

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8801130304 DOC. DATE: 88/01/11 NOTARIZED: NO DOCKET #  
 FACIL: 50-397 WPPSS Nuclear Project, Unit 2, Washington Public Powe 05000397  
 AUTH. NAME AUTHOR AFFILIATION  
 SORESEN, G. C. Washington Public Power Supply System  
 RECIP. NAME RECIPIENT AFFILIATION  
 Document Control Branch (Document Control Desk)

SUBJECT: Responds to inconsistencies noted in introduction to SER  
 forwarded by GW Knighton 871111 ltr. SER addressed fire  
 protection & safe shutdown capability per Amend 37.

DISTRIBUTION CODE: A006D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 15  
 TITLE: OR/Licensing Submittal: Fire Protection

NOTES:

	RECIPIENT ID CODE/NAME	COPIES		RECIPIENT ID CODE/NAME	COPIES	
		LTTR	ENCL		LTTR	ENCL
	PD5 LA	1	0	PD5 PD	5	5
	SAMWORTH, R	1	1			
INTERNAL:	ACRS	3	3	ARM/DAF/LFMB	1	0
	NRR WERMEIL, J	1	0	NRR/DEST/ADS	1	1
	NRR/DEST/PSB	1	1	OGC/HDS2	1	0
	<u>REG FILE</u> 01	1	1			
EXTERNAL:	LPDR	1	1	NRC PDR	1	1
	NSIC	1	1			



## Washington Public Power Supply System

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

January 11, 1988  
G02-88-008

Docket No. 50-397

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

Gentlemen:

Subject: NUCLEAR PLANT NO. 2  
FIRE PROTECTION AND SAFE SHUTDOWN  
CAPABILITY, RESPONSE TO SAFETY  
EVALUATION REPORT

Reference: Letter, GW Knighton (NRC) to GC Sorensen  
(SS), "WNP-2 FSAR Amendment 37 (TAC No.  
63528)", dated November 11, 1987

The reference letter forwarded a Safety Evaluation Report addressing fire protection and safe shutdown capability as described in Amendment 37 to the WNP-2 FSAR. Twenty-eight remaining open items were forwarded with a requested response within 60 days. Accordingly the attachment to this letter provides the requested information.

Additionally the following is provided to correct inconsistencies noted in the introduction to the Safety Evaluation Report. The introduction notes Amendment 19 of the WNP-2 FSAR as being reviewed in a Safety Evaluation Report (SER) dated March, 1983 (NUREG 0892). In fact the SER was issued in March 1982. Also the introduction notes that a significant change in the safe shutdown path was issued by the Supply System subsequent to that review

8801130304 870111  
PDR ADDCK 05000397  
F PDR


As of  
1/11

Page Two  
FIRE PROTECTION AND SAFE SHUTDOWN CAPABILITY,  
RESPONSE TO SAFETY EVALUATION REPORT

but fails to note the date: March 21, 1983. The introduction then notes that supplement 4 (December 1983) to the SER completed the Staff's review of fire protection and safe shutdown capability (Amendment 19). However, FSAR Amendment 33 which incorporated the March 21, 1983 letter was issued November 1983 and is also not recognized as a significant event in the introduction. It is felt that by omission of the above dates and significant documents the sequence of events described in the introduction is misleading and could cause inaccurate conclusions to be drawn. Accordingly the above has been provided to clarify the Staff's introduction.

Should you have any questions, please contact Mr. P. L. Powell, Manager, WNP-2 Licensing.

Very truly yours,

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

PLP/bk  
Attachment

cc: JB Martin - NRC RV  
NS Reynolds - BCP&R  
RB Samworth - NRC  
DL Willimas - BPA/399  
NRC Site Inspector - 901A



#### NRC Question No. 1

"(SER Paragraph 2.1) The licensee should explain why the increase of combustible inventory, such as in Turbine Generator Building Fire Areas TG-1, has not resulted in the need for additional fire protection in the locations where these combustibles are now present."

