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TAC # 62784

Washington Public Power Supply System
P.O. Box 968 3000 George Washington Way, Richland, Washington 99352 (509) 372-5000

December 1, 1986
G02-86-1049

Also pertinent to
TAC # 63528

Docket No. 50-397

TIA provided 4 issues

Director of Nuclear Reactor Regulation
Attn: Ms. E. G. Adensam, Project Director
BWR Project Directorate No. 3
Division of BWR Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Ms. Adensam:

Subject: NUCLEAR PLANT NO. 2
OPERATING LICENSE NFP-21
WNP-2 FIRE PROTECTION, REQUEST FOR
ADDITIONAL INFORMATION

Reference: Letter, EG Adensam (NRC) to GC Sorensen (SS), same subject, dated October 20, 1986 ~10 Issues.

The reference requested additional information with regard to the WNP-2 Fire Protection Program. Accordingly, the attached information is provided. The reference also stated that "additional concerns had been raised as a result of the recent fire protection inspections" and that these additional concerns would "be formulated into specific requests for additional information in the near future".

To date no additional requests for information have been received by the Supply System. If additional questions concerning the Supply System fire protection program are still forthcoming it is essential that they be forwarded on a timely basis. The Supply System desires to resolve all concerns regarding the Fire Protection program at WNP-2 on an expeditious bases, accordingly please contact Mr. P.L. Powell, Manager, WNP-2 Licensing with any further questions or recommendations with regard to this goal.

Very truly yours,

GC Sorensen

G. C. Sorensen, Manager
Regulatory Programs

PLP/bk
Attachment

cc: JO Bradfute - NRC
JB Martin - NRC RV
NS Reynolds - BLCP&R
E Revell - BPA
NRC Site Inspector

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NRC Question

1. SAFE SHUTDOWN PROCEDURES

In the Standard Review Plan (SRP), Branch Technical Position (BTP) CMEB 9.5-1, Position C.5.e(3), indicates the need to have a procedure in effect to implement the alternative or dedicated safe shutdown capability for the specific fire area. The procedures for WNP-2 are symptom based procedures. Abnormal procedure 4.12.1.1 deals with a control room evacuation for any reason. This procedure makes use of licensee identified protected and non-protected equipment outside of the control room, while the guidelines of the BTP are for a procedure to use only those systems which have been fully protected from a fire and the effects of the fire

a) Provide justification for not providing the operators with instructions for safely achieving both hot and cold shutdown without reliance upon equipment that has not been protected, in accordance with BTP CMEB 9.5-1, in the event of the failure of this equipment to perform its intended function.

b) The minimum time which the staff has given credit for an operator action to be taken outside of the control room is 20 minutes. An additional 10 minutes seems reasonable for the removal of an average of four screws in each of the five SM-8 cabinets and the re-installation of these screws. Taking into consideration the inadequacy of the emergency lighting and the hazard in performing these tasks, it seems reasonable to allow an additional 10 minutes for conservatism. Therefore provide a plant specific analysis to confirm that the ADS/LPCI systems can be used and achieve and maintain hot shutdown conditions safely, without operating the ADS for 40 minutes.

c) Provide a discussion which substantiates that the three Division I ADS valves are protected for the effects of a fire in the control room or in the cable spreading room. Include in the discussion the protection of all power and signal cables and the Division I power supply and the related power and signal cables.

d) We understand that some of the cable routing slips were considered proprietary and were defaced. Provide a discussion of how the location and routing of all safety related and safe shutdown related cables was verified.

