of receipt of this supplement, pursuant to 10CFR50.54(f), all holders of OLs shall advise the NRC by letter whether the requested actions have been completed and implemented." The Supply System response in implementing the requested actions outlined above is given, by associated number, below:

- 1) The GE interim stability recommendations were fully implemented by procedural revision November 15, 1988. In January, following receipt of the bulletin supplement, and within 30 days of receipt, an additional action requested by the NRC in Supplement 1 was implemented. The additional action requested was "a manual scram should be initiated under all operating conditions when two recirculation pumps trip (or 'no pumps operating') with the reactor in the run mode." This action was implemented by the Supply System in order to support the NRC and BWROG in responding to the stability issue. However, the Supply System's position is that there is no technical basis for the action as stated. We feel the original BWROG recommendation, to require a manual scram when Region A is entered, is adequate protection. Certainly a requirement to initiate a manual scram when a two pump trip occurs while in operation above the 80% rodline would be sufficiently conservative.

Several points need to be clarified with regard to implementation of the recommendations. First, as stated in the BWROG response to the supplement (Reference 3), during normal recirculation pump transfers at WNP-2 (a flow control valve plant), neither of the motor power sources is energized for the pump(s) while they are being transferred. This condition is not regarded as "no pumps operating" since pump rotation still exists. The Supply System does not interpret these normal speed transfer conditions as a two pump trip, and therefore a manual scram is not required. For the same reason, the Supply System does not interpret an automatic system transfer of both pump motor source from 50 Hz to 15 Hz as a two pump trip, and therefore no manual scram is required.

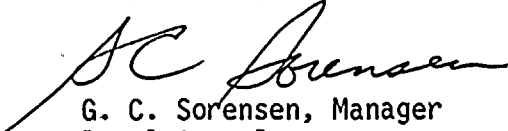
Second, as stated in the BWROG response, certain plant situations may require entry into these regions in order to protect fuel integrity and/or plant equipment. The Supply System endorses the BWROG extension of Interim Corrective Action #4 to allow entry into Regions B and C when a safety or fuel operating limit is challenged (e.g. PCIOMR violations), or in order to protect equipment which, if it were to fail, could impact plant safety. In these cases the appropriate actions for exiting the region will be performed.

Third, the Supply System interprets Interim Correction Action #4, which stated that "Intentional operation in Region C shall be allowed only for control rod withdrawals during startup requiring PCIOMR", to allow operation in Region C to complete control rod withdrawals in order to reach the target rod pattern without violating PCIOMRs 1) during reactor startups, 2) during recovery from power reductions, and 3) following sequence exchanges. Interim Correction Action #4 also states that "This region should be avoided for control rod sequence exchanges, surveillance testing and reactor shutdowns." The Supply System supports this recommendation and will comply with it. Item 3) above refers to establishing the target rod pattern following completion of the sequence exchange, not to conducting the row-by-row or column-by-column sequence exchange. Sequence exchanges will be conducted outside Region C.

- 2) As mentioned above, WNP-2 has implemented the GE/BWROG recommendations in operating procedures. The boundaries for Region A have been defined within these procedures such that they are consistent with or conservative to both the GE recommended boundaries and the existing stability boundary contained in WNP-2 Technical Specifications. A meeting was held with L. Phillips and H. Richings of the NRC on January 31, 1989 for two purposes; a) ensure that this interpretation was consistent with the intent of item 2) of the supplement; and b) discuss a proposed amendment to WNP-2 Technical Specifications to enlarge Region C in exchange for adopting a stronger stability monitoring capability, namely use of the ANNA Stability Monitoring System developed by Advanced Nuclear Fuels. This approach was favorably received. Accordingly WNP-2 intends to submit in the near future a proposed Technical Specification amendment which will replace existing detect-and-suppress Technical Specifications with Technical Specifications based on the ANNA system.

- 3) The BWROG recommendations have been fully implemented in plant procedures. Clear, concise immediate and subsequent operator actions have been delineated within these procedures in order to avoid ambiguities which could lead to operator confusion. In addition, specific training regarding stability events in general, and the specific implementation of the BWROG recommendations at WNP-2, has been conducted as part of the licensed operator requalification training program.

Very truly yours,


G. C. Sorensen, Manager
Regulatory Programs

MCH/bk

cc: JB Martin - NRC RV
NS Reynolds - BCP&R
RB Samworth - NRC
DL Williams - BPA/399
NRC Site Inspector - 901A

STATE OF WASHINGTON)
)
COUNTY OF BENTON)

Subject: Response to IEB 88-07, Supplement 1

I, G. C. SORENSEN, being duly sworn, subscribe to and say that I am the Manager, Regulatory Programs, for the WASHINGTON PUBLIC POWER SUPPLY SYSTEM, the applicant herein; that I have 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.

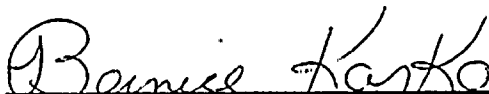
DATE 3 MARCH, 1989



G. C. SORENSEN, Manager
Regulatory Programs

On this day personally appeared before me G. C. SORENSEN 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 3rd day of March, 1989.



Notary Public in and for the
State of Washington
Residing at Kennecook, WA

ML14350A140

Unanalyzed Failed Modes Discovered for Containment Nitrogen System.. Dated November 12, 1989.

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