#### Supply System Response

FSAR Appendix F Section F.2 page F.2-7 is the design bases for the type of fire protection to be provided. This statement has remained unchanged since Amendment 19, the first amendment containing fire protection in the FSAR. The areas of increased combustibles in the Turbine Generator Building (TGB) are due to the storage of protective clothing (PC). These five areas (441' east end, feedwater pump rooms, 441' west end, 471' corridor and 471' west end and 501' east end) contain the cabinets with the PC's. These areas are widely separated. The fire hazard review done for Amendment 37 indicates that burn out of the storage areas without automatic sprinkler protection (441' east end, 471' corridor and 501' west end) would not effect the ability to safely shutdown the reactor. The remaining two areas have automatic sprinkler protection. The fire hazard analysis indicated that while automatic sprinkler protection is provided over the storage on the 441' west end, cable trays and ducts may impede the discharge. Additional automatic sprinklers are to be provided below the trays and ducts (anticipate completion fiscal year 1988).

The increased storage in the Reactor Building fire area R-1 is due to the additional PC cabinets and equipment and supplies needed for plant operations. The fire hazard analysis shows that the capability increase in the combustible loading would not effect the safe shutdown capability and is below the 60,000 Btu per square foot as noted on page F.2-7. Additionally the location and number of cabinets and other combustibles were reviewed and found acceptable by the NRC Region V fire inspector as noted in Inspection Report item 85-05-04 and closed in NRC Inspection Report 85-31, dated November 26, 1985.

#### NRC Question No. 2

"(2.2) The licensee should clarify how bus duct penetrations of fire barriers are sealed and protected to assure the integrity of the wall during a fire. (Reference page F.2-9)"

#### Supply System Response

There are nine locations where bus ducts penetrate walls that are considered to be fire walls. These penetrations are in the north wall of the Turbine Generator Building (TGB). These are the segregated and non-segregated bus system between the transformer and generator or switchgear. The penetrations are sealed between the walls and the duct equal to the wall rating. The inside of the ducts are not sealed. The north wall of the TGB is not a fire barrier needed in the safe shutdown analysis but required to separate exposure only. A failure of the bus duct system will not have any effect on the safe shutdown. There are no bus duct penetrations through Technical Specification fire walls.

### NRC Question No. 3

"(2.2) The licensee should provide a response to the 10CFR Part 21 issue concerning closure of fire dampers under air flow conditions. Specifically, what testing and modifications have been implemented to assure that fire dampers will close under ambient air conditions."

### Supply System Response

Plant procedures have been revised such that in the event of a fire, the ventilation to the affected area will be secured. This action will ensure that there will be no resistance to damper operations due to high air flow. No additional testing or modifications are necessary.

### NRC Question No. 4

"(2.4) The licensee should justify the conclusion that instrument and sensing lines will remain free of fire damage in the absence of fire protection features stipulated in Section III.G of Appendix R to 10 CFR 50. (Reference page F.2-7)."

### Supply System Response

The FSAR Section F.4.2.5 concerning instrument sensing line failure requires clarification

There are localized areas through which safe shutdown instrument sensing lines pass which have calculated fire loads greater than one half-hour (localized worst case is 93 minutes). However, WNP-2 calculations using heat transfer methodology (convection, conduction, radiation) indicate that actual temperatures (resulting from actual area fire loads allowed by SECY 85-306) of the steel supporting the sensing lines (sensing lines themselves are not limiting) remain below 1200°F (1200°F is the temperature at which these steel supports are assumed to fail). Therefore, existing installations are acceptable. The FSAR Section will be clarified in Amendment 39.

### NRC Question No. 5

"(2.3) The licensee should provide information concerning the separation and protection of redundant shutdown systems in the gap between the primary containment vessel and the biological shield wall. (Reference page F.2-8)."

### Supply System Response

The following paragraphs have described the Supply System's position on this issue since at least Amendment 19 (October 1981) of the WNP-2 FSAR and have not been modified since that submittal. No changes to this section resulted from either submittal of Amendment 37 or the Licensing process completed in 1983. The Supply System considers this position acceptable.





#### "F.2.8 GAP BETWEEN THE PRIMARY CONTAINMENT VESSEL AND BIOLOGICAL SHIELDING WALL

The annular gap constructed between the metal shell of the primary containment vessel and the concrete biological shielding wall is filled with a compressible insulating spacer system consisting of polyurethane flexible foam sheets, butted at the joints and cemented directly to the primary containment shell, a jacket of premolded fiberglass reinforced polyester (FRP) jacket panels and epoxy flashing.

