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SUBJECT: Forwards results of 870121-23 meeting w/NRC in effort to clarify & agree upon contents of fire protection program for purpose of implementation of License Condition 2.C (14).

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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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Docket No. 50-397

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

Gentlemen:

Subject: NUCLEAR PLANT NO. 2
OPERATING LICENSE NPF-21
FIRE PROTECTION PROGRAM

During a January 13-15, 1987 fire protection inspection of WNP-2, the NRC Staff requested that the Supply System provide a description of its fire protection program for the purpose of implementation of License Condition 2.C.(14). Subsequently, on January 21-23, the Staff met with the Supply System in an effort to clarify and agree upon the contents of that program. The result of that effort is attached.

Pursuant to existing License Condition 2.C.(14), the Supply System will not alter any provision of the attached program except as authorized by prior Staff approval. For example, except as previously authorized by the Staff (e.g., in Technical Specifications) the Supply System will not continue to operate unless the required shutdown systems as set forth in Section III.B. of the attached program are operational.

The Supply System will continue with its practice of not otherwise making changes in the facility or procedures as described in the FSAR without first evaluating the change pursuant to 10 C.F.R. 50.59 to determine if prior Staff approval is also required. In this regard, the Supply System recognizes that 10 C.F.R. 50.59 requires prior Staff approval if, among other things, the change would create a "possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report ...." 10 C.F.R. 50.59(a)(2)(ii).

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If you have any questions regarding the attached program, or would like to discuss the contents further, please contact Mr. P. L. Powell, Manager, WNP-2 Licensing.

Very truly yours,

G. C. Sorensen, Manager
Regulatory Programs

tmh
Attachment

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

ATTACHMENT

WNP-2 FIRE PROTECTION PROGRAM DESCRIPTION

I. INTRODUCTION

The WNP-2 Fire Protection Program establishes basic criteria/policy for the protection of structures, systems, and components important to safety, including safe shutdown, during and following a fire. With regard to fire protection, the Supply System complies with codes, standards and guidance documents, as committed in the FSAR through Amendment 33, except where deviations have been noted and justified. The FSAR, through Amendment 33, includes details on implementation of this fire protection program but does not contain a concise description of the program itself.

II. GENERAL PROGRAM REQUIREMENTS

A. Organization and Personnel Qualifications

Organizational responsibilities and authorities for fire protection are defined within Supply System policies, organization charts, and functional descriptions. Responsibility for the overall WNP-2 fire protection program is assigned to the Plant Manager. Responsibility for program development and auditing of implementation is delegated to the Manager, Industrial Safety and Fire Protection (IS&FP). The Manager, IS&FP maintains a staff of qualified personnel trained in fire protection, including a Fire Protection Engineer, Member Grade in the Society of Fire Protection Engineers.

B. Fire Hazards Analysis

The fire hazards analysis is performed and maintained by qualified fire protection and reactor systems engineers.

C. Administrative Controls

Although not part of the defined fire protection program, administration of the fire protection program is accomplished utilizing Supply System policies, operating standards and Plant Procedures. Plant Procedures, as required by Technical Specifications, are maintained to control and minimize the use and storage of combustibles, flammables, and ignition sources within the plant. Procedures govern the following: (a) fire barriers, (b) detection and suppression systems, (c) fire watches as defined in Technical Specifications, (d) fire alarms, (e) emergency response (including safe shutdown systems), (f) appropriate investigation and followup of fires, (g) design change documentation and (h) maintenance work requests. Prefire plans are prepared and maintained which define strategies for fighting fires in all areas.

D. Fire Brigade

A trained and equipped 5-member Fire Brigade is provided for each shift. Fire Brigade drills are conducted at regular intervals not to exceed three months, with a drill including the local fire department at least every 12 months. The Fire Brigade and Fire Brigade Training shall comply with the criteria outlined in 10 C.F.R. 50, Appendix R, Sections III.H and III.I.

The plant Fire Brigade is trained to be self-sufficient. However, backup firefighting response is provided by agreement with a local fire department. Backup responders are oriented regarding plant physical layout and special hazards.

E. Quality Assurance Program

The quality assurance program is under the management of the Director of Licensing and Assurance, who reports directly to the Managing Director. The quality assurance organization formulates a fire protection QA program that is acceptable to the Plant Manager and verifies the effectiveness of the fire protection related activities through suitable reviews, surveillances and audits.

III. PLANT REQUIREMENTS

A. Plant Design

Redundant divisions of safe shutdown systems (including cabling) comply with the separation requirements of Section III.G of Appendix R to 10 C.F.R. Part 50 so that both trains are not subject to damage from a single fire.

Openings through required fire barriers for pipe, conduit, and cable trays are sealed with tested and approved 3 hour rated fire seals or justification for a lesser seal is provided that is comparable to that documented in the FSAR and previously approved by the NRC Staff. The inside of conduits are sealed using seals of acceptably tested configurations or which have been found acceptable by analysis to prevent the passage of smoke and hot gases across barriers.

