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SUBJECT: Application for amend to license NPF-21,revising TS SR 3.8.1.8 to allow for capability to manually transfer between preferred & alternate offsite power sources during Modes 1 & 2 by 990125.

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WASHINGTON PUBLIC POWER SUPPLY SYSTEM
P.O. Box 968 • Richland, Washington 99352-0968

December 17, 1998
GO2-98-215

Docket No. 50-397

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

Gentlemen:

Subject: **WNP-2, OPERATING LICENSE NPF-21**
REQUEST FOR AMENDMENT
TECHNICAL SPECIFICATION SR 3.8.1.8

In accordance with the Code of Federal Regulations, Title 10, Parts 2.101, 50.59 and 50.90, the Supply System hereby submits a request for amendment, to the WNP-2 Operating License. Specifically, the Supply System is requesting a revision to Technical Specification Surveillance Requirement 3.8.1.8 to allow for the capability to manually transfer between the preferred and alternate offsite power sources during Modes 1 and 2 by January 25, 1999.

This surveillance is performed to verify both the automatic and manual transfer of the power supply to safety related buses from the startup (preferred) offsite source to the backup (alternate) offsite source. The transfer of the 4.16 kV Division 1 and 2 bus power supplies from the startup offsite source to the backup offsite source demonstrates the operability of the alternate source distribution network to power the Division 1 and 2 shutdown loads. However, the surveillance is currently modified by a restriction in the form of a note which states that the surveillance shall not be performed while in Modes 1 and 2.

The proposed change would modify the note pertaining to Surveillance Requirement 3.8.1.8 by specifying that the mode restriction would only apply to the automatic transfer between the preferred and alternate offsite power sources. By this proposed change, there would not be a mode limitation for the manual transfer between offsite power sources.

The change is needed to support post-maintenance testing following ongoing repairs to Circulating Water (CW) system pump CW-P-1C. On November 22, 1998, the pump was taken out of service due to increasing and excessive pump shaft vibration trends.

A001

Accordingly, the motor was removed, the pump was disassembled and the pump shaft and impeller were shipped offsite to the vendor for repair and replacement activities. Following repair efforts, the pump and motor combination will be reassembled, tested and returned to service. The first electrical test of the 5060 hp motor is currently scheduled for late January 1999 as part of the post-maintenance test plan following reassembly of CW-P-1C.

This request is warranted because the plant would have to be placed in a shutdown condition to perform the proposed, and technically appropriate, method for conducting the electrical portion of the post maintenance test for CW-P-1C. The manual transfer simply involves the momentary paralleling of the 230 kV and 115 kV offsite AC power sources through step-down transformers. The paralleling of offsite AC power sources is a controlled evolution and the increased risk associated with the performance of this evolution while the unit is at power is not significant. During operation with the reactor critical, performance of this activity will not cause perturbations to the electrical distribution systems that could challenge continued steady-state operation and, as a result, plant safety systems. Plant mode has no impact on the manual transfer between offsite power sources. The manual transfer function does not cause perturbations of the electrical distribution systems because this evolution consists of a make-before-break (bumpless) transfer.

Manually transferring between electrical sources during power operation is consistent with the WNP-2 FSAR and is also allowed by the Improved Technical Specifications for the Carolina Power & Light Brunswick Steam Electric Plant. However, WNP-2 Technical Specification Surveillance Requirement 3.8.1.8 as written currently does not allow for a manual transfer between the preferred and alternate offsite power sources during Modes 1 and 2.

Approval of this proposed amendment will result in decreased plant risk by allowing the manual transfer between the preferred and alternate offsite power sources during any plant mode. This will reduce the potential for plant transients and unnecessary challenges to safety-related systems and components for those occasions when transfer between the preferred and alternate offsite power sources is necessary in support of plant conditions.

In this particular case, the proposed amendment will allow for decreased plant risk during testing of CW-P-1C because the manual transfer between the preferred and alternate offsite power sources does not cause perturbations of the electrical distribution systems. Approval of the proposed amendment by January 25, 1999 is requested due to the short time between when the CW-P-1C pump and motor combination will be reassembled and the post maintenance testing is scheduled to be performed.

The loss of CW-P-1C currently results in about a ten percent reduction in main condenser efficiency. Additionally, having one circulating water pump out of service removes the redundancy normally available should an operating pump trip or require emergency shutdown. If two circulating water pumps were out of service, there would not be sufficient heat removal capability from the main condenser, which would require a significant downpower (to approximately 60 percent). Although the main condenser is not required for safe shutdown of the reactor and does not perform safety functions, degradation of the condenser in the form of a loss of circulating water could also lead to a loss of condenser vacuum, which removes the effective ability of the condenser as a heat sink. Loss of condenser vacuum causes the main turbine to trip.