The foam spacer system is in a confined space, exposed to a minimal quantity of air through clearance around pipe penetrations, the greater of these being 3-5/8 inches. There is a spatial separation of six feet from the foam to the nearest combustible (electrical cable insulation). A fire in this confined space is not considered credible."

#### NRC Question No. 6

"(2.4) The licensee should describe the frequency of inspection of sealed water supply control valves. It should be noted that in order to conform with the provisions of NFPA Standard No. 13, sealed valves have to be inspected on a weekly basis. (Reference page F.3-95)"

#### Supply System Response

Valves which provide an operable flow path from the circulating water pump inlet basin and secondary water supply tank to distribution piping are locked open. Sectionalizing control or isolation valves to the yard hydrant curb valves, the last valve ahead of the water flow alarm device on each sprinkler or hose standpipe and the last valve ahead of the deluge valve on each deluge or spray system are locked open. Valves in the sensing lines which control the auto start of the fire pumps are sealed open and inspected weekly by the Scheduled Maintenance System (SMS).

#### NRC Question No.,. 7

"(2.6) The licensee should explain and justify the change in the halon system storage cylinder verification procedures (Reference page F.3-102)"

#### Supply System Response

The surveillance requirements for halon quantity verification are stipulated in the WNP-2 Technical Specification, LCO 3/4.7.6.3. Tank quantity and pressure are verified every 6 months, and weight is verified once every 36 months. Amendment 37 merely changed the reference to the procedures from "will be written" to "Have been written" and used the terms contained in the LCO. Amendment 37 does not represent a change in testing methodology.



#### NRC Question No. 8

"(2.7) The licensee should explain why the commitment to conform with Regulatory Guide 1.75 was removed from Amendment No. 37. (Reference page F.3-112)."

#### Supply System Response

As explained in FSAR Section 8.3, and accepted in NUREG 0892, Supplement 2 (paragraph 8.4.1.1), Regulatory Guide 1.75 does not apply to WNP-2. WNP-2 negotiated an Electrical Separation Criteria with NRR in 1981 and 1982 which is consistent with the intent of Regulatory Guide 1.75 but deviates in some areas. Therefore, FSAR Section F.3 Position F3(a) was revised to reference the Section 8.3 criteria instead of Regulatory Guide 1.75.

#### NRC Question No. 9

"(2.8) Until the licensee verifies, and the staff can confirm, that all plant areas that have to be manned for safe shutdown and all ingress and egress routes have adequate lighting in conformance with the NRC's regulations, this remains as an open item in the staff's evaluation."

#### Supply System Response

FSAR Section F.3 Position D5(a) will be revised in Amendment 39 to specifically state that all plant areas which must be manned for safe shutdown and all associated ingress and egress routes have been provided with adequate lighting such that any required operator actions can be accomplished. All emergency lighting modifications identified as necessary by the NRC during audits performed in 1986 and January 1987 have been completed.

#### NRC Question No. 10

"(3.1) Since there are only seven ADS valves it would seem that a fire in selected fire areas would potentially reduce the number of ADS valves available in the control room to less than seven and thereby invalidate the information provided in the FSAR up to and including Amendment 37."

#### Supply System Response

As described in FSAR Section F.4, the WNP-2 methodology requires that sufficient equipment (generally at least one Division) be available to assure safe plant shutdown from a fire. This methodology is acceptable to the NRC as described in the Amendment 37 SER Section 3.1. The ADS valves and associated controls, being part of the safe shutdown equipment, have been analyzed such that at least one Division is always available (seven valves for other than the Control Room fire and six valves for that fire) under all fire conditions. The same is true for all other necessary safe shutdown equipment. When reviewing ADS availability, keep in mind that each valve is provided with two solenoids, one for each division. Thus, with the methodology used, one of the two solenoids has been shown to be available (or protected/relocated) for each fire event.

NRC Question No. 11

"(3.3.1) The licensee should confirm that all modifications are complete and are in conformance with the guidelines provided in Appendix R and the Branch Technical Position CMEB 9.5-1."

Supply System Response

The Supply System has completed all of the modifications associated with the safe shutdown systems, which are discussed throughout our responses to the referenced letter and SER.

NRC Question No. 12

"(3.3.2) The licensee has indicated that for certain fire areas some Division 1 components, cabling and batteries are required for safe shutdown using Division 1 OR Division 2 alternate shutdown methods. Thus, it is not clear that a fire in one of these areas would not prevent safe shutdown of the facility."

