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SUBJECT: Application for amend to License NPF-21, changing TS 3/4.3.3
 re ECCS actuation instrumentation, degraded voltage protection
 to reflect rev to design calculations governing values &
 clarifying degraded voltage protection logic.

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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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September 2, 1992
G02-92-209

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
3/4.3.3 EMERGENCY CORE COOLING SYSTEM ACTUATION INSTRUMENTATION,
DEGRADED VOLTAGE PROTECTION

In accordance with the Code of Federal Regulations, Title 10 Parts 50.90 and 2.101, the Supply System hereby submits a request for amendment to the WNP-2 Technical Specifications. This proposal requests that the emergency bus undervoltage degraded voltage trip and time delay setpoints, allowable values and associated action statement be changed (as attached) to reflect a revision to the design calculations governing these values. The action statement change is proposed to allow corrective action to be accomplished in an appropriate timeframe thereby avoiding precipitous plant shutdowns. Additional changes are proposed to the listing of trip and allowable values (Table 3.3.3-2) to make the tables more easily read and understood and finally, an addition to the Bases is included to clarify the degraded voltage protection logic.

The emergency bus degraded voltage trips act to protect Class 1E equipment from the adverse effects caused from sustained operation under low grid voltage conditions. Prolonged operation at a reduced voltage condition could adversely effect the Class 1E electric motors and devices required for adequate operation of the emergency core cooling systems (ECCS). Accordingly, a trip set at the minimum steady state voltage limit of the electrical distribution system actuates a time delay relay on decreasing voltage. If grid voltage does not recover to a reset (pickup) value before the time delay times out, the source breakers to the effected bus are tripped. Automatic power restoration from either off-site 115KV or the emergency diesel generators will then return power to the class 1E loads on the effected bus.

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The degraded voltage trip setpoints and time delays contribute to diesel generator starting, emergency bus load shedding and diesel generator loading logic. As such, proper operation is essential to the operability of the ECCS. A recent revision to the design calculations for the maximum and minimum voltage and associated time delay minimum and maximum values for setpoint trip and allowable values has resulted in the proposed changes to Technical Specification Table 3.3.3-2. Further, in order to recognize the benefits of the flexibility of the WNP-2 design, it is proposed that action statement 38 be expanded to three action statements for emergency bus divisions 1 and 2 and two action statements for division 3.

The expanded action statements will allow action to be taken to restore failed equipment in a timely manner consistent with other action statements in the technical specifications rather than commence an expedited plant shutdown. With respect to emergency bus divisions 1 and 2, the present technical specification (action statement 3.3.3.b) requires that after 24 hours action statement 3.0.3 (shutdown within 6 hours) to be entered if two out of three channels of protection are inoperable. Because the technical specifications do not explicitly address this condition, 3.0.3 must be entered. However all three channels inoperable has the same effect as if the associated backup bus and diesel generator were inoperable. Under these conditions the backup source and diesel generator would not receive a signal to attempt to pick up the bus. Therefore the effect is the same as if they were inoperable. The appropriate action statement for this condition is 3.8.1.1.a which requires restoration within 72 hours or commencement of a plant shutdown. The present action statements, 3.3.3.b and 3.0.3 entry are overly conservative in light of the action required by Technical Specification 3.8.1.1.a. Therefore, action statement 40 is proposed to provide a consistent level of action, allowing more time for corrective action, for the same level of equipment inoperability. The "MINIMUM CHANNELS OPERABLE" value of "2/bus" is changed to "1/bus" to address this situation and recognize that no degraded voltage protection exists, and as seen in the proposed action statement, a more comprehensive compensatory action is required under this condition. In summary, action statement 40 would provide 48 hours for corrective action before invoking a shutdown requirement.

Action statement 38 for divisions 1 and 2 is proposed to recognize the flexibility of the three channel design. With three channels provided, removing an inoperable channel creates a two out of two logic and provides the same level of protection as that for division 3. Hence all three emergency busses would have a consistent two out of two level of protection under these conditions. The present action statement 38 would require placing the inoperable channel in the tripped condition thereby creating a one out of two trip logic and exposing the plant to a higher probability of experiencing a transient due to a single spurious signal.