Supply System Response

a) Supply System Procedure for Control Room Evacuation (PPM 4.12.1.1, Rev. 8) includes caution statements to the operators indicating that the RCIC has not been fire protected and, therefore, cannot necessarily be relied upon for safe shutdown. Direction is given to proceed with rapid vessel depressurization such that a protected low pressure system can be utilized if RCIC cannot maintain RPV water level above the automatic depressurization setpoint (-129 inches).

b) The "20 minute" minimum time for operator action approved by the staff for Design Basis Accidents cannot reasonably be applied to a Design Basis Fire scenario. To do so would require automatic plant operation for this 20 minute period with enough equipment available to respond to the worst case single spurious actuation which may occur. Potentially, one of many plant transients may occur during this time requiring immmediate automatic actuation of necessary safety systems to provide mitigation. The Supply System believes such considerations are well in excess of the stated or intended requirements of 10CFR50 Appendix R or CMEB 9.5-1.

The Supply System position is that following Operator closure of MSIV's and subsequent SCRAM, at time zero the plant will maintain a safe shutdown condition with vessel relief valves controlling pressure until the Operators can take control from outside the control room using SRV/RHR to safely shutdown. This is assumed to occur at or before 10 minutes following SCRAM.

Refer to Supply System Responses to NRC Questions 2A. and 8 for a discussion of the SM-8 cabinets and emergency lighting, respectively.

c) The three Division I ADS valves are supplied power from Division I 125 VDC Battery set. No control logic exists to any of the breaker/fuses in this distribution system; hence, no spurious signals can result in a power supply loss to these valves.

The power and control circuits for the three Division I valves are included as part of the overall safe shutdown system and therefore are protected from the effects of fire in the control room or cable spreading room. This includes consideration of spurious signals which might disable these safe shutdown circuits.

Additionally, as discussed in the response to Question 4, the Division I 125 VDC distribution system is being reviewed to assure that high impedence faults will not cause loss of power to the three ADS valves.

d) The only cable routing slips defaced were those that contained cables routed in conduits. The defacing of the slips occurred at the end of the contract (contract closeout) period after final Contractor work was completed. At that time, the routing data already existed on Plant and Contractor drawings and in the computerized cable schedule. Therefore, no actual loss of design information occurred.

In addition, the cable schedule is being checked against the drawings to assure that all information is contained there.

NRC Question

2. REPAIRS REQUIRED FOR HOT SHUTDOWN IN THE EVENT OF A FIRE

BTP CMEB 9.51, Paragraph C.5.b(1)(a), indicates that in the event of a fire, one train of systems necessary to achieve and maintain hot shutdown conditions from either the control room or the remote shutdown areas should be assured to be free of fire damage. Being free from fire damage is interpreted to mean that no repairs are permitted in order to achieve and maintain hot shutdown in the event of a fire. The FSAR, in particular Appendix F, did not identify any repairs that were required as the result of a fire in order to achieve and maintain hot shutdown conditions.

a) Provide justification for why the removal and re-installation of between three and five shorting screws in five 4160 volt diesel generator bus cabinets is not considered as repairs.

b) Provide a discussion as to why a transfer switch should not be installed for the SM-8 cabinets as a more appropriate action.

c) The repair specified in Step C.2 of Procedure 4.12.1.1 Appendix C (associated with terminal block 1C in the cabinet CB-B/8 is necessary to achieve safe shutdown. We do not believe that this repair is possible under actual anticipated conditions. Our conclusion is based upon the possibility that the operator would be unable to complete the necessary action, and would likely be electrocuted. Therefore, provide a commitment to modify the plant such that this repair is not necessary, or demonstrate that this repair can be effected with high reliability without endangering the operator.

Supply System Response

The Supply System does not concede that actions regarding removal and reinstallation of shorting screws constitute an impermissable repair or unsafe action. However, to accommodate the Staff's concern and to improve the ease of execution, the Supply System is in the process of designing a transfer switch or sliding switch type terminal block to be used to accomplish the protection required by the Appendix R analysis for safe shutdown loads powered by the SM-8 switchgear. The intent is to complete this modification during the Spring 1987 refueling outage.