Additional information is attached to this letter to complete the amendment request. Attachment 1 provides a detailed description and the basis for acceptability of the proposed change. Attachment 2 consists of the evaluation of significant hazards consideration. Attachment 3 contains the environmental considerations evaluation. Attachment 4 contains the marked-up pages of the Technical Specifications which, if approved, will be used to implement the modified surveillance requirement. Attachment 5 consists of the typed Technical Specification pages as they would be revised by this amendment request.

The Supply System has concluded that the proposed changes contained in this letter do not result in a significant hazards consideration. The changes proposed in this letter have also been evaluated using the identification criteria for licensing and regulatory actions requiring an environmental assessment as specified in 10 CFR 51.21. The proposed amendment meets the eligibility criteria for a categorical exclusion as set forth in 10 CFR 51.22. Therefore, an environmental assessment of the proposed change is not required.

This request for an amendment to Technical Specification Surveillance Requirement 3.8.1.8 has been approved by the WNP-2 Plant Operations Committee and reviewed by the Supply System Corporate Nuclear Safety Review Board. In accordance with 10 CFR 50.91, the State of Washington has been provided a copy of this letter.

Should you have any questions or desire additional information pertaining to this matter, please call PJ Inserra at (509) 377-4147.

Respectfully,

GO Smith
Vice President, Generation
Mail Drop 927M

Attachments

cc: EW Merschoff - NRC RIV
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C Poslusny, Jr - NRC NRR
NRC Senior Resident Inspector - 927N
DJ Ross - EFSEC
PD Robinson - Winston & Strawn
DL Williams - BPA/399

STATE OF WASHINGTON)
)
COUNTY OF BENTON)

Subject: Operating License NPF-21
Request for Amendment
Technical Specification SR 3.8.1.8

I, GO Smith, being duly sworn, subscribe to and say that I am the Vice President, Generation 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 DECEMBER 17, 1998

GO Smith
Vice President, Generation

On this date personally appeared before me, GO Smith, 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 17 day of December 1998

Notary Public in and for the
STATE OF WASHINGTON

Residing at W. Richland

My Commission Expires 3-29-01

NOTARY PUBLIC
STATE OF WASHINGTON
COMMISSION EXPIRES
JULY 1, 1987

Description of the Proposed Changes

Summary of Proposed Technical Specification Request

The Supply System is requesting a revision to Technical Specification Surveillance Requirement 3.8.1.8 to allow for the capability to manually transfer between the preferred and alternate offsite power sources during Modes 1 and 2 by January 25, 1999.

This surveillance is performed to verify both automatic and manual transfer of the power supply to safety related buses from the startup offsite source to the backup offsite source. The transfer of the 4.16 kV Division 1 and 2 engineered safety feature bus (SM-7 and SM-8) power supplies from the startup offsite source to the backup offsite source demonstrates the operability of the alternate source distribution network to power the Division 1 and 2 shutdown loads. However, the surveillance is currently modified by a restriction in the form of a note which states that the surveillance shall not be performed while in Modes 1 and 2. As stated in the Technical Specification Bases, the reason for the note is that, during operation with the reactor critical, performance of the surveillance could cause perturbations to the electrical distribution systems that could challenge continued steady-state operation and, as a result, plant safety systems.

The proposed change would modify the note and associated Technical Specification Bases pertaining to Surveillance Requirement 3.8.1.8 by specifying that the mode restriction would only apply to the automatic transfer between the preferred and alternate offsite power sources. By this proposed change, the note would not be applicable to verification of manual transfer of the unit power supply from the preferred offsite source to the alternate offsite source, since the manual transfer does not cause perturbations of the electrical distribution systems because this evolution consists of a make-before-break (bumpless) transfer. Unlike the manual transfer, the automatic transfer consists of a break-before-make (dead-bus) evolution.

The change is needed to support post-maintenance testing following ongoing repairs to Circulating Water (CW) system pump CW-P-1C. Pump CW-P-1C was removed from service due to excessive pump shaft vibration. The pump has been disassembled and sent offsite for repairs. Following repair efforts the pump/motor combination will be reassembled, tested and returned to service.