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Action statement 41 for division 3 is the same as the present action statement 38 with the exception that the phrase "operation may then continue until performance of the next required CHANNEL FUNCTIONAL TEST" has been deleted. This phrase does not apply to division 3 because, as stated in Table 4.3.3.1-1, ECCS Actuation Instrumentation Surveillance Requirements, there presently is no channel functional test required for division 3.

Action statement 39 for divisions 1 and 2 is proposed to recognize that three channels are provided for these divisions and one operable channel with one of the two inoperable channels tripped provides the same level of protection as presently recognized by action statement 38 for division 3. Division 3 has 2 channels and, by action statement 38, with one inoperable it is tripped and operation is continued. Thereby a one out of one trip logic for division 3 is provided. The proposed action statement 39 recognizes that three channels are provided for divisions 1 and 2 and provides the same action requirements for a one out of one trip logic as presently required for division 3 and also in the new action 41 discussed above. This allows consistent action to be taken for all three divisions with the same trip logic remaining operable.

Action statement 39 also removes the phrase "operation may then continue until performance of the next required CHANNEL FUNCTIONAL TEST". Depending on where in the surveillance test schedule this action is entered operation could be allowed for 29 days or, if the inoperability occurs before the monthly channel functional test, the interval could be hours. The interval allowed is inconsistent in comparison with that allowed by the present action 38 on division 3. In considering the severity of shutting down in hours as compared to 29 days, the span of operation that is allowed is arbitrary. There is no reason to require a plant shutdown when the Surveillance is due as the remaining channel in a one out of one logic remains capable of performing the intended safety function. Hence continued operation is proposed as being consistent with the action presently allowed by technical specifications for the same trip logic operability on division 3.

Action statement 42 for division 3 accomplishes the same change as action statement 40 does for divisions 1 and 2. Both channels inoperable for division 3 essentially causes the division 3 diesel generator to be inoperable; i.e. incapable of picking up the bus. The action statement entered when diesel generator 3 is inoperable is 3.8.1.1.c which allows 72 hours for restoration before declaring the HPCS system inoperable. Presently after 24 hours action statement 3.3.3.b directs the operator to "take the ACTION required by Table 3.3.3-1", which, because Table 3.3.3-1 does not address two inoperable channels on division 3, would require entry into action statement 3.0.3 with the accelerated shutdown schedule. This action is overly conservative compared to 3.8.1.1.c which allows 72 hours before declaring the HPCS system inoperable and then continuing operation for 14 days in accordance with action 3.5.1.c. As proposed, action statement 42 provides direction consistent with the action presently required for a failed division 3 diesel generator. In summary the proposed action would provide 48 hours (action 3.3.3.b [24 hours] and action 42

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with 24 hours) before declaring the HPCS system inoperable as compared to the present action that allows 24 hours (action 3.3.3.b) before commencing a shutdown. The proposed action is similar to that directed when DG-3 is inoperable, i.e. 72 hours to restore or declare the HPCS system inoperable. Again the "MINIMUM CHANNELS OPERABLE" value of "2/bus" is changed to "1/bus" to address this situation and to recognize that no degraded voltage protection exists, and as seen in the proposed action statement, a more comprehensive compensatory action is required under this condition.

The changes proposed in table format for Table 3.3.3-2 are editorial and do not impact the technical requirements of the table. They provide clarification and make the table more user friendly. The changes clearly show the values for each division, where the previous table could foster confusion in following division values from the column under "D. LOSS OF POWER" to "TRIP SETPOINT" and "ALLOWABLE VALUE". Presently divisions 1 and 2 are subheaded "a." and two Trip Setpoints are also subheaded "a.". The proposed clarification to this table removes this potential confusion. Further the footnote ## is corrected to reflect the WNP-2 design. The footnote has an "or" statement that would imply two different types of voltage relays could be used in the "Loss of Voltage" protection circuitry. There is only one type used in the WNP-2 design: instantaneous voltage relays. The remainder of the changes to this footnote are editorial clarifications. The footnote implies that lower voltages will result in decreased trip times. The WNP-2 design uses a fixed time delay relay.