NRC Question

3. TESTING OF ADS COMPONENTS FROM REMOTE SHUTDOWN PANELS

Regulatory Guide 1.68 concerns the testing of systems and components which are important to safety to ensure that they will perform properly. The remote shutdown panels contain controls for the RCIC system, the ADS, and the LPCI system. As part of the testing program prior to initial criticality, the RCIC and the LPCI systems were operated from the remote shutdown panels. The ADS has not been verified to be capable of maintaining hot shutdown conditions from the remote shutdown panels. Provide justification for not functionally testing the ADS components from the remote shutdown panels. Also, provide justification for not functionally testing the ADS from the remote shutdown panels to achieve hot shutdown conditions.

Supply System Response

This question refers to the RG 1.68 guidance regarding the testing of safety systems and the fact that prior to initial criticality, RCIC and LPCI were operated from the remote shutdown panel. The statement is made that the ADS has not been verified to be capable of maintaining hot shutdown conditions from the remote shutdown panels and justification for this omission of recommended testing is requested. Justification for not functionally testing the ADS from the remote shutdown panels to achieve HSD conditions is also requested.

The preoperational testing program as described in RG 1.68 discusses preoperational, initial criticality and power ascension testing guidance. The preoperational testing program at WNP-2 covered all functions of the Remote S/D Panel prior to initial criticality except a steam flow demonstration using the manually operated Main Steam Safety Relief Valves (MS-SRV).

As part of the WNP-2 Power Ascension Testing Program (which included initial criticality testing) as defined in FSAR Chapter 14.0 (specifically paragraph 14.2.12.3.28), the RG 1.68.2 testing was performed. That testing verified that HSD conditions could be maintained from the Remote Shutdown Panel using both RCIC for vessel level control and the MS-SRV's for pressure control. The SRV's were used to maintain the HSD condition (i.e., pressure) therefore a request for relief is not necessary.

This question also addresses the attainment of HSD using the ADS valves. The meaning of this question is unclear. The ADS valves and more correctly the manual actuation of the MS-SRV's provide for pressure control, not achievement of HSD. HSD is merely a reactor condition and to achieve HSD requires a successful RPS actuation with the reactor at some elevated temperature (greater than 200°F). The ADS is capable of maintaining or reducing pressure but does not possess coolant makeup capability nor are any of the automatic ADS functions operable when control is assumed at the remote shutdown panel. Discussions during an NRR Fire Protection audit indicate the issue is whether or not the testing should be limited to actions assumed in the WNP-2 Appendix R safe shutdown analyses.

FSAR Appendix F, Section 4.0, presents the technical evaluation supporting the conclusion that one loop of LPCI and 6 SRV's (all operated from the remote S/D panels) are sufficient to achieve CSD conditions. No credit is taken for high pressure system makeup. Plant specific analysis have also been performed assuming 3-SRV actuation which also resulted in acceptable peak clad temperatures. The analysis predicting peak clad temperatures used was the SB LOCA without high pressure makeup scenario which requires a blowdown or ADS type of actuation. The reactor inventory loss results indicate that for a short duration, minimal core uncovery would be experienced with acceptable peak clad temperatures well below values expected to cause serious cladding damage. Refer to FSAR Appendix F, paragraph F.4.4.3.1 and Supply System letter G02-86-859, GC Sorensen (SS) to EG Adensam (NRC), "WNP-2 Fire Protection Program, Appendix R Calculation for Alternate Shutdown from Remote Control Room Utilizing Six Main Steam Safety Relief Valves", dated September 9, 1986.

The testing recommendation of RG 1.68.2 does not specifically recommend plant testing based upon the assumptions in an Appendix R, alternate shutdown analyses. Our testing program has been approved by the NRC and is consistent with RG 1.68.2. Furthermore, the Supply System considers that a demonstration of the ability to rapidly depressurize to within the reflood capability of an LPCI system is neither required by RG 1.68 nor is prudent. Functionally all that would be tested is the ability to depressurize, which in essence was previously demonstrated and to inject, which was also performed. The upset and normal conditions for reactor vessel thermal cycle analyses per ASME III performed by General Electric is based on one automatic blowdown thermal cycle. Performance of a blowdown test will require a re-analysis. The fuel barrier failure criteria presented in FSAR Chapter 15.A for design bases accidents will not be exceeded during a blowdown test; however, the transient does represent a significant thermal transient on the fuel and therefore represents an unacceptable commercial risk for cladding degradation of any form.