For ease of reference, a brief description of the AC distribution system is discussed as follows. The AC distribution system includes the normal, startup and backup transformers, the emergency diesel generators, the 6900, 4160, 480 and 120 volt systems and associated transformers, switchgear and circuitry.

Station startup and shutdown power comes from a 230 kV offsite electrical grid through Startup Transformer TR-S. The startup transformer usually supplies station auxiliary loads when the main generator is not available. Station normal power is supplied from the main generator by means of Normal Auxiliary Transformers TR-N1 and TR-N2. Normal Transformer TR-N1 and Startup Transformer TR-S supply power to 4.16 kV Non-Critical Buses SM-1, SM-2 and SM-3. Normal Transformer TR-N2 and Startup Transformer TR-S supply power to 6.9 kV Non-Critical Buses SH-5 and SH-6.

When the main generator is ready, all station auxiliary loads are manually transferred from TR-S to TR-N1 and TR-N2. Normal supply to Critical Buses SM-7 and SM-8 is from Non-Critical Buses SM-1 and SM-3. Station backup power from a 115 kV offsite electrical grid through Backup Transformer TR-B can be supplied to Critical Buses SM-7 and SM-8.

Emergency power from dedicated diesel generators can be supplied to Critical Buses SM-4, SM-7 and SM-8.

Basis for Proposed Technical Specification Request

Pump CW-P-1C is powered by Bus SM-3, which also supplies Bus SM-8. Bus SM-3 is normally energized from transformer TR-N1 when the main generator is operating and from TR-S when the main generator is not operating. When conducting monthly emergency diesel generator testing, SM-3 is manually transferred from TR-N1 to TR-S. This manual transfer evolution is similar to the evolution of manually transferring SM-8 to TR-B [i.e., make-before-break (bumpless) transfer].

The first electrical test of the pump motor is currently scheduled for late January 1999 as part of the post-maintenance test plan following reassembly of CW-P-1C. To support testing of the pump motor while in Mode 1, the desired post-maintenance test plan following reassembly of CW-P-1C includes the manual transferring of Bus SM-8 to TR-B.

During the post-maintenance electrical start of the 5060 hp, 186,000 gpm pump, a bus voltage drop to approximately 88 percent (lasting for approximately three seconds) is expected to occur. This is the expected voltage decrease for a normal circulating water motor and pump start as part of routine plant operations. However, due to the potential for encountering uncertainties following the intrusive maintenance on CW-P-1C, there is the possibility that a more significant (either in magnitude or duration) bus undervoltage condition could occur during testing. This has the potential for challenging safety-related electrical buses and the associated emergency diesel generators, thus, the decision to manually transfer SM-8 to TR-B before performing the post-maintenance test.

The design of the undervoltage protection scheme is such that the primary undervoltage relays are set at 69 percent of nominal bus voltage and the secondary undervoltage relays are set at 89.4 percent of nominal bus voltage. Undervoltage protection for Buses SM-7 and SM-8 is enacted at both the primary and secondary undervoltage protection levels. The primary undervoltage setpoint is sufficiently low to prevent relay actuation during motor starting. An eight-second time delay at the secondary undervoltage level allows for transient conditions due to motor starts or source voltage oscillations. If the eight-second time delay is exceeded, the source breaker will trip and initiate the automatic transfer to the backup source or the associated emergency diesel generator.

The proposed post-maintenance electrical distribution alignment will reduce the potential for an electrical transient and minimize the impact on safety-related components and other plant equipment by manually transferring the safety-related bus such that it will be isolated from the CW-P-1C testing.

However, with the current Technical Specifications, the plant will have to be placed in a shutdown condition to perform the proposed, and technically appropriate, method for conducting the electrical portion of the post maintenance test for CW-P-1C. The proposed activity simply involves the momentary paralleling of the 230 kV and 115 kV offsite AC power sources through step-down transformers. The paralleling of offsite AC power sources is a controlled evolution and the increased risk associated with the performance of this evolution while the unit is at power is not significant.

The manual closing of one source breaker automatically causes the other to trip, allowing only momentary paralleling of the two sources. There is also a voltage permissive which allows the closure of the source breaker, eliminating the potential of closing the source breaker without the presence of voltage at that source. The performance of this activity will not cause perturbations to the electrical distribution systems that could challenge continued steady-state operation or adversely impact plant safety systems.

Manually transferring between electrical sources during power operation is consistent with the WNP-2 FSAR and is also allowed by the Improved Technical Specifications for the Carolina Power & Light Brunswick Steam Electric Plant.

