Westinghouse Electric Corporation Power Systems

Box 355
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March 24, 1988
AW-88-026
Docket No. STN-50-601

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

Attention: Lester Rubenstein, Director
Standardization & Non-Power Reactor Project Directorate

APPLICATION FOR WITHHOLDING PROPRIETARY INFORMATION FROM PUBLIC DISCLOSURE

Subject: Submittal of Amendment 2 to WAPWR RESAR-SP/90 PDA Module 13, "Auxiliary Systems"

Reference: Letter No. NS-NRC-88-3317, Johnson to Rubenstein dated March 24, 1988

Dear Mr. Rubenstein:

The application for withholding is submitted by Westinghouse Electric Corporation ("Westinghouse") pursuant to the provisions of paragraph (b)(1) of Section 2.790 of the Commission's regulations. It contains commercial strategic information proprietary to Westinghouse and customarily held in confidence.

The affidavit previously provided to justify withholding proprietary information in this matter was submitted as AW-82-57 with letter NS-NRC-86-3175 dated October 29, 1986, and is equally applicable to this material.

Accordingly, it is respectfully requested that the subject information which is proprietary to Westinghouse be withheld from public disclosure in accordance with 10CFR Section 2.790 of the Commission's regulations.

Correspondence with respect to this application for withholding or the accompanying affidavit should reference AW-88-026 and should be addressed to the undersigned.

Very truly yours,

Robert A. Wiesemann

Robert A. Wiesemann, Manager
Regulatory & Legislative Affairs

WMS/bek/0036B
Enclosure(s)

cc: E. C. Shomaker, Esq.
Office of the General Council, NRC

PROPRIETARY INFORMATION NOTICE

TRANSMITTED HEREWITH ARE PROPRIETARY AND/OR NON-PROPRIETARY VERSIONS OF DOCUMENTS FURNISHED TO THE NRC IN CONNECTION WITH REQUESTS FOR GENERIC AND/OR PLANT SPECIFIC REVIEW AND APPROVAL.

IN ORDER TO CONFORM TO THE REQUIREMENTS OF 10CFR 2.790 OF THE COMMISSION'S REGULATIONS CONCERNING THE PROTECTION OF PROPRIETARY INFORMATION SO SUBMITTED TO THE NRC, THE INFORMATION WHICH IS PROPRIETARY IN THE PROPRIETARY VERSIONS IS CONTAINED WITHIN BRACKETS AND WHERE THE PROPRIETARY INFORMATION HAS BEEN DELETED IN THE NON-PROPRIETARY VERSIONS ONLY THE BRACKETS REMAIN, THE INFORMATION THAT WAS CONTAINED WITHIN THE BRACKETS IN THE PROPRIETARY VERSIONS HAVING BEEN DELETED. THE JUSTIFICATION FOR CLAIMING THE INFORMATION SO DESIGNATED AS PROPRIETARY IS INDICATED IN BOTH VERSIONS BY MEANS OF LOWER CASE LETTERS (a) THROUGH (g) CONTAINED WITHIN PARENTHESES LOCATED AS A SUPERSCRIPT IMMEDIATELY FOLLOWING THE BRACKETS ENCLOSING EACH ITEM OF INFORMATION BEING IDENTIFIED AS PROPRIETARY OR IN THE MARGIN OPPOSITE SUCH INFORMATION. THESE LOWER CASE LETTERS REFER TO THE TYPES OF INFORMATION WESTINGHOUSE CUSTOMARILY HOLDS IN CONFIDENCE IDENTIFIED IN SECTIONS (4)(ii)(a) THROUGH (4)(ii)(g) OF THE AFFIDAVIT ACCOMPANYING THIS TRANSMITTAL PURSUANT TO 10CFR2.790(b)(1).

AW-82-57

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

ss

COUNTY OF ALLEGHENY:

Before me, the undersigned authority, personally appeared John D. McAdoo, who, being by me duly sworn according to law, deposes and says that he is authorized to execute this Affidavit on behalf of Westinghouse Electric Corporation ("Westinghouse") and that the averments of fact set forth in this Affidavit are true and correct to the best of his knowledge, information, and belief:

John D. McAdoo, Assistant Manager
Nuclear Safety Department

Sworn to and subscribed
before me this 1 day
of November 1982.