Supply System Response

The WNP-2 safe shutdown methodology for fires, except a control room fire, is based upon only a single Division of safe shutdown equipment being available, i.e., at least one Division of equipment is shown to be available for each fire event. Thus, it is not correct to say that "the Division 1 battery supply, including cabinets E-B1-1, E-DP-S1/1, E-DP-S1/1F, E-IN-3, E-PP-7A and E-PP-7A-F, and cables 1D11-11, 1D11-1, 1F11-4, 1D11-7, 1P7A-7, and 1P7A-4" must be "protected from the effects of fires in all Division 1 fire areas." This Division 1 equipment and cabling is not required for any fires occurring in a Division 1 area. However, it may be required for a fire occurring in a Division 2 area.

The WNP-2 Control Room fire scenario requires that safe shutdown be accomplished from Remote and Alternate Shutdown Panels. For this fire only, both Divisions of ADS valve controls must be available. Therefore, the analysis for this fire event verifies that the Division 1 equipment and cabling listed above, in addition to necessary Division 2 equipment, is available.

For a Control Room fire, the availability of required DC equipment is shown by analysis. The DC battery bus distribution does not rely upon any circuit breakers (only fuses). Thus, no spurious signals from the Control Room during fire conditions can inadvertently trip these supplies. Spurious load applications are bounded by the high impedance fault analysis.

NRC Question No. 13

"(3.3.2) The licensee lists the safe shutdown equipment needed in the event of a fire in the control room. The list does not include the Division 1 equipment, cables, and components required in addition to the Division 2 items."



### Supply System Response

The Division 1 equipment, cables, and components required in addition to those for Division 2 for the Control Room fire are listed for "Remote Shutdown" in the following Amendment 37 Tables: F.4.1, F.4.2a, F.4.2b, F.4.2c, F.4.2d and F.4.3. An error exists on Table F.4.2c in that "E-IN-3" should be listed after E-IN-2 in the "Remote Shutdown" column; this is correctly shown on Table F.4.2b.

### NRC Question No. 14

"(3.3.3) The licensee should submit a revised control room evacuation procedure which conforms to the Staff's guidelines as related to the one operator action in the control room prior to evacuation."

### Reference

WNP-2 Plant Procedure 4.12.1.1

### Supply System Response

In section 3.3.3 of the SER, the opening paragraph discusses the limitation of not relying on manual actions outside the control room for fires outside the control room and refers to those actions as being capable of preventing core degradation. The discussion then refers to those actions described in the FSAR that will be taken during a control room fire. The relationship between the stated subject and referenced FSAR section is not clear as to specifically how the relationship supports the Staff's conclusion that some of the control room evacuation actions are considered desirable but not necessary. The Staff is requested to clarify section 3.3.3.

The technical adequacy of selecting MSIV closure as the single action desired, is as follows below, however it is important to the Supply System to understand the bases for concern and we request specific reference to the NRC requirements and guidelines referred to by the Staff.

The referenced procedure requires as a single action the closure of all eight MSIV's if control room conditions do not permit the other actions deemed prudent to facilitate an orderly transition to cold shutdown. The technical bases for selection of that action was discussed previously with the Staff reviewing FSAR Amendment 37. It is unclear why those bases were not referred to in the Staff's position but will be documented formally herein to facilitate further consideration.

The basic reason for selecting MSIV closure as the preferred single action is the multitude of benefits derived from closing the MSIV's when the next action is to abandon the control room. Closure of the MSIV's provides an RPS actuation, isolates the reactor thus preventing unnecessary losses of coolant to the secondary steam loads and places the reactor in a condition least influenced by potential effects of a control room fire. There have been significant issues raised by the Staff that have concluded the poten-

tial for multiple spurious actuations must be considered and prevented. Closure of the MSIV's is in concert with the Staff's objective. The uncontrolled and unnecessary loss of coolant that could occur to the main condenser and BOP auxiliary loads from identical failure considerations used in the high to low pressure interface valve issues, is considered unacceptable by the Supply System. Selection of the MSIV closure is considered the most prudent and safety conscious action to perform prior to evacuating the control room. No further action is considered necessary.

