WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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

July 17, 1995
GO2-95-135

2

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**
NRC INSPECTION REPORT 95-03,
REPLY TO A NOTICE OF VIOLATION

Reference: Letter GI2-95-144, dated June 16, 1995, TP Gwynn (NRC) to JV Parrish (SS), "NRC Inspection Report 50-397/95-03 and Notice of Violation"

The Supply System's reply to the referenced Notice of Violation, pursuant to the provisions of Section 2.201, Title 10, Code of Federal Regulations, is attached.

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

CJF/ml
Attachments

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

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Appendix A

VIOLATIONS

During an NRC inspection conducted on February 13 through March 14, 1995, three violations of NRC requirements were identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," 10 CFR Part 2, Appendix C, the violations are listed below:

A. 10 CFR Part 50, Appendix B, Criterion V, states, in part, "Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings."

1. Procedure EI 2.8, "Generating Facility Design Changes Process," Revision 11, Section 4.1.8.a. states that "[drawing change notices] DCNs shall be prepared in accordance with Attachment 5.10 and shall be listed on the document control system input sheet."

   Contrary to the above, as of March 3, 1995, a drawing change notice was not prepared, or included on a document control system input sheet, for the Final Safety Analysis Report Drawing 02E12-04,10,1; Sheets 1 and 2, and the drawing was not updated.

2. Procedure PDS-5, "Design Safety Analysis and 10 CFR 50.59 Review Guidance," Revision 2, Attachment 7.1, requires a safety evaluation for modifications which affected the fire hazards analysis.

   Contrary to the above, on February 20, 1991, and January 23, 1992, a safety evaluation addressing potential fires and their effects, was not performed for the addition of a filter/polisher unit in the diesel fuel oil system. This modification affected the fire hazards analysis.

This is a Severity Level IV violation (Supplement I) (397/9503-01).

B. Criterion III of Appendix B to 10 CFR Part 50 states that measures shall be established to assure that the design basis are correctly translated in procedures and instructions.

Contrary to the above, as of March 3, 1995, established measures did not assure that:

1. The design basis of the standby service water system was correctly translated into procedures and instructions in that the acceptance criteria of Procedures 7.4.7.1.1.1 and 7.4.7.1.1.2 did not account for variations in spray pond level or pump degradation.

2. The design basis of the diesel fuel oil system was correctly translated into procedures and instructions in that the acceptance criteria of the surveillance test procedures did not account for variations in suction conditions or pump degradation.

3. The design basis of the spent fuel pool cooling system was correctly translated into procedures and instructions in that the acceptance criteria of the surveillance test procedures did not account for variations in suction pressure or pump degradation.

This is a Severity Level IV violation (Supplement I) (397/9503-02).

C. Criterion V of Appendix B to 10 CFR Part 50 states, in part, that "[a]ctivities affecting quality shall be prescribed by documented instructions...of a type appropriate to the circumstances...."

Contrary to the above, as of March 3, 1995, Procedure 10.2.8, Testing and Repair of Safety and Relief Valves, Revision 15, was not appropriate to the circumstances in that:

1. Section 4.0 did not contain any precaution related to the determination of adjustment ring position prior to disassembly;

2. Section 6.2 did not require an authorized nuclear inspector review for testing and resetting of relief valves;

3. Section 6.1.2.j did not provide any instructions on which direction to turn the rings, nor did it identify a reference point for counting turns and notches;

4. Section 6.1.8.d stated that the adjusting rings should be installed to the same position as when removed or to the manufacturer's specifications; however, in the same section, it was stated that the ring positions were for information only; and,

5. Section 6.2.5.b stated that adjustment rings for liquid service valves had little or no influence over the valve reseat characteristics.

This is a Severity Level IV violation (Supplement I) (397/9503-06).

<u>REPLY TO NOTICE OF VIOLATION A - EXAMPLE 1</u>

The Supply System accepts the violation identified by Example 1.

