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SUBJECT: Provides suppl info to util request for amend to TS for jet
 pump operability. Informs that change would modify
 surveillance acceptance criteria from 10% to 20% for
 individual jet pump diffuser-to-lower plenum pressure.

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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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February 10, 1995
GO2-95-031

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
REQUEST FOR AMENDMENT TO TECHNICAL SPECIFICATION
SURVEILLANCES 4.4.1.2.1 AND 4.4.1.2.2 FOR JET PUMP
OPERABILITY - SUPPLEMENTAL INFORMATION**

- References:
- 1) Letter GO2-92-011, GC Sorensen (SS) to NRC, "Request for Amendment to Technical Specification Surveillances for Jet Pump Operability," dated January 14, 1992.
 - 2) Letter WM Dean (NRC) to GC Sorensen (SS), "Issuance of Amendment No. 106 for the Washington Public Power Supply System Nuclear Project No. 2 (TAC No. M79393)," dated June 15, 1992.

The purpose of this letter is to provide supplemental information to the Supply System's request for amendment to Technical Specification for jet pump operability submitted by Reference 1. Reference 1 proposed technical and editorial changes to Technical Specification Surveillances 4.4.1.2.1 and 4.4.1.2.2 "Jet Pumps" and editorial changes to Technical Specification 3/4.8.3, "Onsite Power Distribution Systems." These proposed changes do not require modification of Bases sections 3/4.4.1 or 3/4.8.3.

The proposed change would modify the surveillance acceptance criteria from 10% to 20% for individual jet pump diffuser-to-lower plenum differential pressure variations of any individual jet pump from established patterns.

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REQUEST FOR AMENDMENT TO TECH SPEC SURVEILLANCES 4.4.1.2.1 AND 4.4.1.2.2 FOR JET PUMP OPERABILITY - SUPPLEMENTAL INFORMATION

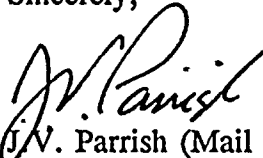
In addition, the proposed change would modify the operability demonstration requirements from "prior to THERMAL POWER exceeding 25% of RATED THERMAL POWER and at least once per 24 hours" to at least once per 24 hours with THERMAL POWER greater than 25% of RATED THERMAL POWER.

Additional editorial corrections are also requested. Further detail is provided in Attachment 1 to this letter. Attachment 2 provides the marked up copies of the Technical Specification pages.

Granting this request involves no safety impact and does not involve a significant hazards consideration. This request for Technical Specification amendment was approved by the Plant Operating Committee and the Supply System Corporate Nuclear Safety Review Board. In accordance with 10CFR50.91, the State of Washington has been provided a copy of this letter. Attachment 3 provides the No Significant Hazards Consideration and Environmental Considerations summaries.

Should you have any questions or desire additional information regarding this matter, please call me or D.A. Swank at (509) 377-4563.

Sincerely,



J.V. Parrish (Mail Drop 1023)
Vice-President, Nuclear Operations

LCF/ml
Attachments

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



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REQUEST FOR AMENDMENT TO TECH SPEC SURVEILLANCES 4.4.1.2.1 AND 4.4.1.2.2 FOR JET PUMP OPERABILITY - SUPPLEMENTAL INFORMATION

Attachment 1
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This attachment will address recent NRC questions regarding the Supply System's request for amendment (Reference 1) to Technical Specification surveillances 4.4.1.2.1 and 4.4.1.2.2 for the jet pumps and other editorial changes. Information is provided on the following:

- i. Change in permissible diffuser-to-lower plenum differential pressure of any individual jet pump from established recirculation loop operation patterns (i.e., the individual jet pump differential pressure compared to the loop jet pump average differential pressure); from 10% to 20%
- ii. Change to surveillance requirements regarding 4 hour grace period
- iii. Change to LCO regarding 4.0.4 applicability
- iv. Editorial change to Technical Specification surveillance 4.4.1.2.2.c regarding word substitution (diffuser for difference)
- v. Editorial change to Technical Specification 3/4.8.3, "Onsite Power Distribution Systems" equipment piece number description

Reference 1 had requested an editorial change to revise the page numbers identified in the index for Technical Specification 3/4.7.8 "Area Temperature Monitoring" and 3/4.7.9 "Main Turbine Bypass System." This change was made by Technical Specification Amendment No. 106, provided by Reference 2, and is therefore deleted from this request.