#### NRC Question No. 15

"(3.3.4) The licensee should provide the final fire protection details for the Division 2 SRV cables in the control room."

#### Supply System Response

The Division 2 SRV safe shutdown circuits which once resided in the Control Room have been pulled down through the floor opening and into the Cable Spreading Room. A three hour barrier now exists between the Control Room (the fire area) and these cables.

#### NRC Question No. 16

"(3.3.4) The licensee should provide a discussion of what, if any, testing will be undertaken to ensure that systems and components required for post-fire shutdown will function properly."

#### Supply System Response

In section 3.3.4 of the SER, the Staff refers to a licensee commitment to perform modifications prior to startup and presents a list of examples. The commitment was not made by the Supply System to perform all associated plant modifications prior to startup following R-2, but to address all of the Staff's issues in as expeditious manner as possible. We believe the Staff understands the specific commitments made associated with each issue and regard the SER statements as not intending to change that which has already occurred. The statement that we accepted the need to perform the modifications except for those needed to prevent LOCA's is misleading. We suggest this section be rewritten to reference the spurious operation section 3.3.14.3 correctly and if deemed necessary refer to only the single aspect of the high to low pressure interface issue that remains open (reference open issue 23). Action was taken prior to startup from R-2 for four of the five identified flow paths. The reference to the modifications bringing the facility into compliance with commitments made at the time WNP-2 was originally licensed is also considered incorrect. The Generic Letters and direct Staff interaction that have provided guidance to the extent that changed the original regulation and were issued after date of license do not support such a claim. The Supply System is committed to Regulatory Compliance and will deal with the issues in a technically sound manner, but it serves no end relating the continuously changing regulatory direction with the perception that the Appendix R and related documents have been unchanged since December 20, 1983.





With regard to testing, the WNP-2 testing efforts associated with the Remote Shutdown Panel is described in FSAR section 14.2.12.3.28. The test performed during the Power Ascension Testing Program (PATP) is in two parts. The first part simulated a control room evacuation which included closing the MSIV's. Another operations crew exited the control room and demonstrated at the remote shutdown panel the ability to maintain reactor water level, pressure and a less than 100°F/HR cooldown rate. The second part demonstrated the ability to place the RHR system into the shutdown cooling mode of operation from the remote shutdown panel while in a hot standby condition. The testing, in total, demonstrated the ability to control, maneuver and transition into cold shutdown from a hot standby condition. The changes to the systems referred to in SER section 3.3.4 were tested on a component basis. Each modification performed included testing to verify component function. Integrated type testing such as that required and performed during the PATP, per Reg. Guide 1.68.2, as part of the initial startup test program was not considered necessary. The PATP test demonstrated the ability to meet Reg. Guide 1.68.2 and the functional component level testing is sufficient to preserve that demonstration. At one point in the discussions with the Staff it was suggested that the Supply System perform a demonstration relying on only those systems included as part of the control room fire response analysis. The bases is similar to the ADS design bases where six SRV's are manually actuated and the reactor is rapidly depressurized to within the capability of a low pressure system to restore level. If it is the intent of the Staff to readdress this issue, the Supply Systems position remains as previously documented.

SER section 3.3.4 also refers to the interpretation of license condition 2.C.(14) presented in Generic Letter 86-10. The interpretation was as inconvenient for the Supply System as it was awkward for the Staff, however the reason for referring to that issue in the SER is unclear. We agreed with the Staff during the December 1986 meeting that the Generic Letter, given that it had been reviewed and endorsed by the Commission, needed to be followed. The application of Generic Letter 86-10 to revoke application of a Code of Federal Regulation (10CFR 50.59) precipitated the issue and was resolved by the Supply System in a manner accepted by the Staff. Perhaps additional discussion would clarify the Staff's purpose for addressing the license condition interpretation in the SER.

#### NRC Question No. 17

"(3.3.4) The licensee should confirm that required transfer switches have been installed, tested and are operational AFTER they have been installed."

#### Supply System Response

Transfer switches were installed in the SM-8 switchgear cabinets during the Spring 1987 outage. These transfer switches were installed, tested and declared operational during that outage.



NRC Question No. 18

"(3.3.7) The licensee has identified that there will be six safety relief valves (SRVs) available in the event of a fire in the control room. The licensee should document this operational capability and clearly state which six SRVs will be used."