REASON FOR VIOLATION A - EXAMPLE 1

The violation is the result of an error made by the engineer during preparation of design change package BDC-94-0022-0A. A contributing cause is the presence of redundant documentation items in the WNP-2 design database. In this case, drawing 02E12-04,10,1 is one of the original flow diagrams supplied by General Electric as part of the nuclear steam supply contract for the Residual Heat Removal (RHR) system. The GE flow diagrams are almost exclusively used as FSAR figures because they were used in the original licensing submittals and often include information recommended by Regulatory Guide 1.70 but not needed for plant operation. The architect-engineer also provided a flow diagram, M521, for the RHR system which included details of instrumentation and control not found on the GE drawings. As a result, the architect-engineer drawings are currently used to support plant operations, in preference to the original GE flow diagrams. While procedure EI 2.8 requires that all drawings affected by a design change be updated, the difference in detail between drawing 02E12-04,10,1 and M521, and the use of M521 in daily plant operations had a practical effect of de-emphasizing the importance of the GE drawings to the engineer in the process of developing the design change. Since the subject drawing is not used to maintain, operate or modify the plant, the omission was not potentially safety significant, however, maintenance of the FSAR consistent with plant configuration is necessary.

CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED - VIOLATION A - EXAMPLE 1

CVI drawing 02E12-04,10,1 was revised on March 9, 1995 to include the piping bypass installed by PMR 94-0022. The annual FSAR update to be submitted in the fall of 1995 will include the revised drawing. The requirement to update all documents affected by a design change and to comply with all engineering procedures was emphasized to design engineers involved in the design change.

CORRECTIVE STEPS TO BE TAKEN TO AVOID FURTHER VIOLATIONS - VIOLATION A - EXAMPLE 1

The GE drawings will be removed from the active design database by designating them as historical information, not to be updated. The FSAR will be changed to satisfy Regulatory Guide 1.70 by other means, so that use of the GE drawings will no longer be necessary. This will eliminate the redundant documentation in the active design database and will thus address the contributing cause of the violation.

REPLY TO VIOLATION A - EXAMPLE 2

The Supply System does not agree that Example 2 is a violation of Criterion V of Appendix B of 10 CFR 50. The information available to the inspectors was incomplete leading to a misunderstanding of the scope of fire protection reviews performed for procedure PDS-5.

Additional information is being provided as follows.

The WNP-2 Fire Protection Program was reviewed and approved under NRC branch technical position CMEB 9.5-1 which states in part "...The fire protection program is to ensure the capability to shut down the reactor and maintain it in a safe shutdown condition and to minimize radioactive releases to the environment in event of a fire" and "The fire hazards analysis should demonstrate the plant will maintain the ability to perform safe shutdown functions and minimize radioactive releases to the environment in the event of a fire." Generic Letter 86-10 requires that our FSAR include a description of the Fire Protection Program, which includes the Fire Hazards Analysis prepared under the guidance of CMEB 9.5-1, and which states in part "Potential fire consequences are evaluated to ensure that a fire will not jeopardize the capability to achieve and maintain post-fire safe shutdown." Clearly, regulatory intent for fire protection programs is to assure that fire could not adversely affect safe shutdown.

The identified design change resulted in the installation of equipment to remove impurities from diesel fuel stored in underground tanks. The installation is physically remote from the power block buildings such that no direct or indirect effects could accrue to safety-related or safe shutdown systems if a fire occurred in that location. Consequently, the analysis of the impact of potential fires in that installation was not included in the Fire Hazards Analysis pursuant to the scope of the Fire Protection Program as discussed above.

However, in accordance with FSAR commitments, NOS-39, "Fire Protection Program," commitments made in response to NRC Inspection 86-25, and PPM 1.3.10 "Fire Protection Program Implementation," design changes must be reviewed for any impact on the WNP-2 Fire Protection Program and are to be performed by the SFPE member grade qualified Fire Protection Engineer.