Penetration openings for ventilation systems are provided with listed fire dampers having a rating equivalent to that required of the barrier, except for locations where justification is provided for a lesser rating which is comparable to that documented in the FSAR and previously approved by the Staff.

Door openings in required fire barriers are protected with listed 3 hour rated doors. Openings that are larger than those normally found or requiring special application are provided with doors of equivalent rating as noted by the manufacturer. Fire doors are verified operable in accordance with WNP-2 Technical Specifications.

Emergency lights are provided in areas that must be accessed (ingress and egress) for safe shutdown. Fixed emergency communications independent of the normal plant communication system are located at preselected stations. A portable communications system is provided for the Fire Brigade.

Plant design used non-combustible materials to the extent possible for walls, roofs, ceilings, floors, etc. A surface treatment may be applied where it meets the provisions of Generic Letter 86-10, Enclosure 1 at p. 15, answer 3.5.2, e.g., control room wall paneling with fire retardant plastic laminate (see FSAR Amendment 33 at p. F.2-107). Transformers are dry type or cooled with a noncombustible liquid in areas that contain safe shutdown equipment.

B. Safe Shutdown Capability

Fire protection is provided for structures, systems, and components important to safe shutdown of the plant during and following a fire. The protection limits fire damage so that one train of systems necessary to achieve and maintain cold shutdown conditions is available from either the Main Control Room or the Remote and Alternate Remote Shutdown panels, the SM-8 Switchgear, and the DG-2 Control Panel.

For the purposes of fire protection, the systems used for safe shutdown are as follows:

1) Three of seven Automatic Depressurization System (ADS) Valves controlled from the Main Control Room. Divisionalized control of ADS Valves is described in FSAR Section 7.3.1
2) Three ADS Valves controlled from the Alternate Remote Shutdown Panel
3) Residual Heat Removal System (RHRS)
4) Standby Service Water System (SSWS)
5) HVAC System
6) Electrical Distribution System (including the diesel generators)
7) Controls and instrumentation required for operation located on Main Control Room panels, Remote and Alternate Remote Shutdown panels, SM-8 switchgear, and the DG-2 panel for the above systems.

The Supply System has taken actions to assure the availability of at least one train of these systems in the event of a fire in any one fire area. The divisions available for each fire area are set forth in Table 1.

C. Safe Shutdown Criteria

Safe shutdown systems installed to ensure postfire shutdown capability need not be designed to meet seismic Category I criteria, single failure criteria, or other Design Basis Accident criteria, except where required due to interface with or impact on existing safety systems. In addition, credible spurious signals due to fire damage will not prevent safe shutdown.

The safe shutdown equipment and systems for each fire area are independent of allied circuits (i.e., circuits other than safe shutdown circuits whose failure may result in loss of safe shutdown capability) in the fire area such that hot shorts, open circuits, or shorts to ground in the allied circuits will not prevent operation of the safe shutdown equipment.

B. Electrical Cable Construction and Cable Raceways

All cable trays are steel. Only metallic tubing is used for conduit. Cables are designed to allow wetting down with fire suppression water without electrical faulting. Electric cables are qualified to the IEEE 383 criteria.

IV. FIRE DETECTION AND SUPPRESSION

A. Fire Detection

A fire detection system is provided for areas that contain or present a fire exposure to safety-related and safe shutdown equipment. Fire detection shall meet NFPA 72E or an acceptable deviation[1] from the code shall be available. Detector alarms are provided in the Control Room. Systems surveillance and testing is performed in accordance with WNP-2 Technical Specifications.

B. Fire Protection Water Supply System

The Water Supply System consists of an underground yard fire main loop, post-indicator and OS&Y sectional control valves, hydrants, hoses, combination nozzles and other auxiliary equipment and meets NFPA 24 or an acceptable deviation from the code shall be available. Control and sectionalizing valves in the fire water system are under administrative control. Valves in the fire protection system are periodically checked to verify position in accordance with WNP-2 Technical Specifications.

Three listed fire pumps take suction from the Circulating Water Pump House (CWPH) Basin. Two pumps are provided with electric motor drive and the third has a diesel driver. Pumps discharge into the yard loop and are cross connected. The secondary source of water is a diesel driven listed and approved pump taking suction from a tank containing a minimum of 280,000 gallons. The tank can supply water at maximum demand for at least 2 hours and can be refilled in approximately 8 hours. Considering a loss of offsite power, a single fire pump can provide adequate water for the suppression systems. Fire pump surveillances are in accordance with the WNP-2 Technical Specifications.

The fixed water extinguishing systems meet NFPA 13 and NFPA 15 or an acceptable deviation from the code shall be available. Local operation to manually trip preaction valves is provided for each preaction system.