In summary, the Supply System believes that a blowdown test is not a useful demonstration beyond the current testing presented in the WNP-2 FSAR and represents a departure from the guidance of RG 1.68.2.

NRC Question

4. COMMON POWER SOURCE ANALYSIS

As stated in the approved fire protection plan, Section F4.4.3, one category of associated circuits which was to have been reviewed is in reference to those "circuits which receive their power from the same sources as the fire protection circuits". In the event of a fire, the electrical cable insulation could degrade and thereby result in the cable carrying the full current, up to the limit of the circuit protection device.

a) In addition to the normal bus loading, can Division II cables with degraded insulation produce current sufficiently high to open the bus feeder breaker and thereby remove power from equipment needed to achieve safe shutdown of the facility?

b) Similarly, can spurious actuations of loads result in overloading the Division II diesel generator?

Supply System Response

The Supply System is in the process of reviewing power sources that supply power to safe shutdown equipment. The purpose is to assure that fire related high resistance faults plus normal operating or spurious loads will not exceed the capability of the bus feeder breakers resulting in a trip. Even though this analysis is proceeding, it is the Supply System's position that such faults are not credible since high resistance faults become faults to phase or ground very rapidly.

Additionally, "spurious actuations of loads" in accordance with Generic Letter 86-10 paragraph 5.3.10a/b need only be considered one at a time. This greatly reduces the possibility of bus or DG overload.

The in-progress analysis will be completed by January 1, 1987.

NRC Question

5. FIRE WATER MAIN UNDER DIESEL GENERATOR BUILDING

Regulatory Guide 1.29, Position C.2, identifies the need to protect safety related structures, systems and components from potential failures of non-safety related structures, systems and components. The diesel generator building is a safety related structure which contains safety related components and systems. A fire water main, which is non-safety related, runs under the diesel generator building. The failure of the fire water main could adversely affect the structural features of the diesel generator building particularly its foundation; therefore, the failure could affect the availability of the diesel generator. NFPA 24, Paragraph 8-3.1, states that "pipe shall not be run under buildings". The fire main under the diesel generator appears to be in nonconformance with NFPA 24.

a) Provide a discussion on the effects of a leak and of a break of the fire main under the diesel generator building as it relates to the degradation of the building structure. If there is an effect on the structure, the building could shift its position. Include a discussion of the effects of the building shifting on the diesel generators, related systems, and the fuel oil lines.

b) Specify the smallest pipe leak that can be identified. Discuss how this leakage will be detected. Specify the surveillance frequency for detection of leakage. Assuming that the leakage rate is just under the minimum detectable amount, and that this leak rate is maintained over the life of the plant, provide a discussion of the potential for liquefaction in the area affected by the leak. The ability of safety related structures to withstand liquefaction of affected soils should be addressed if the potential is significantly changed from that reviewed as the plant's licensing basis.

c) Provide either:

   1) a justification for not relocating the fire main; or

   2) a discussion of your plans for relocation of this fire main and the schedule for completion of this work.

Supply System Response

An ongoing review is evaluating all foundation/fireline interfaces associated with the power block on WNP-2. The review has been completed for all safety related structures.

Summary

The Supply system considers that the routing of mechanical joint firelines under buildings conforms to NFPA 24 as long as the piping is adequately designed for conditions the buried line will see. This conclusion is currently being verified by an opinion from the NFPA Technical Committee.

The routing of WNP-2 firelines under safety related structures meets the intent of Reg. Guide 1.29 because:

1) WNP-2 technical analysis can not identify a loading combination that will fail the firelines or compromise the integrity of any safety related structure.