Accordingly, the fire protection review of BDC 83-0107-1A was performed on 3-13-91, per Engineering Instruction EI 2.8 "Generating Facility Design Change Process". This review was performed in accordance with Support Services Instruction SSI 7.11 and is documented by the signature of the licensed, SFPE member grade Fire Protection Engineer on the "Documentation of Fire Protection Review" and on the BDC "Design Review/Approval Record". Copies are available on-site for that review. It should be noted that this design change was reviewed in March of 1991. Since that date, the process has been improved to require more consistent documentation of reviews of design changes for facilities that are remote from and unconnected with any function related to WNP-2 Safe Shutdown capability.

The fire protection review of the fuel oil filter polisher building design change consisted of reviewing the proposed skid and building design to determine the quantity and type of fire hazard. Specific discussions were held by the Fire Protection Engineer with the design engineer regarding the separation of the underground tanks and the quantity of fuel in the polisher building during use and non-use conditions. System design verified that the 7 day supply of fuel oil in each storage tank can be maintained and supplemented without using the filter/polisher

unit. Also, each storage tank has a flame arrestor, and the Fuel Oil Polisher building is equipped with a fire detection system. All the isolation valves between the Diesel Storage Tanks and the Fuel Oil Polisher remain closed except during fuel transfers.

The skid and building design were reviewed to determine:

1. The adequacy of the separation of the building from existing structures and equipment;

2. The adequacy of the design when compared to NFPA, UBC and ANI Fire/All Risk requirements;

3. The adequacy of the fire detection/suppression equipment provided; and

4. The adequacy of the design when compared to regulatory commitments (review against FSAR Fire Protection Evaluation). A revision to the plant fire hazards analysis as documented in Appendix F to the FSAR was determined not to be required, as the building is non-safety related and does not represent a hazard to existing safety related structures or equipment, or to safe shutdown capability.

A detailed review of the modification was also performed by the ANI Fire/All Risk representative and comments were resolved with the Supply System Fire Protection Engineer.

<u>DATE OF FULL COMPLIANCE - VIOLATION A - EXAMPLES 1 AND 2</u>

The Supply System has been in full compliance since March 9, 1995 when drawing 02E12-04,10,1 was revised to include the piping bypass installed by PMR 94-0022.

<u>REPLY TO NOTICE OF VIOLATION B</u>

The Supply System does not agree that Criterion III of Appendix B of 10 CFR 50 has been violated as stated in Paragraph B.

- **Standby Service Water (SW) System**

The safety function of the SW system is to remove heat from safety related plant systems in both normal and emergency conditions. This is accomplished by providing the correct water flow rates to heat exchangers transferring heat from the plant systems to the SW system. Paragraph B cited Procedures 7.4.7.1.1.1 and 7.4.7.1.1.2 as those which should include SW pump testing. However, those procedures are intended to verify the operability of the SW system per Technical Specification 4.7.1.1.a, and to verify the flow balance of the system annually. The procedures specifically identify an acceptable range of flow rates to the various heat exchangers. These flow rates are consistent with the results of technical analyses performed in calculations, and are based on the capability to remove heat from heat exchangers in serviced systems to maintain safety system temperatures within acceptable limits, independent of derivative considerations such as spray pond level, details of SW pump operation, etc. Consequently, the acceptance criteria in test procedures 7.4.7.1.1.1 and 7.4.7.1.1.2 are correctly based on the SW system design bases which is defined in other technical documents.

The SW system was designed under the rules of Section III of the ASME Boiler & Pressure Vessel (ASME B&PV) Code. Compliance with 10 CFR 50.55a(f)(4) requires inservice testing per Section XI of the ASME code. However, the Section XI test methodology, as established by ASME/ANSI Operations and Maintenance Standards, Part 6, is to attempt to duplicate by test a set of reference values which are to be determined from the result of preservice testing or first inservice test. Deviations detected are symptoms of changes and, depending on the degree, indicate need for further tests or corrective action. Therefore, the Section XI testing is performed to identify possible functional degradation due to normal wear, not to impose test conditions that duplicate conditions postulated for recovery from FSAR Chapter 15 accidents. The annual flow balance performed per surveillance procedures 7.4.7.1.1.1 and 7.4.7.1.1.2 verifies compliance with the governing system design bases, and therefore verifies that the pump satisfies its safety function. The total of the flow rates designated in the surveillance procedures is between 87% and 95% of the nominal capability of the pump. Quarterly testing uses IWP-1000 of Section XI as the bases for the pump test methodology and acceptance criteria, with which the 87% to 95% range is generally consistent.