Paulette Slonska

Notary Public

PAULETTE SLONSKA, NOTARY PUBLIC
MONROEVILLE BORO, ALLEGHENY COUNTY
MY COMMISSION EXPIRES MARCH 10, 1986
Member, Pennsylvania Association of Notaries

(1) I am Assistant Manager, Nuclear Safety Department, in the Nuclear Technology Division, of Westinghouse Electric Corporation and as such, I have been specifically delegated the function of reviewing the proprietary information sougnt to be withheld from public disclosure in connection with nuclear power plant licensing or rulemaking proceedings, and am authorized to apply for its withholding on behalf of the Westinghouse Water Reactor Divisions.

(2) I am making this Affidavit in conformance with the provisions of 10CFR Section 2.790 of the Commission's regulations and in conjunction with the Westinghouse application for withholding accompanying this Affidavit.

(3) I have personal knowledge of the criteria and procedures utilized by Westinghouse Nuclear Energy_Systems in designating information as a trade secret, privileged or as confidential commercial or financial information.

(4) Pursuant to the provisions of paragrapn (b)(4) of Section 2.790 of the Commission's regulations, the following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure should be withheld.

(i) The information sought to be withheld from public disclosure is owned and has been held in confidence by Westinghouse.

(ii) The information is of a type customarily held in confidence by Westinghouse and not customarily disclosed to the public. Westinghouse has a rational basis for determining the types of information customarily held in confidence by it and, in that connection, utilizes a system to determine when and whether to hold certain types of information in confidence. The application of that system and the substance of that system constitutes Westinghouse policy and provides the rational basis required.

Under that system, information is held in confidence if it falls in one or more of several types, the release of which might result in the loss of an existing or potential competitive advantage, as follows:

(a) The information reveals the distinguishing aspects of a process (or component, structure, tool, method, etc.) where prevention of its use by any of Westinghouse's competitors without license from Westinghouse constitutes a competitive economic advantage over other companies.

(b) It consists of supporting data, including test data, relative to a process (or component, structure, tool, method, etc.), the application of which data secures a competitive economic advantage, e.g., by optimization or improved marketability.

(c) Its use by a competitor would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing a similar product.

(d) It reveals cost or price information, production capacities, budget levels, or commercial strategies of Westinghouse, its customers or suppliers.

(e) It reveals aspects of past, present, or future Westinghouse or customer funded development plans and programs of potential commercial value to Westinghouse.

(f) It contains patentable ideas, for which patent protection may be desirable.

(g) It is not the property of Westinghouse, but must be treated as proprietary by Westinghouse according to agreements with the owner.

There are sound policy reasons behind the Westinghouse system which include the following:

(a) The use of such information by Westinghouse gives Westinghouse a competitive advantage over its competitors. It is, therefore, withheld from disclosure to protect the Westinghouse competitive position.

(b) It is information which is marketable in many ways. The extent to which such information is available to competitors diminishes the Westinghouse ability to sell products and services involving the use of the information.

(c) Use by our competitor would put Westinghouse at a competitive disadvantage by reducing his expenditure of resources at our expense.

(d) Each component of proprietary information pertinent to a particular competitive advantage is potentially as valuable as the total competitive advantage. If competitors acquire components of proprietary information, any one component may be the key to the entire puzzle, thereby depriving Westinghouse of a competitive advantage.

(e) Unrestricted disclosure would jeopardize the position of prominence of Westinghouse in the world market, and thereby give a market advantage to the competition in those countries.

(f) The Westinghouse capacity to invest corporate assets in research and development depends upon the success in obtaining and maintaining a competitive advantage.

(iii) The information is being transmitted to the Commission in confidence and, under the provisions of 10CFR Section 2.790, it is to be received in confidence by the Commission.

(iv) The information sought to be protected is not available in public sources or available information has not been previously employed in the same original manner or method to the best of our knowledge and belief.

(v) The proprietary information sought to be withheld in this submittal is that which is appropriately marked in the "Westinghouse Advanced Pressurized Water Reactor (WAPWR) Licensing Control Document." This document identifies specific design features and improvements which the WAPWR will have in order to meet current regulatory requirements. In addition, it establishes the WAPWR position with respect to each requirement.