2) WNP-2 operational and testing history provides a confidence level in the material and installation equivalent to a quality assurance program during material procurement and installation.

As a result of this review the Supply System has found that the concept of routing the two lines under the Diesel Generator Building is generally acceptable. The design review process has, however, raised two areas noted below which will be modified.

1) Line 12" FP (13)-1 running under the Diesel Generator Building into the south west corner of the Reactor Building appears unable to take differential building movements during an SSE.

2) Line 12" FP (43)-1 running under the Diesel Generator Building from the east appears to lack adequate thrust restraint in one direction.

Five additional isolation valves are being added to provide greater system flexibility in the use of power-block standpipes should any underground portion of a fireline become inoperable.

These modifications are presently scheduled for completion by October 1, 1987.

SPECIFIC AREAS OF INFORMATION

A. NFPA No. 24-1973 Standard For Outside Protection

The FSAR, Page 9.5-12, references the National Fire Protection Association (NFPA), Code 24, December 1973.

The NRC's reference to paragraph 8-3.1 of NFPA 24 is from the 1984 edition which does not apply to WNP-2.

The corresponding paragraph in the 1973 edition of NFPA 24 is 9301 which states: "Pipe should not be run under buildings or under heavy piles of iron, coal, etc. Where piping necessarily passes under a building, the foundation walls shall be arched over the pipe (see paragraph 3502)".

In both editions these paragraphs are contained in the section entitled "Protection Against Damage". If it is necessary or preferred from an overall line protection standpoint to install buried piping then proper design must be used to assure that the pipe is protected from building foundation loads or movements.

WNP-2 has requested an opinion from the NFPA technical committee on whether the installation of the firelines under the diesel Generator Building meets the intent of the 1973 edition of NFPA. WNP-2 anticipates a response from NFPA by early December.

B. Regulatory Guide 1.29, Position C.2 & C.4

FSAR, Page C.2-28 commits to the intent of Regulatory Guide 1.29, Seismic Design Classification, Rev. 2, February 1976.

The intent of this regulatory guide is that:

1) Firelines interfacing with safety related foundations be designed so that under SSE conditions, a fireline failure would not occur or, that its failure would not affect the integrity of a safety related structure.

2) Quality Assurance requirements would be applied to fireline material procurement and installation for portions of systems interfacing with safety related foundations.

The Supply System position is that the installation does meet the intent of Regulatory Guide 1.29 based on:

1) WNP-2 technical analysis of the installation cannot identify a credible loading combination that will fail the pipe (other than the two concerns noted above) and if a failure should occur there is an extremely low probability of any damage to a safety related foundation. The technical basis for this conclusion is discussed further in Section C below.

2) Our operational and testing history provides a confidence level in the fireline installation equivalent to or higher than that obtained from a quality assurance program imposed on commercially available materials and installation as required by Appendix B to 10 CFR Part 50.

C. Technical Evaluations

1) Small Leaks

For the purpose of this discussion small leaks are those leaks that do not develop enough pressure or flow in the surrounding soil to physically mine the soil away or lift the floor slabs.

a. Soil Liquefaction

Liquefaction is discussed extensively in FSAR Paragraph 2.5.4.8 on Page 2.5-155 and in Appendix 2.5E by the Soils Consultant, Shannon & Wilson, Inc.

In summary, the site was excavated down to underlying very dense Ringold gravel and replaced with compacted backfill. This was done specifically to eliminate any possibility of liquefaction from motions associated with an SSE regardless of future ground water conditions. Two potential concerns for increasing existing ground water level were building additional dams on the Columbia River or a circulating water pipe failure.

b. Movement of Fines

Another aspect of small leaks which was reviewed, was the possible displacement of fines in the backfill over a period of time thus creating voids. This was found not to be credible unless there was a void to move the fines into. Such a void does not exist under the plant. This conclusion was reviewed with and confirmed by the Soils Consultant.