Technical Specification 3.7.1.3 requires that, for all operational conditions, the spray pond be maintained at or below 77°F with a level of at least 432 feet 9 inches above mean sea level. The normal spray pond level is 433 feet 6 inches with an overflow level of 434 feet 6 inches. The SW pump intake is at an elevation of 408 feet 3 inches. Thus, the design is such that pump submergence ranges between 24 feet 6 inches and 25 feet 3 inches, with a maximum potential of 26 feet 6 inches at pond overflow levels. The pumps require a minimum of 4 feet of submergence to operate effectively. Analysis for post-accident cases shows the spray pond level to remain within Technical Specification limits and rise in bulk temperature to less than 89°F, at which water properties are essentially unchanged from 77°F. Consequently, Technical Specification requirements in force at all times establish spray pond conditions such that any resultant variations in pump submergence or water temperature would result in insignificant effects on pump operation during any test.

- **Standby Electric Power**

The safety function of the Standby Electric Power system is to provide power to safety related systems to assure that the health and safety of the public is not adversely affected by an accident coincident with loss of offsite power. Diesel engines driving the electrical generators require an adequate supply of fuel oil, which is supplied to the engine fuel pumps from day tanks installed approximately at the same elevation as the engine fuel pumps. The day tanks are in turn supplied with fuel from the underground storage tanks by fuel transfer pumps using an automatic fill system based on day tank level. The design of the fuel oil supply system is such that each day tank is normally supplied from a particular one of three underground storage tanks, but if conditions warrant fuel can be supplied from any of the underground tanks to other day tanks by operator action. The safety function of the fuel transfer pumps is to maintain fuel oil level in the day tanks. The flow rate of these pumps was chosen to supply oil to the day tanks at rates well in excess of diesel engine fuel consumption and has no direct relationship to diesel engine function. Diesel engine fuel consumption is periodically tested and was measured in 1992 as approximately 352 gallons per hour for Division 1 or 2 generator sets (2 engine drivers) and 210 gallons per hour for Division 3 generator (one engine driver). This measured consumption was similar to earlier results. The fuel transfer pumps delivery rates are 1660, 1760, and 1699 gallons per hour for Divisions 1, 2, and 3 respectively as measured by tests performed in 1994. Thus, the pumps are capable of providing oil to the day tanks at rates 4.7 to 8 times that actually required by system operation.

The fuel oil system external to the engine is designed to the rules of Section III of the ASME B&PV code, and per 10 CFR 50.55a must be tested per Section XI. The pump tests discussed above were performed in conjunction with ASME system pressure tests of the fuel oil systems. As discussed above, inservice testing for pumps is performed quarterly to detect possible functional degradation resulting from normal wear. The tests performed to verify compliance with the design bases of the fuel transfer pumps is not one of the various ASME tests but rather the monthly test performed per Technical Specifications 4.8.1.1.2 which encompasses the entire standby electrical power system. The test procedures, e.g. PPM 7.4.8.1.1.2.1, verify that the fuel transfer pumps actually perform their safety function of delivering fuel oil from the underground tank to the day tank. Since this is the design bases function of the pumps, and no specific flow rate other than engine consumption rate is required to accomplish that function, test procedure PPM 7.4.8.1.1.2.1 is in accordance with plant design bases.