Hose stations are located such that it is possible to reach any location that contains or could present a fire exposure hazard to safety-related or safe shutdown equipment with at least one effective hose stream. Standpipes with hose connections equipped with a maximum of 150 feet of 1-1/2 inch listed fire hose and nozzles are provided. These systems meet NFPA 14 or an acceptable deviation from the code shall be available. Testing is performed in accordance with WNP-2 Technical Specifications.

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[1]For purposes of this document, acceptable deviations are defined as those of the type reviewed and agreed to by the Staff.

C. Halon Suppression Systems

Halon 1301 fire extinguishing systems are provided in the Main Control Room under the floor raceway system (PGCC) and meet NFPA 12A or an acceptable deviation from the code shall be available. Preventative maintenance and testing of the systems are performed in accordance with WNP-2 Technical Specifications.

D. Portable Extinguishers

Fire extinguishers are provided which meet NFPA 10 or an acceptable deviation from the code shall be available. Testing and maintenance are performed in accordance with the WNP-2 Technical Specifications.

V. REQUIREMENTS FOR SPECIFIC PLANT AREAS

A. Control Room

The Main Control Room is separated from other areas of the plant by barriers having minimum fire rating of 3 hours. Peripheral rooms in the Main Control Room (shift manager offices, pipe space, rest room and kitchen) are protected with an automatic sprinkler system and separated from the Control Room by noncombustible construction. The Control Room is provided with fire extinguishers and fire detection. Breathing apparatus for Main Control Room operators is available in the Control Room.

B. Cable Spreading Room

The primary fire suppression system in the cable spreading room is preaction with directional spray heads. Hose stations and portable extinguishers are located immediately outside the room; early warning smoke detection is provided. A 20 foot area of no intervening combustibles is included.

C. Switchgear Rooms

Switchgear rooms containing safe shutdown equipment are separated from the remainder of the plant by barriers with a minimum fire rating of 3 hours. Redundant switchgear divisions are separated from each other by barriers with a 3-hour fire rating. Detection is provided and will alarm in the Main Control Room. Fire hose stations and portable fire extinguishers are provided.

D. Remote and Alternate Remote Shutdown Rooms

Rooms containing shutdown equipment providing Alternative Shutdown capability are separated from each other and the Control Room by barriers having a minimum fire rating of 3 hours. Panels providing Alternative Shutdown capability are electrically isolated from the Control Room or protected so that a fire in the Control Room will not effect shutdown capability from the remote area. These rooms are provided with automatic fire detection that alarms in the Control Room. Portable extinguishers and manual hose stations are provided.

E. Battery Rooms

Battery rooms are separated from each other and other areas of the plant by barriers having a minimum fire rating of 3 hours. Automatic fire detection is provided to alarm in the Control Room. Hose stations and portable extinguishers are provided.

F. Diesel Generator Building

Diesel generators are separated from each other and from other areas of the plant by fire barriers having a minimum fire rating of 3 hours.

Preaction water spray systems with directional heads are installed to combat a combustible liquids fire. Fire detection is provided to alarm in the Control Room. Hose stations and portable extinguishers are available outside the area. Water removal and flammable liquid drainage capability is provided such that it will not adversely impact safe shutdown (see FSAR Amendment 33 at pp. F.3-47, F.2-22, and F.2-41).

The three diesel oil day tanks are each located in separate areas with minimum fire barrier ratings of 3 hours. Each enclosure is capable of containing the contents of the associated day tank and contains a preaction water spray system and detection.

G. Diesel Fuel Oil Storage and Transfer Areas

Diesel fuel oil storage tanks are buried in the yard. Fuel is transferred to the day tanks via welded steel pipe installed in accordance with NFPA 30 or an acceptable deviation from the code shall be available.

H. Safe Shutdown Pumps

Pump houses and rooms housing redundant safe shutdown pump trains are separated from each other and from other areas of the plant by fire barriers having at least 3-hour ratings. These rooms have fire detection that will alarm in the Control Room. Hose stations and portable extinguishers are provided in the area.

I. Spent Fuel Pool

Protection for the spent fuel pool area is provided by hose stations and portable extinguishers. Fire detection is provided with alarms in the Control Room.

J. Radwaste and Decontamination Areas

Fire detection and suppression systems are provided in these areas (see FSAR Amendment 33 at pp F.3-126 and F.3-127). Spent resins are contained in metal vessels.

K. Records Storage Areas

Permanent record storage is located remote to the Power Block and meets NFPA 232 or an acceptable deviation from the code shall be available.