In addition, the "No Significant Hazards Consideration" has been revised and "Environmental Considerations" summary added. These are provided in Attachment 3.

ADDITIONAL DETAILS

- i. Change in permissible diffuser-to-lower plenum differential pressure of any individual jet pump from established two recirculation loop operation patterns; from 10% to 20%:

The proposed change adjusts the surveillance acceptance criteria from 10% to 20% for individual jet pump diffuser-to-lower plenum differential pressure variations from established patterns. This acceptance criteria is located in surveillance 4.4.1.2.1.c which verifies operability of the jet pumps. This change conforms the Technical Specifications to the recommendations of SIL-330 (General Electric Service Information Letter Number 330) and NUREG/CR-3052 (Closeout of IE Bulletin 80-07: BWR Jet Pump Assembly Failure), which endorses the SIL-330.

SIL-330 discusses jet pump hold-down beam cracks, beam inspection, and jet pump performance monitoring to detect potential problems. SIL-330 also recommends a jet pump performance surveillance program to permit detection of an inoperable jet pump

REQUEST FOR AMENDMENT TO TECH SPEC SURVEILLANCES 4.4.1.2.1 AND 4.4.1.2.2 FOR JET PUMP OPERABILITY - SUPPLEMENTAL INFORMATION

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and establishes criteria for inclusion in operating procedures and the Technical Specifications.

SIL-330 specifies a 10% criteria for individual jet pump flow distribution. When measured by jet pump diffuser-to-lower plenum differential pressure, the equivalent limit is 20% (differential pressure) because of the relationship between flow and differential pressure. Additionally, discussion with GE personnel indicates that two distinct values for the same parameter are recommended to differentiate between regulatory requirement levels and more restrictive administrative levels at which additional evaluation or consideration might be prudent. It was intended that the Technical Specification criteria, which can result in plant shutdown, not be overly conservative. The operating procedure, however, was provided with more restrictive administrative criteria to ensure an early evaluation of trends which could be indicative of significant component degradation.

WNP-2 Reactor Recirculation (RRC) System includes twenty jet pumps which are located in the annular region between the core shroud and vessel inner wall to increase core flow. Each recirculation loop serves 10 jet pumps with each pair of jet pumps supplied with driving flow from a single riser pipe. Each jet pump consists of a nozzle assembly, a mixer section and a diffuser.

Four of the twenty jet pumps have two instrument taps on their diffuser section for flow measurements. For these double tap jet pumps, the measured differential pressure value is processed through a square root convertor in order to provide a readout proportional to flow, rather than differential pressure, on individual instruments in the control room RRC panel. One of the diffuser taps on each pump (together with below core plate pressure) provides a single tap reading, in percent of full span of differential pressure, on a control room back panel.

The other 16 jet pumps each have an individual instrument tap on the diffuser and share a common, below core plate instrument tap to provide a differential pressure measurement. These instruments also read out in percent differential pressure, on the control room back panel.

The measured differential pressure values for all 20 jet pumps are used for the Technical Specification surveillance procedure. The surveillance procedure provides for either an automated (from the plant process computer) or manual analysis of measured differential pressure. The single tap differential pressure values are also used to generate total core flow which is indicated on the control room RRC panel.

Since WNP-2 uses the differential pressure measurement, the variance allowed should have been 20%, as recommended in SIL-330 and NUREG/CR-3052. Even though the change conforms to vendor recommendations, modification of this value from 10% to

REQUEST FOR AMENDMENT TO TECH SPEC SURVEILLANCES 4.4.1.2.1 AND 4.4.1.2.2 FOR JET PUMP OPERABILITY - SUPPLEMENTAL INFORMATION

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20% is considered a relaxation from existing requirements. This change is consistent with NUREG-1433 and NUREG-1434 (Improved Technical Specifications).