- **Fuel Pool Cooling System**

The specific design bases of the Fuel Pool Cooling (FPC) system is to minimize corrosion product buildup and fission product concentrations in the system, maintain water in the spent fuel pool at levels needed for shielding purposes, and to maintain pool water temperatures below 125°F under normal conditions, or up to 150°F during some phases of refueling operations. Water drawn from the spent fuel pool is circulated by a pump through a heat exchanger and demineralizers and is then returned to the pool. Redundant pumps and heat exchangers are included in the design, but a single pump and heat exchanger is sufficient for satisfactory operation. The design includes a valve used to throttle system flow to approximately 575 gallons per minute (gpm). The system operates continuously in steady state mode except during annual refueling operations at a loop flow of 575 gpm. The minimum water level permitted by Technical Specification 3.9.9 in the spent fuel pool is 22 feet above the top of fuel assemblies any time that irradiated fuel is stored in the pool. Water levels are somewhat higher when the system is used in conjunction with refueling. System conditions as established by Technical Specification and operational requirements are within narrow limits, and are unaffected by accidents or operation of other systems. Therefore, no specific surveillance test is specified to confirm system operation because routine operational monitoring verifies system compliance with its design bases on a continuous basis.

The system is designed to the rules of Section III of the ASME B&PV code, and per 10 CFR 50.55a must be tested per Section XI. The Section XI test for the FPC pumps requires adjustment of the throttling valve to bring system flow to 600 gpm. However, that was chosen as a condition only to establish a test baseline. As is the case for the SW and DO pumps, Section XI testing is performed to identify possible functional degradation resulting from normal wear, not to provide a periodic verification of assumptions used in the design of the plant. The design basis of the plant, as required by the ASME B&PV code, is correctly translated in procedures.

REPLY TO NOTICE OF VIOLATION C

The Supply System accepts the violation identified in Paragraph C.

REASON FOR VIOLATION C

The violation is the result of excessive reliance on the skill of craftsmen qualified to adjust and maintain relief valves, and insufficient review of vendor manuals during the process of preparing a detailed maintenance procedure, resulting in a weak procedure.

CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED - VIOLATION C

Procedure PPM 10.2.8 was extensively revised to correct the error dealing with the influence of adjustment ring setting on relief valve relieving characteristics, to require the signature of the Authorized Nuclear Inspector to document his review of the requirements for as-found and post-maintenance testing of ASME Section III relief valves, and to include sufficient generic detail for use by the craftsmen in maintaining and adjusting relief valves of different manufacturing origin, except for Crosby water relief valves with adjustable rings. A procedure specific to Crosby water relief valves with adjustable rings will be issued by January 30, 1996. If Crosby valves must be maintained in the interim, work planners collaborating with the valve engineer will provide specific Crosby factory test data for use by the craftsman to assure correct settings. This addresses one of the causes of the violation because the added information is sufficiently detailed to guide the work correctly and stress the importance of the guidance in relief valve vendor manuals. Training sessions were held to instruct the craftsmen in regard to these procedural changes and valve vendor concerns regarding water valve adjustment. The individual responsible for preparation of the relief valve procedure contacted the National Board and valve vendors regarding valve adjustment, and was further counseled on the expectation that vendor manuals should be extensively consulted during the process of preparing detailed maintenance procedures.

CORRECTIVE STEPS TO BE TAKEN TO AVOID FURTHER VIOLATIONS - VIOLATION C

All necessary corrective actions have been taken to avoid further violations.

DATE OF FULL COMPLIANCE - VIOLATION C

The Supply System has been in full compliance since April 26, 1995 when procedure PPM 10.2.8 was revised.

PRIORITY

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PARRISH,J.V. Washington Public Power Supply System
RECIP.NAME RECIPIENT AFFILIATION
Document Control Branch (Document Control Desk)

SUBJECT: Responds to NRC 950616 ltr re violations noted in insp rept 50-397/95-03.Corrective actions:drawing revised to include piping bypass & Procedure extensively revised to correct error re influence adjustment ring setting on relief valve.

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

CJF/ml
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cc: LJ Callan - NRC RIV
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The identified design change resulted in the installation of equipment to remove impurities from diesel fuel stored in underground tanks. The installation is physically remote from the power block buildings such that no direct or indirect effects could accrue to safety-related or safe shutdown systems if a fire occurred in that location. Consequently, the analysis of the impact of potential fires in that installation was not included in the Fire Hazards Analysis pursuant to the scope of the Fire Protection Program as discussed above.