As a result small leaks under safety related foundations have no impact on the structure and its capability to perform its safety related functions.

Since liquefaction of the soil is not a concern, a discussion of all undetectable leakage over the life of the plant is not provided.

From a fire protection system standpoint, small leaks represent only a commercial aspect regarding the cost of repair. If small leaks reached the point where they may compromise the fire protection system, they would be detected by excessive jockey pump running or intermittent fire pump running alarms in the main control room with no concurrent use of the fire system and located by isolating various sections of the system as discussed in the FSAR, Page 9.5-30.

2. Large Leaks

Large leaks as discussed here are considered to be a major break in the line where sufficient water is released under pressure so that the area under a floor slab is pressurized or that physical mining of the backfill takes place.

The WNP-2 position in this regard is that the design should be such that no credible loading combination including an SSE event, will fail firelines under safety related buildings. Two modifications required on WNP-2 to address design concerns and bring the installation to this design condition were discussed above: lines 12" FP (13)-1 and 12" FP (43)-1.

The Supply System has also reviewed the consequences of a line break under a safety related foundation and concludes that insufficient damage could be done to jeopordize the integrity of any foundation. Since this conclusion cannot be analyzed quantitatively WNP-2 has taken the position of providing reasonable assurance that the line will not fail during any credible loading combination based on load bearing analysis and hydrostatic tests.

3. Loadings on Fire Line

Areas that have been reviewed are:

- o Foundation bearing loads
- o Building settlement
- o Differential building movement
- o Thrust block sizing
- o Thrust block bearing on backfill

And, in summary, support the conclusions made above: No credible loading combination has been identified that will fail the pipe.

D. Quality Evaluations

A review of the operational history of the firelines under the safety related foundations has been made which include:

- o Operational history of the system
- o Various Hydrotests
- o Operational transients which have occurred
- o Details of the leak that occurred in 12" FP (13)-1 during construction

Again, in summary, this supports the confidence in the fireline installation equivalent to or higher than that obtained from a quality assurance program imposed on commercially available materials and installation as required by Appendix B to CFR Part 50.

NRC Question

6. REVIEW OF ASSOCIATED CIRCUITS

Amendment 19 (dated October, 1981) to the FSAR incorporated the fire protection program into the FSAR. Section F4.4.6 discusses the review of associated circuits and potential plant modification in the past tense; i.e., "A review has been performed..." and "...the circuit is modified." This leads one to the conclusion that all reviews and work related to associated circuits are complete. LER 84-031 and its six revisions indicate that these reviews are not complete. Verify that all associated circuit reviews and necessary plant modifications are completed. Specifically, discuss the "common enclosure" analysis performed for raceways. Should you be unable to verify that all associated circuit reviews and necessary plant modifications are complete, provide a schedule with milestones for the associated circuits reviews and resulting plant modifications. Also provide a commitment to a date when all work will be completed.

Supply System Response

Re-review of the original WNP-2 Appendix R analysis has been required in the past few years because of Regulatory and Industry clarifications and position changes regarding the NRC position with respect to fire protection. Those re-reviews of which some are still in progress (Refer to Question 4) have required and may in the future require revision to LER 84-031. However, except for the high impedence fault analysis, discussed in Response to Question 4 also, the Supply System has completed analysis of all associated circuits including the common enclosure anlaysis for raceways see letter GO2-86-613, G. C. Sorensen (SS) to E. G. Adensam (NRC), "WNP-2 Fire Protection Program Request for Additional Information", dated June 30, 1986.

All necessary plant modifications resulting from the current revisions to LER 84-031 have been made.