As part of the Improved Technical Specifications for the Brunswick plant, the note for Surveillance Requirement 3.8.1.8 was changed to reflect that the surveillance only applies to verification of automatic transfer capability of the unit power supply from the normal circuit to the preferred offsite circuit. As stated in the Brunswick Technical Specification Bases, the reason for applying the restriction in this case is that the automatic transfer function could cause perturbations to the electrical distribution systems that could challenge continued steady-state operation and, as a result, plant safety systems. It is also stated in the Brunswick Technical Specification Bases that the note is not applicable to verification of the manual transfer of the unit power supply from the preferred offsite circuit to the alternate offsite circuit since this evolution does not cause perturbations of the electrical distribution systems.

In the safety evaluation report for the Brunswick Improved Technical Specifications, this was determined to be acceptable based upon Generic Letter 91-04, "Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle." The requirements that certain surveillance testing be performed "during shutdown" were removed from the Brunswick Technical Specifications in accordance with the guidance contained in the Generic Letter. It was concluded that the requirements were prerequisites for performance of the surveillances and were not necessary for ensuring the requirements of the affected surveillance requirements are satisfied. It was also concluded that surveillances such as the manual transfer of the unit power supply form the normal circuit to the alternate circuit would be able to be performed in other than shutdown conditions without jeopardizing safe plant operations.

In the Brunswick safety evaluation report, it is stated that the control of plant conditions appropriate to perform tests is an issue for procedures and scheduling and has been determined by the NRC Staff to be unnecessary as Technical Specification restrictions. As indicated in Generic Letter 91-04, allowing this control is consistent with the vast majority of other Technical Specification surveillances that do not dictate plant conditions for performance of the surveillances. Therefore, it was determined that the changes were consistent with the standard Technical Specifications and the changes specified are acceptable.

Although a complete loss of offsite power is not anticipated as the result of the manual transfer, a risk analysis has been performed for the plant configuration of the unavailability of TR-S and TR-B for the period of time allowed by the Limiting Condition for Operation for Technical Specification 3.8.1.8. It was determined that the evaluated plant configuration was not risk significant (i.e., a core damage probability of $<$1E-6). In addition, operating history shows that transferring of offsite AC power sources has been performed several times without electrical distribution system perturbations.

Approval of the proposed amendment by January 25, 1999 is requested due to the short time between when the CW-P-1C pump and motor combination will be reassembled and the post-maintenance testing is scheduled to be performed.

The loss of CW-P-1C currently results in about a ten percent reduction in main condenser efficiency. Additionally, having one circulating water pump out of service removes the redundancy normally available should an operating pump trip or require emergency shutdown. If two circulating water pumps were out of service, there would not be sufficient heat removal capability from the main condenser, which would require a significant downpower (to approximately 60 percent).

Although the main condenser is not required for safe shutdown of the reactor and does not perform safety functions, degradation of the condenser in the form of a loss of circulating water could also lead to a loss of condenser vacuum, which removes the effective ability of the condenser as a heat sink. Loss of condenser vacuum causes the main turbine to trip.

Evaluation of Significant Hazards Considerations

Summary of Proposed Change

The Washington Public Power Supply System is requesting a revision to Technical Specification Surveillance Requirement 3.8.1.8 to allow for the capability to manually transfer between the preferred and alternate offsite power sources during Modes 1 and 2 by January 25, 1999.

The proposed change modifies the note pertaining to Surveillance Requirement 3.8.1.8 by specifying that the mode restriction only applies to the automatic transfer between the preferred and alternate offsite power sources. By this proposed change, there would not be a mode limitation for the manual transfer between offsite power sources. The change is needed to support post-maintenance testing following ongoing repairs to Circulating Water (CW) system pump CW-P-1C.

Manually transferring between electrical sources during power operation is consistent with the WNP-2 FSAR. However, WNP-2 Technical Specification Surveillance Requirement 3.8.1.8 as written currently does not allow for a manual transfer between the preferred and alternate offsite power sources during Modes 1 and 2.

No Significant Hazards Consideration Determination

The Washington Public Power Supply System has evaluated the proposed change to the Technical Specifications using the criteria established in 10 CFR 50.92(c) and has determined that it does not represent a significant hazards consideration as described as follows:

- **The operation of WNP-2 in accordance with the proposed amendment will not involve a significant increase in the probability or consequences of an accident previously evaluated.**

  The proposed change would remove a specific restriction to allow for the performance of the verification of the manual transfer of the unit power supply from the preferred source to the alternate source during Modes 1 and 2. The transfer of the unit power supply from the preferred source to the alternate source is not an initiator of any previously analyzed accident. Therefore, this proposed change does not increase the frequency of such accidents.