However, in accordance with FSAR commitments, NOS-39, "Fire Protection Program," commitments made in response to NRC Inspection 86-25, and PPM 1.3.10 "Fire Protection Program Implementation," design changes must be reviewed for any impact on the WNP-2 Fire Protection Program and are to be performed by the SFPE member grade qualified Fire Protection Engineer.

Accordingly, the fire protection review of BDC 83-0107-1A was performed on 3-13-91, per Engineering Instruction EI 2.8 "Generating Facility Design Change Process". This review was performed in accordance with Support Services Instruction SSI 7.11 and is documented by the signature of the licensed, SFPE member grade Fire Protection Engineer on the "Documentation of Fire Protection Review" and on the BDC "Design Review/Approval Record". Copies are available on-site for that review. It should be noted that this design change was reviewed in March of 1991. Since that date, the process has been improved to require more consistent documentation of reviews of design changes for facilities that are remote from and unconnected with any function related to WNP-2 Safe Shutdown capability.

The fire protection review of the fuel oil filter polisher building design change consisted of reviewing the proposed skid and building design to determine the quantity and type of fire hazard. Specific discussions were held by the Fire Protection Engineer with the design engineer regarding the separation of the underground tanks and the quantity of fuel in the polisher building during use and non-use conditions. System design verified that the 7 day supply of fuel oil in each storage tank can be maintained and supplemented without using the filter/polisher unit. Also, each storage tank has a flame arrestor, and the Fuel Oil Polisher building is equipped with a fire detection system. All the isolation valves between the Diesel Storage Tanks and the Fuel Oil Polisher remain closed except during fuel transfers.

The skid and building design were reviewed to determine:

1. The adequacy of the separation of the building from existing structures and equipment;

2. The adequacy of the design when compared to NFPA, UBC and ANI Fire/All Risk requirements;

3. The adequacy of the fire detection/suppression equipment provided; and

4. The adequacy of the design when compared to regulatory commitments (review against FSAR Fire Protection Evaluation). A revision to the plant fire hazards analysis as documented in Appendix F to the FSAR was determined not to be required, as the building is non-safety related and does not represent a hazard to existing safety related structures or equipment, or to safe shutdown capability.

A detailed review of the modification was also performed by the ANI Fire/All Risk representative and comments were resolved with the Supply System Fire Protection Engineer.

DATE OF FULL COMPLIANCE - VIOLATION A - EXAMPLES 1 AND 2

The Supply System has been in full compliance since March 9, 1995 when drawing 02E12-04,10,1 was revised to include the piping bypass installed by PMR 94-0022.

REPLY TO NOTICE OF VIOLATION B

The Supply System does not agree that Criterion III of Appendix B of 10 CFR 50 has been violated as stated in Paragraph B.

- **Standby Service Water (SW) System**

The safety function of the SW system is to remove heat from safety related plant systems in both normal and emergency conditions. This is accomplished by providing the correct water flow rates to heat exchangers transferring heat from the plant systems to the SW system. Paragraph B cited Procedures 7.4.7.1.1.1 and 7.4.7.1.1.2 as those which should include SW pump testing. However, those procedures are intended to verify the operability of the SW system per Technical Specification 4.7.1.1.a, and to verify the flow balance of the system annually. The procedures specifically identify an acceptable range of flow rates to the various heat exchangers. These flow rates are consistent with the results of technical analyses performed in calculations, and are based on the capability to remove heat from heat exchangers in serviced systems to maintain safety system temperatures within acceptable limits, independent of derivative considerations such as spray pond level, details of SW pump operation, etc. Consequently, the acceptance criteria in test procedures 7.4.7.1.1.1 and 7.4.7.1.1.2 are correctly based on the SW system design bases which is defined in other technical documents.