Additionally the footnote "(a)" has been appended to the "MINIMUM CHANNELS OPERABLE" column for the Loss of Power instruments. This footnote allows inoperability for 6 hours during surveillance testing without placing the instrument being tested in trip. The footnote applies to all the other trip instruments in the ECCS Actuation Instrumentation table and should also apply to the Loss of Power instruments. Footnote applicability to the entire table, including the Loss of Power instruments, is consistent with the use of the footnote in both the Reactor Protection System and Isolation Actuation Instrumentation tables. The layout of the present Loss of Power section of the table, without the footnote, appears to have been an oversight.

The format for "ALLOWABLE VALUES" is also changed to reflect that maximum and minimum values are not derived from the same design protection or breaker coordination standpoints. A "±" on a single value under the heading "ALLOWABLE VALUE" might imply that the single value is the desired setpoint yet it would not necessarily be the same value under the "TRIP SETPOINT" column. Accordingly maximum and minimum values are provided.



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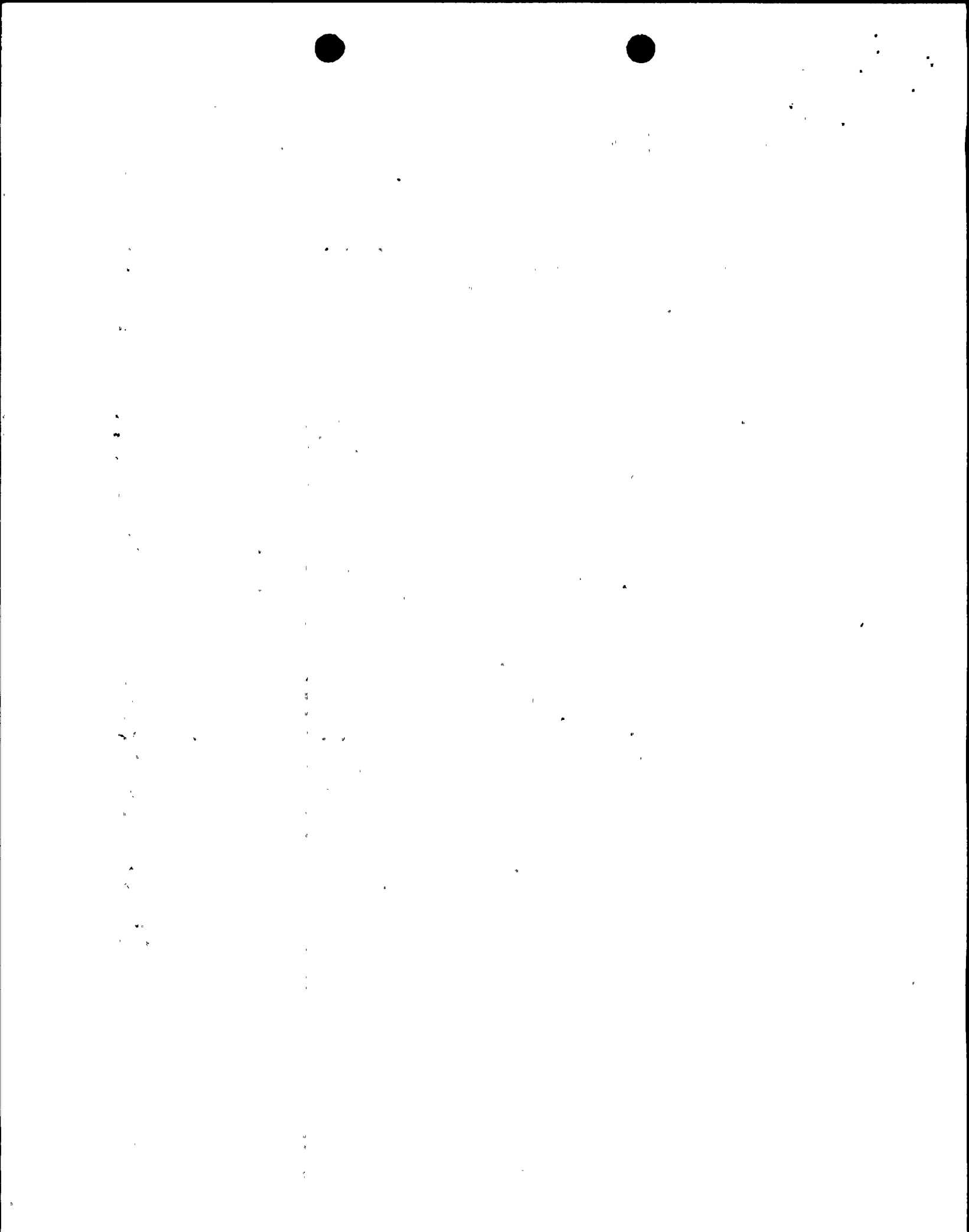
With respect to the proposed changes to the time delay and voltage setpoints and allowable values the Supply System has evaluated this change request per 10 CFR 50.92 and determined that it does not represent a significant hazards consideration because it does not:

- 1) Involve a significant increase in the probability or consequences of an accident previously evaluated. The revised calculation demonstrates that implementation of the proposed values preserves the original design requirements of the electrical distribution system. These values will ensure that the degraded voltage trip will operate; trip, reset and time out as required by the original design. Therefore, because the original design is satisfied by these changes, no change in the probability or consequences of a previously evaluated accident is credible.
- 2) Create the possibility of a new or different kind of accident from any accident previously evaluated. The proposed changes in degraded voltage and time delay trip setpoints and allowable values do not create the possibility of a new or different kind of accident from any previously evaluated because they do not represent a change in modes of plant operation or require physical modifications. The change preserves the original electrical distribution system design requirements. Hence, no new or different kind of accident is possible as a result of implementing these changes.
- 3) Involve a significant reduction in a margin of safety. The changes in degraded voltage and time delay relay setpoint and allowable values do not affect a margin of safety because the values preserve the original electrical distribution system design requirements. Therefore, no margin of safety is impacted by this change.

With respect to the proposed changes in the action statement the Supply System has evaluated these changes per 10 CFR 50.92 and determined that they do not represent a significant hazards consideration because they do not:

- 1) Involve a significant increase in the probability or consequences of an accident previously evaluated. The revised action statements (40 and 42) for loss of all channels provide a similar level of required action for a failed diesel generator or backup power supply as required by the present technical specifications. Hence no change in the probability or consequences of a previously evaluated accident is credible.

Action statements 39 and 41 (one channel operable and one channel tripped) provide the same level of protection as presently allowed by existing action 38 for division 3 degraded voltage protection. Hence with respect to division 3, the action statement does not represent a change to the previous level of protection provided and therefore no change in the probability or consequences of a previously evaluated accident is credible for division 3. Presently, with respect to divisions 1 and 2 after a 24



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hour interval having one channel of protection operable would require a plant shutdown on an accelerated timeframe (entry into action statement 3.0.3). The proposed action with continued operation (action 39) allows the same level of protection as that presently allowed for division 3. The risk of continued operation with one operable channel (actuation due to a spurious signal) is offset by the risk inherent in an accelerated shutdown. The risk of a legitimate degraded voltage condition occurring and not causing a trip (single failure) is acceptable due to the redundant division being available to meet design bases accident requirements under the single failure criterion. Therefore this change does not represent a significant increase in the probability or consequences of a previously evaluated accident.

For divisions 1 and 2 action statement 38 (an inoperable channel of the three provided removed from service) provides two out of two trip logic protection. This is the same protection as presently provided for division 3. Further the present action statement requires the inoperable channel to be put in trip thus establishing a one out of two trip logic. Proposed action statement 38 then decreases the exposure of the plant to a spurious or inadvertent trip actuation. It is considered that this decrease in exposure and risk from a spurious or inadvertent trip is more significant than the risk of continued operation with a two out of two trip logic. Therefore this change does not represent a significant increase in the probability or consequences of a previously evaluated accident.

- 2) Create the possibility of a new or different kind of accident from any accident previously evaluated. Because the degraded voltage protection trips and time delay relays are mitigating design features and cannot create conditions for a new or different kind of accident. The proposed action statement changes do not place the plant in a new or different operating configuration. As stated above, the risk of a legitimate degraded voltage condition occurring and not causing a trip (single failure) is addressed by the redundancy of design. Therefore, the possibility of a new or different kind of accident with these action statements is not credible.
- 3) Involve a significant reduction in a margin of safety. As stated above, action statements 40 and 42 provide a similar level of required action as does an inoperable diesel generator or backup power supply. Hence these action statements, being similar to that presently allowed by the technical specifications, do not represent a significant reduction in a margin of safety.