Supply System Response

The six ADS SRVs (identified by tag number) to be used for safe shutdown from a Control Room fire are clearly listed in Amendment 37 Table F.4.1 in the "Remote Shutdown" column. Refer also to responses to Questions 10, 12, 13 and 15.

NRC Question No. 19

"(3.3.9) The licensee should provide instrumentation to give the operator information at a location outside of the control room on flowrates for the SSWS pump and other support systems; for example, the HVAC system."

Supply System Response

As described in Amendment 37, Note 16, on page F.4-41, Standby Service Water System, pump discharge pressure indication (consistent with Generic Letter 86-10) has been provided at the Remote Shutdown Panel. This indication, coupled with valve lineup indications (valve position) is sufficient to monitor system status.

Monitoring of Remote Shutdown Safe Shutdown support systems (HVAC, Electrical Distribution) is provided by local indications. Each equipment room is provided with a temperature indication which can be periodically checked. Electrical distribution is monitored by such indications as indicating lamps being lit and display of local amp/volts for DG and related buses at switchgear locations.

NRC Question No. 20

"(3.3.12) The licensee has used an acceptance criterion of the ability to safely shutdown the facility to determine whether repairs are required. It is not clear as to whether or not achieving a safe shutdown relied only upon the identified protected minimum set of safe shutdown equipment."

### Supply System Response

The WNP-2 definition of a "repair" required post-fire is:

"An action taken by plant staff to bring back into service a piece of equipment which has failed due to fire conditions and is necessary for safe shutdown to be accomplished."

With that definition, WNP-2 does not now require, nor have we ever required, a "repair" to be made to safely shutdown the plant post-fire. The NRC statement that a repair was necessary in SM-8 (see SER Section 3.3.12) is incorrect. The action taken (using shorting screws) in SM-8 was equivalent to transfer switch actuation. Therefore, achieving safe shutdown is accomplished by the minimum set of equipment identified in FSAR Section F.4. Additionally refer to the response to questions 17 and 21.

### NRC Question No. 21

"(3.3.12) The licensee should provide the status of the transfer switches for the SM-8 cabinets."

### Supply System Response

The transfer switches were installed and declared operable in the SM-8 cabinets during the Spring 1987 outage. Refer to NRC Question NO. 17 response.

### NRC Question No. 22

"(3.3.14.2) The licensee should justify the assumption that a properly coordinated circuit protection device will isolate a fault "even if the protective device is in the fire area."

### Supply System Response

As indicated in the NRC discussion in the Amendment 37 SER Section 3.3.14.2, the concern appears to be with the fact that we have not addressed "upstream" faults, only those occurring "downstream" of a protective device.

At WNP-2, all faults are "downstream" of a protective device and thus by definition no "upstream" faults exist. To clarify this, the only situation where an "upstream" fault is not equal to a "downstream" fault is when a significant distance exists between the power supply bus and the downstream protective device. For this case, because of coordination parameters, it is possible to "feed" a fault in a smaller gauge conductor without tripping the fuse. This could result in damage to safe shutdown circuits if they were routed with the faulted circuit and the upstream protective device does not clear the fault. This situation does not exist at WNP-2 since the circuit protective devices are located at the bus and no significant distance exists between the two, i.e. disconnect stabs are at the bus.



NRC Question No. 23

"(3.3.14.3) The licensee should either meet their commitment in the FSAR, Amendment 37 to remove power from the RHR-V-8 during normal plant operation or provide an acceptable means of meeting the criteria as they relate to the prevention of LOCAs at the high/low pressure interface."

Supply System Response

As stated in the cover letter to the Staff's SER there is no need to address this question in this submittal.

NRC Question No. 24

"(3.3.14.3) The licensee has stated that both RHR-V-8 and RHR-V-9 valves are both Division 1 powered valves. This, if true, is unacceptable."

Supply System Response

FSAR Section F.4.4.3.4 is incorrect. RHR-V-9 is powered from Division 2. The FSAR section will be corrected in Amendment 39.

NRC Question No. 25

"(3.3.14.3) The licensee's assumption that three phase power feeders will not fail in such a manner as to reconnect to an adjacent three phase power feeder and cause an electrically isolated motor to operate is acceptable except for high/low pressure interfaces. The licensee should describe the means used to protect against 3-phase faults at high/low pressure interfaces. (Reference page F.4-7)."