The SW system was designed under the rules of Section III of the ASME Boiler & Pressure Vessel (ASME B&PV) Code. Compliance with 10 CFR 50.55a(f)(4) requires inservice testing per Section XI of the ASME code. However, the Section XI test methodology, as established by ASME/ANSI Operations and Maintenance Standards, Part 6, is to attempt to duplicate by test a set of reference values which are to be determined from the result of preservice testing or first inservice test. Deviations detected are symptoms of changes and, depending on the degree, indicate need for further tests or corrective action. Therefore, the Section XI testing is performed to identify possible functional degradation due to normal wear, not to impose test conditions that duplicate conditions postulated for recovery from FSAR Chapter 15 accidents. The annual flow balance performed per surveillance procedures 7.4.7.1.1.1 and 7.4.7.1.1.2 verifies compliance with the governing system design bases, and therefore verifies that the pump satisfies its safety function. The total of the flow rates designated in the surveillance procedures is between 87% and 95% of the nominal capability of the pump. Quarterly testing uses IWP-1000 of Section XI as the bases for the pump test methodology and acceptance criteria, with which the 87% to 95% range is generally consistent.

Technical Specification 3.7.1.3 requires that, for all operational conditions, the spray pond be maintained at or below 77°F with a level of at least 432 feet 9 inches above mean sea level. The normal spray pond level is 433 feet 6 inches with an overflow level of 434 feet 6 inches. The SW pump intake is at an elevation of 408 feet 3 inches. Thus, the design is such that pump submergence ranges between 24 feet 6 inches and 25 feet 3 inches, with a maximum potential of 26 feet 6 inches at pond overflow levels. The pumps require a minimum of 4 feet of submergence to operate effectively. Analysis for post-accident cases shows the spray pond level to remain within Technical Specification limits and rise in bulk temperature to less than 89°F, at which water properties are essentially unchanged from 77°F. Consequently, Technical Specification requirements in force at all times establish spray pond conditions such that any resultant variations in pump submergence or water temperature would result in insignificant effects on pump operation during any test.

- **Standby Electric Power**

The safety function of the Standby Electric Power system is to provide power to safety related systems to assure that the health and safety of the public is not adversely affected by an accident coincident with loss of offsite power. Diesel engines driving the electrical generators require an adequate supply of fuel oil, which is supplied to the engine fuel pumps from day tanks installed approximately at the same elevation as the engine fuel pumps. The day tanks are in turn supplied with fuel from the underground storage tanks by fuel transfer pumps using an automatic fill system based on day tank level. The design of the fuel oil supply system is such that each day tank is normally supplied from a particular one of three underground storage tanks,

but if conditions warrant fuel can be supplied from any of the underground tanks to other day tanks by operator action. The safety function of the fuel transfer pumps is to maintain fuel oil level in the day tanks. The flow rate of these pumps was chosen to supply oil to the day tanks at rates well in excess of diesel engine fuel consumption and has no direct relationship to diesel engine function. Diesel engine fuel consumption is periodically tested and was measured in 1992 as approximately 352 gallons per hour for Division 1 or 2 generator sets (2 engine drivers) and 210 gallons per hour for Division 3 generator (one engine driver). This measured consumption was similar to earlier results. The fuel transfer pumps delivery rates are 1660, 1760, and 1699 gallons per hour for Divisions 1, 2, and 3 respectively as measured by tests performed in 1994. Thus, the pumps are capable of providing oil to the day tanks at rates 4.7 to 8 times that actually required by system operation.

The fuel oil system external to the engine is designed to the rules of Section III of the ASME B&PV code, and per 10 CFR 50.55a must be tested per Section XI. The pump tests discussed above were performed in conjunction with ASME system pressure tests of the fuel oil systems. As discussed above, inservice testing for pumps is performed quarterly to detect possible functional degradation resulting from normal wear. The tests performed to verify compliance with the design bases of the fuel transfer pumps is not one of the various ASME tests but rather the monthly test performed per Technical Specifications 4.8.1.1.2 which encompasses the entire standby electrical power system. The test procedures, e.g. PPM 7.4.8.1.1.2.1, verify that the fuel transfer pumps actually perform their safety function of delivering fuel oil from the underground tank to the day tank. Since this is the design bases function of the pumps, and no specific flow rate other than engine consumption rate is required to accomplish that function, test procedure PPM 7.4.8.1.1.2.1 is in accordance with plant design bases.