The Supply System request to implement SIL-330 recommendation into the jet pump operability Technical Specification surveillance is appropriate for consistency with vendor recommendations to Technical Specification operability surveillances. Technical Specification surveillance requirement presently identifies a 10% deviation for differential pressure. This number should be 20% differential pressure deviation. The surveillance procedure presently identifies a 10% deviation for differential pressure. This procedure acceptance criteria will be changed to 20% to implement the requested Technical Specification amendment. As recommended by SIL-330, a 10% differential pressure deviation value will be added as an administrative threshold value for further evaluation, to monitor and evaluate trends which could be indicative of component degradation.

ii. Requested change to surveillance requirements regarding 4 hour grace period:

For consistency with the Improved Technical Specifications, this change proposes addition of Note 1 to the surveillance section indicating that the surveillances are not required to be performed until 4 hours after the associated recirculation loop is in operation. The four hours is an acceptable time to establish conditions appropriate for data collection and evaluation because these checks can only be performed during jet pump operation.

iii. Requested change to LCO regarding 4.0.4 applicability:

The amendment requested insertion of a note to the APPLICABILITY statement which indicates that the provisions of Technical Specification 4.0.4 are not applicable provided the surveillance is performed within 12 hours after exceeding 25% of RATED THERMAL POWER.

For consistency with the Improved Technical Specifications, the Supply System is requesting that this note be moved to the surveillance section and the 12 hour requirement be changed to 24 hours. This has been identified as Note 2. Note 2 allows the surveillances to be performed when THERMAL POWER > 25% of RATED THERMAL POWER (RTP). During low flow conditions, jet pump noise approaches the threshold response of the associated flow instrumentation and precludes the collection of repeatable and meaningful data. Currently, the surveillances are required whenever there is recirculation flow and the reactor is in Startup or Power Operation Operational Conditions.

REQUEST FOR AMENDMENT TO TECH SPEC SURVEILLANCES 4.4.1.2.1 AND 4.4.1.2.2 FOR JET PUMP OPERABILITY - SUPPLEMENTAL INFORMATION

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iv. Technical Specification surveillance 4.4.1.2.2.c discussion for diffuser:

An editorial change is requested to surveillance 4.4.1.2.2.c. Presently, the surveillance refers to: "The indicated difference-to-lower plenum differential pressure of any individual jet pump..." The word "difference" should be changed to "diffuser."

The jet pump nozzles increase the driving water velocity which results in a low pressure area at the mixer section. The low pressure area draws and entrains water from the downcomer annulus into the mixer section where the driving and driven flow mix and decrease flow velocity while increasing pressure. The process of converting velocity to pressure (head) continues in the diffuser section as the diffuser diameter increases until the coolant exits the jet pump and enters the lower plenum area.

It is the differential pressure at the (upper) diffuser-to-lower plenum which is used to monitor jet pump and recirculation loop operation. Diffuser is the correct term and is consistent with surveillance 4.4.1.2.1.c.

v. Editorial change to Technical Specification 3/4.8.3, "Onsite Power Distribution Systems":

The correction to 3.8.3.1.b.1.d is requested for consistency with 3.8.3.2.b.1.d and 3.8.3.2.b.1.i.

This correction clarifies that distribution panel DP-S1-1F is the Division 1 125-VDC critical switch gear distribution panel and DP-S1-1D is the Division 1 remote shutdown distribution panel. Presently 3.8.3.1.b.1.d incorrectly identifies DP-S1-1D as both the 125 VDC critical switchgear and remote shutdown distribution panel. These are two separate panels, i.e., DP-S1-1F and DP-S1-1D, respectively and should be identified as such consistent with 3.8.3.2.b.1.d and 3.8.3.2.b.1.i descriptions.