Supply System Response

As stated in FSAR Section F.4.4.2, the WNP-2 Appendix R Safe Shutdown Methodology assumes that the three-phase cross connection of power motor feeders is incredible and is not considered in the analysis for the following reasons:

- o Three-phase motor feeders at WNP-2 are three, single conductor cables tie-wrapped together in a triangular configuration and then tie-wrapped to the rungs of grounded steel cable trays or pulled in conduit. It is considered incredible to postulate that the correct phase from adjacent energized triangulated conductors will fault individually to the de-energized safe shutdown conductors without faults to each other or to ground, either of which will operate circuit protective devices removing power. This must occur in both Division raceways to open the series high-to-low pressure interface valves.
- o The raceways routing these circuits are lightly loaded (15% fill).
- o The majority (60%) of the circuits routed in these unprotected raceways are normally de-energized.



Considering the above, the safe shutdown motor feeder raceways, including those for high-to-low pressure interface valves, do not require protection from fire.

NRC Question NO. 26

"(3.3.15) The licensee should identify the minimum number of operators required to safely shut down the facility for all fire areas."

Supply System Response

As presented to the Staff in previous discussions and contained within the WNP-2 Technical Specifications, paragraph 6.2.2.e, the fire brigade consists of five members as a minimum. The fire brigade is normally staffed by the Shift Support Supervisor as the brigade leader, three equipment operators and one health physics/chemistry technician. The qualification requirement in Appendix R for the Fire Brigade Leader and two operations personnel is administratively controlled. Per Tech. Specs. the brigade cannot include the Shift Supervisor, STA or three other members of the minimum crew. The minimum crew would consist of the Shift Manager, Control Room Supervisor, two reactor operators and the STA. This staffing level meets the requirements presented by the Staff in the WNP-2 Tech. Specs. Each operations crew has five equipment operators that will be available as well. The required staffing levels are met and considered acceptable to respond to a fire and execute a shutdown safely.

NRC Question No. 27

"(3.4.15) The licensee should provide clarification as to when procedures for which "Regulatory Guide 1.39 will be used as a guide" will be created and implemented in the plant."

Supply System Response

PPM 1.3.19 (Housekeeping), PPM 1.3.10 (Fire Protection Program) and PPM 1.3.35 (Fire Protection Program Controls) have been implemented and use Reg. Guide 1.39 as a guide.

NRC Question No. 28

"(3.3.15) The licensee should identify specific NFPA codes and standards governing administrative procedures for maintaining performance of fire protection systems and personnel."





### Supply System Response

Many National Fire Protection Association (NFPA) Codes were used in the design of the Fire Protection System (FPS) at WNP-2. The contracts that dealt with the FPS were originated in the early 1970's and bid in 1972 to 1975 time frame. These contracts referred to the NFPA Codes in general but did not give a specific year of reference for use for the design. The NFPA Codes of reference noted previously in the FSAR, in most cases, were not the year used in the design.

The fire protection equipment is U.L. listed and/or Factory Mutual System approved (listed and/or approved) for fire protection use. This includes but is not limited to fire pumps, fire suppression system components, tank, hose, hydrants, fire detection and alarm system except for the fire control panels. The fire protection system was inspected and found acceptable prior to fuel load by the NRC as noted in WNP-2 SER No. 4 dated December 1983 Pages 9-5 to 9-9. ANI acceptance is noted by the lack of recommendation in the Insurance Inspection Reports.

A review of the WNP-2 Fire Protection System versus NFPA Codes Commitments was conducted at the request of the Supply System in late 1986 and early 1987 by EBASCO Services Inc. and summarized in Supply System letter G02-87-0129, dated April 13, 1987. The results of this review are covered in Supply System Manual WMC-064. This Manual, which is an internally controlled design document subject to the applicable requirements of the Supply System Quality Assurance Program, provides a compliance review for each NFPA Code noted in previous FSARs. Where differences exist between the words in the NFPA Code and the actual approved Fire Protection System Configuration an evaluation was conducted to assure that the design criteria previously accepted by the NRC staff as a basis for issuance of the WNP-2 Operating License are still met. Manual WMC-064 documents the manner of implementation of the NFPA Codes at WNP-2 and explains exceptions taken from the detailed guidance of the codes.