- **Fuel Pool Cooling System**

The specific design bases of the Fuel Pool Cooling (FPC) system is to minimize corrosion product buildup and fission product concentrations in the system, maintain water in the spent fuel pool at levels needed for shielding purposes, and to maintain pool water temperatures below 125°F under normal conditions, or up to 150°F during some phases of refueling operations. Water drawn from the spent fuel pool is circulated by a pump through a heat exchanger and demineralizers and is then returned to the pool. Redundant pumps and heat exchangers are included in the design, but a single pump and heat exchanger is sufficient for satisfactory operation. The design includes a valve used to throttle system flow to approximately 575 gallons per minute (gpm). The system operates continuously in steady state mode except during annual refueling operations at a loop flow of 575 gpm. The minimum water level permitted by Technical Specification 3.9.9 in the spent fuel pool is 22 feet above the top of fuel assemblies any time that irradiated fuel is stored in the pool. Water levels are somewhat higher when the system is used in conjunction with refueling. System conditions as established by Technical Specification and operational requirements are within narrow limits, and are unaffected by accidents or operation of other systems. Therefore, no specific surveillance test is specified to confirm system operation because routine operational monitoring verifies system compliance with its design bases on a continuous basis.

The system is designed to the rules of Section III of the ASME B&PV code, and per 10 CFR 50.55a must be tested per Section XI. The Section XI test for the FPC pumps requires adjustment of the throttling valve to bring system flow to 600 gpm. However, that was chosen as a condition only to establish a test baseline. As is the case for the SW and DO pumps, Section XI testing is performed to identify possible functional degradation resulting from normal wear, not to provide a periodic verification of assumptions used in the design of the plant. The design basis of the plant, as required by the ASME B&PV code, is correctly translated in procedures.

REPLY TO NOTICE OF VIOLATION C

The Supply System accepts the violation identified in Paragraph C.

REASON FOR VIOLATION C

The violation is the result of excessive reliance on the skill of craftsmen qualified to adjust and maintain relief valves, and insufficient review of vendor manuals during the process of preparing a detailed maintenance procedure, resulting in a weak procedure.

CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED - VIOLATION C

Procedure PPM 10.2.8 was extensively revised to correct the error dealing with the influence of adjustment ring setting on relief valve relieving characteristics, to require the signature of the Authorized Nuclear Inspector to document his review of the requirements for as-found and post-maintenance testing of ASME Section III relief valves, and to include sufficient generic detail for use by the craftsmen in maintaining and adjusting relief valves of different manufacturing origin, except for Crosby water relief valves with adjustable rings. A procedure specific to Crosby water relief valves with adjustable rings will be issued by January 30, 1996. If Crosby valves must be maintained in the interim, work planners collaborating with the valve engineer will provide specific Crosby factory test data for use by the craftsman to assure correct settings. This addresses one of the causes of the violation because the added information is sufficiently detailed to guide the work correctly and stress the importance of the guidance in relief valve vendor manuals. Training sessions were held to instruct the craftsmen in regard to these procedural changes and valve vendor concerns regarding water valve adjustment. The individual responsible for preparation of the relief valve procedure contacted the National Board and valve vendors regarding valve adjustment, and was further counseled on the expectation that vendor manuals should be extensively consulted during the process of preparing detailed maintenance procedures.

CORRECTIVE STEPS TO BE TAKEN TO AVOID FURTHER VIOLATIONS - VIOLATION C

All necessary corrective actions have been taken to avoid further violations.

DATE OF FULL COMPLIANCE - VIOLATION C

The Supply System has been in full compliance since April 26, 1995 when procedure PPM 10.2.8 was revised.