  This test is performed by conducting a manual transfer which momentarily parallels the 230 kV and 115 kV offsite AC power sources through step-down transformers. Paralleling of offsite AC power sources is a controlled evolution and the risk associated with the performance of the test while the unit is at power is not significant.

This conclusion is based upon several factors such as: 1) the frequency and voltages are verified to be within the required range prior to paralleling the two offsite AC power sources; 2) breaker interlocks ensure that voltage is available from the alternate circuit and that the alternate circuit is connected to the load prior to opening the preferred circuit; 3) the test does not result in de-energization of any 4.16 kV emergency bus or challenge to any protective relay and the potential for electrical perturbations on the distribution system is the same whether performing the transfer while the unit is at power or while shutdown; and 4) operating history indicates that transferring offsite AC power sources while the unit was shutdown or operating has been performed satisfactorily without electrical distribution system perturbations.

The appropriate plant conditions for performance of the surveillance test will continue to be controlled to ensure that any potential consequences are not significantly increased. This control method has been previously determined to be acceptable as indicated in Generic Letter 91-04, "Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle."

Therefore, operation of WNP-2 in accordance with the proposed amendment will not involve a significant increase in the probability or consequences of an accident previously evaluated.

- **The operation of WNP-2 in accordance with the proposed amendment will not create the possibility of a new or different kind of accident from any accident previously evaluated.**

The proposed change removes a specific restriction on the plant conditions for performing a surveillance test, but does not change the method of performance. The appropriate plant conditions for performance of the surveillance test will continue to be controlled to ensure that the possibility for a new or different type of accident is not created. This control method has been previously determined to be acceptable as indicated in Generic Letter 91-04.

The proposed change does not impact the ability of the electrical distribution system to function and mitigate electrical-related transients or accidents. No new failure modes will be introduced and no existing failure modes will be impacted by the proposed change to Technical Specification Surveillance Requirement 3.8.1.8. Operating history indicates that transferring offsite AC power sources while the unit was shutdown or operating has been performed satisfactorily without electrical distribution system perturbations (i.e., during transfer of SM-3 to TR-S and transfer of SM-8 to TR-B).

Therefore, the operation of WNP-2 in accordance with the proposed amendment will not create the possibility of a new or different kind of accident from any accident previously evaluated.

- **The operation of WNP-2 in accordance with the proposed amendment will not involve a significant reduction in the margin of safety.**

  The margin of safety considered in determining the appropriate plant conditions for performing the surveillance test will continue to be controlled to ensure that there is no significant reduction. This control method has been previously determined to be acceptable as indicated in Generic Letter 91-04.

  The proposed removal of a specific mode restriction does not impact the functional design, logic or control scheme of any component or system. The AC sources in one division must be operable and independent (to the extent possible). One offsite circuit is allowed to be tied to all engineered safety feature buses, and not violate the separation criteria, provided the necessary automatic transfer capability is operable.

  If power is supplied to SM-8 by means of TR-B, then one offsite circuit is inoperable (TR-S) because the automatic transfer capability is inoperable. The lineup of SM-8 to TR-B is bounded by and requires a voluntary entry into Technical Specification 3.8.1, "AC Sources - Operating."

  Although a complete loss of offsite power is not anticipated as the result of the manual transfer, a risk analysis has been performed for the plant configuration of the unavailability of TR-S and TR-B for the period of time allowed by the Limiting Condition for Operation for Technical Specification 3.8.1.8. It was determined that the evaluated plant configuration was not risk significant (i.e., a core damage probability of $<$1E-6). In addition, operating history shows that transferring of offsite AC power sources has been performed several times without electrical distribution system perturbations.

  Therefore, operation of WNP-2 in accordance with the proposed amendment will not involve a significant reduction in the margin of safety.

Attachment 3

Environmental Assessment Applicability Review

The Washington Public Power Supply System has evaluated the proposed amendment against the criteria for identification of licensing and regulatory actions requiring environmental assessment in accordance with 10 CFR 51.21.

It has been determined that the proposed change meets the criteria for categorical exclusion as provided for under 10 CFR 51.22(c)(9). This conclusion has been determined because the change requested does not pose a significant hazards consideration nor does it involve an increase in the amounts, or a change in the types, of any effluent that may be released off-site.

Furthermore, this proposed request does not involve an increase in individual or cumulative occupational exposure.