Public disclosure of this information is likely to cause substantial harm to the competitive position of Westinghouse as it would reveal the description of the improved design features of the WAPWR; Westinghouse plans for future design, testing and analysis aimed at design verification; and demonstration of the design's capability to meet evolving NRC/ACRS safety goals. All of this information is of competitive value because of the large amount of effort and money expended by Westinghouse over a period of several years in carrying out this particular

development program. Further, it would enable competitors to use the information for commercial purposes and also to meet NRC requirements for licensing documentation, each without purchasing the right from Westinghouse to use the information.

Information regarding its development programs is valuable to Westinghouse because:

(a) Information resulting from its development programs gives Westinghouse a competitive advantage over its competitors. It is, therefore, withheld from disclosure to protect the Westinghouse competitive position.

(b) It is information which is marketable in many ways. The extent to which such information is available to competitors diminishes the Westinghouse ability to sell products and services involving the use of the information.

(c) Use by our competitor would put Westinghouse at a competitive disadvantage by reducing his expenditure of resources at our expense.

(d) Each component of proprietary information pertinent to a particular competitor advantage is potentially as valuable as the total competitive advantage. If competitors acquire components of proprietary information, any one component may be the key to the entire puzzle thereby depriving Westinghouse of a competitive advantage.

(e) The Westinghouse capacity to invest corporate assets in research and development depends upon the success in obtaining and maintaining a competitive advantage.

Being an innovative concept, this information might not be discovered by the competitors of Westinghouse independently. To duplicate this information, competitors would first have to be similarly inspired and would then have to expend an effort similar to that of Westinghouse to develop the design.

Further the deponent sayeth not.

AMENDMENT 2 TO RESAR-SP/90 PDA MODULE 13
AUXILIARY SYSTEMS

AMENDMENT 2 TO RESAR-SP/90 PDA MODULE 13
REGULATORY CONFORMANCE

Instruction Sheet

- Replace current pages xi and xii with revised pages xi and xii respectively.
- Replace current pages xiii and xiv with revised pages xiii and xiv respectively.
- Replace current pages xv and xvi with revised pages xv and xvi respectively.
- Replace current pages 9.5-31 through 9.5-49 with revised pages 9.5-31 through 9.5-49.

KEY TO "REFERENCE SAR SECTION STATUS" COLUMN:

Category 1

Those sections which are complete and for which no additional information s to be provided for the PDA application.

Category II

Those sections which are complete insofar as providing material relevant to this system module but for which additional information will be provided in support of subsequent modules.

Category III

Those sections for which information on interfacing systems will be provided at a later date.

NA

Those sections for which categorization is not applicable. Only the section titles are included for clarity.

LIST OF TABLES

LIST OF TABLES

2

- Most favorable direction to attack a fire.

- Designation of plant systems, including location of local and remote controls, that should be managed to reduce the damage potential during a fire.

- Designation of vital heat-sensitive systems or components that should be kept cool while fighting a fire.

- Assignment of fire brigade special duties.

- Identification of radiological and toxic hazards.

- Ventilation system operation.

- Operation requiring shift supervisor or control room coordination.

- Instructions for plant operators during a fire.

9.5.1.8 Summary

The WAPWR NPB configuration and layout provides inherent separation of redundant trains of safety-related equipment. The overall Fire Protection Program as described herein provides additional defense-in-depth to enhance protection of redundant safety-related systems, contain potential property damage to acceptable levels and minimize potential for personal injury due to fire.

The programs for Quality Assurance, Preoperational Testing, Administrative Controls and Personnel Training will assure attention to detail, which is essential to maintain overall concepts of the program for the life of the unit.

9.5.2 Communication Systems

9.5.2.1 Design Bases

A comprehensive communication system is provided to ensure reliable intraplant communications, plant to offsite telephone and radio communications, and plant to offsite emergency communications with public safety agencies. Effective communication between personnel during plant startup, operation, shutdown, refueling and maintenance activities is provided by the use of private automatic branch exchange (PABX) telephone, sound powered telephone, public address, plant-to-offsite two way radio and plant-to-offsite emergency telephone systems. These diverse means of communication are independent to prevent loss of all systems as a result of a single failure.

9.5.2.2 System Description

9.5.2.2.1 Public Address System

2

The intraplant public address system provides two separate means of communication, page and party lines. The page-party line loud speakers are driven by individual amplifiers and the power to this system is supplied from a source which is available during loss of offsite power.