NRC Question

7. HIGH/LOW PRESSURE INTERFACE IN RHR SYSTEM

BTP CMEB 9.5-1, Paragraph C.5.c(1), states that "during the postfire shutdown, the reactor coolant system process variables shall be maintained within those predicted for a loss of normal ac power, and the fission product boundary integrity shall not be affected; i.e., there shall be no fuel clad damage, rupture of any primary coolant boundary, or rupture of the containment boundary". One area where the reactor coolant pressure boundary integrity may not be maintained is at the high/low pressure interfaces. The high/low pressure interfaces at WNP-2 are the RHR suction line (valves RHR-V-8 and RHR-V-9) and the two RHR return lines for normal shutdown cooling (valves RHR-V-123A & RHR-V-53A and RHR-V-123B and RHR-V-53B). In a submittal dated July 16, 1986, a discussion was provided which indicated that removing power from at least one valve in each high/low pressure interface was not reasonable. This submittal also identified a spacing of 42 feet between the redundant division of the pressure interlocks in the control room. Subsequently, in a telecon, this spacing was confirmed by your staff as incorrect. Furthermore, there is a significant fire hazard between these interlocks in the control room. None of these lines are needed or required to mitigate the consequences of an accident or for any emergency operation of the RHR system. The RHR-V-8 and -9 valves are only used for non-LOCA shutdown conditions. The RHR-V-123 valves are in warmup lines for normal shutdown cooling injection to the reactor vessel. According to the licensee, these valves are never used, as indicated by a recent General Electric Company analysis which shows that prewarming of the RHR return line by use of these bypass valves is not necessary. During the site visit in August 1986, you advised the staff that you would modify control of these valves. To insure the integrity of the high/low pressure interface:

a) Document your commitment to remove the power from the RHR-V-8 valve during non-shutdown operating conditions.

b) Document your commitment to remove the power from the RHR-V-123A and RHR-V-123B valves either at the valve or at the motor control center.

c) Provide a schedule and justification for the schedule to implement items a) and b) above.

Supply System Response

1. Power has been removed from RHR Valves V-123A/B.

2. With regard to the staff's concern with removal of power to RHR V-8, the position provided by the Supply System in Letter GO2-86-656, G.C. Sorensen (SS) to E.G. Adensam (NRC), "Final Resolution of Hi/Low Pressure Interface Concern" dated July 16, 1986, still applies to the discussion of this issue except that the following corrections and clarifications are offered:

   a. The actual distance containing no significant combustibles between panels housing vessel pressure interlocks is 31 feet (nearest corners) between panels H13-P622 and P623 housing interlocks for RHR valves V-8 and V-9.

      This corrects the 42 feet as stated in the previous letter.

   b. The WNP-2 Emergency Procedures do require utilization of these valves to lower vessel level as required. Refer to PPM 5.3.6 (attached).

   c. Operations Manager will ensure proper housekeeping in the Control Room.

   d. Annunciator response procedures have been modified to include requirements for remote shutdown transfer switch actuation should a fire start in one of the panels housing the interlocks.

8. INADEQUACY OF EMERGENCY LIGHTING

BTP CMEB 9.5-1, Paragraph C.5.g, states that lighting is "vital to safe shutdown and emergency response in the event of a fire." Furthermore, "fixed self-contained lighting consisting of flourescent or sealedbeam units with individual 8-hour minimum battery power supplies should be provided in areas that must be manned for safe shutdown and for access and egress routes to and from all fire areas." "All fire areas" includes those required to be manned if the control room is evacuated. The SER states in Paragraph 9.5.1.5(7) that the utility has installed an 8-hour battery pack emergency lighting unit in all areas of the plant needed for operation of safe shutdown equipment and in access and egress routes. Appendix F of the FSAR states in Paragraph F.4.2 that the "The WNP-2 plant complies with the 8hour emergency lighting requirements". Notwithstanding the following deviations were identified during the site visit:

a) Not all areas of the plant, not even all areas of the plant containing safety related equipment, have emergency 8-hour battery powered lighting.

b) The two battery powered lights in the remote shutdown room would provide general lighting, but would not directly illuminate the remote shutdown panel such that the identification plates could be read without difficulty.

c) There are no self-contained battery powered lights in the alternate remote shutdown room. In accordance with the control room evacuation procedure, one valve needs to be controlled from the alternate remote shutdown panel.

d) The SM-8 room (the room which contains the SM-8 switchgear panels) contains one battery powered light. This light would provide inadequate lighting in the area and no light onto the SM-8 panels or within the SM8 cabinets.