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For divisions 1 and 2 proposed action statement 38 provides a two out of two trip logic as opposed to the presently required one out of two trip requirement of action statement 38. The two out of two trip logic provides more protection against spurious or inadvertent trips than does the presently required action. Thus plant risk is decreased. Because action statement 38 provides a two out of two trip protection, continued operation is not considered to represent a significant reduction in a margin of safety. Two out of two trip logic is a commonly accepted design trip logic configuration. Further, any safety reduction is offset by the decreased risk of a spurious or inadvertent trip. Accordingly, the new action statement 38 does not represent a significant reduction in a margin of safety.

As stated above, new action statement 41 for division 3 is the same as the present action statement 38. Hence this change can not represent a significant reduction in a margin of safety.

Action statement 39 for divisions 1 and 2 avoids entry into the shutdown schedule of action statement 3.0.3 and maintains the same level of required action as presently required for division 3 with one inoperable trip channel. Again the risk due to continued operation with one operable trip channel is offset by the inherent risks of an accelerated shutdown requirement. As discussed above, the risk of a legitimate degraded voltage condition occurring and not causing a trip (single failure) is acceptable due to the redundant division being available to meet design bases accident requirements under the single failure criteria. Further, the risk of a degraded condition is minimal due to the strength of the Pacific Northwest hydroelectric based grid system. Accordingly, this change does not represent a significant reduction in a margin of safety.

With respect to the proposed changes in the table format and footnotes the Supply System has evaluated these changes per 10 CFR 50.92 and determined that they do not represent a significant hazards consideration because they do not:

- 1) Involve a significant increase in the probability or consequences of an accident previously evaluated. These changes are editorial; specifying the type of time delays designed for, and presently used, at WNP-2 (Table 3.3.3-2), enhancing the ease of reading Table 3.3.3-2, and correcting the oversight of the applicability of the "a" footnote (Table 3.3.3-1). These changes, as editorial, have no impact on the WNP-2 design nor in the capability of the plant to respond to an accident condition. As a result, incorporation of the changes does not represent an impact in the probability or consequences of an accident.



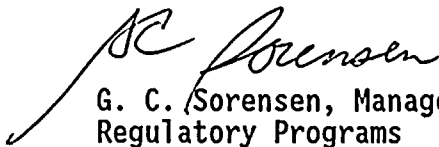
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- 2) Create the possibility of a new or different kind of accident from any accident previously evaluated. Because these changes are editorial and a clarification of design, they cannot, by implementation, place the plant in a new or different operating configuration. Hence there is no probability of a new or different kind of accident being created with the implementation of these changes.
- 3) Involve a significant reduction in a margin of safety. As stated above these changes are editorial and do not represent a change to the technical capabilities of the plant. Accordingly they do not represent a significant reduction in a margin of safety. To the contrary, as clarification and enhancements to the tables they contribute to the ease of understanding the tables. As such they have a positive contribution to overall plant safety.

As discussed above, the Supply System concludes that these changes do not involve a significant hazards consideration, nor is there a potential for a significant change in the types or significant increase in the amount of any effluents that may be released offsite, nor does the change involve a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed change meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) and therefore, per 10 CFR 51.22(b), an environmental assessment of these changes is not required.

This Technical Specification change request has been reviewed and approved by the WNP-2 Plant Operations Committee and 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.

Very truly yours,


G. C. Sorensen, Manager
Regulatory Programs

PLP/bk
Attachments

cc: RG Waldo - EFSEC
JB Martin - NRC RV
NS Reynolds - Winston & Strawn
RR Assa - NRC
DL Williams - BPA/399
NRC Site Inspector - 901A

STATE OF WASHINGTON)
COUNTY OF BENTON)

Subject: Request for Amend to TS
Degraded Voltage

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 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 7 Sept., 1992

G. C. Sorensen
G. C. Sorensen, Manager
Regulatory Programs

On this date 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 7 day of September 1992.

Bennie Kato
Notary Public in and for the
STATE OF WASHINGTON

Residing at Kennewick, Washington

My Commission Expires April 28, 1994

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