The public address system permits paging and two-way communication from all locations vital to the operation of the plant and the safety of personnel. The system has one paging line. The paging line is divided into two separate zones, administrative area and power plant area, to minimize paging interference. Manually operated switches are provided in each zone to allow plant-wide paging. The system also includes a number of party lines which provide two way communication between all important plant areas. Access to all party lines and the page channel is available at most handset stations. The system is designed to ensure that the paging output is audible over the expected noise levels under both normal and accident conditions. The system includes jack stations as well as handset stations. Headsets are provided which are designed for use in high noise areas.

9.5.2.2.2 Intraplant Telephone System

An independent telephone system is provided to ensure uninterrupted private communication between critical plant areas. The system utilizes a private automatic branch exchange (PABX) which is powered from a source available upon loss of offsite power. Designated telephones are directly connected to the public telephone system and derive power from the public system.

9.5.2.2.3 Sound-Powered Phone System

A sound phone system is provided which consists of three separate and independent subsystems:

1. Maintenance subsystem - A multichannel hard-wired link between the control area and critical plant areas.

2. Refueling subsystem - A two channel hard-wired link between the Control Room, fuel handling area, and reactor operating floor. This subsystem is primarily provided for refueling operations. 2

3. Emergency subsystem - A two channel hard-wired link between the auxiliary shutdown panel and areas of the plant which may require local operation during an emergency shutdown. The cables in this system are routed in dedicated conduits.

Conduit for all sound powered phone subsystems is seismically installed in all safety related areas. All conduit for the emergency subsystem is seismically installed. Heavy duty industrial-quality jacks and mounting boxes are used throughout the system. All locations served by the emergency subsystem are also served by the maintenance subsystem to provide redundancy.

9.5.2.2.4 Emergency Offsite Communication

Emergency offsite communication details are site specific and will be determined during the final design phase. The system will have the following features as a minimum:

1. Emergency Notification System phones will be located in the Control Room and Technical Support Center. These phones will provide a communications link with the Nuclear Regulatory Commission. The system will be independent of the PABX and will be directly connected to a local long distance carrier.

2. Two-way radio communication links will be provided between the site and local public safety agencies via microwave and/or VHF radio.

3. A power line carrier or microwave link will provide direct communication with the system dispatcher located at a remote station with additional communication channels available.

9.5.2.2.5 Emergency Evacuation Alarm System

2 The evacuation alarm is generated by a solid state tone generator which can be heard over all plant paging zones via the plant paging system. The evacuation alarm system includes rotating beam lights as a visual indication of an alarm condition in selected high background noise areas.

9.5.2.3 Evaluation

The following evaluation is intended to establish the adequacy and redundancy of the plant communication system design:

1. Intraplant Systems

Each intraplant system (PABX, paging, sound-powered system) is designed to provide the required intraplant communications during and after accident conditions as well as for plant operation and maintenance purposes. Failure in any one of these systems will not result in the failure of any other system. Power supplies for the various systems are not dependent on offsite power. Upon loss of all AC power to the PABX, designated phones remain operable, deriving power from the public telephone system.

The sound-powered telephone system is independent of all external power sources with jack stations conveniently located throughout the plant. In addition, redundant components and cabling in the sound-powered telephone system are provided to prevent loss of service to any critical area because of a single failure. Reliable service can be expected from this system because of the ruggedness of these components, the simplicity of operation, and the independence from any external power source.

2. Plant-to-Offsite Systems

A minimum of three plant to offsite communications systems are available to the Control Room operators. The diversity of these systems ensure that adequate communication is available during and after accident conditions.

The public telephone lines are connected to the plant PABX telephone system. This extends the use of public telephone lines throughout the plant.

The plant to offsite-to-offsite two way radio communication serves as a backup to the public telephone system. This provides communication between the plant operators and public safety agencies. The power to this system is provided from a source available upon loss of offsite power. 2

The plant has additional communication channels via direct long distance telephone ties for the Emergency Notification System and normal power system dispatching circuits.

9.5.2.4 Inspection and Testing Requirements

All communication systems are inspected and tested (including adjustments if required) at the completion of installation to ensure proper coverage and audibility. The functional testing is performed under conditions that simulate the maximum plant noise levels being generated during the various operating conditions, including fire and accident conditions, to demonstrate system capabilities.