Provide a discussion that reconciles the Branch Technical Position (BTP CMEB 9.5-1), the SER 9.5.1.5 (7) finding and the FSAR Paragraph F.4.2 assertion with the identified plant conditions or provide a schedule for correcting the apparent deviations.

Supply System Response

The Supply System is in the process of upgrading emergency lighting in areas vital to safe shutdown and emergency response. Specifically, diesel supplied, fire protected emergency lighting is being added to the Main Control Room utilizing existing over-head flourescent lighting. Diesel supplied battery packs are being added to the Remote and Alternate Shutdown Rooms and the SM-8 Switchgear Room. A single dual light 8-hour battery pack is being added to the Division 2 Diesel Generator Room. These actions address each of the items noted in the question above.

The intent is to complete the installation of these modifications before plant startup following the end of the second refueling outage in Spring 1987.

NRC Question

9. FIRE DETECTORS IN THE VICINITY OF LARGE BEAMS

BTP CMEB 9.5-1, Paragraph C.6.a, states that fire detector systems should comply with the requirements of Class A systems as defined in NFPA 72D, "Standard for Installation, Maintenance, and Use of Proprietary Protective Signaling Systems", Class I circuits as defined in NFPA 70, "National Electric Code", and selected and installed in accordance with NFPA 72E, "Automatic Fire Detectors". SSER #4 Paragraph 9.5.1.6(1) states that we conclude that the facility meets the guidelines of NFPA 72E and the UL listing as related to detector location and the maximum spacing being 750 square feet per detector, on the basis of a letter from the utility dated July 1, 1983. Paragraph 4-3.7.3 of NFPA 72E states that if a beam exceeds 18 inches in depth, each side of the beam should be treated as a separate area requiring at least one detector.

a) Discuss how the remote shutdown room meets these requirements.

b) Provide drawings of the plant which specify the floor area for each fire area, the location of each smoke detector, the depths and locations of all beams which extend below the ceiling, and the functions of the equipment and cables in the fire area (i.e., safe shutdown related for a fire in the control room or cable spreading room).

Supply System Response

Supply System letter GO2-86-0883 from GC Sorensen (SS) to JB Martin (NRC RV), "Fire Protection Program Reevaluation", dated September 16, 1986 provided a plan outlining a Fire Protection Program Reevaluation being undertaken by the Supply System. This evaluation is presently in progress and part of the re-evaluation includes a review of the fire detection system. The program also includes a review of the NFPA Codes -vs- WNP-2 committments and a walkdown to assure compliance. This task started the week of November 10, 1986. The re-evaluation is being done by an outside consultant with completion expected by December 31, 1986. Upon completion, the Supply System intends to review the consultant's report by January 31, 1987 and, if necessary formulate a schedule of corrective action. With completion of this review the Supply System will provide the staff a response to the above questions.

Naturally, if during the course of these reviews a concern is recognized the situation will be reviewed with respect to reportability per 10 CFR 50.72 or 50.73 and, if necessary appropriate compensatory actions per the WNP-2 technical specifications will be implemented.

NRC Question

10. PENETRATION SEAL INSTALLATION

Are all penetration seals installed in accordance with tested configurations? If not, justify their use in meeting fire protection requirements.

Supply System Response

All penetration seals in required fire barriers were installed in accordance with tested and approved configurations. These installations were subsequently accepted by American Nuclear Insurers. Their final acceptance letter is dated October 25, 1983 from Mr. R. F. MacMillan to Mr. James Olsen of Brand Industrial Services Inc., the fire barrier seal installation vendor.