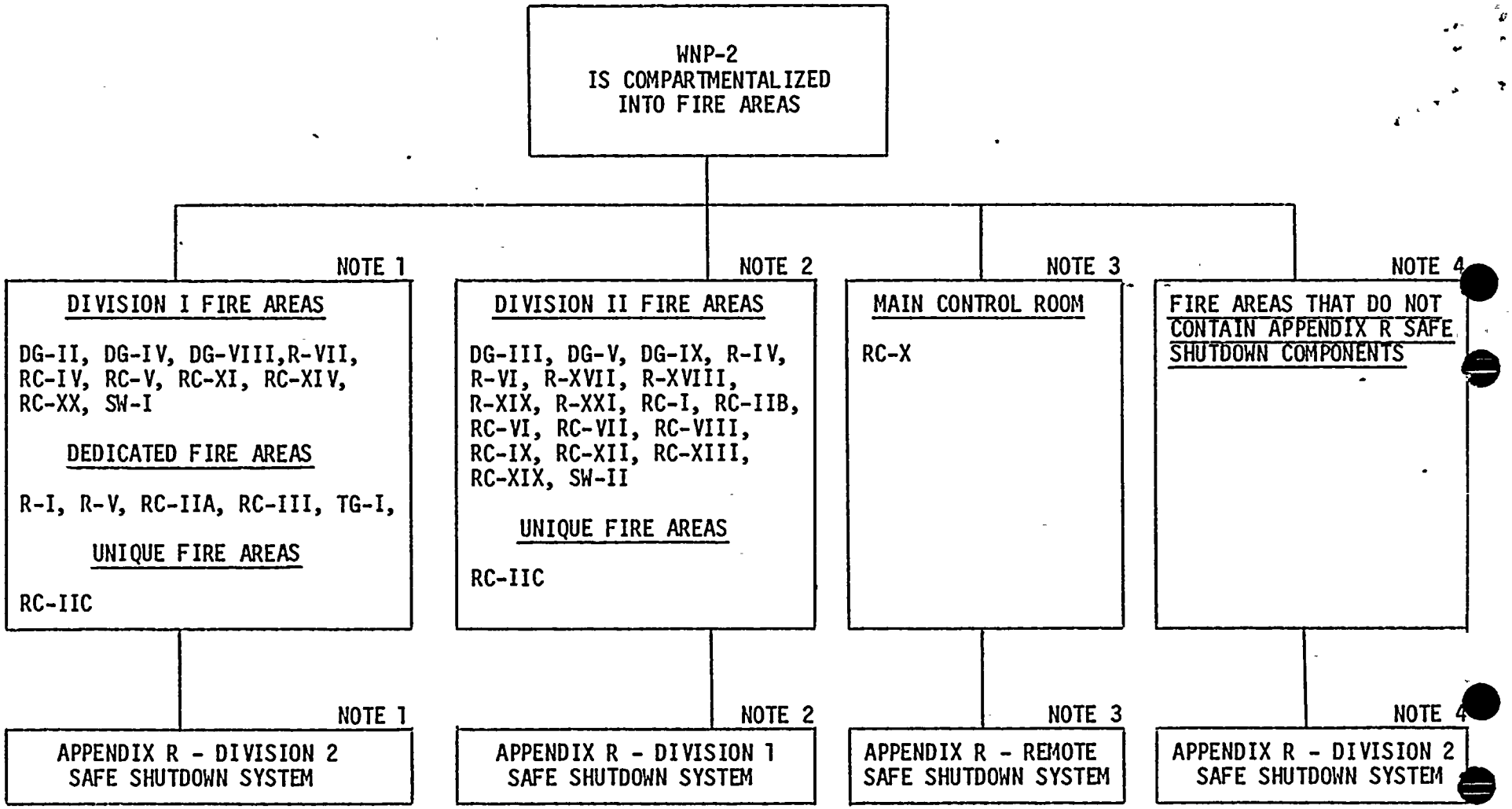
L. Storage of Acetylene-Oxygen Fuel Gases

Permanent gas cylinder storage for welding is not allowed in areas that contain or expose safety-related equipment or the fire protection systems that serve those safety-related areas. Permits for use in safety-related areas are covered by Plant Procedures.

M. Compressed Gases

Permanent bulk storage of either fuel gases or oxidizing gases (compressed or cryogenic) is not permitted inside structures housing safe shutdown equipment. Hydrogen gas is used for turbine generator cooling and is housed north of the Turbine Generator Building and piped to the generator. Flammable gas usage is controlled by Plant Procedures.

TABLE 1



NOTES

1. A fire in one of these areas will require the use of the Appendix R, Division 2 Safe Shutdown System, see FSAR Table F4-1.

2. A fire in one of these areas will require the use of the Appendix R, Division 1 Safe Shutdown System, see FSAR Table F4-1.

3. A fire in the Main Control Room will require the use of the Appendix R, Remote Safe Shutdown System, see FSAR Table F4-1.

4. A fire in these areas will require the use of the Appendix R, Division 2 Safe Shutdown System, see FSAR Table F4-1.