Paging and PABX systems are used on a routine basis, and periodic testing is not required. Periodic testing of the sound-powered system, radio equipment and all standby power sources is scheduled on a routine basis to ensure operability. 2

Periodic testing of the emergency evacuation alarm signal is performed as outlined in ANSI N2.3.

9.5.3 Lighting Systems

The plant lighting systems to provide adequate lighting during normal plant operation and accident conditions, including the effects of a loss of offsite power.

9.5.3.1 Design Bases

9.5.3.1.1 Safety Design Bases

The lighting system is nonsafety related and therefore serves no safety function.

9.5.3.1.2 Power Generation Design Bases

Adequate lighting systems are provided in areas used during normal, shutdown, and emergency operations, including the appropriate access of exit rolutes. Lighting intensities are designed to the levels recommended by the Illuminating Engineering Society. The use of high-pressure sodium, fluorescent, and mercury vapor lamps is restricted; these lamps are not used in the following major areas:

- o Containment
- o Above the fuel transfer canal.
- o Above the new and spent fuel storage areas.
- o The radwaste building (only mercury vapor is restricted).

Incandescent lighting is used in these areas except as noted in the radwaste building.

9.5.3.2 System Description

The plant lighting systems consist of normal, essential and emergency system.

9.5.3.2.1 Normal Lighting System

The normal lighting system will be supplied from two sources:

a. A 480/277-V ac lighting load centers.

b. Lighting panels fed from non-Class 1E motor control centers through 480-208Y/120-V dry-type transformers.

Power source for these lighting systems will be taken from the normal auxiliary power system (non-Class 1E).

9.5.3.2.2 Essential Lighting System

The essential lighting system will be used in conjunction with the normal lighting system especially in main walkways and stairs, Class 1E equipment, switchgear rooms, and areas used for safe shutdown. The power for essential lighting system will be supplied from non-Class 1E motor control centers backed by the emergency diesel generators.

9.5.3.2.3 Emergency Lighting System

The emergency lighting system is defined as the system that is powered from either 250 volt DC bus or from self-contained battery pack with charger units, as indicated below:

a. Main Control Board Emergency Lighting

The 250 volt dc lighting system, which is normally de-energized, provides operating level lighting in the Control Room. The emergency lighting is energized automatically by an undervoltage sensing relay mounted on the individual essential lighting panelboards located in their associated areas. Control power for the undervoltage transfer circuit is provided from the essential lighting system. A test button is provided at each panel-board to test the operability of the system without affecting essential lighting. All 250 volt dc lighting units are incandescent.

b. Shutdown Panels Emergency Lighting

Emergency lighting for the remote shutdown panels, diesel generator panels, and auxiliary feedwater the access route between the main control and the shutdown panel rooms and all areas required for safe shutdown operation shall be illuminated by sealed beam fixtures.

c. Fire Protection Lighting

Fixed 8-hr rated sealed beam fixtures shall be provided in all plant areas to supply sufficient illumination for safe ingress and egress of personnel following a loss of normal and/or essential lighting. The fixtures shall have self-contained battery and its charger units powered from the normal lighting system.

The use of specific type of emergency lighting fixture (250 volt dc or sealed beam with charger unit fixture) for the different areas of the plant other than the areas covered by 9.5.3.2.3 A, B, and C will be established during the design stage.

9.5.3.2.4 Exit Lighting System

Plant exit lighting shall generally consist of 1.5-hr battery-backed fixtures, which are powered from normal ac power system. The restricted areas indicated in Subsection 9.5.3.1.2, with the exception of the radwaste building, shall be provided with nonbattery-backed exit fixtures, which will be powered from the essential lighting system.

9.5.3.3 Failure Analysis

The only areas that require lighting for safe shutdown are the control room and shutdown panel rooms and ingress/egress routes to and from these locations.

a. Those portions of the lighting system that service the main control room, shutdown panel rooms, diesel generator panels, and auxiliary feedwater panels will be designed and constructed so that a safe shutdown earthquake will not cause any structural failure that could reduce the function of any post-safe shutdown earthquake item to an unacceptable level or could result in an incapacitating injury to occupants in these areas.

b. The emergency lighting system will be designed to provide necessary lighting at all times during shutdown or emergency. In the event of a loss of offsite power, the emergency lighting will be maintained through the use of self-contained batteries and/or from non-Class 1E dc power sources as outlined in Subsection 9.5.3.2.3.

c. Functional operability of the lighting systems is not a requirement during or after a design basis event.

A failure mode and effects analysis for the emergency and essential lighting systems will be established during the design stage.

9.5.3.4 Test and Inspections

The ac lighting circuits are normally energized and require no periodic testing. The battery-backed lighting will be inspected and tested periodically to ensure the operability of the components in the system. The undervoltage transfer circuit for the 250 volt dc system will be inspected and tested periodically to ensure the operability of the transfer system.

9.5.4 Emergency Diesel Engine Fuel Oil Storage and Transfer System

The basic function of the emergency diesel engine fuel oil storage and transfer system (EDEFSTS) is to provide onsite storage and transfer of fuel oil to the diesel engines.

The design of the EDEFSTS is the responsibility of the plant specific applicant. The design must be compatible with the criteria given below.

9.5.4.1 Design Bases

9.5.4.1.1 Safety Design Bases

The design of the emergency diesel engine fuel oil storage and transfer system (EDEFSTS) is the responsibility of the plant specific applicant. The design must meet the following criteria:

SAFETY DESIGN BASIS 1: The EDEFSTS will be protected from the effects of natural phenomena, such as earthquakes, tornadoes, hurricanes, floods and external missiles (GDC-2).

SAFETY DESIGN BASIS 2: The EDEFSTS will be designed to remain functional after a SSE and will perform its intended function following the postulated hazards of fire, internal missile or pipe break.

SAFETY DESIGN BASIS 3: The design will ensure the capability to perform safety functions assuming a single active component failure coincident with the loss of offsite power (GDC-44).

SAFETY DESIGN BASIS 4: The active components will be capable of being tested during plant operation. Provisions will be made to allow for inservice inspection of components at appropriate times (GDC-45 and 46).

SAFETY DESIGN BASIS 5: The EDEFSTS will be designed and fabricated to codes consistent with the quality group classification assigned by Reg. Guide 1.26 and the seismic category assigned by Reg. Guide 1.29. The power supply and control functions will be in accordance with Reg. Guide 1.32.

SAFETY DESIGN BASIS 6: The system will be capable of providing onsite storage and delivery of fuel oil--following a loss of offsite power--for at least seven (7) days of operation of the diesel generators at their continuous rating.

SAFETY DESIGN BASIS 7: The EDEFSTS will be designed to supply fuel oil at all times--following a loss of offsite power--under the most severe environmental conditions postulated at the plant site. The EDEFSTS design will comply with Reg. Guide 1.137.

SAFETY DESIGN BASIS 8: The system will be designed to conform to fire protection and separation requirements.

9.5.4.1.2 Power Generation Design Bases

The EDEFSTS serves no power generation function and has no power generation bases.

9.5.4.2 System Description

See the plant specific applicant's safety analysis report for a description of the EDEFSTS, and its components and system operation.

9.5.4.3 Safety Evaluation

See the plant specific applicant's safety analysis report for the results of the EDEFSTS system evaluation.

9.5.5 Emergency Diesel Engine Cooling Water System

The basic function of the emergency diesel engine cooling water system (EDECWS) is to provide cooling water to the emergency diesel engines. The system will be a closed cycle system, and will serve as an intermediate system between the diesel engines and the essential service water system.

The diesels will be totally redundant and will not share systems. There will be no interconnections between the two engine cooling systems. Therefore, no failure of, or between, any of the engine cooling subsystems will result in degradation of the other diesel engine.

The design of the EDECWS is the responsibility of the plant specific applicant. The design must be compatible with the criteria given below.

9.5.5.1 Design Bases

9.5.5.1.1 Safety Design Bases

The design of the emergency diesel engine cooling water system (EDECWS) is the responsibility of the plant specific applicant. The design must meet the following criteria:

SAFETY DESIGN BASIS 1: The EDECWS will be protected from the effects of natural phenomena, such as earthquakes, tornadoes, hurricanes, floods and external missiles (GDC-2).

SAFETY DESIGN BASIS 2: The EDECWS will be designed to remain functional after a SSE and will perform its intended function following the postulated hazards of fire, internal missile or pipe break (GDC-3 and 4).

SAFETY DESIGN BASIS 3: The design will ensure the capability to perform safety functions assuming a single active component failure coincident with the loss of offsite power (GDC-44).

SAFETY DESIGN BASIS 4: The active components will be capable of being tested during plant operation. Provisions will be made to allow for inservice inspection of components at appropriate times (GDC-45 and 46).

SAFETY DESIGN BASIS 5: The EDECWS will be designed and fabricated to codes consistent with the quality group classification assigned by Reg. Guide 1.26 and the seismic category assigned by Reg. Guide 1.29. The power supply and control functions will be in accordance with Reg. Guide 1.32.

SAFETY DESIGN BASIS 6: The EDECWS will be designed to remove heat from the diesel engines to permit their operation at the maximum nameplate rating.

SAFETY DESIGN BASIS 7: The EDECWS will be designed to maintain the diesel engine in a hot standby condition to ensure quick starting of the diesel engine.

9.5.5.1.2 Power Generation Design Bases

The EDECWS serves no power generation function and has no power generation design bases.

9.5.5.2 System Description

See the plant specific applicant's safety analysis report for a description of the EDECWS, and its components and system operation.

9.5.5.3 Safety Evaluation

See the plant specific applicant's safety analysis report for the results of the EDECWS system evaluation.

9.5.6 Emergency Diesel Engine Starting System

The basic function of the emergency diesel engine starting system (EDESS) is to provide a reliable method for starting the emergency engines for all modes of operation.

The EDESS will be designed in two parts--a safety-related portion which will be downstream of and will include the air start tank check valve, and the remainder of the system which will be nonsafety-related.

The design of the EDESS is the responsibility of the plant specific applicant. The design must be compatible with the criteria given below.

9.5.6.1 Design Bases

9.5.6.1.1 Safety Design Bases

The design of the emergency diesel engine starting system is the responsibility of the plant specific applicant. The design must meet the following criteria:

SAFETY DESIGN BASIS 1: The EDESS will be protected from the effects of natural phenomena, such as earthquakes, tornadoes, hurricanes, floods and external missiles (GDC-2).

SAFETY DESIGN BASIS 2: The safety-related portion of the EDESS will be designed to remain functional after a SSE and will perform its intended function following the postulated hazards of fire, internal missiles or pipe break (GDC 3 and 4).

SAFETY DESIGN BASIS 3: The design will ensure the capability to perform safety functions assuming a single active component failure coincident with the loss of offsite power (GDC-44).

SAFETY DESIGN BASIS 4: The active components will be capable of being tested during plant operation. Provisions will be made to allow for inservice inspection of components at appropriate times (GDC-45 and 46).

SAFETY DESIGN BASIS 5: The safety-related portion of the EDESS will be designed and fabricated to codes consistent with the quality group classification assigned by Reg. Guide 1.26, and the seismic category assigned by Reg. Guide 1.29. The power supply and control functions will be in accordance with Reg. Guide 1.32.

SAFETY DESIGN BASIS 6: The capability to isolate components, systems, or piping will be provided, when required, so that the system's safety function will not be compromised. This includes isolation of components to deal with leakage or malfunctions, and to isolate nonsafety-related portions of the system.

SAFETY DESIGN BASIS 7: The design of the safety-related portion of the EDESS will ensure the capability of storing sufficient air to allow for at least five consecutive crank cycles of approximately 3 seconds, or 2 or 3 revolutions of the diesel engine without external support or assistance.

9.5.6.1.2 Power Generation Design Bases

The EDESS serves no power generation function and has no power generation bases.

9.5.6.2 System Description

See the plant specific applicant's safety analysis report for a description of the EDESS, and its components and system operation.

9.5.6.3 Safety Evaluation

See the plant specific applicant's safety analysis report for the results of the EDESS system evaluation.

9.5.7 Emergency Diesel Engine Lubrication System

The basic function of the emergency diesel engine lubrication system (EDELS) is to provide essential lubrication and cooling for the components of the emergency diesel engine.

The design of the EDELS is the responsibility of the plant specific applicant. The design must be compatible with the criteria given below.

9.5.7.1 Design Bases

9.5.7.1.1 Safety Design Bases

The design of the emergency diesel engine lubrication system (EDELS) is the responsibility of the plant specific applicant. The design must meet the following criteria:

SAFETY DESIGN BASIS 1: The EDELS will be protected from the effects of natural phenomena, such as earthquakes, tornadoes, hurricanes, floods and external missiles (GDC-2).

SAFETY DESIGN BASIS 2: The EDELS will be designed to remain functional after a SSE and will perform its intended function following the postulated hazards of fire, internal missiles or pipe break (GDC 3 and 4).

SAFETY DESIGN BASIS 3: The design will ensure the capability to perform safety functions assuming a single active component failure coincident with the loss of offsite power (GDC-44).

SAFETY DESIGN BASIS 4: The active components will be capable of being tested during plant operation. Provisions will be made to allow for inservice inspection of components at appropriate times (GDC-45 and 46).

SAFETY DESIGN BASIS 5: To the extent practicable, the EDELS will be designed and fabricated to codes consistent with the quality group classification assigned by Reg. Guide 1.26, and the seismic category assigned by Reg. Guide 1.29. The power supply and control functions will be in accordance with Reg. Guide 1.32.

SAFETY DESIGN BASIS 6: The capability to isolate components or piping will be provided to deal with leakage or malfunctions (GDC-44).

SAFETY DESIGN BASIS 7: The EDELS will be designed to provide adequate lubrication and cooling for the various moving parts of the engine to permit it to be operated at continuous nameplate rating for at least 7 days without replenishing the system.

SAFETY DESIGN BASIS 8: The EDELS will be designed to maintain the lubricating oil in a warm condition when the engine is on standby to facilitate quick starting, when required.

SAFETY DESIGN BASIS 9: The system will be designed to conform to fire protection and separation requirements.

9.5.7.1.2 Power Generation Design Bases

The EDELS has no power generation function and no power generation design bases.

9.5.7.2 System Description

See the plant specific applicant's safety analysis report for a description of the EDELS, and its components and system operation.

9.5.7.3 Safety Evaluation

See the plant specific applicant's safety analysis report for the results of the EDELS system evaluation.

9.5.8 Emergency Diesel Engine Combustion Air Intake and Exhaust System

The basic function of the emergency diesel engine combustion air intake and exhaust system (EDECAIES) is to supply combustion air of suitable quality to the diesel engines and exhaust the combustion products from the diesel engine to the atmosphere.

The design of the (EDECATES) is the responsibility of the plant specific applicant. The design must be compatible with the criteria given below.

9.5.8.1 Design Bases

9.5.8.1.1 Safety Design Bases

The design of the emergency diesel engine combustion air intake and transfer system (EDECAIES) is the responsibility of the plant specific applicant. The design must meet the following criteria:

SAFETY DESIGN BASIS 1: The EDECAIES will be protected from the effects of natural phenomena, such as earthquakes, tornadoes, hurricanes, floods and external missiles (GDC-2).

SAFETY DESIGN BASIS 2: The EDECAIES will be designed to remain functional after a SSF and will perform its intended function following the postulated hazards of fire, internal missiles or pipe break (GDC-3 and 4).

SAFETY DESIGN BASIS 3: Provisions will be made to allow for inservice inspection of components at appropriate times specified in the ASME Boiler and Vessel Code, Section XI.

SAFETY DESIGN BASIS 4: To the extent practicable, the EDECAIES will be designed and fabricated to codes consistent with the quality group classification assigned by Reg. Guide 1.26 and the seismic category assigned by Reg. Guide 1.29.

SAFETY DESIGN BASIS 5: The EDECAIES will be designed to supply combustion air to the diesel engines and to exhaust to the atmosphere the products of combustion so that the diesel generator can be operated continuously at nameplate rating.

SAFETY DESIGN BASIS 6: Exhaust system effluents will be routed in the design to not impact plant intake air supplies.

9.5.8.1.2 Power Generation Design Bases

The EDECAIES has no power generation function and no power generation design bases.

9.5.8.2 System Description

See the plant specific applicant's safety analysis report for a description of the EDECAIES, and its components and system operation.

9.5.8.3 Safety Evaluation

See the plant specific applicant's safety analysis report for the results of the EDECAIES system evaluation.

TABLE 9.5-1

COMMUNICATION EQUIPMENT AND LOCATIONS
AVAILABLE FOR SAFE SHUTDOWN

(Table deleted in Amendment 2) 2